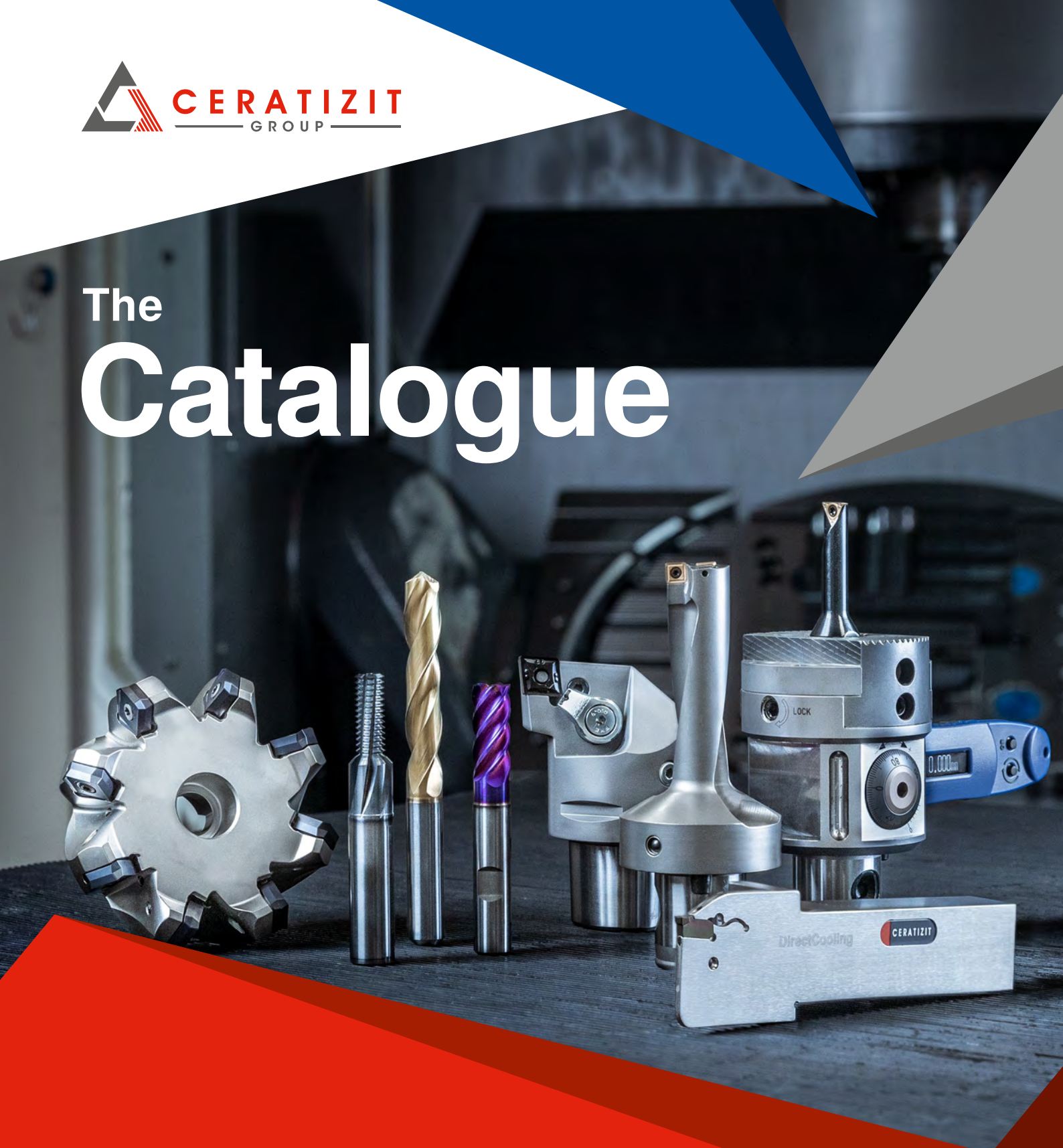
CERATIZIT GROUP

The Catalogue



Cutting Tools

TEAM CUTTING TOOLS

CUTTING SOLUTIONS BY CERATIZIT · KOMET · WNT · KLENK

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

Tooling the Future

www.ceratizit.com

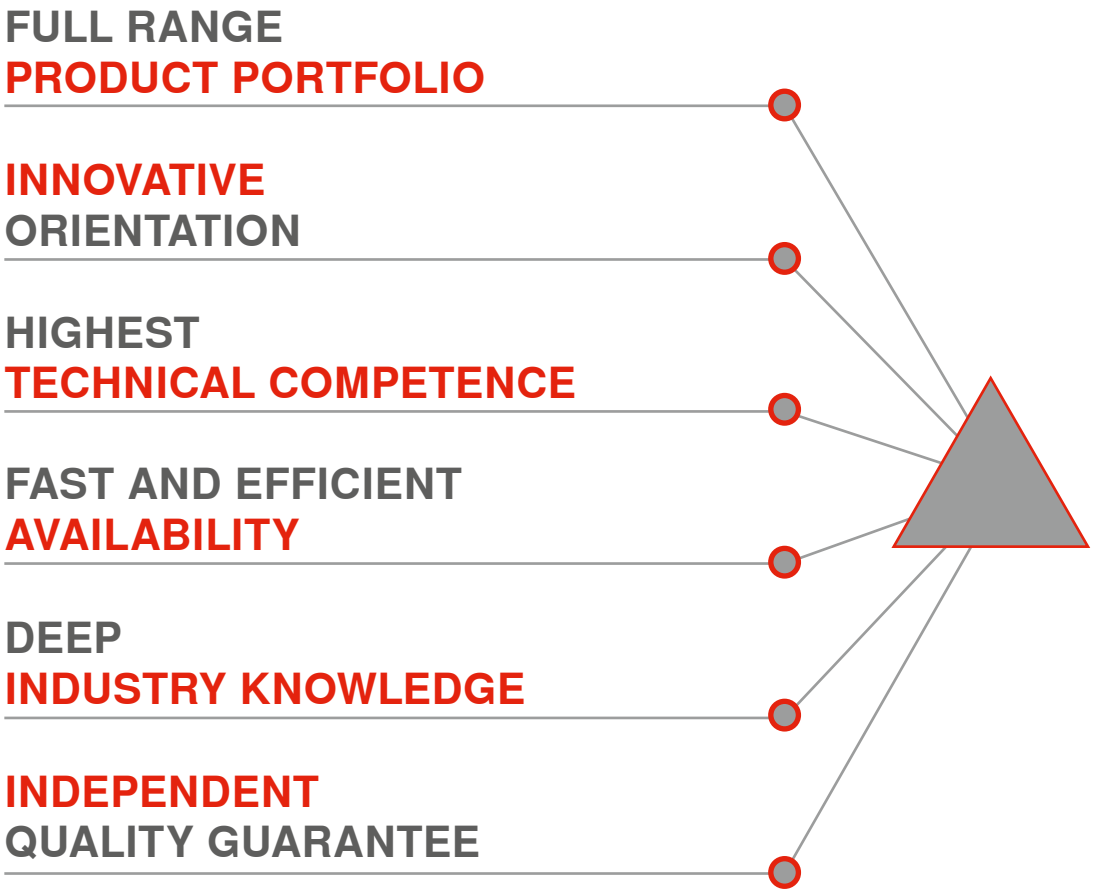
WE PROVIDE YOU WITH THE PERFECT MACHINING SOLUTION

Team Cutting Tools of the CERATIZIT Group

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

The Team Cutting Tools is not just a tool supplier; the experts on the team are also available to advise you with extensive industry knowledge and decades of experience in machining, in order to find you the perfect machining solution.

The Cutting Tool Solution is



Contact us



It couldn't be easier

Ordering via the Online Shop

http://cuttingtools.ceratizit.com



Manufacturing consulting and process optimization on site

Your personal application engineer

Your customer number

Solid drilling and bore machining

1 HSS drilling
2 Solid carbide drilling
3 Indexable insert drilling
4 Reaming and Countersinking
5 Spindle Tooling

Threading

6 Taps and thread formers
7 Circular and Thread Milling
8 Thread turning

Turning

9 Turning Tools
10 Multifunctional Tools – EcoCut and FreeTurn
11 Grooving Tools
12 Miniature turning tools

Milling

13 HSS Milling Cutters
14 Solid Carbide milling cutters
15 Milling tools with indexable inserts

Catalog – Clamping technology

16 Adaptors and Accessories
17 Workpiece clamping

18 Material examples and article no. Index



E-COMMERCE SOLUTIONS

Benefit from more product data and machining knowledge online, accelerate and optimize your tool procurement processes or create a direct connection to your ERP system.

Instantly and accurately find the right tool from over 65,000 products from the brands CERATIZIT, WNT, KOMET and KLENK and order it conveniently. At cuttingtools.ceratizit.com, you now have access to one of the largest ranges of machining tools and can order products even quicker and easier thanks to countless new functions and options!

REGISTER NOW UNDER:

cuttingtools.ceratizit.com



SIMPLE TOOL AND ARTICLE SEARCH FUNCTION

- Simple article search function using the article number or product name
- Ideal filter options for quick tool search
- Recommendation of suitable accessories on the article page
- Access the latest article data at any time

FAST ORDERING

- Online processes save time and money during the ordering process
- Add items to your basket quickly and easily
- High availability including a check in the basket
- Order 24 hours a day
- Quick delivery with tracking

EXCLUSIVE ONLINE DISCOUNTS

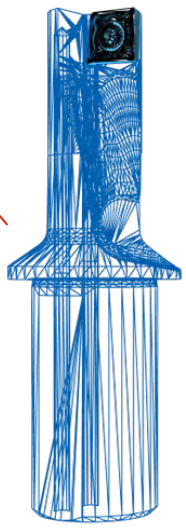
- Save money as well as time when ordering online

CONNECT TO ERP SYSTEMS

- All key data in your ERP system
- Optimise your internal procurement processes
- Avoid copy/paste errors with direct data transfer

FIRST-RATE SERVICE & ADVICE

- Free download of CAD and cutting data
- Download of forms, brochures and catalogs



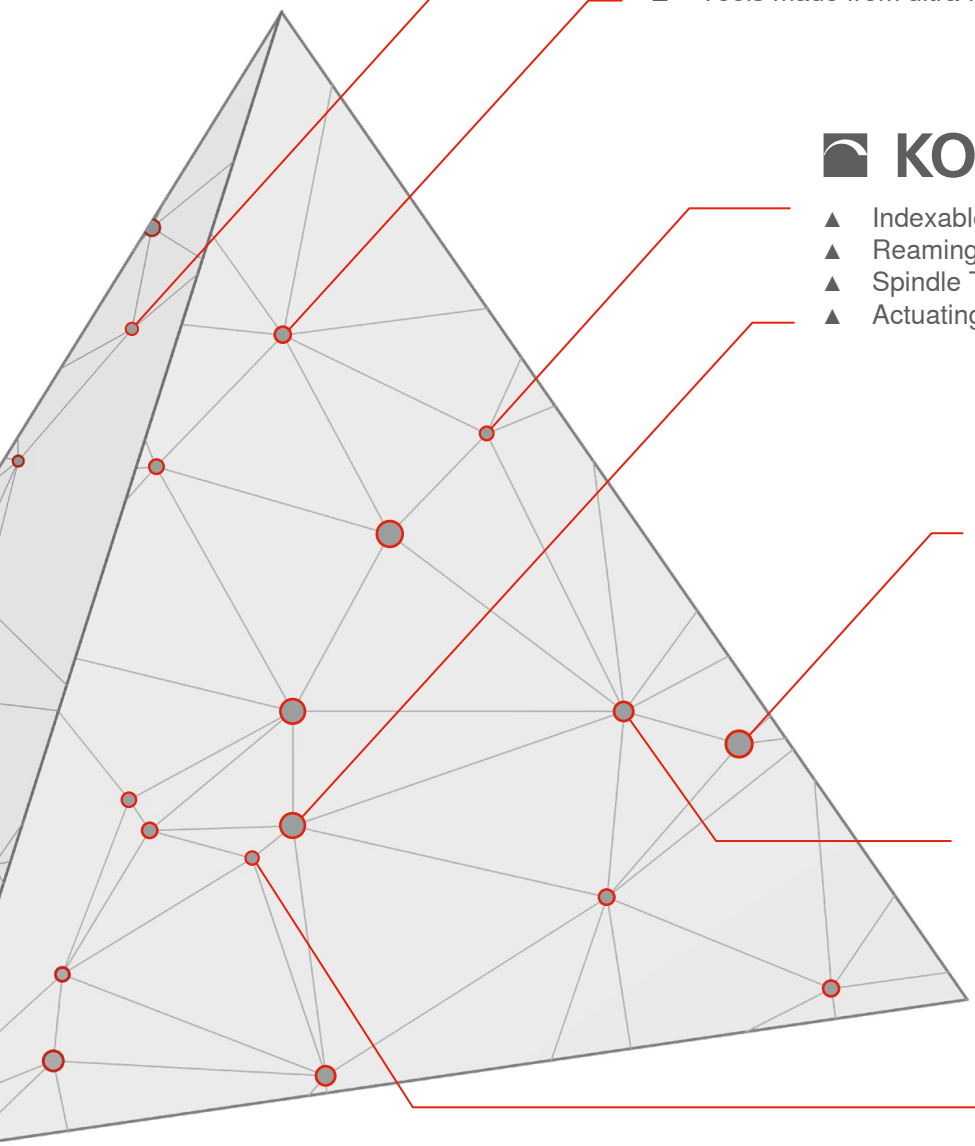
PERSONALISED CUSTOMER ACCOUNT

- Retrieve prices with your personal customer discounts
- Set up several accounts with personalised order authorisations
- Save items for later
- View and print orders and invoices

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

FULL RANGE
PRODUCT PORTFOLIO

Everything for machining from the spindle to machine table



CUTTING SOLUTIONS BY CERATIZIT

- Turning Tools
- Multifunction Tools
- Grooving Tools
- Milling Tools with indexable Inserts
- Tools made from ultra-hard cutting materials

KOMET

- Indexable Insert Drilling
- Reaming and Countersinking
- Spindle Tooling
- Actuating Tools

WNT

- HSS Drilling
- Solid Carbide Drilling
- Taps and Thread Formers
- Circular and Thread Milling
- Thread Turning
- Miniature Turning Tools
- HSS Milling Cutters
- Solid Carbide Milling Cutters
- Tool Clamping
- Workpiece Clamping

KLENK

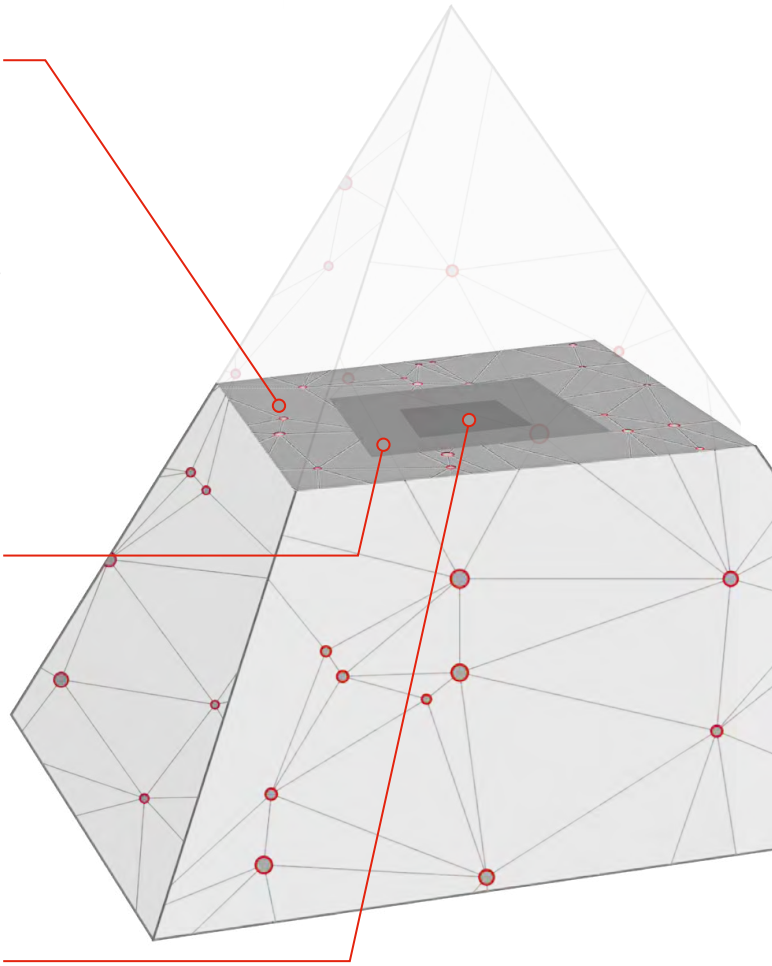
- Solid Carbide Drilling and Milling for Aerospace Frame Assembly Industry

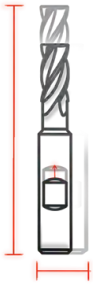




COMPREHENSIVE RANGE OF STANDARD-TOOLS

With a selection of cutting tools exclusively for machining applications, CERATIZIT has the most comprehensive product range on the market. Be it turning, drilling, milling, grooving, boring or clamping, we offer a broad selection of innovative, state-of-the-art products for every application – with 99% ex-stock availability.





CUSTOM ADAPTATIONS TO THE STANDARD TOOL RANGE

The semi standard tool programm enables you to adapt your own standard tools in a wide variety of dimensions across many product areas – quickly and individually.



SPECIAL CUSTOM TOOLS & INDUSTRY-SPECIFIC TOOLS

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

INNOVATIVE ORIENTATION

Machining at the highest technological level:

The Team Cutting Tools relies on future technologies such as the high-performance coating Dragonskin for best wear protection and up to 80 percent increased performance. Intelligent and customer-oriented digitization as well as sensor, monitoring and assistance systems make valuable contributions to constant, reliable process optimization.



TOOLSCOPE

Tool solutions with digital and sensory intelligence

FREETURN

The revolution in the turning process –
High Dynamic Turning with FreeTurn tools

ACTUATING TOOLS

The U-Axis system KOMtronic – efficient machining of turning contours on non-rotationally symmetrical parts

ADDITIVE MANUFACTURING

3D printing compliments machining

DRAGONSKIN

The almost indestructible surface coating

TOOL-O-MAT

Tool „at the push of a button“ with the innovative vending system





HIGHEST
TECHNICAL COMPETENCE

Always up to date with market requirements thanks to individual technological support

Application technicians and industry experts from the Team Cutting Tools are not just at your side when it comes to tool instruction. In further training courses at our Technical Centres, we are happy to pass on our practical knowledge to you so that you are always up to date with the latest technology. Thanks to our regrinding, recycling and digital services as well as the CAD models, you can also produce more efficiently, easily, flexibly and in an environmentally friendly manner.

PERSONAL APPLICATION ENGINEER

Manufacturing consulting and process optimization on site

TOOL DATA

Cutting data and CAD models to assist you with your tool management or for simulating an operation



TECHNICAL TRAINING

Our engineers are provided with constant training to keep them up to speed on all technical matters. We will gladly share this knowledge with you. Use our Service for the further education of your metal cutting technicians in our Technical Centres.

SUSTAINABILITY

Solutions for forward thinking and economical metal cutting – e.g. Regrinding and Recycling



FAST AND EFFICIENT AVAILABILITY

The new portfolio: simple ways to new tools and service

With the most modern logistics center in Europe we ensure the shortest delivery times, with our Tool Supply 24/7 service for digitally simplified orders. The Tool-O-Mat, which can hold up to 840 different products, ensures that tools are ready when they are needed as a removal system on site. Payment is only made when withdrawn.

LOGISTICS AT THE HIGHEST LEVEL

A logistic center that can meet all requirements, 99 % delivery capacity with next day delivery, no minimum order quantity, custom logistic solutions for major customers.



E-COMMERCE SOLUTIONS

Benefit from more product data and machining knowledge online, accelerate and optimize your tool procurement processes or create a direct connection to your ERP system.

3 WEEKS ON SPECIAL TOOLS

No time to lose? We deliver special tools within 3 weeks.

TOOL SUPPLY 24/7

We take over the complete procurement and storage process!

THE CATALOG FOR MACHINING

Extensive material from the main catalog to industry catalogs and special promotions.

DEEP
INDUSTRY KNOWLEDGE

Equipped for every industry sector: our experts deliver comprehensive solutions!

Proven experts from numerous industrial sectors work in the Team Cutting Tools. Whether automotive and engines, aerospace, energy technology or heavy machining. We know from many years of experience all the challenges that every branch of industry brings – and we deliver the tailor-made solutions.

PROJECT ENGINEERING

Smart solution concepts for efficient machining processes

EXPERT KNOWLEDGE

More than 100 years engineering and manufacturing high performance cutting tools and developing the most optimal machining operations and processes for our customers.



INDUSTRY SPECIFIC TOOLS

Specific tools designed under the most demanding challenges of every industrial sector to increase the competitiveness of our customers.

INDIVIDUAL SPECIAL TOOLS

In partnership with the customer



INDEPENDENT
QUALITY GUARANTEE

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

As part of the CERATIZIT group, we have exclusive raw material sourcing, enormous resources and master the entire process chain: From the mine to powder production and shaping to sintering, finalization and surface finishing to recycling, we ensure our customers the highest quality.

Also with the innovative strength (e.g. in the development of new powder types), the sales network and the consulting expertise, you benefit from our large network and our character as a „one-stop shop“ for cutting tools.





The catalogue for cutting tools

This catalogue provides you with an overview of our unique range of tools on the market. We have put together numerous innovations as well as optimised and expanded tool ranges for you, with the aim of solving all your machining problems with the appropriate tool.

Would you like to see which one that may be at a glance? That's why our current catalogue also features the Toolfinder, our “offline search engine”: expanded, optimised and practical in design, at the start of every tool chapter you can see the path to increased efficiency in machining.

If you wish to get the most from your machining process, precise cutting data is a must. For this reason, we have taken our material example table and material index to the next level: material groups are now subdivided even further, meaning that we can provide even more precise cutting data recommendations.



The catalogue for clamping technology

It has already proven itself time and time again in your production workshops – our division of catalogues into cutting tools and clamping technology (tool and workpiece clamping). For this reason, we are once again offering you the option to select the tool and suitable clamping device at the same time without searching through the entire catalogue.



Solid drilling and bore machining
1 HSS drilling
2 Solid carbide drilling
3 Indexable insert drilling
4 Reaming and Countersinking
5 Spindle Tooling

Threading
6 Taps and thread formers
7 Circular and Thread Milling
8 Thread turning

Turning
9 Turning Tools
10 Multifunctional Tools – EcoCut and FreeTurn
11 Grooving Tools
12 Miniature turning tools

Milling
13 HSS Milling Cutters
14 Solid Carbide milling cutters
15 Milling tools with indexable inserts

Catalogue – Clamping technology
16 Adaptors and Accessories
17 Workpiece clamping

18 Material examples and article no. Index

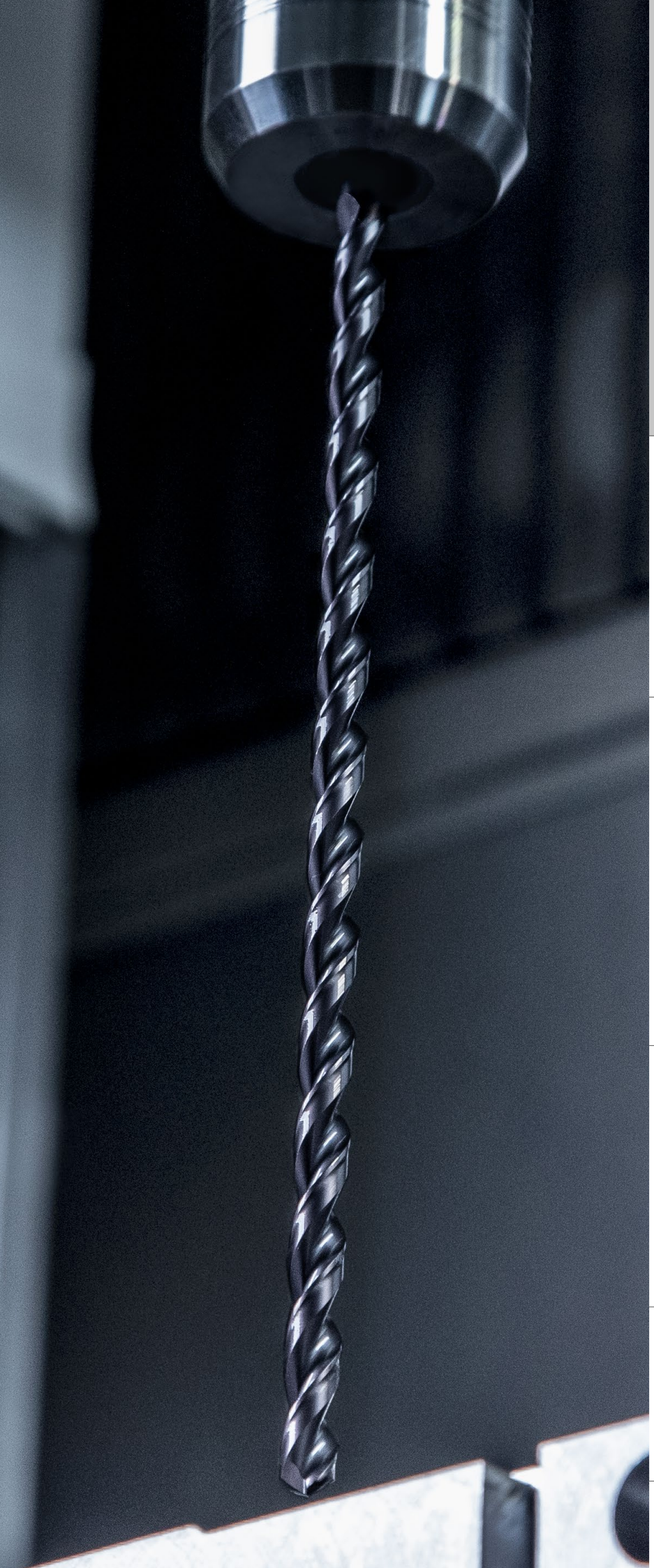
New products for machining technicians

NEW WTL twist drill, extra-long, TiAlN



The new WTL twist drill with proven TiAlN multilayer coating increases your productivity and process-security.

→ Page 29+30



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

Table of contents

Symbol explanation	2
Toolfinder	3
List of contents	4–7
Product programme	8–44
Technical Information	
Cutting Data	45–54
Feedrate Values	55
Coatings	56

WNT \ Performance

Premium quality tools for high performance.

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

Symbol explanation

Shank











Version



Int. coolant supply



self-centering

● = **Main Application**

○ = Extended application

Toolfinder

	Tool type	Material/ Coating	Description	DIN 1897	DIN 338	DIN 340	Series 1	series 2	series 3
				3xD	5xD	10xD	> 10xD		
Steel – Universal	VX	HSS-E TiN	▲ Universal high-performance drill ▲ Shank DIN 1835A ▲ self centering	8	16				
	UNI	HSS-E-PM TiN	▲ Wear-resistant due to HSS-E-PM and TiN coating ▲ Universal high-performance drill	9–14	17–22				
	UNI	HSS-E TiN	▲ As for Type VX ▲ Without standard shank to DIN 1835 A ▲ Available as a set	9–14	17–22	26–28			
	N	HSS vap.	▲ stable twist drill ▲ also suitable for portable drills ▲ available in set	9–14	17–22				
	WT	HSS-E vap.	▲ for high alloy steel and special alloys (Hastelloy, Inconel, Nimonic)	9–14					
	WT	HSS-E TiN	▲ as Type WT HSS-E vap. ▲ higher wear resistance due to coating	9–14					
	WTL-L	HSS F.-nit	▲ left-hand cutting ▲ nitrided cutting edge giving increased wear protection to cutting corners and guide lands	15	23				
	WNXi	HSS-E	▲ very good chip evacuation with thro' coolant ▲ for long chipping materials to 1000 N/mm²		25				
	WNXi	HSS-E TiN	▲ as Type WNXi HSS-E ▲ higher wear resistance due to coating		25				
	WTL	HSS-E F.-nit	▲ special flute profile with large chip gullet ▲ nitrided cutting edge giving increased wear protection to cutting corners and guide lands		17–22	26–28			
	WTL	HSS-E TiN	▲ as WTL HSS-E, but higher v_c and wear resistance due to coating ▲ suitable for steel and cast iron		17–22				
	WTL	HSS-E TiCN	▲ as WTL TiN, but higher v_c and wear resistance possible with high alloy steels		23				
	WTL	HSS-E TiAlN	▲ Special flute profile with large chip spaces ▲ Higher wear resistance due to TiAlN coating				29	30	30
	WTL	HSS F.-nit	▲ special flute profile with large chip gullet ▲ nitrided cutting edge giving increased wear protection to cutting corners and guide lands			26–28	29	30	30
	WTL	HSS TiN	▲ as WTL HSS, but higher v_c and wear resistance due to coating			26–28			
	WNX	HSS-E	▲ Wide chip flutes for long-chipping materials	9–14					
	NC	HSS	▲ suitable for use with drill bushes ▲ very good chip evacuation with thro' coolant			25			
	NC	HSS TiAlN	▲ as NC, but higher v_c and wear resistance due to coating			25			
Stainless steel	VA	HSS-E	▲ Specialist for stainless and acid-resistant materials ▲ special geometry	9–14	17–22				
Non ferrous metals	W	HSS	▲ Specialist for non-ferrous metals		17–22				
	WTW	HSS	▲ for non-ferrous metals to 500 N/mm² ▲ for deep holes			26–28			

HSS Drills Overview

3xD without thro‘ coolant

	Tool type	Material | Coating	Point angle	Diameter in mm DC	Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant S	hardened materials H	Non metal materials O		coated ■	uncoated □	WNT \ Performance
	VX	HSS-E TiN	118°	2–20	●	●	●	○	○		○		■		8
	UNI	HSS-E-PM TiN	130°	1–14	●		●	○	○	○	○		■		9–14
	UNI	HSS-E TiN	118°	1–14	●	●	●	○	○		○		■		9–14
	N	HSS vap.	118°	0,4–20	○		●	○			○		■		9–14
	VA	HSS-E	130°	1–12	○	●		●	○					□	9–14
	WNX	HSS-E	130°	1–20	●		●	○	○	○	○			□	9–14
	WT	HSS-E vap.	130°	0,4–25	●	●	●	○	○	○			■		9–14
	WT	HSS-E TiN	130°	1–20	●	●	●	○	●	○			■		9–14
	WTL-L	HSS F.-nit	130°	1–19	○		●	●			○	left-hand cutting	■		15

5xD without thro‘ coolant

	Tool type	Material | Coating	Point angle	Diameter in mm DC	Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant S	hardened materials H	Non metal materials O		coated ■	uncoated □	WNT \ Performance
	VX	HSS-E TiN	118°	2–20	●	●	●	○	○		○		■		16
	UNI	HSS-E-PM TiN	130°	1–14	●		●	○	○	○	○		■		17–22
	UNI	HSS-E TiN	118°	0,9–14	●	●	●	○	○		○		■		17–22
	N	HSS vap.	118°	0,2–20	○		●	○			○		■		17–22
	VA	HSS-E	130°	1–12	○	●		●	○					□	17–22
	W	HSS	130°	0,20–20				●						□	17–22
	WTL	HSS-E F-nit.	130°	1–16	●	○	●	●	○	○	○		■		17–22
	WTL	HSS-E TiN	130°	1–16	●	○	●	○	○	○	○		■		17–22
	WTL	HSS-E TiCN	130°	3–12	●	○	●	○	○	○	○		■		23
	WTL-L	HSS F-nit.	130°	1–16	○		●	●			○	left-hand cutting	■		23

HSS Drills Overview

	Tool type	Material | Coating	Point angle	Diameter in mm DC	Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant S	hardened materials H	Non metal materials O	coated	uncoated	WNT \ Performance
5xD with thro' coolant														
	WNXi	HSS-E	130°	5–20	●		●	○			○		□	25
	WNXi	HSS-E TiN	130°	5–20	●		●	○			○	■		25
up to 10xD without thro' coolant														
	UNI	HSS-E TiN	118°	1–14	●	●	●	○	○		○	■		26–28
	WTL	HSS-E F-nit.	130°	1–12	●	○	●	●	○	○	○	■		26–28
	WTL	HSS F-nit.	130°	1–14	○		●	●			○	■		26–28
	WTL	HSS TiN	130°	1–14	○		●	○			○	■		26–28
	WTW	HSS	130°	1–14			●						□	26–28
up to 10xD with thro' coolant														
	NC	HSS	130°	3–13	○		●	○			○		□	25
	NC	HSS TiAlN	130°	3–13	○	○	●	○			○	■		25
over 10xD without thro' coolant														
	WTL	HSS F-nit. Series 1	130°	2–13	●		●	●			○	■		29
	WTL	HSS F-nit. series 2	130°	2–13	●		●	●			○	■		30
	WTL	HSS F-nit. series 3	130°	2,5–13	●		●	●			○	■		30
	WTL	HSS-E TiAlN Series 1	130°	3–10,2	●		●	●			○	■		29
	WTL	HSS-E TiAlN series 2	130°	3–12	●		●	●			○	■		30
	WTL	HSS-E TiAlN series 3	130°	4–10	●		●	●			○	■		30
Mini-drill														
	N	HSS-E-PM	118°	0,15–1,45	●	○	●	●	○		○		□	31

HSS Drills Overview

	Tool type	Material | Coating	Point angle	Diameter in mm DC	Steel P / Stainless steel M / Cast iron K / Non ferrous metals N / Heat resistant S / hardened materials H / Non metal materials O		coated ■ / uncoated □	WNT \ Performance
Twist Drill Sets								
	N	HSS vap.	118°	1–10	○ ● ○ ○		■	24
	UNI	HSS-E TiN	118°	1–10	● ● ● ○ ○ ○		■	24
NC Spot Drill								
	NC-A	HSS	90°	3–20	● ○ ● ○		□	35–37
	NC-A	HSS TiN	90°	3–20	● ○ ● ○		■	35+36
	NC-A	HSS	120°	3–20	● ○ ● ○		□	35+36
	NC-A	HSS TiN	120°	3–20	● ○ ● ○		■	35+36
Centre drills								
	ZB	HSS	118°	0,5–6,3	● ○ ● ○	DIN 333 – Form A/B/R	□	37–39
	ZB	HSS TiN	118°	0,5–6,3	● ○ ● ○	DIN 333 – Form A	■	38
	ZB	HSS-E	118°	0,5–6,3	● ○ ● ○	DIN 333 – Form A	□	38
Core drills								
	N	HSS vap.	120°	3,8–12	● ○ ○ ○ ○	3 flute	■	40
Stepped drills								
	SB	HSS vap.	118°	2,5–10,2	● ○ ● ○	Countersinking angle 90°	■	41
	SB	HSS	118°	2,5–10,2	● ○ ● ○	Countersinking angle 90°	□	41
	SB	HSS vap.	118°	3,2–10,5	● ○ ● ○	Countersinking angle 90°	■	41
	SB	HSS	118°	3,2–10,5	● ○ ● ○	Countersinking angle 90°	□	41
	SB	HSS vap.	118°	3,4–11	● ○ ● ○	Countersinking angle 180°	■	42
	SB	HSS	118°	3,4–11	● ○ ● ○	Countersinking angle 180°	□	42
	SB	HSS vap.	118°	3,3–21	● ○ ● ○	Countersinking angle 60°	■	44

HSS Drills Overview

	Tool type	Material | Coating	Point angle	Diameter in mm DC	P Steel	M Stainless steel	K Cast iron	N Non ferrous metals	S Heat resistant	H hardened materials	O Non metal materials		coated	uncoated	WNT \ Performance
Drills with Morse taper															
3xD															
	WT	HSS-E vap.	130°	10–30	●	●	●	○	○	○		MK	■		31
5xD															
	N	HSS vap.	118°	10–60	○		●	○			○	MK	■		32
	WTL	HSS-E F.-nit/vap.	130°	10–27	●	○	●	●	○	○	○	MK	■		32
10xD															
	N	HSS vap.	118°	10–50	○		●	○			○	MK	■		33
	WTL	HSS-E F.-nit/vap.	130°	10–26	●	○	●	●	○	○	○	MK	■		33
above 10xD															
	WTL	HSS F.-nit/vap. Series 1	130°	10–30	●			●	●		○	MK	■		34
	WTL	HSS F.-nit/vap. series 2	130°	10–30	●			●	●		○	MK	■		34
Core drills															
	N	HSS vap.	120°	10–30	●	○	●	○	○			MK	3 flute	■	40
Stepped drills															
	SB	HSS vap.	118°	5,5–22	●	○	●	○				MK	Countersinking angle 180°	■	43

High-performance twist drills similar to DIN 1897, extra-short

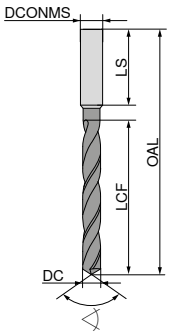
- Shank to DIN 1835 A
- Special point thinning
- Very good centering behaviour
- 4 facet
- Highest Performance

≤ 3xD



VX

TiN





HSS-E

10 122 ...

DC h8 mm	OAL mm	LCF mm	DCONMS h6 mm	LS mm	
2,00	44	12	3	28	020
2,10	44	12	3	28	021
2,20	45	13	3	28	022
2,30	45	13	3	28	023
2,40	46	14	3	28	024
2,50	46	14	3	28	025
2,60	46	14	3	28	026
2,70	48	16	3	28	027
2,80	48	16	3	28	028
2,90	48	16	3	28	029
3,00	48	16	3	28	030
3,10	50	18	4	28	031
3,20	50	18	4	28	032
3,30	50	18	4	28	033
3,40	52	20	4	28	034
3,50	52	20	4	28	035
3,60	52	20	4	28	036
3,70	52	20	4	28	037
3,80	54	22	4	28	038
3,90	54	22	4	28	039
4,00	54	22	4	28	040
4,10	66	22	6	36	041
4,20	66	22	6	36	042
4,30	68	24	6	36	043
4,40	68	24	6	36	044
4,50	68	24	6	36	045
4,60	68	24	6	36	046
4,70	68	24	6	36	047
4,80	70	26	6	36	048
4,90	70	26	6	36	049
5,00	70	26	6	36	050
5,10	70	26	6	36	051
5,20	70	26	6	36	052
5,30	70	26	6	36	053
5,40	72	28	6	36	054
5,50	72	28	6	36	055
5,55	72	28	6	36	555
5,60	72	28	6	36	056
5,70	72	28	6	36	057
5,80	72	28	6	36	058
5,90	72	28	6	36	059
6,00	72	28	6	36	060
6,10	75	31	8	36	061
6,20	75	31	8	36	062
6,30	75	31	8	36	063
6,40	75	31	8	36	064
6,50	75	31	8	36	065
6,60	75	31	8	36	066
6,70	75	31	8	36	067
6,80	78	34	8	36	068
6,90	78	34	8	36	069
7,00	78	34	8	36	070
7,10	78	34	8	36	071

10 122 ...

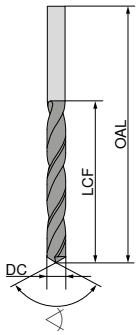
DC h8 mm	OAL mm	LCF mm	DCONMS h6 mm	LS mm	
7,20	78	34	8	36	072
7,30	78	34	8	36	073
7,40	78	34	8	36	074
7,45	78	34	8	36	745
7,50	78	34	8	36	075
7,60	81	37	8	36	076
7,70	81	37	8	36	077
7,80	81	37	8	36	078
7,90	81	37	8	36	079
8,00	81	37	8	36	080
8,10	87	37	10	40	081
8,20	87	37	10	40	082
8,30	87	37	10	40	083
8,40	87	37	10	40	084
8,50	87	37	10	40	085
8,60	91	40	10	40	086
8,70	91	40	10	40	087
8,80	91	40	10	40	088
8,90	91	40	10	40	089
9,00	91	40	10	40	090
9,10	91	40	10	40	091
9,20	91	40	10	40	092
9,30	91	40	10	40	093
9,35	91	40	10	40	935
9,40	91	40	10	40	094
9,50	91	40	10	40	095
9,60	93	43	10	40	096
9,70	93	43	10	40	097
9,80	93	43	10	40	098
9,90	93	43	10	40	099
10,00	93	43	10	40	100
10,10	100	43	12	45	101
10,20	100	43	12	45	102
10,30	100	43	12	45	103
10,40	100	43	12	45	104
10,50	100	43	12	45	105
10,60	100	43	12	45	106
10,70	104	47	12	45	107
10,80	104	47	12	45	108
10,90	104	47	12	45	109
11,00	104	47	12	45	110
11,10	104	47	12	45	111
11,50	104	47	12	45	115
11,70	104	47	12	45	117
11,80	104	47	12	45	118
11,90	108	51	12	45	119
12,00	108	51	12	45	120
12,10	111	51	16	48	121
12,20	111	51	16	48	122
12,30	111	51	16	48	123
12,40	111	51	16	48	124
12,50	111	51	16	48	125
12,60	111	51	16	48	126
12,70	111	51	16	48	127
12,80	111	51	16	48	128
12,90	111	51	16	48	129
13,00	111	51	16	48	130
13,50	114	54	16	48	135
14,00	114	54	16	48	140
14,50	116	56	16	48	145
15,00	116	56	16	48	150
15,50	118	58	16	48	155
16,00	118	58	16	48	160
16,50	126	60	20	50	165
17,00	126	60	20	50	170
17,50	128	62	20	50	175
18,00	128	62	20	50	180
18,50	130	64	20	50	185
19,00	130	64	20	50	190
19,50	132	66	20	50	195
20,00	132	66	20	50	200

P	●
M	●
K	●
N	○
S	○
H	
O	○

→ v_c Page 46

High-performance twist drills similar to DIN 1897, extra-short

≤ 3xD



UNI	UNI	N	VA	WNX	WT	WT
TiN	TiN	vap.			vap.	TiN

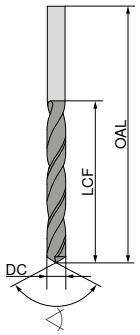


◁ 130° HSS-E-PM	◁ 118° HSS-E	◁ 118° HSS	◁ 130° HSS-E	◁ 130° HSS-E	◁ 130° HSS-E	◁ 130° HSS-E
10 113 ...	**10 107 ...**	**10 105 ...**	**10 130 ...**	**10 106 ...**	**10 109 ...**	**10 110 ...**

| DC $_{h8}$ mm | DC inch | OAL mm | LCF mm | | |

High-performance twist drills similar to DIN 1897, extra-short

≤ 3xD

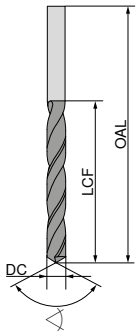


	UNI	UNI	N	VA	WNX	WT	WT
	TiN	TiN	vap.			vap.	TiN
							
	◁ 130° HSS-E-PM	◁ 118° HSS-E	◁ 118° HSS	◁ 130° HSS-E	◁ 130° HSS-E	◁ 130° HSS-E	◁ 130° HSS-E
	10 113 ...	10 107 ...	10 105 ...	10 130 ...	10 106 ...	10 109 ...	10 110 ...

| DC h8 mm | DC inch | OAL mm | LCF mm | | |

High-performance twist drills similar to DIN 1897, extra-short

≤ 3xD



UNI	UNI	N	VA	WNX	WT	WT
TiN	TiN	vap.			vap.	TiN

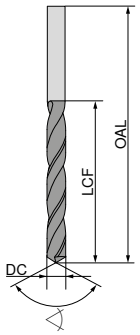


◁ 130°	◁ 118°	◁ 118°	◁ 130°	◁ 130°	◁ 130°	◁ 130°
HSS-E-PM	HSS-E	HSS	HSS-E	HSS-E	HSS-E	HSS-E
10 113 ...	**10 107 ...**	**10 105 ...**	**10 130 ...**	**10 106 ...**	**10 109 ...**	**10 110 ...**

| DC $_{h8}$ mm | DC inch | OAL mm | LCF mm | | |

High-performance twist drills similar to DIN 1897, extra-short

≤ 3xD

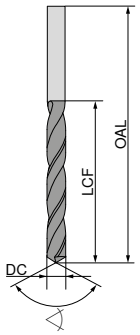


	UNI	UNI	N	VA	WNX	WT	WT
	TiN	TiN	vap.			vap.	TiN
							
	◁ 130° HSS-E-PM	◁ 118° HSS-E	◁ 118° HSS	◁ 130° HSS-E	◁ 130° HSS-E	◁ 130° HSS-E	◁ 130° HSS-E
	10 113 ...	10 107 ...	10 105 ...	10 130 ...	10 106 ...	10 109 ...	10 110 ...

| DC h8 mm | DC inch | OAL mm | LCF mm | | |

High-performance twist drills similar to DIN 1897, extra-short

≤ 3xD

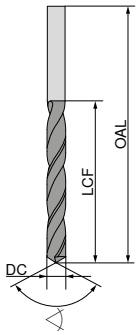


	UNI	UNI	N	VA	WNX	WT	WT
	TiN	TiN	vap.			vap.	TiN
							
	◁ 130°	◁ 118°	◁ 118°	◁ 130°	◁ 130°	◁ 130°	◁ 130°
	HSS-E-PM	HSS-E	HSS	HSS-E	HSS-E	HSS-E	HSS-E
	10 113 ...	10 107 ...	10 105 ...	10 130 ...	10 106 ...	10 109 ...	10 110 ...

| DC h8 mm | DC inch | OAL mm | LCF mm | | |

High-performance twist drills similar to DIN 1897, extra-short

≤ 3xD



	UNI	UNI	N	VA	WNX	WT	WT
	TiN	TiN	vap.			vap.	TiN
							
	◁ 130° HSS-E-PM	◁ 118° HSS-E	◁ 118° HSS	◁ 130° HSS-E	◁ 130° HSS-E	◁ 130° HSS-E	◁ 130° HSS-E
	10 113 ...	**10 107 ...**	**10 105 ...**	**10 130 ...**	**10 106 ...**	**10 109 ...**	**10 110 ...**

DC h8 mm	DC inch	OAL mm	LCF mm												
13,80		107	54,0					**138**			**138**				**138**
14,00		107	54,0	**140** [2]		**140** [2]		**140**			**140**		**14000**		**140**
14,50		111	56,0					**145**			**145**		**14500**		**145**
14,75		111	56,0					**147**							
14,80		111	56,0								**148**				
15,00		111	56,0					**150**			**150**		**15000**		**150**
15,25		115	58,0					**152**					**15250**		
15,50		115	58,0					**155**			**155**		**15500**		**155**
15,75		115	58,0												**157**
16,00		115	58,0					**160**			**160**		**16000**		**160**
16,50		119	60,0					**165**			**165**		**16500**		**165**
17,00		119	60,0					**170**			**170**		**17000**		**170**
17,50		123	62,0					**175**			**175**		**17500**		**175**
17,75		123	62,0												**177**
18,00		123	62,0					**180**			**180**		**18000**		**180**
18,50		127	64,0					**185**					**18500**		**185**
19,00		127	64,0					**190**			**190**		**19000**		**190**
19,50		131	66,0					**195**					**19500**		**195**
19,75		131	66,0												**197**
20,00		131	66,0					**200**			**200**		**20000**		**200**
20,50		136	68,0										**20500**		
21,00		136	68,0										**21000**		
21,50		141	70,0										**21500**		
22,00		141	70,0										**22000**		
22,20		141	70,0										**22200**		
23,00		146	72,0										**23000**		
24,00		151	75,0										**24000**		
25,00		151	75,0										**25000**		

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

1) uncoated
2) self-centering

→ v_c Page 46+47

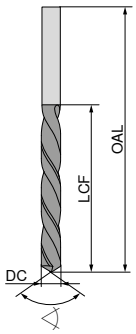
High-performance twist drills similar to DIN 1897, extra-short

▲ left-hand cutting

≤ 3xD

WTL-L

F.-nit





130°
HSS

10 112 ...

DC h8 mm	OAL mm	LCF mm	
1,0	26	6	010 1)
1,1	28	7	011 1)
1,2	30	8	012 1)
1,3	30	8	013 1)
1,4	32	9	014 1)
1,5	32	9	015 1)
1,6	34	10	016 1)
1,7	34	10	017 1)
1,8	36	11	018 1)
1,9	36	11	019 1)
2,0	38	12	020 1)
2,1	38	12	021 1)
2,2	40	13	022 1)
2,3	40	13	023 1)
2,4	43	14	024
2,5	43	14	025
2,6	43	14	026
2,7	46	16	027
2,8	46	16	028
2,9	46	16	029
3,0	46	16	030
3,1	49	18	031
3,2	49	18	032
3,3	49	18	033
3,4	52	20	034
3,5	52	20	035
3,6	52	20	036
3,7	52	20	037
3,8	55	22	038
3,9	55	22	039
4,0	55	22	040
4,1	55	22	041
4,2	55	22	042
4,3	58	24	043
4,4	58	24	044
4,5	58	24	045
4,6	58	24	046
4,7	58	24	047
4,8	62	26	048
4,9	62	26	049
5,0	62	26	050
5,1	62	26	051
5,2	62	26	052
5,3	62	26	053
5,4	66	28	054
5,5	66	28	055
5,6	66	28	056
5,7	66	28	057
5,8	66	28	058
5,9	66	28	059

10 112 ...

DC h8 mm	OAL mm	LCF mm	
6,0	66	28	060
6,1	70	31	061
6,2	70	31	062
6,3	70	31	063
6,4	70	31	064
6,5	70	31	065
6,6	70	31	066
6,7	70	31	067
6,8	74	34	068
6,9	74	34	069
7,0	74	34	070
7,2	74	34	072
7,3	74	34	073
7,4	74	34	074
7,5	74	34	075
7,7	79	37	077
8,0	79	37	080
8,1	79	37	081
8,2	79	37	082
8,3	79	37	083
8,5	79	37	085
8,6	84	40	086
8,7	84	40	087
8,8	84	40	088
9,0	84	40	090
9,5	84	40	095
9,7	89	43	097
10,0	89	43	100
10,1	89	43	101
10,2	89	43	102
10,5	89	43	105
11,0	95	47	110
11,5	95	47	115
11,8	95	47	118
12,0	102	51	120
12,5	102	51	125
12,8	102	51	128
13,0	102	51	130
14,0	107	54	140
14,5	111	56	145
15,0	111	56	150
16,0	115	58	160 2)
18,0	123	62	180 2)
19,0	127	64	190 2)

P	○
M	
K	●
N	●
S	
H	
O	○

1) uncoated
2) vaporised

→ v_c Page 47

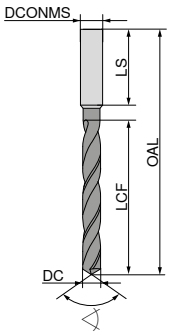
High-performance twist drill similar to DIN 338, short

- With shank to DIN 1835 A
- Special point thinning
- 4 facet
- Highest Performance
- Very good centering behaviour

≤ 5xD

VX

TiN





HSS-E

10 124 ...

DC h8 mm	OAL mm	LCF mm	DCONMS h6 mm	LS mm	
2,00	56	24	3	28	020
2,10	56	24	3	28	021
2,20	59	27	3	28	022
2,30	59	27	3	28	023
2,40	62	30	3	28	024
2,50	62	30	3	28	025
2,60	62	30	3	28	026
2,70	65	33	3	28	027
2,80	65	33	3	28	028
2,90	65	33	3	28	029
3,00	65	33	3	28	030
3,10	68	36	4	28	031
3,20	68	36	4	28	032
3,30	68	36	4	28	033
3,40	71	39	4	28	034
3,50	71	39	4	28	035
3,60	71	39	4	28	036
3,70	71	39	4	28	037
3,80	75	43	4	28	038
3,90	75	43	4	28	039
4,00	75	43	4	28	040
4,10	87	43	6	36	041
4,20	87	43	6	36	042
4,30	91	47	6	36	043
4,40	91	47	6	36	044
4,50	91	47	6	36	045
4,60	91	47	6	36	046
4,65	91	47	6	36	465
4,70	91	47	6	36	047
4,80	96	52	6	36	048
4,90	96	52	6	36	049
5,00	96	52	6	36	050
5,10	96	52	6	36	051
5,20	96	52	6	36	052
5,30	96	52	6	36	053
5,40	101	57	6	36	054
5,50	101	57	6	36	055
5,55	101	57	6	36	555
5,60	101	57	6	36	056
5,70	101	57	6	36	057
5,80	101	57	6	36	058
5,90	101	57	6	36	059
6,00	101	57	6	36	060
6,10	107	63	8	36	061
6,20	107	63	8	36	062
6,30	107	63	8	36	063
6,40	107	63	8	36	064
6,50	107	63	8	36	065
6,60	107	63	8	36	066
6,70	107	63	8	36	067
6,80	113	69	8	36	068
6,90	113	69	8	36	069
7,00	113	69	8	36	070
7,10	113	69	8	36	071
7,20	113	69	8	36	072
7,30	113	69	8	36	073

10 124 ...

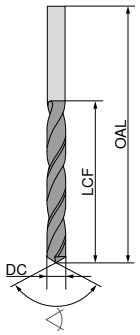
DC h8 mm	OAL mm	LCF mm	DCONMS h6 mm	LS mm	
7,40	113	69	8	36	074
7,50	113	69	8	36	075
7,55	119	75	8	36	755
7,60	119	75	8	36	076
7,70	119	75	8	36	077
7,80	119	75	8	36	078
7,90	119	75	8	36	079
8,00	119	75	8	36	080
8,10	125	75	10	40	081
8,20	125	75	10	40	082
8,30	125	75	10	40	083
8,40	125	75	10	40	084
8,50	125	75	10	40	085
8,60	131	81	10	40	086
8,70	131	81	10	40	087
8,80	131	81	10	40	088
8,90	131	81	10	40	089
9,00	131	81	10	40	090
9,10	131	81	10	40	091
9,20	131	81	10	40	092
9,30	131	81	10	40	093
9,40	131	81	10	40	094
9,50	131	81	10	40	095
9,55	137	87	10	40	955
9,60	137	87	10	40	096
9,70	137	87	10	40	097
9,80	137	87	10	40	098
9,90	137	87	10	40	099
10,00	137	87	10	40	100
10,10	144	87	12	45	101
10,20	144	87	12	45	102
10,30	144	87	12	45	103
10,40	144	87	12	45	104
10,50	144	87	12	45	105
10,60	144	87	12	45	106
10,70	151	94	12	45	107
10,80	151	94	12	45	108
10,90	151	94	12	45	109
11,00	151	94	12	45	110
11,10	151	94	12	45	111
11,20	151	94	12	45	112
11,30	151	94	12	45	113
11,40	151	94	12	45	114
11,50	151	94	12	45	115
11,60	151	94	12	45	116
11,70	151	94	12	45	117
11,80	151	94	12	45	118
11,90	158	101	12	45	119
12,00	158	101	12	45	120
12,10	161	101	16	48	121
12,20	161	101	16	48	122
12,30	161	101	16	48	123
12,40	161	101	16	48	124
12,50	161	101	16	48	125
12,60	161	101	16	48	126
12,70	161	101	16	48	127
12,80	161	101	16	48	128
12,90	161	101	16	48	129
13,00	161	101	16	48	130
13,50	166	106	16	48	135
14,00	166	106	16	48	140
14,50	169	109	16	48	145
15,00	169	109	16	48	150
15,50	172	112	16	48	155
16,00	172	112	16	48	160
16,50	181	115	20	50	165
17,00	181	115	20	50	170
17,50	184	118	20	50	175
18,00	184	118	20	50	180
18,50	188	122	20	50	185
19,00	188	122	20	50	190
19,50	191	125	20	50	195
20,00	191	125	20	50	200

P	●
M	●
K	●
N	○
S	○
H	
O	○

→ v_c Page 48

Twist drill to DIN 338, short

≤ 5xD



	UNI	UNI	N	VA	W	WTL	WTL
	TiN	TiN	vap.			F.-nit	TiN
							
	◁ 130°	◁ 118°	◁ 118°	◁ 130°	◁ 130°	◁ 130°	◁ 130°
	HSS-E-PM	HSS-E	HSS	HSS-E	HSS	HSS-E	HSS-E
	10 173 ...	**10 171 ...**	**10 152 ...**	**10 175 ...**	**10 161 ...**	**10 168 ...**	**10 170 ...**

DC h8 mm	DC inch	OAL mm	LCF mm																
0,20		19	2,5						00200 [1]			00200							
0,25		19	3,0						00250 [1]			00250							
0,30		19	3,0						00300 [1]			00300							
0,35		19	4,0						00350 [1]			00350							
0,40		20	5,0						00400 [1]			00400							
0,45		20	5,0						00450 [1]			00450							
0,50		22	6,0						00500 [1]			00500							
0,55		24	7,0						00550 [1]			00550							
0,60		24	7,0						00600 [1]			00600							
0,65		26	8,0						00650 [1]			00650							
0,70		28	9,0						00700 [1]			00700							
0,75		28	9,0						00750 [1]			00750							
0,80		30	10,0						00800 [1]			00800							
0,85		30	10,0						00850 [1]			00850							
0,90		32	11,0			009 [2]			00900 [1]			00900							
0,95		32	11,0						00950 [1]			00950							
1,00		34	12,0	010 [2]		010 [2]			01000 [1]		010	01000			010 [1]			010	
1,05		34	12,0						01050 [1]			01050							
1,10		36	14,0	011 [2]		011 [2]			01100 [1]		011	01100			011 [1]			011	
1,15		36	14,0						01150 [1]			01150							
1,20		38	16,0	012 [2]		012 [2]			01200 [1]		012	01200			012 [1]			012	
1,25		38	16,0			125 [2]			01250 [1]			01250							
1,30		38	16,0	013 [2]		013 [2]			01300 [1]		013	01300			013 [1]			013	
1,35		40	18,0						01350 [1]			01350							
1,40		40	18,0	014 [2]		014 [2]			01400 [1]		014	01400			014 [1]			014	
1,45		40	18,0			145 [2]			01450 [1]			01450						901	
1,50		40	18,0	015 [2]		015 [2]			01500 [1]		015	01500			015 [1]			015	
1,55		43	20,0			155 [2]			01550 [1]			01550						902	
1,60		43	20,0	016 [2]		016 [2]			01600 [1]		016	01600			016 [1]			016	
1,65		43	20,0			165 [2]			01650 [1]			01650						903	
1,70		43	20,0	017 [2]		017 [2]			01700 [1]		017	01700			017 [1]			017	
1,75		46	22,0						01750 [1]			01750							
1,80		46	22,0	018 [2]		018 [2]			01800 [1]		018	01800			018 [1]			018	
1,85		46	22,0						01850 [1]			01850						904	
1,90		46	22,0	019 [2]		019 [2]			01900 [1]		019	01900			019 [1]			019	
1,95		49	24,0						01950 [1]			01950							
2,00		49	24,0	020 [2]		020 [2]			02000 [1]		020	02000			020 [1]			020	
2,05		49	24,0						02050 [1]			02050						905	
2,10		49	24,0	021 [2]		021 [2]			02100 [1]		021	02100			021 [1]			021	
2,15		53	27,0						02150 [1]			02150							
2,20		53	27,0	022 [2]		022 [2]			02200 [1]		022	02200			022 [1]			022	
2,25		53	27,0						02250 [1]			02250							
2,30		53	27,0	023 [2]		023 [2]			02300 [1]		023	02300			023 [1]			023	
2,35		53	27,0						02350 [1]			02350							
2,38	3/32	57	30,0	238 [2]		238 [2]													
2,40		57	30,0	024 [2]		024 [2]			02400		024	02400			024			024	

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

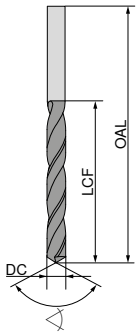
1) uncoated
2) self-centering

→ v_c Page 48+49

Continued on next page

Twist drill to DIN 338, short

≤ 5xD



	UNI	UNI	N	VA	W	WTL	WTL
	TiN	TiN	vap.			F.-nit	TiN
							
	◁ 130° HSS-E-PM	◁ 118° HSS-E	◁ 118° HSS	◁ 130° HSS-E	◁ 130° HSS	◁ 130° HSS-E	◁ 130° HSS-E
	10 173 ...	**10 171 ...**	**10 152 ...**	**10 175 ...**	**10 161 ...**	**10 168 ...**	**10 170 ...**

DC h8 mm	DC inch	OAL mm	LCF mm												
2,45		57	30,0					02450		02450			
2,50		57	30,0	025 [2]		025 [2]		02500	025	02500		025		025
2,55		57	30,0			255 [2]		02550		02550				
2,60		57	30,0	026 [2]		026 [2]		02600	026	02600		026		026
2,65		57	30,0					02650		02650				
2,70		61	33,0	027 [2]		027 [2]		02700	027	02700		027		027
2,75		61	33,0					02750		02750				
2,78	7/64	61	33,0	278 [2]		278 [2]								
2,80		61	33,0	028 [2]		028 [2]		02800	028	02800		028		028
2,85		61	33,0					02850		02850				
2,90		61	33,0	029 [2]		029 [2]		02900	029	02900		029		029
2,95		61	33,0					02950		02950				
3,00		61	33,0	030 [2]		030 [2]		03000	030	03000		030		030
3,05		65	36,0					03050		03050				
3,10		65	36,0	031 [2]		031 [2]		03100	031	03100		031		031
3,15		65	36,0					03150		03150				
3,17	1/8	65	36,0	317 [2]		317 [2]								
3,20		65	36,0	032 [2]		032 [2]		03200	032	03200		032		032
3,25		65	36,0			325 [2]		03250		03250				
3,30		65	36,0	033 [2]		033 [2]		03300	033	03300		033		033
3,35		65	36,0					03350		03350				
3,40		70	39,0	034 [2]		034 [2]		03400	034	03400		034		034
3,45		70	39,0					03450		03450				
3,50		70	39,0	035 [2]		035 [2]		03500	035	03500		035		035
3,55		70	39,0					03550		03550				
3,57	9/64	70	39,0	357 [2]		357 [2]								
3,60		70	39,0	036 [2]		036 [2]		03600	036	03600		036		036
3,65		70	39,0					03650		03650				
3,70		70	39,0	037 [2]		037 [2]		03700	037	03700		037		037
3,75		70	39,0					03750		03750				
3,80		75	43,0	038 [2]		038 [2]		03800	038	03800		038		038
3,85		75	43,0					03850		03850				
3,90		75	43,0	039 [2]		039 [2]		03900	039	03900		039		039
3,95		75	43,0					03950		03950				
3,97	5/32	75	43,0	397 [2]		397 [2]								
4,00		75	43,0	040 [2]		040 [2]		04000	040	04000		040		040
4,05		75	43,0					04050		04050				
4,10		75	43,0	041 [2]		041 [2]		04100	041	04100		041		041
4,15		75	43,0					04150		04150				
4,20		75	43,0	042 [2]		042 [2]		04200	042	04200		042		042
4,25		75	43,0			425 [2]		04250		04250				
4,30		80	47,0	043 [2]		043 [2]		04300	043	04300		043		043
4,35		80	47,0					04350		04350				
4,37	11/64	80	47,0	437 [2]		437 [2]								
4,40		80	47,0	044 [2]		044 [2]		04400	044	04400		044		044
4,45		80	47,0					04450						

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

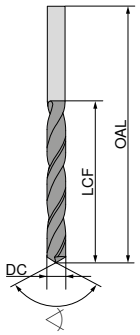
1) uncoated
2) self-centering

→ v_c Page 48+49

Continued on next page

Twist drill to DIN 338, short

≤ 5xD



	UNI	UNI	N	VA	W	WTL	WTL
	TiN	TiN	vap.			F.-nit	TiN
							
	◁ 130° HSS-E-PM	◁ 118° HSS-E	◁ 118° HSS	◁ 130° HSS-E	◁ 130° HSS	◁ 130° HSS-E	◁ 130° HSS-E
	10 173 ...	10 171 ...	10 152 ...	10 175 ...	10 161 ...	10 168 ...	10 170 ...

DC h8 mm	DC inch	OAL mm	LCF mm														
4,50		80	47,0	045 2)		045 2)		04500		045		04500		045		045	
4,55		80	47,0					04550				04550					
4,60		80	47,0	046 2)		046 2)		04600		046		04600		046		046	
4,65		80	47,0			465 2)		04650				04650					
4,70		80	47,0	047 2)		047 2)		04700		047		04700		047		047	
4,75		80	47,0					04750				04750					
4,76	3/16	86	52,0	476 2)		476 2)											
4,80		86	52,0	048 2)		048 2)		04800		048		04800		048		048	
4,85		86	52,0					04850				04850					
4,90		86	52,0	049 2)		049 2)		04900		049		04900		049		049	
4,95		86	52,0			495 2)		04950				04950					
5,00		86	52,0	050 2)		050 2)		05000		050		05000		050		050	
5,05		86	52,0			505 2)		05050				05050					
5,10		86	52,0	051 2)		051 2)		05100		051		05100		051		051	
5,15		86	52,0					05150									
5,16	13/64	86	52,0	516 2)		516 2)											
5,20		86	52,0	052 2)		052 2)		05200		052		05200		052		052	
5,25		86	52,0					05250				05250					
5,30		86	52,0	053 2)		053 2)		05300		053		05300		053		053	
5,35		93	57,0					05350									
5,40		93	57,0	054 2)		054 2)		05400		054		05400		054		054	
5,45		93	57,0					05450				05450					
5,50		93	57,0	055 2)		055 2)		05500		055		05500		055		055	
5,55		93	57,0			555 2)		05550				05550					
5,56	7/32	93	57,0	556 2)		556 2)											
5,60		93	57,0	056 2)		056 2)		05600		056		05600		056		056	
5,65		93	57,0					05650				05650					
5,70		93	57,0	057 2)		057 2)		05700		057		05700		057		057	
5,75		93	57,0			575 2)		05750				05750					
5,80		93	57,0	058 2)		058 2)		05800		058		05800		058		058	
5,85		93	57,0					05850				05850					
5,90		93	57,0	059 2)		059 2)		05900		059		05900		059		059	
5,95	15/64	93	57,0	595 2)		595 2)		05950				05950					
6,00		93	57,0	060 2)		060 2)		06000		060		06000		060		060	
6,05		101	63,0					06050				06050					
6,10		101	63,0	061 2)		061 2)		06100		061		06100		061		061	
6,15		101	63,0					06150				06150					
6,20		101	63,0	062 2)		062 2)		06200		062		06200		062		062	
6,25		101	63,0					06250				06250					
6,30		101	63,0	063 2)		063 2)		06300		063		06300		063		063	
6,35	1/4	101	63,0	635 2)		635 2)		06350				06350					
6,40		101	63,0	064 2)		064 2)		06400		064		06400		064		064	
6,45		101	63,0					06450									
6,50		101	63,0	065 2)		065 2)		06500		065		06500		065		065	
6,55		101	63,0					06550				06550					
6,60		101	63,0	066 2)		066 2)		06600		066		06600		066		066	

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

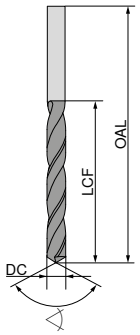
1) uncoated
2) self-centering

→ v_c Page 48+49

Continued on next page

Twist drill to DIN 338, short

≤ 5xD



	UNI	UNI	N	VA	W	WTL	WTL
	TiN	TiN	vap.			F.-nit	TiN
							
	◁ 130° HSS-E-PM	◁ 118° HSS-E	◁ 118° HSS	◁ 130° HSS-E	◁ 130° HSS	◁ 130° HSS-E	◁ 130° HSS-E
	10 173 ...	**10 171 ...**	**10 152 ...**	**10 175 ...**	**10 161 ...**	**10 168 ...**	**10 170 ...**

DC h8 mm	DC inch	OAL mm	LCF mm												
6,65		101	63,0					06650		06650			
6,70		101	63,0	067 2)	067 2)	06700	067	06700	067	067
6,75		109	69,0	675 2)	675 2)	06750		06750		
6,80		109	69,0	068 2)	068 2)	06800	068	06800	068	068
6,85		109	69,0			06850		06850		
6,90		109	69,0	069 2)	069 2)	06900	069	06900	069	069
6,95		109	69,0			06950		06950		
7,00		109	69,0	070 2)	070 2)	07000	070	07000	070	070
7,05		109	69,0			07050		07050		
7,10		109	69,0	071 2)	071 2)	07100	071	07100	071	071
7,14	9/32	109	69,0	714 2)	714 2)					
7,15		109	69,0			07150				
7,20		109	69,0	072 2)	072 2)	07200	072	07200	072	072
7,25		109	69,0			07250		07250		
7,30		109	69,0	073 2)	073 2)	07300	073	07300	073	073
7,35		109	69,0			07350				
7,40		109	69,0	074 2)	074 2)	07400	074	07400	074	074
7,45		109	69,0		745 2)	07450				
7,50		109	69,0	075 2)	075 2)	07500	075	07500	075	075
7,55		117	75,0			07550				
7,60		117	75,0	076 2)	076 2)	07600	076	07600	076	076
7,65		117	75,0			07650				
7,70		117	75,0	077 2)	077 2)	07700	077	07700	077	077
7,75		117	75,0			07750		07750		
7,80		117	75,0	078 2)	078 2)	07800	078	07800	078	078
7,85		117	75,0			07850				
7,90		117	75,0	079 2)	079 2)	07900	079	07900	079	079
7,94	5/16	117	75,0	794 2)	794 2)					
7,95		117	75,0			07950				
8,00		117	75,0	080 2)	080 2)	08000	080	08000	080	080
8,05		117	75,0			08050		08050		
8,10		117	75,0	081 2)	081 2)	08100	081	08100	081	081
8,15		117	75,0			08150		08150		
8,20		117	75,0	082 2)	082 2)	08200	082	08200	082	082
8,25		117	75,0			08250		08250		
8,30		117	75,0	083 2)	083 2)	08300	083	08300	083	083
8,35		117	75,0			08350				
8,40		117	75,0	084 2)	084 2)	08400	084	08400	084	084
8,45		117	75,0			08450		08450		
8,50		117	75,0	085 2)	085 2)	08500	085	08500	085	085
8,55		125	81,0			08550		08550		
8,60		125	81,0		086 2)	08600	086	08600	086	086
8,65		125	81,0			08650				
8,70		125	81,0		087 2)	08700	087	08700	087	087
8,73	11/32	125	81,0	873 2)	873 2)					
8,75		125	81,0			08750		08750		

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

1) uncoated
2) self-centering

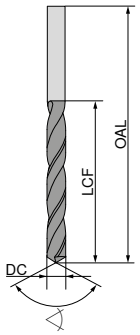
→ v_c Page 48+49

Continued on next page

Twist drill to DIN 338, short

≤ 5xD

UNI	UNI	N	VA	W	WTL	WTL
TiN	TiN	vap.			F.-nit	TiN





	130°	118°	118°	130°	130°	130°	130°
	HSS-E-PM	HSS-E	HSS	HSS-E	HSS	HSS-E	HSS-E
	10 173 ...	**10 171 ...**	**10 152 ...**	**10 175 ...**	**10 161 ...**	**10 168 ...**	**10 170 ...**

DC h8 mm	DC inch	OAL mm	LCF mm																
8,80		125	81,0	088	2)	088	2)	08800		088		08800		088		088	
8,90		125	81,0			089	2)	08900		089		08900		089		089	
8,95		125	81,0					08950									
9,00		125	81,0	090	2)	090	2)	09000		090		09000		090		090	
9,05		125	81,0					09050									
9,10		125	81,0			091	2)	09100		091		09100		091		091	
9,15		125	81,0					09150									
9,20		125	81,0			092	2)	09200		092		09200		092		092	
9,25		125	81,0					09250				09250					
9,30		125	81,0	093	2)	093	2)	09300		093		09300		093		093	
9,35		125	81,0			935	2)	09350									
9,40		125	81,0			094	2)	09400		094		09400		094		094	
9,45		125	81,0					09450									
9,50		125	81,0	095	2)	095	2)	09500		095		09500		095		095	
9,55		133	87,0					09550									
9,60		133	87,0			096	2)	09600		096		09600		096		096	
9,65		133	87,0					09650									
9,70		133	87,0			097	2)	09700		097		09700		097		097	
9,75		133	87,0					09750									
9,80		133	87,0	098	2)	098	2)	09800		098		09800		098		098	
9,85		133	87,0					09850									
9,90		133	87,0			099	2)	09900		099		09900		099		099	
9,95		133	87,0					09950									
10,00		133	87,0	100	2)	100	2)	10000		100		10000		100		100	
10,05		133	87,0					10050				10050					
10,10		133	87,0			101	2)	10100		101		10100		101		101	
10,15		133	87,0					10150									
10,20		133	87,0	102	2)	102	2)	10200		102		10200		102		102	
10,25		133	87,0					10250				10250					
10,30		133	87,0			103	2)	10300		103		10300		103		103	
10,35		133	87,0					10350									
10,40		133	87,0			104	2)	10400		104		10400		104		104	
10,45		133	87,0					10450									
10,50		133	87,0	105	2)	105	2)	10500		105		10500		105		105	
10,55		133	87,0			955	2)	10550									
10,60		133	87,0					10600		106		10600		106			
10,70		142	94,0					10700		107		10700		107		107	
10,75		142	94,0					10750				10750					
10,80		142	94,0					10800		108		10800		108		108	
10,90		142	94,0					10900		109		10900		109			
11,00		142	94,0	110	2)	110	2)	11000		110		11000		110		110	
11,10		142	94,0					11100		111		11100		111			
11,11	7/16	142	94,0	111	2)	111	2)										
11,20		142	94,0			112	2)	11200		112		11200		112		112	
11,30		142	94,0			113	2)			113				113			
11,40		142	94,0			114	2)	11400		114		11400		114			

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

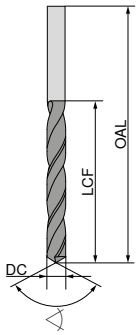
1) uncoated
2) self-centering

→ v_c Page 48+49

Continued on next page

Twist drill to DIN 338, short

≤ 5xD



	UNI	UNI	N	VA	W	WTL	WTL
	TiN	TiN	vap.			F.-nit	TiN
							
	◁ 130° HSS-E-PM	◁ 118° HSS-E	◁ 118° HSS	◁ 130° HSS-E	◁ 130° HSS	◁ 130° HSS-E	◁ 130° HSS-E
	10 173 ...	**10 171 ...**	**10 152 ...**	**10 175 ...**	**10 161 ...**	**10 168 ...**	**10 170 ...**

DC h8 mm	DC inch	OAL mm	LCF mm																
11,50		142	94,0	115	2)	115	2)	11500		115		11500		115		115	
11,60		142	94,0			116	2)	11600		116		11600		116			
11,70		142	94,0					11700		117		11700		117		117	
11,80		142	94,0					11800		118		11800		118		118	
11,90		151	101,0					11900		119		11900					
12,00		151	101,0	120	2)	120	2)	12000		120		12000		120		120	
12,15		151	101,0			121	2)										
12,20		151	101,0					12200				12200					
12,25		151	101,0					12250									
12,30		151	101,0	123	2)	123	2)										
12,50		151	101,0	125	2)	925	2)	12500				12500		125		125	
12,70		151	101,0	127	2)	127	2)	12700				12700					
12,80		151	101,0					12800				12800		128		128	
13,00		151	101,0	130	2)	130	2)	13000				13000		130		130	
13,10		151	101,0			131	2)										
13,20		151	101,0					13200				13200					
13,30		160	108,0			133	2)										
13,50		160	108,0	135	2)	135	2)	13500				13500		135		135	
13,80		160	108,0					13800				13800		138		138	
14,00		160	108,0	140	2)	140	2)	14000				14000		140		140	
14,50		169	114,0					14500				14500		145		145	
14,80		169	114,0											148		148	
15,00		169	114,0					15000				15000		150		150	
15,25		178	120,0					15250									
15,50		178	120,0					15500				15500		155		155	
15,80		178	120,0					15800									
16,00		178	120,0					16000				16000		160		160	
16,50		184	125,0					16500				16500					
17,00		184	125,0					17000				17000					
17,50		191	130,0					17500				17500					
18,00		191	130,0					18000				18000					
18,50		198	135,0					18500									
19,00		198	135,0					19000				19000					
19,50		205	140,0					19500									
20,00		205	140,0					20000				20000					

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

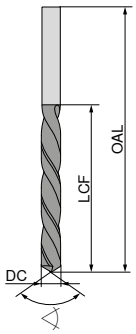
1) uncoated
2) self-centering

→ v_c Page 48+49

Twist drill to DIN 338, short

▲ Article no. 10 169 ... WTL-L – left-hand cutting drill

≤ 5xD



WTL	WTL-L
TiCN	F.-nit



130°
HSS-E



130°
HSS

DC h8 mm	OAL mm	LCF mm	10 172 ...	10 169 ...
1,0	34	12		010 1)
1,3	38	16		013 1)
1,4	40	18		014 1)
1,5	40	18		015 1)
1,6	43	20		016 1)
1,7	43	20		017 1)
1,8	46	22		018 1)
1,9	46	22		019 1)
2,0	49	24		020 1)
2,1	49	24		021 1)
2,2	53	27		022 1)
2,3	53	27		023 1)
2,4	57	30		024
2,5	57	30		025
2,6	57	30		026
2,7	61	33		027
2,8	61	33		028
2,9	61	33		029
3,0	61	33	030	030
3,1	65	36	031	031
3,2	65	36	032	032
3,3	65	36	033	033
3,4	70	39	034	034
3,5	70	39	035	035
3,6	70	39	036	036
3,7	70	39	037	037
3,8	75	43	038	038
3,9	75	43	039	039
4,0	75	43	040	040
4,1	75	43	041	041
4,2	75	43	042	042
4,3	80	47	043	043
4,4	80	47	044	044
4,5	80	47	045	045
4,6	80	47	046	046
4,7	80	47	047	047
4,8	86	52	048	048
4,9	86	52	049	049
5,0	86	52	050	050
5,1	86	52	051	051
5,2	86	52	052	052
5,3	86	52	053	053
5,4	93	57	054	054
5,5	93	57	055	055
5,6	93	57	056	056
5,7	93	57	057	057
5,8	93	57	058	058
5,9	93	57	059	059
6,0	93	57	060	060
6,1	101	63	061	061
6,2	101	63	062	062
6,3	101	63	063	063
6,4	101	63	064	064
6,5	101	63	065	065
6,6	101	63	066	066
6,7	101	63	067	067
6,8	109	69	068	068
6,9	109	69	069	069
7,0	109	69	070	070
7,1	109	69	071	071
7,2	109	69	072	072
7,3	109	69		073
7,4	109	69	074	074
7,5	109	69	075	075
7,7	117	75	077	077
7,8	117	75	078	078
7,9	117	75		079
8,0	117	75	080	080
8,1	117	75	081	081
8,2	117	75	082	082
8,3	117	75		083
8,4	117	75	084	084
8,5	117	75	085	085
8,6	125	81	086	086
8,7	125	81	087	087
8,8	125	81	088	088
8,9	125	81	089	089
9,0	125	81	090	090
9,2	125	81		092
9,3	125	81		093
9,5	125	81	095	095
9,8	133	87		098
9,9	133	87		099
10,0	133	87	100	100
10,1	133	87		101
10,2	133	87	102	102
10,3	133	87		103
10,4	133	87		104
10,5	133	87	105	105
11,0	142	94	110	110
11,5	142	94	115	115
12,0	151	101	120	120
12,2	151	101		122
12,5	151	101		125
13,0	151	101		130
14,0	160	108		140
14,5	169	114		145
15,0	169	114		150
16,0	178	120		160

	10 172 ...	10 169 ...
P	●	○
M	○	
K	●	●
N	○	●
S	○	
H	○	
O	○	○

1) uncoated

→ v_c Page 49

Twist drill sets DIN 338, short

▲ In metal box
▲ In 0.1 mm steps

≤ 5xD



	N	UNI
	vap.	TiN
		
	Drill set type N HSS	Drill set type UNI TiN HSS-E
	10 158 ...	10 158 ...
DC h8 mm		
1,0 - 5,9	050	054
6,0 - 10,0	100	104
P	○	●
M		●
K	●	●
N	○	○
S		○
H		
O	○	○

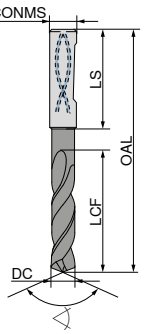
→ v_c Page 48

Set of type N vap. contains the drills of Art. No. 10 152 ...
Set of type UNI TiN contains the drills of Art. No. 10 171 ...

Twist drill with thro' coolant ~ DIN 338, short

- Relief ground
- Special point thinning
- Wide chip flutes
- Rounded flute edges
- For long chipping materials up to 1000N/mm²

≤ 5xD



WNXi



E
130°
HSS-E

10 180 ...

WNXi
TiN



E
130°
HSS-E

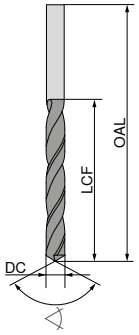
10 181 ...

DC h8 mm	OAL mm	LCF mm	DCONMS h6 mm	LS mm	10 180 ...	10 181 ...
5,0	82	44	6	38	050	050
5,5	82	44	6	38	055	055
6,0	82	44	6	38	060	060
6,5	91	53	8	38	065	065
6,8	91	53	8	38	068	068
7,0	91	53	8	38	070	070
7,5	91	53	8	38	075	075
7,8	91	53	8	38	078	078
8,0	91	53	8	38	080	080
8,5	103	61	10	42	085	085
9,0	103	61	10	42	090	090
9,5	103	61	10	42	095	095
10,0	103	61	10	42	100	100
10,2	118	71	12	47	102	102
10,5	118	71	12	47	105	105
11,0	118	71	12	47	110	110
11,5	118	71	12	47	115	115
12,0	118	71	12	47	120	120
12,5	124	77	14	47	125	125
13,0	124	77	14	47	130	130
13,5	124	77	14	47	135	135
14,0	124	77	14	47	140	140
14,5	133	83	16	50	145	145
15,0	133	83	16	50	150	150
15,5	133	83	16	50	155	155
16,0	133	83	16	50	160	160
16,5	143	93	18	50	165	165
17,0	143	93	18	50	170	170
17,5	143	93	18	50	175	175
18,0	143	93	18	50	180	180
18,5	153	101	20	52	185	185
19,0	153	101	20	52	190	190
19,5	153	101	20	52	195	195
20,0	153	101	20	52	200	200
P					●	●
M						
K					●	●
N					○	○
S						
H						
O					○	○

→ v_c Page 49

Twist drills with coolant hole, factory standard, long

≤ 10xD



NC



130°
HSS

10 223 ...

NC
TiAlN



130°
HSS

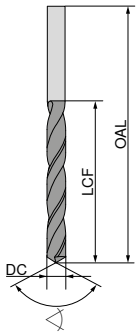
10 224 ...

DC h8 mm	OAL mm	LCF mm	10 223 ...	10 224 ...
3,0	100	66	030	030
3,3	106	69	033	033
3,5	112	73	035	035
3,8	119	78		038
4,0	119	78	040	040
4,2	119	78	042	042
4,5	126	82	045	045
4,8	132	87		048
5,0	132	87	050	050
5,5	139	91	055	055
5,8	139	91		058
6,0	139	91	060	060
6,5	148	97	065	065
6,8	156	102	068	068
7,0	156	102	070	070
7,5	156	102	075	075
7,8	165	109		078
8,0	165	109	080	080
8,5	165	109	085	085
8,8	175	115		088
9,0	175	115	090	090
9,5	175	115	095	095
9,8	184	121		098
10,0	184	121	100	100
10,2	184	121	102	102
10,5	184	121	105	105
10,8	195	128		108
11,0	195	128	110	110
11,5	195	128	115	115
11,8	205	134		118
12,0	205	134	120	120
12,8	205	134		128
13,0	205	134	130	130
P			○	○
M				○
K			●	●
N			○	○
S				
H				
O			○	○

→ v_c Page 50

Twist drills, DIN 340, long

≤ 10xD



	UNI	WTL	WTL	WTL	WTW
	TiN	F.-nit	F.-nit	TiN	
					
	◁ 118° HSS-E	◁ 130° HSS-E	◁ 130° HSS	◁ 130° HSS	◁ 130° HSS
	10 270 ...	**10 225 ...**	**10 215 ...**	**10 210 ...**	**10 200 ...**

DC h8 mm	OAL mm	LCF mm								
1,0	56	33	010		010 1)		010 1)		010	010
1,1	60	37	011		011 1)		011 1)		011	011
1,2	65	41	012		012 1)		012 1)		012	012
1,3	65	41	013		013 1)		013 1)		013	013
1,4	70	45	014		014 1)		014 1)		014	014
1,5	70	45	015		015 1)		015 1)		015	015
1,6	76	50	016		016 1)		016 1)		016	016
1,7	76	50	017		017 1)		017 1)		017	017
1,8	80	53	018		018 1)		018 1)		018	018
1,9	80	53	019		019 1)		019 1)		019	019
2,0	85	56	020		020 1)		020 1)		020	020
2,1	85	56	021		021 1)		021 1)		021	021
2,2	90	59	022		022 1)		022 1)		022	022
2,3	90	59	023		023 1)		023 1)		023	023
2,4	95	62	024		024		024		024	024
2,5	95	62	025		025		025		025	025
2,6	95	62	026		026		026		026	026
2,7	100	66	027		027		027		027	027
2,8	100	66	028		028		028		028	028
2,9	100	66	029		029		029		029	029
3,0	100	66	030		030		030		030	030
3,1	106	69	031		031		031		031	031
3,2	106	69	032		032		032		032	032
3,3	106	69	033		033		033		033	033
3,4	112	73	034		034		034		034	034
3,5	112	73	035		035		035		035	035
3,6	112	73	036		036		036		036	036
3,7	112	73	037		037		037		037	037
3,8	119	78	038		038		038		038	038
3,9	119	78	039		039		039		039	039
4,0	119	78	040		040		040		040	040
4,1	119	78	041		041		041		041	041
4,2	119	78	042		042		042		042	042
4,3	126	82	043		043		043		043	043
4,4	126	82	044		044		044		044	044
4,5	126	82	045		045		045		045	045
4,6	126	82	046		046		046		046	046
4,7	126	82	047		047		047		047	047
4,8	132	87	048		048		048		048	048
4,9	132	87	049		049		049		049	049
5,0	132	87	050		050		050		050	050
5,1	132	87	051		051		051		051	051

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

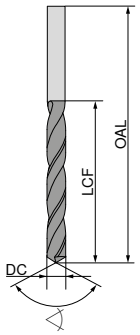
1) uncoated

→ v_c Page 50+51

Continued on next page

Twist drills, DIN 340, long

≤ 10xD



	UNI	WTL	WTL	WTL	WTW
	TiN	F.-nit	F.-nit	TiN	
					
	◁ 118° HSS-E	◁ 130° HSS-E	◁ 130° HSS	◁ 130° HSS	◁ 130° HSS
	10 270 ...	10 225 ...	10 215 ...	10 210 ...	10 200 ...

DC h8 mm	OAL mm	LCF mm								
5,2	132	87	052	052	052	052	052
5,3	132	87	053	053	053	053	053
5,4	139	91	054	054	054	054	054
5,5	139	91	055	055	055	055	055
5,6	139	91	056	056	056	056	056
5,7	139	91	057	057	057	057	057
5,8	139	91	058	058	058	058	058
5,9	139	91	059	059	059	059	059
6,0	139	91	060	060	060	060	060
6,1	148	97	061	061	061	061	061
6,2	148	97	062	062	062	062	062
6,3	148	97	063	063	063	063	063
6,4	148	97	064	064	064	064	064
6,5	148	97	065	065	065	065	065
6,6	148	97	066	066	066	066	066
6,7	148	97	067	067	067	067	067
6,8	156	102	068	068	068	068	068
6,9	156	102	069	069	069	069	069
7,0	156	102	070	070	070	070	070
7,1	156	102	071	071	071		071
7,2	156	102	072	072	072	072	072
7,3	156	102	073	073	073	073	073
7,4	156	102	074	074	074	074	074
7,5	156	102	075	075	075	075	075
7,6	165	109	076		076	076	076
7,7	165	109	077	077	077		077
7,8	165	109	078	078	078	078	078
7,9	165	109	079	079	079	079	079
8,0	165	109	080	080	080	080	080
8,1	165	109	081	081	081	081	081
8,2	165	109	082	082	082	082	082
8,3	165	109	083	083	083	083	083
8,4	165	109	084	084	084	084	084
8,5	165	109	085	085	085	085	085
8,6	175	115	086	086	086	086	086
8,7	175	115	087	087	087	087	
8,8	175	115	088	088	088	088	088
8,9	175	115	089	089	089	089	089
9,0	175	115	090	090	090	090	090
9,1	175	115	091	091	091	091	091
9,2	175	115	092	092	092		092
9,3	175	115	093	093	093		093

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

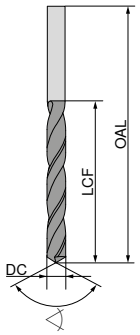
1) uncoated

→ v_c Page 50+51

Continued on next page

Twist drills, DIN 340, long

≤ 10xD



	UNI	WTL	WTL	WTL	WTW
	TiN	F.-nit	F.-nit	TiN	
					
	◁ 118° HSS-E	◁ 130° HSS-E	◁ 130° HSS	◁ 130° HSS	◁ 130° HSS
	10 270 ...	10 225 ...	10 215 ...	10 210 ...	10 200 ...

DC h8 mm	OAL mm	LCF mm								
9,4	175	115	094		094					094
9,5	175	115	095		095		095		095	095
9,6	184	121	096				096			096
9,7	184	121	097		097		097		097	
9,8	184	121	098		098		098		098	098
9,9	184	121	099		099		099		099	
10,0	184	121	100		100		100		100	100
10,1	184	121	101				101		101	
10,2	184	121	102		102		102		102	102
10,3	184	121	103				103			103
10,4	184	121	104				104			104
10,5	184	121	105		105		105		105	105
10,6	184	121							106	
10,8	195	128			108		108			108
11,0	195	128	110		110		110		110	110
11,5	195	128	115		115		115		115	115
11,6	195	128								116
11,8	195	128			118		118			118
12,0	205	134	120		120		120		120	120
12,2	205	134								122
12,3	205	134								123
12,5	205	134	125				125		125	125
13,0	205	134	130				130		130	130
13,5	214	140	135				135			
14,0	214	140	140				140		140	140
P			●		●		○		○	
M			●		○					
K			●		●		●		●	
N			○		●		●		○	●
S			○		○					
H					○					
O			○		○		○		○	

1) uncoated

→ v_c Page 50+51

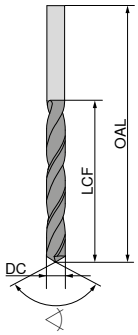
Twist drills, DIN 1869, extra-long, series 1

> 10xD

NEW

WTL
TiAlN

WTL
F.-nit







130°
HSS-E

130°
HSS

DC h8 mm	OAL mm	LCF mm	10 236 ...	10 235 ...
2,0	125	85		020 1)
2,1	125	85		021 1)
2,2	135	90		022 1)
2,3	135	90		023 1)
2,4	140	95		024
2,5	140	95		025
2,6	140	95		026
2,7	150	100		027
2,8	150	100		028
2,9	150	100		029
3,0	150	100	03000	030
3,1	155	105		031
3,2	155	105		032
3,3	155	105	03300	033
3,4	165	115		034
3,5	165	115	03500	035
3,6	165	115		036
3,7	165	115		037
3,8	175	120		038
3,9	175	120		039
4,0	175	120	04000	040
4,1	175	120		041
4,2	175	120	04200	042
4,3	185	125		043
4,4	185	125		044
4,5	185	125	04500	045
4,6	185	125		046
4,7	185	125		047
4,8	195	135		048
4,9	195	135		049
5,0	195	135	05000	050
5,1	195	135		051
5,2	195	135		052
5,3	195	135		053
5,4	205	140		054
5,5	205	140	05500	055
5,6	205	140		056
5,7	205	140		057
5,8	205	140		058
5,9	205	140		059
6,0	205	140	06000	060
6,1	215	150		061
6,2	215	150		062
6,3	215	150		063
6,4	215	150		064
6,5	215	150	06500	065
6,6	215	150		066
6,7	215	150		067
6,8	225	155	06800	068
6,9	225	155		069
7,0	225	155	07000	070
7,1	225	155		071
7,3	225	155		073
7,4	225	155		074
7,5	225	155	07500	075
7,7	240	165		077
7,8	240	165		078
7,9	240	165		079
8,0	240	165	08000	080
8,1	240	165		081
8,2	240	165		082
8,3	240	165		083
8,4	240	165		084
8,5	240	165	08500	085
8,6	250	175		086
8,7	250	175		087
8,8	250	175		088
9,0	250	175	09000	090
9,2	250	175		092
9,4	250	175		094
9,5	250	175	09500	095
9,6	265	185		096
9,7	265	185		097
9,8	265	185		098
9,9	265	185		099
10,0	265	185	10000	100
10,2	265	185	10200	
10,5	265	185		105
11,0	280	195		110
11,5	280	195		115
12,0	295	205		120
12,5	295	205		125
13,0	295	205		130

	10 236 ...	10 235 ...
P	●	●
M		
K	●	●
N	●	●
S		
H		
O	○	○

1) uncoated

→ v_c Page 52

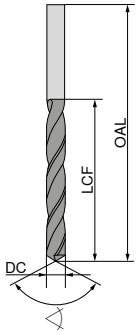
Twist drills, DIN 1869, extra-long, series 2

> 10xD

NEW

WTL
TiAlN

WTL
F.-nit







130°
HSS-E

130°
HSS

DC h8 mm	OAL mm	LCF mm	10 246 ...	10 245 ...
2,0	160	110		020 [1]
2,5	180	120		025
3,0	190	130	03000	030
3,5	210	145	03500	035
4,0	220	150	04000	040
4,5	235	160	04500	045
5,0	245	170	05000	050
5,5	260	180	05500	055
6,0	260	180	06000	060
6,5	275	190	06500	065
7,0	290	200	07000	070
7,5	290	200	07500	075
8,0	305	210	08000	080
8,5	305	210	08500	085
9,0	320	220	09000	090
9,5	320	220	09500	095
10,0	340	235	10000	100
10,2	340	235	10200	
10,5	340	235		105
11,0	365	250		110
11,5	365	250		115
12,0	375	260	12000	120
12,5	375	260		125
13,0	375	260		130
P			●	●
M				
K			●	●
N			●	●
S				
H				
O			○	○

1) uncoated

→ v_c Page 52

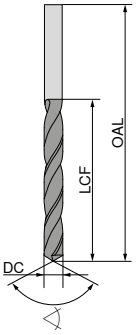
Twist drills, DIN 1869, extra-long, series 3

> 10xD

NEW

WTL
TiAlN

WTL
F.-nit







130°
HSS-E

130°
HSS

DC h8 mm	OAL mm	LCF mm	10 256 ...	10 255 ...
2,5	225	150		025
3,0	240	160		030
3,5	265	180		035
4,0	280	190	04000	040
4,5	295	200		045
5,0	315	210	05000	050
5,5	330	225		055
6,0	330	225	06000	060
6,5	350	235		065
7,0	370	250		070
7,5	370	250		075
8,0	390	265	08000	080
8,5	390	265		085
9,0	410	280		090
9,5	410	280		095
10,0	430	295	10000	100
10,5	430	295		105
11,0	455	310		110
11,5	455	310		115
12,0	480	330		120
12,5	480	330		125
13,0	480	330		130
P			●	●
M				
K			●	●
N			●	●
S				
H				
O			○	○

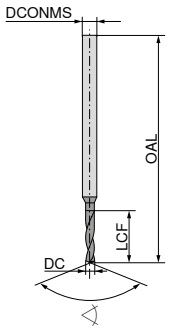
→ v_c Page 52

Twist drills, DIN 1899

- 4 facet
- with reinforced shank

Scope of supply:

- Pack quantity 5 pieces
- price per piece



N



118°
HSS-E-PM

10 103 ...

DC -0,004 mm	OAL mm	LCF mm	DCONMS h8 mm	
0,15	25	0,8	1,0	00150
0,20	25	1,5	1,0	00200
0,25	25	1,9	1,0	00250
0,30	25	1,9	1,0	00300
0,35	25	2,4	1,0	00350
0,40	25	3,0	1,0	00400
0,45	25	3,0	1,0	00450
0,50	25	3,4	1,0	00500
0,55	25	3,9	1,0	00550
0,60	25	3,9	1,0	00600
0,65	25	4,2	1,0	00650
0,70	25	4,8	1,0	00700
0,75	25	4,8	1,0	00750
0,80	25	5,3	1,5	00800
0,85	25	5,3	1,5	00850
0,90	25	6,0	1,5	00900
0,95	25	6,0	1,5	00950
1,00	25	6,8	1,5	01000
1,05	25	6,8	1,5	01050
1,10	25	7,6	1,5	01100
1,15	25	7,6	1,5	01150
1,20	25	8,5	1,5	01200
1,25	25	8,5	1,5	01250
1,30	25	8,5	1,5	01300
1,35	25	9,5	1,5	01350
1,40	25	9,5	1,5	01400
1,45	25	9,5	1,5	01450

P	●
M	○
K	●
N	●
S	○
H	
O	○

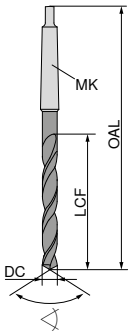
→ v_c Page 54

Twist drill, factory standard, short

≤ 3xD

WT

vap.





130°
HSS-E

10 285 ...

DC h8 mm	OAL mm	LCF mm	MK	
10,0	138	57	1	100
10,5	138	57	1	105
11,0	142	61	1	110
11,5	142	61	1	115
12,0	147	66	1	120
12,5	147	66	1	125
13,0	147	66	1	130
13,5	168	70	2	135
14,0	168	70	2	140
14,5	172	74	2	145
15,0	172	74	2	150
15,5	176	78	2	155
16,0	176	78	2	160
16,5	179	81	2	165
17,0	179	81	2	170
17,5	183	85	2	175
18,0	183	85	2	180
18,5	186	88	2	185
19,0	186	88	2	190
19,5	212	91	3	195
20,0	212	91	3	200
21,0	216	95	3	210
22,0	219	98	3	220
23,0	222	101	3	230
24,0	225	104	3	240
25,0	225	104	3	250
26,0	256	107	4	260
27,0	259	110	4	270
28,0	259	110	4	280
30,0	263	114	4	300

P	●
M	●
K	●
N	○
S	○
H	○
O	

→ v_c Page 47

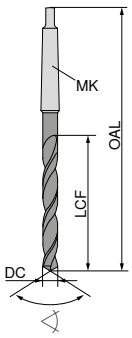
Twist drills, DIN 345

≤ 5xD

N

vap.

WTL





HSS



HSS-E

DC h8 mm	OAL mm	LCF mm	MK	10 265 ...		10 280 ...	
10,00	168	87	1	100		100	1)
10,20	168	87	1	102		102	1)
10,50	168	87	1	105		105	1)
10,80	175	94	1	108		108	1)
11,00	175	94	1	110		110	1)
11,20	175	94	1	112			
11,50	175	94	1	115		115	1)
11,80	175	94	1	118			
12,00	182	101	1	120		120	1)
12,20	182	101	1	122		122	1)
12,50	182	101	1	125		125	1)
12,80	182	101	1	128			
13,00	182	101	1	130		130	1)
13,20	182	101	1	132			
13,50	189	108	1	135		135	1)
13,80	189	108	1	138			
14,00	189	108	1	140		140	1)
14,25	212	114	2	142		142	1)
14,50	212	114	2	145		145	1)
14,75	212	114	2	147			
15,00	212	114	2	150		150	1)
15,25	218	120	2	152		152	1)
15,50	218	120	2	155		155	1)
15,75	218	120	2	157		157	1)
16,00	218	120	2	160		160	1)
16,25	223	125	2	162			
16,50	223	125	2	165		165	2)
16,75	223	125	2	167			
17,00	223	125	2	170		170	2)
17,25	228	130	2	172		172	2)
17,50	228	130	2	175		175	2)
17,75	228	130	2	177		177	2)
18,00	228	130	2	180		180	2)
18,25	233	135	2	182			
18,50	233	135	2	185		185	2)
18,75	233	135	2	187			
19,00	233	135	2	190		190	2)
19,25	238	140	2	192			
19,50	238	140	2	195			
19,75	238	140	2	197			
20,00	238	140	2	200		200	2)
20,25	243	145	2	202			
20,50	243	145	2	205			
20,75	243	145	2	207			
21,00	243	145	2	210		210	2)
21,25	248	150	2	212			
21,50	248	150	2	215			
21,75	248	150	2	217			
22,00	248	150	2	220		220	2)
22,25	248	150	2	222			
22,50	253	155	2	225		225	2)
22,75	253	155	2	227			
23,00	253	155	2	230		230	2)
23,50	276	155	3	235			
23,75	281	160	3	237			
24,00	281	160	3	240		240	2)
24,50	281	160	3	245			
24,75	281	160	3	247			
25,00	281	160	3	250		250	2)
25,50	286	165	3	255			
25,75	286	165	3	257			
26,00	286	165	3	260		260	2)
26,50	286	165	3	265			
26,75	291	170	3	267			
27,00	291	170	3	270		270	2)
27,50	291	170	3	275			
27,75	291	170	3	277			
28,00	291	170	3	280			
28,50	296	175	3	285			
28,75	296	175	3	287			
29,00	296	175	3	290			
29,50	296	175	3	295			
29,75	296	175	3	297			
30,00	296	175	3	300			
30,50	301	180	3	305			
31,00	301	180	3	310			
31,50	301	180	3	315			
32,00	334	185	4	320			
32,50	334	185	4	325			
33,00	334	185	4	330			
33,50	334	185	4	335			
34,00	339	190	4	340			
34,50	339	190	4	345			
35,00	339	190	4	350			
35,50	339	190	4	355			
36,00	344	195	4	360			
36,50	344	195	4	365			
37,00	344	195	4	370			
37,50	344	195	4	375			
38,00	349	200	4	380			
38,50	349	200	4	385			
39,00	349	200	4	390			
39,50	349	200	4	395			
40,00	349	200	4	400			
41,00	354	205	4	410			
42,00	354	205	4	420			
43,00	359	210	4	430			
44,00	359	210	4	440			
45,00	359	210	4	450			
46,00	364	215	4	460			
47,00	364	215	4	470			
48,00	369	220	4	480			
49,00	369	220	4	490			
50,00	369	220	4	500			
51,00	412	225	5	510			
52,00	412	225	5	520			
53,00	412	225	5	530			
54,00	417	230	5	540			
55,00	417	230	5	550			
56,00	417	230	5	560			
57,00	422	235	5	570			
58,00	422	235	5	580			
59,00	422	235	5	590			
60,00	422	235	5	600			

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

1) nitrided chamfer
2) vaporised

→ v_c Page 49

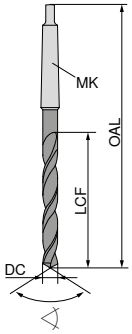
Twist drills, DIN 341, long

≤ 10xD

N

vap.

WTL





118°
HSS



130°
HSS-E

DC h8 mm	OAL mm	LCF mm	MK	10 295 ...	10 297 ...
10,00	197	116	1	100	100 1)
10,20	197	116	1	102	102 1)
10,50	197	116	1	105	105 1)
10,80	206	125	1	108	
11,00	206	125	1	110	110 1)
11,20	206	125	1	112	112 1)
11,50	206	125	1	115	115 1)
11,80	206	125	1	118	118 1)
12,00	215	134	1	120	120 1)
12,20	215	134	1	122	122 1)
12,50	215	134	1	125	125 1)
12,80	215	134	1	128	128 1)
13,00	215	134	1	130	130 1)
13,20	215	134	1	132	
13,50	223	142	1	135	135 1)
13,80	223	142	1	138	138 1)
14,00	223	142	1	140	140 1)
14,25	245	147	2	142	
14,50	245	147	2	145	145 1)
14,75	245	147	2	147	
15,00	245	147	2	150	150 1)
15,25	251	153	2	152	
15,50	251	153	2	155	155 1)
15,75	251	153	2	157	
16,00	251	153	2	160	160 1)
16,25	257	159	2	162	
16,50	257	159	2	165	165 2)
16,75	257	159	2	167	
17,00	257	159	2	170	170 2)
17,25	263	165	2	172	
17,50	263	165	2	175	175 2)
17,75	263	165	2	177	
18,00	263	165	2	180	180 2)
18,25	269	171	2	182	
18,50	269	171	2	185	185 2)
18,75	269	171	2	187	
19,00	269	171	2	190	190 2)
19,25	275	177	2	192	
19,50	275	177	2	195	195 2)
19,75	275	177	2	197	
20,00	275	177	2	200	200 2)
20,50	282	184	2	205	205 2)
21,00	282	184	2	210	210 2)
21,50	289	191	2	215	
21,75	289	191	2	217	
22,00	289	191	2	220	220 2)
22,50	296	198	2	225	
23,00	296	198	2	230	
23,50	319	198	3	235	
24,00	327	206	3	240	240 2)
24,50	327	206	3	245	
25,00	327	206	3	250	250 2)
25,50	335	214	3	255	
26,00	335	214	3	260	260 2)
26,50	335	214	3	265	
27,00	343	222	3	270	
27,50	343	222	3	275	
28,00	343	222	3	280	
29,00	351	230	3	290	
29,50	351	230	3	295	
30,00	351	230	3	300	
30,50	360	239	3	305	
31,00	360	239	3	310	
31,50	360	239	3	315	
32,00	397	248	4	320	
33,00	397	248	4	330	
33,50	397	248	4	335	
34,00	406	257	4	340	
35,00	406	257	4	350	
36,00	416	267	4	360	
37,00	416	267	4	370	
37,50	416	267	4	375	
38,00	426	277	4	380	
39,00	426	277	4	390	
40,00	426	277	4	400	
42,00	436	287	4	420	
43,00	447	298	4	430	
44,00	447	298	4	440	
45,00	447	298	4	450	
50,00	470	321	4	500	

	10 295 ...	10 297 ...
P	○	●
M		○
K	●	●
N	○	●
S		○
H		○
O	○	○

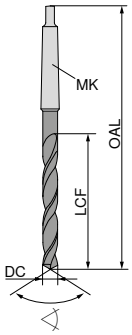
1) nitrided chamfer
2) vaporised

→ v_c Page 51

Twist drills, DIN 1870, extra-long, series 1

> 10xD

WTL





130°
HSS

10 305 ...

DC h8 mm	OAL mm	LCF mm	MK	
10,0	285	185	1	100 1)
10,5	285	185	1	105 1)
11,0	300	195	1	110 1)
11,5	300	195	1	115 1)
12,0	310	205	1	120 1)
12,5	310	205	1	125 1)
13,0	310	205	1	130 1)
13,5	325	220	1	135 1)
14,0	325	220	1	140 1)
14,5	340	220	2	145 1)
15,0	340	220	2	150 1)
15,5	355	230	2	155 1)
16,0	355	230	2	160 1)
16,5	355	230	2	165 2)
17,0	355	230	2	170 2)
17,5	370	245	2	175 2)
18,0	370	245	2	180 2)
18,5	370	245	2	185 2)
19,0	370	245	2	190 2)
19,5	385	260	2	195 2)
20,0	385	260	2	200 2)
21,0	385	260	2	210 2)
22,0	405	270	2	220 2)
23,0	405	270	2	230 2)
24,0	440	290	3	240 2)
25,0	440	290	3	250 2)
26,0	440	290	3	260 2)
28,0	460	305	3	280 2)
30,0	460	305	3	300 2)

P	●
M	
K	●
N	●
S	
H	
O	○

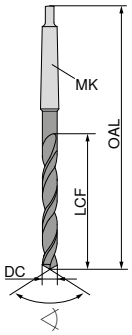
1) nitrided chamfer
2) vaporised

→ v_c Page 53

Twist drills, DIN 1870, extra-long, series 2

> 10xD

WTL





130°
HSS

10 315 ...

DC h8 mm	OAL mm	LCF mm	MK	
10,0	360	235	1	100 1)
10,5	360	235	1	105 1)
11,0	375	250	1	110 1)
11,5	375	250	1	115 1)
12,0	395	260	1	120 1)
13,0	395	260	1	130 1)
13,5	410	275	1	135 1)
14,0	410	275	1	140 1)
14,5	425	275	2	145 1)
15,0	425	275	2	150 1)
15,5	445	295	2	155 1)
16,0	445	295	2	160 1)
16,5	445	295	2	165 2)
17,0	445	295	2	170 2)
17,5	465	310	2	175 2)
18,0	465	310	2	180 2)
18,5	465	310	2	185 2)
19,0	465	310	2	190 2)
19,5	490	325	2	195 2)
20,0	490	325	2	200 2)
21,0	490	325	2	210 2)
22,0	515	345	2	220 2)
23,0	515	345	2	230 2)
24,0	555	365	3	240 2)
25,0	555	365	3	250 2)
26,0	555	365	3	260 2)
28,0	580	385	3	280 2)
30,0	580	385	3	300 2)

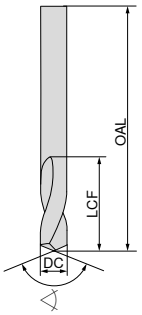
P	●
M	
K	●
N	●
S	
H	
O	○

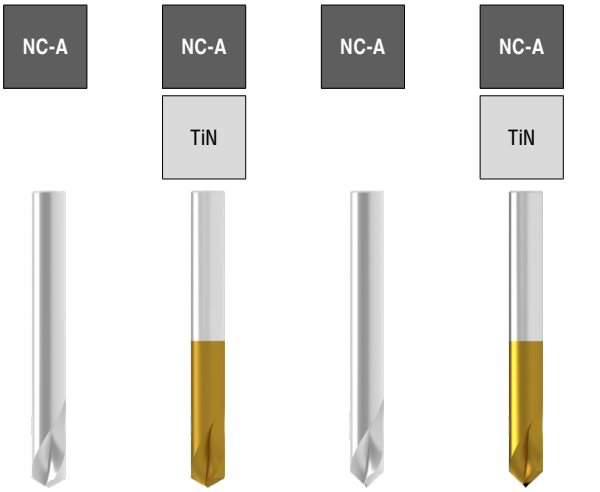
1) nitrided chamfer
2) vaporised

→ v_c Page 53

NC spot drills, factory standard

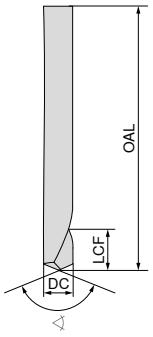
▲ helical flutes

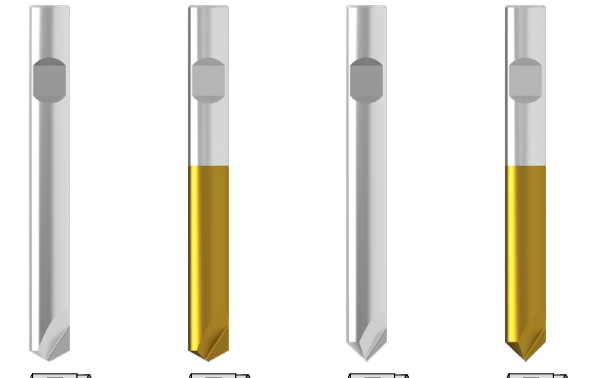




DC h6 mm	OAL mm	LCF mm	10 510 ...	10 512 ...	10 520 ...	10 522 ...
			120° HSS	120° HSS	90° HSS	90° HSS
3	46	12,0	030	030	030	030
4	55	12,0	040	040	040	040
5	62	14,0	050	050	050	050
6	66	16,0	060	060	060	060
8	79	21,0	080	080	080	080
10	89	25,0	100	100	100	100
12	102	30,0	120	120	120	120
16	115	37,5	160	160	160	160
20	131	45,0	200	200	200	200

▲ with clamping flat to DIN 1835 B



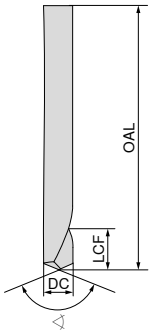


DC h6 mm	OAL mm	LCF mm	10 511 ...	10 513 ...	10 521 ...	10 523 ...
			120° HSS	120° HSS	90° HSS	90° HSS
6	66	7,0	060	060	060	060
8	79	9,0	080	080	080	080
10	89	11,5	100	100	100	100
12	102	14,0	120	120	120	120
16	115	18,0	160	160	160	160
20	131	23,0	200	200	200	200
P			15-35	25-55	15-35	25-55
M			10	20	10	20
K			20-35	30-55	20-35	30-55
N			50-70	65-85	50-70	65-85
S						
H						
O						

Suitable only for spot drilling!

NC spot drill factory standard long

▲ with clamping flat to DIN 1835 B

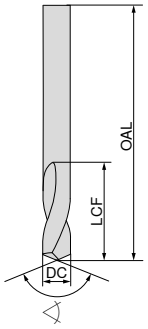


			NC-A	NC-A	NC-A	NC-A		
				TiN		TiN		
								
			~B	~B	~B	~B		
			120°	120°	90°	90°		
			HSS	HSS	HSS	HSS		
			10 530 ...	**10 532 ...**	**10 526 ...**	**10 528 ...**		
DC h6 **mm**	OAL mm	LCF mm						
6	93	7,0	**060**	**060**	**060**	**060**		
8	117	9,0	**080**	**080**	**080**	**080**		
10	133	11,5	**100**	**100**	**100**	**100**		
12	151	14,0	**120**	**120**	**120**	**120**		
16	178	18,0	**160**	**160**	**160**	**160**		
20	205	23,0	**200**	**200**	**200**	**200**		
P			**15-35**	**25-55**	**15-35**	**25-55**		
M			10	20	10	20		
K			**20-35**	**30-55**	**20-35**	**30-55**		
N			50-70	65-85	50-70	65-85		
S								
H								
O								

Suitable only for spot drilling!

NC spot drills, factory standard, long

▲ helical flutes





NC-A

90°
HSS

10 525 ...

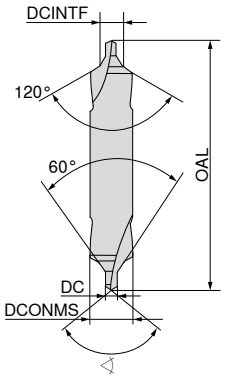
DC h6 mm	OAL mm	LCF mm	
6,35	105	17	**025**
8,00	118	21	**030**
9,52	132	25	**040**
12,70	159	30	**050**
15,87	186	37	**060**
19,05	213	45	**075**

P	**15-35**
M	10
K	**20-35**
N	50-70
S	
H	
O	

Suitable only for spot drilling!

Centre drills, DIN 333, form B

▲ with protective countersink 120°



ZB



Right-hand
118°
HSS

10 480 ...

ZB



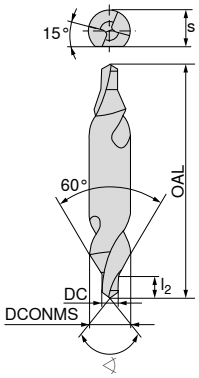
Left-hand
118°
HSS

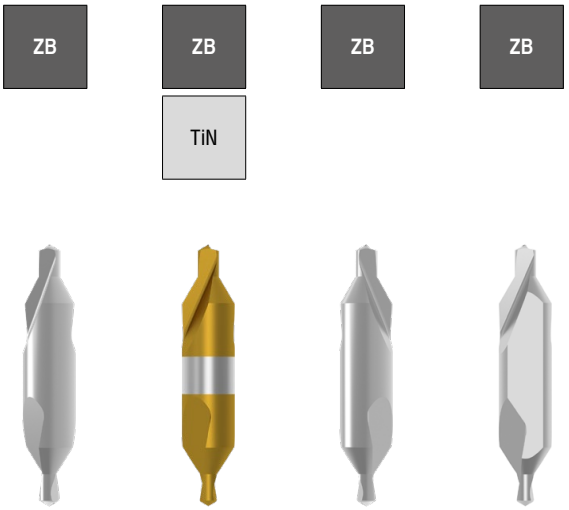
10 485 ...

DC mm	DCONMS h8 mm	DCINTF k12 mm	OAL mm		
1,00	4,0	2,12	35,5	**100**	**100**
1,25	5,0	2,65	40,0	**125**	**125**
1,60	6,3	3,35	45,0	**160**	**160**
2,00	8,0	4,25	50,0	**200**	**200**
2,50	10,0	5,30	56,0	**250**	**250**
3,15	11,2	6,70	62,0	**315**	**315**
4,00	14,0	8,50	69,0	**400**	**400**
5,00	18,0	10,60	77,0	**500**	**500**

P	**15-35**	**15-35**
M	10	10
K	**20-35**	**20-35**
N	50-70	50-70
S		
H		
O		

Centre drills, DIN 333, form A

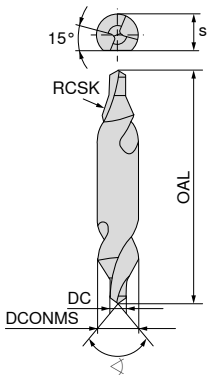




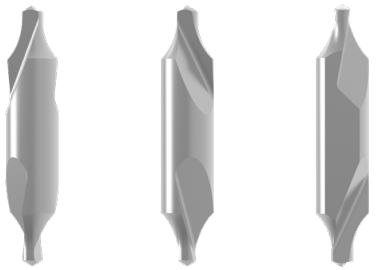
DC mm	s mm	DCONMS $_{h8}$ mm	OAL mm	l_2 mm	Right-hand ◁ 118° HSS 10 415 ...	Right-hand ◁ 118° HSS 10 425 ...	Left-hand ◁ 118° HSS 10 435 ...	Right-hand ◁ 118° HSS-E 10 445 ...
0,50		3,15	25,0	0,8	**050** [2]	**050** [2]	**050** [2]	
0,80		3,15	25,0	1,1	**080** [2]	**080** [2]	**080** [2]	
1,00		3,15	31,5	1,3	**100**	**100**	**100**	
1,25		3,15	31,5	1,6	**125**	**125**	**125**	
1,60	3,25	4,00	35,5	2,0				**160** [1]
1,60		4,00	35,5	2,0	**160**	**160**	**160**	
2,00	4,20	5,00	40,0	2,5				**200** [1]
2,00		5,00	40,0	2,5	**200**	**200**	**200**	
2,50	5,35	6,30	45,0	3,1				**250** [1]
2,50		6,30	45,0	3,1	**250**	**250**	**250**	
3,15	6,95	8,00	50,0	3,9				**315** [1]
3,15		8,00	50,0	3,9	**315**	**315**	**315**	
4,00	8,40	10,00	56,0	5,0				**400** [1]
4,00		10,00	56,0	5,0	**400**	**400**	**400**	
5,00	10,95	12,50	63,0	6,3				**500** [1]
5,00		12,50	63,0	6,3	**500**	**500**	**500**	
6,30	14,00	16,00	71,0	8,0				**630** [1]
6,30		16,00	71,0	8,0	**630**	**630**	**630**	
P					**15-35**	**25-55**	**15-35**	**15-35**
M					10	20	10	10
K					**20-35**	**30-55**	**20-35**	**20-35**
N					50-70	65-85	50-70	50-70
S								
H								
O								

1) with flat
2) Single ended

Centre drills, DIN 333, form R



ZB ZB ZB

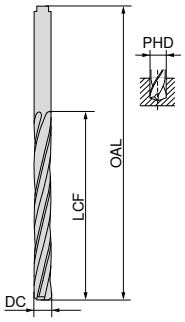


					Right-hand ◁ 118° HSS		Left-hand ◁ 118° HSS		Right-hand ◁ 118° HSS	
					10 455 ...		**10 475 ...**		**10 465 ...**	
DC mm	s mm	DCONMS $_{h8}$ mm	OAL mm	RCSK mm						
0,50		3,15	25,0	2,00	**050** [2]					
0,80		3,15	25,0	2,50	**080** [2]		**080** [2]			
1,00		3,15	31,5	2,90	**100**		**100**			
1,25		3,15	31,5	3,15	**125**		**125**			
1,60	3,25	4,00	35,5	4,00						**160** [1]
1,60		4,00	35,5	4,00	**160**		**160**			
2,00	4,20	5,00	40,0	5,00						**200** [1]
2,00		5,00	40,0	5,00	**200**		**200**			
2,50	5,35	6,30	45,0	6,30						**250** [1]
2,50		6,30	45,0	6,30	**250**		**250**			
3,15	6,95	8,00	50,0	8,00						**315** [1]
3,15		8,00	50,0	8,00	**315**		**315**			
4,00	8,40	10,00	56,0	10,00						**400** [1]
4,00		10,00	56,0	10,00	**400**		**400**			
5,00	10,95	12,50	63,0	12,50						**500** [1]
5,00		12,50	63,0	12,50	**500**		**500**			
6,30	14,00	16,00	71,0	16,00						**630** [1]
6,30		16,00	71,0	16,00	**630**					
P					**15-35**		**15-35**		**15-35**	
M					10		10		10	
K					**20-35**		**20-35**		**20-35**	
N					50-70		50-70		50-70	
S										
H										
O										

1) with flat
2) Single ended

Core drills (spiral countersinks)

▲ with cylindrical shank, DIN 344





N

vap.

120°

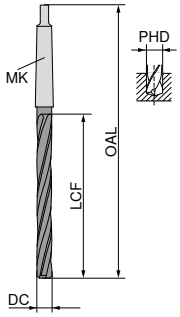
HSS

10 226 ...

DC h8 mm	OAL mm	LCF mm	PHD mm	
3,80	96	64	2,8	**038**
4,00	96	64	2,8	**040**
4,80	108	74	3,5	**048**
5,00	108	74	3,5	**050**
5,80	116	80	4,2	**058**
6,00	116	80	4,2	**060**
6,80	133	93	4,9	**068**
7,00	133	93	4,9	**070**
7,80	142	100	5,6	**078**
8,00	142	100	5,6	**080**
8,80	151	107	6,3	**088**
9,00	151	107	6,3	**090**
9,80	162	116	7,0	**098**
10,00	162	116	7,0	**100**
10,75	173	125	7,7	**107**
11,00	173	125	7,7	**110**
11,75	184	134	8,4	**117**
12,00	184	134	8,4	**120**

P	**15-35**
M	10
K	**20-35**
N	50-80
S	14-28
H	
O	

Core drills (spiral countersinks)



N

vap.



MK

120°

HSS

10 228 ...

DC h8 mm	OAL mm	LCF mm	PHD mm	MK	
10,00	168	87	7,0	1	**100**
10,75	175	94	7,7	1	**107**
11,00	175	94	7,7	1	**110**
11,75	182	101	8,4	1	**117**
12,00	182	101	8,4	1	**120**
12,75	182	101	9,1	1	**127**
13,00	182	101	9,1	1	**130**
13,75	189	108	9,8	1	**137**
14,00	189	108	9,8	1	**140**
14,75	212	114	10,5	2	**147**
15,00	212	114	10,5	2	**150**
15,75	218	120	11,2	2	**157**
16,00	218	120	11,2	2	**160**
16,75	223	125	11,9	2	**167**
17,00	223	125	11,9	2	**170**
17,75	228	130	12,6	2	**177**
18,00	228	130	12,6	2	**180**
18,70	233	135	13,3	2	**187**
19,00	233	135	13,3	2	**190**
19,70	238	140	14,0	2	**197**
20,00	238	140	14,0	2	**200**
20,70	243	145	14,6	2	**207**
21,00	243	145	14,6	2	**210**
21,70	248	150	15,3	2	**217**
22,00	248	150	15,3	2	**220**
22,70	253	155	16,0	2	**227**
23,00	253	155	16,0	2	**230**
23,70	281	160	16,6	3	**237**
24,00	281	160	16,6	3	**240**
24,70	281	160	17,3	3	**247**
25,00	281	160	17,3	3	**250**
25,70	286	165	18,0	3	**257**
26,00	286	165	18,0	3	**260**
26,70	291	170	18,6	3	**267**
27,00	291	170	18,6	3	**270**
27,70	291	170	19,3	3	**277**
28,00	291	170	19,3	3	**280**
28,70	296	175	20,0	3	**287**
29,00	296	175	20,0	3	**290**
29,70	296	175	20,5	3	**297**
30,00	296	175	20,5	3	**300**

P	**15-35**
M	10
K	**20-35**
N	50-80
S	14-28
H	
O	

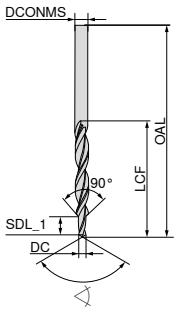
Stepped drills, DIN 8378

- Countersinking angle 90°
- for tapping drill holes according to DIN 336, Table 1 with 90 ° chamfer and for through holes according to DIN EN 20273 – medium
- the feed rate has to be selected based on the small Ø DC

DIN 8378

SB

vap.





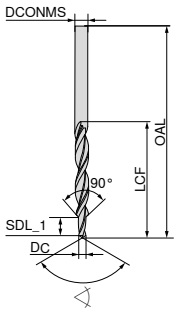
118°
HSS

10 365 ...

For threads	DC h9 mm	DCONMS h8 mm	OAL mm	SDL_1 mm	LCF mm	
M3	2,5	3,4	70	8,8	39	030
M4	3,3	4,5	80	11,4	47	040
M5	4,2	5,5	93	13,6	57	050
M6	5,0	6,6	101	16,5	63	060
M8	6,8	9,0	125	21,0	81	080
M10	8,5	11,0	142	25,5	94	100
M12	10,2	13,5	160	30,0	108	120

- for through holes according to DIN EN 20273 – fine
- with 90° screw head countersink
- the feed rate has to be selected based on the small Ø DC

DIN 8374





118°
HSS

10 355 ...

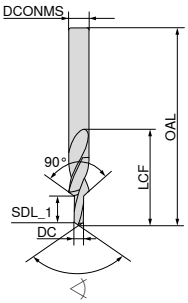
For threads	DC h9 mm	DCONMS h8 mm	OAL mm	SDL_1 mm	LCF mm	
M3	3,2	6,0	93	9	57	030
M4	4,3	8,0	117	11	75	040
M5	5,3	10,0	133	13	87	050
M6	6,4	11,5	142	15	94	060
M8	8,4	15,0	169	19	114	080
M10	10,5	19,0	198	23	135	100

P	**15-35**
M	10
K	**20-35**
N	50-80
S	
H	
O	

Stepped drills, overall length to DIN 1897

- Countersinking angle 90°
- for tapping drill holes according to DIN 336, Table 1 with 90 ° chamfer and for through holes according to DIN EN 20273 – medium
- the feed rate has to be selected based on the small Ø DC

SB





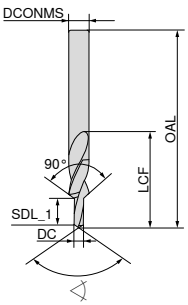
118°
HSS

10 320 ...

For threads	DC h6 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	LCF mm	
M3	2,5	3,4	52	8,8	20	030
M4	3,3	4,5	58	11,4	24	040
M5	4,2	5,5	66	13,6	28	050
M6	5,0	6,6	70	16,5	31	060
M8	6,8	9,0	84	21,0	40	080
M10	8,5	11,0	95	25,5	47	100
M12	10,2	13,5	107	30,0	54	120

- for through holes according to DIN EN 20273 – fine
- with 90° screw head countersink
- the feed rate has to be selected based on the small Ø DC

DIN 8374





118°
HSS

10 330 ...

For threads	DC h6 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	LCF mm	
M3	3,2	6,0	66	9	28	030
M4	4,3	8,0	79	11	37	040
M5	5,3	10,0	89	13	43	050
M6	6,4	11,5	95	15	47	060
M8	8,4	15,0	111	19	56	080
M10	10,5	19,0	127	23	64	100

P	**15-35**
M	10
K	**20-35**
N	50-80
S	
H	
O	

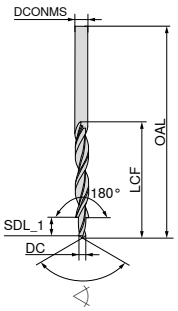
Stepped drills, DIN 8376

- Countersinking angle 180°
- for through holes according to DIN EN 20273 – Medium
- for screw heads to DIN 974-1 – Series 1
- the feed rate has to be selected based on the small Ø DC

DIN 8376

SB

vap.





118°
HSS

10 375 ...

For threads	DC h9 mm	DCONMS h8 mm	OAL mm	SDL_1 mm	LCF mm	
M3	3,4	6	93	9	57	**030** 1)
M4	4,5	8	117	11	75	**040**
M5	5,5	10	133	13	87	**050**
M6	6,6	11	142	15	94	**060**
M8	9,0	15	169	19	114	**080**
M10	11,0	18	191	23	130	**100**

P	**15-35**
M	10
K	**20-35**
N	50-80
S	
H	
O	

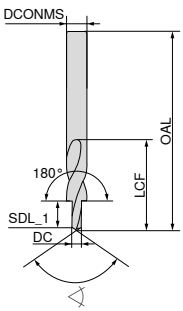
1) DCONMS not according to DIN 974-1

Stepped drills, factory standard, total length according to DIN 1897

- Countersinking angle 180°
- for through holes according to DIN EN 20273 – Medium
- for screw heads to DIN 974-1 – Series 1
- the feed rate has to be selected based on the small Ø DC

DIN 8376

SB





118°
HSS

10 340 ...

For threads	DC h6 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	LCF mm	
M3	3,4	6	66	9	28	**030** 1)
M4	4,5	8	79	11	37	**040**
M5	5,5	10	89	13	43	**050**
M6	6,6	11	95	15	47	**060**
M8	9,0	15	111	19	56	**080**
M10	11,0	18	123	23	62	**100**

P	**15-35**
M	10
K	**20-35**
N	50-80
S	
H	
O	

1) DCONMS not according to DIN 974-1

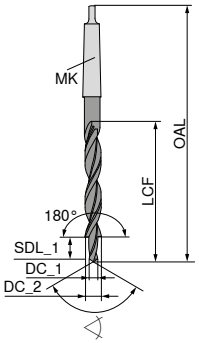
Stepped drills, DIN 8377

- Countersinking angle 180°
- for through holes according to DIN EN 20273 – Medium
- for screw heads to DIN 974-1 – Series 1
- the feed rate has to be selected based on the small Ø DC

DIN 8377

SB

vap.





HSS

For threads	DC_1 h9 mm	DC_2 mm	OAL mm	SDL_1 mm	LCF mm	MK	10 405 ...
M5	5,5	10	168	13	87	1	**050**
M6	6,6	11	175	15	94	1	**060**
M8	9,0	15	212	19	114	2	**080**
M10	11,0	18	228	23	130	2	**100**
M12	13,5	20	238	27	140	2	**120**
M14	15,5	24	281	31	160	3	**140**
M16	17,5	26	286	35	165	3	**160**
M18	20,0	30	296	39	175	3	**180**
M20	22,0	33	334	43	185	4	**200**

P	**15-35**
M	10
K	**20-35**
N	50-80
S	
H	
O	

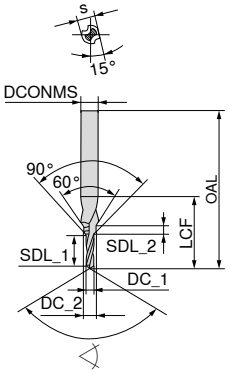
Stepped drills for centring, factory standard

- with flat
- Countersinking angle 60°
- Special drill for creating tapping drill holes with centring, 60° countersinking angle according to DIN 332, sheet 2, form D.
- Point thinning ≥ Ø 3,3 mm
- the feed rate has to be selected based on the small Ø DC



SB

vap.





118°
HSS

10 350 ...

For threads	DC_1 h8 mm	DCONMS h7 mm	DC_2 mm	s mm	OAL mm	SDL_1 mm	LCF mm	SDL_2 mm	
M4	3,3	8,0	4,3	6,75	63	11,0	23	1,60	**040**
M5	4,2	10,0	5,3	8,45	67	13,0	27	2,15	**050**
M6	5,0	12,5	6,4	10,45	71	16,0	33	2,90	**060**
M8	6,8	14,0	8,4	12,50	88	19,5	41	3,50	**080**
M10	8,5	16,0	10,5	14,85	94	23,0	47	4,70	**100**
M12	10,2	20,0	13,0	18,45	105	28,0	59	6,50	**120**
M16	14,0	25,0	17,0	23,40	132	33,0	67	8,30	**160**
M20	17,5	31,5	21,0	29,35	145	38,0	77	10,35	**200**
M24	21,0	40,0	25,0	36,50	160	45,0	90	12,00	**240**

P	**15-35**
M	10
K	**20-35**
N	50-80
S	
H	
O	

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²				
		O.3.1	Graphite						

*** Tensile strength**

Cutting data standard values – Hole depth 3xD

	Type VX-TiN 10 122 ...		Type UNI-PM-TiN 10 113 ...		Type UNI-TiN 10 107 ...		Type N 10 105 ...		Type VA 10 130 ...		Type WNX 10 106 ...	
Index	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F
P.1.1	**46**	6	**44**	6	**46**	6	28	6	38	5	**38**	6
P.1.2	**39**	5	**37**	5	**39**	5	24	5	32	4	**32**	5
P.1.3	**35**	5	**33**	5	**35**	5	21	5	29	4	**29**	5
P.1.4	**32**	5	**31**	5	**32**	5	20	5	27	4	**27**	5
P.1.5	**28**	5	**26**	5	**28**	5	17	5			**23**	5
P.2.1	**35**	5	**32**	6	**35**	5	17	4	25	5	**28**	6
P.2.2	**24**	4	**23**	5	**24**	4	12	3	18	4	**20**	5
P.2.3	**21**	4	**19**	5	**21**	4	10	3			**17**	5
P.2.4	**19**	3	**18**	4	**19**	3	9	2			**15**	4
P.3.1	**17**	4	**21**	4	**17**	4	13	4			**18**	4
P.3.2	**13**	3	**16**	3	**13**	3					**14**	3
P.3.3	**12**	3	**15**	3	**12**	3					**13**	3
P.4.1	**18**	4	**14**	3	**18**	4			15	3	**13**	3
P.4.2	**17**	3	**14**	2	**17**	3			14	2	**12**	2
M.1.1	**15**	4			**15**	4			**13**	3		
M.2.1	**12**	3			**12**	3			**11**	2		
M.3.1	**10**	3			**10**	3			**9**	2		
K.1.1	**41**	6	**46**	6	**41**	6	**30**	6			**40**	6
K.1.2	**33**	6	**37**	6	**33**	6	**24**	6			**32**	6
K.2.1	**35**	6	**39**	6	**35**	6	**26**	6			**34**	6
K.2.2	**27**	5	**30**	5	**27**	5	**20**	5			**26**	5
K.3.1	**35**	6	**39**	6	**35**	6	**26**	6			**34**	6
K.3.2	**27**	5	**30**	5	**27**	5	**20**	5			**26**	5
N.1.1									**80**	7		
N.1.2									**80**	7		
N.2.1	75	6	69	6	75	6	50	6	**65**	6	60	6
N.2.2	60	5	55	5	60	5	40	5	**52**	5	48	5
N.2.3	52	5	48	5	52	5	35	5	**46**	5	42	5
N.3.1	69	5	64	5	69	5	60	5	**60**	5	56	5
N.3.2	41	4	39	4	41	4	36	4	**36**	4	34	4
N.3.3	55	4	52	4	55	4	48	4	**48**	4	45	4
N.4.1	70	5	60	5	70	5	45	5	**6**	5	55	5
S.1.1			7	2					8	1	6	2
S.1.2			6	1					6	1	5	1
S.2.1			6	2					7	1	5	2
S.2.2												
S.2.3												
S.3.1	9	2			9	2			10	2		
S.3.2	6	1			6	1			7	1		
S.3.3									6	2		
H.1.1			6	1							5	1
H.1.2												
H.1.3												
H.1.4												
H.2.1			10	3							9	3
H.3.1												
O.1.1	29	4	23	4	29	4	20	5			20	4
O.1.2	29	4			29	4	20	5				
O.2.1	29	4	23	4	29	4	20	5			20	4
O.2.2	29	4	23	4	29	4	20	5			20	4
O.3.1												

The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

	Type WT 10 109 ...		Type WT-TiN 10 110 ...		Type WTL-L 10 112 ...		Type WT-MK 10 285 ...	
Index	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F
P.1.1	**38**	6	**44**	6	28	6	**38**	6
P.1.2	**32**	5	**37**	5	24	5	**32**	5
P.1.3	**29**	5	**33**	5	21	5	**29**	5
P.1.4	**27**	5	**31**	5	20	5	**27**	5
P.1.5	**23**	5	**26**	5	17	5	**23**	5
P.2.1	**25**	5	**29**	5	17	4	**25**	5
P.2.2	**18**	4	**20**	4	12	3	**18**	4
P.2.3	**15**	4	**17**	4	10	3	**15**	4
P.2.4	**14**	3	**16**	3	9	2	**14**	3
P.3.1	**16**	4	**18**	4	13	4	**16**	4
P.3.2	**12**	3	**14**	3			**12**	3
P.3.3	**12**	3	**14**	3			**12**	3
P.4.1	**14**	3	**17**	3			**14**	3
P.4.2	**14**	2	**16**	2			**14**	2
M.1.1	**12**	3	**14**	3			**12**	3
M.2.1	**10**	2	**12**	2			**10**	2
M.3.1	**8**	2	**10**	2			**8**	2
K.1.1	**35**	6	**40**	6	**30**	6	**35**	6
K.1.2	**28**	6	**32**	6	**24**	6	**28**	6
K.2.1	**30**	6	**34**	6	**26**	6	**30**	6
K.2.2	**23**	5	**26**	5	**20**	5	**23**	5
K.3.1	**30**	6	**34**	6	**26**	6	**30**	6
K.3.2	**23**	5	**26**	5	**20**	5	**23**	5
N.1.1					**60**	7		
N.1.2					**60**	7		
N.2.1					**50**	6		
N.2.2					**40**	5		
N.2.3					**35**	5		
N.3.1	62	5	71	5	**60**	5	62	5
N.3.2	37	4	43	4	**36**	4	37	4
N.3.3					**48**	4		
N.4.1					**45**	5		
S.1.1	8	1	**9**	1			8	1
S.1.2	6	1	**7**	1			6	1
S.2.1	7	1	**8**	1			7	1
S.2.2			**5**	1				
S.2.3			**6**	1				
S.3.1	10	2	**12**	2			10	2
S.3.2	7	1	**7**	1			7	1
S.3.3	6	2	**7**	2			6	2
H.1.1	4	1	5	1			4	1
H.1.2								
H.1.3								
H.1.4								
H.2.1	8	3	9	3			8	3
H.3.1								
O.1.1					20	4		
O.1.2								
O.2.1					20	4		
O.2.2					20	4		
O.3.1								

When drilling tough materials which tend to jam, chips should be removed at drilling depth ≥ 4xD and the cutting speed v_c should be reduced as follows: at drilling depths > 4xD by 10%, at drilling depths > 6xD by 15–20%.
It is also recommended to use an emulsion for cooling.

v_c = Cutting speed in m/min.
F = Factor for feed selection
Feed approximate values see → **Page 55**

Cutting data standard values – Hole depth 5xD

	Type VX-TiN 10 124 ...		Type UNI-PM-TiN 10 173 ...		Type UNI-TiN 10 171 ...		Type N 10 152 ...		Type VA 10 175 ...		Type W 10 161 ...		Type WTL 10 168 ...	
Index	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F
P.1.1	**46**	6	**44**	6	**46**	6	28	6	38	5			**32**	6
P.1.2	**39**	5	**37**	5	**39**	5	24	5	32	4			**27**	5
P.1.3	**35**	5	**33**	5	**35**	5	21	5	29	4			**24**	5
P.1.4	**32**	5	**31**	5	**32**	5	20	5	27	4			**23**	5
P.1.5	**28**	5	**26**	5	**28**	5	17	5					**19**	5
P.2.1	**35**	5	**32**	6	**35**	5	17	4	25	5			**20**	5
P.2.2	**24**	4	**23**	5	**24**	4	12	3	18	4			**14**	4
P.2.3	**21**	4	**19**	5	**21**	4	10	3					**12**	4
P.2.4	**19**	3	**18**	4	**19**	3	9	2					**11**	3
P.3.1	**17**	4	**21**	4	**17**	4	13	4					**15**	4
P.3.2	**13**	3	**16**	3	**13**	3							**11**	3
P.3.3	**12**	3	**15**	3	**12**	3							**10**	3
P.4.1	**18**	4	**14**	3	**18**	4			15	3			**10**	3
P.4.2	**17**	3	**14**	2	**17**	3			14	2			**10**	2
M.1.1	**15**	4			**15**	4			**13**	3			9	3
M.2.1	**14**	4			**14**	4			**12**	3			8	2
M.3.1	**10**	3			**10**	3			**9**	2				
K.1.1	**41**	6	**46**	6	**41**	6	**30**	6					**35**	6
K.1.2	**33**	6	**37**	6	**33**	6	**24**	6					**28**	6
K.2.1	**35**	6	**39**	6	**35**	6	**26**	6					**29**	6
K.2.2	**27**	5	**30**	5	**27**	5	**20**	5					**22**	5
K.3.1	**35**	6	**39**	6	**35**	6	**26**	6					**29**	6
K.3.2	**27**	5	**30**	5	**27**	5	**20**	5					**22**	5
N.1.1									**80**	7	**70**	7	**69**	7
N.1.2									**80**	7	**70**	7	**69**	7
N.2.1	75	6	69	6	75	6	50	6	**65**	6	**60**	6	**58**	6
N.2.2	60	5	55	5	60	5	40	5	**52**	5			**46**	5
N.2.3	52	5	48	5	52	5	35	5	**46**	5			**40**	5
N.3.1	69	5	64	5	69	5	60	5	**60**	5			**69**	5
N.3.2	41	4	39	4	41	4	36	4	**36**	4			**41**	4
N.3.3	55	4	52	4	55	4	48	4	**48**	4	**56**	4	**55**	4
N.4.1	75	6	65	6	70	6	45	6	**60**	6	**60**	6	**6**	6
S.1.1			7	2					8	1			7	2
S.1.2			6	1					6	1			6	1
S.2.1			6	2					7	1			6	2
S.2.2													3	1
S.2.3													4	1
S.3.1	9	2			9	2			10	2			6	2
S.3.2	6	1			6	1			7	1			4	1
S.3.3									6	1				
H.1.1			6	1									5	1
H.1.2														
H.1.3														
H.1.4														
H.2.1			10	3									9	3
H.3.1														
O.1.1	29	4	23	4	29	4	20	5					23	4
O.1.2	29	4			29	4	20	5					23	4
O.2.1	29	4	23	4	29	4	20	5					23	4
O.2.2	29	4	23	4	29	4	20	5					23	4
O.3.1														

The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

	Type WTL-TiN 10 170 ...		Type WTL-TiCN 10 172 ...		Type WTL-L 10 169 ...		Type WNXi 10 180 ...		Type WNXi-TiN 10 181 ...		Type N-MK 10 265 ...		Type WTL-MK 10 280 ...	
Index	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F
P.1.1	**37**	6	**37**	6	28	6	**45**	7	**52**	7	28	6	**32**	6
P.1.2	**31**	5	**31**	5	24	5	**38**	6	**44**	6	24	5	**27**	5
P.1.3	**28**	5	**28**	5	21	5	**34**	6	**39**	6	21	5	**24**	5
P.1.4	**26**	5	**26**	5	20	5	**32**	6	**36**	6	20	5	**23**	5
P.1.5	**22**	5	**22**	5	17	5	**27**	6	**31**	6	17	5	**19**	5
P.2.1	**22**	5	**22**	5	17	5	**27**	5	**31**	5	17	4	**20**	5
P.2.2	**16**	4	**16**	4	12	4	**19**	4	**22**	4	12	3	**14**	4
P.2.3	**13**	4	**13**	4	10	4	**16**	4	**19**	4	10	3	**12**	4
P.2.4	**12**	3	**12**	3	9	3	**15**	3	**17**	3	9	2	**11**	3
P.3.1	**17**	4	**17**	4	13	4	**21**	5	**24**	5	13	4	**15**	4
P.3.2	**13**	3	**13**	3	10	3	**16**	4	**18**	4			**11**	3
P.3.3	**12**	3	**12**	3			**15**	4	**17**	4			**10**	3
P.4.1	**12**	3	**12**	3			**14**	4	**17**	4			**10**	3
P.4.2	**11**	2	**11**	2			**14**	3	**16**	3			**10**	2
M.1.1	11	3	11	3									9	3
M.2.1													8	2
M.3.1														
K.1.1	**40**	6	**40**	6	**30**	6	**48**	7	**56**	7	**30**	6	**35**	6
K.1.2	**32**	6	**32**	6	**24**	6	**39**	7	**44**	7	**24**	6	**28**	6
K.2.1	**34**	6	**34**	6	**26**	6	**41**	7	**47**	7	**26**	6	**29**	6
K.2.2	**26**	5	**26**	5	**20**	5	**31**	6	**36**	6	**20**	5	**22**	5
K.3.1	**34**	6	**34**	6	**26**	6	**41**	7	**47**	7	**26**	6	**29**	6
K.3.2	**26**	5	**26**	5	**20**	5	**31**	6	**36**	6	**20**	5	**22**	5
N.1.1					**60**	7							**69**	7
N.1.2					**60**	7							**69**	7
N.2.1	66	6	66	6	**50**	6	81	7	93	7	50	6	**58**	6
N.2.2	53	5	53	5	**40**	5	64	6	74	6	40	5	**46**	5
N.2.3	46	5	46	5	**35**	5	56	6	65	6	35	5	**40**	5
N.3.1	79	5	79	5	**60**	5	97	6	111	6	60	5	**69**	5
N.3.2	48	4	48	4	**36**	4	58	5	67	5	36	4	**41**	4
N.3.3	63	4	63	4	**48**	4	77	5	89	5	48	4	**55**	4
N.4.1	60	6	60	6	**45**	6	70	7	80	7	45	6	**50**	6
S.1.1	8	2	8	2									7	2
S.1.2	6	1	6	1									6	1
S.2.1	7	2	7	2									6	2
S.2.2	4	1	4	1									3	1
S.2.3	5	1	5	1									4	1
S.3.1	7	2	7	2									6	2
S.3.2	4	1	4	1									4	1
S.3.3														
H.1.1	5	1	5	1									5	1
H.1.2														
H.1.3														
H.1.4														
H.2.1	11	3	11	3									9	3
H.3.1														
O.1.1	26	4	26	4	20	4	32	5	37	5	20	5	23	4
O.1.2	26	4	26	4	20	4					20	5	23	4
O.2.1	26	4	26	4	20	4	32	5	37	5	20	5	23	4
O.2.2	26	4	26	4	20	4	32	5	37	5	20	5	23	4
O.3.1														

When drilling tough materials which tend to jam, chips should be removed at drilling depth ≥ 4xD and the cutting speed v_c should be reduced as follows: at drilling depths > 4xD by 10%, at drilling depths > 6xD by 15–20%.
It is also recommended to use an emulsion for cooling.

v_c = Cutting speed in m/min.
F = Factor for feed selection
Feed approximate values see → **Page 55**

Cutting data standard values – Hole depth 10xD

	Type NC 10 223 ...		Type NC-TiALN 10 224 ...		Type UNI-TiN 10 270 ...		Type WTL 10 225 ...		Type WTL 10 215 ...	
Index	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F
P.1.1	35	7	41	7	**41**	6	**29**	6	25	6
P.1.2	30	6	34	6	**35**	5	**25**	5	21	5
P.1.3	26	6	30	6	**31**	5	**22**	5	19	5
P.1.4	25	6	28	6	**29**	5	**20**	5	18	5
P.1.5	21	6	24	6	**25**	5	**17**	5	15	5
P.2.1	21	5	25	5	**31**	5	**18**	5	15	5
P.2.2	15	4	17	4	**22**	4	**12**	4	11	4
P.2.3	13	4	15	4	**19**	4	**11**	4	9	4
P.2.4	12	3	14	3	**17**	3	**10**	3	8	3
P.3.1	16	5	19	5	**16**	4	**13**	4	12	4
P.3.2					**12**	3	**10**	3	9	3
P.3.3					**10**	2	**8**	3		
P.4.1			13	4	**16**	4	**9**	3		
P.4.2			12	3	**15**	3	**9**	2		
M.1.1			12	4	**13**	4	8	3		
M.2.1			8	3	**8**	3	2	2		
M.3.1					**9**	3				
K.1.1	**38**	7	**43**	7	**37**	6	**31**	6	**27**	6
K.1.2	**30**	7	**35**	7	**30**	6	**25**	6	**22**	6
K.2.1	**32**	7	**37**	7	**32**	6	**26**	6	**23**	6
K.2.2	**25**	6	**28**	6	**24**	5	**20**	5	**18**	5
K.3.1	**32**	7	**37**	7	**32**	6	**26**	6	**23**	6
K.3.2	**25**	6	**28**	6	**24**	5	**20**	5	**18**	5
N.1.1							**62**	7	**54**	7
N.1.2							**62**	7	**54**	7
N.2.1	63	7	72	7	67	6	**52**	6	**45**	6
N.2.2	50	6	58	6	54	5	**41**	5	**36**	5
N.2.3	44	6	51	6	47	5	**36**	5	**32**	5
N.3.1	76	6	87	6	62	5	**62**	5	**54**	5
N.3.2	45	5	52	5	37	4	**37**	4	**32**	4
N.3.3	60	5	70	5	50	4	**50**	4	**43**	4
N.4.1	60	5	50	6	50	6	**50**	6	**45**	5
S.1.1							6	2		
S.1.2							5	1		
S.2.1							5	2		
S.2.2							3	1		
S.2.3							4	1		
S.3.1					8	2	5	2		
S.3.2					5	1	3	1		
S.3.3										
H.1.1							4	1		
H.1.2										
H.1.3										
H.1.4										
H.2.1							8	3		
H.3.1										
O.1.1	25	6	29	6	26	4	21	4	18	4
O.1.2	25	6	29	6	26	4	21	4	18	4
O.2.1	25	6	29	6	26	4	21	4	18	4
O.2.2	25	6	29	6	26	4	21	4	18	4
O.3.1										

The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

	Type WTL-TiN 10 210 ...		Type WTW 10 200 ...		Type N-MK 10 295 ...		Type WTL-MK 10 297 ...	
Index	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F
P.1.1	29	6			25	6	**29**	6
P.1.2	25	5			21	5	**25**	5
P.1.3	22	5			19	5	**22**	5
P.1.4	20	5			18	5	**20**	5
P.1.5	17	5			15	5	**17**	5
P.2.1	18	5			15	4	**18**	5
P.2.2	12	4			11	3	**12**	4
P.2.3	11	4			9	3	**11**	4
P.2.4	10	3			8	2	**10**	3
P.3.1	13	4			12	4	**13**	4
P.3.2	10	3					**10**	3
P.3.3	8	3					**8**	3
P.4.1							**9**	3
P.4.2							**9**	2
M.1.1							8	3
M.2.1							2	2
M.3.1								
K.1.1	**31**	6			**27**	6	**31**	6
K.1.2	**25**	6			**22**	6	**25**	6
K.2.1	**26**	6			**23**	6	**26**	6
K.2.2	**20**	5			**18**	5	**20**	5
K.3.1	**26**	6			**23**	6	**26**	6
K.3.2	**20**	5			**18**	5	**20**	5
N.1.1			**72**	7			**62**	7
N.1.2			**72**	7			**62**	7
N.2.1	52	6			45	6	**52**	6
N.2.2	41	5			36	5	**41**	5
N.2.3	36	5			32	5	**36**	5
N.3.1	62	5			54	5	**62**	5
N.3.2	37	4			32	4	**37**	4
N.3.3	50	4			43	4	**50**	4
N.4.1	50	5			60	6	**50**	6
S.1.1							6	2
S.1.2							5	1
S.2.1							5	2
S.2.2							3	1
S.2.3							4	1
S.3.1							5	2
S.3.2							3	1
S.3.3								
H.1.1							4	1
H.1.2								
H.1.3								
H.1.4								
H.2.1							8	3
H.3.1								
O.1.1	21	4			18	5	21	4
O.1.2	21	4			18	5	21	4
O.2.1	21	4			18	5	21	4
O.2.2	21	4			18	5	21	4
O.3.1								

When drilling tough materials which tend to jam, chips should be removed at drilling depth ≥ 4xD and the cutting speed v_c should be reduced as follows: at drilling depths > 4xD by 10%, at drilling depths > 6xD by 15–20%.
It is also recommended to use an emulsion for cooling.

v_c = Cutting speed in m/min.
F = Factor for feed selection
Feed approximate values see → **Page 55**

Cutting data standard values – hole depth greater than 10xD

	Type WTL-R1 10 235 ...		Type WTL-R2 10 245 ...		Type WTL-R3 10 255 ...		Type WTL-TiAlN-R1 10 236 ...		Type WTL-TiAlN-R2 10 246 ...		Type WTL-TiAlN-R3 10 256 ...	
Index	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F	v_c in m/min	F
P.1.1	**21**	5	**21**	5	**21**	5	**24**	5	**24**	5	**24**	5
P.1.2	**18**	4	**18**	4	**18**	4	**21**	4	**21**	4	**21**	4
P.1.3	**16**	4	**16**	4	**16**	4	**18**	4	**18**	4	**18**	4
P.1.4	**15**	4	**15**	4	**15**	4	**17**	4	**17**	4	**17**	4
P.1.5	**13**	4	**13**	4	**13**	4	**14**	4	**14**	4	**14**	4
P.2.1	**13**	4	**13**	4	**13**	4	**15**	4	**15**	4	**15**	4
P.2.2	**9**	3	**9**	3	**9**	3	**10**	3	**10**	3	**10**	3
P.2.3	**8**	3	**8**	3	**8**	3	**9**	3	**9**	3	**9**	3
P.2.4	**7**	2	**7**	2	**7**	2	**8**	2	**8**	2	**8**	2
P.3.1	**10**	3	**10**	3	**10**	3	**11**	3	**11**	3	**11**	3
P.3.2	**7**	2	**7**	2	**7**	2	**8**	2	**8**	2	**8**	2
P.3.3	**6**	2	**6**	2	**6**	2	**7**	2	**7**	2	**7**	2
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1	**23**	5	**23**	5	**23**	5	**26**	5	**26**	5	**26**	5
K.1.2	**18**	5	**18**	5	**18**	5	**21**	5	**21**	5	**21**	5
K.2.1	**19**	5	**19**	5	**19**	5	**22**	5	**22**	5	**22**	5
K.2.2	**15**	4	**15**	4	**15**	4	**17**	4	**17**	4	**17**	4
K.3.1	**19**	5	**19**	5	**19**	5	**22**	5	**22**	5	**22**	5
K.3.2	**15**	4	**15**	4	**15**	4	**17**	4	**17**	4	**17**	4
N.1.1	**45**	6	**45**	6	**45**	6	**52**	6	**52**	6	**52**	6
N.1.2	**45**	6	**45**	6	**45**	6	**52**	6	**52**	6	**52**	6
N.2.1	**38**	5	**38**	5	**38**	5	**43**	5	**43**	5	**43**	5
N.2.2	**30**	4	**30**	4	**30**	4	**35**	4	**35**	4	**35**	4
N.2.3	**26**	4	**26**	4	**26**	4	**30**	4	**30**	4	**30**	4
N.3.1	**45**	4	**45**	4	**45**	4	**52**	4	**52**	4	**52**	4
N.3.2	**27**	3	**27**	3	**27**	3	**31**	3	**31**	3	**31**	3
N.3.3	**36**	3	**36**	3	**36**	3	**41**	3	**41**	3	**41**	3
N.4.1	**55**	5	**55**	5	**55**	5	**60**	6	**60**	6	**60**	6
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1	15	3	15	3	15	3	17	3	17	3	17	3
O.1.2	15	3	15	3	15	3	17	3	17	3	17	3
O.2.1	15	3	15	3	15	3	17	3	17	3	17	3
O.2.2	15	3	15	3	15	3	17	3	17	3	17	3
O.3.1												

The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

	Type WTL-MK-R1 10 305 ...		Type WTL-MK-R2 10 315 ...	
Index	v_c in m/min	F	v_c in m/min	F
P.1.1	**21**	5	**21**	5
P.1.2	**18**	4	**18**	4
P.1.3	**16**	4	**16**	4
P.1.4	**15**	4	**15**	4
P.1.5	**13**	4	**13**	4
P.2.1	**13**	4	**13**	4
P.2.2	**9**	3	**9**	3
P.2.3	**8**	3	**8**	3
P.2.4	**7**	2	**7**	2
P.3.1	**10**	3	**10**	3
P.3.2	**7**	2	**7**	2
P.3.3	**6**	2	**6**	2
P.4.1				
P.4.2				
M.1.1				
M.2.1				
M.3.1				
K.1.1	**23**	5	**23**	5
K.1.2	**18**	5	**18**	5
K.2.1	**19**	5	**19**	5
K.2.2	**15**	4	**15**	4
K.3.1	**19**	5	**19**	5
K.3.2	**15**	4	**15**	4
N.1.1	**45**	6	**45**	6
N.1.2	**45**	6	**45**	6
N.2.1	**38**	5	**38**	5
N.2.2	**30**	4	**30**	4
N.2.3	**26**	4	**26**	4
N.3.1	**45**	4	**45**	4
N.3.2	**27**	3	**27**	3
N.3.3	**36**	3	**36**	3
N.4.1	**55**	5	**55**	5
S.1.1				
S.1.2				
S.2.1				
S.2.2				
S.2.3				
S.3.1				
S.3.2				
S.3.3				
H.1.1				
H.1.2				
H.1.3				
H.1.4				
H.2.1				
H.3.1				
O.1.1	15	3	15	3
O.1.2	15	3	15	3
O.2.1	15	3	15	3
O.2.2	15	3	15	3
O.3.1				

When drilling tough materials which tend to jam, chips should be removed at drilling depth ≥ 4xD and the cutting speed v_c should be reduced as follows: at drilling depths > 4xD by 10%, at drilling depths > 6xD by 15–20%.
It is also recommended to use an emulsion for cooling.

v_c = Cutting speed in m/min.
F = Factor for feed selection
Feed approximate values see → **Page 55**

Cutting data standard values – micro drills 10 103 ...

		Nominal Ø in mm						
		Ø 0,15	Ø 0,20–0,25	Ø 0,30–0,35	Ø 0,40–0,55	Ø 0,60–0,75	Ø 0,80–0,95	Ø 1,00–1,45
Index	v_c in m/min	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1	33	0,0090	0,0110	0,0150	0,0190	0,0260	0,0310	0,0500
P.1.2	28	0,0070	0,0090	0,0110	0,0140	0,0200	0,0240	0,0410
P.1.3	25	0,0070	0,0090	0,0110	0,0140	0,0200	0,0240	0,0410
P.1.4	23	0,0070	0,0090	0,0110	0,0140	0,0200	0,0240	0,0410
P.1.5	20	0,0070	0,0090	0,0110	0,0140	0,0200	0,0240	0,0410
P.2.1	20	0,0050	0,0070	0,0090	0,0110	0,0150	0,0200	0,0350
P.2.2	14	0,0040	0,0050	0,0070	0,0080	0,0120	0,0160	0,0290
P.2.3	12	0,0040	0,0050	0,0070	0,0080	0,0120	0,0160	0,0290
P.2.4	11	0,0030	0,0040	0,0050	0,0070	0,0090	0,0130	0,0240
P.3.1	15	0,0050	0,0070	0,0090	0,0110	0,0150	0,0200	0,0350
P.3.2	11	0,0040	0,0050	0,0070	0,0080	0,0120	0,0160	0,0290
P.3.3	10	0,0040	0,0050	0,0070	0,0080	0,0120	0,0160	0,0290
P.4.1	11	0,0040	0,0050	0,0070	0,0080	0,0120	0,0160	0,0290
P.4.2	10	0,0030	0,0040	0,0050	0,0070	0,0090	0,0130	0,0240
M.1.1	9	0,0040	0,0050	0,0070	0,0080	0,0120	0,0160	0,0290
M.2.1	8	0,0040	0,0050	0,0070	0,0080	0,0120	0,0160	0,0290
M.3.1								
K.1.1	35	0,0090	0,0110	0,0150	0,0190	0,0260	0,0310	0,0500
K.1.2	28	0,0090	0,0110	0,0150	0,0190	0,0260	0,0310	0,0500
K.2.1	30	0,0090	0,0110	0,0150	0,0190	0,0260	0,0310	0,0500
K.2.2	23	0,0070	0,0090	0,0110	0,0140	0,0200	0,0240	0,0410
K.3.1	30	0,0090	0,0110	0,0150	0,0190	0,0260	0,0310	0,0500
K.3.2	23	0,0070	0,0090	0,0110	0,0140	0,0200	0,0240	0,0410
N.1.1	70	0,0120	0,0140	0,0190	0,0240	0,0340	0,0380	0,0600
N.1.2	70	0,0120	0,0140	0,0190	0,0240	0,0340	0,0380	0,0600
N.2.1	59	0,0090	0,0110	0,0150	0,0190	0,0260	0,0310	0,0500
N.2.2	47	0,0070	0,0090	0,0110	0,0140	0,0200	0,0240	0,0410
N.2.3	41	0,0070	0,0090	0,0110	0,0140	0,0200	0,0240	0,0410
N.3.1	70	0,0070	0,0090	0,0110	0,0140	0,0200	0,0240	0,0410
N.3.2	42	0,0050	0,0070	0,0090	0,0110	0,0150	0,0200	0,0350
N.3.3	56	0,0050	0,0070	0,0090	0,0110	0,0150	0,0200	0,0350
N.4.1	42	0,0070	0,0090	0,0110	0,0140	0,0200	0,0240	0,0410
S.1.1	7	0,0030	0,0040	0,0050	0,0070	0,0090	0,0130	0,0240
S.1.2	6	0,0020	0,0030	0,0040	0,0050	0,0070	0,0100	0,0200
S.2.1	6	0,0030	0,0040	0,0050	0,0070	0,0090	0,0130	0,0240
S.2.2	4	0,0020	0,0030	0,0040	0,0050	0,0070	0,0100	0,0200
S.2.3	4	0,0020	0,0030	0,0040	0,0050	0,0070	0,0100	0,0200
S.3.1	6	0,0030	0,0040	0,0050	0,0070	0,0090	0,0130	0,0240
S.3.2	4	0,0020	0,0030	0,0040	0,0050	0,0070	0,0100	0,0200
S.3.3								
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1	23	0,0070	0,0090	0,0110	0,0140	0,0200	0,0240	0,0410
O.1.2	23	0,0070	0,0090	0,0110	0,0140	0,0200	0,0240	0,0410
O.2.1	23	0,0070	0,0090	0,0110	0,0140	0,0200	0,0240	0,0410
O.2.2	23	0,0070	0,0090	0,0110	0,0140	0,0200	0,0240	0,0410
O.3.1								

The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Feed rate guide values for HSS twist drills

Factor F	Drill diameter in mm															
	0,5	1	2	3	4	5	6	8	10	12	14	16	18	20	26	30
	Feed rate f in mm/rev.															
1	0,004	0,006	0,02	0,03	0,04	0,04	0,05	0,06	0,08	0,08	0,09	0,1	0,12	0,15	0,18	0,19
2	0,006	0,008	0,02	0,03	0,05	0,05	0,05	0,08	0,1	0,1	0,1	0,12	0,12	0,2	0,2	0,2
3	0,007	0,012	0,03	0,05	0,06	0,069	0,08	0,1	0,12	0,13	0,13	0,16	0,16	0,25	0,25	0,25
4	0,008	0,014	0,04	0,06	0,08	0,09	0,1	0,14	0,16	0,16	0,16	0,2	0,2	0,3	0,3	0,3
5	0,01	0,016	0,06	0,08	0,1	0,12	0,13	0,16	0,2	0,2	0,22	0,25	0,25	0,4	0,4	0,4
6	0,012	0,018	0,06	0,1	0,12	0,14	0,16	0,2	0,25	0,25	0,25	0,3	0,3	0,5	0,5	0,5
7	0,014	0,02	0,08	0,13	0,16	0,18	0,2	0,25	0,35	0,35	0,35	0,4	0,4	0,6	0,6	0,6
8	0,016	0,023	0,1	0,16	0,2	0,2	0,25	0,35	0,4	0,4	0,4	0,4	0,5	0,6	0,7	0,8
9	0,019	0,025	0,13	0,17	0,2	0,23	0,32	0,4	0,4	0,5	0,5	0,5	0,6	0,8	0,9	0,9

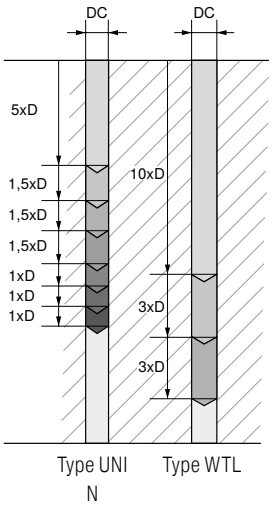
All the indicated data are guide values only and represent average values.

Speed for HSS drills

v_c m/min	Drill diameter in mm															
	2,0	2,5	3,15	4,0	5,0	6,3	8,0	10,0	12,5	16,0	20,0	25,0	31,5	40,0	50,0	63,0	80,0
	Speed in U/min																
80	12500	10000	8000	6300	5000	4000	3200	2500	2000	1600	1250	1000	800	630	500	400	320
63	10000	8000	6300	5000	4000	3200	2500	2000	1600	1250	1000	800	630	500	400	320	250
50	8000	6300	5000	4000	3200	2500	2000	1600	1250	1000	800	630	500	400	320	250	200
40	6300	5000	4000	3200	2500	2000	1600	1250	1000	800	630	500	400	320	250	200	160
32	5000	4000	3200	2500	2000	1600	1250	1000	800	630	500	400	320	250	200	160	125
25	4000	3200	2500	2000	1600	1250	1000	800	630	500	400	320	250	200	160	125	100
20	3200	2500	2000	1600	1250	1000	800	630	500	400	320	250	200	160	125	100	80
16	2500	2000	1600	1250	1000	800	630	500	400	320	250	200	160	125	100	80	63
12	2000	1600	1250	1000	800	630	500	400	320	250	200	160	125	100	80	63	50
10	1600	1250	1000	800	630	500	400	320	250	200	160	125	100	80	63	50	40
8	1250	1000	800	630	500	400	320	250	200	160	125	100	80	63	50	40	32
6	1000	800	630	500	400	320	250	200	160	125	100	80	63	50	40	32	25
5	800	630	500	400	320	250	200	160	125	100	80	63	50	40	32	25	20
4	630	500	400	320	250	200	160	125	100	80	63	50	40	32	25	20	16
3	500	400	320	250	200	160	125	100	80	63	50	40	32	25	20	16	12

Peck frequency for deep drilling

- Drill must be sufficiently cooled
- By use of a drill with flat chip gullet profile (type WTL) chip transport is substantially improved
- For extremely deep drilling or when machining horizontally through coolant drills with internal coolant supply are recommended



Coatings

TiN

- TiN coating
- Maximum application temperature: 450 °C

TiCN

- TiCN multilayer coating
- Maximum application temperature: 450 °C

TiAlN

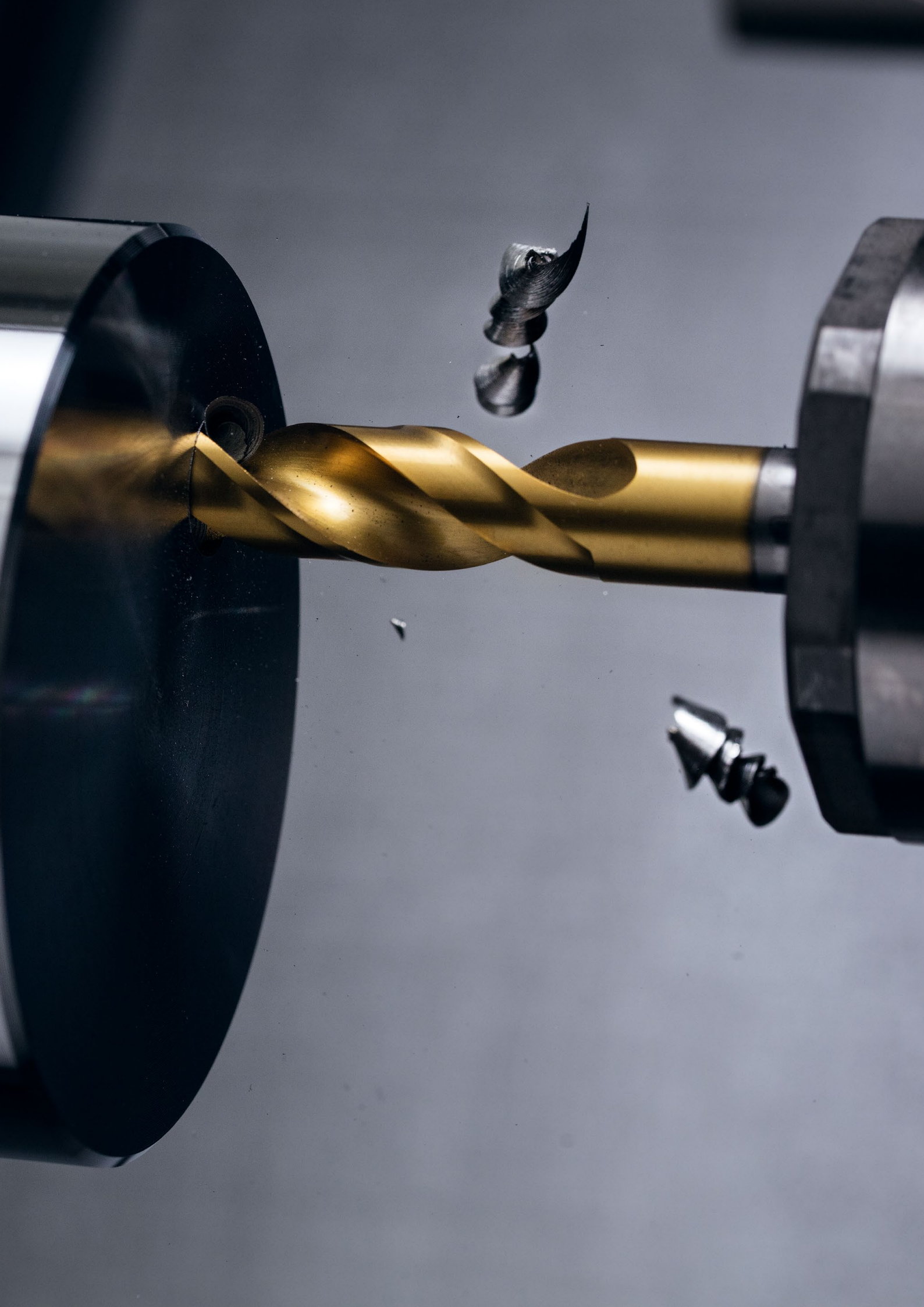
- TiAlN multilayer coating
- Maximum application temperature: 900 °C

F.-nit

- Titanium carbon nitride based PVD coating particularly suitable for steel machining
- Applicable up to approx. 450 °C

vap.

- Vaporised
- Vaporisation (vapour-deposition) prevents cold welds from forming on the tool and increases the surface hardness and thus the wear resistance



New products for machining technicians

NEW WTX – HFDS

≤ 3xD | ≤ 5xD



The first four-edged drilling tool on the market. The innovative, pyramid geometry of the WTX – HFDS ensures extremely aggressive and precise drilling performance.
Each cutting edge is optimally cooled by the four spiral coolant holes.

→ Page 34+59

NEW WTX – Speed VA

≤ 12xD



The renowned WTX – High-speed carbide drill is now also available in 12xD.
Designed for high cutting speeds in Corrosion and acid-resistant steels.

→ Page 69–72

NEW WTX – Co-pilot deep hole twist drill

≤ 20xD



The WTX – Co-pilot deep hole twist drill ensures an even safer deep hole drilling process. The cutting time of the deep hole twist drill is reduced and optimal guidance up to > 30xD is guaranteed.

→ Page 75

NEW WTX – Stepped drill with thro' coolant

≤ 3xD



The tried-and-tested WTX short step drill with thro' coolant and universal Dragonskin DPX74S coating.

→ Page 88

NEW WTX – Feed drill reamer

≤ 3xD | ≤ 5xD



The new WTX – Feed drill reamer can be used for any application due to the new cutting edge geometry with 3 effective cutting edges and the Dragonskin DPX14S coating.

→ Page 84–86

NEW WTX – Micro

5xD - 30xD



The new WTX – Micro drills have been perfectly designed for miniature holes and feature a high level of process security. The special geometry and new DPX74M micro drill coating set new standards in the production of miniature holes up to 30xD.

→ Page 80–83



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

Table of contents

Symbol explanation	2
Toolfinder	3–5
List of contents	6–10
Product programme	11–106
Technical Information:	
Cutting Data	107–157
Type overview	158
Application notes: WTX drill, WTX – Change / Change Feed / deep hole twist and micro drill	159–163
Coatings	164

WNT \ Performance

Premium quality tools for high performance.

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

WNT \ Standard

Quality tools for standard applications.

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

Symbol explanation

Shank







Tool types

HFDS

An explanation of the tool types can be found on → **Page 158.**



Coolant supply version



Int. coolant supply



self-centering



▲ Pilot drilling
▲ min. 2xD

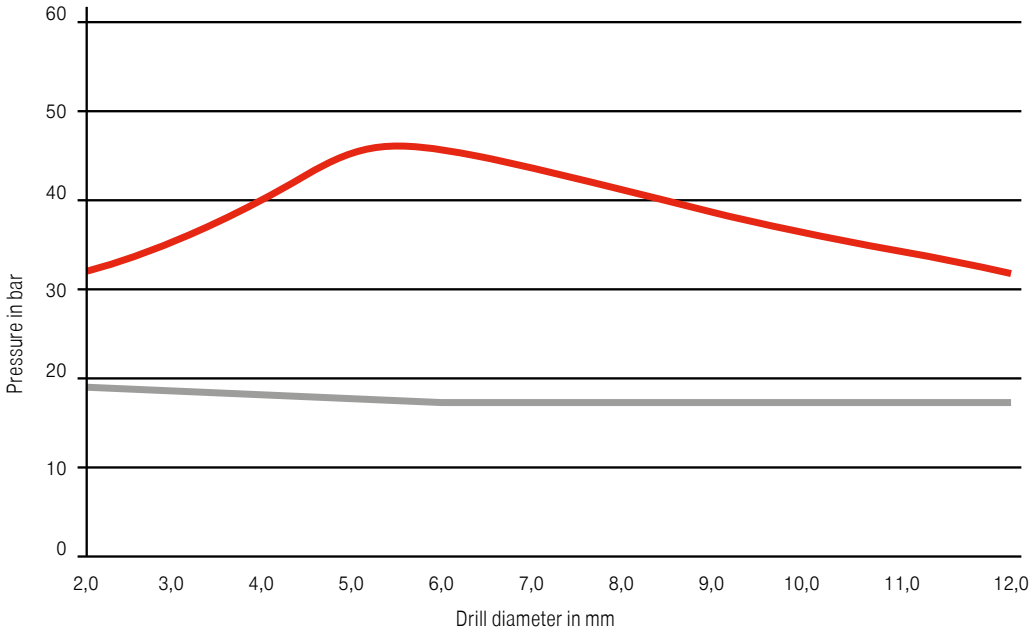
● = **Main Application**
○ = Extended application

Recommended application – WTX Performance Tools

● = Main Application
○ = Extended application

	WTX – Type	Through-holes	Blind holes	Flat bottom hole	High-feed machining	High speed machining	Stack plate drilling	Drilling with a transverse hole	Angled hole entrance > 5 %	Angled drill exit > 5 %	Drilling dowel holes	Deep holes	Miniature holes
Monobloc Tool	WTX – UNI	●	●				●	●					
	WTX – Speed	●	●			●	●						
	WTX – HFDS	●	●		●		●	●					
	WTX – Feed	●	●		●		●	●	●	●			
	WTX – Speed VA	●	●			●							
	WTX – VA	●	●										
	WTX – Ti	●	●					●					
	WTX – AL	●	●										
	WTX – 180	●	●	●				●	●	●			
	WTX – Quattro 4F	●	●							○			
	WTX – Feed BR	●	●		●		○	○	○	○	●		
	WTX – H	●	●										
	WTX – TB	●	●									●	
	WTX – Micro	●	●									●	●
Modular	WTX – Change Feed UNI	●	●		●				●	●			
	WTX – Change Drill heads	●	●										

Coolant diagram



Recommended coolant pressure
Minimum coolant Pressure

Toolfinder

Steel/Universal

Product name	Tool type	Description	Int. coolant supply	Heads	1xD	3xD	5xD	8xD	12xD
Solid carbide drilling									
WTX	Speed UNI	▲ high performance drill for high cutting speeds ▲ using new DPX14S Dragonskin coating ▲ new cutting geometry	✓			23–26	41–45	60–63	
WTX	Feed UNI	▲ high feed drills with 3 cutting edges ▲ for difficult drilling conditions ▲ high positional accuracy	✓				58	68	74
WTX	HFDS	▲ High-feed drill with four cutting edges ▲ Ultimate positioning accuracy of ~ 0.03 mm ▲ Optimal cooling with four spiral coolant holes	✓			34	59		
WTX	UNI	▲ highest performance for all materials up to 1200 N/mm² ▲ suitable for volume production	✗ ✓			11–15 23–26	35–38 41–45	 60–63	
WPC	UNI	▲ quality tools for standard applications	✗ ✓			16–19 27–30	39 53–56	 64	 73
WTX	180	▲ for inclined surfaces up to 45° and flat bottom holes	✓			33	57		
WTX	Quattro 4F	▲ with additional guide land for best alignment accuracy, concentricity and positional accuracy	✗ ✓				35–38 41–45	 60–63	 69–72
	N	▲ uncoated solid carbide drills ▲ universal application	✗			21	40		
Mini-drill									
WTX	MINI	▲ Standard shank Ø 3.0 mm for use in heat shrink adapters	✗				79		
WTX	MICRO	▲ Universal high-performance micro drill ▲ Specialised geometry and coating ▲ WTX – Micro (5xD) pilot drill for deep hole twist drill	✓				80	80	81
Drill Reamers									
WTX	Feed BR/ BR100	▲ solid carbide high performance drill reamer ▲ excellent surface quality ▲ for blind and through holes	✓			84+86	85+86		
Stepped drills									
WTX	SB	▲ core hole plus countersink for thread forming and tapping	✗ ✓			87 88			
NC Spot Drill									
	NC-A	▲ spiral fluted ▲ 90°, 120°, 142°	✗		89+90				
Centre drills									
	ZB	▲ spiral fluted ▲ 120°	✗		91				
Exchange head drill									
WTX	Change Feed UNI	▲ three-edged exchangeable head drill with solid carbide drill head type Feed UNI from Ø 14.0 mm to 32.0 mm ▲ universal application (steel, cast iron)	✓	92+93		94	94	95	
WTX	Change UNI	▲ exchangeable head drill with type UNI solid carbide drill head from Ø 12.0 mm to 41.0 mm ▲ for steels < 700 N/mm²	✓	96–101	102	102	103	103	104
WTX	Change P	▲ exchangeable head drill with type P solid carbide drill head from Ø 12.0 mm to 41.0 mm ▲ for steels > 700 N/mm²	✓	96–101	102	102	103	103	104
Exchangeable head NC spot drill									
	NC-A	▲ NC spot drill – exchange head system ▲ 90°, 120°, 142°	✗	106					

✗ = without through coolant | ✓ = with thro' coolant

Toolfinder

	Product name	Tool type	Description	Int. coolant supply	Heads	1xD	3xD	5xD	8xD	12xD
Stainless steel	**Solid carbide drilling**									
	WTX	VA	▲ highest performance for corrosion and acid resistant steels and aluminium ▲ for volume production	✖ ✓			11–15 23–26	35–38 46–52	 65–67	
	WPC	VA	▲ quality tools for corrosion and acid-resistant steels and aluminum	✖ ✓			16–19 27–30	 53–56		
	WTX	Speed VA	▲ double the cutting speed in corrosion and acid-resistant steels and aluminum	✓				46–52		69–72
	Exchange head drill									
	WTX	Change VA	▲ exchangeable head drill with solid carbide drill head type VA from Ø 12.0 mm to 32.0 mm	✓	96–101	102	102	103	103	104
Cast iron	**Solid carbide drilling**									
	WTX	GG	▲ highest performance in cast materials to 250 HB	✓				46–52	65–67	
	Exchange head drill									
	WTX	Change GG	▲ exchangeable head drill with solid carbide drill head type GG from Ø 12.0 mm to 32.0 mm	✓	96–101	102	102	103	103	104
Non ferrous metals	**Solid carbide drilling**									
	WTX	AL	▲ solid carbide high performance drill, especially for the machining of aluminum, copper and brass ▲ for volume production	✓				46–52	65–67	69–72
	Exchange head drill									
	WTX	Change AL	▲ exchangeable head drill with solid carbide drill head type AL from Ø 12.0 mm to 32.0 mm	✓	96–101	102	102	103	103	104
Heat resistant	**Solid carbide drilling**									
	WTX	Ti	▲ highest performance in titanium, titanium alloys and heat resistant alloys	✓			31+32	46–52		
Hardened materials	**Solid carbide drilling**									
	WTX	H	▲ highest performance in hardened steel from 46 to 70 HRC	✖ ✓			20 22			

	Product name	Tool type	Description	Int. coolant supply	16xD	20xD	25xD	30xD	40xD	50xD
Steel/Universal	**Deep Hole Drills**									
	WTX	MICRO	▲ Universal high-performance micro deep hole twist drill ▲ Specialised geometry and coating ▲ Hole depths up to 30xD possible		81	82	82	83		
	WTX	CP 20 UNI	▲ Ensures an even safer deep hole drilling process ▲ Excellent alignment precision ▲ For optimal guidance of the deep hole twist drill for hole depths > 30xD	✓		75				
	WTX	TB UNI	▲ solid carbide deep hole drill to 50xD without peck ▲ 4 facet geometry for excellent alignment accuracy	✓	76	76	77	77	78	78
Non ferrous metals	WTX	TB ALU	▲ solid carbide deep hole drills, up to 30xD without pecking ▲ 6-facet head geometry for excellent alignment accuracy	✓	76	76	77	77		

✖ = without through coolant | ✓ = with thro' coolant

Overview Solid Carbide Drills

3xD without thro‘ coolant

Product name	Tool type	Length	Diameter in mm Ø DC	P Steel	M Stainless steel	K Cast iron	N Non ferrous metals	S Heat resistant	H Hardened materials	O Non metal materials		coated ■	uncoated □	WNT \ Performance	WNT \ Standard
 WTX	UNI	≤ 3xD	3–25	●		●			○		HA HB HE	■		11–15	
 WTX	VA	≤ 3xD	2–20	○	●	○	○	●			HA HE	■		11–15	
 WPC	UNI	≤ 3xD	1–20	●		●					HA HB	■		16–19	
 WPC	VA	≤ 3xD	1–20	○	●	●	●				HA HB	■		16–19	
 WTX	H	≤ 3xD	2,55–14	○		●			●		HA	up to 70 HRC	■	20	
	N	≤ 3xD	0,5–20	○		●	●	○					□	21	

3xD with thro‘ coolant

Product name	Tool type	Length	Diameter in mm Ø DC	P Steel	M Stainless steel	K Cast iron	N Non ferrous metals	S Heat resistant	H Hardened materials	O Non metal materials		coated ■	uncoated □	WNT \ Performance	WNT \ Standard
 WTX	Speed UNI	≤ 3xD	3–20	●	●	●					HA	■		23–26	
 WTX	UNI	≤ 3xD	3–25	●		●			○		HA HB HE	■		23–26	
 WTX	VA	≤ 3xD	3–20	○	●	○	○	●			HA HE	■		23–26	
 WPC	UNI	≤ 3xD	1–20	●		●					HA HB	■		27–30	
 WPC	VA	≤ 3xD	1–20	○	●	●	●				HA HE	■		27–30	
 WTX	Ti	≤ 3xD	3–20	○	●			●			HA	■		31+32	
 WTX	180	≤ 3xD	3–20	●	●	●					HA	■		33	
 WTX	H	≤ 3xD	2,55–14	○		●		○	●		HA	up to 58 HRC	■	22	
 WTX	HFDS	≤ 3xD	6–16	●	○	●	○	○	○	○	HA	4 flute	■	34	

Overview Solid Carbide Drills

5xD without thro‘ coolant

	Product name	Tool type	Length	Diameter in mm Ø DC	P Steel	M Stainless steel	K Cast iron	N Non ferrous metals	S Heat resistant	H Hardened materials	O Non metal materials		coated ■	uncoated □	WNT \ Performance	WNT \ Standard
	WTX	UNI	≤ 5xD	3–20	●		●				○	HA HB HE	■		35–38	
	WTX	Quattro 4F	≤ 5xD	3–20	●		●				○	HA	■		35–38	
	WTX	VA	≤ 5xD	3–20	○	●	○	○	●			HA HE	■		35–38	
	WPC	UNI	≤ 5xD	3–20	●		●					HA HB	■			39
		N	≤ 5xD	0,5–16	○		●	●	○					□		40

5xD with thro‘ coolant

	Product name	Tool type	Length	Diameter in mm Ø DC	P Steel	M Stainless steel	K Cast iron	N Non ferrous metals	S Heat resistant	H Hardened materials	O Non metal materials		coated ■	uncoated □	WNT \ Performance	WNT \ Standard
	WTX	Feed UNI	≤ 5xD	4–20	●	●	●	○				HA 3 flute	■		58	
	WTX	Speed UNI	≤ 5xD	3–20	●	●	●					HA	■		41–45	
	WTX	UNI	≤ 5xD	3–25	●		●				○	HA HB HE	■		41–45	
	WTX	Quattro 4F	≤ 5xD	3–20	●		●				○	HA	■		41–45	
	WTX	Speed VA	≤ 5xD	3–20	●	●	●	○	●			HA	■		46–52	
	WTX	VA	≤ 5xD	3–20	○	●	○	○	●			HA HE	■		46–52	
	WTX	GG	≤ 5xD	3–20			●	○				HA	■		46–52	
	WTX	AL	≤ 5xD	2,5–20				●				HA	■		46–52	
	WTX	Ti	≤ 5xD	3–20	○	●			●			HA	■		46–52	
	WPC	UNI	≤ 5xD	1–20	●		●					HA HB	■			53–56
	WPC	VA	≤ 5xD	1–20	○	●	●	●				HA HB	■			53–56
	WTX	180	≤ 5xD	3–20	●	●	●					HA	■		57	
	WTX	HFDS	≤ 5xD	6–16	●	○	●	○	○	○	○	HA 4 flute	■		59	

Overview Solid Carbide Drills

Product name	Tool type	Length	Diameter in mm Ø DC	P Steel	M Stainless steel	K Cast iron	N Non ferrous metals	S Heat resistant	H Hardened materials	O Non metal materials		coated ■ uncoated □	WNT \ Performance	WNT \ Standard
8xD with thro‘ coolant														
	WTX	Feed UNI	≤ 8xD	4–20	●	●	●	○			3 flute	■	68	
				HA										
	WTX	Speed UNI	≤ 8xD	3–20	●	●	●					■	60–63	
				HA										
	WTX	UNI	≤ 8xD	3–20	●		●			○		■	60–63	
				HA			HB				HE			
	WTX	Quattro 4F	≤ 8xD	3–20	●		●			○		■	60–63	
				HA										
	WPC	UNI	≤ 8xD	3–20	●		●					■		64
				HA										
	WTX	VA	≤ 8xD	3–20	○	●	○	○	●			■	65–67	
				HA										
	WTX	GG	≤ 8xD	3–20			●	○				■	65–67	
				HA										
	WTX	AL	≤ 8xD	3–20				●				■	65–67	
				HA										
12xD with thro‘ coolant														
	WTX	Feed UNI	≤ 12xD	4–20	●	●	●	○			3 flute	■	74	
				HA										
	WTX	Speed VA	≤ 12xD	3–17,5	●	●	●	○	●			■	69–72	
				HA										
	WTX	Quattro 4F	≤ 12xD	3–20	●		●			○		■	69–72	
				HA										
	WTX	AL	≤ 12xD	3–20				●				■	69–72	
				HA										
	WPC	UNI	≤ 12xD	3–18	●		●					■		73
				HA										

Overview Solid Carbide Drills

Product name	Tool type	Length	Diameter in mm Ø DC	P Steel	M Stainless steel	K Cast iron	N Non ferrous metals	S Heat resistant	H Hardened materials	O Non metal materials		coated ■	uncoated □	WNT \ Performance	WNT \ Standard
Deep Hole Drills 16xD / 20xD / 25xD / 30xD / 40xD / 50xD															
	WTX	CP 20 UNI	≤ 20xD	3–9	●	●	●		○			HA	■		75
	WTX	TB UNI	≤ 16xD ≤ 20xD	2–12	●	●	●		○			HA	■		76
	WTX	TB UNI	≤ 25xD ≤ 30xD	2–12	●	●	●		○			HA	■		77
	WTX	TB UNI	≤ 40xD	3–9	●	●	●		○			HA	■		78
	WTX	TB UNI	≤ 50xD	3–6,8	●	●	●		○			HA	■		78
	WTX	TB ALU	≤ 16xD ≤ 20xD	2–12				●				HA	■		76
	WTX	TB ALU	≤ 25xD ≤ 30xD	2–12				●				HA	■		77
Micro drill 5xD / 8xD / 12xD / 16xD / 20xD / 25xD / 30xD															
	WTX	MINI	≤ 5xD	0,1–2,9	○		●	●	○			HA	■		79
	WTX	MICRO	≤ 5xD	0,8–2,9	●	●	●		○			HA	■		80
	WTX	MICRO	≤ 8xD	0,8–2,9	●	●	●		○			HA	■		80
	WTX	MICRO	≤ 12xD	0,8–2,9	●	●	●		○			HA	■		81
	WTX	MICRO	≤ 16xD	0,8–2,9	●	●	●					HA	■		81
	WTX	MICRO	≤ 20xD	0,8–2,9	●	●	●					HA	■		82
	WTX	MICRO	≤ 25xD	1,0–2,9	●	●	●					HA	■		82
	WTX	MICRO	≤ 30xD	1,0–2,9	●	●	●					HA	■		83
Drill Reamers															
	WTX	Feed BR100	≤ 3xD ≤ 5xD	3,97–12,02	●	●	●					HA	1/100 3 flute	■	84+85
	WTX	Feed BR	≤ 3xD	4–16	●	●	●					HA	Tolerance H7 3 flute	■	86
	WTX	Feed BR	≤ 5xD	4–20	●	●	●					HA	Tolerance H7 3 flute	■	86

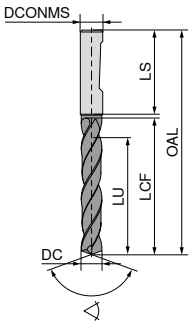
Overview Solid Carbide Drills

	Product name	Tool type	Point angle	Diameter in mm Ø DC	P Steel	M Stainless steel	K Cast iron	N Non ferrous metals	S Heat resistant	H Hardened materials	O Non metal materials		coated ■	uncoated □	WNT \ Performance	WNT \ Standard
Stepped drills																
	WTX	SB		2,5–14	●		●				○	Thread cutting	■		87	
					HA											
	WTX	SB		2,8–15	●		●				○	Thread forming	■		87	
					HA											
	WTX	SB		3,3–14	●		●				○	Thread cutting with thro' coolant	■		88	
					HA											
	WTX	SB		3,7–15	●		●				○	Thread forming with thro' coolant	■		88	
					HA											
NC Spot Drill																
		NC–A	◁ 90° ◁ 120° ◁ 142°	2–20	○		●	●						□	89	
					HA											
		NC–A	◁ 90° ◁ 120° ◁ 142°	2–20	○		●	●			○		■		89	
					HB											
		NC–A	◁ 90° ◁ 120° ◁ 142°	3–16	○		●	●			○	Long version	■		90	
					HA						HB					
Centre drills																
		ZB	◁ 120°	0,5–6,3	○		●	●						□	91	
Exchangeable head system – heads																
	WTX	Change Feed		14–32	●		●						■		92+93	
	WTX	Change UNI		12–41	●		●						■		96–101	
	WTX	Change P		12–41	●		●						■		96–101	
	WTX	Change VA		12–32	○	●	●		●				■		96–101	
	WTX	Change GG		12–32			●						■		96–101	
	WTX	Change ALU		12–32				●					■		96–101	
Exchangeable head system – holders 1xD / 3xD / 5xD / 8xD / 12xD																
	WTX	Change Feed		14–32											94+95	
					HB											
	WTX	Change		12–41											102–104	
					HB											
MultiChange NC spot drill																
		NC–A	◁ 90° ◁ 120° ◁ 142°	8–20	●	●	●	●					■		106	

WTX – High Performance Drill, DIN 6537

≤ 3xD

NOF = 2





140°
Solid carbide

						140° Solid carbide		140° Solid carbide		140° Solid carbide		140° Solid carbide	
						11 777 ...		11 778 ...		11 776 ...		10 731 ...	
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm								
2,00	6	58	16	11	36							020	020
2,10	6	58	16	11	36							021	021
2,20	6	58	16	11	36							022	022
2,30	6	58	16	11	36							023	023
2,33	6	58	16	11	36							823	
2,40	6	58	16	11	36							024	024
2,43	6	58	16	11	36							824	
2,50	6	58	16	11	36							025	025
2,55	6	58	16	11	36							825	
2,60	6	58	16	11	36							026	026
2,62	6	58	16	11	36							826	
2,70	6	58	16	11	36							027	027
2,80	6	58	16	11	36							028	028
2,90	6	58	16	11	36							029	029
3,00	6	62	20	14	36	03000		03000		03000		030	030
3,10	6	62	20	14	36	03100		03100		03100		031	031
3,15	6	62	20	14	36	03150		03150		03150		831	
3,20	6	62	20	14	36	03200		03200		03200		032	032
3,22	6	62	20	14	36	03220		03220		03220		832	
3,25	6	62	20	14	36	03250		03250		03250		890	
3,30	6	62	20	14	36	03300		03300		03300		033	033
3,40	6	62	20	14	36	03400		03400		03400		034	034
3,50	6	62	20	14	36	03500		03500		03500		035	035
3,60	6	62	20	14	36	03600		03600		03600		036	036
3,70	6	62	20	14	36	03700		03700		03700		037	037
3,80	6	66	24	17	36	03800		03800		03800		038	038
3,85	6	66	24	17	36	03850		03850		03850		838	
3,90	6	66	24	17	36	03900		03900		03900		039	039
4,00	6	66	24	17	36	04000		04000		04000		040	040
4,10	6	66	24	17	36	04100		04100		04100		041	041
4,20	6	66	24	17	36	04200		04200		04200		042	042
4,25	6	66	24	17	36	04250		04250		04250			
4,30	6	66	24	17	36	04300		04300		04300		043	043
4,35	6	66	24	17	36	04350		04350		04350		843	
4,40	6	66	24	17	36	04400		04400		04400		044	044
4,45	6	66	24	17	36	04450		04450		04450		844	
4,50	6	66	24	17	36	04500		04500		04500		045	045
4,60	6	66	24	17	36	04600		04600		04600		046	046
4,65	6	66	24	17	36	04650		04650		04650		900	900
4,70	6	66	24	17	36	04700		04700		04700		047	047
4,80	6	66	28	20	36	04800		04800		04800		048	048
P						●		●		●		○	○
M												●	●
K						●		●		●		○	○
N												○	○
S												●	●
H						○		○		○			
O													

→ v_c Page 112+114

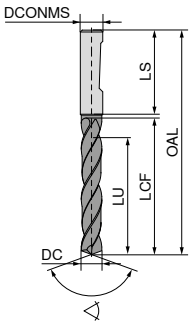
Continued on next page

WTX – High Performance Drill, DIN 6537

≤ 3xD

NOF = 2





UNI	UNI	UNI	VA	VA
DPX74S	DPX74S	DPX74S	Ti700	Ti700
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		



HA	HB	HE	HA	HE
140°	140°	140°	140°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
11 777 ...	**11 778 ...**	**11 776 ...**	**10 731 ...**	**10 732 ...**

DC $_{m7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm					
4,90	6	66	28	20	36	04900	04900	04900	049	049
4,95	6	66	28	20	36	04950	04950	04950		
5,00	6	66	28	20	36	05000	05000	05000	050	050
5,05	6	66	28	20	36	05050	05050	05050		
5,10	6	66	28	20	36	05100	05100	05100	051	051
5,20	6	66	28	20	36	05200	05200	05200	052	052
5,30	6	66	28	20	36	05300	05300	05300	053	053
5,40	6	66	28	20	36	05400	05400	05400	054	054
5,50	6	66	28	20	36	05500	05500	05500	055	055
5,55	6	66	28	20	36	05550	05550	05550	902	902
5,60	6	66	28	20	36	05600	05600	05600	056	056
5,70	6	66	28	20	36	05700	05700	05700	057	057
5,75	6	66	28	20	36	05750	05750	05750	916	
5,80	6	66	28	20	36	05800	05800	05800	058	058
5,90	6	66	28	20	36	05900	05900	05900	059	059
5,95	6	66	28	20	36	05950	05950	05950	959	
6,00	6	66	28	20	36	06000	06000	06000	060	060
6,10	8	79	34	24	36	06100	06100	06100	061	061
6,20	8	79	34	24	36	06200	06200	06200	062	062
6,30	8	79	34	24	36	06300	06300	06300	063	063
6,40	8	79	34	24	36	06400	06400	06400	064	064
6,50	8	79	34	24	36	06500	06500	06500	065	065
6,60	8	79	34	24	36	06600	06600	06600	066	066
6,70	8	79	34	24	36	06700	06700	06700	067	067
6,80	8	79	34	24	36	06800	06800	06800	068	068
6,90	8	79	34	24	36	06900	06900	06900	069	069
7,00	8	79	34	24	36	07000	07000	07000	070	070
7,10	8	79	41	29	36	07100	07100	07100	071	071
7,20	8	79	41	29	36	07200	07200	07200	072	072
7,30	8	79	41	29	36	07300	07300	07300	073	073
7,40	8	79	41	29	36	07400	07400	07400	074	074
7,45	8	79	41	29	36	07450	07450	07450	924	
7,50	8	79	41	29	36	07500	07500	07500	075	075
7,60	8	79	41	29	36	07600	07600	07600	076	076
7,70	8	79	41	29	36	07700	07700	07700	077	077
7,80	8	79	41	29	36	07800	07800	07800	078	078
7,90	8	79	41	29	36	07900	07900	07900	079	079
8,00	8	79	41	29	36	08000	08000	08000	080	080
8,10	10	89	47	35	40	08100	08100	08100	081	081
8,20	10	89	47	35	40	08200	08200	08200	082	082
8,30	10	89	47	35	40	08300	08300	08300	083	083

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

→ v_c Page 112+114

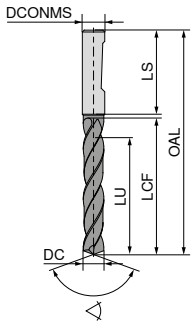
Continued on next page

WTX – High Performance Drill, DIN 6537

≤ 3xD

NOF = 2





UNI	UNI	UNI	VA	VA
DPX74S	DPX74S	DPX74S	Ti700	Ti700
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		



HA	HB	HE	HA	HE
140°	140°	140°	140°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
11 777 ...	11 778 ...	11 776 ...	10 731 ...	10 732 ...

DC $_{m7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm					
8,40	10	89	47	35	40	08400	08400	08400	084	084
8,50	10	89	47	35	40	08500	08500	08500	085	085
8,60	10	89	47	35	40	08600	08600	08600	086	086
8,70	10	89	47	35	40	08700	08700	08700	087	087
8,80	10	89	47	35	40	08800	08800	08800	088	088
8,90	10	89	47	35	40	08900	08900	08900	089	089
9,00	10	89	47	35	40	09000	09000	09000	090	090
9,10	10	89	47	35	40	09100	09100	09100	091	091
9,20	10	89	47	35	40	09200	09200	09200	092	092
9,30	10	89	47	35	40	09300	09300	09300	093	093
9,35	10	89	47	35	40	09350	09350	09350	930	
9,40	10	89	47	35	40	09400	09400	09400	094	094
9,45	10	89	47	35	40	09450	09450	09450	994	
9,50	10	89	47	35	40	09500	09500	09500	095	095
9,60	10	89	47	35	40	09600	09600	09600	096	096
9,70	10	89	47	35	40	09700	09700	09700	097	097
9,80	10	89	47	35	40	09800	09800	09800	098	098
9,90	10	89	47	35	40	09900	09900	09900	099	099
10,00	10	89	47	35	40	10000	10000	10000	100	100
10,10	12	102	55	40	45	10100	10100	10100	101	101
10,20	12	102	55	40	45	10200	10200	10200	102	102
10,30	12	102	55	40	45	10300	10300	10300	103	103
10,40	12	102	55	40	45	10400	10400	10400	104	104
10,50	12	102	55	40	45	10500	10500	10500	105	105
10,55	12	102	55	40	45	10550	10550	10550	932	
10,60	12	102	55	40	45	10600	10600	10600	106	106
10,70	12	102	55	40	45	10700	10700	10700	107	107
10,75	12	102	55	40	45	10750	10750	10750		
10,80	12	102	55	40	45	10800	10800	10800	108	108
10,90	12	102	55	40	45	10900	10900	10900	109	109
11,00	12	102	55	40	45	11000	11000	11000	110	110
11,10	12	102	55	40	45	11100	11100	11100	111	111
11,20	12	102	55	40	45	11200	11200	11200	112	112
11,25	12	102	55	40	45	11250	11250	11250	912	
11,30	12	102	55	40	45	11300	11300	11300	113	113
11,35	12	102	55	40	45	11350	11350	11350	913	
11,40	12	102	55	40	45	11400	11400	11400	114	114
11,45	12	102	55	40	45	11450	11450	11450	914	
11,50	12	102	55	40	45	11500	11500	11500	115	115
11,60	12	102	55	40	45	11600	11600	11600	116	116
11,70	12	102	55	40	45	11700	11700	11700	117	117
P						●	●	●	○	○
M									●	●
K						●	●	●	○	○
N									○	○
S									●	●
H						○	○	○		
O										

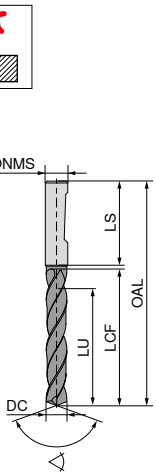
→ v_c Page 112+114

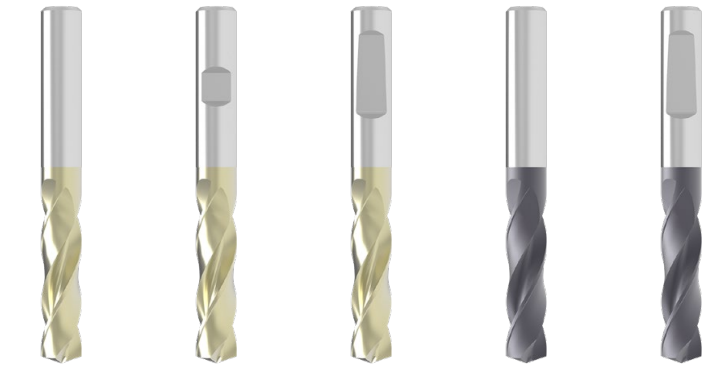
Continued on next page

WTX – High Performance Drill, DIN 6537

≤ 3xD

NOF = 2





140°
Solid carbide

140°
Solid carbide

140°
Solid carbide

140°
Solid carbide

140°
Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 777 ...	11 778 ...	11 776 ...	10 731 ...	10 732 ...
11,80	12	102	55	40	45	11800	11800	11800	118	118
11,90	12	102	55	40	45	11900	11900	11900	119	119
12,00	12	102	55	40	45	12000	12000	12000	120	120
12,15	14	107	60	43	45	12150	12150	12150	921	
12,25	14	107	60	43	45	12250	12250	12250		
12,50	14	107	60	43	45	12500	12500	12500	125	125
12,55	14	107	60	43	45	12550	12550	12550	925	
12,70	14	107	60	43	45	12700	12700	12700		
12,80	14	107	60	43	45	12800	12800	12800	128	128
12,90	14	107	60	43	45	12900	12900	12900		
13,00	14	107	60	43	45	13000	13000	13000	130	130
13,10	14	107	60	43	45	13100	13100	13100		
13,30	14	107	60	43	45	13300	13300	13300		
13,35	14	107	60	43	45	13350	13350	13350	933	
13,50	14	107	60	43	45	13500	13500	13500	135	135
13,70	14	107	60	43	45	13700	13700	13700		
13,80	14	107	60	43	45	13800	13800	13800	138	138
14,00	14	107	60	43	45	14000	14000	14000	140	140
14,20	16	115	65	45	48	14200	14200	14200		
14,50	16	115	65	45	48	14500	14500	14500	145	145
14,80	16	115	65	45	48	14800	14800	14800	148	148
15,00	16	115	65	45	48	15000	15000	15000	150	150
15,10	16	115	65	45	48	15100	15100	15100		
15,25	16	115	65	45	48	15250	15250	15250		
15,30	16	115	65	45	48	15300	15300	15300		
15,35	16	115	65	45	48	15350	15350	15350	953	
15,50	16	115	65	45	48	15500	15500	15500	155	155
15,60	16	115	65	45	48	15600	15600	15600		
15,80	16	115	65	45	48	15800	15800	15800	158	158
16,00	16	115	65	45	48	16000	16000	16000	160	160
16,05	18	123	73	51	48	16050	16050	16050	960	
16,50	18	123	73	51	48	16500	16500	16500	165	165
16,80	18	123	73	51	48	16800	16800	16800	168	168
16,90	18	123	73	51	48	16900	16900	16900		
17,00	18	123	73	51	48	17000	17000	17000	170	170
17,50	18	123	73	51	48	17500	17500	17500	175	175
17,60	18	123	73	51	48	17600	17600	17600		
17,80	18	123	73	51	48	17800	17800	17800	178	178
18,00	18	123	73	51	48	18000	18000	18000	180	180
18,50	20	131	79	55	50	18500	18500	18500	185	185
18,80	20	131	79	55	50	18800	18800	18800	188	188
P						●	●	●	○	○
M									●	●
K						●	●	●	○	○
N									○	○
S									●	●
H						○	○	○		
O										

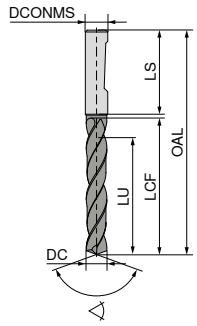
→ v_c Page 112+114

Continued on next page

WTX – High Performance Drill, DIN 6537

≤ 3xD

NOF = 2



UNI	UNI	UNI	VA	VA
DPX74S	DPX74S	DPX74S	Ti700	Ti700
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		



HA	HB	HE	HA	HE
140°	140°	140°	140°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
11 777 ...	**11 778 ...**	**11 776 ...**	**10 731 ...**	**10 732 ...**

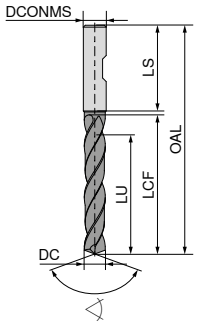
DC $_{m7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm									
18,90	20	131	79	55	50	**18900**		**18900**		**18900**				
19,00	20	131	79	55	50	**19000**		**19000**		**19000**		**190**		**190**
19,35	20	131	79	55	50	**19350**		**19350**		**19350**		**993**		
19,50	20	131	79	55	50	**19500**		**19500**		**19500**		**195**		**195**
19,60	20	131	79	55	50	**19600**		**19600**		**19600**				
19,80	20	131	79	55	50	**19800**		**19800**		**19800**		**198**		**198**
20,00	20	131	79	55	50	**20000**		**20000**		**20000**		**200**		**200**
20,50	25	151	93	66	56	**20500**		**20500**		**20500**				
21,00	25	151	93	66	56	**21000**		**21000**		**21000**				
21,50	25	151	93	66	56	**21500**		**21500**		**21500**				
22,00	25	151	93	66	56	**22000**		**22000**		**22000**				
22,50	25	153	96	72	56	**22500**		**22500**		**22500**				
23,00	25	153	96	72	56	**23000**		**23000**		**23000**				
23,50	25	153	96	72	56	**23500**		**23500**		**23500**				
24,00	25	153	96	72	56	**24000**		**24000**		**24000**				
24,50	25	153	96	75	56	**24500**		**24500**		**24500**				
25,00	25	153	96	75	56	**25000**		**25000**		**25000**				
P						●		●		●		○		○
M												●		●
K						●		●		●		○		○
N												○		○
S												●		●
H						○		○		○				
O														

→ v_c Page 112+114

WPC – High Performance Drill, DIN 6537

≤ 3xD

NOF = 2



UNI	UNI	VA	VA
TiAlN	TiAlN	TiAlN	TiAlN



HA / HB

140°

Solid carbide

11 600 ...	11 601 ...	11 620 ...	11 621 ...

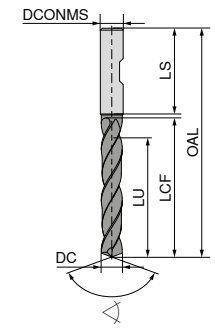
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 600 ...	11 601 ...	11 620 ...	11 621 ...
1,00	4	45	5,0	4,5	32,0	010		010	
1,10	4	45	5,5	5,0	31,5	011		011	
1,20	4	45	6,0	5,4	31,0	012		012	
1,30	4	45	6,5	5,9	31,5	013		013	
1,40	4	45	7,0	6,3	30,0	014		014	
1,50	4	50	7,5	6,8	35,0	015		015	
1,60	4	50	8,0	7,2	34,5	016		016	
1,70	4	50	8,5	7,7	34,0	017		017	
1,80	4	50	9,0	8,1	33,5	018		018	
1,90	4	50	9,5	8,6	33,0	019		019	
2,00	6	58	14,0	11,0	36,0	020	020	020	020
2,10	6	58	14,0	11,0	36,0	021	021	021	021
2,20	6	58	14,0	11,0	36,0	022	022	022	022
2,30	6	58	14,0	11,0	36,0	023	023	023	023
2,40	6	58	14,0	11,0	36,0	024	024	024	024
2,50	6	58	14,0	11,0	36,0	025	025	025	025
2,60	6	58	14,0	11,0	36,0	026	026	026	026
2,70	6	58	14,0	11,0	36,0	027	027	027	027
2,80	6	58	14,0	11,0	36,0	028	028	028	028
2,90	6	58	14,0	11,0	36,0	029	029	029	029
3,00	6	62	20,0	14,0	36,0	030	030	030	030
3,10	6	62	20,0	14,0	36,0	031	031	031	031
3,20	6	62	20,0	14,0	36,0	032	032	032	032
3,30	6	62	20,0	14,0	36,0	033	033	033	033
3,40	6	62	20,0	14,0	36,0	034	034	034	034
3,50	6	62	20,0	14,0	36,0	035	035	035	035
3,60	6	62	20,0	14,0	36,0	036	036	036	036
3,70	6	62	20,0	14,0	36,0	037	037	037	037
3,80	6	66	24,0	17,0	36,0	038	038	038	038
3,90	6	66	24,0	17,0	36,0	039	039	039	039
4,00	6	66	24,0	17,0	36,0	040	040	040	040
4,10	6	66	24,0	17,0	36,0	041	041	041	041
4,20	6	66	24,0	17,0	36,0	042	042	042	042
4,30	6	66	24,0	17,0	36,0	043	043	043	043
4,40	6	66	24,0	17,0	36,0	044	044	044	044
4,50	6	66	24,0	17,0	36,0	045	045	045	045
4,60	6	66	24,0	17,0	36,0	046	046	046	046
4,65	6	66	24,0	17,0	36,0	900	900	900	900
P						●	●	○	○
M								●	●
K						●	●	●	●
N								●	●
S									
H									
O									

→ v_c Page 130+133

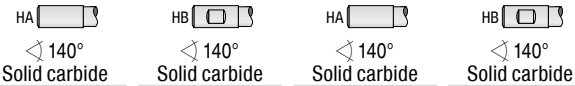
WPC – High Performance Drill, DIN 6537

≤ 3xD

NOF = 2







140° Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 600 ...		11 601 ...		11 620 ...		11 621 ...	
4,70	6	66	24,0	17,0	36,0	047		047		047		047	
4,80	6	66	28,0	20,0	36,0	048		048		048		048	
4,90	6	66	28,0	20,0	36,0	049		049		049		049	
5,00	6	66	28,0	20,0	36,0	050		050		050		050	
5,10	6	66	28,0	20,0	36,0	051		051		051		051	
5,20	6	66	28,0	20,0	36,0	052		052		052		052	
5,30	6	66	28,0	20,0	36,0	053		053		053		053	
5,40	6	66	28,0	20,0	36,0	054		054		054		054	
5,50	6	66	28,0	20,0	36,0	055		055		055		055	
5,55	6	66	28,0	20,0	36,0	902		902		902		902	
5,60	6	66	28,0	20,0	36,0	056		056		056		056	
5,70	6	66	28,0	20,0	36,0	057		057		057		057	
5,80	6	66	28,0	20,0	36,0	058		058		058		058	
5,90	6	66	28,0	20,0	36,0	059		059		059		059	
6,00	6	66	28,0	20,0	36,0	060		060		060		060	
6,10	8	79	34,0	24,0	36,0	061		061		061		061	
6,20	8	79	34,0	24,0	36,0	062		062		062		062	
6,30	8	79	34,0	24,0	36,0	063		063		063		063	
6,40	8	79	34,0	24,0	36,0	064		064		064		064	
6,50	8	79	34,0	24,0	36,0	065		065		065		065	
6,60	8	79	34,0	24,0	36,0	066		066		066		066	
6,70	8	79	34,0	24,0	36,0	067		067		067		067	
6,80	8	79	34,0	24,0	36,0	068		068		068		068	
6,90	8	79	34,0	24,0	36,0	069		069		069		069	
7,00	8	79	34,0	24,0	36,0	070		070		070		070	
7,10	8	79	41,0	29,0	36,0	071		071		071		071	
7,20	8	79	41,0	29,0	36,0	072		072		072		072	
7,30	8	79	41,0	29,0	36,0	073		073		073		073	
7,40	8	79	41,0	29,0	36,0	074		074		074		074	
7,50	8	79	41,0	29,0	36,0	075		075		075		075	
7,55	8	79	41,0	29,0	36,0	975		975		975		975	
7,60	8	79	41,0	29,0	36,0	076		076		076		076	
7,70	8	79	41,0	29,0	36,0	077		077		077		077	
7,80	8	79	41,0	29,0	36,0	078		078		078		078	
7,90	8	79	41,0	29,0	36,0	079		079		079		079	
8,00	8	79	41,0	29,0	36,0	080		080		080		080	
8,10	10	89	47,0	35,0	40,0	081		081		081		081	
8,20	10	89	47,0	35,0	40,0	082		082		082		082	
P						●		●		○		○	
M										●		●	
K						●		●		●		●	
N										●		●	
S													
H													
O													

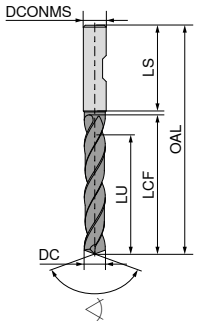
→ v_c Page 130+133

Continued on next page

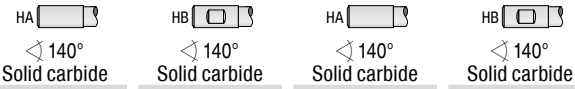
WPC – High Performance Drill, DIN 6537

≤ 3xD

NOF = 2







140° Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 600 ...		11 601 ...		11 620 ...		11 621 ...	
8,30	10	89	47,0	35,0	40,0	083		083		083		083	
8,40	10	89	47,0	35,0	40,0	084		084		084		084	
8,50	10	89	47,0	35,0	40,0	085		085		085		085	
8,60	10	89	47,0	35,0	40,0	086		086		086		086	
8,70	10	89	47,0	35,0	40,0	087		087		087		087	
8,80	10	89	47,0	35,0	40,0	088		088		088		088	
8,90	10	89	47,0	35,0	40,0	089		089		089		089	
9,00	10	89	47,0	35,0	40,0	090		090		090		090	
9,10	10	89	47,0	35,0	40,0	091		091		091		091	
9,20	10	89	47,0	35,0	40,0	092		092		092		092	
9,25	10	89	47,0	35,0	40,0	925		925		925		925	
9,30	10	89	47,0	35,0	40,0	093		093		093		093	
9,40	10	89	47,0	35,0	40,0	094		094		094		094	
9,50	10	89	47,0	35,0	40,0	095		095		095		095	
9,60	10	89	47,0	35,0	40,0	096		096		096		096	
9,70	10	89	47,0	35,0	40,0	097		097		097		097	
9,80	10	89	47,0	35,0	40,0	098		098		098		098	
9,90	10	89	47,0	35,0	40,0	099		099		099		099	
10,00	10	89	47,0	35,0	40,0	100		100		100		100	
10,10	12	102	55,0	40,0	45,0	101		101		101		101	
10,20	12	102	55,0	40,0	45,0	102		102		102		102	
10,30	12	102	55,0	40,0	45,0	103		103		103		103	
10,40	12	102	55,0	40,0	45,0	104		104		104		104	
10,50	12	102	55,0	40,0	45,0	105		105		105		105	
10,60	12	102	55,0	40,0	45,0	106		106		106		106	
10,70	12	102	55,0	40,0	45,0	107		107		107		107	
10,80	12	102	55,0	40,0	45,0	108		108		108		108	
10,90	12	102	55,0	40,0	45,0	109		109		109		109	
11,00	12	102	55,0	40,0	45,0	110		110		110		110	
11,10	12	102	55,0	40,0	45,0	111		111		111		111	
11,20	12	102	55,0	40,0	45,0	112		112		112		112	
11,30	12	102	55,0	40,0	45,0	113		113		113		113	
11,40	12	102	55,0	40,0	45,0	114		114		114		114	
11,50	12	102	55,0	40,0	45,0	115		115		115		115	
11,60	12	102	55,0	40,0	45,0	116		116		116		116	
11,70	12	102	55,0	40,0	45,0	117		117		117		117	
11,80	12	102	55,0	40,0	45,0	118		118		118		118	
11,90	12	102	55,0	40,0	45,0	119		119		119		119	
P							●		●		○		○
M											●		●
K							●		●		●		●
N											●		●
S													
H													
O													

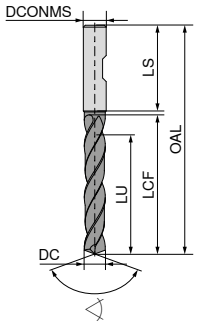
→ v_c Page 130+133

Continued on next page

WPC – High Performance Drill, DIN 6537

≤ 3xD

NOF = 2



UNI	UNI	VA	VA
TiAlN	TiAlN	TiAlN	TiAlN



HA	HB	HA	HB
140°	140°	140°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide
11 600 ...	**11 601 ...**	**11 620 ...**	**11 621 ...**

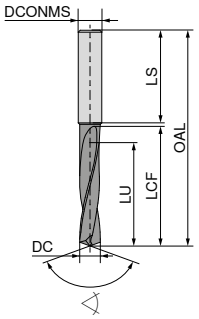
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm						
12,00	12	102	55,0	40,0	45,0	**120**		**120**		**120**		**120**
12,25	14	107	60,0	43,0	45,0	**122**		**122**				
12,50	14	107	60,0	43,0	45,0	**125**		**125**		**125**		**125**
12,70	14	107	60,0	43,0	45,0	**127**		**127**		**127**		**127**
12,80	14	107	60,0	43,0	45,0	**128**		**128**				
12,90	14	107	60,0	43,0	45,0	**129**		**129**				
13,00	14	107	60,0	43,0	45,0	**130**		**130**		**130**		**130**
13,30	14	107	60,0	43,0	45,0	**133**		**133**				
13,50	14	107	60,0	43,0	45,0	**135**		**135**		**135**		**135**
13,70	14	107	60,0	43,0	45,0	**137**		**137**		**137**		**137**
13,80	14	107	60,0	43,0	45,0	**138**		**138**				
14,00	14	107	60,0	43,0	45,0	**140**		**140**		**140**		**140**
14,20	16	115	65,0	45,0	48,0	**142**		**142**				
14,50	16	115	65,0	45,0	48,0	**145**		**145**		**145**		**145**
14,70	16	115	65,0	45,0	48,0	**147**		**147**		**147**		**147**
14,80	16	115	65,0	45,0	48,0	**148**		**148**				
15,00	16	115	65,0	45,0	48,0	**150**		**150**		**150**		**150**
15,25	16	115	65,0	45,0	48,0	**152**		**152**				
15,30	16	115	65,0	45,0	48,0	**153**		**153**				
15,50	16	115	65,0	45,0	48,0	**155**		**155**		**155**		**155**
15,70	16	115	65,0	45,0	48,0	**157**		**157**		**157**		**157**
15,80	16	115	65,0	45,0	48,0	**158**		**158**				
16,00	16	115	65,0	45,0	48,0	**160**		**160**		**160**		**160**
16,50	18	123	73,0	51,0	48,0	**165**		**165**		**165**		**165**
16,80	18	123	73,0	51,0	48,0	**168**		**168**				
17,00	18	123	73,0	51,0	48,0	**170**		**170**		**170**		**170**
17,50	18	123	73,0	51,0	48,0	**175**		**175**		**175**		**175**
17,80	18	123	73,0	51,0	48,0	**178**		**178**				
18,00	18	123	73,0	51,0	48,0	**180**		**180**		**180**		**180**
18,50	20	131	79,0	55,0	50,0	**185**		**185**		**185**		**185**
18,80	20	131	79,0	55,0	50,0	**188**		**188**				
19,00	20	131	79,0	55,0	50,0	**190**		**190**		**190**		**190**
19,50	20	131	79,0	55,0	50,0	**195**		**195**		**195**		**195**
19,80	20	131	79,0	55,0	50,0	**198**		**198**				
20,00	20	131	79,0	55,0	50,0	**200**		**200**		**200**		**200**
P						●		●		○		○
M										●		●
K						●		●		●		●
N										●		●
S												
H												
O												

→ v_c Page 130+133

WTX – High Performance Drill, factory standard

- ▲ Special cutting edge geometry
- ▲ Special flute geometry
- ▲ Special core diameter
- ▲ 46–70 HRC

≤ 3xD | NOF = 2



H | DPX64U | DRAGONSKIN



140°
Solid carbide

10 777 ...

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
2,55	4	55	20	7,6	28	02550
2,60	4	55	20	7,8	28	02600
2,70	4	55	20	8,1	28	02700
2,80	4	55	20	8,4	28	02800
2,90	4	55	20	8,7	28	02900
3,00	6	62	20	9,0	36	03000
3,10	6	62	20	9,3	36	03100
3,20	6	62	20	9,6	36	03200
3,30	6	62	20	9,9	36	03300
3,40	6	62	20	10,2	36	03400
3,50	6	62	20	10,5	36	03500
3,60	6	62	20	10,8	36	03600
3,70	6	62	20	11,1	36	03700
3,80	6	66	24	11,4	36	03800
3,90	6	66	24	11,7	36	03900
4,00	6	66	24	12,0	36	04000
4,10	6	66	24	12,3	36	04100
4,20	6	66	24	12,6	36	04200
4,30	6	66	24	12,9	36	04300
4,40	6	66	24	13,2	36	04400
4,50	6	66	24	13,5	36	04500
4,60	6	66	24	13,8	36	04600
4,70	6	66	24	14,1	36	04700
4,80	6	66	28	14,4	36	04800
4,90	6	66	28	14,7	36	04900
5,00	6	66	28	15,0	36	05000
5,10	6	66	28	15,3	36	05100
5,20	6	66	28	15,6	36	05200
5,30	6	66	28	15,9	36	05300
5,40	6	66	28	16,2	36	05400
5,50	6	66	28	16,5	36	05500
5,60	6	66	28	16,8	36	05600
5,70	6	66	28	17,1	36	05700
5,80	6	66	28	17,4	36	05800
5,90	6	66	28	17,7	36	05900
6,00	6	66	28	18,0	36	06000
6,10	8	79	34	18,3	36	06100
6,20	8	79	34	18,6	36	06200
6,30	8	79	34	18,9	36	06300
6,40	8	79	34	19,2	36	06400
6,50	8	79	34	19,5	36	06500
6,60	8	79	34	19,8	36	06600
6,70	8	79	34	20,1	36	06700
6,80	8	79	34	20,4	36	06800
6,90	8	79	34	20,7	36	06900
7,00	8	79	34	21,0	36	07000
7,10	8	79	41	21,3	36	07100
7,20	8	79	41	21,6	36	07200
7,30	8	79	41	21,9	36	07300
7,40	8	79	41	22,2	36	07400
7,50	8	79	41	22,5	36	07500

10 777 ...

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
7,60	8	79	41	22,8	36	07600
7,70	8	79	41	23,1	36	07700
7,80	8	79	41	23,4	36	07800
7,90	8	79	41	23,7	36	07900
8,00	8	79	41	24,0	36	08000
8,10	10	89	47	24,3	40	08100
8,20	10	89	47	24,6	40	08200
8,30	10	89	47	24,9	40	08300
8,40	10	89	47	25,2	40	08400
8,50	10	89	47	25,5	40	08500
8,60	10	89	47	25,8	40	08600
8,70	10	89	47	26,1	40	08700
8,80	10	89	47	26,4	40	08800
8,90	10	89	47	26,7	40	08900
9,00	10	89	47	27,0	40	09000
9,10	10	89	47	27,3	40	09100
9,20	10	89	47	27,6	40	09200
9,30	10	89	47	27,9	40	09300
9,40	10	89	47	28,2	40	09400
9,50	10	89	47	28,5	40	09500
9,60	10	89	47	28,8	40	09600
9,70	10	89	47	29,1	40	09700
9,80	10	89	47	29,4	40	09800
9,90	10	89	47	29,7	40	09900
10,00	10	89	47	30,0	40	10000
10,10	12	102	55	30,3	45	10100
10,20	12	102	55	30,6	45	10200
10,30	12	102	55	30,9	45	10300
10,40	12	102	55	31,2	45	10400
10,50	12	102	55	31,5	45	10500
10,60	12	102	55	31,8	45	10600
10,70	12	102	55	32,1	45	10700
10,80	12	102	55	32,4	45	10800
10,90	12	102	55	32,7	45	10900
11,00	12	102	55	33,0	45	11000
11,10	12	102	55	33,3	45	11100
11,20	12	102	55	33,6	45	11200
11,30	12	102	55	33,9	45	11300
11,40	12	102	55	34,2	45	11400
11,50	12	102	55	34,5	45	11500
11,60	12	102	55	34,8	45	11600
11,70	12	102	55	35,1	45	11700
11,80	12	102	55	35,4	45	11800
11,90	12	102	55	35,7	45	11900
12,00	12	102	55	36,0	45	12000
12,10	14	107	60	36,3	45	12100
12,20	14	107	60	36,6	45	12200
12,30	14	107	60	36,9	45	12300
12,40	14	107	60	37,2	45	12400
12,50	14	107	60	37,5	45	12500
12,60	14	107	60	37,8	45	12600
12,70	14	107	60	38,1	45	12700
12,80	14	107	60	38,4	45	12800
12,90	14	107	60	38,7	45	12900
13,00	14	107	60	39,0	45	13000
13,10	14	107	60	39,3	45	13100
13,20	14	107	60	39,6	45	13200
13,30	14	107	60	39,9	45	13300
13,40	14	107	60	40,2	45	13400
13,50	14	107	60	40,5	45	13500
13,60	14	107	60	40,8	45	13600
13,70	14	107	60	41,1	45	13700
13,80	14	107	60	41,4	45	13800
13,90	14	107	60	41,7	45	13900
14,00	14	107	60	42,0	45	14000

P	o
K	●
S	
H.1.1	●
H.1.2	●
H.1.3	●
H.1.4	●

→ v_c Page 125

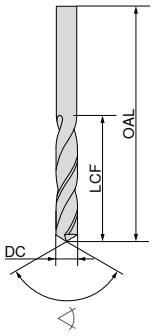
Twist drill similar to DIN 1897

- Rake angle 30°
- Shank Ø h7

≤ 3xD

NOF = 2

N





118°
Solid carbide

10 700 ...

DC h7 mm	OAL mm	LCF mm	
0,5	20	3,0	005
0,6	21	3,5	006
0,7	23	4,5	007
0,8	24	5,0	008
0,9	25	5,5	009
1,0	26	6,0	010
1,2	30	8,0	012
1,3	30	8,0	013
1,4	32	9,0	014
1,5	32	9,0	015
1,6	34	10,0	016
1,7	34	10,0	017
1,8	36	11,0	018
1,9	36	11,0	019
2,0	38	12,0	020
2,1	38	12,0	021
2,2	40	13,0	022
2,3	40	13,0	023
2,4	43	14,0	024
2,5	43	14,0	025
2,6	43	14,0	026
2,7	46	16,0	027
2,8	46	16,0	028
2,9	46	16,0	029
3,0	46	16,0	030
3,1	49	18,0	031
3,2	49	18,0	032
3,3	49	18,0	033
3,4	52	20,0	034
3,5	52	20,0	035
3,6	52	20,0	036
3,7	52	20,0	037
3,8	55	22,0	038
3,9	55	22,0	039
4,0	55	22,0	040
4,1	55	22,0	041
4,2	55	22,0	042
4,3	58	24,0	043
4,4	58	24,0	044
4,5	58	24,0	045
4,6	58	24,0	046
4,7	58	24,0	047
4,8	62	26,0	048
4,9	62	26,0	049
5,0	62	26,0	050
5,1	62	26,0	051
5,2	62	26,0	052
5,3	62	26,0	053
5,4	66	28,0	054
5,5	66	28,0	055
5,6	66	28,0	056
5,7	66	28,0	057

10 700 ...

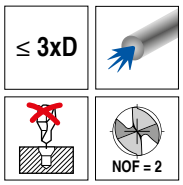
DC h7 mm	OAL mm	LCF mm	
5,8	66	28,0	058
5,9	66	28,0	059
6,0	66	28,0	060
6,1	70	31,0	061
6,2	70	31,0	062
6,3	70	31,0	063
6,4	70	31,0	064
6,5	70	31,0	065
6,6	70	31,0	066
6,7	70	31,0	067
6,8	74	34,0	068
6,9	74	34,0	069
7,0	74	34,0	070
7,1	74	34,0	071
7,2	74	34,0	072
7,3	74	34,0	073
7,4	74	34,0	074
7,5	74	34,0	075
7,6	79	37,0	076
7,7	79	37,0	077
7,8	79	37,0	078
7,9	79	37,0	079
8,0	79	37,0	080
8,1	79	37,0	081
8,2	79	37,0	082
8,3	79	37,0	083
8,4	79	37,0	084
8,5	79	37,0	085
8,6	84	40,0	086
8,7	84	40,0	087
8,8	84	40,0	088
8,9	84	40,0	089
9,0	84	40,0	090
9,1	84	40,0	091
9,2	84	40,0	092
9,3	84	40,0	093
9,4	84	40,0	094
9,5	84	40,0	095
9,6	89	43,0	096
9,7	89	43,0	097
9,8	89	43,0	098
9,9	89	43,0	099
10,0	89	43,0	100
10,2	89	43,0	102
10,5	89	43,0	105
10,8	95	47,0	108
11,0	95	47,0	110
11,2	95	47,0	112
11,5	95	47,0	115
11,8	95	47,0	118
12,0	102	51,0	120
12,5	102	51,0	125
13,0	102	51,0	130
13,5	107	54,0	135
14,0	107	54,0	140
14,5	111	56,0	145
15,0	111	56,0	150
15,5	115	58,0	155
16,0	115	58,0	160
18,0	123	62,0	180
20,0	131	66,0	200

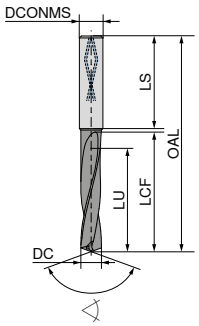
P	○
M	
K	●
N	●
S	○
H	
O	

→ v_c Page 128

WTX – High Performance Drill, factory standard

- ▲ Special cutting edge geometry
- ▲ Special flute geometry
- ▲ Special core diameter
- ▲ 46–58 HRC





H

DPX64S

DRAGONSKIN



140°

Solid carbide

10 776 ...

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
2,55	4	55	20	7,6	28	02550
2,60	4	55	20	7,8	28	02600
2,70	4	55	20	8,1	28	02700
2,80	4	55	20	8,4	28	02800
2,90	4	55	20	8,7	28	02900
3,00	6	62	20	9,0	36	03000
3,10	6	62	20	9,3	36	03100
3,20	6	62	20	9,6	36	03200
3,30	6	62	20	9,9	36	03300
3,40	6	62	20	10,2	36	03400
3,50	6	62	20	10,5	36	03500
3,60	6	62	20	10,8	36	03600
3,70	6	62	20	11,1	36	03700
3,80	6	66	24	11,4	36	03800
3,90	6	66	24	11,7	36	03900
4,00	6	66	24	12,0	36	04000
4,10	6	66	24	12,3	36	04100
4,20	6	66	24	12,6	36	04200
4,30	6	66	24	12,9	36	04300
4,40	6	66	24	13,2	36	04400
4,50	6	66	24	13,5	36	04500
4,60	6	66	24	13,8	36	04600
4,70	6	66	24	14,1	36	04700
4,80	6	66	28	14,4	36	04800
4,90	6	66	28	14,7	36	04900
5,00	6	66	28	15,0	36	05000
5,10	6	66	28	15,3	36	05100
5,20	6	66	28	15,6	36	05200
5,30	6	66	28	15,9	36	05300
5,40	6	66	28	16,2	36	05400
5,50	6	66	28	16,5	36	05500
5,60	6	66	28	16,8	36	05600
5,70	6	66	28	17,1	36	05700
5,80	6	66	28	17,4	36	05800
5,90	6	66	28	17,7	36	05900
6,00	6	66	28	18,0	36	06000
6,10	8	79	34	18,3	36	06100
6,20	8	79	34	18,6	36	06200
6,30	8	79	34	18,9	36	06300
6,40	8	79	34	19,2	36	06400
6,50	8	79	34	19,5	36	06500
6,60	8	79	34	19,8	36	06600
6,70	8	79	34	20,1	36	06700
6,80	8	79	34	20,4	36	06800
6,90	8	79	34	20,7	36	06900
7,00	8	79	34	21,0	36	07000
7,10	8	79	41	21,3	36	07100
7,20	8	79	41	21,6	36	07200
7,30	8	79	41	21,9	36	07300
7,40	8	79	41	22,2	36	07400
7,50	8	79	41	22,5	36	07500

10 776 ...

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
7,60	8	79	41	22,8	36	07600
7,70	8	79	41	23,1	36	07700
7,80	8	79	41	23,4	36	07800
7,90	8	79	41	23,7	36	07900
8,00	8	79	41	24,0	36	08000
8,10	10	89	47	24,3	40	08100
8,20	10	89	47	24,6	40	08200
8,30	10	89	47	24,9	40	08300
8,40	10	89	47	25,2	40	08400
8,50	10	89	47	25,5	40	08500
8,60	10	89	47	25,8	40	08600
8,70	10	89	47	26,1	40	08700
8,80	10	89	47	26,4	40	08800
8,90	10	89	47	26,7	40	08900
9,00	10	89	47	27,0	40	09000
9,10	10	89	47	27,3	40	09100
9,20	10	89	47	27,6	40	09200
9,30	10	89	47	27,9	40	09300
9,40	10	89	47	28,2	40	09400
9,50	10	89	47	28,5	40	09500
9,60	10	89	47	28,8	40	09600
9,70	10	89	47	29,1	40	09700
9,80	10	89	47	29,4	40	09800
9,90	10	89	47	29,7	40	09900
10,00	10	89	47	30,0	40	10000
10,10	12	102	55	30,3	45	10100
10,20	12	102	55	30,6	45	10200
10,30	12	102	55	30,9	45	10300
10,40	12	102	55	31,2	45	10400
10,50	12	102	55	31,5	45	10500
10,60	12	102	55	31,8	45	10600
10,70	12	102	55	32,1	45	10700
10,80	12	102	55	32,4	45	10800
10,90	12	102	55	32,7	45	10900
11,00	12	102	55	33,0	45	11000
11,10	12	102	55	33,3	45	11100
11,20	12	102	55	33,6	45	11200
11,30	12	102	55	33,9	45	11300
11,40	12	102	55	34,2	45	11400
11,50	12	102	55	34,5	45	11500
11,60	12	102	55	34,8	45	11600
11,70	12	102	55	35,1	45	11700
11,80	12	102	55	35,4	45	11800
11,90	12	102	55	35,7	45	11900
12,00	12	102	55	36,0	45	12000
12,10	14	107	60	36,3	45	12100
12,20	14	107	60	36,6	45	12200
12,30	14	107	60	36,9	45	12300
12,40	14	107	60	37,2	45	12400
12,50	14	107	60	37,5	45	12500
12,60	14	107	60	37,8	45	12600
12,70	14	107	60	38,1	45	12700
12,80	14	107	60	38,4	45	12800
12,90	14	107	60	38,7	45	12900
13,00	14	107	60	39,0	45	13000
13,10	14	107	60	39,3	45	13100
13,20	14	107	60	39,6	45	13200
13,30	14	107	60	39,9	45	13300
13,40	14	107	60	40,2	45	13400
13,50	14	107	60	40,5	45	13500
13,60	14	107	60	40,8	45	13600
13,70	14	107	60	41,1	45	13700
13,80	14	107	60	41,4	45	13800
13,90	14	107	60	41,7	45	13900
14,00	14	107	60	42,0	45	14000

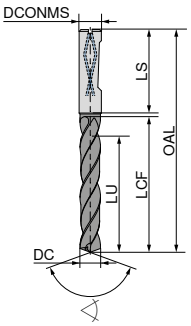
P	○
K	●
S	○
H.1.1	●
H.1.2	●
H.1.3	●
H.1.4	

→ v_c Page 124

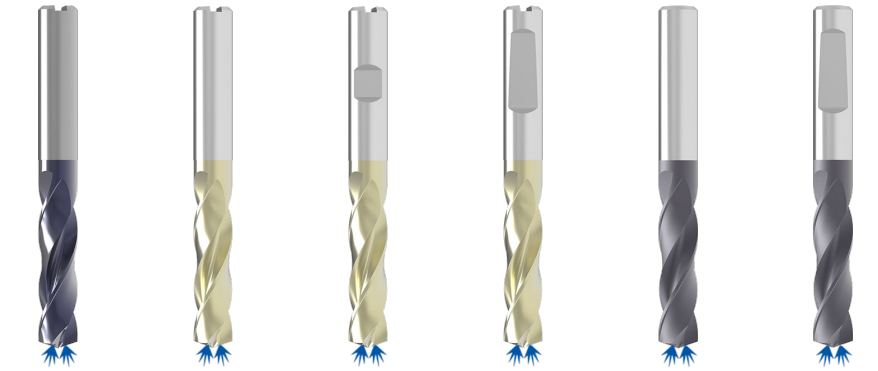
WTX – High Performance Drill, DIN 6537

≤ 3xD

NOF = 2



Speed UNI	UNI	UNI	UNI	VA	VA
DPX14S	DPX74S	DPX74S	DPX74S	Ti700	Ti700
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		



HA	HA	HB	HE	HA	HE
◁ 145°	◁ 140°	◁ 140°	◁ 140°	◁ 140°	◁ 140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
10 781 ...	**11 780 ...**	**11 781 ...**	**11 779 ...**	**10 734 ...**	**10 733 ...**

DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm										
3,00	6	62	20	14	36	03000		03000		03000		03000		030		030	
3,10	6	62	20	14	36	03100		03100		03100		03100		031		031	
3,15	6	62	20	14	36			03150		03150		03150		831			
3,20	6	62	20	14	36	03200		03200		03200		03200		032		032	
3,22	6	62	20	14	36			03220		03220		03220		832			
3,25	6	62	20	14	36			03250		03250		03250		890			
3,30	6	62	20	14	36	03300		03300		03300		03300		033		033	
3,40	6	62	20	14	36	03400		03400		03400		03400		034		034	
3,50	6	62	20	14	36	03500		03500		03500		03500		035		035	
3,60	6	62	20	14	36	03600		03600		03600		03600		036		036	
3,70	6	62	20	14	36	03700		03700		03700		03700		037		037	
3,80	6	66	24	17	36	03800		03800		03800		03800		038		038	
3,85	6	66	24	17	36			03850		03850		03850		838			
3,90	6	66	24	17	36	03900		03900		03900		03900		039		039	
4,00	6	66	24	17	36	04000		04000		04000		04000		040		040	
4,10	6	66	24	17	36	04100		04100		04100		04100		041		041	
4,20	6	66	24	17	36	04200		04200		04200		04200		042		042	
4,25	6	66	24	17	36			04250		04250		04250					
4,30	6	66	24	17	36	04300		04300		04300		04300		043		043	
4,35	6	66	24	17	36			04350		04350		04350		843			
4,40	6	66	24	17	36	04400		04400		04400		04400		044		044	
4,45	6	66	24	17	36			04450		04450		04450		844			
4,50	6	66	24	17	36	04500		04500		04500		04500		045		045	
4,60	6	66	24	17	36	04600		04600		04600		04600		046		046	
4,65	6	66	24	17	36	04650		04650		04650		04650		900		900	
4,70	6	66	24	17	36	04700		04700		04700		04700		047		047	
4,80	6	66	28	20	36	04800		04800		04800		04800		048		048	
4,90	6	66	28	20	36	04900		04900		04900		04900		049		049	
4,95	6	66	28	20	36			04950		04950		04950					
5,00	6	66	28	20	36	05000		05000		05000		05000		050		050	
5,05	6	66	28	20	36			05050		05050		05050					
5,10	6	66	28	20	36	05100		05100		05100		05100		051		051	
5,20	6	66	28	20	36	05200		05200		05200		05200		052		052	
5,30	6	66	28	20	36	05300		05300		05300		05300		053		053	
5,40	6	66	28	20	36	05400		05400		05400		05400		054		054	
5,50	6	66	28	20	36	05500		05500		05500		05500		055		055	
5,55	6	66	28	20	36	05550		05550		05550		05550		902		902	
5,60	6	66	28	20	36	05600		05600		05600		05600		056		056	
5,70	6	66	28	20	36	05700		05700		05700		05700		057		057	
5,75	6	66	28	20	36			05750		05750		05750		916			
5,80	6	66	28	20	36	05800		05800		05800		05800		058		058	
5,90	6	66	28	20	36	05900		05900		05900		05900		059		059	

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

→ v_c Page 108–114

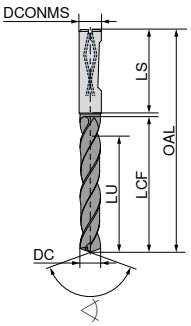
Ø DC_{m7} for Type UNI and VA / Ø DC_{h7} for Type Speed UNI

Continued on next page

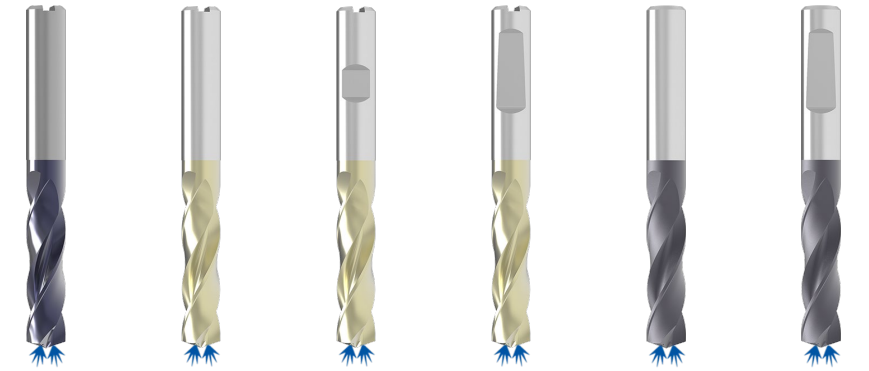
WTX – High Performance Drill, DIN 6537

≤ 3xD

NOF = 2



Speed UNI	UNI	UNI	UNI	VA	VA
DPX14S	DPX74S	DPX74S	DPX74S	Ti700	Ti700
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		



HA	HA	HB	HE	HA	HE
◁ 145°	◁ 140°	◁ 140°	◁ 140°	◁ 140°	◁ 140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
10 781 ...	**11 780 ...**	**11 781 ...**	**11 779 ...**	**10 734 ...**	**10 733 ...**

DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm												
5,95	6	66	28	20	36			05950		05950		05950		959			
6,00	6	66	28	20	36		06000	06000		06000		06000		060			060
6,10	8	79	34	24	36		06100	06100		06100		06100		061			061
6,20	8	79	34	24	36		06200	06200		06200		06200		062			062
6,30	8	79	34	24	36		06300	06300		06300		06300		063			063
6,40	8	79	34	24	36		06400	06400		06400		06400		064			064
6,50	8	79	34	24	36		06500	06500		06500		06500		065			065
6,60	8	79	34	24	36		06600	06600		06600		06600		066			066
6,70	8	79	34	24	36		06700	06700		06700		06700		067			067
6,80	8	79	34	24	36		06800	06800		06800		06800		068			068
6,90	8	79	34	24	36		06900	06900		06900		06900		069			069
7,00	8	79	34	24	36		07000	07000		07000		07000		070			070
7,10	8	79	41	29	36		07100	07100		07100		07100		071			071
7,20	8	79	41	29	36		07200	07200		07200		07200		072			072
7,30	8	79	41	29	36		07300	07300		07300		07300		073			073
7,40	8	79	41	29	36		07400	07400		07400		07400		074			074
7,45	8	79	41	29	36			07450		07450		07450		924			
7,50	8	79	41	29	36		07500	07500		07500		07500		075			075
7,60	8	79	41	29	36		07600	07600		07600		07600		076			076
7,70	8	79	41	29	36		07700	07700		07700		07700		077			077
7,80	8	79	41	29	36		07800	07800		07800		07800		078			078
7,90	8	79	41	29	36		07900	07900		07900		07900		079			079
8,00	8	79	41	29	36		08000	08000		08000		08000		080			080
8,10	10	89	47	35	40		08100	08100		08100		08100		081			081
8,20	10	89	47	35	40		08200	08200		08200		08200		082			082
8,30	10	89	47	35	40		08300	08300		08300		08300		083			083
8,40	10	89	47	35	40		08400	08400		08400		08400		084			084
8,50	10	89	47	35	40		08500	08500		08500		08500		085			085
8,60	10	89	47	35	40		08600	08600		08600		08600		086			086
8,70	10	89	47	35	40		08700	08700		08700		08700		087			087
8,80	10	89	47	35	40		08800	08800		08800		08800		088			088
8,90	10	89	47	35	40		08900	08900		08900		08900		089			089
9,00	10	89	47	35	40		09000	09000		09000		09000		090			090
9,10	10	89	47	35	40		09100	09100		09100		09100		091			091
9,20	10	89	47	35	40		09200	09200		09200		09200		092			092
9,30	10	89	47	35	40		09300	09300		09300		09300		093			093
9,35	10	89	47	35	40			09350		09350		09350		930			
9,40	10	89	47	35	40		09400	09400		09400		09400		094			094
9,45	10	89	47	35	40			09450		09450		09450		994			
9,50	10	89	47	35	40		09500	09500		09500		09500		095			095
9,60	10	89	47	35	40		09600	09600		09600		09600		096			096
9,70	10	89	47	35	40		09700	09700		09700		09700		097			097

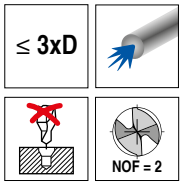
P						●		●		●		○	○
M						●						●	●
K						●		●		●		○	○
N												○	○
S												●	●
H							○		○		○		
O													

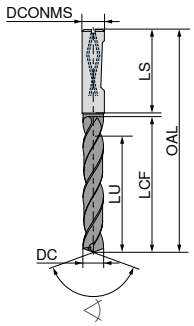
→ v_c Page 108–114

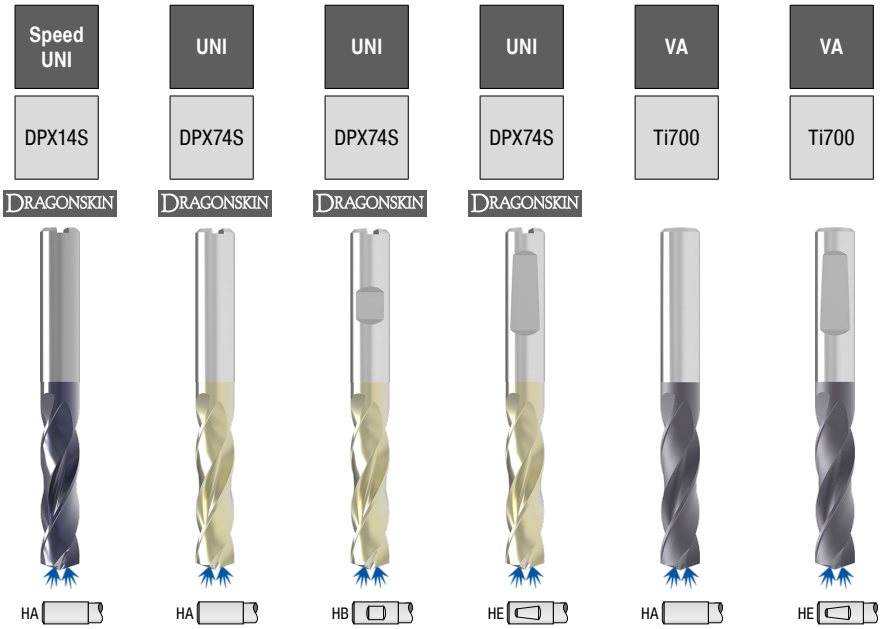
Ø DC_{m7} for Type UNI and VA / **Ø DC_{h7}** for Type Speed UNI

Continued on next page

WTX – High Performance Drill, DIN 6537







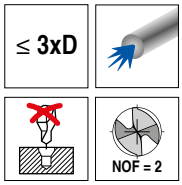
						145° Solid carbide	140° Solid carbide	140° Solid carbide	140° Solid carbide	140° Solid carbide	140° Solid carbide
						10 781 ...	11 780 ...	11 781 ...	11 779 ...	10 734 ...	10 733 ...
DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm						
9,80	10	89	47	35	40	09800	09800	09800	09800	098	098
9,90	10	89	47	35	40	09900	09900	09900	09900	099	099
10,00	10	89	47	35	40	10000	10000	10000	10000	100	100
10,10	12	102	55	40	45	10100	10100	10100	10100	101	101
10,20	12	102	55	40	45	10200	10200	10200	10200	102	102
10,30	12	102	55	40	45	10300	10300	10300	10300	103	103
10,40	12	102	55	40	45	10400	10400	10400	10400	104	104
10,50	12	102	55	40	45	10500	10500	10500	10500	105	105
10,55	12	102	55	40	45		10550	10550	10550	932	
10,60	12	102	55	40	45	10600	10600	10600	10600	106	106
10,70	12	102	55	40	45	10700	10700	10700	10700	107	107
10,75	12	102	55	40	45		10750	10750	10750		
10,80	12	102	55	40	45	10800	10800	10800	10800	108	108
10,90	12	102	55	40	45	10900	10900	10900	10900	109	109
11,00	12	102	55	40	45	11000	11000	11000	11000	110	110
11,10	12	102	55	40	45	11100	11100	11100	11100	111	111
11,20	12	102	55	40	45	11200	11200	11200	11200	112	112
11,25	12	102	55	40	45		11250	11250	11250	912	
11,30	12	102	55	40	45	11300	11300	11300	11300	113	113
11,35	12	102	55	40	45		11350	11350	11350	913	
11,40	12	102	55	40	45	11400	11400	11400	11400	114	114
11,45	12	102	55	40	45		11450	11450	11450	914	
11,50	12	102	55	40	45	11500	11500	11500	11500	115	115
11,60	12	102	55	40	45	11600	11600	11600	11600	116	116
11,70	12	102	55	40	45	11700	11700	11700	11700	117	117
11,80	12	102	55	40	45	11800	11800	11800	11800	118	118
11,90	12	102	55	40	45	11900	11900	11900	11900	119	119
12,00	12	102	55	40	45	12000	12000	12000	12000	120	120
12,15	14	107	60	43	45		12150	12150	12150	921	
12,25	14	107	60	43	45		12250	12250	12250		
12,50	14	107	60	43	45	12500	12500	12500	12500	125	125
12,55	14	107	60	43	45		12550	12550	12550	925	
12,70	14	107	60	43	45		12700	12700	12700		
12,80	14	107	60	43	45	12800	12800	12800	12800	128	128
12,90	14	107	60	43	45		12900	12900	12900		
13,00	14	107	60	43	45	13000	13000	13000	13000	130	130
13,10	14	107	60	43	45		13100	13100	13100		
13,30	14	107	60	43	45		13300	13300	13300		
13,35	14	107	60	43	45		13350	13350	13350	933	
13,50	14	107	60	43	45	13500	13500	13500	13500	135	135
13,70	14	107	60	43	45		13700	13700	13700		
13,80	14	107	60	43	45	13800	13800	13800	13800	138	138
P						●	●	●	●	○	○
M						●				●	●
K						●	●	●	●	○	○
N										○	○
S										●	●
H							○	○	○		
O											

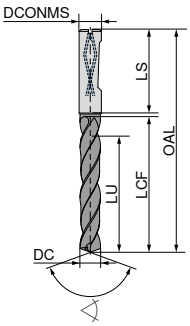
→ v_c Page 108–114

Ø DC_{m7} for Type UNI and VA / **Ø DC_{h7}** for Type Speed UNI

Continued on next page

WTX – High Performance Drill, DIN 6537





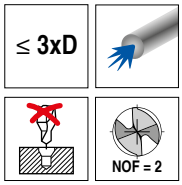
	Speed UNI	UNI	UNI	UNI	VA	VA
	DPX14S	DPX74S	DPX74S	DPX74S	Ti700	Ti700
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		
						
	HA	HA	HB	HE	HA	HE
	◁ 145°	◁ 140°	◁ 140°	◁ 140°	◁ 140°	◁ 140°
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
	10 781 ...	**11 780 ...**	**11 781 ...**	**11 779 ...**	**10 734 ...**	**10 733 ...**

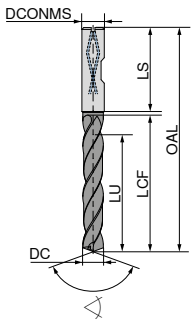
DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm												
14,00	14	107	60	43	45	14000		14000		14000		14000		140		140	
14,20	16	115	65	45	48			14200		14200		14200					
14,50	16	115	65	45	48	14500		14500		14500		14500		145		145	
14,80	16	115	65	45	48	14800		14800		14800		14800		148		148	
15,00	16	115	65	45	48	15000		15000		15000		15000		150		150	
15,10	16	115	65	45	48			15100		15100		15100					
15,25	16	115	65	45	48			15250		15250		15250					
15,30	16	115	65	45	48			15300		15300		15300					
15,35	16	115	65	45	48			15350		15350		15350		953			
15,50	16	115	65	45	48	15500		15500		15500		15500		155		155	
15,60	16	115	65	45	48			15600		15600		15600					
15,80	16	115	65	45	48	15800		15800		15800		15800		158		158	
16,00	16	115	65	45	48	16000		16000		16000		16000		160		160	
16,05	18	123	73	51	48			16050		16050		16050		960			
16,50	18	123	73	51	48	16500		16500		16500		16500		165		165	
16,80	18	123	73	51	48	16800		16800		16800		16800		168		168	
16,90	18	123	73	51	48			16900		16900		16900					
17,00	18	123	73	51	48	17000		17000		17000		17000		170		170	
17,50	18	123	73	51	48	17500		17500		17500		17500		175		175	
17,60	18	123	73	51	48			17600		17600		17600					
17,80	18	123	73	51	48	17800		17800		17800		17800		178		178	
18,00	18	123	73	51	48	18000		18000		18000		18000		180		180	
18,50	20	131	79	55	50	18500		18500		18500		18500		185		185	
18,80	20	131	79	55	50	18800		18800		18800		18800		188		188	
18,90	20	131	79	55	50			18900		18900		18900					
19,00	20	131	79	55	50	19000		19000		19000		19000		190		190	
19,35	20	131	79	55	50			19350		19350		19350		993			
19,50	20	131	79	55	50	19500		19500		19500		19500		195		195	
19,60	20	131	79	55	50			19600		19600		19600					
19,80	20	131	79	55	50	19800		19800		19800		19800		198		198	
20,00	20	131	79	55	50	20000		20000		20000		20000		200		200	
20,50	25	151	93	66	56			20500		20500		20500					
21,00	25	151	93	66	56			21000		21000		21000					
21,50	25	151	93	66	56			21500		21500		21500					
22,00	25	151	93	66	56			22000		22000		22000					
22,50	25	153	96	72	56			22500		22500		22500					
23,00	25	153	96	72	56			23000		23000		23000					
23,50	25	153	96	72	56			23500		23500		23500					
24,00	25	153	96	72	56			24000		24000		24000					
24,50	25	153	96	75	56			24500		24500		24500					
25,00	25	153	96	75	56			25000		25000		25000					
P						●		●		●		●		○		○	
M						●								●		●	
K						●		●		●		●		○		○	
N														○		○	
S														●		●	
H								○		○		○					
O																	

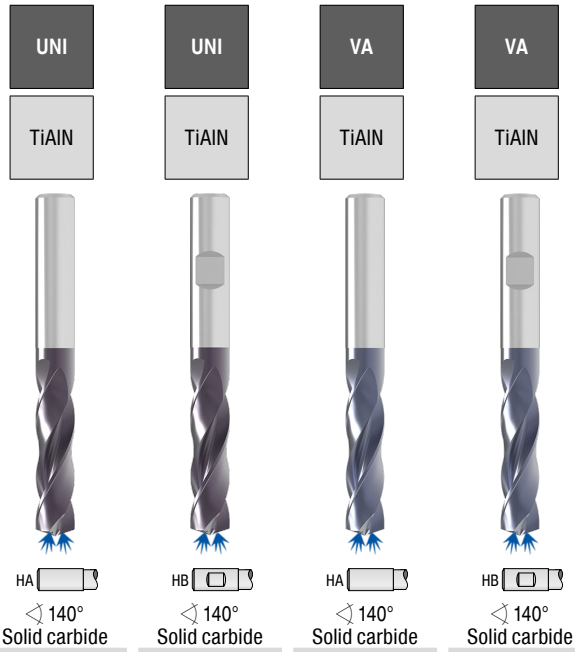
→ v_c Page 108–114

Ø DC_{m7} for Type UNI and VA / Ø DC_{h7} for Type Speed UNI

WPC – High Performance Drill, DIN 6537





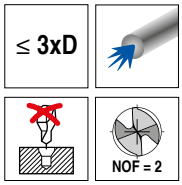


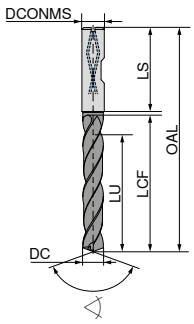
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 603 ...	11 604 ...		11 623 ...		11 624 ...	
1,00	4	45	6,0	4,5	32,0	010			010			
1,10	4	45	6,6	5,0	31,5	011			011			
1,20	4	45	7,2	5,4	31,0	012			012			
1,30	4	45	7,8	5,9	31,5	013			013			
1,40	4	45	8,4	6,3	30,0	014			014			
1,50	4	50	9,0	6,8	35,0	015			015			
1,60	4	50	9,6	7,2	34,5	016			016			
1,70	4	50	10,2	7,7	34,0	017			017			
1,80	4	50	10,8	8,1	33,5	018			018			
1,90	4	50	11,4	8,6	33,0	019			019			
2,00	4	50	12,0	9,0	33,0	020			020			
2,10	4	55	12,6	9,5	37,5	021			021			
2,20	4	55	13,2	9,9	37,0	022			022			
2,30	4	55	13,8	10,4	36,5	023			023			
2,40	4	55	14,4	10,8	36,0	024			024			
2,50	4	55	15,0	11,3	35,5	025			025			
2,60	4	55	15,6	11,7	35,5	026			026			
2,70	4	55	16,2	12,2	35,0	027			027			
2,80	4	55	16,8	12,6	34,0	028			028			
2,90	4	55	17,4	13,1	34,0	029			029			
3,00	6	62	20,0	14,0	36,0	030		030		030		030
3,10	6	62	20,0	14,0	36,0	031		031		031		031
3,20	6	62	20,0	14,0	36,0	032		032		032		032
3,25	6	62	20,0	14,0	36,0	890		890		03250		
3,30	6	62	20,0	14,0	36,0	033		033		033		033
3,40	6	62	20,0	14,0	36,0	034		034		034		034
3,50	6	62	20,0	14,0	36,0	035		035		035		035
3,60	6	62	20,0	14,0	36,0	036		036		036		036
3,70	6	62	20,0	14,0	36,0	037		037		037		037
3,80	6	66	24,0	17,0	36,0	038		038		038		038
3,90	6	66	24,0	17,0	36,0	039		039		039		039
4,00	6	66	24,0	17,0	36,0	040		040		040		040
4,10	6	66	24,0	17,0	36,0	041		041		041		041
4,20	6	66	24,0	17,0	36,0	042		042		042		042
4,30	6	66	24,0	17,0	36,0	043		043		043		043
4,40	6	66	24,0	17,0	36,0	044		044		044		044
4,50	6	66	24,0	17,0	36,0	045		045		045		045
4,60	6	66	24,0	17,0	36,0	046		046		046		046
4,65	6	66	24,0	17,0	36,0	900		900		900		900
4,70	6	66	24,0	17,0	36,0	047		047		047		047
4,80	6	66	28,0	20,0	36,0	048		048		048		048
4,90	6	66	28,0	20,0	36,0	049		049		049		049
5,00	6	66	28,0	20,0	36,0	050		050		050		050
5,10	6	66	28,0	20,0	36,0	051		051		051		051
P						●		●		○		○
M										●		●
K						●		●		●		●
N										●		●
S												
H												
O												

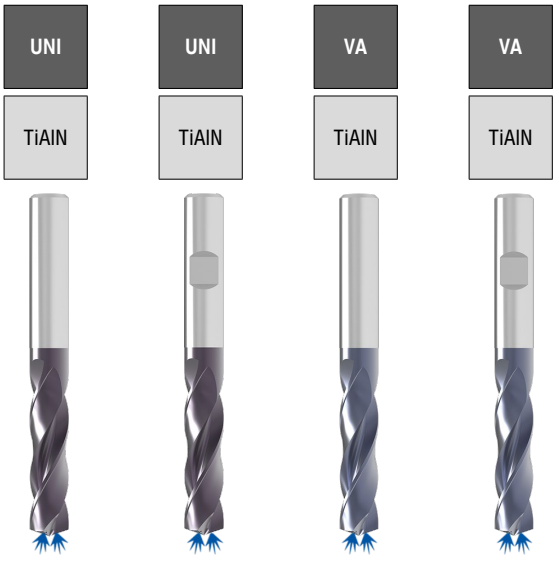
→ v_c Page 130+133

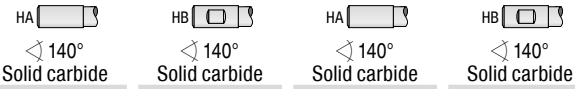
Continued on next page

WPC – High Performance Drill, DIN 6537









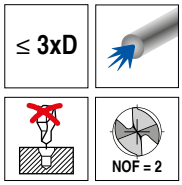
140° Solid carbide | 140° Solid carbide | 140° Solid carbide | 140° Solid carbide

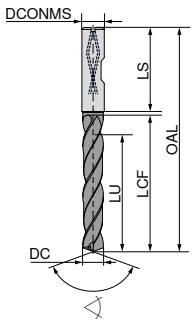
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 603 ...	11 604 ...	11 623 ...	11 624 ...
5,20	6	66	28,0	20,0	36,0	052	052	052	052
5,30	6	66	28,0	20,0	36,0	053	053	053	053
5,40	6	66	28,0	20,0	36,0	054	054	054	054
5,50	6	66	28,0	20,0	36,0	055	055	055	055
5,55	6	66	28,0	20,0	36,0	902	902	902	902
5,60	6	66	28,0	20,0	36,0	056	056	056	056
5,70	6	66	28,0	20,0	36,0	057	057	057	057
5,80	6	66	28,0	20,0	36,0	058	058	058	058
5,90	6	66	28,0	20,0	36,0	059	059	059	059
6,00	6	66	28,0	20,0	36,0	060	060	060	060
6,10	8	79	34,0	24,0	36,0	061	061	061	061
6,20	8	79	34,0	24,0	36,0	062	062	062	062
6,30	8	79	34,0	24,0	36,0	063	063	063	063
6,40	8	79	34,0	24,0	36,0	064	064	064	064
6,50	8	79	34,0	24,0	36,0	065	065	065	065
6,60	8	79	34,0	24,0	36,0	066	066	066	066
6,70	8	79	34,0	24,0	36,0	067	067	067	067
6,80	8	79	34,0	24,0	36,0	068	068	068	068
6,90	8	79	34,0	24,0	36,0	069	069	069	069
7,00	8	79	34,0	24,0	36,0	070	070	070	070
7,10	8	79	41,0	29,0	36,0	071	071	071	071
7,20	8	79	41,0	29,0	36,0	072	072	072	072
7,30	8	79	41,0	29,0	36,0	073	073	073	073
7,40	8	79	41,0	29,0	36,0	074	074	074	074
7,45	8	79	41,0	29,0	36,0	924	924	07450	
7,50	8	79	41,0	29,0	36,0	075	075	075	075
7,55	8	79	41,0	29,0	36,0	975	975	975	975
7,60	8	79	41,0	29,0	36,0	076	076	076	076
7,70	8	79	41,0	29,0	36,0	077	077	077	077
7,80	8	79	41,0	29,0	36,0	078	078	078	078
7,90	8	79	41,0	29,0	36,0	079	079	079	079
8,00	8	79	41,0	29,0	36,0	080	080	080	080
8,10	10	89	47,0	35,0	40,0	081	081	081	081
8,20	10	89	47,0	35,0	40,0	082	082	082	082
8,30	10	89	47,0	35,0	40,0	083	083	083	083
8,40	10	89	47,0	35,0	40,0	084	084	084	084
8,50	10	89	47,0	35,0	40,0	085	085	085	085
8,60	10	89	47,0	35,0	40,0	086	086	086	086
8,70	10	89	47,0	35,0	40,0	087	087	087	087
8,80	10	89	47,0	35,0	40,0	088	088	088	088
8,90	10	89	47,0	35,0	40,0	089	089	089	089
9,00	10	89	47,0	35,0	40,0	090	090	090	090
9,10	10	89	47,0	35,0	40,0	091	091	091	091
9,20	10	89	47,0	35,0	40,0	092	092	092	092
P						●	●	○	○
M								●	●
K						●	●	●	●
N								●	●
S									
H									
O									

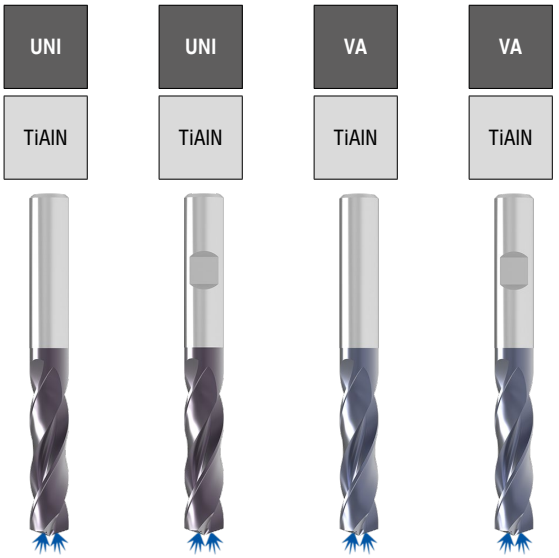
→ v_c Page 130+133

Continued on next page

WPC – High Performance Drill, DIN 6537







Solid carbide | Solid carbide | Solid carbide | Solid carbide

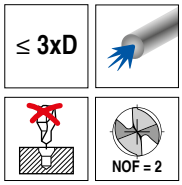
11 603 ... | 11 604 ... | 11 623 ... | 11 624 ...

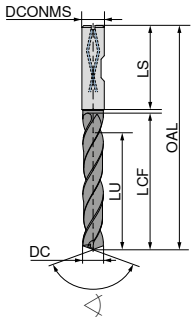
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 603 ...	11 604 ...	11 623 ...	11 624 ...
9,25	10	89	47,0	35,0	40,0	925	925	925	925
9,30	10	89	47,0	35,0	40,0	093	093	093	093
9,35	10	89	47,0	35,0	40,0	930	930	09350	
9,40	10	89	47,0	35,0	40,0	094	094	094	094
9,50	10	89	47,0	35,0	40,0	095	095	095	095
9,60	10	89	47,0	35,0	40,0	096	096	096	096
9,70	10	89	47,0	35,0	40,0	097	097	097	097
9,80	10	89	47,0	35,0	40,0	098	098	098	098
9,90	10	89	47,0	35,0	40,0	099	099	099	099
10,00	10	89	47,0	35,0	40,0	100	100	100	100
10,10	12	102	55,0	40,0	45,0	101	101	101	101
10,20	12	102	55,0	40,0	45,0	102	102	102	102
10,30	12	102	55,0	40,0	45,0	103	103	103	103
10,40	12	102	55,0	40,0	45,0	104	104	104	104
10,50	12	102	55,0	40,0	45,0	105	105	105	105
10,60	12	102	55,0	40,0	45,0	106	106	106	106
10,70	12	102	55,0	40,0	45,0	107	107	107	107
10,75	12	102	55,0	40,0	45,0	904	904	10750	
10,80	12	102	55,0	40,0	45,0	108	108	108	108
10,90	12	102	55,0	40,0	45,0	109	109	109	109
11,00	12	102	55,0	40,0	45,0	110	110	110	110
11,10	12	102	55,0	40,0	45,0	111	111	111	111
11,20	12	102	55,0	40,0	45,0	112	112	112	112
11,25	12	102	55,0	40,0	45,0	912	912	11250	
11,30	12	102	55,0	40,0	45,0	113	113	113	113
11,40	12	102	55,0	40,0	45,0	114	114	114	114
11,50	12	102	55,0	40,0	45,0	115	115	115	115
11,60	12	102	55,0	40,0	45,0	116	116	116	116
11,70	12	102	55,0	40,0	45,0	117	117	117	117
11,80	12	102	55,0	40,0	45,0	118	118	118	118
11,90	12	102	55,0	40,0	45,0	119	119	119	119
12,00	12	102	55,0	40,0	45,0	120	120	120	120
12,25	14	107	60,0	43,0	45,0	122	122	12250	
12,50	14	107	60,0	43,0	45,0	125	125	125	125
12,70	14	107	60,0	43,0	45,0	127	127	127	127
12,80	14	107	60,0	43,0	45,0	128	128		
12,90	14	107	60,0	43,0	45,0	129	129		
13,00	14	107	60,0	43,0	45,0	130	130	130	130
13,10	14	107	60,0	43,0	45,0	131	131		
13,30	14	107	60,0	43,0	45,0	133	133		
13,50	14	107	60,0	43,0	45,0	135	135	135	135
13,70	14	107	60,0	43,0	45,0	137	137	137	137
13,80	14	107	60,0	43,0	45,0	138	138		
14,00	14	107	60,0	43,0	45,0	140	140	140	140
P						●	●	○	○
M								●	●
K						●	●	●	●
N								●	●
S									
H									
O									

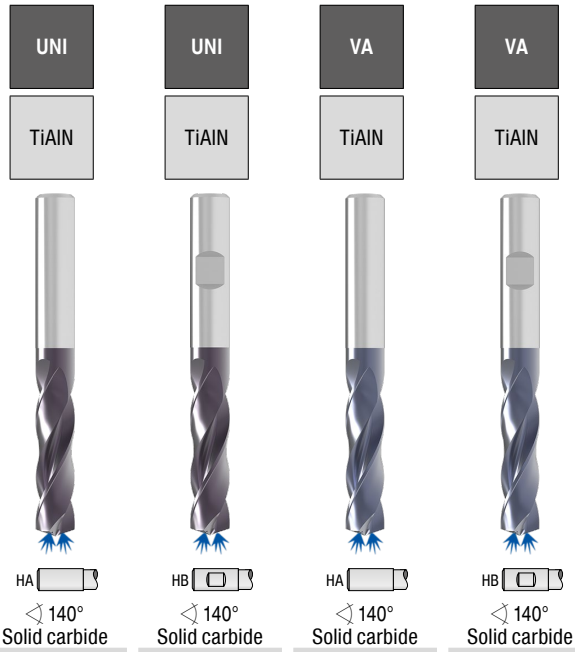
→ v_c Page 130+133

Continued on next page

WPC – High Performance Drill, DIN 6537





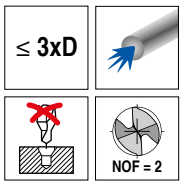


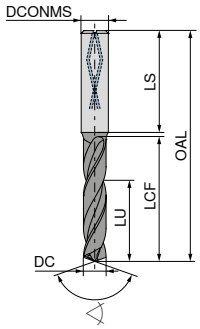
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 603 ...		11 604 ...		11 623 ...		11 624 ...	
14,20	16	115	65,0	45,0	48,0	142		142					
14,50	16	115	65,0	45,0	48,0	145		145		145		145	
14,70	16	115	65,0	45,0	48,0	147		147		147		147	
14,80	16	115	65,0	45,0	48,0	148		148					
15,00	16	115	65,0	45,0	48,0	150		150		150		150	
15,10	16	115	65,0	45,0	48,0	151		151					
15,25	16	115	65,0	45,0	48,0	152		152					
15,30	16	115	65,0	45,0	48,0	153		153					
15,50	16	115	65,0	45,0	48,0	155		155		155		155	
15,60	16	115	65,0	45,0	48,0	156		156					
15,70	16	115	65,0	45,0	48,0	157		157		157		157	
15,80	16	115	65,0	45,0	48,0	158		158					
16,00	16	115	65,0	45,0	48,0	160		160		160		160	
16,50	18	123	73,0	51,0	48,0	165		165		165		165	
16,80	18	123	73,0	51,0	48,0	168		168					
16,90	18	123	73,0	51,0	48,0	169		169					
17,00	18	123	73,0	51,0	48,0	170		170		170		170	
17,50	18	123	73,0	51,0	48,0	175		175		175		175	
17,60	18	123	73,0	51,0	48,0	176		176					
17,80	18	123	73,0	51,0	48,0	178		178					
18,00	18	123	73,0	51,0	48,0	180		180		180		180	
18,50	20	131	79,0	55,0	50,0	185		185		185		185	
18,80	20	131	79,0	55,0	50,0	188		188					
18,90	20	131	79,0	55,0	50,0	189		189					
19,00	20	131	79,0	55,0	50,0	190		190		190		190	
19,50	20	131	79,0	55,0	50,0	195		195		195		195	
19,60	20	131	79,0	55,0	50,0	196		196					
19,80	20	131	79,0	55,0	50,0	198		198					
20,00	20	131	79,0	55,0	50,0	200		200		200		200	
P						●		●		○		○	
M										●		●	
K						●		●		●		●	
N										●		●	
S													
H													
O													

→ v_c Page 130+133

WTX – High-performance drill, DIN 6537

▲ Specialist for difficult to machine materials





Ti

DPA54

DRAGONSKIN



140°

Solid carbide

10 786 ...

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
3,00	6	62	20	14	36	030
3,10	6	62	20	14	36	031
3,20	6	62	20	14	36	032
3,30	6	62	20	14	36	033
3,40	6	62	20	14	36	034
3,50	6	62	20	14	36	035
3,60	6	62	20	14	36	036
3,70	6	62	20	14	36	037
3,80	6	66	24	17	36	038
3,90	6	66	24	17	36	039
3,97	6	66	24	17	36	900
4,00	6	66	24	17	36	040
4,10	6	66	24	17	36	041
4,20	6	66	24	17	36	042
4,23	6	66	24	17	36	901
4,30	6	66	24	17	36	043
4,40	6	66	24	17	36	044
4,50	6	66	24	17	36	045
4,60	6	66	24	17	36	046
4,70	6	66	24	17	36	047
4,80	6	66	28	20	36	048
4,90	6	66	28	20	36	049
5,00	6	66	28	20	36	050
5,10	6	66	28	20	36	051
5,20	6	66	28	20	36	052
5,30	6	66	28	20	36	053
5,40	6	66	28	20	36	054
5,50	6	66	28	20	36	055
5,56	6	66	28	20	36	902
5,60	6	66	28	20	36	056
5,70	6	66	28	20	36	057
5,80	6	66	28	20	36	058
5,90	6	66	28	20	36	059
6,00	6	66	28	20	36	060
6,10	8	79	34	24	36	061
6,20	8	79	34	24	36	062
6,30	8	79	34	24	36	063
6,35	8	79	34	24	36	903
6,40	8	79	34	24	36	064
6,50	8	79	34	24	36	065
6,60	8	79	34	24	36	066
6,70	8	79	34	24	36	067
6,80	8	79	34	24	36	068
6,90	8	79	34	24	36	069
7,00	8	79	34	24	36	070
7,10	8	79	41	29	36	071
7,20	8	79	41	29	36	072
7,30	8	79	41	29	36	073
7,40	8	79	41	29	36	074
7,50	8	79	41	29	36	075
7,60	8	79	41	29	36	076

10 786 ...

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
7,70	8	79	41	29	36	077
7,80	8	79	41	29	36	078
7,90	8	79	41	29	36	079
7,94	8	79	41	29	36	904
8,00	8	79	41	29	36	080
8,10	10	89	47	35	40	081
8,20	10	89	47	35	40	082
8,30	10	89	47	35	40	083
8,40	10	89	47	35	40	084
8,50	10	89	47	35	40	085
8,60	10	89	47	35	40	086
8,70	10	89	47	35	40	087
8,80	10	89	47	35	40	088
8,90	10	89	47	35	40	089
9,00	10	89	47	35	40	090
9,10	10	89	47	35	40	091
9,20	10	89	47	35	40	092
9,30	10	89	47	35	40	093
9,40	10	89	47	35	40	094
9,50	10	89	47	35	40	095
9,55	10	89	47	35	40	905
9,60	10	89	47	35	40	096
9,70	10	89	47	35	40	097
9,80	10	89	47	35	40	098
9,90	10	89	47	35	40	099
10,00	10	89	47	35	40	100
10,10	12	102	55	40	45	101
10,20	12	102	55	40	45	102
10,30	12	102	55	40	45	103
10,40	12	102	55	40	45	104
10,50	12	102	55	40	45	105
10,60	12	102	55	40	45	106
10,70	12	102	55	40	45	107
10,80	12	102	55	40	45	108
10,90	12	102	55	40	45	109
11,00	12	102	55	40	45	110
11,10	12	102	55	40	45	111
11,11	12	102	55	40	45	906
11,20	12	102	55	40	45	112
11,30	12	102	55	40	45	113
11,40	12	102	55	40	45	114
11,50	12	102	55	40	45	115
11,60	12	102	55	40	45	116
11,70	12	102	55	40	45	117
11,80	12	102	55	40	45	118
11,90	12	102	55	40	45	119
12,00	12	102	55	40	45	120
12,10	14	107	60	43	45	121
12,20	14	107	60	43	45	122
12,30	14	107	60	43	45	123
12,40	14	107	60	43	45	124
12,50	14	107	60	43	45	125
12,60	14	107	60	43	45	126
12,70	14	107	60	43	45	907
12,80	14	107	60	43	45	128
12,90	14	107	60	43	45	129
13,00	14	107	60	43	45	130
13,10	14	107	60	43	45	131
13,20	14	107	60	43	45	132
13,30	14	107	60	43	45	133
13,40	14	107	60	43	45	134
13,50	14	107	60	43	45	135
13,60	14	107	60	43	45	136
13,70	14	107	60	43	45	137
13,80	14	107	60	43	45	138
13,90	14	107	60	43	45	139

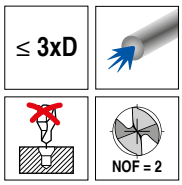
P	o
M	●
K	
N	
S	●
H	
O	

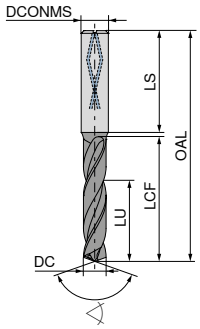
→ v_c Page 123

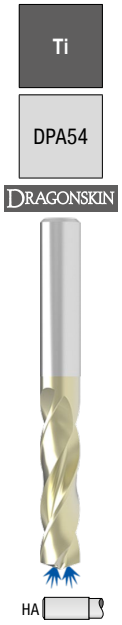
Continued on next page

WTX – High-performance drill, DIN 6537

▲ Specialist for difficult to machine materials







Solid carbide

10 786 ...

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
14,0	14	107	60	43	45	140
14,1	16	115	65	45	48	141
14,2	16	115	65	45	48	142
14,3	16	115	65	45	48	143
14,4	16	115	65	45	48	144
14,5	16	115	65	45	48	145
14,6	16	115	65	45	48	146
14,7	16	115	65	45	48	147
14,8	16	115	65	45	48	148
14,9	16	115	65	45	48	149
15,0	16	115	65	45	48	150
15,1	16	115	65	45	48	151
15,2	16	115	65	45	48	152
15,3	16	115	65	45	48	153
15,4	16	115	65	45	48	154
15,5	16	115	65	45	48	155
15,6	16	115	65	45	48	156
15,7	16	115	65	45	48	157
15,8	16	115	65	45	48	158
15,9	16	115	65	45	48	159
16,0	16	115	65	45	48	160
16,1	18	123	73	51	48	161
16,2	18	123	73	51	48	162
16,3	18	123	73	51	48	163
16,4	18	123	73	51	48	164
16,5	18	123	73	51	48	165
16,6	18	123	73	51	48	166
16,7	18	123	73	51	48	167
16,8	18	123	73	51	48	168
16,9	18	123	73	51	48	169
17,0	18	123	73	51	48	170
17,1	18	123	73	51	48	171
17,2	18	123	73	51	48	172
17,3	18	123	73	51	48	173
17,4	18	123	73	51	48	174
17,5	18	123	73	51	48	175
17,6	18	123	73	51	48	176
17,7	18	123	73	51	48	177
17,8	18	123	73	51	48	178
17,9	18	123	73	51	48	179
18,0	18	123	73	51	48	180
18,1	20	131	79	55	50	181
18,2	20	131	79	55	50	182
18,3	20	131	79	55	50	183
18,4	20	131	79	55	50	184
18,5	20	131	79	55	50	185
18,6	20	131	79	55	50	186
18,7	20	131	79	55	50	187
18,8	20	131	79	55	50	188
18,9	20	131	79	55	50	189
19,0	20	131	79	55	50	190

10 786 ...

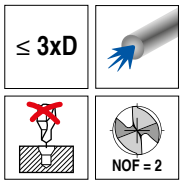
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
19,1	20	131	79	55	50	191
19,2	20	131	79	55	50	192
19,3	20	131	79	55	50	193
19,4	20	131	79	55	50	194
19,5	20	131	79	55	50	195
19,6	20	131	79	55	50	196
19,7	20	131	79	55	50	197
19,8	20	131	79	55	50	198
19,9	20	131	79	55	50	199
20,0	20	131	79	55	50	200

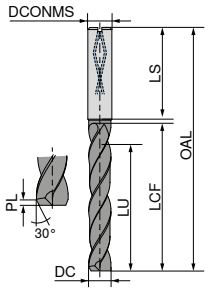
P	o
M	●
K	
N	
S	●
H	
O	

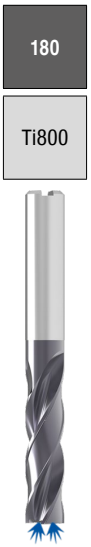
→ v_c Page 123

WTX – High Performance Drill, DIN 6537

- ▲ universal application
- ▲ four guidance lands
- ▲ polished chip flutes
- ▲ Type ALU 3xD on request
- ▲ PL = corner chamfers







10 720 ...

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	PL mm	
3,00	6	62	20	14	36	0,15	030
3,10	6	62	20	14	36	0,16	031
3,20	6	62	20	14	36	0,16	032
3,30	6	62	20	14	36	0,17	033
3,40	6	62	20	14	36	0,17	034
3,50	6	62	20	14	36	0,18	035
3,60	6	62	20	14	36	0,18	036
3,70	6	62	20	14	36	0,19	037
3,80	6	66	24	17	36	0,19	038
3,90	6	66	24	17	36	0,20	039
4,00	6	66	24	17	36	0,20	040
4,10	6	66	24	17	36	0,21	041
4,20	6	66	24	17	36	0,21	042
4,30	6	66	24	17	36	0,22	043
4,40	6	66	24	17	36	0,22	044
4,50	6	66	24	17	36	0,23	045
4,60	6	66	24	17	36	0,23	046
4,65	6	66	24	17	36	0,23	900
4,70	6	66	24	17	36	0,24	047
4,80	6	66	28	20	36	0,24	048
4,90	6	66	28	20	36	0,25	049
5,00	6	66	28	20	36	0,25	050
5,10	6	66	28	20	36	0,26	051
5,20	6	66	28	20	36	0,26	052
5,30	6	66	28	20	36	0,27	053
5,40	6	66	28	20	36	0,27	054
5,50	6	66	28	20	36	0,28	055
5,55	6	66	28	20	36	0,28	902
5,60	6	66	28	20	36	0,28	056
5,70	6	66	28	20	36	0,29	057
5,80	6	66	28	20	36	0,29	058
5,90	6	66	28	20	36	0,30	059
6,00	6	66	28	20	36	0,30	060
6,10	8	79	34	24	36	0,31	061
6,20	8	79	34	24	36	0,31	062
6,30	8	79	34	24	36	0,32	063
6,40	8	79	34	24	36	0,32	064
6,50	8	79	34	24	36	0,33	065
6,60	8	79	34	24	36	0,33	066
6,70	8	79	34	24	36	0,34	067
6,80	8	79	34	24	36	0,34	068
6,90	8	79	34	24	36	0,35	069
7,00	8	79	34	24	36	0,35	070
7,10	8	79	41	29	36	0,36	071
7,20	8	79	41	29	36	0,36	072
7,30	8	79	41	29	36	0,37	073
7,40	8	79	41	29	36	0,37	074
7,50	8	79	41	29	36	0,38	075
7,60	8	79	41	29	36	0,38	076
7,70	8	79	41	29	36	0,39	077
7,80	8	79	41	29	36	0,39	078
7,90	8	79	41	29	36	0,40	079
8,00	8	79	41	29	36	0,40	080
8,10	10	89	47	35	40	0,41	081

10 720 ...

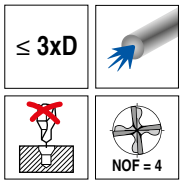
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	PL mm	
8,20	10	89	47	35	40	0,41	082
8,30	10	89	47	35	40	0,42	083
8,40	10	89	47	35	40	0,42	084
8,50	10	89	47	35	40	0,43	085
8,60	10	89	47	35	40	0,43	086
8,70	10	89	47	35	40	0,44	087
8,80	10	89	47	35	40	0,44	088
8,90	10	89	47	35	40	0,45	089
9,00	10	89	47	35	40	0,45	090
9,10	10	89	47	35	40	0,46	091
9,20	10	89	47	35	40	0,46	092
9,30	10	89	47	35	40	0,47	093
9,40	10	89	47	35	40	0,47	094
9,50	10	89	47	35	40	0,48	095
9,60	10	89	47	35	40	0,48	096
9,70	10	89	47	35	40	0,49	097
9,80	10	89	47	35	40	0,49	098
9,90	10	89	47	35	40	0,50	099
10,00	10	89	47	35	40	0,50	100
10,10	12	100	53	38	45	0,51	101
10,20	12	100	53	38	45	0,51	102
10,30	12	100	53	38	45	0,52	103
10,40	12	100	53	38	45	0,52	104
10,50	12	100	53	38	45	0,53	105
10,60	12	100	53	38	45	0,53	106
10,70	12	100	53	38	45	0,54	107
10,80	12	100	53	38	45	0,54	108
10,90	12	100	53	38	45	0,55	109
11,00	12	100	53	38	45	0,55	110
11,10	12	100	53	38	45	0,56	111
11,20	12	100	53	38	45	0,56	112
11,30	12	100	53	38	45	0,57	113
11,40	12	100	53	38	45	0,57	114
11,50	12	100	53	38	45	0,58	115
11,60	12	100	53	38	45	0,58	116
11,70	12	100	53	38	45	0,59	117
11,80	12	100	53	38	45	0,59	118
11,90	12	100	53	38	45	0,60	119
12,00	12	100	53	38	45	0,60	120
12,50	14	105	58	41	45	0,63	125
12,80	14	105	58	41	45	0,64	128
13,00	14	105	58	41	45	0,65	130
13,50	14	105	58	41	45	0,68	135
13,80	14	105	58	41	45	0,69	138
14,00	14	105	58	41	45	0,70	140
14,50	16	113	63	43	48	0,73	145
14,80	16	113	63	43	48	0,74	148
15,00	16	113	63	43	48	0,75	150
15,50	16	113	63	43	48	0,78	155
15,80	16	113	63	43	48	0,79	158
16,00	16	113	63	43	48	0,80	160
16,50	18	121	71	49	48	0,83	165
16,80	18	121	71	49	48	0,84	168
17,00	18	121	71	49	48	0,85	170
17,50	18	121	71	49	48	0,88	175
17,80	18	121	71	49	48	0,89	178
18,00	18	121	71	49	48	0,90	180
18,50	20	129	77	53	50	0,93	185
18,80	20	129	77	53	50	0,94	188
19,00	20	129	77	53	50	0,95	190
19,50	20	129	77	53	50	0,98	195
19,80	20	129	77	53	50	0,99	198
20,00	20	129	77	53	50	1,00	200

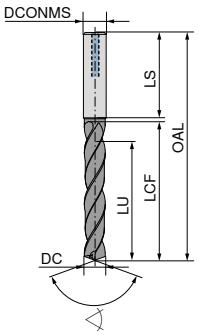
P	●
M	●
K	●
N	
S	
H	
O	

→ v_c Page 126

WTX – High Speed Drill, DIN 6537

- ▲ Four fluted high-feed drill
- ▲ Specialises in steel processing
- ▲ Has four spiral coolant holes
- ▲ Innovative cutting edge geometry guarantees high positioning accuracy
- ▲ Outstanding drilling quality in terms of tolerance, surface finish and position





NEW

HFDS

DPX14S

DRAGONSKIN





130°

Solid carbide

10 797 ...

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
12,5	16	115	65	45	48	**12500**
13,0	16	115	65	45	48	**13000**
14,0	16	115	65	45	48	**14000**
14,3	18	123	73	51	48	**14300**
14,5	18	123	73	51	48	**14500**
15,0	18	123	73	51	48	**15000**
16,0	18	123	73	51	48	**16000**

P	●
M	○
K	●
N	○
S	○
H	○
O	○

→ v_c Page 135

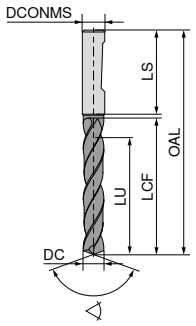
10 797 ...

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
6,0	8	79	41	29	36	**06000**
6,1	10	89	47	35	40	**06100**
6,2	10	89	47	35	40	**06200**
6,3	10	89	47	35	40	**06300**
6,4	10	89	47	35	40	**06400**
6,5	10	89	47	35	40	**06500**
6,6	10	89	47	35	40	**06600**
6,7	10	89	47	35	40	**06700**
6,8	10	89	47	35	40	**06800**
6,9	10	89	47	35	40	**06900**
7,0	10	89	47	35	40	**07000**
7,1	10	89	47	35	40	**07100**
7,2	10	89	47	35	40	**07200**
7,3	10	89	47	35	40	**07300**
7,4	10	89	47	35	40	**07400**
7,5	10	89	47	35	40	**07500**
7,6	10	89	47	35	40	**07600**
7,7	10	89	47	35	40	**07700**
7,8	10	89	47	35	40	**07800**
7,9	10	89	47	35	40	**07900**
8,0	10	89	47	35	40	**08000**
8,1	12	102	55	40	45	**08100**
8,2	12	102	55	40	45	**08200**
8,3	12	102	55	40	45	**08300**
8,4	12	102	55	40	45	**08400**
8,5	12	102	55	40	45	**08500**
8,6	12	102	55	40	45	**08600**
8,7	12	102	55	40	45	**08700**
8,8	12	102	55	40	45	**08800**
8,9	12	102	55	40	45	**08900**
9,0	12	102	55	40	45	**09000**
9,1	12	102	55	40	45	**09100**
9,2	12	102	55	40	45	**09200**
9,3	12	102	55	40	45	**09300**
9,4	12	102	55	40	45	**09400**
9,5	12	102	55	40	45	**09500**
9,6	12	102	55	40	45	**09600**
9,7	12	102	55	40	45	**09700**
9,8	12	102	55	40	45	**09800**
9,9	12	102	55	40	45	**09900**
10,0	12	102	55	40	45	**10000**
10,2	14	107	60	43	45	**10200**
10,5	14	107	60	43	45	**10500**
11,0	14	107	60	43	45	**11000**
11,5	14	107	60	43	45	**11500**
12,0	14	107	60	43	45	**12000**

WTX – High Performance Drill, DIN 6537

≤ 5xD

NOF = 2



UNI	UNI	UNI	Quattro 4F	VA	VA
DPX74S	DPX74S	DPX74S	DPX74S	Ti700	Ti700
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		



HA	HB	HE	HA	HA	HE
140°	140°	140°	140°	140°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
11 783 ...	**11 784 ...**	**11 782 ...**	**10 730 ...**	**10 740 ...**	**10 741 ...**

DC $_{m7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm												
3,00	6	66	28	23	36	03000		03000		03000		03000		030		030	
3,10	6	66	28	23	36	03100		03100		03100		03100		031		031	
3,15	6	66	28	23	36	03150		03150		03150							
3,20	6	66	28	23	36	03200		03200		03200		03200		032		032	
3,22	6	66	28	23	36	03220		03220		03220							
3,25	6	66	28	23	36	03250		03250		03250							
3,30	6	66	28	23	36	03300		03300		03300		03300		033		033	
3,40	6	66	28	23	36	03400		03400		03400		03400		034		034	
3,50	6	66	28	23	36	03500		03500		03500		03500		035		035	
3,60	6	66	28	23	36	03600		03600		03600		03600		036		036	
3,70	6	66	28	23	36	03700		03700		03700		03700		037		037	
3,80	6	74	36	29	36	03800		03800		03800		03800		038		038	
3,85	6	74	36	29	36	03850		03850		03850							
3,90	6	74	36	29	36	03900		03900		03900		03900		039		039	
4,00	6	74	36	29	36	04000		04000		04000		04000		040		040	
4,10	6	74	36	29	36	04100		04100		04100		04100		041		041	
4,20	6	74	36	29	36	04200		04200		04200		04200		042		042	
4,25	6	74	36	29	36	04250		04250		04250							
4,30	6	74	36	29	36	04300		04300		04300		04300		043		043	
4,35	6	74	36	29	36	04350		04350		04350							
4,40	6	74	36	29	36	04400		04400		04400		04400		044		044	
4,45	6	74	36	29	36	04450		04450		04450							
4,50	6	74	36	29	36	04500		04500		04500		04500		045		045	
4,60	6	74	36	29	36	04600		04600		04600		04600		046		046	
4,65	6	74	36	29	36	04650		04650		04650							
4,70	6	74	36	29	36	04700		04700		04700		04700		047		047	
4,80	6	82	44	35	36	04800		04800		04800		04800		048		048	
4,90	6	82	44	35	36	04900		04900		04900		04900		049		049	
4,95	6	82	44	35	36	04950		04950		04950							
5,00	6	82	44	35	36	05000		05000		05000		05000		050		050	
5,05	6	82	44	35	36	05050		05050		05050							
5,10	6	82	44	35	36	05100		05100		05100		05100		051		051	
5,20	6	82	44	35	36	05200		05200		05200		05200		052		052	
5,30	6	82	44	35	36	05300		05300		05300		05300		053		053	
5,40	6	82	44	35	36	05400		05400		05400		05400		054		054	
5,50	6	82	44	35	36	05500		05500		05500		05500		055		055	
5,55	6	82	44	35	36	05550		05550		05550							
5,60	6	82	44	35	36	05600		05600		05600		05600		056		056	
5,70	6	82	44	35	36	05700		05700		05700		05700		057		057	
5,75	6	82	44	35	36	05750		05750		05750							
5,80	6	82	44	35	36	05800		05800		05800		05800		058		058	
5,90	6	82	44	35	36	05900		05900		05900		05900		059		059	
5,95	6	82	44	35	36	05950		05950		05950							

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

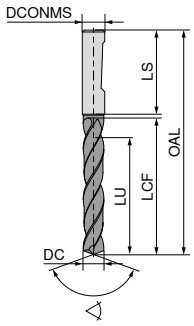
→ v_c Page 113–118

Continued on next page

WTX – High Performance Drill, DIN 6537

≤ 5xD

NOF = 2



UNI	UNI	UNI	Quattro 4F	VA	VA
DPX74S	DPX74S	DPX74S	DPX74S	Ti700	Ti700
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		



HA	HB	HE	HA	HA	HE
140°	140°	140°	140°	140°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
11 783 ...	**11 784 ...**	**11 782 ...**	**10 730 ...**	**10 740 ...**	**10 741 ...**

DC $_{m7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm												
6,00	6	82	44	35	36	06000		06000		06000		06000		060		060	
6,10	8	91	53	43	36	06100		06100		06100		06100		061		061	
6,20	8	91	53	43	36	06200		06200		06200		06200		062		062	
6,30	8	91	53	43	36	06300		06300		06300		06300		063		063	
6,40	8	91	53	43	36	06400		06400		06400		06400		064		064	
6,50	8	91	53	43	36	06500		06500		06500		06500		065		065	
6,60	8	91	53	43	36	06600		06600		06600		06600		066		066	
6,70	8	91	53	43	36	06700		06700		06700		06700		067		067	
6,80	8	91	53	43	36	06800		06800		06800		06800		068		068	
6,90	8	91	53	43	36	06900		06900		06900		06900		069		069	
7,00	8	91	53	43	36	07000		07000		07000		07000		070		070	
7,10	8	91	53	43	36	07100		07100		07100		07100		071		071	
7,20	8	91	53	43	36	07200		07200		07200		07200		072		072	
7,30	8	91	53	43	36	07300		07300		07300		07300		073		073	
7,40	8	91	53	43	36	07400		07400		07400		07400		074		074	
7,45	8	91	53	43	36	07450		07450		07450							
7,50	8	91	53	43	36	07500		07500		07500		07500		075		075	
7,60	8	91	53	43	36	07600		07600		07600		07600		076		076	
7,70	8	91	53	43	36	07700		07700		07700		07700		077		077	
7,80	8	91	53	43	36	07800		07800		07800		07800		078		078	
7,90	8	91	53	43	36	07900		07900		07900		07900		079		079	
8,00	8	91	53	43	36	08000		08000		08000		08000		080		080	
8,10	10	103	61	49	40	08100		08100		08100		08100		081		081	
8,20	10	103	61	49	40	08200		08200		08200		08200		082		082	
8,30	10	103	61	49	40	08300		08300		08300		08300		083		083	
8,40	10	103	61	49	40	08400		08400		08400		08400		084		084	
8,50	10	103	61	49	40	08500		08500		08500		08500		085		085	
8,60	10	103	61	49	40	08600		08600		08600		08600		086		086	
8,70	10	103	61	49	40	08700		08700		08700		08700		087		087	
8,80	10	103	61	49	40	08800		08800		08800		08800		088		088	
8,90	10	103	61	49	40	08900		08900		08900		08900		089		089	
9,00	10	103	61	49	40	09000		09000		09000		09000		090		090	
9,10	10	103	61	49	40	09100		09100		09100		09100		091		091	
9,20	10	103	61	49	40	09200		09200		09200		09200		092		092	
9,30	10	103	61	49	40	09300		09300		09300		09300		093		093	
9,35	10	103	61	49	40	09350		09350		09350							
9,40	10	103	61	49	40	09400		09400		09400		09400		094		094	
9,45	10	103	61	49	40	09450		09450		09450							
9,50	10	103	61	49	40	09500		09500		09500		09500		095		095	
9,60	10	103	61	49	40	09600		09600		09600		09600		096		096	
9,70	10	103	61	49	40	09700		09700		09700		09700		097		097	
9,80	10	103	61	49	40	09800		09800		09800		09800		098		098	
9,90	10	103	61	49	40	09900		09900		09900		09900		099		099	

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

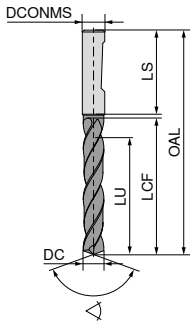
→ v_c Page 113–118

Continued on next page

WTX – High Performance Drill, DIN 6537

≤ 5xD

NOF = 2



UNI	UNI	UNI	Quattro 4F	VA	VA
DPX74S	DPX74S	DPX74S	DPX74S	Ti700	Ti700
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		



HA	HB	HE	HA	HA	HE
140°	140°	140°	140°	140°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
11 783 ...	**11 784 ...**	**11 782 ...**	**10 730 ...**	**10 740 ...**	**10 741 ...**

DC $_{m7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm										
10,00	10	103	61	49	40	10000		10000		10000		10000		100		100
10,10	12	118	71	56	45	10100		10100		10100		10100		101		101
10,20	12	118	71	56	45	10200		10200		10200		10200		102		102
10,30	12	118	71	56	45	10300		10300		10300		10300		103		103
10,40	12	118	71	56	45	10400		10400		10400		10400		104		104
10,50	12	118	71	56	45	10500		10500		10500		10500		105		105
10,55	12	118	71	56	45	10550		10550		10550						
10,60	12	118	71	56	45	10600		10600		10600		10600		106		106
10,70	12	118	71	56	45	10700		10700		10700		10700		107		107
10,75	12	118	71	56	45	10750		10750		10750						
10,80	12	118	71	56	45	10800		10800		10800		10800		108		108
10,90	12	118	71	56	45	10900		10900		10900		10900		109		109
11,00	12	118	71	56	45	11000		11000		11000		11000		110		110
11,10	12	118	71	56	45	11100		11100		11100		11100		111		111
11,20	12	118	71	56	45	11200		11200		11200		11200		112		112
11,25	12	118	71	56	45	11250		11250		11250						
11,30	12	118	71	56	45	11300		11300		11300		11300		113		113
11,35	12	118	71	56	45	11350		11350		11350						
11,40	12	118	71	56	45	11400		11400		11400		11400		114		114
11,45	12	118	71	56	45	11450		11450		11450						
11,50	12	118	71	56	45	11500		11500		11500		11500		115		115
11,60	12	118	71	56	45	11600		11600		11600		11600		116		116
11,70	12	118	71	56	45	11700		11700		11700		11700		117		117
11,80	12	118	71	56	45	11800		11800		11800		11800		118		118
11,90	12	118	71	56	45	11900		11900		11900		11900		119		119
12,00	12	118	71	56	45	12000		12000		12000		12000		120		120
12,15	14	124	77	60	45	12150		12150		12150						
12,25	14	124	77	60	45	12250		12250		12250						
12,50	14	124	77	60	45	12500		12500		12500		12500		125		125
12,55	14	124	77	60	45	12550		12550		12550						
12,70	14	124	77	60	45	12700		12700		12700						
12,80	14	124	77	60	45	12800		12800		12800		12800		128		128
12,90	14	124	77	60	45	12900		12900		12900						
13,00	14	124	77	60	45	13000		13000		13000		13000		130		130
13,10	14	124	77	60	45	13100		13100		13100						
13,30	14	124	77	60	45	13300		13300		13300						
13,35	14	124	77	60	45	13350		13350		13350						
13,50	14	124	77	60	45	13500		13500		13500		13500		135		135
13,70	14	124	77	60	45	13700		13700		13700						
13,80	14	124	77	60	45	13800		13800		13800		13800		138		138
14,00	14	124	77	60	45	14000		14000		14000		14000		140		140
14,20	16	133	83	63	48	14200		14200		14200						
14,50	16	133	83	63	48	14500		14500		14500		14500		145		145
P						●		●		●		●		○		○
M														●		●
K						●		●		●		●		○		○
N														○		○
S														●		●
H						○		○		○		○				
O																

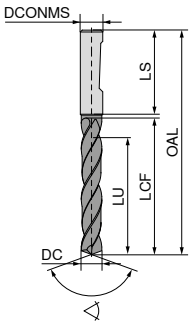
→ v_c Page 113–118

Continued on next page

WTX – High Performance Drill, DIN 6537

≤ 5xD

NOF = 2



UNI	UNI	UNI	Quattro 4F	VA	VA
DPX74S	DPX74S	DPX74S	DPX74S	Ti700	Ti700
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		



HA	HB	HE	HA	HA	HE
140°	140°	140°	140°	140°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
11 783 ...	**11 784 ...**	**11 782 ...**	**10 730 ...**	**10 740 ...**	**10 741 ...**

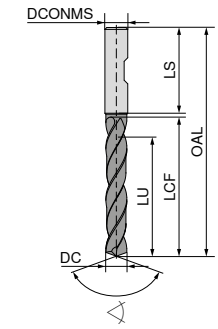
DC $_{m7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm												
14,80	16	133	83	63	48		14800		14800		14800		14800		148		148
15,00	16	133	83	63	48		15000		15000		15000		15000		150		150
15,10	16	133	83	63	48		15100		15100		15100						
15,25	16	133	83	63	48		15250		15250		15250						
15,30	16	133	83	63	48		15300		15300		15300						
15,35	16	133	83	63	48		15350		15350		15350						
15,50	16	133	83	63	48		15500		15500		15500		15500		155		155
15,60	16	133	83	63	48		15600		15600		15600						
15,80	16	133	83	63	48		15800		15800		15800		15800		158		158
16,00	16	133	83	63	48		16000		16000		16000		16000		160		160
16,05	18	143	93	71	48		16050		16050		16050						
16,50	18	143	93	71	48		16500		16500		16500		16500		165		165
16,80	18	143	93	71	48		16800		16800		16800		16800		168		168
16,90	18	143	93	71	48		16900		16900		16900						
17,00	18	143	93	71	48		17000		17000		17000		17000		170		170
17,50	18	143	93	71	48		17500		17500		17500		17500		175		175
17,60	18	143	93	71	48		17600		17600		17600						
17,80	18	143	93	71	48		17800		17800		17800		17800		178		178
18,00	18	143	93	71	48		18000		18000		18000		18000		180		180
18,50	20	153	101	77	50		18500		18500		18500		18500		185		185
18,80	20	153	101	77	50		18800		18800		18800		18800		188		188
18,90	20	153	101	77	50		18900		18900		18900						
19,00	20	153	101	77	50		19000		19000		19000		19000		190		190
19,35	20	153	101	77	50		19350		19350		19350						
19,50	20	153	101	77	50		19500		19500		19500		19500		195		195
19,60	20	153	101	77	50		19600		19600		19600						
19,80	20	153	101	77	50		19800		19800		19800		19800		198		198
20,00	20	153	101	77	50		20000		20000		20000		20000		200		200
P							●		●		●		●		○		○
M															●		●
K							●		●		●		●		○		○
N															○		○
S															●		●
H							○		○		○		○				
O																	

→ v_c Page 113–118

WPC – High Performance Drill, DIN 6537

≤ 5xD

NOF = 2



UNI
TiAlN



HA
140°
Solid carbide

UNI
TiAlN



HB
140°
Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 606 ...	11 607 ...
3,00	6	66	28	23	36	030	030
3,10	6	66	28	23	36	031	031
3,20	6	66	28	23	36	032	032
3,30	6	66	28	23	36	033	033
3,40	6	66	28	23	36	034	034
3,50	6	66	28	23	36	035	035
3,60	6	66	28	23	36	036	036
3,70	6	66	28	23	36	037	037
3,80	6	74	36	29	36	038	038
3,90	6	74	36	29	36	039	039
4,00	6	74	36	29	36	040	040
4,10	6	74	36	29	36	041	041
4,20	6	74	36	29	36	042	042
4,30	6	74	36	29	36	043	043
4,40	6	74	36	29	36	044	044
4,50	6	74	36	29	36	045	045
4,60	6	74	36	29	36	046	046
4,65	6	74	36	29	36	900	900
4,70	6	74	36	29	36	047	047
4,80	6	82	44	35	36	048	048
4,90	6	82	44	35	36	049	049
5,00	6	82	44	35	36	050	050
5,10	6	82	44	35	36	051	051
5,20	6	82	44	35	36	052	052
5,30	6	82	44	35	36	053	053
5,40	6	82	44	35	36	054	054
5,50	6	82	44	35	36	055	055
5,55	6	82	44	35	36	902	902
5,60	6	82	44	35	36	056	056
5,70	6	82	44	35	36	057	057
5,80	6	82	44	35	36	058	058
5,90	6	82	44	35	36	059	059
6,00	6	82	44	35	36	060	060
6,10	8	91	53	43	36	061	061
6,20	8	91	53	43	36	062	062
6,30	8	91	53	43	36	063	063
6,40	8	91	53	43	36	064	064
6,50	8	91	53	43	36	065	065
6,60	8	91	53	43	36	066	066
6,70	8	91	53	43	36	067	067
6,80	8	91	53	43	36	068	068
6,90	8	91	53	43	36	069	069
7,00	8	91	53	43	36	070	070
7,10	8	91	53	43	36	071	071
7,20	8	91	53	43	36	072	072
7,30	8	91	53	43	36	073	073
7,40	8	91	53	43	36	074	074
7,50	8	91	53	43	36	075	075
7,55	8	91	53	43	36	975	975
7,60	8	91	53	43	36	076	076
7,70	8	91	53	43	36	077	077
7,80	8	91	53	43	36	078	078
7,90	8	91	53	43	36	079	079
8,00	8	91	53	43	36	080	080
8,10	10	103	61	49	40	081	081
8,20	10	103	61	49	40	082	082
8,30	10	103	61	49	40	083	083
8,40	10	103	61	49	40	084	084
8,50	10	103	61	49	40	085	085
8,60	10	103	61	49	40	086	086
8,70	10	103	61	49	40	087	087
8,80	10	103	61	49	40	088	088
8,90	10	103	61	49	40	089	089
9,00	10	103	61	49	40	090	090
9,10	10	103	61	49	40	091	091
9,20	10	103	61	49	40	092	092
9,25	10	103	61	49	40	925	925
9,30	10	103	61	49	40	093	093
9,40	10	103	61	49	40	094	094
9,50	10	103	61	49	40	095	095
9,60	10	103	61	49	40	096	096
9,70	10	103	61	49	40	097	097
9,80	10	103	61	49	40	098	098
9,90	10	103	61	49	40	099	099
10,00	10	103	61	49	40	100	100
10,10	12	118	71	56	45	101	101
10,20	12	118	71	56	45	102	102
10,30	12	118	71	56	45	103	103
10,40	12	118	71	56	45	104	104
10,50	12	118	71	56	45	105	105
10,60	12	118	71	56	45	106	106
10,70	12	118	71	56	45	107	107
10,80	12	118	71	56	45	108	108
10,90	12	118	71	56	45	109	109
11,00	12	118	71	56	45	110	110
11,10	12	118	71	56	45	111	111
11,20	12	118	71	56	45	112	112
11,30	12	118	71	56	45	113	113
11,40	12	118	71	56	45	114	114
11,50	12	118	71	56	45	115	115
11,60	12	118	71	56	45	116	116
11,70	12	118	71	56	45	117	117
11,80	12	118	71	56	45	118	118
11,90	12	118	71	56	45	119	119
12,00	12	118	71	56	45	120	120
12,25	14	124	77	60	45	122	122
12,50	14	124	77	60	45	125	125
12,70	14	124	77	60	45	127	127
12,80	14	124	77	60	45	128	128
12,90	14	124	77	60	45	129	129
13,00	14	124	77	60	45	130	130
13,30	14	124	77	60	45	133	133
13,50	14	124	77	60	45	135	135
13,70	14	124	77	60	45	137	137
13,80	14	124	77	60	45	138	138
14,00	14	124	77	60	45	140	140
14,20	16	133	83	63	48	142	142
14,50	16	133	83	63	48	145	145
14,70	16	133	83	63	48	147	147
14,80	16	133	83	63	48	148	148
15,00	16	133	83	63	48	150	150
15,25	16	133	83	63	48	152	152
15,30	16	133	83	63	48	153	153
15,50	16	133	83	63	48	155	155
15,70	16	133	83	63	48	157	157
15,80	16	133	83	63	48	158	158
16,00	16	133	83	63	48	160	160
16,50	18	143	93	71	48	165	165
16,80	18	143	93	71	48	168	168
17,00	18	143	93	71	48	170	170
17,50	18	143	93	71	48	175	175
17,80	18	143	93	71	48	178	178
18,00	18	143	93	71	48	180	180
18,50	20	153	101	77	50	185	185
18,80	20	153	101	77	50	188	188
19,00	20	153	101	77	50	190	190
19,50	20	153	101	77	50	195	195
19,80	20	153	101	77	50	198	198
20,00	20	153	101	77	50	200	200

	11 606 ...	11 607 ...
P	●	●
M		
K	●	●
N		
S		
H		
O		

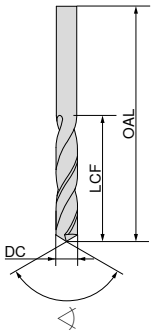
→ v_c Page 131

Twist drill similar to DIN 338

- Rake angle 30°
- Shank Ø h7

≤ 5xD

NOF = 2



N



118°
Solid carbide

DC h7 mm	OAL mm	LCF mm	10 710 ...
0,5	22	6	005
0,6	24	7	006
0,7	28	9	007
0,8	30	10	008
0,9	32	11	009
1,0	34	12	010
1,1	36	14	011
1,2	38	16	012
1,3	38	16	013
1,4	40	18	014
1,5	40	18	015
1,6	43	20	016
1,7	43	20	017
1,8	46	22	018
1,9	46	22	019
2,0	49	24	020
2,1	49	24	021
2,2	53	27	022
2,3	53	27	023
2,4	57	30	024
2,5	57	30	025
2,6	57	30	026
2,7	61	33	027
2,8	61	33	028
2,9	61	33	029
3,0	61	33	030
3,1	65	36	031
3,2	65	36	032
3,3	65	36	033
3,4	70	39	034
3,5	70	39	035
3,6	70	39	036
3,7	70	39	037
3,8	75	43	038
3,9	75	43	039
4,0	75	43	040
4,1	75	43	041
4,2	75	43	042
4,3	80	47	043
4,4	80	47	044
4,5	80	47	045
4,6	80	47	046
4,7	80	47	047
4,8	86	52	048
4,9	86	52	049
5,0	86	52	050
5,1	86	52	051
5,2	86	52	052
5,3	86	52	053

DC h7 mm	OAL mm	LCF mm	10 710 ...
5,4	93	57	054
5,5	93	57	055
5,6	93	57	056
5,7	93	57	057
5,8	93	57	058
5,9	93	57	059
6,0	93	57	060
6,1	101	63	061
6,2	101	63	062
6,3	101	63	063
6,4	101	63	064
6,5	101	63	065
6,6	109	69	066
6,8	109	69	068
7,0	109	69	070
7,5	109	69	075
7,8	117	75	078
8,0	117	75	080
8,5	117	75	085
8,8	125	81	088
9,0	125	81	090
9,5	125	81	095
9,8	133	87	098
10,0	133	87	100
10,2	133	87	102
10,5	133	87	105
11,0	142	94	110
11,5	142	94	115
12,0	151	101	120
13,0	151	101	130
14,0	160	108	140
16,0	178	120	160

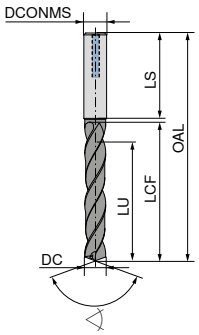
P	○
M	
K	●
N	●
S	○
H	
O	

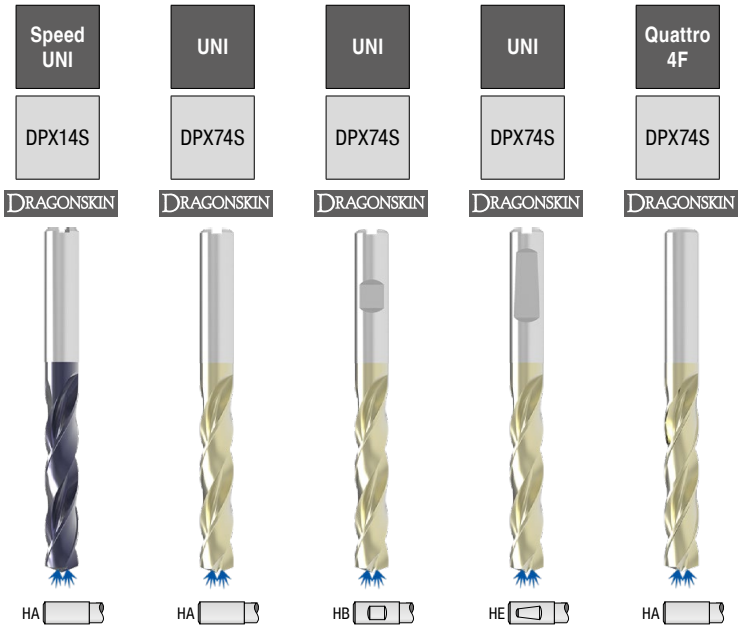
→ v_c Page 129

WTX – High Performance Drill, DIN 6537

≤ 5xD

NOF = 2





						145° Solid carbide	140° Solid carbide	140° Solid carbide	140° Solid carbide	140° Solid carbide
						10 771 ...	11 786 ...	11 787 ...	11 785 ...	10 735 ...
DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm					
3,00	6	66	28	23	36	03000	03000	03000	03000	03000
3,10	6	66	28	23	36	03100	03100	03100	03100	03100
3,15	6	66	28	23	36		03150	03150	03150	
3,20	6	66	28	23	36	03200	03200	03200	03200	03200
3,22	6	66	28	23	36		03220	03220	03220	
3,25	6	66	28	23	36		03250	03250	03250	
3,30	6	66	28	23	36	03300	03300	03300	03300	03300
3,40	6	66	28	23	36	03400	03400	03400	03400	03400
3,50	6	66	28	23	36	03500	03500	03500	03500	03500
3,60	6	66	28	23	36	03600	03600	03600	03600	03600
3,70	6	66	28	23	36	03700	03700	03700	03700	03700
3,80	6	74	36	29	36	03800	03800	03800	03800	03800
3,85	6	74	36	29	36		03850	03850	03850	
3,90	6	74	36	29	36	03900	03900	03900	03900	03900
4,00	6	74	36	29	36	04000	04000	04000	04000	04000
4,10	6	74	36	29	36	04100	04100	04100	04100	04100
4,20	6	74	36	29	36	04200	04200	04200	04200	04200
4,25	6	74	36	29	36		04250	04250	04250	
4,30	6	74	36	29	36	04300	04300	04300	04300	04300
4,35	6	74	36	29	36		04350	04350	04350	
4,40	6	74	36	29	36	04400	04400	04400	04400	04400
4,45	6	74	36	29	36		04450	04450	04450	
4,50	6	74	36	29	36	04500	04500	04500	04500	04500
4,60	6	74	36	29	36	04600	04600	04600	04600	04600
4,65	6	74	36	29	36	04650	04650	04650	04650	
4,70	6	74	36	29	36	04700	04700	04700	04700	04700
4,80	6	82	44	35	36	04800	04800	04800	04800	04800
4,90	6	82	44	35	36	04900	04900	04900	04900	04900
4,95	6	82	44	35	36		04950	04950	04950	
5,00	6	82	44	35	36	05000	05000	05000	05000	05000
5,05	6	82	44	35	36		05050	05050	05050	
5,10	6	82	44	35	36	05100	05100	05100	05100	05100
5,20	6	82	44	35	36	05200	05200	05200	05200	05200
5,30	6	82	44	35	36	05300	05300	05300	05300	05300
5,40	6	82	44	35	36	05400	05400	05400	05400	05400
P						●	●	●	●	●
M						●				
K						●	●	●	●	●
N										
S										
H							○	○	○	○
O										

→ v_c Page 108–118

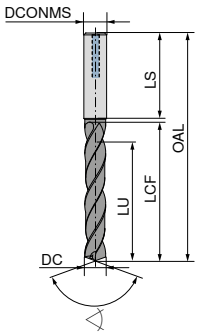
Ø DC_{m7} for Type UNI and Quattro 4F/ **Ø DC_{h7}** for Type Speed UNI

Continued on next page

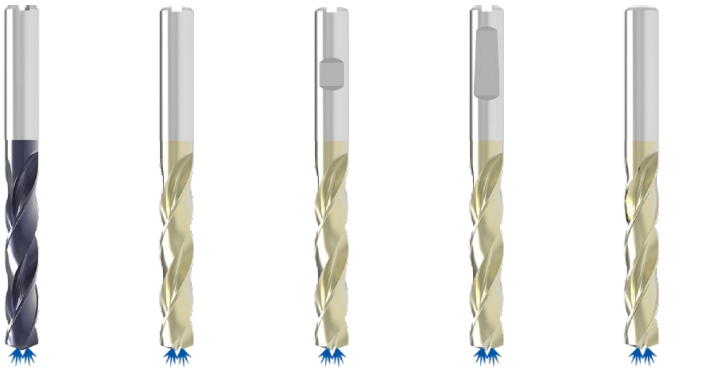
WTX – High Performance Drill, DIN 6537

≤ 5xD

NOF = 2



Speed UNI	UNI	UNI	UNI	Quattro 4F
DPX14S	DPX74S	DPX74S	DPX74S	DPX74S
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



	HA	HA	HB	HE	HA
	◁ 145°	◁ 140°	◁ 140°	◁ 140°	◁ 140°
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
	10 771 ...	11 786 ...	11 787 ...	11 785 ...	10 735 ...

DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm					
5,50	6	82	44	35	36	05500	05500	05500	05500	05500
5,55	6	82	44	35	36	05550	05550	05550	05550	
5,60	6	82	44	35	36	05600	05600	05600	05600	05600
5,70	6	82	44	35	36	05700	05700	05700	05700	05700
5,75	6	82	44	35	36		05750	05750	05750	
5,80	6	82	44	35	36	05800	05800	05800	05800	05800
5,90	6	82	44	35	36	05900	05900	05900	05900	05900
5,95	6	82	44	35	36		05950	05950	05950	
6,00	6	82	44	35	36	06000	06000	06000	06000	06000
6,10	8	91	53	43	36	06100	06100	06100	06100	06100
6,20	8	91	53	43	36	06200	06200	06200	06200	06200
6,30	8	91	53	43	36	06300	06300	06300	06300	06300
6,40	8	91	53	43	36	06400	06400	06400	06400	06400
6,50	8	91	53	43	36	06500	06500	06500	06500	06500
6,60	8	91	53	43	36	06600	06600	06600	06600	06600
6,70	8	91	53	43	36	06700	06700	06700	06700	06700
6,80	8	91	53	43	36	06800	06800	06800	06800	06800
6,90	8	91	53	43	36	06900	06900	06900	06900	06900
7,00	8	91	53	43	36	07000	07000	07000	07000	07000
7,10	8	91	53	43	36	07100	07100	07100	07100	07100
7,20	8	91	53	43	36	07200	07200	07200	07200	07200
7,30	8	91	53	43	36	07300	07300	07300	07300	07300
7,40	8	91	53	43	36	07400	07400	07400	07400	07400
7,45	8	91	53	43	36		07450	07450	07450	
7,50	8	91	53	43	36	07500	07500	07500	07500	07500
7,60	8	91	53	43	36	07600	07600	07600	07600	07600
7,70	8	91	53	43	36	07700	07700	07700	07700	07700
7,80	8	91	53	43	36	07800	07800	07800	07800	07800
7,90	8	91	53	43	36	07900	07900	07900	07900	07900
8,00	8	91	53	43	36	08000	08000	08000	08000	08000
8,10	10	103	61	49	40	08100	08100	08100	08100	08100
8,20	10	103	61	49	40	08200	08200	08200	08200	08200
8,30	10	103	61	49	40	08300	08300	08300	08300	08300
8,40	10	103	61	49	40	08400	08400	08400	08400	08400
8,50	10	103	61	49	40	08500	08500	08500	08500	08500

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

→ v_c Page 108–118

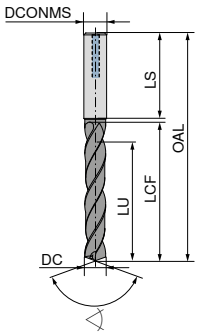
Ø DC_{m7} for Type UNI and Quattro 4F/ **Ø DC_{h7}** for Type Speed UNI

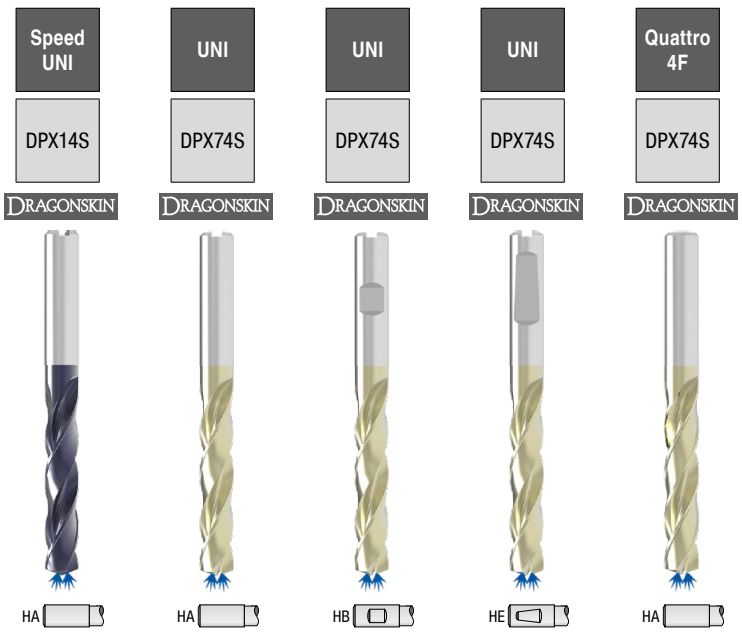
Continued on next page

WTX – High Performance Drill, DIN 6537

≤ 5xD

NOF = 2





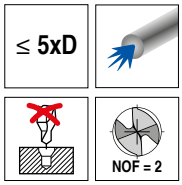
						145° Solid carbide	140° Solid carbide	140° Solid carbide	140° Solid carbide	140° Solid carbide
						10 771 ...	11 786 ...	11 787 ...	11 785 ...	10 735 ...
DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm					
8,60	10	103	61	49	40	08600	08600	08600	08600	08600
8,70	10	103	61	49	40	08700	08700	08700	08700	08700
8,80	10	103	61	49	40	08800	08800	08800	08800	08800
8,90	10	103	61	49	40	08900	08900	08900	08900	08900
9,00	10	103	61	49	40	09000	09000	09000	09000	09000
9,10	10	103	61	49	40	09100	09100	09100	09100	09100
9,20	10	103	61	49	40	09200	09200	09200	09200	09200
9,30	10	103	61	49	40	09300	09300	09300	09300	09300
9,35	10	103	61	49	40		09350	09350	09350	
9,40	10	103	61	49	40	09400	09400	09400	09400	09400
9,45	10	103	61	49	40		09450	09450	09450	
9,50	10	103	61	49	40	09500	09500	09500	09500	09500
9,60	10	103	61	49	40	09600	09600	09600	09600	09600
9,70	10	103	61	49	40	09700	09700	09700	09700	09700
9,80	10	103	61	49	40	09800	09800	09800	09800	09800
9,90	10	103	61	49	40	09900	09900	09900	09900	09900
10,00	10	103	61	49	40	10000	10000	10000	10000	10000
10,10	12	118	71	56	45	10100	10100	10100	10100	10100
10,20	12	118	71	56	45	10200	10200	10200	10200	10200
10,30	12	118	71	56	45	10300	10300	10300	10300	10300
10,40	12	118	71	56	45	10400	10400	10400	10400	10400
10,50	12	118	71	56	45	10500	10500	10500	10500	10500
10,55	12	118	71	56	45		10550	10550	10550	
10,60	12	118	71	56	45	10600	10600	10600	10600	10600
10,70	12	118	71	56	45	10700	10700	10700	10700	10700
10,75	12	118	71	56	45		10750	10750	10750	
10,80	12	118	71	56	45	10800	10800	10800	10800	10800
10,90	12	118	71	56	45	10900	10900	10900	10900	10900
11,00	12	118	71	56	45	11000	11000	11000	11000	11000
11,10	12	118	71	56	45	11100	11100	11100	11100	11100
11,20	12	118	71	56	45	11200	11200	11200	11200	11200
11,25	12	118	71	56	45		11250	11250	11250	
11,30	12	118	71	56	45	11300	11300	11300	11300	11300
11,35	12	118	71	56	45		11350	11350	11350	
11,40	12	118	71	56	45	11400	11400	11400	11400	11400
P						●	●	●	●	●
M						●				
K						●	●	●	●	●
N										
S										
H							○	○	○	○
O										

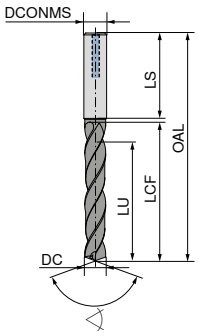
→ v_c Page 108–118

Ø DC_{m7} for Type UNI and Quattro 4F/ **Ø DC_{h7}** for Type Speed UNI

Continued on next page

WTX – High Performance Drill, DIN 6537





	Speed UNI	UNI	UNI	UNI	Quattro 4F
	DPX14S	DPX74S	DPX74S	DPX74S	DPX74S
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
	HA	HA	HB	HE	HA
	◁ 145°	◁ 140°	◁ 140°	◁ 140°	◁ 140°
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
	10 771 ...	11 786 ...	11 787 ...	11 785 ...	10 735 ...

DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm									
11,45	12	118	71	56	45			11450		11450		11450		
11,50	12	118	71	56	45	11500		11500		11500		11500		11500
11,60	12	118	71	56	45	11600		11600		11600		11600		11600
11,70	12	118	71	56	45	11700		11700		11700		11700		11700
11,80	12	118	71	56	45	11800		11800		11800		11800		11800
11,90	12	118	71	56	45	11900		11900		11900		11900		11900
12,00	12	118	71	56	45	12000		12000		12000		12000		12000
12,15	14	124	77	60	45			12150		12150		12150		
12,20	14	124	77	60	45	12200								
12,25	14	124	77	60	45			12250		12250		12250		
12,50	14	124	77	60	45	12500		12500		12500		12500		12500
12,55	14	124	77	60	45			12550		12550		12550		
12,70	14	124	77	60	45			12700		12700		12700		
12,80	14	124	77	60	45	12800		12800		12800		12800		12800
12,90	14	124	77	60	45			12900		12900		12900		
13,00	14	124	77	60	45	13000		13000		13000		13000		13000
13,10	14	124	77	60	45			13100		13100		13100		
13,30	14	124	77	60	45			13300		13300		13300		
13,35	14	124	77	60	45			13350		13350		13350		
13,50	14	124	77	60	45	13500		13500		13500		13500		13500
13,70	14	124	77	60	45			13700		13700		13700		
13,80	14	124	77	60	45	13800		13800		13800		13800		13800
14,00	14	124	77	60	45	14000		14000		14000		14000		14000
14,20	16	133	83	63	48	14200		14200		14200		14200		
14,50	16	133	83	63	48	14500		14500		14500		14500		14500
14,80	16	133	83	63	48	14800		14800		14800		14800		14800
15,00	16	133	83	63	48	15000		15000		15000		15000		15000
15,10	16	133	83	63	48			15100		15100		15100		
15,20	16	133	83	63	48	15200								
15,25	16	133	83	63	48			15250		15250		15250		
15,30	16	133	83	63	48			15300		15300		15300		
15,35	16	133	83	63	48			15350		15350		15350		
15,50	16	133	83	63	48	15500		15500		15500		15500		15500
15,60	16	133	83	63	48			15600		15600		15600		
15,80	16	133	83	63	48	15800		15800		15800		15800		15800

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

→ v_c Page 108–118

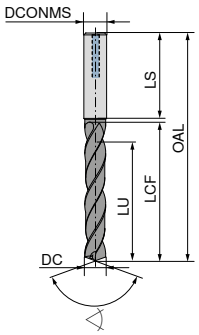
Ø DC_{m7} for Type UNI and Quattro 4F/ Ø DC_{h7} for Type Speed UNI

Continued on next page

WTX – High Performance Drill, DIN 6537

≤ 5xD

NOF = 2



	Speed UNI	UNI	UNI	UNI	Quattro 4F
	DPX14S	DPX74S	DPX74S	DPX74S	DPX74S
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
	HA	HA	HB	HE	HA
	◁ 145°	◁ 140°	◁ 140°	◁ 140°	◁ 140°
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
	10 771 ...	11 786 ...	11 787 ...	11 785 ...	10 735 ...

DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm									
16,00	16	133	83	63	48	16000		16000		16000		16000		16000
16,05	18	143	93	71	48			16050		16050		16050		
16,50	18	143	93	71	48	16500		16500		16500		16500		16500
16,80	18	143	93	71	48	16800		16800		16800		16800		16800
16,90	18	143	93	71	48			16900		16900		16900		
17,00	18	143	93	71	48	17000		17000		17000		17000		17000
17,50	18	143	93	71	48	17500		17500		17500		17500		17500
17,60	18	143	93	71	48			17600		17600		17600		
17,80	18	143	93	71	48	17800		17800		17800		17800		17800
18,00	18	143	93	71	48	18000		18000		18000		18000		18000
18,50	20	153	101	77	50	18500		18500		18500		18500		18500
18,80	20	153	101	77	50	18800		18800		18800		18800		18800
18,90	20	153	101	77	50			18900		18900		18900		
19,00	20	153	101	77	50	19000		19000		19000		19000		19000
19,35	20	153	101	77	50			19350		19350		19350		
19,50	20	153	101	77	50	19500		19500		19500		19500		19500
19,60	20	153	101	77	50			19600		19600		19600		
19,80	20	153	101	77	50	19800		19800		19800		19800		19800
20,00	20	153	101	77	50	20000		20000		20000		20000		20000
20,50	25	200	135	110	56			20500		20500		20500		
21,00	25	200	135	110	56			21000		21000		21000		
21,50	25	200	135	110	56			21500		21500		21500		
22,00	25	200	135	110	56			22000		22000		22000		
22,50	25	200	140	120	56			22500		22500		22500		
23,00	25	200	140	120	56			23000		23000		23000		
23,50	25	200	140	120	56			23500		23500		23500		
24,00	25	200	140	120	56			24000		24000		24000		
24,50	25	200	140	120	56			24500		24500		24500		
25,00	25	200	140	120	56			25000		25000		25000		

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

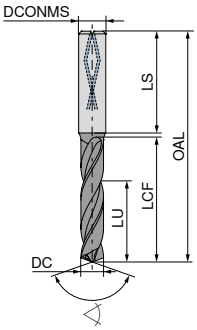
→ v_c Page 108–118

Ø DC_{m7} for Type UNI and Quattro 4F/ **Ø DC_{h7}** for Type Speed UNI

WTX – High-performance drill, DIN 6537

≤ 5xD

NOF = 2



Type GG = Straight Fluted

Speed VA	VA	VA	GG	AL	Ti
Ti800	Ti700	Ti700	Ti700	DLC	DPA54
				DRAGONSKIN	DRAGONSKIN



HA	HA	HE	HA	HA	HA
135°	140°	140°	130°	135°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
10 773 ...	**10 745 ...**	**10 746 ...**	**10 749 ...**	**10 791 ...**	**10 787 ...**

DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm										
2,50	4	57	21	17	28								02500		
2,60	4	57	21	17	28								02600		
2,70	4	57	21	17	28								02700		
2,80	4	57	21	17	28								02800		
2,90	4	57	21	17	28								02900		
3,00	6	66	28	23	36		030		030		030		030	03000		030
3,10	6	66	28	23	36		031		031		031		031	03100		031
3,15	6	66	28	23	36				831							
3,20	6	66	28	23	36		032		032		032		032	03200		032
3,22	6	66	28	23	36				832							
3,25	6	66	28	23	36				890							
3,30	6	66	28	23	36		033		033		033		033	03300		033
3,40	6	66	28	23	36		034		034		034		034	03400		034
3,50	6	66	28	23	36		035		035		035		035	03500		035
3,60	6	66	28	23	36		036		036		036		036	03600		036
3,70	6	66	28	23	36		037		037		037		037	03700		037
3,80	6	74	36	29	36		038		038		038		038	03800		038
3,85	6	74	36	29	36				838							
3,90	6	74	36	29	36		039		039		039		039	03900		039
3,97	6	74	36	29	36											900
4,00	6	74	36	29	36		040		040		040		040	04000		040
4,10	6	74	36	29	36		041		041		041		041	04100		041
4,20	6	74	36	29	36		042		042		042		042	04200		042
4,23	6	74	36	29	36											901
4,30	6	74	36	29	36		043		043		043		043	04300		043
4,35	6	74	36	29	36				843							
4,40	6	74	36	29	36		044		044		044		044	04400		044
4,45	6	74	36	29	36				844							
4,50	6	74	36	29	36		045		045		045		045	04500		045
4,60	6	74	36	29	36		046		046		046		046	04600		046
4,65	6	74	36	29	36		900		900							
4,70	6	74	36	29	36		047		047		047		047	04700		047
4,80	6	82	44	35	36		048		048		048		048	04800		048
4,90	6	82	44	35	36		049		049		049		049	04900		049
5,00	6	82	44	35	36		050		050		050		050	05000		050
5,10	6	82	44	35	36		051		051		051		051	05100		051
5,20	6	82	44	35	36		052		052		052		052	05200		052
5,30	6	82	44	35	36		053		053		053		053	05300		053

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

→ v_c Page 114–123

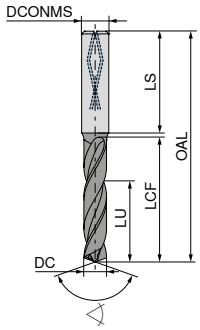
Ø DC_{m7} for Type VA, Ti and GG / Ø DC_{h7} for Type Speed VA and AL

Continued on next page

WTX – High-performance drill, DIN 6537

≤ 5xD

NOF = 2



Type GG = Straight Fluted

Speed VA	VA	VA	GG	AL	Ti
Ti800	Ti700	Ti700	Ti700	DLC	DPA54
				DRAGONSKIN	DRAGONSKIN



HA	HA	HE	HA	HA	HA
135°	140°	140°	130°	135°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
10 773 ...	**10 745 ...**	**10 746 ...**	**10 749 ...**	**10 791 ...**	**10 787 ...**

DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm										
5,40	6	82	44	35	36	054		054		054		054		05400		054
5,50	6	82	44	35	36	055		055		055		055		05500		055
5,55	6	82	44	35	36	902										
5,56	6	82	44	35	36											902
5,60	6	82	44	35	36	056		056		056		056		05600		056
5,70	6	82	44	35	36	057		057		057		057		05700		057
5,75	6	82	44	35	36			916								
5,80	6	82	44	35	36	058		058		058		058		05800		058
5,90	6	82	44	35	36	059		059		059		059		05900		059
5,95	6	82	44	35	36			959								
6,00	6	82	44	35	36	060		060		060		060		06000		060
6,10	8	91	53	43	36	061		061		061		061		06100		061
6,20	8	91	53	43	36	062		062		062		062		06200		062
6,30	8	91	53	43	36	063		063		063		063		06300		063
6,35	8	91	53	43	36											903
6,40	8	91	53	43	36	064		064		064		064		06400		064
6,50	8	91	53	43	36	065		065		065		065		06500		065
6,60	8	91	53	43	36	066		066		066		066		06600		066
6,70	8	91	53	43	36	067		067		067		067		06700		067
6,80	8	91	53	43	36	068		068		068		068		06800		068
6,90	8	91	53	43	36	069		069		069		069		06900		069
7,00	8	91	53	43	36	070		070		070		070		07000		070
7,10	8	91	53	43	36	071		071		071		071		07100		071
7,20	8	91	53	43	36	072		072		072		072		07200		072
7,30	8	91	53	43	36	073		073		073		073		07300		073
7,40	8	91	53	43	36	074		074		074		074		07400		074
7,45	8	91	53	43	36			924								
7,50	8	91	53	43	36	075		075		075		075		07500		075
7,60	8	91	53	43	36	076		076		076		076		07600		076
7,70	8	91	53	43	36	077		077		077		077		07700		077
7,80	8	91	53	43	36	078		078		078		078		07800		078
7,90	8	91	53	43	36	079		079		079		079		07900		079
7,94	8	91	53	43	36											904
8,00	8	91	53	43	36	080		080		080		080		08000		080
8,10	10	103	61	49	40	081		081		081		081		08100		081
8,20	10	103	61	49	40	082		082		082		082		08200		082
8,30	10	103	61	49	40	083		083		083		083		08300		083
8,40	10	103	61	49	40	084		084		084		084		08400		084

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

→ v_c Page 114–123

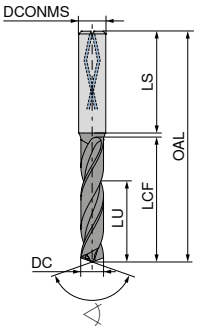
Ø DC_{m7} for Type VA, Ti and GG / Ø DC_{h7} for Type Speed VA and AL

Continued on next page

WTX – High-performance drill, DIN 6537

≤ 5xD

NOF = 2



Type GG = Straight Fluted

Speed VA	VA	VA	GG	AL	Ti
Ti800	Ti700	Ti700	Ti700	DLC	DPA54
				DRAGONSKIN	DRAGONSKIN



	HA	HA	HE	HA	HA	HA
	135°	140°	140°	130°	135°	140°
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
	10 773 ...	10 745 ...	10 746 ...	10 749 ...	10 791 ...	10 787 ...

DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm										
8,50	10	103	61	49	40	085		085		085		085		08500		085
8,60	10	103	61	49	40	086		086		086		086		08600		086
8,70	10	103	61	49	40	087		087		087		087		08700		087
8,80	10	103	61	49	40	088		088		088		088		08800		088
8,90	10	103	61	49	40	089		089		089		089		08900		089
9,00	10	103	61	49	40	090		090		090		090		09000		090
9,10	10	103	61	49	40	091		091		091		091		09100		091
9,20	10	103	61	49	40	092		092		092		092		09200		092
9,30	10	103	61	49	40	093		093		093		093		09300		093
9,35	10	103	61	49	40			930								
9,40	10	103	61	49	40	094		094		094		094		09400		094
9,45	10	103	61	49	40			994								
9,50	10	103	61	49	40	095		095		095		095		09500		095
9,53	10	103	61	49	40											905
9,60	10	103	61	49	40	096		096		096		096		09600		096
9,70	10	103	61	49	40	097		097		097		097		09700		097
9,80	10	103	61	49	40	098		098		098		098		09800		098
9,90	10	103	61	49	40	099		099		099		099		09900		099
10,00	10	103	61	49	40	100		100		100		100		10000		100
10,10	12	118	71	54	45											101
10,10	12	118	71	56	45	101		101		101		101		10100		
10,20	12	118	71	54	45											102
10,20	12	118	71	56	45	102		102		102		102		10200		
10,30	12	118	71	54	45											103
10,30	12	118	71	56	45	103		103		103		103		10300		
10,40	12	118	71	54	45											104
10,40	12	118	71	56	45	104		104		104		104		10400		
10,50	12	118	71	56	45	105		105		105		105		10500		
10,50	12	118	71	54	45											105
10,55	12	118	71	56	45			932								
10,60	12	118	71	56	45	106		106		106		106		10600		
10,60	12	118	71	54	45											106
10,70	12	118	71	54	45											107
10,70	12	118	71	56	45	107		107		107		107		10700		
10,80	12	118	71	54	45											108
10,80	12	118	71	56	45	108		108		108		108		10800		
10,90	12	118	71	54	45											109
10,90	12	118	71	56	45	109		109		109		109				

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

→ v_c Page 114–123

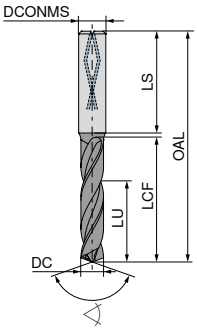
Ø DC_{m7} for Type VA, Ti and GG / **Ø DC_{h7}** for Type Speed VA and AL

Continued on next page

WTX – High-performance drill, DIN 6537

≤ 5xD

NOF = 2



Type GG = Straight Fluted

Speed VA	VA	VA	GG	AL	Ti
Ti800	Ti700	Ti700	Ti700	DLC	DPA54
				DRAGONSKIN	DRAGONSKIN



HA	HA	HE	HA	HA	HA
135°	140°	140°	130°	135°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
10 773 ...	**10 745 ...**	**10 746 ...**	**10 749 ...**	**10 791 ...**	**10 787 ...**

DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm										
11,00	12	118	71	54	45										110
11,00	12	118	71	56	45	110		110		110		110		11000	
11,10	12	118	71	56	45	111		111		111		111		11100	
11,10	12	118	71	54	45										111
11,11	12	118	71	54	45										906
11,20	12	118	71	56	45	112		112		112		112		11200	
11,20	12	118	71	54	45										112
11,25	12	118	71	56	45			912							
11,30	12	118	71	56	45	113		113		113		113		11300	
11,30	12	118	71	54	45										113
11,35	12	118	71	56	45			913							
11,40	12	118	71	54	45										114
11,40	12	118	71	56	45	114		114		114		114		11400	
11,45	12	118	71	56	45			914							
11,50	12	118	71	56	45	115		115		115		115		11500	
11,50	12	118	71	54	45										115
11,60	12	118	71	54	45										116
11,60	12	118	71	56	45	116		116		116		116			
11,70	12	118	71	54	45										117
11,70	12	118	71	56	45	117		117		117		117		11700	
11,80	12	118	71	54	45										118
11,80	12	118	71	56	45	118		118		118		118		11800	
11,90	12	118	71	54	45										119
11,90	12	118	71	56	45	119		119		119		119			
12,00	12	118	71	54	45										120
12,00	12	118	71	56	45	120		120		120		120		12000	
12,10	14	124	77	58	45										121
12,15	14	124	77	60	45			921							
12,20	14	124	77	58	45										122
12,20	14	124	77	60	45	12200								12200	
12,30	14	124	77	58	45										123
12,40	14	124	77	58	45										124
12,50	14	124	77	58	45										125
12,50	14	124	77	60	45	125		125		125		125		12500	
12,55	14	124	77	60	45			925							
12,60	14	124	77	58	45										126
12,60	14	124	77	60	45									12600	
12,70	14	124	77	58	45										907

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

→ v_c Page 114–123

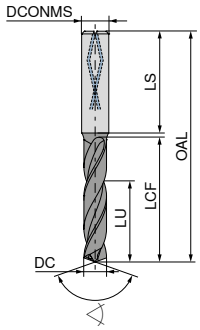
Ø DC_{m7} for Type VA, Ti and GG / Ø DC_{h7} for Type Speed VA and AL

Continued on next page

WTX – High-performance drill, DIN 6537

≤ 5xD

NOF = 2



Type GG = Straight Fluted

Speed VA	VA	VA	GG	AL	Ti
Ti800	Ti700	Ti700	Ti700	DLC	DPA54
				DRAGONSKIN	DRAGONSKIN



HA	HA	HE	HA	HA	HA
135°	140°	140°	130°	135°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
10 773 ...	**10 745 ...**	**10 746 ...**	**10 749 ...**	**10 791 ...**	**10 787 ...**

DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm										
12,80	14	124	77	58	45										128
12,80	14	124	77	60	45	128		128		128		128		12800	
12,90	14	124	77	58	45										129
13,00	14	124	77	58	45										130
13,00	14	124	77	60	45	130		130		130		130		13000	
13,10	14	124	77	58	45										131
13,20	14	124	77	58	45										132
13,30	14	124	77	58	45										133
13,35	14	124	77	60	45			933							
13,40	14	124	77	58	45										134
13,50	14	124	77	60	45	135		135		135		135		13500	
13,50	14	124	77	58	45										135
13,60	14	124	77	58	45										136
13,70	14	124	77	58	45										137
13,80	14	124	77	58	45										138
13,80	14	124	77	60	45	138		138		138		138		13800	
13,90	14	124	77	58	45										139
14,00	14	124	77	60	45	140		140		140		140		14000	
14,00	14	124	77	58	45										140
14,10	16	133	83	61	48										141
14,20	16	133	83	61	48										142
14,20	16	133	83	63	48									14200	
14,30	16	133	83	61	48										143
14,40	16	133	83	61	48										144
14,50	16	133	83	61	48										145
14,50	16	133	83	63	48	145		145		145		145		14500	
14,60	16	133	83	61	48										146
14,70	16	133	83	61	48										147
14,80	16	133	83	61	48										148
14,80	16	133	83	63	48	148		148		148		148		14800	
14,90	16	133	83	61	48										149
15,00	16	133	83	61	48										150
15,00	16	133	83	63	48	150		150		150		150		15000	
15,10	16	133	83	61	48										151
15,20	16	133	83	61	48										152
15,20	16	133	83	63	48									15200	
15,30	16	133	83	61	48										153
15,35	16	133	83	63	48			953							

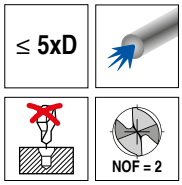
P						●		○		○					○
M						●		●		●					●
K						●		○		○		●			
N						○		○		○		○		●	
S						●		●		●					●
H															
O															

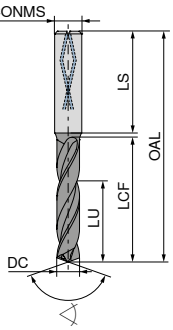
→ v_c Page 114–123

ℹ **Ø DC$_{m7}$** for Type VA, Ti and GG / **Ø DC$_{h7}$** for Type Speed VA and AL

Continued on next page

WTX – High-performance drill, DIN 6537





Type GG = Straight Fluted

Speed VA	VA	VA	GG	AL	Ti
Ti800	Ti700	Ti700	Ti700	DLC	DPA54
				DRAGONSKIN	DRAGONSKIN



HA	HA	HE	HA	HA	HA
135°	140°	140°	130°	135°	140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
10 773 ...	**10 745 ...**	**10 746 ...**	**10 749 ...**	**10 791 ...**	**10 787 ...**

DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm										
15,40	16	133	83	61	48										154
15,50	16	133	83	61	48										155
15,50	16	133	83	63	48	155		155		155		155		15500	
15,60	16	133	83	61	48										156
15,70	16	133	83	61	48										157
15,80	16	133	83	61	48										158
15,80	16	133	83	63	48	158		158		158		158		15800	
15,90	16	133	83	61	48										159
16,00	16	133	83	61	48										160
16,00	16	133	83	63	48	160		160		160		160		16000	
16,05	18	143	93	71	48			960							
16,10	18	143	93	69	48										161
16,20	18	143	93	69	48										162
16,30	18	143	93	69	48										163
16,40	18	143	93	69	48										164
16,50	18	143	93	69	48										165
16,50	18	143	93	71	48	165		165		165		165		16500	
16,60	18	143	93	69	48										166
16,70	18	143	93	69	48										167
16,80	18	143	93	69	48										168
16,80	18	143	93	71	48	168		168		168		168			
16,90	18	143	93	69	48										169
17,00	18	143	93	71	48	170		170		170		170		17000	
17,00	18	143	93	69	48										170
17,10	18	143	93	69	48										171
17,20	18	143	93	69	48										172
17,30	18	143	93	69	48										173
17,40	18	143	93	69	48										174
17,50	18	143	93	69	48										175
17,50	18	143	93	71	48	175		175		175		175		17500	
17,60	18	143	93	69	48										176
17,70	18	143	93	69	48										177
17,80	18	143	93	69	48										178
17,80	18	143	93	71	48	178		178		178		178			
17,90	18	143	93	69	48										179
18,00	18	143	93	69	48										180
18,00	18	143	93	71	48	180		180		180		180		18000	
18,10	20	153	101	75	50										181

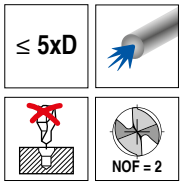
P	●	○	○			○
M	●	●	●			●
K	●	○	○	●		
N	○	○	○	○	●	
S	●	●	●			●
H						
O						

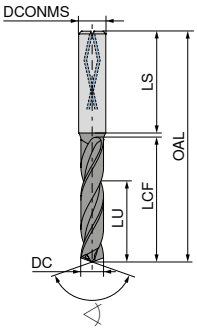
→ v_c Page 114–123

Ø DC_{m7} for Type VA, Ti and GG / Ø DC_{h7} for Type Speed VA and AL

Continued on next page

WTX – High-performance drill, DIN 6537





Type GG = Straight Fluted

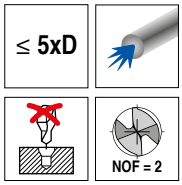
	Speed VA	VA	VA	GG	AL	Ti
	Ti800	Ti700	Ti700	Ti700	DLC	DPA54
					DRAGONSKIN	DRAGONSKIN
						
	HA	HA	HE	HA	HA	HA
	◁ 135°	◁ 140°	◁ 140°	◁ 130°	◁ 135°	◁ 140°
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
	10 773 ...	**10 745 ...**	**10 746 ...**	**10 749 ...**	**10 791 ...**	**10 787 ...**

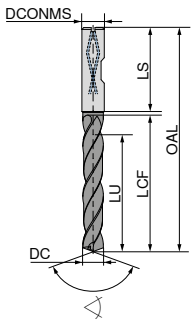
DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm											
18,20	20	153	101	75	50											182
18,30	20	153	101	75	50											183
18,40	20	153	101	75	50											184
18,50	20	153	101	75	50											185
18,50	20	153	101	77	50	185		185		185		185		18500		
18,60	20	153	101	75	50											186
18,70	20	153	101	75	50											187
18,80	20	153	101	75	50											188
18,80	20	153	101	77	50	188		188		188		188				
18,90	20	153	101	75	50											189
19,00	20	153	101	75	50											190
19,00	20	153	101	77	50	190		190		190		190		19000		
19,10	20	153	101	75	50											191
19,20	20	153	101	75	50											192
19,30	20	153	101	75	50											193
19,35	20	153	101	77	50			993								
19,40	20	153	101	75	50											194
19,50	20	153	101	77	50	195		195		195		195		19500		
19,50	20	153	101	75	50											195
19,60	20	153	101	75	50											196
19,70	20	153	101	75	50											197
19,80	20	153	101	77	50	198		198		198		198				
19,80	20	153	101	75	50											198
19,90	20	153	101	75	50											199
20,00	20	153	101	75	50											200
20,00	20	153	101	77	50	200		200		200		200		20000		
P						●		○		○						○
M						●		●		●						●
K						●		○		○		●				
N						○		○		○		○		●		
S						●		●		●						●
H																
O																

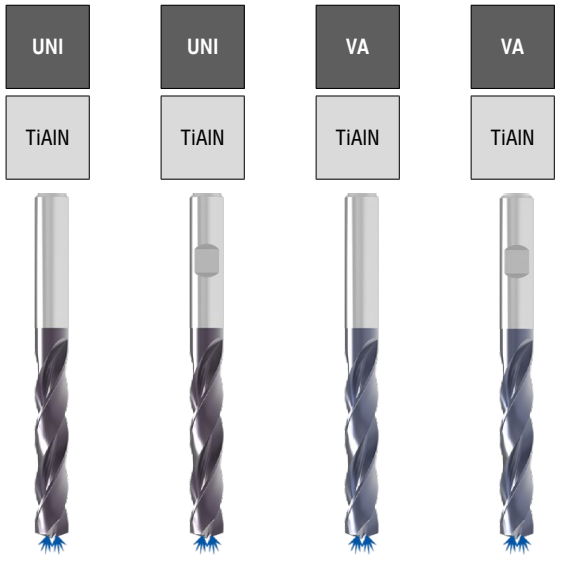
→ v_c Page 114–123

Ø DC$_{m7}$ for Type VA, Ti and GG / **Ø DC$_{h7}$** for Type Speed VA and AL

WPC – High Performance Drill, DIN 6537







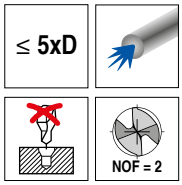
Solid carbide | Solid carbide | Solid carbide | Solid carbide

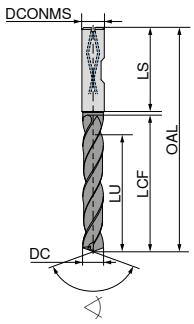
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 609 ...		11 610 ...		11 629 ...		11 630 ...	
1,00	4	45	8,0	6,5	30,0	010				010			
1,10	4	45	8,8	7,2	29,0	011				011			
1,20	4	45	9,6	7,8	29,0	012				012			
1,30	4	45	10,4	8,5	28,5	013				013			
1,40	4	45	11,2	9,1	28,0	014				014			
1,50	4	50	12,0	9,8	32,0	015				015			
1,60	4	50	12,8	10,4	31,0	016				016			
1,70	4	50	13,6	11,1	30,5	017				017			
1,80	4	50	14,4	11,7	30,0	018				018			
1,90	4	50	15,2	12,4	29,5	019				019			
2,00	4	50	16,0	13,0	29,0	020				020			
2,10	4	55	16,8	13,7	33,0	021				021			
2,20	4	55	17,6	14,3	32,5	022				022			
2,30	4	55	18,4	15,0	32,0	023				023			
2,40	4	55	19,2	15,6	31,5	024				024			
2,50	4	55	20,0	16,3	30,5	025				025			
2,60	4	55	20,8	16,9	30,0	026				026			
2,70	4	55	21,6	17,6	29,0	027				027			
2,80	4	55	22,4	18,2	29,0	028				028			
2,90	4	55	23,2	18,9	28,5	029				029			
3,00	6	66	28,0	23,0	36,0	030		030		030		030	
3,10	6	66	28,0	23,0	36,0	031		031		031		031	
3,20	6	66	28,0	23,0	36,0	032		032		032		032	
3,25	6	66	28,0	23,0	36,0	890		890		03250			
3,30	6	66	28,0	23,0	36,0	033		033		033		033	
3,40	6	66	28,0	23,0	36,0	034		034		034		034	
3,50	6	66	28,0	23,0	36,0	035		035		035		035	
3,60	6	66	28,0	23,0	36,0	036		036		036		036	
3,70	6	66	28,0	23,0	36,0	037		037		037		037	
3,80	6	74	36,0	29,0	36,0	038		038		038		038	
3,90	6	74	36,0	29,0	36,0	039		039		039		039	
4,00	6	74	36,0	29,0	36,0	040		040		040		040	
4,10	6	74	36,0	29,0	36,0	041		041		041		041	
4,20	6	74	36,0	29,0	36,0	042		042		042		042	
4,30	6	74	36,0	29,0	36,0	043		043		043		043	
4,40	6	74	36,0	29,0	36,0	044		044		044		044	
4,50	6	74	36,0	29,0	36,0	045		045		045		045	
4,60	6	74	36,0	29,0	36,0	046		046		046		046	
4,65	6	74	36,0	29,0	36,0	900		900		900		900	
4,70	6	74	36,0	29,0	36,0	047		047		047		047	
4,80	6	82	44,0	35,0	36,0	048		048		048		048	
P						●		●		○		○	
M										●		●	
K						●		●		●		●	
N										●		●	
S													
H													
O													

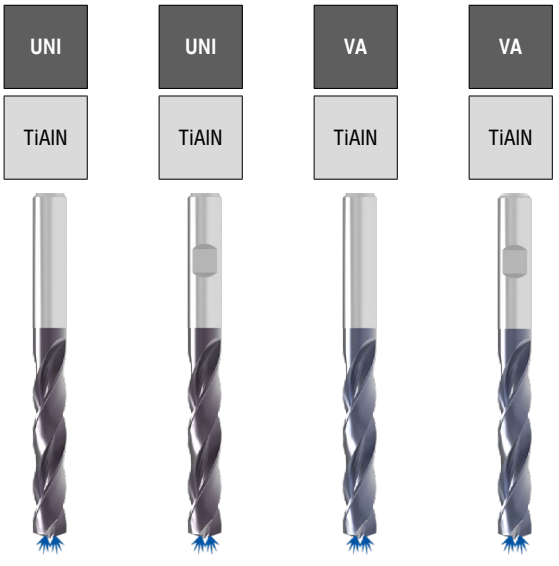
→ v_c Page 131+134

Continued on next page

WPC – High Performance Drill, DIN 6537







Solid carbide | Solid carbide | Solid carbide | Solid carbide

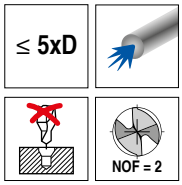
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 609 ...		11 610 ...		11 629 ...		11 630 ...	
4,90	6	82	44,0	35,0	36,0	049		049		049		049	
5,00	6	82	44,0	35,0	36,0	050		050		050		050	
5,10	6	82	44,0	35,0	36,0	051		051		051		051	
5,20	6	82	44,0	35,0	36,0	052		052		052		052	
5,30	6	82	44,0	35,0	36,0	053		053		053		053	
5,40	6	82	44,0	35,0	36,0	054		054		054		054	
5,50	6	82	44,0	35,0	36,0	055		055		055		055	
5,55	6	82	44,0	35,0	36,0	902		902		902		902	
5,60	6	82	44,0	35,0	36,0	056		056		056		056	
5,70	6	82	44,0	35,0	36,0	057		057		057		057	
5,80	6	82	44,0	35,0	36,0	058		058		058		058	
5,90	6	82	44,0	35,0	36,0	059		059		059		059	
6,00	6	82	44,0	35,0	36,0	060		060		060		060	
6,10	8	91	53,0	43,0	36,0	061		061		061		061	
6,20	8	91	53,0	43,0	36,0	062		062		062		062	
6,30	8	91	53,0	43,0	36,0	063		063		063		063	
6,40	8	91	53,0	43,0	36,0	064		064		064		064	
6,50	8	91	53,0	43,0	36,0	065		065		065		065	
6,60	8	91	53,0	43,0	36,0	066		066		066		066	
6,70	8	91	53,0	43,0	36,0	067		067		067		067	
6,80	8	91	53,0	43,0	36,0	068		068		068		068	
6,90	8	91	53,0	43,0	36,0	069		069		069		069	
7,00	8	91	53,0	43,0	36,0	070		070		070		070	
7,10	8	91	53,0	43,0	36,0	071		071		071		071	
7,20	8	91	53,0	43,0	36,0	072		072		072		072	
7,30	8	91	53,0	43,0	36,0	073		073		073		073	
7,40	8	91	53,0	43,0	36,0	074		074		074		074	
7,45	8	91	53,0	43,0	36,0	924		924		07450			
7,50	8	91	53,0	43,0	36,0	075		075		075		075	
7,55	8	91	53,0	43,0	36,0	975		975		975		975	
7,60	8	91	53,0	43,0	36,0	076		076		076		076	
7,70	8	91	53,0	43,0	36,0	077		077		077		077	
7,80	8	91	53,0	43,0	36,0	078		078		078		078	
7,90	8	91	53,0	43,0	36,0	079		079		079		079	
8,00	8	91	53,0	43,0	36,0	080		080		080		080	
8,10	10	103	61,0	49,0	40,0	081		081		081		081	
8,20	10	103	61,0	49,0	40,0	082		082		082		082	
8,30	10	103	61,0	49,0	40,0	083		083		083		083	
8,40	10	103	61,0	49,0	40,0	084		084		084		084	
8,50	10	103	61,0	49,0	40,0	085		085		085		085	
8,60	10	103	61,0	49,0	40,0	086		086		086		086	

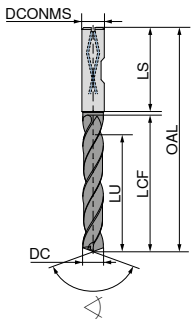
P	●	●	○	○
M			●	●
K	●	●	●	●
N			●	●
S				
H				
O				

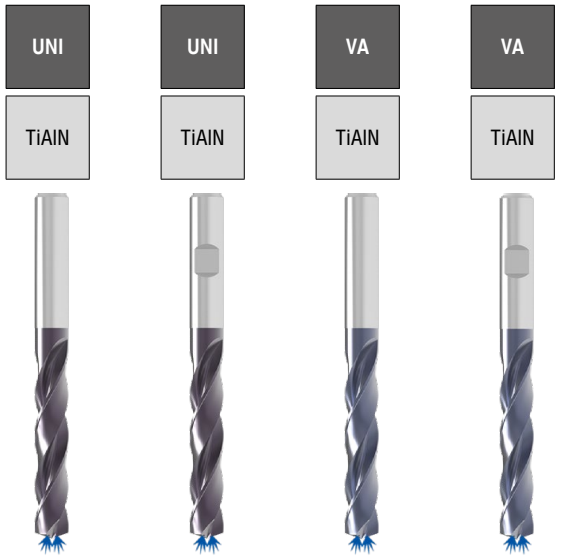
→ v_c Page 131+134

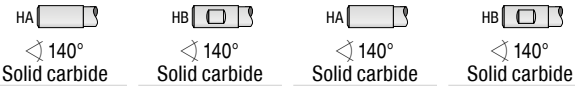
Continued on next page

WPC – High Performance Drill, DIN 6537









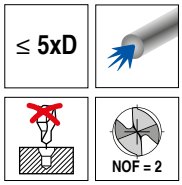
140° Solid carbide

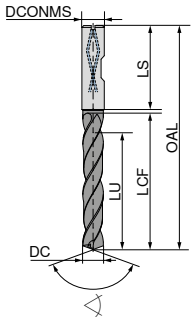
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 609 ...	11 610 ...	11 629 ...	11 630 ...
8,70	10	103	61,0	49,0	40,0	087	087	087	087
8,80	10	103	61,0	49,0	40,0	088	088	088	088
8,90	10	103	61,0	49,0	40,0	089	089	089	089
9,00	10	103	61,0	49,0	40,0	090	090	090	090
9,10	10	103	61,0	49,0	40,0	091	091	091	091
9,20	10	103	61,0	49,0	40,0	092	092	092	092
9,25	10	103	61,0	49,0	40,0	925	925	925	925
9,30	10	103	61,0	49,0	40,0	093	093	093	093
9,35	10	103	61,0	49,0	40,0	930	930	09350	
9,40	10	103	61,0	49,0	40,0	094	094	094	094
9,50	10	103	61,0	49,0	40,0	095	095	095	095
9,60	10	103	61,0	49,0	40,0	096	096	096	096
9,70	10	103	61,0	49,0	40,0	097	097	097	097
9,80	10	103	61,0	49,0	40,0	098	098	098	098
9,90	10	103	61,0	49,0	40,0	099	099	099	099
10,00	10	103	61,0	49,0	40,0	100	100	100	100
10,10	12	118	71,0	56,0	45,0	101	101	101	101
10,20	12	118	71,0	56,0	45,0	102	102	102	102
10,30	12	118	71,0	56,0	45,0	103	103	103	103
10,40	12	118	71,0	56,0	45,0	104	104	104	104
10,50	12	118	71,0	56,0	45,0	105	105	105	105
10,60	12	118	71,0	56,0	45,0	106	106	106	106
10,70	12	118	71,0	56,0	45,0	107	107	107	107
10,75	12	118	71,0	56,0	45,0	904	904	10750	
10,80	12	118	71,0	56,0	45,0	108	108	108	108
10,90	12	118	71,0	56,0	45,0	109	109	109	109
11,00	12	118	71,0	56,0	45,0	110	110	110	110
11,10	12	118	71,0	56,0	45,0	111	111	111	111
11,20	12	118	71,0	56,0	45,0	112	112	112	112
11,25	12	118	71,0	56,0	45,0	912	912	11250	
11,30	12	118	71,0	56,0	45,0	113	113	113	113
11,40	12	118	71,0	56,0	45,0	114	114	114	114
11,50	12	118	71,0	56,0	45,0	115	115	115	115
11,60	12	118	71,0	56,0	45,0	116	116	116	116
11,70	12	118	71,0	56,0	45,0	117	117	117	117
11,80	12	118	71,0	56,0	45,0	118	118	118	118
11,90	12	118	71,0	56,0	45,0	119	119	119	119
12,00	12	118	71,0	56,0	45,0	120	120	120	120
12,25	14	124	77,0	60,0	45,0	122	122	12250	
12,50	14	124	77,0	60,0	45,0	125	125	125	125
12,70	14	124	77,0	60,0	45,0	127	127	127	127
P						●	●	○	○
M								●	●
K						●	●	●	●
N								●	●
S									
H									
O									

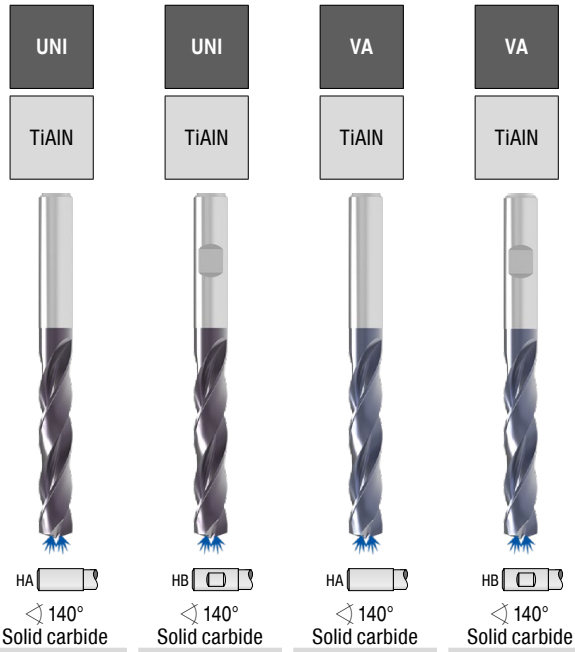
→ v_c Page 131+134

Continued on next page

WPC – High Performance Drill, DIN 6537





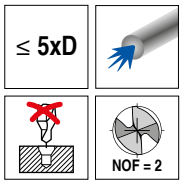


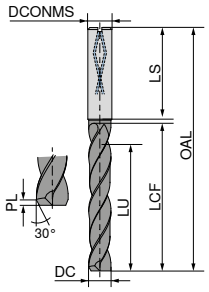
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 609 ...		11 610 ...		11 629 ...		11 630 ...	
12,80	14	124	77,0	60,0	45,0	128		128					
12,90	14	124	77,0	60,0	45,0	129		129					
13,00	14	124	77,0	60,0	45,0	130		130		130		130	
13,10	14	124	77,0	60,0	45,0	131		131					
13,30	14	124	77,0	60,0	45,0	133		133					
13,50	14	124	77,0	60,0	45,0	135		135		135		135	
13,70	14	124	77,0	60,0	45,0	137		137		137		137	
13,80	14	124	77,0	60,0	45,0	138		138					
14,00	14	124	77,0	60,0	45,0	140		140		140		140	
14,20	16	133	83,0	63,0	48,0	142		142					
14,50	16	133	83,0	63,0	48,0	145		145		145		145	
14,70	16	133	83,0	63,0	48,0	147		147		147		147	
14,80	16	133	83,0	63,0	48,0	148		148					
15,00	16	133	83,0	63,0	48,0	150		150		150		150	
15,10	16	133	83,0	63,0	48,0	151		151					
15,25	16	133	83,0	63,0	48,0	152		152					
15,30	16	133	83,0	63,0	48,0	153		153					
15,50	16	133	83,0	63,0	48,0	155		155		155		155	
15,60	16	133	83,0	63,0	48,0	156		156					
15,70	16	133	83,0	63,0	48,0	157		157		157		157	
15,80	16	133	83,0	63,0	48,0	158		158					
16,00	16	133	83,0	63,0	48,0	160		160		160		160	
16,50	18	143	93,0	71,0	48,0	165		165		165		165	
16,80	18	143	93,0	71,0	48,0	168		168					
16,90	18	143	93,0	71,0	48,0	169		169					
17,00	18	143	93,0	71,0	48,0	170		170		170		170	
17,50	18	143	93,0	71,0	48,0	175		175		175		175	
17,60	18	143	93,0	71,0	48,0	176		176					
17,80	18	143	93,0	71,0	48,0	178		178					
18,00	18	143	93,0	71,0	48,0	180		180		180		180	
18,50	20	153	101,0	77,0	50,0	185		185		185		185	
18,80	20	153	101,0	77,0	50,0	188		188					
18,90	20	153	101,0	77,0	50,0	189		189					
19,00	20	153	101,0	77,0	50,0	190		190		190		190	
19,50	20	153	101,0	77,0	50,0	195		195		195		195	
19,60	20	153	101,0	77,0	50,0	196		196					
19,80	20	153	101,0	77,0	50,0	198		198					
20,00	20	153	101,0	77,0	50,0	200		200		200		200	
P						●		●		○		○	
M										●		●	
K						●		●		●		●	
N										●		●	
S													
H													
O													

→ v_c Page 131+134

WTX – High Performance Drill, DIN 6537

- ▲ universal application
- ▲ four guidance lands
- ▲ polished chip flutes
- ▲ Type ALU 5xD on request
- ▲ PL = corner chamfers





180

Ti800



Solid carbide

10 721 ...

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	PL mm	
3,00	6	66	28	23	36	0,15	030
3,10	6	66	28	23	36	0,16	031
3,20	6	66	28	23	36	0,16	032
3,30	6	66	28	23	36	0,17	033
3,40	6	66	28	23	36	0,17	034
3,50	6	66	28	23	36	0,18	035
3,60	6	66	28	23	36	0,18	036
3,70	6	66	28	23	36	0,19	037
3,80	6	74	36	29	36	0,19	038
3,90	6	74	36	29	36	0,20	039
4,00	6	74	36	29	36	0,20	040
4,10	6	74	36	29	36	0,21	041
4,20	6	74	36	29	36	0,21	042
4,30	6	74	36	29	36	0,22	043
4,40	6	74	36	29	36	0,22	044
4,50	6	74	36	29	36	0,23	045
4,60	6	74	36	29	36	0,23	046
4,65	6	74	36	29	36	0,23	900
4,70	6	74	36	29	36	0,24	047
4,80	6	82	44	35	36	0,24	048
4,90	6	82	44	35	36	0,25	049
5,00	6	82	44	35	36	0,25	050
5,10	6	82	44	35	36	0,26	051
5,20	6	82	44	35	36	0,26	052
5,30	6	82	44	35	36	0,27	053
5,40	6	82	44	35	36	0,27	054
5,50	6	82	44	35	36	0,28	055
5,55	6	82	44	35	36	0,28	902
5,60	6	82	44	35	36	0,28	056
5,70	6	82	44	35	36	0,29	057
5,80	6	82	44	35	36	0,29	058
5,90	6	82	44	35	36	0,30	059
6,00	6	82	44	35	36	0,30	060
6,10	8	91	53	43	36	0,31	061
6,20	8	91	53	43	36	0,31	062
6,30	8	91	53	43	36	0,32	063
6,40	8	91	53	43	36	0,32	064
6,50	8	91	53	43	36	0,33	065
6,60	8	91	53	43	36	0,33	066
6,70	8	91	53	43	36	0,34	067
6,80	8	91	53	43	36	0,34	068
6,90	8	91	53	43	36	0,35	069
7,00	8	91	53	43	36	0,35	070
7,10	8	91	53	43	36	0,36	071
7,20	8	91	53	43	36	0,36	072
7,30	8	91	53	43	36	0,37	073
7,40	8	91	53	43	36	0,37	074
7,50	8	91	53	43	36	0,38	075
7,60	8	91	53	43	36	0,38	076
7,70	8	91	53	43	36	0,39	077
7,80	8	91	53	43	36	0,39	078
7,90	8	91	53	43	36	0,40	079
8,00	8	91	53	43	36	0,40	080
8,10	10	103	61	49	40	0,41	081

10 721 ...

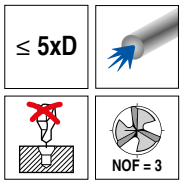
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	PL mm	
8,20	10	103	61	49	40	0,41	082
8,30	10	103	61	49	40	0,42	083
8,40	10	103	61	49	40	0,42	084
8,50	10	103	61	49	40	0,43	085
8,60	10	103	61	49	40	0,43	086
8,70	10	103	61	49	40	0,44	087
8,80	10	103	61	49	40	0,44	088
8,90	10	103	61	49	40	0,45	089
9,00	10	103	61	49	40	0,45	090
9,10	10	103	61	49	40	0,46	091
9,20	10	103	61	49	40	0,46	092
9,30	10	103	61	49	40	0,47	093
9,40	10	103	61	49	40	0,47	094
9,50	10	103	61	49	40	0,48	095
9,60	10	103	61	49	40	0,48	096
9,70	10	103	61	49	40	0,49	097
9,80	10	103	61	49	40	0,49	098
9,90	10	103	61	49	40	0,50	099
10,00	10	103	61	49	40	0,50	100
10,10	12	116	69	54	45	0,51	101
10,20	12	116	69	54	45	0,51	102
10,30	12	116	69	54	45	0,52	103
10,40	12	116	69	54	45	0,52	104
10,50	12	116	69	54	45	0,53	105
10,60	12	116	69	54	45	0,53	106
10,70	12	116	69	54	45	0,54	107
10,80	12	116	69	54	45	0,54	108
10,90	12	116	69	54	45	0,55	109
11,00	12	116	69	54	45	0,55	110
11,10	12	116	69	54	45	0,56	111
11,20	12	116	69	54	45	0,56	112
11,30	12	116	69	54	45	0,57	113
11,40	12	116	69	54	45	0,57	114
11,50	12	116	69	54	45	0,58	115
11,60	12	116	69	54	45	0,58	116
11,70	12	116	69	54	45	0,59	117
11,80	12	116	69	54	45	0,59	118
11,90	12	116	69	54	45	0,60	119
12,00	12	116	69	54	45	0,60	120
12,50	14	122	75	58	45	0,63	125
12,80	14	122	75	58	45	0,64	128
13,00	14	122	75	58	45	0,65	130
13,50	14	122	75	58	45	0,68	135
13,80	14	122	75	58	45	0,69	138
14,00	14	122	75	58	45	0,70	140
14,50	16	131	81	61	48	0,73	145
14,80	16	131	81	61	48	0,74	148
15,00	16	131	81	61	48	0,75	150
15,50	16	131	81	61	48	0,78	155
15,80	16	131	81	61	48	0,79	158
16,00	16	131	81	61	48	0,80	160
16,50	18	141	91	69	48	0,83	165
16,80	18	141	91	69	48	0,84	168
17,00	18	141	91	69	48	0,85	170
17,50	18	141	91	69	48	0,88	175
17,80	18	141	91	69	48	0,89	178
18,00	18	141	91	69	48	0,90	180
18,50	20	151	99	75	50	0,93	185
18,80	20	151	99	75	50	0,94	188
19,00	20	151	99	75	50	0,95	190
19,50	20	151	99	75	50	0,98	195
19,80	20	151	99	75	50	0,99	198
20,00	20	151	99	75	50	1,00	200

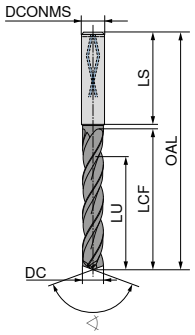
P	●
M	●
K	●
N	
S	
H	
O	

→ v_c Page 127

WTX – High Feed Drill, factory standard

- Three fluted high-feed drill
- Universal application
- High positioning accuracy
- Suitable for difficult drilling applications







Solid carbide

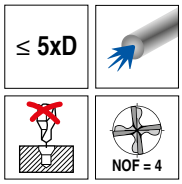
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 789 ...
4,00	6	74	36	29	36	04000
4,10	6	74	36	29	36	04100
4,20	6	74	36	29	36	04200
4,30	6	74	36	29	36	04300
4,40	6	74	36	29	36	04400
4,50	6	74	36	29	36	04500
4,60	6	74	36	29	36	04600
4,70	6	74	36	29	36	04700
4,80	6	82	44	35	36	04800
4,90	6	82	44	35	36	04900
5,00	6	82	44	35	36	05000
5,10	6	82	44	35	36	05100
5,20	6	82	44	35	36	05200
5,30	6	82	44	35	36	05300
5,40	6	82	44	35	36	05400
5,50	6	82	44	35	36	05500
5,55	6	82	44	35	36	05550
5,60	6	82	44	35	36	05600
5,70	6	82	44	35	36	05700
5,80	6	82	44	35	36	05800
5,90	6	82	44	35	36	05900
6,00	6	82	44	35	36	06000
6,10	8	91	53	43	36	06100
6,20	8	91	53	43	36	06200
6,30	8	91	53	43	36	06300
6,40	8	91	53	43	36	06400
6,50	8	91	53	43	36	06500
6,60	8	91	53	43	36	06600
6,70	8	91	53	43	36	06700
6,80	8	91	53	43	36	06800
6,90	8	91	53	43	36	06900
7,00	8	91	53	43	36	07000
7,10	8	91	53	43	36	07100
7,20	8	91	53	43	36	07200
7,30	8	91	53	43	36	07300
7,40	8	91	53	43	36	07400
7,50	8	91	53	43	36	07500
7,60	8	91	53	43	36	07600
7,70	8	91	53	43	36	07700
7,80	8	91	53	43	36	07800
7,90	8	91	53	43	36	07900
8,00	8	91	53	43	36	08000
8,10	10	103	61	49	40	08100
8,20	10	103	61	49	40	08200
8,30	10	103	61	49	40	08300
8,40	10	103	61	49	40	08400
8,50	10	103	61	49	40	08500
8,60	10	103	61	49	40	08600
8,70	10	103	61	49	40	08700
8,80	10	103	61	49	40	08800
8,90	10	103	61	49	40	08900
9,00	10	103	61	49	40	09000
9,10	10	103	61	49	40	09100
9,20	10	103	61	49	40	09200
9,30	10	103	61	49	40	09300
9,40	10	103	61	49	40	09400
9,50	10	103	61	49	40	09500
9,60	10	103	61	49	40	09600
9,70	10	103	61	49	40	09700
9,80	10	103	61	49	40	09800
9,90	10	103	61	49	40	09900
10,00	10	103	61	49	40	10000
10,10	12	118	71	56	45	10100
10,20	12	118	71	56	45	10200
10,30	12	118	71	56	45	10300
10,40	12	118	71	56	45	10400
10,50	12	118	71	56	45	10500
10,60	12	118	71	56	45	10600
10,70	12	118	71	56	45	10700
10,80	12	118	71	56	45	10800
10,90	12	118	71	56	45	10900
11,00	12	118	71	56	45	11000
11,10	12	118	71	56	45	11100
11,20	12	118	71	56	45	11200
11,30	12	118	71	56	45	11300
11,40	12	118	71	56	45	11400
11,50	12	118	71	56	45	11500
11,60	12	118	71	56	45	11600
11,70	12	118	71	56	45	11700
11,80	12	118	71	56	45	11800
11,90	12	118	71	56	45	11900
12,00	12	118	71	56	45	12000
12,20	14	124	77	60	45	12200
12,50	14	124	77	60	45	12500
12,80	14	124	77	60	45	12800
13,00	14	124	77	60	45	13000
13,50	14	124	77	60	45	13500
13,80	14	124	77	60	45	13800
14,00	14	124	77	60	45	14000
14,50	16	133	83	63	48	14500
14,80	16	133	83	63	48	14800
15,00	16	133	83	63	48	15000
15,50	16	133	83	63	48	15500
15,80	16	133	83	63	48	15800
16,00	16	133	83	63	48	16000
16,50	18	143	93	71	48	16500
16,80	18	143	93	71	48	16800
17,00	18	143	93	71	48	17000
17,50	18	143	93	71	48	17500
17,80	18	143	93	71	48	17800
18,00	18	143	93	71	48	18000
18,50	20	153	101	77	50	18500
18,80	20	153	101	77	50	18800
19,00	20	153	101	77	50	19000
19,50	20	153	101	77	50	19500
19,80	20	153	101	77	50	19800
20,00	20	153	101	77	50	20000

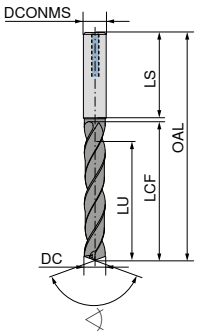
	10 789 ...
P	●
M	●
K	●
N	○
S	
H	
O	

→ v_c Page 110

WTX – High Speed Drill, DIN 6537

- ▲ Four fluted high-feed drill
- ▲ Specialises in steel processing
- ▲ Has four spiral coolant holes
- ▲ Innovative cutting edge geometry guarantees high positioning accuracy
- ▲ Outstanding drilling quality in terms of tolerance, surface finish and position





NEW

HFDS

DPX14S

DRAGONSKIN



130°

Solid carbide

10 798 ...

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
6,0	8	89	51	40	36	06000
6,1	10	102	59	47	40	06100
6,2	10	102	59	47	40	06200
6,3	10	102	59	47	40	06300
6,4	10	102	59	47	40	06400
6,5	10	102	59	47	40	06500
6,6	10	102	59	47	40	06600
6,7	10	102	59	47	40	06700
6,8	10	102	59	47	40	06800
6,9	10	102	59	47	40	06900
7,0	10	102	59	47	40	07000
7,1	10	102	59	47	40	07100
7,2	10	102	59	47	40	07200
7,3	10	102	59	47	40	07300
7,4	10	102	59	47	40	07400
7,5	10	102	59	47	40	07500
7,6	10	102	59	47	40	07600
7,7	10	102	59	47	40	07700
7,8	10	102	59	47	40	07800
7,9	10	102	59	47	40	07900
8,0	10	102	59	47	40	08000
8,1	12	118	70	55	45	08100
8,2	12	118	70	55	45	08200
8,3	12	118	70	55	45	08300
8,4	12	118	70	55	45	08400
8,5	12	118	70	55	45	08500
8,6	12	118	70	55	45	08600
8,7	12	118	70	55	45	08700
8,8	12	118	70	55	45	08800
8,9	12	118	70	55	45	08900
9,0	12	118	70	55	45	09000
9,1	12	118	70	55	45	09100
9,2	12	118	70	55	45	09200
9,3	12	118	70	55	45	09300
9,4	12	118	70	55	45	09400
9,5	12	118	70	55	45	09500
9,6	12	118	70	55	45	09600
9,7	12	118	70	55	45	09700
9,8	12	118	70	55	45	09800
9,9	12	118	70	55	45	09900
10,0	12	118	70	55	45	10000
10,2	14	124	76	60	45	10200
10,5	14	124	76	60	45	10500
11,0	14	124	76	60	45	11000
11,5	14	124	76	60	45	11500
12,0	14	124	76	60	45	12000

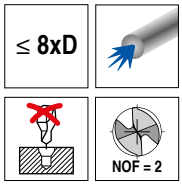
10 798 ...

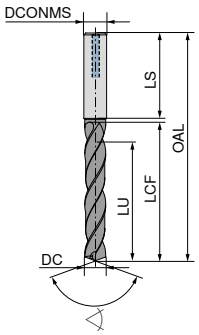
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
12,5	16	142	91	73	48	12500
13,0	16	142	91	73	48	13000
14,0	16	142	91	73	48	14000
14,3	16	142	91	73	48	14300
14,5	16	142	91	73	48	14500
15,0	18	142	91	73	48	15000
16,0	18	142	91	73	48	16000

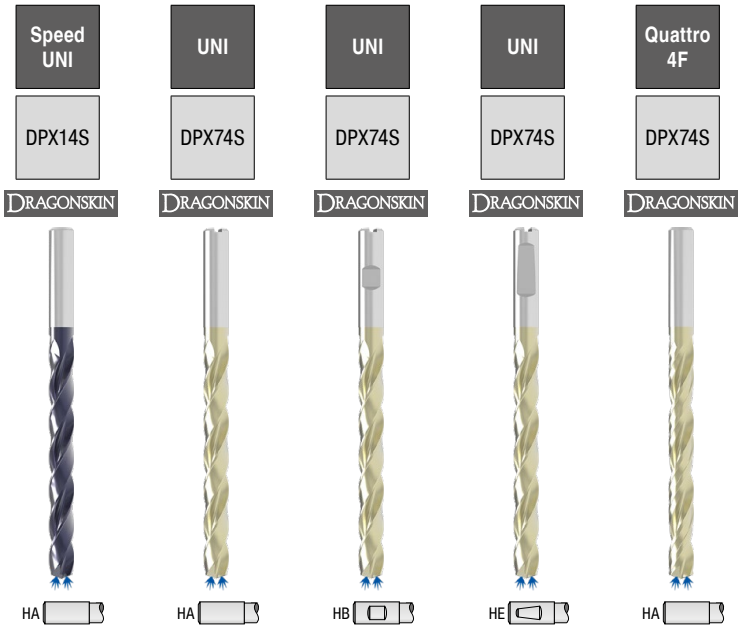
P	●
M	○
K	●
N	○
S	○
H	○
O	○

→ v_c Page 135

WTX – High Performance Drill, factory standard







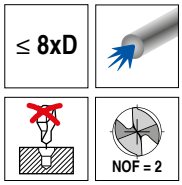
						145° Solid carbide	135° Solid carbide	135° Solid carbide	135° Solid carbide	140° Solid carbide
						10 782 ...	**11 789 ...**	**11 790 ...**	**11 788 ...**	**10 736 ...**
DC $_{m7/h7}$ **mm**	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm					
3,00	6	72	34	29	36	**03000**	**030**	**030**	**030**	**03000**
3,10	6	72	34	29	36	**03100**	**031**	**031**	**031**	**03100**
3,20	6	72	34	29	36	**03200**	**032**	**032**	**032**	**03200**
3,30	6	72	34	29	36	**03300**	**033**	**033**	**033**	**03300**
3,40	6	72	34	29	36	**03400**	**034**	**034**	**034**	**03400**
3,50	6	72	34	29	36	**03500**	**035**	**035**	**035**	**03500**
3,60	6	72	34	29	36	**03600**	**036**	**036**	**036**	**03600**
3,70	6	72	34	29	36	**03700**	**037**	**037**	**037**	**03700**
3,80	6	81	43	36	36	**03800**	**038**	**038**	**038**	**03800**
3,90	6	81	43	36	36	**03900**	**039**	**039**	**039**	**03900**
4,00	6	81	43	36	36	**04000**	**040**	**040**	**040**	**04000**
4,10	6	81	43	36	36	**04100**	**041**	**041**	**041**	**04100**
4,20	6	81	43	36	36	**04200**	**042**	**042**	**042**	**04200**
4,30	6	81	43	36	36	**04300**	**043**	**043**	**043**	**04300**
4,40	6	81	43	36	36	**04400**	**044**	**044**	**044**	**04400**
4,50	6	81	43	36	36	**04500**	**045**	**045**	**045**	**04500**
4,60	6	81	43	36	36	**04600**	**046**	**046**	**046**	**04600**
4,65	6	81	43	36	36	**04650**				
4,70	6	81	43	36	36	**04700**	**047**	**047**	**047**	**04700**
4,80	6	95	57	48	36	**04800**	**048**	**048**	**048**	**04800**
4,90	6	95	57	48	36	**04900**	**049**	**049**	**049**	**04900**
5,00	6	95	57	48	36	**05000**	**050**	**050**	**050**	**05000**
5,10	6	95	57	48	36	**05100**	**051**	**051**	**051**	**05100**
5,20	6	95	57	48	36	**05200**	**052**	**052**	**052**	**05200**
5,30	6	95	57	48	36	**05300**	**053**	**053**	**053**	**05300**
5,40	6	95	57	48	36	**05400**	**054**	**054**	**054**	**05400**
5,50	6	95	57	48	36	**05500**	**055**	**055**	**055**	**05500**
5,55	6	95	57	48	36	**05550**				
5,60	6	95	57	48	36	**05600**	**056**	**056**	**056**	**05600**
5,70	6	95	57	48	36	**05700**	**057**	**057**	**057**	**05700**
5,80	6	95	57	48	36	**05800**	**058**	**058**	**058**	**05800**
5,90	6	95	57	48	36	**05900**	**059**	**059**	**059**	**05900**
6,00	6	95	57	48	36	**06000**	**060**	**060**	**060**	**06000**
6,10	8	114	76	64	36	**06100**	**061**	**061**	**061**	**06100**
6,20	8	114	76	64	36	**06200**	**062**	**062**	**062**	**06200**
P						●	●	●	●	●
M						●				
K						●	●	●	●	●
N										
S										
H							○	○	○	○
O										

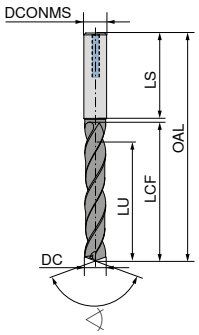
→ v_c Page 109–118

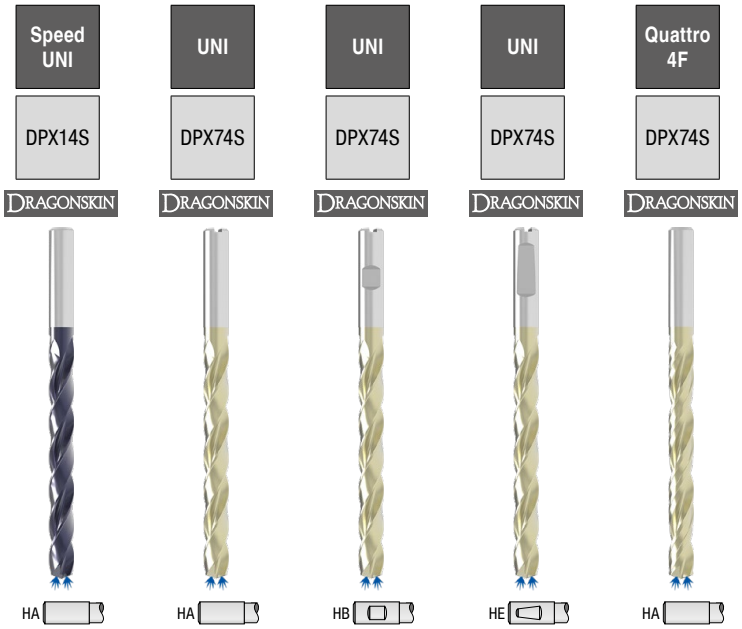
Ø DC_{m7} for Type UNI and Quattro 4F/ **Ø DC_{h7}** for Type Speed UNI

Continued on next page

WTX – High Performance Drill, factory standard







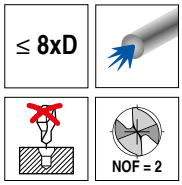
						145° Solid carbide	135° Solid carbide	135° Solid carbide	135° Solid carbide	140° Solid carbide
						10 782 ...	11 789 ...	11 790 ...	11 788 ...	10 736 ...
DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm					
6,30	8	114	76	64	36	06300	063	063	063	06300
6,40	8	114	76	64	36	06400	064	064	064	06400
6,50	8	114	76	64	36	06500	065	065	065	06500
6,60	8	114	76	64	36	06600	066	066	066	06600
6,70	8	114	76	64	36	06700	067	067	067	06700
6,80	8	114	76	64	36	06800	068	068	068	06800
6,90	8	114	76	64	36	06900	069	069	069	06900
7,00	8	114	76	64	36	07000	070	070	070	07000
7,10	8	114	76	64	36	07100	071	071	071	07100
7,20	8	114	76	64	36	07200	072	072	072	07200
7,30	8	114	76	64	36	07300	073	073	073	07300
7,40	8	114	76	64	36	07400	074	074	074	07400
7,50	8	114	76	64	36	07500	075	075	075	07500
7,60	8	114	76	64	36	07600	076	076	076	07600
7,70	8	114	76	64	36	07700	077	077	077	07700
7,80	8	114	76	64	36	07800	078	078	078	07800
7,90	8	114	76	64	36	07900	079	079	079	07900
8,00	8	114	76	64	36	08000	080	080	080	08000
8,10	10	142	95	80	40	08100	081	081	081	08100
8,20	10	142	95	80	40	08200	082	082	082	08200
8,30	10	142	95	80	40	08300	083	083	083	08300
8,40	10	142	95	80	40	08400	084	084	084	08400
8,50	10	142	95	80	40	08500	085	085	085	08500
8,60	10	142	95	80	40	08600	086	086	086	08600
8,70	10	142	95	80	40	08700	087	087	087	08700
8,80	10	142	95	80	40	08800	088	088	088	08800
8,90	10	142	95	80	40	08900	089	089	089	08900
9,00	10	142	95	80	40	09000	090	090	090	09000
9,10	10	142	95	80	40	09100	091	091	091	09100
9,20	10	142	95	80	40	09200	092	092	092	09200
9,30	10	142	95	80	40	09300	093	093	093	09300
9,40	10	142	95	80	40	09400	094	094	094	09400
9,50	10	142	95	80	40	09500	095	095	095	09500
9,60	10	142	95	80	40	09600	096	096	096	09600
9,70	10	142	95	80	40	09700	097	097	097	09700
P						●	●	●	●	●
M						●				
K						●	●	●	●	●
N										
S										
H							○	○	○	○
O										

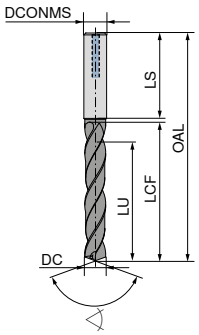
→ v_c Page 109–118

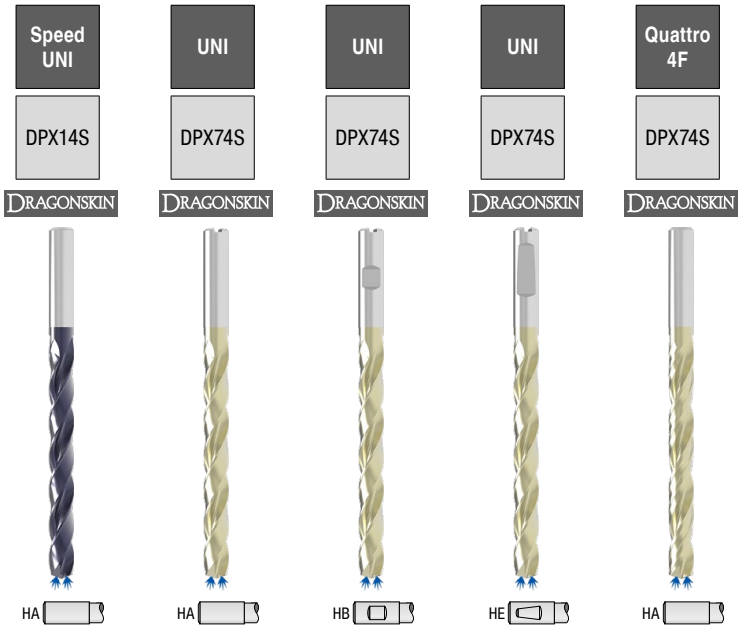
Ø DC_{m7} for Type UNI and Quattro 4F/ **Ø DC_{h7}** for Type Speed UNI

Continued on next page

WTX – High Performance Drill, factory standard







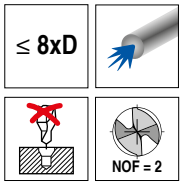
						145° Solid carbide	135° Solid carbide	135° Solid carbide	135° Solid carbide	140° Solid carbide
						10 782 ...	11 789 ...	11 790 ...	11 788 ...	10 736 ...
DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm					
9,80	10	142	95	80	40	09800	098	098	098	09800
9,90	10	142	95	80	40	09900	099	099	099	09900
10,00	10	142	95	80	40	10000	100	100	100	10000
10,10	12	162	114	96	45	10100	101	101	101	10100
10,20	12	162	114	96	45	10200	102	102	102	10200
10,30	12	162	114	96	45	10300	103	103	103	10300
10,40	12	162	114	96	45	10400	104	104	104	10400
10,50	12	162	114	96	45	10500	105	105	105	10500
10,60	12	162	114	96	45	10600	106	106	106	10600
10,70	12	162	114	96	45	10700	107	107	107	10700
10,80	12	162	114	96	45	10800	108	108	108	10800
10,90	12	162	114	96	45	10900	109	109	109	10900
11,00	12	162	114	96	45	11000	110	110	110	11000
11,10	12	162	114	96	45	11100	111	111	111	11100
11,20	12	162	114	96	45	11200	112	112	112	11200
11,30	12	162	114	96	45	11300	113	113	113	11300
11,40	12	162	114	96	45	11400	114	114	114	11400
11,50	12	162	114	96	45	11500	115	115	115	11500
11,60	12	162	114	96	45	11600	116	116	116	11600
11,70	12	162	114	96	45	11700	117	117	117	11700
11,80	12	162	114	96	45	11800	118	118	118	11800
11,90	12	162	114	96	45	11900	119	119	119	11900
12,00	12	162	114	96	45	12000	120	120	120	12000
12,50	14	178	131	112	45	12500	125			12500
12,50	14	178	131	112	43			125	125	
12,80	14	178	131	112	43			128	128	
12,80	14	178	131	112	45	12800	128			12800
13,00	14	178	131	112	45	13000	130			13000
13,00	14	178	131	112	43			130	130	
13,50	14	178	131	112	45	13500	135			13500
13,50	14	178	131	112	43			135	135	
13,80	14	178	131	112	45	13800	138			13800
13,80	14	178	131	112	43			138	138	
14,00	14	178	131	112	45	14000	140			14000
14,00	14	178	131	112	43			140	140	
P						●	●	●	●	●
M						●				
K						●	●	●	●	●
N										
S										
H							○	○	○	○
O										

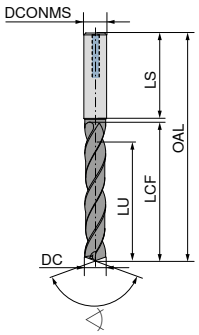
→ v_c Page 109–118

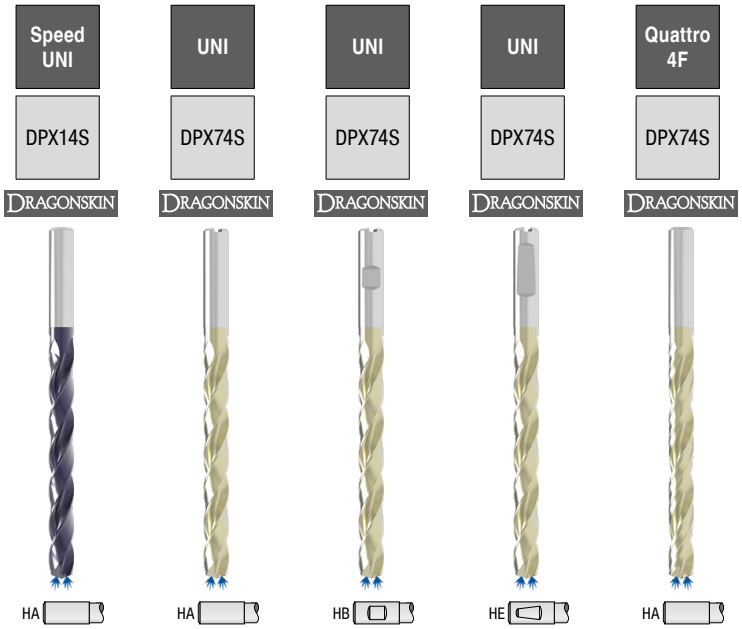
Ø DC_{m7} for Type UNI and Quattro 4F/ **Ø DC_{h7}** for Type Speed UNI

Continued on next page

WTX – High Performance Drill, factory standard







						145°		135°		135°		135°		140°	
						Solid carbide		Solid carbide		Solid carbide		Solid carbide		Solid carbide	
						10 782 ...		**11 789 ...**		**11 790 ...**		**11 788 ...**		**10 736 ...**	
DC $_{m7/h7}$ **mm**	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm										
14,50	16	203	152	128	48	**14500**		**145**		**145**		**145**		**14500**	
14,80	16	203	152	128	48	**14800**		**148**		**148**		**148**		**14800**	
15,00	16	203	152	128	48	**15000**		**150**		**150**		**150**		**15000**	
15,50	16	203	152	128	48	**15500**		**155**		**155**		**155**		**15500**	
15,80	16	203	152	128	48	**15800**		**158**		**158**		**158**		**15800**	
16,00	16	203	152	128	48	**16000**		**160**		**160**		**160**		**16000**	
16,50	18	222	171	144	48	**16500**		**165**		**165**		**165**		**16500**	
16,80	18	222	171	144	48	**16800**		**168**		**168**		**168**		**16800**	
17,00	18	222	171	144	48	**17000**		**170**		**170**		**170**		**17000**	
17,50	18	222	171	144	48	**17500**		**175**		**175**		**175**		**17500**	
17,80	18	222	171	144	48	**17800**		**178**		**178**		**178**		**17800**	
18,00	18	222	171	144	48	**18000**		**180**		**180**		**180**		**18000**	
18,50	20	243	190	160	50	**18500**		**185**		**185**		**185**		**18500**	
18,80	20	243	190	160	50	**18800**		**188**		**188**		**188**		**18800**	
19,00	20	243	190	160	50	**19000**		**190**		**190**		**190**		**19000**	
19,50	20	243	190	160	50	**19500**		**195**		**195**		**195**		**19500**	
19,80	20	243	190	160	50	**19800**		**198**		**198**		**198**		**19800**	
20,00	20	243	190	160	50	**20000**		**200**		**200**		**200**		**20000**	
P						●		●		●		●		●	
M						●									
K						●		●		●		●		●	
N															
S															
H								○		○		○		○	
O															

→ v_c Page 109–118

Ø DC_{m7} for Type UNI and Quattro 4F/ **Ø DC_{h7}** for Type Speed UNI

WPC – High Performance Drill, factory standard

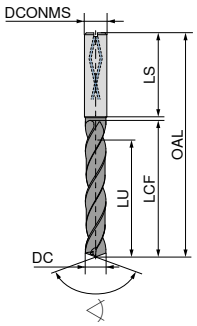
≤ 8xD





UNI

TiAlN





135°

Solid carbide

11 612 ...

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
3,0	6	72	34	29	36	030
3,1	6	72	34	29	36	031
3,2	6	72	34	29	36	032
3,3	6	72	34	29	36	033
3,4	6	72	34	29	36	034
3,5	6	72	34	29	36	035
3,6	6	72	34	29	36	036
3,7	6	72	34	29	36	037
3,8	6	81	43	36	36	038
3,9	6	81	43	36	36	039
4,0	6	81	43	36	36	040
4,1	6	81	43	36	36	041
4,2	6	81	43	36	36	042
4,3	6	81	43	36	36	043
4,4	6	81	43	36	36	044
4,5	6	81	43	36	36	045
4,6	6	81	43	36	36	046
4,7	6	81	43	36	36	047
4,8	6	95	57	48	36	048
4,9	6	95	57	48	36	049
5,0	6	95	57	48	36	050
5,1	6	95	57	48	36	051
5,2	6	95	57	48	36	052
5,3	6	95	57	48	36	053
5,5	6	95	57	48	36	055
5,8	6	95	57	48	36	058
5,9	6	95	57	48	36	059
6,0	6	95	57	48	36	060
6,1	8	114	76	64	36	061
6,2	8	114	76	64	36	062
6,3	8	114	76	64	36	063
6,5	8	114	76	64	36	065
6,6	8	114	76	64	36	066
6,8	8	114	76	64	36	068
7,0	8	114	76	64	36	070
7,4	8	114	76	64	36	074
7,5	8	114	76	64	36	075
7,7	8	114	76	64	36	077
7,8	8	114	76	64	36	078
7,9	8	114	76	64	36	079
8,0	8	114	76	64	36	080
8,1	10	142	95	80	40	081
8,2	10	142	95	80	40	082
8,3	10	142	95	80	40	083
8,5	10	142	95	80	40	085
8,6	10	142	95	80	40	086
8,7	10	142	95	80	40	087
8,8	10	142	95	80	40	088
9,0	10	142	95	80	40	090
9,1	10	142	95	80	40	091
9,2	10	142	95	80	40	092
9,3	10	142	95	80	40	093
9,4	10	142	95	80	40	094

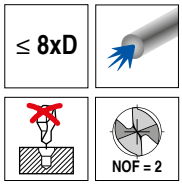
11 612 ...

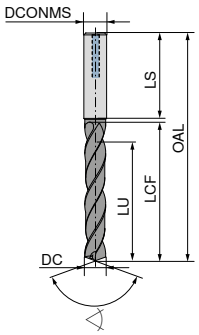
DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
9,5	10	142	95	80	40	095
9,7	10	142	95	80	40	097
9,8	10	142	95	80	40	098
9,9	10	142	95	80	40	099
10,0	10	142	95	80	40	100
10,2	12	162	114	96	45	102
10,5	12	162	114	96	45	105
10,8	12	162	114	96	45	108
11,0	12	162	114	96	45	110
11,2	12	162	114	96	45	112
11,5	12	162	114	96	45	115
11,8	12	162	114	96	45	118
12,0	12	162	114	96	45	120
12,5	14	178	131	112	45	125
13,0	14	178	131	112	45	130
13,5	14	178	131	112	45	135
14,0	14	178	131	112	45	140
14,5	16	203	152	128	48	145
15,0	16	203	152	128	48	150
15,5	16	203	152	128	48	155
16,0	16	203	152	128	48	160
16,5	18	222	171	144	48	165
17,0	18	222	171	144	48	170
17,5	18	222	171	144	48	175
18,0	18	222	171	144	48	180
18,5	20	243	190	160	50	185
19,0	20	243	190	160	50	190
20,0	20	243	190	160	50	200

P	●
M	
K	●
N	
S	
H	
O	

→ v_c Page 132

WTX – High Performance Drill, factory standard





Type GG = Straight Fluted



140° Solid carbide | 130° Solid carbide | 135° Solid carbide

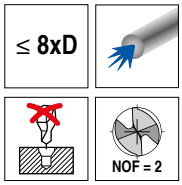
DC $_{h7/m7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	10 770 ...	10 753 ...	10 792 ...
3,0	6	72	34	29	36	030	030	03000
3,1	6	72	34	29	36	031	031	03100
3,2	6	72	34	29	36	032	032	03200
3,3	6	72	34	29	36	033	033	03300
3,4	6	72	34	29	36	034	034	03400
3,5	6	72	34	29	36	035	035	03500
3,6	6	72	34	29	36	036	036	03600
3,7	6	72	34	29	36	037	037	03700
3,8	6	81	43	36	36	038	038	03800
3,9	6	81	43	36	36	039	039	03900
4,0	6	81	43	36	36	040	040	04000
4,1	6	81	43	36	36	041	041	04100
4,2	6	81	43	36	36	042	042	04200
4,3	6	81	43	36	36	043	043	04300
4,4	6	81	43	36	36	044	044	04400
4,5	6	81	43	36	36	045	045	04500
4,6	6	81	43	36	36	046	046	04600
4,7	6	81	43	36	36	047	047	04700
4,8	6	95	57	48	36	048	048	04800
4,9	6	95	57	48	36	049	049	04900
5,0	6	95	57	48	36	050	050	05000
5,1	6	95	57	48	36	051	051	05100
5,2	6	95	57	48	36	052	052	05200
5,3	6	95	57	48	36	053	053	05300
5,4	6	95	57	48	36	054	054	05400
5,5	6	95	57	48	36	055	055	05500
5,6	6	95	57	48	36	056	056	05600
5,7	6	95	57	48	36	057	057	05700
5,8	6	95	57	48	36	058	058	05800
5,9	6	95	57	48	36	059	059	05900
6,0	6	95	57	48	36	060	060	06000
6,1	8	114	76	64	36	061	061	06100
6,2	8	114	76	64	36	062	062	06200
6,3	8	114	76	64	36	063	063	06300
6,4	8	114	76	64	36	064	064	06400
6,5	8	114	76	64	36	065	065	06500
6,6	8	114	76	64	36	066	066	06600
6,7	8	114	76	64	36	067	067	06700
6,8	8	114	76	64	36	068	068	06800
6,9	8	114	76	64	36	069	069	06900
7,0	8	114	76	64	36	070	070	07000
7,1	8	114	76	64	36	071	071	07100
7,2	8	114	76	64	36	072	072	07200
7,3	8	114	76	64	36	073	073	07300
7,4	8	114	76	64	36	074	074	07400
P						○		
M						●		
K						○	●	
N						○	○	●
S						●		
H								
O								

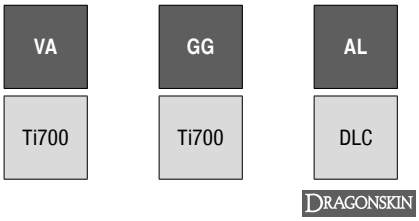
→ v_c Page 115–121

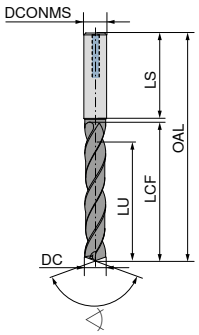
Ø DC$_{m7}$ for Type VA and GG / **Ø DC$_{h7}$** for Type AL

Continued on next page

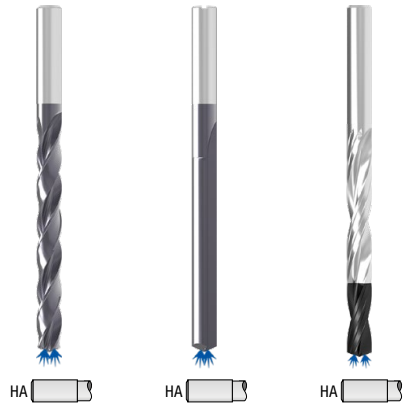
WTX – High Performance Drill, factory standard







Type GG = Straight Fluted



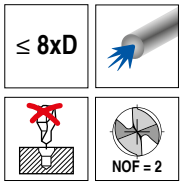
							140° Solid carbide		130° Solid carbide		135° Solid carbide	
							10 770 ...		10 753 ...		10 792 ...	
DC $_{h7/m7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm							
7,5	8	114	76	64	36		075		075		07500	
7,6	8	114	76	64	36		076		076		07600	
7,7	8	114	76	64	36		077		077		07700	
7,8	8	114	76	64	36		078		078		07800	
7,9	8	114	76	64	36		079		079		07900	
8,0	8	114	76	64	36		080		080		08000	
8,1	10	142	95	80	40		081		081		08100	
8,2	10	142	95	80	40		082		082		08200	
8,3	10	142	95	80	40		083		083		08300	
8,4	10	142	95	80	40		084		084		08400	
8,5	10	142	95	80	40		085		085		08500	
8,6	10	142	95	80	40		086		086		08600	
8,7	10	142	95	80	40		087		087		08700	
8,8	10	142	95	80	40		088		088		08800	
8,9	10	142	95	80	40		089		089		08900	
9,0	10	142	95	80	40		090		090		09000	
9,1	10	142	95	80	40		091		091		09100	
9,2	10	142	95	80	40		092		092		09200	
9,3	10	142	95	80	40		093		093		09300	
9,4	10	142	95	80	40		094		094		09400	
9,5	10	142	95	80	40		095		095		09500	
9,6	10	142	95	80	40		096		096		09600	
9,7	10	142	95	80	40		097		097		09700	
9,8	10	142	95	80	40		098		098		09800	
9,9	10	142	95	80	40		099		099		09900	
10,0	10	142	95	80	40		100		100		10000	
10,1	12	162	114	96	45		101		101			
10,2	12	162	114	96	45		102		102		10200	
10,3	12	162	114	96	45		103		103		10300	
10,4	12	162	114	96	45		104		104		10400	
10,5	12	162	114	96	45		105		105		10500	
10,6	12	162	114	96	45		106		106			
10,7	12	162	114	96	45		107		107		10700	
10,8	12	162	114	96	45		108		108		10800	
10,9	12	162	114	96	45		109		109			
11,0	12	162	114	96	45		110		110		11000	
11,1	12	162	114	96	45		111		111			
11,2	12	162	114	96	45		112		112		11200	
11,3	12	162	114	96	45		113		113			
11,4	12	162	114	96	45		114		114			
11,5	12	162	114	96	45		115		115		11500	
11,6	12	162	114	96	45		116		116		11600	
11,7	12	162	114	96	45		117		117			
11,8	12	162	114	96	45		118		118		11800	
11,9	12	162	114	96	45		119		119			
P							○					
M							●					
K							○		●			
N							○		○		●	
S							●					
H												
O												

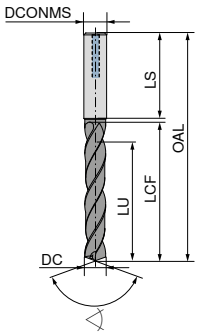
→ v_c Page 115–121

Ø DC$_{m7}$ for Type VA and GG / **Ø DC$_{h7}$** for Type AL

Continued on next page

WTX – High Performance Drill, factory standard





Type GG = Straight Fluted



140° Solid carbide
130° Solid carbide
135° Solid carbide

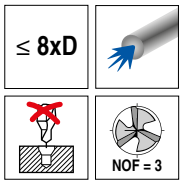
DC h7/m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 770 ...		10 753 ...		10 792 ...	
12,0	12	162	114	96	45	120		120		12000	
12,2	14	178	131	112	45					12200	
12,5	14	178	133	112	45	125		125			
12,5	14	178	131	112	45					12500	
12,8	14	178	131	112	45					12800	
12,8	14	178	133	112	45	128		128			
13,0	14	178	131	112	45					13000	
13,0	14	178	133	112	45	130		130			
13,2	14	178	131	112	45					13200	
13,5	14	178	131	112	45					13500	
13,5	14	178	133	112	45	135		135			
13,8	14	178	131	112	45					13800	
13,8	14	178	133	112	45	138		138			
14,0	14	178	133	112	45	140		140			
14,0	14	178	131	112	45					14000	
14,2	16	203	152	128	48					14200	
14,5	16	203	152	128	48	145		145		14500	
14,8	16	203	152	128	48	148		148		14800	
15,0	16	203	152	128	48	150		150		15000	
15,2	16	203	152	128	48					15200	
15,5	16	203	152	128	48	155		155		15500	
15,8	16	203	152	128	48	158		158		15800	
16,0	16	203	152	128	48	160		160		16000	
16,2	18	222	171	144	48					16200	
16,5	18	222	171	144	48	165		165		16500	
16,8	18	222	171	144	48	168		168		16800	
17,0	18	222	171	144	48	170		170		17000	
17,2	18	222	171	144	48					17200	
17,5	18	222	171	144	48	175		175		17500	
17,8	18	222	171	144	48	178		178		17800	
18,0	18	222	171	144	48	180		180		18000	
18,2	20	243	190	160	50					18200	
18,5	20	243	190	160	50	185		185		18500	
18,8	20	243	190	160	50	188		188		18800	
19,0	20	243	190	160	50	190		190		19000	
19,1	20	243	190	160	50					19100	
19,2	20	243	190	160	50					19200	
19,5	20	243	190	160	50	195		195		19500	
19,8	20	243	190	160	50	198		198		19800	
20,0	20	243	190	160	50	200		200		20000	
P						○					
M						●					
K						○		●			
N						○		○		●	
S						●					
H											
O											

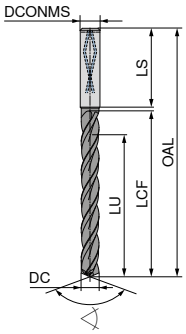
→ v_c Page 115–121

Ø DC_{m7} for Type VA and GG / **Ø DC_{h7}** for Type AL

WTX – High Feed Drill, factory standard

- Three fluted high-feed drill
- Universal application
- High positioning accuracy
- Suitable for difficult drilling applications







Solid carbide

10 794 ...

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
4,00	6	81	43	36	36	04000
4,10	6	81	43	36	36	04100
4,20	6	81	43	36	36	04200
4,30	6	81	43	36	36	04300
4,40	6	81	43	36	36	04400
4,50	6	81	43	36	36	04500
4,60	6	81	43	36	36	04600
4,70	6	81	43	36	36	04700
4,80	6	95	57	48	36	04800
4,90	6	95	57	48	36	04900
5,00	6	95	57	48	36	05000
5,10	6	95	57	48	36	05100
5,20	6	95	57	48	36	05200
5,30	6	95	57	48	36	05300
5,40	6	95	57	48	36	05400
5,50	6	95	57	48	36	05500
5,55	6	95	57	48	36	05550
5,60	6	95	57	48	36	05600
5,70	6	95	57	48	36	05700
5,80	6	95	57	48	36	05800
5,90	6	95	57	48	36	05900
6,00	6	95	57	48	36	06000
6,10	8	114	76	64	36	06100
6,20	8	114	76	64	36	06200
6,30	8	114	76	64	36	06300
6,40	8	114	76	64	36	06400
6,50	8	114	76	64	36	06500
6,60	8	114	76	64	36	06600
6,70	8	114	76	64	36	06700
6,80	8	114	76	64	36	06800
6,90	8	114	76	64	36	06900
7,00	8	114	76	64	36	07000
7,10	8	114	76	64	36	07100
7,20	8	114	76	64	36	07200
7,30	8	114	76	64	36	07300
7,40	8	114	76	64	36	07400
7,50	8	114	76	64	36	07500
7,60	8	114	76	64	36	07600
7,70	8	114	76	64	36	07700
7,80	8	114	76	64	36	07800
7,90	8	114	76	64	36	07900
8,00	8	114	76	64	36	08000
8,10	10	142	95	80	40	08100
8,20	10	142	95	80	40	08200
8,30	10	142	95	80	40	08300
8,40	10	142	95	80	40	08400
8,50	10	142	95	80	40	08500
8,60	10	142	95	80	40	08600
8,70	10	142	95	80	40	08700
8,80	10	142	95	80	40	08800
8,90	10	142	95	80	40	08900
9,00	10	142	95	80	40	09000
9,10	10	142	95	80	40	09100
9,20	10	142	95	80	40	09200

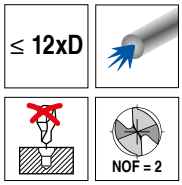
10 794 ...

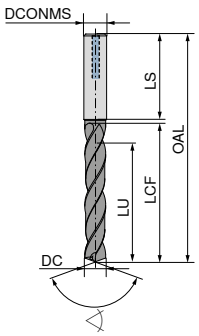
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
9,30	10	142	95	80	40	09300
9,40	10	142	95	80	40	09400
9,50	10	142	95	80	40	09500
9,60	10	142	95	80	40	09600
9,70	10	142	95	80	40	09700
9,80	10	142	95	80	40	09800
9,90	10	142	95	80	40	09900
10,00	10	142	95	80	40	10000
10,10	12	162	114	96	45	10100
10,20	12	162	114	96	45	10200
10,30	12	162	114	96	45	10300
10,40	12	162	114	96	45	10400
10,50	12	162	114	96	45	10500
10,60	12	162	114	96	45	10600
10,70	12	162	114	96	45	10700
10,80	12	162	114	96	45	10800
10,90	12	162	114	96	45	10900
11,00	12	162	114	96	45	11000
11,10	12	162	114	96	45	11100
11,20	12	162	114	96	45	11200
11,30	12	162	114	96	45	11300
11,40	12	162	114	96	45	11400
11,50	12	162	114	96	45	11500
11,60	12	162	114	96	45	11600
11,70	12	162	114	96	45	11700
11,80	12	162	114	96	45	11800
11,90	12	162	114	96	45	11900
12,00	12	162	114	96	45	12000
12,20	14	178	131	112	45	12200
12,50	14	178	131	112	45	12500
12,80	14	178	131	112	45	12800
13,00	14	178	131	112	45	13000
13,50	14	178	131	112	45	13500
13,80	14	178	131	112	45	13800
14,00	14	178	131	112	45	14000
14,50	16	203	152	128	48	14500
14,80	16	203	152	128	48	14800
15,00	16	203	152	128	48	15000
15,50	16	203	152	128	48	15500
15,80	16	203	152	128	48	15800
16,00	16	203	152	128	48	16000
16,50	18	222	171	144	48	16500
16,80	18	222	171	144	48	16800
17,00	18	222	171	144	48	17000
17,50	18	222	171	144	48	17500
17,80	18	222	171	144	48	17800
18,00	18	222	171	144	48	18000
18,50	20	243	190	160	50	18500
18,80	20	243	190	160	50	18800
19,00	20	243	190	160	50	19000
19,50	20	243	190	160	50	19500
19,80	20	243	190	160	50	19800
20,00	20	243	190	160	50	20000

P	●
M	●
K	●
N	○
S	
H	
O	

→ v_c Page 111

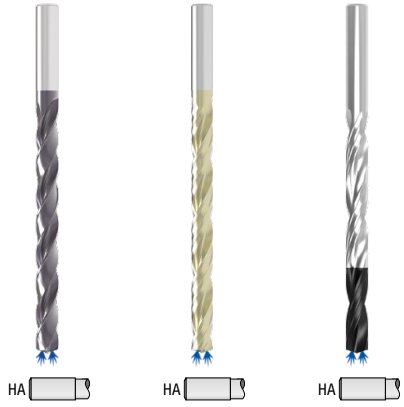
WTX – High Performance Drill, factory standard





NEW

Speed VA	Quattro 4F	AL
Ti800	DPX74S	DLC
	DRAGONSKIN	DRAGONSKIN



135°	140°	135°
Solid carbide	Solid carbide	Solid carbide
10 774 ...	**10 737 ...**	**10 793 ...**

DC $_{h7/m7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm			
3,0	6	92	54	48	36	03000	03000	03000
3,1	6	92	54	48	36	03100	03100	03100
3,2	6	92	54	48	36	03200	03200	03200
3,3	6	92	54	48	36	03300	03300	03300
3,4	6	92	54	48	36	03400	03400	03400
3,5	6	92	54	48	36	03500	03500	03500
3,6	6	92	54	48	36	03600	03600	03600
3,7	6	92	54	48	36	03700	03700	03700
3,8	6	102	64	58	36	03800	03800	03800
3,9	6	102	64	58	36	03900	03900	03900
4,0	6	102	64	58	36	04000	04000	04000
4,1	6	102	64	58	36	04100	04100	04100
4,2	6	102	64	58	36	04200	04200	04200
4,3	6	102	64	58	36	04300	04300	04300
4,4	6	102	64	58	36	04400	04400	04400
4,5	6	102	64	58	36	04500	04500	04500
4,6	6	102	64	58	36	04600	04600	04600
4,7	6	102	64	58	36	04700	04700	04700
4,8	6	116	78	70	36	04800	04800	04800
4,9	6	116	78	70	36	04900	04900	04900
5,0	6	116	78	70	36	05000	05000	05000
5,1	6	116	78	70	36	05100	05100	05100
5,2	6	116	78	70	36	05200	05200	05200
5,3	6	116	78	70	36	05300	05300	05300
5,4	6	116	78	70	36	05400	05400	05400
5,5	6	116	78	70	36	05500	05500	05500
5,6	6	116	78	70	36	05600	05600	05600
5,7	6	116	78	70	36	05700	05700	05700
5,8	6	116	78	70	36	05800	05800	05800
5,9	6	116	78	70	36	05900	05900	05900
6,0	6	116	78	70	36	06000	06000	06000
6,1	8	146	108	94	36	06100	06100	06100
6,2	8	146	108	94	36	06200	06200	06200
6,3	8	146	108	94	36	06300	06300	06300
6,4	8	146	108	94	36	06400	06400	06400
6,5	8	146	108	94	36	06500	06500	06500
6,6	8	146	108	94	36	06600	06600	06600
6,7	8	146	108	94	36	06700	06700	06700
6,8	8	146	108	94	36	06800	06800	06800

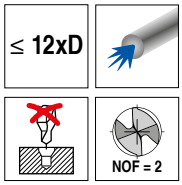
P	●	●	
M	●		
K	●	●	
N	○		●
S	●		
H		○	
O			

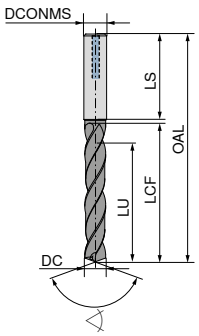
→ v_c Page 116–122

Ø DC_{m7} for Type Speed VA and Quattro 4F / Ø DC_{h7} for Type AL

Continued on next page

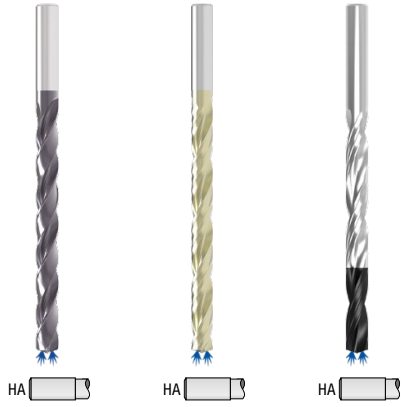
WTX – High Performance Drill, factory standard





NEW

Speed VA	Quattro 4F	AL
Ti800	DPX74S	DLC
	DRAGONSKIN	DRAGONSKIN



135°	140°	135°
Solid carbide	Solid carbide	Solid carbide
10 774 ...	**10 737 ...**	**10 793 ...**

DC $_{h7/m7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm			
6,9	8	146	108	94	36	06900	06900	06900
7,0	8	146	108	94	36	07000	07000	07000
7,1	8	146	108	94	36	07100	07100	07100
7,2	8	146	108	94	36	07200	07200	07200
7,3	8	146	108	94	36	07300	07300	07300
7,4	8	146	108	94	36	07400	07400	07400
7,5	8	146	108	94	36	07500	07500	07500
7,6	8	146	108	94	36	07600	07600	07600
7,7	8	146	108	94	36	07700	07700	07700
7,8	8	146	108	94	36	07800	07800	07800
7,9	8	146	108	94	36	07900	07900	07900
8,0	8	146	108	94	36	08000	08000	08000
8,1	10	162	120	110	40	08100	08100	08100
8,2	10	162	120	110	40	08200	08200	08200
8,3	10	162	120	110	40	08300	08300	08300
8,4	10	162	120	110	40	08400	08400	08400
8,5	10	162	120	110	40	08500	08500	08500
8,6	10	162	120	110	40	08600	08600	08600
8,7	10	162	120	110	40	08700	08700	08700
8,8	10	162	120	110	40	08800	08800	08800
8,9	10	162	120	110	40	08900	08900	08900
9,0	10	162	120	110	40	09000	09000	09000
9,1	10	162	120	110	40	09100	09100	09100
9,2	10	162	120	110	40	09200	09200	09200
9,3	10	162	120	110	40	09300	09300	09300
9,4	10	162	120	110	40	09400	09400	09400
9,5	10	162	120	110	40	09500	09500	09500
9,6	10	162	120	110	40	09600	09600	09600
9,7	10	162	120	110	40	09700	09700	09700
9,8	10	162	120	110	40	09800	09800	09800
9,9	10	162	120	110	40	09900	09900	09900
10,0	10	162	120	110	40	10000	10000	10000
10,1	12	204	156	142	45	10100	10100	
10,2	12	204	156	142	45	10200	10200	10200
10,3	12	204	156	142	45	10300	10300	
10,4	12	204	156	142	45	10400	10400	
10,5	12	204	156	142	45	10500	10500	10500
10,6	12	204	156	142	45	10600	10600	
10,7	12	204	156	142	45	10700	10700	10700

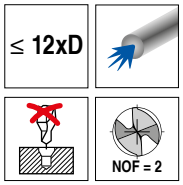
P	●	●	
M	●		
K	●	●	
N	○		●
S	●		
H		○	
O			

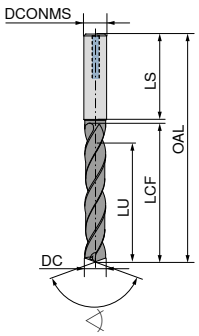
→ v_c Page 116–122

Ø DC_{m7} for Type Speed VA and Quattro 4F / **Ø DC_{h7}** for Type AL

Continued on next page

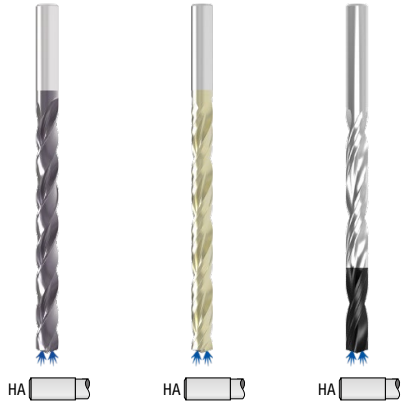
WTX – High Performance Drill, factory standard





NEW

Speed VA	Quattro 4F	AL
Ti800	DPX74S	DLC
	DRAGONSKIN	DRAGONSKIN



135°	140°	135°
Solid carbide	Solid carbide	Solid carbide
10 774 ...	**10 737 ...**	**10 793 ...**

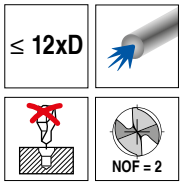
DC $_{h7/m7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm			
10,8	12	204	156	142	45	10800	10800	10800
10,9	12	204	156	142	45	10900	10900	
11,0	12	204	156	142	45	11000	11000	11000
11,1	12	204	156	142	45	11100	11100	
11,2	12	204	156	142	45	11200	11200	11200
11,3	12	204	156	142	45	11300	11300	11300
11,4	12	204	156	142	45	11400	11400	
11,5	12	204	156	142	45	11500	11500	11500
11,6	12	204	156	142	45	11600	11600	
11,7	12	204	156	142	45	11700	11700	
11,8	12	204	156	142	45	11800	11800	11800
11,9	12	204	156	142	45	11900	11900	
12,0	12	204	156	142	45	12000	12000	12000
12,1	14	230	182	166	45			12100
12,2	14	230	182	166	45	12200		12200
12,5	14	230	182	166	45	12500	12500	12500
12,8	14	230	182	166	45	12800	12800	12800
13,0	14	230	182	166	45	13000	13000	13000
13,2	14	230	182	166	45			13200
13,5	14	230	182	166	45	13500	13500	13500
13,8	14	230	182	166	45	13800	13800	13800
14,0	14	230	182	166	45	14000	14000	14000
14,2	16	260	208	192	48	14200		14200
14,5	16	260	208	192	48	14500	14500	14500
14,7	16	260	208	192	48			14700
14,8	16	260	208	192	48		14800	14800
15,0	16	260	208	192	48	15000	15000	15000
15,1	16	260	208	192	48	15100		
15,2	16	260	208	192	48	15200		15200
15,5	16	260	208	192	48	15500	15500	15500
15,7	16	260	208	192	48			15700
15,8	16	260	208	192	48	15800	15800	15800
16,0	16	260	208	192	48	16000	16000	16000
16,2	18	285	234	216	48			16200
16,5	18	285	234	216	48		16500	16500
16,8	18	285	234	216	48		16800	16800
17,0	18	285	234	216	48	17000	17000	17000
17,2	18	285	234	216	48			17200
17,5	18	285	234	216	48	17500	17500	17500
P						●	●	
M						●		
K						●	●	
N						○		●
S						●		
H							○	
O								

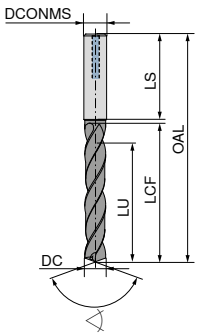
→ v_c Page 116–122

Ø DC_{m7} for Type Speed VA and Quattro 4F / **Ø DC_{h7}** for Type AL

Continued on next page

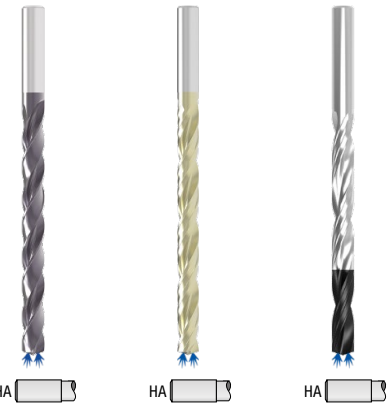
WTX – High Performance Drill, factory standard





NEW

Speed VA	Quattro 4F	AL
Ti800	DPX74S	DLC
	DRAGONSKIN	DRAGONSKIN



135° Solid carbide	140° Solid carbide	135° Solid carbide
10 774 ...	**10 737 ...**	**10 793 ...**

DC h7/m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm			
17,8	18	285	234	216	48		**17800**	**17800**
18,0	18	285	234	216	48		**18000**	**18000**
18,2	20	310	258	240	50			**18200**
18,5	20	310	258	240	50		**18500**	**18500**
18,7	20	310	258	240	50			**18700**
18,8	20	310	258	240	50		**18800**	**18800**
19,0	20	310	258	240	50		**19000**	**19000**
19,2	20	310	258	240	50			**19200**
19,5	20	310	258	240	50		**19500**	**19500**
19,8	20	310	258	240	50		**19800**	**19800**
20,0	20	310	258	240	50		**20000**	**20000**

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

→ v_c Page 116–122

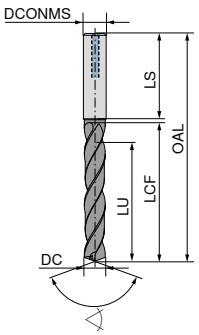
Ø DC_{m7} for Type Speed VA and Quattro 4F / **Ø DC_{h7}** for Type AL

WPC – High Performance Drill, factory standard

≤ 12xD

NOF = 2





UNI

TiAlN



HA

135°

Solid carbide

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 615 ...
14,0	14	230	182	166	45	140
15,0	16	260	208	192	48	150
16,0	16	260	208	192	48	160
18,0	18	285	234	216	48	180

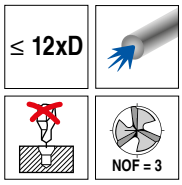
P	●
M	
K	●
N	
S	
H	
O	

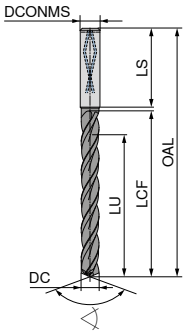
→ v_c Page 132

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 615 ...
3,0	6	92	54	48	36	030
3,1	6	92	54	48	36	031
3,2	6	92	54	48	36	032
3,3	6	92	54	48	36	033
3,4	6	92	54	48	36	034
3,5	6	92	54	48	36	035
3,6	6	92	54	48	36	036
3,7	6	92	54	48	36	037
3,8	6	102	64	58	36	038
3,9	6	102	64	58	36	039
4,0	6	102	64	58	36	040
4,1	6	102	64	58	36	041
4,2	6	102	64	58	36	042
4,3	6	102	64	58	36	043
4,4	6	102	64	58	36	044
4,5	6	102	64	58	36	045
4,6	6	102	64	58	36	046
4,7	6	102	64	58	36	047
4,8	6	116	78	70	36	048
4,9	6	116	78	70	36	049
5,0	6	116	78	70	36	050
5,5	6	116	78	70	36	055
5,8	6	116	78	70	36	058
6,0	6	116	78	70	36	060
6,3	8	146	108	94	36	063
6,5	8	146	108	94	36	065
6,6	8	146	108	94	36	066
6,8	8	146	108	94	36	068
7,0	8	146	108	94	36	070
7,5	8	146	108	94	36	075
7,8	8	146	108	94	36	078
8,0	8	146	108	94	36	080
8,2	10	162	120	110	40	082
8,5	10	162	120	110	40	085
9,0	10	162	120	110	40	090
9,5	10	162	120	110	40	095
9,8	10	162	120	110	40	098
10,0	10	162	120	110	40	100
10,5	12	204	156	142	45	105
11,0	12	204	156	142	45	110
11,5	12	204	156	142	45	115
12,0	12	204	156	142	45	120
13,0	14	230	182	166	45	130

WTX – High Feed Drill, factory standard

- Three fluted high-feed drill
- Universal application
- High positioning accuracy
- Suitable for difficult drilling applications







Solid carbide

10 796 ...

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
4,0	6	102	64	58	36	04000
4,1	6	102	64	58	36	04100
4,2	6	102	64	58	36	04200
4,3	6	102	64	58	36	04300
4,4	6	102	64	58	36	04400
4,5	6	102	64	58	36	04500
4,6	6	102	64	58	36	04600
4,7	6	102	64	58	36	04700
4,8	6	116	78	70	36	04800
4,9	6	116	78	70	36	04900
5,0	6	116	78	70	36	05000
5,1	6	116	78	70	36	05100
5,2	6	116	78	70	36	05200
5,3	6	116	78	70	36	05300
5,4	6	116	78	70	36	05400
5,5	6	116	78	70	36	05500
5,6	6	116	78	70	36	05600
5,7	6	116	78	70	36	05700
5,8	6	116	78	70	36	05800
5,9	6	116	78	70	36	05900
6,0	6	116	78	70	36	06000
6,1	8	146	108	94	36	06100
6,2	8	146	108	94	36	06200
6,3	8	146	108	94	36	06300
6,4	8	146	108	94	36	06400
6,5	8	146	108	94	36	06500
6,6	8	146	108	94	36	06600
6,7	8	146	108	94	36	06700
6,8	8	146	108	94	36	06800
6,9	8	146	108	94	36	06900
7,0	8	146	108	94	36	07000
7,1	8	146	108	94	36	07100
7,2	8	146	108	94	36	07200
7,3	8	146	108	94	36	07300
7,4	8	146	108	94	36	07400
7,5	8	146	108	94	36	07500
7,6	8	146	108	94	36	07600
7,7	8	146	108	94	36	07700
7,8	8	146	108	94	36	07800
7,9	8	146	108	94	36	07900
8,0	8	146	108	94	36	08000
8,1	10	162	120	110	40	08100
8,2	10	162	120	110	40	08200
8,3	10	162	120	110	40	08300
8,4	10	162	120	110	40	08400
8,5	10	162	120	110	40	08500
8,6	10	162	120	110	40	08600
8,7	10	162	120	110	40	08700
8,8	10	162	120	110	40	08800
8,9	10	162	120	110	40	08900
9,0	10	162	120	110	40	09000
9,1	10	162	120	110	40	09100
9,2	10	162	120	110	40	09200
9,3	10	162	120	110	40	09300

10 796 ...

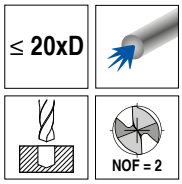
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
9,4	10	162	120	110	40	09400
9,5	10	162	120	110	40	09500
9,6	10	162	120	110	40	09600
9,7	10	162	120	110	40	09700
9,8	10	162	120	110	40	09800
9,9	10	162	120	110	40	09900
10,0	10	162	120	110	40	10000
10,1	12	204	156	142	45	10100
10,2	12	204	156	142	45	10200
10,3	12	204	156	142	45	10300
10,4	12	204	156	142	45	10400
10,5	12	204	156	142	45	10500
10,6	12	204	156	142	45	10600
10,7	12	204	156	142	45	10700
10,8	12	204	156	142	45	10800
10,9	12	204	156	142	45	10900
11,0	12	204	156	142	45	11000
11,1	12	204	156	142	45	11100
11,2	12	204	156	142	45	11200
11,3	12	204	156	142	45	11300
11,4	12	204	156	142	45	11400
11,5	12	204	156	142	45	11500
11,6	12	204	156	142	45	11600
11,7	12	204	156	142	45	11700
11,8	12	204	156	142	45	11800
11,9	12	204	156	142	45	11900
12,0	12	204	156	142	45	12000
12,2	14	230	182	166	45	12200
12,5	14	230	182	166	45	12500
12,8	14	230	182	166	45	12800
13,0	14	230	182	166	45	13000
13,5	14	230	182	166	45	13500
13,8	14	230	182	166	45	13800
14,0	14	230	182	166	45	14000
14,5	16	260	208	192	48	14500
14,8	16	260	208	192	48	14800
15,0	16	260	208	192	48	15000
15,5	16	260	208	192	48	15500
15,8	16	260	208	192	48	15800
16,0	16	260	208	192	48	16000
16,5	18	285	234	216	48	16500
16,8	18	285	234	216	48	16800
17,0	18	285	234	216	48	17000
17,5	18	285	234	216	48	17500
17,8	18	285	234	216	48	17800
18,0	18	285	234	216	48	18000
18,5	20	310	258	240	50	18500
18,8	20	310	258	240	50	18800
19,0	20	310	258	240	50	19000
19,5	20	310	258	240	50	19500
19,8	20	310	258	240	50	19800
20,0	20	310	258	240	50	20000

P	●
M	●
K	●
N	○
S	
H	
O	

→ v_c Page 111

WTX – Co-pilot deep hole twist drills

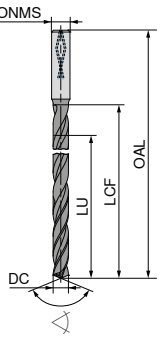
- Cutting tolerance j6 optimally coordinated as an intermediate tolerance between the pilot drill and deep hole twist drill
- Pilot hole necessary
- up to 20xD without peck drilling
- Excellent alignment precision
- Reliable chip removal



NEW

CP 20 UNI

TiAlN







137°

Solid carbide

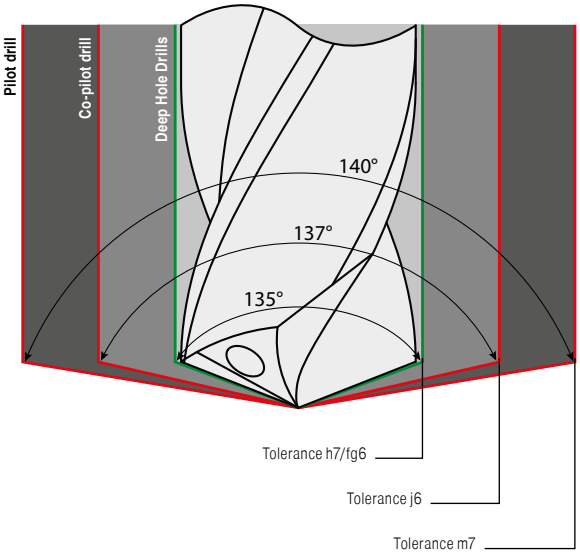
11 018 ...

DC j6 mm	DCONMS h5 mm	OAL mm	LCF mm	LU mm	
3,0	6	120	80	60	**03000**
4,0	6	130	90	80	**04000**
4,2	6	160	110	84	**04200**
4,5	6	160	110	90	**04500**
4,8	6	160	120	96	**04800**
5,0	6	160	120	100	**05000**
5,5	6	185	140	110	**05500**
5,8	6	185	140	116	**05800**
6,0	6	185	140	120	**06000**
6,5	8	210	160	130	**06500**
6,8	8	210	160	136	**06800**
7,0	8	210	160	140	**07000**
7,5	8	230	180	150	**07500**
7,8	8	230	180	156	**07800**
8,0	8	230	180	160	**08000**
8,5	10	260	195	170	**08500**
8,8	10	290	230	176	**08800**
9,0	10	290	230	180	**09000**

P	●
M	●
K	●
N	
S	○
H	
O	

→ v_c Page 142

Tolerance and angle



Tolerance table

ISO tolerances for shafts and holes

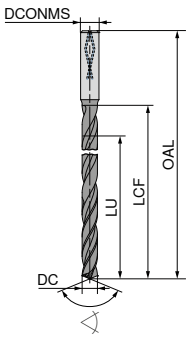
Tolerance designation	of Ø	3	6	10	18	
	up to and including	6	10	18	30	
	p6	20	24	29	35	
		12	15	18	22	
	h7	0	0	0	0	Deep hole twist drill 16xD to 30xD
		-12	-15	-18	-21	
	j6	6	7	8	9	Co-pilot drill
		-2	-2	-3	-4	
	fg6	-6	-8			Deep hole twist drill > 30xD
		-14	-17			
	m6	12	15	18	21	
		4	6	7	8	
	m7	16	21	25	29	WTX UNI / WPC
		4	6	7	8	

WTX – High performance deep hole drills

- up to 16xD without peck drilling
- pilot hole necessary
- excellent alignment precision
- secure chip evacuation

≤ 16xD

NOF = 2







	TB 16 UNI	TB 16 ALU
	TiAlN	DLC
HA		
	135°	135°
	Solid carbide	Solid carbide
	11 016 ...	11 017 ...

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm		
2,0	4	84	42	39	020	020
2,2	4	84	42	39	022	022
2,3	4	84	42	39	023	023
2,4	4	96	54	50	024	024
2,5	4	96	54	50	025	025
2,7	4	96	54	50	027	027
2,8	4	96	54	50	028	028
3,0	6	100	60	55	030	030
3,2	6	100	60	55	032	032
3,3	6	100	60	55	033	033
3,5	6	100	60	55	035	035
3,8	6	115	75	69	038	038
4,0	6	115	75	69	040	040
4,2	6	115	75	69	042	042
4,5	6	130	90	83	045	045
4,8	6	130	90	83	048	048
5,0	6	130	90	83	050	050
5,5	6	150	108	99	055	055
5,8	6	150	108	99	058	058
6,0	6	150	108	99	060	060
6,5	8	165	125	115	065	065
6,8	8	165	125	115	068	068
7,0	8	165	125	115	070	070
7,5	8	180	140	128	075	075
7,8	8	180	140	128	078	078
8,0	8	180	140	128	080	080
8,5	10	205	160	147	085	085
8,8	10	205	160	147	088	088
9,0	10	205	160	147	090	090
9,8	10	225	180	165	098	098
10,0	10	225	180	165	100	100
10,2	12	240	190	174	102	102
10,8	12	240	190	174	108	108
11,8	12	265	215	197	118	118
12,0	12	265	215	197	120	120

P	●	
M	●	
K	●	
N		●
S	o	
H		
O		

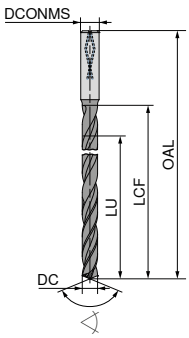
→ v_c Page 143+146
→ Machining information: Page 160

WTX – High performance deep hole drills

- up to 20xD without peck drilling
- pilot hole necessary
- excellent alignment precision
- secure chip evacuation

≤ 20xD

NOF = 2







	TB 20 UNI	TB 20 ALU
	TiAlN	DLC
HA		
	135°	135°
	Solid carbide	Solid carbide
	11 020 ...	11 021 ...

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm		
2,0	4	92	50	47	020	020
2,2	4	92	50	47	022	022
2,3	4	92	50	47	023	023
2,4	4	112	70	66	024	024
2,5	4	112	70	66	025	025
2,7	4	112	70	66	027	027
2,8	4	112	70	66	028	028
3,0	6	120	80	75	030	030
3,2	6	120	80	75	032	032
3,3	6	120	80	75	033	033
3,5	6	120	80	75	035	035
3,8	6	130	90	84	038	038
4,0	6	130	90	84	040	040
4,2	6	160	110	103	042	042
4,5	6	160	110	103	045	045
4,8	6	160	120	113	048	048
5,0	6	160	120	113	050	050
5,5	6	185	140	131	055	055
5,8	6	185	140	131	058	058
6,0	6	185	140	131	060	060
6,5	8	210	160	150	065	065
6,8	8	210	160	150	068	068
7,0	8	210	160	150	070	070
7,5	8	230	180	168	075	075
7,8	8	230	180	168	078	078
8,0	8	230	180	168	080	080
8,5	10	260	195	182	085	085
8,8	10	290	230	216	088	088
9,0	10	290	230	216	090	090
9,8	10	290	230	216	098	098
10,0	10	290	230	216	100	100
10,2	12	315	268	251	102	102
10,8	12	315	268	251	108	108
11,8	12	315	268	251	118	118
12,0	12	315	268	251	120	120

P	●	
M	●	
K	●	
N		●
S	o	
H		
O		

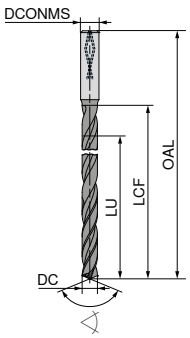
→ v_c Page 143+146
→ Machining information: Page 160

WTX – High performance deep hole drills

- up to 25xD without peck drilling
- pilot hole necessary
- excellent alignment precision
- secure chip evacuation

≤ 25xD

NOF = 2



	TB 25 UNI	TB 25 ALU
	TiAlN	DLC
		
	HA	HA
	135°	135°
	Solid carbide	Solid carbide
	11 025 ...	11 026 ...

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm		
2,0	4	104	60	57	020	020
2,2	4	104	60	57	022	022
2,3	4	104	60	57	023	023
2,4	4	125	80	76	024	024
2,5	4	125	80	76	025	025
2,7	4	125	80	76	027	027
2,8	4	125	80	76	028	028
3,0	6	135	98	93	030	030
3,2	6	135	98	93	032	032
3,3	6	150	110	105	033	033
3,5	6	150	110	105	035	035
3,8	6	160	120	114	038	038
4,0	6	160	120	114	040	040
4,2	6	160	120	114	042	042
4,5	6	180	135	128	045	045
4,8	6	180	135	128	048	048
5,0	6	180	135	128	050	050
5,5	6	205	168	159	055	055
5,8	6	205	168	159	058	058
6,0	6	205	168	159	060	060
6,5	8	240	200	190	065	065
6,8	8	240	200	190	068	068
7,0	8	240	200	190	070	070
7,5	8	260	220	208	075	075
7,8	8	260	220	208	078	078
8,0	8	260	220	208	080	080
8,5	10	285	240	227	085	085
8,8	10	310	268	254	088	088
9,0	10	310	268	254	090	090
9,8	10	310	268	254	098	098
10,0	10	310	268	254	100	100
10,2	12	375	325	308	102	102
10,8	12	375	325	308	108	108
11,8	12	375	325	308	118	118
12,0	12	375	325	308	120	120

P	●	
M	●	
K	●	
N		●
S	○	
H		
O		

→ v_c Page 144+147
→ Machining information: Page 160

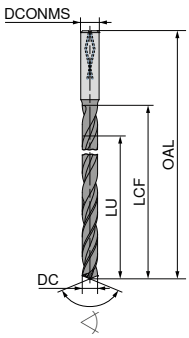
WTX – High performance deep hole drills

- up to 30xD without peck drilling
- pilot hole necessary
- excellent alignment precision
- secure chip evacuation

2

≤ 30xD

NOF = 2



	TB 30 UNI	TB 30 ALU
	TiAlN	DLC
		
	HA	HA
	135°	135°
	Solid carbide	Solid carbide
	11 030 ...	11 031 ...

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm		
2,0	4	115	70	67	020	020
2,2	4	115	70	67	022	022
2,3	4	115	70	67	023	023
2,4	4	138	90	86	024	024
2,5	4	138	90	86	025	025
2,7	4	138	90	86	027	027
2,8	4	138	90	86	028	028
3,0	6	150	105	100	030	030
3,2	6	150	105	100	032	032
3,3	6	185	135	130	033	033
3,5	6	185	135	130	035	035
3,8	6	185	135	130	038	038
4,0	6	185	135	130	040	040
4,2	6	185	135	130	042	042
4,5	6	215	165	158	045	045
4,8	6	215	165	158	048	048
5,0	6	215	165	158	050	050
5,5	6	230	180	171	055	055
5,8	6	230	180	171	058	058
6,0	6	230	180	171	060	060
6,5	8	280	215	205	065	065
6,8	8	280	230	220	068	068
7,0	8	280	230	220	070	070
7,5	8	280	230	220	075	075
7,8	8	315	265	253	078	078
8,0	8	315	265	253	080	080
8,5	10	350	295	282	085	085
8,8	10	380	330	316	088	088
9,0	10	380	330	316	090	090
9,8	10	380	330	316	098	098
10,0	10	380	330	316	100	100
10,2	12	430	380	365	102	102
10,8	12	430	380	365	108	108
11,8	12	430	380	365	118	118
12,0	12	430	380	365	120	120

P	●	
M	●	
K	●	
N		●
S	○	
H		
O		

→ v_c Page 144+147
→ Machining information: Page 160

WTX – High performance deep hole drills

- up to 40xD without peck drilling
- pilot hole necessary
- excellent alignment precision
- secure chip evacuation

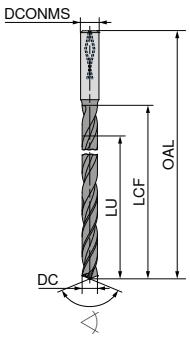
≤ 40xD





TB 40 UNI

TiAlN





135°

Solid carbide

11 040 ...

DC fg6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	
3,0	6	195	150	146	**030**
4,0	6	220	175	169	**040**
4,2	6	245	200	194	**042**
4,5	6	245	200	194	**045**
4,8	6	275	230	223	**048**
5,0	6	275	230	223	**050**
5,5	6	305	260	251	**055**
5,8	6	305	260	251	**058**
6,0	6	305	260	251	**060**
6,5	8	345	300	290	**065**
6,8	8	345	300	290	**068**
7,0	8	345	300	290	**070**
7,5	8	385	340	328	**075**
7,8	8	385	340	328	**078**
8,0	8	385	340	328	**080**
8,5	10	430	380	367	**085**
8,8	10	430	380	367	**088**
9,0	10	430	380	367	**090**

P	●
M	●
K	●
N	
S	o
H	
O	

→ v_c Page 145
→ Machining information: Page 160

WTX – High performance deep hole drills

- up to 50xD without peck drilling
- pilot hole necessary
- excellent alignment precision
- secure chip evacuation

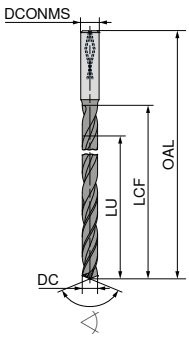
≤ 50xD





TB 50 UNI

TiAlN





135°

Solid carbide

11 050 ...

DC fg6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	
3,0	6	220	175	170	**030**
4,0	6	265	220	214	**040**
4,2	6	290	245	238	**042**
4,5	6	290	245	238	**045**
4,8	6	320	275	268	**048**
5,0	6	320	275	268	**050**
5,5	6	355	310	302	**055**
5,8	6	355	315	306	**058**
6,0	6	355	315	306	**060**
6,5	8	395	350	340	**065**
6,8	8	425	380	370	**068**

P	●
M	●
K	●
N	
S	o
H	
O	

→ v_c Page 145
→ Machining information: Page 160

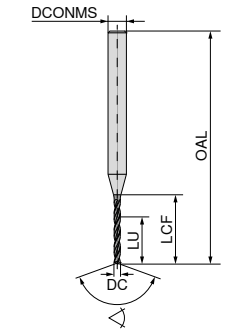
WTX – High Performance Drills

▲ standard shank Ø 3 mm h6 for use in heat shrink adapters

2

≤ 5xD

NOF = 2



MINI

TiAlN



Solid carbide

11 770 ...

DC +0,004 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	
0,10	3	38	1,2	1,0	00100
0,15	3	38	2,0	1,7	00150
0,20	3	38	3,5	3,0	00200
0,25	3	38	3,5	3,0	00250
0,30	3	38	5,5	5,0	00300
0,35	3	38	5,5	5,0	00350
0,40	3	38	7,0	6,0	00400
0,45	3	38	7,0	6,0	00450
0,50	3	38	7,0	6,0	00500
0,55	3	38	7,0	6,0	00550
0,60	3	38	7,0	6,0	00600
0,65	3	38	7,0	6,0	00650
0,70	3	38	10,5	8,0	00700
0,75	3	38	10,5	8,0	00750
0,80	3	38	10,5	8,0	00800
0,85	3	38	10,5	8,0	00850
0,90	3	38	10,5	8,0	00900
0,95	3	38	10,5	8,0	00950
0,97	3	38	10,5	8,0	00970
0,98	3	38	10,5	8,0	00980
0,99	3	38	10,5	8,0	00990
1,00	3	38	10,5	8,0	01000
1,01	3	38	10,5	8,0	01010
1,02	3	38	10,5	8,0	01020
1,03	3	38	10,5	8,0	01030
1,05	3	38	10,5	8,0	01050
1,10	3	38	10,5	8,0	01100
1,15	3	38	10,5	8,0	01150
1,20	3	38	10,5	8,0	01200
1,25	3	38	10,5	8,0	01250
1,30	3	38	10,5	8,0	01300
1,35	3	38	10,5	8,0	01350
1,40	3	38	10,5	8,0	01400
1,45	3	38	10,5	8,0	01450
1,47	3	38	10,5	8,0	01470
1,48	3	38	10,5	8,0	01480
1,49	3	38	10,5	8,0	01490
1,50	3	38	10,5	8,0	01500
1,51	3	38	10,5	8,0	01510
1,52	3	38	10,5	8,0	01520
1,53	3	38	10,5	8,0	01530
1,55	3	38	10,5	8,0	01550
1,60	3	38	10,5	8,0	01600
1,65	3	38	10,5	8,0	01650
1,70	3	38	10,5	8,0	01700
1,75	3	38	10,5	8,0	01750

11 770 ...

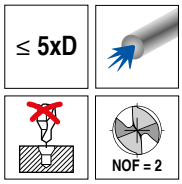
DC +0,004 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	
1,80	3	38	10,5	8,0	01800
1,85	3	38	12,0	8,0	01850
1,90	3	38	12,0	8,0	01900
1,95	3	38	12,0	8,0	01950
1,97	3	38	12,0	8,0	01970
1,98	3	38	12,0	8,0	01980
1,99	3	38	12,0	8,0	01990
2,00	3	42	13,0	9,0	02000
2,01	3	42	13,0	9,0	02010
2,02	3	42	13,0	9,0	02020
2,03	3	42	13,0	9,0	02030
2,05	3	42	13,0	9,0	02050
2,10	3	42	13,0	9,0	02100
2,15	3	42	13,0	9,0	02150
2,20	3	46	15,0	10,0	02200
2,25	3	46	15,0	10,0	02250
2,30	3	46	15,0	10,0	02300
2,35	3	46	15,0	10,0	02350
2,40	3	46	15,0	10,0	02400
2,45	3	46	15,0	10,0	02450
2,47	3	46	15,0	10,0	02470
2,48	3	46	15,0	10,0	02480
2,49	3	46	15,0	10,0	02490
2,50	3	46	15,0	10,0	02500
2,51	3	46	15,0	10,0	02510
2,52	3	46	15,0	10,0	02520
2,53	3	46	15,0	10,0	02530
2,60	3	46	15,0	10,0	02600
2,70	3	46	15,0	10,0	02700
2,80	3	46	15,0	10,0	02800
2,90	3	46	15,0	10,0	02900

P	○
M	
K	●
N	●
S	○
H	
O	

→ v_c Page 136

WTX – High Performance Drills

- Specialised micro drill
- Universal application
- Extremely high process security
- Pilot drill for WTX Micro – high-performance deep hole drill

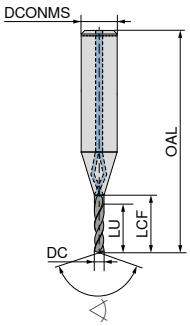


NEW

MICRO

DPX74M

DRAGONSKIN





135°
Solid carbide

10 693 ...

DC $_{m6}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	
0,8	3	39	5,6	4,0	00800
0,9	3	39	6,3	4,5	00900
1,0	3	40	7,0	5,0	01000
1,1	3	41	7,7	5,5	01100
1,2	3	41	8,4	6,0	01200
1,3	3	42	9,1	6,5	01300
1,4	3	42	9,8	7,0	01400
1,5	3	43	10,5	7,5	01500
1,6	3	44	11,2	8,0	01600
1,7	3	44	11,9	8,5	01700
1,8	3	45	12,6	9,0	01800
1,9	3	45	13,3	9,5	01900
2,0	3	46	14,0	10,0	02000
2,1	3	47	14,7	10,5	02100
2,2	3	47	15,4	11,0	02200
2,3	3	48	16,1	11,5	02300
2,4	3	48	16,8	12,0	02400
2,5	3	49	17,5	12,5	02500
2,6	3	50	18,2	13,0	02600
2,7	3	50	18,9	13,5	02700
2,8	3	51	19,6	14,0	02800
2,9	3	51	20,3	14,5	02900

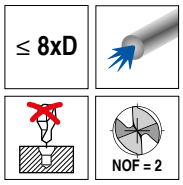
P	●
M	●
K	●
N	
S	○
H	
O	

→ v_c Page 137
→ Machining information: Page 161

Minimum coolant pressure: 30 bar

WTX – High Performance Drills

- Specialised micro drill
- Universal application
- Extremely high process security

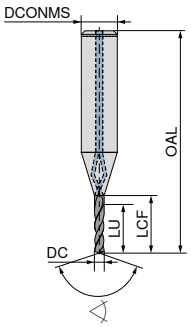


NEW

MICRO

DPX74M

DRAGONSKIN





128°
Solid carbide

10 694 ...

DC $_{h6}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	
0,8	3	41	8	6,4	00800
0,9	3	42	9	7,2	00900
1,0	3	43	10	8,0	01000
1,1	3	44	11	8,8	01100
1,2	3	45	12	9,6	01200
1,3	3	46	13	10,4	01300
1,4	3	47	14	11,2	01400
1,5	3	47	15	12,0	01500
1,6	3	48	16	12,8	01600
1,7	3	49	17	13,6	01700
1,8	3	50	18	14,4	01800
1,9	3	51	19	15,2	01900
2,0	3	52	20	16,0	02000
2,1	3	53	21	16,8	02100
2,2	3	54	22	17,6	02200
2,3	3	55	23	18,4	02300
2,4	3	56	24	19,2	02400
2,5	3	56	25	20,0	02500
2,6	3	57	26	20,8	02600
2,7	3	58	27	21,6	02700
2,8	3	59	28	22,4	02800
2,9	3	60	29	23,2	02900

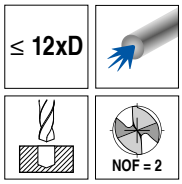
P	●
M	●
K	●
N	
S	○
H	
O	

→ v_c Page 138
→ Machining information: Page 161

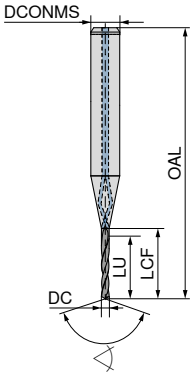
Minimum coolant pressure: 30 bar

WTX – High Performance Drills

- Specialised micro drill
- Universal application
- Extremely high process security
- Pilot drill: 5xD WTX Micro – high-performance drill



NEW
MICRO
DPX74M
DRAGONSKIN





128°
Solid carbide

10 695 ...

DC h6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	
0,8	3	44	11,2	9,6	00800
0,9	3	46	12,6	10,8	00900
1,0	3	47	14,0	12,0	01000
1,1	3	48	15,4	13,2	01100
1,2	3	50	16,8	14,4	01200
1,3	3	51	18,2	15,6	01300
1,4	3	52	19,6	16,8	01400
1,5	3	53	21,0	18,0	01500
1,6	3	55	22,4	19,2	01600
1,7	3	56	23,8	20,4	01700
1,8	3	57	25,2	21,6	01800
1,9	3	59	26,6	22,8	01900
2,0	3	60	28,0	24,0	02000
2,1	3	61	29,4	25,2	02100
2,2	3	63	30,8	26,4	02200
2,3	3	64	32,2	27,6	02300
2,4	3	65	33,6	28,8	02400
2,5	3	67	35,0	30,0	02500
2,6	3	68	36,4	31,2	02600
2,7	3	69	37,8	32,4	02700
2,8	3	70	39,2	33,6	02800
2,9	3	72	40,6	34,8	02900

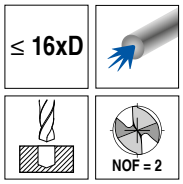
P	●
M	●
K	●
N	
S	o
H	
O	

→ v_c Page 138
→ Machining information: Page 161

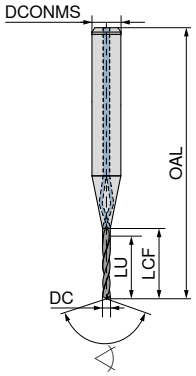
Minimum coolant pressure: 30 bar

WTX – High performance deep hole drills

- Specialised micro deep hole drill
- Universal application
- Extremely high process security
- Pilot drill: 5xD WTX Micro – high-performance drill



NEW
MICRO
DPX74M
DRAGONSKIN





128°
Solid carbide

10 696 ...

DC h6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	
0,8	3	48	14,4	12,8	00800
0,9	3	49	16,2	14,4	00900
1,0	3	51	18,0	16,0	01000
1,1	3	53	19,8	17,6	01100
1,2	3	54	21,6	19,2	01200
1,3	3	56	23,4	20,8	01300
1,4	3	58	25,2	22,4	01400
1,5	3	60	27,0	24,0	01500
1,6	3	61	28,8	25,6	01600
1,7	3	63	30,6	27,2	01700
1,8	3	65	32,4	28,8	01800
1,9	3	66	34,2	30,4	01900
2,0	3	68	36,0	32,0	02000
2,1	3	70	37,8	33,6	02100
2,2	3	71	39,6	35,2	02200
2,3	3	73	41,4	36,8	02300
2,4	3	75	43,2	38,4	02400
2,5	3	77	45,0	40,0	02500
2,6	3	78	46,8	41,6	02600
2,7	3	80	48,6	43,2	02700
2,8	3	82	50,4	44,8	02800
2,9	3	83	52,2	46,4	02900

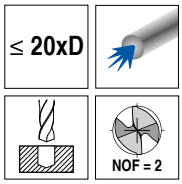
P	●
M	●
K	●
N	
S	
H	
O	

→ v_c Page 139
→ Machining information: Page 161

Minimum coolant pressure: 30 bar

WTX – High performance deep hole drills

- Specialised micro deep hole drill
- Universal application
- Extremely high process security
- Pilot drill: 5xD WTX Micro – high-performance drill

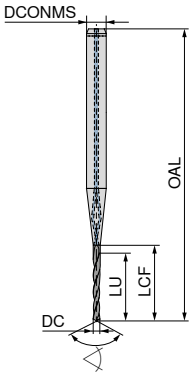


NEW

MICRO

DPX74M

DRAGONSKIN





128°

Solid carbide

10 697 ...

DC h6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	
0,8	3	51	17,6	16	00800
0,9	3	53	19,8	18	00900
1,0	3	55	22,0	20	01000
1,1	3	57	24,2	22	01100
1,2	3	59	26,4	24	01200
1,3	3	61	28,6	26	01300
1,4	3	63	30,8	28	01400
1,5	3	66	33,0	30	01500
1,6	3	68	35,2	32	01600
1,7	3	70	37,4	34	01700
1,8	3	72	39,6	36	01800
1,9	3	74	41,8	38	01900
2,0	3	76	44,0	40	02000
2,1	3	78	46,2	42	02100
2,2	3	80	48,4	44	02200
2,3	3	82	50,6	46	02300
2,4	3	85	52,8	48	02400
2,5	3	87	55,0	50	02500
2,6	3	89	57,2	52	02600
2,7	3	91	59,4	54	02700
2,8	3	93	61,6	56	02800
2,9	3	95	63,8	58	02900

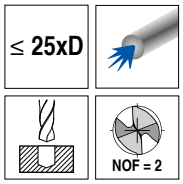
P	●
M	●
K	●
N	
S	
H	
O	

→ v_c Page 139
→ Machining information: Page 161

Minimum coolant pressure: 30 bar

WTX – High performance deep hole drills

- Specialised micro deep hole drill
- Universal application
- Extremely high process security
- Pilot drill: 5xD WTX Micro – high-performance drill

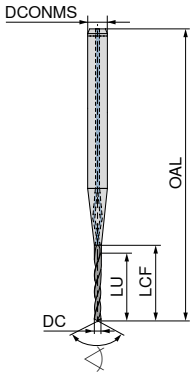


NEW

MICRO

DPX74M

DRAGONSKIN





128°

Solid carbide

10 698 ...

DC h6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	
1,0	3	60	27,0	25,0	01000
1,1	3	63	29,7	27,5	01100
1,2	3	65	32,4	30,0	01200
1,3	3	68	35,1	32,5	01300
1,4	3	71	37,8	35,0	01400
1,5	3	73	40,5	37,5	01500
1,6	3	76	43,2	40,0	01600
1,7	3	78	45,9	42,5	01700
1,8	3	81	48,6	45,0	01800
1,9	3	84	51,3	47,5	01900
2,0	3	86	54,0	50,0	02000
2,1	3	89	56,7	52,5	02100
2,2	3	91	59,4	55,0	02200
2,3	3	94	62,1	57,5	02300
2,4	3	97	64,8	60,0	02400
2,5	3	99	67,5	62,5	02500
2,6	3	102	70,2	65,0	02600
2,7	3	104	72,9	67,5	02700
2,8	3	107	75,6	70,0	02800
2,9	3	110	78,3	72,5	02900

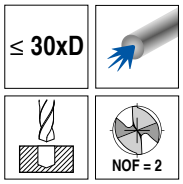
P	●
M	●
K	●
N	
S	
H	
O	

→ v_c Page 139
→ Machining information: Page 161

Minimum coolant pressure: 30 bar

WTX – High performance deep hole drills

- Specialised micro deep hole drill
- Universal application
- Extremely high process security
- Pilot drill: 5xD WTX Micro – high-performance drill

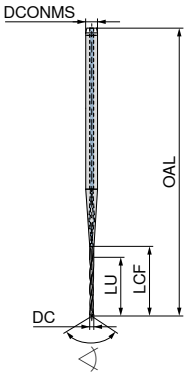


NEW

MICRO

DPX74M

DRAGONSKIN





Solid carbide

10 699 ...

DC h6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	
1,0	3	65	32,0	30	**01000**
1,1	3	68	35,2	33	**01100**
1,2	3	71	38,4	36	**01200**
1,3	3	74	41,6	39	**01300**
1,4	3	78	44,8	42	**01400**
1,5	3	81	48,0	45	**01500**
1,6	3	84	51,2	48	**01600**
1,7	3	87	54,4	51	**01700**
1,8	3	90	57,6	54	**01800**
1,9	3	93	60,8	57	**01900**
2,0	3	96	64,0	60	**02000**
2,1	3	99	67,2	63	**02100**
2,2	3	102	70,4	66	**02200**
2,3	3	106	73,6	69	**02300**
2,4	3	109	76,8	72	**02400**
2,5	3	112	80,0	75	**02500**
2,6	3	115	83,2	78	**02600**
2,7	3	118	86,4	81	**02700**
2,8	3	121	89,6	84	**02800**
2,9	3	124	92,8	87	**02900**

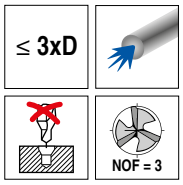
P	●
M	●
K	●
N	
S	
H	
O	

→ v_c Page 139
→ Machining information: Page 161

Minimum coolant pressure: 30 bar

WTX – Drill-Reamer -1/100

- Solid carbide high-performance drill-reaming tool
- Drilling and reaming in one operation
- 3 drilling edges
- 6 reaming edges
- High feeds
- Good surface quality
- For blind holes and through holes

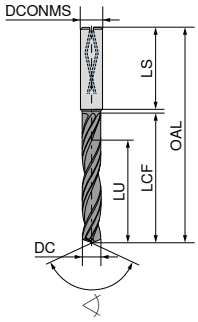


NEW

Feed BR100

DPX14S

DRAGONSKIN







140°

Solid carbide

10 707 ...

DC ±0,003 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
3,97	6	66	24	17	36	03970
3,98	6	66	24	17	36	03980
3,99	6	66	24	17	36	03990
4,00	6	66	24	17	36	04000
4,01	6	66	24	17	36	04010
4,02	6	66	24	17	36	04020
4,97	6	66	28	20	36	04970
4,98	6	66	28	20	36	04980
4,99	6	66	28	20	36	04990
5,00	6	66	28	20	36	05000
5,01	6	66	28	20	36	05010
5,02	6	66	28	20	36	05020
5,97	6	66	28	20	36	05970
5,98	6	66	28	20	36	05980
5,99	6	66	28	20	36	05990
6,00	6	66	28	20	36	06000
6,01	6	66	28	20	36	06010
6,02	6	66	28	20	36	06020
7,97	8	79	41	29	36	07970
7,98	8	79	41	29	36	07980
7,99	8	79	41	29	36	07990
8,00	8	79	41	29	36	08000
8,01	8	79	41	29	36	08010
8,02	8	79	41	29	36	08020
9,97	10	89	47	35	40	09970
9,98	10	89	47	35	40	09980
9,99	10	89	47	35	40	09990
10,00	10	89	47	35	40	10000
10,01	10	89	47	35	40	10010
10,02	10	89	47	35	40	10020
11,97	12	102	55	40	45	11970
11,98	12	102	55	40	45	11980
11,99	12	102	55	40	45	11990
12,00	12	102	55	40	45	12000
12,01	12	102	55	40	45	12010
12,02	12	102	55	40	45	12020

P	●
M	●
K	●
N	
S	
H	
O	

Tolerances

e.g. Ø 8 F7 = 8.02 mm

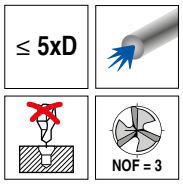
Ø 4	3,97	U 7	**X 7**			
	3,98	**N 10**	**N 11**	R 7		
	3,99	M 8	**N 7**	**N 8**	**N 9**	
	4,00	**J 7**	**J 8**	JS 7	JS 8	JS 9
	4,01	**G 7**	**H 8**			
	4,02	**F 8**	**H 9**			
Ø 5	4,97	U 7	**X 7**			
	4,98	**N 10**	**N 11**	R 7		
	4,99	M 8	**N 7**	**N 8**	**N 9**	
	5,00	**J 7**	**J 8**	**JS 7**	**JS 8**	**JS 9**
	5,01	**G 7**	**H 8**			
	5,02	**F 8**	**H 9**			
Ø 6	5,97	U 7	**X 7**			
	5,98	**N 10**	**N 11**	R 7		
	5,99	M 8	**N 7**	**N 8**	**N 9**	
	6,00	**J 7**	**J 8**	**JS 7**	**JS 8**	**JS 9**
	6,01	**G 7**	**H 8**			
	6,02	**F 8**	**H 9**			
Ø 8	7,97	S 7	**U 7**			
	7,98	N 8	**N 10**	**N 11**	P 7	R 7
	7,99	K 8	M 6	M 7	**M 8**	N 9
	8,00	**J 7**	**J 8**	**JS 7**	**JS 8**	**JS 9**
	8,01	G 7	**H 8**			
	8,02	**F 7**	F 8	**H 9**		
Ø 10	9,97	S 7	**U 7**			
	9,98	N 8	**N 10**	**N 11**	P 7	R 7
	9,99	K 8	M 6	M 7	**M 8**	N 9
	10,00	**J 7**	**J 8**	**JS 7**	**JS 8**	**JS 9**
	10,01	G 7	**H 8**			
	10,02	**F 7**	F 8	H 9		
Ø 12	11,97	N 11	R 7	**S 7**		
	11,98	N 8	**N 9**	**N 10**	**P 7**	
	11,99	K 8	**M 6**	**M 7**	**M 8**	N 7
	12,00	**J 7**	**J 8**	**JS 7**	**JS 8**	
	12,01	G 6	**H 7**	H 8	**JS 9**	
	12,02	F 7				

Tolerance classes written in standard print are not optimally positioned in the tolerance field.

→ v_c Page 140

WTX – Drill-Reamer -1/100

- Solid carbide high-performance drill-reaming tool
- Drilling and reaming in one operation
- 3 drilling edges
- 6 reaming edges
- High feeds
- Good surface quality
- For blind holes and through holes

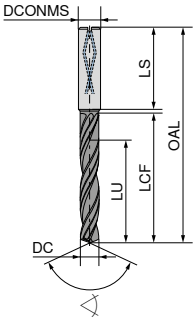


NEW

Feed BR100

DPX14S

DRAGONSKIN







140°

Solid carbide

10 713 ...

DC ±0,003 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
3,97	6	74	36	29	36	03970
3,98	6	74	36	29	36	03980
3,99	6	74	36	29	36	03990
4,00	6	74	36	29	36	04000
4,01	6	74	36	29	36	04010
4,02	6	74	36	29	36	04020
4,97	6	82	44	35	36	04970
4,98	6	82	44	35	36	04980
4,99	6	82	44	35	36	04990
5,00	6	82	44	35	36	05000
5,01	6	82	44	35	36	05010
5,02	6	82	44	35	36	05020
5,97	6	82	44	35	36	05970
5,98	6	82	44	35	36	05980
5,99	6	82	44	35	36	05990
6,00	6	82	44	35	36	06000
6,01	6	82	44	35	36	06010
6,02	6	82	44	35	36	06020
7,97	8	91	53	43	36	07970
7,98	8	91	53	43	36	07980
7,99	8	91	53	43	36	07990
8,00	8	91	53	43	36	08000
8,01	8	91	53	43	36	08010
8,02	8	91	53	43	36	08020
9,97	10	103	61	49	40	09970
9,98	10	103	61	49	40	09980
9,99	10	103	61	49	40	09990
10,00	10	103	61	49	40	10000
10,01	10	103	61	49	40	10010
10,02	10	103	61	49	40	10020
11,97	12	118	71	56	45	11970
11,98	12	118	71	56	45	11980
11,99	12	118	71	56	45	11990
12,00	12	118	71	56	45	12000
12,01	12	118	71	56	45	12010
12,02	12	118	71	56	45	12020

P	●
M	●
K	●
N	
S	
H	
O	

Tolerances

e.g. Ø 8 F7 = 8.02 mm

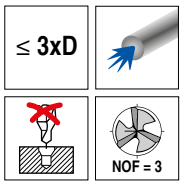
Ø 4	3,97	U 7	**X 7**			
	3,98	**N 10**	**N 11**	R 7		
	3,99	M 8	**N 7**	**N 8**	**N 9**	
	4,00	**J 7**	**J 8**	JS 7	JS 8	JS 9
	4,01	**G 7**	**H 8**			
	4,02	**F 8**	**H 9**			
Ø 5	4,97	U 7	**X 7**			
	4,98	**N 10**	**N 11**	R 7		
	4,99	M 8	**N 7**	**N 8**	**N 9**	
	5,00	**J 7**	**J 8**	**JS 7**	**JS 8**	**JS 9**
	5,01	**G 7**	**H 8**			
	5,02	**F 8**	**H 9**			
Ø 6	5,97	U 7	**X 7**			
	5,98	**N 10**	**N 11**	R 7		
	5,99	M 8	**N 7**	**N 8**	**N 9**	
	6,00	**J 7**	**J 8**	**JS 7**	**JS 8**	**JS 9**
	6,01	**G 7**	**H 8**			
	6,02	**F 8**	**H 9**			
Ø 8	7,97	S 7	**U 7**			
	7,98	N 8	**N 10**	**N 11**	P 7	R 7
	7,99	K 8	M 6	M 7	**M 8**	N 9
	8,00	**J 7**	**J 8**	**JS 7**	**JS 8**	**JS 9**
	8,01	G 7	**H 8**			
	8,02	**F 7**	F 8	**H 9**		
Ø 10	9,97	S 7	**U 7**			
	9,98	N 8	**N 10**	**N 11**	P 7	R 7
	9,99	K 8	M 6	M 7	**M 8**	N 9
	10,00	**J 7**	**J 8**	**JS 7**	**JS 8**	**JS 9**
	10,01	G 7	**H 8**			
	10,02	**F 7**	F 8	H 9		
Ø 12	11,97	N 11	R 7	**S 7**		
	11,98	N 8	**N 9**	**N 10**	**P 7**	
	11,99	K 8	**M 6**	**M 7**	**M 8**	N 7
	12,00	**J 7**	**J 8**	**JS 7**	**JS 8**	
	12,01	G 6	**H 7**	H 8	**JS 9**	
	12,02	F 7				

Tolerance classes written in standard print are not optimally positioned in the tolerance field.

→ v_c Page 141

WTX – Drill-Reamer

- Solid carbide high-performance drill-reaming tool
- Drilling and reaming to tolerance H7 in one operation
- 3 drilling edges
- 6 reaming edges
- High feeds
- Good surface quality
- For blind holes and through holes
- Optimum roundness – tolerance H7

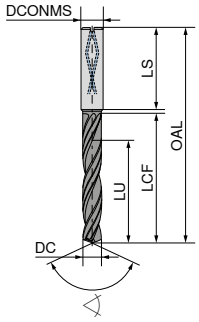


NEW

Feed BR

DPX14S

DRAGONSKIN





140°

Solid carbide

10 711 ...

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
4	6	66	24	17	36	**04000**
5	6	66	28	20	36	**05000**
6	6	66	28	20	36	**06000**
8	8	79	41	29	36	**08000**
10	10	89	47	35	40	**10000**
12	12	102	55	40	45	**12000**
14	14	107	60	43	45	**14000**
16	16	115	65	45	48	**16000**

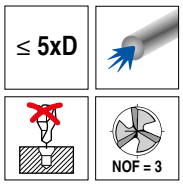
P	●
M	●
K	●
N	
S	
H	
O	

→ v_c Page 140

Special dimensions available upon request

WTX – Drill-Reamer

- Solid carbide high-performance drill-reaming tool
- Drilling and reaming to tolerance H7 in one operation
- 3 drilling edges
- 6 reaming edges
- High feeds
- Good surface quality
- For blind holes and through holes
- Optimum roundness – tolerance H7

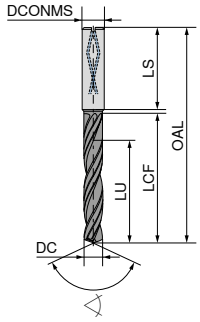


NEW

Feed BR

DPX14S

DRAGONSKIN





140°

Solid carbide

10 719 ...

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	
4	6	74	36	29	36	**04000**
5	6	82	44	35	36	**05000**
6	6	82	44	35	36	**06000**
8	8	91	53	43	36	**08000**
10	10	103	61	49	40	**10000**
12	12	118	71	56	45	**12000**
14	14	124	77	60	45	**14000**
16	16	133	83	63	48	**16000**
18	18	143	93	71	48	**18000**
20	20	153	101	77	50	**20000**

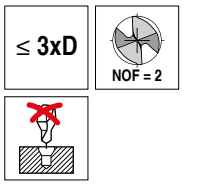
P	●
M	●
K	●
N	
S	
H	
O	

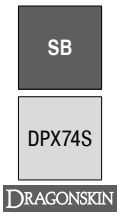
→ v_c Page 141

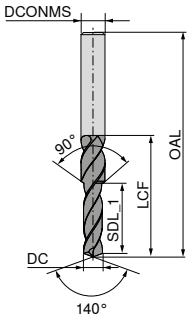
Special dimensions available upon request

WTX – Short 90° step drill

▲ for core hole plus countersink for thread cutting











Solid carbide

10 767 ...

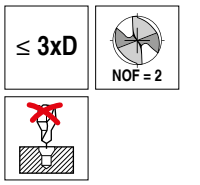
For threads	DC m7 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	LCF mm	
M3	2,5	6	62	8,8	20	**02500**
M4	3,3	6	62	11,4	24	**03300**
M5	4,2	6	66	13,6	28	**04200**
M6	5,0	8	79	16,5	34	**05000**
M8	6,8	10	89	21,0	47	**06800**
M10	8,5	12	102	25,5	55	**08500**
M12	10,2	14	107	30,0	60	**10200**
M14	12,0	16	115	34,5	65	**12000**
M16	14,0	18	123	38,5	73	**14000**

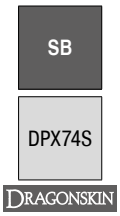
P	●
M	
K	●
N	
S	
H	○
O	

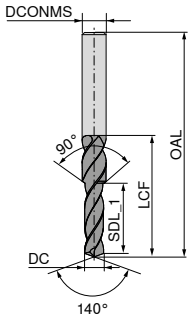
→ v_c Page 157

WTX – Short 90° step drill

▲ for core hole plus countersink for thread forming











Solid carbide

10 772 ...

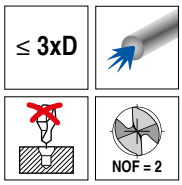
For threads	DC m7 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	LCF mm	
M3	2,80	6	62	8,8	20	**02800**
M4	3,70	6	62	11,4	24	**03700**
M5	4,65	6	66	13,6	28	**04650**
M6	5,55	8	79	16,5	34	**05550**
M8	7,45	10	89	21,0	47	**07450**
M10	9,30	12	102	25,5	55	**09300**
M12	11,20	14	107	30,0	60	**11200**
M14	13,00	16	115	34,5	65	**13000**
M16	15,00	18	123	38,5	73	**15000**

P	●
M	
K	●
N	
S	
H	○
O	

→ v_c Page 157

WTX – Short 90° step drill

▲ for core hole plus countersink for thread cutting

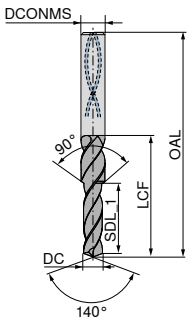


NEW

SB

DPX74S

DRAGONSKIN







Solid carbide

10 783 ...

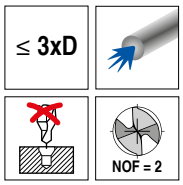
For threads	DC $_{m7}$ mm	DCONMS $_{h6}$ mm	OAL mm	SDL_1 mm	LCF mm	
M4	3,3	6	62	11,4	24	**03300**
M5	4,2	6	66	13,6	28	**04200**
M6	5,0	8	79	16,5	34	**05000**
M8	6,8	10	89	21,0	47	**06800**
M10	8,5	12	102	25,5	55	**08500**
M12	10,2	14	107	30,0	60	**10200**
M14	12,0	16	115	34,5	65	**12000**
M16	14,0	18	123	38,5	73	**14000**

P	●
M	
K	●
N	
S	
H	○
O	

→ v_c Page 157

WTX – Short 90° step drill

▲ for core hole plus countersink for thread forming

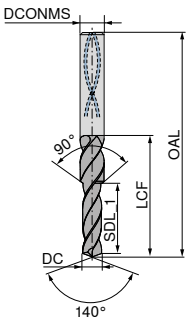


NEW

SB

DPX74S

DRAGONSKIN







Solid carbide

10 788 ...

For threads	DC $_{m7}$ mm	DCONMS $_{h6}$ mm	OAL mm	SDL_1 mm	LCF mm	
M4	3,70	6	62	11,4	24	**03700**
M5	4,65	6	66	13,6	28	**04650**
M6	5,55	8	79	16,5	34	**05550**
M8	7,45	10	89	21,0	47	**07450**
M10	9,30	12	102	25,5	55	**09300**
M12	11,20	14	107	30,0	60	**11200**
M14	13,00	16	115	34,5	65	**13000**
M16	15,00	18	123	38,5	73	**15000**

P	●
M	
K	●
N	
S	
H	○
O	

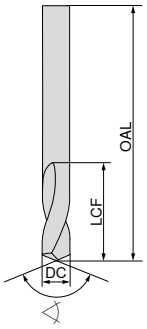
→ v_c Page 157

NC Spot Drill, factory standard

▲ spiral flute

2

NOF = 2



	NC-A	NC-A TiAlN	NC-A	NC-A TiAlN	NC-A	NC-A TiAlN
						
	HA	HB	HA	HB	HA	HB
	90°	90°	120°	120°	142°	142°
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
	10 702 ...	**10 716 ...**	**10 703 ...**	**10 717 ...**	**10 704 ...**	**10 718 ...**
DC $_{h5}$ **mm** / OAL mm / LCF mm						
2 32 6	**002**	**002** 1)	**002**	**002** 1)	**002**	**002** 1)
3 32 8	**003**	**003** 1)	**003**	**003** 1)	**003**	**003** 1)
4 40 10	**004**	**004** 1)	**004**	**004** 1)	**004**	**004** 1)
5 50 13	**005**	**005** 1)	**005**	**005** 1)	**005**	**005** 1)
6 50 13	**006**	**006**	**006**	**006**	**006**	**006**
8 60 23	**008**	**008**	**008**	**008**	**008**	**008**
10 70 24	**010**	**010**	**010**	**010**	**010**	**010**
12 70 24	**012**	**012**	**012**	**012**	**012**	**012**
14 75 26	**014**	**014**	**014**	**014**	**014**	**014**
16 75 29	**016**	**016**	**016**	**016**	**016**	**016**
18 100 35	**018**	**018**	**018**	**018**	**018**	**018**
20 100 35	**020**	**020**	**020**	**020**	**020**	**020**
P	○	○	○	○	○	○
M						
K	●	●	●	●	●	●
N	●	●	●	●	●	●
S						
H		○		○		○
O						

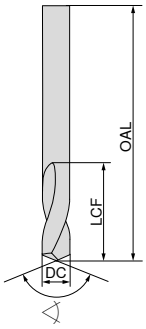
1) DIN 6535 HA Shank

→ v_c Page 149+150

NC Spot Drill, factory standard, long

▲ spiral flutes











DC h5 mm	OAL mm	LCF mm	◁ 90° Solid carbide 10 724 ...	◁ 120° Solid carbide 10 726 ...	◁ 142° Solid carbide 10 727 ...
3	66	8	003 [1]	003 [1]	003 [1]
4	74	10	004 [1]	004 [1]	004 [1]
6	82	13	006	006	006
8	91	23	008	008	008
10	103	24	010	010	010
12	118	24	012	012	012
16	133	29	016	016	016
P			○	○	○
M					
K			●	●	●
N			●	●	●
S					
H			○	○	○
O					

1) DIN 6535 HA Shank

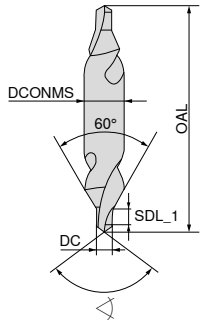
→ v_c Page 151

Centre drills, DIN 333, form A

▲ spiral flutes

NOF = 2

ZB





120°

Solid carbide

DC k13 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	10 708 ...
0,50	3,15	20,0	0,76	**050** 1)
0,80	3,15	20,0	1,07	**080** 1)
1,00	3,15	31,5	1,31	**100**
1,25	3,15	31,5	1,54	**125**
1,60	4,00	35,5	1,94	**160**
2,00	5,00	40,0	2,32	**200**
2,50	6,30	45,0	2,88	**250**
3,15	8,00	50,0	3,49	**315**
4,00	10,00	56,0	4,45	**400**
5,00	12,50	63,0	5,46	**500**
6,30	16,00	71,0	6,78	**630**

P	○
M	
K	●
N	●
S	
H	
O	

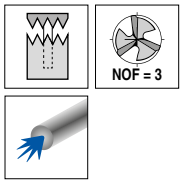
1) Single ended

→ v_c Page 148

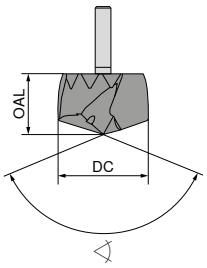
WTX – Drilling Head for Exchangeable drills

▲ extra long head type
▲ three-edged

Scope of supply:
Drill head incl. differential screw



Change Feed UNI
Ti750





140°
Solid carbide

DC m7 mm	OAL mm	10 925 ...
14,0	13,5	140
14,1	13,5	141
14,2	13,5	142
14,3	13,5	143
14,4	13,5	144
14,5	14,0	145
14,6	14,0	146
14,7	14,0	147
14,8	14,0	148
14,9	14,0	149
15,0	14,4	150
15,1	14,4	151
15,2	14,4	152
15,3	14,4	153
15,4	14,4	154
15,5	15,4	155
15,6	15,4	156
15,7	15,4	157
15,8	15,4	158
15,9	15,4	159
16,0	15,4	160
16,1	15,4	161
16,2	15,4	162
16,3	15,4	163
16,4	15,4	164
16,5	16,3	165
16,6	16,3	166
16,7	16,3	167
16,8	16,3	168
16,9	16,3	169
17,0	16,3	170
17,1	16,3	171
17,2	16,3	172
17,3	16,3	173
17,4	16,3	174
17,5	17,2	175
17,6	17,2	176
17,7	17,2	177
17,8	17,2	178
17,9	17,2	179
18,0	17,2	180
18,1	17,2	181
18,2	17,2	182
18,3	17,2	183
18,4	17,2	184
18,5	18,2	185
18,6	18,2	186
18,7	18,2	187
18,8	18,2	188
18,9	18,2	189

DC m7 mm	OAL mm	10 925 ...
19,0	18,2	190
19,1	18,2	191
19,2	18,2	192
19,3	18,2	193
19,4	18,2	194
19,5	19,1	195
19,6	19,1	196
19,7	19,1	197
19,8	19,1	198
19,9	19,1	199
20,0	19,1	200
20,1	19,1	201
20,2	19,1	202
20,3	19,1	203
20,4	19,1	204
20,5	20,0	205
20,6	20,0	206
20,7	20,0	207
20,8	20,0	208
20,9	20,0	209
21,0	20,0	210
21,1	20,0	211
21,2	20,0	212
21,3	20,0	213
21,4	20,0	214
21,5	21,0	215
21,6	21,0	216
21,7	21,0	217
21,8	21,0	218
21,9	21,0	219
22,0	21,0	220
22,1	21,0	221
22,2	21,0	222
22,3	21,0	223
22,4	21,0	224
22,5	21,9	225
22,6	21,9	226
22,7	21,9	227
22,8	21,9	228
22,9	21,9	229
23,0	21,9	230
23,1	21,9	231
23,2	21,9	232
23,3	21,9	233
23,4	21,9	234
23,5	22,8	235
23,6	22,8	236
23,7	22,8	237
23,8	22,8	238
23,9	22,8	239
24,0	22,8	240
24,1	22,8	241
24,2	22,8	242
24,3	22,8	243
24,4	22,8	244
24,5	23,8	245
24,6	23,8	246
24,7	23,8	247
24,8	23,8	248
24,9	23,8	249
25,0	23,8	250

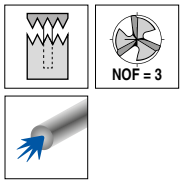
P	●
M	
K	●
N	
S	
H	
O	

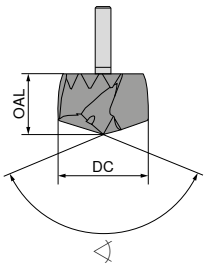
→ v_c Page 156

WTX – Drilling Head for Exchangeable drills

- ▲ extra long head type
- ▲ three-edged

Scope of supply:
Drill head incl. differential screw





Change Feed UNI
Ti750



140°
Solid carbide

DC m7 mm	OAL mm	10 925 ...
25,1	23,8	251
25,2	23,8	252
25,3	23,8	253
25,4	23,8	254
25,5	24,7	255
25,6	24,7	256
25,7	24,7	257
25,8	24,7	258
25,9	24,7	259
26,0	24,7	260
26,1	24,7	261
26,2	24,7	262
26,3	24,7	263
26,4	24,7	264
26,5	25,6	265
26,6	25,6	266
26,7	25,6	267
26,8	25,6	268
26,9	25,6	269
27,0	25,6	270
27,1	25,6	271
27,2	25,6	272
27,3	25,6	273
27,4	25,6	274
27,5	26,6	275
27,6	26,6	276
27,7	26,6	277
27,8	26,6	278
27,9	26,6	279
28,0	26,6	280
28,1	26,6	281
28,2	26,6	282
28,3	26,6	283
28,4	26,6	284
28,5	27,5	285
28,6	27,5	286
28,7	27,5	287
28,8	27,5	288
28,9	27,5	289
29,0	27,5	290
29,1	27,5	291
29,2	27,5	292
29,3	27,5	293
29,4	27,5	294
29,5	28,4	295
29,6	28,4	296
29,7	28,4	297
29,8	28,4	298
29,9	28,4	299
30,0	28,4	300

DC m7 mm	OAL mm	10 925 ...
30,1	28,4	301
30,2	28,4	302
30,3	28,4	303
30,4	28,4	304
30,5	29,3	305
30,6	29,3	306
30,7	29,3	307
30,8	29,3	308
30,9	29,3	309
31,0	29,3	310
31,1	29,3	311
31,2	29,3	312
31,3	29,3	313
31,4	29,3	314
31,5	30,3	315
31,6	30,3	316
31,7	30,3	317
31,8	30,3	318
31,9	30,3	319
32,0	30,3	320

P	●
M	
K	●
N	
S	
H	
O	

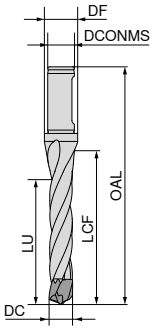
→ v_c Page 156

WTX – Holder for Exchangeable drills

Scope of supply:
Holder incl. blade holder and interchangeable blade

≤ 3xD

Change Feed





HB

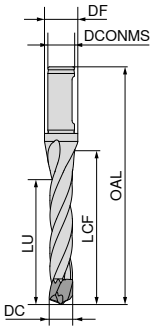
DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	DF mm	torque moment Nm	10 914 ...
14,00 - 14,49	16	120	72	48	20	0,7	140
14,50 - 14,99	16	122	74	49	20	0,7	145
15,00 - 15,49	16	124	76	51	25	0,7	150
15,50 - 16,49	20	131	81	54	25	0,7	155
16,50 - 17,49	20	135	85	58	25	0,7	165
17,50 - 18,49	20	140	90	61	25	1,3	175
18,50 - 19,49	25	150	94	64	31	1,3	185
19,50 - 20,49	25	155	99	68	31	2,0	195
20,50 - 21,49	25	159	103	71	31	2,0	205
21,50 - 22,49	25	164	108	74	31	2,0	215
22,50 - 23,49	25	168	112	78	31	2,0	225
23,50 - 24,49	25	173	117	81	31	2,0	235
24,50 - 25,49	32	182	122	84	38	3,1	245
25,50 - 26,49	32	186	126	87	38	3,1	255
26,50 - 27,49	32	191	131	91	38	3,1	265
27,50 - 28,49	32	195	135	94	38	3,1	275
28,50 - 29,49	32	200	140	97	38	5,6	285
29,50 - 30,49	32	204	144	101	38	5,6	295
30,50 - 31,49	32	209	149	104	38	5,6	305
31,50 - 32,49	32	213	153	107	38	5,6	315

WTX – Holder for Exchangeable drills

Scope of supply:
Holder incl. blade holder and interchangeable blade

≤ 5xD

Change Feed





HB

DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	DF mm	torque moment Nm	10 916 ...
14,00 - 14,49	16	149	101	77	20	0,7	140
14,50 - 14,99	16	152	104	79	20	0,7	145
15,00 - 15,49	16	155	107	82	25	0,7	150
15,50 - 16,49	20	164	114	87	25	0,7	155
16,50 - 17,49	20	170	120	93	25	0,7	165
17,50 - 18,49	20	177	127	98	25	1,3	175
18,50 - 19,49	25	189	133	103	31	1,3	185
19,50 - 20,49	25	196	140	109	31	2,0	195
20,50 - 21,49	25	202	146	114	31	2,0	205
21,50 - 22,49	25	209	153	119	31	2,0	215
22,50 - 23,49	25	215	159	124	31	2,0	225
23,50 - 24,49	25	222	166	130	31	2,0	235
24,50 - 25,49	32	233	173	135	38	3,1	245
25,50 - 26,49	32	239	179	140	38	3,1	255
26,50 - 27,49	32	246	186	146	38	3,1	265
27,50 - 28,49	32	252	192	151	38	3,1	275
28,50 - 29,49	32	259	199	156	38	5,6	285
29,50 - 30,49	32	265	205	162	38	5,6	295
30,50 - 31,49	32	272	212	167	38	5,6	305
31,50 - 32,49	32	278	218	172	38	5,6	315

Interchangeable blade



Blade holder

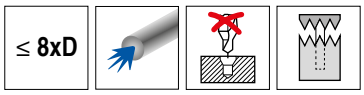
Torque handle

Differential screw

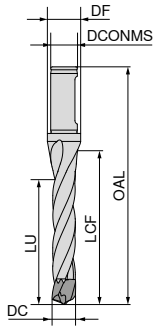
Spare parts DC	80 022 ...	80 020 ...	80 023 ...	10 950 ...
14,00 - 14,49	007	025	012	064
14,50 - 14,99	007	025	012	064
15,00 - 15,49	007	025	012	064
15,50 - 16,49	007	025	012	064
16,50 - 17,49	007	025	012	064
17,50 - 18,49	008	025	060	065
18,50 - 19,49	008	025	060	065
19,50 - 20,49	010	025	060	066
20,50 - 21,49	010	025	060	066
21,50 - 22,49	010	025	060	066
22,50 - 23,49	010	025	060	066
23,50 - 24,49	010	025	060	066
24,50 - 25,49	015	025	060	067
25,50 - 26,49	015	025	060	067
26,50 - 27,49	015	025	060	067
27,50 - 28,49	015	025	060	067
28,50 - 29,49	015	025	060	068
29,50 - 30,49	015	025	060	068
30,50 - 31,49	015	025	060	068
31,50 - 32,49	015	025	060	068

WTX – Holder for Exchangeable drills

Scope of supply:
Holder incl. blade holder and interchangeable blade



Change Feed





HB

DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	DF mm	torque moment Nm	10 917 ...
14,00 - 14,49	16	192	121	116	20	0,7	14000
14,50 - 14,99	16	197	125	120	20	0,7	14500
15,00 - 15,49	16	202	129	124	25	0,7	15000
15,50 - 16,49	20	213	137	132	25	0,7	15500
16,50 - 17,49	20	223	146	140	25	0,7	16500
17,50 - 18,49	20	232	154	148	25	1,3	17500
18,50 - 19,49	25	248	162	156	31	1,3	18500
19,50 - 20,49	25	257	171	164	31	2,0	19500
20,50 - 21,49	25	267	179	172	31	2,0	20500
21,50 - 22,49	25	276	187	180	31	2,0	21500
22,50 - 23,49	25	286	195	188	31	2,0	22500
23,50 - 24,49	25	295	204	196	31	2,0	23500
24,50 - 25,49	32	309	212	204	38	3,1	24500
25,50 - 26,49	32	319	220	212	38	3,1	25500
26,50 - 27,49	32	328	229	220	38	3,1	26500
27,50 - 28,49	32	338	237	228	38	3,1	27500
28,50 - 29,49	32	342	245	236	38	5,6	28500
29,50 - 30,49	32	352	254	244	38	5,6	29500
30,50 - 31,49	32	361	262	252	38	5,6	30500
31,50 - 32,49	32	371	270	260	38	5,6	31500

Interchangeable blade



Blade holder

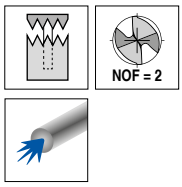

Torque handle


Differential screw

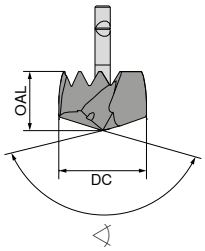
Spare parts DC	80 022 ...	80 020 ...	80 023 ...	10 950 ...
14,00 - 14,49	007	025	012	064
14,50 - 14,99	007	025	012	064
15,00 - 15,49	007	025	012	064
15,50 - 16,49	007	025	012	064
16,50 - 17,49	007	025	012	064
17,50 - 18,49	008	025	060	065
18,50 - 19,49	008	025	060	065
19,50 - 20,49	010	025	060	066
20,50 - 21,49	010	025	060	066
21,50 - 22,49	010	025	060	066
22,50 - 23,49	010	025	060	066
23,50 - 24,49	010	025	060	066
24,50 - 25,49	015	025	060	067
25,50 - 26,49	015	025	060	067
26,50 - 27,49	015	025	060	067
27,50 - 28,49	015	025	060	067
28,50 - 29,49	015	025	060	068
29,50 - 30,49	015	025	060	068
30,50 - 31,49	015	025	060	068
31,50 - 32,49	015	025	060	068

WTX – Drilling Head for Exchangeable drills

▲ extra long head type



Change UNI	Change P	Change VA	Change GG	Change AL
DPX74S	Ti750	Ti700	TiSi	TiB
DRAGONSKIN				





		◁ 140° Solid carbide	◁ 138° Solid carbide	◁ 138° Solid carbide	◁ 140° Solid carbide	◁ 140° Solid carbide
		10 919 ...	10 923 ...	10 921 ...	10 924 ...	10 922 ...
DC $_{h7/m7}$ mm	OAL mm					
12,0	10,7	12000	120	120	120	120
12,1	10,7	12100	121	121	121	121
12,2	10,7	12200	122	122	122	122
12,3	10,7	12300	123	123	123	123
12,4	10,7	12400	124	124	124	124
12,5	10,7	12500	125	125	125	125
12,6	10,7	12600	126	126	126	126
12,7	10,7	12700	127	127	127	127
12,8	10,7	12800	128	128	128	128
12,9	10,7	12900	129	129	129	129
13,0	10,7	13000	130	130	130	130
13,1	10,7	13100	131	131	131	131
13,2	10,7	13200	132	132	132	132
13,3	10,7	13300	133	133	133	133
13,4	10,7	13400	134	134	134	134
13,5	11,3	13500	135	135	135	135
13,6	11,3	13600	136	136	136	136
13,7	11,3	13700	137	137	137	137
13,8	11,3	13800	138	138	138	138
13,9	11,3	13900	139	139	139	139
14,0	11,3	14000	140	140	140	140
14,1	11,3	14100	141	141	141	141
14,2	11,3	14200	142	142	142	142
14,3	11,3	14300	143	143	143	143
14,4	11,3	14400	144	144	144	144
14,5	11,3	14500	145	145	145	145
14,6	11,3	14600	146	146	146	146
14,7	11,3	14700	147	147	147	147
14,8	11,3	14800	148	148	148	148
14,9	11,3	14900	149	149	149	149
15,0	11,3	15000	150	150	150	150
15,1	11,3	15100	151	151	151	151
15,2	11,3	15200	152	152	152	152
15,3	11,3	15300	153	153	153	153
15,4	11,3	15400	154	154	154	154
15,5	11,9	15500	155	155	155	155
15,6	11,9	15600	156	156	156	156
15,7	11,9	15700	157	157	157	157
15,8	11,9	15800	158	158	158	158
P		●	●	○		
M				●		
K		●	●	●	●	
N						●
S				●		
H						
O						

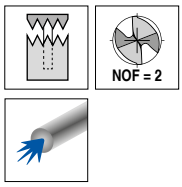
→ v_c Page 152–155

ⓘ **Ø DC$_{m7}$** for Type UNI, P, GG und AL / **Ø DC$_{h7}$** for Type VA

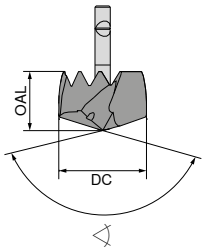
Continued on next page

WTX – Drilling Head for Exchangeable drills

▲ extra long head type



Change UNI	Change P	Change VA	Change GG	Change AL
DPX74S	Ti750	Ti700	TiSi	TiB
DRAGONSKIN				





		◁ 140° Solid carbide	◁ 138° Solid carbide	◁ 138° Solid carbide	◁ 140° Solid carbide	◁ 140° Solid carbide
		10 919 ...	10 923 ...	10 921 ...	10 924 ...	10 922 ...
DC $_{h7/m7}$ mm	OAL mm					
15,9	11,9	15900	159	159	159	159
16,0	11,9	16000	160	160	160	160
16,1	11,9	16100	161	161	161	161
16,2	11,9	16200	162	162	162	162
16,3	11,9	16300	163	163	163	163
16,4	11,9	16400	164	164	164	164
16,5	13,4	16500	165	165	165	165
16,6	13,4	16600	166	166	166	166
16,7	13,4	16700	167	167	167	167
16,8	13,4	16800	168	168	168	168
16,9	13,4	16900	169	169	169	169
17,0	13,4	17000	170	170	170	170
17,1	13,4	17100	171	171	171	171
17,2	13,4	17200	172	172	172	172
17,3	13,4	17300	173	173	173	173
17,4	13,4	17400	174	174	174	174
17,5	13,4	17500	175	175	175	175
17,6	13,4	17600	176	176	176	176
17,7	13,4	17700	177	177	177	177
17,8	13,4	17800	178	178	178	178
17,9	13,4	17900	179	179	179	179
18,0	13,4	18000	180	180	180	180
18,1	13,4	18100	181	181	181	181
18,2	13,4	18200	182	182	182	182
18,3	13,4	18300	183	183	183	183
18,4	13,4	18400	184	184	184	184
18,5	13,4	18500	185	185	185	185
18,6	13,4	18600	186	186	186	186
18,7	13,4	18700	187	187	187	187
18,8	13,4	18800	188	188	188	188
18,9	13,4	18900	189	189	189	189
19,0	13,4	19000	190	190	190	190
19,1	13,4	19100	191	191	191	191
19,2	13,4	19200	192	192	192	192
19,3	13,4	19300	193	193	193	193
19,4	13,4	19400	194	194	194	194
19,5	13,4	19500	195	195	195	195
19,6	13,4	19600	196	196	196	196
19,7	13,4	19700	197	197	197	197
P		●	●	○		
M				●		
K		●	●	●	●	
N						●
S				●		
H						
O						

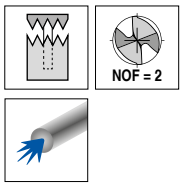
→ v_c Page 152–155

ⓘ **Ø DC$_{m7}$** for Type UNI, P, GG und AL / **Ø DC$_{h7}$** for Type VA

Continued on next page

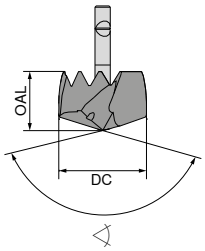
WTX – Drilling Head for Exchangeable drills

▲ extra long head type



Change UNI	Change P	Change VA	Change GG	Change AL
DPX74S	Ti750	Ti700	TiSi	TiB

DRAGONSKIN





		◁ 140° Solid carbide	◁ 138° Solid carbide	◁ 138° Solid carbide	◁ 140° Solid carbide	◁ 140° Solid carbide
		10 919 ...	10 923 ...	10 921 ...	10 924 ...	10 922 ...
DC $_{h7/m7}$ mm	OAL mm					
19,8	13,4	19800	198	198	198	198
19,9	13,4	19900	199	199	199	199
20,0	13,4	20000	200	200	200	200
20,1	13,4	20100	201	201	201	201
20,2	13,4	20200	202	202	202	202
20,3	13,4	20300	203	203	203	203
20,4	13,4	20400	204	204	204	204
20,5	15,4	20500	205	205	205	205
20,6	15,4	20600	206	206	206	206
20,7	15,4	20700	207	207	207	207
20,8	15,4	20800	208	208	208	208
20,9	15,4	20900	209	209	209	209
21,0	15,4	21000	210	210	210	210
21,1	15,4	21100	211	211	211	211
21,2	15,4	21200	212	212	212	212
21,3	15,4	21300	213	213	213	213
21,4	15,4	21400	214	214	214	214
21,5	15,4	21500	215	215	215	215
21,6	15,4	21600	216	216	216	216
21,7	15,4	21700	217	217	217	217
21,8	15,4	21800	218	218	218	218
21,9	15,4	21900	219	219	219	219
22,0	15,4	22000	220	220	220	220
22,1	15,4	22100	221	221	221	221
22,2	15,4	22200	222	222	222	222
22,3	15,4	22300	223	223	223	223
22,4	15,4	22400	224	224	224	224
22,5	15,4	22500	225	225	225	225
22,6	15,4	22600	226	226	226	226
22,7	15,4	22700	227	227	227	227
22,8	15,4	22800	228	228	228	228
22,9	15,4	22900	229	229	229	229
23,0	15,4	23000	230	230	230	230
23,1	15,4	23100	231	231	231	231
23,2	15,4	23200	232	232	232	232
23,3	15,4	23300	233	233	233	233
23,4	15,4	23400	234	234	234	234
23,5	15,4	23500	235	235	235	235
23,6	15,4	23600	236	236	236	236
P		●	●	○		
M				●		
K		●	●	●	●	
N						●
S				●		
H						
O						

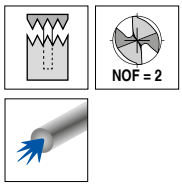
→ v_c Page 152–155

ⓘ Ø DC_{m7} for Type UNI, P, GG und AL / Ø DC_{h7} for Type VA

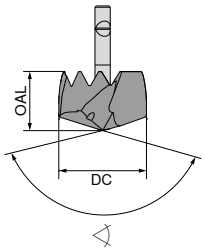
Continued on next page

WTX – Drilling Head for Exchangeable drills

▲ extra long head type



Change UNI	Change P	Change VA	Change GG	Change AL
DPX74S	Ti750	Ti700	TiSi	TiB
DRAGONSKIN				





		◁ 140° Solid carbide	◁ 138° Solid carbide	◁ 138° Solid carbide	◁ 140° Solid carbide	◁ 140° Solid carbide
		10 919 ...	10 923 ...	10 921 ...	10 924 ...	10 922 ...
DC $_{h7/m7}$ mm	OAL mm					
23,7	15,4	23700	237	237	237	237
23,8	15,4	23800	238	238	238	238
23,9	15,4	23900	239	239	239	239
24,0	15,4	24000	240	240	240	240
24,1	15,4	24100	241	241	241	241
24,2	15,4	24200	242	242	242	242
24,3	15,4	24300	243	243	243	243
24,4	15,4	24400	244	244	244	244
24,5	17,4	24500	245	245	245	245
24,6	17,4	24600	246	246	246	246
24,7	17,4	24700	247	247	247	247
24,8	17,4	24800	248	248	248	248
24,9	17,4	24900	249	249	249	249
25,0	17,4	25000	250	250	250	250
25,1	17,4	25100	251	251	251	251
25,2	17,4	25200	252	252	252	252
25,3	17,4	25300	253	253	253	253
25,4	17,4	25400	254	254	254	254
25,5	17,4	25500	255	255	255	255
25,6	17,4	25600	256	256	256	256
25,7	17,4	25700	257	257	257	257
25,8	17,4	25800	258	258	258	258
25,9	17,4	25900	259	259	259	259
26,0	17,4	26000	260	260	260	260
26,1	17,4	26100	261	261	261	261
26,2	17,4	26200	262	262	262	262
26,3	17,4	26300	263	263	263	263
26,4	17,4	26400	264	264	264	264
26,5	17,4	26500	265	265	265	265
26,6	17,4	26600	266	266	266	266
26,7	17,4	26700	267	267	267	267
26,8	17,4	26800	268	268	268	268
26,9	17,4	26900	269	269	269	269
27,0	17,4	27000	270	270	270	270
27,1	17,4	27100	271	271	271	271
27,2	17,4	27200	272	272	272	272
27,3	17,4	27300	273	273	273	273
27,4	17,4	27400	274	274	274	274
27,5	17,4	27500	275	275	275	275
P		●	●	○		
M				●		
K		●	●	●	●	
N						●
S				●		
H						
O						

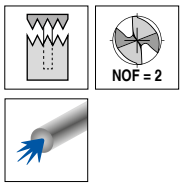
→ v_c Page 152–155

ⓘ **Ø DC$_{m7}$** for Type UNI, P, GG und AL / **Ø DC$_{h7}$** for Type VA

Continued on next page

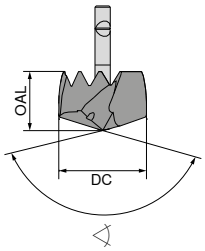
WTX – Drilling Head for Exchangeable drills

▲ extra long head type



Change UNI	Change P	Change VA	Change GG	Change AL
DPX74S	Ti750	Ti700	TiSi	TiB

DRAGONSKIN





		◁ 140° Solid carbide	◁ 138° Solid carbide	◁ 138° Solid carbide	◁ 140° Solid carbide	◁ 140° Solid carbide
		10 919 ...	10 923 ...	10 921 ...	10 924 ...	10 922 ...
DC $_{h7/m7}$ mm	OAL mm					
27,6	17,4	27600	276	276	276	276
27,7	17,4	27700	277	277	277	277
27,8	17,4	27800	278	278	278	278
27,9	17,4	27900	279	279	279	279
28,0	17,4	28000	280	280	280	280
28,1	17,4	28100	281	281	281	281
28,2	17,4	28200	282	282	282	282
28,3	17,4	28300	283	283	283	283
28,4	17,4	28400	284	284	284	284
28,5	18,4	28500	285	285	285	285
28,6	18,4	28600	286	286	286	286
28,7	18,4	28700	287	287	287	287
28,8	18,4	28800	288	288	288	288
28,9	18,4	28900	289	289	289	289
29,0	18,4	29000	290	290	290	290
29,1	18,4	29100	291	291	291	291
29,2	18,4	29200	292	292	292	292
29,3	18,4	29300	293	293	293	293
29,4	18,4	29400	294	294	294	294
29,5	18,4	29500	295	295	295	295
29,6	18,4	29600	296	296	296	296
29,7	18,4	29700	297	297	297	297
29,8	18,4	29800	298	298	298	298
29,9	18,4	29900	299	299	299	299
30,0	18,4	30000	300	300	300	300
30,1	18,4	30100	301	301	301	301
30,2	18,4	30200	302	302	302	302
30,3	18,4	30300	303	303	303	303
30,4	18,4	30400	304	304	304	304
30,5	18,4	30500	305	305	305	305
30,6	18,4	30600	306	306	306	306
30,7	18,4	30700	307	307	307	307
30,8	18,4	30800	308	308	308	308
30,9	18,4	30900	309	309	309	309
31,0	18,4	31000	310	310	310	310
31,1	18,4	31100	311	311	311	311
31,2	18,4	31200	312	312	312	312
31,3	18,4	31300	313	313	313	313
31,4	18,4	31400	314	314	314	314
P		●	●	○		
M				●		
K		●	●	●	●	
N						●
S				●		
H						
O						

→ v_c Page 152–155

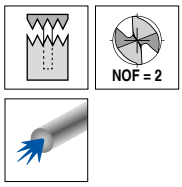
Ø DC_{m7} for Type UNI, P, GG und AL / Ø DC_{h7} for Type VA

Continued on next page

WTX – Drilling Head for Exchangeable drills

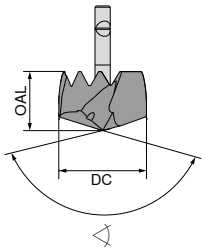
▲ extra long head type

2



Change UNI	Change P	Change VA	Change GG	Change AL
DPX74S	Ti750	Ti700	TiSi	TiB

DRAGONSKIN





		◁ 140° Solid carbide	◁ 138° Solid carbide	◁ 138° Solid carbide	◁ 140° Solid carbide	◁ 140° Solid carbide
		10 919 ...	10 923 ...	10 921 ...	10 924 ...	10 922 ...
DC $_{h7/m7}$ mm	OAL mm					
31,5	18,4	31500	315	315	315	315
31,6	18,4	31600	316	316	316	316
31,7	18,4	31700	317	317	317	317
31,8	18,4	31800	318	318	318	318
31,9	18,4	31900	319	319	319	319
32,0	18,4	32000	320	320	320	320
32,5	24,3	32500	325			
33,0	24,3	33000	330			
33,5	24,3	33500	335			
34,0	24,3	34000	340			
34,5	24,3	34500	345			
35,0	24,3	35000	350			
35,5	26,3	35500	355			
36,0	26,3	36000	360			
36,5	26,3	36500	365			
37,0	26,3	37000	370			
37,5	26,3	37500	375			
38,0	26,3	38000	380			
38,5	26,3	38500	385			
39,0	26,3	39000	390			
39,5	26,3	39500	395			
40,0	26,3	40000	400			
40,5	26,3	40500	405			
41,0	26,3	41000	410			
P		●	●	○		
M				●		
K		●	●	●	●	
N						●
S				●		
H						
O						

→ v_c Page 152–155

Ø DC$_{m7}$ for Type UNI, P, GG und AL / **Ø DC$_{h7}$** for Type VA

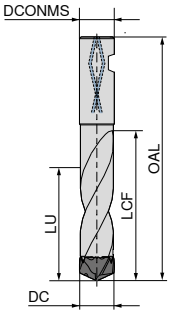
WTX – Holder for Exchangeable drills

▲ with radial teeth

Scope of supply:
Holder incl. screw driver

≤ 1xD

Change





HB

10 911 ...

DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	torque moment Nm		
12,00 - 12,49	14	81	29	12,5	1,0		120
12,50 - 12,99	14	81	29	13,0	1,0		125
13,00 - 13,49	14	81	31	13,5	1,0		130
13,50 - 13,99	16	86	32	14,0	1,3		135
14,00 - 14,49	16	86	33	14,5	1,3		140
14,50 - 14,99	16	91	34	15,0	1,3		145
15,00 - 15,49	16	91	36	15,5	1,3		150
15,50 - 16,49	20	97	38	16,5	1,3		161
15,50 - 16,49	18	92	38	16,5	1,3		160
16,50 - 17,49	18	94	40	17,5	3,5		165
16,50 - 17,49	20	99	40	17,5	3,5		166
17,50 - 18,49	20	104	43	18,5	3,5		176
17,50 - 18,49	18	99	43	18,5	3,5		175
18,50 - 19,49	20	99	45	19,5	3,5		185
19,50 - 20,49	20	104	47	20,5	3,5		195
20,50 - 21,49	25	111	49	21,5	3,5		205
21,50 - 22,49	25	116	52	22,5	3,5		215
22,50 - 23,49	25	116	54	23,5	3,5		225
23,50 - 24,49	25	121	56	24,5	4,0		235
24,50 - 25,49	25	123	59	25,5	4,0		245
25,50 - 26,49	25	123	61	26,5	4,0		255
26,50 - 27,49	25	128	63	27,5	4,0		265
27,50 - 28,49	25	128	66	28,5	4,0		275
28,50 - 29,49	32	134	68	29,5	4,0		285
29,50 - 30,49	32	139	70	30,5	4,0		295
30,50 - 31,49	32	139	75	31,5	4,0		305
31,50 - 32,49	32	139	75	32,5	4,0		315
32,50 - 33,49	32	150	78	33,5	6,0		325
33,50 - 34,49	32	150	79	34,5	6,0		335
34,50 - 35,49	32	150	82	35,5	6,0		345
35,50 - 37,49	32	152	86	37,5	6,0		355
37,50 - 39,49	32	157	91	39,5	6,0		375
39,50 - 41,00	32	167	95	41,5	6,0		395

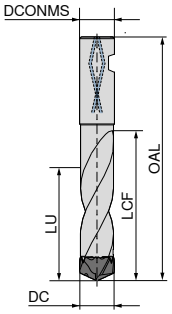
WTX – Holder for Exchangeable drills

▲ with radial teeth

Scope of supply:
Holder incl. screw driver

≤ 3xD

Change





HB

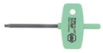
10 913 ...

DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	torque moment Nm		
12,00 - 12,49	14	100	53	38,0	1,0		120
12,50 - 12,99	14	105	55	39,0	1,0		125
13,00 - 13,49	14	105	57	40,0	1,0		130
13,50 - 13,99	16	110	59	42,0	1,3		135
14,00 - 14,49	16	115	61	43,0	1,3		140
14,50 - 14,99	16	115	63	45,0	1,3		145
15,00 - 15,49	16	115	65	46,0	1,3		150
15,50 - 16,49	18	120	70	50,0	1,3		160
15,50 - 16,49	20	125	70	50,0	1,3		161
16,50 - 17,49	18	125	74	53,0	3,5		165
16,50 - 17,49	20	130	74	50,0	3,5		166
17,50 - 18,49	18	130	78	55,0	3,5		175
17,50 - 18,49	20	135	78	50,0	3,5		176
18,50 - 19,49	20	135	82	58,0	3,5		185
19,50 - 20,49	20	140	87	62,0	3,5		195
20,50 - 21,49	25	150	91	65,0	3,5		205
21,50 - 22,49	25	155	95	67,0	3,5		215
22,50 - 23,49	25	160	99	70,0	3,5		225
23,50 - 24,49	25	165	103	73,0	3,5		235
24,50 - 25,49	25	165	108	77,0	4,0		245
25,50 - 26,49	25	175	112	80,0	4,0		255
26,50 - 27,49	25	175	116	82,0	4,0		265
27,50 - 28,49	25	180	120	85,0	4,0		275
28,50 - 29,49	32	190	124	88,0	4,0		285
29,50 - 30,49	32	195	129	92,0	4,0		295
30,50 - 31,49	32	195	133	94,0	4,0		305
31,50 - 32,49	32	200	137	97,0	4,0		315
32,50 - 33,49	32	210	144	100,5	6,0		325
33,50 - 34,49	32	215	148	103,5	6,0		335
34,50 - 35,49	32	220	153	106,5	6,0		345
35,50 - 37,49	32	227	161	112,5	6,0		355
37,50 - 39,49	32	237	170	118,5	6,0		375
39,50 - 41,00	32	247	178	124,5	6,0		395



Screw driver

80 950 ...



Screw driver

80 950 ...



Grub screw

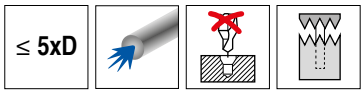
10 950 ...

Spare parts for Exchangeable Head Drill-Ø							
12,00 - 12,49	SW 1,3	132			M2,5 x 0,45 x 5	025
12,50 - 13,49	SW 1,3	132			M2,5 x 0,45 x 6	026
13,50 - 14,49			SW 1,5	133	M3 x 0,5 x 6	031
14,50 - 16,49			SW 1,5	133	M3 x 0,5 x 7	030
16,50 - 20,49			SW 2	134	M4 x 0,5 x 7,5	040
20,50 - 24,49			SW 2	134	M4 x 0,5 x 10	041
24,50 - 28,49			SW 2,5	135	M5 x 0,5 x 11	050
28,50 - 32,49			SW 2,5	135	M5 x 0,5 x 14	051
32,50 - 35,49			SW 3	136	M6 x 0,5 x 16	060
35,50 - 39,49			SW 3	136	M6 x 0,5 x 18	061
39,50 - 41,00			SW 3	136	M6 x 0,5 x 20	062

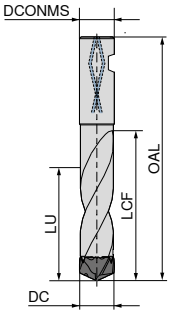
WTX – Holder for Exchangeable drills

▲ with radial teeth

Scope of supply:
Holder incl. screw driver









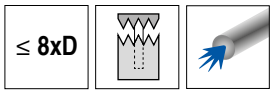
10 915 ...

DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	torque moment Nm	
12,00 - 12,49	14	125	78	62,0	1,0	120
12,50 - 12,99	14	130	81	65,0	1,0	125
13,00 - 13,49	14	130	84	67,0	1,0	130
13,50 - 13,99	16	140	88	70,0	1,3	135
14,00 - 14,49	16	140	90	72,0	1,3	140
14,50 - 14,99	16	145	94	75,0	1,3	145
15,00 - 15,49	16	145	96	77,0	1,3	150
15,50 - 16,49	18	155	103	82,0	1,3	160
15,50 - 16,49	20	160	103	82,0	1,3	161
16,50 - 17,49	18	160	109	87,0	3,5	165
16,50 - 17,49	20	165	109	87,0	3,5	166
17,50 - 18,49	18	165	115	92,0	3,5	175
17,50 - 18,49	20	170	115	92,0	3,5	176
18,50 - 19,49	20	175	121	97,0	3,5	185
19,50 - 20,49	20	180	128	102,0	3,5	195
20,50 - 21,49	25	195	134	107,0	3,5	205
21,50 - 22,49	25	200	140	112,0	3,5	215
22,50 - 23,49	25	205	146	117,0	3,5	225
23,50 - 24,49	25	210	152	122,0	3,5	235
24,50 - 25,49	25	220	159	127,0	4,0	245
25,50 - 26,49	25	225	165	132,0	4,0	255
26,50 - 27,49	25	230	171	137,0	4,0	265
27,50 - 28,49	25	240	177	142,0	4,0	275
28,50 - 29,49	32	250	183	146,0	4,0	285
29,50 - 30,49	32	255	190	152,0	4,0	295
30,50 - 31,49	32	260	196	157,0	4,0	305
31,50 - 32,49	32	265	202	162,0	4,0	315
32,50 - 33,49	32	275	210	167,5	6,0	325
33,50 - 34,49	32	285	217	172,5	6,0	335
34,50 - 35,49	32	290	224	177,5	6,0	345
35,50 - 37,49	32	302	236	187,5	6,0	355
37,50 - 39,49	32	317	249	197,5	6,0	375
39,50 - 41,00	32	327	261	207,5	6,0	395

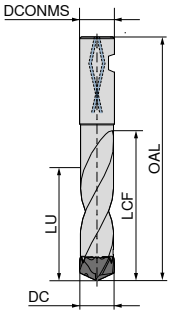
WTX – Holder for Exchangeable drills

▲ with radial teeth

Scope of supply:
Holder incl. screw driver







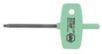


10 918 ...

DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	torque moment Nm	
12,00 - 12,49	14	165	116	100	1,0	120
12,50 - 12,99	14	170	121	104	1,0	125
13,00 - 13,49	14	175	126	108	1,0	130
13,50 - 13,99	16	180	129	111	1,3	135
14,00 - 14,49	16	185	134	115	1,3	140
14,50 - 14,99	16	190	139	120	1,3	145
15,00 - 15,49	16	195	144	124	1,3	150
15,50 - 16,49	18	205	152	131	1,3	160
15,50 - 16,49	20	210	152	131	1,3	161
16,50 - 17,49	18	215	161	138	3,5	165
16,50 - 17,49	20	220	161	138	3,5	166
17,50 - 18,49	18	220	171	147	3,5	175
17,50 - 18,49	20	225	171	147	3,5	176
18,50 - 19,49	20	235	180	155	3,5	185
19,50 - 20,49	20	240	189	163	3,5	195
20,50 - 21,49	25	260	198	170	3,5	205
21,50 - 22,49	25	270	207	178	3,5	215
22,50 - 23,49	25	275	217	187	3,5	225
23,50 - 24,49	25	285	226	194	3,5	235
24,50 - 25,49	25	295	235	202	4,0	245
25,50 - 26,49	25	305	244	210	4,0	255
26,50 - 27,49	25	315	253	218	4,0	265
27,50 - 28,49	25	325	263	226	4,0	275
28,50 - 29,49	32	340	272	234	4,0	285
29,50 - 30,49	32	345	281	242	4,0	295
30,50 - 31,49	32	355	290	249	4,0	305
31,50 - 32,00	32	360	299	257	4,0	315


Screw driver

80 950 ...


Screw driver

80 950 ...


Grub screw

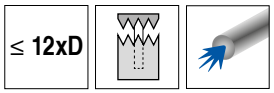
10 950 ...

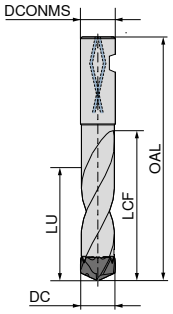
Spare parts for Exchangeable Head Drill-Ø							
12,00 - 12,49	SW 1,3	132			M2,5 x 0,45 x 5	025
12,50 - 13,49	SW 1,3	132			M2,5 x 0,45 x 6	026
13,50 - 14,49			SW 1,5	133	M3 x 0,5 x 6	031
14,50 - 16,49			SW 1,5	133	M3 x 0,5 x 7	030
16,50 - 20,49			SW 2	134	M4 x 0,5 x 7,5	040
20,50 - 24,49			SW 2	134	M4 x 0,5 x 10	041
24,50 - 28,49			SW 2,5	135	M5 x 0,5 x 11	050
28,50 - 32,49			SW 2,5	135	M5 x 0,5 x 14	051
32,50 - 35,49			SW 3	136	M6 x 0,5 x 16	060
35,50 - 39,49			SW 3	136	M6 x 0,5 x 18	061
39,50 - 41,00			SW 3	136	M6 x 0,5 x 20	062

WTX – Holder for Exchangeable drills

▲ with radial teeth

Scope of supply:
Holder incl. screw driver





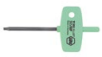
Change



DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	torque moment Nm	10 912 ...
12,00 - 12,49	14	210	162	150	1,0	12000
12,50 - 12,99	14	216	168	156	1,0	12500
13,00 - 13,49	14	223	175	162	1,0	13000
13,50 - 13,99	16	235	182	168	1,3	13500
14,00 - 14,49	16	242	189	174	1,3	14000
14,50 - 14,99	16	248	195	180	1,3	14500
15,00 - 15,49	16	255	202	186	1,3	15000
15,50 - 16,49	18	262	209	198	1,3	15500
16,50 - 17,49	18	275	222	210	3,5	16500
17,50 - 18,49	18	289	236	222	3,5	17500
18,50 - 19,49	20	304	249	234	3,5	18500
19,50 - 20,49	20	318	263	246	3,5	19500
20,50 - 21,49	25	337	276	258	3,5	20500
21,50 - 22,49	25	351	290	270	3,5	21500
22,50 - 23,49	25	364	303	282	3,5	22500
23,50 - 24,49	25	378	317	294	3,5	23500
24,50 - 25,49	25	391	330	306	4,0	24500
25,50 - 26,49	25	405	344	318	4,0	25500
26,50 - 27,49	25	418	357	330	4,0	26500
27,50 - 28,49	25	432	371	342	4,0	27500
28,50 - 29,49	32	449	384	354	4,0	28500
29,50 - 30,49	32	463	398	366	4,0	29500
30,50 - 31,49	32	476	411	378	4,0	30500
31,50 - 32,00	32	490	425	390	4,0	31500



Screw driver



Screw driver



Grub screw

Spare parts for Exchangeable Head Drill-Ø		80 950 ...		80 950 ...		10 950 ...
12,00 - 12,49	SW 1,3	132			M2,5 x 0,45 x 5	025
12,50 - 13,49	SW 1,3	132			M2,5 x 0,45 x 6	026
13,50 - 14,49			SW 1,5	133	M3 x 0,5 x 6	031
14,50 - 16,49			SW 1,5	133	M3 x 0,5 x 7	030
16,50 - 20,49			SW 2	134	M4 x 0,5 x 7,5	040
20,50 - 24,49			SW 2	134	M4 x 0,5 x 10	041
24,50 - 28,49			SW 2,5	135	M5 x 0,5 x 11	050
28,50 - 32,49			SW 2,5	135	M5 x 0,5 x 14	051
32,50 - 35,49			SW 3	136	M6 x 0,5 x 16	060
35,50 - 39,49			SW 3	136	M6 x 0,5 x 18	061
39,50 - 41,00			SW 3	136	M6 x 0,5 x 20	062

MultiChange – Programme Overview

The highly stable "MultiChange" exchangeable head system enables an extremely fast tool change. Designed to be durable and for a very high radial run-out accuracy, this exchangeable head system is probably the most stable and precise exchangeable head system on the market. The following chapters contain suitable exchangeable heads for almost every application.

Reaming and Countersinking



- Through hole reamers
  Ø 8–30.2 mm incl. special diameters / ZEFP* 4–6
- Blind hold reamers
  Ø 12.2–30.2 mm incl. special diameters / ZEFP* 6

→ **Chapter 4, Reaming and countersinking**

*ZEFP = Number of teeth

Solid Carbide milling cutters



- Solid carbide shoulder mills
  Type N, PCR-UNI, PCR-ALU / Ø 8, 10, 12, 16, 20 mm / ZEFP* 3+4
- Solid carbide rough and finish milling cutters
  Ø 8, 10, 12, 16, 20 mm / ZEFP* 4–6
- Solid carbide finish milling cutters
  Ø 8, 10, 12, 16, 20 mm / ZEFP* 6
- Solid carbide high-feed cutters
  Ø 8, 10, 12, 16, 20 mm / ZEFP* 6
- Solid carbide ball-nosed end mills
  Ø 10, 12, 16, 20 mm / ZEFP* 4
- Solid carbide torus bull nose milling cutters
  Ø 8, 10, 12, 16, 20 mm / ZEFP* 3+4
- Solid carbide quarter round cutter
  Ø 8, 10, 12, 16, 20 mm
- Solid carbide deburring cutters
  Ø 10, 12, 16, 20 mm / ZEFP* 4+6

→ **Chapter 14, Solid carbide milling cutters**

*ZEFP = Number of teeth

Tool holder



- Steel Holder Extra Short
  Cylindrical / Tapered 87°
  Length 60–90 mm
  for SZID: 8, 10, 12, 16, 20 mm



- Short Holder Steel / Solid Carbide
  cylindrical
  Length 85–120 mm
  for SZID: 8, 10, 12, 16, 20 mm



- Holder Steel / Solid Carbide, Short
  87° taper
  Length 85–120 mm
  for SZID: 8, 10, 12, 16, 20 mm



- Solid Carbide Holder Medium
  Cylindrical / Tapered 87°
  Length 110–150 mm
  for SZID: 8, 10, 12, 16, 20 mm



- Holder Steel / Solid Carbide, Long
  cylindrical
  Length 150–200 mm
  for SZID: 8, 10, 12, 16, 20 mm



- Holder Steel / Solid Carbide, Long
  87° taper
  Length 150–200 mm
  for SZID: 8, 10, 12, 16, 20 mm



- Steel / Solid Carbide Holder Extra Long
  cylindrical
  Length 200–250 mm
  for SZID: 16 and 20 mm

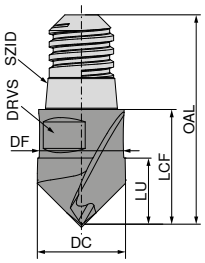
→ **Catalogue – Clamping technology, Chapter Accessories**

MultiChange – NC Spot Drill

- SZID = Coupling Size
- TQX = Torque Moment
- NOF = No. of cutting edges



NC-A Ti1050 | NC-A Ti1050 | NC-A Ti1050





										◁ 90° Solid carbide	◁ 120° Solid carbide	◁ 142° Solid carbide
										10 709 ...	**10 712 ...**	**10 714 ...**
DC mm	SZID	LU mm	DF mm	LCF mm	OAL mm	NOF	DRVS mm	TQX Nm	$a_{p\,max}$ mm			
8	06	6,0	7,8	11	20,4	2	6	5,0	4	**080**	**080**	**080**
10	08	7,5	9,8	13	26,9	2	8	12,5	5	**100**	**100**	**100**
12	10	9,0	11,8	16	30,1	2	10	15,0	6	**120**	**120**	**120**
16	12	12,0	15,8	20	37,3	2	13	20,0	8	**160**	**160**	**160**
20	16	15,0	19,8	25	47,2	2	16	25,0	10	**200**	**200**	**200**
P										●	●	●
M										●	●	●
K										●	●	●
N										●	●	●
S												
H												
O												

→ v_c Page 148

Torque wrench should be used for coupling sizes 06 and 08.
For unstable applications, the cutting data should be reduced.

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²				
		O.3.1	Graphite						

*** Tensile strength**

Cutting data standard values – WTX – Speed

Index	Drilling depth 3xD Speed UNI 10 781 ...						Drilling depth 5xD Speed UNI 10 771 ...					
	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
P.1.1	185	0,17	0,24	0,33	0,40	0,45	185	0,17	0,24	0,33	0,40	0,45
P.1.2	180	0,16	0,23	0,31	0,38	0,43	180	0,16	0,23	0,31	0,38	0,43
P.1.3	170	0,16	0,22	0,30	0,36	0,41	170	0,16	0,22	0,30	0,36	0,41
P.1.4	160	0,15	0,21	0,28	0,35	0,39	160	0,15	0,21	0,28	0,35	0,39
P.1.5	155	0,14	0,20	0,27	0,33	0,37	155	0,14	0,20	0,27	0,33	0,37
P.2.1	185	0,20	0,29	0,39	0,47	0,53	185	0,20	0,29	0,39	0,47	0,53
P.2.2	170	0,18	0,26	0,35	0,43	0,49	170	0,18	0,26	0,35	0,43	0,49
P.2.3	155	0,17	0,24	0,32	0,39	0,44	155	0,17	0,24	0,32	0,39	0,44
P.2.4	120	0,16	0,21	0,28	0,34	0,38	120	0,16	0,21	0,28	0,34	0,38
P.3.1	130	0,16	0,23	0,32	0,39	0,44	130	0,16	0,23	0,32	0,39	0,44
P.3.2	100	0,14	0,20	0,26	0,32	0,36	100	0,14	0,20	0,26	0,32	0,36
P.3.3	100	0,12	0,16	0,20	0,25	0,28	100	0,12	0,16	0,20	0,25	0,28
P.4.1	100	0,11	0,16	0,21	0,25	0,29	100	0,11	0,16	0,21	0,25	0,29
P.4.2	100	0,11	0,16	0,21	0,25	0,29	100	0,11	0,16	0,21	0,25	0,29
M.1.1	65	0,08	0,12	0,16	0,19	0,22	65	0,08	0,12	0,16	0,19	0,22
M.2.1	60	0,07	0,10	0,14	0,17	0,19	60	0,07	0,10	0,14	0,17	0,19
M.3.1	60	0,07	0,10	0,14	0,17	0,19	60	0,07	0,10	0,14	0,17	0,19
K.1.1	150	0,18	0,28	0,40	0,49	0,56	150	0,18	0,28	0,40	0,49	0,56
K.1.2	125	0,16	0,24	0,32	0,39	0,45	125	0,16	0,24	0,32	0,39	0,45
K.2.1	200	0,18	0,27	0,37	0,46	0,52	200	0,18	0,27	0,37	0,46	0,52
K.2.2	125	0,16	0,24	0,32	0,39	0,45	125	0,16	0,24	0,32	0,39	0,45
K.3.1	115	0,18	0,25	0,34	0,42	0,48	115	0,18	0,25	0,34	0,42	0,48
K.3.2	100	0,15	0,21	0,28	0,34	0,38	100	0,15	0,21	0,28	0,34	0,38
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

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

Index	v_c m/min with through coolant	Drilling depth 8xD Speed UNI 10 782 ... Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
P.1.1	185	0,17	0,24	0,33	0,40	0,45
P.1.2	180	0,16	0,23	0,31	0,38	0,43
P.1.3	170	0,16	0,22	0,30	0,36	0,41
P.1.4	160	0,15	0,21	0,28	0,35	0,39
P.1.5	155	0,14	0,20	0,27	0,33	0,37
P.2.1	185	0,20	0,29	0,39	0,47	0,53
P.2.2	170	0,18	0,26	0,35	0,43	0,49
P.2.3	155	0,17	0,24	0,32	0,39	0,44
P.2.4	120	0,16	0,21	0,28	0,34	0,38
P.3.1	130	0,16	0,23	0,32	0,39	0,44
P.3.2	100	0,14	0,20	0,26	0,32	0,36
P.3.3	100	0,12	0,16	0,20	0,25	0,28
P.4.1	100	0,11	0,16	0,21	0,25	0,29
P.4.2	100	0,11	0,16	0,21	0,25	0,29
M.1.1	65	0,08	0,12	0,16	0,19	0,22
M.2.1	60	0,07	0,10	0,14	0,17	0,19
M.3.1	60	0,07	0,10	0,14	0,17	0,19
K.1.1	150	0,18	0,28	0,40	0,49	0,56
K.1.2	125	0,16	0,24	0,32	0,39	0,45
K.2.1	200	0,18	0,27	0,37	0,46	0,52
K.2.2	125	0,16	0,24	0,32	0,39	0,45
K.3.1	115	0,18	0,25	0,34	0,42	0,48
K.3.2	100	0,15	0,21	0,28	0,34	0,38
N.1.1						
N.1.2						
N.2.1						
N.2.2						
N.2.3						
N.3.1						
N.3.2						
N.3.3						
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

Cutting data standard values – WTX – Feed

Index	v_c m/min with through coolant	Drilling depth 5xD Feed UNI 10 789 ... Ø 4–6 f mm/rev.	Ø 6–7 f mm/rev.	Ø 7–8 f mm/rev.	Ø 8–10 f mm/rev.	Ø 10–12 f mm/rev.	Ø 12–15 f mm/rev.	Ø 15–17 f mm/rev.	Ø 17–20 f mm/rev.
P.1.1	**125**	0,28	0,34	0,37	0,42	0,48	0,54	0,59	0,63
P.1.2	**120**	0,27	0,32	0,35	0,40	0,46	0,52	0,56	0,60
P.1.3	**115**	0,25	0,31	0,34	0,38	0,44	0,49	0,54	0,57
P.1.4	**110**	0,24	0,29	0,32	0,36	0,41	0,47	0,51	0,54
P.1.5	**105**	0,23	0,27	0,30	0,34	0,39	0,44	0,48	0,52
P.2.1	**125**	0,33	0,40	0,44	0,50	0,57	0,64	0,70	0,75
P.2.2	**115**	0,30	0,36	0,40	0,45	0,51	0,58	0,63	0,68
P.2.3	**105**	0,27	0,32	0,36	0,41	0,46	0,52	0,57	0,61
P.2.4	**80**	0,25	0,29	0,32	0,36	0,41	0,46	0,50	0,54
P.3.1	**85**	0,27	0,32	0,36	0,41	0,46	0,52	0,57	0,61
P.3.2	**70**	0,23	0,27	0,30	0,33	0,38	0,43	0,47	0,50
P.3.3	**70**	0,18	0,22	0,24	0,26	0,30	0,33	0,36	0,38
P.4.1	**70**	0,18	0,21	0,24	0,27	0,30	0,34	0,38	0,40
P.4.2	**70**	0,18	0,21	0,24	0,27	0,30	0,34	0,38	0,40
M.1.1	**55**	0,13	0,16	0,18	0,20	0,23	0,26	0,28	0,30
M.2.1	**50**	0,11	0,14	0,15	0,17	0,20	0,22	0,24	0,26
M.3.1	**50**	0,11	0,14	0,15	0,17	0,20	0,22	0,24	0,26
K.1.1	**140**	0,38	0,47	0,53	0,61	0,70	0,80	0,89	0,95
K.1.2	**115**	0,32	0,39	0,44	0,50	0,57	0,64	0,70	0,75
K.2.1	**185**	0,37	0,45	0,50	0,57	0,66	0,75	0,82	0,88
K.2.2	**115**	0,32	0,39	0,44	0,50	0,57	0,64	0,70	0,75
K.3.1	**105**	0,35	0,42	0,47	0,53	0,61	0,69	0,76	0,81
K.3.2	**90**	0,29	0,35	0,38	0,43	0,49	0,55	0,60	0,64
N.1.1	380	0,28	0,34	0,37	0,42	0,48	0,54	0,59	0,63
N.1.2	345	0,25	0,31	0,34	0,38	0,44	0,49	0,54	0,57
N.2.1	290	0,32	0,39	0,44	0,50	0,57	0,64	0,70	0,75
N.2.2	255	0,32	0,39	0,44	0,50	0,57	0,64	0,70	0,75
N.2.3	205	0,32	0,39	0,44	0,50	0,57	0,64	0,70	0,75
N.3.1	230	0,38	0,47	0,53	0,61	0,70	0,80	0,89	0,95
N.3.2	140	0,24	0,29	0,33	0,37	0,43	0,48	0,53	0,57
N.3.3									
N.4.1									
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2									
S.3.3									
H.1.1									
H.1.2									
H.1.3									
H.1.4									
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

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

Index	v_c m/min with through coolant	Hole depth 8xD and 12xD Feed UNI 10 794 ..., 10 796 ... Ø 4–6 f mm/rev.	Ø 6–7 f mm/rev.	Ø 7–8 f mm/rev.	Ø 8–10 f mm/rev.	Ø 10–12 f mm/rev.	Ø 12–15 f mm/rev.	Ø 15–17 f mm/rev.	Ø 17–20 f mm/rev.
P.1.1	125	0,28	0,34	0,37	0,42	0,48	0,54	0,59	0,63
P.1.2	120	0,27	0,32	0,35	0,40	0,46	0,52	0,56	0,60
P.1.3	115	0,25	0,31	0,34	0,38	0,44	0,49	0,54	0,57
P.1.4	110	0,24	0,29	0,32	0,36	0,41	0,47	0,51	0,54
P.1.5	105	0,23	0,27	0,30	0,34	0,39	0,44	0,48	0,52
P.2.1	125	0,33	0,40	0,44	0,50	0,57	0,64	0,70	0,75
P.2.2	115	0,30	0,36	0,40	0,45	0,51	0,58	0,63	0,68
P.2.3	105	0,27	0,32	0,36	0,41	0,46	0,52	0,57	0,61
P.2.4	80	0,25	0,29	0,32	0,36	0,41	0,46	0,50	0,54
P.3.1	85	0,27	0,32	0,36	0,41	0,46	0,52	0,57	0,61
P.3.2	70	0,23	0,27	0,30	0,33	0,38	0,43	0,47	0,50
P.3.3	70	0,18	0,22	0,24	0,26	0,30	0,33	0,36	0,38
P.4.1	70	0,18	0,21	0,24	0,27	0,30	0,34	0,38	0,40
P.4.2	70	0,18	0,21	0,24	0,27	0,30	0,34	0,38	0,40
M.1.1	55	0,13	0,16	0,18	0,20	0,23	0,26	0,28	0,30
M.2.1	50	0,11	0,14	0,15	0,17	0,20	0,22	0,24	0,26
M.3.1	50	0,11	0,14	0,15	0,17	0,20	0,22	0,24	0,26
K.1.1	140	0,38	0,47	0,53	0,61	0,70	0,80	0,89	0,95
K.1.2	115	0,32	0,39	0,44	0,50	0,57	0,64	0,70	0,75
K.2.1	185	0,37	0,45	0,50	0,57	0,66	0,75	0,82	0,88
K.2.2	115	0,32	0,39	0,44	0,50	0,57	0,64	0,70	0,75
K.3.1	105	0,35	0,42	0,47	0,53	0,61	0,69	0,76	0,81
K.3.2	90	0,29	0,35	0,38	0,43	0,49	0,55	0,60	0,64
N.1.1	380	0,28	0,34	0,37	0,42	0,48	0,54	0,59	0,63
N.1.2	345	0,25	0,31	0,34	0,38	0,44	0,49	0,54	0,57
N.2.1	290	0,32	0,39	0,44	0,50	0,57	0,64	0,70	0,75
N.2.2	255	0,32	0,39	0,44	0,50	0,57	0,64	0,70	0,75
N.2.3	205	0,32	0,39	0,44	0,50	0,57	0,64	0,70	0,75
N.3.1	230	0,38	0,47	0,53	0,61	0,70	0,80	0,89	0,95
N.3.2	140	0,24	0,29	0,33	0,37	0,43	0,48	0,53	0,57
N.3.3									
N.4.1									
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2									
S.3.3									
H.1.1									
H.1.2									
H.1.3									
H.1.4									
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

Cutting data standard values – WTX – UNI

Index	Drilling depth 3xD UNI 11 776 ..., 11 777 ..., 11 778 ..., 11 779 ..., 11 780 ..., 11 781 ...							
	v_c m/min without through coolant	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.	Ø 20–25 f mm/rev.
P.1.1	**110**	**120**	0,13	0,18	0,25	0,30	0,34	0,37
P.1.2	**105**	**115**	0,12	0,18	0,24	0,29	0,33	0,36
P.1.3	**100**	**110**	0,12	0,17	0,23	0,28	0,31	0,34
P.1.4	**95**	**105**	0,11	0,16	0,21	0,26	0,30	0,32
P.1.5	**90**	**100**	0,11	0,15	0,20	0,25	0,28	0,30
P.2.1	**105**	**120**	0,15	0,22	0,29	0,36	0,41	0,44
P.2.2	**95**	**110**	0,14	0,20	0,27	0,33	0,37	0,40
P.2.3	**85**	**100**	0,13	0,18	0,24	0,29	0,33	0,36
P.2.4	**65**	**75**	0,12	0,16	0,21	0,26	0,29	0,32
P.3.1	**70**	**85**	0,12	0,18	0,24	0,29	0,33	0,36
P.3.2	**60**	**65**	0,11	0,15	0,20	0,24	0,27	0,29
P.3.3	**50**	**65**	0,09	0,12	0,15	0,19	0,21	0,23
P.4.1	**50**	**65**	0,08	0,12	0,16	0,19	0,22	0,24
P.4.2	**50**	**65**	0,08	0,12	0,16	0,19	0,22	0,24
M.1.1								
M.2.1								
M.3.1								
K.1.1	**85**	**120**	0,17	0,26	0,36	0,45	0,52	0,56
K.1.2	**75**	**100**	0,15	0,22	0,29	0,36	0,41	0,45
K.2.1	**100**	**160**	0,17	0,25	0,34	0,42	0,48	0,52
K.2.2	**75**	**100**	0,15	0,22	0,29	0,36	0,41	0,45
K.3.1	**80**	**90**	0,16	0,23	0,32	0,39	0,44	0,48
K.3.2	**70**	**80**	0,14	0,19	0,25	0,31	0,35	0,38
N.1.1								
N.1.2								
N.2.1								
N.2.2								
N.2.3								
N.3.1								
N.3.2								
N.3.3								
N.4.1								
S.1.1								
S.1.2								
S.2.1								
S.2.2								
S.2.3								
S.3.1								
S.3.2								
S.3.3								
H.1.1	25	25	0,06	0,08	0,11	0,14	0,15	0,17
H.1.2								
H.1.3								
H.1.4								
H.2.1	35	35	0,08	0,11	0,14	0,18	0,20	0,22
H.3.1								
O.1.1								
O.1.2								
O.2.1								
O.2.2								
O.3.1								

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

Index	Drilling depth 5xD UNI 11 782 ..., 11 783 ..., 11 784 ..., 11 785 ..., 11 786 ..., 11 787 ...								Drilling depth 8xD UNI 11 788 ..., 11 789 ..., 11 790 ...					
	v_c m/min without through coolant	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.	Ø 20–25 f mm/rev.	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
P.1.1	**110**	**120**	0,13	0,18	0,25	0,30	0,34	0,37	**110**	0,13	0,18	0,25	0,30	0,34
P.1.2	**105**	**115**	0,12	0,18	0,24	0,29	0,33	0,36	**105**	0,12	0,18	0,24	0,29	0,33
P.1.3	**100**	**110**	0,12	0,17	0,23	0,28	0,31	0,34	**100**	0,12	0,17	0,23	0,28	0,31
P.1.4	**95**	**105**	0,11	0,16	0,21	0,26	0,30	0,32	**95**	0,11	0,16	0,21	0,26	0,30
P.1.5	**90**	**100**	0,11	0,15	0,20	0,25	0,28	0,30	**90**	0,11	0,15	0,20	0,25	0,28
P.2.1	**105**	**120**	0,15	0,22	0,29	0,36	0,41	0,44	**105**	0,15	0,22	0,29	0,36	0,41
P.2.2	**95**	**110**	0,14	0,20	0,27	0,33	0,37	0,40	**95**	0,14	0,20	0,27	0,33	0,37
P.2.3	**85**	**100**	0,13	0,18	0,24	0,29	0,33	0,36	**85**	0,13	0,18	0,24	0,29	0,33
P.2.4	**65**	**75**	0,12	0,16	0,21	0,26	0,29	0,32	**65**	0,12	0,16	0,21	0,26	0,29
P.3.1	**70**	**85**	0,12	0,18	0,24	0,29	0,33	0,36	**70**	0,12	0,18	0,24	0,29	0,33
P.3.2	**60**	**65**	0,11	0,15	0,20	0,24	0,27	0,29	**60**	0,11	0,15	0,20	0,24	0,27
P.3.3	**50**	**65**	0,09	0,12	0,15	0,19	0,21	0,23	**50**	0,09	0,12	0,15	0,19	0,21
P.4.1	**50**	**65**	0,08	0,12	0,16	0,19	0,22	0,24	**50**	0,08	0,12	0,16	0,19	0,22
P.4.2	**50**	**65**	0,08	0,12	0,16	0,19	0,22	0,24	**50**	0,08	0,12	0,16	0,19	0,22
M.1.1														
M.2.1														
M.3.1														
K.1.1	**85**	**120**	0,17	0,26	0,36	0,45	0,52	0,56	**85**	0,17	0,26	0,36	0,45	0,52
K.1.2	**75**	**100**	0,15	0,22	0,29	0,36	0,41	0,45	**75**	0,15	0,22	0,29	0,36	0,41
K.2.1	**100**	**160**	0,17	0,25	0,34	0,42	0,48	0,52	**100**	0,17	0,25	0,34	0,42	0,48
K.2.2	**75**	**100**	0,15	0,22	0,29	0,36	0,41	0,45	**75**	0,15	0,22	0,29	0,36	0,41
K.3.1	**80**	**90**	0,16	0,23	0,32	0,39	0,44	0,48	**80**	0,16	0,23	0,32	0,39	0,44
K.3.2	**70**	**80**	0,14	0,19	0,25	0,31	0,35	0,38	**70**	0,14	0,19	0,25	0,31	0,35
N.1.1														
N.1.2														
N.2.1														
N.2.2														
N.2.3														
N.3.1														
N.3.2														
N.3.3														
N.4.1														
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1														
S.3.2														
S.3.3														
H.1.1	25	25	0,06	0,08	0,11	0,14	0,15	0,17	25	0,06	0,08	0,11	0,14	0,15
H.1.2														
H.1.3														
H.1.4														
H.2.1	35	35	0,08	0,11	0,14	0,18	0,20	0,22	35	0,08	0,11	0,14	0,18	0,20
H.3.1														
O.1.1														
O.1.2														
O.2.1														
O.2.2														
O.3.1														

Cutting data standard values – WTX – VA

Index	Drilling depth 3xD VA 10 731 ..., 10 732 ..., 10 733 ..., 10 734 ...							Drilling depth 5xD VA 10 740 ..., 10 741 ..., 10 745 ..., 10 746 ...						
	v_c m/min without through coolant	v_c m/min with through coolant	Ø 2–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.	v_c m/min without through coolant	v_c m/min with through coolant	Ø 2–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
P.1.1	100	110	0,09	0,13	0,18	0,22	0,25	100	110	0,09	0,13	0,18	0,22	0,25
P.1.2	95	105	0,09	0,13	0,17	0,21	0,24	95	105	0,09	0,13	0,17	0,21	0,24
P.1.3	90	100	0,09	0,12	0,16	0,20	0,23	90	100	0,09	0,12	0,16	0,20	0,23
P.1.4	85	95	0,08	0,12	0,16	0,19	0,22	85	95	0,08	0,12	0,16	0,19	0,22
P.1.5	80	90	0,08	0,11	0,15	0,18	0,20	80	90	0,08	0,11	0,15	0,18	0,20
P.2.1	95	110	0,11	0,16	0,21	0,26	0,29	95	110	0,11	0,16	0,21	0,26	0,29
P.2.2	85	100	0,10	0,14	0,19	0,24	0,27	85	100	0,10	0,14	0,19	0,24	0,27
P.2.3	75	90	0,09	0,13	0,17	0,21	0,24	75	90	0,09	0,13	0,17	0,21	0,24
P.2.4	60	70	0,09	0,12	0,16	0,19	0,21	60	70	0,09	0,12	0,16	0,19	0,21
P.3.1	65	75	0,09	0,13	0,17	0,21	0,24	65	75	0,09	0,13	0,17	0,21	0,24
P.3.2	55	60	0,08	0,11	0,14	0,17	0,20	55	60	0,08	0,11	0,14	0,17	0,20
P.3.3	45	60	0,06	0,09	0,11	0,14	0,15	45	60	0,06	0,09	0,11	0,14	0,15
P.4.1	45	60	0,06	0,09	0,11	0,14	0,16	45	60	0,06	0,09	0,11	0,14	0,16
P.4.2	45	60	0,06	0,09	0,11	0,14	0,16	45	60	0,06	0,09	0,11	0,14	0,16
M.1.1	**35**	**55**	0,08	0,11	0,14	0,18	0,20	**35**	**55**	0,08	0,11	0,14	0,18	0,20
M.2.1	**30**	**50**	0,06	0,09	0,12	0,15	0,17	**30**	**50**	0,06	0,09	0,12	0,15	0,17
M.3.1	**30**	**50**	0,06	0,09	0,12	0,15	0,17	**30**	**50**	0,06	0,09	0,12	0,15	0,17
K.1.1	85	120	0,15	0,24	0,33	0,41	0,47	85	120	0,15	0,24	0,33	0,41	0,47
K.1.2	75	100	0,14	0,20	0,27	0,33	0,37	75	100	0,14	0,20	0,27	0,33	0,37
K.2.1	100	160	0,15	0,22	0,31	0,38	0,43	100	160	0,15	0,22	0,31	0,38	0,43
K.2.2	75	100	0,14	0,20	0,27	0,33	0,37	75	100	0,14	0,20	0,27	0,33	0,37
K.3.1	80	90	0,15	0,21	0,29	0,35	0,40	80	90	0,15	0,21	0,29	0,35	0,40
K.3.2	70	80	0,12	0,17	0,23	0,28	0,32	70	80	0,12	0,17	0,23	0,28	0,32
N.1.1	220	330	0,10	0,16	0,22	0,30	0,33	220	330	0,10	0,16	0,22	0,30	0,33
N.1.2	200	300	0,09	0,12	0,20	0,25	0,30	200	300	0,09	0,12	0,20	0,25	0,30
N.2.1	180	250	0,11	0,15	0,26	0,33	0,39	180	250	0,11	0,15	0,26	0,33	0,39
N.2.2	150	220	0,11	0,15	0,26	0,33	0,39	150	220	0,11	0,15	0,26	0,33	0,39
N.2.3	120	180	0,11	0,15	0,26	0,33	0,39	120	180	0,11	0,15	0,26	0,33	0,39
N.3.1	160	200	0,15	0,24	0,33	0,41	0,47	160	200	0,15	0,24	0,33	0,41	0,47
N.3.2	90	120	0,14	0,20	0,27	0,33	0,37	90	120	0,14	0,20	0,27	0,33	0,37
N.3.3														
N.4.1														
S.1.1	**20**	**30**	0,06	0,09	0,11	0,14	0,16	**20**	**30**	0,06	0,09	0,11	0,14	0,16
S.1.2	**15**	**20**	0,04	0,06	0,08	0,10	0,11	**15**	**20**	0,04	0,06	0,08	0,10	0,11
S.2.1	**15**	**20**	0,04	0,06	0,08	0,10	0,11	**15**	**20**	0,04	0,06	0,08	0,10	0,11
S.2.2	**10**	**15**	0,05	0,08	0,10	0,13	0,14	**10**	**15**	0,05	0,08	0,10	0,13	0,14
S.2.3	**10**	**15**	0,04	0,06	0,08	0,10	0,11	**10**	**15**	0,04	0,06	0,08	0,10	0,11
S.3.1														
S.3.2	**20**	**30**	0,06	0,09	0,12	0,15	0,17	**20**	**30**	0,06	0,09	0,12	0,15	0,17
S.3.3	**15**	**25**	0,05	0,08	0,10	0,13	0,14	**15**	**25**	0,05	0,08	0,10	0,13	0,14
H.1.1														
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1														
O.1.1														
O.1.2														
O.2.1														
O.2.2														
O.3.1														

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

Index		Drilling depth 8xD VA 10 770 ...				
	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
P.1.1	110	0,09	0,13	0,18	0,22	0,25
P.1.2	105	0,09	0,13	0,17	0,21	0,24
P.1.3	100	0,09	0,12	0,16	0,20	0,23
P.1.4	95	0,08	0,12	0,16	0,19	0,22
P.1.5	90	0,08	0,11	0,15	0,18	0,20
P.2.1	110	0,11	0,16	0,21	0,26	0,29
P.2.2	100	0,10	0,14	0,19	0,24	0,27
P.2.3	90	0,09	0,13	0,17	0,21	0,24
P.2.4	70	0,09	0,12	0,16	0,19	0,21
P.3.1	75	0,09	0,13	0,17	0,21	0,24
P.3.2	60	0,08	0,11	0,14	0,17	0,20
P.3.3	60	0,06	0,09	0,11	0,14	0,15
P.4.1	60	0,06	0,09	0,11	0,14	0,16
P.4.2	60	0,06	0,09	0,11	0,14	0,16
M.1.1	**55**	0,08	0,11	0,14	0,18	0,20
M.2.1	**50**	0,06	0,09	0,12	0,15	0,17
M.3.1	**50**	0,06	0,09	0,12	0,15	0,17
K.1.1	120	0,15	0,24	0,33	0,41	0,47
K.1.2	100	0,14	0,20	0,27	0,33	0,37
K.2.1	160	0,15	0,22	0,31	0,38	0,43
K.2.2	100	0,14	0,20	0,27	0,33	0,37
K.3.1	90	0,15	0,21	0,29	0,35	0,40
K.3.2	80	0,12	0,17	0,23	0,28	0,32
N.1.1	330	0,10	0,16	0,22	0,30	0,33
N.1.2	300	0,09	0,12	0,20	0,25	0,30
N.2.1	250	0,11	0,15	0,26	0,33	0,39
N.2.2	220	0,11	0,15	0,26	0,33	0,39
N.2.3	180	0,11	0,15	0,26	0,33	0,39
N.3.1	200	0,15	0,24	0,33	0,41	0,47
N.3.2	120	0,14	0,20	0,27	0,33	0,37
N.3.3						
N.4.1						
S.1.1	**30**	0,06	0,09	0,11	0,14	0,16
S.1.2	**20**	0,04	0,06	0,08	0,10	0,11
S.2.1	**20**	0,04	0,06	0,08	0,10	0,11
S.2.2	**15**	0,05	0,08	0,10	0,13	0,14
S.2.3	**15**	0,04	0,06	0,08	0,10	0,11
S.3.1						
S.3.2	**30**	0,06	0,09	0,12	0,15	0,17
S.3.3	**25**	0,05	0,08	0,10	0,13	0,14
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

Cutting data standard values – WTX – Speed VA

Index	Drilling depth 5xD Speed VA 10 773 ...						Drilling depth 12xD Speed VA 10 774 ...					
	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
P.1.1	**165**	0,12	0,17	0,23	0,28	0,31	**110**	0,09	0,13	0,18	0,22	0,25
P.1.2	**160**	0,11	0,16	0,22	0,26	0,30	**105**	0,09	0,13	0,17	0,21	0,24
P.1.3	**150**	0,11	0,15	0,20	0,25	0,28	**100**	0,09	0,12	0,16	0,20	0,23
P.1.4	**145**	0,10	0,15	0,19	0,24	0,27	**95**	0,08	0,12	0,16	0,19	0,22
P.1.5	**135**	0,10	0,14	0,18	0,23	0,26	**90**	0,08	0,11	0,15	0,18	0,20
P.2.1	**165**	0,14	0,20	0,27	0,33	0,37	**110**	0,11	0,16	0,21	0,26	0,29
P.2.2	**150**	0,13	0,18	0,24	0,30	0,34	**100**	0,10	0,14	0,19	0,24	0,27
P.2.3	**135**	0,11	0,16	0,22	0,27	0,30	**90**	0,09	0,13	0,17	0,21	0,24
P.2.4	**105**	0,11	0,15	0,19	0,24	0,27	**70**	0,09	0,12	0,16	0,19	0,21
P.3.1	**115**	0,11	0,16	0,22	0,27	0,30	**75**	0,09	0,13	0,17	0,21	0,24
P.3.2	**90**	0,10	0,13	0,18	0,22	0,25	**60**	0,08	0,11	0,14	0,17	0,20
P.3.3	**90**	0,08	0,11	0,14	0,17	0,19	**60**	0,06	0,09	0,11	0,14	0,15
P.4.1	**70**	0,08	0,11	0,14	0,18	0,20	**60**	0,06	0,09	0,11	0,14	0,16
P.4.2	**70**	0,08	0,11	0,14	0,18	0,20	**60**	0,06	0,09	0,11	0,14	0,16
M.1.1	**80**	0,09	0,13	0,18	0,22	0,25	**55**	0,08	0,11	0,14	0,18	0,20
M.2.1	**75**	0,08	0,11	0,15	0,19	0,21	**50**	0,06	0,09	0,12	0,15	0,17
M.3.1	**75**	0,08	0,11	0,15	0,19	0,21	**50**	0,06	0,09	0,12	0,15	0,17
K.1.1	**150**	0,15	0,24	0,33	0,41	0,47	**120**	0,15	0,24	0,33	0,41	0,47
K.1.2	**125**	0,14	0,20	0,27	0,33	0,37	**100**	0,14	0,20	0,27	0,33	0,37
K.2.1	**200**	0,15	0,22	0,31	0,38	0,43	**160**	0,15	0,22	0,31	0,38	0,43
K.2.2	**125**	0,14	0,20	0,27	0,33	0,37	**100**	0,14	0,20	0,27	0,33	0,37
K.3.1	**115**	0,15	0,21	0,29	0,35	0,40	**90**	0,15	0,21	0,29	0,35	0,40
K.3.2	**100**	0,12	0,17	0,23	0,28	0,32	**80**	0,12	0,17	0,23	0,28	0,32
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1							200	0,15	0,24	0,33	0,41	0,47
N.3.2	145	0,14	0,20	0,27	0,33	0,37	120	0,14	0,20	0,27	0,33	0,37
N.3.3												
N.4.1												
S.1.1	**35**	0,07	0,10	0,14	0,17	0,19	**30**	0,06	0,09	0,11	0,14	0,16
S.1.2	**25**	0,05	0,07	0,10	0,12	0,14	**20**	0,04	0,06	0,08	0,10	0,11
S.2.1	**25**	0,05	0,07	0,10	0,12	0,14	**20**	0,04	0,06	0,08	0,10	0,11
S.2.2	**20**	0,06	0,09	0,12	0,15	0,17	**15**	0,05	0,08	0,10	0,13	0,14
S.2.3	**20**	0,05	0,07	0,10	0,12	0,14	**15**	0,04	0,06	0,08	0,10	0,11
S.3.1												
S.3.2	**35**	0,08	0,11	0,15	0,18	0,20	**30**	0,06	0,09	0,12	0,15	0,17
S.3.3	**30**	0,06	0,09	0,12	0,15	0,17	**25**	0,05	0,08	0,10	0,13	0,14
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

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

Cutting data standard values – WTX – GG

Index	Drilling depth 5xD GG 10 749 ...						Drilling depth 8xD GG 10 753 ...					
	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
P.1.1												
P.1.2												
P.1.3												
P.1.4												
P.1.5												
P.2.1												
P.2.2												
P.2.3												
P.2.4												
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1	**145**	0,12	0,19	0,26	0,33	0,38	**145**	0,12	0,19	0,26	0,33	0,38
K.1.2												
K.2.1	**190**	0,12	0,18	0,25	0,30	0,35	**190**	0,12	0,18	0,25	0,30	0,35
K.2.2												
K.3.1												
K.3.2												
N.1.1												
N.1.2												
N.2.1	300	0,11	0,16	0,21	0,26	0,30	300	0,11	0,16	0,21	0,26	0,30
N.2.2	265	0,11	0,16	0,21	0,26	0,30	265	0,11	0,16	0,21	0,26	0,30
N.2.3	215	0,11	0,16	0,21	0,26	0,30	215	0,11	0,16	0,21	0,26	0,30
N.3.1	240	0,12	0,19	0,26	0,33	0,38	240	0,12	0,19	0,26	0,33	0,38
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

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

Cutting data standard values – WTX – Quattro 4F

	Drilling depth 5xD Quattro 4F 10 730 ..., 10 735...							Drilling depth 8xD Quattro 4F 10 736 ...					
Index	v_c m/min without through coolant	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
P.1.1	**100**	**110**	0,12	0,17	0,23	0,28	0,31	**110**	0,12	0,17	0,23	0,28	0,31
P.1.2	**95**	**105**	0,11	0,16	0,22	0,26	0,30	**105**	0,11	0,16	0,22	0,26	0,30
P.1.3	**90**	**100**	0,11	0,15	0,20	0,25	0,28	**100**	0,11	0,15	0,20	0,25	0,28
P.1.4	**85**	**95**	0,10	0,15	0,19	0,24	0,27	**95**	0,10	0,15	0,19	0,24	0,27
P.1.5	**80**	**90**	0,10	0,14	0,18	0,23	0,26	**90**	0,10	0,14	0,18	0,23	0,26
P.2.1	**95**	**110**	0,14	0,20	0,27	0,33	0,37	**110**	0,14	0,20	0,27	0,33	0,37
P.2.2	**85**	**100**	0,13	0,18	0,24	0,30	0,34	**100**	0,13	0,18	0,24	0,30	0,34
P.2.3	**75**	**90**	0,11	0,16	0,22	0,27	0,30	**90**	0,11	0,16	0,22	0,27	0,30
P.2.4	**60**	**70**	0,11	0,15	0,19	0,24	0,27	**70**	0,11	0,15	0,19	0,24	0,27
P.3.1	**65**	**75**	0,11	0,16	0,22	0,27	0,30	**75**	0,11	0,16	0,22	0,27	0,30
P.3.2	**55**	**60**	0,10	0,13	0,18	0,22	0,25	**60**	0,10	0,13	0,18	0,22	0,25
P.3.3	**45**	**60**	0,08	0,11	0,14	0,17	0,19	**60**	0,08	0,11	0,14	0,17	0,19
P.4.1	**45**	**60**	0,08	0,11	0,14	0,18	0,20	**60**	0,08	0,11	0,14	0,18	0,20
P.4.2	**45**	**60**	0,08	0,11	0,14	0,18	0,20	**60**	0,08	0,11	0,14	0,18	0,20
M.1.1													
M.2.1													
M.3.1													
K.1.1	**85**	**120**	0,15	0,24	0,33	0,41	0,47	**120**	0,15	0,24	0,33	0,41	0,47
K.1.2	**75**	**100**	0,14	0,20	0,27	0,33	0,37	**100**	0,14	0,20	0,27	0,33	0,37
K.2.1	**100**	**160**	0,15	0,22	0,31	0,38	0,43	**160**	0,15	0,22	0,31	0,38	0,43
K.2.2	**75**	**100**	0,14	0,20	0,27	0,33	0,37	**100**	0,14	0,20	0,27	0,33	0,37
K.3.1	**80**	**90**	0,15	0,21	0,29	0,35	0,40	**90**	0,15	0,21	0,29	0,35	0,40
K.3.2	**70**	**80**	0,12	0,17	0,23	0,28	0,32	**80**	0,12	0,17	0,23	0,28	0,32
N.1.1													
N.1.2													
N.2.1													
N.2.2													
N.2.3													
N.3.1													
N.3.2													
N.3.3													
N.4.1													
S.1.1													
S.1.2													
S.2.1													
S.2.2													
S.2.3													
S.3.1													
S.3.2													
S.3.3													
H.1.1	25	25	0,05	0,07	0,09	0,12	0,13	25	0,052	0,073	0,098	0,120	0,136
H.1.2													
H.1.3													
H.1.4													
H.2.1	30	30	0,06	0,09	0,12	0,15	0,17	30	0,067	0,095	0,128	0,156	0,177
H.3.1													
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

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

Index	v_c m/min with through coolant	Drilling depth 12xD Quattro 4F 10 737 ... Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
P.1.1	**110**	0,12	0,17	0,23	0,28	0,31
P.1.2	**105**	0,11	0,16	0,22	0,26	0,30
P.1.3	**100**	0,11	0,15	0,20	0,25	0,28
P.1.4	**95**	0,10	0,15	0,19	0,24	0,27
P.1.5	**90**	0,10	0,14	0,18	0,23	0,26
P.2.1	**110**	0,14	0,20	0,27	0,33	0,37
P.2.2	**100**	0,13	0,18	0,24	0,30	0,34
P.2.3	**90**	0,11	0,16	0,22	0,27	0,30
P.2.4	**70**	0,11	0,15	0,19	0,24	0,27
P.3.1	**75**	0,11	0,16	0,22	0,27	0,30
P.3.2	**60**	0,10	0,13	0,18	0,22	0,25
P.3.3	**60**	0,08	0,11	0,14	0,17	0,19
P.4.1	**60**	0,08	0,11	0,14	0,18	0,20
P.4.2	**60**	0,08	0,11	0,14	0,18	0,20
M.1.1						
M.2.1						
M.3.1						
K.1.1	**120**	0,15	0,24	0,33	0,41	0,47
K.1.2	**100**	0,14	0,20	0,27	0,33	0,37
K.2.1	**160**	0,15	0,22	0,31	0,38	0,43
K.2.2	**100**	0,14	0,20	0,27	0,33	0,37
K.3.1	**90**	0,15	0,21	0,29	0,35	0,40
K.3.2	**80**	0,12	0,17	0,23	0,28	0,32
N.1.1						
N.1.2						
N.2.1						
N.2.2						
N.2.3						
N.3.1						
N.3.2						
N.3.3						
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1	25	0,052	0,073	0,098	0,120	0,136
H.1.2						
H.1.3						
H.1.4						
H.2.1	30	0,067	0,095	0,128	0,156	0,177
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

Cutting data standard values – WTX – AL

	Drilling depth 5xD AL 10 791 ...											
Index	v_c m/min with through coolant	Ø 2–3 f mm/rev.	Ø 3–4 f mm/rev.	Ø 4–5 f mm/rev.	Ø 5–6 f mm/rev.	Ø 6–8 f mm/rev.	Ø 8–10 f mm/rev.	Ø 10–12 f mm/rev.	Ø 12–14 f mm/rev.	Ø 14–16 f mm/rev.	Ø 16–18 f mm/rev.	Ø 18–20 f mm/rev.
P.1.1												
P.1.2												
P.1.3												
P.1.4												
P.1.5												
P.2.1												
P.2.2												
P.2.3												
P.2.4												
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1												
K.1.2												
K.2.1												
K.2.2												
K.3.1												
K.3.2												
N.1.1	**360**	0,15	0,20	0,23	0,25	0,29	0,32	0,35	0,40	0,45	0,50	0,55
N.1.2	**400**	0,15	0,20	0,23	0,25	0,29	0,32	0,35	0,40	0,45	0,50	0,55
N.2.1	**360**	0,20	0,23	0,25	0,28	0,32	0,35	0,38	0,45	0,50	0,55	0,60
N.2.2	**400**	0,20	0,23	0,25	0,28	0,32	0,35	0,38	0,45	0,50	0,55	0,60
N.2.3	**350**	0,15	0,20	0,23	0,25	0,29	0,32	0,35	0,40	0,45	0,50	0,55
N.3.1	**200**	0,08	0,11	0,13	0,15	0,19	0,23	0,26	0,30	0,34	0,38	0,42
N.3.2	**200**	0,08	0,11	0,13	0,15	0,19	0,23	0,26	0,30	0,34	0,38	0,42
N.3.3	**160**	0,08	0,11	0,13	0,15	0,19	0,23	0,26	0,30	0,34	0,38	0,42
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

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

		Drilling depth 8xD AL 10 792 ...									
Index	v_c m/min with through coolant	Ø 3–4 f mm/rev.	Ø 4–5 f mm/rev.	Ø 5–6 f mm/rev.	Ø 6–8 f mm/rev.	Ø 8–10 f mm/rev.	Ø 10–12 f mm/rev.	Ø 12–14 f mm/rev.	Ø 14–16 f mm/rev.	Ø 16–18 f mm/rev.	Ø 18–20 f mm/rev.
P.1.1											
P.1.2											
P.1.3											
P.1.4											
P.1.5											
P.2.1											
P.2.2											
P.2.3											
P.2.4											
P.3.1											
P.3.2											
P.3.3											
P.4.1											
P.4.2											
M.1.1											
M.2.1											
M.3.1											
K.1.1											
K.1.2											
K.2.1											
K.2.2											
K.3.1											
K.3.2											
N.1.1	320	0,20	0,23	0,25	0,29	0,32	0,35	0,40	0,45	0,50	0,55
N.1.2	360	0,20	0,23	0,25	0,29	0,32	0,35	0,40	0,45	0,50	0,55
N.2.1	320	0,23	0,25	0,28	0,32	0,35	0,38	0,45	0,50	0,55	0,60
N.2.2	360	0,23	0,25	0,28	0,32	0,35	0,38	0,45	0,50	0,55	0,60
N.2.3	310	0,20	0,23	0,25	0,29	0,32	0,35	0,40	0,45	0,50	0,55
N.3.1	160	0,11	0,13	0,15	0,19	0,23	0,26	0,30	0,34	0,38	0,42
N.3.2	160	0,11	0,13	0,15	0,19	0,23	0,26	0,30	0,34	0,38	0,42
N.3.3	140	0,11	0,13	0,15	0,19	0,23	0,26	0,30	0,34	0,38	0,42
N.4.1											
S.1.1											
S.1.2											
S.2.1											
S.2.2											
S.2.3											
S.3.1											
S.3.2											
S.3.3											
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1											
O.1.2											
O.2.1											
O.2.2											
O.3.1											

Cutting data standard values – WTX – AL

	Drilling depth 12xD AL 10 793 ...										
Index	v_c m/min with through coolant	Ø 3–4 f mm/rev.	Ø 4–5 f mm/rev.	Ø 5–6 f mm/rev.	Ø 6–8 f mm/rev.	Ø 8–10 f mm/rev.	Ø 10–12 f mm/rev.	Ø 12–14 f mm/rev.	Ø 14–16 f mm/rev.	Ø 16–18 f mm/rev.	Ø 18–20 f mm/rev.
P.1.1											
P.1.2											
P.1.3											
P.1.4											
P.1.5											
P.2.1											
P.2.2											
P.2.3											
P.2.4											
P.3.1											
P.3.2											
P.3.3											
P.4.1											
P.4.2											
M.1.1											
M.2.1											
M.3.1											
K.1.1											
K.1.2											
K.2.1											
K.2.2											
K.3.1											
K.3.2											
N.1.1	**250**	0,20	0,22	0,25	0,29	0,32	0,35	0,40	0,45	0,50	0,55
N.1.2	**280**	0,20	0,22	0,25	0,29	0,32	0,35	0,40	0,45	0,50	0,55
N.2.1	**250**	0,20	0,22	0,28	0,32	0,35	0,38	0,45	0,50	0,55	0,60
N.2.2	**280**	0,20	0,22	0,28	0,32	0,35	0,38	0,45	0,50	0,55	0,60
N.2.3	**245**	0,20	0,22	0,25	0,29	0,32	0,35	0,40	0,45	0,50	0,55
N.3.1	**150**	0,11	0,13	0,15	0,19	0,23	0,26	0,30	0,34	0,38	0,04
N.3.2	**150**	0,11	0,13	0,15	0,19	0,23	0,26	0,30	0,34	0,38	0,04
N.3.3	**120**	0,11	0,13	0,15	0,19	0,23	0,26	0,30	0,34	0,38	0,04
N.4.1											
S.1.1											
S.1.2											
S.2.1											
S.2.2											
S.2.3											
S.3.1											
S.3.2											
S.3.3											
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1											
O.1.2											
O.2.1											
O.2.2											
O.3.1											

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

Cutting data standard values – WTX – Ti

	Hole depth 3xD / 5xD Ti 10 786 ..., 10 787 ...										
Index	v_c m/min with through coolant	Ø 3–4 f mm/rev.	Ø 4–5 f mm/rev.	Ø 5–6 f mm/rev.	Ø 6–8 f mm/rev.	Ø 8–10 f mm/rev.	Ø 10–12 f mm/rev.	Ø 12–14 f mm/rev.	Ø 14–16 f mm/rev.	Ø 16–18 f mm/rev.	Ø 18–20 f mm/rev.
P.1.1											
P.1.2											
P.1.3											
P.1.4											
P.1.5											
P.2.1											
P.2.2											
P.2.3											
P.2.4											
P.3.1											
P.3.2											
P.3.3											
P.4.1	75	0,03	0,04	0,05	0,06	0,08	0,10	0,12	0,14	0,15	0,18
P.4.2	65	0,03	0,04	0,05	0,06	0,08	0,10	0,12	0,14	0,15	0,18
M.1.1	**70**	0,03	0,04	0,05	0,06	0,08	0,10	0,12	0,14	0,15	0,18
M.2.1	**70**	0,03	0,04	0,05	0,06	0,08	0,10	0,12	0,14	0,15	0,18
M.3.1	**70**	0,03	0,04	0,05	0,06	0,08	0,10	0,12	0,14	0,15	0,18
K.1.1											
K.1.2											
K.2.1											
K.2.2											
K.3.1											
K.3.2											
N.1.1											
N.1.2											
N.2.1											
N.2.2											
N.2.3											
N.3.1											
N.3.2											
N.3.3											
N.4.1											
S.1.1	**45**	0,02	0,02	0,02	0,04	0,05	0,07	0,09	0,11	0,13	0,16
S.1.2	**45**	0,02	0,02	0,02	0,04	0,05	0,07	0,09	0,11	0,13	0,16
S.2.1	**40**	0,02	0,02	0,02	0,04	0,05	0,07	0,09	0,11	0,13	0,16
S.2.2	**40**	0,02	0,02	0,02	0,04	0,05	0,07	0,09	0,11	0,13	0,16
S.2.3											
S.3.1	**55**	0,02	0,02	0,02	0,04	0,05	0,07	0,09	0,11	0,13	0,16
S.3.2	**45**	0,02	0,02	0,02	0,04	0,05	0,07	0,09	0,11	0,13	0,16
S.3.3											
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1											
O.1.2											
O.2.1											
O.2.2											
O.3.1											

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

Cutting data standard values – WTX – H

Index	Drilling depth 3xD H 10 776 ...								
	v_c m/min with through coolant	Ø 2–3 f mm/rev.	Ø 3–4 f mm/rev.	Ø 4–5 f mm/rev.	Ø 5–6 f mm/rev.	Ø 6–8 f mm/rev.	Ø 8–10 f mm/rev.	Ø 10–12 f mm/rev.	Ø 12–14 f mm/rev.
P.1.1	120	0,05	0,07	0,08	0,10	0,14	0,18	0,21	0,24
P.1.2	110	0,05	0,06	0,08	0,09	0,13	0,16	0,19	0,22
P.1.3	100	0,04	0,05	0,07	0,08	0,12	0,15	0,18	0,21
P.1.4	100	0,04	0,05	0,07	0,08	0,12	0,15	0,18	0,21
P.1.5	120	0,05	0,07	0,08	0,10	0,14	0,18	0,21	0,24
P.2.1	110	0,05	0,07	0,08	0,10	0,14	0,18	0,21	0,24
P.2.2	100	0,05	0,06	0,08	0,09	0,13	0,16	0,19	0,22
P.2.3	100	0,05	0,06	0,08	0,09	0,13	0,16	0,19	0,22
P.2.4	100	0,04	0,05	0,07	0,08	0,12	0,15	0,18	0,21
P.3.1									
P.3.2	80	0,04	0,05	0,07	0,08	0,12	0,15	0,18	0,21
P.3.3	80	0,04	0,05	0,07	0,08	0,12	0,15	0,18	0,21
P.4.1									
P.4.2									
M.1.1									
M.2.1									
M.3.1									
K.1.1	**115**	0,08	0,10	0,13	0,15	0,19	0,23	0,27	0,34
K.1.2	**95**	0,08	0,10	0,13	0,15	0,19	0,23	0,27	0,34
K.2.1	**95**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	0,25
K.2.2	**90**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	0,25
K.3.1	**95**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	0,25
K.3.2	**90**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	0,25
N.1.1									
N.1.2									
N.2.1									
N.2.2									
N.2.3									
N.3.1									
N.3.2									
N.3.3									
N.4.1									
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3	80	0,04	0,05	0,07	0,08	0,12	0,15	0,18	0,21
S.3.1									
S.3.2									
S.3.3									
H.1.1	**30**	0,01	0,01	0,02	0,02	0,03	0,04	0,06	0,08
H.1.2	**15**	0,01	0,02	0,02	0,03	0,04	0,06	0,08	0,10
H.1.3	**10**	0,01	0,02	0,02	0,03	0,03	0,04	0,05	0,06
H.1.4									
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

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

Index	Drilling depth 3xD H 10 777 ...								
	v_c m/min without through coolant	Ø 2–3 f mm/rev.	Ø 3–4 f mm/rev.	Ø 4–5 f mm/rev.	Ø 5–6 f mm/rev.	Ø 6–8 f mm/rev.	Ø 8–10 f mm/rev.	Ø 10–12 f mm/rev.	Ø 12–14 f mm/rev.
P.1.1	80	0,05	0,07	0,08	0,10	0,14	0,18	0,21	0,24
P.1.2	70	0,04	0,05	0,06	0,08	0,12	0,15	0,18	0,21
P.1.3	70	0,04	0,05	0,06	0,08	0,12	0,15	0,18	0,21
P.1.4	70	0,04	0,05	0,06	0,08	0,12	0,15	0,18	0,21
P.1.5	80	0,05	0,07	0,08	0,10	0,14	0,18	0,21	0,24
P.2.1	75	0,05	0,07	0,08	0,10	0,14	0,18	0,21	0,24
P.2.2	70	0,04	0,06	0,08	0,09	0,13	0,16	0,19	0,22
P.2.3	70	0,04	0,05	0,06	0,08	0,12	0,15	0,18	0,21
P.2.4	70	0,04	0,05	0,06	0,08	0,12	0,15	0,18	0,21
P.3.1									
P.3.2									
P.3.3									
P.4.1									
P.4.2									
M.1.1									
M.2.1									
M.3.1									
K.1.1	**85**	0,10	0,10	0,10	0,20	0,20	0,20	0,30	0,30
K.1.2	**80**	0,10	0,10	0,10	0,20	0,20	0,20	0,30	0,30
K.2.1	**85**	0,10	0,10	0,10	0,10	0,20	0,20	0,20	0,30
K.2.2	**80**	0,10	0,10	0,10	0,10	0,20	0,20	0,20	0,30
K.3.1	**85**	0,10	0,10	0,10	0,10	0,20	0,20	0,20	0,30
K.3.2	**80**	0,10	0,10	0,10	0,10	0,20	0,20	0,20	0,30
N.1.1									
N.1.2									
N.2.1									
N.2.2									
N.2.3									
N.3.1									
N.3.2									
N.3.3									
N.4.1									
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2									
S.3.3									
H.1.1	**30**	0,04	0,05	0,05	0,06	0,07	0,08	0,09	0,10
H.1.2	**15**	0,04	0,05	0,05	0,06	0,07	0,08	0,09	0,10
H.1.3	**10**	0,03	0,04	0,04	0,05	0,06	0,06	0,07	0,07
H.1.4	**10**	0,03	0,04	0,04	0,05	0,06	0,06	0,07	0,07
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

Cutting data standard values – WTX – 180

Index	v_c m/min with through coolant	Drilling depth 3xD Type 180 10 720 ... Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.	Ø 20–25 f mm/rev.
P.1.1	90	0,09	0,13	0,18	0,22	0,25	0,27
P.1.2	85	0,09	0,13	0,17	0,21	0,24	0,26
P.1.3	80	0,09	0,12	0,16	0,20	0,23	0,25
P.1.4	75	0,08	0,12	0,16	0,19	0,22	0,23
P.1.5	70	0,08	0,11	0,15	0,18	0,20	0,22
P.2.1	90	0,11	0,16	0,21	0,26	0,29	0,32
P.2.2	80	0,10	0,14	0,19	0,24	0,27	0,29
P.2.3	70	0,09	0,13	0,17	0,21	0,24	0,26
P.2.4	55	0,09	0,12	0,16	0,19	0,21	0,23
P.3.1	60	0,09	0,13	0,17	0,21	0,24	0,26
P.3.2	50	0,08	0,11	0,14	0,17	0,20	0,21
P.3.3	50	0,06	0,09	0,11	0,14	0,15	0,16
P.4.1	50	0,06	0,09	0,11	0,14	0,16	0,17
P.4.2	50	0,06	0,09	0,11	0,14	0,16	0,17
M.1.1	45	0,06	0,09	0,11	0,14	0,16	0,17
M.2.1	40	0,05	0,07	0,10	0,12	0,14	0,15
M.3.1	40	0,05	0,07	0,10	0,12	0,14	0,15
K.1.1	95	0,12	0,19	0,26	0,33	0,38	0,41
K.1.2	80	0,11	0,16	0,21	0,26	0,30	0,32
K.2.1	130	0,12	0,18	0,25	0,30	0,35	0,38
K.2.2	80	0,11	0,16	0,21	0,26	0,30	0,32
K.3.1	70	0,12	0,17	0,23	0,28	0,32	0,35
K.3.2	65	0,10	0,14	0,18	0,22	0,25	0,28
N.1.1							
N.1.2							
N.2.1							
N.2.2							
N.2.3							
N.3.1							
N.3.2							
N.3.3							
N.4.1							
S.1.1							
S.1.2							
S.2.1							
S.2.2							
S.2.3							
S.3.1							
S.3.2							
S.3.3							
H.1.1							
H.1.2							
H.1.3							
H.1.4							
H.2.1							
H.3.1							
O.1.1							
O.1.2							
O.2.1							
O.2.2							
O.3.1							

Index	v_c m/min with through coolant	Drilling depth 5xD Type 180 10 721 ... Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
P.1.1	90	0,09	0,13	0,18	0,22	0,25
P.1.2	85	0,09	0,13	0,17	0,21	0,24
P.1.3	80	0,09	0,12	0,16	0,20	0,23
P.1.4	75	0,08	0,12	0,16	0,19	0,22
P.1.5	70	0,08	0,11	0,15	0,18	0,20
P.2.1	90	0,11	0,16	0,21	0,26	0,29
P.2.2	80	0,10	0,14	0,19	0,24	0,27
P.2.3	70	0,09	0,13	0,17	0,21	0,24
P.2.4	55	0,09	0,12	0,16	0,19	0,21
P.3.1	60	0,09	0,13	0,17	0,21	0,24
P.3.2	50	0,08	0,11	0,14	0,17	0,20
P.3.3	50	0,06	0,09	0,11	0,14	0,15
P.4.1	50	0,06	0,09	0,11	0,14	0,16
P.4.2	50	0,06	0,09	0,11	0,14	0,16
M.1.1	45	0,06	0,09	0,11	0,14	0,16
M.2.1	40	0,05	0,07	0,10	0,12	0,14
M.3.1	40	0,05	0,07	0,10	0,12	0,14
K.1.1	95	0,12	0,19	0,26	0,33	0,38
K.1.2	80	0,11	0,16	0,21	0,26	0,30
K.2.1	130	0,12	0,18	0,25	0,30	0,35
K.2.2	80	0,11	0,16	0,21	0,26	0,30
K.3.1	70	0,12	0,17	0,23	0,28	0,32
K.3.2	65	0,10	0,14	0,18	0,22	0,25
N.1.1						
N.1.2						
N.2.1						
N.2.2						
N.2.3						
N.3.1						
N.3.2						
N.3.3						
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

Application Note:

Spot drilling with reduced feedrate

1. Feedrate f [mm/U] should be multiplied by correction factor A_k
2. Drill with reduced feed rate until tool is fully engaged in workpiece by approximately 0.25xD
3. Retract from the hole at double the feed rate f in mm/U – only with inclined surfaces

   This operation is necessary in order to achieve maximum performance of the drill!
4. Drill the hole with feed rate f [mm/U] without pecking for chip evacuation

Correction factor A_k for f [mm/U] when spot drilling		
Inclination workpiece surface	A_k to 3xD (10 720 ...)	A_k to 5xD (10 721 ...)
15°	0,5	0,25
30°	0,4	not recommended
45°	0,25	not recommended

For drilling on flat surfaces (inclination 0 °) with the WTX – 180 5xD, we recommend the use of a pilot drill (WTX – UNI 3xD).

Cutting data standard values – Type N – Twist drills

	Drilling depth 3xD Type N (similar DIN 1897) 10 700 ...													
Index	v_c m/min without through coolant	Ø 0,5–1,5 f mm/rev.	Ø 1,5–2 f mm/rev.	Ø 2–3 f mm/rev.	Ø 3–4 f mm/rev.	Ø 4–5 f mm/rev.	Ø 5–6 f mm/rev.	Ø 6–8 f mm/rev.	Ø 8–10 f mm/rev.	Ø 10–12 f mm/rev.	Ø 12–14 f mm/rev.	Ø 14–16 f mm/rev.	Ø 16–18 f mm/rev.	Ø 18–20 f mm/rev.
P.1.1	75	0,03	0,04	0,05	0,07	0,08	0,1	0,12	0,14	0,16	0,2	0,02	0,02	0,3
P.1.2	65	0,03	0,04	0,05	0,07	0,08	0,1	0,12	0,14	0,16	0,2	0,02	0,02	0,3
P.1.3	65	0,03	0,04	0,04	0,05	0,06	0,07	0,1	0,11	0,13	0,15	0,02	0,02	0,23
P.1.4	65	0,03	0,04	0,04	0,05	0,06	0,07	0,1	0,11	0,13	0,15	0,02	0,02	0,23
P.1.5	70	0,03	0,04	0,04	0,05	0,06	0,07	0,1	0,11	0,13	0,15	0,02	0,02	0,23
P.2.1	70	0,03	0,04	0,05	0,07	0,08	0,1	0,12	0,14	0,16	0,2	0,02	0,02	0,3
P.2.2	65	0,03	0,04	0,04	0,05	0,06	0,07	0,1	0,11	0,13	0,15	0,02	0,02	0,23
P.2.3	65	0,03	0,04	0,05	0,07	0,08	0,1	0,12	0,14	0,16	0,2	0,02	0,02	0,3
P.2.4	65	0,03	0,04	0,04	0,05	0,06	0,07	0,1	0,11	0,13	0,15	0,02	0,02	0,23
P.3.1														
P.3.2														
P.3.3														
P.4.1														
P.4.2														
M.1.1														
M.2.1														
M.3.1														
K.1.1	**70**	0,02	0,03	0,04	0,05	0,06	0,07	0,1	0,12	0,14	0,17	0,2	0,2	0,3
K.1.2	**70**	0,02	0,03	0,04	0,05	0,06	0,07	0,1	0,11	0,12	0,15	0,18	0,2	0,23
K.2.1	**70**	0,02	0,03	0,04	0,05	0,06	0,07	0,1	0,11	0,12	0,15	0,18	0,2	0,23
K.2.2	**70**	0,02	0,03	0,04	0,05	0,06	0,07	0,1	0,11	0,12	0,15	0,18	0,2	0,23
K.3.1	**70**	0,02	0,03	0,04	0,05	0,06	0,07	0,1	0,11	0,12	0,15	0,18	0,2	0,23
K.3.2	**70**	0,02	0,03	0,04	0,05	0,06	0,07	0,1	0,11	0,12	0,15	0,18	0,2	0,23
N.1.1	**200**	0,007	0,01	0,01	0,013	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.1.2	**200**	0,007	0,01	0,01	0,013	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.2.1	**160**	0,007	0,01	0,01	0,013	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.2.2	**180**	0,007	0,01	0,01	0,013	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.2.3	**130**	0,007	0,01	0,01	0,013	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.3.1	**160**	0,003	0,004	0,005	0,007	0,01	0,01	0,02	0,03	0,04	0,06	0,09	0,11	0,13
N.3.2	**160**	0,003	0,004	0,005	0,007	0,01	0,01	0,02	0,03	0,04	0,06	0,09	0,11	0,13
N.3.3	**100**	0,003	0,004	0,005	0,007	0,01	0,01	0,02	0,03	0,04	0,06	0,09	0,11	0,13
N.4.1	**200**	0,007	0,008	0,01	0,013	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1	30	0,002	0,002	0,003	0,003	0,004	0,005	0,01	0,02	0,03	0,04	0,05	0,06	0,07
S.3.2	20	0,002	0,002	0,003	0,003	0,004	0,005	0,01	0,02	0,03	0,04	0,05	0,06	0,07
S.3.3														
H.1.1														
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1														
O.1.1														
O.1.2														
O.2.1														
O.2.2														
O.3.1														

The cutting data is highly dependent on external conditions, such as stability of the tool and workpiece clamping, material and machine type!
The values indicated represent possible cutting data which may need to be corrected depending on operating conditions!

Index	v_c m/min without through coolant	Drilling depth 5xD Type N (similar DIN 338) 10 710 ... Ø 0,5–1,5 f mm/rev.	Ø 1,5–2 f mm/rev.	Ø 2–3 f mm/rev.	Ø 3–4 f mm/rev.	Ø 4–5 f mm/rev.	Ø 5–6 f mm/rev.	Ø 6–8 f mm/rev.	Ø 8–10 f mm/rev.	Ø 10–12 f mm/rev.	Ø 12–14 f mm/rev.	Ø 14–16 f mm/rev.	Ø 16–18 f mm/rev.	Ø 18–20 f mm/rev.
P.1.1	75	0,03	0,04	0,05	0,07	0,08	0,1	0,12	0,14	0,16	0,2	0,02	0,02	0,3
P.1.2	65	0,03	0,04	0,05	0,07	0,08	0,1	0,12	0,14	0,16	0,2	0,02	0,02	0,3
P.1.3	65	0,03	0,04	0,04	0,05	0,06	0,07	0,1	0,11	0,13	0,15	0,02	0,02	0,23
P.1.4	65	0,03	0,04	0,04	0,05	0,06	0,07	0,1	0,11	0,13	0,15	0,02	0,02	0,23
P.1.5	70	0,03	0,04	0,04	0,05	0,06	0,07	0,1	0,11	0,13	0,15	0,02	0,02	0,23
P.2.1	70	0,03	0,04	0,05	0,07	0,08	0,1	0,12	0,14	0,16	0,2	0,02	0,02	0,3
P.2.2	65	0,03	0,04	0,04	0,05	0,06	0,07	0,1	0,11	0,13	0,15	0,02	0,02	0,23
P.2.3	65	0,03	0,04	0,05	0,07	0,08	0,1	0,12	0,14	0,16	0,2	0,02	0,02	0,3
P.2.4	65	0,03	0,04	0,04	0,05	0,06	0,07	0,1	0,11	0,13	0,15	0,02	0,02	0,23
P.3.1														
P.3.2														
P.3.3														
P.4.1														
P.4.2														
M.1.1														
M.2.1														
M.3.1														
K.1.1	70	0,02	0,03	0,04	0,05	0,06	0,07	0,1	0,12	0,14	0,17	0,2	0,2	0,3
K.1.2	70	0,02	0,03	0,04	0,05	0,06	0,07	0,1	0,11	0,12	0,15	0,18	0,2	0,23
K.2.1	70	0,02	0,03	0,04	0,05	0,06	0,07	0,1	0,11	0,12	0,15	0,18	0,2	0,23
K.2.2	70	0,02	0,03	0,04	0,05	0,06	0,07	0,1	0,11	0,12	0,15	0,18	0,2	0,23
K.3.1	70	0,02	0,03	0,04	0,05	0,06	0,07	0,1	0,11	0,12	0,15	0,18	0,2	0,23
K.3.2	70	0,02	0,03	0,04	0,05	0,06	0,07	0,1	0,11	0,12	0,15	0,18	0,2	0,23
N.1.1	200	0,007	0,01	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.1.2	200	0,007	0,01	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.2.1	160	0,007	0,01	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.2.2	180	0,007	0,01	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.2.3	130	0,007	0,01	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.3.1	160	0,003	0,004	0,005	0,007	0,01	0,01	0,02	0,03	0,04	0,06	0,09	0,11	0,13
N.3.2	160	0,003	0,004	0,005	0,007	0,01	0,01	0,02	0,03	0,04	0,06	0,09	0,11	0,13
N.3.3	100	0,003	0,004	0,005	0,007	0,01	0,01	0,02	0,03	0,04	0,06	0,09	0,11	0,13
N.4.1	200	0,007	0,008	0,010	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1	30	0,002	0,002	0,003	0,003	0,004	0,005	0,01	0,02	0,03	0,04	0,05	0,06	0,07
S.3.2	20	0,002	0,002	0,003	0,003	0,004	0,005	0,01	0,02	0,03	0,04	0,05	0,06	0,07
S.3.3														
H.1.1														
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1														
O.1.1														
O.1.2														
O.2.1														
O.2.2														
O.3.1														

Cutting data standard values – WPC – UNI

Index	v_c m/min without through coolant	v_c m/min with through coolant	Drilling depth 3xD UNI 11 600 ..., 11 601 ..., 11 603 ..., 11 604 ... Ø 1–1,5 f mm/rev.	Ø 1,5–2 f mm/rev.	Ø 2–3 f mm/rev.	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
P.1.1	75	85	0,05	0,06	0,08	0,11	0,15	0,20	0,25	0,28
P.1.2	70	80	0,05	0,05	0,07	0,10	0,14	0,19	0,24	0,27
P.1.3	70	75	0,05	0,05	0,07	0,10	0,14	0,18	0,23	0,26
P.1.4	65	70	0,04	0,05	0,07	0,09	0,13	0,18	0,21	0,24
P.1.5	60	70	0,04	0,05	0,06	0,09	0,12	0,17	0,20	0,23
P.2.1	70	85	0,06	0,07	0,09	0,13	0,18	0,24	0,29	0,33
P.2.2	65	75	0,05	0,06	0,08	0,11	0,16	0,22	0,27	0,30
P.2.3	55	70	0,05	0,06	0,07	0,10	0,15	0,20	0,24	0,27
P.2.4	45	55	0,05	0,06	0,07	0,10	0,13	0,17	0,21	0,24
P.3.1	50	55	0,05	0,05	0,07	0,10	0,15	0,20	0,24	0,27
P.3.2	40	45	0,04	0,05	0,06	0,09	0,12	0,16	0,20	0,22
P.3.3	35	45	0,04	0,04	0,06	0,07	0,10	0,13	0,15	0,17
P.4.1	35	45	0,03	0,04	0,05	0,07	0,10	0,13	0,16	0,18
P.4.2	35	45	0,03	0,04	0,05	0,07	0,10	0,13	0,16	0,18
M.1.1										
M.2.1										
M.3.1										
K.1.1	60	80	0,04	0,06	0,09	0,14	0,21	0,30	0,37	0,42
K.1.2	50	70	0,05	0,06	0,09	0,12	0,18	0,24	0,30	0,34
K.2.1	70	110	0,05	0,07	0,09	0,14	0,20	0,28	0,34	0,39
K.2.2	50	70	0,05	0,06	0,09	0,12	0,18	0,24	0,30	0,34
K.3.1	55	60	0,06	0,07	0,09	0,13	0,19	0,26	0,32	0,36
K.3.2	50	55	0,05	0,06	0,08	0,11	0,16	0,21	0,25	0,29
N.1.1										
N.1.2										
N.2.1										
N.2.2										
N.2.3										
N.3.1										
N.3.2										
N.3.3										
N.4.1										
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1										
S.3.2										
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that must be corrected according to the usage conditions.

Index	v_c m/min without through coolant	v_c m/min with through coolant	Drilling depth 5xD UNI 11 606 ..., 11 607 ..., 11 609 ..., 11 610 ... Ø 1–1,5 f mm/rev.	Ø 1,5–2 f mm/rev.	Ø 2–3 f mm/rev.	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
P.1.1	75	85	0,05	0,06	0,08	0,11	0,15	0,20	0,25	0,28
P.1.2	70	80	0,05	0,05	0,07	0,10	0,14	0,19	0,24	0,27
P.1.3	70	75	0,05	0,05	0,07	0,10	0,14	0,18	0,23	0,26
P.1.4	65	70	0,04	0,05	0,07	0,09	0,13	0,18	0,21	0,24
P.1.5	60	70	0,04	0,05	0,06	0,09	0,12	0,17	0,20	0,23
P.2.1	70	85	0,06	0,07	0,09	0,13	0,18	0,24	0,29	0,33
P.2.2	65	75	0,05	0,06	0,08	0,11	0,16	0,22	0,27	0,30
P.2.3	55	70	0,05	0,06	0,07	0,10	0,15	0,20	0,24	0,27
P.2.4	45	55	0,05	0,06	0,07	0,10	0,13	0,17	0,21	0,24
P.3.1	50	55	0,05	0,05	0,07	0,10	0,15	0,20	0,24	0,27
P.3.2	40	45	0,04	0,05	0,06	0,09	0,12	0,16	0,20	0,22
P.3.3	35	45	0,04	0,04	0,06	0,07	0,10	0,13	0,15	0,17
P.4.1	35	45	0,03	0,04	0,05	0,07	0,10	0,13	0,16	0,18
P.4.2	35	45	0,03	0,04	0,05	0,07	0,10	0,13	0,16	0,18
M.1.1										
M.2.1										
M.3.1										
K.1.1	60	80	0,04	0,06	0,09	0,14	0,21	0,30	0,37	0,42
K.1.2	50	70	0,05	0,06	0,09	0,12	0,18	0,24	0,30	0,34
K.2.1	70	110	0,05	0,07	0,09	0,14	0,20	0,28	0,34	0,39
K.2.2	50	70	0,05	0,06	0,09	0,12	0,18	0,24	0,30	0,34
K.3.1	55	60	0,06	0,07	0,09	0,13	0,19	0,26	0,32	0,36
K.3.2	50	55	0,05	0,06	0,08	0,11	0,16	0,21	0,25	0,29
N.1.1										
N.1.2										
N.2.1										
N.2.2										
N.2.3										
N.3.1										
N.3.2										
N.3.3										
N.4.1										
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1										
S.3.2										
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

Cutting data standard values – WPC – UNI

Index	Drilling depth 8xD UNI 11 612 ...						Drilling depth 12xD UNI 11 615 ...					
	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.	v_c m/min with through coolant	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–18 f mm/rev.
P.1.1	85	0,11	0,15	0,20	0,25	0,28	85	0,11	0,15	0,20	0,25	0,28
P.1.2	80	0,10	0,14	0,19	0,24	0,27	80	0,10	0,14	0,19	0,24	0,27
P.1.3	75	0,10	0,14	0,18	0,23	0,26	75	0,10	0,14	0,18	0,23	0,26
P.1.4	70	0,09	0,13	0,18	0,21	0,24	70	0,09	0,13	0,18	0,21	0,24
P.1.5	70	0,09	0,12	0,17	0,20	0,23	70	0,09	0,12	0,17	0,20	0,23
P.2.1	85	0,13	0,18	0,24	0,29	0,33	85	0,13	0,18	0,24	0,29	0,33
P.2.2	75	0,11	0,16	0,22	0,27	0,30	75	0,11	0,16	0,22	0,27	0,30
P.2.3	70	0,10	0,15	0,20	0,24	0,27	70	0,10	0,15	0,20	0,24	0,27
P.2.4	55	0,10	0,13	0,17	0,21	0,24	55	0,10	0,13	0,17	0,21	0,24
P.3.1	55	0,10	0,15	0,20	0,24	0,27	55	0,10	0,15	0,20	0,24	0,27
P.3.2	45	0,09	0,12	0,16	0,20	0,22	45	0,09	0,12	0,16	0,20	0,22
P.3.3	45	0,07	0,10	0,13	0,15	0,17	45	0,07	0,10	0,13	0,15	0,17
P.4.1	45	0,07	0,10	0,13	0,16	0,18	45	0,07	0,10	0,13	0,16	0,18
P.4.2	45	0,07	0,10	0,13	0,16	0,18	45	0,07	0,10	0,13	0,16	0,18
M.1.1												
M.2.1												
M.3.1												
K.1.1	80	0,14	0,21	0,30	0,37	0,42	80	0,14	0,21	0,30	0,37	0,42
K.1.2	70	0,12	0,18	0,24	0,30	0,34	70	0,12	0,18	0,24	0,30	0,34
K.2.1	110	0,14	0,20	0,28	0,34	0,39	110	0,14	0,20	0,28	0,34	0,39
K.2.2	70	0,12	0,18	0,24	0,30	0,34	70	0,12	0,18	0,24	0,30	0,34
K.3.1	60	0,13	0,19	0,26	0,32	0,36	60	0,13	0,19	0,26	0,32	0,36
K.3.2	55	0,11	0,16	0,21	0,25	0,29	55	0,11	0,16	0,21	0,25	0,29
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

Recommended application for WPC 8xD and 12xD

The following application notes should be observed for optimum machining results.

1. For 8xD and 12xD tools a pilot hole is recommended. The pilot hole can be drilled with the WPC 3xD drills.
   The tolerance of the 3xD drill (m7) and the tolerance of the 8xD and 12xD drill (h7) are matched accordingly.

2. Alternatively, with cutting speed and feedrate both reduced by 50 % the 8xD and 12xD tool can drill to a depth of 1xD.
   Then, with normal feed and speed values continue drilling.
   Note: when accelerating to normal speed, the spindle must not stop for gear changes!

3. The cutting data is highly dependent on external conditions, such as stability of the tool and workpiece clamping, material and machine type! The values indicated represent possible cutting data which may need to be corrected depending on operating conditions!

Cutting data standard values – WPC – VA

Index	Drilling depth 3xD VA 11 620 ..., 11 621 ..., 11 623 ..., 11 624 ...									
	v_c m/min without through coolant	v_c m/min with through coolant	Ø 1–1,5 f mm/rev.	Ø 1,5–2 f mm/rev.	Ø 2–3 f mm/rev.	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
P.1.1	75	85	0,04	0,05	0,06	0,09	0,12	0,16	0,20	0,22
P.1.2	70	80	0,04	0,04	0,06	0,08	0,12	0,15	0,19	0,21
P.1.3	70	75	0,04	0,04	0,06	0,08	0,11	0,15	0,18	0,20
P.1.4	65	70	0,03	0,04	0,05	0,07	0,10	0,14	0,17	0,19
P.1.5	60	70	0,03	0,04	0,05	0,07	0,10	0,13	0,16	0,18
P.2.1	70	85	0,05	0,05	0,07	0,10	0,14	0,19	0,23	0,27
P.2.2	65	75	0,04	0,05	0,07	0,09	0,13	0,17	0,21	0,24
P.2.3	55	70	0,04	0,04	0,06	0,08	0,12	0,16	0,19	0,22
P.2.4	45	55	0,04	0,04	0,06	0,08	0,11	0,14	0,17	0,19
P.3.1	50	55	0,04	0,04	0,06	0,08	0,12	0,16	0,19	0,22
P.3.2	40	45	0,03	0,04	0,05	0,07	0,10	0,13	0,16	0,18
P.3.3	35	45	0,03	0,04	0,04	0,06	0,08	0,10	0,12	0,14
P.4.1	35	45	0,03	0,03	0,04	0,05	0,08	0,10	0,13	0,14
P.4.2	35	45	0,03	0,03	0,04	0,05	0,08	0,10	0,13	0,14
M.1.1	**30**	**45**	0,03	0,04	0,05	0,07	0,10	0,13	0,16	0,18
M.2.1	**25**	**45**	0,03	0,03	0,04	0,06	0,08	0,11	0,14	0,15
M.3.1	**25**	**45**	0,03	0,03	0,04	0,06	0,08	0,11	0,14	0,15
K.1.1	**65**	**90**	0,04	0,06	0,09	0,14	0,21	0,30	0,37	0,42
K.1.2	**55**	**75**	0,05	0,06	0,09	0,12	0,18	0,24	0,30	0,34
K.2.1	**75**	**120**	0,05	0,07	0,09	0,14	0,20	0,28	0,34	0,39
K.2.2	**55**	**75**	0,05	0,06	0,09	0,12	0,18	0,24	0,30	0,34
K.3.1	**60**	**70**	0,06	0,07	0,09	0,13	0,19	0,26	0,32	0,36
K.3.2	**55**	**60**	0,05	0,06	0,08	0,11	0,16	0,21	0,25	0,29
N.1.1	**185**	**280**	0,05	0,06	0,08	0,11	0,15	0,20	0,25	0,28
N.1.2	**170**	**255**	0,05	0,05	0,07	0,10	0,14	0,18	0,23	0,26
N.2.1	**155**	**215**	0,05	0,06	0,09	0,12	0,18	0,24	0,30	0,34
N.2.2	**130**	**185**	0,05	0,06	0,09	0,12	0,18	0,24	0,30	0,34
N.2.3	**100**	**155**	0,05	0,06	0,09	0,12	0,18	0,24	0,30	0,34
N.3.1	**135**	**170**	0,04	0,06	0,09	0,14	0,21	0,30	0,37	0,42
N.3.2	**75**	**100**	0,05	0,06	0,09	0,12	0,18	0,24	0,30	0,34
N.3.3	**85**	**120**	0,05	0,05	0,07	0,10	0,14	0,18	0,23	0,26
N.4.1										
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1										
S.3.2										
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

The cutting data depends extremely on the external conditions, such as stability of the tool and workpiece clamping, material and machine type.
The indicated values are possible values which have to be increased or reduced according to the application conditions.

Cutting data standard values – WPC – VA

Index	v_c m/min with through coolant	Drilling depth 5xD VA 11 629 ..., 11 630 ... Ø 1–1,5 f mm/rev.	Ø 1,5–2 f mm/rev.	Ø 2–3 f mm/rev.	Ø 3–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.	Ø 16–20 f mm/rev.
P.1.1	85	0,04	0,05	0,06	0,09	0,12	0,16	0,20	0,22
P.1.2	80	0,04	0,04	0,06	0,08	0,12	0,15	0,19	0,21
P.1.3	75	0,04	0,04	0,06	0,08	0,11	0,15	0,18	0,20
P.1.4	70	0,03	0,04	0,05	0,07	0,10	0,14	0,17	0,19
P.1.5	70	0,03	0,04	0,05	0,07	0,10	0,13	0,16	0,18
P.2.1	85	0,05	0,05	0,07	0,10	0,14	0,19	0,23	0,27
P.2.2	75	0,04	0,05	0,07	0,09	0,13	0,17	0,21	0,24
P.2.3	70	0,04	0,04	0,06	0,08	0,12	0,16	0,19	0,22
P.2.4	55	0,04	0,04	0,06	0,08	0,11	0,14	0,17	0,19
P.3.1	55	0,04	0,04	0,06	0,08	0,12	0,16	0,19	0,22
P.3.2	45	0,03	0,04	0,05	0,07	0,10	0,13	0,16	0,18
P.3.3	45	0,03	0,04	0,04	0,06	0,08	0,10	0,12	0,14
P.4.1	45	0,03	0,03	0,04	0,05	0,08	0,10	0,13	0,14
P.4.2	45	0,03	0,03	0,04	0,05	0,08	0,10	0,13	0,14
M.1.1	**45**	0,03	0,04	0,05	0,07	0,10	0,13	0,16	0,18
M.2.1	**45**	0,03	0,03	0,04	0,06	0,08	0,11	0,14	0,15
M.3.1	**45**	0,03	0,03	0,04	0,06	0,08	0,11	0,14	0,15
K.1.1	**90**	0,04	0,06	0,09	0,14	0,21	0,30	0,37	0,42
K.1.2	**75**	0,05	0,06	0,09	0,12	0,18	0,24	0,30	0,34
K.2.1	**120**	0,05	0,07	0,09	0,14	0,20	0,28	0,34	0,39
K.2.2	**75**	0,05	0,06	0,09	0,12	0,18	0,24	0,30	0,34
K.3.1	**70**	0,06	0,07	0,09	0,13	0,19	0,26	0,32	0,36
K.3.2	**60**	0,05	0,06	0,08	0,11	0,16	0,21	0,25	0,29
N.1.1	**280**	0,05	0,06	0,08	0,11	0,15	0,20	0,25	0,28
N.1.2	**255**	0,05	0,05	0,07	0,10	0,14	0,18	0,23	0,26
N.2.1	**215**	0,05	0,06	0,09	0,12	0,18	0,24	0,30	0,34
N.2.2	**185**	0,05	0,06	0,09	0,12	0,18	0,24	0,30	0,34
N.2.3	**155**	0,05	0,06	0,09	0,12	0,18	0,24	0,30	0,34
N.3.1	**170**	0,04	0,06	0,09	0,14	0,21	0,30	0,37	0,42
N.3.2	**100**	0,05	0,06	0,09	0,12	0,18	0,24	0,30	0,34
N.3.3	**120**	0,05	0,05	0,07	0,10	0,14	0,18	0,23	0,26
N.4.1									
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2									
S.3.3									
H.1.1									
H.1.2									
H.1.3									
H.1.4									
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

The cutting data is highly dependent on external conditions, such as stability of the tool and workpiece clamping, material and machine type!
The values indicated represent possible cutting data which may need to be corrected depending on operating conditions !

Cutting data standard values – WTX – HFDS – high-feed drill

Index	Drilling depth 3xD HFDS 10 797 ...						Drilling depth 5xD HFDS 10 798 ...					
	v_c m/min with through coolant	Ø 6–8 f mm/rev.	Ø 8–10 f mm/rev.	Ø 10–12 f mm/rev.	Ø 12–14 f mm/rev.	Ø 14–16 f mm/rev.	v_c m/min with through coolant	Ø 6–8 f mm/rev.	Ø 8–10 f mm/rev.	Ø 10–12 f mm/rev.	Ø 12–14 f mm/rev.	Ø 14–16 f mm/rev.
P.1.1	**100**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9	**100**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9
P.1.2	**100**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9	**100**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9
P.1.3	**100**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9	**100**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9
P.1.4	**100**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9	**100**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9
P.1.5	**100**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9	**100**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9
P.2.1	**100**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9	**100**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9
P.2.2	**100**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9	**100**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9
P.2.3	**90**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9	**90**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9
P.2.4	**90**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9	**90**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9
P.3.1	**85**	0,2–0,3	0,3–0,4	0,5–0,6	0,6–0,7	0,6–0,7	**85**	0,2–0,3	0,3–0,4	0,5–0,6	0,6–0,7	0,6–0,7
P.3.2	**70**	0,2–0,3	0,3–0,4	0,5–0,6	0,6–0,7	0,6–0,7	**70**	0,2–0,3	0,3–0,4	0,5–0,6	0,6–0,7	0,6–0,7
P.3.3	**70**	0,2–0,3	0,3–0,4	0,5–0,6	0,6–0,7	0,6–0,7	**70**	0,2–0,3	0,3–0,4	0,5–0,6	0,6–0,7	0,6–0,7
P.4.1	**65**	0,2–0,3	0,3–0,4	0,5–0,6	0,6–0,7	0,6–0,7	**65**	0,2–0,3	0,3–0,4	0,5–0,6	0,6–0,7	0,6–0,7
P.4.2	**65**	0,2–0,3	0,3–0,4	0,5–0,6	0,6–0,7	0,6–0,7	**65**	0,2–0,3	0,3–0,4	0,5–0,6	0,6–0,7	0,6–0,7
M.1.1	65	0,2–0,25	0,3–0,4	0,5–0,6	0,6–0,6	0,6–0,6	65	0,2–0,25	0,3–0,4	0,5–0,6	0,6–0,6	0,6–0,6
M.2.1	65	0,2–0,25	0,3–0,4	0,5–0,6	0,6–0,6	0,6–0,6	65	0,2–0,25	0,3–0,4	0,5–0,6	0,6–0,6	0,6–0,6
M.3.1	55	0,2–0,25	0,3–0,4	0,5–0,6	0,6–0,6	0,6–0,6	55	0,2–0,25	0,3–0,4	0,5–0,6	0,6–0,6	0,6–0,6
K.1.1	**130**	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9	**130**	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9
K.1.2	**130**	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9	**130**	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9
K.2.1	**130**	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9	**130**	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9
K.2.2	**130**	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9	**130**	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9
K.3.1	**130**	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9	**130**	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9
K.3.2	**130**	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9	**130**	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1	130	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9	130	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9
N.3.2	130	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9	130	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9
N.3.3	130	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9	130	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9
N.4.1	130	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9	130	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1	110	0,6	0,6	0,8	0,9	1,0	110	0,6	0,6	0,8	0,9	1,0

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

Cutting data standard values – WTX – Mini

Index	Drilling depth 5xD Mini 11 770 ...				
	v_c m/min without through coolant	< Ø 1,0	> Ø 1,0–1,5	> Ø 1,5–2,0	> Ø 2,0–2,9
		f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1	75	0,01	0,01	0,0125	0,015
P.1.2	65	0,02	0,02	0,025	0,03
P.1.3	65	0,01	0,01	0,0125	0,015
P.1.4	65	0,01	0,01	0,0125	0,015
P.1.5	70	0,01	0,01	0,0125	0,015
P.2.1	70	0,01	0,01	0,0125	0,015
P.2.2	65	0,01	0,01	0,0125	0,015
P.2.3	65	0,02	0,02	0,025	0,03
P.2.4	65	0,01	0,01	0,0125	0,015
P.3.1					
P.3.2					
P.3.3					
P.4.1					
P.4.2					
M.1.1					
M.2.1					
M.3.1					
K.1.1	**70**	0,01	0,01	0,0125	0,015
K.1.2	**70**	0,01	0,01	0,0125	0,015
K.2.1	**70**	0,01	0,01	0,0125	0,015
K.2.2	**70**	0,01	0,01	0,0125	0,015
K.3.1	**70**	0,01	0,01	0,0125	0,015
K.3.2	**70**	0,01	0,01	0,0125	0,015
N.1.1	**200**	0,01	0,01	0,0125	0,015
N.1.2	**200**	0,01	0,01	0,0125	0,015
N.2.1	**160**	0,01	0,01	0,0125	0,015
N.2.2	**180**	0,01	0,01	0,0125	0,015
N.2.3	**130**	0,01	0,01	0,0125	0,015
N.3.1	**160**	0,01	0,01	0,0125	0,015
N.3.2	**160**	0,01	0,01	0,0125	0,015
N.3.3	**100**	0,01	0,01	0,0125	0,015
N.4.1	**200**	0,01	0,01	0,0125	0,015
S.1.1					
S.1.2					
S.2.1					
S.2.2					
S.2.3					
S.3.1	30	0,01	0,01	0,0125	0,015
S.3.2	20	0,01	0,01	0,0125	0,015
S.3.3					
H.1.1					
H.1.2					
H.1.3					
H.1.4					
H.2.1					
H.3.1					
O.1.1					
O.1.2					
O.2.1					
O.2.2					
O.3.1					

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

Cutting data standard values – WTX – Micro

Index	Drilling depth 5xD Micro 10 693 ...							
	v_c m/min with through coolant	v_c m/min MMS	< Ø 1,0	> Ø 1,0–1,25	> Ø 1,25–1,5	> Ø 1,5–2,0	> Ø 2,0–2,5	> Ø 2,5–3,0
			f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1	**60**	**50**	0,024	0,028	0,034	0,05	0,07	0,095
P.1.2	**50**	**45**	0,024	0,028	0,034	0,05	0,07	0,095
P.1.3	**50**	**45**	0,024	0,028	0,034	0,05	0,07	0,095
P.1.4	**50**	**45**	0,024	0,028	0,034	0,05	0,07	0,095
P.1.5	**50**	**45**	0,024	0,028	0,034	0,05	0,07	0,095
P.2.1	**60**	**50**	0,024	0,028	0,034	0,05	0,07	0,095
P.2.2	**50**	**45**	0,024	0,028	0,034	0,05	0,07	0,095
P.2.3	**50**	**45**	0,024	0,028	0,034	0,05	0,07	0,095
P.2.4								
P.3.1	**50**	**45**	0,024	0,028	0,034	0,05	0,07	0,095
P.3.2	**40**	**35**	0,024	0,028	0,034	0,05	0,07	0,095
P.3.3								
P.4.1	**40**		0,012	0,015	0,018	0,028	0,04	0,06
P.4.2	**25**		0,012	0,015	0,018	0,028	0,04	0,06
M.1.1	**30**		0,012	0,015	0,018	0,028	0,04	0,06
M.2.1	**30**		0,012	0,015	0,018	0,028	0,04	0,06
M.3.1	**30**		0,012	0,015	0,018	0,028	0,04	0,06
K.1.1	**60**	**50**	0,024	0,028	0,034	0,05	0,07	0,095
K.1.2	**60**	**50**	0,024	0,028	0,034	0,05	0,07	0,095
K.2.1	**60**	**50**	0,024	0,028	0,034	0,05	0,07	0,095
K.2.2	**60**	**50**	0,024	0,028	0,034	0,05	0,07	0,095
K.3.1	**60**	**50**	0,024	0,028	0,034	0,05	0,07	0,095
K.3.2	**60**	**50**	0,024	0,028	0,034	0,05	0,07	0,095
N.1.1								
N.1.2								
N.2.1								
N.2.2								
N.2.3								
N.3.1								
N.3.2								
N.3.3								
N.4.1								
S.1.1	15		0,012	0,015	0,018	0,028	0,04	0,06
S.1.2	15		0,012	0,015	0,018	0,028	0,04	0,06
S.2.1	10		0,012	0,015	0,018	0,028	0,04	0,06
S.2.2	10		0,012	0,015	0,018	0,028	0,04	0,06
S.2.3								
S.3.1	20		0,012	0,015	0,018	0,028	0,04	0,06
S.3.2	10		0,012	0,015	0,018	0,028	0,04	0,06
S.3.3								
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1								
O.1.2								
O.2.1								
O.2.2								
O.3.1								

Cutting data standard values – WTX – Micro

Index	Hole depth 8xD / 12xD Micro 10 694 ..., 10 695 ...							
	v_c m/min with through coolant	v_c m/min MMS	< Ø 1,0	> Ø 1,0–1,25	> Ø 1,25–1,5	> Ø 1,5–2,0	> Ø 2,0–2,5	> Ø 2,5–3,0
			f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1	**60**	**50**	0,024	0,028	0,034	0,05	0,07	0,095
P.1.2	**50**	**45**	0,024	0,028	0,034	0,05	0,07	0,095
P.1.3	**50**	**45**	0,024	0,028	0,034	0,05	0,07	0,095
P.1.4	**50**	**45**	0,024	0,028	0,034	0,05	0,07	0,095
P.1.5	**50**	**45**	0,024	0,028	0,034	0,05	0,07	0,095
P.2.1	**60**	**50**	0,024	0,028	0,034	0,05	0,07	0,095
P.2.2	**50**	**45**	0,024	0,028	0,034	0,05	0,07	0,095
P.2.3	**50**	**45**	0,024	0,028	0,034	0,05	0,07	0,095
P.2.4								
P.3.1	**50**	**45**	0,024	0,028	0,034	0,05	0,07	0,095
P.3.2	**40**	**35**	0,024	0,028	0,034	0,05	0,07	0,095
P.3.3								
P.4.1	**40**		0,012	0,015	0,018	0,028	0,04	0,06
P.4.2	**25**		0,012	0,015	0,018	0,028	0,04	0,06
M.1.1	**30**		0,012	0,015	0,018	0,028	0,04	0,06
M.2.1	**30**		0,012	0,015	0,018	0,028	0,04	0,06
M.3.1	**30**		0,012	0,015	0,018	0,028	0,04	0,06
K.1.1	**60**	**50**	0,024	0,028	0,034	0,05	0,07	0,095
K.1.2	**60**	**50**	0,024	0,028	0,034	0,05	0,07	0,095
K.2.1	**60**	**05**	0,024	0,028	0,034	0,05	0,07	0,095
K.2.2	**60**	**50**	0,024	0,028	0,034	0,05	0,07	0,095
K.3.1	**60**	**50**	0,024	0,028	0,034	0,05	0,07	0,095
K.3.2	**60**	**50**	0,024	0,028	0,034	0,05	0,07	0,095
N.1.1								
N.1.2								
N.2.1								
N.2.2								
N.2.3								
N.3.1								
N.3.2								
N.3.3								
N.4.1								
S.1.1	15		0,012	0,015	0,018	0,028	0,04	0,06
S.1.2	15		0,012	0,015	0,018	0,028	0,04	0,06
S.2.1	10		0,012	0,015	0,018	0,028	0,04	0,06
S.2.2	10		0,012	0,015	0,018	0,028	0,04	0,06
S.2.3								
S.3.1	20		0,012	0,015	0,018	0,028	0,04	0,06
S.3.2	10		0,012	0,015	0,018	0,028	0,04	0,06
S.3.3								
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1								
O.1.2								
O.2.1								
O.2.2								
O.3.1								

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

Index	v_c m/min with through coolant	Hole depth 16xD / 20xD / 25xD / 30xD Micro 10 696 ..., 10 697 ..., 10 698 ..., 10 699 ...					
		< Ø 1,0	> Ø 1,0–1,25	> Ø 1,25–1,5	> Ø 1,5–2,0	> Ø 2,0–2,5	> Ø 2,5–3,0
		f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1	50	0,024	0,028	0,034	0,05	0,07	0,095
P.1.2	40	0,024	0,028	0,034	0,05	0,07	0,095
P.1.3	40	0,024	0,028	0,034	0,05	0,07	0,095
P.1.4	40	0,024	0,028	0,034	0,05	0,07	0,095
P.1.5	40	0,024	0,028	0,034	0,05	0,07	0,095
P.2.1	50	0,024	0,028	0,034	0,05	0,07	0,095
P.2.2	40	0,024	0,028	0,034	0,05	0,07	0,095
P.2.3	40	0,024	0,028	0,034	0,05	0,07	0,095
P.2.4							
P.3.1	40	0,024	0,028	0,034	0,05	0,07	0,095
P.3.2	30	0,024	0,028	0,034	0,05	0,07	0,095
P.3.3							
P.4.1	30	0,012	0,015	0,018	0,028	0,04	0,06
P.4.2	20	0,012	0,015	0,018	0,028	0,04	0,06
M.1.1	25	0,012	0,015	0,018	0,028	0,04	0,06
M.2.1	25	0,012	0,015	0,018	0,028	0,04	0,06
M.3.1	25	0,012	0,015	0,018	0,028	0,04	0,06
K.1.1	50	0,024	0,028	0,034	0,05	0,07	0,095
K.1.2	50	0,024	0,028	0,034	0,05	0,07	0,095
K.2.1	50	0,024	0,028	0,034	0,05	0,07	0,095
K.2.2	50	0,024	0,028	0,034	0,05	0,07	0,095
K.3.1	50	0,024	0,028	0,034	0,05	0,07	0,095
K.3.2	50	0,024	0,028	0,034	0,05	0,07	0,095
N.1.1							
N.1.2							
N.2.1							
N.2.2							
N.2.3							
N.3.1							
N.3.2							
N.3.3							
N.4.1							
S.1.1							
S.1.2							
S.2.1							
S.2.2							
S.2.3							
S.3.1							
S.3.2							
S.3.3							
H.1.1							
H.1.2							
H.1.3							
H.1.4							
H.2.1							
H.3.1							
O.1.1							
O.1.2							
O.2.1							
O.2.2							
O.3.1							

Cutting data standard values – WTX – Feed BR

Index	Drilling depth 3xD Feed BR 10 707 ..., 10 711 ...										
	v_c m/min with through coolant	v_c m/min with external coolant	v_c m/min MMS	Ø 4 f mm/rev.	Ø 5 f mm/rev.	Ø 6 f mm/rev.	Ø 8 f mm/rev.	Ø 10 f mm/rev.	Ø 12 f mm/rev.	Ø 14 f mm/rev.	Ø 16 f mm/rev.
P.1.1	**75**	**70**	**70**	0,19	0,22	0,25	0,31	0,36	0,40	0,44	0,47
P.1.2	**75**	**65**	**65**	0,18	0,21	0,24	0,30	0,34	0,39	0,42	0,45
P.1.3	**70**	**65**	**65**	0,17	0,20	0,23	0,28	0,33	0,37	0,40	0,43
P.1.4	**65**	**60**	**60**	0,16	0,19	0,22	0,27	0,31	0,35	0,38	0,41
P.1.5	**65**	**55**	**55**	0,16	0,18	0,21	0,25	0,29	0,33	0,36	0,39
P.2.1	**75**	**65**	**65**	0,22	0,26	0,30	0,37	0,43	0,48	0,52	0,56
P.2.2	**70**	**60**	**60**	0,20	0,24	0,27	0,33	0,39	0,43	0,47	0,51
P.2.3	**65**	**55**	**55**	0,18	0,22	0,25	0,30	0,35	0,39	0,43	0,46
P.2.4	**50**	**40**	**40**	0,17	0,20	0,22	0,27	0,31	0,35	0,38	0,40
P.3.1	**55**	**45**	**45**	0,18	0,21	0,24	0,30	0,35	0,39	0,43	0,46
P.3.2	**40**	**40**	**40**	0,15	0,18	0,20	0,25	0,29	0,32	0,35	0,37
P.3.3	**40**	**30**	**35**	0,13	0,15	0,16	0,20	0,23	0,25	0,27	0,29
P.4.1	**40**	**30**	**35**	0,12	0,14	0,16	0,20	0,23	0,26	0,28	0,30
P.4.2	**40**	**30**	**35**	0,12	0,14	0,16	0,20	0,23	0,26	0,28	0,30
M.1.1	**40**	**25**	**25**	0,09	0,11	0,12	0,15	0,17	0,19	0,21	0,23
M.2.1	**35**	**20**	**20**	0,08	0,09	0,10	0,13	0,15	0,17	0,18	0,19
M.3.1	**35**	**20**	**20**	0,08	0,09	0,10	0,13	0,15	0,17	0,18	0,19
K.1.1	**100**	**70**	**70**	0,25	0,30	0,35	0,45	0,53	0,60	0,66	0,71
K.1.2	**85**	**65**	**65**	0,22	0,26	0,30	0,37	0,43	0,48	0,53	0,56
K.2.1	**135**	**85**	**100**	0,24	0,29	0,34	0,42	0,49	0,56	0,61	0,66
K.2.2	**85**	**65**	**65**	0,22	0,26	0,30	0,37	0,43	0,48	0,53	0,56
K.3.1	**75**	**70**	**70**	0,23	0,28	0,32	0,39	0,46	0,52	0,57	0,61
K.3.2	**70**	**60**	**60**	0,20	0,23	0,26	0,32	0,37	0,41	0,45	0,48
N.1.1											
N.1.2											
N.2.1											
N.2.2											
N.2.3											
N.3.1											
N.3.2											
N.3.3											
N.4.1											
S.1.1											
S.1.2											
S.2.1											
S.2.2											
S.2.3											
S.3.1											
S.3.2											
S.3.3											
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1											
O.1.2											
O.2.1											
O.2.2											
O.3.1											

The cutting data is highly dependent on external conditions, such as stability of the tool and workpiece clamping, material and machine type!
The values indicated represent possible cutting data which may need to be corrected depending on operating conditions!

		Drilling depth 5xD Feed BR 10 713 ..., 10 719 ...												
	Index	v_c m/min with through coolant	v_c m/min with external coolant	v_c m/min MMS	Ø 4 f mm/rev.	Ø 5 f mm/rev.	Ø 6 f mm/rev.	Ø 8 f mm/rev.	Ø 10 f mm/rev.	Ø 12 f mm/rev.	Ø 14 f mm/rev.	Ø 16 f mm/rev.	Ø 18 f mm/rev.	Ø 20 f mm/rev.
	P.1.1	75	70	70	0,19	0,22	0,25	0,31	0,36	0,40	0,44	0,47	0,50	0,52
	P.1.2	75	65	65	0,18	0,21	0,24	0,30	0,34	0,39	0,42	0,45	0,48	0,50
	P.1.3	70	65	65	0,17	0,20	0,23	0,28	0,33	0,37	0,40	0,43	0,45	0,47
	P.1.4	65	60	60	0,16	0,19	0,22	0,27	0,31	0,35	0,38	0,41	0,43	0,45
	P.1.5	65	55	55	0,16	0,18	0,21	0,25	0,29	0,33	0,36	0,39	0,41	0,43
	P.2.1	75	65	65	0,22	0,26	0,30	0,37	0,43	0,48	0,52	0,56	0,59	0,62
	P.2.2	70	60	60	0,20	0,24	0,27	0,33	0,39	0,43	0,47	0,51	0,54	0,56
	P.2.3	65	55	55	0,18	0,22	0,25	0,30	0,35	0,39	0,43	0,46	0,48	0,50
	P.2.4	50	40	40	0,17	0,20	0,22	0,27	0,31	0,35	0,38	0,40	0,42	0,44
	P.3.1	55	45	45	0,18	0,21	0,24	0,30	0,35	0,39	0,43	0,46	0,48	0,50
	P.3.2	40	40	40	0,15	0,18	0,20	0,25	0,29	0,32	0,35	0,37	0,39	0,41
	P.3.3	40	30	35	0,13	0,15	0,16	0,20	0,23	0,25	0,27	0,29	0,30	0,32
	P.4.1	40	30	35	0,12	0,14	0,16	0,20	0,23	0,26	0,28	0,30	0,32	0,33
	P.4.2	40	30	35	0,12	0,14	0,16	0,20	0,23	0,26	0,28	0,30	0,32	0,33
	M.1.1	40	25	25	0,09	0,11	0,12	0,15	0,17	0,19	0,21	0,23	0,24	0,25
	M.2.1	35	20	20	0,08	0,09	0,10	0,13	0,15	0,17	0,18	0,19	0,20	0,21
	M.3.1	35	20	20	0,08	0,09	0,10	0,13	0,15	0,17	0,18	0,19	0,20	0,21
	K.1.1	100	70	70	0,25	0,30	0,35	0,45	0,53	0,60	0,66	0,71	0,75	0,79
	K.1.2	85	65	65	0,22	0,26	0,30	0,37	0,43	0,48	0,53	0,56	0,60	0,62
	K.2.1	135	85	100	0,24	0,29	0,34	0,42	0,49	0,56	0,61	0,66	0,69	0,72
	K.2.2	85	65	65	0,22	0,26	0,30	0,37	0,43	0,48	0,53	0,56	0,60	0,62
	K.3.1	75	70	70	0,23	0,28	0,32	0,39	0,46	0,52	0,57	0,61	0,64	0,67
	K.3.2	70	60	60	0,20	0,23	0,26	0,32	0,37	0,41	0,45	0,48	0,51	0,53
	N.1.1													
	N.1.2													
	N.2.1													
	N.2.2													
	N.2.3													
	N.3.1													
	N.3.2													
	N.3.3													
	N.4.1													
	S.1.1													
	S.1.2													
	S.2.1													
	S.2.2													
	S.2.3													
	S.3.1													
	S.3.2													
	S.3.3													
	H.1.1													
	H.1.2													
	H.1.3													
	H.1.4													
	H.2.1													
	H.3.1													
	O.1.1													
	O.1.2													
	O.2.1													
	O.2.2													
	O.3.1													

Cutting data standard values – WTX – Co-pilot deep hole twist drills

Index	Hole depth 20xD CP 20 UNI 11 018 ...					
	v_c m/min	Ø > 3–4 f mm/rev.	Ø > 4–5 f mm/rev.	Ø > 5–6 f mm/rev.	Ø 6–8 f mm/rev.	Ø 8–10 f mm/rev.
P.1.1	**100**	0,07	0,08	0,10	0,12	0,14
P.1.2	**90**	0,07	0,08	0,10	0,12	0,14
P.1.3	**90**	0,05	0,06	0,08	0,10	0,11
P.1.4	**90**	0,05	0,06	0,08	0,10	0,11
P.1.5	**95**	0,05	0,06	0,08	0,10	0,11
P.2.1	**95**	0,07	0,08	0,10	0,12	0,14
P.2.2	**90**	0,05	0,06	0,08	0,10	0,11
P.2.3	**90**	0,07	0,08	0,10	0,12	0,14
P.2.4	**90**	0,05	0,06	0,08	0,10	0,11
P.3.1	**45**	0,03	0,04	0,05	0,06	0,08
P.3.2	**70**	0,05	0,06	0,08	0,10	0,11
P.3.3	**70**	0,05	0,06	0,08	0,10	0,11
P.4.1	**70**	0,03	0,04	0,05	0,06	0,08
P.4.2	**45**	0,03	0,04	0,05	0,06	0,08
M.1.1	**50**	0,03	0,04	0,05	0,06	0,08
M.2.1	**50**	0,03	0,04	0,05	0,06	0,08
M.3.1	**50**	0,03	0,04	0,05	0,06	0,08
K.1.1	**100**	0,10	0,13	0,15	0,19	0,23
K.1.2	**95**	0,10	0,13	0,15	0,19	0,23
K.2.1	**100**	0,08	0,10	0,13	0,16	0,18
K.2.2	**95**	0,08	0,10	0,13	0,16	0,18
K.3.1	**100**	0,08	0,10	0,13	0,16	0,18
K.3.2	**95**	0,08	0,10	0,13	0,16	0,18
N.1.1						
N.1.2						
N.2.1						
N.2.2						
N.2.3						
N.3.1						
N.3.2						
N.3.3						
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3	70	0,05	0,06	0,08	0,10	0,11
S.3.1	30	0,01	0,02	0,02	0,03	0,04
S.3.2	20	0,01	0,02	0,02	0,03	0,04
S.3.3						
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

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

Cutting data standard values – WTX – TB UNI

Index	Hole depth 16xD TB UNI 11 016 ...								Hole depth 20xD TB UNI 11 020 ...							
	v_c m/min	Ø 2–3 f mm/rev.	Ø > 3–4 f mm/rev.	Ø > 4–5 f mm/rev.	Ø > 5–6 f mm/rev.	Ø 6–8 f mm/rev.	Ø 8–10 f mm/rev.	Ø 10–12 f mm/rev.	v_c m/min	Ø 2–3 f mm/rev.	Ø > 3–4 f mm/rev.	Ø > 4–5 f mm/rev.	Ø > 5–6 f mm/rev.	Ø 6–8 f mm/rev.	Ø 8–10 f mm/rev.	Ø 10–12 f mm/rev.
P.1.1	**105**	0,05	0,07	0,08	0,10	0,12	0,14	0,16	**100**	0,05	0,07	0,08	0,10	0,12	0,14	0,16
P.1.2	**95**	0,05	0,07	0,08	0,10	0,12	0,14	0,16	**90**	0,05	0,07	0,08	0,10	0,12	0,14	0,16
P.1.3	**95**	0,04	0,05	0,06	0,08	0,10	0,11	0,13	**90**	0,038	0,05	0,06	0,075	0,10	0,11	0,13
P.1.4	**95**	0,04	0,05	0,06	0,08	0,10	0,11	0,13	**90**	0,038	0,05	0,06	0,075	0,10	0,11	0,13
P.1.5	**100**	0,04	0,05	0,06	0,08	0,10	0,11	0,13	**95**	0,038	0,05	0,06	0,075	0,10	0,11	0,13
P.2.1	**100**	0,05	0,07	0,08	0,10	0,12	0,14	0,16	**95**	0,05	0,07	0,08	0,10	0,12	0,14	0,16
P.2.2	**95**	0,04	0,05	0,06	0,08	0,10	0,11	0,13	**90**	0,038	0,05	0,06	0,075	0,10	0,11	0,13
P.2.3	**95**	0,05	0,07	0,08	0,10	0,12	0,14	0,16	**90**	0,05	0,07	0,08	0,10	0,12	0,14	0,16
P.2.4	**95**	0,04	0,05	0,06	0,08	0,10	0,11	0,13	**90**	0,038	0,05	0,06	0,075	0,10	0,11	0,13
P.3.1	**50**	0,03	0,03	0,04	0,05	0,06	0,08	0,10	**45**	0,025	0,03	0,04	0,045	0,06	0,08	0,10
P.3.2	**75**	0,04	0,05	0,06	0,08	0,10	0,11	0,13	**70**	0,038	0,05	0,06	0,075	0,10	0,11	0,13
P.3.3	**75**	0,04	0,05	0,06	0,08	0,10	0,11	0,13	**70**	0,038	0,05	0,06	0,075	0,10	0,11	0,13
P.4.1	**75**	0,03	0,03	0,04	0,05	0,06	0,08	0,10	**70**	0,025	0,03	0,04	0,045	0,06	0,08	0,10
P.4.2	**50**	0,03	0,03	0,04	0,05	0,06	0,08	0,10	**45**	0,025	0,03	0,04	0,045	0,06	0,08	0,10
M.1.1	**55**	0,03	0,03	0,04	0,05	0,06	0,08	0,10	**50**	0,03	0,03	0,04	0,05	0,06	0,08	0,10
M.2.1	**55**	0,03	0,03	0,04	0,05	0,06	0,08	0,10	**50**	0,03	0,03	0,04	0,05	0,06	0,08	0,10
M.3.1	**55**	0,03	0,03	0,04	0,05	0,06	0,08	0,10	**50**	0,03	0,03	0,04	0,05	0,06	0,08	0,10
K.1.1	**105**	0,08	0,10	0,13	0,15	0,19	0,23	0,27	**100**	0,08	0,10	0,13	0,15	0,19	0,23	0,27
K.1.2	**100**	0,08	0,10	0,13	0,15	0,19	0,23	0,27	**95**	0,08	0,10	0,13	0,15	0,19	0,23	0,27
K.2.1	**105**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	**100**	0,06	0,08	0,10	0,13	0,16	0,18	0,22
K.2.2	**100**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	**95**	0,06	0,08	0,10	0,13	0,16	0,18	0,22
K.3.1	**105**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	**100**	0,06	0,08	0,10	0,13	0,16	0,18	0,22
K.3.2	**100**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	**95**	0,06	0,08	0,10	0,13	0,16	0,18	0,22
N.1.1																
N.1.2																
N.2.1																
N.2.2																
N.2.3																
N.3.1																
N.3.2																
N.3.3																
N.4.1																
S.1.1																
S.1.2																
S.2.1																
S.2.2																
S.2.3	75	0,04	0,05	0,06	0,08	0,10	0,11	0,13	70	0,04	0,05	0,06	0,08	0,10	0,11	0,13
S.3.1	35	0,01	0,01	0,02	0,02	0,03	0,04	0,05	30	0,01	0,01	0,02	0,02	0,03	0,04	0,05
S.3.2	25	0,01	0,01	0,02	0,02	0,03	0,04	0,05	20	0,01	0,01	0,02	0,02	0,03	0,04	0,05
S.3.3																
H.1.1																
H.1.2																
H.1.3																
H.1.4																
H.2.1																
H.3.1																
O.1.1																
O.1.2																
O.2.1																
O.2.2																
O.3.1																

All solid carbide WTX deep hole drills must be used with a pilot bore.
The tool must never be run at high speed while not engaged in a material. Please refer to the strategy for the production of deep holes on → **Page 160**.

Cutting data standard values – WTX – TB UNI

Index	Hole depth 25xD TB UNI 11 025 ...								Hole depth 30xD TB UNI 11 030 ...							
	v_c m/min	Ø 2–3 f mm/rev.	Ø > 3–4 f mm/rev.	Ø > 4–5 f mm/rev.	Ø > 5–6 f mm/rev.	Ø 6–8 f mm/rev.	Ø 8–10 f mm/rev.	Ø 10–12 f mm/rev.	v_c m/min	Ø 2–3 f mm/rev.	Ø > 3–4 f mm/rev.	Ø > 4–5 f mm/rev.	Ø > 5–6 f mm/rev.	Ø 6–8 f mm/rev.	Ø 8–10 f mm/rev.	Ø 10–12 f mm/rev.
P.1.1	**90**	0,05	0,07	0,08	0,10	0,12	0,14	0,16	**85**	0,05	0,07	0,08	0,10	0,12	0,14	0,16
P.1.2	**80**	0,05	0,07	0,08	0,10	0,12	0,14	0,16	**75**	0,05	0,07	0,08	0,10	0,12	0,14	0,16
P.1.3	**80**	0,04	0,05	0,06	0,08	0,10	0,11	0,13	**75**	0,04	0,05	0,06	0,08	0,10	0,11	0,13
P.1.4	**80**	0,04	0,05	0,06	0,08	0,10	0,11	0,13	**75**	0,04	0,05	0,06	0,08	0,10	0,11	0,13
P.1.5	**85**	0,04	0,05	0,06	0,08	0,10	0,11	0,13	**80**	0,04	0,05	0,06	0,08	0,10	0,11	0,13
P.2.1	**85**	0,05	0,07	0,08	0,10	0,12	0,14	0,16	**80**	0,05	0,07	0,08	0,10	0,12	0,14	0,16
P.2.2	**80**	0,04	0,05	0,06	0,08	0,10	0,11	0,13	**75**	0,04	0,05	0,06	0,08	0,10	0,11	0,13
P.2.3	**80**	0,05	0,07	0,08	0,10	0,12	0,14	0,16	**75**	0,05	0,07	0,08	0,10	0,12	0,14	0,16
P.2.4	**80**	0,04	0,05	0,06	0,08	0,10	0,11	0,13	**75**	0,04	0,05	0,06	0,08	0,10	0,11	0,13
P.3.1	**45**	0,03	0,03	0,04	0,05	0,06	0,08	0,10	**40**	0,03	0,03	0,04	0,05	0,06	0,08	0,10
P.3.2	**65**	0,04	0,05	0,06	0,08	0,10	0,11	0,13	**60**	0,04	0,05	0,06	0,08	0,10	0,11	0,13
P.3.3	**65**	0,04	0,05	0,06	0,08	0,10	0,11	0,13	**60**	0,04	0,05	0,06	0,08	0,10	0,11	0,13
P.4.1	**65**	0,03	0,03	0,04	0,05	0,06	0,08	0,10	**60**	0,03	0,03	0,04	0,05	0,06	0,08	0,10
P.4.2	**45**	0,03	0,03	0,04	0,05	0,06	0,08	0,10	**40**	0,03	0,03	0,04	0,05	0,06	0,08	0,10
M.1.1	**50**	0,03	0,03	0,04	0,05	0,06	0,08	0,10	**45**	0,03	0,03	0,04	0,05	0,06	0,08	0,10
M.2.1	**50**	0,03	0,03	0,04	0,05	0,06	0,08	0,10	**45**	0,03	0,03	0,04	0,05	0,06	0,08	0,10
M.3.1	**50**	0,03	0,03	0,04	0,05	0,06	0,08	0,10	**45**	0,03	0,03	0,04	0,05	0,06	0,08	0,10
K.1.1	**90**	0,08	0,10	0,13	0,15	0,19	0,23	0,27	**85**	0,08	0,10	0,13	0,15	0,19	0,23	0,27
K.1.2	**85**	0,08	0,10	0,13	0,15	0,19	0,23	0,27	**80**	0,08	0,10	0,13	0,15	0,19	0,23	0,27
K.2.1	**90**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	**85**	0,06	0,08	0,10	0,13	0,16	0,18	0,22
K.2.2	**85**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	**80**	0,06	0,08	0,10	0,13	0,16	0,18	0,22
K.3.1	**90**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	**85**	0,06	0,08	0,10	0,13	0,16	0,18	0,22
K.3.2	**85**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	**80**	0,06	0,08	0,10	0,13	0,16	0,18	0,22
N.1.1																
N.1.2																
N.2.1																
N.2.2																
N.2.3																
N.3.1																
N.3.2																
N.3.3																
N.4.1																
S.1.1																
S.1.2																
S.2.1																
S.2.2																
S.2.3	65	0,04	0,05	0,06	0,08	0,10	0,11	0,13	60	0,04	0,05	0,06	0,08	0,10	0,11	0,13
S.3.1																
S.3.2																
S.3.3																
H.1.1																
H.1.2																
H.1.3																
H.1.4																
H.2.1																
H.3.1																
O.1.1																
O.1.2																
O.2.1																
O.2.2																
O.3.1																

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

Index	Hole depth 40xD TB UNI 11 040 ...						Hole depth 50xD TB UNI 11 050 ...				
	v_c m/min	Ø > 3–4 f mm/rev.	Ø > 4–5 f mm/rev.	Ø > 5–6 f mm/rev.	Ø 6–8 f mm/rev.	Ø 8–10 f mm/rev.	v_c m/min	Ø > 3–4 f mm/rev.	Ø > 4–5 f mm/rev.	Ø > 5–6 f mm/rev.	Ø 6–8 f mm/rev.
P.1.1	**70**	0,05	0,06	0,08	0,10	0,11	**70**	0,05	0,06	0,08	0,10
P.1.2	**60**	0,05	0,06	0,08	0,10	0,11	**60**	0,05	0,06	0,08	0,10
P.1.3	**60**	0,03	0,04	0,05	0,06	0,08	**60**	0,03	0,04	0,05	0,06
P.1.4	**60**	0,03	0,04	0,05	0,06	0,08	**60**	0,03	0,04	0,05	0,06
P.1.5	**65**	0,03	0,04	0,05	0,06	0,08	**65**	0,03	0,04	0,05	0,06
P.2.1	**65**	0,05	0,06	0,08	0,10	0,11	**65**	0,05	0,06	0,08	0,10
P.2.2	**60**	0,03	0,04	0,05	0,06	0,08	**60**	0,03	0,04	0,05	0,06
P.2.3	**60**	0,05	0,06	0,08	0,10	0,11	**60**	0,05	0,06	0,08	0,10
P.2.4	**60**	0,03	0,04	0,05	0,06	0,08	**60**	0,03	0,04	0,05	0,06
P.3.1	**35**	0,03	0,03	0,04	0,05	0,06	**35**	0,03	0,03	0,04	0,05
P.3.2	**50**	0,03	0,04	0,05	0,06	0,08	**50**	0,03	0,04	0,05	0,06
P.3.3	**50**	0,03	0,04	0,05	0,06	0,08	**50**	0,03	0,04	0,05	0,06
P.4.1	**50**	0,03	0,03	0,04	0,05	0,06	**50**	0,03	0,03	0,04	0,05
P.4.2	**35**	0,03	0,03	0,04	0,05	0,06	**35**	0,03	0,03	0,04	0,05
M.1.1	**40**	0,03	0,03	0,04	0,05	0,06	**40**	0,03	0,03	0,04	0,05
M.2.1	**40**	0,03	0,03	0,04	0,05	0,06	**40**	0,03	0,03	0,04	0,05
M.3.1	**40**	0,03	0,03	0,04	0,05	0,06	**40**	0,03	0,03	0,04	0,05
K.1.1	**70**	0,08	0,10	0,13	0,16	0,18	**70**	0,08	0,10	0,13	0,16
K.1.2	**65**	0,08	0,10	0,13	0,16	0,18	**65**	0,08	0,10	0,13	0,16
K.2.1	**70**	0,07	0,08	0,10	0,12	0,14	**70**	0,07	0,08	0,10	0,12
K.2.2	**65**	0,07	0,08	0,10	0,12	0,14	**65**	0,07	0,08	0,10	0,12
K.3.1	**70**	0,07	0,08	0,10	0,12	0,14	**70**	0,07	0,08	0,10	0,12
K.3.2	**65**	0,07	0,08	0,10	0,12	0,14	**65**	0,07	0,08	0,10	0,12
N.1.1											
N.1.2											
N.2.1											
N.2.2											
N.2.3											
N.3.1											
N.3.2											
N.3.3											
N.4.1											
S.1.1											
S.1.2											
S.2.1											
S.2.2											
S.2.3	50	0,03	0,04	0,05	0,06	0,08	50	0,03	0,04	0,05	0,06
S.3.1											
S.3.2											
S.3.3											
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1											
O.1.2											
O.2.1											
O.2.2											
O.3.1											

All solid carbide WTX deep hole drills must be used with a pilot bore. The tool must never be run at high speed while not engaged in a material.
Please refer to the strategy for the production of deep holes on → **Page 160**.

Cutting data standard values – WTX – TB ALU

Index	Hole depth 16xD TB ALU 11 017 ...								Hole depth 20xD TB ALU 11 021 ...							
	v_c m/min	Ø 2–3 f mm/rev.	Ø > 3–4 f mm/rev.	Ø > 4–5 f mm/rev.	Ø > 5–6 f mm/rev.	Ø 6–8 f mm/rev.	Ø 8–10 f mm/rev.	Ø 10–12 f mm/rev.	v_c m/min	Ø 2–3 f mm/rev.	Ø > 3–4 f mm/rev.	Ø > 4–5 f mm/rev.	Ø > 5–6 f mm/rev.	Ø 6–8 f mm/rev.	Ø 8–10 f mm/rev.	Ø 10–12 f mm/rev.
P.1.1																
P.1.2																
P.1.3																
P.1.4																
P.1.5																
P.2.1																
P.2.2																
P.2.3																
P.2.4																
P.3.1																
P.3.2																
P.3.3																
P.4.1																
P.4.2																
M.1.1																
M.2.1																
M.3.1																
K.1.1																
K.1.2																
K.2.1																
K.2.2																
K.3.1																
K.3.2																
N.1.1	160	0,06	0,08	0,10	0,13	0,16	0,18	0,22	150	0,06	0,08	0,10	0,13	0,16	0,18	0,22
N.1.2	180	0,06	0,08	0,10	0,13	0,16	0,18	0,22	170	0,06	0,08	0,10	0,13	0,16	0,18	0,22
N.2.1	160	0,08	0,11	0,13	0,15	0,19	0,23	0,26	150	0,08	0,11	0,13	0,15	0,19	0,23	0,26
N.2.2	190	0,08	0,11	0,13	0,15	0,19	0,23	0,26	180	0,08	0,11	0,13	0,15	0,19	0,23	0,26
N.2.3	140	0,06	0,08	0,10	0,13	0,16	0,18	0,22	130	0,06	0,08	0,10	0,13	0,16	0,18	0,22
N.3.1	115	0,06	0,08	0,10	0,13	0,16	0,18	0,22	100	0,06	0,08	0,10	0,13	0,16	0,18	0,22
N.3.2	115	0,06	0,08	0,10	0,13	0,16	0,18	0,22	100	0,06	0,08	0,10	0,13	0,16	0,18	0,22
N.3.3	90	0,06	0,08	0,10	0,13	0,16	0,18	0,22	80	0,06	0,08	0,10	0,13	0,16	0,18	0,22
N.4.1																
S.1.1																
S.1.2																
S.2.1																
S.2.2																
S.2.3																
S.3.1																
S.3.2																
S.3.3																
H.1.1																
H.1.2																
H.1.3																
H.1.4																
H.2.1																
H.3.1																
O.1.1																
O.1.2																
O.2.1																
O.2.2																
O.3.1																

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

Index	Hole depth 25xD TB ALU 11 026 ...								Hole depth 30xD TB ALU 11 031 ...							
	v_c m/min	Ø 2–3 f mm/rev.	Ø > 3–4 f mm/rev.	Ø > 4–5 f mm/rev.	Ø > 5–6 f mm/rev.	Ø 6–8 f mm/rev.	Ø 8–10 f mm/rev.	Ø 10–12 f mm/rev.	v_c m/min	Ø 2–3 f mm/rev.	Ø > 3–4 f mm/rev.	Ø > 4–5 f mm/rev.	Ø > 5–6 f mm/rev.	Ø 6–8 f mm/rev.	Ø 8–10 f mm/rev.	Ø 10–12 f mm/rev.
P.1.1																
P.1.2																
P.1.3																
P.1.4																
P.1.5																
P.2.1																
P.2.2																
P.2.3																
P.2.4																
P.3.1																
P.3.2																
P.3.3																
P.4.1																
P.4.2																
M.1.1																
M.2.1																
M.3.1																
K.1.1																
K.1.2																
K.2.1																
K.2.2																
K.3.1																
K.3.2																
N.1.1	130	0,06	0,08	0,10	0,13	0,16	0,18	0,22	120	0,04	0,05	0,07	0,08	0,12	0,15	0,18
N.1.2	150	0,06	0,08	0,10	0,13	0,16	0,18	0,22	140	0,04	0,05	0,07	0,08	0,12	0,15	0,18
N.2.1	130	0,08	0,11	0,13	0,15	0,19	0,23	0,26	120	0,08	0,11	0,13	0,15	0,19	0,23	0,26
N.2.2	160	0,08	0,11	0,13	0,15	0,19	0,23	0,26	150	0,08	0,11	0,13	0,15	0,19	0,23	0,26
N.2.3	120	0,06	0,08	0,10	0,13	0,16	0,18	0,22	110	0,04	0,05	0,07	0,08	0,12	0,15	0,18
N.3.1	90	0,06	0,08	0,10	0,13	0,16	0,18	0,22	80	0,04	0,05	0,07	0,08	0,12	0,15	0,18
N.3.2	90	0,06	0,08	0,10	0,13	0,16	0,18	0,22	80	0,04	0,05	0,07	0,08	0,12	0,15	0,18
N.3.3	75	0,06	0,08	0,10	0,13	0,16	0,18	0,22	70	0,04	0,05	0,07	0,08	0,12	0,15	0,18
N.4.1																
S.1.1																
S.1.2																
S.2.1																
S.2.2																
S.2.3																
S.3.1																
S.3.2																
S.3.3																
H.1.1																
H.1.2																
H.1.3																
H.1.4																
H.2.1																
H.3.1																
O.1.1																
O.2.1																
O.2.2																
O.3.1																

All solid carbide WTX deep hole drills must be used with a pilot bore. The tool must never be run at high speed while not engaged in a material.
Please refer to the strategy for the production of deep holes on → **Page 160**.

Cutting data standard values – Solid Carbide NC Spot Drills, Centre Drills

Index	Solid Carbide NC Spot Drills MultiChange 10 709 ..., 10 712 ..., 10 714 ...						Solid Carbide Centre Drills ZB 10 708 ...							
	v_c m/min	Ø 8 f mm/rev.	Ø 10 f mm/rev.	Ø 12 f mm/rev.	Ø 16 f mm/rev.	Ø 20 f mm/rev.	v_c m/min without through coolant	Ø 0,5–1,5 f mm/rev.	Ø 1,5–2 f mm/rev.	Ø 2–3 f mm/rev.	Ø 3–4 f mm/rev.	Ø 4–5 f mm/rev.	Ø 5–6 f mm/rev.	Ø 6–8 f mm/rev.
P.1.1	160	0,08	0,10	0,11	0,14	0,16	75	0,03	0,04	0,05	0,07	0,08	0,10	0,12
P.1.2	160	0,08	0,10	0,11	0,14	0,16	65	0,03	0,04	0,05	0,07	0,08	0,10	0,12
P.1.3	160	0,08	0,10	0,11	0,14	0,16	65	0,03	0,03	0,04	0,05	0,06	0,08	0,10
P.1.4	160	0,08	0,10	0,11	0,14	0,16	65	0,03	0,03	0,04	0,05	0,06	0,08	0,10
P.1.5	130	0,08	0,09	0,11	0,13	0,15	70	0,03	0,03	0,04	0,05	0,06	0,08	0,10
P.2.1	145	0,08	0,10	0,11	0,14	0,16	70	0,03	0,04	0,05	0,07	0,08	0,10	0,12
P.2.2	100	0,07	0,08	0,09	0,12	0,14	65	0,03	0,03	0,04	0,05	0,06	0,08	0,10
P.2.3	80	0,07	0,08	0,10	0,12	0,14	65	0,03	0,04	0,05	0,07	0,08	0,10	0,12
P.2.4	80	0,07	0,08	0,10	0,12	0,14	65	0,03	0,03	0,04	0,05	0,06	0,08	0,10
P.3.1	95	0,08	0,09	0,11	0,13	0,16								
P.3.2	95	0,08	0,09	0,11	0,13	0,16								
P.3.3	95	0,08	0,09	0,11	0,13	0,16								
P.4.1	65	0,04	0,05	0,05	0,07	0,08								
P.4.2	65	0,04	0,05	0,05	0,07	0,08								
M.1.1	45	0,05	0,06	0,07	0,08	0,10								
M.2.1	45	0,05	0,06	0,07	0,08	0,10								
M.3.1	40	0,04	0,05	0,06	0,07	0,08								
K.1.1	175	0,13	0,16	0,19	0,24	0,27	70	0,03	0,03	0,04	0,05	0,06	0,08	0,10
K.1.2	160	0,11	0,14	0,16	0,2	0,23	70	0,03	0,03	0,04	0,05	0,06	0,08	0,10
K.2.1	130	0,09	0,11	0,13	0,17	0,19	70	0,03	0,03	0,04	0,05	0,06	0,08	0,10
K.2.2	130	0,09	0,11	0,13	0,17	0,19	70	0,03	0,03	0,04	0,05	0,06	0,08	0,10
K.3.1	160	0,11	0,14	0,16	0,20	0,23	70	0,03	0,03	0,04	0,05	0,06	0,08	0,10
K.3.2	130	0,09	0,11	0,13	0,17	0,19	70	0,03	0,03	0,04	0,05	0,06	0,08	0,10
N.1.1	600	0,13	0,16	0,19	0,24	0,27	200	0,01	0,01	0,01	0,01	0,02	0,02	0,03
N.1.2	400	0,14	0,17	0,11	0,25	0,29	200	0,01	0,01	0,01	0,01	0,02	0,02	0,03
N.2.1	320	0,15	0,18	0,28	0,26	0,30	160	0,01	0,01	0,01	0,01	0,02	0,02	0,03
N.2.2	320	0,15	0,18	0,28	0,26	0,30	180	0,01	0,01	0,01	0,01	0,02	0,02	0,03
N.2.3	230	0,16	0,19	0,23	0,28	0,33	130	0,01	0,01	0,01	0,01	0,02	0,02	0,03
N.3.1	175	0,11	0,13	0,15	0,19	0,22	160	0,01	0,01	0,01	0,01	0,01	0,01	0,02
N.3.2	230	0,11	0,13	0,15	0,19	0,22	160	0,01	0,01	0,01	0,01	0,01	0,01	0,02
N.3.3	175	0,11	0,13	0,15	0,19	0,22	100	0,01	0,01	0,01	0,01	0,01	0,01	0,02
N.4.1	290	0,07	0,08	0,09	0,12	0,14								
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1														
S.3.2														
S.3.3														
H.1.1														
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1														
O.1.1														
O.1.2														
O.2.1														
O.2.2														
O.3.1														

The cutting data is highly dependent on external conditions, such as stability of the tool and workpiece clamping, material and machine type!
The values indicated represent possible cutting data which may need to be corrected depending on operating conditions !

	Solid Carbide NC Spot Drills NC-A 10 702 ..., 10 703 ..., 10 704 ...,											
Index	v_c m/min without through coolant	Ø 2–3 f mm/rev.	Ø 3–4 f mm/rev.	Ø 4–5 f mm/rev.	Ø 5–6 f mm/rev.	Ø 6–8 f mm/rev.	Ø 8–10 f mm/rev.	Ø 10–12 f mm/rev.	Ø 12–14 f mm/rev.	Ø 14–16 f mm/rev.	Ø 16–18 f mm/rev.	Ø 18–20 f mm/rev.
P.1.1	75	0,05	0,07	0,08	0,10	0,12	0,14	0,16	0,20	0,24	0,28	0,31
P.1.2	65	0,05	0,07	0,08	0,10	0,12	0,14	0,16	0,20	0,24	0,28	0,31
P.1.3	65	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
P.1.4	65	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
P.1.5	70	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
P.2.1	70	0,05	0,07	0,08	0,10	0,12	0,14	0,16	0,20	0,24	0,28	0,31
P.2.2	65	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
P.2.3	65	0,05	0,07	0,08	0,10	0,12	0,14	0,16	0,20	0,24	0,28	0,31
P.2.4	65	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1	70	0,04	0,05	0,06	0,08	0,10	0,13	0,15	0,18	0,20	0,23	0,26
K.1.2	70	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
K.2.1	70	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
K.2.2	70	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
K.3.1	70	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
K.3.2	70	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
N.1.1	200	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.1.2	200	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.2.1	160	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.2.2	180	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.2.3	130	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.3.1	160	0,01	0,01	0,01	0,01	0,02	0,03	0,04	0,06	0,09	0,11	0,14
N.3.2	160	0,01	0,01	0,01	0,01	0,02	0,03	0,04	0,06	0,09	0,11	0,14
N.3.3	100	0,01	0,01	0,01	0,01	0,02	0,03	0,04	0,06	0,09	0,11	0,14
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

Cutting data standard values – Solid Carbide NC-A TiAlN

Index	v_c m/min without through coolant	Solid Carbide NC Spot Drill NC-A TiAlN 10 716 ..., 10 717 ..., 10 718 ...										
		Ø 2–3	Ø 3–4	Ø 4–5	Ø 5–6	Ø 6–8	Ø 8–10	Ø 10–12	Ø 12–14	Ø 14–16	Ø 16–18	Ø 18–20
		f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1	75	0,05	0,07	0,08	0,10	0,12	0,14	0,16	0,20	0,24	0,28	0,31
P.1.2	65	0,05	0,07	0,08	0,10	0,12	0,14	0,16	0,20	0,24	0,28	0,31
P.1.3	65	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
P.1.4	65	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
P.1.5	70	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
P.2.1	70	0,05	0,07	0,08	0,10	0,12	0,14	0,16	0,20	0,24	0,28	0,31
P.2.2	65	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
P.2.3	65	0,05	0,07	0,08	0,10	0,12	0,14	0,16	0,20	0,24	0,28	0,31
P.2.4	65	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1	**70**	0,04	0,05	0,06	0,08	0,10	0,13	0,15	0,18	0,20	0,23	0,26
K.1.2	**70**	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
K.2.1	**70**	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
K.2.2	**70**	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
K.3.1	**70**	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
K.3.2	**70**	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
N.1.1	**200**	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.1.2	**200**	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.2.1	**160**	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.2.2	**180**	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.2.3	**130**	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.3.1	**160**	0,01	0,01	0,01	0,01	0,02	0,03	0,04	0,06	0,09	0,11	0,14
N.3.2	**160**	0,01	0,01	0,01	0,01	0,02	0,03	0,04	0,06	0,09	0,11	0,14
N.3.3	**100**	0,01	0,01	0,01	0,01	0,02	0,03	0,04	0,06	0,09	0,11	0,14
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1	28	0,02	0,03	0,04	0,04	0,05	0,06	0,06	0,07	0,07	0,08	0,08
H.1.2	16	0,02	0,03	0,04	0,04	0,05	0,06	0,06	0,07	0,07	0,08	0,08
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

The cutting data is highly dependent on external conditions, such as stability of the tool and workpiece clamping, material and machine type!
The values indicated represent possible cutting data which may need to be corrected depending on operating conditions !

Index	v_c m/min without through coolant	Solid Carbide NC Spot Drills, long NC-A TiAlN 10 724 ..., 10 726 ..., 10 727 ... Ø 3–4 f mm/rev.	Ø 4–5 f mm/rev.	Ø 5–6 f mm/rev.	Ø 6–8 f mm/rev.	Ø 8–10 f mm/rev.	Ø 10–12 f mm/rev.	Ø 12–14 f mm/rev.	Ø 14–16 f mm/rev.
P.1.1	75	0,07	0,08	0,10	0,12	0,14	0,16	0,20	0,24
P.1.2	65	0,07	0,08	0,10	0,12	0,14	0,16	0,20	0,24
P.1.3	65	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18
P.1.4	65	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18
P.1.5	70	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18
P.2.1	70	0,07	0,08	0,10	0,12	0,14	0,16	0,20	0,24
P.2.2	65	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18
P.2.3	65	0,07	0,08	0,10	0,12	0,14	0,16	0,20	0,24
P.2.4	65	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18
P.3.1									
P.3.2									
P.3.3									
P.4.1									
P.4.2									
M.1.1									
M.2.1									
M.3.1									
K.1.1	**70**	0,05	0,06	0,08	0,10	0,13	0,15	0,18	0,20
K.1.2	**70**	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18
K.2.1	**70**	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18
K.2.2	**70**	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18
K.3.1	**70**	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18
K.3.2	**70**	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18
N.1.1	**200**	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09
N.1.2	**200**	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09
N.2.1	**160**	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09
N.2.2	**180**	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09
N.2.3	**130**	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09
N.3.1	**160**	0,01	0,01	0,01	0,02	0,03	0,04	0,06	0,09
N.3.2	**160**	0,01	0,01	0,01	0,02	0,03	0,04	0,06	0,09
N.3.3	**100**	0,01	0,01	0,01	0,02	0,03	0,04	0,06	0,09
N.4.1									
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2									
S.3.3									
H.1.1	30	0,03	0,04	0,04	0,05	0,06	0,06	0,07	0,07
H.1.2	15	0,03	0,04	0,04	0,05	0,06	0,06	0,07	0,07
H.1.3									
H.1.4									
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

Cutting data standard values – WTX – Change

		Change UNI 10 919 ...				
Index	v_c m/min	> Ø 12–15,7 f mm/rev.	> Ø 15,7–20 f mm/rev.	> Ø 20–25 f mm/rev.	> Ø 25–32 f mm/rev.	> Ø 32–41 f mm/rev.
P.1.1	120	0,27	0,31	0,34	0,36	0,36
P.1.2	115	0,26	0,30	0,32	0,34	0,35
P.1.3	110	0,25	0,28	0,31	0,32	0,33
P.1.4	105	0,24	0,27	0,29	0,31	0,31
P.1.5	100	0,22	0,25	0,28	0,29	0,30
P.2.1	120	0,32	0,37	0,40	0,42	0,43
P.2.2	110	0,29	0,33	0,36	0,38	0,39
P.2.3	100	0,26	0,30	0,33	0,35	0,35
P.2.4	75	0,23	0,26	0,29	0,30	0,31
P.3.1	85	0,26	0,30	0,33	0,35	0,35
P.3.2	65	0,22	0,25	0,27	0,28	0,29
P.3.3	65	0,17	0,19	0,21	0,22	0,22
P.4.1	65	0,17	0,20	0,22	0,23	0,23
P.4.2	65	0,17	0,20	0,22	0,23	0,23
M.1.1						
M.2.1						
M.3.1						
K.1.1	110	0,37	0,42	0,46	0,49	0,50
K.1.2	90	0,29	0,33	0,36	0,38	0,39
K.2.1	145	0,34	0,39	0,42	0,45	0,46
K.2.2	90	0,29	0,33	0,36	0,38	0,39
K.3.1	80	0,35	0,40	0,44	0,46	0,47
K.3.2	70	0,28	0,32	0,34	0,36	0,37
N.1.1						
N.1.2						
N.2.1						
N.2.2						
N.2.3						
N.3.1						
N.3.2						
N.3.3						
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

The cutting data is highly dependent on external conditions, such as stability of the tool and workpiece clamping, material and machine type!
The values indicated represent possible cutting data which may need to be corrected depending on operating conditions !

Index	v_c m/min	Change P 10 923 ... > Ø 12–15,7 f mm/rev.	> Ø 15,7–20 f mm/rev.	> Ø 20–25 f mm/rev.	> Ø 25–32 f mm/rev.	> Ø 32–41 f mm/rev.
P.1.1	120	0,32	0,36	0,39	0,41	0,42
P.1.2	115	0,30	0,34	0,37	0,39	0,40
P.1.3	110	0,29	0,32	0,35	0,37	0,38
P.1.4	105	0,27	0,31	0,34	0,35	0,36
P.1.5	100	0,26	0,29	0,32	0,34	0,34
P.2.1	120	0,37	0,42	0,46	0,49	0,49
P.2.2	110	0,34	0,38	0,42	0,44	0,45
P.2.3	100	0,30	0,35	0,38	0,40	0,40
P.2.4	75	0,27	0,30	0,33	0,35	0,35
P.3.1	85	0,30	0,35	0,38	0,40	0,40
P.3.2	65	0,25	0,28	0,31	0,32	0,33
P.3.3	65	0,19	0,22	0,24	0,25	0,25
P.4.1	65	0,20	0,23	0,25	0,26	0,27
P.4.2	65	0,20	0,23	0,25	0,26	0,27
M.1.1						
M.2.1						
M.3.1						
K.1.1	110	0,41	0,47	0,51	0,54	0,55
K.1.2	90	0,33	0,37	0,41	0,43	0,43
K.2.1	145	0,38	0,43	0,47	0,50	0,51
K.2.2	90	0,33	0,37	0,41	0,43	0,43
K.3.1	80	0,35	0,40	0,44	0,46	0,47
K.3.2	70	0,28	0,32	0,34	0,36	0,37
N.1.1						
N.1.2						
N.2.1						
N.2.2						
N.2.3						
N.3.1						
N.3.2						
N.3.3						
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

For through holes, the feed must be reduced by approx. 30% when exiting the hole. For more accurate positioning, precentre with a 142° NC spot drill.
With Type VA 5xD and 8xD, enter the hole with reduced feed of 0.05 – 0.06 mm/revolution.

Cutting data standard values – WTX – Change

Index	Change VA 10 921 ...					Change GG 10 924 ...				
	v_c m/min	> Ø 12–15,7 f mm/rev.	> Ø 15,7–20 f mm/rev.	> Ø 20–25 f mm/rev.	> Ø 25–32 f mm/rev.	v_c m/min	> Ø 12–15,7 f mm/rev.	> Ø 15,7–20 f mm/rev.	> Ø 20–25 f mm/rev.	> Ø 25–32 f mm/rev.
P.1.1	110	0,25	0,28	0,30	0,32					
P.1.2	105	0,24	0,27	0,29	0,31					
P.1.3	100	0,22	0,25	0,28	0,29					
P.1.4	95	0,21	0,24	0,26	0,28					
P.1.5	90	0,20	0,23	0,25	0,26					
P.2.1	110	0,29	0,33	0,36	0,38					
P.2.2	100	0,26	0,30	0,33	0,35					
P.2.3	90	0,24	0,27	0,29	0,31					
P.2.4	70	0,21	0,24	0,26	0,27					
P.3.1	75	0,24	0,27	0,30	0,31					
P.3.2	60	0,19	0,22	0,24	0,25					
P.3.3	60	0,15	0,17	0,18	0,19					
P.4.1	60	0,16	0,18	0,19	0,20					
P.4.2	60	0,16	0,18	0,19	0,20					
M.1.1	**55**	0,20	0,23	0,25	0,26					
M.2.1	**50**	0,17	0,19	0,21	0,22					
M.3.1	**50**	0,17	0,19	0,21	0,22					
K.1.1	**95**	0,37	0,42	0,46	0,49	**120**	0,49	0,56	0,62	0,65
K.1.2	**80**	0,29	0,33	0,36	0,38	**100**	0,39	0,45	0,49	0,51
K.2.1	**130**	0,34	0,39	0,42	0,45	**160**	0,45	0,52	0,57	0,60
K.2.2	**80**	0,29	0,33	0,36	0,38	**100**	0,39	0,45	0,49	0,51
K.3.1	**70**	0,32	0,36	0,39	0,41	**90**	0,42	0,48	0,52	0,55
K.3.2	**65**	0,25	0,28	0,31	0,33	**80**	0,34	0,38	0,41	0,44
N.1.1										
N.1.2										
N.2.1										
N.2.2										
N.2.3										
N.3.1										
N.3.2										
N.3.3										
N.4.1										
S.1.1	**30**	0,14	0,16	0,17	0,18					
S.1.2	**20**	0,10	0,11	0,12	0,13					
S.2.1	**20**	0,10	0,11	0,12	0,13					
S.2.2	**15**	0,12	0,14	0,15	0,16					
S.2.3	**15**	0,10	0,11	0,12	0,13					
S.3.1	**40**	0,17	0,20	0,22	0,23					
S.3.2	**30**	0,15	0,17	0,18	0,19					
S.3.3	**25**	0,12	0,14	0,15	0,16					
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

The cutting data is highly dependent on external conditions, such as stability of the tool and workpiece clamping, material and machine type!
The values indicated represent possible cutting data which may need to be corrected depending on operating conditions !

Index	v_c m/min	Change AL 10 922 ... > Ø 12–15,7 f mm/rev.	> Ø 15,7–20 f mm/rev.	> Ø 20–25 f mm/rev.	> Ø 25–32 f mm/rev.
P.1.1					
P.1.2					
P.1.3					
P.1.4					
P.1.5					
P.2.1					
P.2.2					
P.2.3					
P.2.4					
P.3.1					
P.3.2					
P.3.3					
P.4.1					
P.4.2					
M.1.1					
M.2.1					
M.3.1					
K.1.1					
K.1.2					
K.2.1					
K.2.2					
K.3.1					
K.3.2					
N.1.1	330	0,27	0,31	0,34	0,36
N.1.2	300	0,25	0,28	0,31	0,32
N.2.1	250	0,33	0,37	0,41	0,43
N.2.2	220	0,33	0,37	0,41	0,43
N.2.3	180	0,33	0,37	0,41	0,43
N.3.1	200	0,41	0,47	0,51	0,54
N.3.2	120	0,33	0,37	0,41	0,43
N.3.3	140	0,25	0,28	0,31	0,32
N.4.1					
S.1.1					
S.1.2					
S.2.1					
S.2.2					
S.2.3					
S.3.1					
S.3.2					
S.3.3					
H.1.1					
H.1.2					
H.1.3					
H.1.4					
H.2.1					
H.3.1					
O.1.1					
O.1.2					
O.2.1					
O.2.2					
O.3.1					

With through-holes the feedrate should be reduced at the break out by approx. 30 %. Use 142° NC Spot Drill to ensure positional accuracy.
Use reduced feedrate of 0.05 – 0.06 mm/U when using type VA 5xD and 8xD drill.

Cutting data standard values – WTX – Change Feed

Index	v_c m/min with through coolant	v_c m/min with external coolant	v_c m/min MMS	Change Feed UNI 10 925 ... > Ø 14,0 f mm/rev.	> Ø 17,5 f mm/rev.	> Ø 21,5 f mm/rev.	> Ø 26,0 f mm/rev.	Ø 32,0 f mm/rev.
P.1.1	100	90	90	0,45	0,51	0,55	0,58	0,60
P.1.2	95	85	85	0,43	0,48	0,53	0,55	0,57
P.1.3	90	80	80	0,41	0,46	0,50	0,53	0,54
P.1.4	85	75	75	0,39	0,44	0,48	0,50	0,51
P.1.5	80	75	75	0,37	0,42	0,45	0,47	0,49
P.2.1	100	85	85	0,54	0,60	0,65	0,69	0,71
P.2.2	90	75	75	0,49	0,55	0,59	0,62	0,64
P.2.3	80	70	70	0,44	0,49	0,53	0,56	0,58
P.2.4	65	55	55	0,39	0,43	0,47	0,49	0,51
P.3.1	70	60	60	0,44	0,49	0,53	0,56	0,58
P.3.2	55	50	50	0,36	0,40	0,43	0,46	0,47
P.3.3	55	40	45	0,28	0,31	0,33	0,35	0,36
P.4.1	55	40	45	0,29	0,32	0,35	0,37	0,38
P.4.2	55	40	45	0,29	0,32	0,35	0,37	0,38
M.1.1								
M.2.1								
M.3.1								
K.1.1	110	75	75	0,68	0,77	0,83	0,88	0,90
K.1.2	90	70	70	0,54	0,61	0,66	0,69	0,71
K.2.1	145	90	110	0,63	0,71	0,77	0,81	0,83
K.2.2	90	70	70	0,54	0,61	0,66	0,69	0,71
K.3.1	80	70	70	0,58	0,65	0,71	0,75	0,77
K.3.2	70	65	65	0,46	0,52	0,56	0,59	0,61
N.1.1								
N.1.2								
N.2.1								
N.2.2								
N.2.3								
N.3.1								
N.3.2								
N.3.3								
N.4.1								
S.1.1								
S.1.2								
S.2.1								
S.2.2								
S.2.3								
S.3.1								
S.3.2								
S.3.3								
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1								
O.1.2								
O.2.1								
O.2.2								
O.3.1								

The cutting data is highly dependent on external conditions, such as stability of the tool and workpiece clamping, material and machine type!
The values indicated represent possible cutting data which may need to be corrected depending on operating conditions !

Cutting data standard values – WTX – SB

Index	Drilling depth 3xD SB 10 767 ..., 10 772 ..., 10 783 ..., 10 788 ...					
	v_c m/min without through coolant	v_c m/min with through coolant	Ø 2–5 f mm/rev.	Ø 5–8 f mm/rev.	Ø 8–12 f mm/rev.	Ø 12–16 f mm/rev.
P.1.1	**110**	**120**	0,13	0,18	0,25	0,30
P.1.2	**105**	**115**	0,12	0,18	0,24	0,29
P.1.3	**100**	**110**	0,12	0,17	0,23	0,28
P.1.4	**95**	**105**	0,11	0,16	0,21	0,26
P.1.5	**90**	**100**	0,11	0,15	0,20	0,25
P.2.1	**105**	**120**	0,15	0,22	0,29	0,36
P.2.2	**95**	**110**	0,14	0,20	0,27	0,33
P.2.3	**85**	**100**	0,13	0,18	0,24	0,29
P.2.4	**65**	**75**	0,12	0,16	0,21	0,26
P.3.1	**70**	**85**	0,12	0,18	0,24	0,29
P.3.2	**60**	**65**	0,11	0,15	0,20	0,24
P.3.3	**50**	**65**	0,09	0,12	0,15	0,19
P.4.1	**50**	**65**	0,08	0,12	0,16	0,19
P.4.2	**50**	**65**	0,08	0,12	0,16	0,19
M.1.1						
M.2.1						
M.3.1						
K.1.1	**85**	**120**	0,17	0,26	0,36	0,45
K.1.2	**75**	**100**	0,15	0,22	0,29	0,36
K.2.1	**100**	**160**	0,17	0,25	0,34	0,42
K.2.2	**75**	**100**	0,15	0,22	0,29	0,36
K.3.1	**80**	**90**	0,16	0,23	0,32	0,39
K.3.2	**70**	**80**	0,14	0,19	0,25	0,31
N.1.1						
N.1.2						
N.2.1						
N.2.2						
N.2.3						
N.3.1						
N.3.2						
N.3.3						
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1	25	25	0,06	0,08	0,11	0,14
H.1.2						
H.1.3						
H.1.4						
H.2.1	35	35	0,08	0,11	0,14	0,18
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

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

Type overview – WTX High performance drilling tools

- good self-centring
- optimum swarf control
- precise radial run-out
- excellent alignment precision
- high-quality surface finish
- close drilling tolerances
- limited hardening of peripheral zones of the material
- good chip evacuation even with large drilling depths

For all products that are marked with the video icon, a relevant product video can be viewed at **cutting.tools/int/en/type-overview-wtx**

UNI		▲ high-performance solid carbide drill for universal application, for all materials up to 1200 N/mm²	DRAGONSKIN	▶
Feed UNI		▲ solid carbide high feed drills with 3 cutting edges ▲ very good positional accuracy	DRAGONSKIN	▶
Speed UNI		▲ for double the cutting speed ▲ asymetric point geometry permits performance improvement when drilling steel and cast iron by up to 60 %	DRAGONSKIN	▶
Quattro 4F		▲ with additional guide land for best alignment accuracy, concentricity and positional accuracy	DRAGONSKIN	
180		▲ for inclined surfaces up to 45° and flat bottom holes		
TB		▲ solid carbide deep hole drill, up to 50xD without peck drilling ▲ 4 or 6 facet head geometry for excellent alignment accuracy		
CP		▲ Ensures an even safer deep hole drilling process ▲ For optimal guidance of the deep hole twist drill for hole depths > 30xD		
VA		▲ first choice for corrosion and acid resistant seels ▲ for volume production		
AL		▲ solid carbide high performance drill specailly for the machining of aluminium, copper and brass ▲ 6 facet geometry for excellent hole quality		
GG		▲ for cast materials to 250 HB ▲ straight flutes		
Ti		▲ specialist for cost effective machining of titanium, titanium alloys and heat resistant alloys	DRAGONSKIN	
H		▲ high-performance drill for hardened steels from 45 to 70 HRC	DRAGONSKIN	▶
HFDS		▲ Four fluted high-feed drill ▲ Specially designed for steel processing ▲ Innovative cutting edge geometry guarantees high positioning accuracy	DRAGONSKIN	▶
MINI		▲ solid carbide micro drill for the precise manufacture of very small holes from Ø 0.1 to 2.9 mm		
MICRO		▲ Universal high-performance micro drill ▲ Specialised geometry and coating ▲ Pilot drill for WTX Micro deep hole twist drill	DRAGONSKIN	▶
Change		▲ replaceable head drills with the performance level of a solid carbide drill, from Ø 12.0 mm to 41.0 mm		▶
Change Feed		▲ exchangeable head drill with three cutting edges for even greater performance, from Ø 14.0 mm to 32.0 mm		▶
Feed BR		▲ Solid carbide high-performance drill reamer ▲ Drilling and reaming in one operation ▲ Three drilling edges and six reaming edges	DRAGONSKIN	
SB		▲ core hole plus countersink for tapping and thread forming	DRAGONSKIN	

2

Important application criteria for WTX drills

Axial offset
The axial run-out of the axis between a rotating work piece and a stationary tool must not exceed 0.04 mm. A larger run-out reduces tool life and drilling quality and can lead to tool breakage.

Run-out
The concentricity error when the tool is rotating should not exceed 0.015 mm.

Cooling lubricant
With internally cooled tools the coolant pressure should be min. 20 bar – see diagram bottom right
High-quality semi-synthetic or emulsion coolants with min. 10 % oil content and EP additives are recommended. This allows better life, and achieves higher tolerance accuracy and better surface quality. A fine filter system is recommended to prevent possible clogging of the coolant channels.

Drilling into solid
Due to the geometric design of the solid carbide drills, they are suitable for drilling into solid material.
With solid carbide drills ≤ 12xD drilling can be carried out in solid material without the need for centering and spot drilling operations.

Flute run-out
When using WTX drills a safety margin of at least 1 to 1.5 x D must be maintained between the work piece and the flute outlet groove of the drill to ensure optimum chip evacuation and prevent chip clogging and tool fracture.

Peck drilling
Pecking should be avoided as there is a very high risk of fracture caused by chips left behind or flushed into the hole.

Secondary tools
If a smaller diameter WTX drill is used as a following tool in the same hole, it should have a smaller drill point angle to ensure that it centres properly.

Interrupted Cuts
Reduce the feedrate on entry to and from cross holes

Drill exit
To avoid severe burr formation, reduce v_c and f.

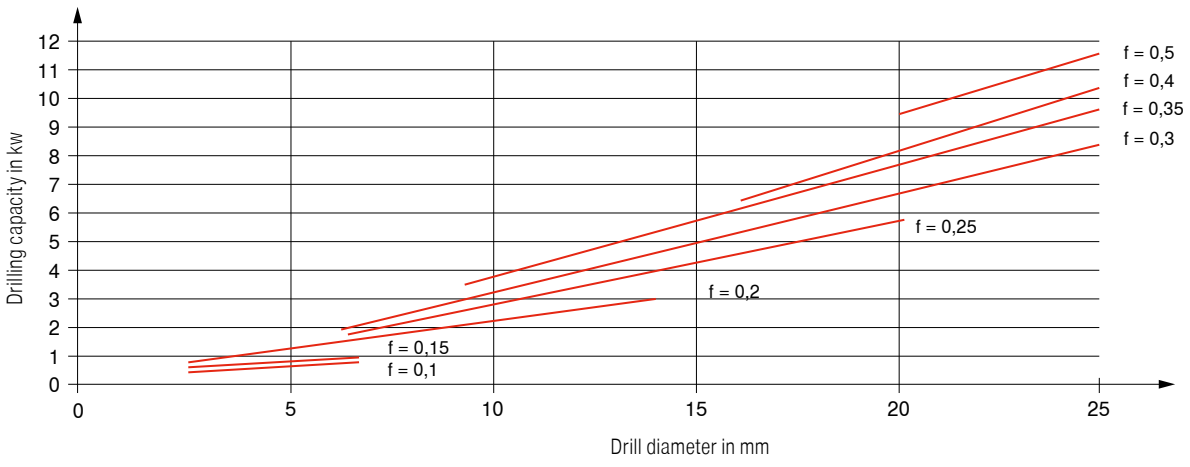
Workpiece clamping
To avoid tool breakages, care must be taken to ensure a proper workpiece clamping without vibration or workpiece deflection.

Tool holding
With optimum clamping high alignment accuracy and tolerances (IT7-8) are possible.
Due to the high surface quality reaming operations can often be dispensed with.

Machine Requirements
Please note the performance diagram (below left)

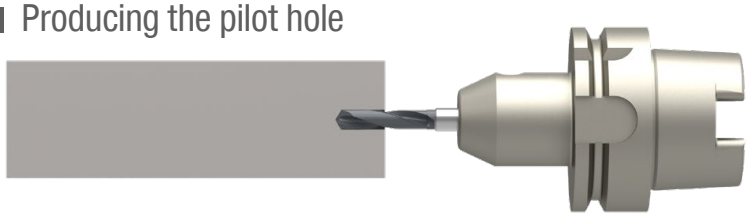
Cutting data table
To control the chip length (comma chip) the feed rates should be no lower than the lower limits quoted in the cutting data table.

Feed rate f in mm/rev.
Drilling capacity relative to the diameter: v_c = 80 m/min.
Tensile strength of the material = 600 N/mm²



Strategy for the production of deep holes with the WTX solid carbide deep hole drill

1 Producing the pilot hole



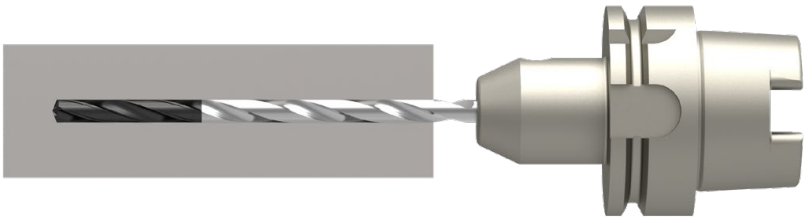
- For the pilot hole, we recommend a WTX drill 3xD/5xD with the same nominal diameter.
- The pilot hole should be 0.01–0.03 mm larger in diameter and at least 3xD deep.
- It is essential to ensure that the point angle of the pilot drill is bigger than the point angle of the deep hole drill.
- From a hole depth of 40xD, we recommend a pilot hole with our Co-Pilot deep hole twist drill CP 20 UNI.

2 Movement of the deep hole drill into the pilot hole



- Move the WTX deep hole drill without coolant pressure and with reduced speed (n = 200–300 rpm) into the pilot hole at a feed of v_f = 1000 mm/min.
- Approx. 2 mm before reaching the bottom of the hole (end of the pilot hole), stop the feed, switch on the coolant and wait for a short time until the recommended pressure is reached. Then increase the spindle speed to the recommended speed as smoothly as possible.

3 Drilling to required depth without pecking



- Reduce feed rate for cross holes and at drill exit by 50 %.

4 Retracting the drill



- Retract the drill to approximately the depth of the pilot hole.
- Reduce the rpm to a low speed (n = 200–300 U/min).
- Use normal rapid feed (V_f = 3000 mm/min) when exiting the hole.

For horizontal deep drilling operations from 40xD, move the deep hole drill into the hole counter-clockwise at 200 rpm. This prevents sagging of the deep hole drill.

It is essential to ensure that deep hole drills never run unsupported at full speed in the machine !

WTX – Micro – recommended application

General references

- During vertical machining, a pilot hole is not required for regular and straight surfaces from Ø 1.0 mm up to a length of 12xD due to the excellent self-centring. During horizontal drilling, a pilot drill must be used for irregular and angled surfaces.
  The WTX Micro 5xD is recommended as a pilot drill.
- To guarantee problem-free insertion of the deep hole twist drill in the pilot hole, during horizontal machining 90° countersinking with suitable NC countersink is recommended.
- During vertical machining, drills from Ø 1.0 mm up to a length of 12xD can also be operated outside the pilot hole without a reduction in speed.
- For through holes, the feed per revolution must be reduced by 50 % before exiting the hole.
- For long-chipping materials, pecking may be required every 3xD from a hole depth of 10xD. Peck drilling (retraction) should occur at the pilot hole depth.
- Due to the small thro' coolant Ø during micro drilling, effective filtration of the cooling medium is of the utmost importance.
  Drill < Ø 2.0 mm Filter ≤ 0.010 mm
  Drill < Ø 3.0 mm Filter ≤ 0.020 mm
- The longer the coolant is in the machine, suspended particles and particulate matter in the cooling medium prevent effective coolant flow.
  Regular replacement of the coolant is therefore recommended.
- A suitable clamping device with maximum radial run-out accuracy and balance quality is required for process-secure production.
  Radial run-out accuracy ≤ 0.003 mm
  Suitable for high-speed areas
- To guarantee a process-secure drilling process, a minimum pressure of 30 bar must be present.

1 Producing the pilot hole



- Pilot hole depth: min. 3xD
- It must be ensured that the prepared pilot hole is free from chips to avoid blocking of the micro deep hole twist drill cutting edges

2 Entering the pilot hole with a deep hole twist drill



- Speed 300 rpm (reverse rotation sometimes possible)
- Entry speed approx. 1000 mm/min
- Switch on cooling
- Increase parameters 0.5-1.0 mm before reaching the bottom of the pilot hole

3 Deep hole drilling



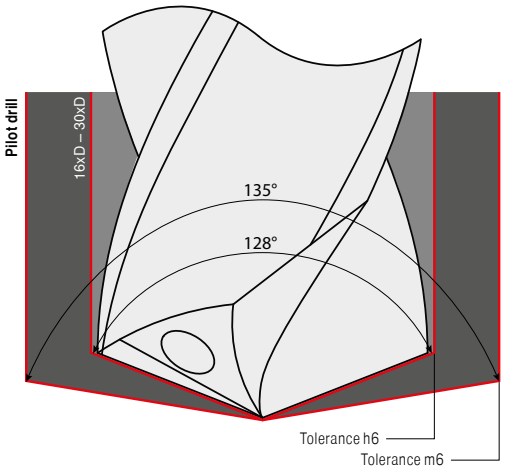
- At hole depth without pecking

4 Retracting the drill

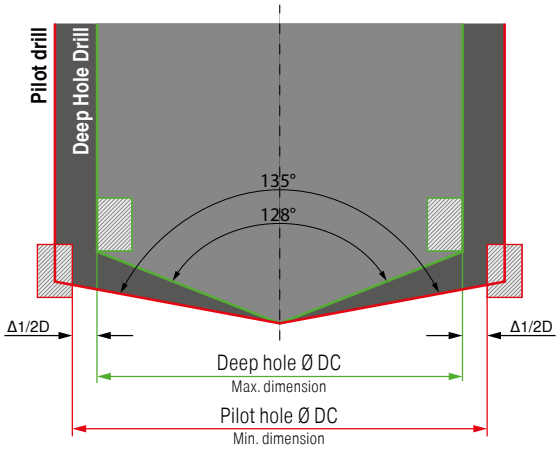


- Retract drill approx. 1xD
- Reduce speed to 300 rpm
- Exit speed approx. 1000 mm/min
- Switch off emulsion before exiting the hole

Tolerances and angles



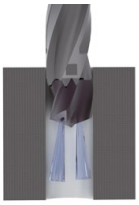
The following must apply to use the pilot and deep hole twist drill consecutively and without collisions:
ΔD = ØD (pilot hole) – ØD (deep hole) > 0



Application notes for WTX – Change Feed and WTX – Change exchangeable head drills

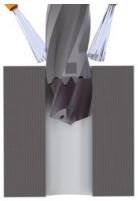
Coolant conditions

Coolant pressure dependent on drilling depth:



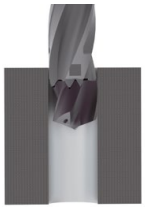
1xD: 8 bar ✓
3xD: 8 bar ✓
5xD: 12 bar ✓
8xD: 25 bar ✓
12xD: 25 bar ✓

with external cooling



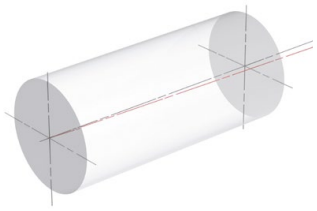
1xD: 8 bar ✓
3xD: 8 bar ✓
5xD: 12 bar ✗
8xD: 25 bar ✗
12xD: 25 bar ✗

without coolant supply

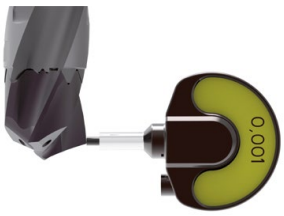


max. bore depth: 3xD

Runout accuracy

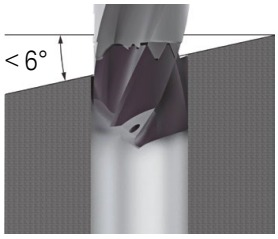


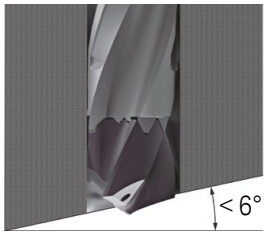
max. 0,02 mm



max. 0,04 mm

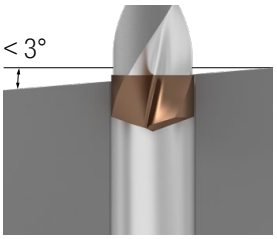
Max. entry and exit angle for the WTX – Change Feed

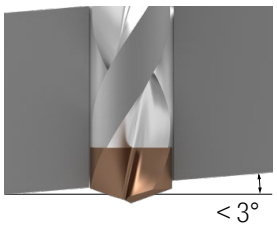




When entering and exiting angled surfaces, reduce v_f by 50 %.

Max. entry and exit angle for the WTX – Change





When entering and exiting angled surfaces, reduce v_f by 50 %.

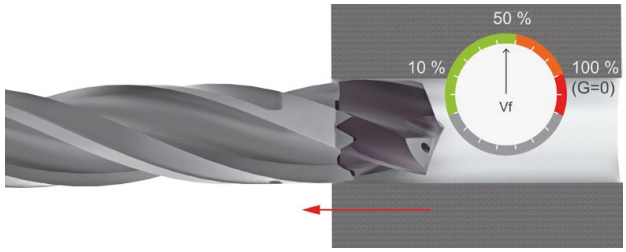
Exiting a through hole

▲ WTX – Change Feed and WTX – Change

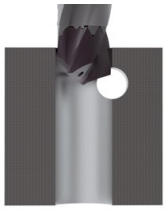


Do not retract at rapid feedrate

For withdrawal, a rate of 5 times the value of the feed rate is recommended.

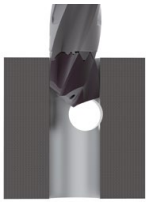


Machining situations



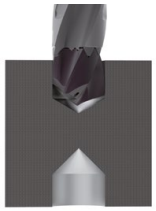
Offset cross hole point is engaged

WTX – Change Feed ✓
WTX – Change ✓



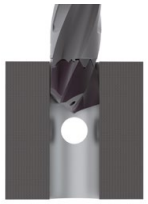
Offset cross hole point is not engaged

WTX – Change Feed ✗
WTX – Change ✗



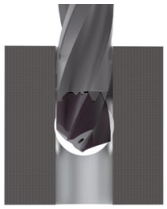
Breakthrough at counterbore

WTX – Change Feed ✓
WTX – Change ✗



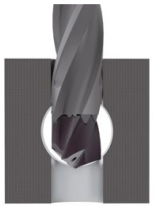
Hole on centre and smaller Ø

WTX – Change Feed ✓
WTX – Change ✓



Hole on centre and same Ø

WTX – Change Feed ✗
WTX – Change ✗



Hole on centre and larger Ø

WTX – Change Feed ✗
WTX – Change ✗

Recommendations for solid carbide drilling operations

Reasons for ...	Solutions ...
... Built-up edge	
v_c too low Too much material taken off at main cutting edge Uncoated cutting edge	Increase v_c Reduce cut Coating
... Corners broken off	
Unstable conditions Run out too high Interrupted cut	Change clamping Optimize radial run-out Reduce feed rate
... Heavy flank wear	
v_c too low Feed rate too low Clearance angle too small	Reduce v_c Increase feed rate Increase clearance angle
... Scoring on the tool flanks	
Unstable conditions Run out too high Interrupted cut Abrasive materials	Change clamping Correct radial run-out Reduce feed rate Thicker emulsion or oil
... Round chamfer wear	
Unstable conditions Run out too high Back taper too small Wrong emulsion or too thin emulsion	More stable clamping Check radial run-out Increase back taper Thicker emulsion or oil
... Material broken off at main cutting edge	
Unstable conditions Interrupted cut Wrong type of tool Max. tool life has been exceeded	More stable clamping Reduce feed rate Optimize tool Change tool earlier
... Heavy wear at chisel edge	
v_c too low Feed rate too high Too much material taken off at main cutting edge	Increase v_c Reduce feed rate Optimize cutting edge
... Material broken off at intersections, drill point and main cutting edge	
Clearance angle too small Too much material taken off at main cutting edge Wrong tool	Increase clearance angle Optimize cutting edge Other tool
... Plastic deformation of cutting corner	
v_c too high Insufficient emulsion Wrong or no corner chamfer	Reduce v_c Increase amount of coolant Correct corner chamfer
... Poor surface quality	
Run out too high Insufficient cooling Unstable conditions	Check radial run-out More emulsion Change toolholding
... Heavy burring on hole exit	
Feed too high Excessive honing of main cutting edge	Reduce feed rate Reduce cutting edge

Coatings

Ti800
- AlTiN nanolayer coating
- Maximum application temperature: 1100 °C

Ti700
- TiAlN multilayer coating
- Maximum application temperature: 1100 °C

TiAlN
- TiAlN multilayer coating
- Maximum application temperature: 900 °C

TiB
- TiB monolayer coating
- Specially for aluminium machining
- Maximum application temperature: 900 °C

TiSi
- TiSi multilayer coating
- Maximum application temperature: 800 °C

Ti1050
- Ti multilayer coating
- HV0.005 = 3300
- Coefficient of friction (against steel) = 0.3-0.5
- Maximum application temperature: 900 °C

Ti750
- TiAlN nanolayer coating
- Maximum application temperature: 1000 °C

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

DPX74S
DRAGONSKIN
- Special TiAlN nanolayer coating
- Maximum application temperature: 1000 °C

DPA54
DRAGONSKIN
- Special multilayer coating
- High hardness and heat resistance
- Maximum application temperature: 800 °C

DPX64S
DRAGONSKIN
- TiAlN monolayer coating
- Perfected for hardened materials
- Optimised coating and surface structure
- Maximum application temperature: 800 °C

DPX14S
DRAGONSKIN
- TiAlN nanolayer coating
- Coefficient of friction (dry, against steel) = 0.35
- Maximum application temperature: 1000 °C

DPX64U
DRAGONSKIN
- Special TiAlN monolayer coating
- Perfected for hardened materials
- Optimised coating and surface structure
- Maximum application temperature: 800 °C

DPX74M
DRAGONSKIN
- Universal AlCrN-based monolayer coating developed for micro tools
- High oxidation, heat and wear resistance
- Maximum application temperature 1100°C



New products for machining technicians

NEW KUB Pentron CS – Indexable insert drilling

ABS

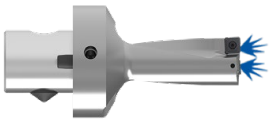


▲ Modular indexable insert drill with cartridge system – process-secure, powerful and reliable system for creating large holes with a diameter of up to 96.00 mm.

→ Page 24–26

NEW KUB Pentron – Indexable insert drilling – 2xD

ABS



▲ The all-rounder for process-secure drilling under a wide variety of conditions
▲ Ideal for extreme machining situations
▲ with ABS connection
▲ to Ø 65 mm

→ Page 6+7

NEW SOGX indexable inserts



-13
BK8425

-32
BK8425

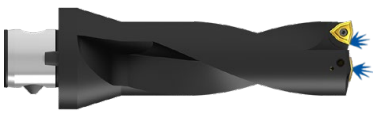
-34
BK8425

▲ **-13:** The final piece in the product portfolio.
▲ **-32:** A specialist in extremely low burr formation when entering and, above all, exiting the hole.
▲ **-34**: This high-feed insert is chamfered all round making it extremely stable.

→ Page 27

NEW KUB Trigon – Indexable insert drilling – Extension

ABS



▲ Extension of the KUB Trigon indexable insert drill up to Ø 82 mm. Burnished base holder in 2xD and 3xD with cartridge inserts.

→ Page 38+41

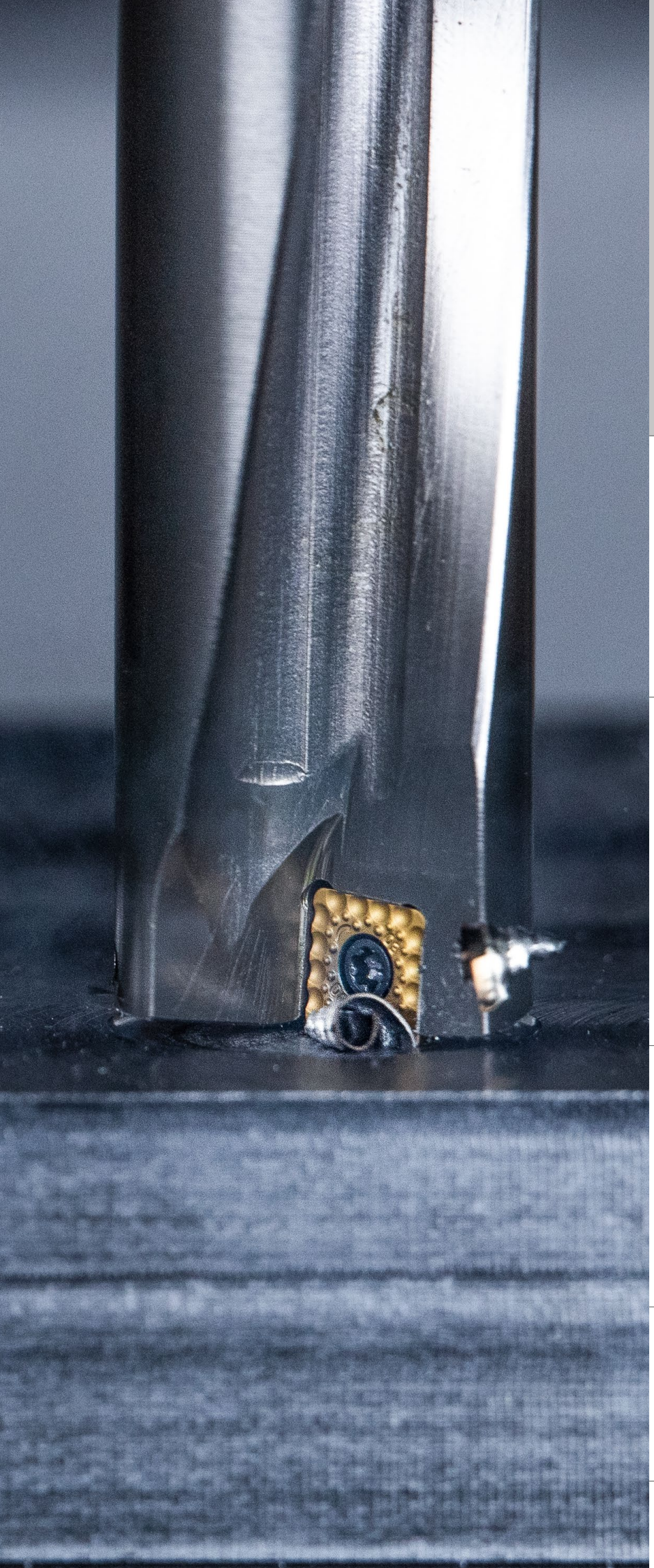
NEW KUB Centron – Indexable insert drilling

ABS



▲ The perfect tool for holes with high length to diameter ratio. Cost-effective and process-secure drilling in hole depths of up to 9xD and virtually all materials is no problem at all with the modular drill.

→ Page 47–52



Solid drilling and bore machining

1 HSS drilling
2 Solid carbide drilling
3 Indexable insert drilling 3
4 Reaming and Countersinking
5 Spindle Tooling

Threading

6 Taps and thread formers
7 Circular and Thread Milling
8 Thread turning

Turning

9 Turning Tools
10 Multifunctional Tools – EcoCut and FreeTurn
11 Grooving Tools
12 Miniature turning tools

Milling

13 HSS Milling Cutters
14 Solid Carbide milling cutters
15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories
17 Workpiece clamping

18 Material examples and article no. Index

List of contents

Symbol explanation	2
Application tips – eccentric sleeves	3
Toolfinder	4+5
Product programme	6–57
Technical Information	
Cutting Data	58–73
Maximum Offset Range	74–76
Coding example, coolant supply	77
Indexable insert drilling – problems / possible causes / solutions	78
KUB Centron – drilling instructions + problems / possible causes / solutions	79+80
Application and Grade Comparison	81+82

KOMET \ Performance

Premium quality tools for high performance.

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

Symbol explanation

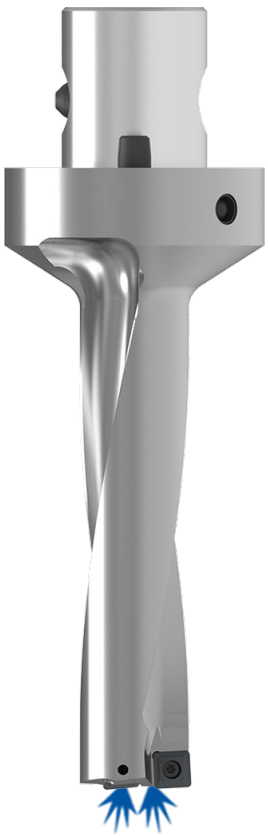
Shank

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

K Drill with combi shank
This drill shank has two clamping flats (DIN 6535HE, DIN 6595) that guarantee pull-out protection and good face contact of the drill. Both Weldon and Whistle Notch adapters can be used.

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

PSC Drill with polygonal shank
The polygonal shank offers the best rigidity during the transmission of force from the drill to the adapter. The tapered polygonal shape easily absorbs torsional forces and bending forces



Coolant supply version



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



left-hand cutting

Designation	Page No.
Adjuster with ABS connection 	57

Adapters can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

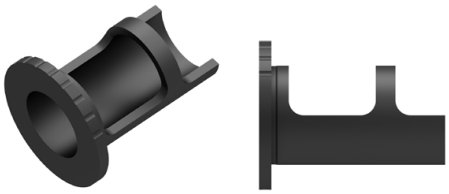
Application tips – eccentric sleeves

Using the eccentric sleeves, you can vary and adjust the diameter of the hole by +/- 0.3 mm with ease.

Two types of eccentric sleeve are available:
One for use with the indexable insert drill adapter and one for use with the existing Weldon adapter.
The difference lies solely in the design and position of the slots for the adapter's clamping screws.
There are four sizes per type, which are tailored to the shank diameter.



Eccentric sleeve for indexable insert drill adapter



Eccentric sleeve for Weldon adapter

Designation		Page No.
Eccentric sleeves for indexable insert drill adapters		55+56
Eccentric sleeves for Weldon adapters		55+56

Designation		
Adapters with ABS connection		→ **Chapter 16 Adapters and accessoires in the clamping technology catalogue**
Indexable insert drill adapter		

Toolfinder

KUB Pentron



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

Boring depth	Drilling through a transverse hole	Stack plate drilling	Drilling on uneven surfaces	Boring	Spot drilling an edge	Spot drilling a convex surface	Spot drilling angled surfaces	Spot drilling a pointed contour	Chain drilling	Spot drilling through a centre in the pre-op
2xD	●	●	●	○	●	●	●	●	●	●
3xD	●	●	●	○	●	●	●	●	●	●
4xD	●	●	○	-	●	●	●	●	○	●
5xD	●	○	○	-	●	○	●	○	-	○
3xD	●	●	●	○	●	●	●	●	●	●
2xD	●	●	●	○	●	●	●	●	●	●
3xD	●	●	●	○	●	●	●	●	●	●
4xD	●	●	○	-	●	●	●	●	○	●
5xD	●	○	○	-	●	○	●	○	-	○

KUB Pentron CS



- Process-secure, reliable, modular system for creating large holes with a diameter of up to 96.00 mm

3xD	●	○	●	-	●	●	●	●	●	●

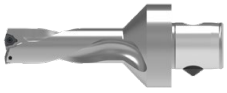
MaxiDrill 900



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

2xD	●	●	●	○	●	●	●	●	○	●
3xD	●	●	●	○	●	●	●	●	○	●
4xD	●	○	○	○	●	●	●	●	○	●
5xD	●	○	○	○	●	●	●	●	○	●

KUB Trigon



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

2xD	●	-	●	●	○	●	●	○	●	○
3xD	●	-	●	●	○	●	●	○	●	○
4xD	○	-	○	-	-	○	○	-	○	○
2xD	●	-	●	●	○	●	●	○	●	○
3xD	●	-	●	●	○	●	●	○	●	○
4xD	○	-	○	-	-	○	○	-	○	○

KUB Centron



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

4xD	○	-	●	-	-	○	-	-	○	●
6xD	○	-	●	-	-	○	-	-	○	●
9xD	○	-	●	-	-	○	-	-	○	●

KUB Centron – drill bits	Ø	Page No.
KUB Centron drill bit	20–64 mm	48+49
KUB Centron drill bit	65–81 mm	50+51

KUB Centron – centring tips			Ø	Page No.
	TiAlN		5–12 mm	52
	TiN		5–12 mm	
	TiAlN/ TiN		5–12 mm	

Shank	Diameter Ø	Page No.	Insert type		No. of cutting edges	Grade	P Steel	M Stainless steel	K Cast iron	N Non ferrous metals	S Heat resistant	H hardened materials	O Non metal materials	Page No.
ABS	14–65	6+7		SOGX	4	-01 BK8425	●	●	●	○	●	○		
ABS	14–65	8+9		SOGX	4	-03 BK8430	●	●	●	○	●	○		
ABS	14–46	10+11		SOGX	4	-13 BK8425	●	●	●	○	●	○		
ABS	14–46	12+13		SOGX	4	-32 BK8425	●	●	●	○	●	○		
PSC	14–37	14+15		SOGX	4	-34 BK8425	○		●					27+28
C	14–46	16+17		SOGX	4	-01 BK7935	●	●	●	○	●		○	
C	14–46	18+19		SOGX	4	-01 BK6115	●	●	●			○		
C	14–46	20+21		SOGX	4	-01 BK6425	●	●	●					
C	14–46	22+23		SOGX	4	-01 BK7710				●	○		○	
ABS	64–96	24–26												
C	12–63	29+30		SONT	2 4	-M30 CTCP420	●		●					36
C	12–63	31+32												
C	12–54	33+34		SONT	2 4	-M30 CTPP430	●	●	○	○	○			
C	12–41	35												
ABS	14–82	37–39		WOEX	3	-01 BK8425	●	●	●	○		○		
ABS	14–82	40–42		WOEX	3	-03 BK8425	●	●	●	○		○		
ABS	14–44	43		WOEX	3	-13 BK8425	●	●	●	○		○		
K	14–44	44		WOEX	3	-01 BK7935	●	●	●	○	●			
K	14–44	45		WOEX	3	-01 BK6115	●	●	●			○		53+54
K	14–35	46		WOEX	3	-01 BK7615			●					
ABS	20–81	47		WOEX	3	-01 BK62			●			○		
ABS	20–81			WOEX	3	-11 BK77					●	○	○	
ABS	20–81			WOEX	3	-13 BK79	●	●	●	○				

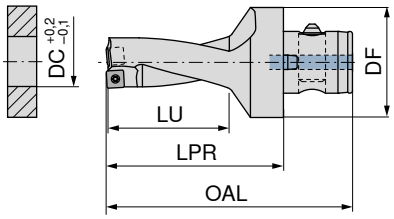
KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 2xD



ABS



NEW



10 872 ...

Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	
KUB-P.2D.140.R.04-ABS50	U42 51400	14,0	50	86	28	55	0,38	SOGX 040204	14095
KUB-P.2D.145.R.04-ABS50	U42 51450	14,5	50	89	30	58	0,38	SOGX 040204	14595
KUB-P.2D.150.R.04-ABS50	U42 51500	15,0	50	89	30	58	0,38	SOGX 040204	15095
KUB-P.2D.155.R.04-ABS50	U42 51550	15,5	50	93	32	62	0,38	SOGX 040204	15595
KUB-P.2D.160.R.04-ABS50	U42 51600	16,0	50	93	32	62	0,38	SOGX 040204	16095
KUB-P.2D.165.R.05-ABS50	U42 51650	16,5	50	96	34	65	0,62	SOGX 050204	16595
KUB-P.2D.170.R.05-ABS50	U42 51700	17,0	50	96	34	65	0,62	SOGX 050204	17095
KUB-P.2D.175.R.05-ABS50	U42 51750	17,5	50	98	36	67	0,62	SOGX 050204	17595
KUB-P.2D.180.R.05-ABS50	U42 51800	18,0	50	98	36	67	0,62	SOGX 050204	18095
KUB-P.2D.185.R.06-ABS50	U42 51850	18,5	50	101	38	70	1,01	SOGX 060206	18595
KUB-P.2D.190.R.06-ABS50	U42 51900	19,0	50	101	38	70	1,01	SOGX 060206	19095
KUB-P.2D.195.R.06-ABS50	U42 51950	19,5	50	103	40	72	1,01	SOGX 060206	19595
KUB-P.2D.200.R.06-ABS50	U42 52000	20,0	50	103	40	72	1,01	SOGX 060206	20095
KUB-P.2D.205.R.07-ABS50	U42 52050	20,5	50	105	42	74	1,01	SOGX 07T208	20595
KUB-P.2D.210.R.07-ABS50	U42 52100	21,0	50	105	42	74	1,01	SOGX 07T208	21095
KUB-P.2D.215.R.07-ABS50	U42 52150	21,5	50	107	44	76	1,01	SOGX 07T208	21595
KUB-P.2D.220.R.07-ABS50	U42 52200	22,0	50	107	44	76	1,01	SOGX 07T208	22095
KUB-P.2D.225.R.07-ABS50	U42 52250	22,5	50	109	46	78	1,01	SOGX 07T208	22595
KUB-P.2D.230.R.07-ABS50	U42 52300	23,0	50	109	46	78	1,01	SOGX 07T208	23095
KUB-P.2D.235.R.08-ABS50	U42 52350	23,5	50	111	48	80	1,28	SOGX 080308	23595
KUB-P.2D.240.R.08-ABS50	U42 52400	24,0	50	111	48	80	1,28	SOGX 080308	24095
KUB-P.2D.245.R.08-ABS50	U42 52450	24,5	50	114	50	83	1,28	SOGX 080308	24595
KUB-P.2D.250.R.08-ABS50	U42 52500	25,0	50	114	50	83	1,28	SOGX 080308	25095
KUB-P.2D.255.R.08-ABS50	U42 52550	25,5	50	116	52	85	1,28	SOGX 080308	25595
KUB-P.2D.260.R.08-ABS50	U42 52600	26,0	50	116	52	85	1,28	SOGX 080308	26095
KUB-P.2D.265.R.09-ABS50	U42 52650	26,5	50	119	54	88	2,25	SOGX 09T308	26595
KUB-P.2D.270.R.09-ABS50	U42 52700	27,0	50	119	54	88	2,25	SOGX 09T308	27095
KUB-P.2D.275.R.09-ABS50	U42 52750	27,5	50	121	56	90	2,25	SOGX 09T308	27595
KUB-P.2D.280.R.09-ABS50	U42 52800	28,0	50	121	56	90	2,25	SOGX 09T308	28095
KUB-P.2D.285.R.09-ABS50	U42 52850	28,5	50	124	58	93	2,25	SOGX 09T308	28595
KUB-P.2D.290.R.09-ABS50	U42 52900	29,0	50	124	58	93	2,25	SOGX 09T308	29095
KUB-P.2D.295.R.09-ABS50	U42 52950	29,5	50	126	60	95	2,25	SOGX 09T308	29595
KUB-P.2D.300.R.09-ABS50	U42 53000	30,0	50	126	60	95	2,25	SOGX 09T308	30095
KUB-P.2D.305.R.10-ABS63	U42 63050	30,5	63	139	62	101	2,8	SOGX 100408	30596
KUB-P.2D.310.R.10-ABS63	U42 63100	31,0	63	139	62	101	2,8	SOGX 100408	31096
KUB-P.2D.315.R.10-ABS63	U42 63150	31,5	63	141	64	103	2,8	SOGX 100408	31596
KUB-P.2D.320.R.10-ABS63	U42 63200	32,0	63	141	64	103	2,8	SOGX 100408	32096
KUB-P.2D.325.R.10-ABS63	U42 63250	32,5	63	144	66	106	2,8	SOGX 100408	32596
KUB-P.2D.330.R.10-ABS63	U42 63300	33,0	63	144	66	106	2,8	SOGX 100408	33096
KUB-P.2D.335.R.11-ABS63	U42 63350	33,5	63	146	68	108	2,8	SOGX 110408	33596
KUB-P.2D.340.R.11-ABS63	U42 63400	34,0	63	146	68	108	2,8	SOGX 110408	34096
KUB-P.2D.345.R.11-ABS63	U42 63450	34,5	63	149	70	111	2,8	SOGX 110408	34596
KUB-P.2D.350.R.11-ABS63	U42 63500	35,0	63	149	70	111	2,8	SOGX 110408	35096
KUB-P.2D.355.R.11-ABS63	U42 63550	35,5	63	152	72	113	2,8	SOGX 110408	35596
KUB-P.2D.360.R.11-ABS63	U42 63600	36,0	63	152	72	113	2,8	SOGX 110408	36096
KUB-P.2D.365.R.11-ABS63	U42 63650	36,5	63	154	74	116	2,8	SOGX 110408	36596
KUB-P.2D.370.R.11-ABS63	U42 63700	37,0	63	154	74	116	2,8	SOGX 110408	37096
KUB-P.2D.375.R.12-ABS63	U42 63750	37,5	63	156	76	118	6,25	SOGX 120408	37596
KUB-P.2D.380.R.12-ABS63	U42 63800	38,0	63	156	76	118	6,25	SOGX 120408	38096
KUB-P.2D.385.R.12-ABS63	U42 63850	38,5	63	159	78	121	6,25	SOGX 120408	38596
KUB-P.2D.390.R.12-ABS63	U42 63900	39,0	63	159	78	121	6,25	SOGX 120408	39096
KUB-P.2D.395.R.12-ABS63	U42 63950	39,5	63	161	80	123	6,25	SOGX 120408	39596
KUB-P.2D.400.R.12-ABS63	U42 64000	40,0	63	161	80	123	6,25	SOGX 120408	40096
KUB-P.2D.405.R.12-ABS63	U42 64050	40,5	63	164	82	126	6,25	SOGX 120408	40596

Continued on next page

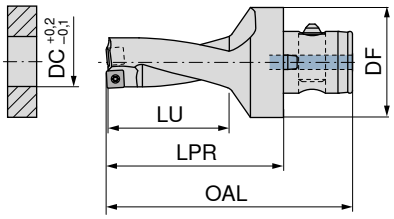
KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 2xD



ABS



NEW



3

Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 872 ...
KUB-P.2D.410.R.12-ABS63	U42 64100	41,0	63	164	82	126	6,25	SOGX 120408	41096
KUB-P.2D.415.R.12-ABS63	U42 64150	41,5	63	166	84	128	6,25	SOGX 120408	41596
KUB-P.2D.420.R.12-ABS63	U42 64200	42,0	63	166	84	128	6,25	SOGX 120408	42096
KUB-P.2D.425.R.13-ABS63	U42 64250	42,5	63	169	86	131	6,25	SOGX 130508	42596
KUB-P.2D.430.R.13-ABS63	U42 64300	43,0	63	169	86	131	6,25	SOGX 130508	43096
KUB-P.2D.435.R.13-ABS63	U42 64350	43,5	63	171	88	133	6,25	SOGX 130508	43596
KUB-P.2D.440.R.13-ABS63	U42 64400	44,0	63	171	88	133	6,25	SOGX 130508	44096
KUB-P.2D.445.R.13-ABS63	U42 64450	44,5	63	174	90	136	6,25	SOGX 130508	44596
KUB-P.2D.450.R.13-ABS63	U42 64500	45,0	63	174	90	136	6,25	SOGX 130508	45096
KUB-P.2D.455.R.13-ABS63	U42 64550	45,5	63	173	92	135	6,25	SOGX 130508	45596
KUB-P.2D.460.R.13-ABS63	U42 64600	46,0	63	173	92	135	6,25	SOGX 130508	46096
KUB-P.2D.470.R.08-ABS63	U42 64700	47,0	63	187	101	149	1,28	SOGX 080308	47096
KUB-P.2D.480.R.08-ABS63	U42 64800	48,0	63	189	105	151	1.28	SOGX 080308	48096
KUB-P.2D.490.R.08-ABS63	U42 64900	49,0	63	191	109	153	1,28	SOGX 080308	49096
KUB-P.2D.500.R.08-ABS63	U42 65000	50,0	63	193	113	155	1,28	SOGX 080308	50096
KUB-P.2D.510.R.08-ABS63	U42 65100	51,0	63	195	117	157	1,28	SOGX 080308	51096
KUB-P.2D.520.R.08-ABS63	U42 65200	52,0	63	197	121	159	1,28	SOGX 080308	52096
KUB-P.2D.530.R.10-ABS63	U42 65300	53,0	63	199	125	161	2,8	SOGX 100408	53096
KUB-P.2D.540.R.10-ABS63	U42 65400	54,0	63	201	129	163	2,8	SOGX 100408	54096
KUB-P.2D.550.R.10-ABS80	U42 75500	55,0	80	208	115	165	2,8	SOGX 100408	55098
KUB-P.2D.560.R.10-ABS80	U42 75600	56,0	80	210	117	167	2,8	SOGX 100408	56098
KUB-P.2D.570.R.10-ABS80	U42 75700	57,0	80	212	120	169	2,8	SOGX 100408	57098
KUB-P.2D.580.R.10-ABS80	U42 75800	58,0	80	214	124	171	2,8	SOGX 100408	58098
KUB-P.2D.590.R.10-ABS80	U42 75900	59,0	80	216	127	173	2,8	SOGX 100408	59098
KUB-P.2D.600.R.10-ABS80	U42 76000	60,0	80	218	125	175	2,8	SOGX 100408	60098
KUB-P.2D.610.R.10-ABS80	U42 76100	61,0	80	220	128	177	2,8	SOGX 100408	61098
KUB-P.2D.620.R.10-ABS80	U42 76200	62,0	80	222	132	179	2,8	SOGX 100408	62098
KUB-P.2D.630.R.10-ABS80	U42 76300	63,0	80	224	131	181	2,8	SOGX 100408	63098
KUB-P.2D.640.R.10-ABS80	U42 76400	64,0	80	226	135	183	2,8	SOGX 100408	64098
KUB-P.2D.650.R.10-ABS80	U42 76500	65,0	80	228	139	185	2,8	SOGX 100408	65098



Screwdriver



Key D



Clamping screw

Spare parts DC	80 950 ...		80 950 ...		10 950 ...	
14 - 16	T05 - IP	057			M1,8x3,8 - 05IP	10100
16,5 - 18			T06 - IP	123	M2,0x4,3 - 06IP	10000
18,5 - 23			T06 - IP	123	M2,2x5,5 - 06IP	10700
23,5 - 26			T08 - IP	125	M2,5x6,3 - 08IP	10800
26,5 - 30			T08 - IP	125	M3,0x7,6 - 08IP	10200
30,5 - 37			T15 - IP	128	M3,5x7,5 - 15IP	10300
37,5 - 46			T20 - IP	129	M4,5x10 - 20IP	10400
47 - 52			T08 - IP	125	M2,5x6,3 - 08IP	10800
53 - 65			T08 - IP	125	M3,5x7,5 - 15IP	10300

Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

KUB Pentron – Indexable insert drill

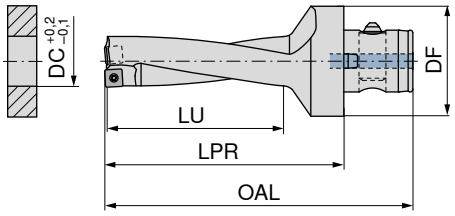
Scope of supply:

Indexable Insert Drill incl. clamping screws

≤ 3xD



ABS





10 873 ...

Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	
KUB-P.3D.140.R.04-ABS50	U43 51400	14,0	50	100	42	69	0,38	SOGX 040204	14095
KUB-P.3D.145.R.04-ABS50	U43 51450	14,5	50	104	45	73	0,38	SOGX 040204	14595
KUB-P.3D.150.R.04-ABS50	U43 51500	15,0	50	104	45	73	0,38	SOGX 040204	15095
KUB-P.3D.155.R.04-ABS50	U43 51550	15,5	50	109	48	78	0,38	SOGX 040204	15595
KUB-P.3D.160.R.04-ABS50	U43 51600	16,0	50	109	48	78	0,38	SOGX 040204	16095
KUB-P.3D.165.R.05-ABS50	U43 51650	16,5	50	113	51	82	0,62	SOGX 050204	16595
KUB-P.3D.170.R.05-ABS50	U43 51700	17,0	50	113	51	82	0,62	SOGX 050204	17095
KUB-P.3D.175.R.05-ABS50	U43 51750	17,5	50	116	54	85	0,62	SOGX 050204	17595
KUB-P.3D.180.R.05-ABS50	U43 51800	18,0	50	116	54	85	0,62	SOGX 050204	18095
KUB-P.3D.185.R.06-ABS50	U43 51850	18,5	50	120	57	89	1,01	SOGX 060206	18595
KUB-P.3D.190.R.06-ABS50	U43 51900	19,0	50	120	57	89	1,01	SOGX 060206	19095
KUB-P.3D.195.R.06-ABS50	U43 51950	19,5	50	123	60	92	1,01	SOGX 060206	19595
KUB-P.3D.200.R.06-ABS50	U43 52000	20,0	50	123	60	92	1,01	SOGX 060206	20095
KUB-P.3D.205.R.07-ABS50	U43 52050	20,5	50	126	63	95	1,01	SOGX 07T208	20595
KUB-P.3D.210.R.07-ABS50	U43 52100	21,0	50	126	63	95	1,01	SOGX 07T208	21095
KUB-P.3D.215.R.07-ABS50	U43 52150	21,5	50	129	66	98	1,01	SOGX 07T208	21595
KUB-P.3D.220.R.07-ABS50	U43 52200	22,0	50	129	66	98	1,01	SOGX 07T208	22095
KUB-P.3D.225.R.07-ABS50	U43 52250	22,5	50	132	69	101	1,01	SOGX 07T208	22595
KUB-P.3D.230.R.07-ABS50	U43 52300	23,0	50	132	69	101	1,01	SOGX 07T208	23095
KUB-P.3D.235.R.08-ABS50	U43 52350	23,5	50	135	72	104	1,28	SOGX 080308	23595
KUB-P.3D.240.R.08-ABS50	U43 52400	24,0	50	135	72	104	1,28	SOGX 080308	24095
KUB-P.3D.245.R.08-ABS50	U43 52450	24,5	50	139	75	108	1,28	SOGX 080308	24595
KUB-P.3D.250.R.08-ABS50	U43 52500	25,0	50	139	75	108	1,28	SOGX 080308	25095
KUB-P.3D.255.R.08-ABS50	U43 52550	25,5	50	142	78	111	1,28	SOGX 080308	25595
KUB-P.3D.260.R.08-ABS50	U43 52600	26,0	50	142	78	111	1,28	SOGX 080308	26095
KUB-P.3D.265.R.09-ABS50	U43 52650	26,5	50	146	81	115	2,25	SOGX 09T308	26595
KUB-P.3D.270.R.09-ABS50	U43 52700	27,0	50	146	81	115	2,25	SOGX 09T308	27095
KUB-P.3D.275.R.09-ABS50	U43 52750	27,5	50	149	84	118	2,25	SOGX 09T308	27595
KUB-P.3D.280.R.09-ABS50	U43 52800	28,0	50	149	84	118	2,25	SOGX 09T308	28095
KUB-P.3D.285.R.09-ABS50	U43 52850	28,5	50	153	87	122	2,25	SOGX 09T308	28595
KUB-P.3D.290.R.09-ABS50	U43 52900	29,0	50	153	87	122	2,25	SOGX 09T308	29095
KUB-P.3D.295.R.09-ABS50	U43 52950	29,5	50	156	90	125	2,25	SOGX 09T308	29595
KUB-P.3D.300.R.09-ABS50	U43 53000	30,0	50	156	90	125	2,25	SOGX 09T308	30095
KUB-P.3D.305.R.10-ABS63	U43 63050	30,5	63	170	93	132	2,8	SOGX 100408	30596
KUB-P.3D.310.R.10-ABS63	U43 63100	31,0	63	170	93	132	2,8	SOGX 100408	31096
KUB-P.3D.315.R.10-ABS63	U43 63150	31,5	63	173	96	135	2,8	SOGX 100408	31596
KUB-P.3D.320.R.10-ABS63	U43 63200	32,0	63	173	96	135	2,8	SOGX 100408	32096
KUB-P.3D.325.R.10-ABS63	U43 63250	32,5	63	177	99	139	2,8	SOGX 100408	32596
KUB-P.3D.330.R.10-ABS63	U43 63300	33,0	63	177	99	139	2,8	SOGX 100408	33096
KUB-P.3D.335.R.11-ABS63	U43 63350	33,5	63	180	102	142	2,8	SOGX 110408	33596
KUB-P.3D.340.R.11-ABS63	U43 63400	34,0	63	180	102	142	2,8	SOGX 110408	34096
KUB-P.3D.345.R.11-ABS63	U43 63450	34,5	63	184	105	146	2,8	SOGX 110408	34596
KUB-P.3D.350.R.11-ABS63	U43 63500	35,0	63	184	105	146	2,8	SOGX 110408	35096
KUB-P.3D.355.R.11-ABS63	U43 63550	35,5	63	187	108	149	2,8	SOGX 110408	35596
KUB-P.3D.360.R.11-ABS63	U43 63600	36,0	63	187	108	149	2,8	SOGX 110408	36096
KUB-P.3D.365.R.11-ABS63	U43 63650	36,5	63	191	111	153	2,8	SOGX 110408	36596
KUB-P.3D.370.R.11-ABS63	U43 63700	37,0	63	191	111	153	2,8	SOGX 110408	37096
KUB-P.3D.375.R.12-ABS63	U43 63750	37,5	63	194	114	156	6,25	SOGX 120408	37596
KUB-P.3D.380.R.12-ABS63	U43 63800	38,0	63	194	114	156	6,25	SOGX 120408	38096
KUB-P.3D.385.R.12-ABS63	U43 63850	38,5	63	198	117	160	6,25	SOGX 120408	38596
KUB-P.3D.390.R.12-ABS63	U43 63900	39,0	63	198	117	160	6,25	SOGX 120408	39096
KUB-P.3D.395.R.12-ABS63	U43 63950	39,5	63	201	120	163	6,25	SOGX 120408	39596
KUB-P.3D.400.R.12-ABS63	U43 64000	40,0	63	201	120	163	6,25	SOGX 120408	40096
KUB-P.3D.405.R.12-ABS63	U43 64050	40,5	63	205	123	167	6,25	SOGX 120408	40596
KUB-P.3D.410.R.12-ABS63	U43 64100	41,0	63	205	123	167	6,25	SOGX 120408	41096

Continued on next page

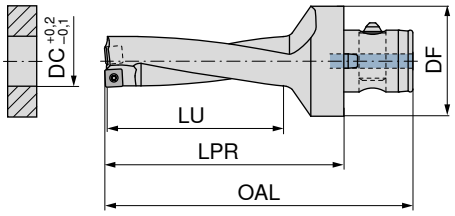
KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 3xD



ABS





3

Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 873 ...
KUB-P.3D.415.R.12-ABS63	U43 64150	41,5	63	208	126	170	6,25	SOGX 120408	41596
KUB-P.3D.420.R.12-ABS63	U43 64200	42,0	63	208	126	170	6,25	SOGX 120408	42096
KUB-P.3D.425.R.13-ABS63	U43 64250	42,5	63	212	129	174	6,25	SOGX 130508	42596
KUB-P.3D.430.R.13-ABS63	U43 64300	43,0	63	212	129	174	6,25	SOGX 130508	43096
KUB-P.3D.435.R.13-ABS63	U43 64350	43,5	63	215	132	177	6,25	SOGX 130508	43596
KUB-P.3D.440.R.13-ABS63	U43 64400	44,0	63	215	132	177	6,25	SOGX 130508	44096
KUB-P.3D.445.R.13-ABS63	U43 64450	44,5	63	219	135	181	6,25	SOGX 130508	44596
KUB-P.3D.450.R.13-ABS63	U43 64500	45,0	63	219	135	181	6,25	SOGX 130508	45096
KUB-P.3D.455.R.13-ABS63	U43 64550	45,5	63	219	138	181	6,25	SOGX 130508	45596
KUB-P.3D.460.R.13-ABS63	U43 64600	46,0	63	219	138	181	6,25	SOGX 130508	46096
KUB-P.3D.470.R.08-ABS63	U43 64700	47,0	63	234	148	196	1,28	SOGX 080308	47096
KUB-P.3D.480.R.08-ABS63	U43 64800	48,0	63	237	153	199	1,28	SOGX 080308	48096
KUB-P.3D.490.R.08-ABS63	U43 64900	49,0	63	240	158	202	1,28	SOGX 080308	49096
KUB-P.3D.500.R.08-ABS63	U43 65000	50,0	63	243	163	205	1,28	SOGX 080308	50096
KUB-P.3D.510.R.08-ABS63	U43 65100	51,0	63	246	168	205	1,28	SOGX 080308	51096
KUB-P.3D.520.R.08-ABS63	U43 65200	52,0	63	249	173	211	1,28	SOGX 080308	52096
KUB-P.3D.530.R.10-ABS63	U43 65300	53,0	63	252	178	214	2,8	SOGX 100408	53096
KUB-P.3D.540.R.10-ABS63	U43 65400	54,0	63	255	182	217	2,8	SOGX 100408	54096
KUB-P.3D.550.R.10-ABS80	U43 75500	55,0	80	263	170	220	2,8	SOGX 100408	55098
KUB-P.3D.560.R.10-ABS80	U43 75600	56,0	80	266	173	223	2,8	SOGX 100408	56098
KUB-P.3D.570.R.10-ABS80	U43 75700	57,0	80	269	177	226	2,8	SOGX 100408	57098
KUB-P.3D.580.R.10-ABS80	U43 75800	58,0	80	272	182	229	2,8	SOGX 100408	58098
KUB-P.3D.590.R.10-ABS80	U43 75900	59,0	80	275	186	232	2,8	SOGX 100408	59098
KUB-P.3D.600.R.10-ABS80	U43 76000	60,0	80	278	185	235	2,8	SOGX 100408	60098
KUB-P.3D.610.R.10-ABS80	U43 76100	61,0	80	281	189	238	2,8	SOGX 100408	61098
KUB-P.3D.620.R.10-ABS80	U43 76200	62,0	80	284	194	241	2,8	SOGX 100408	62098
KUB-P.3D.630.R.10-ABS80	U43 76300	63,0	80	287	194	244	2,8	SOGX 100408	63098
KUB-P.3D.640.R.10-ABS80	U43 76400	64,0	80	290	199	247	2,8	SOGX 100408	64098
KUB-P.3D.650.R.10-ABS80	U43 76500	65,0	80	293	204	250	2,8	SOGX 100408	65098

	Screwdriver	Key D	Clamping screw
	80 950 ...	80 950 ...	10 950 ...
Spare parts DC			
14 - 16	057		10100
16,5 - 18		123	10000
18,5 - 23		123	10700
23,5 - 26		125	10800
26,5 - 30		125	10200
30,5 - 37		128	10300
37,5 - 46		129	10400
47 - 52		125	10800
53 - 65		125	10300

Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

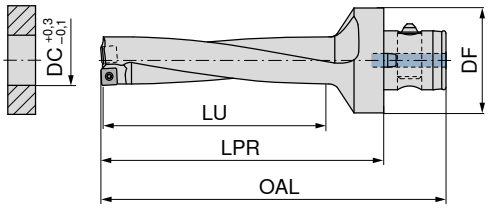
KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 4xD



ABS





10 874 ...

Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	
KUB-P.4D.140.R.04-ABS50	U44 51400	14,0	50	114	56	83	0,38	SOGX 040204	14095
KUB-P.4D.145.R.04-ABS50	U44 51450	14,5	50	119	60	88	0,38	SOGX 040204	14595
KUB-P.4D.150.R.04-ABS50	U44 51500	15,0	50	119	60	88	0,38	SOGX 040204	15095
KUB-P.4D.155.R.04-ABS50	U44 51550	15,5	50	125	64	94	0,38	SOGX 040204	15595
KUB-P.4D.160.R.04-ABS50	U44 51600	16,0	50	125	64	94	0,38	SOGX 040204	16095
KUB-P.4D.165.R.05-ABS50	U44 51650	16,5	50	130	68	99	0,62	SOGX 050204	16595
KUB-P.4D.170.R.05-ABS50	U44 51700	17,0	50	130	68	99	0,62	SOGX 050204	17095
KUB-P.4D.175.R.05-ABS50	U44 51750	17,5	50	134	72	103	0,62	SOGX 050204	17595
KUB-P.4D.180.R.05-ABS50	U44 51800	18,0	50	134	72	103	0,62	SOGX 050204	18095
KUB-P.4D.185.R.06-ABS50	U44 51850	18,5	50	139	76	108	1,01	SOGX 060206	18595
KUB-P.4D.190.R.06-ABS50	U44 51900	19,0	50	139	76	108	1,01	SOGX 060206	19095
KUB-P.4D.195.R.06-ABS50	U44 51950	19,5	50	143	80	112	1,01	SOGX 060206	19595
KUB-P.4D.200.R.06-ABS50	U44 52000	20,0	50	143	80	112	1,01	SOGX 060206	20095
KUB-P.4D.205.R.07-ABS50	U44 52050	20,5	50	147	84	116	1,01	SOGX 07T208	20595
KUB-P.4D.210.R.07-ABS50	U44 52100	21,0	50	147	84	116	1,01	SOGX 07T208	21095
KUB-P.4D.215.R.07-ABS50	U44 52150	21,5	50	151	88	120	1,01	SOGX 07T208	21595
KUB-P.4D.220.R.07-ABS50	U44 52200	22,0	50	151	88	120	1,01	SOGX 07T208	22095
KUB-P.4D.225.R.07-ABS50	U44 52250	22,5	50	155	92	124	1,01	SOGX 07T208	22595
KUB-P.4D.230.R.07-ABS50	U44 52300	23,0	50	155	92	124	1,01	SOGX 07T208	23095
KUB-P.4D.235.R.08-ABS50	U44 52350	23,5	50	159	96	128	1,28	SOGX 080308	23595
KUB-P.4D.240.R.08-ABS50	U44 52400	24,0	50	159	96	128	1,28	SOGX 080308	24095
KUB-P.4D.245.R.08-ABS50	U44 52450	24,5	50	164	100	133	1,28	SOGX 080308	24595
KUB-P.4D.250.R.08-ABS50	U44 52500	25,0	50	164	100	133	1,28	SOGX 080308	25095
KUB-P.4D.255.R.08-ABS50	U44 52550	25,5	50	168	104	137	1,28	SOGX 080308	25595
KUB-P.4D.260.R.08-ABS50	U44 52600	26,0	50	168	104	137	1,28	SOGX 080308	26095
KUB-P.4D.265.R.09-ABS50	U44 52650	26,5	50	173	108	142	2,25	SOGX 09T308	26595
KUB-P.4D.270.R.09-ABS50	U44 52700	27,0	50	173	108	142	2,25	SOGX 09T308	27095
KUB-P.4D.275.R.09-ABS50	U44 52750	27,5	50	177	112	146	2,25	SOGX 09T308	27595
KUB-P.4D.280.R.09-ABS50	U44 52800	28,0	50	177	112	146	2,25	SOGX 09T308	28095
KUB-P.4D.285.R.09-ABS50	U44 52850	28,5	50	182	116	151	2,25	SOGX 09T308	28595
KUB-P.4D.290.R.09-ABS50	U44 52900	29,0	50	182	116	151	2,25	SOGX 09T308	29095
KUB-P.4D.295.R.09-ABS50	U44 52950	29,5	50	186	120	155	2,25	SOGX 09T308	29595
KUB-P.4D.300.R.09-ABS50	U44 53000	30,0	50	186	120	155	2,25	SOGX 09T308	30095
KUB-P.4D.305.R.10-ABS63	U44 63050	30,5	63	201	124	163	2,8	SOGX 100408	30596
KUB-P.4D.310.R.10-ABS63	U44 63100	31,0	63	201	124	163	2,8	SOGX 100408	31096
KUB-P.4D.315.R.10-ABS63	U44 63150	31,5	63	205	128	167	2,8	SOGX 100408	31596
KUB-P.4D.320.R.10-ABS63	U44 63200	32,0	63	205	128	167	2,8	SOGX 100408	32096
KUB-P.4D.325.R.10-ABS63	U44 63250	32,5	63	210	132	172	2,8	SOGX 100408	32596
KUB-P.4D.330.R.10-ABS63	U44 63300	33,0	63	210	132	172	2,8	SOGX 100408	33096
KUB-P.4D.335.R.11-ABS63	U44 63350	33,5	63	214	136	176	2,8	SOGX 110408	33596
KUB-P.4D.340.R.11-ABS63	U44 63400	34,0	63	214	136	176	2,8	SOGX 110408	34096
KUB-P.4D.345.R.11-ABS63	U44 63450	34,5	63	219	140	181	2,8	SOGX 110408	34596
KUB-P.4D.350.R.11-ABS63	U44 63500	35,0	63	219	140	181	2,8	SOGX 110408	35096
KUB-P.4D.355.R.11-ABS63	U44 63550	35,5	63	223	144	185	2,8	SOGX 110408	35596
KUB-P.4D.360.R.11-ABS63	U44 63600	36,0	63	223	144	185	2,8	SOGX 110408	36096
KUB-P.4D.365.R.11-ABS63	U44 63650	36,5	63	228	148	190	2,8	SOGX 110408	36596
KUB-P.4D.370.R.11-ABS63	U44 63700	37,0	63	228	148	190	2,8	SOGX 110408	37096
KUB-P.4D.375.R.12-ABS63	U44 63750	37,5	63	232	152	194	6,25	SOGX 120408	37596

Continued on next page

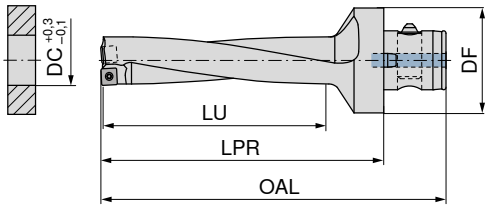
KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 4xD



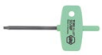
ABS





3

Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 874 ...
KUB-P.4D.380.R.12-ABS63	U44 63800	38,0	63	232	152	194	6,25	SOGX 120408	38096
KUB-P.4D.385.R.12-ABS63	U44 63850	38,5	63	237	156	199	6,25	SOGX 120408	38596
KUB-P.4D.390.R.12-ABS63	U44 63900	39,0	63	237	156	199	6,25	SOGX 120408	39096
KUB-P.4D.395.R.12-ABS63	U44 63950	39,5	63	241	160	203	6,25	SOGX 120408	39596
KUB-P.4D.400.R.12-ABS63	U44 64000	40,0	63	241	160	203	6,25	SOGX 120408	40096
KUB-P.4D.405.R.12-ABS63	U44 64050	40,5	63	246	164	208	6,25	SOGX 120408	40596
KUB-P.4D.410.R.12-ABS63	U44 64100	41,0	63	246	164	208	6,25	SOGX 120408	41096
KUB-P.4D.415.R.12-ABS63	U44 64150	41,5	63	250	168	212	6,25	SOGX 120408	41596
KUB-P.4D.420.R.12-ABS63	U44 64200	42,0	63	250	168	212	6,25	SOGX 120408	42096
KUB-P.4D.425.R.13-ABS63	U44 64250	42,5	63	255	172	217	6,25	SOGX 130508	42596
KUB-P.4D.430.R.13-ABS63	U44 64300	43,0	63	255	172	217	6,25	SOGX 130508	43096
KUB-P.4D.435.R.13-ABS63	U44 64350	43,5	63	259	176	221	6,25	SOGX 130508	43596
KUB-P.4D.440.R.13-ABS63	U44 64400	44,0	63	259	176	221	6,25	SOGX 130508	44096
KUB-P.4D.445.R.13-ABS63	U44 64450	44,5	63	264	180	226	6,25	SOGX 130508	44596
KUB-P.4D.450.R.13-ABS63	U44 64500	45,0	63	264	180	226	6,25	SOGX 130508	45096
KUB-P.4D.455.R.13-ABS63	U44 64550	45,5	63	268	184	230	6,25	SOGX 130508	45596
KUB-P.4D.460.R.13-ABS63	U44 64600	46,0	63	268	184	230	6,25	SOGX 130508	46096

Spare parts DC	 Screwdriver 80 950 ...	 Key D 80 950 ...	 Clamping screw 10 950 ...
14 - 16	057		10100
16,5 - 18		123	10000
18,5 - 23		123	10700
23,5 - 26		125	10800
26,5 - 30		125	10200
30,5 - 37		128	10300
37,5 - 46		129	10400

Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

KUB Pentron – Indexable insert drill

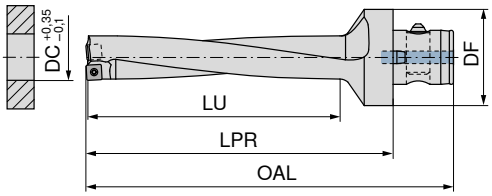
Scope of supply:

Indexable Insert Drill incl. clamping screws

≤ 5xD



ABS





10 875 ...

Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	
KUB-P.5D.140.R.04-ABS50	U45 51400	14,0	50	128	70	97	0,38	SOGX 040204	**14095**
KUB-P.5D.145.R.04-ABS50	U45 51450	14,5	50	134	75	103	0,38	SOGX 040204	**14595**
KUB-P.5D.150.R.04-ABS50	U45 51500	15,0	50	134	75	103	0,38	SOGX 040204	**15095**
KUB-P.5D.155.R.04-ABS50	U45 51550	15,5	50	141	80	110	0,38	SOGX 040204	**15595**
KUB-P.5D.160.R.04-ABS50	U45 51600	16,0	50	141	80	110	0,38	SOGX 040204	**16095**
KUB-P.5D.165.R.05-ABS50	U45 51650	16,5	50	147	85	116	0,62	SOGX 050204	**16595**
KUB-P.5D.170.R.05-ABS50	U45 51700	17,0	50	147	85	116	0,62	SOGX 050204	**17095**
KUB-P.5D.175.R.05-ABS50	U45 51750	17,5	50	152	90	121	0,62	SOGX 050204	**17595**
KUB-P.5D.180.R.05-ABS50	U45 51800	18,0	50	152	90	121	0,62	SOGX 050204	**18095**
KUB-P.5D.185.R.06-ABS50	U45 51850	18,5	50	158	95	127	1,01	SOGX 060206	**18595**
KUB-P.5D.190.R.06-ABS50	U45 51900	19,0	50	158	95	127	1,01	SOGX 060206	**19095**
KUB-P.5D.195.R.06-ABS50	U45 51950	19,5	50	163	100	132	1,01	SOGX 060206	**19595**
KUB-P.5D.200.R.06-ABS50	U45 52000	20,0	50	163	100	132	1,01	SOGX 060206	**20095**
KUB-P.5D.205.R.07-ABS50	U45 52050	20,5	50	168	105	137	1,01	SOGX 07T208	**20595**
KUB-P.5D.210.R.07-ABS50	U45 52100	21,0	50	168	105	137	1,01	SOGX 07T208	**21095**
KUB-P.5D.215.R.07-ABS50	U45 52150	21,5	50	173	110	142	1,01	SOGX 07T208	**21595**
KUB-P.5D.220.R.07-ABS50	U45 52200	22,0	50	173	110	142	1,01	SOGX 07T208	**22095**
KUB-P.5D.225.R.07-ABS50	U45 52250	22,5	50	178	115	147	1,01	SOGX 07T208	**22595**
KUB-P.5D.230.R.07-ABS50	U45 52300	23,0	50	178	115	147	1,01	SOGX 07T208	**23095**
KUB-P.5D.235.R.08-ABS50	U45 52350	23,5	50	183	120	152	1,28	SOGX 080308	**23595**
KUB-P.5D.240.R.08-ABS50	U45 52400	24,0	50	183	120	152	1,28	SOGX 080308	**24095**
KUB-P.5D.245.R.08-ABS50	U45 52450	24,5	50	189	125	158	1,28	SOGX 080308	**24595**
KUB-P.5D.250.R.08-ABS50	U45 52500	25,0	50	189	125	158	1,28	SOGX 080308	**25095**
KUB-P.5D.255.R.08-ABS50	U45 52550	25,5	50	194	130	163	1,28	SOGX 080308	**25595**
KUB-P.5D.260.R.08-ABS50	U45 52600	26,0	50	194	130	163	1,28	SOGX 080308	**26095**
KUB-P.5D.265.R.09-ABS50	U45 52650	26,5	50	200	135	169	2,25	SOGX 09T308	**26595**
KUB-P.5D.270.R.09-ABS50	U45 52700	27,0	50	200	135	169	2,25	SOGX 09T308	**27095**
KUB-P.5D.275.R.09-ABS50	U45 52750	27,5	50	205	140	174	2,25	SOGX 09T308	**27595**
KUB-P.5D.280.R.09-ABS50	U45 52800	28,0	50	205	140	174	2,25	SOGX 09T308	**28095**
KUB-P.5D.285.R.09-ABS50	U45 52850	28,5	50	211	145	180	2,25	SOGX 09T308	**28595**
KUB-P.5D.290.R.09-ABS50	U45 52900	29,0	50	211	145	180	2,25	SOGX 09T308	**29095**
KUB-P.5D.295.R.09-ABS50	U45 52950	29,5	50	216	150	185	2,25	SOGX 09T308	**29595**
KUB-P.5D.300.R.09-ABS50	U45 53000	30,0	50	216	150	185	2,25	SOGX 09T308	**30095**
KUB-P.5D.305.R.10-ABS63	U45 63050	30,5	63	232	155	194	2,8	SOGX 100408	**30596**
KUB-P.5D.310.R.10-ABS63	U45 63100	31,0	63	232	155	194	2,8	SOGX 100408	**31096**
KUB-P.5D.315.R.10-ABS63	U45 63150	31,5	63	237	160	199	2,8	SOGX 100408	**31596**
KUB-P.5D.320.R.10-ABS63	U45 63200	32,0	63	237	160	199	2,8	SOGX 100408	**32096**
KUB-P.5D.325.R.10-ABS63	U45 63250	32,5	63	243	165	205	2,8	SOGX 100408	**32596**
KUB-P.5D.330.R.10-ABS63	U45 63300	33,0	63	243	165	205	2,8	SOGX 100408	**33096**
KUB-P.5D.335.R.11-ABS63	U45 63350	33,5	63	248	170	210	2,8	SOGX 110408	**33596**
KUB-P.5D.340.R.11-ABS63	U45 63400	34,0	63	248	170	210	2,8	SOGX 110408	**34096**
KUB-P.5D.345.R.11-ABS63	U45 63450	34,5	63	254	175	216	2,8	SOGX 110408	**34596**
KUB-P.5D.350.R.11-ABS63	U45 63500	35,0	63	254	175	216	2,8	SOGX 110408	**35096**
KUB-P.5D.355.R.11-ABS63	U45 63550	35,5	63	259	180	221	2,8	SOGX 110408	**35596**
KUB-P.5D.360.R.11-ABS63	U45 63600	36,0	63	259	180	221	2,8	SOGX 110408	**36096**
KUB-P.5D.365.R.11-ABS63	U45 63650	36,5	63	265	185	227	2,8	SOGX 110408	**36596**
KUB-P.5D.370.R.11-ABS63	U45 63700	37,0	63	265	185	227	2,8	SOGX 110408	**37096**
KUB-P.5D.375.R.12-ABS63	U45 63750	37,5	63	270	190	232	6,25	SOGX 120408	**37596**

Continued on next page

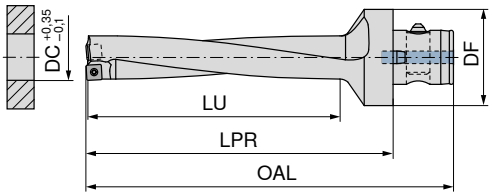
KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 5xD



ABS





3

Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 875 ...
KUB-P.5D.380.R.12-ABS63	U45 63800	38,0	63	270	190	232	6,25	SOGX 120408	38096
KUB-P.5D.385.R.12-ABS63	U45 63850	38,5	63	276	195	238	6,25	SOGX 120408	38596
KUB-P.5D.390.R.12-ABS63	U45 63900	39,0	63	276	195	238	6,25	SOGX 120408	39096
KUB-P.5D.395.R.12-ABS63	U45 63950	39,5	63	281	200	243	6,25	SOGX 120408	39596
KUB-P.5D.400.R.12-ABS63	U45 64000	40,0	63	281	200	243	6,25	SOGX 120408	40096
KUB-P.5D.405.R.12-ABS63	U45 64050	40,5	63	287	205	249	6,25	SOGX 120408	40596
KUB-P.5D.410.R.12-ABS63	U45 64100	41,0	63	287	205	249	6,25	SOGX 120408	41096
KUB-P.5D.415.R.12-ABS63	U45 64150	41,5	63	292	210	254	6,25	SOGX 120408	41596
KUB-P.5D.420.R.12-ABS63	U45 64200	42,0	63	292	210	254	6,25	SOGX 120408	42096
KUB-P.5D.425.R.13-ABS63	U45 64250	42,5	63	298	215	260	6,25	SOGX 130508	42596
KUB-P.5D.430.R.13-ABS63	U45 64300	43,0	63	298	215	260	6,25	SOGX 130508	43096
KUB-P.5D.435.R.13-ABS63	U45 64350	43,5	63	303	220	265	6,25	SOGX 130508	43596
KUB-P.5D.440.R.13-ABS63	U45 64400	44,0	63	303	220	265	6,25	SOGX 130508	44096
KUB-P.5D.445.R.13-ABS63	U45 64450	44,5	63	309	225	271	6,25	SOGX 130508	44596
KUB-P.5D.450.R.13-ABS63	U45 64500	45,0	63	309	225	271	6,25	SOGX 130508	45096
KUB-P.5D.455.R.13-ABS63	U45 64550	45,5	63	314	230	276	6,25	SOGX 130508	45596
KUB-P.5D.460.R.13-ABS63	U45 64600	46,0	63	314	230	276	6,25	SOGX 130508	46096

	 Screwdriver	 Key D	 Clamping screw
	80 950 ...	80 950 ...	10 950 ...
Spare parts DC			
14 - 16	057		10100
16,5 - 18		123	10000
18,5 - 23		123	10700
23,5 - 26		125	10800
26,5 - 30		125	10200
30,5 - 37		128	10300
37,5 - 46		129	10400

Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

KUB Pentron – Indexable insert drill

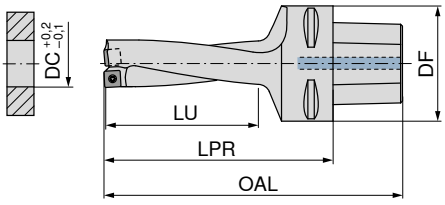
Scope of supply:

Indexable Insert Drill incl. clamping screws

≤ 3xD



PSC





10 873 ...

Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	
KUB-P.3D.140.R.04-PSC50	U40 61400	14,0	50	103	42	73	0,38	SOGX 040204	14055
KUB-P.3D.145.R.04-PSC50	U40 61450	14,5	50	107	45	77	0,38	SOGX 040204	14555
KUB-P.3D.150.R.04-PSC50	U40 61500	15,0	50	107	45	77	0,38	SOGX 040204	15055
KUB-P.3D.155.R.04-PSC50	U40 61550	15,5	50	112	48	82	0,38	SOGX 040204	15555
KUB-P.3D.160.R.04-PSC50	U40 61600	16,0	50	112	48	82	0,38	SOGX 040204	16055
KUB-P.3D.160.R.04-PSC63	U40 71600	16,0	63	124	48	86	0,38	SOGX 040204	16056
KUB-P.3D.165.R.05-PSC50	U40 61650	16,5	50	116	51	86	0,62	SOGX 050204	16555
KUB-P.3D.170.R.05-PSC50	U40 61700	17,0	50	116	51	86	0,62	SOGX 050204	17055
KUB-P.3D.175.R.05-PSC50	U40 61750	17,5	50	119	54	89	0,62	SOGX 050204	17555
KUB-P.3D.180.R.05-PSC50	U40 61800	18,0	50	119	54	89	0,62	SOGX 050204	18055
KUB-P.3D.165.R.05-PSC63	U40 71650	16,5	63	128	51	90	0,62	SOGX 050204	16556
KUB-P.3D.170.R.05-PSC63	U40 71700	17,0	63	128	51	90	0,62	SOGX 050204	17056
KUB-P.3D.175.R.05-PSC63	U40 71750	17,5	63	131	54	93	0,62	SOGX 050204	17556
KUB-P.3D.180.R.05-PSC63	U40 71800	18,0	63	131	54	93	0,62	SOGX 050204	18056
KUB-P.3D.185.R.06-PSC50	U40 61850	18,5	50	123	57	93	1,01	SOGX 060206	18555
KUB-P.3D.190.R.06-PSC50	U40 61900	19,0	50	123	57	93	1,01	SOGX 060206	19055
KUB-P.3D.195.R.06-PSC50	U40 61950	19,5	50	126	60	96	1,01	SOGX 060206	19555
KUB-P.3D.200.R.06-PSC50	U40 62000	20,0	50	126	60	96	1,01	SOGX 060206	20055
KUB-P.3D.185.R.06-PSC63	U40 71850	18,5	63	135	57	97	1,01	SOGX 060206	18556
KUB-P.3D.190.R.06-PSC63	U40 71900	19,0	63	135	57	97	1,01	SOGX 060206	19056
KUB-P.3D.195.R.06-PSC63	U40 71950	19,5	63	138	60	100	1,01	SOGX 060206	19556
KUB-P.3D.200.R.06-PSC63	U40 72000	20,0	63	138	60	100	1,01	SOGX 060206	20056
KUB-P.3D.205.R.07-PSC50	U40 62050	20,5	50	130	63	100	1,01	SOGX 07T208	20555
KUB-P.3D.210.R.07-PSC50	U40 62100	21,0	50	130	63	100	1,01	SOGX 07T208	21055
KUB-P.3D.215.R.07-PSC50	U40 62150	21,5	50	133	66	103	1,01	SOGX 07T208	21555
KUB-P.3D.220.R.07-PSC50	U40 62200	22,0	50	133	66	103	1,01	SOGX 07T208	22055
KUB-P.3D.225.R.07-PSC50	U40 62250	22,5	50	137	69	107	1,01	SOGX 07T208	22555
KUB-P.3D.230.R.07-PSC50	U40 62300	23,0	50	137	69	107	1,01	SOGX 07T208	23055
KUB-P.3D.205.R.07-PSC63	U40 72050	20,5	63	142	63	104	1,01	SOGX 07T208	20556
KUB-P.3D.210.R.07-PSC63	U40 72100	21,0	63	142	63	104	1,01	SOGX 07T208	21056
KUB-P.3D.215.R.07-PSC63	U40 72150	21,5	63	145	66	107	1,01	SOGX 07T208	21556
KUB-P.3D.220.R.07-PSC63	U40 72200	22,0	63	145	66	107	1,01	SOGX 07T208	22056
KUB-P.3D.225.R.07-PSC63	U40 72250	22,5	63	149	69	111	1,01	SOGX 07T208	22556
KUB-P.3D.230.R.07-PSC63	U40 72300	23,0	63	149	69	111	1,01	SOGX 07T208	23056
KUB-P.3D.235.R.08-PSC50	U40 62350	23,5	50	140	72	110	1,28	SOGX 080308	23555
KUB-P.3D.240.R.08-PSC50	U40 62400	24,0	50	140	72	110	1,28	SOGX 080308	24055
KUB-P.3D.245.R.08-PSC50	U40 62450	24,5	50	144	75	114	1,28	SOGX 080308	24555
KUB-P.3D.250.R.08-PSC50	U40 62500	25,0	50	144	75	114	1,28	SOGX 080308	25055
KUB-P.3D.255.R.08-PSC50	U40 62550	25,5	50	147	78	117	1,28	SOGX 080308	25555
KUB-P.3D.260.R.08-PSC50	U40 62600	26,0	50	147	78	117	1,28	SOGX 080308	26055
KUB-P.3D.235.R.08-PSC63	U40 72350	23,5	63	152	72	114	1,28	SOGX 080308	23556
KUB-P.3D.240.R.08-PSC63	U40 72400	24,0	63	152	72	114	1,28	SOGX 080308	24056
KUB-P.3D.245.R.08-PSC63	U40 72450	24,5	63	156	75	118	1,28	SOGX 080308	24556
KUB-P.3D.250.R.08-PSC63	U40 72500	25,0	63	156	75	118	1,28	SOGX 080308	25056
KUB-P.3D.255.R.08-PSC63	U40 72550	25,5	63	159	78	121	1,28	SOGX 080308	25556
KUB-P.3D.260.R.08-PSC63	U40 72600	26,0	63	159	78	121	1,28	SOGX 080308	26056
KUB-P.3D.265.R.09-PSC50	U40 62650	26,5	50	151	81	121	2,25	SOGX 09T308	26555
KUB-P.3D.270.R.09-PSC50	U40 62700	27,0	50	151	81	121	2,25	SOGX 09T308	27055
KUB-P.3D.275.R.09-PSC50	U40 62750	27,5	50	154	84	124	2,25	SOGX 09T308	27555
KUB-P.3D.280.R.09-PSC50	U40 62800	28,0	50	154	84	124	2,25	SOGX 09T308	28055
KUB-P.3D.285.R.09-PSC50	U40 62850	28,5	50	158	87	128	2,25	SOGX 09T308	28555
KUB-P.3D.290.R.09-PSC50	U40 62900	29,0	50	158	87	128	2,25	SOGX 09T308	29055
KUB-P.3D.295.R.09-PSC50	U40 62950	29,5	50	161	90	131	2,25	SOGX 09T308	29555
KUB-P.3D.300.R.09-PSC50	U40 63000	30,0	50	161	90	131	2,25	SOGX 09T308	30055
KUB-P.3D.265.R.09-PSC63	U40 72650	26,5	63	163	81	125	2,25	SOGX 09T308	26556
KUB-P.3D.270.R.09-PSC63	U40 72700	27,0	63	163	81	125	2,25	SOGX 09T308	27056
KUB-P.3D.275.R.09-PSC63	U40 72750	27,5	63	166	84	128	2,25	SOGX 09T308	27556
KUB-P.3D.280.R.09-PSC63	U40 72800	28,0	63	166	84	128	2,25	SOGX 09T308	28056

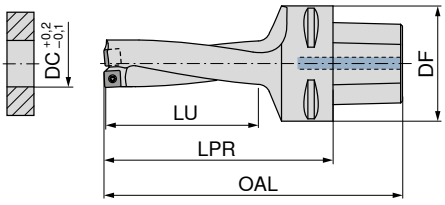
Continued on next page

KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 3xD

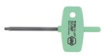
PSC





3

Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 873 ...
KUB-P.3D.285.R.09-PSC63	U40 72850	28,5	63	170	87	132	2,25	SOGX 09T308	28556
KUB-P.3D.290.R.09-PSC63	U40 72900	29,0	63	170	87	132	2,25	SOGX 09T308	29056
KUB-P.3D.295.R.09-PSC63	U40 72950	29,5	63	173	90	135	2,25	SOGX 09T308	29556
KUB-P.3D.300.R.09-PSC63	U40 73000	30,0	63	173	90	135	2,25	SOGX 09T308	30056
KUB-P.3D.305.R.10-PSC50	U40 63050	30,5	50	165	98	135	2,8	SOGX 100408	30555
KUB-P.3D.310.R.10-PSC50	U40 63100	31,0	50	165	98	135	2,8	SOGX 100408	31055
KUB-P.3D.315.R.10-PSC50	U40 63150	31,5	50	168	101	138	2,8	SOGX 100408	31555
KUB-P.3D.320.R.10-PSC50	U40 63200	32,0	50	168	101	138	2,8	SOGX 100408	32055
KUB-P.3D.325.R.10-PSC50	U40 63250	32,5	50	172	104	142	2,8	SOGX 100408	32555
KUB-P.3D.330.R.10-PSC50	U40 63300	33,0	50	172	104	142	2,8	SOGX 100408	33055
KUB-P.3D.305.R.10-PSC63	U40 73050	30,5	63	177	98	139	2,8	SOGX 100408	30556
KUB-P.3D.310.R.10-PSC63	U40 73100	31,0	63	177	98	139	2,8	SOGX 100408	31056
KUB-P.3D.315.R.10-PSC63	U40 73150	31,5	63	180	101	142	2,8	SOGX 100408	31556
KUB-P.3D.320.R.10-PSC63	U40 73200	32,0	63	180	101	142	2,8	SOGX 100408	32056
KUB-P.3D.325.R.10-PSC63	U40 73250	32,5	63	184	104	146	2,8	SOGX 100408	32556
KUB-P.3D.330.R.10-PSC63	U40 73300	33,0	63	184	104	146	2,8	SOGX 100408	33056
KUB-P.3D.335.R.11-PSC50	U40 63350	33,5	50	175	107	145	2,8	SOGX 110408	33555
KUB-P.3D.340.R.11-PSC50	U40 63400	34,0	50	175	107	145	2,8	SOGX 110408	34055
KUB-P.3D.345.R.11-PSC50	U40 63450	34,5	50	179	110	149	2,8	SOGX 110408	34555
KUB-P.3D.350.R.11-PSC50	U40 63500	35,0	50	179	110	149	2,8	SOGX 110408	35055
KUB-P.3D.355.R.11-PSC50	U40 63550	35,5	50	182	113	152	2,8	SOGX 110408	35555
KUB-P.3D.360.R.11-PSC50	U40 63600	36,0	50	182	113	152	2,8	SOGX 110408	36055
KUB-P.3D.365.R.11-PSC50	U40 63650	36,5	50	186	116	156	2,8	SOGX 110408	36555
KUB-P.3D.370.R.11-PSC50	U40 63700	37,0	50	186	116	156	2,8	SOGX 110408	37055
KUB-P.3D.335.R.11-PSC63	U40 73350	33,5	63	187	107	149	2,8	SOGX 110408	33556
KUB-P.3D.340.R.11-PSC63	U40 73400	34,0	63	187	107	149	2,8	SOGX 110408	34056
KUB-P.3D.345.R.11-PSC63	U40 73450	34,5	63	191	110	153	2,8	SOGX 110408	34556
KUB-P.3D.350.R.11-PSC63	U40 73500	35,0	63	191	110	153	2,8	SOGX 110408	35056
KUB-P.3D.355.R.11-PSC63	U40 73550	35,5	63	194	113	156	2,8	SOGX 110408	35556
KUB-P.3D.360.R.11-PSC63	U40 73600	36,0	63	194	113	156	2,8	SOGX 110408	36056
KUB-P.3D.365.R.11-PSC63	U40 73650	36,5	63	198	116	160	2,8	SOGX 110408	36556
KUB-P.3D.370.R.11-PSC63	U40 73700	37,0	63	198	116	160	2,8	SOGX 110408	37056

Spare parts DC	 Screwdriver	 Key D	 Clamping screw
	80 950 ...	80 950 ...	10 950 ...
14 - 16	057		10100
16,5 - 18		123	10000
18,5 - 23		123	10700
23,5 - 26		125	10800
26,5 - 30		125	10200
30,5 - 37		128	10300

Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

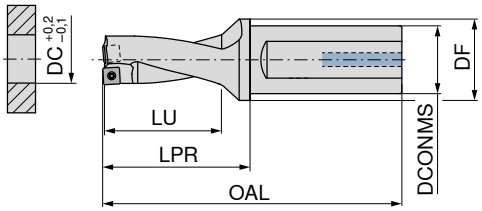
KUB Pentron – Size PSC 40 available on request.

KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 2xD

C





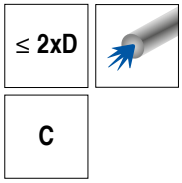
10 872 ...

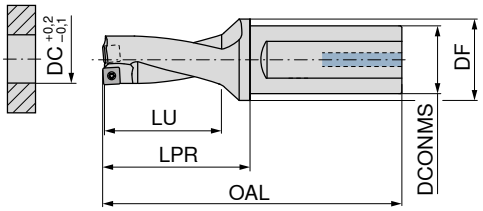
Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	
KUB-P.2D.140.R.04-C20	U42 01400	14,0	20	30	91	28	41	0,38	SOGX 040204	14001
KUB-P.2D.145.R.04-C20	U42 01450	14,5	20	30	94	30	44	0,38	SOGX 040204	14501
KUB-P.2D.150.R.04-C20	U42 01500	15,0	20	30	94	30	44	0,38	SOGX 040204	15001
KUB-P.2D.155.R.04-C20	U42 01550	15,5	20	30	98	32	48	0,38	SOGX 040204	15501
KUB-P.2D.160.R.04-C20	U42 01600	16,0	20	30	98	32	48	0,38	SOGX 040204	16001
KUB-P.2D.165.R.05-C20	U42 01650	16,5	20	30	101	34	51	0,62	SOGX 050204	16501
KUB-P.2D.170.R.05-C20	U42 01700	17,0	20	30	101	34	51	0,62	SOGX 050204	17001
KUB-P.2D.175.R.05-C25	U42 11750	17,5	25	30	109	36	53	0,62	SOGX 050204	17502
KUB-P.2D.180.R.05-C25	U42 11800	18,0	25	30	109	36	53	0,62	SOGX 050204	18002
KUB-P.2D.185.R.06-C25	U42 11850	18,5	25	30	112	38	56	1,01	SOGX 060206	18502
KUB-P.2D.190.R.06-C25	U42 11900	19,0	25	30	112	38	56	1,01	SOGX 060206	19002
KUB-P.2D.195.R.06-C25	U42 11950	19,5	25	30	114	40	58	1,01	SOGX 060206	19502
KUB-P.2D.200.R.06-C25	U42 12000	20,0	25	30	114	40	58	1,01	SOGX 060206	20002
KUB-P.2D.205.R.07-C25	U42 12050	20,5	25	30	117	42	61	1,01	SOGX 07T208	20502
KUB-P.2D.210.R.07-C25	U42 12100	21,0	25	30	117	42	61	1,01	SOGX 07T208	21002
KUB-P.2D.215.R.07-C25	U42 12150	21,5	25	30	119	44	63	1,01	SOGX 07T208	21502
KUB-P.2D.220.R.07-C25	U42 12200	22,0	25	30	119	44	63	1,01	SOGX 07T208	22002
KUB-P.2D.225.R.07-C25	U42 12250	22,5	25	30	122	46	66	1,01	SOGX 07T208	22502
KUB-P.2D.230.R.07-C25	U42 12300	23,0	25	30	122	46	66	1,01	SOGX 07T208	23002
KUB-P.2D.235.R.08-C32	U42 22350	23,5	32	39	128	48	68	1,28	SOGX 080308	23503
KUB-P.2D.240.R.08-C32	U42 22400	24,0	32	39	128	48	68	1,28	SOGX 080308	24003
KUB-P.2D.245.R.08-C32	U42 22450	24,5	32	39	131	50	71	1,28	SOGX 080308	24503
KUB-P.2D.250.R.08-C32	U42 22500	25,0	32	39	131	50	71	1,28	SOGX 080308	25003
KUB-P.2D.255.R.08-C32	U42 22550	25,5	32	39	133	52	73	1,28	SOGX 080308	25503
KUB-P.2D.260.R.08-C32	U42 22600	26,0	32	39	133	52	73	1,28	SOGX 080308	26003
KUB-P.2D.265.R.09-C32	U42 22650	26,5	32	39	136	54	76	2,25	SOGX 09T308	26503
KUB-P.2D.270.R.09-C32	U42 22700	27,0	32	39	136	54	76	2,25	SOGX 09T308	27003
KUB-P.2D.275.R.09-C32	U42 22750	27,5	32	39	138	56	78	2,25	SOGX 09T308	27503
KUB-P.2D.280.R.09-C32	U42 22800	28,0	32	39	138	56	78	2,25	SOGX 09T308	28003
KUB-P.2D.285.R.09-C32	U42 22850	28,5	32	39	141	58	81	2,25	SOGX 09T308	28503
KUB-P.2D.290.R.09-C32	U42 22900	29,0	32	39	141	58	81	2,25	SOGX 09T308	29003
KUB-P.2D.295.R.09-C32	U42 22950	29,5	32	39	143	60	83	2,25	SOGX 09T308	29503
KUB-P.2D.300.R.09-C32	U42 23000	30,0	32	39	143	60	83	2,25	SOGX 09T308	30003
KUB-P.2D.305.R.10-C40	U42 33050	30,5	40	50	154	62	86	2,8	SOGX 100408	30504
KUB-P.2D.310.R.10-C40	U42 33100	31,0	40	50	154	62	86	2,8	SOGX 100408	31004
KUB-P.2D.315.R.10-C40	U42 33150	31,5	40	50	156	64	88	2,8	SOGX 100408	31504
KUB-P.2D.320.R.10-C40	U42 33200	32,0	40	50	156	64	88	2,8	SOGX 100408	32004
KUB-P.2D.325.R.10-C40	U42 33250	32,5	40	50	159	66	91	2,8	SOGX 100408	32504
KUB-P.2D.330.R.10-C40	U42 33300	33,0	40	50	159	66	91	2,8	SOGX 100408	33004
KUB-P.2D.335.R.11-C40	U42 33350	33,5	40	50	161	68	93	2,8	SOGX 110408	33504
KUB-P.2D.340.R.11-C40	U42 33400	34,0	40	50	161	68	93	2,8	SOGX 110408	34004
KUB-P.2D.345.R.11-C40	U42 33450	34,5	40	50	164	70	96	2,8	SOGX 110408	34504
KUB-P.2D.350.R.11-C40	U42 33500	35,0	40	50	164	70	96	2,8	SOGX 110408	35004
KUB-P.2D.355.R.11-C40	U42 33550	35,5	40	50	166	72	98	2,8	SOGX 110408	35504
KUB-P.2D.360.R.11-C40	U42 33600	36,0	40	50	166	72	98	2,8	SOGX 110408	36004
KUB-P.2D.365.R.11-C40	U42 33650	36,5	40	50	169	74	101	2,8	SOGX 110408	36504
KUB-P.2D.370.R.11-C40	U42 33700	37,0	40	50	169	74	101	2,8	SOGX 110408	37004
KUB-P.2D.375.R.12-C40	U42 33750	37,5	40	50	171	76	103	6,25	SOGX 120408	37504
KUB-P.2D.380.R.12-C40	U42 33800	38,0	40	50	171	76	103	6,25	SOGX 120408	38004
KUB-P.2D.385.R.12-C40	U42 33850	38,5	40	50	174	78	106	6,25	SOGX 120408	38504

Continued on next page

KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws







										10 872 ...
Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	
KUB-P.2D.390.R.12-C40	U42 33900	39,0	40	50	174	78	106	6,25	SOGX 120408	**39004**
KUB-P.2D.395.R.12-C40	U42 33950	39,5	40	50	176	80	108	6,25	SOGX 120408	**39504**
KUB-P.2D.400.R.12-C40	U42 34000	40,0	40	50	176	80	108	6,25	SOGX 120408	**40004**
KUB-P.2D.405.R.12-C40	U42 34050	40,5	40	50	179	82	111	6,25	SOGX 120408	**40504**
KUB-P.2D.410.R.12-C40	U42 34100	41,0	40	50	179	82	111	6,25	SOGX 120408	**41004**
KUB-P.2D.415.R.12-C40	U42 34150	41,5	40	50	181	84	113	6,25	SOGX 120408	**41504**
KUB-P.2D.420.R.12-C40	U42 34200	42,0	40	50	181	84	113	6,25	SOGX 120408	**42004**
KUB-P.2D.425.R.13-C40	U42 34250	42,5	40	50	184	86	116	6,25	SOGX 130508	**42504**
KUB-P.2D.430.R.13-C40	U42 34300	43,0	40	50	184	86	116	6,25	SOGX 130508	**43004**
KUB-P.2D.435.R.13-C40	U42 34350	43,5	40	50	186	88	118	6,25	SOGX 130508	**43504**
KUB-P.2D.440.R.13-C40	U42 34400	44,0	40	50	186	88	118	6,25	SOGX 130508	**44004**
KUB-P.2D.445.R.13-C40	U42 34450	44,5	40	50	189	90	121	6,25	SOGX 130508	**44504**
KUB-P.2D.450.R.13-C40	U42 34500	45,0	40	50	189	90	121	6,25	SOGX 130508	**45004**
KUB-P.2D.455.R.13-C40	U42 34550	45,5	40	50	191	92	123	6,25	SOGX 130508	**45504**
KUB-P.2D.460.R.13-C40	U42 34600	46,0	40	50	191	92	123	6,25	SOGX 130508	**46004**


Screwdriver


Key D


Clamping screw

			80 950 ...			**10 950 ...**	
Spare parts DC							
14 - 16	T05 - IP	**057**			M1,8x3,8 - 05IP	**10100**	
16,5 - 18			T06 - IP	**123**	M2,0x4,3 - 06IP	**10000**	
18,5 - 23			T06 - IP	**123**	M2,2x5,5 - 06IP	**10700**	
23,5 - 26			T08 - IP	**125**	M2,5x6,3 - 08IP	**10800**	
26,5 - 30			T08 - IP	**125**	M3,0x7,6 - 08IP	**10200**	
31 - 37			T15 - IP	**128**	M3,5x7,5 - 15IP	**10300**	
38 - 46			T20 - IP	**129**	M4,5x10 - 20IP	**10400**	

Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

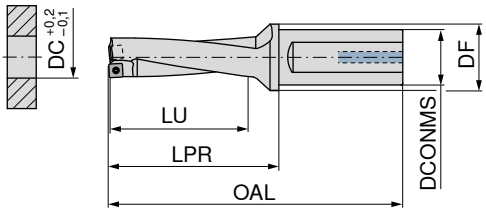
KUB Pentron – Indexable insert drill

Scope of supply:

Indexable Insert Drill incl. clamping screws

≤ 3xD

C





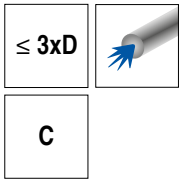
10 873 ...

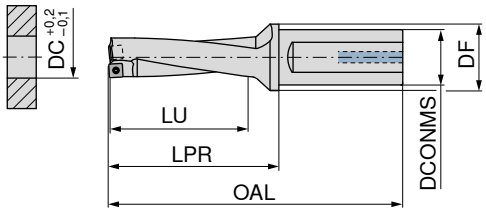
Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	
KUB-P.3D.140.R.04-C20	U43 01400	14,0	20	30	105	42	55	0,38	SOGX 040204	14001
KUB-P.3D.145.R.04-C20	U43 01450	14,5	20	30	109	45	59	0,38	SOGX 040204	14501
KUB-P.3D.150.R.04-C20	U43 01500	15,0	20	30	109	45	59	0,38	SOGX 040204	15001
KUB-P.3D.155.R.04-C20	U43 01550	15,5	20	30	114	48	64	0,38	SOGX 040204	15501
KUB-P.3D.160.R.04-C20	U43 01600	16,0	20	30	114	48	64	0,38	SOGX 040204	16001
KUB-P.3D.165.R.05-C20	U43 01650	16,5	20	30	118	51	68	0,62	SOGX 050204	16501
KUB-P.3D.170.R.05-C20	U43 01700	17,0	20	30	118	51	68	0,62	SOGX 050204	17001
KUB-P.3D.175.R.05-C25	U43 11750	17,5	25	30	127	54	71	0,62	SOGX 050204	17501
KUB-P.3D.180.R.05-C25	U43 11800	18,0	25	30	127	54	71	0,62	SOGX 050204	18001
KUB-P.3D.185.R.06-C25	U43 11850	18,5	25	30	131	57	75	1,01	SOGX 060206	18501
KUB-P.3D.190.R.06-C25	U43 11900	19,0	25	30	131	57	75	1,01	SOGX 060206	19001
KUB-P.3D.195.R.06-C25	U43 11950	19,5	25	30	134	60	78	1,01	SOGX 060206	19501
KUB-P.3D.200.R.06-C25	U43 12000	20,0	25	30	134	60	78	1,01	SOGX 060206	20001
KUB-P.3D.205.R.07-C25	U43 12050	20,5	25	30	138	63	82	1,01	SOGX 07T208	20501
KUB-P.3D.210.R.07-C25	U43 12100	21,0	25	30	138	63	82	1,01	SOGX 07T208	21001
KUB-P.3D.215.R.07-C25	U43 12150	21,5	25	30	141	66	85	1,01	SOGX 07T208	21501
KUB-P.3D.220.R.07-C25	U43 12200	22,0	25	30	141	66	85	1,01	SOGX 07T208	22002
KUB-P.3D.225.R.07-C25	U43 12250	22,5	25	30	145	69	89	1,01	SOGX 07T208	22502
KUB-P.3D.230.R.07-C25	U43 12300	23,0	25	30	145	69	89	1,01	SOGX 07T208	23002
KUB-P.3D.235.R.08-C32	U43 22350	23,5	32	39	152	72	92	1,28	SOGX 080308	23503
KUB-P.3D.240.R.08-C32	U43 22400	24,0	32	39	152	72	92	1,28	SOGX 080308	24003
KUB-P.3D.245.R.08-C32	U43 22450	24,5	32	39	156	75	96	1,28	SOGX 080308	24503
KUB-P.3D.250.R.08-C32	U43 22500	25,0	32	39	156	75	96	1,28	SOGX 080308	25003
KUB-P.3D.255.R.08-C32	U43 22550	25,5	32	39	159	78	99	1,28	SOGX 080308	25503
KUB-P.3D.260.R.08-C32	U43 22600	26,0	32	39	159	78	99	1,28	SOGX 080308	26003
KUB-P.3D.265.R.09-C32	U43 22650	26,5	32	39	163	81	103	2,25	SOGX 09T308	26503
KUB-P.3D.270.R.09-C32	U43 22700	27,0	32	39	163	81	103	2,25	SOGX 09T308	27003
KUB-P.3D.275.R.09-C32	U43 22750	27,5	32	39	166	84	106	2,25	SOGX 09T308	27503
KUB-P.3D.280.R.09-C32	U43 22800	28,0	32	39	166	84	106	2,25	SOGX 09T308	28003
KUB-P.3D.285.R.09-C32	U43 22850	28,5	32	39	170	87	110	2,25	SOGX 09T308	28503
KUB-P.3D.290.R.09-C32	U43 22900	29,0	32	39	170	87	110	2,25	SOGX 09T308	29003
KUB-P.3D.295.R.09-C32	U43 22950	29,5	32	39	173	90	113	2,25	SOGX 09T308	29503
KUB-P.3D.300.R.09-C32	U43 23000	30,0	32	39	173	90	113	2,25	SOGX 09T308	30003
KUB-P.3D.305.R.10-C40	U43 33050	30,5	40	50	185	93	117	2,8	SOGX 100408	30504
KUB-P.3D.310.R.10-C40	U43 33100	31,0	40	50	185	93	117	2,8	SOGX 100408	31004
KUB-P.3D.315.R.10-C40	U43 33150	31,5	40	50	188	96	120	2,8	SOGX 100408	31504
KUB-P.3D.320.R.10-C40	U43 33200	32,0	40	50	188	96	120	2,8	SOGX 100408	32004
KUB-P.3D.325.R.10-C40	U43 33250	32,5	40	50	192	99	124	2,8	SOGX 100408	32504
KUB-P.3D.330.R.10-C40	U43 33300	33,0	40	50	192	99	124	2,8	SOGX 100408	33004
KUB-P.3D.335.R.11-C40	U43 33350	33,5	40	50	195	102	127	2,8	SOGX 110408	33504
KUB-P.3D.340.R.11-C40	U43 33400	34,0	40	50	195	102	127	2,8	SOGX 110408	34004
KUB-P.3D.345.R.11-C40	U43 33450	34,5	40	50	199	105	131	2,8	SOGX 110408	34504
KUB-P.3D.350.R.11-C40	U43 33500	35,0	40	50	199	105	131	2,8	SOGX 110408	35004
KUB-P.3D.355.R.11-C40	U43 33550	35,5	40	50	202	108	134	2,8	SOGX 110408	35504
KUB-P.3D.360.R.11-C40	U43 33600	36,0	40	50	202	108	134	2,8	SOGX 110408	36004
KUB-P.3D.365.R.11-C40	U43 33650	36,5	40	50	206	111	138	2,8	SOGX 110408	36504

Continued on next page

KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws







Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 873 ...
KUB-P.3D.370.R.11-C40	U43 33700	37,0	40	50	206	111	138	2,8	SOGX 110408	37004
KUB-P.3D.375.R.12-C40	U43 33750	37,5	40	50	209	114	141	6,25	SOGX 120408	37504
KUB-P.3D.380.R.12-C40	U43 33800	38,0	40	50	209	114	141	6,25	SOGX 120408	38004
KUB-P.3D.385.R.12-C40	U43 33850	38,5	40	50	213	117	145	6,25	SOGX 120408	38504
KUB-P.3D.390.R.12-C40	U43 33900	39,0	40	50	213	117	145	6,25	SOGX 120408	39004
KUB-P.3D.395.R.12-C40	U43 33950	39,5	40	50	216	120	148	6,25	SOGX 120408	39504
KUB-P.3D.400.R.12-C40	U43 34000	40,0	40	50	216	120	148	6,25	SOGX 120408	40004
KUB-P.3D.405.R.12-C40	U43 34050	40,5	40	50	220	123	152	6,25	SOGX 120408	40504
KUB-P.3D.410.R.12-C40	U43 34100	41,0	40	50	220	123	152	6,25	SOGX 120408	41004
KUB-P.3D.415.R.12-C40	U43 34150	41,5	40	50	223	126	155	6,25	SOGX 120408	41504
KUB-P.3D.420.R.12-C40	U43 34200	42,0	40	50	223	126	155	6,25	SOGX 120408	42004
KUB-P.3D.425.R.13-C40	U43 34250	42,5	40	50	227	129	159	6,25	SOGX 130508	42504
KUB-P.3D.430.R.13-C40	U43 34300	43,0	40	50	227	129	159	6,25	SOGX 130508	43004
KUB-P.3D.435.R.13-C40	U43 34350	43,5	40	50	230	132	162	6,25	SOGX 130508	43504
KUB-P.3D.440.R.13-C40	U43 34400	44,0	40	50	230	132	162	6,25	SOGX 130508	44004
KUB-P.3D.445.R.13-C40	U43 34450	44,5	40	50	234	135	166	6,25	SOGX 130508	44504
KUB-P.3D.450.R.13-C40	U43 34500	45,0	40	50	234	135	166	6,25	SOGX 130508	45004
KUB-P.3D.455.R.13-C40	U43 34550	45,5	40	50	237	138	169	6,25	SOGX 130508	45504
KUB-P.3D.460.R.13-C40	U43 34600	46,0	40	50	237	138	169	6,25	SOGX 130508	46004


Screwdriver


Key D

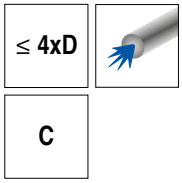

Clamping screw

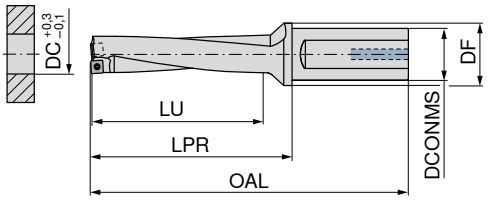
Spare parts DC	80 950 ...		80 950 ...		10 950 ...	
14 - 16	T05 - IP	057			M1,8x3,8 - 05IP	10100
16,5 - 18			T06 - IP	123	M2,0x4,3 - 06IP	10000
18,5 - 23			T06 - IP	123	M2,2x5,5 - 06IP	10700
23,5 - 26			T08 - IP	125	M2,5x6,3 - 08IP	10800
26,5 - 30			T08 - IP	125	M3,0x7,6 - 08IP	10200
31 - 37			T15 - IP	128	M3,5x7,5 - 15IP	10300
38 - 46			T20 - IP	129	M4,5x10 - 20IP	10400

Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws







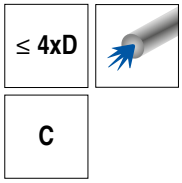
10 874 ...

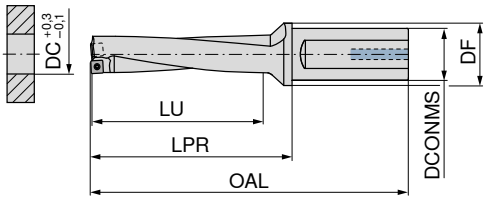
Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	
KUB-P.4D.140.R.04-C20	U44 01400	14,0	20	30	119	56	69	0,38	SOGX 040204	14001
KUB-P.4D.145.R.04-C20	U44 01450	14,5	20	30	124	60	74	0,38	SOGX 040204	14501
KUB-P.4D.150.R.04-C20	U44 01500	15,0	20	30	124	60	74	0,38	SOGX 040204	15001
KUB-P.4D.155.R.04-C20	U44 01550	15,5	20	30	130	64	80	0,38	SOGX 040204	15501
KUB-P.4D.160.R.04-C20	U44 01600	16,0	20	30	130	64	80	0,38	SOGX 040204	16001
KUB-P.4D.165.R.05-C20	U44 01650	16,5	20	30	135	68	85	0,62	SOGX 050204	16501
KUB-P.4D.170.R.05-C20	U44 01700	17,0	20	30	135	68	85	0,62	SOGX 050204	17001
KUB-P.4D.175.R.05-C25	U44 11750	17,5	25	30	145	72	89	0,62	SOGX 050204	17502
KUB-P.4D.180.R.05-C25	U44 11800	18,0	25	30	145	72	89	0,62	SOGX 050204	18002
KUB-P.4D.185.R.06-C25	U44 11850	18,5	25	30	150	76	94	1,01	SOGX 060206	18502
KUB-P.4D.190.R.06-C25	U44 11900	19,0	25	30	150	76	94	1,01	SOGX 060206	19002
KUB-P.4D.195.R.06-C25	U44 11950	19,5	25	30	154	80	98	1,01	SOGX 060206	19502
KUB-P.4D.200.R.06-C25	U44 12000	20,0	25	30	154	80	98	1,01	SOGX 060206	20002
KUB-P.4D.205.R.07-C25	U44 12050	20,5	25	30	159	84	103	1,01	SOGX 07T208	20502
KUB-P.4D.210.R.07-C25	U44 12100	21,0	25	30	159	84	103	1,01	SOGX 07T208	21002
KUB-P.4D.215.R.07-C25	U44 12150	21,5	25	30	163	88	107	1,01	SOGX 07T208	21502
KUB-P.4D.220.R.07-C25	U44 12200	22,0	25	30	163	88	107	1,01	SOGX 07T208	22002
KUB-P.4D.225.R.07-C25	U44 12250	22,5	25	30	168	92	112	1,01	SOGX 07T208	22502
KUB-P.4D.230.R.07-C25	U44 12300	23,0	25	30	168	92	112	1,01	SOGX 07T208	23002
KUB-P.4D.235.R.08-C32	U44 22350	23,5	32	39	176	96	116	1,28	SOGX 080308	23503
KUB-P.4D.240.R.08-C32	U44 22400	24,0	32	39	176	96	116	1,28	SOGX 080308	24003
KUB-P.4D.245.R.08-C32	U44 22450	24,5	32	39	181	100	121	1,28	SOGX 080308	24503
KUB-P.4D.250.R.08-C32	U44 22500	25,0	32	39	181	100	121	1,28	SOGX 080308	25003
KUB-P.4D.255.R.08-C32	U44 22550	25,5	32	39	185	104	125	1,28	SOGX 080308	25503
KUB-P.4D.260.R.08-C32	U44 22600	26,0	32	39	185	104	125	1,28	SOGX 080308	26003
KUB-P.4D.265.R.09-C32	U44 22650	26,5	32	39	190	108	130	2,25	SOGX 09T308	26503
KUB-P.4D.270.R.09-C32	U44 22700	27,0	32	39	190	108	130	2,25	SOGX 09T308	27003
KUB-P.4D.275.R.09-C32	U44 22750	27,5	32	39	194	112	134	2,25	SOGX 09T308	27503
KUB-P.4D.280.R.09-C32	U44 22800	28,0	32	39	194	112	134	2,25	SOGX 09T308	28003
KUB-P.4D.285.R.09-C32	U44 22850	28,5	32	39	199	116	139	2,25	SOGX 09T308	28503
KUB-P.4D.290.R.09-C32	U44 22900	29,0	32	39	199	116	139	2,25	SOGX 09T308	29003
KUB-P.4D.295.R.09-C32	U44 22950	29,5	32	39	203	120	143	2,25	SOGX 09T308	29503
KUB-P.4D.300.R.09-C32	U44 23000	30,0	32	39	203	120	143	2,25	SOGX 09T308	30003
KUB-P.4D.305.R.10-C40	U44 33050	30,5	40	50	216	124	148	2,8	SOGX 100408	30504
KUB-P.4D.310.R.10-C40	U44 33100	31,0	40	50	216	124	148	2,8	SOGX 100408	31004
KUB-P.4D.315.R.10-C40	U44 33150	31,5	40	50	220	128	152	2,8	SOGX 100408	31504
KUB-P.4D.320.R.10-C40	U44 33200	32,0	40	50	220	128	152	2,8	SOGX 100408	32004
KUB-P.4D.325.R.10-C40	U44 33250	32,5	40	50	225	132	157	2,8	SOGX 100408	32504
KUB-P.4D.330.R.10-C40	U44 33300	33,0	40	50	225	132	157	2,8	SOGX 100408	33004
KUB-P.4D.335.R.11-C40	U44 33350	33,5	40	50	229	136	161	2,8	SOGX 110408	33504
KUB-P.4D.340.R.11-C40	U44 33400	34,0	40	50	229	136	161	2,8	SOGX 110408	34004
KUB-P.4D.345.R.11-C40	U44 33450	34,5	40	50	234	140	166	2,8	SOGX 110408	34504
KUB-P.4D.350.R.11-C40	U44 33500	35,0	40	50	234	140	166	2,8	SOGX 110408	35004
KUB-P.4D.355.R.11-C40	U44 33550	35,5	40	50	238	144	170	2,8	SOGX 110408	35504
KUB-P.4D.360.R.11-C40	U44 33600	36,0	40	50	238	144	170	2,8	SOGX 110408	36004
KUB-P.4D.365.R.11-C40	U44 33650	36,5	40	50	243	148	175	2,8	SOGX 110408	36504

Continued on next page

KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws







Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 874 ...
KUB-P.4D.370.R.11-C40	U44 33700	37,0	40	50	243	148	175	2,8	SOGX 110408	37004
KUB-P.4D.375.R.12-C40	U44 33750	37,5	40	50	247	152	179	6,25	SOGX 120408	37504
KUB-P.4D.380.R.12-C40	U44 33800	38,0	40	50	247	152	179	6,25	SOGX 120408	38004
KUB-P.4D.385.R.12-C40	U44 33850	38,5	40	50	252	156	184	6,25	SOGX 120408	38504
KUB-P.4D.390.R.12-C40	U44 33900	39,0	40	50	252	156	184	6,25	SOGX 120408	39004
KUB-P.4D.395.R.12-C40	U44 33950	39,5	40	50	256	160	188	6,25	SOGX 120408	39504
KUB-P.4D.400.R.12-C40	U44 34000	40,0	40	50	256	160	188	6,25	SOGX 120408	40004
KUB-P.4D.405.R.12-C40	U44 34050	40,5	40	50	261	164	193	6,25	SOGX 120408	40504
KUB-P.4D.410.R.12-C40	U44 34100	41,0	40	50	261	164	193	6,25	SOGX 120408	41004
KUB-P.4D.415.R.12-C40	U44 34150	41,5	40	50	265	166	197	6,25	SOGX 120408	41504
KUB-P.4D.420.R.12-C40	U44 34200	42,0	40	50	265	168	197	6,25	SOGX 120408	42004
KUB-P.4D.425.R.13-C40	U44 34250	42,5	40	50	270	172	202	6,25	SOGX 130508	42504
KUB-P.4D.430.R.13-C40	U44 34300	43,0	40	50	270	172	202	6,25	SOGX 130508	43004
KUB-P.4D.435.R.13-C40	U44 34350	43,5	40	50	274	176	206	6,25	SOGX 130508	43504
KUB-P.4D.440.R.13-C40	U44 34400	44,0	40	50	274	176	206	6,25	SOGX 130508	44004
KUB-P.4D.445.R.13-C40	U44 34450	44,5	40	50	279	180	211	6,25	SOGX 130508	44504
KUB-P.4D.450.R.13-C40	U44 34500	45,0	40	50	279	180	211	6,25	SOGX 130508	45004
KUB-P.4D.455.R.13-C40	U44 34550	45,5	40	50	283	184	215	6,25	SOGX 130508	45504
KUB-P.4D.460.R.13-C40	U44 34600	46,0	40	50	283	184	215	6,25	SOGX 130508	46004


Screwdriver


Key D


Clamping screw

Spare parts DC		80 950 ...		80 950 ...		10 950 ...
14 - 16	T05 - IP	057			M1,8x3,8 - 05IP	10100
16,5 - 18			T06 - IP	123	M2,0x4,3 - 06IP	10000
18,5 - 23			T06 - IP	123	M2,2x5,5 - 06IP	10700
23,5 - 26			T08 - IP	125	M2,5x6,3 - 08IP	10800
26,5 - 30			T08 - IP	125	M3,0x7,6 - 08IP	10200
31 - 37			T15 - IP	128	M3,5x7,5 - 15IP	10300
38 - 46			T20 - IP	129	M4,5x10 - 20IP	10400

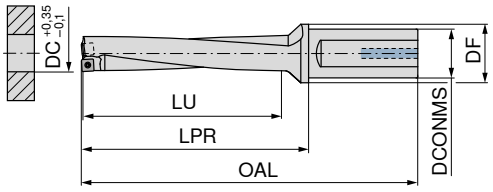
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 5xD

C





10 875 ...

Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	
KUB-P.5D.140.R.04-C20	U45 01400	14,0	20	30	133	70	83	0,38	SOGX 040204	**14001**
KUB-P.5D.145.R.04-C20	U45 01450	14,5	20	30	139	75	89	0,38	SOGX 040204	**14501**
KUB-P.5D.150.R.04-C20	U45 01500	15,0	20	30	139	75	89	0,38	SOGX 040204	**15001**
KUB-P.5D.155.R.04-C20	U45 01550	15,5	20	30	146	80	96	0,38	SOGX 040204	**15501**
KUB-P.5D.160.R.04-C20	U45 01600	16,0	20	30	146	80	96	0,38	SOGX 040204	**16001**
KUB-P.5D.165.R.05-C20	U45 01650	16,5	20	30	152	85	102	0,62	SOGX 050204	**16501**
KUB-P.5D.170.R.05-C20	U45 01700	17,0	20	30	152	85	102	0,62	SOGX 050204	**17001**
KUB-P.5D.175.R.05-C25	U45 11750	17,5	25	30	163	90	107	0,62	SOGX 050204	**17502**
KUB-P.5D.180.R.05-C25	U45 11800	18,0	25	30	163	90	107	0,62	SOGX 050204	**18002**
KUB-P.5D.185.R.06-C25	U45 11850	18,5	25	30	169	95	113	1,01	SOGX 060206	**18502**
KUB-P.5D.190.R.06-C25	U45 11900	19,0	25	30	169	95	113	1,01	SOGX 060206	**19002**
KUB-P.5D.195.R.06-C25	U45 11950	19,5	25	30	174	100	118	1,01	SOGX 060206	**19502**
KUB-P.5D.200.R.06-C25	U45 12000	20,0	25	30	174	100	118	1,01	SOGX 060206	**20002**
KUB-P.5D.205.R.07-C25	U45 12050	20,5	25	30	180	105	124	1,01	SOGX 07T208	**20502**
KUB-P.5D.210.R.07-C25	U45 12100	21,0	25	30	180	105	124	1,01	SOGX 07T208	**21002**
KUB-P.5D.215.R.07-C25	U45 12150	21,5	25	30	185	110	129	1,01	SOGX 07T208	**21502**
KUB-P.5D.220.R.07-C25	U45 12200	22,0	25	30	185	110	129	1,01	SOGX 07T208	**22002**
KUB-P.5D.225.R.07-C25	U45 12250	22,5	25	30	191	115	135	1,01	SOGX 07T208	**22502**
KUB-P.5D.230.R.07-C25	U45 12300	23,0	25	30	191	115	135	1,01	SOGX 07T208	**23002**
KUB-P.5D.235.R.08-C32	U45 22350	23,5	32	39	200	120	140	1,28	SOGX 080308	**23503**
KUB-P.5D.240.R.08-C32	U45 22400	24,0	32	39	200	120	140	1,28	SOGX 080308	**24003**
KUB-P.5D.245.R.08-C32	U45 22450	24,5	32	39	206	125	146	1,28	SOGX 080308	**24503**
KUB-P.5D.250.R.08-C32	U45 22500	25,0	32	39	206	125	146	1,28	SOGX 080308	**25003**
KUB-P.5D.255.R.08-C32	U45 22550	25,5	32	39	211	130	151	1,28	SOGX 080308	**25503**
KUB-P.5D.260.R.08-C32	U45 22600	26,0	32	39	211	130	151	1,28	SOGX 080308	**26003**
KUB-P.5D.265.R.09-C32	U45 22650	26,5	32	39	217	135	157	2,25	SOGX 09T308	**26503**
KUB-P.5D.270.R.09-C32	U45 22700	27,0	32	39	217	135	157	2,25	SOGX 09T308	**27003**
KUB-P.5D.275.R.09-C32	U45 22750	27,5	32	39	222	140	162	2,25	SOGX 09T308	**27503**
KUB-P.5D.280.R.09-C32	U45 22800	28,0	32	39	222	140	162	2,25	SOGX 09T308	**28003**
KUB-P.5D.285.R.09-C32	U45 22850	28,5	32	39	228	145	168	2,25	SOGX 09T308	**28503**
KUB-P.5D.290.R.09-C32	U45 22900	29,0	32	39	228	145	168	2,25	SOGX 09T308	**29003**
KUB-P.5D.295.R.09-C32	U45 22950	29,5	32	39	233	150	173	2,25	SOGX 09T308	**29503**
KUB-P.5D.300.R.09-C32	U45 23000	30,0	32	39	233	150	173	2,25	SOGX 09T308	**30003**
KUB-P.5D.305.R.10-C40	U45 33050	30,5	40	50	247	155	179	2,8	SOGX 100408	**30504**
KUB-P.5D.310.R.10-C40	U45 33100	31,0	40	50	247	155	179	2,8	SOGX 100408	**31004**
KUB-P.5D.315.R.10-C40	U45 33150	31,5	40	50	252	160	184	2,8	SOGX 100408	**31504**
KUB-P.5D.320.R.10-C40	U45 33200	32,0	40	50	252	160	184	2,8	SOGX 100408	**32004**
KUB-P.5D.325.R.10-C40	U45 33250	32,5	40	50	258	165	190	2,8	SOGX 100408	**32504**
KUB-P.5D.330.R.10-C40	U45 33300	33,0	40	50	258	165	190	2,8	SOGX 100408	**33004**
KUB-P.5D.335.R.11-C40	U45 33350	33,5	40	50	263	170	195	2,8	SOGX 110408	**33504**
KUB-P.5D.340.R.11-C40	U45 33400	34,0	40	50	263	170	195	2,8	SOGX 110408	**34004**
KUB-P.5D.345.R.11-C40	U45 33450	34,5	40	50	269	175	201	2,8	SOGX 110408	**34504**
KUB-P.5D.350.R.11-C40	U45 33500	35,0	40	50	269	175	201	2,8	SOGX 110408	**35004**
KUB-P.5D.355.R.11-C40	U45 33550	35,5	40	50	274	180	206	2,8	SOGX 110408	**35504**
KUB-P.5D.360.R.11-C40	U45 33600	36,0	40	50	274	180	206	2,8	SOGX 110408	**36004**
KUB-P.5D.365.R.11-C40	U45 33650	36,5	40	50	280	185	212	2,8	SOGX 110408	**36504**

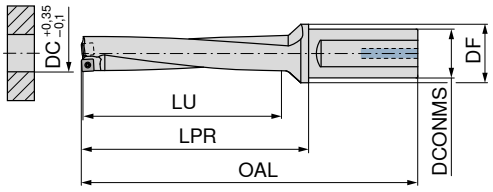
Continued on next page

KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 5xD

C





Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 875 ...
KUB-P.5D.370.R.11-C40	U45 33700	37,0	40	50	280	185	212	2,8	SOGX 110408	37004
KUB-P.5D.375.R.12-C40	U45 33750	37,5	40	50	285	190	217	6,25	SOGX 120408	37504
KUB-P.5D.380.R.12-C40	U45 33800	38,0	40	50	285	190	217	6,25	SOGX 120408	38004
KUB-P.5D.385.R.12-C40	U45 33850	38,5	40	50	291	195	223	6,25	SOGX 120408	38504
KUB-P.5D.390.R.12-C40	U45 33900	39,0	40	50	291	195	223	6,25	SOGX 120408	39004
KUB-P.5D.395.R.12-C40	U45 33950	39,5	40	50	296	200	228	6,25	SOGX 120408	39504
KUB-P.5D.400.R.12-C40	U45 34000	40,0	40	50	296	200	228	6,25	SOGX 120408	40004
KUB-P.5D.405.R.12-C40	U45 34050	40,5	40	50	302	205	234	6,25	SOGX 120408	40504
KUB-P.5D.410.R.12-C40	U45 34100	41,0	40	50	302	205	234	6,25	SOGX 120408	41004
KUB-P.5D.415.R.12-C40	U45 34150	41,5	40	50	307	210	239	6,25	SOGX 120408	41504
KUB-P.5D.420.R.12-C40	U45 34200	42,0	40	50	307	210	239	6,25	SOGX 120408	42004
KUB-P.5D.425.R.13-C40	U45 34250	42,5	40	50	313	215	245	6,25	SOGX 130508	42504
KUB-P.5D.430.R.13-C40	U45 34300	43,0	40	50	313	215	245	6,25	SOGX 130508	43004
KUB-P.5D.435.R.13-C40	U45 34350	43,5	40	50	318	220	250	6,25	SOGX 130508	43504
KUB-P.5D.440.R.13-C40	U45 34400	44,0	40	50	318	220	250	6,25	SOGX 130508	44004
KUB-P.5D.445.R.13-C40	U45 34450	44,5	40	50	324	225	256	6,25	SOGX 130508	44504
KUB-P.5D.450.R.13-C40	U45 34500	45,0	40	50	324	225	256	6,25	SOGX 130508	45004
KUB-P.5D.455.R.13-C40	U45 34550	45,5	40	50	329	230	261	6,25	SOGX 130508	45504
KUB-P.5D.460.R.13-C40	U45 34600	46,0	40	50	329	230	261	6,25	SOGX 130508	46004


Screwdriver


Key D


Clamping screw

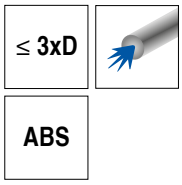
Spare parts DC		80 950 ...		80 950 ...		10 950 ...	
14 - 16	T05 - IP	057			M1,8x3,8 - 05IP	10100
16,5 - 18			T06 - IP	123	M2,0x4,3 - 06IP	10000
18,5 - 23			T06 - IP	123	M2,2x5,5 - 06IP	10700
23,5 - 26			T08 - IP	125	M2,5x6,3 - 08IP	10800
26,5 - 30			T08 - IP	125	M3,0x7,6 - 08IP	10200
31 - 37			T15 - IP	128	M3,5x7,5 - 15IP	10300
38 - 46			T20 - IP	129	M4,5x10 - 20IP	10400

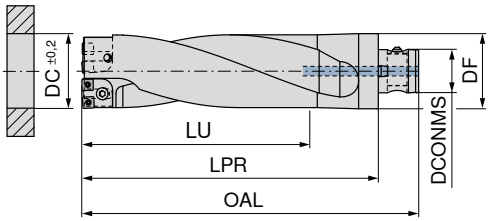
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

KUB Pentron CS – basic element

▲ SZID = nominal size
▲ Tightening torque refers to the fixing screw

Scope of supply:
Cartridge drill incl. fixing screws





NEW



Designation	KOMET no.	DC mm	DF mm	OAL mm	DCONMS mm	LU mm	LPR mm	SZID	torque moment Nm	10 876 ...
KUB-P.GH-CS.1.3D.64-66.ABS80	U60 46400	64 - 66	80	314	46	198	271	1	17,3	64092
KUB-P.GH-CS.1.3D.67-69.ABS80	U60 46700	67 - 69	80	323	46	207	280	1	17,3	67092
KUB-P.GH-CS.2.3D.70-72.ABS80	U60 47000	70 - 72	80	332	46	216	289	2	17,3	70092
KUB-P.GH-CS.2.3D.73-75.ABS80	U60 47300	73 - 75	80	341	46	225	298	2	17,3	73092
KUB-P.GH-CS.3.3D.76-78.ABS80	U60 47600	76 - 78	80	350	46	234	307	3	42	76092
KUB-P.GH-CS.3.3D.79-81.ABS80	U60 47900	79 - 81	80	359	46	243	316	3	42	79092
KUB-P.GH-CS.3.3D.82-84.ABS80	U60 48200	82 - 84	80	368	46	252	325	3	42	82092
KUB-P.GH-CS.4.3D.85-87.ABS100	U60 58500	85 - 87	100	397	56	261	342	4	42	85091
KUB-P.GH-CS.4.3D.88-90.ABS100	U60 58800	88 - 90	100	406	56	270	351	4	42	88091
KUB-P.GH-CS.4.3D.91-93.ABS100	U60 59100	91 - 93	100	415	56	279	360	4	42	91091
KUB-P.GH-CS.4.3D.94-96.ABS100	U60 59400	94 - 96	100	424	56	288	369	4	42	94091


Clamping key - T


Fixing screw

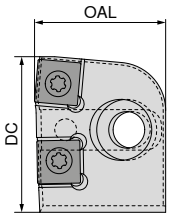
Spare parts DC	80 397 ...	10 950 ...
64 - 66	050	16700
67 - 69	050	16700
70 - 72	050	16700
73 - 75	050	16700
76 - 78	060	16800
79 - 81	060	16800
82 - 84	060	16800
85 - 87	060	16900
88 - 90	060	16900
91 - 93	060	16900
94 - 96	060	16900

KUB Pentron CS – internal cartridge

▲ SZID = nominal size
▲ Tightening torque refers to the clamping screw of the indexable inserts

Scope of supply:
Internal cartridge incl. clamping screws

NEW





DC mm	KOMET no.	OAL mm	SZID	HF mm	torque moment Nm	Insert	10 877 ...
64 - 69	D60 06400	28	1	9	2,8	SOGX 100408	**16400**
70 - 75	D60 07000	30	2	10	2,8	SOGX 110408	**27000**
76 - 84	D60 07600	33	3	11	6,25	SOGX 120408	**37600**
85 - 96	D60 08500	36	4	12	6,25	SOGX 130508	**48500**


Key D
80 950 ...


Clamping screw
10 950 ...

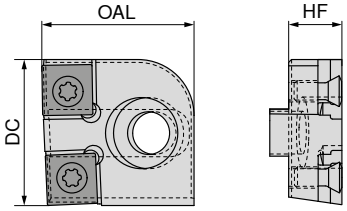
Spare parts DC		
64 - 69	**128**	**10300**
70 - 75	**128**	**10300**
76 - 84	**129**	**10400**
85 - 96	**129**	**10400**

The internal cartridge and the place where the internal cartridge sits in the base body are marked with a dot to prevent the internal and external cartridges from being incorrectly installed.

KUB Pentron CS – external cartridge

▲ SZID = nominal size
▲ Tightening torque refers to the clamping screw of the indexable inserts

Scope of supply:
External cartridge incl. clamping screws



NEW



DC mm	KOMET no.	OAL mm	SZID	HF mm	torque moment Nm	Insert	10 878 ...
64	D60 16400	27,8	1	9	2,8	SOGX 100408	16400
65	D60 16500	27,8	1	9	2,8	SOGX 100408	16500
66	D60 16600	27,8	1	9	2,8	SOGX 100408	16600
67	D60 16700	27,8	1	9	2,8	SOGX 100408	16700
68	D60 16800	27,8	1	9	2,8	SOGX 100408	16800
69	D60 16900	27,8	1	9	2,8	SOGX 100408	16900
70	D60 17000	29,8	2	10	2,8	SOGX 110408	27000
71	D60 17100	29,8	2	10	2,8	SOGX 110408	27100
72	D60 17200	29,8	2	10	2,8	SOGX 110408	27200
73	D60 17300	29,8	2	10	2,8	SOGX 110408	27300
74	D60 17400	29,8	2	10	2,8	SOGX 110408	27400
75	D60 17500	29,8	2	10	2,8	SOGX 110408	27500
76	D60 17600	32,8	3	11	6,25	SOGX 120408	37600
77	D60 17700	32,8	3	11	6,25	SOGX 120408	37700
78	D60 17800	32,8	3	11	6,25	SOGX 120408	37800
79	D60 17900	32,8	3	11	6,25	SOGX 120408	37900
80	D60 18000	32,8	3	11	6,25	SOGX 120408	38000
81	D60 18100	32,8	3	11	6,25	SOGX 120408	38100
82	D60 18200	32,8	3	11	6,25	SOGX 120408	38200
83	D60 18300	32,8	3	11	6,25	SOGX 120408	38300
84	D60 18400	32,8	3	11	6,25	SOGX 120408	38400
85	D60 18500	35,8	4	12	6,25	SOGX 130508	48500
86	D60 18600	35,8	4	12	6,25	SOGX 130508	48600
87	D60 18700	35,8	4	12	6,25	SOGX 130508	48700
88	D60 18800	35,8	4	12	6,25	SOGX 130508	48800
89	D60 18900	35,8	4	12	6,25	SOGX 130508	48900
90	D60 19000	35,8	4	12	6,25	SOGX 130508	49000
91	D60 19100	35,8	4	12	6,25	SOGX 130508	49100
92	D60 19200	35,8	4	12	6,25	SOGX 130508	49200
93	D60 19300	35,8	4	12	6,25	SOGX 130508	49300
94	D60 19400	35,8	4	12	6,25	SOGX 130508	49400
95	D60 19500	35,8	4	12	6,25	SOGX 130508	49500
96	D60 19600	35,8	4	12	6,25	SOGX 130508	49600



Key D

80 950 ...



Clamping screw

10 950 ...

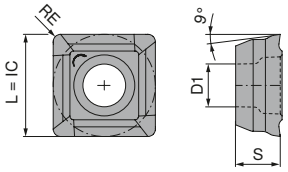
Spare parts

DC		
64 - 75	128	10300
76 - 96	129	10400

Intermediate dimensions available on request.

SOGX

Designation	L mm	IC mm	D1 mm	S mm
SOGX 0402..	4,8	4,8	2,05	2,20
SOGX 0502..	5,5	5,5	2,30	2,40
SOGX 0602..	6,2	6,2	2,60	2,75
SOGX 07T2..	7,1	7,1	2,60	2,97
SOGX 0803..	8,0	8,0	2,85	3,40
SOGX 09T3..	8,9	8,9	3,40	3,90
SOGX 1004..	9,8	9,8	4,10	4,20
SOGX 1104..	10,9	10,9	4,10	4,50
SOGX 1204..	12,0	12,0	5,20	4,80
SOGX 1305..	13,2	13,2	5,20	5,20



3

SOGX

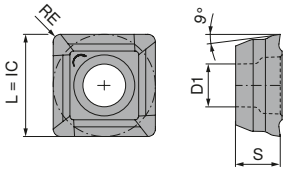
ISO	KOMET no.	RE mm	-01 BK8425	-03 BK8430	NEW -13 BK8425	NEW -32 BK8425	NEW -34 BK8425
			 SOGX	 SOGX	 SOGX	 SOGX	 SOGX
			10 820 ...	10 820 ...	10 820 ...	10 820 ...	10 820 ...
040204	W80 10010.048425	0,4	30401				
040204	W80 10030.048430	0,4		00403			
040204	W80 10130.048425	0,4			30413		
040204	W80 10320.048425	0,4				30432	
040204	W80 10340.048425	0,4					30434
050204	W80 12010.048425	0,4	30501				
050204	W80 12030.048430	0,4		00503			
050204	W80 12130.048425	0,4			30513		
050204	W80 12320.048425	0,4				30532	
050204	W80 12340.048425	0,4					30534
060206	W80 18010.068425	0,6	30601				
060206	W80 18030.068430	0,6		00603			
060206	W80 18130.068425	0,6			30613		
060206	W80 18320.068425	0,6				30632	
060206	W80 18340.068425	0,6					30634
07T208	W80 20010.088425	0,8	30701				
07T208	W80 20030.088430	0,8		00703			
07T208	W80 20130.088425	0,8			30713		
07T208	W80 20320.088425	0,8				30732	
07T208	W80 20340.088425	0,8					30734
080308	W80 24010.088425	0,8	30801				
080308	W80 24030.088430	0,8		00803			
080308	W80 24130.088425	0,8			30813		
080308	W80 24320.088425	0,8				30832	
080308	W80 24340.088425	0,8					30834
09T308	W80 28010.088425	0,8	30901				
09T308	W80 28030.088430	0,8		00903			
09T308	W80 28130.088425	0,8			30913		
09T308	W80 28320.088425	0,8				30932	
09T308	W80 28340.088425	0,8					30934
100408	W80 32010.088425	0,8	31001				
100408	W80 32030.088430	0,8		01003			
100408	W80 32130.088425	0,8			31013		
100408	W80 32320.088425	0,8				31032	
100408	W80 32340.088425	0,8					31034
110408	W80 38010.088425	0,8	31101				
110408	W80 38030.088430	0,8		01103			
110408	W80 38130.088425	0,8			31113		
110408	W80 38320.088425	0,8				31132	
110408	W80 38340.088425	0,8					31134
120408	W80 42010.088425	0,8	31201				
120408	W80 42030.088430	0,8		01203			
120408	W80 42130.088425	0,8			31213		
120408	W80 42320.088425	0,8				31232	
120408	W80 42340.088425	0,8					31234
130508	W80 46010.088425	0,8	31301				
130508	W80 46030.088430	0,8		01303			
130508	W80 46130.088425	0,8			31313		
130508	W80 46320.088425	0,8				31332	
130508	W80 46340.088425	0,8					31334
P			●	●	●	●	○
M			●	●	●	●	
K			●	●	●	●	●
N			○	○	○	○	
S			●	●	●	●	
H			○	○	○	○	
O							

→ v_c/f_z Page 59–63

The feed values of the insert BK8425 -34 can be found in the online shop or printed in UP2DATE July 2021.

SOGX

Designation	L mm	IC mm	D1 mm	S mm
SOGX 0402..	4,8	4,8	2,05	2,20
SOGX 0502..	5,5	5,5	2,30	2,40
SOGX 0602..	6,2	6,2	2,60	2,75
SOGX 07T2..	7,1	7,1	2,60	2,97
SOGX 0803..	8,0	8,0	2,85	3,40
SOGX 09T3..	8,9	8,9	3,40	3,90
SOGX 1004..	9,8	9,8	4,10	4,20
SOGX 1104..	10,9	10,9	4,10	4,50
SOGX 1204..	12,0	12,0	5,20	4,80
SOGX 1305..	13,2	13,2	5,20	5,20



SOGX

ISO	KOMET no.	RE mm	-01 BK7935	-01 BK6115	-01 BK6425	-01 BK7710
			 SOGX 10 820 ...	 SOGX 10 820 ...	 SOGX 10 820 ...	 SOGX 10 820 ...
040204	W80 10010.046115	0,4		40401		
040204	W80 10010.046425	0,4			60401	
040204	W80 10010.047710	0,4				90401
040204	W80 10010.047935	0,4	50401			
050204	W80 12010.046115	0,4		40501		
050204	W80 12010.046425	0,4			60501	
050204	W80 12010.047710	0,4				90501
050204	W80 12010.047935	0,4	50501			
060206	W80 18010.066115	0,6		40601		
060206	W80 18010.066425	0,6			60601	
060206	W80 18010.067710	0,6				90601
060206	W80 18010.067935	0,6	50601			
07T208	W80 20010.086115	0,8		40701		
07T208	W80 20010.086425	0,8			60701	
07T208	W80 20010.087710	0,8				90701
07T208	W80 20010.087935	0,8	50701			
080308	W80 24010.086115	0,8		40801		
080308	W80 24010.086425	0,8			60801	
080308	W80 24010.087710	0,8				90801
080308	W80 24010.087935	0,8	50801			
09T308	W80 28010.086115	0,8		40901		
09T308	W80 28010.086425	0,8			60901	
09T308	W80 28010.087710	0,8				90901
09T308	W80 28010.087935	0,8	50901			
100408	W80 32010.086115	0,8		41001		
100408	W80 32010.086425	0,8			61001	
100408	W80 32010.087710	0,8				91001
100408	W80 32010.087935	0,8	51001			
110408	W80 38010.086115	0,8		41101		
110408	W80 38010.086425	0,8			61101	
110408	W80 38010.087710	0,8				91101
110408	W80 38010.087935	0,8	51101			
120408	W80 42010.086115	0,8		41201		
120408	W80 42010.086425	0,8			61201	
120408	W80 42010.087710	0,8				91201
120408	W80 42010.087935	0,8	51201			
130508	W80 46010.086115	0,8		41301		
130508	W80 46010.086425	0,8			61301	
130508	W80 46010.087710	0,8				91301
130508	W80 46010.087935	0,8	51301			
P			●	●	●	
M			●	●	●	
K			●	●	●	
N			○			●
S			●			○
H				○		
O			○			○

→ v_c/f_z Page 59–63

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

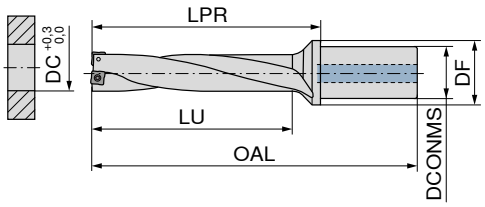
MaxiDrill 900 – Indexable insert drill

Scope of supply:
Indexable Insert Drill including clamping screws and key

≤ 2xD



C





3

10 852 ...

Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	
MD900.2D.120.R.03-C20	12,0	20	28	90	24	40	0,4	SONT 031804	120
MD900.2D.125.R.03-C20	12,5	20	28	91	25	41	0,4	SONT 031804	125
MD900.2D.130.R.03-C20	13,0	20	28	92	26	42	0,4	SONT 031804	130
MD900.2D.135.R.03-C20	13,5	20	28	93	27	43	0,4	SONT 031804	135
MD900.2D.140.R.04-C20	14,0	20	30	96	28	46	0,7	SONT 042105	140
MD900.2D.145.R.04-C20	14,5	20	30	97	29	47	0,7	SONT 042105	145
MD900.2D.150.R.04-C20	15,0	20	30	98	30	48	0,7	SONT 042105	150
MD900.2D.155.R.04-C20	15,5	20	30	99	31	49	0,7	SONT 042105	155
MD900.2D.160.R.05-C20	16,0	20	30	100	32	50	0,7	SONT 052306	160
MD900.2D.165.R.05-C20	16,5	20	30	101	33	51	0,7	SONT 052306	165
MD900.2D.170.R.05-C20	17,0	20	30	102	34	52	0,7	SONT 052306	170
MD900.2D.175.R.05-C20	17,5	20	30	103	35	53	0,7	SONT 052306	175
MD900.2D.180.R.06-C25	18,0	25	32	111	36	55	1	SONT 062506	180
MD900.2D.185.R.06-C25	18,5	25	32	112	37	56	1	SONT 062506	185
MD900.2D.190.R.06-C25	19,0	25	32	113	38	57	1	SONT 062506	190
MD900.2D.195.R.06-C25	19,5	25	32	114	39	58	1	SONT 062506	195
MD900.2D.200.R.06-C25	20,0	25	32	115	40	59	1	SONT 062506	200
MD900.2D.205.R.06-C25	20,5	25	32	116	41	60	1	SONT 062506	205
MD900.2D.210.R.07-C25	21,0	25	32	118	42	62	1	SONT 072907	210
MD900.2D.220.R.07-C25	22,0	25	32	120	44	64	1	SONT 072907	220
MD900.2D.230.R.07-C25	23,0	25	32	122	46	66	1	SONT 072907	230
MD900.2D.240.R.08-C32	24,0	32	40	132	48	72	1,2	SONT 083308	240
MD900.2D.250.R.08-C32	25,0	32	40	134	50	74	1,2	SONT 083308	250
MD900.2D.260.R.08-C32	26,0	32	40	136	52	76	1,2	SONT 083308	260
MD900.2D.270.R.08-C32	27,0	32	40	138	54	78	1,2	SONT 083308	270
MD900.2D.280.R.09-C32	28,0	32	40	140	56	80	2,2	SONT 093808	280
MD900.2D.290.R.09-C32	29,0	32	40	142	58	82	2,2	SONT 093808	290
MD900.2D.300.R.09-C32	30,0	32	40	144	60	84	2,2	SONT 093808	300
MD900.2D.310.R.09-C32	31,0	32	40	146	62	86	2,2	SONT 093808	310
MD900.2D.320.R.09-C32	32,0	32	40	148	64	88	2,2	SONT 093808	320
MD900.2D.330.R.10-C40	33,0	40	50	163	66	93	3,2	SONT 104408	330
MD900.2D.340.R.10-C40	34,0	40	50	165	68	95	3,2	SONT 104408	340
MD900.2D.350.R.10-C40	35,0	40	50	167	70	97	3,2	SONT 104408	350
MD900.2D.360.R.10-C40	36,0	40	50	169	72	99	3,2	SONT 104408	360
MD900.2D.370.R.12-C40	37,0	40	56	174	74	104	3,2	SONT 124810	370
MD900.2D.380.R.12-C40	38,0	40	56	176	76	106	3,2	SONT 124810	380
MD900.2D.390.R.12-C40	39,0	40	56	178	78	108	3,2	SONT 124810	390
MD900.2D.400.R.12-C40	40,0	40	56	180	80	110	3,2	SONT 124810	400
MD900.2D.410.R.12-C40	41,0	40	56	182	82	112	3,2	SONT 124810	410
MD900.2D.420.R.13-C40	42,0	40	60	187	84	117	5	SONT 135012	420
MD900.2D.430.R.13-C40	43,0	40	60	189	86	119	5	SONT 135012	430

Continued on next page

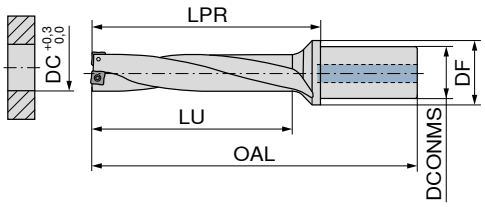
MaxiDrill 900 – Indexable insert drill

Scope of supply:
Indexable Insert Drill including clamping screws and key

≤ 2xD



C





Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 852 ...
MD900.2D.440.R.13-C40	44,0	40	60	191	88	121	5	SONT 135012	440
MD900.2D.450.R.13-C40	45,0	40	60	193	90	123	5	SONT 135012	450
MD900.2D.460.R.13-C40	46,0	40	60	195	92	125	5	SONT 135012	460
MD900.2D.470.R.15-C40	47,0	40	60	198	94	128	5	SONT 155312	470
MD900.2D.480.R.15-C40	48,0	40	60	200	96	130	5	SONT 155312	480
MD900.2D.490.R.15-C40	49,0	40	60	202	98	132	5	SONT 155312	490
MD900.2D.500.R.15-C40	50,0	40	60	204	100	134	5	SONT 155312	500
MD900.2D.520.R.15-C40	51,0	40	60	206	102	136	5	SONT 155312	510
MD900.2D.510.R.15-C40	52,0	40	60	208	104	138	5	SONT 155312	520
MD900.2D.530.R.15-C40	53,0	40	60	210	106	140	5	SONT 155312	530
MD900.2D.540.R.15-C40	54,0	40	60	212	108	142	5	SONT 155312	540
MD900.2D.550.R.17-C40	55,0	40	60	215	110	145	5	SONT 175612	550
MD900.2D.560.R.17-C40	56,0	40	60	217	112	147	5	SONT 175612	560
MD900.2D.570.R.17-C40	57,0	40	60	219	114	149	5	SONT 175612	570
MD900.2D.580.R.17-C40	58,0	40	60	221	116	151	5	SONT 175612	580
MD900.2D.590.R.17-C40	59,0	40	60	223	118	153	5	SONT 175612	590
MD900.2D.600.R.17-C40	60,0	40	62	225	120	155	5	SONT 175612	600
MD900.2D.610.R.17-C40	61,0	40	62	227	122	157	5	SONT 175612	610
MD900.2D.620.R.17-C40	62,0	40	64	229	124	159	5	SONT 175612	620
MD900.2D.630.R.17-C40	63,0	40	64	231	126	161	5	SONT 175612	630


Key D


Clamping screw

Spare parts DC		80 950 ...		70 950 ...
12 - 13,5	T06 - IP	123	M1,8x3,6 - IP	862
14 - 17,5	T06 - IP	123	M2x4,3 - IP	863
18 - 23	T07 - IP	124	M2,2x5 - IP	856
24 - 27	T08 - IP	125	M2,5x6 - IP	857
28 - 32	T09 - IP	126	M3x7 - IP	819
33 - 41	T15 - IP	128	M3,5x8,6 - IP	859
42 - 63	T20 - IP	129	M4,5x10,5 - IP	864

Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

MaxiDrill 900 – Indexable insert drill

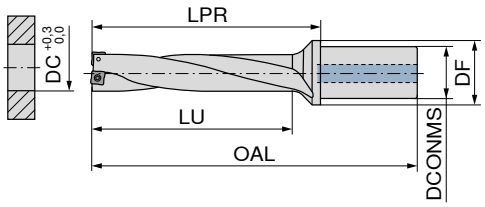
Scope of supply:

Indexable Insert Drill including clamping screws and key

≤ 3xD



C





3

10 853 ...

Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	
MD900.3D.120.R.03-C20	12,0	20	28	102	36,0	52	0,4	SONT 031804	120
MD900.3D.125.R.03-C20	12,5	20	28	104	37,5	54	0,4	SONT 031804	125
MD900.3D.130.R.03-C20	13,0	20	28	105	39,0	55	0,4	SONT 031804	130
MD900.3D.135.R.03-C20	13,5	20	28	107	40,5	57	0,4	SONT 031804	135
MD900.3D.140.R.04-C20	14,0	20	30	109	42,0	59	0,7	SONT 042105	140
MD900.3D.145.R.04-C20	14,5	20	30	111	44,0	61	0,7	SONT 042105	145
MD900.3D.150.R.04-C20	15,0	20	30	112	45,0	62	0,7	SONT 042105	150
MD900.3D.155.R.04-C20	15,5	20	30	114	47,0	64	0,7	SONT 042105	155
MD900.3D.160.R.05-C20	16,0	20	30	115	48,0	65	0,7	SONT 052306	160
MD900.3D.165.R.05-C20	16,5	20	30	117	50,0	67	0,7	SONT 052306	165
MD900.3D.170.R.05-C20	17,0	20	30	118	51,0	68	0,7	SONT 052306	170
MD900.3D.175.R.05-C20	17,5	20	30	120	53,0	70	0,7	SONT 052306	175
MD900.3D.180.R.06-C25	18,0	25	32	128	54,0	72	1	SONT 062506	180
MD900.3D.185.R.06-C25	18,5	25	32	130	56,0	74	1	SONT 062506	185
MD900.3D.190.R.06-C25	19,0	25	32	131	57,0	75	1	SONT 062506	190
MD900.3D.195.R.06-C25	19,5	25	32	133	59,0	77	1	SONT 062506	195
MD900.3D.200.R.06-C25	20,0	25	32	134	60,0	78	1	SONT 062506	200
MD900.3D.205.R.06-C25	20,5	25	32	136	62,0	80	1	SONT 062506	205
MD900.3D.210.R.07-C25	21,0	25	32	138	63,0	82	1	SONT 072907	210
MD900.3D.215.R.07-C25	21,5	25	32	140	65,0	84	1	SONT 072907	215
MD900.3D.220.R.07-C25	22,0	25	32	141	66,0	85	1	SONT 072907	220
MD900.3D.225.R.07-C25	22,5	25	32	143	68,0	87	1	SONT 072907	225
MD900.3D.230.R.07-C25	23,0	25	32	144	69,0	88	1	SONT 072907	230
MD900.3D.235.R.07-C25	23,5	25	32	146	71,0	90	1	SONT 072907	235
MD900.3D.240.R.08-C32	24,0	32	40	155	72,0	95	1,2	SONT 083308	240
MD900.3D.245.R.08-C32	24,5	32	40	157	74,0	97	1,2	SONT 083308	245
MD900.3D.250.R.08-C32	25,0	32	40	158	75,0	98	1,2	SONT 083308	250
MD900.3D.255.R.08-C32	25,5	32	40	160	77,0	100	1,2	SONT 083308	255
MD900.3D.260.R.08-C32	26,0	32	40	161	78,0	101	1,2	SONT 083308	260
MD900.3D.265.R.08-C32	26,5	32	40	163	80,0	103	1,2	SONT 083308	265
MD900.3D.270.R.08-C32	27,0	32	40	164	81,0	104	1,2	SONT 083308	270
MD900.3D.275.R.08-C32	27,5	32	40	166	83,0	106	1,2	SONT 083308	275
MD900.3D.280.R.09-C32	28,0	32	40	167	84,0	107	2,2	SONT 093808	280
MD900.3D.285.R.09-C32	28,5	32	40	169	86,0	109	2,2	SONT 093808	285
MD900.3D.290.R.09-C32	29,0	32	40	170	87,0	110	2,2	SONT 093808	290
MD900.3D.295.R.09-C32	29,5	32	40	172	89,0	112	2,2	SONT 093808	295
MD900.3D.300.R.09-C32	30,0	32	40	173	90,0	113	2,2	SONT 093808	300
MD900.3D.305.R.09-C32	30,5	32	40	175	92,0	115	2,2	SONT 093808	305
MD900.3D.310.R.09-C32	31,0	32	40	176	93,0	116	2,2	SONT 093808	310
MD900.3D.315.R.09-C32	31,5	32	40	178	95,0	118	2,2	SONT 093808	315
MD900.3D.320.R.09-C32	32,0	32	40	179	96,0	119	2,2	SONT 093808	320
MD900.3D.325.R.10-C40	32,5	40	50	192	98,0	124	3,2	SONT 104408	325
MD900.3D.330.R.10-C40	33,0	40	50	193	99,0	125	3,2	SONT 104408	330
MD900.3D.335.R.10-C40	33,5	40	50	195	101,0	127	3,2	SONT 104408	335
MD900.3D.340.R.10-C40	34,0	40	50	196	102,0	128	3,2	SONT 104408	340
MD900.3D.345.R.10-C40	34,5	40	50	198	104,0	130	3,2	SONT 104408	345
MD900.3D.350.R.10-C40	35,0	40	50	199	105,0	131	3,2	SONT 104408	350
MD900.3D.355.R.10-C40	35,5	40	50	201	107,0	133	3,2	SONT 104408	355
MD900.3D.360.R.10-C40	36,0	40	50	202	108,0	134	3,2	SONT 104408	360
MD900.3D.365.R.10-C40	36,5	40	50	204	110,0	136	3,2	SONT 104408	365

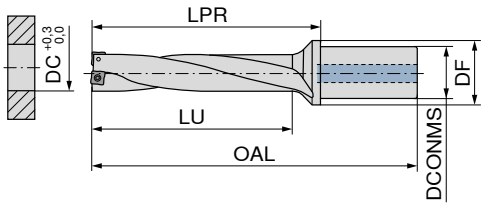
Continued on next page

MaxiDrill 900 – Indexable insert drill

Scope of supply:
Indexable Insert Drill including clamping screws and key

≤ 3xD

C





10 853 ...

Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	
MD900.3D.370.R.12-C40	37,0	40	56	211	111,0	141	3,2	SONT 124810	**370**
MD900.3D.380.R.12-C40	38,0	40	56	214	114,0	144	3,2	SONT 124810	**380**
MD900.3D.390.R.12-C40	39,0	40	56	217	117,0	147	3,2	SONT 124810	**390**
MD900.3D.400.R.12-C40	40,0	40	56	220	120,0	150	3,2	SONT 124810	**400**
MD900.3D.410.R.12-C40	41,0	40	56	223	123,0	153	3,2	SONT 124810	**410**
MD900.3D.420.R.13-C40	42,0	40	60	229	126,0	159	5	SONT 135012	**420**
MD900.3D.430.R.13-C40	43,0	40	60	232	129,0	162	5	SONT 135012	**430**
MD900.3D.440.R.13-C40	44,0	40	60	235	132,0	165	5	SONT 135012	**440**
MD900.3D.450.R.13-C40	45,0	40	60	238	135,0	168	5	SONT 135012	**450**
MD900.3D.460.R.13-C40	46,0	40	60	241	138,0	171	5	SONT 135012	**460**
MD900.3D.470.R.15-C40	47,0	40	60	245	141,0	175	5	SONT 155312	**470**
MD900.3D.480.R.15-C40	48,0	40	60	248	144,0	178	5	SONT 155312	**480**
MD900.3D.490.R.15-C40	49,0	40	60	251	147,0	181	5	SONT 155312	**490**
MD900.3D.500.R.15-C40	50,0	40	60	254	150,0	184	5	SONT 155312	**500**
MD900.3D.510.R.15-C40	51,0	40	60	257	153,0	187	5	SONT 155312	**510**
MD900.3D.520.R.15-C40	52,0	40	60	260	156,0	190	5	SONT 155312	**520**
MD900.3D.530.R.15-C40	53,0	40	60	263	159,0	193	5	SONT 155312	**530**
MD900.3D.540.R.15-C40	54,0	40	60	266	162,0	196	5	SONT 155312	**540**
MD900.3D.550.R.17-C40	55,0	40	60	270	165,0	200	5	SONT 175612	**550**
MD900.3D.560.R.17-C40	56,0	40	60	273	168,0	203	5	SONT 175612	**560**
MD900.3D.570.R.17-C40	57,0	40	60	276	171,0	206	5	SONT 175612	**570**
MD900.3D.580.R.17-C40	58,0	40	60	279	174,0	209	5	SONT 175612	**580**
MD900.3D.590.R.17-C40	59,0	40	60	282	177,0	212	5	SONT 175612	**590**
MD900.3D.600.R.17-C40	60,0	40	62	285	180,0	215	5	SONT 175612	**600**
MD900.3D.610.R.17-C40	61,0	40	62	288	183,0	218	5	SONT 175612	**610**
MD900.3D.620.R.17-C40	62,0	40	64	291	186,0	221	5	SONT 175612	**620**
MD900.3D.630.R.17-C40	63,0	40	64	294	189,0	224	5	SONT 175612	**630**


Key D


Clamping screw

Spare parts DC		**80 950 ...**		**70 950 ...**
12 - 13,5	T06 - IP	**123**	M1,8x3,6 - IP	**862**
14 - 17,5	T06 - IP	**123**	M2x4,3 - IP	**863**
18 - 23,5	T07 - IP	**124**	M2,2x5 - IP	**856**
24 - 27,5	T08 - IP	**125**	M2,5x6 - IP	**857**
28 - 32	T09 - IP	**126**	M3x7 - IP	**819**
32,5 - 41	T15 - IP	**128**	M3,5x8,6 - IP	**859**
42 - 63	T20 - IP	**129**	M4,5x10,5 - IP	**864**

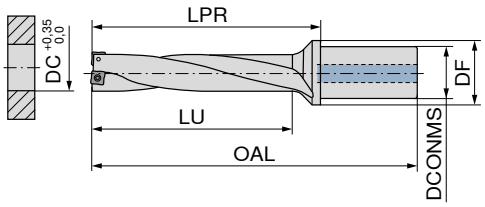
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

MaxiDrill 900 – Indexable insert drill

Scope of supply:
Indexable Insert Drill including clamping screws and key

≤ 4xD

C





3

10 854 ...

Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	
MD900.4D.120.R.03-C20	12,0	20	28	114	48	64	0,4	SONT 031804	120
MD900.4D.125.R.03-C20	12,5	20	28	116	50	66	0,4	SONT 031804	125
MD900.4D.130.R.03-C20	13,0	20	28	118	52	68	0,4	SONT 031804	130
MD900.4D.135.R.03-C20	13,5	20	28	120	54	70	0,4	SONT 031804	135
MD900.4D.140.R.04-C20	14,0	20	30	123	56	73	0,7	SONT 042105	140
MD900.4D.145.R.04-C20	14,5	20	30	125	58	75	0,7	SONT 042105	145
MD900.4D.150.R.04-C20	15,0	20	30	127	60	77	0,7	SONT 042105	150
MD900.4D.155.R.04-C20	15,5	20	30	129	62	79	0,7	SONT 042105	155
MD900.4D.160.R.05-C20	16,0	20	30	131	64	81	0,7	SONT 052306	160
MD900.4D.165.R.05-C20	16,5	20	30	133	66	83	0,7	SONT 052306	165
MD900.4D.170.R.05-C20	17,0	20	30	135	68	85	0,7	SONT 052306	170
MD900.4D.175.R.05-C20	17,5	20	30	137	70	87	0,7	SONT 052306	175
MD900.4D.180.R.06-C25	18,0	25	32	146	72	90	1	SONT 062506	180
MD900.4D.185.R.06-C25	18,5	25	32	148	74	92	1	SONT 062506	185
MD900.4D.190.R.06-C25	19,0	25	32	150	76	94	1	SONT 062506	190
MD900.4D.195.R.06-C25	19,5	25	32	152	78	96	1	SONT 062506	195
MD900.4D.200.R.06-C25	20,0	25	32	154	80	98	1	SONT 062506	200
MD900.4D.205.R.06-C25	20,5	25	32	156	82	100	1	SONT 062506	205
MD900.4D.210.R.07-C25	21,0	25	32	159	84	103	1	SONT 072907	210
MD900.4D.220.R.07-C25	22,0	25	32	163	88	107	1	SONT 072907	220
MD900.4D.230.R.07-C25	23,0	25	32	167	92	111	1	SONT 072907	230
MD900.4D.240.R.08-C32	24,0	32	40	179	96	119	1,2	SONT 083308	240
MD900.4D.250.R.08-C32	25,0	32	40	183	100	123	1,2	SONT 083308	250
MD900.4D.260.R.08-C32	26,0	32	40	187	104	127	1,2	SONT 083308	260
MD900.4D.270.R.08-C32	27,0	32	40	191	108	131	1,2	SONT 083308	270
MD900.4D.280.R.09-C32	28,0	32	40	195	112	135	2,2	SONT 093808	280
MD900.4D.290.R.09-C32	29,0	32	40	199	116	139	2,2	SONT 093808	290
MD900.4D.300.R.09-C32	30,0	32	40	203	120	143	2,2	SONT 093808	300
MD900.4D.310.R.09-C32	31,0	32	40	207	124	147	2,2	SONT 093808	310
MD900.4D.320.R.09-C32	32,0	32	40	211	128	151	2,2	SONT 093808	320
MD900.4D.330.R.10-C40	33,0	40	50	228	132	158	3,2	SONT 104408	330
MD900.4D.340.R.10-C40	34,0	40	50	232	136	162	3,2	SONT 104408	340
MD900.4D.350.R.10-C40	35,0	40	50	236	140	166	3,2	SONT 104408	350
MD900.4D.360.R.10-C40	36,0	40	50	240	144	170	3,2	SONT 104408	360
MD900.4D.370.R.12-C40	37,0	40	56	248	148	178	3,2	SONT 124810	370
MD900.4D.380.R.12-C40	38,0	40	56	252	152	182	3,2	SONT 124810	380
MD900.4D.390.R.12-C40	39,0	40	56	256	156	186	3,2	SONT 124810	390
MD900.4D.400.R.12-C40	40,0	40	56	260	160	190	3,2	SONT 124810	400
MD900.4D.410.R.12-C40	41,0	40	56	264	164	194	3,2	SONT 124810	410
MD900.4D.420.R.13-C40	42,0	40	60	271	168	201	5	SONT 135012	420
MD900.4D.430.R.13-C40	43,0	40	60	275	172	205	5	SONT 135012	430

Continued on next page

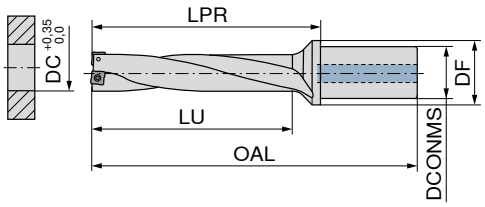
MaxiDrill 900 – Indexable insert drill

Scope of supply:
Indexable Insert Drill including clamping screws and key

≤ 4xD



C





Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 854 ...
MD900.4D.440.R.13-C40	44,0	40	60	279	176	209	5	SONT 135012	440
MD900.4D.450.R.13-C40	45,0	40	60	283	180	213	5	SONT 135012	450
MD900.4D.460.R.13-C40	46,0	40	60	287	184	217	5	SONT 135012	460
MD900.4D.470.R.15-C40	47,0	40	60	292	188	222	5	SONT 155312	470
MD900.4D.480.R.15-C40	48,0	40	60	296	192	226	5	SONT 155312	480
MD900.4D.490.R.15-C40	49,0	40	60	300	196	230	5	SONT 155312	490
MD900.4D.500.R.15-C40	50,0	40	60	304	200	234	5	SONT 155312	500
MD900.4D.510.R.15-C40	51,0	40	60	308	204	238	5	SONT 155312	510
MD900.4D.520.R.15-C40	52,0	40	60	312	208	242	5	SONT 155312	520
MD900.4D.530.R.15-C40	53,0	40	60	316	212	246	5	SONT 155312	530
MD900.4D.540.R.15-C40	54,0	40	60	320	216	250	5	SONT 155312	540


Key D


Clamping screw

Spare parts DC	80 950 ...		70 950 ...	
12 - 13	T06 - IP	123	M1,8x3,6 - IP	862
14 - 17	T06 - IP	123	M2x4,3 - IP	863
18 - 23	T07 - IP	124	M2,2x5 - IP	856
24 - 27	T08 - IP	125	M2,5x6 - IP	857
28 - 32	T09 - IP	126	M3x7 - IP	819
33 - 41	T15 - IP	128	M3,5x8,6 - IP	859
42 - 54	T20 - IP	129	M4,5x10,5 - IP	864

Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

MaxiDrill 900 – Indexable insert drill

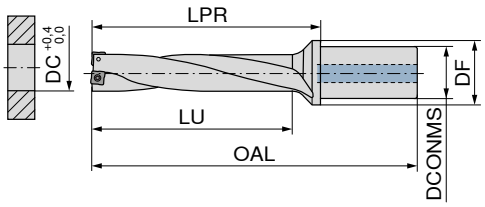
Scope of supply:

Indexable Insert Drill including clamping screws and key

≤ 5xD



C





Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 855 ...
MD900.5D.120.R.03-C20	12,0	20	28	126	60,0	76,0	0,4	SONT 031804	120
MD900.5D.125.R.03-C20	12,5	20	28	128	62,5	78,0	0,4	SONT 031804	125
MD900.5D.130.R.03-C20	13,0	20	28	131	65,0	81,0	0,4	SONT 031804	130
MD900.5D.135.R.03-C20	13,5	20	28	132	67,5	82,0	0,4	SONT 031804	135
MD900.5D.140.R.04-C20	14,0	20	30	137	70,0	87,0	0,7	SONT 042105	140
MD900.5D.145.R.04-C20	14,5	20	30	139	72,5	89,0	0,7	SONT 042105	145
MD900.5D.150.R.04-C20	15,0	20	30	142	75,0	92,0	0,7	SONT 042105	150
MD900.5D.155.R.04-C20	15,5	20	30	144	77,5	94,5	0,7	SONT 042105	155
MD900.5D.160.R.05-C20	16,0	20	30	147	80,0	97,0	0,7	SONT 052306	160
MD900.5D.165.R.05-C20	16,5	20	30	149	82,5	99,0	0,7	SONT 052306	165
MD900.5D.170.R.05-C20	17,0	20	30	152	85,0	102,0	0,7	SONT 052306	170
MD900.5D.175.R.05-C20	17,5	20	30	154	87,5	104,0	0,7	SONT 052306	175
MD900.5D.180.R.06-C25	18,0	25	32	164	90,0	108,0	1	SONT 062506	180
MD900.5D.185.R.06-C25	18,5	25	32	166	92,5	110,0	1	SONT 062506	185
MD900.5D.190.R.06-C25	19,0	25	32	169	95,0	113,0	1	SONT 062506	190
MD900.5D.195.R.06-C25	19,5	25	32	171	97,5	115,0	1	SONT 062506	195
MD900.5D.200.R.06-C25	20,0	25	32	174	100,0	118,0	1	SONT 062506	200
MD900.5D.205.R.06-C25	20,5	25	32	175	102,5	119,0	1	SONT 062506	205
MD900.5D.210.R.07-C25	21,0	25	32	180	105,0	124,0	1	SONT 072907	210
MD900.5D.220.R.07-C25	22,0	25	32	184	110,0	128,0	1	SONT 072907	220
MD900.5D.230.R.07-C25	23,0	25	32	189	115,0	133,0	1	SONT 072907	230
MD900.5D.240.R.08-C32	24,0	32	40	203	120,0	143,0	1,2	SONT 083308	240
MD900.5D.250.R.08-C32	25,0	32	40	208	125,0	148,0	1,2	SONT 083308	250
MD900.5D.260.R.08-C32	26,0	32	40	212	130,0	152,0	1,2	SONT 083308	260
MD900.5D.270.R.08-C32	27,0	32	40	217	135,0	157,0	1,2	SONT 083308	270
MD900.5D.280.R.09-C32	28,0	32	40	221	140,0	161,0	2,2	SONT 093808	280
MD900.5D.290.R.09-C32	29,0	32	40	226	145,0	166,0	2,2	SONT 093808	290
MD900.5D.300.R.09-C32	30,0	32	40	230	150,0	170,0	2,2	SONT 093808	300
MD900.5D.310.R.09-C32	31,0	32	40	235	155,0	175,0	2,2	SONT 093808	310
MD900.5D.320.R.09-C32	32,0	32	40	239	160,0	179,0	2,2	SONT 093808	320
MD900.5D.330.R.10-C40	33,0	40	50	259	165,0	191,0	3,2	SONT 104408	330
MD900.5D.340.R.10-C40	34,0	40	50	264	170,0	196,0	3,2	SONT 104408	340
MD900.5D.350.R.10-C40	35,0	40	50	269	175,0	201,0	3,2	SONT 104408	350
MD900.5D.360.R.10-C40	36,0	40	50	274	180,0	206,0	3,2	SONT 104408	360
MD900.5D.370.R.12-C40	37,0	40	56	285	185,0	215,0	3,2	SONT 124810	370
MD900.5D.380.R.12-C40	38,0	40	56	290	190,0	220,0	3,2	SONT 124810	380
MD900.5D.390.R.12-C40	39,0	40	56	295	195,0	225,0	3,2	SONT 124810	390
MD900.5D.400.R.12-C40	40,0	40	56	300	200,0	230,0	3,2	SONT 124810	400
MD900.5D.410.R.12-C40	41,0	40	56	305	205,0	235,0	3,2	SONT 124810	410



Key D

80 950 ...



Clamping screw

70 950 ...

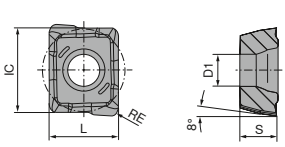
Spare parts

DC				
12 - 13	T06 - IP	123	M1,8x3,6 - IP	862
14 - 17	T06 - IP	123	M2x4,3 - IP	863
18 - 23	T07 - IP	124	M2,2x5 - IP	856
24 - 27	T08 - IP	125	M2,5x6 - IP	857
28 - 32	T09 - IP	126	M3x7 - IP	819
33 - 41	T15 - IP	128	M3,5x8,6 - IP	859

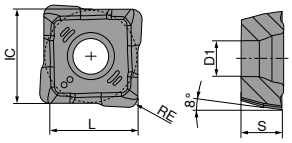
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

SONT

Designation	IC mm	D1 mm	L mm	S mm
SONT 0318..	5,4	2,10	3,8	1,80
SONT 0421..	4,6	2,25	4,2	2,10
SONT 0523..	5,3	2,25	4,8	2,30
SONT 0625..	5,9	2,50	5,5	2,50
SONT 0729..	6,5	2,50	6,1	2,90
SONT 0833..	7,7	2,90	7,3	3,30
SONT 0938..	8,9	3,50	8,5	3,80
SONT 1044..	10,1	4,10	9,6	4,40
SONT 1248..	11,6	4,10	11,0	4,80
SONT 1350..	13,0	5,30	12,2	5,00
SONT 1553..	15,2	5,30	14,4	5,30
SONT 1756..	17,5	5,30	16,7	5,60

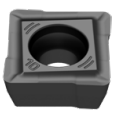


SONT 03..



SONT 04../05../06../07../08../09../10../12../13../15../17..

SONT

	-M30 CTPP430 DRAGONSKIN	-M30 CTPP430 DRAGONSKIN	-M30 CTCP420 DRAGONSKIN	-M30 CTCP420 DRAGONSKIN
	 SONT	 SONT	 SONT	 SONT
ISO	**10 830 ...**	**10 830 ...**	**10 830 ...**	**10 830 ...**
031804	0,4	**103** [1]		**703** [1]	
042105	0,5		**104**		**704**
052306	0,6		**105**		**705**
062506	0,6		**106**		**706**
072907	0,7		**107**		**707**
083308	0,8		**108**		**708**
093808	0,8		**109**		**709**
104408	0,8		**110**		**710**
124810	1,0		**112**		**712**
135012	1,2		**113**		**713**
155312	1,2		**115**		**715**
175612	1,2		**117**		**717**
P		●	●	●	●
M		●	●		
K		o	o	●	●
N		o	o		
S		o	o		
H					
O					

1) two usable cutting edges

→ v_c/f_z Page 64–67

CTCP420 -M30 is exclusively recommended for use on the peripheral cutting edge!

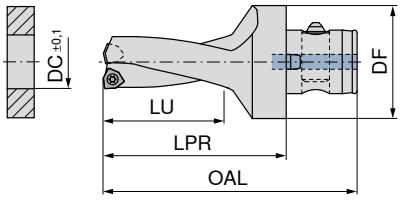
KUB Trigon – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 2xD



ABS





3

Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 892 ...
KUB-T.2D.140.R.03-ABS50	V30 31403	14	50	94	28	63	0,62	WOEX 030204	14095
KUB-T.2D.150.R.03-ABS50	V30 31503	15	50	96	30	65	0,62	WOEX 030204	15095
KUB-T.2D.160.R.03-ABS50	V30 31601	16	50	98	32	67	0,62	WOEX 030204	16095
KUB-T.2D.170.R.03-ABS50	V30 31701	17	50	100	34	69	0,62	WOEX 030204	17095
KUB-T.2D.180.R.03-ABS50	V30 31801	18	50	102	36	71	0,62	WOEX 030204	18095
KUB-T.2D.190.R.03-ABS50	V30 31901	19	50	104	38	73	0,62	WOEX 030204	19095
KUB-T.2D.200.R.04-ABS50	V30 32001	20	50	106	40	75	1,01	WOEX 040304	20095
KUB-T.2D.210.R.04-ABS50	V30 32101	21	50	108	42	77	1,01	WOEX 040304	21095
KUB-T.2D.220.R.04-ABS50	V30 32201	22	50	110	44	79	1,01	WOEX 040304	22095
KUB-T.2D.230.R.04-ABS50	V30 32301	23	50	112	46	81	1,01	WOEX 040304	23095
KUB-T.2D.240.R.04-ABS50	V30 32401	24	50	114	48	83	1,01	WOEX 040304	24095
KUB-T.2D.250.R.05-ABS50	V30 32501	25	50	116	50	85	1,28	WOEX 05T304	25095
KUB-T.2D.260.R.05-ABS50	V30 32601	26	50	118	52	87	1,28	WOEX 05T304	26095
KUB-T.2D.270.R.05-ABS50	V30 32701	27	50	120	54	89	1,28	WOEX 05T304	27095
KUB-T.2D.280.R.05-ABS50	V30 32801	28	50	122	56	91	1,28	WOEX 05T304	28095
KUB-T.2D.290.R.05-ABS50	V30 32901	29	50	124	58	93	1,28	WOEX 05T304	29095
KUB-T.2D.300.R.05-ABS50	V30 33001	30	50	131	60	100	1,28	WOEX 05T304	30095
KUB-T.2D.310.R.05-ABS50	V30 33101	31	50	133	62	102	1,28	WOEX 05T304	31095
KUB-T.2D.320.R.05-ABS50	V30 33201	32	50	135	64	104	1,28	WOEX 05T304	32095
KUB-T.2D.330.R.05-ABS50	V30 33301	33	50	137	66	106	1,28	WOEX 05T304	33095
KUB-T.2D.340.R.05-ABS50	V30 33401	34	50	139	68	108	1,28	WOEX 05T304	34095
KUB-T.2D.350.R.05-ABS50	V30 33501	35	50	141	70	110	1,28	WOEX 05T304	35095
KUB-T.2D.360.R.05-ABS50	V30 33601	36	50	143	72	112	1,28	WOEX 05T304	36095
KUB-T.2D.370.R.06-ABS50	V30 33701	37	50	155	74	124	2,8	WOEX 06T304	37095
KUB-T.2D.380.R.06-ABS50	V30 33801	38	50	157	76	126	2,8	WOEX 06T304	38095
KUB-T.2D.390.R.06-ABS50	V30 33901	39	50	159	78	128	2,8	WOEX 06T304	39095
KUB-T.2D.400.R.06-ABS50	V30 34001	40	50	161	80	130	2,8	WOEX 06T304	40095
KUB-T.2D.410.R.06-ABS50	V30 34101	41	50	163	82	132	2,8	WOEX 06T304	41095
KUB-T.2D.420.R.06-ABS50	V30 34201	42	50	165	84	134	2,8	WOEX 06T304	42095
KUB-T.2D.430.R.06-ABS50	V30 34301	43	50	167	86	136	2,8	WOEX 06T304	43095
KUB-T.2D.440.R.06-ABS50	V30 34401	44	50	169	88	138	2,8	WOEX 06T304	44095



Key D



Clamping screw

Spare parts DC	80 950 ...		10 950 ...	
14 - 19	T06 - IP	123	M2,0x4,3 - 06IP	10000
20 - 24	T06 - IP	123	M2,2x5,5 - 06IP	10700
25 - 36	T08 - IP	125	M2,5x7,2 - 08IP	10500
37 - 44	T10 - IP	127	M3,5x7,3 - 10IP	10600

Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

KUB Trigon – Indexable insert drill

▲ Tightening torque refers to clamping screw

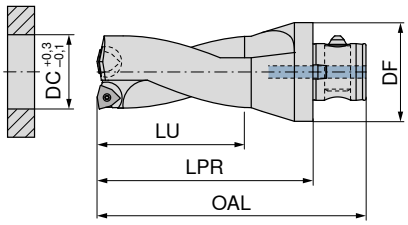
Scope of supply:

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

≤ 2xD



ABS



NEW



Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 892 ...
KUB-T.2D.450.R.08-ABS63	V13 34500	45	63	183	90	145	4,3	WOEX 080404	45096
KUB-T.2D.460.R.08-ABS63	V13 34600	46	63	185	92	147	4,3	WOEX 080404	46096
KUB-T.2D.470.R.08-ABS63	V13 34700	47	63	187	94	149	4,3	WOEX 080404	47096
KUB-T.2D.480.R.08-ABS63	V13 34800	48	63	189	96	151	4,3	WOEX 080404	48096
KUB-T.2D.490.R.08-ABS63	V13 34900	49	63	191	98	153	4,3	WOEX 080404	49096
KUB-T.2D.500.R.08-ABS63	V13 35000	50	63	193	100	155	4,3	WOEX 080404	50096
KUB-T.2D.510.R.08-ABS63	V13 35100	51	63	195	102	157	4,3	WOEX 080404	51096
KUB-T.2D.520.R.08-ABS63	V13 35200	52	63	197	104	159	4,3	WOEX 080404	52096
KUB-T.2D.530.R.08-ABS63	V13 35300	53	63	199	106	161	4,3	WOEX 080404	53096
KUB-T.2D.540.R.08-ABS63	V13 35400	54	63	201	108	163	4,3	WOEX 080404	54096
KUB-T.2D.550.R.10-ABS80	V14 35500	55	80	208	110	165	4,3	WOEX 100504	55098
KUB-T.2D.560.R.10-ABS80	V14 35600	56	80	210	112	167	4,3	WOEX 100504	56098
KUB-T.2D.570.R.10-ABS80	V14 35700	57	80	212	114	169	4,3	WOEX 100504	57098
KUB-T.2D.580.R.10-ABS80	V14 35800	58	80	214	116	171	4,3	WOEX 100504	58098
KUB-T.2D.590.R.10-ABS80	V14 35900	59	80	216	118	173	4,3	WOEX 100504	59098
KUB-T.2D.600.R.10-ABS80	V14 36000	60	80	218	120	175	4,3	WOEX 100504	60098
KUB-T.2D.610.R.10-ABS80	V14 36100	61	80	220	122	177	4,3	WOEX 100504	61098
KUB-T.2D.620.R.10-ABS80	V14 36200	62	80	222	124	179	4,3	WOEX 100504	62098
KUB-T.2D.630.R.10-ABS80	V14 36300	63	80	224	126	181	4,3	WOEX 100504	63098
KUB-T.2D.640.R.10-ABS80	V14 36400	64	80	226	128	183	4,3	WOEX 100504	64098
KUB-T.2D.650.R.10-ABS80	V14 36500	65	80	228	130	185	4,3	WOEX 100504	65098
KUB-T.2D.660.R.10-ABS80	V14 36600	66	80	230	132	187	4,3	WOEX 100504	66098
KUB-T.2D.670.R.10-ABS80	V14 36700	67	80	232	134	189	4,3	WOEX 100504	67098
KUB-T.2D.680.R.10-ABS80	V14 36800	68	80	234	136	191	4,3	WOEX 100504	68098
KUB-T.2D.690.R.12-ABS80	V14 36900	69	80	246	138	203	6,25	WOEX 120608	69098
KUB-T.2D.700.R.12-ABS80	V14 37000	70	80	248	140	205	6,25	WOEX 120608	70098
KUB-T.2D.710.R.12-ABS80	V14 37100	71	80	250	142	207	6,25	WOEX 120608	71098
KUB-T.2D.720.R.12-ABS80	V14 37200	72	80	252	144	209	6,25	WOEX 120608	72098
KUB-T.2D.730.R.12-ABS80	V14 37300	73	80	254	146	211	6,25	WOEX 120608	73098
KUB-T.2D.740.R.12-ABS80	V14 37400	74	80	256	148	213	6,25	WOEX 120608	74098
KUB-T.2D.750.R.12-ABS80	V14 37500	75	80	258	150	215	6,25	WOEX 120608	75098
KUB-T.2D.760.R.12-ABS80	V14 37600	76	80	260	152	217	6,25	WOEX 120608	76098
KUB-T.2D.770.R.12-ABS80	V14 37700	77	80	262	154	219	6,25	WOEX 120608	77098
KUB-T.2D.780.R.12-ABS80	V14 37800	78	80	264	156	221	6,25	WOEX 120608	78098
KUB-T.2D.790.R.12-ABS80	V14 37900	79	80	266	158	223	6,25	WOEX 120608	79098
KUB-T.2D.800.R.12-ABS80	V14 38000	80	80	268	160	225	6,25	WOEX 120608	80098
KUB-T.2D.810.R.12-ABS80	V14 38100	81	80	270	162	227	6,25	WOEX 120608	81098
KUB-T.2D.820.R.12-ABS80	V14 38200	82	80	272	164	229	6,25	WOEX 120608	82098

Spare parts DC	 Cylindrical pin 10 950 ...	 Indexable insert, internal 10 897 ...	 Indexable insert, external 10 898 ...	Key D 80 950 ...	 Clamping screw 10 950 ...	 Fixing screw 10 950 ...
45 - 54	17200	14800	14800	120	12700	17000
55 - 68	17200	25300	25300	120	12700	17000
69 - 82	17300	36000	36000	121	17400	17100

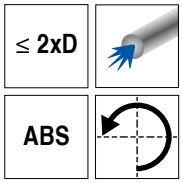
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

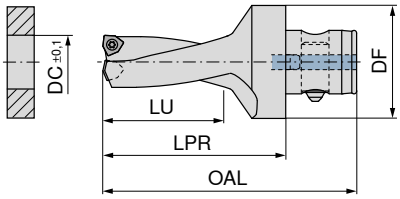
KUB Trigon – Indexable insert drill

▲ left-hand cutting

Scope of supply:

Indexable Insert Drill incl. clamping screws







Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	11 892 ...
KUB-T.2D.140.L.03-ABS50	V30 21402	14	50	94	28	63	0,62	WOEX 030204	14095
KUB-T.2D.150.L.03-ABS50	V30 21502	15	50	96	30	65	0,62	WOEX 030204	15095
KUB-T.2D.160.L.03-ABS50	V30 21600	16	50	98	32	67	0,62	WOEX 030204	16095
KUB-T.2D.170.L.03-ABS50	V30 21700	17	50	100	34	69	0,62	WOEX 030204	17095
KUB-T.2D.180.L.03-ABS50	V30 21800	18	50	102	36	71	0,62	WOEX 030204	18095
KUB-T.2D.190.L.03-ABS50	V30 21900	19	50	104	38	73	0,62	WOEX 030204	19095
KUB-T.2D.200.L.04-ABS50	V30 22000	20	50	106	40	75	1,01	WOEX 040304	20095
KUB-T.2D.210.L.04-ABS50	V30 22100	21	50	108	42	77	1,01	WOEX 040304	21095
KUB-T.2D.220.L.04-ABS50	V30 22200	22	50	110	44	79	1,01	WOEX 040304	22095
KUB-T.2D.230.L.04-ABS50	V30 22300	23	50	112	46	81	1,01	WOEX 040304	23095
KUB-T.2D.240.L.04-ABS50	V30 22400	24	50	114	48	83	1,01	WOEX 040304	24095
KUB-T.2D.250.L.05-ABS50	V30 22500	25	50	116	50	85	1,28	WOEX 05T304	25095
KUB-T.2D.260.L.05-ABS50	V30 22600	26	50	118	52	87	1,28	WOEX 05T304	26095
KUB-T.2D.270.L.05-ABS50	V30 22700	27	50	120	54	89	1,28	WOEX 05T304	27095
KUB-T.2D.280.L.05-ABS50	V30 22800	28	50	122	56	91	1,28	WOEX 05T304	28095
KUB-T.2D.290.L.05-ABS50	V30 22900	29	50	124	58	93	1,28	WOEX 05T304	29095
KUB-T.2D.300.L.05-ABS50	V30 23000	30	50	131	60	100	1,28	WOEX 05T304	30095
KUB-T.2D.310.L.05-ABS50	V30 23100	31	50	133	62	102	1,28	WOEX 05T304	31095
KUB-T.2D.320.L.05-ABS50	V30 23200	32	50	135	64	104	1,28	WOEX 05T304	32095
KUB-T.2D.330.L.05-ABS50	V30 23300	33	50	137	66	106	1,28	WOEX 05T304	33095
KUB-T.2D.340.L.05-ABS50	V30 23400	34	50	139	68	108	1,28	WOEX 05T304	34095
KUB-T.2D.350.L.05-ABS50	V30 23500	35	50	141	70	110	1,28	WOEX 05T304	35095
KUB-T.2D.360.L.05-ABS50	V30 23600	36	50	143	72	112	1,28	WOEX 05T304	36095
KUB-T.2D.370.L.06-ABS50	V30 23700	37	50	155	74	124	2,8	WOEX 06T304	37095
KUB-T.2D.380.L.06-ABS50	V30 23800	38	50	157	76	126	2,8	WOEX 06T304	38095
KUB-T.2D.390.L.06-ABS50	V30 23900	39	50	159	78	128	2,8	WOEX 06T304	39095
KUB-T.2D.400.L.06-ABS50	V30 24000	40	50	161	80	130	2,8	WOEX 06T304	40095
KUB-T.2D.410.L.06-ABS50	V30 24100	41	50	163	82	132	2,8	WOEX 06T304	41095
KUB-T.2D.420.L.06-ABS50	V30 24200	42	50	165	84	134	2,8	WOEX 06T304	42095
KUB-T.2D.430.L.06-ABS50	V30 24300	43	50	167	86	136	2,8	WOEX 06T304	43095
KUB-T.2D.440.L.06-ABS50	V30 24400	44	50	169	88	138	2,8	WOEX 06T304	44095



Key D

80 950 ...



Clamping screw

10 950 ...

Spare parts DC		
14 - 19	123	10000
20 - 24	123	10700
25 - 36	125	10500
37 - 44	127	10600

Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

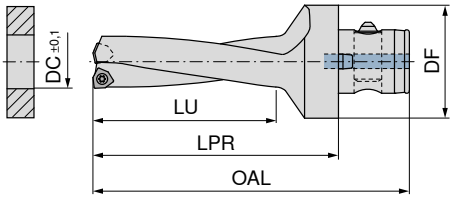
KUB Trigon – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 3xD



ABS





Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 893 ...
KUB-T.3D.140.R.03-ABS50	V30 71403	14	50	108	42	77	0,62	WOEX 030204	14095
KUB-T.3D.150.R.03-ABS50	V30 71503	15	50	111	45	80	0,62	WOEX 030204	15095
KUB-T.3D.160.R.03-ABS50	V30 71601	16	50	114	48	83	0,62	WOEX 030204	16095
KUB-T.3D.170.R.03-ABS50	V30 71701	17	50	117	51	86	0,62	WOEX 030204	17095
KUB-T.3D.180.R.03-ABS50	V30 71801	18	50	120	54	89	0,62	WOEX 030204	18095
KUB-T.3D.190.R.03-ABS50	V30 71901	19	50	123	57	92	0,62	WOEX 030204	19095
KUB-T.3D.200.R.04-ABS50	V30 72001	20	50	126	60	95	1,01	WOEX 040304	20095
KUB-T.3D.210.R.04-ABS50	V30 72101	21	50	129	63	98	1,01	WOEX 040304	21095
KUB-T.3D.220.R.04-ABS50	V30 72201	22	50	132	66	101	1,01	WOEX 040304	22095
KUB-T.3D.230.R.04-ABS50	V30 72301	23	50	135	69	104	1,01	WOEX 040304	23095
KUB-T.3D.240.R.04-ABS50	V30 72401	24	50	138	72	107	1,01	WOEX 040304	24095
KUB-T.3D.250.R.05-ABS50	V30 72501	25	50	141	75	110	1,28	WOEX 05T304	25095
KUB-T.3D.260.R.05-ABS50	V30 72601	26	50	144	78	113	1,28	WOEX 05T304	26095
KUB-T.3D.270.R.05-ABS50	V30 72701	27	50	147	81	116	1,28	WOEX 05T304	27095
KUB-T.3D.280.R.05-ABS50	V30 72801	28	50	150	84	119	1,28	WOEX 05T304	28095
KUB-T.3D.290.R.05-ABS50	V30 72901	29	50	153	87	122	1,28	WOEX 05T304	29095
KUB-T.3D.300.R.05-ABS50	V30 73001	30	50	161	90	130	1,28	WOEX 05T304	30095
KUB-T.3D.310.R.05-ABS50	V30 73101	31	50	164	93	133	1,28	WOEX 05T304	31095
KUB-T.3D.320.R.05-ABS50	V30 73201	32	50	167	96	136	1,28	WOEX 05T304	32095
KUB-T.3D.330.R.05-ABS50	V30 73301	33	50	170	99	139	1,28	WOEX 05T304	33095
KUB-T.3D.340.R.05-ABS50	V30 73401	34	50	173	102	142	1,28	WOEX 05T304	34095
KUB-T.3D.350.R.05-ABS50	V30 73501	35	50	176	105	145	1,28	WOEX 05T304	35095
KUB-T.3D.360.R.05-ABS50	V30 73601	36	50	179	108	148	1,28	WOEX 05T304	36095
KUB-T.3D.370.R.06-ABS50	V30 73701	37	50	192	111	161	2,8	WOEX 06T304	37095
KUB-T.3D.380.R.06-ABS50	V30 73801	38	50	195	114	164	2,8	WOEX 06T304	38095
KUB-T.3D.390.R.06-ABS50	V30 73901	39	50	198	117	167	2,8	WOEX 06T304	39095
KUB-T.3D.400.R.06-ABS50	V30 74001	40	50	201	120	170	2,8	WOEX 06T304	40095
KUB-T.3D.410.R.06-ABS50	V30 74101	41	50	204	123	173	2,8	WOEX 06T304	41095
KUB-T.3D.420.R.06-ABS50	V30 74201	42	50	207	126	176	2,8	WOEX 06T304	42095
KUB-T.3D.430.R.06-ABS50	V30 74301	43	50	210	129	179	2,8	WOEX 06T304	43095
KUB-T.3D.440.R.06-ABS50	V30 74401	44	50	213	132	182	2,8	WOEX 06T304	44095



Key D



Clamping screw

Spare parts DC		80 950 ...		10 950 ...	
14 - 19	T06 - IP	123	M2,0x4,3 - 06IP	10000
20 - 24	T06 - IP	123	M2,2x5,5 - 06IP	10700
25 - 36	T08 - IP	125	M2,5x7,2 - 08IP	10500
37 - 44	T10 - IP	127	M3,5x7,3 - 10IP	10600

Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

KUB Trigon – Indexable insert drill

▲ Tightening torque refers to clamping screw

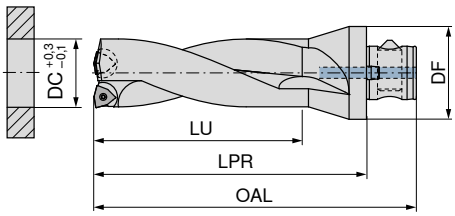
Scope of supply:

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

≤ 3xD



ABS



NEW



Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 893 ...
KUB-T.3D.450.R.08-ABS63	V13 74500	45	63	228	135	190	4,3	WOEX 080404	45096
KUB-T.3D.460.R.08-ABS63	V13 74600	46	63	231	138	193	4,3	WOEX 080404	46096
KUB-T.3D.470.R.08-ABS63	V13 74700	47	63	234	141	196	4,3	WOEX 080404	47096
KUB-T.3D.480.R.08-ABS63	V13 74800	48	63	237	144	199	4,3	WOEX 080404	48096
KUB-T.3D.490.R.08-ABS63	V13 74900	49	63	240	147	202	4,3	WOEX 080404	49096
KUB-T.3D.500.R.08-ABS63	V13 75000	50	63	243	150	205	4,3	WOEX 080404	50096
KUB-T.3D.510.R.08-ABS63	V13 75100	51	63	246	153	208	4,3	WOEX 080404	51096
KUB-T.3D.520.R.08-ABS63	V13 75200	52	63	249	156	211	4,3	WOEX 080404	52096
KUB-T.3D.530.R.08-ABS63	V13 75300	53	63	252	159	214	4,3	WOEX 080404	53096
KUB-T.3D.540.R.08-ABS63	V13 75400	54	63	255	162	217	4,3	WOEX 080404	54096
KUB-T.3D.550.R.10-ABS80	V14 75500	55	80	263	165	220	4,3	WOEX 100504	55098
KUB-T.3D.560.R.10-ABS80	V14 75600	56	80	266	168	223	4,3	WOEX 100504	56098
KUB-T.3D.570.R.10-ABS80	V14 75700	57	80	269	171	226	4,3	WOEX 100504	57098
KUB-T.3D.580.R.10-ABS80	V14 75800	58	80	272	174	229	4,3	WOEX 100504	58098
KUB-T.3D.590.R.10-ABS80	V14 75900	59	80	275	177	232	4,3	WOEX 100504	59098
KUB-T.3D.600.R.10-ABS80	V14 76000	60	80	278	180	235	4,3	WOEX 100504	60098
KUB-T.3D.610.R.10-ABS80	V14 76100	61	80	281	183	238	4,3	WOEX 100504	61098
KUB-T.3D.620.R.10-ABS80	V14 76200	62	80	284	186	241	4,3	WOEX 100504	62098
KUB-T.3D.630.R.10-ABS80	V14 76300	63	80	287	189	244	4,3	WOEX 100504	63098
KUB-T.3D.640.R.10-ABS80	V14 76400	64	80	290	192	247	4,3	WOEX 100504	64098
KUB-T.3D.650.R.10-ABS80	V14 76500	65	80	293	195	250	4,3	WOEX 100504	65098
KUB-T.3D.660.R.10-ABS80	V14 76600	66	80	296	198	253	4,3	WOEX 100504	66098
KUB-T.3D.670.R.10-ABS80	V14 76700	67	80	299	201	256	4,3	WOEX 100504	67098
KUB-T.3D.680.R.10-ABS80	V14 76800	68	80	302	204	259	4,3	WOEX 100504	68098
KUB-T.3D.690.R.12-ABS80	V14 76900	69	80	315	207	272	6,25	WOEX 120608	69098
KUB-T.3D.700.R.12-ABS80	V14 77000	70	80	318	210	275	6,25	WOEX 120608	70098
KUB-T.3D.710.R.12-ABS80	V14 77100	71	80	321	213	278	6,25	WOEX 120608	71098
KUB-T.3D.720.R.12-ABS80	V14 77200	72	80	324	216	281	6,25	WOEX 120608	72098
KUB-T.3D.730.R.12-ABS80	V14 77300	73	80	327	219	284	6,25	WOEX 120608	73098
KUB-T.3D.740.R.12-ABS80	V14 77400	74	80	330	222	287	6,25	WOEX 120608	74098
KUB-T.3D.750.R.12-ABS80	V14 77500	75	80	333	225	290	6,25	WOEX 120608	75098
KUB-T.3D.760.R.12-ABS80	V14 77600	76	80	336	228	293	6,25	WOEX 120608	76098
KUB-T.3D.770.R.12-ABS80	V14 77700	77	80	339	231	296	6,25	WOEX 120608	77098
KUB-T.3D.780.R.12-ABS80	V14 77800	78	80	342	234	299	6,25	WOEX 120608	78098
KUB-T.3D.790.R.12-ABS80	V14 77900	79	80	345	237	302	6,25	WOEX 120608	79098
KUB-T.3D.800.R.12-ABS80	V14 78000	80	80	348	240	305	6,25	WOEX 120608	80098
KUB-T.3D.810.R.12-ABS80	V14 78100	81	80	351	243	308	6,25	WOEX 120608	81098
KUB-T.3D.820.R.12-ABS80	V14 78200	82	80	354	246	311	6,25	WOEX 120608	82098

Spare parts DC	 Cylindrical pin 10 950 ...	 Indexable insert, internal 10 897 ...	 Indexable insert, external 10 898 ...	 Key D 80 950 ...	 Clamping screw 10 950 ...	 Fixing screw 10 950 ...
45 - 54	17200	14800	14800	120	12700	17000
55 - 68	17200	25300	25300	120	12700	17000
69 - 82	17300	36000	36000	121	17400	17100

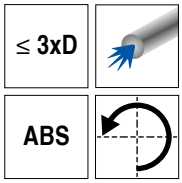
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

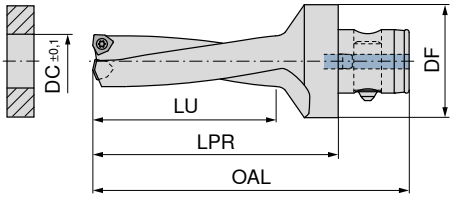
KUB Trigon – Indexable insert drill

▲ left-hand cutting

Scope of supply:

Indexable Insert Drill incl. clamping screws







Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	11 893 ...
KUB-T.3D.140.L.03-ABS50	V30 61402	14	50	108	42	77	0,62	WOEX 030204	14095
KUB-T.3D.150.L.03-ABS50	V30 61502	15	50	111	45	80	0,62	WOEX 030204	15095
KUB-T.3D.160.L.03-ABS50	V30 61600	16	50	114	48	83	0,62	WOEX 030204	16095
KUB-T.3D.170.L.03-ABS50	V30 61700	17	50	117	51	86	0,62	WOEX 030204	17095
KUB-T.3D.180.L.03-ABS50	V30 61800	18	50	120	54	89	0,62	WOEX 030204	18095
KUB-T.3D.190.L.03-ABS50	V30 61900	19	50	123	57	92	0,62	WOEX 030204	19095
KUB-T.3D.200.L.04-ABS50	V30 62000	20	50	126	60	95	1,01	WOEX 040304	20095
KUB-T.3D.210.L.04-ABS50	V30 62100	21	50	129	63	98	1,01	WOEX 040304	21095
KUB-T.3D.220.L.04-ABS50	V30 62200	22	50	132	66	101	1,01	WOEX 040304	22095
KUB-T.3D.230.L.04-ABS50	V30 62300	23	50	135	69	104	1,01	WOEX 040304	23095
KUB-T.3D.240.L.04-ABS50	V30 62400	24	50	138	72	107	1,01	WOEX 040304	24095
KUB-T.3D.250.L.05-ABS50	V30 62500	25	50	141	75	110	1,28	WOEX 05T304	25095
KUB-T.3D.260.L.05-ABS50	V30 62600	26	50	144	78	113	1,28	WOEX 05T304	26095
KUB-T.3D.270.L.05-ABS50	V30 62700	27	50	147	81	116	1,28	WOEX 05T304	27095
KUB-T.3D.280.L.05-ABS50	V30 62800	28	50	150	84	119	1,28	WOEX 05T304	28095
KUB-T.3D.290.L.05-ABS50	V30 62900	29	50	153	87	122	1,28	WOEX 05T304	29095
KUB-T.3D.300.L.05-ABS50	V30 63000	30	50	161	90	130	1,28	WOEX 05T304	30095
KUB-T.3D.310.L.05-ABS50	V30 63100	31	50	164	93	133	1,28	WOEX 05T304	31095
KUB-T.3D.320.L.05-ABS50	V30 63200	32	50	167	96	136	1,28	WOEX 05T304	32095
KUB-T.3D.330.L.05-ABS50	V30 63300	33	50	170	99	139	1,28	WOEX 05T304	33095
KUB-T.3D.340.L.05-ABS50	V30 63400	34	50	173	102	142	1,28	WOEX 05T304	34095
KUB-T.3D.350.L.05-ABS50	V30 63500	35	50	176	105	145	1,28	WOEX 05T304	35095
KUB-T.3D.360.L.05-ABS50	V30 63600	36	50	179	108	148	1,28	WOEX 05T304	36095
KUB-T.3D.370.L.06-ABS50	V30 63700	37	50	192	111	161	2,8	WOEX 06T304	37095
KUB-T.3D.380.L.06-ABS50	V30 63800	38	50	195	114	164	2,8	WOEX 06T304	38095
KUB-T.3D.390.L.06-ABS50	V30 63900	39	50	198	117	167	2,8	WOEX 06T304	39095
KUB-T.3D.400.L.06-ABS50	V30 64000	40	50	201	120	170	2,8	WOEX 06T304	40095
KUB-T.3D.410.L.06-ABS50	V30 64100	41	50	204	123	173	2,8	WOEX 06T304	41095
KUB-T.3D.420.L.06-ABS50	V30 64200	42	50	207	126	176	2,8	WOEX 06T304	42095
KUB-T.3D.430.L.06-ABS50	V30 64300	43	50	210	129	179	2,8	WOEX 06T304	43095
KUB-T.3D.440.L.06-ABS50	V30 64400	44	50	213	132	182	2,8	WOEX 06T304	44095



Key D

80 950 ...



Clamping screw

10 950 ...

Spare parts

DC		
14 - 19	123	10000
20 - 24	123	10700
25 - 36	125	10500
37 - 44	127	10600

Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

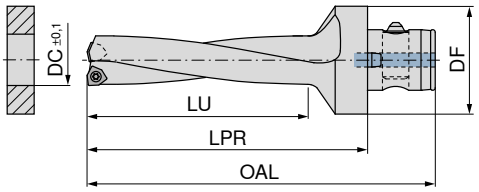
KUB Trigon – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 4xD



ABS





3

Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 894 ...
KUB-T.4D.140.R.03-ABS50	V30 91403	14	50	122	56	91	0,62	WOEX 030204	14095
KUB-T.4D.150.R.03-ABS50	V30 91503	15	50	126	60	95	0,62	WOEX 030204	15095
KUB-T.4D.160.R.03-ABS50	V30 91601	16	50	130	64	99	0,62	WOEX 030204	16095
KUB-T.4D.170.R.03-ABS50	V30 91701	17	50	134	68	103	0,62	WOEX 030204	17095
KUB-T.4D.180.R.03-ABS50	V30 91801	18	50	138	72	107	0,62	WOEX 030204	18095
KUB-T.4D.190.R.03-ABS50	V30 91901	19	50	142	76	111	0,62	WOEX 030204	19095
KUB-T.4D.200.R.04-ABS50	V30 92001	20	50	146	80	115	1,01	WOEX 040304	20095
KUB-T.4D.210.R.04-ABS50	V30 92101	21	50	150	84	119	1,01	WOEX 040304	21095
KUB-T.4D.220.R.04-ABS50	V30 92201	22	50	154	88	123	1,01	WOEX 040304	22095
KUB-T.4D.230.R.04-ABS50	V30 92301	23	50	158	92	127	1,01	WOEX 040304	23095
KUB-T.4D.240.R.04-ABS50	V30 92401	24	50	162	96	131	1,01	WOEX 040304	24095
KUB-T.4D.250.R.05-ABS50	V30 92501	25	50	166	100	135	1,28	WOEX 05T304	25095
KUB-T.4D.260.R.05-ABS50	V30 92601	26	50	170	104	139	1,28	WOEX 05T304	26095
KUB-T.4D.270.R.05-ABS50	V30 92701	27	50	174	108	143	1,28	WOEX 05T304	27095
KUB-T.4D.280.R.05-ABS50	V30 92801	28	50	178	112	147	1,28	WOEX 05T304	28095
KUB-T.4D.290.R.05-ABS50	V30 92901	29	50	182	116	151	1,28	WOEX 05T304	29095
KUB-T.4D.300.R.05-ABS50	V30 93001	30	50	191	120	160	1,28	WOEX 05T304	30095
KUB-T.4D.310.R.05-ABS50	V30 93101	31	50	195	124	164	1,28	WOEX 05T304	31095
KUB-T.4D.320.R.05-ABS50	V30 93201	32	50	199	128	168	1,28	WOEX 05T304	32095
KUB-T.4D.330.R.05-ABS50	V30 93301	33	50	203	132	172	1,28	WOEX 05T304	33095
KUB-T.4D.340.R.05-ABS50	V30 93401	34	50	207	136	176	1,28	WOEX 05T304	34095
KUB-T.4D.350.R.05-ABS50	V30 93501	35	50	211	140	180	1,28	WOEX 05T304	35095
KUB-T.4D.360.R.05-ABS50	V30 93601	36	50	215	144	184	1,28	WOEX 05T304	36095
KUB-T.4D.370.R.06-ABS50	V30 93701	37	50	229	148	198	2,8	WOEX 06T304	37095
KUB-T.4D.380.R.06-ABS50	V30 93801	38	50	233	152	202	2,8	WOEX 06T304	38095
KUB-T.4D.390.R.06-ABS50	V30 93901	39	50	237	156	206	2,8	WOEX 06T304	39095
KUB-T.4D.400.R.06-ABS50	V30 94001	40	50	241	160	210	2,8	WOEX 06T304	40095
KUB-T.4D.410.R.06-ABS50	V30 94101	41	50	245	164	214	2,8	WOEX 06T304	41095
KUB-T.4D.420.R.06-ABS50	V30 94201	42	50	249	168	218	2,8	WOEX 06T304	42095
KUB-T.4D.430.R.06-ABS50	V30 94301	43	50	253	172	222	2,8	WOEX 06T304	43095
KUB-T.4D.440.R.06-ABS50	V30 94401	44	50	257	176	226	2,8	WOEX 06T304	44095



Key D



Clamping screw

Spare parts DC	80 950 ...		10 950 ...	
14 - 19	T06 - IP	123	M2,0x4,3 - 06IP	10000
20 - 24	T06 - IP	123	M2,2x5,5 - 06IP	10700
25 - 36	T08 - IP	125	M2,5x7,2 - 08IP	10500
37 - 44	T10 - IP	127	M3,5x7,3 - 10IP	10600

Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

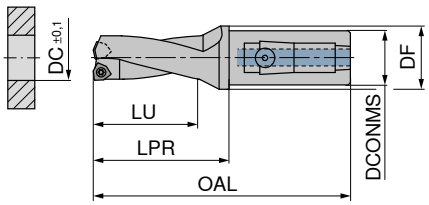
KUB Trigon – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 2xD



K





10 892 ...

Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	
KUB-T.2D.140.R.03-K20	V43 31404	14	20	30	102	28	52	0,62	WOEX 030204	**14011**
KUB-T.2D.150.R.03-K20	V43 31504	15	20	30	104	30	54	0,62	WOEX 030204	**15011**
KUB-T.2D.160.R.03-K20	V43 31602	16	20	30	106	32	56	0,62	WOEX 030204	**16011**
KUB-T.2D.170.R.03-K20	V43 31702	17	20	30	108	34	58	0,62	WOEX 030204	**17011**
KUB-T.2D.180.R.03-K20	V43 31802	18	20	30	110	36	60	0,62	WOEX 030204	**18011**
KUB-T.2D.190.R.03-K20	V43 31902	19	20	30	112	38	62	0,62	WOEX 030204	**19011**
KUB-T.2D.200.R.04-K25	V44 32002	20	25	30	120	40	64	1,01	WOEX 040304	**20012**
KUB-T.2D.210.R.04-K25	V44 32102	21	25	30	122	42	66	1,01	WOEX 040304	**21012**
KUB-T.2D.220.R.04-K25	V44 32202	22	25	30	124	44	68	1,01	WOEX 040304	**22012**
KUB-T.2D.230.R.04-K25	V44 32302	23	25	30	126	46	70	1,01	WOEX 040304	**23012**
KUB-T.2D.240.R.04-K25	V44 32402	24	25	30	128	48	72	1,01	WOEX 040304	**24012**
KUB-T.2D.250.R.05-K32	V45 32502	25	32	39	134	50	74	1,28	WOEX 05T304	**25013**
KUB-T.2D.260.R.05-K32	V45 32602	26	32	39	136	52	76	1,28	WOEX 05T304	**26013**
KUB-T.2D.270.R.05-K32	V45 32702	27	32	39	138	54	78	1,28	WOEX 05T304	**27013**
KUB-T.2D.280.R.05-K32	V45 32802	28	32	39	140	56	80	1,28	WOEX 05T304	**28013**
KUB-T.2D.290.R.05-K32	V45 32902	29	32	39	142	58	82	1,28	WOEX 05T304	**29013**
KUB-T.2D.300.R.05-K32	V45 33002	30	32	39	149	60	89	1,28	WOEX 05T304	**30013**
KUB-T.2D.310.R.05-K32	V45 33102	31	32	39	151	62	91	1,28	WOEX 05T304	**31013**
KUB-T.2D.320.R.05-K32	V45 33202	32	32	39	153	64	93	1,28	WOEX 05T304	**32013**
KUB-T.2D.330.R.05-K32	V45 33302	33	32	39	155	66	95	1,28	WOEX 05T304	**33013**
KUB-T.2D.340.R.05-K32	V45 33402	34	32	39	157	68	97	1,28	WOEX 05T304	**34013**
KUB-T.2D.350.R.05-K32	V45 33502	35	32	39	159	70	99	1,28	WOEX 05T304	**35013**
KUB-T.2D.360.R.05-K32	V45 33602	36	32	39	161	72	101	1,28	WOEX 05T304	**36013**
KUB-T.2D.370.R.06-K32	V45 33702	37	32	39	173	74	113	2,8	WOEX 06T304	**37013**
KUB-T.2D.380.R.06-K32	V45 33802	38	32	39	175	76	115	2,8	WOEX 06T304	**38013**
KUB-T.2D.390.R.06-K32	V45 33902	39	32	39	177	78	117	2,8	WOEX 06T304	**39013**
KUB-T.2D.400.R.06-K32	V45 34002	40	32	39	179	80	119	2,8	WOEX 06T304	**40013**
KUB-T.2D.410.R.06-K32	V45 34102	41	32	39	181	82	121	2,8	WOEX 06T304	**41013**
KUB-T.2D.420.R.06-K32	V45 34202	42	32	39	183	84	123	2,8	WOEX 06T304	**42013**
KUB-T.2D.430.R.06-K32	V45 34302	43	32	39	185	86	125	2,8	WOEX 06T304	**43013**
KUB-T.2D.440.R.06-K32	V45 34402	44	32	39	187	88	127	2,8	WOEX 06T304	**44013**



Key D

80 950 ...



Clamping screw

10 950 ...

Spare parts DC				
14 - 19	T06 - IP	**123**	M2,0x4,3 - 06IP	**10000**
20 - 24	T06 - IP	**123**	M2,2x5,5 - 06IP	**10700**
25 - 36	T08 - IP	**125**	M2,5x7,2 - 08IP	**10500**
37 - 44	T10 - IP	**127**	M3,5x7,3 - 10IP	**10600**

Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

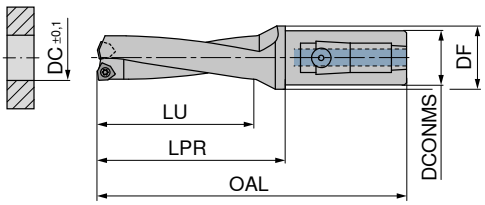
KUB Trigon – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 3xD



K





3

10 893 ...

Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	
KUB-T.3D.140.R.03-K20	V43 71404	14	20	30	116	42	66	0,62	WOEX 030204	**14011**
KUB-T.3D.150.R.03-K20	V43 71504	15	20	30	119	45	69	0,62	WOEX 030204	**15011**
KUB-T.3D.160.R.03-K20	V43 71602	16	20	30	122	48	72	0,62	WOEX 030204	**16011**
KUB-T.3D.170.R.03-K20	V43 71702	17	20	30	125	51	75	0,62	WOEX 030204	**17011**
KUB-T.3D.180.R.03-K20	V43 71802	18	20	30	128	54	78	0,62	WOEX 030204	**18011**
KUB-T.3D.190.R.03-K20	V43 71902	19	20	30	131	57	81	0,62	WOEX 030204	**19011**
KUB-T.3D.200.R.04-K25	V44 72002	20	25	30	140	60	84	1,01	WOEX 040304	**20012**
KUB-T.3D.210.R.04-K25	V44 72102	21	25	30	143	63	87	1,01	WOEX 040304	**21012**
KUB-T.3D.220.R.04-K25	V44 72202	22	25	30	146	66	90	1,01	WOEX 040304	**22012**
KUB-T.3D.230.R.04-K25	V44 72302	23	25	30	149	69	93	1,01	WOEX 040304	**23012**
KUB-T.3D.240.R.04-K25	V44 72402	24	25	30	152	72	96	1,01	WOEX 040304	**24012**
KUB-T.3D.250.R.05-K32	V45 72502	25	32	39	159	75	99	1,28	WOEX 05T304	**25013**
KUB-T.3D.260.R.05-K32	V45 72602	26	32	39	162	78	102	1,28	WOEX 05T304	**26013**
KUB-T.3D.270.R.05-K32	V45 72702	27	32	39	165	81	105	1,28	WOEX 05T304	**27013**
KUB-T.3D.280.R.05-K32	V45 72802	28	32	39	168	84	108	1,28	WOEX 05T304	**28013**
KUB-T.3D.290.R.05-K32	V45 72902	29	32	39	171	87	111	1,28	WOEX 05T304	**29013**
KUB-T.3D.300.R.05-K32	V45 73002	30	32	39	179	90	119	1,28	WOEX 05T304	**30013**
KUB-T.3D.310.R.05-K32	V45 73102	31	32	39	182	93	122	1,28	WOEX 05T304	**31013**
KUB-T.3D.320.R.05-K32	V45 73202	32	32	39	185	96	125	1,28	WOEX 05T304	**32013**
KUB-T.3D.330.R.05-K32	V45 73302	33	32	39	188	99	128	1,28	WOEX 05T304	**33013**
KUB-T.3D.340.R.05-K32	V45 73402	34	32	39	191	102	131	1,28	WOEX 05T304	**34013**
KUB-T.3D.350.R.05-K32	V45 73502	35	32	39	194	105	134	1,28	WOEX 05T304	**35013**
KUB-T.3D.360.R.05-K32	V45 73602	36	32	39	197	108	137	1,28	WOEX 05T304	**36013**
KUB-T.3D.370.R.06-K32	V45 73702	37	32	39	210	111	150	2,8	WOEX 06T304	**37013**
KUB-T.3D.380.R.06-K32	V45 73802	38	32	39	213	114	153	2,8	WOEX 06T304	**38013**
KUB-T.3D.390.R.06-K32	V45 73902	39	32	39	216	117	156	2,8	WOEX 06T304	**39013**
KUB-T.3D.400.R.06-K32	V45 74002	40	32	39	219	120	159	2,8	WOEX 06T304	**40013**
KUB-T.3D.410.R.06-K32	V45 74102	41	32	39	222	123	162	2,8	WOEX 06T304	**41013**
KUB-T.3D.420.R.06-K32	V45 74202	42	32	39	225	126	165	2,8	WOEX 06T304	**42013**
KUB-T.3D.430.R.06-K32	V45 74302	43	32	39	228	129	168	2,8	WOEX 06T304	**43013**
KUB-T.3D.440.R.06-K32	V45 74402	44	32	39	231	132	171	2,8	WOEX 06T304	**44013**



Key D

80 950 ...



Clamping screw

10 950 ...

Spare parts DC				
14 - 19	T06 - IP	**123**	M2,0x4,3 - 06IP	**10000**
20 - 24	T06 - IP	**123**	M2,2x5,5 - 06IP	**10700**
25 - 36	T08 - IP	**125**	M2,5x7,2 - 08IP	**10500**
37 - 44	T10 - IP	**127**	M3,5x7,3 - 10IP	**10600**

Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

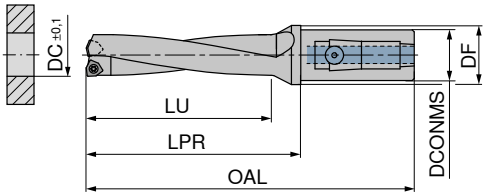
KUB Trigon – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 4xD



K





Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 894 ...
KUB-T.4D.140.R.03-K20	V43 91404	14	20	30	130	56	80	0,62	WOEX 030204	14011
KUB-T.4D.150.R.03-K20	V43 91504	15	20	30	134	60	84	0,62	WOEX 030204	15011
KUB-T.4D.160.R.03-K20	V43 91602	16	20	30	138	64	88	0,62	WOEX 030204	16011
KUB-T.4D.170.R.03-K20	V43 91702	17	20	30	142	68	92	0,62	WOEX 030204	17011
KUB-T.4D.180.R.03-K20	V43 91802	18	20	30	146	72	96	0,62	WOEX 030204	18011
KUB-T.4D.190.R.03-K20	V43 91902	19	20	30	150	76	100	0,62	WOEX 030204	19011
KUB-T.4D.200.R.04-K25	V44 92002	20	25	30	160	80	104	1,01	WOEX 040304	20012
KUB-T.4D.210.R.04-K25	V44 92102	21	25	30	164	84	108	1,01	WOEX 040304	21012
KUB-T.4D.220.R.04-K25	V44 92202	22	25	30	168	88	112	1,01	WOEX 040304	22012
KUB-T.4D.230.R.04-K25	V44 92302	23	25	30	172	92	116	1,01	WOEX 040304	23012
KUB-T.4D.240.R.04-K25	V44 92402	24	25	30	176	96	120	1,01	WOEX 040304	24012
KUB-T.4D.250.R.05-K32	V45 92502	25	32	39	184	100	124	1,28	WOEX 05T304	25013
KUB-T.4D.260.R.05-K32	V45 92602	26	32	39	188	104	128	1,28	WOEX 05T304	26013
KUB-T.4D.270.R.05-K32	V45 92702	27	32	39	192	108	132	1,28	WOEX 05T304	27013
KUB-T.4D.280.R.05-K32	V45 92802	28	32	39	196	112	136	1,28	WOEX 05T304	28013
KUB-T.4D.290.R.05-K32	V45 92902	29	32	39	200	116	140	1,28	WOEX 05T304	29013
KUB-T.4D.300.R.05-K32	V45 93002	30	32	39	209	120	149	1,28	WOEX 05T304	30013
KUB-T.4D.310.R.05-K32	V45 93102	31	32	39	213	124	153	1,28	WOEX 05T304	31013
KUB-T.4D.320.R.05-K32	V45 93202	32	32	39	217	128	157	1,28	WOEX 05T304	32013
KUB-T.4D.330.R.05-K32	V45 93302	33	32	39	221	132	161	1,28	WOEX 05T304	33013
KUB-T.4D.340.R.05-K32	V45 93402	34	32	39	225	136	165	1,28	WOEX 05T304	34013
KUB-T.4D.350.R.05-K32	V45 93502	35	32	39	229	140	169	1,28	WOEX 05T304	35013



Key D

80 950 ...



Clamping screw

10 950 ...

Spare parts DC				
14 - 19	T06 - IP	123	M2,0x4,3 - 06IP	10000
20 - 24	T06 - IP	123	M2,2x5,5 - 06IP	10700
25 - 35	T08 - IP	125	M2,5x7,2 - 08IP	10500

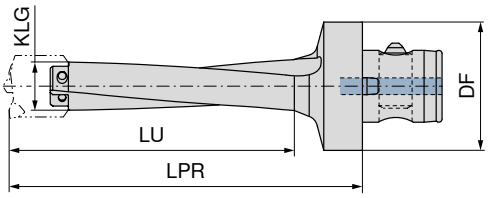
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

KUB Centron – basic element

▲ KLG = Coupling Size

≤ 4xD

ABS



NEW

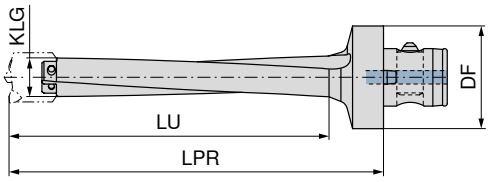


10 864 ...

Designation	KOMET no.	DF mm	LU mm	LPR mm	KLG	
KUB-C.GH.4D.190-ABS50	V47 20201	50	113	145	19	19095
KUB-C.GH.4D.250-ABS50	V47 20261	50	130	160	25	25095
KUB-C.GH.4D.320-ABS50	V47 20331	50	160	195	32	32095
KUB-C.GH.4D.385-ABS63	V47 20401	63	185	235	38,5	38596
KUB-C.GH.4D.445-ABS80	V47 20461	80	215	280	44,5	44598
KUB-C.GH.4D.535-ABS80	V47 20551	80	260	325	53,5	53598
KUB-C.GH.4D.635-ABS80	V47 20651	80	295	375	63,5	63598
KUB-C.GH.4D.705-ABS100	V47 20721	100	325	405	70,5	70591

≤ 6xD

ABS



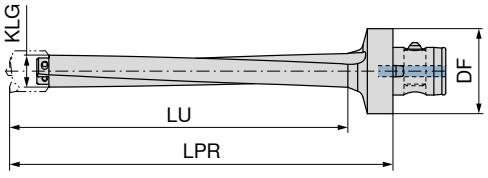


10 866 ...

Designation	KOMET no.	DF mm	LU mm	LPR mm	KLG	
KUB-C.GH.6D.190-ABS50	V47 40201	50	150	185	19	19095
KUB-C.GH.6D.250-ABS50	V47 40261	50	175	210	25	25095
KUB-C.GH.6D.320-ABS50	V47 40331	50	215	255	32	32095
KUB-C.GH.6D.385-ABS63	V47 40401	63	260	310	38,5	38596
KUB-C.GH.6D.445-ABS80	V47 40461	80	310	375	44,5	44598
KUB-C.GH.6D.535-ABS80	V47 40551	80	370	435	53,5	53598
KUB-C.GH.6D.635-ABS80	V47 40651	80	420	500	63,5	63598
KUB-C.GH.6D.705-ABS100	V47 40721	100	460	540	70,5	70591

≤ 9xD

ABS





10 869 ...

Designation	KOMET no.	DF mm	LU mm	LPR mm	KLG	
KUB-C.GH.9D.190-ABS50	V47 60201	50	200	235	19	19095
KUB-C.GH.9D.250-ABS50	V47 60261	50	230	260	25	25095
KUB-C.GH.9D.320-ABS50	V47 60331	50	290	330	32	32095
KUB-C.GH.9D.385-ABS63	V47 60401	63	340	390	38,5	38596
KUB-C.GH.9D.445-ABS80	V47 60461	80	415	480	44,5	44598
KUB-C.GH.9D.535-ABS80	V47 60551	80	495	560	53,5	53598
KUB-C.GH.9D.635-ABS80	V47 60651	80	560	640	63,5	63598
KUB-C.GH.9D.705-ABS100	V47 60721	100	610	690	70,5	70591

For correct assembly, please observe the operating instructions provided.

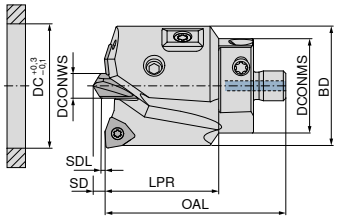
KUB Centron – drill bit Ø 20–64 mm

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

Scope of supply:

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





NEW



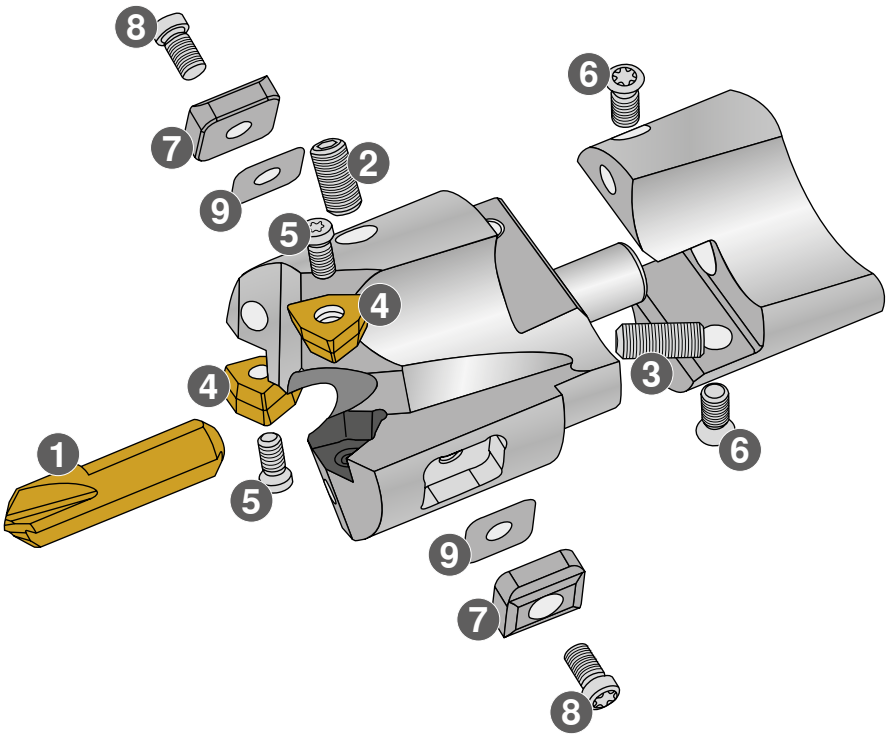
10 860 ...

Designation	KOMET no.	DC mm	OAL mm	LPR mm	SD mm	BD mm	SDL mm	DCONMS mm	DCONWS mm	KLG	torque moment Nm	Insert	
KUB-C.BK.200.R.03-19	V46 50201	20	36,5	23	2,25	19,0	1,00	19,0	5	19	0,62	WOEX 030204	20000
KUB-C.BK.210.R.03-19	V46 50211	21	36,5	23	2,25	20,0	1,00	19,0	5	19	0,62	WOEX 030204	21000
KUB-C.BK.220.R.03-19	V46 50221	22	36,5	23	2,25	21,0	1,00	19,0	5	19	0,62	WOEX 030204	22000
KUB-C.BK.230.R.03-19	V46 50231	23	36,5	23	2,25	22,0	1,00	19,0	5	19	0,62	WOEX 030204	23000
KUB-C.BK.240.R.03-19	V46 50241	24	36,5	23	2,25	23,0	1,00	19,0	5	19	0,62	WOEX 030204	24000
KUB-C.BK.250.R.03-19	V46 50251	25	36,5	23	2,25	24,0	1,00	19,0	5	19	0,62	WOEX 030204	25000
KUB-C.BK.260.R.04-25	V46 50260	26	38,0	23	2,65	25,0	1,10	25,0	6	25	1,01	WOEX 040304	26000
KUB-C.BK.270.R.04-25	V46 50270	27	38,0	23	2,65	26,0	1,10	25,0	6	25	1,01	WOEX 040304	27000
KUB-C.BK.280.R.04-25	V46 50280	28	38,0	23	2,65	27,0	1,10	25,0	6	25	1,01	WOEX 040304	28000
KUB-C.BK.290.R.04-25	V46 50290	29	38,0	23	2,65	28,0	1,10	25,0	6	25	1,01	WOEX 040304	29000
KUB-C.BK.300.R.04-25	V46 50300	30	38,0	23	2,65	29,0	1,10	25,0	6	25	1,01	WOEX 040304	30000
KUB-C.BK.310.R.04-25	V46 50310	31	38,0	23	2,65	30,0	1,10	25,0	6	25	1,01	WOEX 040304	31000
KUB-C.BK.320.R.04-25	V46 50320	32	38,0	23	2,65	31,0	1,10	25,0	6	25	1,01	WOEX 040304	32000
KUB-C.BK.330.R.05-32	V46 50330	33	39,2	23	2,65	32,0	1,10	32,0	6	32	1,28	WOEX 05T304	33000
KUB-C.BK.340.R.05-32	V46 50340	34	39,2	23	2,65	33,0	1,10	32,0	6	32	1,28	WOEX 05T304	34000
KUB-C.BK.350.R.05-32	V46 50350	35	39,2	23	2,65	34,0	1,10	32,0	6	32	1,28	WOEX 05T304	35000
KUB-C.BK.360.R.05-32	V46 50360	36	39,2	23	2,65	35,0	1,10	32,0	6	32	1,28	WOEX 05T304	36000
KUB-C.BK.370.R.05-32	V46 50370	37	39,2	23	2,65	36,0	1,10	32,0	6	32	1,28	WOEX 05T304	37000
KUB-C.BK.380.R.05-32	V46 50380	38	39,2	23	2,65	37,0	1,10	32,0	6	32	1,28	WOEX 05T304	38000
KUB-C.BK.390.R.05-32	V46 50390	39	39,2	23	2,65	38,0	1,10	32,0	6	32	1,28	WOEX 05T304	39000
KUB-C.BK.400.R.05-38,5	V46 50400	40	43,1	25	3,38	38,5	1,25	38,5	8	38,5	1,28	WOEX 05T304	40000
KUB-C.BK.410.R.05-38,5	V46 50410	41	43,1	25	3,38	39,5	1,25	38,5	8	38,5	1,28	WOEX 05T304	41000
KUB-C.BK.420.R.05-38,5	V46 50420	42	43,1	25	3,38	40,5	1,25	38,5	8	38,5	1,28	WOEX 05T304	42000
KUB-C.BK.430.R.05-38,5	V46 50430	43	43,1	25	3,38	41,5	1,25	38,5	8	38,5	1,28	WOEX 05T304	43000
KUB-C.BK.440.R.05-38,5	V46 50440	44	43,1	25	3,38	42,5	1,25	38,5	8	38,5	1,28	WOEX 05T304	44000
KUB-C.BK.450.R.05-38,5	V46 50450	45	43,1	25	3,38	43,5	1,25	38,5	8	38,5	1,28	WOEX 05T304	45000
KUB-C.BK.460.R.06-44,5	V46 50460	46	47,0	25	3,86	44,5	1,25	44,5	10	44,5	2,8	WOEX 06T304	46000
KUB-C.BK.470.R.06-44,5	V46 50470	47	47,0	25	3,86	45,5	1,25	44,5	10	44,5	2,8	WOEX 06T304	47000
KUB-C.BK.480.R.06-44,5	V46 50480	48	47,0	25	3,86	46,5	1,25	44,5	10	44,5	2,8	WOEX 06T304	48000
KUB-C.BK.490.R.06-44,5	V46 50490	49	47,0	25	3,86	47,5	1,25	44,5	10	44,5	2,8	WOEX 06T304	49000
KUB-C.BK.500.R.06-44,5	V46 50500	50	47,0	25	3,86	48,5	1,25	44,5	10	44,5	2,8	WOEX 06T304	50000
KUB-C.BK.510.R.06-44,5	V46 50510	51	47,0	25	3,86	49,5	1,25	44,5	10	44,5	2,8	WOEX 06T304	51000
KUB-C.BK.520.R.06-44,5	V46 50520	52	47,0	25	3,86	50,5	1,25	44,5	10	44,5	2,8	WOEX 06T304	52000
KUB-C.BK.530.R.06-44,5	V46 50530	53	47,0	25	3,86	51,5	1,25	44,5	10	44,5	2,8	WOEX 06T304	53000
KUB-C.BK.540.R.06-44,5	V46 50540	54	47,0	25	3,86	52,5	1,25	44,5	10	44,5	2,8	WOEX 06T304	54000
KUB-C.BK.550.R.08-53,5	V46 50550	55	52,0	30	3,86	53,5	1,25	53,5	10	53,5	6,25	WOEX 080404	55000
KUB-C.BK.560.R.08-53,5	V46 50560	56	52,0	30	3,86	54,5	1,25	53,5	10	53,5	6,25	WOEX 080404	56000
KUB-C.BK.570.R.08-53,5	V46 50570	57	52,0	30	3,86	55,5	1,25	53,5	10	53,5	6,25	WOEX 080404	57000
KUB-C.BK.580.R.08-53,5	V46 50580	58	52,0	30	3,86	56,5	1,25	53,5	10	53,5	6,25	WOEX 080404	58000
KUB-C.BK.590.R.08-53,5	V46 50590	59	52,0	30	3,86	57,5	1,25	53,5	10	53,5	6,25	WOEX 080404	59000
KUB-C.BK.600.R.08-53,5	V46 50600	60	52,0	30	3,86	58,5	1,25	53,5	10	53,5	6,25	WOEX 080404	60000
KUB-C.BK.610.R.08-53,5	V46 50610	61	52,0	30	3,86	59,5	1,25	53,5	10	53,5	6,25	WOEX 080404	61000
KUB-C.BK.620.R.08-53,5	V46 50620	62	52,0	30	3,86	60,5	1,25	53,5	10	53,5	6,25	WOEX 080404	62000
KUB-C.BK.630.R.08-53,5	V46 50630	63	52,0	30	3,86	61,5	1,25	53,5	10	53,5	6,25	WOEX 080404	63000
KUB-C.BK.640.R.08-53,5	V46 50640	64	52,0	30	3,86	62,5	1,25	53,5	10	53,5	6,25	WOEX 080404	64000

Spare parts DC	Guide pad clamping screw 10 950 ...		Indexable insert clamping screw 10 950 ...		Guide pad 10 950 ...	Shim set 10 950 ...
20	M2,5x4,2 - 8IP - 1,28Nm	11900	M2,0x4,3 - 06IP	10000	14600	15200
21 - 22	M2,5x4,2 - 8IP - 1,28Nm	11900	M2,0x4,3 - 06IP	10000	14600	15200
23 - 25	M2,5x4,5 - 8IP - 1,28Nm	11700	M2,0x4,3 - 06IP	10000	14700	15200
26 - 29	M2,5x4,5 - 8IP - 1,28Nm	11700	M2,2x5,5 - 06IP	10700	14700	15200
30 - 32	M2,5x4,5 - 8IP - 1,28Nm	11700	M2,2x5,5 - 06IP	10700	14800	15200
33 - 36	M2,5x4,5 - 8IP - 1,28Nm	11700	M2,5x7,2 - 08IP	10500	14800	15200
37 - 39	M2,5x4,5 - 8IP - 1,28Nm	11700	M2,5x7,2 - 08IP	10500	14900	15200
40 - 45	M2,5x4,5 - 8IP - 1,28Nm	11700	M2,5x7,2 - 08IP	10500	14900	15200
46 - 54	M3,5x5,0 - 8IP - 2,25Nm	11800	M3,5x7,3 - 10IP	10600	15000	15300
55 - 64	M3,5x5,0 - 8IP - 2,25Nm	11800	M4,5x9 - 15IP	12700	15100	15300

Spare parts DC	Basic element clamping screw 10 950 ...		Centring tip clamping screw 10 950 ...	
20	M2,5x6,4 - 08IP - 1,28Nm	12400	M4x6 - SW2 - 1,5Nm	12800
21 - 22	M2,5x6,4 - 08IP - 1,28Nm	12400	M4x8 - SW2 - 1,5Nm	12900
23 - 25	M2,5x6,4 - 08IP - 1,28Nm	12400	M4x8 - SW2 - 1,5Nm	12900
26 - 29	M3x7,4 - 08IP - 2,25Nm	12500	M5x10 - SW2,5 - 2,5Nm	13000
30 - 32	M3x7,4 - 08IP - 2,25Nm	12500	M5x10 - SW2,5 - 2,5Nm	13000
33 - 36	M4x8,9 - 15IP - 4,3Nm	12000	M5x12 - SW2,5 - 2,5Nm	13100
37 - 39	M4x8,9 - 15IP - 4,3Nm	12000	M5x12 - SW2,5 - 2,5Nm	13100
40 - 45	M4,5x10,5 - 20IP - 6,25Nm	12600	M6x12 - SW3 - 5Nm	13200
46 - 54	M5x11,5 - 20IP - 6,25Nm	12100	M8x16 - SW4 - 8Nm	13300
55 - 64	M5,5x14 - 20IP - 6,25Nm	12200	M8x16 - SW4 - 8Nm	13300

Exploded drawing of the drill head Ø 20–64 mm



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

For correct assembly, please observe the operating instructions provided.

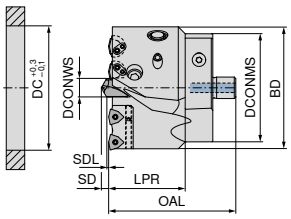
KUB Centron – drill bit Ø 65–81 mm

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

Scope of supply:

- Drill bit incl. screws, indexable insert, carbide bolt, key, grub screw and copper disc
- Order centring tip and indexable inserts separately





NEW



10 860 ...

Designation	KOMET no.	DC mm	OAL mm	LPR mm	SD mm	BD mm	SDL mm	DCONMS mm	DCONWS mm	KLG	torque moment Nm	Insert	
KUB-C.BK.650.R.08-63,5	V46 50650	65	63,0	35	4,67	63,5	1,45	63,5	12	63,5	6,25	WOEX 05T304	**65000**
KUB-C.BK.660.R.08-63,5	V46 50660	66	63,0	35	4,67	64,5	1,45	63,5	12	63,5	6,25	WOEX 05T304	**66000**
KUB-C.BK.670.R.08-63,5	V46 50670	67	63,0	35	4,67	65,5	1,45	63,5	12	63,5	6,25	WOEX 05T304	**67000**
KUB-C.BK.680.R.08-63,5	V46 50680	68	63,0	35	4,67	66,5	1,45	63,5	12	63,5	6,25	WOEX 05T304	**68000**
KUB-C.BK.690.R.08-63,5	V46 50690	69	63,0	35	4,67	67,5	1,45	63,5	12	63,5	6,25	WOEX 05T304	**69000**
KUB-C.BK.700.R.08-63,5	V46 50700	70	63,0	35	4,67	68,5	1,45	63,5	12	63,5	6,25	WOEX 05T304	**70000**
KUB-C.BK.710.R.08-70,5	V46 50710	71	63,0	35	4,67	69,5	1,45	70,5	12	70,5	6,25	WOEX 05T304	**71000**
KUB-C.BK.720.R.08-70,5	V46 50720	72	80,5	50	4,67	70,5	1,45	70,5	12	70,5	6,25	WOEX 05T304	**72000**
KUB-C.BK.730.R.08-70,5	V46 50730	73	80,5	50	4,67	71,5	1,45	70,5	12	70,5	6,25	WOEX 05T304	**73000**
KUB-C.BK.740.R.08-70,5	V46 50740	74	80,5	50	4,67	72,5	1,45	70,5	12	70,5	6,25	WOEX 05T304	**74000**
KUB-C.BK.750.R.08-70,5	V46 50750	75	80,5	50	4,67	73,5	1,45	70,5	12	70,5	6,25	WOEX 05T304	**75000**
KUB-C.BK.760.R.08-70,5	V46 50760	76	80,5	50	4,67	74,5	1,45	70,5	12	70,5	6,25	WOEX 05T304	**76000**
KUB-C.BK.770.R.08-70,5	V46 50770	77	80,5	50	4,67	75,5	1,45	70,5	12	70,5	6,25	WOEX 05T304	**77000**
KUB-C.BK.780.R.08-70,5	V46 50780	78	80,5	50	4,67	76,5	1,45	70,5	12	70,5	6,25	WOEX 05T304	**78000**
KUB-C.BK.790.R.08-70,5	V46 50790	79	80,5	50	4,67	77,5	1,45	70,5	12	70,5	6,25	WOEX 05T304	**79000**
KUB-C.BK.800.R.08-70,5	V46 50800	80	80,5	50	4,67	78,5	1,45	70,5	12	70,5	6,25	WOEX 05T304	**80000**
KUB-C.BK.810.R.08-70,5	V46 50810	81	80,5	50	4,67	79,5	1,45	70,5	12	70,5	6,25	WOEX 05T304	**81000**



Grub screw

10 950 ...



Copper disc

10 950 ...



Indexable insert fixing screw

10 950 ...



Indexable insert fixing screw

10 950 ...

Spare parts DC								
65 - 71	M6x8 - SW3	**11300**	Ø4,5x1,5	**11400**	M4,5x11,5 - T15	**13500**		
72 - 75	M6x8 - SW3	**11300**	Ø4,5x1,5	**11400**	M5x12 - SW2,5	**11000**	M2,5x6 - 08IP - 1,28Nm	**11600**
76 - 78	M6x8 - SW3	**11300**	Ø4,5x1,5	**11400**	M5x12 - SW2,5	**11000**	M2,5x6 - 08IP - 1,28Nm	**11600**
79 - 81	M6x8 - SW3	**11300**	Ø4,5x1,5	**11400**	M5x12 - SW2,5	**11000**	M2,5x6 - 08IP - 1,28Nm	**11600**



Indexable insert seat

10 950 ...



Indexable insert seat

10 950 ...



Indexable insert seat

10 950 ...



Cylindrical pin

10 950 ...



Indexable insert adjusting screw

10 950 ...



Basic element clamping screw

10 950 ...

Spare parts DC								
65 - 71		**13800**					M4x8 - SW2	**11100**	M6x16 - 20IP - 6,25Nm	**12300**
72 - 75		**13900**		**13700**		**13600**		**11500**	M4x10 - SW2	**11200**	M6x16 - 20IP - 6,25Nm	**12300**
76 - 78		**14000**		**13700**		**13600**		**11500**	M4x10 - SW2	**11200**	M6x16 - 20IP - 6,25Nm	**12300**
79 - 81		**14100**		**13700**		**13600**		**11500**	M4x10 - SW2	**11200**	M6x16 - 20IP - 6,25Nm	**12300**



Carbide bolt key

10 950 ...



Carbide bolt

10 950 ...



Indexable insert clamping screw

10 950 ...

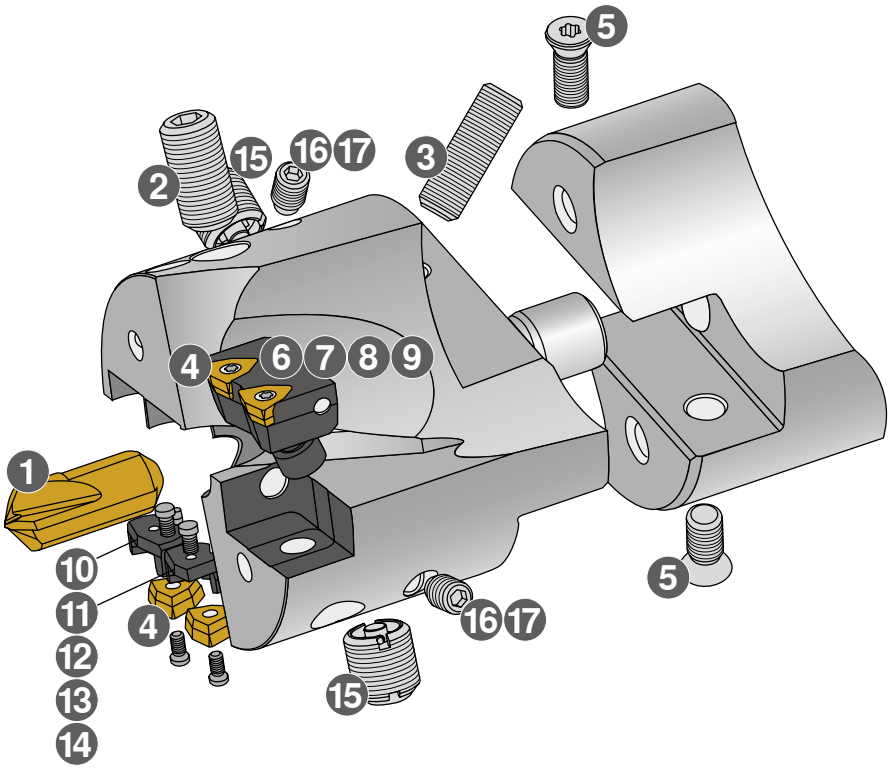


Centring tip clamping screw

10 950 ...

Spare parts DC								
65 - 71		**15500**	M12x1	**15400**	M2,5x7,2 - 08IP	**10500**	M10x20 - SW5 - 16Nm	**13400**
72 - 75		**15500**	M12x1	**15400**	M2,5x7,2 - 08IP	**10500**	M10x20 - SW5 - 16Nm	**13400**
76 - 78		**15500**	M12x1	**15400**	M2,5x7,2 - 08IP	**10500**	M10x20 - SW5 - 16Nm	**13400**
79 - 81		**15500**	M12x1	**15400**	M2,5x7,2 - 08IP	**10500**	M10x20 - SW5 - 16Nm	**13400**

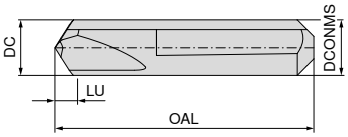
Exploded drawing of the drill head Ø 65–81 mm

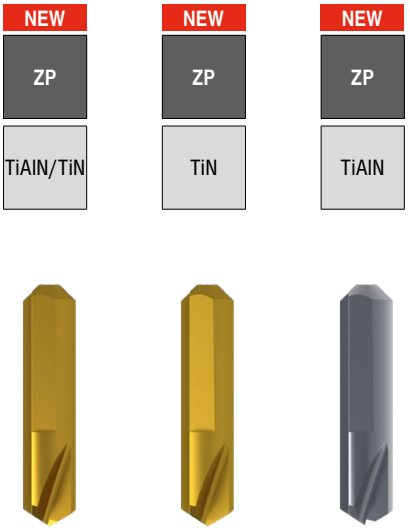


1. Centring tip
2. Clamping screw for centring tip
3. Adjusting screw for centring tip
4. Indexable Insert
5. Clamping screw for basic element
6. Indexable insert seat
7. Fixing screw for indexable insert
8. Adjusting screw for indexable insert
9. Clamping screw for indexable insert
10. Indexable insert seat
11. Indexable insert seat
12. Fixing screw for indexable insert
13. Cylindrical pin for indexable insert
14. Clamping screw for indexable insert
15. Carbide bolt
16. Grub screw
17. Copper disc

For correct assembly, please observe the operating instructions provided.

KUB Centron – centring tip





DC mm	KOMET no.	OAL mm	LU mm	DCONMS mm	120° Solid carbide 10 863 ...		120° HSS 10 862 ...		120° HSS 10 862 ...	
5	V95 10012.0089	21,5	2,25	5				00500		
5	V95 10012.0090	21,5	2,25	5						10500
5	V95 10310.8450	21,5	2,25	5		20500				
6	V95 10022.0089	23,0	2,65	6				00600		
6	V95 10022.0090	23,0	2,65	6						10600
6	V95 10320.8450	23,0	2,65	6		20600				
8	V95 10032.0089	27,0	3,38	8				00800		
8	V95 10032.0090	27,0	3,38	8						10800
8	V95 10330.8450	27,0	3,38	8		20800				
10	V95 10042.0089	28,0	3,86	10				01000		
10	V95 10042.0090	28,0	3,86	10						11000
10	V95 10340.8450	28,0	3,86	10		21000				
12	V95 10050.0089	30,8	4,67	12				01200		
12	V95 10050.0090	30,8	4,67	12						11200
P						●		●		
M						●				●
K						●				●
N						●		●		
S						○				●
H										
O						○		○		

→ v_c Page 72+73

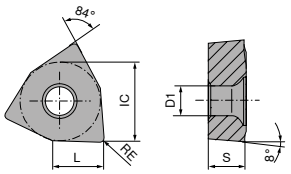
The cutting data of the KUB Centron depends on the centring tip and not on the indexable inserts.
Please select the cutting data of the centring tip.

For correct assembly, please observe the operating instructions provided.

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

WOEX

Designation	L mm	IC mm	S mm	D1 mm
WOEX 0302..	3,2	5,00	2,30	2,30
WOEX 0403..	4,1	6,35	3,18	2,55
WOEX 05T3..	5,3	8,00	3,80	2,85
WOEX 06T3..	6,6	10,00	3,80	4,05
WOEX 0804..	7,9	12,00	4,80	4,90
WOEX 0804..	7,9	12,00	4,80	4,95
WOEX 1005..	9,9	15,00	5,30	4,90
WOEX 1206..	11,6	17,60	6,00	6,00



WOEX

	-01 BK8425	-03 BK8425	-13 BK8425	-01 BK7935	-01 BK6115
					
	WOEX	WOEX	WOEX	WOEX	WOEX
	10 821 ...	10 821 ...	10 821 ...	10 821 ...	10 821 ...

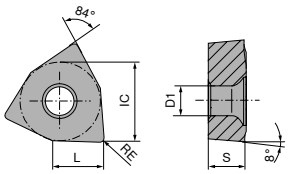
ISO	KOMET no.	RE mm									
030204	W29 10130.048425	0,4					30313				
030204	W29 10030.048425	0,4		30303							
030204	W29 10010.047935	0,4						50301			
030204	W29 10010.048425	0,4	30301								
030204	W29 10010.046115	0,4								40301	
040304	W29 18130.048425	0,4					30413				
040304	W29 18030.048425	0,4		30403							
040304	W29 18010.047935	0,4						50401			
040304	W29 18010.048425	0,4	30401								
040304	W29 18010.046115	0,4								40401	
05T304	W29 24130.048425	0,4					30513				
05T304	W29 24030.048425	0,4		30503							
05T304	W29 24010.047935	0,4						50501			
05T304	W29 24010.048425	0,4	30501								
05T304	W29 24010.046115	0,4								40501	
06T304	W29 34130.048425	0,4					30613				
06T304	W29 34030.048425	0,4		30603							
06T304	W29 34010.047935	0,4						50601			
06T304	W29 34010.048425	0,4	30601								
06T304	W29 34010.046115	0,4								40601	
080404	W29 42130.048425	0,4					30813				
080404	W29 42010.048425	0,4	30801								
080404	W29 42010.046115	0,4								40801	
100504	W29 50010.046115	0,4								41001	
100504	W29 50010.048425	0,4	31001								
120608	W29 58010.086115	0,8								41201	
120608	W29 58010.088425	0,8	31201								
P			●	●	●	●	●				
M			●	●	●	●	●				
K			●	●	●	●	●				
N			○	○	○	○					
S						●					
H			○	○	○		○				
O											

→ v_c/f_z Page 68

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

WOEX

Designation	L mm	IC mm	S mm	D1 mm
WOEX 0302..	3,2	5,00	2,30	2,30
WOEX 0403..	4,1	6,35	3,18	2,55
WOEX 05T3..	5,3	8,00	3,80	2,85
WOEX 06T3..	6,6	10,00	3,80	4,05
WOEX 0804..	7,9	12,00	4,80	4,95



WOEX

	-01 BK7615	-01 BK62	-11 BK77	-13 BK79
				
	WOEX	WOEX	WOEX	WOEX
	10 821 ...	**10 821 ...**	**10 821 ...**	**10 821 ...**

ISO	KOMET no.	RE mm							
030204	W29 10010.0462	0,4			**20301**				
030204	W29 10110.0477	0,4					**80311**		
030204	W29 10010.047615	0,4	**05301**						
030204	W29 10130.0479	0,4							**15313**
040304	W29 18110.0477	0,4					**80411**		
040304	W29 18010.0462	0,4			**20401**				
040304	W29 18010.047615	0,4	**05401**						
040304	W29 18130.0479	0,4							**15413**
05T304	W29 24110.0477	0,4					**80511**		
05T304	W29 24010.0462	0,4			**20501**				
05T304	W29 24010.047615	0,4	**05501**						
05T304	W29 24130.0479	0,4							**15513**
06T304	W29 34110.0477	0,4					**80611**		
06T304	W29 34010.0462	0,4			**20601**				
06T304	W29 34010.047615	0,4	**05601**						
06T304	W29 34130.0479	0,4							**15613**
080404	W29 42110.0477	0,4					**80811**		
080404	W29 42010.047615	0,4	**05801**						
080404	W29 42130.0479	0,4							**15813**

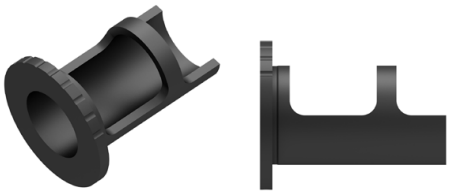
P									●
M									●
K			●		●				●
N									○
S							●		
H					○		○		
O							○		

→ v_c/f_z Page 68

Application tips – eccentric sleeves

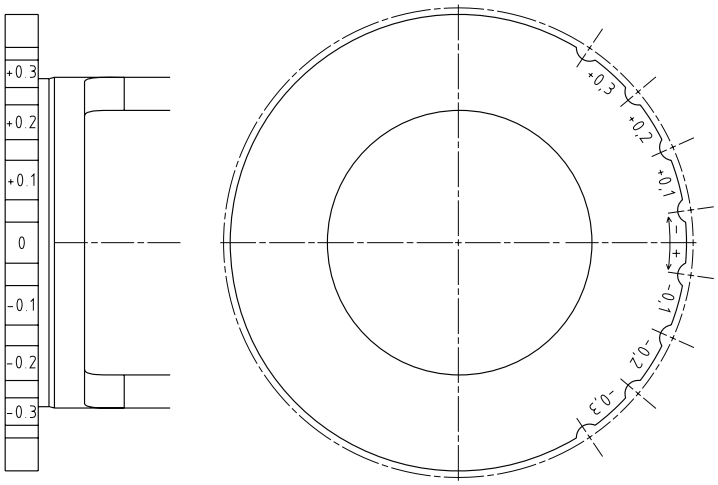


Eccentric sleeve for indexable insert drill adapter



Eccentric sleeve for Weldon adapter

A scale is engraved on every eccentric sleeve (radially and on the face), so that the user can adjust the bore diameter according to requirements.



Side view *End view*

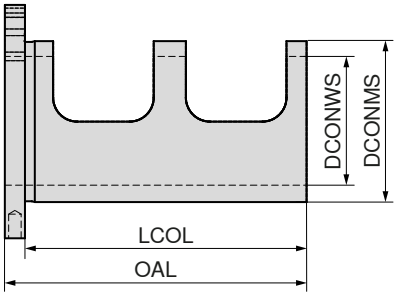
Instructions for use

1. Position the sleeve in the respective adapter and insert the indexable insert drill.
2. Set the sleeve to the zero position. → The „0“ must align with the clamping screws on the adapter.
3. Clamp the adapter's clamping screws.
4. Drill.
5. Measure the bore diameter.
6. Loosen the clamping screws.
7. Correct the bore diameter using the sleeve. → Observe the scale on the sleeve. The value must align with the clamping screws on the adapter.
8. Clamp the clamping screws.
9. Drill.

A scale is engraved on every eccentric sleeve (radially and on the face).

Owing to the radial adjustment of the drill axis, the feed rate should be reduced by approx. 30 % for longer drilling tools (4xD and 5xD).

Eccentric sleeve – indexable insert drill adapter

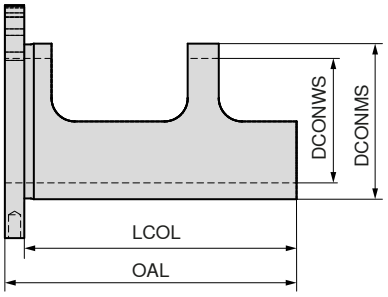




10 870 ...

Designation	DCONWS mm	DCONMS mm	OAL mm	LCOL mm	
EHB.D20.D25	20	25	61	56	**120**
EHB.D25.D32	25	32	65	60	**125**
EHB.D32.D40	32	40	75	70	**132**
EHB.D40.D50	40	50	85	80	**140**

Eccentric sleeve – standard Weldon adapter





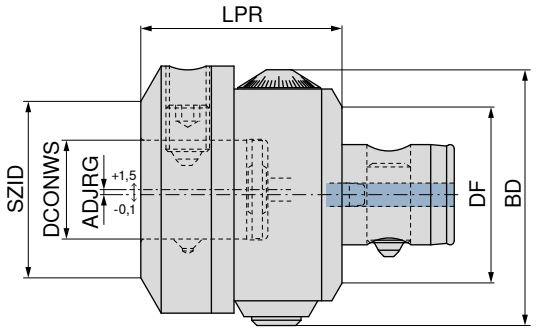
10 871 ...

Designation	DCONWS mm	DCONMS mm	OAL mm	LCOL mm	
EHW.D20.D25	20	25	61	56	**120**
EHW.D25.D32	25	32	65	60	**125**
EHW.D32.D40	32	40	75	70	**132**
EHW.D40.D50	40	50	85	80	**140**

Application tips for eccentric sleeves can be found on → **Page 55.**

Adjuster with ABS connection

- Precise adjustment using micrometric adjusting spindle
- Max. adjustment range 3 mm on diameter
- Graduation of scale 1 line 0.02 mm on diameter
- Stable clamping of the top section after adjustment using four clamping screws arranged on the face
- SZID = nominal size







AD

84 210 ...

Adapter	KOMET no.	BD mm	LPR mm	DF mm	DCONWS mm	ADJRG mm	SZID	
ABS 50	M01 00001	70	57	50	28	1,5	ABS 50	**05097**
ABS 63	M01 00011	88	70	63	28	1,5	ABS 50	**06397**
ABS 63	M01 00021	88	70	63	34	1,5	ABS 63	**06396**

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²				
		O.3.1	Graphite						

*** Tensile strength**

Cutting data standard values for SOGX indexable inserts

	SOGX 10 820 ...						
Index	-01 / -13 / -32 BK8425	-03 BK8430	-34 BK8425	-01 BK7935	-01 BK6115	-01 BK6425	-01 BK7710
	v_c in m/min						
P.1.1	**260**	**260**		**250**	**300**	**320**	
P.1.2	**260**	**260**	260	**220**	**300**	**320**	
P.1.3	**270**	**270**		**270**	**270**	**280**	
P.1.4	**250**	**250**		**250**	**250**	**250**	
P.1.5	**270**	**270**	270	**200**	**300**	**290**	
P.2.1	**270**	**270**		**270**	**270**	**280**	
P.2.2	**260**	**260**		**260**	**260**	**270**	
P.2.3	**180**	**180**	180	**160**	**240**	**260**	
P.2.4	**150**	**150**	150	**130**	**200**	**210**	
P.3.1	**160**	**160**	160	**140**	**200**	**220**	
P.3.2	**130**	**130**	130	**120**	**160**	**180**	
P.3.3	**120**	**120**	120	**110**	**140**	**160**	
P.4.1	**180**	**180**		**150**	**220**	**240**	
P.4.2	**130**	**130**		**120**	**160**	**180**	
M.1.1	**150**	**150**		**160**	**220**	**200**	
M.2.1	**150**	**150**		**160**	**220**	**200**	
M.3.1	**140**	**140**		**150**	**200**	**180**	
K.1.1	**160**	**160**	**160**	**150**	**240**	**200**	
K.1.2	**120**	**120**	**120**	**120**	**180**	**150**	
K.2.1	**160**	**160**	**160**	**150**	**160**	**160**	
K.2.2	**100**	**100**	**100**	**90**	**100**	**100**	
K.3.1	**120**	**120**	**120**	**110**	**120**	**120**	
K.3.2	**100**	**100**	**100**	**90**	**100**	**100**	
N.1.1	400	400		400			**500**
N.1.2	400	400		400			**500**
N.2.1	250	250		250			**280**
N.2.2	250	250		250			**280**
N.2.3	230	230		230			**250**
N.3.1	200	200		200			**250**
N.3.2	220	220		220			**280**
N.3.3	330	330		330			**390**
N.4.1	200	200		200			**250**
S.1.1	**60**	**60**		**60**			
S.1.2	**50**	**50**		**50**			
S.2.1	**60**	**60**		**60**			
S.2.2	**50**	**50**		**50**			
S.2.3	**30**	**30**		**30**			
S.3.1	**100**	**100**		**100**			100
S.3.2	**80**	**80**		**80**			80
S.3.3	**50**	**50**		**50**			50
H.1.1	100	100			100		
H.1.2	80	80			80		
H.1.3	50	50			50		
H.1.4							
H.2.1	100	100			100		
H.3.1	80	80			80		
O.1.1				100			100
O.1.2				100			100
O.2.1							
O.2.2				100			100
O.3.1				100			100

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

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

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

	ABS / PSC / C 10 872 ..., 10 873 ...								
Index	Ø 14–15,5 mm	Ø 16–17,5 mm	Ø 18–19,5 mm	Ø 20–21,5 mm	Ø 22–23,5 mm	Ø 24–25,5 mm	Ø 26–27,5 mm	Ø 28–30 mm	Ø 31–33 mm
	f in mm/rev.								
P.1.1	0,08	0,08	0,09	0,10	0,10	0,10	0,10	0,10	0,10
P.1.2	0,10	0,13	0,13	0,15	0,16	0,15	0,18	0,18	0,18
P.1.3	0,08	0,12	0,12	0,13	0,13	0,13	0,13	0,13	0,13
P.1.4	0,08	0,11	0,11	0,12	0,12	0,12	0,12	0,12	0,12
P.1.5	0,09	0,12	0,12	0,14	0,14	0,14	0,16	0,16	0,16
P.2.1	0,08	0,12	0,12	0,13	0,13	0,13	0,13	0,13	0,13
P.2.2	0,08	0,11	0,11	0,12	0,12	0,12	0,12	0,12	0,12
P.2.3	0.12	0,14	0,16	0,16	0,16	0,18	0,18	0,18	0,18
P.2.4	0.10	0,11	0,13	0,13	0,13	0,14	0,14	0,14	0,14
P.3.1	0,08	0,12	0,12	0,16	0,16	0,18	0,18	0,18	0,18
P.3.2	0,07	0,10	0,10	0,13	0,13	0,14	0,14	0,14	0,14
P.3.3	0,06	0,08	0,08	0,11	0,11	0,13	0,13	0,13	0,13
P.4.1	0,09	0,13	0,13	0,18	0,18	0,20	0,20	0,20	0,20
P.4.2	0,07	0,10	0,10	0,13	0,13	0,14	0,14	0,14	0,14
M.1.1	0,10	0,10	0,12	0,14	0,15	0,15	0,15	0,15	0,15
M.2.1	0,10	0,08	0,08	0,11	0,11	0,14	0,14	0,14	0,14
M.3.1	0,09	0,07	0,07	0,10	0,10	0,13	0,13	0,13	0,13
K.1.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25
K.1.2	0,09	0,11	0,11	0,14	0,14	0,17	0,19	0,19	0,19
K.2.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25
K.2.2	0,10	0,12	0,12	0,14	0,14	0,18	0,20	0,20	0,20
K.3.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25
K.3.2	0,10	0,12	0,12	0,14	0,14	0,18	0,20	0,20	0,20
N.1.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13
N.1.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13
N.2.1	0,10	0,13	0,13	0,13	0,15	0,15	0,15	0,15	0,15
N.2.2	0,10	0,13	0,13	0,13	0,15	0,15	0,15	0,15	0,15
N.2.3	0,09	0,12	0,12	0,12	0,14	0,14	0,14	0,14	0,14
N.3.1	0,10	0,12	0,13	0,13	0,15	0,15	0,15	0,15	0,15
N.3.2	0,11	0,13	0,14	0,14	0,17	0,17	0,17	0,17	0,17
N.3.3	0,11	0,12	0,12	0,14	0,14	0,14	0,14	0,14	0,14
N.4.1	0,10	0,12	0,13	0,13	0,15	0,15	0,15	0,15	0,15
S.1.1	0,03	0,03	0,03	0,03	0,04	0,06	0,06	0,06	0,06
S.1.2	0,03	0,03	0,03	0,03	0,04	0,04	0,06	0,06	0,06
S.2.1	0,03	0,03	0,03	0,03	0,04	0,06	0,06	0,06	0,06
S.2.2	0,03	0,03	0,03	0,03	0,04	0,04	0,06	0,06	0,06
S.2.3	0,02	0,02	0,02	0,02	0,03	0,03	0,04	0,04	0,04
S.3.1	0,05	0,05	0,05	0,05	0,06	0,08	0,10	0,10	0,10
S.3.2	0,04	0,04	0,04	0,04	0,05	0,07	0,09	0,09	0,09
S.3.3	0,03	0,03	0,03	0,03	0,04	0,04	0,06	0,06	0,06
H.1.1	0,05	0,05	0,05	0,05	0,06	0,06	0,06	0,06	0,06
H.1.2	0,03	0,03	0,03	0,03	0,04	0,04	0,04	0,04	0,04
H.1.3	0,03	0,03	0,03	0,03	0,04	0,04	0,04	0,04	0,04
H.1.4									
H.2.1	0,04	0,04	0,04	0,04	0,05	0,05	0,05	0,05	0,05
H.3.1	0,03	0,03	0,03	0,03	0,04	0,04	0,04	0,04	0,04
O.1.1	0,08	0,08	0,08	0,10	0,10	0,10	0,10	0,10	0,10
O.1.2	0,08	0,08	0,08	0,10	0,10	0,10	0,10	0,10	0,10
O.2.1									
O.2.2	0,06	0,06	0,06	0,06	0,07	0,07	0,07	0,07	0,07
O.3.1	0,10	0,10	0,10	0,10	0,11	0,11	0,11	0,11	0,11

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

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

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

	ABS / PSC / C 10 872 ..., 10 873 ...					KUB Pentron CS – 3xD 10 876 ...			
Index	Ø 34–37 mm	Ø 38–42 mm	Ø 43–46 mm	Ø 46–52 mm	Ø 53–65 mm	Ø 64–69 mm	Ø 70–75 mm	Ø 76–84 mm	Ø 85–96 mm
	f in mm/rev.								
P.1.1	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10
P.1.2	0,18	0,18	0,18	0,18	0,18	0,15	0,15	0,15	0,15
P.1.3	0,13	0,13	0,13	0,16	0,16	0,15	0,15	0,15	0,15
P.1.4	0,12	0,12	0,12	0,14	0,14	0,14	0,14	0,14	0,14
P.1.5	0,16	0,16	0,16	0,16	0,16	0,14	0,14	0,14	0,14
P.2.1	0,13	0,13	0,13	0,16	0,16	0,15	0,15	0,15	0,15
P.2.2	0,12	0,12	0,12	0,14	0,14	0,14	0,14	0,14	0,14
P.2.3	0,18	0,18	0,18	0,18	0,18	0,20	0,20	0,20	0,20
P.2.4	0,14	0,14	0,14	0,14	0,14	0,16	0,16	0,16	0,16
P.3.1	0,18	0,18	0,18	0,18	0,18	0,18	0,18	0,18	0,18
P.3.2	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14
P.3.3	0,13	0,13	0,13	0,13	0,13	0,13	0,13	0,13	0,13
P.4.1	0,20	0,20	0,20	0,20	0,20	0,20	0,20	0,20	0,20
P.4.2	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14
M.1.1	0,15	0,15	0,15	0,16	0,16	0,16	0,16	0,16	0,16
M.2.1	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14
M.3.1	0,13	0,13	0,13	0,13	0,13	0,13	0,13	0,13	0,13
K.1.1	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25
K.1.2	0,19	0,19	0,19	0,19	0,19	0,19	0,19	0,19	0,19
K.2.1	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25
K.2.2	0,20	0,20	0,20	0,20	0,20	0,20	0,20	0,20	0,20
K.3.1	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25
K.3.2	0,20	0,20	0,20	0,20	0,20	0,20	0,20	0,20	0,20
N.1.1	0,13	0,13	0,13	0,14	0,14	0,14	0,14	0,14	0,14
N.1.2	0,13	0,13	0,13	0,14	0,14	0,14	0,14	0,14	0,14
N.2.1	0,15	0,15	0,15	0,18	0,18	0,18	0,18	0,18	0,18
N.2.2	0,15	0,15	0,15	0,18	0,18	0,18	0,18	0,18	0,18
N.2.3	0,14	0,14	0,14	0,16	0,16	0,16	0,16	0,16	0,16
N.3.1	0,15	0,15	0,15	0,16	0,16	0,16	0,16	0,16	0,16
N.3.2	0,17	0,17	0,17	0,18	0,18	0,18	0,18	0,18	0,18
N.3.3	0,14	0,14	0,14	0,18	0,18	0,16	0,16	0,16	0,16
N.4.1	0,15	0,15	0,15	0,16	0,16	0,16	0,16	0,16	0,16
S.1.1	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06
S.1.2	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06
S.2.1	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06
S.2.2	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06
S.2.3	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04
S.3.1	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10
S.3.2	0,09	0,09	0,09	0,09	0,09	0,09	0,09	0,09	0,09
S.3.3	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06
H.1.1	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06
H.1.2	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04
H.1.3	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04
H.1.4									
H.2.1	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05
H.3.1	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04
O.1.1	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10
O.1.2	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10
O.2.1									
O.2.2	0,07	0,07	0,07	0,07	0,07	0,07	0,07	0,07	0,07
O.3.1	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11

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

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

Cutting data standard values for KUB Pentron – 4xD

Index	ABS / C 10 874 ... Ø 14–15,5 mm	Ø 16–17,5 mm	Ø 18–19,5 mm	Ø 20–21,5 mm	Ø 22–23,5 mm	Ø 24–25,5 mm	Ø 26–27,5 mm	Ø 28–30 mm	Ø 31–33 mm	Ø 34–37 mm	Ø 38–42 mm	Ø 43–46 mm
	f in mm/rev.											
P.1.1	0,06	0,07	0,07	0,09	0,09	0,09	0,09	0,09	0,09	0,09	0,09	0,09
P.1.2	0,08	0,13	0,13	0,15	0,15	0,15	0,18	0,18	0,18	0,18	0,18	0,18
P.1.3	0,06	0,12	0,12	0,13	0,13	0,13	0,13	0,13	0,13	0,13	0,13	0,13
P.1.4	0,05	0,11	0,11	0,12	0,12	0,12	0,12	0,12	0,12	0,12	0,12	0,12
P.1.5	0,07	0,12	0,12	0,14	0,14	0,14	0,16	0,16	0,16	0,16	0,16	0,16
P.2.1	0,06	0,12	0,12	0,13	0,13	0,13	0,13	0,13	0,13	0,13	0,13	0,13
P.2.2	0,05	0,11	0,11	0,12	0,12	0,12	0,12	0,12	0,12	0,12	0,12	0,12
P.2.3	0,08	0,14	0,14	0,15	0,16	0,18	0,18	0,18	0,18	0,18	0,18	0,18
P.2.4	0,06	0,11	0,11	0,12	0,13	0,14	0,14	0,14	0,14	0,14	0,14	0,14
P.3.1	0,08	0,12	0,12	0,16	0,15	0,18	0,18	0,18	0,18	0,18	0,18	0,18
P.3.2	0,06	0,10	0,10	0,13	0,12	0,14	0,14	0,14	0,14	0,14	0,14	0,14
P.3.3	0,06	0,08	0,08	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13	0,13
P.4.1	0,09	0,13	0,13	0,18	0,17	0,20	0,20	0,20	0,20	0,20	0,20	0,20
P.4.2	0,06	0,10	0,10	0,13	0,12	0,14	0,14	0,14	0,14	0,14	0,14	0,14
M.1.1	0,08	0,10	0,10	0,13	0,15	0,15	0,15	0,15	0,15	0,15	0,15	0,15
M.2.1	0,08	0,08	0,08	0,11	0,11	0,14	0,14	0,14	0,14	0,14	0,14	0,14
M.3.1	0,07	0,07	0,07	0,10	0,10	0,13	0,13	0,13	0,13	0,13	0,13	0,13
K.1.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25	0,25	0,25
K.1.2	0,10	0,10	0,10	0,10	0,10	0,20	0,20	0,20	0,20	0,20	0,20	0,20
K.2.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25	0,25	0,25
K.2.2	0,10	0,12	0,12	0,14	0,14	0,18	0,20	0,20	0,20	0,20	0,20	0,20
K.3.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25	0,25	0,25
K.3.2	0,10	0,12	0,12	0,14	0,14	0,18	0,20	0,20	0,20	0,20	0,20	0,20
N.1.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13	0,13	0,13
N.1.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13	0,13	0,13
N.2.1	0,10	0,13	0,13	0,13	0,15	0,15	0,15	0,15	0,15	0,15	0,15	0,15
N.2.2	0,10	0,13	0,13	0,13	0,15	0,15	0,15	0,15	0,15	0,15	0,15	0,15
N.2.3	0,09	0,12	0,12	0,12	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14
N.3.1	0,10	0,12	0,13	0,13	0,15	0,15	0,15	0,15	0,15	0,15	0,15	0,15
N.3.2	0,11	0,13	0,14	0,14	0,17	0,17	0,17	0,17	0,17	0,17	0,17	0,17
N.3.3	0,11	0,12	0,12	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14
N.4.1	0,10	0,12	0,13	0,13	0,15	0,15	0,15	0,15	0,15	0,15	0,15	0,15
S.1.1	0,03	0,03	0,03	0,03	0,04	0,06	0,06	0,06	0,06	0,06	0,06	0,06
S.1.2	0,03	0,03	0,03	0,03	0,04	0,04	0,06	0,06	0,06	0,06	0,06	0,06
S.2.1	0,03	0,03	0,03	0,03	0,04	0,06	0,06	0,06	0,06	0,06	0,06	0,06
S.2.2	0,03	0,03	0,03	0,03	0,04	0,04	0,06	0,06	0,06	0,06	0,06	0,06
S.2.3	0,02	0,02	0,02	0,02	0,03	0,03	0,04	0,04	0,04	0,04	0,04	0,04
S.3.1	0,05	0,05	0,05	0,05	0,06	0,08	0,10	0,10	0,10	0,10	0,10	0,10
S.3.2	0,04	0,04	0,04	0,04	0,05	0,07	0,09	0,09	0,09	0,09	0,09	0,09
S.3.3	0,03	0,03	0,03	0,03	0,04	0,04	0,06	0,06	0,06	0,06	0,06	0,06
H.1.1	0,05	0,05	0,05	0,05	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06
H.1.2	0,03	0,03	0,03	0,03	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04
H.1.3	0,03	0,03	0,03	0,03	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04
H.1.4												
H.2.1	0,04	0,04	0,04	0,04	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05
H.3.1	0,03	0,03	0,03	0,03	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04
O.1.1	0,08	0,08	0,08	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10
O.1.2	0,08	0,08	0,08	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10
O.2.1												
O.2.2	0,06	0,06	0,06	0,06	0,07	0,07	0,07	0,07	0,07	0,07	0,07	0,07
O.3.1	0,10	0,10	0,10	0,10	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11

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

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

Cutting data standard values for KUB Pentron – 5xD

Index	ABS / C 10 875 ... Ø 14–15,5 mm	Ø 16–17,5 mm	Ø 18–19,5 mm	Ø 20–21,5 mm	Ø 22–23,5 mm	Ø 24–25,5 mm	Ø 26–27,5 mm	Ø 28–30 mm	Ø 31–33 mm	Ø 34–37 mm	Ø 38–42 mm	Ø 43–46 mm
	f in mm/rev.											
P.1.1	0,06	0,08	0,07	0,09	0,09	0,09	0,10	0,10	0,10	0,10	0,10	0,10
P.1.2	0,08	0,11	0,11	0,13	0,13	0,13	0,15	0,15	0,15	0,15	0,15	0,15
P.1.3	0,06	0,10	0,10	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11
P.1.4	0,05	0,09	0,09	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10
P.1.5	0,07	0,10	0,10	0,12	0,12	0,12	0,14	0,14	0,14	0,14	0,14	0,14
P.2.1	0,06	0,10	0,10	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11
P.2.2	0,05	0,09	0,09	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10
P.2.3	0,08	0,09	0,10	0,15	0,18	0,18	0,15	0,15	0,15	0,15	0,15	0,15
P.2.4	0,06	0,07	0,08	0,12	0,14	0,14	0,12	0,12	0,12	0,12	0,12	0,12
P.3.1	0,08	0,12	0,12	0,16	0,15	0,18	0,18	0,18	0,18	0,18	0,18	0,18
P.3.2	0,06	0,10	0,10	0,13	0,12	0,14	0,14	0,14	0,14	0,14	0,14	0,14
P.3.3	0,06	0,08	0,08	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13	0,13
P.4.1	0,09	0,13	0,13	0,18	0,17	0,20	0,20	0,20	0,20	0,20	0,20	0,20
P.4.2	0,06	0,10	0,10	0,13	0,12	0,14	0,14	0,14	0,14	0,14	0,14	0,14
M.1.1	0,08	0,08	0,08	0,11	0,11	0,14	0,11	0,11	0,11	0,11	0,11	0,11
M.2.1	0,08	0,08	0,08	0,09	0,09	0,12	0,12	0,12	0,12	0,12	0,12	0,12
M.3.1	0,07	0,07	0,07	0,08	0,08	0,11	0,11	0,11	0,11	0,11	0,11	0,11
K.1.1	0,10	0,13	0,13	0,16	0,16	0,20	0,23	0,23	0,23	0,23	0,23	0,23
K.1.2	0,08	0,10	0,10	0,12	0,12	0,15	0,17	0,17	0,17	0,17	0,17	0,17
K.2.1	0,10	0,13	0,13	0,16	0,16	0,20	0,23	0,23	0,23	0,23	0,23	0,23
K.2.2	0,08	0,10	0,10	0,13	0,13	0,16	0,18	0,18	0,18	0,18	0,18	0,18
K.3.1	0,10	0,13	0,13	0,16	0,16	0,20	0,23	0,23	0,23	0,23	0,23	0,23
K.3.2	0,08	0,10	0,10	0,13	0,13	0,16	0,18	0,18	0,18	0,18	0,18	0,18
N.1.1	0,10	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13	0,13	0,13	0,13
N.1.2	0,10	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13	0,13	0,13	0,13
N.2.1	0,10	0,13	0,13	0,13	0,15	0,15	0,15	0,15	0,15	0,15	0,15	0,15
N.2.2	0,10	0,13	0,13	0,13	0,15	0,15	0,15	0,15	0,15	0,15	0,15	0,15
N.2.3	0,09	0,12	0,12	0,12	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14
N.3.1	0,10	0,13	0,13	0,13	0,15	0,15	0,15	0,15	0,15	0,15	0,15	0,15
N.3.2	0,11	0,14	0,14	0,14	0,17	0,17	0,17	0,17	0,17	0,17	0,17	0,17
N.3.3	0,11	0,12	0,12	0,12	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14
N.4.1	0,10	0,13	0,13	0,13	0,15	0,15	0,15	0,15	0,15	0,15	0,15	0,15
S.1.1	0,03	0,03	0,03	0,03	0,04	0,06	0,06	0,06	0,06	0,06	0,06	0,06
S.1.2	0,03	0,03	0,03	0,03	0,04	0,04	0,06	0,06	0,06	0,06	0,06	0,06
S.2.1	0,03	0,03	0,03	0,03	0,04	0,06	0,06	0,06	0,06	0,06	0,06	0,06
S.2.2	0,03	0,03	0,03	0,03	0,04	0,04	0,06	0,06	0,06	0,06	0,06	0,06
S.2.3	0,02	0,02	0,02	0,02	0,03	0,03	0,04	0,04	0,04	0,04	0,04	0,04
S.3.1	0,05	0,05	0,05	0,05	0,06	0,08	0,10	0,10	0,10	0,10	0,10	0,10
S.3.2	0,04	0,04	0,04	0,04	0,05	0,07	0,09	0,09	0,09	0,09	0,09	0,09
S.3.3	0,03	0,03	0,03	0,03	0,04	0,04	0,06	0,06	0,06	0,06	0,06	0,06
H.1.1	0,05	0,05	0,05	0,05	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06
H.1.2	0,03	0,03	0,03	0,03	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04
H.1.3	0,03	0,03	0,03	0,03	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04
H.1.4												
H.2.1	0,04	0,04	0,04	0,04	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05
H.3.1	0,03	0,03	0,03	0,03	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04
O.1.1	0,08	0,08	0,08	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10
O.1.2	0,08	0,08	0,08	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10
O.2.1												
O.2.2	0,06	0,06	0,06	0,06	0,07	0,07	0,07	0,07	0,07	0,07	0,07	0,07
O.3.1	0,10	0,10	0,10	0,10	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11

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

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

Cutting data standard values for MaxiDrill 900 – 2xD

Index	SONT 10 830 ...		C 10 852 ...								
	CTCP420	CTPP430	Ø 12–15,5 mm	Ø 16–17,5 mm	Ø 18–20,5 mm	Ø 21–23,5 mm	Ø 24–27,5 mm	Ø 28–32 mm	Ø 32,5–36,5 mm	Ø 37–41 mm	Ø 41,5–46 mm	Ø 46,5–63 mm
	v_c in m/min		f in mm/rev.									
P.1.1	**300**	**215**	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.2	**260**	**190**	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.3	**230**	**165**	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.4	**220**	**160**	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.5	**200**	**150**	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.1	**270**	**200**	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.2	**215**	**160**	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.3	**200**	**140**	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.4	**160**	**110**	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.1	**200**	**140**	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.2	**160**	**100**	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.3	**120**	**70**	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.4.1	**200**	**140**	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.4.2	**180**	**120**	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
M.1.1		**140**	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
M.2.1		**100**	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
M.3.1		**130**	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
K.1.1	**250**	140	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.1.2	**230**	130	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.2.1	**230**	140	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.2.2	**210**	140	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.3.1	**190**	100	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.3.2	**170**	100	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
N.1.1		300	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.1.2		315	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.1		270	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.2		140	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.3		180	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.1		200	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.2		200	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.3		200	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.4.1		200	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
S.1.1		65	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.1.2		50	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.1		45	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.2		40	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.3		40	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.1		65	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.2		50	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.3		40	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

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

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

Cutting data standard values for MaxiDrill 900 – 3xD

Index	C 10 853 ... Ø 12–15,5 mm	Ø 16–17,5 mm	Ø 18–20,5 mm	Ø 21–23,5 mm	Ø 24–27,5 mm	Ø 28–32 mm	Ø 32,5–36,5 mm	Ø 37–41 mm	Ø 41,5–46 mm	Ø 46,5–63 mm
	f in mm/rev.									
P.1.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.4	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.5	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.4	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.4.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.4.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
M.1.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
M.2.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
M.3.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
K.1.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.1.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.2.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.2.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.3.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.3.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
N.1.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.1.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.3	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.3	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.4.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
S.1.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.1.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.3	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.3	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

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

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

Cutting data standard values for MaxiDrill 900 – 4xD

Index	C 10 854 ... Ø 12–15,5 mm	Ø 16–17,5 mm	Ø 18–20,5 mm	Ø 21–23,5 mm	Ø 24–27,5 mm	Ø 28–32 mm	Ø 32,5–36,5 mm	Ø 37–41 mm	Ø 41,5–46 mm	Ø 46,5–54 mm
	f in mm/rev.									
P.1.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.4	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.5	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.4	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.4.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.4.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
M.1.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
M.2.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
M.3.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
K.1.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.1.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.2.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.2.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.3.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.3.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
N.1.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.1.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.3	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.3	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.4.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
S.1.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.1.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.3	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.3	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

When using a fixed tool and rotating workpiece on through holes a sharp disk will be produced. Safety precautions must be observed.
A safety guard has to be provided as protection against flying chips.

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

Cutting data standard values for MaxiDrill 900 – 5xD

Index	C 10 855 ... Ø 12–15,5 mm	Ø 16–17,5 mm	Ø 18–20 mm	Ø 21–23 mm	Ø 24–27 mm	Ø 28–32 mm	Ø 33–36 mm	Ø 37–41 mm
	f in mm/rev.							
P.1.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.1.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.1.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.1.4	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.1.5	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.2.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.2.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.2.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.2.4	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.3.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.3.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.3.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.4.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.4.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
M.1.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15
M.2.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15
M.3.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15
K.1.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25
K.1.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25
K.2.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25
K.2.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25
K.3.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25
K.3.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25
N.1.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.1.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.2.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.2.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.2.3	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.3.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.3.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.3.3	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.4.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
S.1.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
S.1.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
S.2.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
S.2.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
S.2.3	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
S.3.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
S.3.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
S.3.3	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1								
O.1.2								
O.2.1								
O.2.2								
O.3.1								

When using a fixed tool and rotating workpiece on through holes a sharp disk will be produced. Safety precautions must be observed.
A safety guard has to be provided as protection against flying chips.

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

Cutting data standard values for WOEX indexable inserts

Index	WOEX 10 821 ...						
	BK8425	BK7935	BK6115	BK7615	BK62	BK77	BK79
	v_c in m/min						
P.1.1	260	250	300				260
P.1.2	260	220	300				260
P.1.3	270	270	270				270
P.1.4	240	240	250				240
P.1.5	230	200	270				230
P.2.1	270	270	270				270
P.2.2	260	260	260				260
P.2.3	180	160	240				180
P.2.4	150	130	190				150
P.3.1	160	140	200				160
P.3.2	130	110	160				130
P.3.3	120	100	140				120
P.4.1	180	160	220				180
P.4.2	130	110	160				130
M.1.1	150	160	220				150
M.2.1	150	160	220				150
M.3.1	130	150	200				130
K.1.1	160	150	240	260	240		160
K.1.2	120	110	140	160	140		120
K.2.1	160	150	160	180	160		160
K.2.2	100	90	100	120	100		100
K.3.1	120	110	120	140	120		120
K.3.2	100	90	100	120	100		100
N.1.1	400	400					400
N.1.2	400	400					400
N.2.1	250	250					250
N.2.2	250	250					250
N.2.3	230	230					230
N.3.1	200	200					200
N.3.2	220	220					220
N.3.3	330	330					330
N.4.1	200	200					200
S.1.1		50				50	
S.1.2		40				40	
S.2.1		50				50	
S.2.2		40				40	
S.2.3		30				30	
S.3.1		70				70	
S.3.2		60				60	
S.3.3		40				40	
H.1.1	100		100		100	40	
H.1.2	80		80		80	30	
H.1.3	50		50		50	20	
H.1.4							
H.2.1	100		100		100	40	
H.3.1	80		80		80	30	
O.1.1						100	
O.1.2						100	
O.2.1							
O.2.2						100	
O.3.1						100	

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

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

Cutting data standard values for KUB Trigon – 2xD

Index	ABS / K 10 892 ... Ø 14–16 mm	Ø 17–19 mm	Ø 20–24 mm	Ø 25–29 mm	Ø 30–36 mm	Ø 37–40 mm	Ø 41–44 mm	Ø 45–46 mm	Ø 46–52 mm	Ø 53–65 mm	Ø 64–69 mm	Ø 70–75 mm	Ø 76–82 mm
	f in mm/rev.												
P.1.1	0,08	0,10	0,10	0,12	0,12	0,12	0,12	0,12	0,12	0,12	0,12	0,12	0,12
P.1.2	0,08	0,10	0,12	0,14	0,16	0,16	0,18	0,20	0,20	0,25	0,25	0,25	0,25
P.1.3	0,06	0,08	0,12	0,14	0,14	0,14	0,16	0,14	0,18	0,20	0,25	0,25	0,25
P.1.4	0,05	0,07	0,11	0,13	0,13	0,13	0,14	0,12	0,16	0,18	0,22	0,22	0,22
P.1.5	0,07	0,09	0,11	0,13	0,14	0,14	0,16	0,18	0,20	0,22	0,22	0,22	0,22
P.2.1	0,06	0,08	0,12	0,14	0,14	0,14	0,16	0,14	0,18	0,20	0,25	0,25	0,25
P.2.2	0,06	0,08	0,11	0,13	0,13	0,13	0,15	0,12	0,16	0,18	0,22	0,22	0,22
P.2.3	0,06	0,08	0,10	0,14	0,16	0,16	0,16	0,16	0,16	0,18	0,20	0,20	0,20
P.2.4	0,05	0,06	0,08	0,11	0,13	0,13	0,13	0,14	0,14	0,16	0,18	0,18	0,18
P.3.1	0,06	0,08	0,10	0,12	0,12	0,12	0,14	0,14	0,16	0,16	0,16	0,16	0,16
P.3.2	0,05	0,06	0,08	0,10	0,10	0,10	0,11	0,12	0,14	0,14	0,14	0,14	0,14
P.3.3	0,04	0,06	0,07	0,08	0,08	0,08	0,10	0,11	0,13	0,13	0,13	0,13	0,13
P.4.1	0,07	0,09	0,11	0,13	0,13	0,13	0,15	0,15	0,17	0,17	0,17	0,17	0,17
P.4.2	0,05	0,06	0,08	0,10	0,10	0,10	0,11	0,12	0,14	0,14	0,14	0,14	0,14
M.1.1	0,06	0,06	0,08	0,12	0,12	0,12	0,14	0,14	0,14	0,16	0,16	0,16	0,16
M.2.1	0,06	0,06	0,08	0,12	0,12	0,12	0,12	0,12	0,12	0,16	0,16	0,16	0,16
M.3.1	0,05	0,05	0,07	0,11	0,11	0,11	0,11	0,11	0,11	0,15	0,15	0,15	0,15
K.1.1	0,10	0,12	0,14	0,20	0,20	0,20	0,25	0,25	0,25	0,30	0,30	0,30	0,30
K.1.2	0,08	0,08	0,10	0,14	0,14	0,16	0,18	0,18	0,18	0,20	0,25	0,25	0,25
K.2.1	0,08	0,10	0,14	0,20	0,20	0,20	0,25	0,25	0,25	0,30	0,30	0,30	0,30
K.2.2	0,08	0,10	0,13	0,20	0,13	0,13	0,14	0,22	0,22	0,25	0,25	0,25	0,25
K.3.1	0,10	0,12	0,16	0,25	0,16	0,16	0,18	0,25	0,25	0,30	0,30	0,30	0,30
K.3.2	0,08	0,10	0,13	0,20	0,13	0,13	0,14	0,22	0,22	0,25	0,25	0,25	0,25
N.1.1	0,05	0,08	0,08	0,10	0,10	0,12	0,12	0,12	0,12	0,14	0,14	0,14	0,14
N.1.2	0,05	0,08	0,08	0,10	0,10	0,12	0,12	0,12	0,12	0,14	0,14	0,14	0,14
N.2.1	0,10	0,12	0,14	0,18	0,18	0,20	0,20	0,18	0,20	0,20	0,20	0,20	0,20
N.2.2	0,10	0,12	0,14	0,18	0,18	0,20	0,20	0,18	0,20	0,20	0,20	0,20	0,20
N.2.3	0,09	0,11	0,13	0,16	0,16	0,18	0,18	0,16	0,18	0,18	0,18	0,18	0,18
N.3.1	0,05	0,08	0,12	0,16	0,16	0,18	0,20	0,20	0,20	0,25	0,25	0,25	0,25
N.3.2	0,06	0,09	0,13	0,18	0,18	0,20	0,22	0,22	0,22	0,26	0,26	0,26	0,26
N.3.3	0,05	0,08	0,08	0,10	0,10	0,10	0,12	0,122	0,12	0,16	0,16	0,16	0,16
N.4.1	0,05	0,08	0,12	0,16	0,16	0,18	0,20	0,20	0,20	0,25	0,25	0,25	0,25
S.1.1	0,04	0,06	0,08	0,10	0,10	0,10	0,10	0,10	0,10	0,12	0,12	0,12	0,12
S.1.2	0,03	0,05	0,06	0,08	0,08	0,08	0,08	0,08	0,08	0,10	0,10	0,10	0,10
S.2.1	0,04	0,06	0,08	0,10	0,10	0,10	0,10	0,10	0,10	0,12	0,12	0,12	0,12
S.2.2	0,03	0,05	0,06	0,08	0,08	0,08	0,08	0,08	0,08	0,10	0,10	0,10	0,10
S.2.3	0,02	0,03	0,04	0,05	0,05	0,05	0,05	0,06	0,06	0,06	0,06	0,06	0,06
S.3.1	0,07	0,09	0,11	0,13	0,11	0,13	0,13	0,10	0,10	0,12	0,12	0,14	0,14
S.3.2	0,06	0,08	0,10	0,12	0,10	0,12	0,12	0,10	0,10	0,12	0,12	0,14	0,14
S.3.3	0,04	0,05	0,06	0,07	0,06	0,07	0,07	0,06	0,06	0,08	0,08	0,08	0,08
H.1.1	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,08	0,08	0,08	0,08	0,08	0,08
H.1.2	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,06	0,06	0,06	0,06	0,08	0,08
H.1.3	0,04	0,04	0,04	0,04	0,04	0,04	0,04						
H.1.4													
H.2.1	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05
H.3.1	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04
O.1.1	0,08	0,08	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10
O.1.2	0,08	0,08	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10
O.2.1													
O.2.2	0,06	0,06	0,06	0,07	0,07	0,07	0,07	0,07	0,07	0,07	0,07	0,07	0,07
O.3.1	0,10	0,10	0,10	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11

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

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

Cutting data standard values for KUB Trigon – 3xD

	ABS / K 10 893 ...												
Index	Ø 14–16 mm	Ø 17–19 mm	Ø 20–24 mm	Ø 25–29 mm	Ø 30–36 mm	Ø 37–40 mm	Ø 41–44 mm	Ø 45–46 mm	Ø 46–52 mm	Ø 53–65 mm	Ø 64–69 mm	Ø 70–75 mm	Ø 76–82 mm
	f in mm/rev.												
P.1.1	0,08	0,10	0,10	0,12	0,12	0,12	0,12	0,12	0,12	0,12	0,12	0,12	0,12
P.1.2	0,08	0,10	0,12	0,14	0,16	0,16	0,20	0,20	0,20	0,25	0,25	0,25	0,25
P.1.3	0,06	0,08	0,12	0,14	0,14	0,14	0,16	0,14	0,18	0,20	0,25	0,25	0,25
P.1.4	0,05	0,07	0,11	0,13	0,13	0,13	0,14	0,12	0,16	0,18	0,22	0,22	0,22
P.1.5	0,07	0,09	0,11	0,13	0,14	0,14	0,18	0,18	0,20	0,22	0,22	0,22	0,22
P.2.1	0,06	0,08	0,12	0,14	0,14	0,14	0,16	0,14	0,18	0,20	0,25	0,25	0,25
P.2.2	0,06	0,08	0,11	0,13	0,13	0,13	0,15	0,12	0,16	0,18	0,22	0,22	0,22
P.2.3	0,06	0,08	0,10	0,14	0,16	0,16	0,16	0,16	0,16	0,18	0,20	0,20	0,20
P.2.4	0,05	0,06	0,08	0,11	0,13	0,13	0,13	0,14	0,14	0,16	0,18	0,18	0,18
P.3.1	0,06	0,08	0,10	0,12	0,12	0,12	0,14	0,14	0,16	0,16	0,16	0,16	0,16
P.3.2	0,05	0,06	0,08	0,10	0,10	0,10	0,11	0,12	0,14	0,14	0,14	0,14	0,14
P.3.3	0,04	0,06	0,07	0,08	0,08	0,08	0,10	0,11	0,13	0,13	0,13	0,13	0,13
P.4.1	0,07	0,09	0,11	0,13	0,13	0,13	0,15	0,15	0,17	0,17	0,17	0,17	0,17
P.4.2	0,05	0,06	0,08	0,10	0,10	0,10	0,11	0,12	0,14	0,14	0,14	0,14	0,14
M.1.1	0,06	0,06	0,08	0,12	0,12	0,12	0,14	0,14	0,14	0,16	0,16	0,16	0,16
M.2.1	0,06	0,06	0,08	0,12	0,12	0,12	0,12	0,12	0,12	0,16	0,16	0,16	0,16
M.3.1	0,05	0,05	0,07	0,11	0,11	0,11	0,11	0,11	0,11	0,15	0,15	0,15	0,15
K.1.1	0,10	0,12	0,14	0,20	0,20	0,20	0,25	0,25	0,25	0,30	0,30	0,30	0,30
K.1.2	0,08	0,08	0,10	0,14	0,14	0,16	0,18	0,18	0,18	0,20	0,25	0,25	0,25
K.2.1	0,08	0,10	0,14	0,20	0,20	0,20	0,25	0,25	0,25	0,30	0,30	0,30	0,30
K.2.2	0,08	0,10	0,13	0,20	0,20	0,20	0,20	0,22	0,22	0,25	0,25	0,25	0,25
K.3.1	0,10	0,12	0,16	0,25	0,25	0,25	0,25	0,25	0,25	0,30	0,30	0,30	0,30
K.3.2	0,08	0,10	0,13	0,20	0,20	0,20	0,20	0,22	0,22	0,25	0,25	0,25	0,25
N.1.1	0,05	0,08	0,08	0,10	0,10	0,12	0,12	0,12	0,12	0,14	0,14	0,14	0,14
N.1.2	0,05	0,08	0,08	0,10	0,10	0,12	0,12	0,12	0,12	0,14	0,14	0,14	0,14
N.2.1	0,10	0,12	0,14	0,18	0,18	0,20	0,20	0,18	0,20	0,20	0,20	0,20	0,20
N.2.2	0,10	0,12	0,14	0,18	0,18	0,20	0,20	0,18	0,20	0,20	0,20	0,20	0,20
N.2.3	0,09	0,11	0,13	0,16	0,16	0,18	0,18	0,16	0,18	0,18	0,18	0,18	0,18
N.3.1	0,05	0,08	0,12	0,16	0,16	0,18	0,20	0,20	0,20	0,25	0,25	0,25	0,25
N.3.2	0,06	0,09	0,13	0,18	0,18	0,20	0,22	0,22	0,22	0,26	0,26	0,26	0,26
N.3.3	0,06	0,09	0,09	0,11	0,11	0,11	0,13	0,122	0,12	0,16	0,16	0,16	0,16
N.4.1	0,05	0,08	0,12	0,16	0,16	0,18	0,20	0,20	0,20	0,25	0,25	0,25	0,25
S.1.1	0,04	0,06	0,08	0,10	0,10	0,10	0,10	0,10	0,10	0,12	0,12	0,12	0,12
S.1.2	0,03	0,05	0,06	0,08	0,08	0,08	0,08	0,08	0,08	0,10	0,10	0,10	0,10
S.2.1	0,04	0,06	0,08	0,10	0,10	0,10	0,10	0,10	0,10	0,12	0,12	0,12	0,12
S.2.2	0,03	0,05	0,06	0,08	0,08	0,08	0,08	0,08	0,08	0,10	0,10	0,10	0,10
S.2.3	0,02	0,03	0,04	0,05	0,05	0,05	0,05	0,06	0,06	0,06	0,06	0,06	0,06
S.3.1	0,07	0,09	0,11	0,13	0,11	0,13	0,13	0,10	0,10	0,12	0,12	0,14	0,14
S.3.2	0,06	0,08	0,10	0,12	0,10	0,12	0,12	0,10	0,10	0,12	0,12	0,14	0,14
S.3.3	0,04	0,05	0,06	0,07	0,06	0,07	0,07	0,06	0,06	0,08	0,08	0,08	0,08
H.1.1	0,05	0,08	0,08	0,10	0,10	0,10	0,10	0,08	0,08	0,08	0,08	0,08	0,08
H.1.2	0,04	0,06	0,06	0,08	0,08	0,08	0,08	0,06	0,06	0,06	0,06	0,08	0,08
H.1.3	0,03	0,04	0,04	0,05	0,05	0,05	0,05						
H.1.4													
H.2.1	0,05	0,08	0,08	0,10	0,10	0,10	0,10	0,05	0,05	0,05	0,05	0,05	0,05
H.3.1	0,04	0,06	0,06	0,08	0,08	0,08	0,08	0,04	0,04	0,04	0,04	0,04	0,04
O.1.1	0,08	0,08	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10
O.1.2	0,08	0,08	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10
O.2.1													
O.2.2	0,06	0,06	0,06	0,07	0,07	0,07	0,07	0,07	0,07	0,07	0,07	0,07	0,07
O.3.1	0,10	0,10	0,10	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11

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

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

Cutting data standard values for KUB Trigon – 4xD

Index	K 10 894 ... Ø 14–16 mm	Ø 17–19 mm	Ø 20–24 mm	Ø 25–29 mm	Ø 30–35 mm	ABS 10 894 ... Ø 14–16 mm	Ø 17–19 mm	Ø 20–24 mm	Ø 25–29 mm	Ø 30–36 mm	Ø 37–40 mm	Ø 41–44 mm
	f in mm/rev.					f in mm/rev.						
P.1.1	0,06	0,08	0,08	0,10	0,11	0,06	0,08	0,08	0,10	0,10	0,10	0,10
P.1.2	0,06	0,08	0,10	0,12	0,14	0,06	0,08	0,10	0,12	0,14	0,14	0,18
P.1.3	0,04	0,06	0,10	0,12	0,12	0,04	0,06	0,10	0,12	0,12	0,12	0,14
P.1.4	0,04	0,05	0,09	0,11	0,11	0,04	0,05	0,09	0,11	0,11	0,11	0,13
P.1.5	0,05	0,07	0,09	0,11	0,13	0,05	0,07	0,09	0,11	0,13	0,13	0,16
P.2.1	0,04	0,06	0,10	0,12	0,12	0,04	0,06	0,10	0,12	0,12	0,12	0,14
P.2.2	0,04	0,06	0,10	0,11	0,11	0,04	0,06	0,10	0,11	0,11	0,11	0,13
P.2.3	0,04	0,06	0,08	0,12	0,14	0,04	0,06	0,08	0,12	0,14	0,14	0,14
P.2.4	0,03	0,05	0,06	0,10	0,11	0,03	0,05	0,06	0,10	0,11	0,11	0,11
P.3.1	0,04	0,06	0,08	0,10	0,11	0,04	0,06	0,08	0,10	0,10	0,10	0,12
P.3.2	0,03	0,05	0,06	0,08	0,09	0,03	0,05	0,06	0,08	0,08	0,08	0,10
P.3.3	0,03	0,04	0,06	0,07	0,08	0,03	0,04	0,06	0,07	0,07	0,07	0,08
P.4.1	0,04	0,07	0,09	0,11	0,12	0,04	0,07	0,09	0,11	0,11	0,11	0,13
P.4.2	0,03	0,05	0,06	0,08	0,09	0,03	0,05	0,06	0,08	0,08	0,08	0,10
M.1.1	0,04	0,04	0,06	0,10	0,11	0,04	0,04	0,06	0,10	0,10	0,10	0,12
M.2.1	0,04	0,04	0,06	0,10	0,11	0,04	0,04	0,06	0,10	0,10	0,10	0,10
M.3.1	0,04	0,04	0,05	0,09	0,10	0,04	0,04	0,05	0,09	0,09	0,09	0,09
K.1.1	0,08	0,10	0,12	0,18	0,19	0,08	0,10	0,12	0,18	0,18	0,18	0,23
K.1.2	0,06	0,06	0,08	0,12	0,12	0,06	0,06	0,08	0,12	0,12	0,14	0,16
K.2.1	0,06	0,08	0,12	0,18	0,19	0,06	0,08	0,12	0,18	0,18	0,18	0,23
K.2.2	0,06	0,08	0,11	0,18	0,19	0,06	0,08	0,11	0,18	0,18	0,18	0,18
K.3.1	0,08	0,10	0,14	0,23	0,24	0,08	0,10	0,14	0,23	0,23	0,23	0,23
K.3.2	0,06	0,08	0,11	0,18	0,19	0,06	0,08	0,11	0,18	0,18	0,18	0,18
N.1.1	0,03	0,06	0,06	0,08	0,09	0,03	0,06	0,06	0,08	0,08	0,10	0,10
N.1.2	0,03	0,06	0,06	0,08	0,09	0,03	0,06	0,06	0,08	0,08	0,10	0,10
N.2.1	0,08	0,10	0,12	0,16	0,17	0,08	0,10	0,12	0,16	0,16	0,18	0,18
N.2.2	0,08	0,10	0,12	0,16	0,17	0,08	0,10	0,12	0,16	0,16	0,18	0,18
N.2.3	0,07	0,09	0,11	0,14	0,15	0,07	0,09	0,11	0,14	0,14	0,16	0,16
N.3.1	0,04	0,06	0,10	0,14	0,15	0,03	0,06	0,10	0,14	0,14	0,16	0,18
N.3.2	0,04	0,07	0,11	0,15	0,17	0,03	0,07	0,11	0,15	0,15	0,18	0,20
N.3.3	0,03	0,07	0,07	0,09	0,10	0,03	0,06	0,06	0,08	0,08	0,08	0,10
N.4.1	0,04	0,06	0,10	0,14	0,15	0,03	0,06	0,10	0,14	0,14	0,16	0,18
S.1.1	0,03	0,05	0,07	0,08	0,09	0,02	0,04	0,06	0,08	0,08	0,08	0,08
S.1.2	0,02	0,04	0,06	0,06	0,07	0,02	0,03	0,05	0,06	0,06	0,06	0,06
S.2.1	0,03	0,05	0,07	0,08	0,09	0,02	0,04	0,06	0,08	0,08	0,08	0,08
S.2.2	0,02	0,04	0,06	0,06	0,07	0,02	0,03	0,05	0,06	0,06	0,06	0,06
S.2.3	0,02	0,03	0,04	0,04	0,05	0,01	0,02	0,03	0,04	0,04	0,04	0,04
S.3.1	0,04	0,07	0,09	0,11	0,11	0,04	0,07	0,09	0,11	0,09	0,11	0,11
S.3.2	0,04	0,06	0,08	0,10	0,10	0,04	0,06	0,08	0,10	0,08	0,10	0,10
S.3.3	0,02	0,04	0,05	0,06	0,06	0,02	0,04	0,05	0,06	0,05	0,06	0,06
H.1.1	0,03	0,06	0,06	0,08	0,08	0,03	0,06	0,06	0,08	0,08	0,08	0,08
H.1.2	0,02	0,05	0,05	0,06	0,06	0,02	0,05	0,05	0,06	0,06	0,06	0,06
H.1.3	0,02	0,03	0,03	0,04	0,04	0,02	0,03	0,03	0,04	0,04	0,04	0,04
H.1.4												
H.2.1	0,03	0,06	0,06	0,08	0,08	0,03	0,06	0,06	0,08	0,08	0,08	0,08
H.3.1	0,02	0,05	0,05	0,06	0,06	0,02	0,05	0,05	0,06	0,06	0,06	0,06
O.1.1	0,08	0,08	0,10	0,10	0,10	0,08	0,08	0,10	0,10	0,10	0,10	0,10
O.1.2	0,08	0,08	0,10	0,10	0,10	0,08	0,08	0,10	0,10	0,10	0,10	0,10
O.2.1												
O.2.2	0,06	0,06	0,06	0,07	0,07	0,06	0,06	0,06	0,07	0,07	0,07	0,07
O.3.1	0,10	0,10	0,10	0,11	0,11	0,10	0,10	0,10	0,11	0,11	0,11	0,11

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

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

Cutting data standard values for KUB Centron

Index	Drill bit diameter											
	Ø 20–25 mm				Ø 26–32 mm				Ø 33–45 mm			
	f	Centring tip v_c			f	Centring tip v_c			f	Centring tip v_c		
	mm/rev.	10 863 ... (TiN/TiAlN)	10 862 ... (TiN)	10 862 ... (TiAlN)	mm/rev.	10 863 ... (TiN/TiAlN)	10 862 ... (TiN)	10 862 ... (TiAlN)	mm/rev.	10 863 ... (TiN/TiAlN)	10 862 ... (TiN)	10 862 ... (TiAlN)
P.1.1	0,08	**250**	**160**		0,08	**250**	**160**		0,10	**250**	**160**	
P.1.2	0,12	**250**	**160**		0,14	**250**	**160**		0,14	**250**	**160**	
P.1.3	0,10	**200**	**160**		0,12	**200**	**160**		0,12	**200**	**160**	
P.1.4	0,09	**180**	**160**		0,11	**180**	**160**		0,11	**180**	**160**	
P.1.5	0,11	**230**	**160**		0,12	**230**	**160**		0,12	**230**	**160**	
P.2.1	0,10	**200**	**160**		0,12	**200**	**160**		0,12	**200**	**160**	
P.2.2	0,10	**190**	**150**		0,11	**190**	**150**		0,11	**190**	**150**	
P.2.3	0,12	**180**	**140**		0,14	**180**	**140**		0,14	**180**	**140**	
P.2.4	0,10	**150**	**120**		0,12	**150**	**120**		0,12	**150**	**120**	
P.3.1	0,08	**160**	**120**		0,10	**160**	**120**		0,10	**160**	**120**	
P.3.2	0,06	**140**	**100**		0,08	**140**	**100**		0,08	**140**	**100**	
P.3.3	0,07	**130**	**90**		0,07	**130**	**90**		0,07	**130**	**90**	
P.4.1	0,09	**180**	**130**		0,11	**180**	**130**		0,11	**180**	**130**	
P.4.2	0,06	**140**	**100**		0,08	**140**	**100**		0,08	**140**	**100**	
M.1.1	0,10	**160**		**70**	0,12	**160**		**70**	0,12	**160**		**70**
M.2.1	0,08	**120**		**70**	0,10	**120**		**70**	0,10	**120**		**70**
M.3.1	0,07	**110**		**60**	0,08	**110**		**60**	0,08	**110**		**60**
K.1.1	0,14	**200**		**100**	0,16	**200**		**100**	0,16	**200**		**100**
K.1.2	0,12	**160**		**100**	0,14	**160**		**100**	0,14	**160**		**100**
K.2.1	0,12	**160**		**100**	0,14	**160**		**100**	0,14	**160**		**100**
K.2.2	0,10	**100**		**80**	0,12	**100**		**80**	0,12	**100**		**80**
K.3.1	0,12	**120**		**100**	0,14	**120**		**100**	0,14	**120**		**100**
K.3.2	0,10	**100**		**80**	0,12	**100**		**80**	0,12	**100**		**80**
N.1.1	0,07	**350**	**350**		0,07	**350**	**350**		0,10	**350**	**350**	
N.1.2	0,07	**350**	**350**		0,07	**350**	**350**		0,10	**350**	**350**	
N.2.1	0,10	**250**	**250**		0,12	**250**	**250**		0,16	**250**	**250**	
N.2.2	0,10	**250**	**250**		0,12	**250**	**250**		0,16	**250**	**250**	
N.2.3	0,09	**230**	**230**		0,11	**230**	**230**		0,15	**230**	**230**	
N.3.1	0,14	**200**	**200**		0,16	**200**	**200**		0,18	**200**	**200**	
N.3.2	0,15	**220**	**220**		0,18	**220**	**220**		0,20	**220**	**220**	
N.3.3	0,09	**250**	**250**		0,10	**250**	**250**		0,14	**250**	**250**	
N.4.1	0,14	**200**	**200**		0,16	**200**	**200**		0,18	**200**	**200**	
S.1.1	0,04	50		**25**	0,05	**50**		**25**	0,05	**50**		**25**
S.1.2	0,03	40		**20**	0,04	**40**		**20**	0,04	**40**		**20**
S.2.1	0,04	50		**25**	0,05	**50**		**25**	0,05	**50**		**25**
S.2.2	0,03	40		**20**	0,04	**40**		**20**	0,04	**40**		**20**
S.2.3	0,03	30		**20**	0,04	**30**		**20**	0,04	**30**		**20**
S.3.1	0,06	80		**50**	0,07	**80**		**50**	0,07	**80**		**50**
S.3.2	0,05	80		**40**	0,06	**80**		**40**	0,06	**80**		**40**
S.3.3	0,03	50		**30**	0,04	**50**		**30**	0,04	**50**		**30**
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1	0,08	100	100		0,10	100	100		0,10	100	100	
O.1.2	0,08	100	100		0,10	100	100		0,10	100	100	
O.2.1												
O.2.2	0,08	50	30		0,10	50	30		0,10	50	30	
O.3.1	0,08	100	100		0,10	100	100		0,10	100	100	

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

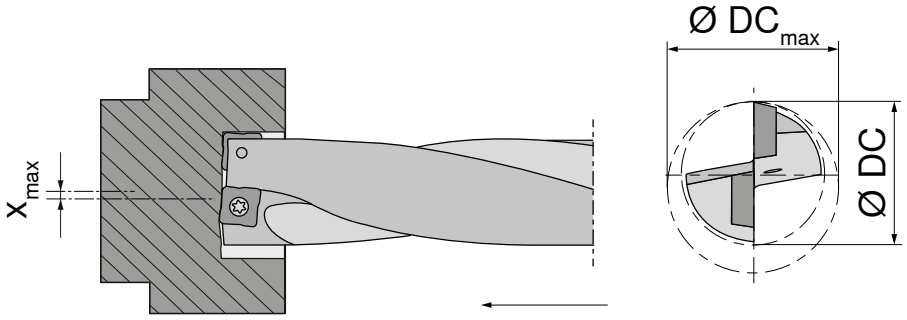
In order to ensure efficient chip evacuation, coolant pressure must be at least 5 bar. Optimum pressure is > 15 bar.

3

Index	Drill bit diameter														
	Ø 46–54 mm				Ø 55–64 mm				Ø 65–71 mm			Ø 72–81 mm			
	f	Centring tip v_c			f	Centring tip v_c			f	Centring tip v_c		f	Centring tip v_c		
	mm/rev.	10 863 ... (TiN/TiAlN)	10 862 ... (TiN)	10 862 ... (TiAlN)	mm/rev.	10 863 ... (TiN/TiAlN)	10 862 ... (TiN)	10 862 ... (TiAlN)	mm/rev.	10 862 ... (TiN)	10 862 ... (TiAlN)	mm/rev.	10 862 ... (TiN)	10 862 ... (TiAlN)	
P.1.1	0,10	**250**	**160**		0,10	**250**	**160**		0,10	**160**		0,10	**160**		
P.1.2	0,14	**250**	**160**		0,16	**250**	**160**		0,16	**160**		0,16	**160**		
P.1.3	0,12	**200**	**160**		0,14	**200**	**160**		0,14	**160**		0,14	**160**		
P.1.4	0,11	**180**	**160**		0,12	**180**	**160**		0,12	**160**		0,12	**160**		
P.1.5	0,12	**230**	**160**		0,14	**230**	**160**		0,14	**160**		0,14	**160**		
P.2.1	0,12	**200**	**160**		0,14	**200**	**160**		0,14	**160**		0,14	**160**		
P.2.2	0,11	**190**	**150**		0,12	**190**	**150**		0,12	**150**		0,12	**150**		
P.2.3	0,14	**180**	**140**		0,16	**180**	**140**		0,16	**140**		0,16	**140**		
P.2.4	0,12	**150**	**120**		0,13	**150**	**120**		0,13	**120**		0,13	**120**		
P.3.1	0,10	**160**	**120**		0,12	**160**	**120**		0,12	**120**		0,12	**120**		
P.3.2	0,08	**140**	**100**		0,10	**140**	**100**		0,10	**100**		0,10	**100**		
P.3.3	0,07	**130**	**90**		0,09	**130**	**90**		0,09	**90**		0,09	**90**		
P.4.1	0,11	**180**	**130**		0,14	**180**	**130**		0,14	**130**		0,14	**130**		
P.4.2	0,08	**140**	**100**		0,10	**140**	**100**		0,10	**100**		0,10	**100**		
M.1.1	0,12	**160**		**70**	0,12	**160**		**70**	0,12		**70**	0,12		**70**	
M.2.1	0,10	**120**		**70**	0,10	**120**		**70**	0,10		**70**	0,10		**70**	
M.3.1	0,08	**110**		**60**	0,08	**110**		**60**	0,08		**60**	0,08		**60**	
K.1.1	0,16	**200**		**100**	0,16	**200**		**100**	0,16		**100**	0,16		**100**	
K.1.2	0,14	**160**		**100**	0,14	**160**		**100**	0,14		**100**	0,14		**100**	
K.2.1	0,14	**160**		**100**	0,14	**160**		**100**	0,14		**100**	0,14		**100**	
K.2.2	0,12	**100**		**80**	0,12	**100**		**80**	0,12		**80**	0,12		**80**	
K.3.1	0,14	**120**		**100**	0,14	**120**		**100**	0,14		**100**	0,14		**100**	
K.3.2	0,12	**100**		**80**	0,12	**100**		**80**	0,12		**80**	0,12		**80**	
N.1.1	0,10	**350**	**350**		0,10	**350**	**350**		0,10	**350**		0,10	**350**		
N.1.2	0,10	**350**	**350**		0,10	**350**	**350**		0,10	**350**		0,10	**350**		
N.2.1	0,16	**250**	**250**		0,16	**250**	**250**		0,16	**250**		0,16	**250**		
N.2.2	0,16	**250**	**250**		0,16	**250**	**250**		0,16	**250**		0,16	**250**		
N.2.3	0,15	**230**	**230**		0,15	**230**	**230**		0,15	**230**		0,15	**230**		
N.3.1	0,18	**200**	**200**		0,18	**200**	**200**		0,18	**200**		0,18	**200**		
N.3.2	0,20	**220**	**220**		0,20	**220**	**220**		0,20	**220**		0,20	**220**		
N.3.3	0,14	**250**	**250**		0,14	**250**	**250**		0,14	**250**		0,14	**250**		
N.4.1	0,18	**200**	**200**		0,18	**200**	**200**		0,18	**200**		0,18	**200**		
S.1.1	0,05	**50**		**25**	0,05	**50**		**25**	0,05		**25**	0,05		**25**	
S.1.2	0,04	**40**		**20**	0,04	**40**		**20**	0,04		**20**	0,04		**20**	
S.2.1	0,05	**50**		**25**	0,05	**50**		**25**	0,05		**25**	0,05		**25**	
S.2.2	0,04	**40**		**20**	0,04	**40**		**20**	0,04		**20**	0,04		**20**	
S.2.3	0,04	**30**		**20**	0,04	**30**		**20**	0,04		**20**	0,04		**20**	
S.3.1	0,07	**80**		**50**	0,07	**80**		**50**	0,07		**50**	0,07		**50**	
S.3.2	0,06	**80**		**40**	0,06	**80**		**40**	0,06		**40**	0,06		**40**	
S.3.3	0,04	**50**		**30**	0,04	**50**		**30**	0,04		**30**	0,04		**30**	
H.1.1															
H.1.2															
H.1.3															
H.1.4															
H.2.1															
H.3.1															
O.1.1	0,10	100	100		0,10	100	100		0,10	100		0,10	100		
O.1.2	0,10	100	100		0,10	100	100		0,10	100		0,10	100		
O.2.1															
O.2.2	0,10	50	30		0,10	50	30		0,10	30		0,10	30		
O.3.1	0,10	100	100		0,10	100	100		0,10	100		0,10	100		

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

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



At max. offset X_{max} the hole will be:
$D_{max} = D + 2X_{max}$
e.g. for D = 20 mm, X_{max} = 0.20 mm:
$D_{max} = D + 0.4 = 20.4$ mm

Ø DC mm	Insert size	X_{max} mm	Ø DC_{max} mm
14,0	SOGX 04....	0,25	14,5
14,5		0,25	15,0
15,0		0,25	15,5
15,5		0,25	16,0
16,0		0,25	16,5
16,5	SOGX 05....	0,25	17,0
17,0		0,25	17,5
17,5		0,25	18,0
18,0		0,25	18,5
18,5	SOGX 06....	0,25	19,0
19,0		0,25	19,5
19,5		0,25	20,0
20,0		0,25	20,5
20,5	SOGX 07....	0,25	21,0
21,0		0,25	21,5
21,5		0,25	22,0
22,0		0,25	22,5
22,5		0,25	23,0
23,0		0,25	23,5
23,5	SOGX 08....	0,25	24,0
24,0		0,25	24,5
24,5		0,25	25,0
25,0		0,25	25,5
25,5		0,25	26,0
26,0		0,25	26,5
26,5	SOGX 09....	0,25	27,0
27,0		0,25	27,5
27,5		0,25	28,0
28,0		0,25	28,5
28,5		0,25	29,0
29,0		0,25	29,5
29,5		0,25	30,0
30,0		0,25	30,5
31,0	SOGX 10....	0,25	31,5
32,0		0,25	32,5
33,0		0,25	33,5
34,0	SOGX 11....	0,25	34,5
35,0		0,25	35,5
36,0		0,25	36,5
37,0		0,25	37,5
38,0	SOGX 12....	0,25	38,5
39,0		0,25	39,5
40,0		0,25	40,5
41,0		0,25	41,5
42,0		0,25	42,5
43,0	SOGX 13....	0,25	43,5
44,0		0,25	44,5
45,0		0,25	45,5
46,0		0,25	46,5
47,0	SOGX 08....	0,25	47,5
48,0		0,25	48,5
49,0		0,25	49,5
50,0		0,25	50,5
51,0		0,25	51,5
52,0		0,25	52,5

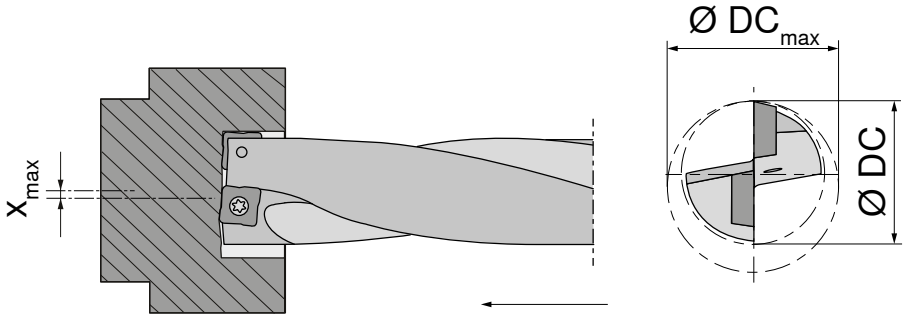
Ø DC mm	Insert size	X_{max} mm	Ø DC_{max} mm
53,0	SOGX 10....	0,25	53,5
54,0		0,25	54,5
55,0		0,25	55,5
56,0		0,25	56,5
57,0		0,25	57,5
58,0		0,25	58,5
59,0		0,25	59,5
60,0		0,25	60,5
61,0		0,25	61,5
62,0		0,25	62,5
63,0		0,25	63,5
64,0		0,25	64,5
65,0		0,25	65,5

KUB Pentron CS

Ø DC mm	Insert size	X_{max} mm	Ø DC_{max} mm
64,0	SOGX 10....	0,25	47,5
65,0		0,25	48,5
66,0		0,25	49,5
67,0		0,25	50,5
68,0		0,25	51,5
69,0		0,25	52,5
70,0	SOGX 11....	0,25	53,5
71,0		0,25	54,5
72,0		0,25	55,5
73,0		0,25	56,5
74,0		0,25	57,5
75,0		0,25	58,5
76,0	SOGX 12....	0,25	59,5
77,0		0,25	60,5
78,0		0,25	61,5
79,0		0,25	62,5
80,0		0,25	63,5
81,0		0,25	64,5
82,0		0,25	65,5
83,0		0,25	83,5
84,0		0,25	84,5
85,0	SOGX 13....	0,25	85,5
86,0		0,25	86,5
87,0		0,25	87,5
88,0		0,25	88,5
89,0		0,25	89,5
90,0		0,25	90,5
91,0		0,25	91,5
92,0		0,25	92,5
93,0		0,25	93,5
94,0		0,25	94,5
95,0		0,25	95,5
96,0		0,25	96,5

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

Maximum off set (X) for drilling into full material / with stationary applications – MaxiDrill 900



At max. offset X_{max} the hole will be:
$D_{max} = D + 2X_{max}$
e.g. for D = 20 mm, X_{max} = 0.20 mm:
$D_{max} = D + 0.4 = 20.4$ mm

Ø DC mm	Insert size	X_{max} mm	Ø DC_{max} mm
12,0	SONT 03....	0,50	13,0
12,5		0,40	13,3
13,0		0,35	13,7
13,5		0,30	14,1
14,0	SONT 04....	0,35	14,7
14,5		0,25	15,0
15,0		0,20	15,4
15,5		0,15	15,8
16,0	SONT 05....	0,40	16,8
16,5		0,35	17,2
17,0		0,30	17,6
17,5		0,25	18,0
18,0	SONT 06....	0,50	19,0
18,5		0,40	19,3
19,0		0,35	19,7
19,5		0,25	20,0
20,0		0,20	20,4
20,5		0,15	20,8
21,0	SONT 07....	0,35	21,7
21,5		0,30	22,1
22,0		0,25	22,5
22,5		0,15	22,8
23,0		0,15	23,3
23,5		0,10	23,7
24,0	SONT 08....	0,65	25,3
24,5		0,55	25,6
25,0		0,55	26,1
25,5		0,40	26,3
26,0		0,35	26,7
26,5		0,30	27,1
27,0		0,25	27,5
27,5		0,15	27,8
28,0	SONT 09....	0,90	29,8
28,5		0,80	30,1
29,0		0,75	30,5
29,5		0,70	30,9
30,0		0,60	31,2
30,5		0,55	31,6
31,0		0,45	31,9
31,5		0,40	32,3
32,0		0,30	32,6

Ø DC mm	Insert size	X_{max} mm	Ø DC_{max} mm
32,5	SONT 10....	0,80	34,1
33,0		0,80	34,6
33,5		0,65	34,8
34,0		0,60	35,2
34,5		0,50	35,5
35,0		0,45	35,9
35,5		0,35	36,2
36,0		0,35	36,7
36,5		0,20	36,9
37,0	SONT 12....	1,00	39,0
38,0		0,85	39,7
39,0		0,70	40,4
40,0		0,50	41,0
41,0		0,35	41,7
42,0	SONT 13....	0,95	43,9
43,0		0,80	44,6
44,0		0,60	45,2
45,0		0,45	45,9
46,0		0,30	46,6
47,0	SONT 15....	1,80	50,6
48,0		1,65	51,3
49,0		1,50	52,0
50,0		1,35	52,7
51,0		1,15	53,3
52,0		0,95	53,9
53,0		0,80	54,6
54,0		0,60	55,2
55,0	SONT 17....	2,10	59,2
56,0		1,90	59,8
57,0		1,75	60,5
58,0		1,55	61,1
59,0		1,35	61,7
60,0		1,15	62,3
61,0		1,00	63,0
62,0		0,85	63,7
63,0		0,65	64,3

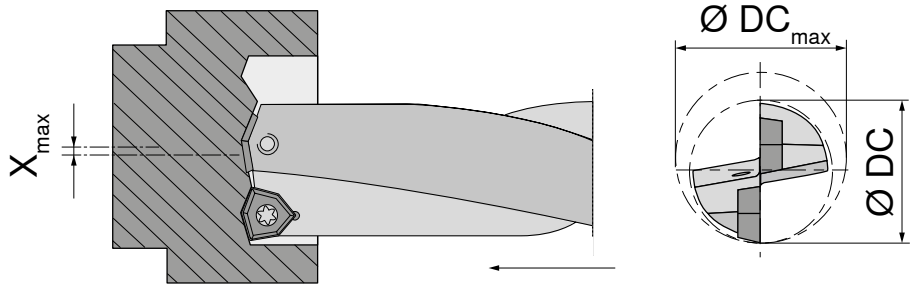
The maximum radial X-offset affects the cutting force balance of the drill, therefore, the use of lower feed rates is recommended!

Technical data for turning – MaxiDrill 900

Insert size	$a_{p\,max.}$ in mm	f in mm/rev.
SONT 03	0,40–1,50	0,08–0,22
SONT 04	0,40–1,80	0,09–0,27
SONT 05	0,60–2,40	0,10–0,30
SONT 06	0,60–2,80	0,11–0,34
SONT 07	0,60–3,40	0,13–0,38
SONT 08	0,70–4,20	0,15–0,41

Insert size	$a_{p\,max.}$ in mm	f in mm/rev.
SONT 09	0,70–4,50	0,16–0,42
SONT 10	0,70–4,80	0,17–0,44
SONT 12	0,90–5,50	0,18–0,45
SONT 13	1,00–6,00	0,20–0,45
SONT 15	1,20–6,40	0,21–0,46
SONT 17	1,20–6,70	0,21–0,47

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



At max. offset X_{max} the hole will be:
$D_{max} = D + 2X_{max}$
e.g. for D = 20 mm, X_{max} = 0.20 mm:
$D_{max} = D + 0.4 = 20.4$ mm

KUB Trigon

Ø DC mm	Insert size	X_{max} mm	Ø DC_{max} mm
14,0	WOEX 03....	0,5	15,0
15,0		0,5	16,0
16,0		0,5	17,0
17,0		0,5	18,0
18,0		0,5	19,0
19,0		0,5	20,0
20,0	WOEX 04....	0,5	21,0
21,0		0,5	22,0
22,0		0,5	23,0
23,0		0,5	24,0
24,0		0,5	25,0
25,0	WOEX 05....	0,5	26,0
26,0		1,0	28,0
27,0		1,5	30,0
28,0		1,5	31,0
29,0		1,5	32,0
30,0		1,25	32,5
31,0		1,25	33,5
32,0		1,0	34,0
33,0		0,5	34,0
34,0		0,5	35,0
35,0		0,5	36,0
36,0		0,5	37,0
37,0	WOEX 06....	1,5	40,0
38,0		1,5	41,0
39,0		1,5	42,0
40,0		1,5	43,0
41,0		1,5	44,0
42,0		1,5	45,0
43,0		1,0	45,0
44,0		0,5	45,0

Ø DC mm	Insert size	X_{max} mm	Ø DC_{max} mm
45,0	WOEX 08....	1,5	48,0
46,0		1,5	49,0
47,0		1,5	50,0
48,0		1,5	51,0
49,0		1,5	52,0
50,0		1,5	53,0
51,0		1,5	54,0
52,0		1,5	55,0
53,0		1,0	55,0
54,0		0,5	55,0
55,0	WOEX 10....	1,5	58,0
56,0		1,5	59,0
57,0		1,5	60,0
58,0		1,5	61,0
59,0		1,5	62,0
60,0		1,5	63,0
61,0		1,5	64,0
62,0		1,5	65,0
63,0		1,5	66,0
64,0		1,5	67,0
65,0		1,5	68,0
66,0		1,5	69,0
67,0		1,25	69,5
68,0		1,0	70,0
69,0	WOEX 12....	1,5	72,0
70,0		1,5	73,0
71,0		1,5	74,0
72,0		1,5	75,0
73,0		1,5	76,0
74,0		1,5	77,0
75,0		1,5	78,0
76,0		1,5	79,0
77,0		1,5	80,0
78,0		1,5	81,0
79,0		1,5	82,0
80,0		1,0	82,0
81,0		0,75	82,5
82,0		0,5	83,0

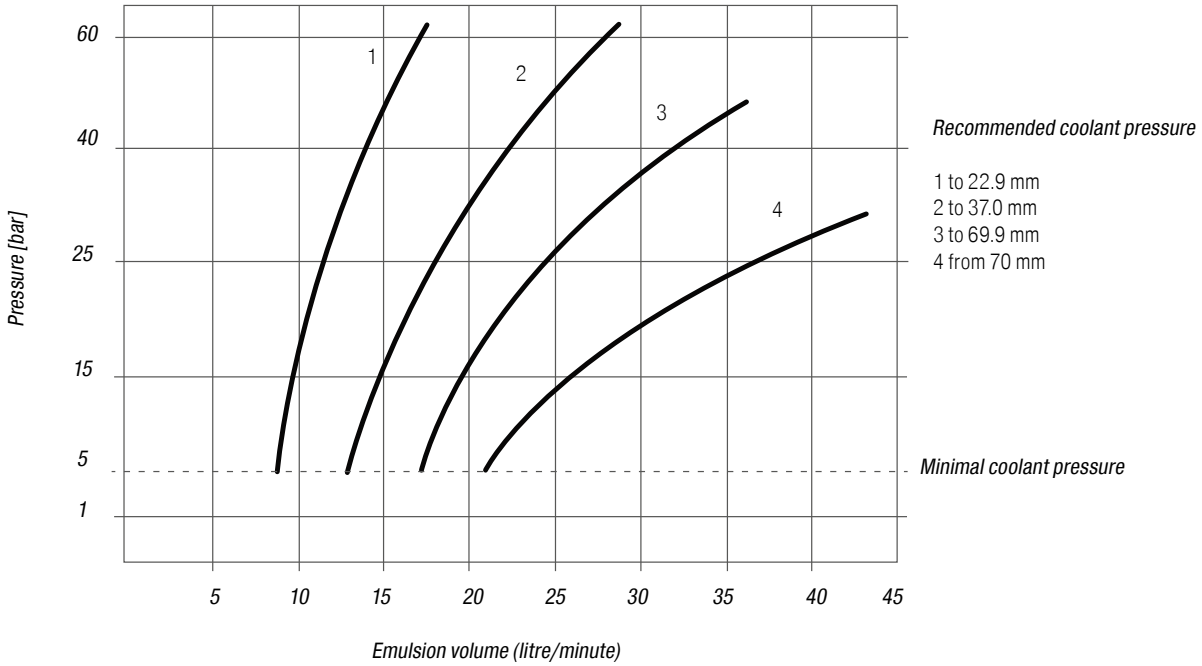
The maximum radial X-offset affects the cutting force balance of the drill, therefore, the use of lower feed rates is recommended!

Coding example indexable insert drilling

System		Length		Bore diameter		Direction of rotation		Insert size		Machine connection and size
KUB-P	.	3D	.	215	.	R	.	07	–	ABS 50
KUB-P	.	3D	.	290	.	R	.	04	–	PSC 63
KUB-P.GH-CS	.	3D	.	76-78	.	R			–	ABS 80
MD-900	.	4D	.	240	.	R	.	08	–	C 32
KUB-T	.	2D	.	350	.	R	.	05	–	K 32
KUB-T	.	2D	.	350	.	L	.	05	–	ABS 50
KUB-C.GH	.	4D	.	320		R			–	ABS 50

KUB-P = KUB Pentron	215 = 21,5 mm	R = right	ABS50 = ABS adapter size 50
	290 = 29,0 mm	R = right	PSC63 = Polygon shank taper size 63
KUB-P.GH-CS = KUB Pentron CS	76-78 = 76-78 mm	R = right	ABS80 = ABS adapter size 80
MD-900 = MaxiDrill 900	240 = 24,0 mm	R = right	C32 = Cylindrical shank Ø 32.0 mm
KUB-T = KUB Trigon	350 = 35,0 mm	R = right	K32 = Cylindrical shank with combi clamping flat Ø 32.0 mm
		L = Left-hand	ABS50 = ABS adapter size 50
KUB-C.GH = KUB Centron	320 = KLG 32	R = right	ABS50 = ABS adapter size 50

Recommended coolant pressure and coolant flow



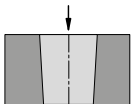
Indexable insert drilling – problems / possible causes / solutions

Rotating and stationary application



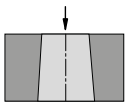
Short service life / types of wear of indexable inserts

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



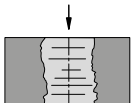
Hole tapers in

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



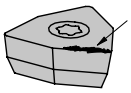
Hole tapers out

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



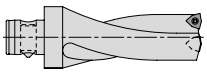
Poor surface quality

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



Built-up edge

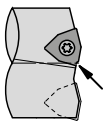
- Cutting speed too low → increase cutting speed
- Indexable insert too negative → use positive geometry
- Unsuitable coating → select the correct coating



Friction marks on the tool shank

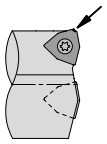
- Bore diameter too small → check the setting
- Chip evacuation problems → optimise the cutting parameters, check the geometry of the indexable insert
- Cutting radius too high → use the correct cutting radius

Stationary application



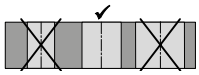
Edge breakage on the inner cutting edge

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



Edge breakage on the outer cutting edge

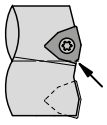
- Feed too high → reduce feed
- Interrupted cut → switch to a tougher grade of indexable insert
- Cutting radius too small → use an indexable insert with a larger cutting radius



Hole too small / too large

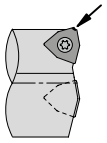
- Machine is not in the X-0 position → move axis to correct position
- Machine axis has been moved → recalibrate the machine

Rotating application



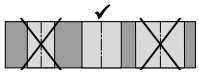
Edge breakage on the inner cutting edge

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



Edge breakage on the outer cutting edge

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

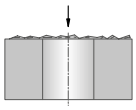


Hole too small / too large when using adjustable tools

- Incorrect cutting radius used → use the correct cutting radius
- Incorrect setting → use the correct tool setting
- Increase cutting fluid supply

KUB Centron – notes on drilling technology

1.



Spot drilling on uneven surfaces (casting surfaces)

- Generally possible
- Reduce feed when spot drilling

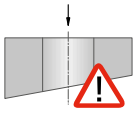
2.



Spot drilling on angled surfaces

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

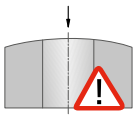
3.



Angled drill exit

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

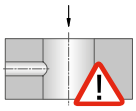
4.



Spot drilling on convex surfaces

- Central spot drilling possible with reduced feed
- If the spot drilling location is outside the centre of the radius, spot facing is required

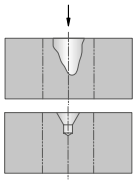
5.



Drilling through a transverse hole

- Halve the feed for interrupted cut
- Transverse hole max. 1/3 of the bore diameter
- Eccentric transverse hole not possible

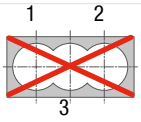
6.



Spot drilling in a pre-op or large centring hole

- Possible under certain conditions
- If necessary, reduce feed
- In the case of a large centre, face turning is required in advance
- If necessary, optimise the basic setting of the centring tip

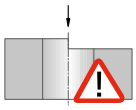
7.



Drilling a cavity

- Not possible

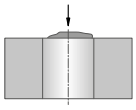
8.



Spot drilling on an edge

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

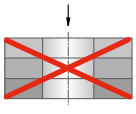
9.



Spot drilling on a forging/welding/casting seam

- Reduce feed when spot drilling
- If necessary, carry out facing in advance

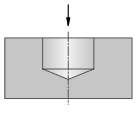
10.



Drilling through stacks

- Not possible

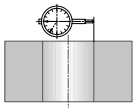
11.



Blind hole

- Possible
- Set guide rails 0.5 mm below actual x

12.



Adjustable

- Adjustable from a diameter of 65 mm

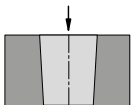
KUB Centron – problems / possible causes / solutions

Rotating and stationary application



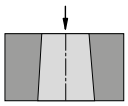
Short service life / types of wear of indexable inserts

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



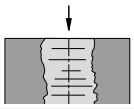
Hole tapers in

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



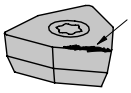
Hole tapers out

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



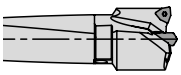
Poor surface quality

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



Built-up edge

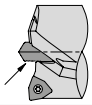
- Cutting speed too low → increase cutting speed
- Indexable insert too negative → use positive geometry
- Unsuitable coating → select the correct coating



Friction marks on the tool shank

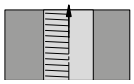
- Bore diameter too small → check the setting
- Chip evacuation problems → optimise the cutting parameters, check the geometry of the indexable insert
- Cutting radius too large → use the correct cutting radius
- Chips stuck on the supporting element, broken supporting elements, the supporting element does not have to be used for base elements of < 6xD

Stationary application



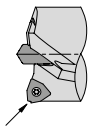
Significant wear on one side of the centring tip

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



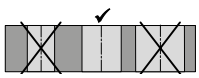
Single-sided retraction scoring

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



Edge breakage on the outer cutting edge

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



Hole too small / too large

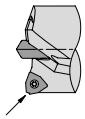
- Machine is not in the X-0 position → move axis to correct position
- Machine axis has been moved → recalibrate the machine

Rotating application



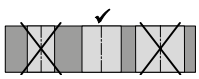
Significant wear on one side of the centring tip

- Guidance insufficient → check length adjustment of the centring tip



Edge breakage on the outer cutting edge

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



Hole too small / too large

- Incorrect cutting radius used → use the correct cutting radius
- Incorrect setting → use the correct tool setting

Grades Overview

CTPP430

- Carbide, TiAlN-coated
- ISO | **P30** | **M25** | S25 | K30 | N25
- The universal high-performance grade for steel, austenitic steel and heat-resistant alloys.

CTPP420

- Carbide, TiCN-Al_2O_3-coated
- ISO | **P20** | **K20**
- The wear-resistant solution for steel and cast iron materials at high cutting speeds.

BK7710

- Carbide, TiB_2-coated
- ISO | **N10** | S10 | O10
- The wear-resistant grade with optimum cutting characteristics to prevent built-up edge formation for machining aluminium and titanium alloys.

BK6425

- Carbide, TiCN-Al_2O_3-TiN-coated
- ISO | **P25 I M15** | **K20**
- The extremely wear-resistant grade for machining all steel and stainless materials.

BK62

- Carbide, TiN-TiCN-Al_2O_3-coated
- ISO | **K15** | H15
- Special carbide grade for machining cast iron materials at high cutting speeds. Not suitable for machining aluminium materials.

BK79

- Carbide, TiAlN-coated
- ISO | **P40** | **M35** | **K25** | N30
- Universally applicable grade with high wear-resistance
- low to medium cutting speed for roughing and finishing as well as interrupted cut

BK8425

- Carbide, TiAlN/TiN-coated
- ISO | **P25** | **M25** | **K25** | N25 | **S25** | H25
- Universally applicable grade with increased wear resistance thanks to the innovative PVD coating in a multilayer design.

BK8430

- Carbide, TiAlN/TiN-coated
- ISO | **P25** | **M25 I K25** | N25 | **S25** | H25
- Fine-grain grade with high wear resistance
- Extreme edge stability and maximum wear resistance in the middle and top speed range

BK6115

- Carbide, TiCN-TiN-Al_2O_3-coated
- ISO | **P20** | **M20** | **K20** | H20
- High-quality, surface-treated coating for machining cast iron materials under normal to stable conditions and high cutting speeds.

BK7935

- Carbide, AlTiN-coated
- ISO | **P35** | **M30** | **K30** | N30 | **S30** | O30
- The tough carbide grade for machining stainless steel and acid-resistant steels as well as special alloys.

BK77

- Carbide, TiN-coated
- ISO | **S10** | H10 | O10
- The wear-resistant carbide grade for machining aluminum alloys, superalloys and plastics at medium cutting speeds.

BK7615

- Carbide, TiCN-Al_2O_3-coated
- ISO | **K15**
- Highly productive grade with extreme edge stability for wet and dry machining of all cast iron materials

Chip breakers

-01

- Universal geometry suitable for a wide range of materials
- Can be used for the center and peripheral insert



-03

- Geometry for chip breaking problems with excellent chip control at low feed rates
- WOEX BK8425 -03: Can only be used for the peripheral insert
- SOGX BK8425 -03: Suitable for the center and peripheral insert
- Main application in low alloyed and stainless steels



-11

- Highly positive, minimally rounded chip breaker
- For soft cutting use
- Main application in aluminum



-13

- The shape of the chip breaker causes a more controlled breaking of the chips
- Can be used for the center and peripheral insert
- Due to the low cutting forces well suited to unstable conditions



-32

- For the machining of steel and cast iron materials
- Minimised burr formation when entering and exiting the hole
- Reliable separation of disc-shaped residual material when the drill exits the hole



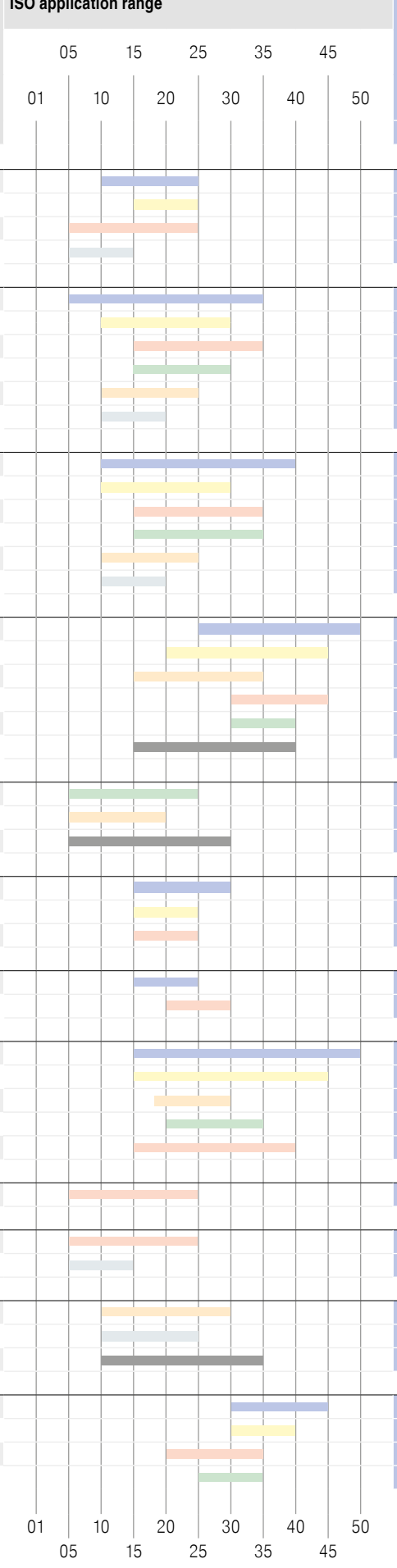
-34

- High-feed geometry
- Extremely sturdy indexable insert
- Designed specially for steel and cast iron materials



Application

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



● **Main Application**
○ Extended application

wear-resistant v_c+ ⟷ v_c− tough



New products for machining technicians

NEW Fullmax high-performance reamers – short



- Solid carbide high-performance reamers in short version
- Type UNI
- Maximum efficiency in all materials
- Available as standard H7, as 1/100 and as a configurable variant

→ Page 23–28

NEW NC machine reamer – Type H



- Solid carbide NC machine reamers for hardened materials
- Standard shank DIN 6535 HA

→ Page 43+44

NEW Insert countersink 60°/90°



- Indexable insert countersink for producing 60° and 90° countersinks
- Ideally suited for use with TOHX indexable inserts

→ Page 55+56

NEW TOHX indexable inserts



BK8425

- Grade for universal use



K10

- Grade for use in non-ferrous metals and highly heat-resistant materials

→ Page 57



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

Table of contents

Symbol explanation	2
Reamers overview	3
Reamers Toolfinder	4+5
Contents overview – Countersinks	6
Product range – Reamers	
Solid carbide – High speed reamers	7–38
Solid carbide – Reamers	39–44
HSS – Reamers	45–52
Product range – Countersinks	53–65
Technical Information	
Cutting Data	66–97
REAMAX TS assembly and operating instructions	98+99
Problems / possible causes / solutions	100
Types of wear	101
Cutting edge geometries and surface quality	102
Tolerance classes covered with 1/100 reamer	103
Manufacturer's tolerance and coatings	104
Chip Breaker Types and Grade Overview	105

KOMET \ Performance

Premium quality tools for high performance.

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

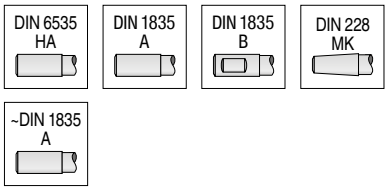
KOMET \ Standard

Quality tools for standard applications.

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

Symbol explanation

Shank





Coolant supply version


central internal coolant

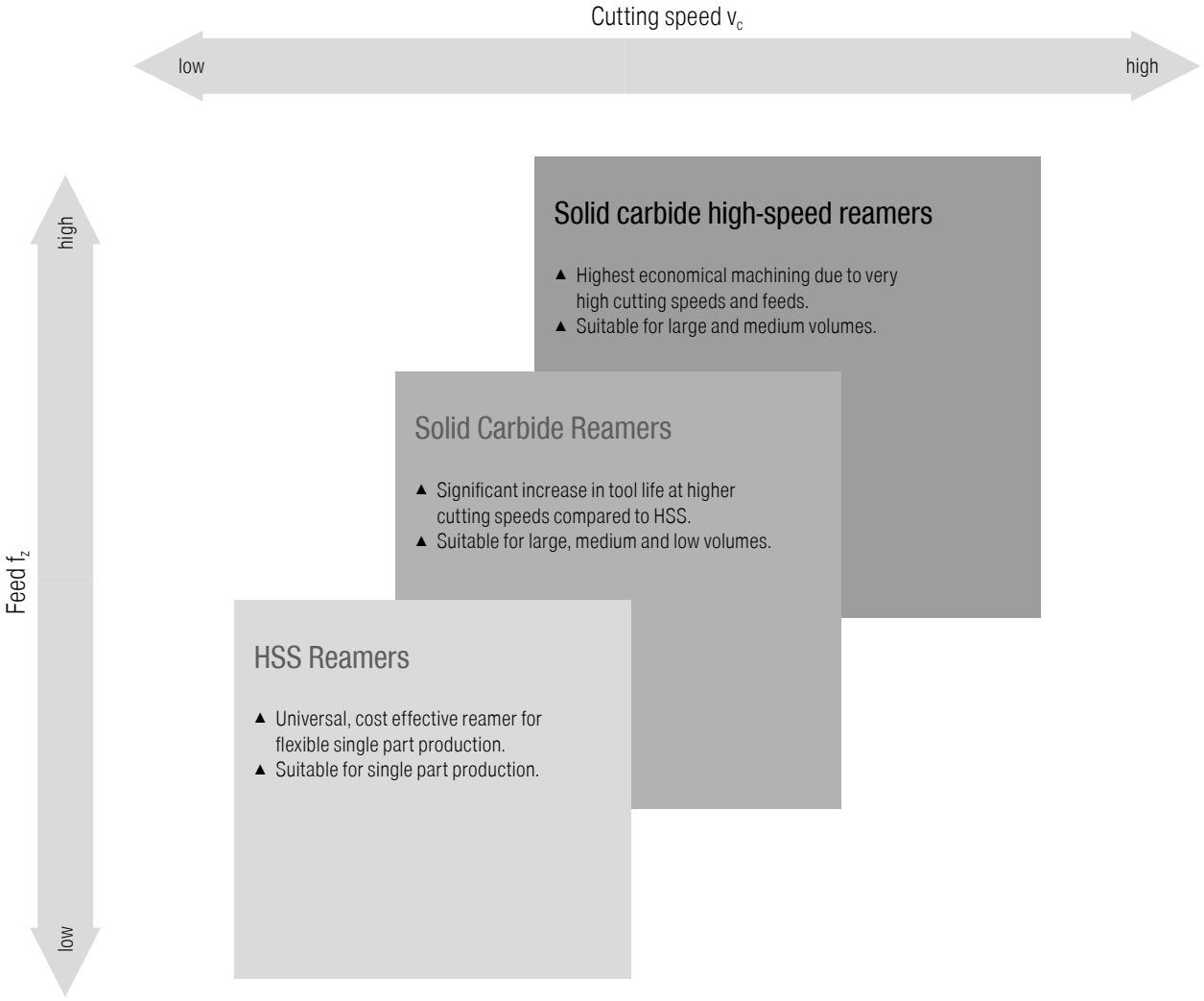

lateral internal coolant

ZEFP = Number of flutes

● = **Main Application**

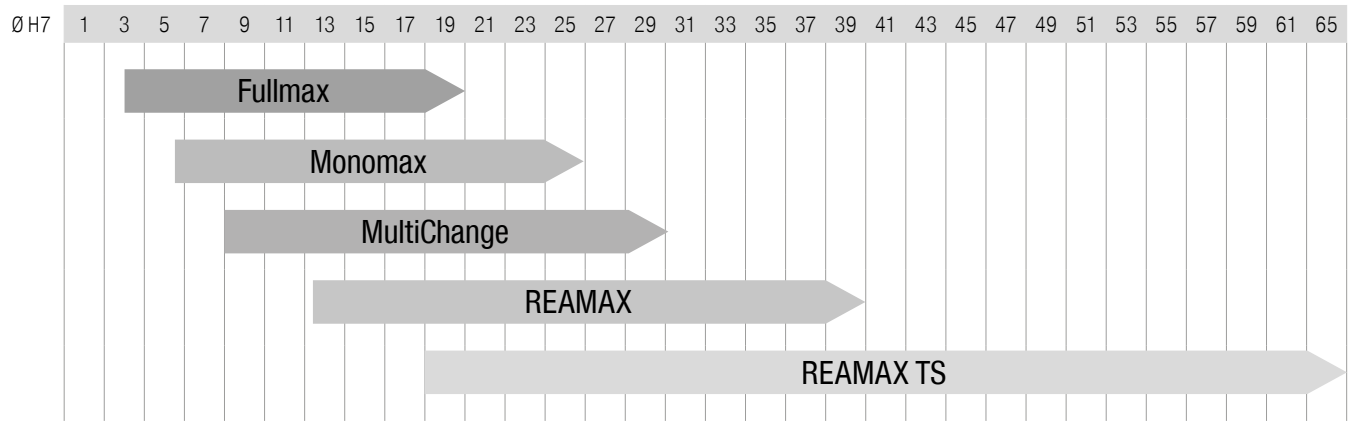
○ = Extended application

Toolfinder – Reamers



4

Overview of solid carbide high-speed reamers

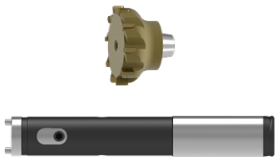


	mono	modular
fixed	Fullmax	MultiChange REAMAX
adjustable	Monomax	REAMAX TS

Toolfinder – Reamers

Solid carbide – high speed reamers

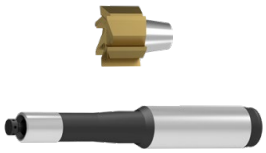
REAMAX TS



- highly flexible and economical replaceable head system
- all common materials
- can be adjusted in µm range

- holder available in 3xD and 5xD
- holder type DAH Zero available in 3xD and 5xD

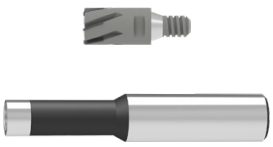
REAMAX



- exchange head system, optimised for use with air mist coolant (MMS)
- face and taper contact giving run out accuracy ≤ 2 µm

- holder available in 3xD and 5xD

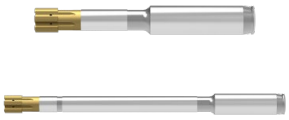
MultiChange



- flexible quick change system for reaming, countersinking and chamfering
- face and taper contact giving run out accuracy ≤ 5 µm

- stable holder in solid carbide and steel, from short to long

Monomax



- adjustable monoblock reamer in 3xD and 5xD
- regrinding and re-tipping on the base body
- all common materials

Fullmax



- High-speed reamer in shorter and longer version
- Reamers for machining steel, stainless and acid-resistant steels, cast materials, aluminium and hardened materials up to 63 HRC
- Extremely irregular pitch
- Standard shank ~ DIN 6535 HA

Solid carbide – Reamers

NC	NC 100	
NC	NC 100H	
N		

- universal solid carbide reamer without thro' coolant
- extremely irregular pitch
- DIN 6535 HA shank

- Solid carbide reamer without thro' coolant suitable for use in hardened materials
- Standard shank ~ DIN 6535 HA

- universal solid carbide reamer without thro' coolant
- extremely irregular pitch

HSS – Reamers

NC	NC 100	
N	N 100	
S		
AR	AR 100	
N		
H		

- HSS-E NC machine reamer
- DIN 1835 A shank

- HSS-E machine reamer

- HSS-E spiral machine reamer DIN 212

- HSS-E automatic machine reamer DIN 8089

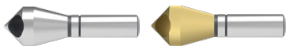
- HSS-e machine reamer DIN 208
- with Morse taper

- HSS hand reamer with cylindrical shank DIN 206

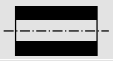
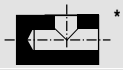
		Hole diameter in mm Ø DC	Standard Tolerance	Through hole	Blind hole	Int. coolant supply	Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant S	hardened materials H	Non metal materials O	KOMET \ Performance	KOMET \ Standard
		18,00–65,00	H7 1/100	✓	✓	✓	●	●	●	●			○	7–9	
						✓								10+11	
		12,50–40,00	H7 1/100	✓	✓	✓	●	●	●	●		●	○	12+13	
						✓								14	
		8,00–30,20	H7 1/100	✓	✓	✓	●	●	●	●				15–17	
						✓								→ Catalogue – Clamping technology, Chapter 16	
	short	5,60–25,89	H7 1/100	✓	✓	✓	●	●	●	●			○	18–20	
	long	5,60–25,89	H7 1/100	✓	✓	✓	●	●	●	●			○	21+22	
	short	4,00–16,00 2,96–20,05	H7 1/100	✓	✓	✓	●	●	●	○	○	○		23–28	
	long	4,00–16,00 2,96–20,05	H7 1/100	✓	✓	✓	●	●	●	●	○	●	○	29–38	
		2,00–30,00 0,59–12,05	H7 1/100	✓			●	○	●	●	○	○	●	39–41	
		0,98–12,05	H7	✓	✓		○	○	○			●		43+44	
		2,00–12,00	H7	✓			●	○	○	●	○				42
		1,50–20,00 0,95–12,00	H7 1/100	✓			●		●	●			●	45+46	
		1,00–20,00 0,95–12,00	H7 1/100	✓			●	○	●	●	○		●		47–49
		1,00–20,00	H7	✓			●			●			○		50
		4,00–20,00 3,76–12,00	H7 1/100	✓			●	○	●	●	○		●		50+51
		16,00–50,00	H7	✓			●	○	●	●	○		●		52
		1,00–40,00	H7	✓			●	○	●	●	○		●		52

4

Countersinks Overview

	Tool type	Coating	Hole diameter in mm Ø DC	Point angle	Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant S	hardened materials H	Non metal materials O	KOMET \ Performance	KOMET \ Standard
Indexable Insert Counterbore Tool													
	WPS		15,0–33,0		●	●	●	●	●				53+54
	WPS		16,5–25,5 19,0–37,0	60° 90°	●	●	●	●	●				55–57
HSS – Counterbores													
			6,0–20,0		●	●	●	●	○		●		58
Solid Carbide Countersinks													
	N	TPX76S	6,3–31,0	90°	●	○	●	●	○	○	○	59	
	N		12,5–25,0	60°	●	○	●	●	○	○			60
	N		10,4–31,0	90°	●	○	●	●	○	○			60
HSS Countersinks													
			6,3–25,0	60°	●	○	●	●	○		●		63
			16,0–80,0	60°	●	○	●	●	○		●		63
	N	Ti50	4,3–31,0	90°	●	○	●	●	○	○	○	61	
	N		4,3–31,0	90°	●	○	●	●	○		●		62
	N	TiN	5,0–31,0	90°	●	○	●	●	○	○	●		62
	N	TiAlN	5,0–31,0	90°	●	○	●	●	○	○	●		62
	VA	TiAlN	6,3–31,0	90°	○	●	○	○	○	○	●		62
	AL		6,3–31,0	90°	○	○	○	●	○		●		62
	N		16,5–80,0	90°	●	○	●	●	○		●		64
			6,3–25,0	120°	●	○	●	●	○		●		64
HSS – Hand deburrer													
			12,4–25,0	90°	●	○	●	●	○	○	●		65
Deburring Countersink													
		blank/ TiN	6,3–35,0	90°	●	○	●	●	○	○	●		65

REAMAX TS – Selection guide

ø			18 – 65 mm								
KOMET no.			75J.93	75J.93	75J.65	75J.17	75H.17	75H.93	75H.65	75H.65	75H.71
Lead angle			ASG4000	ASG3000	ASG0106	ASG0706	ASG0706	ASG3000	ASG3000	ASG0106	ASG3000
Lead angle			25°	45°	45°	45°/8°	45°/8°	45°	45°	45°	45°
Grade / coating			DST	DST	DBG-P	DBC	DBC	DST	DBG-P	DBG-P	TiN
Article no.			40 597	40 544	40 521	40 526	40 580	40 539	40 585	40 571	40 535
Preferred type available			✓	✓	✓			✓		✓	
Application			Through hole				Blind hole				
					 *					 *	
Material sub-group		Index									
P	Non alloyed steel	P.1.1									
		P.1.2									
		P.1.3									
		P.1.4									
		P.1.5	●	●				●	●		○
	Low alloyed steel	P.2.1									
		P.2.2									
		P.2.3									
		P.2.4									
	High-alloy steel and high-alloy tool steel	P.3.1									
		P.3.2									
		P.3.3			●					●	
	Stainless steel	P.4.1									
		P.4.2									
M	Stainless steel	M.1.1									
		M.2.1			●					●	
		M.3.1									
K	Grey cast iron	K.1.1							●		●
		K.1.2									
	Spherulitic graphite cast iron	K.2.1	●	●				●	●		
		K.2.2									
	Malleable iron	K.3.1		●				●	●		
		K.3.2	●								
N	Aluminum alloys	N.1.1									
		N.1.2									
	Cast Aluminium Alloys	N.2.1				●	●				
		N.2.2									
		N.2.3									
	Copper and copper alloys (Bronze, Brass)	N.3.1		○				○			
		N.3.2									●
		N.3.3									
	Magnesium alloys	N.4.1				●	●				
O	Non metal materials	O.1.1									
		O.1.2									
		O.2.1									
		O.2.2									
		O.3.1				○	○				

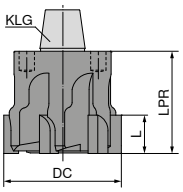
* for drilling with interrupted cut use coated HM-reamers

Applications:	Main application	●
	Additional range of application	○

REAMAX TS – Replaceable reaming heads

- up to tolerance class IT 6 with absolute process security, from the first hole
- precise repeatability < 3 µm
- high precision grind for maximum quality
- can be adjusted for the smallest hole tolerances
- interface enables head change in the machine
- retraction from the hole at 3–4 times the cutting feed rate
- KLG = coupling size





	DST	DBG-P	DBC	DST
				
	75J.93 ◁ 25° ASG4000 CERMET Through hole	75J.65 ◁ 45° ASG0106 HM Through hole	75J.17 ◁ 45/8° ASG0706 HM Through hole	75J.93 ◁ 45° ASG3000 CERMET Through hole
	40 597 ...	**40 521 ...**	**40 526 ...**	**40 544 ...**

DC $_{H7}$ mm	L mm	LPR mm	ZEFP	KLG				
18,00	6	20	6	1	18000	18000	18000	18000
18,01 - 19,99	6	20	6	1	xxxx [1]	xxxx [1]	xxxx [2]	xxxx [1]
20,00	6	20	6	2	20000	20000	20000	20000
20,01 - 21,99	6	20	6	2	xxxx [1]	xxxx [1]	xxxx [2]	xxxx [1]
22,00	6	20	6	3	22000	22000	22000	22000
22,01 - 23,99	6	20	6	3	xxxx [1]	xxxx [1]	xxxx [2]	xxxx [1]
24,00	6	20	6	3	24000	24000	24000	24000 [1]
24,01 - 24,99	6	20	6	3	xxxx [1]	xxxx [1]	xxxx [2]	xxxx [1]
25,00	6	20	6	3	25000	25000	25000	25000
25,01 - 25,99	6	20	6	3	xxxx [1]	xxxx [1]	xxxx [2]	xxxx [1]
26,00	6	20	6	3	26000	26000	26000 [2]	26000
26,01 - 26,99	6	20	6	3	xxxx [1]	xxxx [1]	xxxx [2]	xxxx [1]
27,00 - 27,99	6	25	6	4	xxxx [1]	xxxx [1]	xxxx [2]	xxxx [1]
28,00	6	25	6	4	28000	28000	28000	28000
28,01 - 29,99	6	25	6	4	xxxx [1]	xxxx [1]	xxxx [2]	xxxx [1]
30,00	6	25	6	4	30000	30000	30000	30000
30,01 - 31,79	6	25	6	4	xxxx [1]	xxxx [1]	xxxx [2]	xxxx [1]
31,80 - 31,99	6	25	8	4	xxxx [1]	xxxx [1]	xxxx [2]	xxxx [1]
32,00	6	25	8	4	32000	32000	32000	32000
32,01 - 34,99	6	25	8	4	xxxx [1]	xxxx [1]	xxxx [2]	xxxx [1]
35,00	6	25	8	5	35000	35000	35000	35000
35,01 - 39,99	6	25	8	5	xxxx [1]	xxxx [1]	xxxx [2]	xxxx [1]
40,00	6	25	8	5	40000	40000	40000	40000
40,01 - 41,99	6	25	8	5	xxxx [1]	xxxx [1]	xxxx [2]	xxxx [1]
42,00	6	30	8	6	42000	42000	42000 [2]	42000
42,01 - 49,99	6	30	8	6	xxxx [1]	xxxx [1]	xxxx [2]	xxxx [1]
50,00	6	30	8	6	50000	50000	50000	50000
50,01 - 51,99	6	30	8	6	xxxx [1]	xxxx [1]	xxxx [2]	xxxx [1]
52,00 - 53,99	8	35	10	7	xxxx [1]	xxxx [1]	xxxx [2]	xxxx [1]
54,00	8	35	10	7	54000	54000	54000 [2]	54000
54,01 - 65,00	8	35	10	7	xxxx [1]	xxxx [1]	xxxx [2]	xxxx [1]
P					●	●		●
M						●		
K					●			●
N							●	○
S								
H								
O							○	

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 20 working days / Minimum order 2 pieces
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days / Minimum order 2 pieces

→ v_c Page 67–70

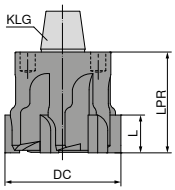
For xxxx please indicate requested Ø in H7 in the order (e.g Ø 24.12 H7 → article no. 40 597 2412)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7)!
All heads are also available as fixed-head variants (non-adjustable). (Available on request)

Assembly instructions can be found on → **Page 98+99**

REAMAX TS – Replaceable reaming heads

- up to tolerance class IT 6 with absolute process security, from the first hole
- precise repeatability < 3 µm
- high precision grind for maximum quality
- can be adjusted for the smallest hole tolerances
- interface enables head change in the machine
- retraction from the hole at 3–4 times the cutting feed rate
- KLG = coupling size





DST	DBG-P	DBC	DBG-P	TiN
				
75H.93 ◁ 45° ASG3000 CERMET Blind hole	75H.65 ◁ 45° ASG0106 HM Blind hole	75H.17 ◁ 45/8° ASG0706 HM Blind hole	75H.65 ◁ 45° ASG3000 HM Blind hole	75H.71 ◁ 45° ASG3000 HM Blind hole
40 539 ...	**40 571 ...**	**40 580 ...**	**40 585 ...**	**40 535 ...**

DC $_{H7}$ mm	L mm	LPR mm	ZEFP	KLG									
18,00	6	20	6	1	18000		18000		18000 [2)]		18000 [1)]		18000 [1)]
18,01 - 19,99	6	20	6	1	xxxx [1)]		xxxx [1)]		xxxx [2)]		xxxx [1)]		xxxx [1)]
20,00	6	20	6	2	20000		20000		20000 [2)]		20000 [1)]		20000 [1)]
20,01 - 21,99	6	20	6	2	xxxx [1)]		xxxx [1)]		xxxx [2)]		xxxx [1)]		xxxx [1)]
22,00	6	20	6	3	22000		22000		22000 [2)]		22000 [1)]		22000 [1)]
22,01 - 23,99	6	20	6	3	xxxx [1)]		xxxx [1)]		xxxx [2)]		xxxx [1)]		xxxx [1)]
24,00	6	20	6	3	24000		24000		24000 [2)]		24000 [1)]		24000 [1)]
24,01 - 24,99	6	20	6	3	xxxx [1)]		xxxx [1)]		xxxx [2)]		xxxx [1)]		xxxx [1)]
25,00	6	20	6	3	25000		25000		25000 [2)]		25000 [1)]		25000 [1)]
25,01 - 25,99	6	20	6	3	xxxx [1)]		xxxx [1)]		xxxx [2)]		xxxx [1)]		xxxx [1)]
26,00	6	20	6	3	26000		26000		26000 [2)]		26000 [1)]		26000 [1)]
26,01 - 26,99	6	20	6	3	xxxx [1)]		xxxx [1)]		xxxx [2)]		xxxx [1)]		xxxx [1)]
27,00 - 27,99	6	25	6	4	xxxx [1)]		xxxx [1)]		xxxx [2)]		xxxx [1)]		xxxx [1)]
28,00	6	25	6	4	28000		28000		28000 [2)]		28000 [1)]		28000 [1)]
28,01 - 29,99	6	25	6	4	xxxx [1)]		xxxx [1)]		xxxx [2)]		xxxx [1)]		xxxx [1)]
30,00	6	25	6	4	30000		30000		30000 [2)]		30000 [1)]		30000 [1)]
30,01 - 31,79	6	25	6	4	xxxx [1)]		xxxx [1)]		xxxx [2)]		xxxx [1)]		xxxx [1)]
31,80 - 31,99	6	25	8	4	xxxx [1)]		xxxx [1)]		xxxx [2)]		xxxx [1)]		xxxx [1)]
32,00	6	25	8	4	32000		32000		32000 [2)]		32000 [1)]		32000 [1)]
32,01 - 34,99	6	25	8	4	xxxx [1)]		xxxx [1)]		xxxx [2)]		xxxx [1)]		xxxx [1)]
35,00	6	25	8	5	35000		35000		35000 [2)]		35000 [1)]		35000 [1)]
35,01 - 39,99	6	25	8	5	xxxx [1)]		xxxx [1)]		xxxx [2)]		xxxx [1)]		xxxx [1)]
40,00	6	25	8	5	40000		40000		40000 [2)]		40000 [1)]		40000 [1)]
40,01 - 41,99	6	25	8	5	xxxx [1)]		xxxx [1)]		xxxx [2)]		xxxx [1)]		xxxx [1)]
42,00	6	30	8	6	42000		42000		42000 [2)]		42000 [1)]		42000 [1)]
42,01 - 49,99	6	30	8	6	xxxx [1)]		xxxx [1)]		xxxx [2)]		xxxx [1)]		xxxx [1)]
50,00	6	30	8	6	50000		50000		50000 [2)]		50000 [1)]		50000 [1)]
50,01 - 51,99	6	30	8	6	xxxx [1)]		xxxx [1)]		xxxx [2)]		xxxx [1)]		xxxx [1)]
52,00 - 53,99	8	35	10	7	xxxx [1)]		xxxx [1)]		xxxx [2)]		xxxx [1)]		xxxx [1)]
54,00	8	35	10	7	54000		54000		54000 [2)]		54000 [1)]		54000 [1)]
54,01 - 65,00	8	35	10	7	xxxx [1)]		xxxx [1)]		xxxx [2)]		xxxx [1)]		xxxx [1)]
P					●		●				●		○
M							●						
K					●						●		●
N					○				●				●
S													
H													
O									○				

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 20 working days / Minimum order 2 pieces
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days / Minimum order 2 pieces

→ v_c Page 67–70

For xxxx please indicate requested Ø in H7 in the order (e.g Ø 24.12 H7 → article no. 40 539 2412)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7)!
All heads are also available as fixed-head variants (non-adjustable). (Available on request)

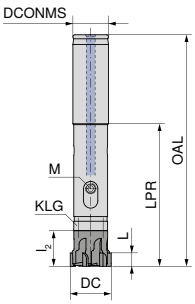
Assembly instructions can be found on → **Page 98+99**

REAMAX TS – Holder

▲ KLG = Coupling Size

Supply details:

Complete holder incl. pull stud but without exchangeable head





~A
≤ 3xD



~A
≤ 5xD

DC mm	KOMET no.	KLG	OAL mm	l_2 mm	LPR mm	L mm	DCONMS $_{h6}$ mm	M Nm	40 501 ...	40 503 ...
18,00 - 19,99	75A.40.13010	1	130	20	80	6	20	1,5	**02099**	
18,00 - 19,99	75A.40.15010	1	190	20	140	6	20	1,5		**02099**
20,00 - 21,99	75A.40.13020	2	130	20	80	6	20	2,5	**02299**	
20,00 - 21,99	75A.40.15020	2	190	20	140	6	20	2,5		**02299**
22,00 - 26,99	75A.40.13030	3	130	20	80	6	20	4	**02799**	
22,00 - 26,99	75A.40.15030	3	210	20	160	6	20	4		**02799**
27,00 - 34,99	75A.40.13040	4	176	25	120	6	25	5	**03599**	
27,00 - 34,99	75A.40.15040	4	236	25	180	6	25	5		**03599**
35,00 - 41,99	75A.40.13050	5	176	25	120	6	25	6	**04299**	
35,00 - 41,99	75A.40.15050	5	256	25	200	6	25	6		**04299**
42,00 - 51,99	75A.40.13060	6	180	30	120	6	32	10	**05299**	
42,00 - 51,99	75A.40.15060	6	280	30	220	6	32	10		**05299**
52,00 - 65,00	75A.40.13070	7	180	30	120	8	32	13	**06599**	
52,00 - 65,00	75A.40.15070	7	280	30	220	8	32	13		**06599**

Do not heat shrink tools !



Clamping key - T



Key D



Reamax TS pull stud

Spare parts DC		80 397 ...		80 950 ...	40 900 ...
18,00 - 19,99			T08 - IP	**039**	**00100**
20,00 - 21,99	SW2,5	**025**			**00200**
22,00 - 26,99	SW3	**030**			**00300**
27,00 - 34,99	SW3	**030**			**00400**
35,00 - 41,99	SW3	**030**			**00500**
42,00 - 51,99	SW4	**040**			**00500**
52,00 - 65,00	SW5	**050**			**00700**

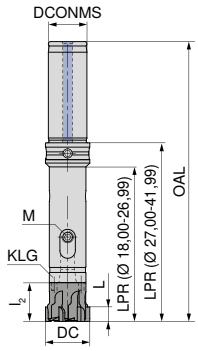
Assembly instructions can be found on → **Page 98+99**

REAMAX TS – Holder

- KLG = Coupling size
- Adjustment inside the machine
- Alignable DAH Zero holder for correction of concentricity error
- DAH Zero holder is pre-loaded and set to a runout of < 0.005 mm

Supply details:

Complete holder incl. pull stud but without exchangeable head







DC mm	KOMET no.	KLG	OAL mm	l_2 mm	LPR mm	L mm	DCONMS $_{h6}$ mm	M Nm	40 504 ...	40 506 ...
18,00 - 19,99	75A.41.13010	1	145	20	80	6	20	1,5	**02099**	
18,00 - 19,99	75A.41.15010	1	205	20	140	6	20	1,5		**02099**
20,00 - 21,99	75A.41.13020	2	145	20	80	6	20	2,5	**02299**	
20,00 - 21,99	75A.41.15020	2	205	20	140	6	20	2,5		**02299**
22,00 - 26,99	75A.41.13030	3	145	20	80	6	20	4	**02799**	
22,00 - 26,99	75A.41.15030	3	225	20	160	6	20	4		**02799**
27,00 - 34,99	75A.41.13040	4	145	25	120	6	25	5	**03599**	
27,00 - 34,99	75A.41.15040	4	236	25	180	6	25	5		**03599**
35,00 - 41,99	75A.41.13050	5	176	25	120	6	25	6	**04299**	
35,00 - 41,99	75A.41.15050	5	236	25	200	6	25	6		**04299**

Do not heat shrink tools !







Spare parts DC		80 397 ...		80 950 ...	40 900 ...
18,00 - 19,99			T08 - IP	**039**	**00100**
20,00 - 21,99	SW2,5	**025**			**00200**
22,00 - 26,99	SW3	**030**			**00300**
27,00 - 34,99	SW3	**030**			**00400**
35,00 - 41,99	SW3	**030**			**00500**

Assembly instructions can be found on → **Page 98+99**

REAMAX – Selection guide

Ø			12,5 – 40 mm					
KOMET no.			640.93	640.93	640.65	640.65	640.27	640.71
Lead angle			ASG4000	ASG3000	ASG3000	ASG0106	ASG0706	ASG3000
Lead angle			25°	45°	45°	45°	45°/8°	45°
Grade / coating			DST	DST	DBG-P	DBG-P	DBC	TiN
Article no.			40 536	40 525	40 560	40 551	40 570	40 505
Preferred type available			✓	✓	✓	✓	✓	✓
Application			Through hole	Through hole + blind hole				
					 *		 *	
Material sub-group		Index						
P	Non alloyed steel	P.1.1	●	●	●			○
		P.1.2						
		P.1.3						
		P.1.4						
		P.1.5						
	Low alloyed steel	P.2.1						
		P.2.2						
		P.2.3						
		P.2.4				●		
	High-alloy steel and high-alloy tool steel	P.3.1						
		P.3.2						
		P.3.3						
	Stainless steel	P.4.1						
		P.4.2						
M	Stainless steel	M.1.1						
		M.2.1				●		
		M.3.1						
K	Grey cast iron	K.1.1			●			○
		K.1.2						
	Spherulitic graphite cast iron	K.2.1	○	●	●			
		K.2.2						
	Malleable iron	K.3.1		●	●			
		K.3.2	○					
N	Aluminum alloys,	N.1.1						
		N.1.2					●	
	Cast Aluminium Alloys	N.2.1						
		N.2.2						
		N.2.3						
	Copper and copper alloys (Bronze, Brass)	N.3.1		○				
		N.3.2						●
		N.3.3						
	Magnesium alloys	N.4.1						
H	Hardened steel	H.1.1						
		H.1.2				●		
		H.1.3						
		H.1.4						
	Chilled iron	H.2.1						
	Hardened cast iron	H.3.1				●		
O	Non metal materials	O.1.1						
		O.1.2						
		O.2.1						
		O.2.2						
		O.3.1					○	

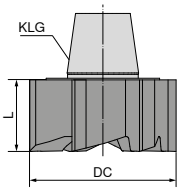
* for drilling with interrupted cut use coated HM-reamers

Applications:	
Main application	●
Additional range of application	○

REAMAX – Replaceable reaming heads

- up to tolerance zone IT 7 with absolute process safety, from the first hole
- precise repeatability < 2 µm
- maximum radial run-out accuracy thanks to precision ground taper location
- no Ø adjustment necessary
- optimised for application with minimum quantity lubrication (MMS)
- retraction from the hole at 3–4 times the cutting feed rate
- KLG = coupling size





DST	DBG-P	DBC	DST	DBG-P	TiN
					
640.93 ◁ 25° ASG4000 CERMET Through hole	640.65 ◁ 45° ASG0106 HM Through hole + blind hole	640.27 ◁ 45° ASG0706 HM Through hole + blind hole	640.93 ◁ 45° ASG3000 CERMET Through hole + blind hole	640.65 ◁ 45° ASG3000 HM Through hole + blind hole	640.71 ◁ 45° ASG3000 HM Through hole + blind hole
40 536 ...	**40 551 ...**	**40 570 ...**	**40 525 ...**	**40 560 ...**	**40 505 ...**

DC H7 mm	L mm	ZEFP	KLG											
12,50 - 14,99	9	6	1	xxxx [2]		xxxx [1]		xxxx [1]		xxxx [2]		xxxx [1]		xxxx [1]
15,00	9	6	1	15000 [2]		15000 [1]		15000 [1]		15000 [2]		15000		150
15,01 - 15,99	9	6	1	xxxx [2]		xxxx [1]		xxxx [1]		xxxx [2]		xxxx [1]		xxxx [1]
16,00	9	6	2	160		16000 [1]		16000 [1]		160		16000		160
16,01 - 17,99	9	6	2	xxxx [2]		xxxx [1]		xxxx [1]		xxxx [2]		xxxx [1]		xxxx [1]
18,00	9	6	2	180		18000 [1]		18000 [1]		180		18000		180
18,01 - 19,99	9	6	2	xxxx [2]		xxxx [1]		xxxx [1]		xxxx [2]		xxxx [1]		xxxx [1]
20,00	9	6	2	200		20000 [1]		20000 [1]		200		20000		200
20,01 - 21,99	9	6	2	xxxx [2]		xxxx [1]		xxxx [1]		xxxx [2]		xxxx [1]		xxxx [1]
22,00	9	8	3	220		22000 [1]		22000 [1]		220		22000		220
22,01 - 23,99	9	8	3	xxxx [2]		xxxx [1]		xxxx [1]		xxxx [2]		xxxx [1]		xxxx [1]
24,00	9	8	3	24000 [2]		24000 [1]		24000 [1]		24000 [2]		24000		240
24,01 - 24,99	9	8	3	xxxx [2]		xxxx [1]		xxxx [1]		xxxx [2]		xxxx [1]		xxxx [1]
25,00	9	8	3	250		25000 [1]		25000 [1]		250		25000		250
25,01 - 25,99	9	8	3	xxxx [2]		xxxx [1]		xxxx [1]		xxxx [2]		xxxx [1]		xxxx [1]
26,00 - 27,99	9	8	4	xxxx [2]		xxxx [1]		xxxx [1]		xxxx [2]		xxxx [1]		xxxx [1]
28,00	9	8	4	280		28000 [1]		28000 [1]		280		28000		280
28,01 - 29,99	9	8	4	xxxx [2]		xxxx [1]		xxxx [1]		xxxx [2]		xxxx [1]		xxxx [1]
30,00	9	8	4	300		30000 [1]		30000 [1]		300		30000		300
30,01 - 32,00	9	8	4	xxxx [2]		xxxx [1]		xxxx [1]		xxxx [2]		xxxx [1]		xxxx [1]
32,01 - 39,99	9	8	5	xxxx [2]		xxxx [1]		xxxx [1]		xxxx [2]		xxxx [1]		xxxx [1]
40,00	9	8	5	400		40000 [1]		40000 [1]		400		40000		400

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

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days / Minimum order 2 pieces
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 20 working days / Minimum order 2 pieces

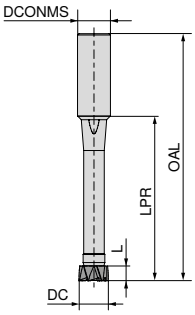
→ v_c Page 71–73

For xxxx please indicate requested Ø in H7 in the order (e.g. Ø 15.12 H7 → article no. 40 525 1512)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7)!

REAMAX – Holder, short

▲ KLG = Coupling Size

Supply details:
Complete holder, but without exchangeable head





DC mm	KOMET no.	KLG	OAL mm	LPR mm	L mm	DCONMS $_{h6}$ mm	M Nm	40 590 ...	40 591 ...
12,50 - 15,99	640.01.001	1	107	59	9	16	4 - 5	**016**	
12,50 - 15,99	640.81.001	1	137	89	9	16	4 - 5		**016**
16,00 - 21,99	640.01.002	2	119	69	9	20	6 - 7	**022**	
16,00 - 21,99	640.81.002	2	169	119	9	20	6 - 7		**022**
22,00 - 25,99	640.01.003	3	140	84	9	25	10 - 12	**026**	
22,00 - 25,99	640.81.003	3	196	140	9	25	10 - 12		**026**
26,00 - 32,00	640.01.005	4	160	104	9	25	18 - 20	**032**	
26,00 - 32,00	640.81.005	4	226	170	9	25	18 - 20		**032**
32,01 - 40,00	640.01.006	5	199	139	9	32	26 - 28	**040**	
32,01 - 40,00	640.81.006	5	270	210	9	32	26 - 28		**040**

Do not heat shrink tools !



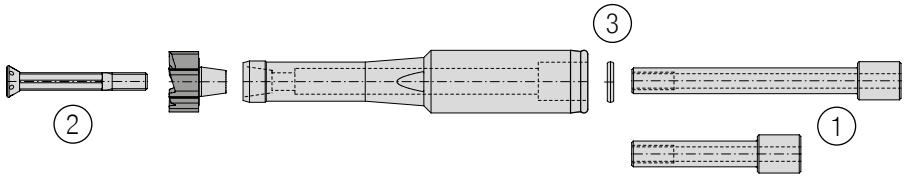






Spare parts DC	DCONMS	40 950 ...	40 950 ...	40 950 ...	40 950 ...
12,50 - 15,99	16		**101**	**001**	**301**
12,50 - 15,99	16	**107**		**001**	**301**
16,00 - 21,99	20	**108**		**002**	**302**
16,00 - 21,99	20		**102**	**002**	**302**
22,00 - 25,99	25		**103**	**003**	**303**
22,00 - 25,99	25	**109**		**003**	**303**
26,00 - 32,00	25		**104**	**004**	**303**
26,00 - 32,00	25	**110**		**004**	**303**
32,01 - 40,00	32	**112**		**005**	**304**
32,01 - 40,00	32		**106**	**005**	**304**

1. Draw bolt
2. Draw bar
3. Circlip



MultiChange – Programme Overview

The highly stable "MultiChange" exchangeable head system enables an extremely fast tool change. Designed to be durable and for a very high radial run-out accuracy, this exchangeable head system is probably the most stable and precise exchangeable head system on the market. The following chapters contain suitable exchangeable heads for almost every application.

Solid carbide drilling



- Solid Carbide NC Spot Drill
  ◁ 90°, 120°, 142° / Ø 8, 10, 12, 16, 20 mm / ZEFP* 2

→ **Chapter 2, Solid carbide drilling**

*ZEFP = Number of teeth

Solid Carbide milling cutters



- Solid carbide shoulder mills
  Type N, PCR-UNI, PCR-ALU / Ø 8, 10, 12, 16, 20 mm / ZEFP* 3+4
- Solid carbide rough and finish milling cutters
  Ø 8, 10, 12, 16, 20 mm / ZEFP* 4–6
- Solid carbide finish milling cutters
  Ø 8, 10, 12, 16, 20 mm / ZEFP* 6
- Solid carbide high-feed cutters
  Ø 8, 10, 12, 16, 20 mm / ZEFP* 6
- Solid carbide ball-nosed end mills
  Ø 10, 12, 16, 20 mm / ZEFP* 4
- Solid carbide torus bull nose milling cutters
  Ø 8, 10, 12, 16, 20 mm / ZEFP* 3+4
- Solid carbide quarter round cutter
  Ø 8, 10, 12, 16, 20 mm
- Solid carbide deburring cutters
  Ø 10, 12, 16, 20 mm / ZEFP* 4+6

→ **Chapter 14, Solid carbide milling cutters**

*ZEFP = Number of teeth

Tool holder



- Steel Holder Extra Short
  Cylindrical / Tapered 87°
  Length 60–90 mm
  for SZID 8, 10, 12, 16, 20 mm



- Short Holder Steel / Solid Carbide
  cylindrical
  Length 85–120 mm
  for SZID 8, 10, 12, 16, 20 mm



- Short Holder Steel / Solid Carbide
  87° taper
  Length 85–120 mm
  for SZID 8, 10, 12, 16, 20 mm



- Solid Carbide Holder, Medium
  Cylindrical / Tapered 87°
  Length 110–150 mm
  for SZID 8, 10, 12, 16, 20 mm



- Holder Steel / Solid Carbide, Long
  cylindrical
  Length 150–200 mm
  for SZID 8, 10, 12, 16, 20 mm



- Holder Steel / Solid Carbide, Long
  87° taper
  Length 150–200 mm
  for SZID 8, 10, 12, 16, 20 mm



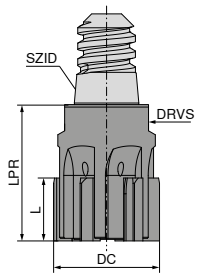
- Holder Steel / Solid Carbide, Extra Long
  cylindrical
  Length 200–250 mm
  For SZID 16 and 20 mm

→ **Catalogue – Clamping technology, Chapter Accessories**

MultiChange – Reaming Head, for Thro' Holes

- ▲ To tolerance zone IT 7 with absolute process security – from the first hole
- ▲ High-speed reaming heads
- ▲ Irregular pitch for highest concentricity
- ▲ Repeatability ≤ 5 µm
- ▲ SZID = Coupling Size





	CWC10	TiAlN	TiAlN	K10	PDC
					
	Left Hand Helix ◁ 30° CERMET Through hole	Left Hand Helix ◁ 30° HM Through hole	straight flute ◁ 45° HM Through hole	straight flute ◁ 45° Solid carbide Through hole	straight flute ◁ 45° PDC Through hole
	40 210 ...	**40 220 ...**	**40 230 ...**	**40 240 ...**	**40 245 ...**

DC H7 mm	SZID	L mm	LPR mm	ZEFP	DRVS mm	TQX Nm									
8,00	06	8	18	4	6	5,0	080		080		080		080 [1]		080 [1]	
8,01 - 9,70	06	8	18	4	6	5,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]	
9,71 - 9,99	06	8	18	6	8	5,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]	
10,00	06	8	18	6	8	5,0	100		100		100		100 [1]		100 [1]	
10,01 - 10,70	06	8	18	6	8	5,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]	
10,71 - 11,99	08	8	20	6	8	12,5	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]	
12,00	08	8	20	6	8	12,5	120		120		120		120 [1]		120 [1]	
12,01 - 12,70	08	8	20	6	8	12,5	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]	
12,71 - 13,99	10	8	22	6	10	15,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]	
14,00	10	8	22	6	10	15,0	140		140		140		140 [1]		140 [1]	
14,01 - 15,99	10	8	22	6	10	15,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]	
16,00	10	8	22	6	10	15,0	160		160		160		160 [1]		160 [1]	
16,01 - 16,20	10	8	22	6	10	15,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]	
16,21 - 17,20	10	8	22	6	13	15,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]	
17,21 - 17,99	12	12	26	6	13	20,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]	
18,00	12	12	26	6	13	20,0	180		180		180		180 [1]		180 [1]	
18,01 - 19,20	12	12	26	6	13	20,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]	
19,21 - 19,99	12	12	26	6	16	20,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]	
20,00	12	12	26	6	16	20,0	200		200		200		200 [1]		200 [1]	
20,01 - 20,20	12	12	26	6	16	20,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]	
20,21 - 21,20	12	12	26	6	16	20,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]	
21,21 - 21,99	16	12	26	6	16	25,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]	
22,00	16	12	26	6	16	25,0	220		220		220		220 [1]		220 [1]	
22,01 - 23,99	16	12	26	6	16	25,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]	
24,00	16	12	26	6	16	25,0	240		240		240		240 [1]		240 [1]	
24,01 - 24,20	16	12	26	6	16	25,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]	
24,21 - 24,99	16	12	26	6	19	25,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]	
25,00	16	12	26	6	19	25,0	250		250		250		250 [1]		250 [1]	
25,01 - 25,99	16	12	26	6	19	25,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]	
26,00	16	12	26	6	19	25,0	260		260		260		260 [1]		260 [1]	
26,01 - 26,20	16	12	26	6	19	25,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]	
26,21 - 27,99	16	12	26	6	21	25,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]	
28,00	16	12	26	6	21	25,0	280		280		280		280 [1]		280 [1]	
28,01 - 28,20	16	12	26	6	21	25,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]	
28,21 - 29,20	16	12	26	6	24	25,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]	
29,21 - 29,99	16	12	26	8	24	25,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]	
30,00	16	12	26	8	24	25,0	300		300		300		300 [1]		300 [1]	
30,01 - 30,20	16	12	26	8	24	25,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]	

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

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 21 working days / Minimum order 2 pieces

→ v_c Page 74+75

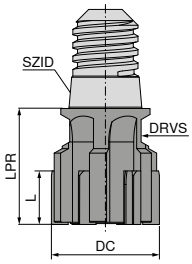
For xxxx please indicate requested diameter in H7 in the order (e.g. 10.89 H7 → article no. 40 230 1089)!
All other diameters and tolerance classes are also possible on request (e.g. 8.5 $^{+0.025}$ or 11 N7).

Holders and accessories can be found in → **Catalogue – Clamping technology, Chapter 16**.

MultiChange – Reaming Head, for blind holes

- ▲ To tolerance zone IT 7 with absolute process security – from the first hole
- ▲ High-speed reaming heads
- ▲ Irregular pitch for highest concentricity
- ▲ Repeatability ≤ 5 µm
- ▲ SZID = Coupling Size





	CWC10	TiAlN	TiAlN	K10	PDC
					
	straight flute ◁ 60° CERMET Blind hole	straight flute ◁ 60° HM Blind hole	straight flute ◁ 60° HM Blind hole	straight flute ◁ 60° Solid carbide Blind hole	straight flute ◁ 75° PDC Blind hole
	40 211 ...	**40 221 ...**	**40 231 ...**	**40 241 ...**	**40 246 ...**

DC H7 mm	SZID	L mm	LPR mm	ZEFP	DRVS mm	TQX Nm									
12,20 - 12,70	06	8	20	6	6	5,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]
12,71 - 13,99	06	8	22	6	6	5,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]
14,00	06	8	22	6	6	5,0	140		140		140		140 [1]		140 [1]
14,01 - 14,20	06	8	22	6	6	5,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]
14,21 - 15,99	08	8	22	6	8	12,5	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]
16,00	08	8	22	6	8	12,5	160		160		160		160 [1]		160 [1]
16,01 - 16,20	08	8	22	6	8	12,5	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]
16,21 - 17,20	10	8	22	6	10	15,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]
17,21 - 17,99	10	12	26	6	10	15,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]
18,00	10	12	26	6	10	15,0	180		180		180		180 [1]		180 [1]
18,01 - 19,99	10	12	26	6	10	15,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]
20,00	10	12	26	6	10	15,0	200		200		200		200 [1]		200 [1]
20,01 - 20,20	10	12	26	6	10	15,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]
20,21 - 21,99	12	12	26	6	13	20,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]
22,00	12	12	26	6	13	20,0	220		220		220		220 [1]		220 [1]
22,01 - 23,99	12	12	26	6	13	20,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]
24,00	12	12	26	6	13	20,0	240		240		240		240 [1]		240 [1]
24,01 - 24,20	12	12	26	6	13	20,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]
24,21 - 24,99	16	12	26	6	16	25,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]
25,00	16	12	26	6	16	25,0	250		250		250		250 [1]		250 [1]
25,01 - 25,99	16	12	26	6	16	25,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]
26,00	16	12	26	6	16	25,0	260		260		260		260 [1]		260 [1]
26,01 - 27,99	16	12	26	6	16	25,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]
28,00	16	12	26	6	16	25,0	280		280		280		280 [1]		280 [1]
28,01 - 28,20	16	12	26	6	16	25,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]
28,21 - 29,20	16	12	26	6	16	25,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]
29,21 - 29,99	16	12	26	8	16	25,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]
30,00	16	12	26	8	16	25,0	300		300		300		300 [1]		300 [1]
30,01 - 30,20	16	12	26	8	16	25,0	xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]		xxxx [1]

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

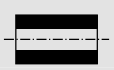
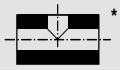
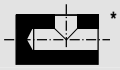
1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 21 working days / Minimum order 2 pieces

→ v_c Page 74+75

For xxxx please indicate requested diameter in H7 in the order (e.g. 12.89 H7 → article no. 40 231 1289)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 15 N7).

Holders and accessories can be found in → **Catalogue – Clamping technology, Chapter 16**.

Monomax – Selection guide

Ø			5,60 – 25,89 mm						
KOMET no. (3xD)			56J.93	56J.93	56J.65	56J.17	56J.71	56H.65	56H.65	56H.17
KOMET no. (5xD)			56R.93	56R.93	56R.65	56R.17	56R.71	56Q.65	56Q.65	56Q.17
Lead angle			ASG4000	ASG3000	ASG0106	ASG0706	ASG3000	ASG3000	ASG0106	ASG0706
Lead angle			25°	45°	45°	45°/8°	45°	45°	45°	45°/8°
New grade / coating			DST	DST	DBG-P	DBC	TIN	DBG-P	DBG-P	DBC
Article no. (3xD)			40 635	40 625	40 652	40 648	40 605	40 657	40 644	40 640
Article no. (5xD)			40 636	40 626	40 653	40 649	40 606	40 665	40 645	40 641
Preferred type available			✓	✓	✓		✓			
Application			Through hole					Blind hole		
						 *			 *	
Material sub-group		**Index**								
P	**Non alloyed steel**	**P.1.1**	●	●			○	●		
		P.1.2								
		P.1.3								
		P.1.4								
		P.1.5								
	Low alloyed steel	**P.2.1**								
		P.2.2								
		P.2.3								
		P.2.4			●					
	High-alloy steel and high-alloy tool steel	**P.3.1**								
		P.3.2								
		P.3.3							●	
	Stainless steel	**P.4.1**								
		P.4.2								
M	**Stainless steel**	**M.1.1**								
		M.2.1			●				●	
		M.3.1								
K	**Grey cast iron**	**K.1.1**					○	●		
		K.1.2								
	Spherulitic graphite cast iron	**K.2.1**	○	●				●		
		K.2.2								
	Malleable iron	**K.3.1**	○	●				●		
		K.3.2								
N	**Aluminum alloys**	**N.1.1**								
		N.1.2								
	Cast Aluminium Alloys	**N.2.1**				●				●
		N.2.2								
		N.2.3								
	Copper and copper alloys (Bronze, Brass)	**N.3.1**		○						
		N.3.2					●			
		N.3.3								
	Magnesium alloys	**N.4.1**								
O	**Non metal materials**	**O.1.1**								
		O.1.2								
		O.2.1								
		O.2.2								
		O.3.1				○				○

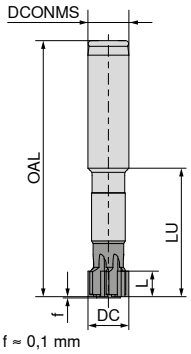
* for drilling with interrupted cut use coated HM-reamers

Applications:	Main application	●
	Additional range of application	○

Monomax – High-speed reamers, short

- adjustable for smallest bore tolerances
- wear compensation within the tolerance zone
- retraction from the hole at 3–4 times the cutting feed rate
- up to tolerance class IT 5 with absolute process security, from the first hole





f ≈ 0,1 mm

	DST	DBC	DBG-P	DST	TiN
					
	56J.93 ≤ 3xD ∢ 45° ASG3000 CERMET Through hole	56J.17 ≤ 3xD ∢ 45/8° ASG0706 HM Through hole	56J.65 ≤ 3xD ∢ 45° ASG0106 HM Through hole	56J.93 ≤ 3xD ∢ 25° ASG4000 CERMET Through hole	56J.71 ≤ 3xD ∢ 45° ASG3000 HM Through hole
	40 625 ...	**40 648 ...**	**40 652 ...**	**40 635 ...**	**40 605 ...**

DC $_{H7}$ mm	OAL mm	LU mm	L mm	DCONMS $_{h6}$ mm	ZEFP									
5,60 - 5,99	85	40	10	12	4	xxxx [2]		xxxx [1]		xxxx [1]		xxxx [2]		xxxx [1]
6,00	85	40	10	12	4	060		06000 [1]		06000		060		060
6,01 - 7,99	85	40	10	12	4	xxxx [2]		xxxx [1]		xxxx [1]		xxxx [2]		xxxx [1]
8,00	85	40	10	12	4	080		08000 [1]		08000		080		080
8,01 - 8,89	85	40	10	12	4	xxxx [2]		xxxx [1]		xxxx [1]		xxxx [2]		xxxx [1]
8,90 - 9,89	95	50	10	12	6	xxxx [2]		xxxx [1]		xxxx [1]		xxxx [2]		xxxx [1]
9,90 - 9,99	95	50	10	12	6	xxxx [2]		xxxx [1]		xxxx [1]		xxxx [2]		xxxx [1]
10,00	95	50	10	12	6	100		10000 [1]		10000		100		100
10,01 - 11,99	95	50	10	12	6	xxxx [2]		xxxx [1]		xxxx [1]		xxxx [2]		xxxx [1]
12,00	95	50	10	12	6	120		12000 [1]		12000		120		120
12,01 - 13,99	95	50	10	12	6	xxxx [2]		xxxx [1]		xxxx [1]		xxxx [2]		xxxx [1]
14,00	95	50	10	12	6	140		14000 [1]		14000		140		140
14,01 - 14,99	95	50	10	12	6	xxxx [2]		xxxx [1]		xxxx [1]		xxxx [2]		xxxx [1]
15,00	95	50	10	12	6	150		15000 [1]		15000		150		150
15,01 - 15,89	95	50	10	12	6	xxxx [2]		xxxx [1]		xxxx [1]		xxxx [2]		xxxx [1]
15,90 - 15,99	100	50	10	16	6	xxxx [2]		xxxx [1]		xxxx [1]		xxxx [2]		xxxx [1]
16,00	100	50	10	16	6	160		16000 [1]		16000		160		160
16,01 - 17,99	100	50	10	16	6	xxxx [2]		xxxx [1]		xxxx [1]		xxxx [2]		xxxx [1]
18,00	100	50	10	16	6	180		18000 [1]		18000		180		180
18,01 - 18,89	100	50	10	16	6	xxxx [2]		xxxx [1]		xxxx [1]		xxxx [2]		xxxx [1]
18,90 - 19,99	120	60	10	20	6	xxxx [2]		xxxx [1]		xxxx [1]		xxxx [2]		xxxx [1]
20,00	120	60	10	20	6	200		20000 [1]		20000		200		200
20,01 - 25,89	120	60	10	20	6	xxxx [2]		xxxx [1]		xxxx [1]		xxxx [2]		xxxx [1]

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

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days / Minimum order 2 pieces

2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 20 working days / Minimum order 2 pieces

→ v_c Page 76-79

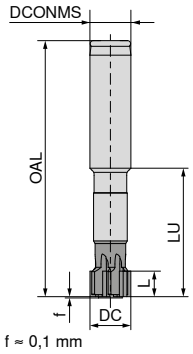
Do not heat shrink tools !

For xxxx please indicate requested Ø in H7 in the order (e.g. 15.89 H7 → article no. 40 635 1589)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7).

Monomax – High-speed reamers, short

- adjustable for smallest bore tolerances
- wear compensation within the tolerance zone
- retraction from the hole at 3–4 times the cutting feed rate
- up to tolerance class IT 5 with absolute process security, from the first hole





	DBG-P	DBC	DBG-P
			
	56H.65 ≤ 3xD ∢ 45° ASG0106 HM Blind hole	56H.17 ≤ 3xD ∢ 45/8° ASG0706 HM Blind hole	56H.65 ≤ 3xD ∢ 45° ASG3000 HM Blind hole
	40 644 ...	**40 640 ...**	**40 657 ...**

DC $_{H7}$ mm	OAL mm	LU mm	L mm	DCONMS $_{h6}$ mm	ZEFP					
5,60 - 5,99	85	40	10	12	4	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]
6,00	85	40	10	12	4	**06000** [1]		**06000** [1]		**06000** [1]
6,01 - 7,99	85	40	10	12	4	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]
8,00	85	40	10	12	4	**08000** [1]		**08000** [1]		**08000** [1]
8,01 - 8,89	85	40	10	12	4	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]
8,90 - 9,89	95	50	10	12	6	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]
9,90 - 9,99	95	50	10	12	6	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]
10,00	95	50	10	12	6	**10000** [1]		**10000** [1]		**10000** [1]
10,01 - 11,99	95	50	10	12	6	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]
12,00	95	50	10	12	6	**12000** [1]		**12000** [1]		**12000** [1]
12,01 - 13,99	95	50	10	12	6	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]
14,00	95	50	10	12	6	**14000** [1]		**14000** [1]		**14000** [1]
14,01 - 14,99	95	50	10	12	6	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]
15,00	95	50	10	12	6	**15000** [1]		**15000** [1]		**15000** [1]
15,01 - 15,89	95	50	10	12	6	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]
15,90 - 15,99	100	50	10	16	6	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]
16,00	100	50	10	16	6	**16000** [1]		**16000** [1]		**16000** [1]
16,01 - 17,99	100	50	10	16	6	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]
18,00	100	50	10	16	6	**18000** [1]		**18000** [1]		**18000** [1]
18,01 - 18,89	100	50	10	16	6	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]
18,90 - 19,99	120	60	10	20	6	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]
20,00	120	60	10	20	6	**20000** [1]		**20000** [1]		**20000** [1]
20,01 - 25,89	120	60	10	20	6	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]
P						●				●
M						●				
K										●
N								●		
S										
H										
O								○		

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days / Minimum order 2 pieces

→ v_c Page 76–79

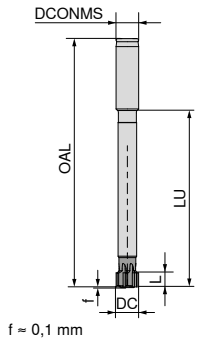
Do not heat shrink tools !

For xxxx please indicate requested Ø in H7 in the order (e.g. 15.89 H7 → article no. 40 644 1589)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7).

Monomax – High-speed reamers, long

- adjustable for the smallest bore tolerances
- wear compensation within the tolerance zone
- retraction from the hole at 3–4 times the cutting feed rate
- up to tolerance class IT 5 with absolute process security, from the first hole







	DST	DBC	DBG-P	DST	TiN
	56R.93 ≤ 5xD ∢ 45° ASG3000 CERMET Through hole	56R.17 ≤ 5xD ∢ 45/8° ASG0706 HM Through hole	56R.65 ≤ 5xD ∢ 45° ASG0106 HM Through hole	56R.93 ≤ 5xD ∢ 25° ASG4000 CERMET Through hole	56R.71 ≤ 5xD ∢ 45° ASG3000 HM Through hole
	40 626 ...	**40 649 ...**	**40 653 ...**	**40 636 ...**	**40 606 ...**

DC $_{H7}$ mm	OAL mm	LU mm	L mm	DCONMS $_{h6}$ mm	ZEFP									
5,60 - 5,99	130	85	10	12	4	**xxxx** [2]		**xxxx** [1]		**xxxx** [1]		**xxxx** [2]		**xxxx** [1]
6,00	130	85	10	12	4	**060**		**06000** [1]		**06000**		**060**		**060**
6,01 - 7,99	130	85	10	12	4	**xxxx** [2]		**xxxx** [1]		**xxxx** [1]		**xxxx** [2]		**xxxx** [1]
8,00	130	85	10	12	4	**080**		**08000** [1]		**08000**		**080**		**080**
8,01 - 8,89	130	85	10	12	4	**xxxx** [2]		**xxxx** [1]		**xxxx** [1]		**xxxx** [2]		**xxxx** [1]
8,90 - 9,89	130	85	10	12	6	**xxxx** [2]		**xxxx** [1]		**xxxx** [1]		**xxxx** [2]		**xxxx** [1]
9,90 - 9,99	160	115	10	12	6	**xxxx** [2]		**xxxx** [1]		**xxxx** [1]		**xxxx** [2]		**xxxx** [1]
10,00	160	115	10	12	6	**100**		**10000** [1]		**10000**		**100**		**100**
10,01 - 11,99	160	115	10	12	6	**xxxx** [2]		**xxxx** [1]		**xxxx** [1]		**xxxx** [2]		**xxxx** [1]
12,00	160	115	10	12	6	**120**		**12000** [1]		**12000**		**120**		**120**
12,01 - 13,99	160	115	10	12	6	**xxxx** [2]		**xxxx** [1]		**xxxx** [1]		**xxxx** [2]		**xxxx** [1]
14,00	160	115	10	12	6	**140**		**14000** [1]		**14000**		**140**		**140**
14,01 - 14,99	160	115	10	12	6	**xxxx** [2]		**xxxx** [1]		**xxxx** [1]		**xxxx** [2]		**xxxx** [1]
15,00	160	115	10	12	6	**150**		**15000** [1]		**15000**		**150**		**150**
15,01 - 15,89	160	115	10	12	6	**xxxx** [2]		**xxxx** [1]		**xxxx** [1]		**xxxx** [2]		**xxxx** [1]
15,90 - 15,99	180	130	10	16	6	**xxxx** [2]		**xxxx** [1]		**xxxx** [1]		**xxxx** [2]		**xxxx** [1]
16,00	180	130	10	16	6	**160**		**16000** [1]		**16000**		**160**		**160**
16,01 - 17,99	180	130	10	16	6	**xxxx** [2]		**xxxx** [1]		**xxxx** [1]		**xxxx** [2]		**xxxx** [1]
18,00	180	130	10	16	6	**180**		**18000** [1]		**18000**		**180**		**180**
18,01 - 18,89	180	130	10	16	6	**xxxx** [2]		**xxxx** [1]		**xxxx** [1]		**xxxx** [2]		**xxxx** [1]
18,90 - 19,99	200	140	10	20	6	**xxxx** [2]		**xxxx** [1]		**xxxx** [1]		**xxxx** [2]		**xxxx** [1]
20,00	200	140	10	20	6	**200**		**20000** [1]		**20000**		**200**		**200**
20,01 - 25,89	200	140	10	20	6	**xxxx** [2]		**xxxx** [1]		**xxxx** [1]		**xxxx** [2]		**xxxx** [1]

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

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days / Minimum order 2 pieces

2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 20 working days / Minimum order 2 pieces

→ v_c Page 76–79

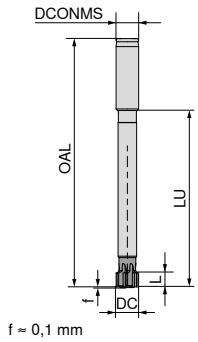
Do not heat shrink tools !

For xxxx please indicate requested Ø in H7 in the order (e.g. 15.89 H7 → article no. 40 636 1589)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7).

Monomax – High-speed reamers, long

- adjustable for the smallest bore tolerances
- wear compensation within the tolerance zone
- retraction from the hole at 3–4 times the cutting feed rate
- up to tolerance class IT 5 with absolute process security, from the first hole





f ≈ 0,1 mm

	DBG-P	DBC	DBG-P
			
	56Q.65 ≤ 5xD ∢ 45° ASG0106 HM Blind hole	56Q.17 ≤ 5xD ∢ 45/8° ASG0706 HM Blind hole	56Q.65 ≤ 5xD ∢ 45° ASG3000 HM Blind hole
	40 645 ...	**40 641 ...**	**40 665 ...**

DC $_{H7}$ mm	OAL mm	LU mm	L mm	DCONMS $_{h6}$ mm	ZEFP						
5,60 - 5,99	130	85	10	12	4	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]	
6,00	130	85	10	12	4	**06000** [1]		**06000** [1]		**06000** [1]	
6,01 - 7,99	130	85	10	12	4	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]	
8,00	130	85	10	12	4	**08000** [1]		**08000** [1]		**08000** [1]	
8,01 - 8,89	130	85	10	12	4	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]	
8,90 - 9,89	130	85	10	12	6	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]	
9,90 - 9,99	160	115	10	12	6	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]	
10,00	160	115	10	12	6	**10000** [1]		**10000** [1]		**10000** [1]	
10,01 - 11,99	160	115	10	12	6	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]	
12,00	160	115	10	12	6	**12000** [1]		**12000** [1]		**12000** [1]	
12,01 - 13,99	160	115	10	12	6	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]	
14,00	160	115	10	12	6	**14000** [1]		**14000** [1]		**14000** [1]	
14,01 - 14,99	160	115	10	12	6	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]	
15,00	160	115	10	12	6	**15000** [1]		**15000** [1]		**15000** [1]	
15,01 - 15,89	160	115	10	12	6	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]	
15,90 - 15,99	180	130	10	16	6	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]	
16,00	180	130	10	16	6	**16000** [1]		**16000** [1]		**16000** [1]	
16,01 - 17,99	180	130	10	16	6	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]	
18,00	180	130	10	16	6	**18000** [1]		**18000** [1]		**18000** [1]	
18,01 - 18,89	180	130	10	16	6	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]	
18,90 - 19,99	200	140	10	20	6	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]	
20,00	200	140	10	20	6	**20000** [1]		**20000** [1]		**20000** [1]	
20,01 - 25,89	200	140	10	20	6	**xxxx** [1]		**xxxx** [1]		**xxxx** [1]	
P						●				●	
M						●					
K										●	
N								●			
S											
H											
O								○			

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days / Minimum order 2 pieces

→ v_c Page 76–79

Do not heat shrink tools !

For xxxx please indicate requested Ø in H7 in the order (e.g. 15.89 H7 → article no. 40 645 1589)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7).

Fullmax – High-performance machine reamers, short

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings

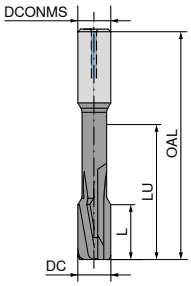
UNI



NEW

DBG-U





51P.57
HA
Left Hand Helix
30°
ASG2210
Solid carbide
Through hole

40 483 ...

DC $_{H7}$ mm	OAL mm	L mm	LU mm	DCONMS $_{h6}$ mm	ZEFP	
4	50	12	22	4	4	**04000**
5	64	12	28	6	4	**05000**
6	64	12	28	6	4	**06000**
7	70	16	34	8	6	**07000**
8	70	16	34	8	6	**08000**
9	80	16	40	10	6	**09000**
10	80	16	40	10	6	**10000**
11	90	20	45	12	6	**11000**
12	90	20	45	12	6	**12000**
16	93	20	45	16	8	**16000**

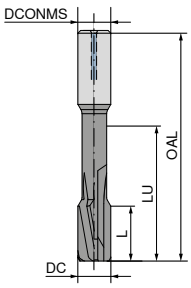
P	●
M	●
K	●
N	○
S	○
H	○
O	

→ v_c Page 82

Fullmax – High-performance machine reamers, short

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings
- ▲ tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- ▲ tolerance: Ø 5,97 – 20,05 mm = +0,005 mm

UNI



NEW

DBG-U



51P.57
HA
Left Hand Helix
30°
ASG2210
Solid carbide
Through hole

40 489 ...

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	
2,96 - 3,96	50	12	22	4	4	**xxxxx** [1]
3,97	50	12	22	4	4	**03970**
3,98	50	12	22	4	4	**03980**
3,99	50	12	22	4	4	**03990**
4,00	50	12	22	4	4	**04000**
4,01	50	12	22	4	4	**04010**
4,02	50	12	22	4	4	**04020**
4,03	50	12	22	4	4	**04030**
4,04 - 4,05	50	12	22	4	4	**xxxxx** [1]
4,06 - 4,96	64	12	28	6	4	**xxxxx** [1]
4,97	64	12	28	6	4	**04970**
4,98	64	12	28	6	4	**04980**
4,99	64	12	28	6	4	**04990**
5,00	64	12	28	6	4	**05000**
5,01	64	12	28	6	4	**05010**
5,02	64	12	28	6	4	**05020**
5,03	64	12	28	6	4	**05030**
5,04 - 5,96	64	12	28	6	4	**xxxxx** [1]
5,97	64	12	28	6	4	**05970**
5,98	64	12	28	6	4	**05980**
5,99	64	12	28	6	4	**05990**
6,00	64	12	28	6	4	**06000**
6,01	64	12	28	6	4	**06010**
6,02	64	12	28	6	4	**06020**
6,03	64	12	28	6	4	**06030**
6,04 - 6,05	64	12	28	6	4	**xxxxx** [1]
6,06 - 7,96	70	16	34	8	6	**xxxxx** [1]
7,97	70	16	34	8	6	**07970**
7,98	70	16	34	8	6	**07980**
7,99	70	16	34	8	6	**07990**

P	●
M	●
K	●
N	○
S	○
H	○
O	

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days

→ v_c Page 82

This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 489 08820)!

Continued on next page

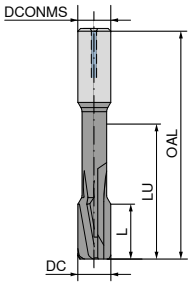
Fullmax – High-performance machine reamers, short

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings
- ▲ tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- ▲ tolerance: Ø 5,97 – 20,05 mm = +0,005 mm



NEW

DBG-U





51P.57
HA
Left Hand Helix
30°
ASG2210
Solid carbide
Through hole

40 489 ...

DC $_{+0,004/+0,005}$ mm	OAL mm	L mm	LU mm	DCONMS $_{h6}$ mm	ZEFP	
8,00	70	16	34	8	6	**08000**
8,01	70	16	34	8	6	**08010**
8,02	70	16	34	8	6	**08020**
8,03	70	16	34	8	6	**08030**
8,04 - 8,05	70	16	34	8	6	**xxxxx** [1)]
8,06 - 9,96	80	16	40	10	6	**xxxxx** [1)]
9,97	80	16	40	10	6	**09970**
9,98	80	16	40	10	6	**09980**
9,99	80	16	40	10	6	**09990**
10,00	80	16	40	10	6	**10000**
10,01	80	16	40	10	6	**10010**
10,02	80	16	40	10	6	**10020**
10,03	80	16	40	10	6	**10030**
10,04 - 10,05	80	16	40	10	6	**xxxxx** [1)]
10,06 - 11,96	90	20	45	12	6	**xxxxx** [1)]
11,97	90	20	45	12	6	**11970**
11,98	90	20	45	12	6	**11980**
11,99	90	20	45	12	6	**11990**
12,00	90	20	45	12	6	**12000**
12,01	90	20	45	12	6	**12010**
12,02	90	20	45	12	6	**12020**
12,03	90	20	45	12	6	**12030**
12,04 - 12,05	90	20	45	12	6	**xxxxx** [1)]
12,06 - 14,05	90	20	45	14	6	**xxxxx** [1)]
14,06 - 15,96	93	20	48	16	6	**xxxxx** [1)]
15,97 - 16,05	93	20	48	16	8	**xxxxx** [1)]
16,06 - 18,05	100	20	52	18	8	**xxxxx** [1)]
18,06 - 20,05	102	20	52	20	8	**xxxxx** [1)]

P	●
M	●
K	●
N	○
S	○
H	○
O	

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days

→ v_c Page 82

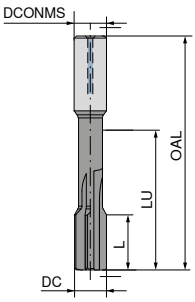
This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 489 08820)!

Fullmax – High-performance machine reamers, short

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings

UNI





NEW

DBG-U



51M.57
HA
straight flute
60°
ASG2110
Solid carbide
Blind hole

40 481 ...

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	
4	50	12	22	4	4	**04000**
5	64	12	28	6	4	**05000**
6	64	12	28	6	4	**06000**
7	70	16	34	8	6	**07000**
8	70	16	34	8	6	**08000**
9	80	16	40	10	6	**09000**
10	80	16	40	10	6	**10000**
11	90	20	45	12	6	**11000**
12	90	20	45	12	6	**12000**
16	93	20	45	16	8	**16000**

P	●
M	●
K	●
N	○
S	○
H	○
O	

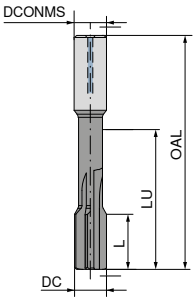
→ v_c Page 82

Fullmax – High-performance machine reamers, short

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings
- ▲ tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- ▲ tolerance: Ø 5,97 – 20,05 mm = +0,005 mm

UNI





NEW

DBG-U



51M.57
HA
straight flute
60°
ASG2110
Solid carbide
Blind hole

4

40 488 ...

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	
2,96 - 3,96	50	12	22	4	4	**xxxxx** [1]
3,97	50	12	22	4	4	**03970**
3,98	50	12	22	4	4	**03980**
3,99	50	12	22	4	4	**03990**
4,00	50	12	22	4	4	**04000**
4,01	50	12	22	4	4	**04010**
4,02	50	12	22	4	4	**04020**
4,03	50	12	22	4	4	**04030**
4,04 - 4,05	50	12	22	4	4	**xxxxx** [1]
4,06 - 4,96	64	12	28	6	4	**xxxxx** [1]
4,97	64	12	28	6	4	**04970**
4,98	64	12	28	6	4	**04980**
4,99	64	12	28	6	4	**04990**
5,00	64	12	28	6	4	**05000**
5,01	64	12	28	6	4	**05010**
5,02	64	12	28	6	4	**05020**
5,03	64	12	28	6	4	**05030**
5,04 - 5,96	64	12	28	6	4	**xxxxx** [1]
5,97	64	12	28	6	4	**05970**
5,98	64	12	28	6	4	**05980**
5,99	64	12	28	6	4	**05990**
6,00	64	12	28	6	4	**06000**
6,01	64	12	28	6	4	**06010**
6,02	64	12	28	6	4	**06020**
6,03	64	12	28	6	4	**06030**
6,04 - 6,05	64	12	28	6	4	**xxxxx** [1]
6,06 - 7,96	70	16	34	8	6	**xxxxx** [1]
7,97	70	16	34	8	6	**07970**
7,98	70	16	34	8	6	**07980**
7,99	70	16	34	8	6	**07990**

P	●
M	●
K	●
N	○
S	○
H	○
O	

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days

→ v_c Page 82

This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 488 08820)!

Continued on next page

Fullmax – High-performance machine reamers, short

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings
- ▲ tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- ▲ tolerance: Ø 5,97 – 20,05 mm = +0,005 mm

UNI

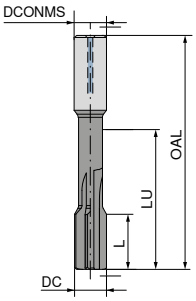


NEW

DBG-U



51M.57
HA
straight flute
60°
ASG2110
Solid carbide
Blind hole



40 488 ...

DC $_{+0,004/+0,005}$ mm	OAL mm	L mm	LU mm	DCONMS $_{h6}$ mm	ZEFP	
8,00	70	16	34	8	6	**08000**
8,01	70	16	34	8	6	**08010**
8,02	70	16	34	8	6	**08020**
8,03	70	16	34	8	6	**08030**
8,04 - 8,05	70	16	34	8	6	**xxxxx** [1]
8,06 - 9,96	80	16	40	10	6	**xxxxx** [1]
9,97	80	16	40	10	6	**09970**
9,98	80	16	40	10	6	**09980**
9,99	80	16	40	10	6	**09990**
10,00	80	16	40	10	6	**10000**
10,01	80	16	40	10	6	**10010**
10,02	80	16	40	10	6	**10020**
10,03	80	16	40	10	6	**10030**
10,04 - 10,05	80	16	40	10	6	**xxxxx** [1]
10,06 - 11,96	90	20	45	12	6	**xxxxx** [1]
11,97	90	20	45	12	6	**11970**
11,98	90	20	45	12	6	**11980**
11,99	90	20	45	12	6	**11990**
12,00	90	20	45	12	6	**12000**
12,01	90	20	45	12	6	**12010**
12,02	90	20	45	12	6	**12020**
12,03	90	20	45	12	6	**12030**
12,04 - 12,05	90	20	45	12	6	**xxxxx** [1]
12,06 - 14,05	90	20	45	14	6	**xxxxx** [1]
14,06 - 15,96	93	20	48	16	6	**xxxxx** [1]
15,97 - 16,05	93	20	48	16	8	**xxxxx** [1]
16,06 - 18,05	100	20	52	18	8	**xxxxx** [1]
18,06 - 20,05	102	20	52	20	8	**xxxxx** [1]

P	●
M	●
K	●
N	○
S	○
H	○
O	

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days

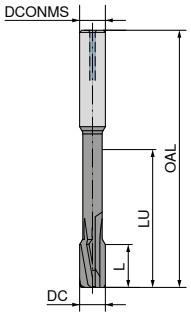
→ v_c Page 82

This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 488 08820)!

Fullmax – High-performance machine reamers, long

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings





	UNI	VA	ALU
	DBG-U	DBQ	DBC-N
			
	52P.57	52S.44	52N.17
	HA	HA	HA
	Left Hand Helix	Left Hand Helix	straight flute
	◁ 30°	◁ 30°	◁ 30°
	ASG2210	ASG2231	ASG2270
	Solid carbide	Solid carbide	Solid carbide
	Through hole	Through hole	Through hole
	40 484 ...	**40 401 ...**	**40 471 ...**

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP			
4	60	12	32	4	4	**04000**	**04000**	**04000**
5	76	12	40	6	4	**05000**	**05000**	**05000**
6	76	12	40	6	4	**06000**	**06000**	**06000**
7	101	16	65	8	6	**07000**	**07000**	**07000**
8	101	16	65	8	6	**08000**	**08000**	**08000**
9	108	16	68	10	6	**09000**	**09000**	**09000**
10	108	16	68	10	6	**10000**	**10000**	**10000**
11	130	20	85	12	6	**11000**	**11000**	**11000**
12	130	20	85	12	6	**12000**	**12000**	**12000**
16	150	20	102	16	6	**16000**	**16000**	**16000**

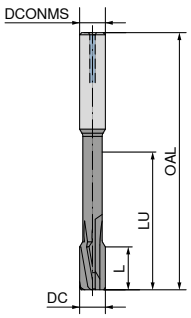
P	●	●	
M	●	●	
K	●		
N	○		●
S	○		
H	○		
O			○

→ v_c Page 80+81

Fullmax – High-performance machine reamers, long

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings
- ▲ tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- ▲ tolerance: Ø 5,97 – 20,05 mm = +0,005 mm





UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A



52P.57
HA
Left Hand Helix
◁ 30°
ASG2210
Solid carbide
Through hole



52S.44
HA
Left Hand Helix
◁ 30°
ASG2231
Solid carbide
Through hole



52J.65
HA
straight flute
◁ 30°
ASG2350
Solid carbide
Through hole



52N.17
HA
straight flute
◁ 30°
ASG2270
Solid carbide
Through hole



52G.55
HA
straight flute
◁ 30°
ASG2360
Solid carbide
Through hole

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 486 ...	40 403 ...	40 477 ...	40 473 ...	40 475 ...
2,96 - 3,96	60	12	32	4	6			xxxxx[1]		
2,96 - 3,96	60	12	32	4	4	xxxxx[1]	xxxxx[2]		xxxxx[1]	xxxxx[1]
3,97	60	12	32	4	4	03970	03970		03970[1]	03970[1]
3,97	60	12	32	4	6			03970[1]		
3,98	60	12	32	4	4	03980	03980		03980[1]	03980[1]
3,98	60	12	32	4	6			03980[1]		
3,99	60	12	32	4	4	03990	03990		03990[1]	03990[1]
3,99	60	12	32	4	6			03990[1]		
4,00	60	12	32	4	4	04000	04000		04000[1]	04000[1]
4,00	60	12	32	4	6			04000[1]		
4,01	60	12	32	4	4	04010	04010		04010[1]	04010[1]
4,01	60	12	32	4	6			04010[1]		
4,02	60	12	32	4	4	04020	04020		04020[1]	04020[1]
4,02	60	12	32	4	6			04020[1]		
4,03	60	12	32	4	4	04030	04030		04030[1]	04030[1]
4,03	60	12	32	4	6			04030[1]		
4,04 - 4,05	60	12	32	4	4	xxxxx[1]	xxxxx[2]		xxxxx[1]	xxxxx[1]
4,04 - 4,05	60	12	32	4	6			xxxxx[1]		
4,06 - 4,96	76	12	40	6	6			xxxxx[1]		
4,06 - 4,96	76	12	40	6	4	xxxxx[1]	xxxxx[2]		xxxxx[1]	xxxxx[1]
4,97	76	12	40	6	4	04970	04970		04970[1]	04970[1]
4,97	76	12	40	6	6			04970[1]		
4,98	76	12	40	6	4	04980	04980		04980[1]	04980[1]
4,98	76	12	40	6	6			04980[1]		
4,99	76	12	40	6	4	04990	04990		04990[1]	04990[1]
4,99	76	12	40	6	6			04990[1]		
5,00	76	12	40	6	4	05000	05000		05000[1]	05000[1]
5,00	76	12	40	6	6			05000[1]		
5,01	76	12	40	6	4	05010	05010		05010[1]	05010[1]
P						●	●			
M						●	●			
K						●		●		
N						○			●	
S						○				
H						○				●
O									○	

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 32 working days

→ v_c Page 80+81

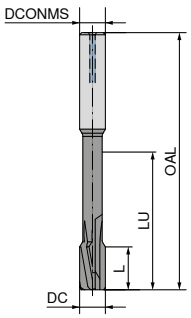
This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 486 08820)!

Continued on next page

Fullmax – High-performance machine reamers, long

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings
- ▲ tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- ▲ tolerance: Ø 5,97 – 20,05 mm = +0,005 mm

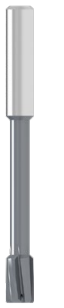




UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A



52P.57
HA
Left Hand Helix
◁ 30°
ASG2210
Solid carbide
Through hole



52S.44
HA
Left Hand Helix
◁ 30°
ASG2231
Solid carbide
Through hole



52J.65
HA
straight flute
◁ 30°
ASG2350
Solid carbide
Through hole



52N.17
HA
straight flute
◁ 30°
ASG2270
Solid carbide
Through hole



52G.55
HA
straight flute
◁ 30°
ASG2360
Solid carbide
Through hole

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 486 ...	40 403 ...	40 477 ...	40 473 ...	40 475 ...
5,01	76	12	40	6	6			05010 1)		
5,02	76	12	40	6	4	05020	05020		05020 1)	05020 1)
5,02	76	12	40	6	6			05020 1)		
5,03	76	12	40	6	4	05030	05030		05030 1)	05030 1)
5,03	76	12	40	6	6			05030 1)		
5,04 - 5,96	76	12	40	6	4	xxxxx 1)	xxxxx 2)		xxxxx 1)	xxxxx 1)
5,04 - 5,96	76	12	40	6	6			xxxxx 1)		
5,97	76	12	40	6	4	05970	05970		05970 1)	05970 1)
5,97	76	12	40	6	6			05970 1)		
5,98	76	12	40	6	4	05980	05980		05980 1)	05980 1)
5,98	76	12	40	6	6			05980 1)		
5,99	76	12	40	6	4	05990	05990		05990 1)	05990 1)
5,99	76	12	40	6	6			05990 1)		
6,00	76	12	40	6	4	06000	06000		06000 1)	06000 1)
6,00	76	12	40	6	6			06000 1)		
6,01	76	12	40	6	4	06010	06010		06010 1)	06010 1)
6,01	76	12	40	6	6			06010 1)		
6,02	76	12	40	6	4	06020	06020		06020 1)	06020 1)
6,02	76	12	40	6	6			06020 1)		
6,03	76	12	40	6	4	06030	06030		06030 1)	06030 1)
6,03	76	12	40	6	6			06030 1)		
6,04 - 6,05	76	12	40	6	4	xxxxx 1)	xxxxx 2)		xxxxx 1)	xxxxx 1)
6,04 - 6,05	76	12	40	6	6			xxxxx 1)		
6,06 - 7,96	101	16	65	8	8			xxxxx 1)		
6,06 - 7,96	101	16	65	8	6	xxxxx 1)	xxxxx 2)		xxxxx 1)	xxxxx 1)
7,97	101	16	65	8	6	07970	07970		07970 1)	07970 1)
7,97	101	16	65	8	8			07970 1)		
7,98	101	16	65	8	6	07980	07980		07980 1)	07980 1)
7,98	101	16	65	8	8			07980 1)		

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

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 32 working days

→ v_c Page 80+81

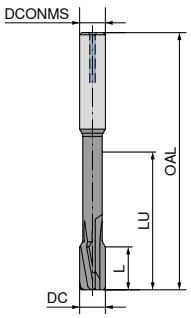
This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 486 08820)!

Continued on next page

Fullmax – High-performance machine reamers, long

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings
- ▲ tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- ▲ tolerance: Ø 5,97 – 20,05 mm = +0,005 mm





UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A



52P.57	52S.44	52J.65	52N.17	52G.55
HA	HA	HA	HA	HA
Left Hand Helix	Left Hand Helix	straight flute	straight flute	straight flute
◁ 30°	◁ 30°	◁ 30°	◁ 30°	◁ 30°
ASG2210	ASG2231	ASG2350	ASG2270	ASG2360
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
Through hole	Through hole	Through hole	Through hole	Through hole
40 486 ...	**40 403 ...**	**40 477 ...**	**40 473 ...**	**40 475 ...**

DC $_{+0,004/+0,005}$ mm	OAL mm	L mm	LU mm	DCONMS $_{h6}$ mm	ZEFP					
7,99	101	16	65	8	6	07990	07990		07990 [1]	07990 [1]
7,99	101	16	65	8	8			07990 [1]		
8,00	101	16	65	8	6	08000	08000		08000 [1]	08000 [1]
8,00	101	16	65	8	8			08000 [1]		
8,01	101	16	65	8	6	08010	08010		08010 [1]	08010 [1]
8,01	101	16	65	8	8			08010 [1]		
8,02	101	16	65	8	6	08020	08020		08020 [1]	08020 [1]
8,02	101	16	65	8	8			08020 [1]		
8,03	101	16	65	8	6	08030	08030		08030 [1]	08030 [1]
8,03	101	16	65	8	8			08030 [1]		
8,04 - 8,05	101	16	65	8	6	xxxxx [1]	xxxxx [2]		xxxxx [1]	xxxxx [1]
8,04 - 8,05	101	16	65	8	8			xxxxx [1]		
8,06 - 9,96	108	16	68	10	8			xxxxx [1]		
8,06 - 9,96	108	16	68	10	6	xxxxx [1]	xxxxx [2]		xxxxx [1]	xxxxx [1]
9,97	108	16	68	10	6	09970	09970		09970 [1]	09970 [1]
9,97	108	16	68	10	8			09970 [1]		
9,98	108	16	68	10	6	09980	09980		09980 [1]	09980 [1]
9,98	108	16	68	10	8			09980 [1]		
9,99	108	16	68	10	6	09990	09990		09990 [1]	09990 [1]
9,99	108	16	68	10	8			09990 [1]		
10,00	108	16	68	10	6	10000	10000		10000 [1]	10000 [1]
10,00	108	16	68	10	8			10000 [1]		
10,01	108	16	68	10	6	10010	10010		10010 [1]	10010 [1]
10,01	108	16	68	10	8			10010 [1]		
10,02	108	16	68	10	6	10020	10020		10020 [1]	10020 [1]
10,02	108	16	68	10	8			10020 [1]		
10,03	108	16	68	10	6	10030	10030		10030 [1]	10030 [1]
10,03	108	16	68	10	8			10030 [1]		
10,04 - 10,05	108	16	68	10	6	xxxxx [1]	xxxxx [2]		xxxxx [1]	xxxxx [1]

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

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 32 working days

→ v_c Page 80+81

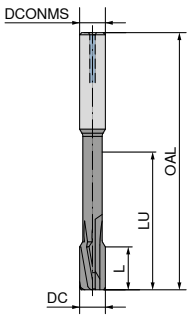
This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 486 08820)!

Continued on next page

Fullmax – High-performance machine reamers, long

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings
- ▲ tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- ▲ tolerance: Ø 5,97 – 20,05 mm = +0,005 mm





UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A



52P.57	52S.44	52J.65	52N.17	52G.55
HA	HA	HA	HA	HA
Left Hand Helix	Left Hand Helix	straight flute	straight flute	straight flute
◁ 30°	◁ 30°	◁ 30°	◁ 30°	◁ 30°
ASG2210	ASG2231	ASG2350	ASG2270	ASG2360
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
Through hole	Through hole	Through hole	Through hole	Through hole
40 486 ...	**40 403 ...**	**40 477 ...**	**40 473 ...**	**40 475 ...**

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP									
10,04 - 10,05	108	16	68	10	8					xxxxx[1]				
10,06 - 11,96	130	20	85	12	8					xxxxx[1]				
10,06 - 11,96	130	20	85	12	6	xxxxx[1]		xxxxx[2]				xxxxx[1]		xxxxx[1]
11,97	130	20	85	12	6	11970		11970				11970[1]		11970[1]
11,97	130	20	85	12	8					11970[1]				
11,98	130	20	85	12	6	11980		11980				11980[1]		11980[1]
11,98	130	20	85	12	8					11980[1]				
11,99	130	20	85	12	6	11990		11990				11990[1]		11990[1]
11,99	130	20	85	12	8					11990[1]				
12,00	130	20	85	12	6	12000		12000				12000[1]		12000[1]
12,00	130	20	85	12	8					12000[1]				
12,01	130	20	85	12	6	12010		12010				12010[1]		12010[1]
12,01	130	20	85	12	8					12010[1]				
12,02	130	20	85	12	6	12020		12020				12020[1]		12020[1]
12,02	130	20	85	12	8					12020[1]				
12,03	130	20	85	12	6	12030		12030				12030[1]		12030[1]
12,03	130	20	85	12	8					12030[1]				
12,04 - 12,05	130	20	85	12	6	xxxxx[1]		xxxxx[2]				xxxxx[1]		xxxxx[1]
12,04 - 12,05	130	20	85	12	8					xxxxx[1]				
12,06 - 14,05	130	20	85	14	8					xxxxx[1]				
12,06 - 14,05	130	20	85	14	6	xxxxx[1]		xxxxx[2]				xxxxx[1]		xxxxx[1]
14,06 - 16,05	150	20	102	16	6	xxxxx[1]		xxxxx[2]				xxxxx[1]		xxxxx[1]
14,06 - 16,05	150	20	102	16	8					xxxxx[1]				
16,06 - 18,05	150	20	102	18	6	xxxxx[1]		xxxxx[2]				xxxxx[1]		xxxxx[1]
16,06 - 18,05	150	20	102	18	8					xxxxx[1]				
18,06 - 20,05	160	20	110	20	6	xxxxx[1]		xxxxx[2]				xxxxx[1]		xxxxx[1]
18,06 - 20,05	160	20	110	20	8					xxxxx[1]				

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

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days

2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 32 working days

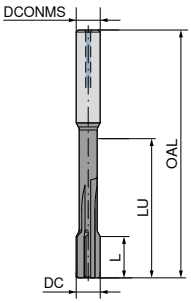
→ v_c Page 80+81

This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 486 08820)!

Fullmax – High-performance machine reamers, long

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings





	UNI	VA	ALU
	DBG-U	DBQ	DBC-N
			
	52M.57	52T.45	52Q.17
	HA	HA	HA
	straight flute	straight flute	straight flute
	◁ 60°	◁ 45°	◁ 60°
	ASG2110	ASG2131	ASG2170
	Solid carbide	Solid carbide	Solid carbide
	Blind hole	Blind hole	Blind hole
	40 485 ...	**40 402 ...**	**40 472 ...**

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP			
4	60	12	32	4	4	**04000**	**04000**	**04000**
5	76	12	40	6	4	**05000**	**05000**	**05000**
6	76	12	40	6	4	**06000**	**06000**	**06000**
7	101	16	65	8	6	**07000**	**07000**	**07000**
8	101	16	65	8	6	**08000**	**08000**	**08000**
9	108	16	68	10	6	**09000**	**09000**	**09000**
10	108	16	68	10	6	**10000**	**10000**	**10000**
11	130	20	85	12	6	**11000**	**11000**	**11000**
12	130	20	85	12	6	**12000**	**12000**	**12000**
16	150	20	102	16	6	**16000**	**16000**	**16000**

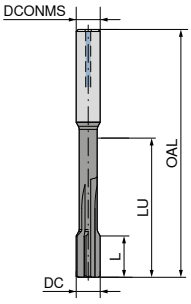
P	●	●	
M	●	●	
K	●		
N	○		●
S	○		
H	○		
O			○

→ v_c Page 80+81

Fullmax – High-performance machine reamers, long

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings
- ▲ tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- ▲ tolerance: Ø 5,97 – 20,05 mm = +0,005 mm





UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A



52M.57
HA
straight flute
◁ 60°
ASG2110
Solid carbide
Blind hole



52T.45
HA
straight flute
◁ 45°
ASG2131
Solid carbide
Blind hole



52K.65
HA
straight flute
◁ 30°
ASG2350
Solid carbide
Blind hole



52Q.17
HA
straight flute
◁ 60°
ASG2170
Solid carbide
Blind hole



52H.55
HA
straight flute
◁ 30°
ASG2360
Solid carbide
Blind hole

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 487 ...	40 404 ...	40 478 ...	40 474 ...	40 476 ...
2,96 - 3,96	60	12	32	4	6			xxxxx[2]		
2,96 - 3,96	60	12	32	4	4	xxxxx[1]	xxxxx[2]		xxxxx[1]	xxxxx[1]
3,97	60	12	32	4	4	03970	03970		03970[1]	03970[1]
3,97	60	12	32	4	6			03970[2]		
3,98	60	12	32	4	4	03980	03980		03980[1]	03980[1]
3,98	60	12	32	4	6			03980[2]		
3,99	60	12	32	4	4	03990	03990		03990[1]	03990[1]
3,99	60	12	32	4	6			03990[2]		
4,00	60	12	32	4	4	04000	04000		04000[1]	04000[1]
4,00	60	12	32	4	6			04000[2]		
4,01	60	12	32	4	4	04010	04010		04010[1]	04010[1]
4,01	60	12	32	4	6			04010[2]		
4,02	60	12	32	4	4	04020	04020		04020[1]	04020[1]
4,02	60	12	32	4	6			04020[2]		
4,03	60	12	32	4	4	04030	04030		04030[1]	04030[1]
4,03	60	12	32	4	6			04030[2]		
4,04 - 4,05	60	12	32	4	4	xxxxx[1]	xxxxx[2]		xxxxx[1]	xxxxx[1]
4,04 - 4,05	60	12	32	4	6			xxxxx[2]		
4,06 - 4,96	76	12	40	6	6			xxxxx[1]		
4,06 - 4,96	76	12	40	6	4	xxxxx[1]	xxxxx[2]		xxxxx[1]	xxxxx[1]
4,97	76	12	40	6	4	04970	04970		04970[1]	04970[1]
4,97	76	12	40	6	6			04970[2]		
4,98	76	12	40	6	4	04980	04980		04980[1]	04980[1]
4,98	76	12	40	6	6			04980[2]		
4,99	76	12	40	6	4	04990	04990		04990[1]	04990[1]
4,99	76	12	40	6	6			04990[2]		
5,00	76	12	40	6	4	05000	05000		05000[1]	05000[1]
5,00	76	12	40	6	6			05000[2]		
5,01	76	12	40	6	4	05010	05010		05010[1]	05010[1]
P						●	●			
M						●	●			
K						●		●		
N						○			●	
S						○				
H						○				●
O									○	

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 32 working days

→ v_c Page 80+81

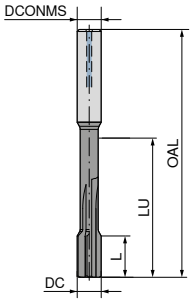
This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article no. 40 487 08820)!

Continued on next page

Fullmax – High-performance machine reamers, long

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings
- ▲ tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- ▲ tolerance: Ø 5,97 – 20,05 mm = +0,005 mm





UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A



52M.57
HA
straight flute
◁ 60°
ASG2110
Solid carbide
Blind hole

52T.45
HA
straight flute
◁ 45°
ASG2131
Solid carbide
Blind hole

52K.65
HA
straight flute
◁ 30°
ASG2350
Solid carbide
Blind hole

52Q.17
HA
straight flute
◁ 60°
ASG2170
Solid carbide
Blind hole

52H.55
HA
straight flute
◁ 30°
ASG2360
Solid carbide
Blind hole

DC $_{+0,004/+0,005}$ mm	OAL mm	L mm	LU mm	DCONMS $_{h6}$ mm	ZEFP	40 487 ...	40 404 ...	40 478 ...	40 474 ...	40 476 ...
5,01	76	12	40	6	6			05010[2]		
5,02	76	12	40	6	4	05020	05020		05020[1]	05020[1]
5,02	76	12	40	6	6			05020[2]		
5,03	76	12	40	6	4	05030	05030		05030[1]	05030[1]
5,03	76	12	40	6	6			05030[2]		
5,04 - 5,96	76	12	40	6	4	xxxxx[1]	xxxxx[2]		xxxxx[1]	xxxxx[1]
5,04 - 5,96	76	12	40	6	6			xxxxx[2]		
5,97	76	12	40	6	4	05970	05970		05970[1]	05970[1]
5,97	76	12	40	6	6			05970[2]		
5,98	76	12	40	6	4	05980	05980		05980[1]	05980[1]
5,98	76	12	40	6	6			05980[2]		
5,99	76	12	40	6	4	05990	05990		05990[1]	05990[1]
5,99	76	12	40	6	6			05990[2]		
6,00	76	12	40	6	4	06000	06000		06000[1]	06000[1]
6,00	76	12	40	6	6			06000[2]		
6,01	76	12	40	6	4	06010	06010		06010[1]	06010[1]
6,01	76	12	40	6	6			06010[2]		
6,02	76	12	40	6	4	06020	06020		06020[1]	06020[1]
6,02	76	12	40	6	6			06020[2]		
6,03	76	12	40	6	4	06030	06030		06030[1]	06030[1]
6,03	76	12	40	6	6			06030[2]		
6,04 - 6,05	76	12	40	6	4	xxxxx[1]	xxxxx[2]		xxxxx[1]	xxxxx[1]
6,04 - 6,05	76	12	40	6	6			xxxxx[2]		
6,06 - 7,96	101	16	65	8	8			xxxxx[1]		
6,06 - 7,96	101	16	65	8	6	xxxxx[1]	xxxxx[2]		xxxxx[1]	xxxxx[1]
7,97	101	16	65	8	6	07970	07970		07970[1]	07970[1]
7,97	101	16	65	8	8			07970[2]		
7,98	101	16	65	8	6	07980	07980		07980[1]	07980[1]
7,98	101	16	65	8	8			07980[2]		

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

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 32 working days

→ v_c Page 80+81

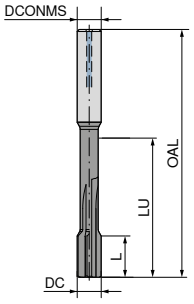
This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article no. 40 487 08820)!

Continued on next page

Fullmax – High-performance machine reamers, long

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings
- ▲ tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- ▲ tolerance: Ø 5,97 – 20,05 mm = +0,005 mm





UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A



52M.57	52T.45	52K.65	52Q.17	52H.55
HA	HA	HA	HA	HA
straight flute	straight flute	straight flute	straight flute	straight flute
◁ 60°	◁ 45°	◁ 30°	◁ 60°	◁ 30°
ASG2110	ASG2131	ASG2350	ASG2170	ASG2360
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
Blind hole	Blind hole	Blind hole	Blind hole	Blind hole
40 487 ...	**40 404 ...**	**40 478 ...**	**40 474 ...**	**40 476 ...**

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP					
7,99	101	16	65	8	6	07990	07990		07990[1]	07990[1]
7,99	101	16	65	8	8			07990[2]		
8,00	101	16	65	8	6	08000	08000		08000[1]	08000[1]
8,00	101	16	65	8	8			08000[2]		
8,01	101	16	65	8	6	08010	08010		08010[1]	08010[1]
8,01	101	16	65	8	8			08010[2]		
8,02	101	16	65	8	6	08020	08020		08020[1]	08020[1]
8,02	101	16	65	8	8			08020[2]		
8,03	101	16	65	8	6	08030	08030		08030[1]	08030[1]
8,03	101	16	65	8	8			08030[2]		
8,04 - 8,05	101	16	65	8	6	xxxxx[1]	xxxxx[2]		xxxxx[1]	xxxxx[1]
8,04 - 8,05	101	16	65	8	8			xxxxx[2]		
8,06 - 9,96	108	16	68	10	8			xxxxx[1]		
8,06 - 9,96	108	16	68	10	6	xxxxx[1]	xxxxx[2]		xxxxx[1]	xxxxx[1]
9,97	108	16	68	10	6	09970	09970		09970[1]	09970[1]
9,97	108	16	68	10	8			09970[2]		
9,98	108	16	68	10	6	09980	09980		09980[1]	09980[1]
9,98	108	16	68	10	8			09980[2]		
9,99	108	16	68	10	6	09990	09990		09990[1]	09990[1]
9,99	108	16	68	10	8			09990[2]		
10,00	108	16	68	10	6	10000	10000		10000[1]	10000[1]
10,00	108	16	68	10	8			10000[2]		
10,01	108	16	68	10	6	10010	10010		10010[1]	10010[1]
10,01	108	16	68	10	8			10010[2]		
10,02	108	16	68	10	6	10020	10020		10020[1]	10020[1]
10,02	108	16	68	10	8			10020[2]		
10,03	108	16	68	10	6	10030	10030		10030[1]	10030[1]
10,03	108	16	68	10	8			10030[2]		
10,04 - 10,05	108	16	68	10	6	xxxxx[1]	xxxxx[2]		xxxxx[1]	xxxxx[1]

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

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 32 working days

→ v_c Page 80+81

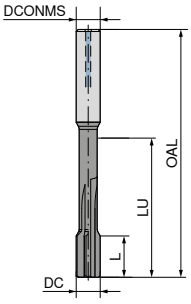
This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article no. 40 487 08820)!

Continued on next page

Fullmax – High-performance machine reamers, long

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings
- ▲ tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- ▲ tolerance: Ø 5,97 – 20,05 mm = +0,005 mm





UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A



52M.57
HA
straight flute
◁ 60°
ASG2110
Solid carbide
Blind hole

52T.45
HA
straight flute
◁ 45°
ASG2131
Solid carbide
Blind hole

52K.65
HA
straight flute
◁ 30°
ASG2350
Solid carbide
Blind hole

52Q.17
HA
straight flute
◁ 60°
ASG2170
Solid carbide
Blind hole

52H.55
HA
straight flute
◁ 30°
ASG2360
Solid carbide
Blind hole

DC $_{+0,004/+0,005}$ mm	OAL mm	L mm	LU mm	DCONMS $_{h6}$ mm	ZEFP	40 487 ...	40 404 ...	40 478 ...	40 474 ...	40 476 ...
10,04 - 10,05	108	16	68	10	8			xxxxx[2]		
10,06 - 11,96	130	20	85	12	8			xxxxx[1]		
10,06 - 11,96	130	20	85	12	6	xxxxx[1]	xxxxx[2]		xxxxx[1]	xxxxx[1]
11,97	130	20	85	12	6	11970	11970		11970[1]	11970[1]
11,97	130	20	85	12	8			11970[2]		
11,98	130	20	85	12	6	11980	11980		11980[1]	11980[1]
11,98	130	20	85	12	8			11980[2]		
11,99	130	20	85	12	6	11990	11990		11990[1]	11990[1]
11,99	130	20	85	12	8			11990[2]		
12,00	130	20	85	12	6	12000	12000		12000[1]	12000[1]
12,00	130	20	85	12	8			12000[2]		
12,01	130	20	85	12	6	12010	12010		12010[1]	12010[1]
12,01	130	20	85	12	8			12010[2]		
12,02	130	20	85	12	6	12020	12020		12020[1]	12020[1]
12,02	130	20	85	12	8			12020[2]		
12,03	130	20	85	12	6	12030	12030		12030[1]	12030[1]
12,03	130	20	85	12	8			12030[2]		
12,04 - 12,05	130	20	85	12	6	xxxxx[1]	xxxxx[2]		xxxxx[1]	xxxxx[1]
12,04 - 12,05	130	20	85	12	8			xxxxx[2]		
12,06 - 14,05	130	20	85	14	8			xxxxx[1]		
12,06 - 14,05	130	20	85	14	6	xxxxx[1]	xxxxx[2]		xxxxx[1]	xxxxx[1]
14,06 - 16,05	150	20	102	16	6	xxxxx[1]	xxxxx[2]		xxxxx[1]	xxxxx[1]
14,06 - 16,05	150	20	102	16	8			xxxxx[1]		
16,06 - 18,05	150	20	102	18	6	xxxxx[1]	xxxxx[2]		xxxxx[1]	xxxxx[1]
16,06 - 18,05	150	20	102	18	8			xxxxx[1]		
18,06 - 20,05	160	20	110	20	6	xxxxx[1]	xxxxx[2]		xxxxx[1]	xxxxx[1]
18,06 - 20,05	160	20	110	20	8			xxxxx[1]		

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

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days

2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 32 working days

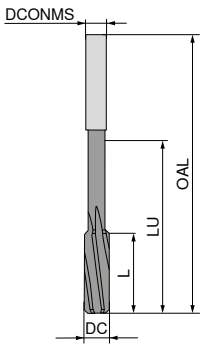
→ v_c Page 80+81

This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article no. 40 487 08820)!

NC machine reamers, DIN 8093-2B

- extremely irregular pitch
- Ø 2–3.5 mm with centres both ends
- Ø 4–13 mm with protected centres
- from Ø 22 mm, similar to DIN 8093-2B

NC





~HA

Left Hand Helix
Solid carbide

40 420 ...

DC $_{H7}$ mm	OAL mm	L mm	LU mm	DCONMS $_{h6}$ mm	ZEFP	
2,0	50	12	18,5	3	4	**020**
2,5	60	16	29,0	3	4	**025**
3,0	65	17	33,0	4	6	**030**
3,2	65	18	33,0	4	6	**032**
3,5	75	18	43,0	4	6	**035**
4,0	75	19	43,0	4	6	**040**
4,5	80	21	39,0	6	6	**045**
5,0	93	23	52,0	6	6	**050**
5,5	93	26	53,0	6	6	**055**
6,0	93	26	53,0	6	6	**060**
6,5	101	28	61,0	6	6	**065**
7,0	109	31	68,0	8	6	**070**
7,5	109	31	68,0	8	6	**075**
8,0	117	33	77,0	8	6	**080**
8,5	117	33	77,0	8	6	**085**
9,0	125	36	80,0	10	6	**090**
9,5	125	36	80,0	10	6	**095**
10,0	133	38	88,0	10	6	**100**
10,5	133	38	88,0	10	6	**105**
11,0	142	41	97,0	10	6	**110**
12,0	151	44	100,0	12	6	**120**
13,0	151	44	100,0	12	6	**130**
14,0	160	47	106,0	16	6	**140** 1)
15,0	162	50	108,0	16	6	**150** 1)
16,0	170	52	116,0	16	6	**160** 1)
17,0	175	52	121,0	18	6	**170** 1)
18,0	182	52	128,0	18	6	**180** 1)
19,0	189	52	133,0	20	6	**190** 1)
20,0	195	52	139,0	20	6	**200** 1)
22,0	160	25	105,0	20	6	**220** 1)
24,0	180	25	125,0	20	8	**240** 1)
25,0	180	25	125,0	20	8	**250** 1)
26,0	180	25	125,0	20	8	**260** 1)
28,0	180	25	119,0	25	8	**280** 1)
30,0	200	25	139,0	25	8	**300** 1)

P	●
M	
K	○
N	●
S	
H	
O	●

→ v_c Page 84+85

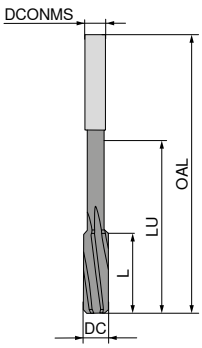
1) with carbide cutting edges

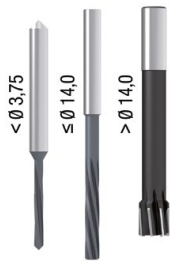
NC machine reamers, DIN 8093-2B

- extremely irregular pitch
- Ø 2–3.5 mm with centres both ends
- Ø 4–13 mm with protected centres
- from Ø 22 mm, similar to DIN 8093-2B

NC

TiAlN





~HA

Left Hand Helix
Solid carbide

40 421 ...

DC $_{H7}$ mm	OAL mm	L mm	LU mm	DCONMS $_{h6}$ mm	ZEFP	
2,0	50	12	18,5	3	4	**020**
2,5	60	16	29,0	3	4	**025**
3,0	65	17	33,0	4	6	**030**
3,2	65	18	33,0	4	6	**032**
3,5	75	18	43,0	4	6	**035**
4,0	75	19	43,0	4	6	**040**
4,5	80	21	39,0	6	6	**045**
5,0	93	23	52,0	6	6	**050**
5,5	93	26	53,0	6	6	**055**
6,0	93	26	53,0	6	6	**060**
6,5	101	28	61,0	6	6	**065**
7,0	109	31	68,0	8	6	**070**
7,5	109	31	68,0	8	6	**075**
8,0	117	33	77,0	8	6	**080**
8,5	117	33	77,0	8	6	**085**
9,0	125	36	80,0	10	6	**090**
9,5	125	36	80,0	10	6	**095**
10,0	133	38	88,0	10	6	**100**
10,5	133	38	88,0	10	6	**105**
11,0	142	41	97,0	10	6	**110**
12,0	151	44	100,0	12	6	**120**
13,0	151	44	100,0	12	6	**130**
14,0	160	47	106,0	16	6	**140** 1)
15,0	162	50	108,0	16	6	**150** 1)
16,0	170	52	116,0	16	6	**160** 1)
17,0	175	52	121,0	18	6	**170** 1)
18,0	182	52	128,0	18	6	**180** 1)
19,0	189	52	133,0	20	6	**190** 1)
20,0	195	52	139,0	20	6	**200** 1)

P	●
M	○
K	●
N	
S	○
H	○
O	

→ v_c Page 84+85

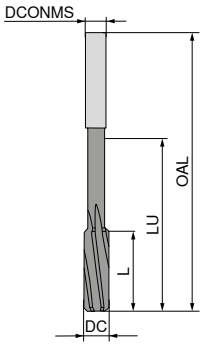
1) with carbide cutting edges

4

NC machine reamers, DIN 8093-2B

- ▲ 0.01 mm steps
- ▲ extremely irregular pitch
- ▲ Ø 0.6–0.94 mm similar to DIN 8093-B
- ▲ Ø 0.95–3.75 mm with centres both ends
- ▲ Ø 3.76–12.05 mm with protected centres

NC 100





~HA

Left Hand Helix
Solid carbide

40 430 ...

DC +0,004 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	
0,59 - 0,64	45	5	7,5	3	4	xxxxx 1)
0,65 - 0,74	45	5	7,5	3	4	xxxxx 1)
0,75 - 0,84	45	6	8,0	3	4	xxxxx 1)
0,85 - 0,95	45	6	8,0	3	4	xxxxx 1)
0,96	50	6	17,5	3	3	00960 1)
0,97	50	6	17,5	3	3	00970 1)
0,98	50	6	17,5	3	3	00980 2)
0,99	50	6	17,5	3	3	00990 2)
1,00	50	6	17,5	3	3	01000 2)
1,01	50	6	17,5	3	3	01010 2)
1,02	50	6	17,5	3	3	01020 2)
1,03	50	6	17,5	3	3	01030 2)
1,04 - 1,06	50	6	17,5	3	3	xxxxx 2)
1,07 - 1,18	50	9	17,5	3	3	xxxxx 2)
1,19 - 1,32	50	9	17,5	3	3	xxxxx 2)
1,33 - 1,50	50	9	18,0	3	3	xxxxx 2)
1,51 - 1,70	50	10	18,0	3	3	xxxxx 2)
1,71 - 1,90	50	11	18,5	3	4	xxxxx 2)
1,91 - 1,97	50	12	18,5	3	4	xxxxx 2)
1,98	50	12	18,5	3	4	01980
1,99	50	12	18,5	3	4	01990
2,00	50	12	18,5	3	4	02000
2,01	50	12	18,5	3	4	02010
2,02	50	12	18,5	3	4	02020
2,03	50	12	18,5	3	4	02030
2,04 - 2,12	50	12	18,5	3	4	xxxxx 2)
2,13 - 2,36	50	12	18,5	3	4	xxxxx 2)
2,37 - 2,47	60	16	29,0	3	4	xxxxx 2)
2,48	60	16	29,0	3	4	02480
2,49	60	16	29,0	3	4	02490
2,50	60	16	29,0	3	4	02500
2,51	60	16	29,0	3	4	02510
2,52	60	16	29,0	3	4	02520
2,53	60	16	29,0	3	4	02530
2,54 - 2,65	60	16	29,0	3	4	xxxxx 2)
2,66 - 2,80	65	17	33,0	4	6	xxxxx 2)
2,81 - 2,96	65	17	33,0	4	6	xxxxx 2)
2,97	65	17	33,0	4	6	02970
2,98	65	17	33,0	4	6	02980
2,99	65	17	33,0	4	6	02990
3,00	65	17	33,0	4	6	03000
3,01	65	17	33,0	4	6	03010
3,02	65	17	33,0	4	6	03020
3,03	65	17	33,0	4	6	03030
3,04 - 3,35	65	18	33,0	4	6	xxxxx 2)
3,36 - 3,75	75	18	43,0	4	6	xxxxx 2)
3,76 - 3,96	75	19	43,0	4	6	xxxxx 2)
3,97	75	19	43,0	4	6	03970
3,98	75	19	43,0	4	6	03980
3,99	75	19	43,0	4	6	03990
4,00	75	19	43,0	4	6	04000
4,01	75	19	43,0	4	6	04010
4,02	75	19	43,0	4	6	04020
4,03	75	19	43,0	4	6	04030
4,04 - 4,25	75	19	43,0	4	6	xxxxx 2)
4,26 - 4,75	80	21	39,0	6	6	xxxxx 2)
4,76 - 4,96	93	23	52,0	6	6	xxxxx 2)
4,97	93	23	52,0	6	6	04970
4,98	93	23	52,0	6	6	04980
4,99	93	23	52,0	6	6	04990

40 430 ...

DC +0,004 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	
5,00	93	23	52,0	6	6	05000
5,01	93	23	52,0	6	6	05010
5,02	93	23	52,0	6	6	05020
5,03	93	23	52,0	6	6	05030
5,04 - 5,30	93	23	52,0	6	6	xxxxx 2)
5,31 - 5,96	93	26	53,0	6	6	xxxxx 2)
5,97	93	26	53,0	6	6	05970
5,98	93	26	53,0	6	6	05980
5,99	93	26	53,0	6	6	05990
6,00	93	26	53,0	6	6	06000
6,01	93	26	53,0	6	6	06010
6,02	93	26	53,0	6	6	06020
6,03	93	26	53,0	6	6	06030
6,04 - 6,70	101	28	61,0	6	6	xxxxx 2)
6,71 - 7,50	109	31	68,0	8	6	xxxxx 2)
7,51 - 7,96	117	33	77,0	8	6	xxxxx 2)
7,97	117	33	77,0	8	6	07970
7,98	117	33	77,0	8	6	07980
7,99	117	33	77,0	8	6	07990
8,00	117	33	77,0	8	6	08000
8,01	117	33	77,0	8	6	08010
8,02	117	33	77,0	8	6	08020
8,03	117	33	77,0	8	6	08030
8,04	117	33	77,0	8	6	08040
8,05 - 8,50	117	33	77,0	8	6	xxxxx 2)
8,51 - 9,04	125	36	80,0	10	6	xxxxx 2)
9,05 - 9,50	125	36	80,0	10	6	xxxxx 2)
9,51 - 9,96	133	38	88,0	10	6	xxxxx 2)
9,97	133	38	88,0	10	6	09970
9,98	133	38	88,0	10	6	09980
9,99	133	38	88,0	10	6	09990
10,00	133	38	88,0	10	6	10000
10,01	133	38	88,0	10	6	10010
10,02	133	38	88,0	10	6	10020
10,03	133	38	88,0	10	6	10030
10,04	133	38	88,0	10	6	10040
10,05	133	38	88,0	10	6	10050
10,06 - 10,60	133	38	88,0	10	6	xxxxx 2)
10,61 - 11,80	142	41	97,0	10	6	xxxxx 2)
11,81 - 11,96	151	44	100,0	12	6	xxxxx 2)
11,97	151	44	100,0	12	6	11970
11,98	151	44	100,0	12	6	11980
11,99	151	44	100,0	12	6	11990
12,00	151	44	100,0	12	6	12000
12,01	151	44	100,0	12	6	12010
12,02	151	44	100,0	12	6	12020
12,03	151	44	100,0	12	6	12030
12,04	151	44	100,0	12	6	12040
12,05	151	44	100,0	12	6	12050

P	●
M	
K	o
N	●
S	
H	
O	●

→ v_c Page 84+85

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 12 working days / Minimum order 3 pieces

2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 12 working days

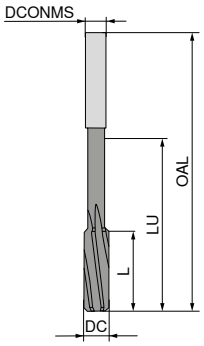
This tool concept permits numerous tolerances.
Please refer to the table on → **page 103** for tolerances covered.
For xxxxx please indicate required Ø in the order
(e.g. Ø 8.05 mm → Article no. 40 430 08050)!

NC machine reamers, DIN 8093-2B

- ▲ 0.01 mm steps
- ▲ extremely irregular pitch
- ▲ Ø 0.6–0.94 mm similar to DIN 8093-B
- ▲ Ø 0.95–3.75 mm with centres both ends
- ▲ Ø 3.76–12.05 mm with protected centres

NC 100

TiAlN







Left Hand Helix
Solid carbide

40 431 ...

DC +0,004 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	
1,00	50	6	17,5	3	3	01000 [1]
1,01	50	6	17,5	3	3	01010 [1]
1,02	50	6	17,5	3	3	01020 [1]
1,03	50	6	17,5	3	3	01030 [1]
1,04 - 1,06	50	6	17,5	3	3	xxxxx [1]
1,07 - 1,18	50	9	17,5	3	3	xxxxx [1]
1,19 - 1,32	50	9	17,5	3	3	xxxxx [1]
1,33 - 1,50	50	9	18,0	3	3	xxxxx [1]
1,51 - 1,70	50	10	18,0	3	3	xxxxx [1]
1,71 - 1,90	50	11	18,5	3	4	xxxxx [1]
1,91 - 1,97	50	12	18,5	3	4	xxxxx [1]
1,98	50	12	18,5	3	4	01980
1,99	50	12	18,5	3	4	01990
2,00	50	12	18,5	3	4	02000
2,01	50	12	18,5	3	4	02010
2,02	50	12	18,5	3	4	02020
2,03	50	12	18,5	3	4	02030
2,04 - 2,12	50	12	18,5	3	4	xxxxx [1]
2,13 - 2,36	50	12	18,5	3	4	xxxxx [1]
2,37 - 2,47	60	16	29,0	3	4	xxxxx [1]
2,48	60	16	29,0	3	4	02480
2,49	60	16	29,0	3	4	02490
2,50	60	16	29,0	3	4	02500
2,51	60	16	29,0	3	4	02510
2,52	60	16	29,0	3	4	02520
2,53	60	16	29,0	3	4	02530
2,54 - 2,65	60	16	29,0	3	4	xxxxx [1]
2,66 - 2,80	65	17	33,0	4	6	xxxxx [1]
2,81 - 2,96	65	17	33,0	4	6	xxxxx [1]
2,97	65	17	33,0	4	6	02970
2,98	65	17	33,0	4	6	02980
2,99	65	17	33,0	4	6	02990
3,00	65	17	33,0	4	6	03000
3,01	65	17	33,0	4	6	03010
3,02	65	17	33,0	4	6	03020
3,03	65	17	33,0	4	6	03030
3,04 - 3,35	65	18	33,0	4	6	xxxxx [1]
3,36 - 3,75	75	18	43,0	4	6	xxxxx [1]
3,76 - 3,96	75	19	43,0	4	6	xxxxx [1]
3,97	75	19	43,0	4	6	03970
3,98	75	19	43,0	4	6	03980
3,99	75	19	43,0	4	6	03990
4,00	75	19	43,0	4	6	04000
4,01	75	19	43,0	4	6	04010
4,02	75	19	43,0	4	6	04020
4,03	75	19	43,0	4	6	04030
4,04 - 4,25	75	19	43,0	4	6	xxxxx [1]
4,26 - 4,75	80	21	39,0	6	6	xxxxx [1]
4,76 - 4,96	93	23	52,0	6	6	xxxxx [1]
4,97	93	23	52,0	6	6	04970
4,98	93	23	52,0	6	6	04980
4,99	93	23	52,0	6	6	04990
5,00	93	23	52,0	6	6	05000
5,01	93	23	52,0	6	6	05010
5,02	93	23	52,0	6	6	05020
5,03	93	23	52,0	6	6	05030
5,04 - 5,30	93	23	52,0	6	6	xxxxx [1]
5,31 - 5,96	93	26	53,0	6	6	xxxxx [1]
5,97	93	26	53,0	6	6	05970
5,98	93	26	53,0	6	6	05980

40 431 ...

DC +0,004 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	
5,99	93	26	53,0	6	6	05990
6,00	93	26	53,0	6	6	06000
6,01	93	26	53,0	6	6	06010
6,02	93	26	53,0	6	6	06020
6,03	93	26	53,0	6	6	06030
6,04 - 6,70	101	28	61,0	6	6	xxxxx [1]
6,71 - 7,50	109	31	68,0	8	6	xxxxx [1]
7,51 - 7,96	117	33	77,0	8	6	xxxxx [1]
7,97	117	33	77,0	8	6	07970
7,98	117	33	77,0	8	6	07980
7,99	117	33	77,0	8	6	07990
8,00	117	33	77,0	8	6	08000
8,01	117	33	77,0	8	6	08010
8,02	117	33	77,0	8	6	08020
8,03	117	33	77,0	8	6	08030
8,04	117	33	77,0	8	6	08040
8,05 - 8,50	117	33	77,0	8	6	xxxxx [1]
8,51 - 9,04	125	36	80,0	10	6	xxxxx [1]
9,05 - 9,50	125	36	80,0	10	6	xxxxx [1]
9,51 - 9,96	133	38	88,0	10	6	xxxxx [1]
9,97	133	38	88,0	10	6	09970
9,98	133	38	88,0	10	6	09980
9,99	133	38	88,0	10	6	09990
10,00	133	38	88,0	10	6	10000
10,01	133	38	88,0	10	6	10010
10,02	133	38	88,0	10	6	10020
10,03	133	38	88,0	10	6	10030
10,04	133	38	88,0	10	6	10040
10,05	133	38	88,0	10	6	10050
10,06 - 10,60	133	38	88,0	10	6	xxxxx [1]
10,61 - 11,80	142	41	97,0	10	6	xxxxx [1]
11,81 - 11,96	151	44	100,0	12	6	xxxxx [1]
11,97	151	44	100,0	12	6	11970
11,98	151	44	100,0	12	6	11980
11,99	151	44	100,0	12	6	11990
12,00	151	44	100,0	12	6	12000
12,01	151	44	100,0	12	6	12010
12,02	151	44	100,0	12	6	12020
12,03	151	44	100,0	12	6	12030
12,04	151	44	100,0	12	6	12040
12,05	151	44	100,0	12	6	12050

P	●
M	○
K	●
N	
S	○
H	○
O	

→ v_c Page 84+85

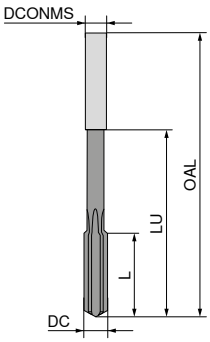
1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 12 working days

This tool concept permits numerous tolerances.
Please refer to the table on → **page 103** for tolerances covered.
For xxxxx please indicate required Ø in the order
(e.g. Ø 8.05 mm → Article no. 40 431 08050)!

Machine reamers, similar to DIN 8093-A / -B

▲ extremely irregular pitch

N





Left Hand Helix
Solid carbide



straight flute
Solid carbide

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h7 mm	ZEFP	40 410 ...	40 400 ...
2,0	49	11	31	2,0	4	020	020
2,1	49	11	31	2,0	4	021	021
2,2	53	12	35	2,2	4	022	022
2,3	53	12	35	2,2	4	023	023
2,4	57	14	34	2,5	4	024	024
2,5	57	14	34	2,5	4	025	025
2,6	57	14	34	2,5	4	026	026
2,7	61	15	36	3,0	4	027	027
2,8	61	15	36	3,0	4	028	028
2,9	61	15	36	3,0	4	029	029
3,0	61	15	36	3,0	4	030	030
3,1	61	15	36	3,0	4	031	031
3,2	70	18	40	3,5	4	032	032
3,3	70	18	40	3,5	4	033	033
3,4	70	18	40	3,5	4	034	034
3,5	70	18	40	3,5	4	035	035
3,6	70	18	40	3,5	4	036	036
3,7	70	18	40	3,5	4	037	037
3,8	75	19	43	4,0	4	038	038
3,9	75	19	43	4,0	4	039	039
4,0	75	19	43	4,0	4	040	040
4,1	75	19	43	4,0	4	041	041
4,2	75	19	43	4,0	4	042	042
4,3	75	21	42	4,5	4	043	043
4,4	75	21	42	4,5	4	044	044
4,5	75	21	42	4,5	4	045	045
4,6	75	21	42	4,5	4	046	046
4,7	75	21	42	4,5	4	047	047
4,8	86	23	52	5,0	4	048	048
4,9	86	23	52	5,0	4	049	049
5,0	86	23	52	5,0	4	050	050
5,1	86	23	52	5,0	4	051	051
5,2	86	23	52	5,0	4	052	052
5,3	86	23	52	5,0	6	053	053
5,4	93	26	57	5,6	6	054	054
5,5	93	26	57	5,6	6	055	055
5,6	93	26	57	5,6	6	056	056
5,7	93	26	57	5,6	6	057	057
5,8	93	26	57	5,6	6	058	058
5,9	93	26	57	5,6	6	059	059
6,0	93	26	57	5,6	6	060	060
6,1	93	26	57	5,6	6	061	061
6,2	93	26	57	5,6	6	062	062
6,3	101	28	63	6,3	6	063	063
6,4	101	28	63	6,3	6	064	064
6,5	101	28	63	6,3	6	065	065
6,6	101	28	63	6,3	6	066	066
6,7	101	28	63	6,3	6	067	067
6,8	109	31	69	7,1	6	068	068
6,9	109	31	69	7,1	6	069	069
7,0	109	31	69	7,1	6	070	070
7,1	109	31	69	7,1	6	071	071
7,2	109	31	69	7,1	6	072	072
7,3	109	31	69	7,1	6	073	073
7,4	109	31	69	7,1	6	074	074
7,5	109	31	69	7,1	6	075	075
7,6	117	33	75	8,0	6	076	076
7,7	117	33	75	8,0	6	077	077
7,8	117	33	75	8,0	6	078	078
7,9	117	33	75	8,0	6	079	079
8,0	117	33	75	8,0	6	080	080
8,1	117	33	75	8,0	6	081	081
8,2	117	33	75	8,0	6	082	082
8,3	117	33	75	8,0	6	083	083
8,4	117	33	75	8,0	6	084	084
8,5	117	33	75	8,0	6	085	085
8,6	125	36	81	9,0	6	086	086
8,7	125	36	81	9,0	6	087	087
8,8	125	36	81	9,0	6	088	088
8,9	125	36	81	9,0	6	089	089
9,0	125	36	81	9,0	6	090	090
9,1	125	36	81	9,0	6	091	091
9,2	125	36	81	9,0	6	092	092
9,3	125	36	81	9,0	6	093	093
9,4	125	36	81	9,0	6	094	094
9,5	125	36	81	9,0	6	095	095
9,6	133	38	87	10,0	6	096	096
9,7	133	38	87	10,0	6	097	097
9,8	133	38	87	10,0	6	098	098
9,9	133	38	87	10,0	6	099	099
10,0	133	38	87	10,0	6	100	100
10,1	133	38	87	10,0	6	101	101
10,2	133	38	87	10,0	6	102	102
10,3	133	38	87	10,0	6	103	103
10,4	133	38	87	10,0	6	104	104
10,5	133	38	87	10,0	6	105	105
10,6	133	38	87	10,0	6	106	106
10,7	142	41	96	10,0	6	107	107
10,8	142	41	96	10,0	6	108	108
10,9	142	41	96	10,0	6	109	109
11,0	142	41		10,0	6	110	110
11,1	142	41		10,0	6	111	111
11,2	142	41		10,0	6	112	112
11,3	142	41		10,0	6	113	113
11,4	142	41		10,0	6	114	114
11,5	142	41		10,0	6	115	115
11,6	142	41		10,0	6	116	116
11,7	142	41		10,0	6	117	117
11,8	142	41		10,0	6	118	118
11,9	151	44		10,0	6	119	119
12,0	151	44		10,0	6	120	120

	40 410 ...	40 400 ...
P	●	●
M	○	○
K	○	○
N	●	●
S	○	○
H		
O		

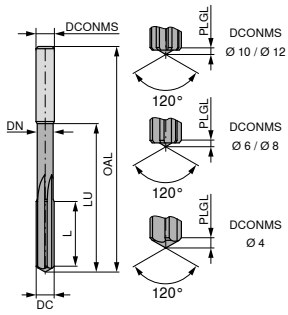
→ v_c Page 83

NC machine reamers, sim. DIN 8093-A

NC100 H

NEW

TiAlSiN





straight flute
◁ 45°
Solid carbide
Through hole + blind hole

40 435 ...

DC h7 mm	OAL mm	L mm	LU mm	DCONMS h5 mm	PLGL mm	
0,98	50	6	16	4	0,12	**00980**
0,99	50	6	16	4	0,12	**00990**
1,00	50	6	16	4	0,12	**01000**
1,01	50	6	16	4	0,12	**01010**
1,02	50	6	16	4	0,12	**01020**
1,03	50	6	16	4	0,12	**01030**
1,48	50	9	16	4	0,12	**01480**
1,49	50	9	16	4	0,12	**01490**
1,50	50	9	16	4	0,12	**01500**
1,51	50	9	16	4	0,12	**01510**
1,52	50	9	16	4	0,12	**01520**
1,60	50	10	16	4	0,12	**01600**
1,70	50	10	16	4	0,12	**01700**
1,80	50	11	16	4	0,12	**01800**
1,90	50	11	16	4	0,12	**01900**
1,97	50	12	16	4	0,30	**01970**
1,98	50	12	16	4	0,30	**01980**
1,99	50	12	16	4	0,30	**01990**
2,00	50	12	16	4	0,30	**02000**
2,01	50	12	16	4	0,30	**02010**
2,02	50	12	16	4	0,30	**02020**
2,03	50	12	16	4	0,30	**02030**
2,05	50	12	16	4	0,30	**02050**
2,10	50	12	16	4	0,30	**02100**
2,20	50	13	16	4	0,30	**02200**
2,30	50	13	16	4	0,30	**02300**
2,40	60	16	26	4	0,30	**02400**
2,50	60	16	26	4	0,30	**02500**
2,60	60	16	26	4	0,30	**02600**
2,70	64	17	30	4	0,30	**02700**
2,80	64	17	30	4	0,30	**02800**
2,90	64	17	30	4	0,30	**02900**
2,97	64	17	30	4	0,30	**02970**
2,98	64	17	30	4	0,30	**02980**
2,99	64	17	30	4	0,30	**02990**
3,00	64	17	30	4	0,30	**03000**
3,01	64	17	30	4	0,30	**03010**
3,02	64	17	30	4	0,30	**03020**
3,03	64	17	30	4	0,30	**03030**
3,05	68	18	34	4	0,30	**03050**
3,10	68	18	34	4	0,30	**03100**
3,20	68	18	34	4	0,30	**03200**
3,30	68	18	34	4	0,30	**03300**
3,40	74	20	40	4	0,30	**03400**
3,50	74	20	40	4	0,30	**03500**
3,60	74	20	40	4	0,30	**03600**
3,70	74	20	40	4	0,30	**03700**
3,80	77	21	43	4	0,40	**03800**
3,90	77	21	43	4	0,40	**03900**
3,97	77	21	43	4	0,40	**03970**
3,98	77	21	43	4	0,40	**03980**
3,99	77	21	43	4	0,40	**03990**
4,00	77	21	43	4	0,40	**04000**
4,01	77	21	43	4	0,40	**04010**
4,02	77	21	43	4	0,40	**04020**
4,03	77	21	43	4	0,40	**04030**
4,05	82	21	40	6	0,40	**04050**
4,10	82	21	40	6	0,40	**04100**
4,20	82	21	40	6	0,40	**04200**
4,30	82	23	40	6	0,40	**04300**

40 435 ...

DC h7 mm	OAL mm	L mm	LU mm	DCONMS h5 mm	PLGL mm	
4,40	82	23	40	6	0,40	**04400**
4,50	82	23	40	6	0,40	**04500**
4,60	82	23	40	6	0,40	**04600**
4,70	82	23	40	6	0,40	**04700**
4,80	93	26	51	6	0,50	**04800**
4,90	93	26	51	6	0,50	**04900**
4,97	93	26	51	6	0,50	**04970**
4,98	93	26	51	6	0,50	**04980**
4,99	93	26	51	6	0,50	**04990**
5,00	93	26	51	6	0,50	**05000**
5,01	93	26	51	6	0,50	**05010**
5,02	93	26	51	6	0,50	**05020**
5,03	93	26	51	6	0,50	**05030**
5,05	93	26	51	6	0,50	**05050**
5,10	93	26	51	6	0,50	**05100**
5,20	93	26	51	6	0,50	**05200**
5,30	93	26	51	6	0,50	**05300**
5,40	93	26	51	6	0,50	**05400**
5,50	93	26	51	6	0,50	**05500**
5,60	93	26	51	6	0,50	**05600**
5,70	93	26	51	6	0,50	**05700**
5,80	93	26	51	6	0,50	**05800**
5,90	93	26	51	6	0,50	**05900**
5,97	93	26	51	6	0,50	**05970**
5,98	93	26	51	6	0,50	**05980**
5,99	93	26	51	6	0,50	**05990**
6,00	93	26	51	6	0,50	**06000**

P	○
M	○
K	○
N	
S	
H	●
O	

→ v_c Page 90

This tool concept permits numerous tolerances.
Please refer to the table on → **page 103** for tolerances covered.
Intermediate dimensions available on request.

4

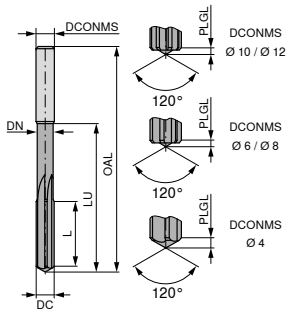
Continued on next page

NC machine reamers, sim. DIN 8093-A

NC100 H

NEW

TiAlSiN





straight flute
45°
Solid carbide
Through hole + blind hole

40 435 ...

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h5 mm	PLGL mm	
11,17	150	44	99	12	0,8	**11170**
11,97	150	44	99	12	0,8	**11970**
11,98	150	44	99	12	0,8	**11980**
11,99	150	44	99	12	0,8	**11990**
12,00	150	44	99	12	0,8	**12000**
12,01	150	44	99	12	0,8	**12010**
12,02	150	44	99	12	0,8	**12020**
12,03	150	44	99	12	0,8	**12030**
12,04	150	44	99	12	0,8	**12040**
12,05	150	44	99	12	0,8	**12050**

P	o
M	o
K	o
N	
S	
H	●
O	

→ v_c Page 90

40 435 ...

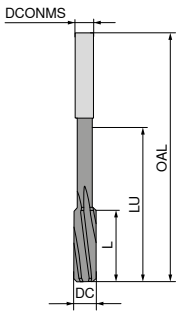
DC H7 mm	OAL mm	L mm	LU mm	DCONMS h5 mm	PLGL mm	
6,01	93	26	51	6	0,5	**06010**
6,02	93	26	51	6	0,5	**06020**
6,03	93	26	51	6	0,5	**06030**
6,05	101	26	59	8	0,5	**06050**
6,10	101	26	59	8	0,5	**06100**
6,20	101	26	59	8	0,5	**06200**
6,30	101	26	59	8	0,5	**06300**
6,40	101	26	59	8	0,5	**06400**
6,50	101	26	59	8	0,5	**06500**
6,60	101	26	59	8	0,5	**06600**
6,70	101	26	59	8	0,5	**06700**
6,80	109	31	67	8	0,6	**06800**
6,85	109	31	67	8	0,6	**06850**
6,90	109	31	67	8	0,6	**06900**
7,00	109	31	67	8	0,6	**07000**
7,10	109	31	67	8	0,6	**07100**
7,20	109	31	67	8	0,6	**07200**
7,30	109	31	67	8	0,6	**07300**
7,40	109	31	67	8	0,6	**07400**
7,50	109	31	67	8	0,6	**07500**
7,60	109	31	67	8	0,6	**07600**
7,70	117	33	75	8	0,6	**07700**
7,80	117	33	75	8	0,6	**07800**
7,90	117	33	75	8	0,6	**07900**
7,97	117	33	75	8	0,6	**07970**
7,98	117	33	75	8	0,6	**07980**
7,99	117	33	75	8	0,6	**07990**
8,00	117	33	75	8	0,6	**08000**
8,01	117	33	75	8	0,7	**08010**
8,02	117	33	75	8	0,7	**08020**
8,03	117	33	75	8	0,7	**08030**
8,05	117	33	71	10	0,7	**08050**
8,10	117	33	71	10	0,7	**08100**
8,20	117	33	71	10	0,7	**08200**
8,30	117	33	71	10	0,7	**08300**
8,40	117	33	71	10	0,7	**08400**
8,50	117	33	71	10	0,7	**08500**
8,60	117	33	71	10	0,7	**08600**
8,70	125	36	79	10	0,7	**08700**
8,80	125	36	79	10	0,7	**08800**
8,90	125	36	79	10	0,7	**08900**
9,00	125	36	79	10	0,7	**09000**
9,10	125	36	79	10	0,7	**09100**
9,20	125	36	79	10	0,7	**09200**
9,30	125	36	79	10	0,7	**09300**
9,40	125	36	79	10	0,7	**09400**
9,50	125	36	79	10	0,7	**09500**
9,60	125	36	79	10	0,7	**09600**
9,70	133	38	87	10	0,7	**09700**
9,80	133	38	87	10	0,7	**09800**
9,90	133	38	87	10	0,7	**09900**
9,97	133	41	87	10	0,7	**09970**
9,98	133	41	87	10	0,7	**09980**
9,99	133	41	87	10	0,7	**09990**
10,00	133	41	87	10	0,7	**10000**
10,01	133	41	87	10	0,7	**10010**
10,02	133	41	87	10	0,8	**10020**
10,03	133	41	87	10	0,8	**10030**
10,04	133	41	87	10	0,8	**10040**
10,05	133	41	87	10	0,8	**10050**

This tool concept permits numerous tolerances.
Please refer to the table on → **page 103** for tolerances covered.
Intermediate dimensions available on request.

NC machine reamers, DIN 212-3-B

▲ maximum radial run-out accuracy

NC





Left Hand Helix
HSS-E

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 110 ...
1,5	40	8	15,5	2	3	015
1,6	43	9	16,0	2	3	016
1,7	43	9	16,0	2	3	017
1,8	46	10	19,0	2	4	018
1,9	46	10	19,0	2	4	019
2,0	49	11	21,0	2	4	020
2,1	49	11	21,0	2	4	021
2,2	53	12	22,0	3	4	022
2,3	53	12	22,0	3	4	023
2,4	57	14	26,0	3	4	024
2,5	57	14	26,0	3	4	025
2,6	57	14	26,0	3	4	026
2,7	61	15	30,0	3	6	027
2,8	61	15	30,0	3	6	028
2,9	61	15	30,0	3	6	029
3,0	61	15	30,0	3	6	030
3,1	65	16	34,0	4	6	031
3,2	65	16	34,0	4	6	032
3,3	65	16	34,0	4	6	033
3,4	70	18	39,0	4	6	034
3,5	70	18	39,0	4	6	035
3,6	70	18	39,0	4	6	036
3,7	70	18	39,0	4	6	037
3,8	75	19	44,0	4	6	038
3,9	75	19	44,0	4	6	039
4,0	75	19	44,0	4	6	040
4,1	75	19	44,0	4	6	041
4,2	75	19	44,0	4	6	042
4,3	80	21	48,0	5	6	043
4,4	80	21	48,0	5	6	044
4,5	80	21	48,0	5	6	045
4,6	80	21	48,0	5	6	046
4,7	80	21	48,0	5	6	047
4,8	86	23	54,0	5	6	048
4,9	86	23	54,0	5	6	049
5,0	86	23	54,0	5	6	050
5,1	86	23	54,0	5	6	051
5,2	86	23	54,0	5	6	052
5,3	86	23	54,0	5	6	053
5,4	93	26	53,0	6	6	054
5,5	93	26	53,0	6	6	055
5,6	93	26	53,0	6	6	056
5,7	93	26	53,0	6	6	057
5,8	93	26	53,0	6	6	058
5,9	93	26	53,0	6	6	059
6,0	93	26	53,0	6	6	060
6,1	101	28	61,0	6	6	061
6,2	101	28	61,0	6	6	062
6,3	101	28	61,0	6	6	063
6,4	101	28	61,0	6	6	064
6,5	101	28	61,0	6	6	065
6,6	101	28	61,0	6	6	066
6,7	101	28	61,0	6	6	067
6,8	109	31	69,0	8	6	068

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 110 ...
6,9	109	31	69,0	8	6	069
7,0	109	31	69,0	8	6	070
7,1	109	31	69,0	8	6	071
7,2	109	31	69,0	8	6	072
7,3	109	31	69,0	8	6	073
7,4	109	31	69,0	8	6	074
7,5	109	31	69,0	8	6	075
7,6	117	33	77,0	8	6	076
7,7	117	33	77,0	8	6	077
7,8	117	33	77,0	8	6	078
7,9	117	33	77,0	8	6	079
8,0	117	33	77,0	8	6	080
8,1	117	33	77,0	8	6	081
8,2	117	33	77,0	8	6	082
8,3	117	33	77,0	8	6	083
8,4	117	33	77,0	8	6	084
8,5	117	33	77,0	8	6	085
8,6	125	36	81,0	10	6	086
8,7	125	36	81,0	10	6	087
8,8	125	36	81,0	10	6	088
8,9	125	36	81,0	10	6	089
9,0	125	36	81,0	10	6	090
9,1	125	36	81,0	10	6	091
9,2	125	36	81,0	10	6	092
9,3	125	36	81,0	10	6	093
9,4	125	36	81,0	10	6	094
9,5	125	36	81,0	10	6	095
9,6	133	38	89,0	10	6	096
9,7	133	38	89,0	10	6	097
9,8	133	38	89,0	10	6	098
9,9	133	38	89,0	10	6	099
10,0	133	38	89,0	10	6	100
11,0	142	41	98,0	10	6	110
12,0	151	44	106,0	10	6	120
13,0	151	44	106,0	10	6	130
14,0	160	47	110,0	14	8	140
15,0	162	50	112,0	14	8	150
16,0	170	52	120,0	14	8	160
17,0	175	54	125,0	14	8	170
18,0	182	56	132,0	14	8	180
19,0	189	58	136,0	16	8	190
20,0	195	60	142,0	16	8	200

P	●
M	
K	●
N	●
S	
H	
O	●

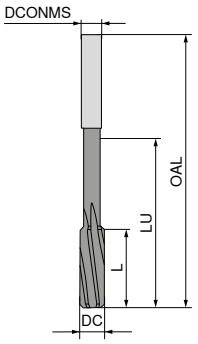
→ v_c Page 86+87

4

NC machine reamers, DIN 212-3-B

- 0.01 mm steps
- tolerance: Ø 1.00 – Ø 5.50 mm = +0.004 mm
- tolerance: Ø 5.51 – Ø 12.00 mm = +0.005 mm

NC 100





Left Hand Helix
HSS-E

40 115 ...

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	
0,95 - 0,99	34	5,5	12,5	1	3	xxxxx[1]
1,00	34	5,5	12,5	1	3	01000
1,01	34	5,5	12,5	1	3	01010
1,02	34	5,5	12,5	1	3	01020
1,03 - 1,06	34	5,5	12,5	1	3	xxxxx[1]
1,07 - 1,18	36	6,5	13,0	1	3	xxxxx[1]
1,19 - 1,32	38	7,5	14,0	2	3	xxxxx[1]
1,33 - 1,41	40	8,0	15,5	2	3	xxxxx[1]
1,42 - 1,49	40	8,0	15,5	2	3	xxxxx[1]
1,50	40	8,0	15,5	2	3	01500
1,51	43	9,0	16,0	2	3	01510
1,52	43	9,0	16,0	2	3	01520
1,53 - 1,70	43	9,0	16,0	2	3	xxxxx[1]
1,71 - 1,90	46	10,0	19,0	2	4	xxxxx[1]
1,91 - 1,96	49	11,0	21,0	2	4	xxxxx[1]
1,97	49	11,0	21,0	2	4	01970
1,98	49	11,0	21,0	2	4	01980
1,99	49	11,0	21,0	2	4	01990
2,00	49	11,0	21,0	2	4	02000
2,01	49	11,0	21,0	2	4	02010
2,02	49	11,0	21,0	2	4	02020
2,03 - 2,12	49	11,0	21,0	2	4	xxxxx[1]
2,13 - 2,36	53	12,0	22,0	3	4	xxxxx[1]
2,37 - 2,47	57	14,0	26,0	3	4	xxxxx[1]
2,48	57	14,0	26,0	3	4	02480
2,49	57	14,0	26,0	3	4	02490
2,50	57	14,0	26,0	3	4	02500
2,51	57	14,0	26,0	3	4	02510
2,52	57	14,0	26,0	3	4	02520
2,53 - 2,65	57	14,0	26,0	3	4	xxxxx[1]
2,66 - 2,96	61	15,0	30,0	3	6	xxxxx[1]
2,97	61	15,0	30,0	3	6	02970
2,98	61	15,0	30,0	3	6	02980
2,99	61	15,0	30,0	3	6	02990
3,00	61	15,0	30,0	3	6	03000
3,01	61	15,0	30,0	3	6	03010
3,02	61	15,0	30,0	3	6	03020
3,03	61	15,0	30,0	3	6	03030[1]
3,04 - 3,35	65	16,0	34,0	4	6	xxxxx[1]
3,36 - 3,75	70	18,0	39,0	4	6	xxxxx[1]
3,76 - 3,96	75	19,0	44,0	4	6	xxxxx[1]
3,97	75	19,0	44,0	4	6	03970
3,98	75	19,0	44,0	4	6	03980
3,99	75	19,0	44,0	4	6	03990
4,00	75	19,0	44,0	4	6	04000
4,01	75	19,0	44,0	4	6	04010
4,02	75	19,0	44,0	4	6	04020
4,03 - 4,25	75	19,0	44,0	4	6	xxxxx[1]
4,26 - 4,75	80	21,0	48,0	5	6	xxxxx[1]
4,76 - 4,96	86	23,0	54,0	5	6	xxxxx[1]
4,97	86	23,0	54,0	5	6	04970
4,98	86	23,0	54,0	5	6	04980
4,99	86	23,0	54,0	5	6	04990
5,00	86	23,0	54,0	5	6	05000
5,01	86	23,0	54,0	5	6	05010
5,02	86	23,0	54,0	5	6	05020

40 115 ...

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	
5,03 - 5,30	86	23,0	54,0	5	6	xxxxx[1]
5,31 - 5,60	93	26,0	53,0	6	6	xxxxx[1]
5,61 - 5,96	93	26,0	53,0	6	6	xxxxx[1]
5,97	93	26,0	53,0	6	6	05970
5,98	93	26,0	53,0	6	6	05980
5,99	93	26,0	53,0	6	6	05990
6,00	93	26,0	53,0	6	6	06000
6,01	93	26,0	53,0	6	6	06010
6,02	93	26,0	53,0	6	6	06020
6,03	93	26,0	53,0	6	6	06030[1]
6,04 - 6,70	101	28,0	61,0	6	6	xxxxx[1]
6,71 - 7,20	109	31,0	69,0	8	6	xxxxx[1]
7,21 - 7,50	109	31,0	69,0	8	6	xxxxx[1]
7,51 - 7,96	117	33,0	77,0	8	6	xxxxx[1]
7,97	117	33,0	77,0	8	6	07970
7,98	117	33,0	77,0	8	6	07980
7,99	117	33,0	77,0	8	6	07990
8,00	117	33,0	77,0	8	6	08000
8,01	117	33,0	77,0	8	6	08010
8,02	117	33,0	77,0	8	6	08020
8,03 - 8,20	117	33,0	77,0	8	6	xxxxx[1]
8,21 - 8,50	117	33,0	77,0	8	6	xxxxx[1]
8,51 - 8,99	125	36,0	81,0	10	6	xxxxx[1]
9,00	125	36,0	81,0	10	6	09000
9,01	125	36,0	81,0	10	6	09010
9,02	125	36,0	81,0	10	6	09020
9,03 - 9,20	125	36,0	81,0	10	6	xxxxx[1]
9,21 - 9,50	125	36,0	81,0	10	6	xxxxx[1]
9,51 - 9,96	133	38,0	89,0	10	6	xxxxx[1]
9,97	133	38,0	89,0	10	6	09970
9,98	133	38,0	89,0	10	6	09980
9,99	133	38,0	89,0	10	6	09990
10,00	133	38,0	89,0	10	6	10000
10,01	133	38,0	89,0	10	6	10010
10,02	133	38,0	89,0	10	6	10020
10,03 - 10,20	133	38,0	89,0	10	6	xxxxx[1]
10,21 - 10,60	133	38,0	89,0	10	6	xxxxx[1]
10,61 - 11,20	142	41,0	98,0	10	6	xxxxx[1]
11,21 - 11,80	142	41,0	98,0	10	6	xxxxx[1]
11,81 - 11,96	151	44,0	106,0	10	6	xxxxx[1]
11,97	151	44,0	106,0	10	6	11970
11,98	151	44,0	106,0	10	6	11980
11,99	151	44,0	106,0	10	6	11990
12,00	151	44,0	106,0	10	6	12000

P	●
M	
K	●
N	●
S	
H	
O	●

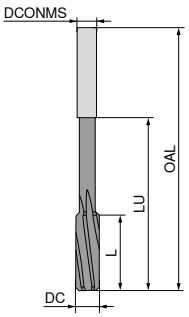
→ v_c Page 86+87

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 8 working days / Minimum order 5 pieces

This tool concept permits numerous tolerances.
Please refer to the table on → **page 103** for tolerances covered.
For xxxxx please indicate required Ø in the order
(e.g. Ø 8.03 mm → Article no. 40 115 08030)!

Machine reamers, DIN 212-B

N





Left Hand Helix
HSS-E

40 150 ...

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h9 mm	ZEFP	
1,0	34	5,5	15,0	1,0	3	**010**
1,1	36	6,5	15,5	1,1	3	**011**
1,2	38	7,5	16,5	1,2	3	**012**
1,3	38	7,5	16,5	1,2	3	**013**
1,4	40	8,0	18,0	1,4	3	**014**
1,5	40	8,0	18,0	1,5	3	**015**
1,6	43	9,0	20,0	1,6	3	**016**
1,7	43	9,0	20,0	1,6	3	**017**
1,8	46	10,0	22,0	1,8	4	**018**
1,9	46	10,0	22,0	1,8	4	**019**
2,0	49	11,0	24,0	2,0	4	**020**
2,1	49	11,0	24,0	2,0	4	**021**
2,2	53	12,0	25,0	2,2	4	**022**
2,3	53	12,0	25,0	2,2	4	**023**
2,4	57	14,0	29,0	2,5	4	**024**
2,5	57	14,0	29,0	2,5	4	**025**
2,6	57	14,0	29,0	2,5	4	**026**
2,7	61	15,0	33,0	2,8	6	**027**
2,8	61	15,0	33,0	2,8	6	**028**
2,9	61	15,0	36,0	3,0	6	**029**
3,0	61	15,0	36,0	3,0	6	**030**
3,1	65	16,0	36,0	3,2	6	**031**
3,2	65	16,0	36,0	3,2	6	**032**
3,3	65	16,0	36,0	3,2	6	**033**
3,4	70	18,0	41,0	3,5	6	**034**
3,5	70	18,0	41,0	3,5	6	**035**
3,6	70	18,0	41,0	3,5	6	**036**
3,7	70	18,0	41,0	3,5	6	**037**
3,8	75	19,0	44,0	4,0	6	**038**
3,9	75	19,0	44,0	4,0	6	**039**
4,0	75	19,0	44,0	4,0	6	**040**
4,1	75	19,0	44,0	4,0	6	**041**
4,2	75	19,0	44,0	4,0	6	**042**
4,3	80	21,0	48,0	4,5	6	**043**
4,4	80	21,0	48,0	4,5	6	**044**
4,5	80	21,0	48,0	4,5	6	**045**
4,6	80	21,0	48,0	4,5	6	**046**
4,7	80	21,0	48,0	4,5	6	**047**
4,8	86	23,0	53,0	5,0	6	**048**
4,9	86	23,0	53,0	5,0	6	**049**
5,0	86	23,0	53,0	5,0	6	**050**
5,1	86	23,0	53,0	5,0	6	**051**
5,2	86	23,0	53,0	5,0	6	**052**
5,3	86	23,0	53,0	5,0	6	**053**
5,4	93	26,0	58,0	5,6	6	**054**
5,5	93	26,0	58,0	5,6	6	**055**
5,6	93	26,0	58,0	5,6	6	**056**
5,7	93	26,0	58,0	5,6	6	**057**
5,8	93	26,0	58,0	5,6	6	**058**
5,9	93	26,0	58,0	5,6	6	**059**
6,0	93	26,0	58,0	5,6	6	**060**
6,1	101	28,0	64,0	6,3	6	**061**
6,2	101	28,0	64,0	6,3	6	**062**
6,3	101	28,0	64,0	6,3	6	**063**
6,4	101	28,0	64,0	6,3	6	**064**

40 150 ...

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h9 mm	ZEFP	
6,5	101	28,0	64,0	6,3	6	**065**
6,6	101	28,0	64,0	6,3	6	**066**
6,7	101	28,0	64,0	6,3	6	**067**
6,8	109	31,0	70,0	7,1	6	**068**
6,9	109	31,0	70,0	7,1	6	**069**
7,0	109	31,0	70,0	7,1	6	**070**
7,1	109	31,0	70,0	7,1	6	**071**
7,2	109	31,0	70,0	7,1	6	**072**
7,3	109	31,0	70,0	7,1	6	**073**
7,4	109	31,0	70,0	7,1	6	**074**
7,5	109	31,0	70,0	7,1	6	**075**
7,6	117	33,0	76,0	8,0	6	**076**
7,7	117	33,0	76,0	8,0	6	**077**
7,8	117	33,0	76,0	8,0	6	**078**
7,9	117	33,0	76,0	8,0	6	**079**
8,0	117	33,0	76,0	8,0	6	**080**
8,1	117	33,0	76,0	8,0	6	**081**
8,2	117	33,0	76,0	8,0	6	**082**
8,3	117	33,0	76,0	8,0	6	**083**
8,4	117	33,0	76,0	8,0	6	**084**
8,5	117	33,0	76,0	8,0	6	**085**
8,6	125	36,0	82,0	9,0	6	**086**
8,7	125	36,0	82,0	9,0	6	**087**
8,8	125	36,0	82,0	9,0	6	**088**
8,9	125	36,0	82,0	9,0	6	**089**
9,0	125	36,0	82,0	9,0	6	**090**
9,1	125	36,0	82,0	9,0	6	**091**
9,2	125	36,0	82,0	9,0	6	**092**
9,3	125	36,0	82,0	9,0	6	**093**
9,4	125	36,0	82,0	9,0	6	**094**
9,5	125	36,0	82,0	9,0	6	**095**
9,6	133	38,0	88,0	10,0	6	**096**
9,7	133	38,0	88,0	10,0	6	**097**
9,8	133	38,0	88,0	10,0	6	**098**
9,9	133	38,0	88,0	10,0	6	**099**
10,0	133	38,0	88,0	10,0	6	**100**
11,0	142	41,0	97,0	10,0	6	**110**
12,0	151	44,0	106,0	10,0	6	**120**
13,0	151	44,0	106,0	10,0	6	**130**
14,0	160	47,0	111,0	12,5	8	**140**
15,0	162	50,0	113,0	12,5	8	**150**
16,0	170	52,0	121,0	12,5	8	**160**
17,0	175	54,0	124,0	14,0	8	**170**
18,0	182	56,0	131,0	14,0	8	**180**
19,0	189	58,0	132,0	16,0	8	**190**
20,0	195	60,0	136,0	16,0	8	**200**

P	●
M	○
K	●
N	●
S	○
H	
O	●

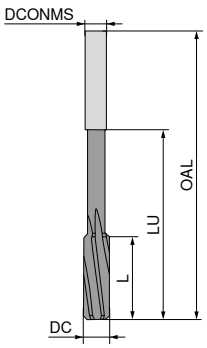
→ v_c Page 88+89

4

Machine reamers, DIN 212-B

- 0.01 mm steps
- tolerance: Ø 0.95 – 5.50 mm = +0.004 mm
- tolerance: Ø 5.51 – 12.00 mm = +0.005 mm

N 100





Left Hand Helix
HSS-E

40 140 ...

DC mm	OAL mm	L mm	LU mm	DCONMS h9 mm	ZEFP	
0,95 - 1,06	34	5,5	15,0	1,0	3	xxxxx 1)
1,07 - 1,18	36	6,5	15,5	1,1	3	xxxxx 1)
1,19 - 1,32	38	7,5	16,5	1,2	3	xxxxx 1)
1,33 - 1,39	40	8,0	18,0	1,4	3	xxxxx 1)
1,40 - 1,47	40	8,0	18,0	1,4	3	xxxxx 1)
1,48	40	8,0	18,0	1,4	3	01480
1,49	40	8,0	18,0	1,4	3	01490
1,50	40	8,0	18,0	1,4	3	01500
1,51 - 1,70	43	9,0	20,0	1,6	3	xxxxx 1)
1,71 - 1,90	46	10,0	22,0	1,8	4	xxxxx 1)
1,91 - 1,97	49	11,0	24,0	2,0	4	xxxxx 1)
1,98	49	11,0	24,0	2,0	4	01980
1,99	49	11,0	24,0	2,0	4	01990
2,00	49	11,0	24,0	2,0	4	02000
2,01	49	11,0	24,0	2,0	4	02010
2,02	49	11,0	24,0	2,0	4	02020
2,03	49	11,0	24,0	2,0	4	02030
2,04	49	11,0	24,0	2,0	4	02040
2,05	49	11,0	24,0	2,0	4	02050
2,06 - 2,09	49	11,0	24,0	2,0	4	xxxxx 1)
2,10 - 2,12	49	11,0	24,0	2,0	4	xxxxx 1)
2,13 - 2,36	53	12,0	25,0	2,2	4	xxxxx 1)
2,37 - 2,49	57	14,0	29,0	2,5	4	xxxxx 1)
2,50 - 2,59	57	14,0	29,0	2,5	4	xxxxx 1)
2,60 - 2,65	57	14,0	29,0	2,5	4	xxxxx 1)
2,66 - 2,80	61	15,0	33,0	2,8	6	xxxxx 1)
2,81 - 2,94	61	15,0	36,0	3,0	6	xxxxx 1)
2,95	61	15,0	36,0	3,0	6	02950
2,96	61	15,0	36,0	3,0	6	02960
2,97	61	15,0	36,0	3,0	6	02970
2,98	61	15,0	36,0	3,0	6	02980
2,99	61	15,0	36,0	3,0	6	02990
3,00	61	15,0	36,0	3,0	6	03000
3,01	65	16,0	36,0	3,2	6	03010
3,02	65	16,0	36,0	3,2	6	03020
3,03	65	16,0	36,0	3,2	6	03030
3,04	65	16,0	36,0	3,2	6	03040
3,05	65	16,0	36,0	3,2	6	03050
3,06	65	16,0	36,0	3,2	6	03060
3,07	65	16,0	36,0	3,2	6	03070
3,08 - 3,09	65	16,0	36,0	3,2	6	xxxxx 1)
3,10 - 3,35	65	16,0	36,0	3,2	6	xxxxx 1)
3,36 - 3,49	70	18,0	41,0	3,5	6	xxxxx 1)
3,50 - 3,59	70	18,0	41,0	3,5	6	xxxxx 1)
3,60 - 3,75	70	18,0	41,0	3,5	6	xxxxx 1)
3,76 - 3,81	75	19,0	44,0	4,0	6	xxxxx 1)
3,82 - 3,94	75	19,0	44,0	4,0	6	xxxxx 1)
3,95	75	19,0	44,0	4,0	6	03950
3,96	75	19,0	44,0	4,0	6	03960
3,97	75	19,0	44,0	4,0	6	03970
3,98	75	19,0	44,0	4,0	6	03980
3,99	75	19,0	44,0	4,0	6	03990

40 140 ...

DC mm	OAL mm	L mm	LU mm	DCONMS h9 mm	ZEFP	
4,00	75	19,0	44,0	4,0	6	04000
4,01	75	19,0	44,0	4,0	6	04010
4,02	75	19,0	44,0	4,0	6	04020
4,03	75	19,0	44,0	4,0	6	04030
4,04	75	19,0	44,0	4,0	6	04040
4,05	75	19,0	44,0	4,0	6	04050
4,06	75	19,0	44,0	4,0	6	04060
4,07	75	19,0	44,0	4,0	6	04070
4,08	75	19,0	44,0	4,0	6	04080
4,09 - 4,20	75	19,0	44,0	4,0	6	xxxxx 1)
4,21 - 4,25	75	19,0	44,0	4,0	6	xxxxx 1)
4,26 - 4,75	80	21,0	48,0	4,5	5	xxxxx 1)
4,76 - 4,95	86	23,0	53,0	5,0	6	xxxxx 1)
4,96	86	23,0	53,0	5,0	6	04960
4,97	86	23,0	53,0	5,0	6	04970
4,98	86	23,0	53,0	5,0	6	04980
4,99	86	23,0	53,0	5,0	6	04990
5,00	86	23,0	53,0	5,0	6	05000
5,01	86	23,0	53,0	5,0	6	05010
5,02	86	23,0	53,0	5,0	6	05020
5,03	86	23,0	53,0	5,0	6	05030
5,04	86	23,0	53,0	5,0	6	05040
5,05	86	23,0	53,0	5,0	6	05050
5,06	86	23,0	53,0	5,0	6	05060
5,07	86	23,0	53,0	5,0	6	05070
5,08 - 5,20	86	23,0	53,0	5,0	6	xxxxx 1)
5,21 - 5,30	86	23,0	53,0	5,0	6	xxxxx 1)
5,31 - 5,94	93	26,0	58,0	5,6	6	xxxxx 1)
5,95	93	26,0	58,0	5,6	6	05950
5,96	93	26,0	58,0	5,6	6	05960
5,97	93	26,0	58,0	5,6	6	05970
5,98	93	26,0	58,0	5,6	6	05980
5,99	93	26,0	58,0	5,6	6	05990

P	●
M	○
K	●
N	●
S	○
H	
O	●

→ v_c Page 88+89

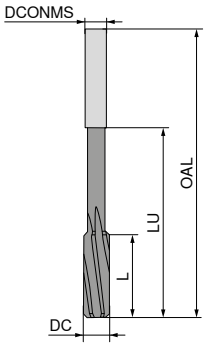
1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 14 working days

This tool concept permits numerous tolerances.
For achievable tolerances covered, please see the table on → **page 103**.
For xxxxx please indicate required Ø in the order
(e.g. Ø 10.06 mm → Article no. 40 140 10060)!

Machine reamers, DIN 212-B

- 0.01 mm steps
- tolerance: Ø 0.95 – 5.50 mm = +0.004 mm
- tolerance: Ø 5.51 – 12.00 mm = +0.005 mm

N 100





Left Hand Helix
HSS-E

40 140 ...

DC mm	OAL mm	L mm	LU mm	DCONMS $_{h9}$ mm	ZEFP	
6,00	93	26	58	5,6	6	06000
6,01	101	28	64	6,3	6	06010
6,02	101	28	64	6,3	6	06020
6,03	101	28	64	6,3	6	06030
6,04	101	28	64	6,3	6	06040
6,05	101	28	64	6,3	6	06050
6,06 - 6,11	101	28	64	6,3	6	xxxxx [1]
6,12 - 6,34	101	28	64	6,3	6	xxxxx [1]
6,35	101	28	64	6,3	6	06350
6,36	101	28	64	6,3	6	06360 [1]
6,71 - 6,94	109	31	70	7,1	6	xxxxx [1]
6,95	109	31	70	7,1	6	06950
6,96	109	31	70	7,1	6	06960
6,97	109	31	70	7,1	6	06970
6,98	109	31	70	7,1	6	06980
6,99	109	31	70	7,1	6	06990
7,00	109	31	70	7,1	6	07000
7,01	109	31	70	7,1	6	07010
7,02	109	31	70	7,1	6	07020
7,03	109	31	70	7,1	6	07030
7,04 - 7,50	109	31	70	7,1	6	xxxxx [1]
7,51 - 7,63	109	31	76	7,1	6	xxxxx [1]
7,64 - 7,94	117	33	76	8,0	6	xxxxx [1]
7,95	117	33	76	8,0	6	07950
7,96	117	33	76	8,0	6	07960
7,97	117	33	76	8,0	6	07970
7,98	117	33	76	8,0	6	07980
7,99	117	33	76	8,0	6	07990
8,00	117	33	76	8,0	6	08000
8,01	117	33	76	8,0	6	08010
8,02	117	33	76	8,0	6	08020
8,03	117	33	76	8,0	6	08030
8,04	117	33	76	8,0	6	08040
8,05	117	33	76	8,0	6	08050
8,06 - 8,20	117	33	76	8,0	6	xxxxx [1]
8,21 - 8,50	117	33	76	8,0	6	xxxxx [1]
8,51 - 8,63	117	33	82	8,0	6	xxxxx [1]
8,64 - 8,95	125	36	82	9,0	6	xxxxx [1]
8,96	125	36	82	9,0	6	08960
8,97	125	36	82	9,0	6	08970
8,98	125	36	82	9,0	6	08980
8,99	125	36	82	9,0	6	08990
9,00	125	36	82	9,0	6	09000
9,01	125	36	82	9,0	6	09010
9,02	125	36	82	9,0	6	09020
9,03 - 9,50	125	36	82	9,0	6	xxxxx [1]
9,51 - 9,63	125	36	88	9,0	6	xxxxx [1]
9,64 - 9,95	133	38	88	10,0	6	xxxxx [1]
9,96	133	38	88	10,0	6	09960
9,97	133	38	88	10,0	6	09970
9,98	133	38	88	10,0	6	09980
9,99	133	38	88	10,0	6	09990

40 140 ...

DC mm	OAL mm	L mm	LU mm	DCONMS $_{h9}$ mm	ZEFP	
10,00	133	38	88	10,0	6	10000
10,01	133	38	88	10,0	6	10010
10,02	133	38	88	10,0	6	10020
10,03	133	38	88	10,0	6	10030
10,04	133	38	88	10,0	6	10040
10,05	133	38	88	10,0	6	10050
10,06 - 10,09	133	38	88	10,0	6	xxxxx [1]
10,10	133	38	88	10,0	6	10100
10,11 - 10,19	133	38	88	10,0	6	xxxxx [1]
10,20	133	38	88	10,0	6	10200
10,21 - 10,69	133	38	88	10,0	6	xxxxx [1]
10,70 - 11,20	142	41	97	10,0	6	xxxxx [1]
11,21 - 11,80	142	41	97	10,0	6	xxxxx [1]
11,81 - 11,95	151	44	106	10,0	6	xxxxx [1]
11,96	151	44	106	10,0	6	11960
11,97	151	44	106	10,0	6	11970
11,98	151	44	106	10,0	6	11980
11,99	151	44	106	10,0	6	11990
12,00	151	44	106	10,0	6	12000

P	●
M	○
K	●
N	●
S	○
H	
O	●

→ v_c Page 88+89

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 14 working days

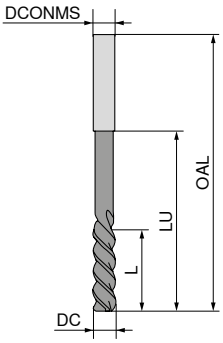
This tool concept permits numerous tolerances.
For achievable tolerances covered, please see the table on → **page 103**.
For xxxxx please indicate required Ø in the order
(e.g. Ø 10.06 mm → Article no. 40 140 10060)!

4

Quick spiral machine reamers, DIN 212-C

- with 45° left-hand helix and conical chamfer
- for reaming through holes in long chipping materials
- not suitable for blind holes
- the reaming allowance should be for at least 50 % greater and the feed up to 100 % higher than the normal values for reamers. This gives a clean, chatter-free surface, high roundness of the bore and a longer service life

S





Left Hand Helix
HSS-E
Through hole

40 155 ...

DC $_{H7}$ mm	OAL mm	L mm	LU mm	DCONMS $_{h9}$ mm	ZEFP	
1,0	34	5,5	15	1,0	2	**010** 1)
1,5	40	8,0	18	1,5	2	**015** 1)
1,8	46	10,0	22	1,8	2	**018** 1)
2,0	49	11,0	24	2,0	3	**020** 1)
2,2	53	12,0	25	2,2	3	**022** 1)
2,5	57	14,0	29	2,5	3	**025** 1)
2,8	61	15,0	33	2,8	3	**028** 1)
3,0	61	15,0	36	3,0	3	**030** 1)
3,2	65	16,0	36	3,2	3	**032** 1)
3,5	70	18,0	41	3,5	3	**035** 1)
4,0	75	19,0	44	4,0	3	**040**
4,5	80	21,0	48	4,5	3	**045**
5,0	86	23,0	53	5,0	3	**050**
6,0	93	26,0	58	5,6	3	**060**
6,5	101	28,0	64	6,3	3	**065**
7,0	109	31,0	70	7,1	3	**070**
8,0	117	33,0	76	8,0	3	**080**
9,0	125	36,0	82	9,0	3	**090**
10,0	133	38,0	88	10,0	3	**100**
11,0	142	41,0	97	10,0	3	**110**
12,0	151	44,0	106	10,0	3	**120**
13,0	151	44,0	106	10,0	3	**130**
14,0	160	47,0	111	12,5	3	**140**
15,0	162	50,0	113	12,5	3	**150**
16,0	170	52,0	121	12,5	3	**160**
17,0	175	54,0	124	14,0	3	**170**
18,0	182	56,0	131	14,0	3	**180**
19,0	189	58,0	132	16,0	3	**190**
20,0	195	60,0	136	16,0	3	**200**

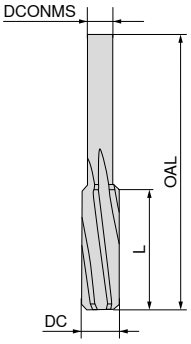
P	●
M	
K	
N	●
S	
H	
O	○

→ v_c Page 88+89

1) not standardised

Stub reamers, DIN 8089-B

AR





Left Hand Helix
HSS-E
Through hole

40 145 ...

DC $_{H7}$ mm	OAL mm	L mm	DCONMS $_{h8}$ mm	ZEFP	
4,0	56	20	3,55	6	**040**
4,5	63	22	4,00	6	**045**
5,0	63	22	4,00	6	**050**
5,5	63	22	5,00	6	**055**
6,0	63	22	5,00	6	**060**
6,5	63	22	5,00	6	**065**
7,0	71	25	6,30	6	**070**
8,0	71	25	6,30	6	**080**
9,0	71	25	8,00	6	**090**
10,0	71	25	8,00	6	**100**
11,0	80	28	10,00	6	**110**
12,0	80	28	10,00	6	**120**
13,0	80	28	10,00	6	**130**
14,0	90	32	12,50	8	**140**
15,0	90	32	12,50	8	**150**
16,0	90	32	12,50	8	**160**
17,0	90	32	12,50	8	**170**
18,0	100	36	16,00	8	**180**
19,0	100	36	16,00	8	**190**
20,0	100	36	16,00	8	**200**

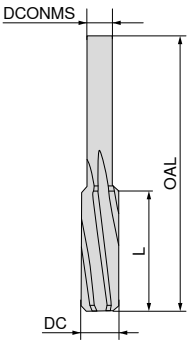
P	●
M	○
K	●
N	●
S	○
H	
O	●

→ v_c Page 88+89

Stub reamers, DIN 8089-B

- ▲ 0.01 mm steps
- ▲ tolerance: Ø 3.76 – 5.50 mm = +0.004 mm
- ▲ tolerance: Ø 5.51 – 12.00 mm = +0.005 mm

AR 100





HSS-E
Left Hand Helix

40 139 ...

DC mm	OAL mm	L mm	DCONMS h8 mm	ZEFP	
3,76 - 3,81	56	20	3,55	6	xxxxx 1)
3,82 - 3,94	56	20	3,55	6	xxxxx 1)
3,95	56	20	3,55	6	03950
3,96	56	20	3,55	6	03960
3,97	56	20	3,55	6	03970
3,98	56	20	3,55	6	03980
3,99	56	20	3,55	6	03990
4,00	56	20	3,55	6	04000
4,01	56	20	3,55	6	04010
4,02	56	20	3,55	6	04020
4,03 - 4,20	56	20	3,55	6	xxxxx 1)
4,21 - 4,25	56	20	3,55	6	xxxxx 1)
4,26 - 4,75	63	22	4,00	6	xxxxx 1)
4,76 - 4,94	63	22	4,00	6	xxxxx 1)
4,95	63	22	4,00	6	04950
4,96	63	22	4,00	6	04960
4,97	63	22	4,00	6	04970
4,98	63	22	4,00	6	04980
4,99	63	22	4,00	6	04990
5,00	63	22	4,00	6	05000
5,01	63	22	4,00	6	05010
5,02	63	22	4,00	6	05020
5,03	63	22	4,00	6	05030
5,04	63	22	4,00	6	05040
5,05	63	22	4,00	6	05050
5,06 - 5,20	63	22	4,00	6	xxxxx 1)
5,21 - 5,30	63	22	4,00	6	xxxxx 1)
5,31 - 5,70	63	22	5,00	6	xxxxx 1)
5,71 - 5,94	63	22	5,00	6	xxxxx 1)
5,95	63	22	5,00	6	05950
5,96	63	22	5,00	6	05960
5,97	63	22	5,00	6	05970
5,98	63	22	5,00	6	05980
5,99	63	22	5,00	6	05990
6,00	63	22	5,00	6	06000
6,01	63	22	5,00	6	06010
6,02	63	22	5,00	6	06020
6,03 - 6,11	63	22	5,00	6	xxxxx 1)
6,12 - 6,70	63	22	5,00	6	xxxxx 1)
6,71 - 6,94	71	25	6,30	6	xxxxx 1)
6,95	71	25	6,30	6	06950
6,96	71	25	6,30	6	06960
6,97	71	25	6,30	6	06970
6,98	71	25	6,30	6	06980
6,99	71	25	6,30	6	06990
7,00	71	25	6,30	6	07000
7,01	71	25	6,30	6	07010
7,02	71	25	6,30	6	07020
7,03 - 7,25	71	25	6,30	6	xxxxx 1)
7,26 - 7,94	71	25	6,30	6	xxxxx 1)
7,95	71	25	6,30	6	07950
7,96	71	25	6,30	6	07960

40 139 ...

DC mm	OAL mm	L mm	DCONMS h8 mm	ZEFP	
7,97	71	25	6,30	6	07970
7,98	71	25	6,30	6	07980
7,99	71	25	6,30	6	07990
8,00	71	25	6,30	6	08000
8,01	71	25	6,30	6	08010
8,02	71	25	6,30	6	08020
8,03	71	25	6,30	6	08030
8,04	71	25	6,30	6	08040
8,05 - 8,20	71	25	6,30	6	xxxxx 1)
8,21 - 8,50	71	25	6,30	6	xxxxx 1)
8,51 - 8,94	71	25	8,00	6	xxxxx 1)
8,95	71	25	8,00	6	08950
8,96	71	25	8,00	6	08960
8,97	71	25	8,00	6	08970
8,98	71	25	8,00	6	08980
8,99	71	25	8,00	6	08990
9,00	71	25	8,00	6	09000
9,01	71	25	8,00	6	09010 1)
9,02	71	25	8,00	6	09020
9,03 - 9,25	71	25	8,00	6	xxxxx
9,26 - 9,94	71	25	8,00	6	xxxxx 1)
9,95	71	25	8,00	6	09950
9,96	71	25	8,00	6	09960
9,97	71	25	8,00	6	09970
9,98	71	25	8,00	6	09980
9,99	71	25	8,00	6	09990
10,00	71	25	8,00	6	10000
10,01	71	25	8,00	6	10010
10,02	71	25	8,00	6	10020
10,03 - 10,20	71	25	8,00	6	xxxxx 1)
10,21 - 10,60	71	25	8,00	6	xxxxx 1)
10,61 - 11,20	80	28	10,00	6	xxxxx 1)
11,21 - 11,25	80	28	10,00	6	xxxxx 1)
11,26 - 11,94	80	28	10,00	6	xxxxx 1)
11,95	80	28	10,00	6	11950
11,96	80	28	10,00	6	11960
11,97	80	28	10,00	6	11970
11,98	80	28	10,00	6	11980
11,99	80	28	10,00	6	11990
12,00	80	28	10,00	6	12000

P	●
M	○
K	●
N	●
S	○
H	
O	●

→ v_c Page 88+89

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 14 working days

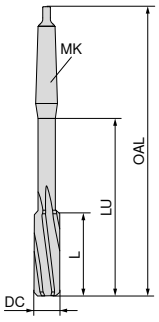
This tool concept permits numerous tolerances.
For achievable tolerances covered, please see the table on → **page 103**.
For xxxxx please indicate required Ø in the order
(e.g. Ø 10.06 mm → Article no. 40 139 10060)!

4

Machine reamers HSS-E DIN 208

▲ the circular land on the cutting edge burnishes the hole and guides the reamer

N





Left Hand Helix
HSS-E
Through hole

40 160 ...

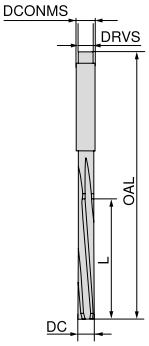
DC H7 mm	OAL mm	L mm	LU mm	MK	ZEFP	
16	210	52	130	2	8	**160**
17	214	54	134	2	8	**170**
18	219	56	139	2	8	**180**
19	223	58	143	2	8	**190**
20	228	60	148	2	8	**200**
21	232	62	152	2	8	**210**
22	237	64	157	2	8	**220**
23	241	66	161	2	8	**230**
24	268	68	169	3	8	**240**
25	268	68	169	3	8	**250**
26	273	70	174	3	8	**260**
27	277	71	178	3	10	**270**
28	277	71	178	3	10	**280**
29	281	73	182	3	10	**290**
30	281	73	182	3	10	**300**
32	317	77	193	4	10	**320**
34	321	78	197	4	10	**340**
35	321	78	197	4	10	**350**
36	325	79	201	4	10	**360**
38	329	81	205	4	10	**380**
40	329	81	205	4	10	**400**
42	333	82	209	4	12	**420**
44	336	83	212	4	12	**440**
45	336	83	212	4	12	**450**
46	340	84	216	4	12	**460**
47	340	84	216	4	12	**470**
48	344	86	220	4	12	**480**
50	344	86	220	4	12	**500**

P	●
M	○
K	●
N	●
S	○
H	
O	●

→ v_c Page 88+89

Hand reamers, DIN 206-B

H





Left Hand Helix
HSS

40 100 ...

DC H7 mm	OAL mm	L mm	DRVS mm	DCONMS mm	ZEFP	
1,0	34	13		1,0	3	**010**
1,2	38	17		1,2	3	**012**
1,3	38	17		1,3	3	**013**
1,4	41	20	1,12	1,4	3	**014**
1,5	41	20	1,12	1,5	3	**015**
1,6	44	21	1,25	1,6	3	**016**
1,8	47	23	1,40	1,8	4	**018**
2,0	50	25	1,60	2,0	4	**020**
2,2	54	27	1,80	2,2	4	**022**
2,5	58	29	2,00	2,5	4	**025**
2,8	62	31	2,24	2,8	6	**028**
3,0	62	31	2,24	3,0	6	**030**
3,2	66	33	25,00	3,2	6	**032**
3,5	71	35	2,80	3,5	6	**035**
4,0	76	38	3,15	4,0	6	**040**
4,5	81	41	3,55	4,5	6	**045**
5,0	87	44	4,00	5,0	6	**050**
5,5	93	47	4,50	5,5	6	**055**
6,0	93	47	4,50	6,0	6	**060**
7,0	107	54	5,60	7,0	6	**070**
8,0	115	58	6,30	8,0	6	**080**
9,0	124	62	7,10	9,0	6	**090**
10,0	133	66	8,00	10,0	6	**100**
11,0	142	71	9,00	11,0	6	**110**
12,0	152	76	10,00	12,0	6	**120**
13,0	152	76	10,00	13,0	6	**130**
14,0	163	81	11,20	14,0	8	**140**
15,0	163	81	11,20	15,0	8	**150**
16,0	175	87	12,50	16,0	8	**160**
17,0	175	87	14,00	17,0	8	**170**
18,0	188	93	14,00	18,0	8	**180**
19,0	188	93	14,00	19,0	8	**190**
20,0	201	100	16,00	20,0	8	**200**
22,0	215	107	18,00	22,0	8	**220**
24,0	231	115	20,00	24,0	8	**240**
25,0	231	115	20,00	25,0	8	**250**
26,0	231	115	20,00	26,0	8	**260**
28,0	247	124	22,40	28,0	10	**280**
30,0	247	124	22,40	30,0	10	**300**
32,0	265	133	25,00	32,0	10	**320**
34,0	284	142	28,00	34,0	10	**340**
35,0	284	142	28,00	35,0	10	**350**
36,0	284	142	28,00	36,0	10	**360**
38,0	305	152	31,50	38,0	10	**380**
40,0	305	152	31,50	40,0	10	**400**

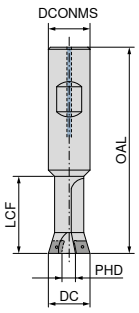
P	●
M	○
K	●
N	●
S	○
H	
O	●

Insert Countersink

- 2 cutting edges, right-hand cutting for countersinking according to DIN 974-1
- for countersinking of hexagon socket screws ISO 1207, ISO 4762 (DIN 912), DIN 6912, DIN 7984
- for sinking cap screws the recommended inserts are specified (page 54)

Supply details:
Indexable insert countersink including clamping screws

WPS





4

B

for screws	DC mm	PHD mm	DCONMS h6 mm	OAL mm	LCF mm	Insert	30 195 ...
M8	15	4,0	16	90	25	CC.T 060204	**015**
M10	18	7,0	16	90	31	CC.T 060204	**018**
M12	20	9,0	20	100	40	CC.T 060204	**020**
M16	26	8,5	25	110	52	CC.T 09T304	**026**
M20	33	15,5	32	130	66	CC.T 09T304	**033**

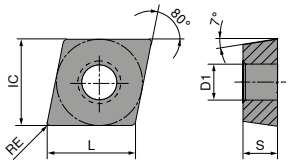

Key D


Clamping screw

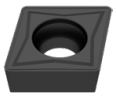
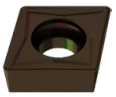
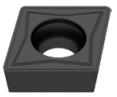
Spare parts Insert		80 950 ...		70 950 ...
CC.T 060204	T08	**110**	M2,5x6	**112**
CC.T 09T304	T15	**113**	M3,5x7,2	**110**

CCMT / CCGT

Designation	L mm	S mm	D1 mm	IC mm
CC.T 0602..	6,4	2,38	2,8	6,35
CC.T 09T3..	9,7	3,97	4,4	9,52



CCMT

	-SM CTCP125	-SM CTCP135	-SM CTCK110
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
			
	M	M	M
	CCMT	CCMT	CCMT
	76 252 ...	76 252 ...	70 252 ...

ISO	RE mm			
060204EN	0,4	504	704	004
060208EN	0,8		706	006
09T304EN	0,4	516	716	016
09T308EN	0,8	518	718	018
09T312EN	1,2			020
P		●	●	○
M			○	
K		○		●
N				
S				
H				
O				

CCGT

	-27 H10T	-27 CWN15
		
	M	M
	CCGT	CCGT
	70 254 ...	70 254 ...

ISO	RE mm		
060202FN	0,2	600	300
060204FN	0,4	602	302
09T302FN	0,2	604	304
09T304FN	0,4	606	306
09T308FN	0,8	608	308
P			
M			○
K		○	
N		●	●
S			
H			
O		○	

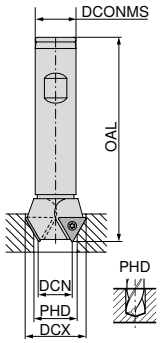
Additional inserts can be found in → **Chapter 9, Turning Tools**

Insert countersink 90°

Supply details:
Indexable insert countersink including clamping screws

WPS

NEW







DCX mm	DCN mm	PHD mm	ZEFP	ZNF	DCONMS mm	OAL mm	Insert	30 196 ...
19	7	9,5	2	2	16	100	TOHX 090204	**19000**
23	11	12,0	2	2	16	100	TOHX 090204	**23000**
26	11	12,0	1	2	16	100	TOHX 090204	**26000**
30	12	13,0	2	2	20	100	TOHX 140305	**30000**
34	16	17,0	2	2	20	100	TOHX 140305	**34000**
37	19	20,0	2	2	20	100	TOHX 140305	**37000**


TORX® Screws


Key D

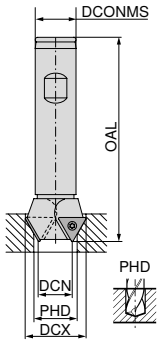
Spare parts DCX		62 950 ...		80 950 ...
19 - 26	M2,6x6,2 - 08IP	**09900**	T08 - IP	**125**
30 - 37	M3,5x7,3 - 10IP	**12600**	T10 - IP	**127**

Insert countersink 60°

Supply details:
Indexable insert countersink including clamping screws

WPS

NEW







DCX mm	DCN mm	PHD mm	ZEFP	ZNF	DCONMS mm	OAL mm	Insert	30 197 ...
16,5	8,1	8,5	1	1	16	100	TOHX 090204	**16500**
20,0	11,6	12,0	2	2	16	100	TOHX 090204	**20000**
22,0	13,6	14,0	2	2	16	100	TOHX 090204	**22000**
23,5	15,1	15,5	2	2	16	100	TOHX 090204	**23500**
25,5	17,1	17,5	2	2	16	100	TOHX 090204	**25500**

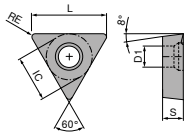

TORX® Screws


Key D

Spare parts DCX		62 950 ...		80 950 ...
16,5 - 22	M2,6x5,2 - 08IP	**12000**	T08 - IP	**125**
23,5 - 25,5	M2,6x6,2 - 08IP	**09900**	T08 - IP	**125**

TOHX

Designation	L mm	S mm	D1 mm	IC mm
090204EN	9,12	2,50	2,8	5,6
090204FN	9,12	2,50	2,8	5,6
140305EN	13,62	3,00	3,8	8,2
140305FN	13,62	3,00	3,8	8,2



TOHX

	NEW -G06 BK8425	NEW -U877 BK8425	NEW -G12 BK8425
	F TOHX 62 602 ...	F TOHX 62 604 ...	F TOHX 62 603 ...
ISO / RE mm			
090204EN 0,4		31400	31400
140305EN 0,5	33000		
P	●	●	●
M	●	●	●
K	●	●	●
N			
S	●	●	●
H	○	○	○
O			

→ v_c Page 91

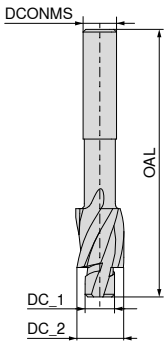
TOHX

	NEW -U877 K10	NEW -G12 K10
	F TOHX 62 604 ...	F TOHX 62 603 ...
ISO / RE mm		
090204EN 0,4	51400	
090204FN 0,4		51600
140305FN 0,5		52800
P		
M		
K		
N	●	●
S	●	●
H		
O	●	●

→ v_c Page 91

Counterbore, DIN 373

- ▲ with fixed pilot
- ▲ with 3 cutting edges, right-hand flutes for counterbores according to DIN 74
- ▲ for countersinking to suit hexagon socket screws according to DIN 912, DIN 6912, DIN 7984 and cap screws according to DIN 84





HSS
Core hole



fine
HSS
Through hole



medium
HSS
Through hole

Thread	DC_2 z9 mm	DCONMS h9 mm	OAL mm	DC_1 e8 mm	30 192 ...	30 190 ...	30 191 ...
M3	6	5,0	71	2,5	030		
M3	6	5,0	71	3,2		030 1)	
M3	6	5,0	71	3,4			030 1)
M4	8	5,0	71	3,3	040		
M4	8	5,0	71	4,3		040 1)	
M4	8	5,0	71	4,5			040 1)
M5	10	8,0	80	4,2	050		
M5	10	8,0	80	5,3		050 1)	
M5	10	8,0	80	5,5			050 1)
M6	11	8,0	80	5,0	060		
M6	11	8,0	80	6,4		060 1)	
M6	11	8,0	80	6,6			060 1)
M8	15	12,5	100	6,8	080		
M8	15	12,5	100	8,4		080 1)	
M8	15	12,5	100	9,0			080 1)
M10	18	12,5	100	8,5	100		
M10	18	12,5	100	10,5		100 1)	
M10	18	12,5	100	11,0			100 1)
M12	20	12,5	100	10,2	120		
M12	20	12,5	100	13,0		120	
M12	20	12,5	100	13,5			120
P					●	●	●
M					●	●	●
K					●	●	●
N					●	●	●
S					○	○	○
H							
O					●	●	●

1) Included in the set

→ v_c Page 96

Counterbore, DIN 373 – Set

Scope of supply:
Counterbores M3; M4; M5; M6; M8; M10 in case



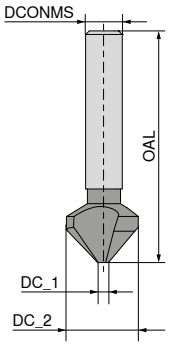
30 190 ...	30 191 ...
999	999

Countersink 90° with irregular pitch, DIN 335-C

- ▲ all sizes with 3 cutting edges and highly irregular pitch, resulting in smooth running, excellent roundness and chatter reduction giving the highest surface quality
- ▲ special TPX76S coating
- ▲ for very high tool life in almost all materials
- ▲ greatly reduced axial and radial forces
- ▲ for countersinking to DIN 7991

N

TPX76S





90°
Solid carbide

30 116 ...

DC_2 z9 mm	DC_1 mm	DCONMS h6 mm	OAL mm	DIN 7991	
6,3	1,5	5	45	M3	**063**
8,3	2,0	6	50	M4	**083**
10,4	2,5	6	50	M5	**104**
12,4	2,8	8	56	M6	**124**
16,5	3,2	10	60	M8	**165**
20,5	3,5	10	63	M10	**205**
25,0	3,8	10	67	M12	**250**
31,0	4,2	12	71	M16	**310**

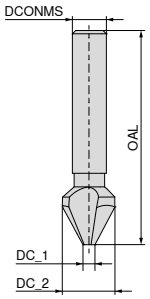
P	●
M	○
K	●
N	●
S	○
H	○
O	○

→ v_c Page 93

Countersink 60° factory standard-C

▲ with 3 cutting edges for countersinking and deburring in high-tensile steels, grey cast iron, aluminium alloys containing silicon and corrosion resistant steels.

N





◁ 60°
Solid carbide

30 160 ...

DC_2 z9 mm	DC_1 mm	DCONMS h9 mm	OAL mm	
12,5	3,2	8	56	**125**
16,0	4,0	10	63	**160**
20,0	5,0	10	67	**200**
25,0	6,3	10	71	**250**

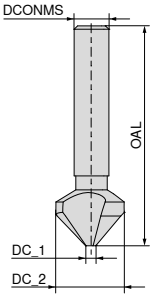
P	●
M	○
K	●
N	●
S	○
H	○
O	

→ v_c Page 92

Countersink 90°, factory standard-C

▲ with 3 cutting edges for countersinking and deburring in high-tensile steels, grey cast iron, alumínium alloys containing silicon and corrosion resistant steels.

N





◁ 90°
Solid carbide

30 115 ...

DC_2 z9 mm	DC_1 mm	DCONMS h9 mm	OAL mm	DIN ISO 7721	DIN 7991	
10,4	2,5	8	46	M5		**100**
12,4	2,8	8	56		M6	**124**
15,0	3,2	10	60	M8		**150**
16,5	3,2	10	60		M8	**165**
20,5	3,5	10	63		M10	**205**
25,0	3,8	10	67		M12	**250**
31,0	4,2	12	71		M16	**310**

P	●
M	○
K	●
N	●
S	○
H	○
O	

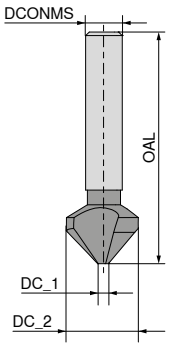
→ v_c Page 92

Countersink 90° with irregular pitch, DIN 335-C

- all sizes with 3 cutting edges and highly irregular pitch, resulting in smooth running, excellent roundness and chatter reduction giving the highest surface quality
- special Ti50 coating
- for very high tool life in almost all materials
- greatly reduced axial and radial forces
- for countersinking to DIN ISO 7721 and DIN 7991

N

Ti50





90°
HSS

DC_2 z9 mm	DC_1 mm	DCONMS mm	OAL mm	DIN ISO 7721	DIN 7991	30 140 ...	
4,3	1,3	4	40	M2		**043**	
6,0	1,5	5	45	M3		**060**	
6,3	1,5	5	45		M3	**063**	
8,0	2,0	6	50	M4		**080**	
8,3	2,0	6	50		M4	**083**	
10,0	2,5	6	50	M5		**100**	
10,4	2,5	6	50		M5	**104**	1)
11,5	2,8	8	56	M6		**115**	
12,4	2,8	8	56		M6	**124**	
15,0	3,2	10	60	M8		**150**	
16,5	3,2	10	60		M8	**165**	1)
19,0	3,5	10	63	M10		**190**	
20,5	3,5	10	63		M10	**205**	
23,0	3,8	10	67	M12		**230**	
25,0	3,8	10	67		M12	**250**	1)
31,0	4,2	12	71		M16	**310**	

P	●
M	○
K	●
N	●
S	○
H	○
O	○

1) Included in the set

→ v_c Page 93

Countersink 90° with irregular pitch, DIN 335-C – Set

Scope of supply:
Countersinks Ø 10.4 / 16.5 / 25.0 mm in storage case

N

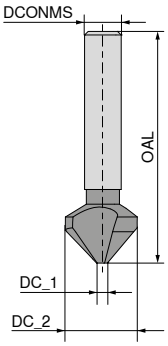


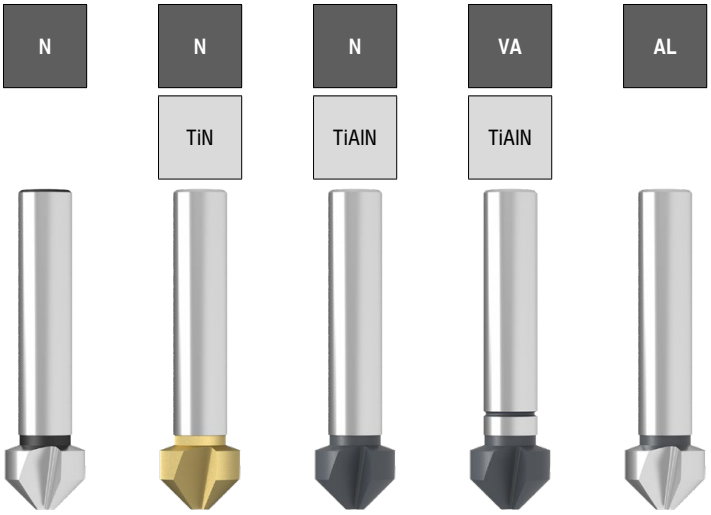
Ti50

30 140 ...	
	999

Countersink 90°, DIN 335-C

- 3 cutting edges to avoid burrs and chatter marks when countersinking and deburring in virtually all materials. Particularly suitable for DIN screws according to DIN ISO 7721 and 7991, as the countersink diameters are matched to the heads of these screws.
- the TiN version makes high cutting rates possible; very long tool life and very good friction resistance properties in order to avoid material sticking.
- TiAlN version shows considerably improved performance compared to TiN version. Particularly suitable for all abrasive materials (cast iron, AlSi) and/or at high temperature.





DC_2 z9 mm	DC_1 mm	DCONMS mm	OAL mm	DIN ISO 7721	DIN 7991	30 100 ...	30 110 ...	30 130 ...	30 132 ...	30 102 ...
4,3	1,3	4	40	M2		043				
5,0	1,5	4	40	M2,5		050	050	050		
6,0	1,5	5	45	M3		060				
6,3	1,5	5	45		M3	063 1)	063 1)	063	063	063
7,0	1,8	6	50	M3,5		070				
8,0	2,0	6	50	M4		080	080	080		
8,3	2,0	6	50		M4	083 1)	083 1)	083	083	083
9,4	2,2	6	50			094				
10,0	2,5	6	50	M5		100	100	100		
10,4	2,5	6	50		M5	104 1)	104 1)	104	104	104
11,5	2,8	8	56	M6		115				
12,4	2,8	8	56		M6	124 1)	124 1)	124	124	124
13,4	2,9	8	56			134				
15,0	3,2	10	60	M8		150	150	150	150	150
16,5	3,2	10	60		M8	165 1)	165 1)	165	165	165
19,0	3,5	10	63	M10		190				
20,5	3,5	10	63		M10	205 1)	205 1)	205	205	205
23,0	3,8	10	67	M12		230				
25,0	3,8	10	67		M12	250	250	250	250	250
31,0	4,2	12	71		M16	310	310	310	310	
31,0	4,2	12	67		M16					310
P						●	●	●	○	○
M						○	○	○	●	○
K						●	●	●	○	○
N						●	●	●	○	●
S						○	○	○	○	○
H							○	○	○	
O						●	●	●	●	●

1) Included in the set

→ v_c Page 94+95

Countersink 90°, DIN 335-C – set

Scope of supply:
Countersinks Ø 6,3; 8,3; 10,4; 12,4; 16,5; 20,5 in case

N

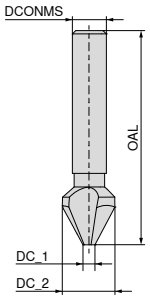


TiN

30 100 ...	30 110 ...
999	999

Countersink 60°, DIN 334-C

▲ 3 cutting edges for countersinking and deburring in virtually all materials





60°
HSS

DC_2 z9 mm	DC_1 mm	DCONMS h9 mm	OAL mm	30 150 ...
6,3	1,6	5	45	063 1)
8,0	2,0	6	50	080 1)
10,0	2,5	6	52	100 1)
12,5	3,2	8	56	125 1)
16,0	4,0	10	63	160 1)
20,0	5,0	10	67	200 1)
25,0	6,3	10	71	250

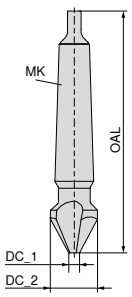
P	●
M	○
K	●
N	●
S	○
H	
O	●

1) Included in the set

→ v_c Page 92

Countersink 60°, DIN 334-D

▲ 3 cutting edges for countersinking and deburring in virtually all materials





MK
60°
HSS

DC_2 z9 mm	DC_1 mm	OAL mm	MK	30 155 ...
16,0	4,0	90	1	160
20,0	5,0	106	2	200
25,0	6,3	112	2	250
31,5	10,0	118	2	315
40,0	12,5	150	3	400
50,0	16,0	160	3	500
63,0	20,0	190	4	630
80,0	25,0	200	4	800

P	●
M	○
K	●
N	●
S	○
H	
O	●

→ v_c Page 96

Countersink 60°, DIN 334-C – set

Scope of supply:
Countersinks Ø 6,3; 8,0; 10,0; 12,5; 16,0; 20,0 in case

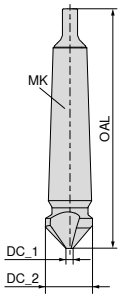


30 150 ...
999

Countersink 90°, DIN 335-C

▲ 3 cutting edges to avoid burrs and chatter marks when countersinking and deburring in virtually all materials. Particularly suitable for DIN screws according to DIN ISO 7721 and 7991, as the countersink diameters are matched to the heads of these screws.

N





30 105 ...

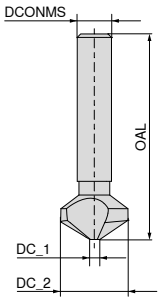
DC_2 z9 mm	DC_1 mm	OAL mm	MK	
16,5	3,2	85	1	**165**
19,0	3,2	100	2	**190**
20,5	3,5	100	2	**205**
23,0	3,8	106	2	**230**
25,0	3,8	106	2	**250**
26,0	3,8	106	2	**260**
28,0	4,0	112	2	**280**
30,0	4,2	112	2	**300**
31,0	4,2	112	2	**310**
34,0	4,5	118	2	**340**
37,0	4,8	118	2	**370**
40,0	10,0	140	3	**400**
50,0	14,0	150	3	**500**
63,0	16,0	180	4	**630**
80,0	22,0	190	4	**800**

P	●
M	○
K	●
N	●
S	○
H	
O	●

→ v_c Page 96

Countersink 120°, factory standard-C

▲ 3 cutting edges for countersinking and deburring in virtually all materials





30 170 ...

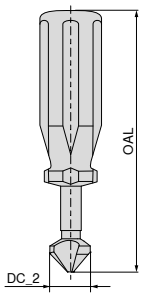
DC_2 z9 mm	DC_1 mm	DCONMS h9 mm	OAL mm	
6,3	1,5	5	45	**063**
8,3	2,0	6	50	**083**
10,4	2,5	6	50	**104**
12,4	2,8	8	56	**124**
16,5	3,2	10	60	**165**
20,5	3,5	10	60	**205**
25,0	3,8	10	63	**250**

P	●
M	○
K	●
N	●
S	○
H	
O	●

→ v_c Page 96

Hand deburring tool 90°

- 3 cutting edges and non-slip plastic handle
- for countersinking and deburring on all materials





90°
HSS

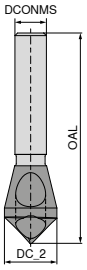
DC_2 mm	OAL mm	30 125 ...
12,4	135	124
15,0	135	150
16,5	135	165
20,5	135	205
25,0	135	250

P	●
M	○
K	●
N	●
S	○
H	○
O	●

Deburring countersink 90°, factory standard-A

- with angled hole to avoid burrs and chattermarks when countersinking and deburring in soft long-chipping materials, e.g. aluminium, plastics etc.

TiN







90°
HSS-E

90°
HSS-E

DC_2 mm	PHD mm	DCONMS $_{h9}$ mm	OAL mm	30 120 ...	30 121 ...
6,3	1 - 4	6,3	45	040 [1]	040 [1]
10,0	2 - 5	6,0	45	050	050
14,0	5 - 10	8,0	48	101	101
21,0	10 - 15	10,0	65	150	150
28,0	15 - 20	12,0	85	200	200
35,0	20 - 25	15,0	102	250	250

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

1) can be used in both directions

→ v_c Page 97

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²				
		O.3.1	Graphite						

*** Tensile strength**

Cutting data standard values for REAMAX TS

	Grade / coating	HM-DBG-P				HM-DBG-P			
	Article no. / type	40 585 ... / 75H.65 – ASG3000				40 521 ..., 40 571 ... / 75J.65, 75H.65 – ASG0106			
	Nominal Ø in mm	18–21,999	22–31,799	31,8–51,999	52–65	18–21,999	22–31,799	31,8–51,999	52–65
	Reaming allowance Ø	0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50	0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50
	Number of flutes	6	6	8	10	6	6	8	10
Index	v_c m/min 3xD	v_c m/min 5xD	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	v_c m/min 3xD	v_c m/min 5xD	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.2	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.3	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.4	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.5	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.1	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.2	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.3	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.4	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.3.1							**30** (25–50)	**30** (25–40)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
P.3.2							**30** (25–50)	**30** (25–40)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
P.3.3							**30** (25–50)	**30** (25–40)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
P.4.1							**45** (35–60)	**40** (35–50)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
P.4.2							**45** (35–60)	**40** (35–50)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
M.1.1							**45** (35–60)	**40** (30–50)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
M.2.1							**45** (35–60)	**40** (30–50)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
M.3.1							**30** (25–50)	**30** (25–40)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
K.1.1	**150** (130–220)	**120** (100–150)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
K.1.2	**150** (130–220)	**120** (100–150)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
K.2.1	**175** (150–300)	**150** (130–180)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
K.2.2	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
K.3.1	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
K.3.2	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

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

4

Cutting data standard values for REAMAX TS

	Grade / coating	HM-TiN				HM-DBC			
	Article no. / type	40 535 ... / 75H.71 – ASG3000				40 526 ..., 40 580 ... / 75J.17, 75H.17 – ASG0706			
	Nominal Ø in mm	18–21,999	22–31,799	31,8–51,999	52–65	18–21,999	22–31,799	31,8–51,999	52–65
	Reaming allowance Ø	0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50	0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50
	Number of flutes	6	6	8	10	6	6	8	10
Index	v_c m/min 3xD	v_c m/min 5xD	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	v_c m/min 3xD	v_c m/min 5xD	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1	100 (80–140)	80 (60–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.2	100 (80–140)	80 (60–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.3	100 (80–140)	80 (60–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.4	100 (80–140)	80 (60–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.5	100 (80–140)	80 (60–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.1	100 (80–140)	80 (60–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.2	100 (80–140)	80 (60–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.3	100 (80–140)	80 (60–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.4	100 (80–140)	80 (60–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1	**80** (60–130)	**80** (60–120)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
K.1.2	**80** (60–130)	**80** (60–120)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
K.2.1												
K.2.2												
K.3.1												
K.3.2												
N.1.1							**150** (130–300)	**150** (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40
N.1.2							**150** (130–300)	**150** (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40
N.2.1							**200** (180–300)	**150** (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40
N.2.2							**200** (180–300)	**150** (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40
N.2.3							**200** (180–300)	**150** (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40
N.3.1	**120** (100–200)	**120** (100–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40						
N.3.2	**80** (60–150)	**80** (60–120)	0,70–1,10	0,90–1,40	1,20–1,90	1,70–2,60						
N.3.3	**120** (100–200)	**120** (100–150)	0,70–1,10	0,90–1,40	1,20–1,90	1,70–2,60						
N.4.1							**150** (180–300)	**150** (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1							250 (220–270)	250 (220–270)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40

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

Cutting data standard values for REAMAX TS

	Grade / coating	DST			
	Article no. / type	40 539 ... / 75H.93 – ASG3000			
	Nominal Ø in mm	18–21,999	22–31,799	31,8–51,999	52–65
	Reaming allowance Ø	0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50
	Number of flutes	6	6	8	10
Index	v_c m/min 3xD	v_c m/min 5xD	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.2	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.3	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.4	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.5	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.1	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.2	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.3	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.4	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.3.1						
P.3.2						
P.3.3						
P.4.1						
P.4.2						
M.1.1						
M.2.1						
M.3.1						
K.1.1						
K.1.2						
K.2.1	**175** (150–300)	**150** (130–180)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40
K.2.2	**120** (100–150)	**100** (80–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
K.3.1	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
K.3.2	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
N.1.1						
N.1.2						
N.2.1						
N.2.2						
N.2.3						
N.3.1	150 (130–320)	150 (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10
N.3.2	150 (130–320)	150 (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10
N.3.3						
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

	DST			
	40 597 ... / 75J.93 – ASG4000			
	18–21,999	22–31,799	31,8–51,999	52–65
	0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50
	6	6	8	10
v_c m/min 3xD	v_c m/min 5xD	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
150 (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40

Cutting data standard values for REAMAX TS

	Grade / coating		DST			
	Article no. / type		40 544 ... / 75J.93 – ASG3000			
	Nominal Ø in mm		18–21,999	22–31,799	31,8–51,999	52–65
	Reaming allowance Ø		0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50
	Number of flutes		6	6	8	10
Index	v_c m/min		f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
	3xD	5xD				
P.1.1	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.2	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.3	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.4	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.5	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.1	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.2	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.3	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.4	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.3.1						
P.3.2						
P.3.3						
P.4.1						
P.4.2						
M.1.1						
M.2.1						
M.3.1						
K.1.1						
K.1.2						
K.2.1	**175** (150–300)	**150** (130–180)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40
K.2.2	**120** (100–150)	**100** (80–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
K.3.1	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
K.3.2	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
N.1.1						
N.1.2						
N.2.1						
N.2.2						
N.2.3						
N.3.1	150 (130–320)	150 (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10
N.3.2	150 (130–320)	150 (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10
N.3.3						
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

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

Cutting data standard values for REAMAX

	Grade / coating	HM-TiN			HM-DBC		
	Article no. / type	40 505 ... / 640.71 – ASG3000			40 570 ... / 640.27 – ASG0706		
	Nominal Ø in mm	12–21,999	22–32,000	23,001–40	12–21,999	22–32,000	23,001–40
	Reaming allowance Ø	0,10–0,30	0,20–0,40	0,20–0,40	0,10–0,30	0,20–0,40	0,20–0,40
	Number of flutes	6	8	8	6	8	8
Index	v_c m/min		f mm/rev.	f mm/rev.	f mm/rev.		
	3xD	5xD					
P.1.1	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00		
P.1.2	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00		
P.1.3	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00		
P.1.4	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00		
P.1.5	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00		
P.2.1	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00		
P.2.2	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00		
P.2.3	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00		
P.2.4	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00		
P.3.1							
P.3.2							
P.3.3							
P.4.1							
P.4.2							
M.1.1							
M.2.1							
M.3.1							
K.1.1	80 (60–130)	80 (60–120)	1,00–1,40	1,80–2,40	1,80–2,40		
K.1.2	80 (60–130)	80 (60–120)	1,00–1,40	1,80–2,40	1,80–2,40		
K.2.1							
K.2.2							
K.3.1							
K.3.2							
N.1.1						**150** (130–300)	**150** (130–200)	1,00–1,40	1,70–2,40	1,70–2,40
N.1.2						**200** (180–300)	**150** (130–200)	1,00–1,40	1,70–2,40	1,70–2,40
N.2.1						**200** (180–300)	**150** (130–200)	1,00–1,40	1,70–2,40	1,70–2,40
N.2.2						**200** (180–300)	**150** (130–200)	1,00–1,40	1,70–2,40	1,70–2,40
N.2.3										
N.3.1	**120** (100–200)	**120** (100–150)	1,00–1,40	1,70–2,40	1,70–2,40					
N.3.2	**120** (100–200)	**120** (100–150)	1,00–1,40	1,70–2,40	1,70–2,40					
N.3.3	**80** (60–150)	**80** (60–120)	0,80–1,20	1,40–2,00	1,40–2,00					
N.4.1										
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1										
S.3.2										
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1						250 (220–270)	250 (220–270)	1,00–1,40	1,70–2,40	1,70–2,40

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

Cutting data standard values for REAMAX

	Grade / coating	DST				DST			
	Article no. / type	40 525 ... / 640.93 – ASG3000				40 536 ... / 640.93 – ASG4000			
	Nominal Ø in mm	12–21,999	22–32,000	23,001–40		12–21,999	22–32,000	23,001–40	
	Reaming allowance Ø	0,10–0,30	0,20–0,40	0,20–0,40		0,10–0,30	0,20–0,40	0,20–0,40	
	Number of flutes	6	8	8		6	8	8	
Index	v_c m/min		f mm/rev.	f mm/rev.	f mm/rev.	v_c m/min		f mm/rev.	f mm/rev.	f mm/rev.
	3xD	5xD				3xD	5xD			
P.1.1	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.1.2	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.1.3	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.1.4	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.1.5	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.2.1	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.2.2	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.2.3	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.2.4										
P.3.1										
P.3.2										
P.3.3										
P.4.1										
P.4.2										
M.1.1										
M.2.1										
M.3.1										
K.1.1										
K.1.2										
K.2.1	**175** (150–300)	**150** (130–180)	1,00–1,40	1,80–2,40	1,80–2,40	175 (150–300)	150 (130–180)	1,20–1,60	1,50–2,00	2,00–2,70
K.2.2	**150** (130–250)	**120** (100–160)	1,00–1,40	1,80–2,40	1,80–2,40	120 (100–180)	120 (100–150)	1,20–1,60	1,50–2,00	2,00–2,70
K.3.1	**150** (130–250)	**120** (100–160)	1,00–1,40	1,80–2,40	1,80–2,40					
K.3.2	**120** (100–180)	**120** (100–150)	0,90–1,20	1,50–2,00	1,50–2,00	120 (100–180)	120 (100–150)	1,00–1,30	1,20–1,70	1,70–2,30
N.1.1										
N.1.2										
N.2.1										
N.2.2										
N.2.3										
N.3.1	150 (130–300)	150 (130–200)	1,00–1,40	1,70–2,40	1,70–2,40					
N.3.2	150 (130–300)	150 (130–200)	1,00–1,40	1,70–2,40	1,70–2,40					
N.3.3										
N.4.1										
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1										
S.3.2										
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

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

Cutting data standard values for REAMAX

	Grade / coating	HM-DBG-P			HM-DBG-P				
	Article no. / type	40 560 ... / 640.65 – ASG3000			40 551 ... / 640.65 – ASG0106				
	Nominal Ø in mm	12–21,999	22–32,000	23,001–40	12–21,999	22–32,000	23,001–40		
	Reaming allowance Ø	0,10–0,30	0,20–0,40	0,20–0,40	0,10–0,30	0,20–0,40	0,20–0,40		
	Number of flutes	6	8	8	6	8	8		
Index	v_c m/min		f mm/rev.	f mm/rev.	f mm/rev.	v_c m/min		f mm/rev.	f mm/rev.	f mm/rev.
	3xD	5xD				3xD	5xD			
P.1.1	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.2	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.3	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.4	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.5	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.1	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.2	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.3	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.4	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00
P.3.1						**30** (25–50)	**30** (25–40)	0,70–0,90	1,20–1,60	1,20–1,60
P.3.2						**30** (25–50)	**30** (25–40)	0,70–0,90	1,20–1,60	1,20–1,60
P.3.3						**30** (25–50)	**30** (25–40)	0,70–0,90	1,20–1,60	1,20–1,60
P.4.1						**45** (35–60)	**40** (35–50)	0,70–0,90	1,20–1,60	1,20–1,60
P.4.2						**45** (35–60)	**40** (35–50)	0,70–0,90	1,20–1,60	1,20–1,60
M.1.1						**45** (35–60)	**40** (35–50)	0,70–0,90	1,20–1,60	1,20–1,60
M.2.1						**30** (25–50)	**30** (25–40)	0,70–0,90	1,20–1,60	1,20–1,60
M.3.1						**30** (25–50)	**30** (25–40)	0,70–0,90	1,20–1,60	1,20–1,60
K.1.1	**200** (180–250)	**160** (140–200)	1,00–1,40	1,30–1,90	1,30–1,90					
K.1.2	**200** (180–250)	**160** (140–200)	1,00–1,40	1,30–1,90	1,30–1,90					
K.2.1	**225** (200–300)	**180** (160–240)	1,00–1,40	1,30–1,90	1,30–1,90					
K.2.2	**120** (100–150)	**100** (80–120)	0,90–1,20	1,20–1,60	1,20–1,60					
K.3.1	**150** (130–250)	**120** (100–200)	0,90–1,20	1,20–1,60	1,20–1,60					
K.3.2	**120** (100–150)	**100** (80–120)	0,90–1,20	1,20–1,60	1,20–1,60					
N.1.1										
N.1.2										
N.2.1										
N.2.2										
N.2.3										
N.3.1										
N.3.2										
N.3.3										
N.4.1										
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1										
S.3.2										
S.3.3										
H.1.1						**40** (35–60)	**40** (35–60)	0,40–0,80	0,60–1,00	0,60–1,00
H.1.2						**40** (35–60)	**40** (35–60)	0,40–0,80	0,60–1,00	0,60–1,00
H.1.3						**30** (25–50)	**30** (25–50)	0,40–0,80	0,60–1,00	0,60–1,00
H.1.4										
H.2.1						**40** (35–60)	**40** (35–60)	0,40–0,80	0,60–1,00	0,60–1,00
H.3.1						**40** (35–60)	**40** (35–60)	0,40–0,80	0,60–1,00	0,60–1,00
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

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

Cutting data for MultiChange exchange head reamers

	Coating	CWC 10				TiAlN				TiAlN		
	Article no.	40 210 ... / 40 211 ...				40 220 ... / 40 221 ...				40 230 ... / 40 231 ...		
	Nominal Ø in mm	8,0–12,59	12,6–29,99	30,0–32,00		8,0–12,59	12,6–29,99	30,0–32,00		8,0–12,59	12,6–18,59	18,6–32,00
	Reaming allowance Ø	0,15–0,3	0,2–0,4	0,2–0,4		0,15–0,3	0,15–0,3	0,15–0,3		0,15–0,4	0,2–0,5	0,2–0,5
	Number of flutes	4/6	6	8		4/6	6	8		4/6	6	8
Index	v_c m/min	f mm/rev.	f mm/rev.	f mm/rev.	v_c m/min	f mm/rev.	f mm/rev.	f mm/rev.	v_c m/min	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1	140	0,6	0,8	1,0					160	0,7	1,0	1,5
P.1.2	140	0,6	0,8	1,0					160	0,7	1,0	1,5
P.1.3	90	0,6	0,8	1,0					160	0,7	1,0	1,5
P.1.4	90	0,6	0,8	1,0					160	0,7	1,0	1,5
P.1.5	90	0,6	0,8	1,0					160	0,7	1,0	1,5
P.2.1	140	0,6	0,8	1,0					160	0,7	1,0	1,5
P.2.2	140	0,6	0,8	1,0					160	0,7	1,0	1,5
P.2.3	90	0,6	0,8	1,0					160	0,7	1,0	1,5
P.2.4	90	0,6	0,8	1,0					160	0,7	1,0	1,5
P.3.1	120	0,6	0,8	1,0					160	0,7	1,0	1,5
P.3.2	90	0,6	0,8	1,0					160	0,7	1,0	1,5
P.3.3	90	0,6	0,8	1,0					160	0,7	1,0	1,5
P.4.1					40	0,3	0,4	0,5				
P.4.2					40	0,3	0,4	0,5				
M.1.1					40	0,3	0,4	0,5				
M.2.1					40	0,3	0,4	0,5				
M.3.1					30	0,3	0,4	0,5				
K.1.1									120	0,6	0,6	1,2
K.1.2									120	0,6	0,6	1,2
K.2.1	120	0,7	1,2	1,6					120	0,4	0,6	1,2
K.2.2	90	0,7	1,2	1,6					100	0,4	0,6	1,2
K.3.1	90	0,7	1,2	1,6					100	0,4	0,6	1,2
K.3.2	90	0,7	1,2	1,6					100	0,4	0,6	1,2
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data for MultiChange exchange head reamers

	Coating	K10				PDC		
	Article no.	40 240 ... / 40 241 ...				40 245 ... / 40 246 ...		
	Nominal Ø in mm	8,0–12,59	12,6–29,99	30,0–32,00		8,0–12,59	12,6–29,99	30,0–32,00
	Reaming allowance Ø	0,15–0,5	0,15–0,5	0,15–0,5		0,15–0,5	0,15–0,5	0,15–0,5
	Number of flutes	4/6	6	8		4/6	6	8
Index	v_c m/min	f mm/rev.	f mm/rev.	f mm/rev.	v_c m/min	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1								
P.1.2								
P.1.3								
P.1.4								
P.1.5								
P.2.1								
P.2.2								
P.2.3								
P.2.4								
P.3.1								
P.3.2								
P.3.3								
P.4.1								
P.4.2								
M.1.1								
M.2.1								
M.3.1								
K.1.1								
K.1.2								
K.2.1								
K.2.2								
K.3.1								
K.3.2								
N.1.1	30	0,4	0,5	0,6	200	0,6	1,5	1,5
N.1.2	30	0,4	0,5	0,6	200	0,6	1,5	1,5
N.2.1	30	0,4	0,5	0,6	200	0,6	1,5	1,5
N.2.2	30	0,4	0,5	0,6	200	0,6	1,5	1,5
N.2.3	30	0,4	0,5	0,6	200	0,6	1,5	1,5
N.3.1	30	0,4	0,5	0,6				
N.3.2	30	0,4	0,5	0,6				
N.3.3	30	0,4	0,5	0,6				
N.4.1								
S.1.1								
S.1.2								
S.2.1								
S.2.2								
S.2.3								
S.3.1								
S.3.2								
S.3.3								
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1								
O.1.2								
O.2.1								
O.2.2								
O.3.1								

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values for Monomax

	Grade / coating	DBC						DBC			
	Article no. / type	40 648 ..., 40 649 ... / 56J.17, 56R.17 – ASG0706				40 640..., 40 641... / 56H.17, 56Q.17 – ASG0706			
	Nominal Ø in mm	5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899	5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899
	Reaming Allowance Ø	0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40	0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40
	Number of flutes	4	6	6	6	4	6	6	6
Index	v_c m/min		f	f	f	v_c m/min		f	f	f	f
	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.
P.1.1												
P.1.2												
P.1.3												
P.1.4												
P.1.5												
P.2.1												
P.2.2												
P.2.3												
P.2.4												
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1												
K.1.2												
K.2.1												
K.2.2												
K.3.1												
K.3.2												
N.1.1	**150** (130–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50	**150** (130–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50
N.1.2	**150** (130–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50	**150** (130–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50
N.2.1	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50
N.2.2	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50
N.2.3	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1	250 (220–270)	250 (220–270)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50	250 (220–270)	250 (220–270)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50

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

Cutting data standard values for Monomax

	Grade / coating	HM-DBG-P						HM-DBG-P			
	Article no. / type	40 657 ... , 40 665 ... / 56H.65, 56Q.65 – ASG3000				40 652 ..., 40 653 ... / 56J.65, 56R.65 – ASG0106			
	Nominal Ø in mm	5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899	5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899
	Reaming allowance Ø	0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40	0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40
	Number of flutes	4	6	6	6	4	6	6	6
Index	v_c m/min		f	f	f	f	v_c m/min		f	f	f	f
	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.
P.1.1	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.1.2	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.1.3	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.1.4	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.1.5	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.2.1	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.2.2	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.2.3	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.2.4	**60** (50–100)	**60** (50–100)	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90	**60** (50–100)	**60** (50–100)	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
P.3.1							**40** (35–60)	**40** (35–60)	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
P.3.2							**40** (35–60)	**40** (35–60)	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
P.3.3							**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
P.4.1							**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
P.4.2							**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
M.1.1							**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
M.2.1							**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
M.3.1							**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
K.1.1	**150** (130–220)	**120** (100–150)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50						
K.1.2	**150** (130–220)	**120** (100–150)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50						
K.2.1	**175** (150–300)	**150** (130–180)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50						
K.2.2	**120** (100–180)	**120** (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
K.3.1	**150** (130–250)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50						
K.3.2	**120** (100–180)	**120** (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

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

4

Cutting data standard values for Monomax

	Grade / coating	DST				DST			
	Article no. / type	40 625 ..., 40 626 ... / 56J.93, 56R.93 – ASG3000				40 635 ... , 40 636 ... / 56J.93, 56R.93 – ASG4000			
	Nominal Ø in mm	5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899	5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899
	Reaming allowance Ø	0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40	0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40
	Number of flutes	4	6	6	6	4	6	6	6
Index	v_c m/min		f	f	f	v_c m/min		f	f	f	f
	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.
P.1.1	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.1.2	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.1.3	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.1.4	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.1.5	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.2.1	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.2.2	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.2.3	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.2.4												
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1												
K.1.2												
K.2.1	**175** (150–300)	**150** (130–180)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50	175 (150–300)	150 (130–180)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50
K.2.2	**120** (100–150)	**100** (80–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	120 (100–180)	120 (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
K.3.1	**150** (130–250)	**120** (100–200)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50	120 (100–180)	120 (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
K.3.2	**120** (100–180)	**120** (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	120 (100–180)	120 (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1	150 (130–300)	150 (130–200)	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50						
N.3.2	150 (130–300)	150 (130–200)	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50						
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

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

Cutting data standard values for Monomax

	Grade / coating	HM-DBG-P				HM-TiN			
	Article no. / type	40 644 ..., 40 645 ... / 56H.65, 56Q.65 – ASG0106				40 605 ..., 40 606 ... / 56J.71, 56R.71 – ASG3000			
	Nominal Ø in mm	5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899	5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899
	Reaming allowance Ø	0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40	0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40
	Number of flutes	4	6	6	6	4	6	6	6
Index	v_c m/min		f	f	f	v_c m/min		f	f	f	f
	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.	3xD	5xD	mm/rev.	mm/rev.	mm/rev.	mm/rev.
P.1.1							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.1.2							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.1.3							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.1.4							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.1.5							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.2.1							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.2.2							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.2.3							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.2.4							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.3.1	**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
P.3.2	**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
P.3.3	**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
P.4.1	**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
P.4.2	**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
M.1.1	**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
M.2.1	**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
M.3.1	**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
K.1.1							80 (60–130)	80 (60–120)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50
K.1.2							80 (60–130)	80 (60–120)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50
K.2.1												
K.2.2												
K.3.1												
K.3.2												
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1							**120** (–200)	**120** (–200)	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
N.3.2							**120** (–200)	**120** (–200)	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
N.3.3							**80** (–150)	**80** (–120)	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

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

4

Cutting data standard values for Fullmax, long

Type UNI		40 484 ... / 40 485 ... / 40 486 ... / 40 487 ...											
		Ø 2,97 – 4,05		Ø 4,06 – 6,05		Ø 6,06 – 7,55		Ø 7,56 – 12,05		Ø 12,06 – 16,05		Ø 16,06 – 20,05	
	Number of flutes	4		4		6		6		6		6	
Index	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
P.1.1	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.1.2	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.1.3	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.1.4	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.1.5	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.2.1	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.2.2	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.2.3	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.2.4	**80** (70–120)	0,40–0,50	0,10–0,20	0,40–0,60	0,10–0,20	0,90–1,10	0,20	1,00–1,20	0,20	1,00–1,30	0,20–0,30	1,30–1,50	0,30
P.3.1	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
P.3.2	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
P.3.3	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
P.4.1	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
P.4.2	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
M.1.1	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
M.2.1	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
M.3.1	**15** (10–30)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
K.1.1	**120** (100–180)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,30–1,60	0,20	1,60–2,00	0,20–0,30	1,90–2,20	0,30
K.1.2	**120** (100–180)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,30–1,60	0,20	1,60–2,00	0,20–0,30	1,90–2,20	0,30
K.2.1	**200** (180–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,30–1,60	0,20	1,60–2,00	0,20–0,30	1,90–2,20	0,30
K.2.2	**120** (100–150)	0,50–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,00–1,30	0,20	1,30–1,60	0,20–0,30	1,50–1,80	0,30
K.3.1	**200** (180–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,30–1,60	0,20	1,60–2,00	0,20–0,30	1,90–2,20	0,30
K.3.2	**120** (100–150)	0,50–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,00–1,30	0,20	1,30–1,60	0,20–0,30	1,50–1,80	0,30
N.1.1													
N.1.2													
N.2.1													
N.2.2													
N.2.3													
N.3.1	150 (130–250)	0,50–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,40	0,20	1,40–1,70	0,20	1,60–1,90	0,20–0,30	1,90–2,20	0,30
N.3.2	100 (80–150)	0,40–0,60	0,10–0,20	0,60–0,80	0,10–0,20	1,00–1,30	0,20	1,20–1,40	0,20	1,30–1,60	0,20–0,30	1,60–1,80	0,30
N.3.3													
N.4.1													
S.1.1													
S.1.2													
S.2.1	40 (30–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.2.2	40 (30–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.2.3													
S.3.1	30 (25–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.3.2	30 (25–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.3.3													
H.1.1	40 (35–60)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
H.1.2	40 (35–60)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
H.1.3	30 (25–50)	0,50–0,70	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,70	0,20	1,30–1,70	0,20	1,30–2,00	0,20–0,30	1,30–2,00	0,30
H.1.4													
H.2.1	40 (35–60)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
H.3.1	40 (35–60)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

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

Cutting data standard values for Fullmax, long

Type K

		40 477 ... / 40 478 ...											
		Ø 2,97 – 4,05		Ø 4,06 – 6,05		Ø 6,06 – 7,55		Ø 7,56 – 12,05		Ø 12,06 – 16,05		Ø 16,06 – 20,05	
	Number of flutes	6		6		8		8		8		8	
Index	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
K.1.1	**200** (180–250)	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,20–2,60	0,30
K.1.2	**200** (180–250)	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,20–2,60	0,30
K.2.1	**225** (200–300)	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,20–2,60	0,30
K.2.2	**120** (100–150)	0,60–0,90	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,60	0,20	1,20–1,60	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
K.3.1	**225** (200–300)	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,20–2,60	0,30
K.3.2	**120** (100–150)	0,60–0,90	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,60	0,20	1,20–1,60	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30

Type VA

		40 401 ... / 40 402 ... / 40 403 ... / 40 404 ...											
		Ø 2,97 – 4,05		Ø 4,06 – 6,05		Ø 6,06 – 7,55		Ø 7,56 – 12,05		Ø 12,06 – 16,05		Ø 16,06 – 20,05	
	Number of flutes	4		4		6		6		6		6	
Index	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
P.1.1													
P.1.2													
P.1.3													
P.1.4													
P.1.5													
P.2.1													
P.2.2													
P.2.3													
P.2.4													
P.3.1	20 (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
P.3.2	20 (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
P.3.3	20 (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
P.4.1	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
P.4.2	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
M.1.1	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
M.2.1	**15** (10–30)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
M.3.1	**15** (10–30)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30

Type ALU

		40 471 ... / 40 472 ... / 40 473 ... / 40 474 ...											
		Ø 2,97 – 4,05		Ø 4,06 – 6,05		Ø 6,06 – 7,55		Ø 7,56 – 12,05		Ø 12,06 – 16,05		Ø 16,06 – 20,05	
	Number of flutes	4		4		6		6		6		6	
Index	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
N.1.1	**200** (180–300)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
N.1.2	**200** (180–300)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
N.2.1	**200** (180–250)	0,50–0,70	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,70	0,20	1,30–1,70	0,20	1,30–2,00	0,20–0,30	1,30–2,00	0,30
N.2.2	**200** (180–300)	0,50–0,70	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,70	0,20	1,30–1,70	0,20	1,30–2,00	0,20–0,30	1,30–2,00	0,30
N.2.3	**200** (180–250)	0,50–0,70	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,70	0,20	1,30–1,70	0,20	1,30–2,00	0,20–0,30	1,30–2,00	0,30
N.3.1													
N.3.2													
N.3.3													
N.4.1													
O.3.1	250 (220–270)	0,50–0,70	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,70	0,20	1,30–1,70	0,20	1,30–2,00	0,20–0,30	1,30–2,00	0,30

Type H

		40 475 ... / 40 476 ...											
		Ø 2,97 – 4,05		Ø 4,06 – 6,05		Ø 6,06 – 7,55		Ø 7,56 – 12,05		Ø 12,06 – 16,05		Ø 16,06 – 20,05	
	Number of flutes	4		4		6		6		6		6	
Index	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
H.1.1	**40** (35–60)	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,60–0,80	0,20
H.1.2	**30** (25–50)	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,60–0,80	0,20
H.1.3	**30** (25–50)	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,60–0,80	0,20
H.1.4	**30** (25–50)	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,60–0,80	0,20
H.2.1	**40** (35–60)	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,60–0,80	0,20
H.3.1	**40** (35–60)	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,60–0,80	0,20

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

Cutting data standard values for Fullmax, short

Type UNI		40 481 ... / 40 483 ... / 40 488 ... / 40 489 ...											
		Ø 2,97 – 4,05		Ø 4,06 – 6,05		Ø 6,06 – 7,55		Ø 7,56 – 12,05		Ø 12,06 – 15,97		Ø 15,98 – 20,05	
	Number of flutes	4		4		6		6		6		6	
Index	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
P.1.1	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.1.2	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.1.3	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.1.4	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.1.5	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.2.1	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.2.2	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.2.3	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.2.4	**65** (55–110)	0,45–0,50	0,10–0,20	0,45–0,60	0,10–0,20	1,00–1,10	0,20	1,20–1,30	0,20	1,20–1,40	0,20–0,30	1,90–2,10	0,30
P.3.1	**40** (30–80)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
P.3.2	**40** (30–80)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
P.3.3	**40** (30–80)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
P.4.1	**45** (40–65)	0,45–0,50	0,10–0,20	0,45–0,60	0,10–0,20	1,00–1,10	0,20	1,20–1,30	0,20	1,20–1,40	0,20–0,30	1,90–2,10	0,30
P.4.2	**45** (40–65)	0,45–0,50	0,10–0,20	0,45–0,60	0,10–0,20	1,00–1,10	0,20	1,20–1,30	0,20	1,20–1,40	0,20–0,30	1,90–2,10	0,30
M.1.1	**40** (35–60)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
M.2.1	**40** (35–60)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
M.3.1	**40** (35–60)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
K.1.1	**200** (180–250)	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,50–2,90	0,30
K.1.2	**200** (180–250)	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,50–2,90	0,30
K.2.1	**225** (200–300)	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,50–2,90	0,30
K.2.2	**120** (100–150)	0,60–0,90	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,60	0,20	1,20–1,60	0,20	1,50–1,90	0,20–0,30	2,00–2,40	0,30
K.3.1	**225** (200–300)	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,00–2,40	0,30
K.3.2	**120** (100–150)	0,60–0,90	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,60	0,20	1,20–1,60	0,20	1,50–1,90	0,20–0,30	2,00–2,40	0,30
N.1.1													
N.1.2													
N.2.1													
N.2.2													
N.2.3													
N.3.1	150 (120–250)	0,50–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,40	0,20	1,40–1,70	0,20	1,60–1,90	0,20–0,30	2,50–2,90	0,30
N.3.2	100 (80–150)	0,40–0,60	0,10–0,20	0,60–0,80	0,10–0,20	1,00–1,30	0,20	1,20–1,40	0,20	1,30–1,60	0,20–0,30	2,10–2,40	0,30
N.3.3													
N.4.1													
S.1.1													
S.1.2													
S.2.1	40 (30–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.2.2	40 (30–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.2.3													
S.3.1	30 (25–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.3.2	30 (25–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.3.3													
H.1.1	40 (35–60)	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,80–1,00	0,20
H.1.2	30 (25–50)	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,80–1,00	0,20
H.1.3	30 (25–50)	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,80–1,00	0,20
H.1.4													
H.2.1	40 (35–60)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
H.3.1	40 (35–60)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

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

Cutting data standard values for solid carbide reamers

	40 410 ... / 40 400 ...								
	uncoated	to Ø 5 mm		to Ø 8 mm		to Ø 10 mm		to Ø 12 mm	
Index	v_c m/min	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm
P.1.1	**30**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.1.2	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.1.3	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.1.4	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.1.5	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.2.1	**25**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.2.2	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.2.3	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.2.4	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.3.1	**25**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.3.2	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.3.3	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.4.1	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.4.2	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
M.1.1	15	0,08	0,08	0,10	0,10	0,125	0,10	0,15	0,10
M.2.1	15	0,08	0,08	0,10	0,10	0,125	0,10	0,15	0,10
M.3.1	10	0,08	0,08	0,10	0,10	0,125	0,10	0,15	0,10
K.1.1	30	0,10	0,10	0,20	0,10	0,25	0,10	0,30	0,20
K.1.2	20	0,10	0,10	0,20	0,10	0,25	0,10	0,30	0,20
K.2.1	25	0,10	0,10	0,20	0,10	0,25	0,10	0,30	0,20
K.2.2	20	0,10	0,10	0,20	0,10	0,25	0,10	0,30	0,20
K.3.1	25	0,10	0,10	0,20	0,10	0,25	0,10	0,30	0,20
K.3.2	20	0,10	0,10	0,20	0,10	0,25	0,10	0,30	0,20
N.1.1	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
N.1.2	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
N.2.1	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
N.2.2	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
N.2.3	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
N.3.1	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
N.3.2	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
N.3.3	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
N.4.1	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
S.1.1	10	0,06	0,05	0,10	0,10	0,11	0,10	0,12	0,10
S.1.2	10	0,06	0,05	0,10	0,10	0,11	0,10	0,12	0,10
S.2.1	10	0,06	0,05	0,10	0,10	0,11	0,10	0,12	0,10
S.2.2	10	0,06	0,05	0,10	0,10	0,11	0,10	0,12	0,10
S.2.3	10	0,06	0,05	0,10	0,10	0,11	0,10	0,12	0,10
S.3.1	10	0,06	0,05	0,10	0,10	0,11	0,10	0,12	0,10
S.3.2	10	0,06	0,05	0,10	0,10	0,11	0,10	0,12	0,10
S.3.3	10	0,06	0,05	0,10	0,10	0,11	0,10	0,12	0,10
H.1.1									
H.1.2									
H.1.3									
H.1.4									
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

4

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data standard values for solid carbide reamers

	40 430 ...			40 420 ... / 40 421 ... / 40 430 ... / 40 431 ...							
	uncoated	to Ø 0.94 mm		uncoated	TiAlN	to Ø 5 mm		to Ø 8 mm		to Ø 10 mm	
Index	v_c m/min	f mm/rev.	Reaming Allowance Ø mm	v_c m/min	v_c m/min	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm
P.1.1	20	0,10	0,10	20	30	0,10	0,10	0,15	0,15	0,20	0,20
P.1.2	20	0,10	0,10	20	30	0,10	0,10	0,15	0,15	0,20	0,20
P.1.3	12	0,10	0,10	12	15	0,10	0,10	0,15	0,15	0,20	0,20
P.1.4	12	0,10	0,10	12	15	0,10	0,10	0,15	0,15	0,20	0,20
P.1.5	12	0,10	0,10	12	15	0,10	0,10	0,15	0,15	0,20	0,20
P.2.1	15	0,10	0,10	15	25	0,10	0,10	0,15	0,15	0,20	0,20
P.2.2	12	0,10	0,10	12	15	0,10	0,10	0,15	0,15	0,20	0,20
P.2.3	12	0,10	0,10	12	15	0,10	0,10	0,15	0,15	0,20	0,20
P.2.4	12	0,10	0,10	12	15	0,10	0,10	0,15	0,15	0,20	0,20
P.3.1	15	0,10	0,10	15	25	0,10	0,10	0,15	0,15	0,20	0,20
P.3.2	12	0,10	0,10	12	15	0,10	0,10	0,15	0,15	0,20	0,20
P.3.3	12	0,10	0,10	12	15	0,10	0,10	0,15	0,15	0,20	0,20
P.4.1											
P.4.2											
M.1.1					15	0,08	0,08	0,10	0,10	0,15	0,10
M.2.1					15	0,08	0,08	0,10	0,10	0,15	0,10
M.3.1					10	0,08	0,08	0,10	0,10	0,15	0,10
K.1.1	18	0,10	0,10	18	30	0,10	0,10	0,20	0,15	0,30	0,20
K.1.2	18	0,10	0,10	18	30	0,10	0,10	0,20	0,15	0,30	0,20
K.2.1	15	0,10	0,10	15	25	0,10	0,10	0,20	0,15	0,30	0,20
K.2.2	10	0,10	0,10	10	20	0,10	0,10	0,20	0,15	0,30	0,20
K.3.1	15	0,10	0,10	15	25	0,10	0,10	0,20	0,15	0,30	0,20
K.3.2	10	0,10	0,10	10	20	0,10	0,10	0,20	0,15	0,30	0,20
N.1.1	40	0,15	0,10	40		0,15	0,10	0,20	0,15	0,25	0,20
N.1.2	40	0,15	0,10	40		0,15	0,10	0,20	0,15	0,25	0,20
N.2.1	25	0,15	0,10	20		0,15	0,10	0,20	0,15	0,25	0,20
N.2.2	25	0,15	0,10	20		0,15	0,10	0,20	0,15	0,25	0,20
N.2.3											
N.3.1	30	0,15	0,10	30		0,15	0,10	0,20	0,15	0,25	0,20
N.3.2	30	0,15	0,10	30		0,15	0,10	0,20	0,15	0,25	0,20
N.3.3	30	0,15	0,10	30		0,15	0,10	0,20	0,15	0,25	0,20
N.4.1											
S.1.1					10	0,06	0,05	0,10	0,10	0,12	0,10
S.1.2					10	0,06	0,05	0,10	0,10	0,12	0,10
S.2.1					10	0,06	0,05	0,10	0,10	0,12	0,10
S.2.2					10	0,06	0,05	0,10	0,10	0,12	0,10
S.2.3					10	0,06	0,05	0,10	0,10	0,12	0,10
S.3.1					10	0,06	0,05	0,10	0,10	0,12	0,10
S.3.2					10	0,06	0,05	0,10	0,10	0,12	0,10
S.3.3					10	0,06	0,05	0,10	0,10	0,12	0,10
H.1.1					8	0,05	0,05	0,08	0,05	0,10	0,10
H.1.2					8	0,05	0,05	0,08	0,05	0,10	0,10
H.1.3											
H.1.4											
H.2.1					8	0,05	0,05	0,08	0,05	0,10	0,10
H.3.1											
O.1.1	40	0,15	0,10	40		0,15	0,10	0,20	0,15	0,25	0,20
O.1.2	40	0,15	0,10	40		0,15	0,10	0,20	0,15	0,25	0,20
O.2.1											
O.2.2											
O.3.1											

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data standard values for solid carbide reamers

	40 420 ... / 40 421 ... / 40 430 ... / 40 431 ...											
	uncoated	TiAlN	to Ø 12 mm		to Ø 15 mm		to Ø 20 mm		to Ø 25 mm		to Ø 30 mm	
Index	v_c m/min	v_c m/min	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm
P.1.1	**20**	**30**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.1.2	**20**	**30**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.1.3	**12**	**15**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.1.4	**12**	**15**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.1.5	**12**	**15**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.2.1	**15**	**25**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.2.2	**12**	**15**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.2.3	**12**	**15**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.2.4	**12**	**15**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.3.1	**15**	**25**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.3.2	**12**	**15**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.3.3	**12**	**15**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.4.1												
P.4.2												
M.1.1		15	0,15	0,10	0,20	0,20	0,25	0,20	0,25	0,20	0,25	0,20
M.2.1		15	0,15	0,10	0,20	0,20	0,25	0,20	0,25	0,20	0,25	0,20
M.3.1		10	0,15	0,10	0,20	0,20	0,25	0,20	0,25	0,20	0,25	0,20
K.1.1	18	**30**	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
K.1.2	18	**30**	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
K.2.1	15	**25**	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
K.2.2	10	**20**	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
K.3.1	15	**25**	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
K.3.2	10	**20**	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.1.1	**40**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.1.2	**40**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.2.1	**25**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.2.2	**25**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.2.3												
N.3.1	**30**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.3.2	**30**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.3.3	**30**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.4.1												
S.1.1		10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.1.2		10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.2.1		10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.2.2		10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.2.3		10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.3.1		10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.3.2		10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.3.3		10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
H.1.1		8	0,10	0,10	0,13	0,10	0,15	0,15	0,15	0,15	0,15	0,15
H.1.2		8	0,10	0,10	0,13	0,10	0,15	0,15	0,15	0,15	0,15	0,15
H.1.3												
H.1.4												
H.2.1		8	0,10	0,10	0,13	0,10	0,15	0,15	0,15	0,15	0,15	0,15
H.3.1												
O.1.1	**40**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
O.1.2	**40**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
O.2.1												
O.2.2												
O.3.1												

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data for HSS-E reamers

		40 110 ... / 40 115 ...									
		to Ø 5 mm		to Ø 8 mm		to Ø 12 mm		to Ø 15 mm		to Ø 20 mm	
Index	v_c m/min	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm
P.1.1	12	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.1.2	12	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.1.3	10	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.1.4	10	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.1.5	10	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.2.1	12	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.2.2	12	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.2.3	10	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.2.4	10	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.3.1	12	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.3.2	10	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.3.3	10	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.4.1											
P.4.2											
M.1.1											
M.2.1											
M.3.1											
K.1.1	12	0,15	0,10	0,20	0,15	0,25	0,20	0,30	0,20	0,35	0,30
K.1.2	12	0,15	0,10	0,20	0,15	0,25	0,20	0,30	0,20	0,35	0,30
K.2.1	10	0,15	0,10	0,20	0,15	0,25	0,20	0,30	0,20	0,35	0,30
K.2.2	10	0,15	0,10	0,20	0,15	0,25	0,20	0,30	0,20	0,35	0,30
K.3.1	10	0,15	0,10	0,20	0,15	0,25	0,20	0,30	0,20	0,35	0,30
K.3.2	10	0,15	0,10	0,20	0,15	0,25	0,20	0,30	0,20	0,35	0,30
N.1.1	15	0,15	0,10	0,20	0,15	0,20	0,20	0,25	0,20	0,30	0,30
N.1.2	15	0,15	0,10	0,20	0,15	0,20	0,20	0,25	0,20	0,30	0,30
N.2.1											
N.2.2											
N.2.3											
N.3.1	20	0,15	0,10	0,20	0,15	0,20	0,20	0,25	0,20	0,30	0,30
N.3.2	20	0,15	0,10	0,20	0,15	0,20	0,20	0,25	0,20	0,30	0,30
N.3.3	20	0,15	0,10	0,20	0,15	0,20	0,20	0,25	0,20	0,30	0,30
N.4.1											
S.1.1											
S.1.2											
S.2.1											
S.2.2											
S.2.3											
S.3.1											
S.3.2											
S.3.3											
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1	25	0,15	0,10	0,20	0,15	0,20	0,20	0,25	0,20	0,30	0,30
O.1.2	25	0,15	0,10	0,20	0,15	0,20	0,20	0,25	0,20	0,30	0,30
O.2.1											
O.2.2											
O.3.1											

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data for HSS-E reamers

		40 110 ... / 40 115 ...							
		to Ø 25 mm		to Ø 30 mm		to Ø 40 mm		to Ø 50 mm	
Index	v_c m/min	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm
P.1.1	12	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.1.2	12	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.1.3	10	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.1.4	10	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.1.5	10	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.2.1	12	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.2.2	12	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.2.3	10	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.2.4	10	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.3.1	12	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.3.2	10	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.3.3	10	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.4.1									
P.4.2									
M.1.1									
M.2.1									
M.3.1									
K.1.1	12	0,35	0,30	0,35	0,30	0,40	0,30	0,40	0,30
K.1.2	12	0,35	0,30	0,35	0,30	0,40	0,30	0,40	0,30
K.2.1	10	0,35	0,30	0,35	0,30	0,40	0,30	0,40	0,30
K.2.2	10	0,35	0,30	0,35	0,30	0,40	0,30	0,40	0,30
K.3.1	10	0,35	0,30	0,35	0,30	0,40	0,30	0,40	0,30
K.3.2	10	0,35	0,30	0,35	0,30	0,40	0,30	0,40	0,30
N.1.1	15	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
N.1.2	15	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
N.2.1									
N.2.2									
N.2.3									
N.3.1	20	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
N.3.2	20	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
N.3.3	20	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
N.4.1									
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2									
S.3.3									
H.1.1									
H.1.2									
H.1.3									
H.1.4									
H.2.1									
H.3.1									
O.1.1	25	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
O.1.2	25	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
O.2.1									
O.2.2									
O.3.1									

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data for HSS-E reamers

		40 140 ... / 40 150 ... / 40 155 ... / 40 145 ... / 40 139 ... / 40 160 ...									
		to Ø 5 mm		to Ø 8 mm		to Ø 12 mm		to Ø 15 mm		to Ø 20 mm	
Index	v_c m/min	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm
P.1.1	15	0,10	0,10–0,15	0,20	0,15–0,20	0,25	0,20	0,30	0,25	0,35	0,30
P.1.2	12	0,10	0,10–0,15	0,20	0,15–0,20	0,25	0,20	0,30	0,25	0,35	0,30
P.1.3	10	0,10	0,10–0,15	0,20	0,15–0,20	0,25	0,20	0,30	0,25	0,35	0,30
P.1.4	10	0,08	0,10–0,15	0,15	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30
P.1.5	8	0,08	0,10–0,15	0,15	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30
P.2.1	10	0,10	0,10–0,15	0,20	0,15–0,20	0,25	0,20	0,25	0,25	0,35	0,30
P.2.2	8	0,08	0,10–0,15	0,15	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30
P.2.3	8	0,08	0,10–0,15	0,15	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30
P.2.4	8	0,08	0,10–0,15	0,15	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30
P.3.1	8	0,08	0,10–0,15	0,12	0,15–0,20	0,20	0,20	0,20	0,25	0,25	0,30
P.3.2	6	0,08	0,10–0,15	0,12	0,15–0,20	0,20	0,20	0,20	0,25	0,25	0,25
P.3.3	6	0,08	0,10–0,15	0,12	0,15–0,20	0,20	0,20	0,20	0,25	0,25	0,25
P.4.1	6	0,08	0,10–0,15	0,12	0,15–0,20	0,20	0,20	0,20	0,25	0,25	0,25
P.4.2	6	0,08	0,10–0,15	0,12	0,15–0,20	0,20	0,20	0,20	0,25	0,25	0,25
M.1.1	6	0,08	0,10	0,12	0,15	0,20	0,20	0,20	0,20	0,25	0,25
M.2.1	4	0,08	0,10	0,12	0,15	0,20	0,20	0,20	0,20	0,25	0,25
M.3.1	4	0,08	0,10	0,12	0,15	0,20	0,20	0,20	0,20	0,25	0,25
K.1.1	14	0,10	0,10–0,15	0,16	0,20	0,24	0,20	0,28	0,25	0,35	0,30
K.1.2	12	0,10	0,10–0,15	0,16	0,20	0,24	0,20	0,28	0,25	0,35	0,30
K.2.1	12	0,10	0,10–0,15	0,16	0,15–0,20	0,20	0,20	0,25	0,25	0,35	0,30
K.2.2	10	0,10	0,10–0,15	0,16	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30
K.3.1	12	0,10	0,10–0,15	0,16	0,20	0,24	0,20	0,28	0,25	0,35	0,30
K.3.2	10	0,10	0,10–0,15	0,16	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30
N.1.1	20	0,10	0,15	0,20	0,20	0,25	0,20	0,30	0,25	0,40	0,30
N.1.2	20	0,10	0,15	0,20	0,20	0,25	0,20	0,30	0,25	0,40	0,30
N.2.1	18	0,10	0,15	0,20	0,20	0,25	0,20	0,30	0,25	0,40	0,30
N.2.2	18	0,10	0,15	0,20	0,20	0,25	0,20	0,30	0,25	0,40	0,30
N.2.3											
N.3.1	18	0,10	0,15	0,18	0,30	0,20	0,30	0,25	0,30	0,30	0,30
N.3.2	15	0,10	0,15	0,18	0,30	0,20	0,30	0,25	0,30	0,30	0,30
N.3.3	15	0,10	0,15	0,18	0,30	0,20	0,30	0,25	0,30	0,30	0,30
N.4.1	18	0,10	0,15	0,18	0,30	0,20	0,30	0,25	0,30	0,30	0,30
S.1.1											
S.1.2											
S.2.1	4	0,08	0,10	0,12	0,15	0,16	0,20	0,20	0,20	0,25	0,20
S.2.2	4	0,08	0,10	0,12	0,15	0,16	0,20	0,20	0,20	0,25	0,20
S.2.3											
S.3.1	6	0,08	0,10	0,12	0,15	0,16	0,20	0,20	0,20	0,25	0,20
S.3.2	4	0,08	0,10	0,10	0,15	0,125	0,20	0,20	0,20	0,25	0,20
S.3.3											
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1	15	0,15	0,15	0,20	0,20	0,25	0,20	0,25	0,25	0,30	0,30
O.1.2	12	0,12	0,15	0,16	0,20	0,20	0,20	0,20	0,25	0,25	0,30
O.2.1											
O.2.2											
O.3.1											

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data for HSS-E reamers

		40 140 ... / 40 150 ... / 40 155 ... / 40 145 ... / 40 139 ... / 40 160 ...							
		to Ø 25 mm		to Ø 30 mm		to Ø 40 mm		to Ø 50 mm	
Index	v_c m/min	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm
P.1.1	**15**	0,40	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.1.2	**12**	0,40	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.1.3	**10**	0,40	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.1.4	**10**	0,40	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.1.5	**8**	0,30	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.2.1	**10**	0,40	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.2.2	**8**	0,30	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.2.3	**8**	0,30	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.2.4	**8**	0,30	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.3.1	**8**	0,30	0,30	0,30	0,35	0,35	0,40	0,40	0,50
P.3.2	**6**	0,30	0,30	0,30	0,35	0,35	0,40	0,40	0,50
P.3.3	**6**	0,30	0,30	0,30	0,35	0,35	0,40	0,40	0,50
P.4.1	**6**	0,30	0,30	0,30	0,35	0,35	0,40	0,40	0,50
P.4.2	**6**	0,30	0,30	0,30	0,35	0,35	0,40	0,40	0,50
M.1.1	6	0,30	0,25	0,30	0,30	0,35	0,30	0,40	0,35
M.2.1	4	0,30	0,25	0,30	0,30	0,35	0,30	0,40	0,35
M.3.1	4	0,30	0,25	0,30	0,30	0,35	0,30	0,40	0,35
K.1.1	**14**	0,35	0,35	0,35	0,35	0,40	0,40	0,50	0,40
K.1.2	**12**	0,35	0,35	0,35	0,35	0,40	0,40	0,50	0,40
K.2.1	**12**	0,35	0,35	0,35	0,35	0,40	0,40	0,50	0,40
K.2.2	**10**	0,30	0,35	0,35	0,35	0,40	0,40	0,40	0,40
K.3.1	**12**	0,35	0,35	0,35	0,35	0,40	0,40	0,50	0,40
K.3.2	**10**	0,30	0,35	0,35	0,35	0,40	0,40	0,40	0,40
N.1.1	**20**	0,40	0,35	0,50	0,40	0,60	0,45	0,80	0,50
N.1.2	**20**	0,40	0,35	0,50	0,40	0,60	0,45	0,80	0,50
N.2.1	**18**	0,40	0,35	0,50	0,40	0,60	0,45	0,80	0,50
N.2.2	**18**	0,40	0,35	0,50	0,40	0,50	0,45	0,80	0,50
N.2.3									
N.3.1	**18**	0,30	0,40	0,30	0,40	0,40	0,50	0,40	0,50
N.3.2	**15**	0,30	0,40	0,30	0,40	0,40	0,50	0,40	0,50
N.3.3	**15**	0,30	0,40	0,30	0,40	0,40	0,50	0,40	0,50
N.4.1	**18**	0,30	0,40	0,30	0,40	0,40	0,50	0,40	0,50
S.1.1									
S.1.2									
S.2.1	4	0,30	0,25	0,30	0,30	0,35	0,35	0,40	0,35
S.2.2	4	0,30	0,25	0,30	0,30	0,35	0,35	0,40	0,35
S.2.3									
S.3.1	6	0,30	0,25	0,30	0,30	0,35	0,35	0,40	0,35
S.3.2	4	0,30	0,25	0,30	0,30	0,35	0,35	0,40	0,35
S.3.3									
H.1.1									
H.1.2									
H.1.3									
H.1.4									
H.2.1									
H.3.1									
O.1.1	**15**	0,30	0,30	0,35	0,35	0,40	0,40	0,40	0,50
O.1.2	**12**	0,25	0,30	0,30	0,35	0,30	0,40	0,35	0,50
O.2.1									
O.2.2									
O.3.1									

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data standard values for solid carbide reamers – Type H

Index	v_c in m/min	40 435 ... – Type H							
		Ø 0,98–3,99 mm		Ø 4,00–8,00 mm		Ø 8,01–16,00 mm		Ø 16,01–20,00 mm	
		f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
P.1.1	16	0,10	0,20	0,20	0,20	0,238	0,30	0,275	0,30
P.1.2	13	0,08	0,20	0,16	0,20	0,195	0,30	0,23	0,30
P.1.3	12	0,075	0,20	0,15	0,20	0,175	0,30	0,20	0,30
P.1.4	12	0,075	0,20	0,15	0,20	0,175	0,30	0,20	0,30
P.1.5	19	0,08	0,20	0,16	0,20	0,195	0,30	0,23	0,30
P.2.1	15	0,08	0,20	0,16	0,20	0,195	0,30	0,23	0,30
P.2.2	14	0,08	0,20	0,16	0,20	0,195	0,30	0,23	0,30
P.2.3	13	0,08	0,20	0,16	0,20	0,195	0,30	0,23	0,30
P.2.4	12	0,075	0,20	0,15	0,20	0,175	0,30	0,20	0,30
P.3.1									
P.3.2	11	0,063	0,20	0,125	0,20	0,15	0,30	0,175	0,30
P.3.3	11	0,063	0,20	0,125	0,20	0,15	0,30	0,175	0,30
P.4.1	11	0,063	0,20	0,125	0,20	0,15	0,30	0,175	0,30
P.4.2	8	0,05	0,20	0,10	0,20	0,113	0,30	0,125	0,30
M.1.1									
M.2.1	9	0,063	0,10	0,125	0,10	0,15	0,20	0,175	0,20
M.3.1	9	0,063	0,10	0,125	0,10	0,15	0,20	0,175	0,20
K.1.1	17	0,125	0,20	0,25	0,20	0,325	0,30	0,40	0,30
K.1.2	14	0,113	0,20	0,225	0,20	0,275	0,30	0,325	0,30
K.2.1	17	0,113	0,20	0,225	0,20	0,275	0,30	0,325	0,30
K.2.2	14	0,10	0,20	0,20	0,20	0,238	0,30	0,275	0,30
K.3.1	17	0,113	0,20	0,225	0,20	0,275	0,30	0,325	0,30
K.3.2	14	0,10	0,20	0,20	0,20	0,238	0,30	0,275	0,30
N.1.1									
N.1.2									
N.2.1									
N.2.2									
N.2.3									
N.3.1									
N.3.2									
N.3.3									
N.4.1									
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2									
S.3.3									
H.1.1	**8**	0,075	0,10	0,15	0,20	0,175	0,30	0,20	0,30
H.1.2	**7**	0,063	0,10	0,125	0,20	0,15	0,30	0,175	0,30
H.1.3	**5**	0,05	0,10	0,10	0,20	0,113	0,30	0,125	0,30
H.1.4									
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data standard values indexable insert countersink

Index	30 196 ... / 30 197 ...		
	Insert		Tool diameter
	BK8425	K10	Ø 16,5–37 mm
	v_c in m/min		f in mm/rev.
P.1.1	**200**		0,12–0,16
P.1.2	**200**		0,20–0,30
P.1.3	**200**		0,20–0,30
P.1.4	**180**		0,20–0,30
P.1.5	**180**		0,17–0,27
P.2.1	**160**		0,20–0,30
P.2.2	**160**		0,20–0,30
P.2.3	**160**		0,15–0,20
P.2.4	**160**		0,10–0,16
P.3.1	**140**		0,10–0,15
P.3.2	**140**		0,08–0,13
P.3.3	**140**		0,06–0,12
P.4.1	**120**		0,10–0,16
P.4.2	**120**		0,06–0,12
M.1.1	**160**		0,10–0,15
M.2.1	**140**		0,10–0,15
M.3.1	**100**		0,07–0,13
K.1.1	**180**		0,40
K.1.2	**160**		0,32
K.2.1	**140**		0,30
K.2.2	**140**		0,18
K.3.1	**120**		0,20
K.3.2	**120**		0,18
N.1.1		**250**	0,20
N.1.2		**250**	0,20
N.2.1		**250**	0,30
N.2.2		**250**	0,30
N.2.3		**250**	0,25
N.3.1		**230**	0,30
N.3.2		**230**	0,32
N.3.3		**230**	0,22
N.4.1		**230**	0,30
S.1.1	**60**	**20**	0,12
S.1.2	**50**	**20**	0,10
S.2.1	**60**	**20**	0,12
S.2.2	**50**	**20**	0,10
S.2.3	**30**	**20**	0,06
S.3.1	**100**	**60**	0,22
S.3.2	**80**	**30**	0,20
S.3.3	**50**	**30**	0,12
H.1.1	100		0,10
H.1.2	80		0,08
H.1.3	50		0,05
H.1.4			
H.2.1	100		0,10
H.3.1	80		0,08
O.1.1		**100**	0,10
O.1.2		**100**	0,10
O.2.1			
O.2.2		**100**	0,03
O.3.1		100	0,08

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data for solid carbide countersinks

Index	v_c m/min	30 115 ... Ø 8,0–12,4 mm	Ø 12,4–16,5 mm	Ø 16,5–20,5 mm	Ø 20,5–25,0 mm	Ø 25,0–31,0 mm	v_c m/min	30 160 ... Ø 12,4–16,5 mm	Ø 16,5–20,5 mm	Ø 20,5–25,0 mm
		f in mm/rev.						f in mm/rev.		
P.1.1	**40**	0,10	0,12	0,14	0,18	0,22	**40**	0,12	0,14	0,18
P.1.2	**40**	0,10	0,12	0,14	0,18	0,22	**40**	0,12	0,14	0,18
P.1.3	**30**	0,08	0,10	0,10	0,14	0,18	**30**	0,10	0,10	0,14
P.1.4	**30**	0,08	0,10	0,12	0,14	0,18	**30**	0,10	0,12	0,14
P.1.5	**18**	0,05	0,06	0,08	0,10	0,12	**18**	0,06	0,08	0,10
P.2.1	**30**	0,08	0,10	0,12	0,14	0,18	**30**	0,10	0,12	0,14
P.2.2	**20**	0,05	0,06	0,08	0,10	0,12	**20**	0,06	0,08	0,10
P.2.3	**18**	0,05	0,06	0,08	0,10	0,12	**18**	0,06	0,08	0,10
P.2.4	**18**	0,05	0,06	0,08	0,10	0,12	**18**	0,06	0,08	0,10
P.3.1	**18**	0,05	0,06	0,08	0,10	0,12	**18**	0,06	0,08	0,10
P.3.2	**18**	0,05	0,06	0,08	0,10	0,12	**18**	0,06	0,08	0,10
P.3.3	**18**	0,05	0,06	0,08	0,10	0,12	**18**	0,06	0,08	0,10
P.4.1										
P.4.2										
M.1.1	15	0,06	0,07	0,08	0,09	0,12	15	0,07	0,08	0,09
M.2.1	15	0,06	0,07	0,08	0,09	0,12	15	0,07	0,08	0,09
M.3.1	15	0,06	0,07	0,08	0,09	0,12	15	0,07	0,08	0,09
K.1.1	**24**	0,12	0,14	0,18	0,20	0,25	**24**	0,14	0,18	0,20
K.1.2	**24**	0,12	0,14	0,18	0,20	0,25	**24**	0,14	0,18	0,20
K.2.1	**18**	0,12	0,14	0,18	0,20	0,25	**18**	0,14	0,18	0,20
K.2.2	**18**	0,12	0,14	0,18	0,20	0,25	**18**	0,14	0,18	0,20
K.3.1	**24**	0,12	0,14	0,18	0,20	0,25	**24**	0,14	0,18	0,20
K.3.2	**18**	0,12	0,14	0,18	0,20	0,25	**18**	0,14	0,18	0,20
N.1.1	**58**	0,12	0,14	0,18	0,22	0,26	**58**	0,14	0,18	0,22
N.1.2	**58**	0,12	0,14	0,18	0,22	0,26	**58**	0,14	0,18	0,22
N.2.1	**45**	0,12	0,14	0,18	0,22	0,26	**45**	0,14	0,18	0,22
N.2.2	**45**	0,12	0,14	0,18	0,22	0,26	**45**	0,14	0,18	0,22
N.2.3	**50**	0,14	0,18	0,20	0,24	0,30	**50**	0,18	0,20	0,24
N.3.1	**50**	0,14	0,18	0,20	0,24	0,30	**50**	0,18	0,20	0,24
N.3.2	**50**	0,14	0,18	0,20	0,24	0,30	**50**	0,18	0,20	0,24
N.3.3	**50**	0,14	0,18	0,20	0,24	0,30	**50**	0,18	0,20	0,24
N.4.1	**50**	0,14	0,18	0,20	0,24	0,30	**50**	0,18	0,20	0,24
S.1.1	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.1.2	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.2.1	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.2.2	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.2.3	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.3.1	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.3.2	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.3.3	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
H.1.1	8	0,06	0,08	0,08	0,10	0,12	8	0,08	0,08	0,10
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data for solid carbide countersinks

		30 116 ... TPX76S							30 140 ... Ti50						
		Ø 4,3-8,0 mm	Ø 8,00-12,4 mm	Ø 12,40-16,5 mm	Ø 16,5-20,5 mm	Ø 20,5-25,0 mm	Ø 25,0-31,0 mm		Ø 4,3–8,0 mm	Ø 8,0–12,4 mm	Ø 12,4–16,5 mm	Ø 16,5–20,5 mm	Ø 20,5–25,0 mm	Ø 25,0–31,0 mm
Index	v_c m/min	f in mm/rev.						v_c m/min	f in mm/rev.					
P.1.1	60	0,08	0,10	0,12	0,14	0,18	0,22	40	0,08	0,10	0,12	0,14	0,18	0,22
P.1.2	60	0,08	0,10	0,12	0,14	0,18	0,22	40	0,08	0,10	0,12	0,14	0,18	0,22
P.1.3	50	0,06	0,08	0,10	0,12	0,14	0,18	30	0,06	0,08	0,10	0,12	0,14	0,18
P.1.4	50	0,06	0,08	0,10	0,12	0,14	0,18	30	0,06	0,08	0,10	0,12	0,14	0,18
P.1.5	50	0,06	0,08	0,10	0,12	0,14	0,18	30	0,06	0,08	0,10	0,12	0,14	0,18
P.2.1	50	0,06	0,08	0,10	0,12	0,14	0,18	30	0,06	0,08	0,10	0,12	0,14	0,18
P.2.2	50	0,06	0,08	0,10	0,12	0,14	0,18	12	0,04	0,05	0,06	0,08	0,10	0,12
P.2.3	40	0,04	0,05	0,06	0,08	0,10	0,12	12	0,04	0,05	0,06	0,08	0,10	0,12
P.2.4	40	0,04	0,05	0,06	0,08	0,10	0,12	12	0,04	0,05	0,06	0,08	0,10	0,12
P.3.1	50	0,06	0,08	0,10	0,12	0,14	0,18	30	0,06	0,08	0,10	0,12	0,14	0,18
P.3.2	40	0,04	0,05	0,06	0,08	0,10	0,12	12	0,04	0,05	0,06	0,08	0,10	0,12
P.3.3	40	0,04	0,05	0,06	0,08	0,10	0,12	12	0,04	0,05	0,06	0,08	0,10	0,12
P.4.1	30	0,05	0,06	0,07	0,08	0,09	0,12	15	0,05	0,06	0,07	0,08	0,09	0,12
P.4.2	30	0,05	0,06	0,07	0,08	0,09	0,12	15	0,05	0,06	0,07	0,08	0,09	0,12
M.1.1	30	0,05	0,06	0,07	0,08	0,09	0,12	15	0,05	0,06	0,07	0,08	0,09	0,12
M.2.1	30	0,05	0,06	0,07	0,08	0,09	0,12	15	0,05	0,06	0,07	0,08	0,09	0,12
M.3.1	25	0,05	0,06	0,07	0,08	0,09	0,12							
K.1.1	50	0,10	0,12	0,14	0,18	0,20	0,25	20	0,10	0,12	0,14	0,18	0,20	0,25
K.1.2	50	0,10	0,12	0,14	0,18	0,20	0,25	20	0,10	0,12	0,14	0,18	0,20	0,25
K.2.1	45	0,10	0,12	0,14	0,18	0,20	0,25	20	0,10	0,12	0,14	0,18	0,20	0,25
K.2.2	45	0,10	0,12	0,14	0,18	0,20	0,25	20	0,10	0,12	0,14	0,18	0,20	0,25
K.3.1	35	0,10	0,12	0,14	0,18	0,20	0,25	20	0,10	0,12	0,14	0,18	0,20	0,25
K.3.2	35	0,10	0,12	0,14	0,18	0,20	0,25	20	0,10	0,12	0,14	0,18	0,20	0,25
N.1.1	80	0,10	0,12	0,14	0,18	0,22	0,26	50	0,10	0,12	0,14	0,18	0,22	0,26
N.1.2	80	0,10	0,12	0,14	0,18	0,22	0,26	50	0,10	0,12	0,14	0,18	0,22	0,26
N.2.1	60	0,10	0,12	0,14	0,18	0,22	0,26	40	0,10	0,12	0,14	0,18	0,22	0,26
N.2.2	60	0,10	0,12	0,14	0,18	0,22	0,26	40	0,10	0,12	0,14	0,18	0,22	0,26
N.2.3	60	0,10	0,12	0,14	0,18	0,22	0,26	40	0,10	0,12	0,14	0,18	0,22	0,26
N.3.1	70	0,12	0,14	0,18	0,20	0,24	0,30	40	0,12	0,14	0,18	0,20	0,24	0,30
N.3.2	70	0,12	0,14	0,18	0,20	0,24	0,30	40	0,12	0,14	0,18	0,20	0,24	0,30
N.3.3	70	0,12	0,14	0,18	0,20	0,24	0,30	40	0,12	0,14	0,18	0,20	0,24	0,30
N.4.1														
S.1.1	15	0,06	0,07	0,08	0,09	0,10	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
S.1.2	15	0,06	0,07	0,08	0,09	0,10	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
S.2.1	15	0,06	0,07	0,08	0,09	0,10	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
S.2.2	15	0,06	0,07	0,08	0,09	0,10	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
S.2.3	15	0,06	0,07	0,08	0,09	0,10	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
S.3.1	15	0,06	0,07	0,08	0,09	0,10	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
S.3.2	15	0,06	0,07	0,08	0,09	0,10	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
S.3.3	15	0,06	0,07	0,08	0,09	0,10	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
H.1.1	12	0,05	0,06	0,08	0,08	0,10		6	0,05	0,06	0,08	0,08	0,10	
H.1.2	8	0,05	0,06	0,08	0,08	0,10								
H.1.3														
H.1.4														
H.2.1	12	0,05	0,06	0,08	0,08	0,10								
H.3.1														
O.1.1	70	0,12	0,14	0,18	0,20	0,24	0,30	40	0,12	0,14	0,18	0,20	0,24	0,30
O.1.2	70	0,12	0,14	0,18	0,20	0,24	0,30	40	0,12	0,14	0,18	0,20	0,24	0,30
O.2.1	25	0,10	0,12	0,14	0,18	0,20	0,25							
O.2.2	25	0,10	0,12	0,14	0,18	0,20	0,25							
O.3.1	25	0,10	0,12	0,14	0,18	0,20	0,25							

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data standard values for HSS countersink

		30 100 ... Type N						30 102 ... Type AL					
		Ø 4,3–8,0 mm	Ø 8,0–12,4 mm	Ø 12,4–16,5 mm	Ø 16,5–20,5 mm	Ø 20,5–25,0 mm	Ø 25,0–31,0 mm	Ø 4,3–8,0 mm	Ø 8,0–12,4 mm	Ø 12,4–16,5 mm	Ø 16,5–20,5 mm	Ø 20,5–25,0 mm	Ø 25,0–31,0 mm
Index	v_c m/min	f in mm/rev.						v_c m/min	f in mm/rev.				
P.1.1	30	0,06–0,08	0,10	0,12	0,14	0,18	0,22	30	0,06–0,08	0,10	0,12	0,14	0,18	0,22
P.1.2	30	0,06–0,08	0,10	0,12	0,14	0,18	0,22	30	0,06–0,08	0,10	0,12	0,14	0,18	0,22
P.1.3	25	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	25	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14
P.1.4	25	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	25	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14
P.1.5	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.1	25	0,04–0,06	0,08	0,10	0,12	0,14	0,18	25	0,04–0,06	0,08	0,10	0,12	0,14	0,18
P.2.2	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.3	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.4	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.1	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.2	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.3	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.4.1														
P.4.2														
M.1.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
M.2.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
M.3.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
K.1.1	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.1.2	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.2.1	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.2.2	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.3.1	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.3.2	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25
N.1.1	35	0,08–0,10	0,12	0,14	0,18	0,22	0,26	39	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.1.2	35	0,08–0,10	0,12	0,14	0,18	0,22	0,26	39	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.1	25	0,08–0,10	0,12	0,14	0,18	0,22	0,26	28	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.2	25	0,08–0,10	0,12	0,14	0,18	0,22	0,26	28	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.3	25	0,08–0,10	0,12	0,14	0,18	0,22	0,26	28	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.3.1	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	39	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.3.2	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	39	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.3.3	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	39	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.4.1	60	0,10–0,13	0,16	0,2	0,23	0,26	0,30	66	0,10–0,13	0,16	0,20	0,23	0,26	0,30
S.1.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.1.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.3	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.3	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
H.1.1														
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1														
O.1.1	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.1.2	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.2.1	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.2.2	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.3.1														

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data standard values for HSS countersink

		30 110 ... / 30 130 ... Type N – TiN / TiAlN						30 132 ... Type VA – TiAlN					
		Ø 4,3–8,0 mm	Ø 8,0–12,4 mm	Ø 12,4–16,5 mm	Ø 16,5–20,5 mm	Ø 20,5–25,0 mm	Ø 25,0–31,0 mm	Ø 4,3–8,0 mm	Ø 8,0–12,4 mm	Ø 12,4–16,5 mm	Ø 16,5–20,5 mm	Ø 20,5–25,0 mm	Ø 25,0–31,0 mm
Index	v_c m/min	f in mm/rev.						v_c m/min	f in mm/rev.				
P.1.1	35	0,06–0,08	0,10	0,12	0,14	0,18	0,22	35	0,06–0,08	0,10	0,12	0,14	0,18	0,22
P.1.2	35	0,06–0,08	0,10	0,12	0,14	0,18	0,22	35	0,06–0,08	0,10	0,12	0,14	0,18	0,22
P.1.3	29	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	29	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14
P.1.4	29	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	29	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14
P.1.5	14	0,03–0,04	0,05	0,06	0,08	0,10	0,12	14	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.1	29	0,04–0,06	0,08	0,10	0,12	0,14	0,18	29	0,04–0,06	0,08	0,10	0,12	0,14	0,18
P.2.2	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.3	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.4	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.1	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	13	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.2	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	13	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.3	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	13	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.4.1														
P.4.2														
M.1.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	11	0,04–0,05	0,06	0,07	0,08	0,09	0,12
M.2.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	11	0,04–0,05	0,06	0,07	0,08	0,09	0,12
M.3.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	11	0,04–0,05	0,06	0,07	0,08	0,09	0,12
K.1.1	9	0,06–0,10	0,12	0,14	0,18	0,20	0,25	14	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.1.2	9	0,06–0,10	0,12	0,14	0,18	0,20	0,25	14	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.2.1	9	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.2.2	14	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.3.1	14	0,06–0,10	0,12	0,14	0,18	0,20	0,25	14	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.3.2	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
N.1.1	40	0,08–0,10	0,12	0,14	0,18	0,22	0,26	40	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.1.2	40	0,08–0,10	0,12	0,14	0,18	0,22	0,26	40	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.1	29	0,08–0,10	0,12	0,14	0,18	0,22	0,26	29	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.2	29	0,08–0,10	0,12	0,14	0,18	0,22	0,26	29	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.3	29	0,08–0,10	0,12	0,14	0,18	0,22	0,26	29	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.3.1	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.3.2	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.3.3	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.4.1	69	0,10–0,13	0,16	0,20	0,23	0,26	0,30	69	0,10–0,13	0,16	0,20	0,23	0,26	0,30
S.1.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.1.2	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.2	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.3	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.2	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.3	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
H.1.1	5	0,04–0,05	0,06	0,07	0,08	0,10	0,12	5	0,04–0,05	0,06	0,07	0,08	0,10	0,12
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1	5	0,04–0,05	0,06	0,07	0,08	0,10	0,12	5	0,04–0,05	0,06	0,07	0,08	0,10	0,12
O.1.1	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.1.2	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.2.1	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.2.2	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.3.1														

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data standard values for HSS countersink and counterbore

		30 150 ... / 30 155 ... / 30 105 ... / 30 170 .... HSS – 60° / 90° / 120°							30 190 ... / 30 191 ... / 30 192 ... HSS		
		Ø 4,3–8,0 mm	Ø 8,0–12,4 mm	Ø 12,4–16,5 mm	Ø 16,5–20,5 mm	Ø 20,5–25,0 mm	Ø 25,0–31,0 mm		DC_2 Ø 6,3 mm	DC_2 Ø 10,0 mm	DC_2 Ø 14,0 mm
Index	v_c m/min	f in mm/rev.						v_c m/min	f in mm/rev.		
P.1.1	30	0,06–0,08	0,10	0,12	0,14	0,18	0,22	30	0,07	0,10	0,12
P.1.2	30	0,06–0,08	0,10	0,12	0,14	0,18	0,22	30	0,07	0,10	0,12
P.1.3	25	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	25	0,05	0,07	0,09
P.1.4	25	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	25	0,05	0,07	0,09
P.1.5	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	12	0,04	0,05	0,07
P.2.1	25	0,04–0,06	0,08	0,10	0,12	0,14	0,18	25	0,05	0,07	0,09
P.2.2	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,04	0,05	0,06
P.2.3	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,04	0,05	0,06
P.2.4	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,04	0,05	0,06
P.3.1	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,04	0,05	0,06
P.3.2	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,04	0,05	0,06
P.3.3	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,04	0,05	0,06
P.4.1											
P.4.2											
M.1.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
M.2.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
M.3.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
K.1.1	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,08	0,13	0,16
K.1.2	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,08	0,13	0,16
K.2.1	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25	10	0,08	0,13	0,16
K.2.2	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25	10	0,08	0,13	0,16
K.3.1	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,08	0,13	0,16
K.3.2	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25	10	0,08	0,13	0,16
N.1.1	35	0,08–0,10	0,12	0,14	0,18	0,22	0,26	35	0,09	0,13	0,16
N.1.2	35	0,08–0,10	0,12	0,14	0,18	0,22	0,26	35	0,09	0,13	0,16
N.2.1	25	0,08–0,10	0,12	0,14	0,18	0,22	0,26	25	0,09	0,13	0,16
N.2.2	25	0,08–0,10	0,12	0,14	0,18	0,22	0,26	25	0,09	0,13	0,16
N.2.3	25	0,08–0,10	0,12	0,14	0,18	0,22	0,26	25	0,09	0,13	0,16
N.3.1	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,11	0,16	0,18
N.3.2	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,11	0,16	0,18
N.3.3	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,11	0,16	0,18
N.4.1	60	0,10–0,13	0,16	0,20	0,23	0,26	0,30	60	0,12	0,18	0,21
S.1.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
S.1.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
S.2.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
S.2.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
S.2.3	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
S.3.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
S.3.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
S.3.3	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,11	0,16	0,18
O.1.2	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,11	0,16	0,18
O.2.1	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,11	0,16	0,18
O.2.2	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,11	0,16	0,18
O.3.1											

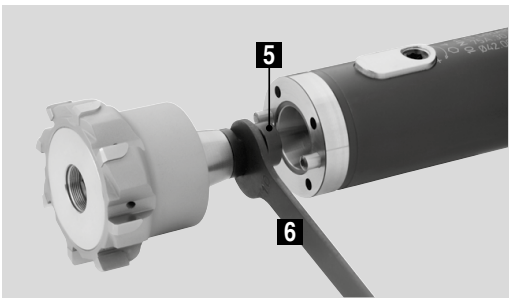
The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data standard values for HSS-E deburring countersink

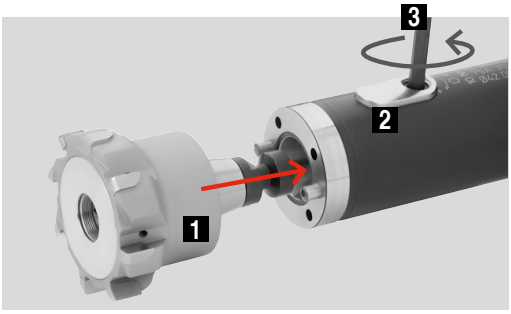
			30 120 ... / 30 121 ...					
			HSS-E – 90°					
	TiN	uncoated	Ø 6,3 mm	Ø 10,0 mm	Ø 14,0 mm	Ø 21,0 mm	Ø 28,0 mm	Ø 35,0 mm
Index	v_c m/min	v_c m/min	f in mm/rev.					
P.1.1	**35**	**30**	0,06–0,08	0,10	0,12	0,14	0,18	0,22
P.1.2	**35**	**30**	0,06–0,08	0,10	0,12	0,14	0,18	0,22
P.1.3	**29**	**25**	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14
P.1.4	**29**	**25**	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14
P.1.5	**14**	**12**	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.1	**29**	**25**	0,04–0,06	0,08	0,10	0,12	0,14	0,18
P.2.2	**12**	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.3	**12**	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.4	**12**	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.1	**12**	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.2	**12**	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.3	**12**	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.4.1								
P.4.2								
M.1.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
M.2.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
M.3.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
K.1.1	**9**	**12**	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.1.2	**9**	**12**	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.2.1	**9**	**10**	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.2.2	**14**	**10**	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.3.1	**14**	**12**	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.3.2	**12**	**10**	0,06–0,10	0,12	0,14	0,18	0,20	0,25
N.1.1	**40**	**35**	0,08–0,1	0,12	0,14	0,18	0,22	0,26
N.1.2	**40**	**35**	0,08–0,1	0,12	0,14	0,18	0,22	0,26
N.2.1	**29**	**25**	0,08–0,1	0,12	0,14	0,18	0,22	0,26
N.2.2	**29**	**25**	0,08–0,1	0,12	0,14	0,18	0,22	0,26
N.2.3	**29**	**25**	0,08–0,1	0,12	0,14	0,18	0,22	0,26
N.3.1	**40**	**35**	0,1–0,12	0,14	0,18	0,20	0,24	0,30
N.3.2	**40**	**35**	0,1–0,12	0,14	0,18	0,20	0,24	0,30
N.3.3	**40**	**35**	0,1–0,12	0,14	0,18	0,20	0,24	0,30
N.4.1	**69**	**60**	0,1–0,13	0,16	0,20	0,23	0,26	0,30
S.1.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.1.2	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.2	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.3	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.2	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.3	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
H.1.1	4		0,04–0,05	0,06	0,07	0,08	0,10	0,12
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1	4		0,04–0,05	0,06	0,07	0,08	0,10	0,12
O.1.1	**40**	**35**	0,1–0,12	0,14	0,18	0,20	0,24	0,30
O.1.2	**40**	**35**	0,1–0,12	0,14	0,18	0,20	0,24	0,30
O.2.1	**40**	**35**	0,1–0,12	0,14	0,18	0,20	0,24	0,30
O.2.2	**40**	**35**	0,1–0,12	0,14	0,18	0,20	0,24	0,30
O.3.1								

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

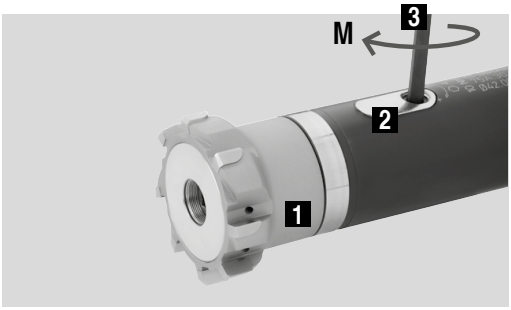
REAMAX TS – Assembly instructions



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

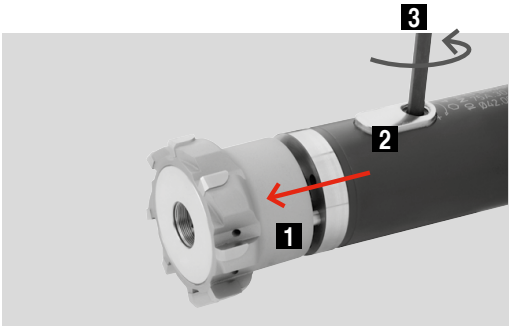


Use key (3) to open jaws (2), but do not fully release, and insert reaming head (1).

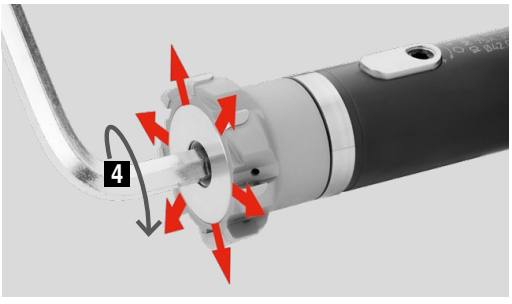


Use the key (3) to close the jaws (2), observe the recommended tightening torque. When inserting the reaming head (1), this is pulled into its final position when the jaws (2) are closed.

x Range	Tightening torque (M)
18,000 – 19,999	1,5 Nm
20,000 – 21,999	2,5 Nm
22,000 – 26,999	4 Nm
27,000 – 34,999	5 Nm
35,000 – 41,999	6 Nm
42,000 – 51,999	10 Nm
52,000 – 70,000	13 Nm



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



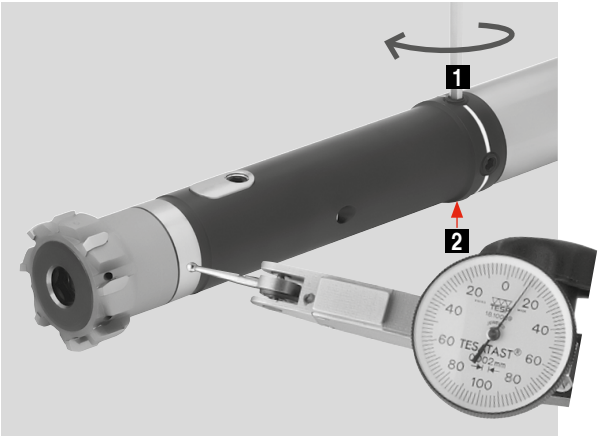
Adjustment for wear compensation:
The smallest drilling tolerances up to IT4 can be achieved through adjustment with the hex key (4).

REAMAX TS – Operating instructions

Aligning the DAH Zero holder

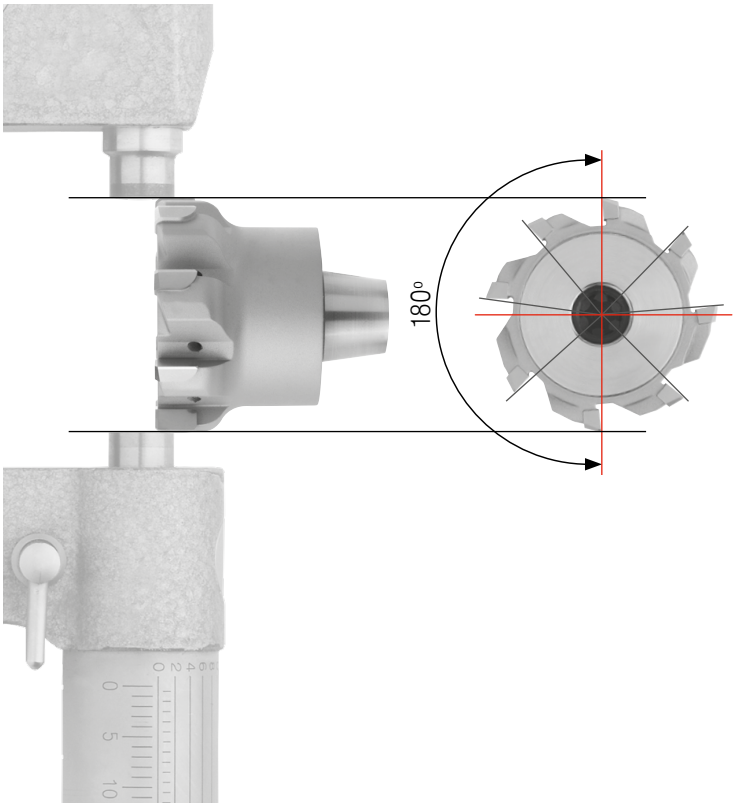
The tool is recommended for radial alignment of max. 20 µm.

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

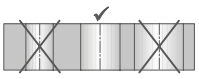


Please note:
- The runout must be checked and if necessary re-aligned after an adapter changeover, change of application, after any adjustment for wear compensation and before every re-commissioning, using adjustment steps 1 to 6
- Adjustment screws must always be tightened during usage with at least 1 Nm
- The max. re-adjustment torque is 4.5 Nm

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

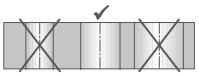


Problems / possible causes / solutions



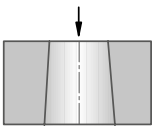
Hole too large

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



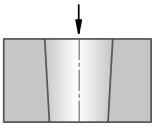
Hole too small

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



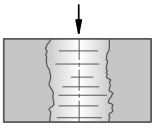
Conical hole, tapered backwards

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



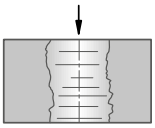
Conical hole, tapered forwards

- Poor alignment, cutting edges push initially → correct alignment and use DPS floating holder



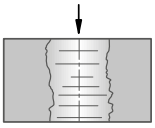
Hole is not round

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



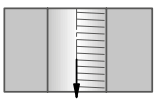
Hole exhibits chatter marks

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



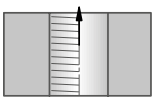
Non clean-up

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



Grooves in the hole "Feed marking"

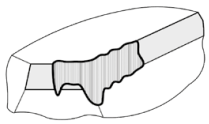
- Faulty cutting edge (edge breakage) → have reamer replaced or repaired
- Built-up edges → reduce cutting speed v_c for uncoated carbide cutting material, increase it for DST and coated cutting material or increase the oil content of the coolant



Grooves in the hole "Retraction marking"

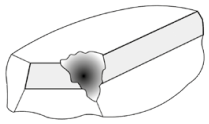
- Cutting edges moved too far out of the hole → move no more than lead length + 2 mm out of the hole
- Material springs back → do not retract at high speed but with increased (2–3 times) feed rate

Types of wear



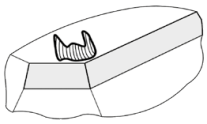
Wear on clearance face

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



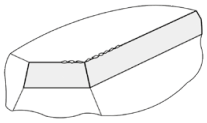
Cutting edge breakage

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



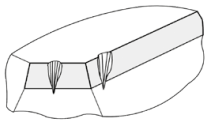
Cratering

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



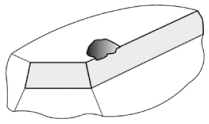
Edge breakages

Increase the cutting speed and use larger rake angle.



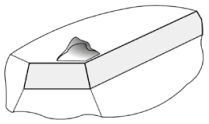
Notch wear

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



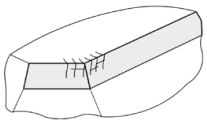
Fatigue fracture

Reduce feed, increase reamer stability.



Built-up edge

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

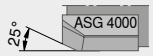
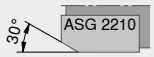
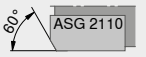
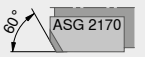


Cracks at right angles to the cutting edge

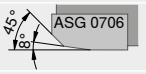
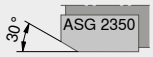
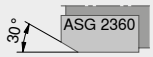
Use sufficient coolant and thro' coolant, reduce the cutting speed.

Common cutting edge geometries in the performance area

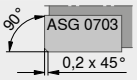
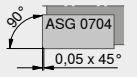
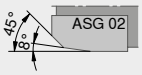
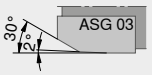
Standard geometries

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

Standard geometries

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

Special geometries

Geometry	Flute type	Chip flow Comments	Lead angle
ASG0703	straight	Leading edge	
ASG0704	straight	Leading edge with increased positional accuracy	
ASG09B	straight	Swarf control < x 32 mm	
ASG1402	straight	Swarf control > 32 mm	
ASG02	straight	↔	
ASG03	straight	↔	
ASG05	left-handed	←	

Achievable surface quality

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

reachable ▬ conditionally reachable

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

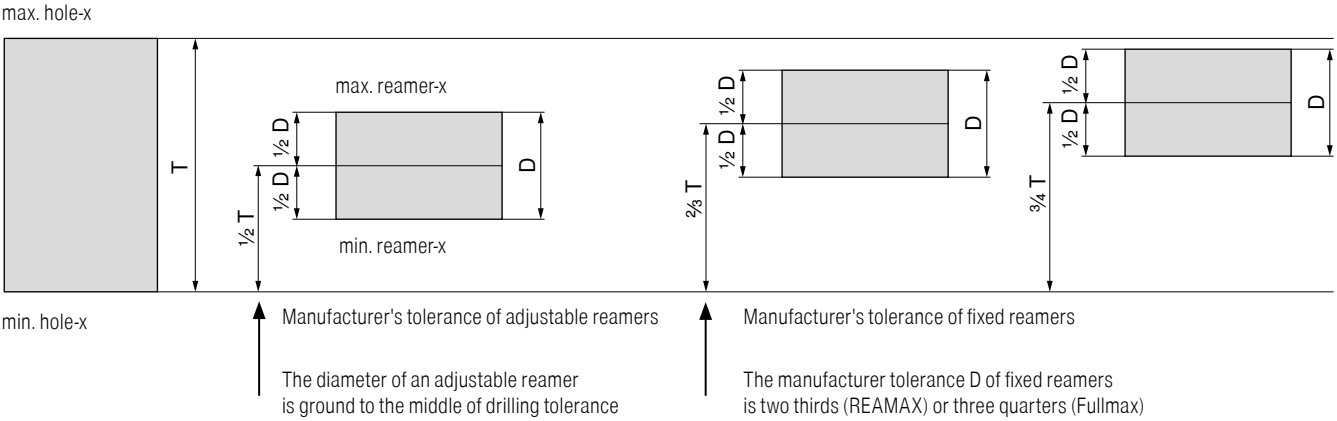
Tolerance classes covered with 1/100 reamer

The most common tolerance is H7, so most reamers configured for an H7 fit tolerance.
With the 1/100 reamers, increments of 0.01 mm can be covered, but are also suitable for various other dimensions.
For example, a 1/100 reamer diameter 8.02 mm can be used for a 8.0 fit F7.
Other fit sizes shown in the table.

Tolerance	Nominal Ø in mm											
zone	1,0	2,0	3,0	4,0	5,0	6,0	7,0	8,0	9,0	10,0	11,0	12,0
A9				4,29	5,29	6,29	7,30	8,30	9,30	10,30	11,32	12,32
A11	1,31	2,31	3,31	4,32	5,32	6,32	7,35	8,35	9,35	10,35	11,37	12,37
B8				4,15	5,15	6,15	7,16	8,16	9,16	10,16		
B9				4,16	5,16	6,16	7,17	8,17	9,17	10,17	11,18	12,18
B10	1,17	2,17	3,17	4,17	5,17	6,17	7,19	8,19	9,19	10,19	11,20	12,20
B11	1,18	2,18	3,18	4,19	5,19	6,19	7,22	8,22	9,22	10,22	11,23	12,23
C8				4,08	5,08	6,08	7,09	8,09	9,09	10,09	11,11	12,11
C9	1,07	2,07	3,07	4,09	5,09	6,09	7,10	8,10	9,10	10,10	11,12	12,12
C10	1,09	2,09	3,09	4,10	5,10	6,10	7,12	8,12	9,12	10,12	11,14	12,14
C11	1,10	2,10	3,10	4,12	5,12	6,12	7,15	8,15	9,15	10,15	11,18	12,18
D7											11,06	12,06
D8				4,04	5,04	6,04	7,05	8,05	9,05	10,05	11,06	12,06
D9				4,05	5,05	6,05	7,06	8,06	9,06	10,06	11,08	12,08
D10	1,05	2,05	3,05	4,06	5,06	6,06	7,08	8,08	9,08	10,08	11,10	12,10
D11	1,06	2,06	3,06	4,08	5,08	6,08	7,10	8,10	9,10	10,10	11,13	12,13
E7							7,03	8,03	9,03	10,03	11,04	12,04
E8	1,02	2,02	3,02	4,03	5,03	6,03	7,04	8,04	9,04	10,04	11,05	12,05
E9	1,03	2,03	3,03	4,04	5,04	6,04	7,05	8,05	9,05	10,05	11,06	12,06
F7	1,01	2,01	3,01				7,02	8,02	9,02	10,02	11,02	12,02
F8	1,01	2,01	3,01	4,02	5,02	6,02	7,02	8,02	9,02	10,02	11,03	12,03
F9	1,02	2,02	3,02	4,03	5,03	6,03	7,03	8,03	9,03	10,03	11,04	12,04
F10				4,04	5,04	6,04	7,05	8,05	9,05	10,05	11,07	12,07
G7				4,01	5,01	6,01	7,01	8,01	9,01	10,01		
H7										10,01	11,01	12,01
H8				4,01	5,01	6,01	7,01	8,01	9,01	10,01	11,02	12,02
H9	1,01	2,01	3,01	4,02	5,02	6,02	7,02	8,02	9,02	10,02	11,03	12,03
H10	1,03	2,03	3,03	4,03	5,03	6,03	7,04	8,04	9,04	10,04	11,05	12,05
H11	1,04	2,04	3,04	4,05	5,05	6,05	7,06	8,06	9,06	10,06	11,08	12,08
H12	1,07	2,07	3,07	4,08	5,08	6,08	7,10	8,10	9,10	10,10	11,13	12,13
H13	1,11	2,11	3,11	4,14	5,14	6,14	7,18	8,18	9,18	10,18	11,22	12,22
J6				4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
J7				4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
J8	1,00	2,00	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
JS7				4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
JS8	1,00	2,00	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
JS9	1,00	2,00	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,01	12,01
K8	0,99	1,99	2,99				6,99	7,99	8,99	9,99	10,99	11,99
M6							6,99	7,99	8,99	9,99	10,99	11,99
M7							6,99	7,99	8,99	9,99	10,99	11,99
M8	0,99	1,99	2,99	3,99	4,99	5,99	6,99	7,99	8,99	9,99	10,99	11,99
N6				3,99	4,99	5,99						
N7	0,99	1,99	2,99	3,99	4,99	5,99	6,99	7,99	8,99	9,99	10,99	11,99
N8	0,99	1,99	2,99	3,99	4,99	5,99	6,99	7,99	8,99	9,99	10,98	11,98
N9	0,98	1,98	2,98	3,99	4,99	5,99	6,99	7,99	8,99	9,99	10,98	11,98
N10	0,98	1,98	2,98	3,98	4,94	5,98	6,98	7,98	8,98	9,98	10,98	11,98
N11	0,98	1,98	2,98	3,98	4,94	5,98	6,98	7,98	8,98	9,98	10,97	11,97
P6	0,99	1,99	2,99								10,98	11,98
P7	0,99	1,99	2,99				6,98	7,98	8,98	9,98	10,98	11,98
P8	0,99	1,99	2,99	3,98	4,98	5,98					10,97	11,97
R6							6,98	7,98	8,98	9,98		
R7				3,98	4,98	5,98	6,98	7,98	8,98	9,98	10,97	11,97
S6				3,98	4,98	5,98					10,97	11,97
S7	0,98	1,98	2,98	3,98	4,98	5,98	6,97	7,97	8,97	9,97	10,97	11,97
U6							6,97	7,97	8,97	9,97		
U7				3,97	4,97	5,97	6,97	7,97	8,97	9,97		
X7				3,97	4,97	5,97						
X8	0,97	1,97	2,97				6,96	7,96	8,96	9,96	10,95	11,95
X9	0,97	1,97	2,97	3,96	4,96	5,96	6,95	7,95	8,95	9,95		
Z7	0,97	1,97	2,97	3,96	4,96	5,96	6,96	7,96	8,96	9,96	10,95	11,95
Z8	0,97	1,97	2,97	3,96	4,96	5,96	6,95	7,95	8,95	9,95	10,94	11,94
Z9				3,95	4,95	5,95						
Z10	0,96	1,96	2,96	3,95	4,95	5,95	6,94	7,94	8,94	9,94	10,93	11,93
ZA7	0,96	1,96	2,96	3,95	4,95	5,95	6,94	7,94	8,94	9,94		
ZA8							6,94	7,94	8,94	9,94	10,93	11,93
ZB8	0,95	1,95	2,95	3,94	4,94	5,94					10,90	11,90
ZB9	0,95	1,95	2,95	3,94	4,94	5,94	6,92	7,92	8,92	9,92	10,90	11,90

Manufacturer's tolerance of the reamers

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



Manufacturer's tolerance of adjustable reamers

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

Manufacturer's tolerance of fixed reamers

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

Coatings – Reaming and Countersinking

TPX76S
- TiN-TiAlN-ZrN Monolayer coating
- Maximum application temperature: 800 °C

TiAlSiN
- TiAlSiN- Multilayer coating
- Maximum application temperature: 800 °C
- Specially designed for machining hardened steels: high hardness and heat resistance with low thermal conductivity.

TiAlN
- TiAlN multilayer coating
- Maximum application temperature: 900 °C

DBF-A
- AlCrN Multilayer coating
- specially developed for the machining of tempered materials < 62 HRC
- maximum application temperature: > 1100 °C

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

DBG-U
- AlTiN Multilayer coating
- Especially for universal use in a variety of materials as well as for the machining of tempered materials < 62 HRC
- For high cutting speeds and suitable for MMS application
- Maximum application temperature: 1000 °C

Ti50
- TiN multilayer coating
- Maximum application temperature: 400 °C

TiN
- TiN coating
- Maximum application temperature: 450 °C

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

DBC-N
- Diamond-like ta-C-Multilayer-carbon coating
- Particularly hard and smooth coating and therefore especially for machining non-ferrous metals
- Maximum application temperature: 500 °C

DBQ
- AlCrN-Multilayer-Beschichtung
- Particularly suitable for machining stainless steels and titanium
- Low formation of built-up edges
- Maximum application temperature: > 1000 °C

Grade description – Reamers

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

CWK10
- Carbide, uncoated
- ISO | **K10**
- The uncoated carbide grade for universal application

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

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

Grade description – Indexable insert countersink

BK8425
- Carbide, TiAlN/TiN-coated
- ISO | **P25** | **M25** | **K25**
- Universal grade with greater wear resistance thanks to innovative PVD multi-layer coating

HCR1135
- Carbide, TiCN-Al_2O_3-coated
- ISO | **P35** | M25 | S25
- The tough alternative for heavily interrupted cut and unstable conditions

CWN2135
- Carbide, TiCN-TiNB-coated
- ISO | P35 | **M30** | S35
- The turning grade for general stainless machining

CWK15
- Carbide, uncoated
- ISO | **K15** | **N15**
- The uncoated carbide grade for machining aluminium and other non-ferrous metals

AMZ
- Carbide, TiAlN-coated
- ISO | P10 | K10 | **N10** | S10
- The coated carbide grade for aluminium machining

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

HCX1125
- Carbide, TiCN-Al_2O_3-coated
- ISO | P25 | M20 | **K30**
- The first choice for universal machining of steels

DCX3110
- Carbide, TiCN-Al_2O_3-coated
- ISO | P05 | **K10**
- The wear-resistant grade for machining cast iron materials at high cutting speeds in a continuous cut

CWN15
- Carbide, TiN-coated
- ISO | **K15**
- Special carbide grade for abrasive aluminium alloys

Chip breakers

-SM
- Rake angle 15°
- For universal use with medium machining
- Stable cutting edge

-U877
- Rake angle 6°
- circumferentially ground
- Three-ground chip breaker with second clearance angle for clearance with small tool diameters

-G06
- Rake angle 6°
- Preferred application in P / M / K
- Characterized by a particularly stable wedge angle

-G12
- Rake angle 12°
- Preferred application in P / N / S
- is characterized by a particularly high cutting performance

-27
- Rake angle 19-25°
- Universal aluminium geometry
- High cutting performance and therefore high feed rates possible
- Low adhesion

New products for machining technicians

NEW M03Speed – Precision adjustment head



- Application range Ø 24.8 – 206 mm
- Unique: Automatic, dynamic balancing compensation in the slide for maximum speeds
- Extremely user-friendly: Adjustment scale: high resolution gives easy read-off

→ Page 15+16

NEW FF precision adjustment head



- Application range Ø 29.5 – 199 mm
- Precision rotary cartridge can also be implemented just as flexibly into tools developed in-house

→ Page 17+18

NEW Fine boring bar



- Application range Ø 15.9 – 26 mm
- Precision adjustment range: 0.02 mm in Ø per line
- Ideal for high speeds

→ Page 21

NEW TwinKom



- Application range Ø 24 – 215 mm
- Twin cutter with axially and radially adjustable insert holders
- Compact, very stable design

→ Page 42–44

NEW hi.flex – Digital



- hi.flex goes digital: The newly developed variant of the hi.flex precision adjustment head now supports the analogue and digital adjustment of the diameter to be machined

→ Page 11

NEW Digital stick

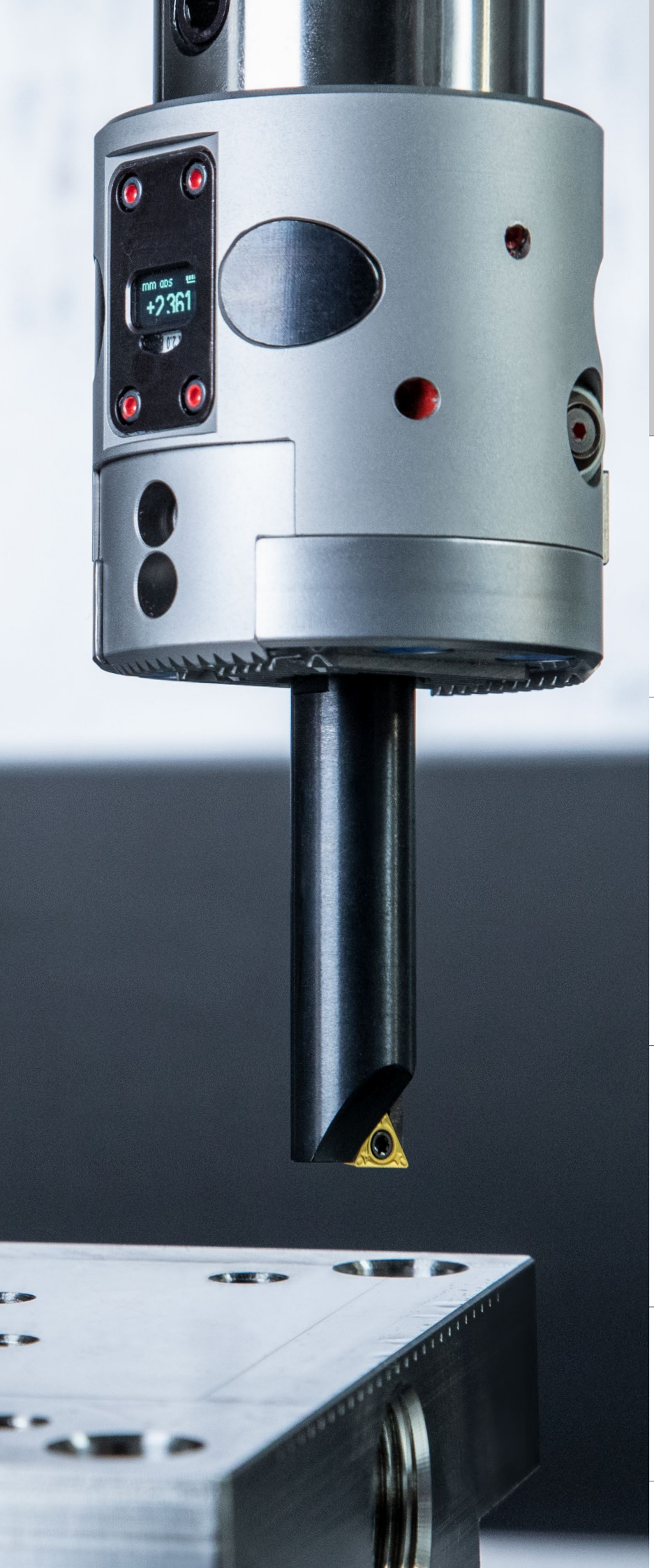


- Digital 2.0: Update of the existing digital stick from the SpinTools line for even more precise adjusting

NEW Accessories



- Expansion of the existing equipment for hi.flex and BluFlex 2 with various attachments
- Expansion of the spindle range: Ø 5.6 – 365 mm



Solid drilling and bore machining

1 HSS drilling
2 Solid carbide drilling
3 Indexable insert drilling
4 Reaming and Countersinking
5 Spindle Tooling 5

Threading

6 Taps and thread formers
7 Circular and Thread Milling
8 Thread turning

Turning

9 Turning Tools
10 Multifunctional Tools – EcoCut and FreeTurn
11 Grooving Tools
12 Miniature turning tools

Milling

13 HSS Milling Cutters
14 Solid Carbide milling cutters
15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories
17 Workpiece clamping

18 Material examples and article no. Index

Table of contents

Symbol explanation	2
Toolfinder	3–8
Contents Overview Accessories	9
Product programme	10–63
Cutting Data	64–71
Technical Information	
Maximum speeds, scale accuracy and maximum overhang length LTA	72+73
Selection of the rake angle and the cutting radius	74
Types of wear	75
Grades Overview	76
Coating and chip breaker	77

KOMET \ Performance

Premium quality tools for high performance.

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

Symbol explanation

F Fine Machining
M Medium Machining
R Rough Machining

Smooth cut
Irregular cutting depth
Interrupted cut


Coolant supply central
Steep taper Form AD


Coolant supply either
via the flange or centrally

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

STM Modular SpinTools interface

ER 32 System-independent ER 32 interface

Micron-precise display resolution:
0.001 mm in diameter

Universal ABS interface

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



Absolute position measuring system

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

Toolfinder

		System	Diameter range per head in mm	Digital	Analogue	ABS Modular	STM Modular	ER 32 Modular	Monoblock	Through spindle	Comments	Page No.
Machining	Finishing	BluFlex 2 – precision adjustment head Ø 5,6–365 mm	5,6–365	✓		✓				✓	Through spindle larger head diameters	10
		hi.flex – precision adjustment head Ø 5,6–365 mm	5,6–365	✓	✓	✓				✓	Through spindle larger head diameters	11
		M03 Speed – precision adjustment head Ø 24,8–206 mm	24,8–33,0 / 29–39 / 38–50 / 49–63 / 62–80 / 79–103 / 100–206		✓	✓				✓		15
		FF precision adjustment head Ø 29,5–199 mm	29,5–36 / 35,5–42 / 39–45 / 44–50 / 47–57 / 56–66 / 58–71 / 70–83 / 79–94 / 93–108 / 100–121 / 120–141 / 138–159 / 158–179 / 178–199		✓	✓				✓		17
		Micro Boring Head Ø 0,3–19,1 mm	0,3–7,1 / 0,3–19,1	✓	✓							19
		Fine boring bar Ø 15,9–26 mm	15,9–20 / 19–23 / 22–26		✓					✓		21
		Fine boring head Ø 14,7–24,1 mm	14,7–17,1 / 16,7–20,1 / 19,7–24,1		✓					✓		22
		Multi-Head – Fine boring head Ø 3,0–320 mm	3,0–320		✓		✓		✓	✓	Through spindle larger head diameters	24
		Single point boring head Ø 3,0–88,1 mm	3,0–88,1	✓	✓		✓	✓	✓	✓	Through spindle larger head diameters	26–28
		Single point finish boring heads Ø 23,9–116,1 mm	23,9–31,1 / 30,9–40,1 / 39,9–51,1 / 50,9–67,1 / 66,9–87,1 / 86,9–116,1	✓	✓		✓			✓		35
		Vario-Head – boring and fine boring head Ø 3,0–152 mm	3,0–152	✓		✓						38
		Single point finish boring heads Ø 86–402 mm	86–402		✓		✓			✓		40
		Console tool with baseplate Ø 150–655 mm	150–205 / 200–255 / 250–305 / 300–355 / 350–405 / 400–455 / 450–505 / 500–555 / 550–605 / 600–655		✓					✓	also available with roughing head	
		Console tool with slide Ø 650–2205 mm	650–1105 / 1100–1655 / 1650–2205		✓					✓	also available with roughing head	
	Roughing – Finishing	TwinKom Ø 24–215 mm	24–32 / 30–41 / 39–53 / 51–71 / 64–91 / 83–124 / 109–167 / 139–215		✓	✓				✓	in short and long version	42
		Twin edged rough / fine boring head Ø 29,5–115,5 mm	29,5–40,1 / 39,5–50,5 / 49,5–66,5 / 65,5–87,5 / 86,5–115,5		✓		✓			✓		45
	Roughing	Twin rough boring head Ø 23,5–153,0 mm	23,5–30,5 / 29,5–40,1 / 39,5–50,5 / 49,5–66,5 / 65,5–87,5 / 86,5–115,5 / 114,5–153,0		✓		✓			✓		47

This article can be found in our online shop at cuttingtools.ceratizit.com

System overview – MicroKom

System

Diameter range Ø 5,6 – 365,0 mm

BluFlex 2



10

hi.flex



11

ABS

Fine boring bar

Diameter range Ø 15,9 – 26,0 mm



21

Accessories

Diameter range Ø 5,6 – 27,9 mm

Diameter range Ø 23 – 365,0 mm

ABS32 boring bar



12

Steel boring bar



12

Boring bar, vibration-optimised



13

Adapter



12

Boring Bar



13

Filling piece



14

Insert holder



14

Bridge



14

Insert holder



14

Serrated body



14

Insert holder



14

Support bridge



12

Insert holder



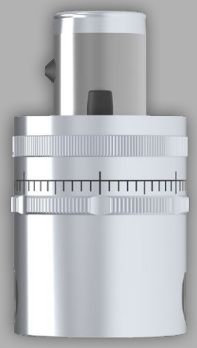
21

= necessary
= optional

5

Diameter range Ø 24,8 – 206,0 mm

M03 Speed precision adjustment head



15

ABS

Diameter range Ø 25,9 – 199,0 mm

FF precision adjustment head

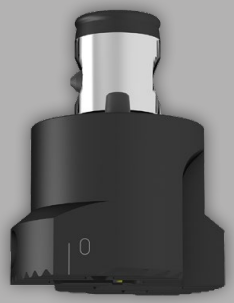


17

ABS

Diameter range Ø 24 – 215,0 mm

TwinKom



42

ABS

Diameter range Ø 24,8 – 39,0 mm

Insert holder



16

Diameter range Ø 38,0 – 103,0 mm

Insert holder



16

Diameter range Ø 100,0 – 206,0 mm

Interchangeable bridge



16

Insert holder



16

Precision turning insert



18

Tool holder 90° radially adjustable



43

Tool holder 80° radially adjustable



43

Basic tool holder, radially + axially adjustable



44

Indexable insert 90°



44

Indexable insert 80°



44

System overview – SpinTools

System

Micro Boring Head

Diameter range Ø 0,3 – 19,1 mm



19

Multi-Head boring and fine boring head

Diameter range Ø 3,0 – 320,0 mm



24

HSK-A | SK | MAS BT | STM

Fine boring head

Diameter range Ø 14,7 – 24,1 mm



22

Accessories

Micro Boring Head

- Adapter — 20
- Solid carbide cutting insert — 20
- Solid carbide cutting insert — 20
- Tool holder for solid carbide insert — 20
- Solid carbide insert — 20

Multi-Head boring and fine boring head

Diameter range Ø 3,0 – 53,1 mm

- Balancing ring — 32
- Boring tool with carbide shank — 29
- Reduction sleeve — 30
- Boring bar with carbide shank — 30
- High-speed boring shank / head — 23+31
- Steel boring bar — 29
- Boring tool extension — 30

Diameter range Ø 29,75 – 320 mm

- Over turning holder for boring head — 31
- High-speed boring head — 31
- Adjustable boring bar — 29
- Axial grooving holder for UltraMini — 25
- Bridge for Multi-Head — 25
- Counterweight — 25
- Insert holder — 29

Fine boring head

- High-speed boring shank, carbide / steel — 23+31
- Shank extension — 23
- Insert holder, 90° — 22

= necessary
= optional

5

Single point finish boring heads

Diameter range Ø 23,9 – 134,1 mm



35

STM

Single point boring head

Diameter range Ø 3,0 – 88,0 mm



26–28

ER 32 | HSK-A | SK | MAS BT | STM

Vario-Head - boring and fine boring head

Diameter range Ø 3,0 – 152 mm



38

STM

Diameter range Ø 3,0 – 53,1 mm

- Balancing ring — 32
- High-speed boring shank, carbide — 36
- Reverse adapters for back boring — 37

Diameter range Ø 29,75 – 88,0 mm

- Insert holder, 90°, extended — 36
- Insert holder, 90° — 36
- Insert holder, 95° — 36

Diameter range Ø 3,0 – 53,1 mm

- Balancing ring — 32
- Reduction sleeve — 30
- Boring tool with carbide shank — 29
- Boring bar with carbide shank — 30
- High-speed boring shank / head — 23+31
- Steel boring bar — 29
- Boring tool extension — 30

Diameter range Ø 29,75 – 152,0 mm

- Over turning holder for boring head — 31
- High-speed boring head — 31
- Adjustable boring bar — 29
- Axial grooving holder for UltraMini — 25
- Insert holder — 29

Diameter range Ø 3,0 – 53,1 mm

- Balancing ring — 32
- Reduction sleeve — 30
- Boring tool with carbide shank — 29
- Boring bar with carbide shank — 30
- High-speed boring shank / head — 23+31
- Steel boring bar — 29
- Boring tool extension — 30

Diameter range Ø 29,75 – 152,0 mm

- Over turning holder for boring head — 31
- High-speed boring head — 31
- Adjustable boring bar — 29
- Axial grooving holder for UltraMini — 25
- Insert holder — 29
- Spacer — 39
- Insert holder, 90° — 39

System overview – SpinTools

System

Single point finish boring heads

Diameter range Ø 86,0 – 402,0 mm



40

STM

Twin edged rough / fine boring head

Diameter range Ø 29,5 – 115,5 mm



45

STM

Twin rough boring head

Diameter range Ø 23,5 – 153,0 mm



47

STM

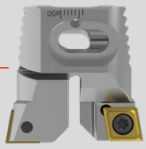
Accessories

Insert holder



40

Pair of roughing/finishing insert holders, 90°



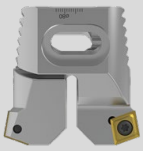
46

Pair of insert holders, Standard 90°



48

Pair of insert holders, Standard 70°



48

Pair of insert holders, Synchro 90°



49

Insert holder 90°, axial offset 0.4 mm



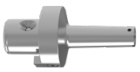
49

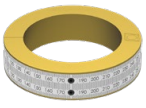
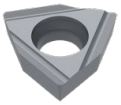
Overview of base adapters and accessories

System			SK	MAS-BT	HSK-A	Cylindrical shank
Base adapter		ABS	Catalogue – Clamping technology → Page: 41	87	146	
Base adapter		STM	51	52	53	54

5

Accessories

Extension		STM	57
Reduction		STM	55+56
Collet Chuck		STM	50
Shell mill adapter		STM	50

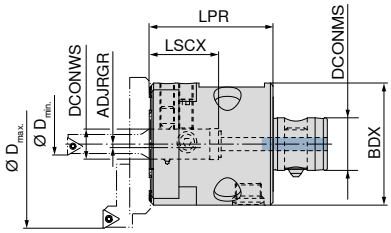
General		
Balancing rings		32
Indexable inserts MicroKom		58–61
Indexable inserts SpinTools		62+63

MicroKom – BluFlex 2 – precision adjustment head

- ▲ Via the free app (Android/IOS), an extended display can be transferred to a standard smartphone (62 840 16097)
- ▲ For MicroKom boring bars with Ø 16 or with ABS 32, MicroKom bridges, and serrated body
- ▲ With thro' coolant supply
- ▲ LSCX = Recess depth of boring bar

Scope of supply:
incl. Battery

ABS





									without Bluetooth	with Bluetooth
									62 820 ...	62 840 ...
D_{min} - D_{max} mm	KOMET no.	Adapter	DCONWS mm	DCONMS mm	BDX mm	LPR mm	LSCX mm	ADJRGR mm		
5,6 - 365	M04 30100	ABS 50	16	28	65	71	38	4,65	16097	
5,6 - 365	M04 30000	ABS 50	16	28	65	71	38	4,65		16097


Clamping screw


Clamping screw


Clamping screw


Clamping sleeve


Battery cover

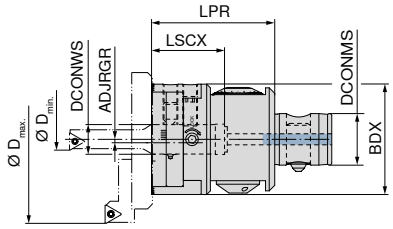
			62 950 ...			62 950 ...			62 950 ...		62 950 ...		62 950 ...
Spare parts for Article no.										
62 820 16097	M8x1x12/SW4	**13989**		M8x1x20/SW4	**13700**		M5x14/SW4	**18600**		**18500**		**18400**
62 840 16097	M8x1x12/SW4	**13989**		M8x1x20/SW4	**13700**		M5x14/SW4	**18600**		**18500**		**18400**

Suitable ABS adapters can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

MicroKom – hi.flex – precision adjustment head

- for MicroKom boring bars with Ø 16 mm or ABS 32, MicroKom bridges, and serrated body
- with thro' coolant supply
- LSCX = Recess depth of boring bar

ABS





5

D_{min} - D_{max} mm	KOMET no.	Adapter	DCONWS mm	DCONMS mm	BDX mm	LPR mm	LSCX mm	ADJRGR mm	Analogue 62 800 ...	NEW Digital 62 800 ...
5,6 - 365	M05 01000	ABS 50	16	28	60	67	39,7	10,5	16097	
5,6 - 365	M04 10040	ABS 50	16	28	60	67	39,7	10,5		16197


Clamping screw


Clamping screw


Clamping screw

Spare parts for Article no.		62 950 ...		62 950 ...		62 950 ...
62 800 16097	M8x8/SW4	14700	M8x1x12/SW4	13989	M8x1x20/SW4	13700
62 800 16197	M8x8/SW4	14700	M8x1x12/SW4	13989	M8x1x20/SW4	13700

Suitable ABS adapters can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

SpinTools – Digital Stick

- suitable for all SpinTools digital heads as well as for hi.flex Digital
- revised software for even more precise adjustment

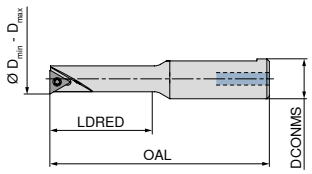
Scope of supply:
incl. AAA Battery



NEW
62 309 ...
00100

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

▲ With internal coolant supply





62 850 ...

D_{min} - D_{max} mm	KOMET no.	OAL mm	LDRED mm	DCONMS h6 mm	Insert	
6 - 8	B05 20100	71,7	21,0	16	W0.. 02T0	00600
8 - 12	B05 20120	77,4	28,0	16	T0.. 06T1	00800
10 - 14	B05 20140	81,8	34,0	16	T0.. 0902	01000
12 - 18	B05 20160	88,2	42,0	16	T0.. 0902	01200
14 - 18	B05 20180	94,4	50,0	16	T0.. 0902	01400
18 - 25	B05 20220	100,0	60,0	16	T0.. 0902	01800
22 - 26	B05 20260	108,0	68,5	16	T0.. 1403	02200



TORX® Screws

62 950 ...

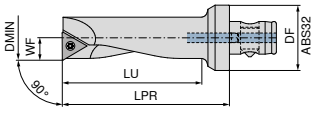
Spare parts

Insert	
T0.. 06T1	12800
T0.. 0902	12000
T0.. 1403	12600
W0.. 02T0	11800

MicroKom – Boring bar

▲ With internal coolant supply

ABS





NEW

62 857 ...

DMIN mm	KOMET no.	WF mm	DF mm	LU mm	LPR mm	Insert	
7,9	B00 25610	3,95	32	28	42	T0.X 06T1..	07989
8,9	B00 25700	4,45	32	34	48	T0.X 06T1..	21989
9,9	B00 25620	4,95	32	34	48	T0.X 06T1..	08989
10,9	B00 25710	5,45	32	43	57	T0.X 0902..	23989
11,9	B00 25630	5,95	32	43	57	T0.X 0902..	09989
13,9	B00 25640	6,95	32	50	64	T0.X 0902..	10989
15,9	B00 25650	7,95	32	58	72	T0.X 0902..	11989
17,9	B00 25661	8,95	32	59	72	T0.X 0902..	13989
19,9	B00 25671	9,90	32	70	82	T0.X 0902..	15989
21,9	B00 25681	10,90	32	70	82	T0.X 0902..	17989
23,9	B00 25691	11,90	32	70	82	T0.X 0902..	19989



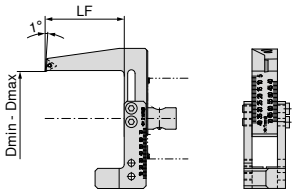
TORX® Screws

62 950 ...

Spare parts

Insert	
T0.X 06T1..	12800
T0.X 0902..	12000

MicroKom – Spindle tool





NEW

62 866 ...

D_{min} - D_{max} mm	KOMET no.	LF mm	Insert	
5 - 70	M05 90300	58	T0.X 0902..	07000



Cylindrical screw

62 950 ...



TORX® Screws

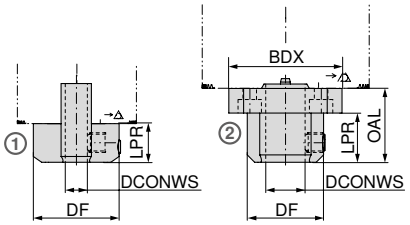
62 950 ...

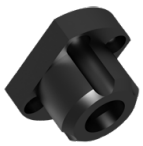
Spare parts

Insert		
T0.X 0902..	26800	12000

MicroKom – Adapter

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





NEW

62 851 ...

DCONWS mm	KOMET no.	OAL mm	BDX mm	DF mm	LPR mm	Fig.	
6	M05 90200			31	16	1	00600
8	M05 90210			31	16	1	00800
10	M05 90220	25	46	31	15	2	01000
12	M05 90230	25	46	31	15	2	01200
16	M05 90240	30	46	31	20	2	01600



Cylindrical screw

62 950 ...



Clamping screw

62 950 ...

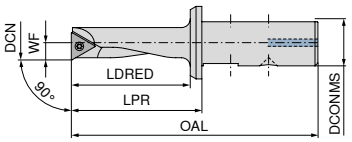
Spare parts

DCONWS		
6 - 8		44800
10 - 12	00000	44800
16	00000	14700

Suitable inserts can be found on → **Page 58–61.**

MicroKom – Boring bar

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





NEW

62 856 ...

DCN mm	KOMET no.	OAL mm	LPR mm	DCONMS mm	WF mm	LDRED mm	Insert	
5,6	B00 37010	48	26	8	2,75	22	WOHX 02T0..	05600
6,5	B00 37020	52	30	8	3,20	26	WOHX 02T0..	06500
8,0	B00 15510	57	35	8	3,95	28	T0.X 06T1..	08000
8,0	B00 15610	75	35	16	3,95	30	T0.X 06T1..	00800
10,0	B00 15620	80	40	16	4,95	35	T0.X 0902..	01000
11,0	B00 15710	85	45	16	5,45	40	T0.X 0902..	01100
12,0	B00 15530	67	45	16	5,95	38	T0.X 0902..	11200
12,0	B00 15630	85	45	16	5,95	40	T0.X 0902..	01200
14,0	B00 15640	90	50	16	6,95	45	T0.X 0902..	01400
16,0	B00 15650	95	55	16	7,95	50	T0.X 0902..	01600
18,0	B00 15661	100	60	16	8,95	55	T0.X 0902..	01800
19,0	B00 15751	105	65	16	9,45	60	T0.X 0902..	01900
20,0	B00 15671	105	65	16	9,90	60	T0.X 0902..	02000
22,0	B00 15681	105	65	16	10,90	60	T0.X 0902..	02200
24,0	B00 15691	105	65	16	11,90	60	T0.X 0902..	02400



TORX® Screws

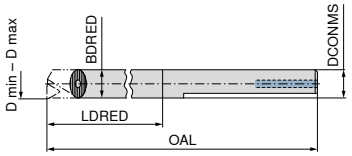
62 950 ...

Spare parts

DCN	
5,6 - 6,5	11800
8 - 10	12800
11 - 24	12000

MicroKom – Carbide boring shank

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





NEW

62 853 ...

D_{min} - D_{max} mm	KOMET no.	OAL mm	BDRED mm	LDRED mm	DCONMS mm	
13 - 17	G10 12060	120	12	75	12	01300
17 - 22	G10 12070	140	16	100	16	01700
22 - 26	G10 12080	140	16	100	16	02200



Fillister-head screw

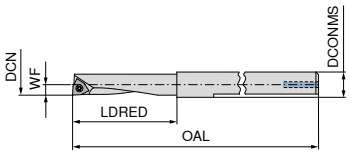
62 950 ...

Spare parts

DCONMS	
12	19700
16	19800

MicroKom – Boring bar, vibration-optimised

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





NEW

62 852 ...

DCN mm	KOMET no.	OAL mm	LDRED mm	DCONMS mm	Insert	
5,6	B00 30280	65	22	6	WOHX 02T0..	10600
6,9	B00 30290	80	36	6	WOHX 02T0..	00600 [1]
9,0	B00 00680	90	24	8	T0.X 06T1..	00800 [1]
11,0	B00 00690	95	50	10	T0.X 06T1..	01000 [1]

1) Carbide version



TORX® Screws

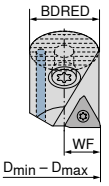
62 950 ...

Spare parts

Insert	
T0.X 06T1..	09700
WOHX 02T0..	11800

MicroKom – Boring head

- ▲ for boring shank 62 853 ...





NEW

62 854 ...

D_{min} - D_{max} mm	KOMET no.	WF mm	BDRED mm	Insert	
13 - 15	G10 12621	6,45	12	T0.X 0902..	01300
15 - 17	G10 12841	8,45	16	T0.X 0902..	01500
17 - 19	G10 12711	8,45	12	T0.X 0902..	01700
19 - 22	G10 12861	9,45	16	T0.X 0902..	01900
22 - 26	G10 12731	10,95	16	T0.X 0902..	02200



TORX® Screws

62 950 ...

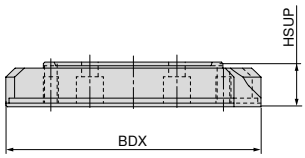
Spare parts

Insert	
T0.X 0902..	12000

Suitable inserts can be found on → **Page 58–61.**

5

MicroKom – Bridge for hi.flex, BluFlex 2





NEW

D_{min} - D_{max} mm	KOMET no.	BDX mm	HSUP mm	WT kg	62 860 ...
90 - 125	M05 80101	85	12,00	0,147	12500
120 - 155	M05 80200	115	18,25	0,107	15500
150 - 185	M05 80300	145	20,25	0,152	18500
180 - 215	M05 80400	175	23,25	0,229	21500
210 - 245	M05 80500	205	25,00	0,309	24500
240 - 275	M05 80510	235	25,00	0,349	27500
270 - 305	M05 80520	265	25,00	0,394	30500
300 - 335	M05 80530	295	25,00	0,435	33500
330 - 365	M05 80540	325	25,00	0,478	36500


Cylindrical screw

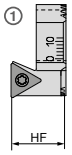

Disk spring

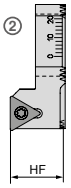
Spare parts BDX	Cylindrical screw 62 950 ...	Disk spring 62 950 ...
85 - 325	00000	19100

MicroKom – Insert holder for hi.flex, BluFlex 2

▲ With internal coolant supply

Scope of supply:
without inserts
incl. mounting screws







DCN mm	DCX mm	KOMET no.	HF mm	Insert	Fig.	62 863 ...
25	44	M05 20101	13,5	TO.. 06T1	1	04400
44	63	M05 20151	13,5	TO.. 0902	2	12500

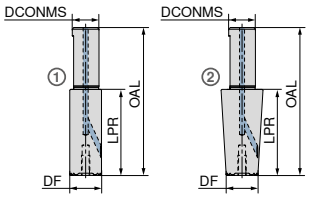

TORX® Screws

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

MicroKom – Serrated body for hi.flex, BluFlex 2

▲ With internal coolant supply

Scope of supply:
without insert holder





NEW

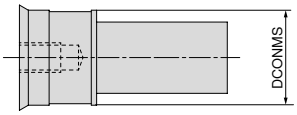
D_{min} - D_{max} mm	KOMET no.	DCONMS mm	OAL mm	LPR mm	DF mm	Fig.	62 861 ...
25 - 63	M05 90100	16	88,50	51,50	19	1	06300
25 - 63	M05 90110	16	129,12	92,12	24	2	16300


Cylindrical screw


Disk spring

Spare parts DCONMS	Cylindrical screw 62 950 ...	Disk spring 62 950 ...
16	00000	19100

MicroKom – Filling piece for hi.flex, BluFlex 2





DCONMS mm	KOMET no.	62 862 ...
16	M05 90501	09300

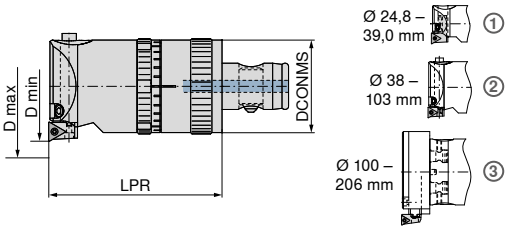
Suitable inserts can be found on → **Page 58–61.**

MicroKom – M03Speed – precision adjustment head

Scope of supply:

Precision adjustment head with clamping screw
Please order insert holder and indexable insert separately

ABS





NEW

D_{min} - D_{max} mm	KOMET no.	Adapter	DCONMS mm	LPR mm	Fig.	62 815 ...
24,8 - 33,0	M03 00115	ABS 25	25	50	1	**03390**
29 - 39	M03 00515	ABS 25	25	50	1	**03990**
38 - 50	M03 01025	ABS 32	32	60	2	**05089**
49 - 63	M03 01535	ABS 40	40	70	2	**06388**
62 - 80	M03 02045	ABS 50	50	75	2	**08097**
79 - 103	M03 02555	ABS 63	63	80	2	**10396**
100 - 206	M03 20090	ABS 63	63	106	3	**20696** [1)]

1) can only be used with interchangeable bridge (Art. No. 62 865 ...)


TORX® Screws


Clamping screw


Grub screw

Spare parts for Article no.	62 950 ...	62 950 ...	10 950 ...
62 815 03390			**15600**
62 815 03990			**15600**
62 815 05089	**12600**		**15600**
62 815 06388	**12600**		**15700**
62 815 08097	**12600**		**15700**
62 815 10396	**45400**		**11300**
62 815 20696	**45400**	**37400**	

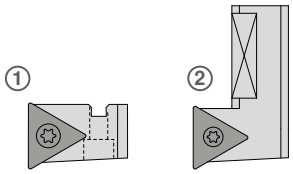
The TORX® screws 62 950 12600 / 62 950 45400 are designed for mounting the insert holder on the precision adjustment head.

A detailed operating manual is available for download in the online shop next to the product.

Suitable ABS adapters can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

MicroKom – M03Speed – Insert holder

Scope of supply:
without inserts
incl. mounting screws





NEW

62 864 ...

for	KOMET no.	Insert	Fig.	
62 815 03390	M03 10011	T0.. 06T1	2	**03300**
62 815 03990	M03 10021	T0.. 06T1	2	**03900**
62 815 05089	M03 10033	T0.. 06T1	1	**05000**
62 815 06388 / 62 815 08097	M03 10043	T0.. 0902	1	**08000**
62 815 10396	M03 10063	T0.. 0902	1	**10300**
62 815 20696	M03 10070	T0.. 0902	1	**20600** [1)]

1) only for M03Speed – interchangeable bridge (62 865 ...)



TORX® Screws

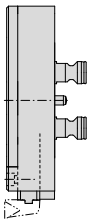
62 950 ...

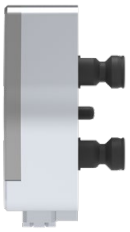
Spare parts Insert	
T0.. 06T1	**09700**
T0.. 0902	**12000**

MicroKom – M03Speed – Interchangeable bridge

▲ for head 62 815 20696

Scope of supply:
without insert holder





NEW

62 865 ...

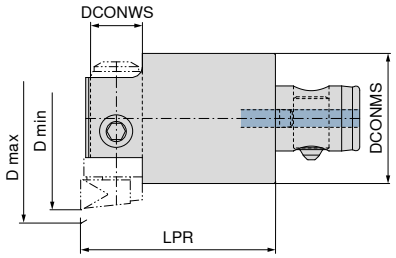
D_{min} - D_{max} mm	KOMET no.	
100 - 130	M03 20100	**13000**
128 - 168	M03 20110	**16800**
166 - 206	M03 20120	**20600**

Suitable inserts can be found on → **Page 58–61.**

FF precision adjustment head

Scope of supply:
Head with clamping screw
without precision turning insert

ABS





NEW

62 810 ...

D_{min} - D_{max} mm	KOMET no.	Adapter	DCONWS mm	DCONMS mm	LPR mm	
29,5 - 36	B30 11010	ABS 25	10	25	50	**03690**
35,5 - 42	B30 11020	ABS 25	10	25	50	**04290**
39 - 45	B30 12010	ABS 32	12	32	60	**04589**
44 - 50	B30 12020	ABS 32	12	32	60	**05089**
47 - 57	B30 13010	ABS 40	16	40	60	**05788**
56 - 66	B30 13020	ABS 40	16	40	60	**06688**
58 - 71	B30 14010	ABS 50	20	50	70	**07197**
70 - 83	B30 14020	ABS 50	20	50	70	**08397**
79 - 94	B30 15010	ABS 63	25	63	70	**09496**
93 - 108	B30 15020	ABS 63	25	63	70	**10896**
100 - 121	B30 16010	ABS 80	32	80	90	**12192**
120 - 141	B30 16020	ABS 80	32	80	90	**14192**
138 - 159	B30 17010	ABS 100	32	100	90	**15991**
158 - 179	B30 17020	ABS 100	32	100	90	**17991**
178 - 199	B30 17030	ABS 100	32	100	90	**19991**



Clamping screw

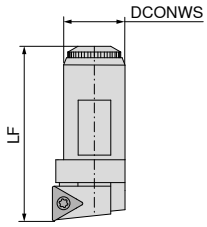
62 950 ...

Spare parts DCONWS		
10	M6x6/SW3	**44700**
12	M8x10/SW4	**44800**
12	M8x8/SW4	**14700**
16	M10x10/SW5	**44900**
20	M12x12/SW6	**45000**
25	M16x16/SW8	**45100**
32	M20x20/SW10	**45200**
32	M20x30/SW10	**45300**

Suitable ABS adapters can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

FF precision turning insert

Scope of supply:
Precision turning insert with insert screw
Please order insert separately





NEW

for	DCONWS mm	KOMET no.	LF mm	Insert	62 855 ...
62 810 0369 / 62 810 04290	10	M30 20011	28,5	T0.. 06T1	**03000**
62 810 04589 / 62 810 05089	12	M30 20021	37,5	T0.. 06T1	**03900**
62 810 05788 / 62 810 06688	16	M30 20031	45,0	T0.. 0902	**04700**
62 810 07197 / 62 810 08397	20	M30 20041	56,0	T0.. 0902	**05800**
62 810 09496 / 62 810 10896	25	M30 20051	77,5	T0.. 1403	**07900**
62 810 12192 / 62 810 14192	32	M30 20061	97,0	T0.. 1403	**10000**
62 810 15991 / 62 810 17991 / 62 810 19991	32	M30 20071	131,0	T0.. 1403	**13800**



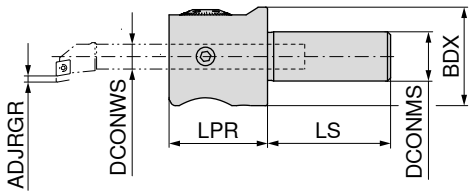
TORX® Screws

Spare parts DCONWS	62 950 ...
10	M2x3,8/IP6 **12800**
12	M2x3,8/IP6 **12800**
16	M2,6x5,2 - 08IP **12000**
20	M2,6x6,2 - 08IP **09900**
25	M3,5x7,3 - 10IP **12600**
32	M3,5x7,3 - 10IP **12600**

Suitable inserts can be found on → **Page 58–61.**

SpinTools – Micro-Boring Head

▲ max. speed 30,000 U/min





D_{min} - D_{max} mm	BDX mm	DCONWS mm	DCONMS mm	LPR mm	LS mm	ADJRGR mm	Digital 62 386 ...	Analogue 62 382 ...
0,3 - 7,1	25	4	10	25	25	0 - 1,7	025	025
0,3 - 19,1	32	7	16	32	40	0 - 2,75	032	032



Clamping screw ST



Locking screw

Spare parts for Article no.	Clamping screw ST 62 950 ...		Locking screw 62 950 ...	
62 382 025 / 62 386 025	M5x4	214	M4x8	228
62 382 032 / 62 386 032	M6x5	215	M6x10	229

SpinTools – Digital Stick

▲ suitable for all SpinTools digital heads as well as for hi.flex Digital
▲ revised software for even more precise adjustment

Scope of supply:
incl. AAA Battery

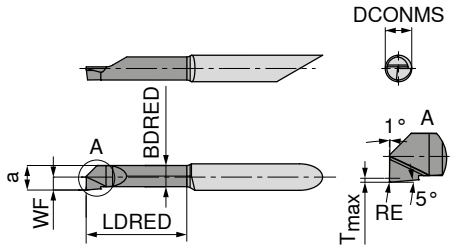


NEW

62 309 ...

00100

SpinTools – Solid carbide boring bar



TiN



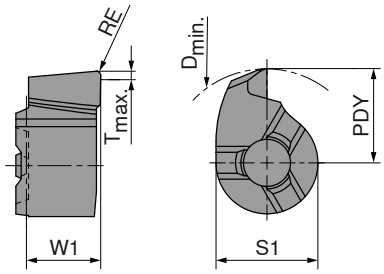
62 383 ...

D_{min} - D_{max} mm	DCONMS mm	LDRED mm	RE mm	a mm	BDRED mm	WF mm	$T_{max.}$ mm	
0,3 - 0,7	4	1,2		0,25	0,15	0,15	0,03	**003**
0,6 - 1,1	4	2,5		0,55	0,46	0,30	0,05	**006**
1,0 - 2,3	4	4,0	0,05	0,95	0,65	0,50	0,10	**010**
2,2 - 3,3	4	6,0	0,05	2,00	1,55	1,10	0,20	**022**
3,2 - 4,3	4	10,2	0,05	3,00	2,55	1,60	0,20	**032**
3,9 - 7,1	4	15,2	0,05	3,70	3,45	1,95	0,30	**039**
5,2 - 6,3	7	20,3	0,05	5,00	4,25	2,60	0,50	**052**
6,2 - 7,3	7	20,3	0,05	6,00	5,25	3,10	0,50	**062**
6,9 - 8,1	7	25,4	0,20	6,70	6,25	3,45	0,50	**069**

P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c Page 66

SpinTools – Carbide inserts



TiN



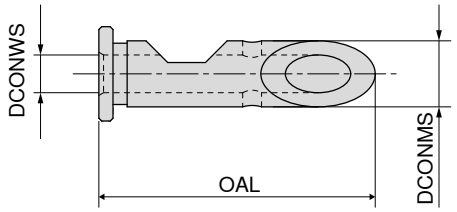
62 384 ...

D_{min} - D_{max} mm	RE mm	PDY mm	S1 mm	W1 mm	$T_{max.}$ mm	
6,9 - 8,1	0,2	3,45	4,8	3,5	1	**069**
7,9 - 9,1	0,2	3,95	4,8	3,5	1	**079**
8,9 - 10,1	0,2	4,45	4,8	3,5	1	**089**
9,9 - 12,1	0,2	4,95	7,0	3,9	1	**099**
11,9 - 14,1	0,2	5,95	7,0	3,9	1	**119**
13,9 - 19,1	0,2	6,95	7,0	3,9	1	**139**

P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c Page 66

SpinTools – Adapter





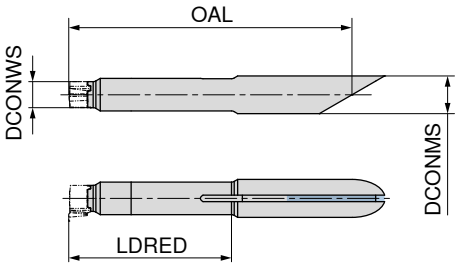
62 335 ...

DCONMS mm	DCONWS mm	OAL mm	
7	4	30	**407**

SpinTools – Toolholder for carbide inserts

▲ with thro' coolant

▲ appropriate inserts for article no. 62 384 ... can be found in the table above





62 385 ...

DCONMS mm	LDRED mm	DCONWS mm	OAL mm	
7	30	4,8	56	**330**
7	35	7,0	61	**350**



TORX® Screws

62 950 ...



Key D

80 950 ...

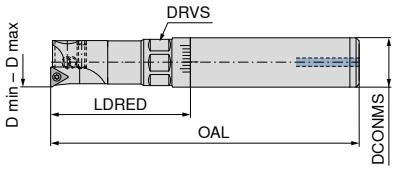
Spare parts for Article no.			
62 385 330	**007**		**124**
62 385 350	**094**		**126**

MicroKom – Fine boring bar

▲ Precision adjustment range: 0.02 mm in Ø per line

Scope of supply:

Fine boring bar incl. insert holder, insert holder screw and indexable insert screw





NEW

D_{min} - D_{max} mm	DCONMS mm	OAL mm	DRVS mm	LDRED mm	Insert	62 858 ...
15,9 - 20	16	100	14	29	T0.. 06T1	**15900**
19 - 23	16	105	14		T0.. 06T1	**19000**
22 - 26	16	110	18		T0.. 06T1	**22000**

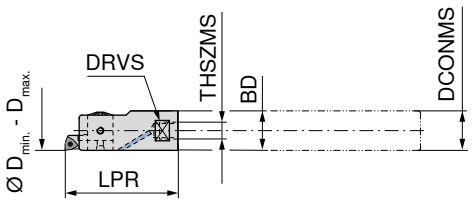
Spare parts for Article no.	 Insert holders 62 859 ...	 Adjustment screw 62 950 ...	 TORX® Screws 62 950 ...	 Clamping screw 62 950 ...
62 858 15900	**15900**	**37600**	**12800**	**37500**
62 858 19000	**19000**	**37700**	**12800**	**37500**
62 858 22000	**22000**	**37800**	**12800**	**37500**

Suitable inserts can be found on → **Page 58–61.**

SpinTools – Precision boring head

▲ With internal coolant supply

Scope of supply:
Fine boring head without shank, without insert holder





BD mm	D_{min} - D_{max} mm	THSZMS	DCONMS mm	LPR mm	DRVS mm	62 304 ...
14	14,7 - 17,1	M6	14	40	12	017
16	16,7 - 20,1	M10	16	40	14	020
19	19,7 - 24,1	M10	18	40	16	024


TORX® Screws


Key D

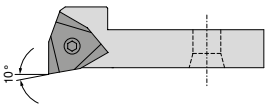

Clamping screw ST

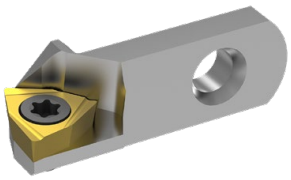
Spare parts for Article no.		62 950 ...		80 950 ...		62 950 ...
62 304 017	M2,5x6	022	T07	109	M3x2	017
62 304 020	M2,5x6	022	T07	109	M3x2,5	018
62 304 024	M2,5x6	022	T07	109	M3x4	019

Information on the working length can be found on → **Page 73**

SpinTools – Insert holder, 90°

Scope of supply:
without insert





for boring head	Insert	62 317 ...
62 304 ...	WC.. 0201..	024

Suitable inserts can be found on → **Page 62.**


TORX® Screws

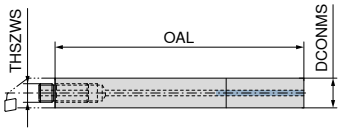

Key D

Spare parts Insert		62 950 ...		80 950 ...	
WC.. 0201..	M2x3,7	021	T06	108	

SpinTools – High-speed carbide boring bars

- with threaded mounting stud made of high quality steel
- with thro' coolant
- Shank clamping length 35 mm
- Boring shanks with DCONMS Ø 18 mm are for use in collet chuck or hydraulic chuck

Scope of supply:
boring shank, without boring head



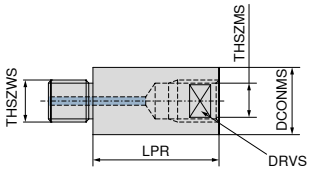


62 353 ...

DCONMS h6 mm	OAL mm	THSZWS	
14	110	M6	**014**
16	120	M10	**016**
18	100	M10	**018**
18	140	M10	**118**
18	180	M10	**218**

SpinTools – Shank extensions (tempered steel)

- with thro' coolant





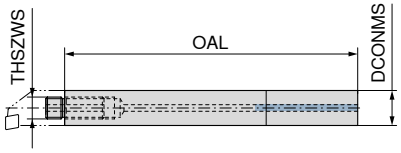
62 349 ...

DCONMS h9 mm	LPR mm	THSZWS	THSZMS	DRVS mm	
16	32	M10	M10	14	**732**
16	64	M10	M10	14	**764**

SpinTools – High Speed Steel Extension

- with thro' coolant
- Boring shanks with DCONMS Ø 18 mm are for use in collet chuck or hydraulic chuck

Scope of supply:
boring shank, without boring head





62 329 ...

DCONMS h6 mm	OAL mm	THSZWS	
14	60	M6	**660**
16	70	M10	**770**
18	80	M10	**880**

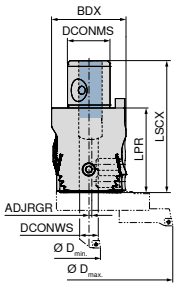
Information on the working length can be found on → **Page 73**

5

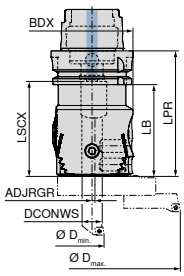
SpinTools – Multi-Head – boring and fine boring head

- **For boring bars Ø 16 mm and bridges**
- With internal coolant supply
- LSCX = Boring depth

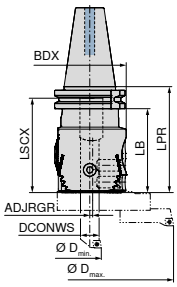
Scope of supply:
without boring bar, bridge and insert holder



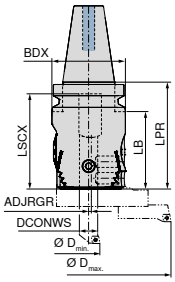
STM Modular



HSK-A 63



SK 40



MAS-BT 40


STM Modular


HSK-A

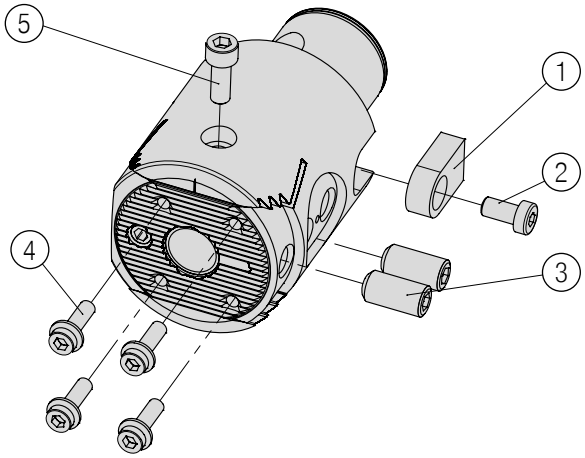

SK


MAS-BT

	STM Modular	HSK-A	SK	MAS-BT
	62 372 ...	**62 373 ...**	**62 373 ...**	**62 373 ...**

D_{min} - D_{max} mm	Adapter	DCONMS mm	BDX mm	LPR mm	LB mm	LSCX mm	ADJRGR mm				
3 - 320	STM 36	36	63	71,6		111,6	0 - 2,7	**653**			
3 - 320	HSK-A 63		63	96,6	70,6	73,0	0 - 2,7		**653**		
3 - 320	SK 40		63	91,6	72,5	81,6	0 - 2,7			**153**	
3 - 320	BT 40		63	91,6	69,0	81,6	0 - 2,7				**453**

Suitable base adapters can be found on → **page 51.**



1. *Drive dogs*
2. *Carrier screw*
3. *Clamping screw*
4. *Flange screw*
5. *Clamping screw MH*


Driver


Clamping screw MH


Flange screw

Spare parts D_{min} - D_{max}						
	62 950 ...		**62 950 ...**		**62 950 ...**	
3 - 320	16x26,5x8	**040**	M6x16	**226**	M5x16	**225**


Clamping screw

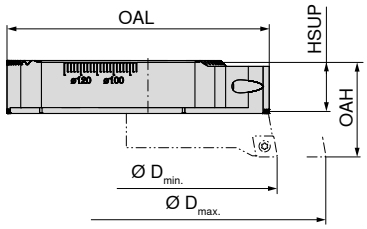

Screw for drivers

Spare parts D_{min} - D_{max}						
			62 950 ...		**62 950 ...**	
3 - 320			M10x20	**227**	M6x12	**167**

SpinTools – Bridge for Multi-Head

- Ø adjustable
- With internal coolant supply

Scope of supply:
without tool holder
including fixation screws



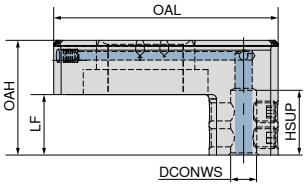


D_{min} - D_{max} mm	OAL mm	HSUP mm	OAH mm	62 376 ...
86 - 164	80	15	29	164
162 - 320	158	15	29	320

Insert holders (62 377 ...) can be found on → **Page 29.**

SpinTools – Axial groving holder for UltraMini

- With internal coolant supply



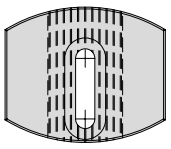


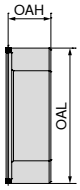
DCONWS mm	OAL mm	OAH mm	HSUP mm	LF mm	WT kg	62 358 ...
6	52	26,58	15	14	0,092	006
7	52	26,58	15	14	0,091	007
8	52	26,58	20	14	0,088	008

Suitable inserts for axial grooving can be found in
→ **Chapter 12, Miniature Turning Tools**

SpinTools – Counterweight

Scope of supply:
Including fixation screw







for	OAL mm	OAH mm	62 378 ...
62 376 ...	38	12	320



Clamping screw ST

Spare parts DCONWS	62 950 ...
6	214
7	214
8	214

SpinTools – Multi-Head – Boring and Fine Boring Head Set

- suitable for Ø 3 – Ø 320 mm

Scope of supply:

- **1 Tool Kit**
- **1 Multi-Head-Boring- and Fine Boring Head (depending on selection)**
- **4 Boring bars**
  - 62 345 015 Ø 9.75 – Ø 15.1 mm
  - 62 345 020 Ø 14.75 – Ø 20.1 mm
  - 62 345 024 Ø 19.75 – Ø 25.1 mm
  - 62 345 029 Ø 24.75 – Ø 30.1 mm
- **2 Boring tools, adjustable**
  - 62 375 048 Ø 29.75 – Ø 48.1 mm
  - 62 375 088 Ø 47.75 – Ø 88.1 mm
- **incl. insert holder**
  - 62 377 048 CC.. 0602
  - 62 377 088 CC.. 0602
- **1 Bridge**
  - 62 376 164 Ø 86 – Ø 164 mm
- **1 Torx-Key – T7**
- **1 6-adjustment key – SW5**

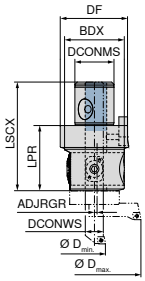


D_{min} - D_{max} mm	Adapter	STM Modular 62 374 ...	HSK-A 62 379 ...	SK 62 379 ...	MAS-BT 62 379 ...
9,75 - 164	STM 36	999			
9,75 - 164	HSK-A 63		996		
9,75 - 164	SK 40			990	
9,75 - 164	BT 40				993

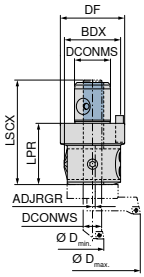
SpinTools – Single point boring heads – Modular system

- LSCX = Boring depth
- With internal coolant supply

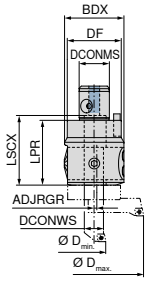
STM



Digital with collar



with flange



without flange


Digital with collar STM Modular


with flange STM Modular


without flange STM Modular

D_{min} - D_{max} mm	Adapter	DCONMS mm	BDX mm	DF mm	DCONWS mm	LPR mm	LSCX mm	ADJRGR mm	WT kg	Digital with collar STM Modular 62 326 ...	with flange STM Modular 62 332 ...	without flange STM Modular 62 332 ...
3,0 - 88,1	STM 28	28	55	50	16	60	62	0 - 2,7	0,98			**553**
3,0 - 88,1	STM 36	36	55	63	16	60	101	0 - 2,7	1,26		**653**	
3,0 - 88,1	STM 36	36	55	63	16	60	106	0 - 2,7	0,43	**036**		


Clamping screw


Screw for drivers


Driver


Clamping screw ST

Spare parts for Article no.	Clamping screw 62 950 ...		Screw for drivers 62 950 ...		Driver 62 950 ...		Clamping screw ST 62 950 ...	
62 332 553	M10x16	**047**	M5x10	**166**	12x20x6	**039**	M10x8	**046**
62 332 653	M10x16	**047**	M6x12	**167**	16x26,5x8	**040**	M10x8	**046**
62 326 036	M10x16	**047**	M6x12	**167**	16x26,5x8	**040**	M10x8	**046**

Suitable base adapters can be found on → **page 51.**

SpinTools – Digital Stick

- suitable for all SpinTools digital heads as well as for hi.flex Digital
- revised software for even more precise adjustment

Scope of supply:
incl. AAA Battery



NEW

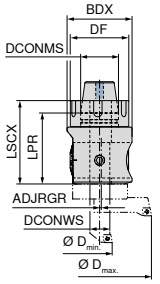
62 309 ...

00100

SpinTools – Single point boring heads

- Interface for use on ER32 collet chucks
- LSCX = Recess depth of boring bar
- with thro' coolant supply
- Suitable for Ø 3.0 – Ø 88.1 mm

ER 32





ER 32

62 332 ...

D_{min} - D_{max} mm	Adapter	DCONMS mm	BDX mm	DF mm	DCONWS mm	LPR mm	LSCX mm	ADJRGR mm	
3,0 - 88,1	ER 32	32	55	49,5	16	60	86,5	0 - 2,7	**732**



Clamping screw

62 950 ...

Spare parts for Article no.		
62 332 732	M10x16	**047**



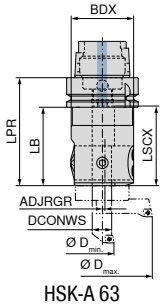
Clamping screw ST

62 950 ...

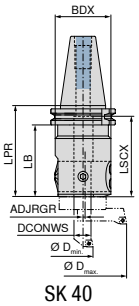
M10x8	**046**

SpinTools – Single Point Boring Head – Monoblock

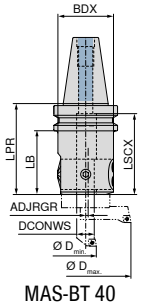
- LSCX = Boring depth
- With internal coolant supply



HSK-A 63



SK 40



MAS-BT 40



HSK-A



SK



MAS-BT

62 333 ...

62 333 ...

62 333 ...

D_{min} - D_{max} mm	Adapter	BDX mm	DCONWS mm	LPR mm	LB mm	LSCX mm	ADJRGR mm	WT kg			
3,0 - 88,1	HSK-A 63	55	16	95	69	70	0 - 2,7	1,66	**653**		
3,0 - 88,1	SK 40	55	16	90	70	80	0 - 2,7	1,83		**153**	
3,0 - 88,1	BT 40	55	16	90	63	80	0 - 2,7	1,90			**453**



Clamping screw

62 950 ...

Spare parts D_{min} - D_{max}		
3,0 - 88,1	M10x16	**047**



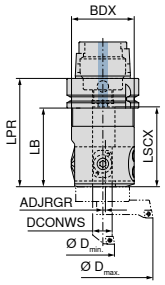
Clamping screw ST

62 950 ...

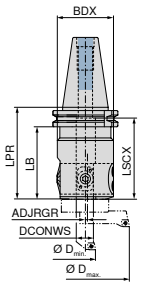
M10x8	**046**

SpinTools – Single Point Boring Head – Monoblock

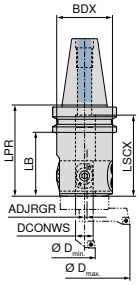
- LSCX = Boring depth
- With internal coolant supply



HSK-A 63



SK 40



MAS-BT 40



Digital HSK-A

62 363 ...



Digital SK

62 363 ...



Digital MAS-BT

62 363 ...

D_{min} - D_{max} mm	Adapter	BDX mm	DCONWS mm	LPR mm	LB mm	LSCX mm	ADJRGR mm			
3,0 - 88,1	HSK-A 63	55	16	95	70	70	0 - 2,7	**688**		
3,0 - 88,1	SK 40	55	16	90	71	80	0 - 2,7		**188**	
3,0 - 88,1	BT 40	55	16	90	59	80	0 - 2,7			**488**



Clamping screw

62 950 ...



Clamping screw ST

62 950 ...

Spare parts for Article no.

62 363 488 / 62 363 188	M10x16	**047**	M10x8	**046**

SpinTools – Digital Stick

- suitable for all SpinTools digital heads as well as for hi.flex Digital
- revised software for even more precise adjustment

Scope of supply:
incl. AAA Battery

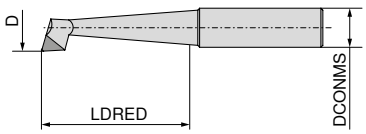


NEW

62 309 ...

00100

SpinTools – Boring tools with carbide cutting edge





62 346 ...

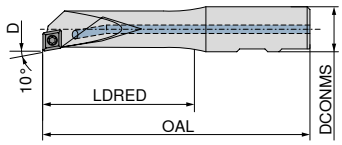
D_{min} - D_{max} mm	LDRED mm	DCONMS $_{h6}$ mm	
3,0 - 8,0	20	10	008
4,0 - 9,0	23	10	009
5,0 - 10,0	25	10	010
6,0 - 11,0	25	10	011
7,0 - 12,0	31	10	012

P	●
M	○
K	○
N	●
S	
H	
O	

→ v_c Page 66

SpinTools – Steel boring bars

▲ With internal coolant supply





62 345 ...

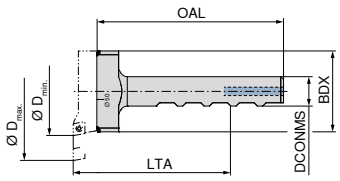
D_{min} - D_{max} mm	OAL mm	LDRED mm	DCONMS $_{h6}$ mm	Insert	
9,75 - 15,1	75	30	16	CC.. 0602	015
11,75 - 17,1	80	37	16	CC.. 0602	017
13,75 - 19,1	85	43	16	CC.. 0602	019
14,75 - 20,1	90	51	16	CC.. 0602	020
15,75 - 21,1	95	57	16	CC.. 0602	021
17,75 - 23,1	100	67	16	CC.. 0602	023
19,75 - 25,1	105	72	16	CC.. 0602	024
19,75 - 25,1	105	72	16	CC.. 09T3	025
21,75 - 27,1	110	77	16	CC.. 09T3	027
24,75 - 30,1	115	82	16	CC.. 0602	029
24,75 - 30,1	115	82	16	CC.. 09T3	030
27,75 - 33,1	115	82	16	CC.. 09T3	033
31,75 - 37,1	115	82	16	CC.. 09T3	037
34,75 - 40,1	115	82	16	CC.. 09T3	040
38,75 - 44,1	115	82	16	CC.. 09T3	044
42,75 - 48,1	115	82	16	CC.. 09T3	048
47,75 - 53,1	115	82	16	CC.. 09T3	053

Suitable inserts can be found on → **Page 63.**

SpinTools – Adjustable boring bar bridge

▲ With internal coolant supply

Scope of supply:
without insert holder





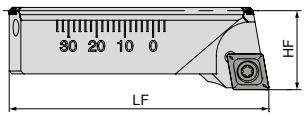
62 375 ...

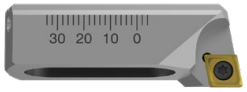
D_{min} - D_{max} mm	OAL mm	BDX mm	LTA mm	DCONMS mm	
29,75 - 48,1	103	25	85	16	048
47,75 - 88,1	101	44	85	16	088

SpinTools – Tool holder for boring bar and bridge Multi-Head

▲ With internal coolant supply

Scope of supply:
without inserts
incl. mounting screws





62 377 ...

for	LF mm	HF mm	Insert	
62 375 048	28,2	12	CC.. 0602	048
62 375 088 / 62 376 ...	46,0	14	CC.. 0602	088
62 375 088 / 62 376 ...	46,0	14	CC.. 09T3	089

Suitable inserts can be found on → **Page 63.**


TORX® Screws

62 950 ...


Key D

80 950 ...


Flange screw

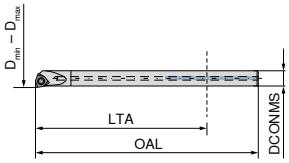
62 950 ...

Spare parts for Article no.					
62 377 048		022		109	225
62 377 088		022		109	225
62 377 089		023		113	225

5

SpinTools – Boring bars with carbide shank

▲ With internal coolant supply
▲ LTA = max. overhang





62 341 ...

D_{min} - D_{max} mm	DCONMS $_{h6}$ mm	OAL mm	LTA mm	Insert	
5,8 - 11,2	5	80	45	WC.. 0201..	**011**
7,8 - 13,2	6	100	60	WC.. 0201..	**013**

Suitable inserts can be found on → **Page 62.**


TORX® Screws

62 950 ...

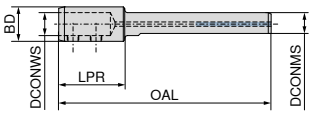

Key D

80 950 ...

Spare parts Insert		
WC.. 0201..	**021**	**108**

SpinTools – Boring tool extensions

▲ with thro' coolant





62 337 ...

DCONWS mm	DCONMS mm	BD mm	OAL mm	LPR mm	
10	16	16	128		**128**
16	16	24	148	44	**148**

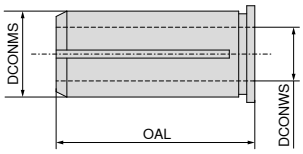

Clamping screw

62 950 ...

Spare parts for Article no.	
62 337 128	**048**
62 337 148	**049**

SpinTools – Reduction sleeves

▲ for boring bars and boring tools





62 335 ...

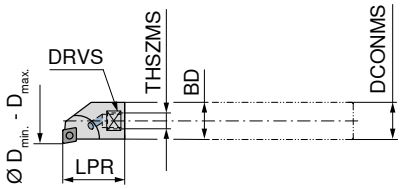
DCONMS mm	DCONWS mm	OAL mm	
16	4	37	**104**
16	5	37	**105**
16	6	37	**106**
16	8	37	**108**
16	9	37	**109**
16	10	37	**110**
16	11	37	**111**
16	12	37	**112**
16	13	37	**113**
16	14	37	**114**

SpinTools – High-speed boring head

- for overturning holder and high speed carbide shank
- With internal coolant supply
- $D_{max.}$ = using a head with fine adjustment 0 – 2,7 mm

Scope of supply:

Boring head without boring shank, without inserts





62 361 ...

D_{min} - D_{max} mm	LPR mm	THSZMS	DCONMS h6 mm	Insert	
8,75 - 14,1	18	M5	8	CC.. 0602	014
9,75 - 15,1	18	M5	9	CC.. 0602	015
10,75 - 16,1	23	M6	10	CC.. 0602	016
11,75 - 17,1	23	M6	11	CC.. 0602	017
12,75 - 18,1	23	M6	12	CC.. 0602	018
13,75 - 19,1	23	M6	13	CC.. 0602	019
14,75 - 20,1	23	M6	14	CC.. 0602	020
15,75 - 21,1	23	M6	14	CC.. 0602	021
16,75 - 22,1	27	M10	16	CC.. 0602	022
17,75 - 23,1	27	M10	16	CC.. 0602	023
19,75 - 25,1	27	M10	16	CC.. 0602	025
21,75 - 27,1	27	M10	16	CC.. 0602	027
24,75 - 30,1	27	M10	16	CC.. 0602	030
27,75 - 33,1	27	M10	16	CC.. 0602	033
31,75 - 37,1	27	M10	16	CC.. 0602	037
34,75 - 40,1	27	M10	16	CC.. 0602	040

Suitable inserts can be found on → **Page 63.**



TORX® Screws

62 950 ...



Key D

80 950 ...

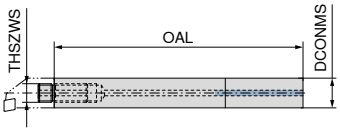
Spare parts **Insert**		
CC.. 0602	022	109

SpinTools – High-speed carbide boring bars

- with threaded mounting stud made of high quality steel
- with thro' coolant
- Shank clamping length 35 mm
- Boring shanks with DCONMS Ø 18 mm are for use in collet chuck or hydraulic chuck

Scope of supply:

boring shank, without boring head





62 353 ...

DCONMS h6 mm	OAL mm	THSZWS	
8	73	M5	008
9	80	M5	009
10	82	M6	010
11	89	M6	011
12	96	M6	012
13	103	M6	013
14	110	M6	014
16	120	M10	016

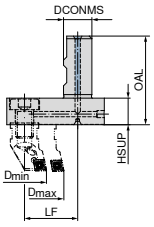
Information on the working length can be found on → **Page 73.**

SpinTools – Over turning holder for boring head

- With internal coolant supply

Scope of supply:

Over turning holder incl. fixing screw, but without boring head and indexable inserts





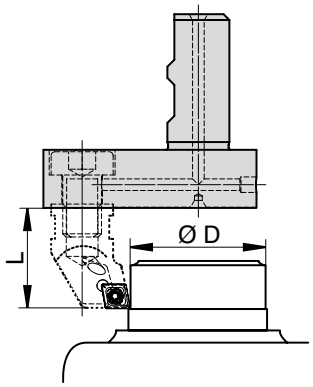
62 404 ...

D_{min} - D_{max} mm	DCONMS h6 mm	LF mm	HSUP mm	OAL mm	
5,3 - 28,6	16	20	15	50	028
25,3 - 48,6	16	30	15	50	048

5

Help me choose the correct over-turning adapter

- ▲ for the combination of overturning with high speed boring heads
- ▲ the length L can be extended with shank extensions



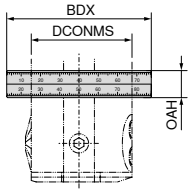
Boring range Ø $D_{min.}$ – Ø $D_{max.}$ mm	Tool holder 62 404 ...	L mm	Boring Head 62 361 ...	Page No.
5,3 – 10,6	028	27	040	31
8,3 – 13,6	028	27	037	
12,3 – 17,6	028	27	033	
15,3 – 20,6	028	27	030	
18,3 – 23,6	028	27	027	
20,3 – 25,6	028	27	025	
22,3 – 27,6	028	27	023	
23,3 – 28,6	028	27	022	
25,3 – 30,6	048	27	040	
28,3 – 33,6	048	27	037	
32,3 – 37,6	048	27	033	
35,3 – 40,6	048	27	030	
38,3 – 43,6	048	27	027	
40,3 – 45,6	048	27	025	
42,3 – 47,6	048	27	023	
43,3 – 48,6	048	27	022	

SpinTools – Balancing rings

- ▲ For balancing the tools without dynamic balancing machine

Scope of supply:

CD-ROM with application data and setting values





DCONMS mm	BDX mm	OAH mm	WT kg	62 300 ...
32	50	16	0,08	**032**
40	58	16	0,09	**040**
50	70	16	0,13	**050**
55	75	16	0,14	**055**
63	84	16	0,16	**063**



Clamping screw

Spare parts DCONMS	62 950 ...
32 - 63	**009**

SpinTools – Single point boring heads Set 1

- suitable for Ø 3 – Ø 88.1 mm
- supplied with Ø 9.75 – Ø 30.1 or Ø 9.75 – Ø 40.1 mm
- with thro' coolant

Scope of supply:

- **1 Tool Kit**
- **1 single point boring head (depending on selection)**
- **4 Boring bars (SK40- and MAS-BT-Set)**
  - 62 345 015 Ø 9,75 – Ø 15,1 mm
  - 62 345 020 Ø 14,75 – Ø 20,1 mm
  - 62 345 024 Ø 19,75 – Ø 25,1 mm
  - 62 345 029 Ø 24,75 – Ø 30,1 mm
- **8 Boring bars (Modular-Set)**
  - 62 345 015 Ø 9,75 – Ø 15,1 mm
  - 62 345 019 Ø 13,75 – Ø 19,1 mm
  - 62 345 023 Ø 17,75 – Ø 23,1 mm
  - 62 345 027 Ø 21,75 – Ø 27,1 mm
  - 62 345 030 Ø 24,75 – Ø 30,1 mm
  - 62 345 033 Ø 27,75 – Ø 33,1 mm
  - 62 345 037 Ø 31,75 – Ø 37,1 mm
  - 62 345 040 Ø 34,75 – Ø 40,1 mm
- **1 6-adjustment key – SW5**
- **1 Torx-Key – T7**



D_{min} - D_{max} mm	Adapter	STM Modular 62 334 ...	SK 62 345 ...	MAS-BT 62 345 ...
9,75 - 40,1	STM 36	999		
9,75 - 30,1	SK 40		990	
9,75 - 30,1	BT 40			993

SpinTools – Single point boring heads Set 2

- suitable for Ø 3 – Ø 88.1 mm
- Supplied with Ø 9.75 – Ø 88.1 mm
- with thro' coolant

Scope of supply:

- **1 Tool Kit**
- **1 Fine boring head (depending on selection)**
- **4 Boring bars**
  - 62 345 015 Ø 9.75 – Ø 15.1 mm
  - 62 345 020 Ø 14.75 – Ø 20.1 mm
  - 62 345 024 Ø 19.75 – Ø 25.1 mm
  - 62 345 029 Ø 24.75 – Ø 30.1 mm
- **2 Boring tools, adjustable**
  - 62 375 048 Ø 29.75 – Ø 48.1 mm
  - 62 375 088 Ø 47.75 – Ø 88.1 mm
- **incl. insert holder**
  - 62 377 048 CC.. 0602
  - 62 377 088 CC.. 0602
- **1 Torx key – T7**
- **1 6-adjustment key – SW5**



D_{min} - D_{max} mm	Adapter	STM Modular 62 334 ...	HSK-A 62 345 ...	SK 62 345 ...	MAS-BT 62 345 ...
9,75 - 88,1	STM 36	997			
9,75 - 88,1	HSK-A 63		997		
9,75 - 88,1	SK 40			998	
9,75 - 88,1	BT 40				999

SpinTools – Single point boring heads ER32 Set

- Suitable for Ø 3.0 – Ø 88.1 mm
- Scope of supply Ø 9.75 – Ø 30.1 mm
- with thro' coolant supply

Scope of supply:

- **1 tool kit**
- **1 single point boring head (62 332 732)**
- **4 boring bars**
  - 62 345 015 Ø 9.75 – Ø 15.1 mm
  - 62 345 020 Ø 14.75 – Ø 20.1 mm
  - 62 345 024 Ø 19.75 – Ø 25.1 mm
  - 62 345 029 Ø 24.75 – Ø 30.1 mm
- **1 Torx Key – T7**
- **1 Allen Key – SW5**



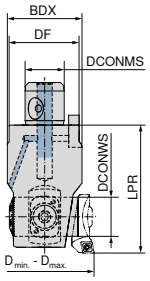
D_{min} - D_{max} mm	Adapter	62 332 ...
9,75 - 30,1	ER 32	**999**

SpinTools – Single point finish boring heads

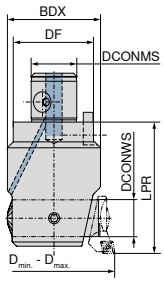
▲ With internal coolant supply

Scope of supply:
without insert holder and inserts

STM



Digital



Analogue


Digital STM Modular


Analogue STM Modular

5

D_{min} - D_{max} mm	D_{min} - D_{max} extended mm	Adapter	DCONMS mm	BDX mm	DF mm	LPR mm	DCONWS mm	WT kg		62 308 ...		62 303 ...
23,9 - 31,1	29,9 - 37,1	STM 11	11	22,5	20	40	11	0,08		**031**		**031**
30,9 - 40,1	37,9 - 47,1	STM 14	14	29,0	25	45	13	0,15		**040**		**040**
39,9 - 51,1	47,9 - 59,1	STM 18	18	37,0	32	65	17	0,38		**051**		**051**
50,9 - 67,1	64,9 - 81,1	STM 22	22	47,0	40	72	22	0,70		**067**		**067**
66,9 - 87,1	84,9 - 105,1	STM 28	28	59,0	50	82	30	1,32		**087**		**087**
86,9 - 116,1	104,9 - 134,1 (124,9 - 154,1)	STM 36	36	72,0	63	105	30	3,15		**116**		**116**

For optimal stability when fine boring the main insert holder ranges are preferred over the extended range.


Screw for drivers


Driver


Fillister-head screw


Clamping screw ST

Spare parts for Article no.		62 950 ...		62 950 ...		62 950 ...		62 950 ...	
62 303 031 / 62 308 031	M2x2,5	**162**	5x8,5x3	**035**	M4x6	**287**	M4x3	**213**
62 303 040 / 62 308 040	M2,5x6	**163**	6x10,3x4	**036**	M5x8	**288**	M5x4	**214**
62 303 051 / 62 308 051	M3x8	**164**	8x15x5	**037**	M6x10	**289**	M6x5	**215**
62 303 067 / 62 308 067	M4x10	**165**	10x18,1x6	**038**	M8x12	**290**	M8x6	**216**
62 303 087 / 62 308 087	M5x10	**166**	12x20x6	**039**	M10x16	**291**	M10x10	**217**
62 303 116 / 62 308 116	M6x12	**167**	16x26,5x8	**040**	M10x16	**291**	M10x18	**218**

Suitable base adapters can be found on → **page 51.**

SpinTools – Digital Stick

▲ suitable for all SpinTools digital heads as well as for hi.flex Digital
▲ revised software for even more precise adjustment

Scope of supply:
incl. AAA Battery



NEW

62 309 ...

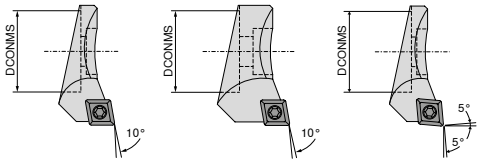
00100

SpinTools – Insert holder, 90° and 95°

▲ for single point finish boring heads Art. No. 62 303 ..., 62 308 ...

Scope of supply:

incl. Torx clamping screw for inserts, without fixing bolt for holder



90° Extended 90° 95°



90° 90° extended 95°

DCONMS mm	Insert	62 318 ...	62 318 ...	62 320 ...
11	CC.. 0602	031	037	031
13	CC.. 0602	040	047	040
17	CC.. 0602	051	059	051
22	CC.. 0602	067	081	067
30	CC.. 0602	087	105	
30	CC.. 09T3	116	134	087
30	CC.. 09T3		154	

Suitable inserts can be found on → **Page 63.**



TORX® Screws



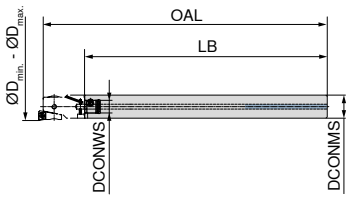
Key D

Spare parts Insert		62 950 ...		80 950 ...
CC.. 0602	M2,5x6	022	T07	109
CC.. 09T3	M4x9	023	T15	113

SpinTools – High-speed carbide boring tools

▲ Shaft extension for single point finish boring heads Art. No. 62 303 ..., 62 308 ...

▲ with thro' coolant supply



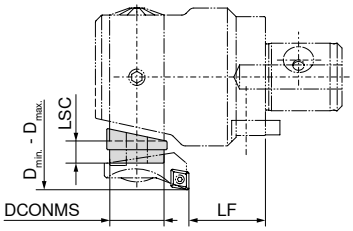


D_{min} - D_{max} mm	DCONWS mm	DCONMS h5 mm	OAL mm	LB mm	WT kg	62 354 ...
23,9 - 31,1	11	20	250	210	0,81	020
30,9 - 40,1	14	25	306	261	1,54	025
39,9 - 51,1	18	32	380	315	3,03	032

SpinTools – Reverse adapter for back boring

▲ For insert holder Art. No. 62 318 ... / 62 320 ...

Scope of supply:
Adapter including fixing bolt





LSC mm	DCONMS mm	LF mm	D_{min} - D_{max} mm	62 321 ...
6,5	11	13,0	37 - 44	**044**
8,0	11	13,0	40 - 47	**051**
6,5	13	12,6	44 - 53	**053**
10,0	13	12,6	51 - 60	**060**
6,5	17	31,3	53 - 64	**064**
10,0	17	31,3	60 - 71	**071**
6,5	22	31,2	68 - 80	**080**
12,0	22	31,2	75 - 91	**091**
10,0	30	29,0	87 - 107	**107**

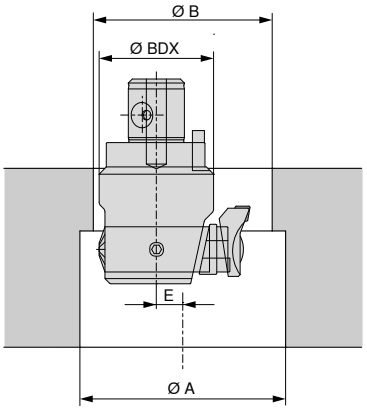
Note left hand direction of spindle rotation when in use



Fillister-head screw

Spare parts for Article no.	62 950 ...
62 321 044	**278**
62 321 051	**279**
62 321 053	**280**
62 321 060	**281**
62 321 064	**282**
62 321 071	**283**
62 321 080	**284**
62 321 091	**285**
62 321 107	**286**

Minimum diameter (Ø B) during retraction for back boring



Minimum diameter (Ø B) of the entry bore

$$Ø\,B = \frac{Ø\,BDX + Ø\,A}{2} + 1^*$$

Minimum offset (E) for starting

$$E = \frac{Ø\,A - Ø\,B}{2} + 0{,}5^*$$

*Safety margin

Example:
Boring head = 62 303 031
Insert Holder = 62 318 031
Reverse adapter = 62 321 044
Ø BDX = 20 mm
Ø A ≙ Amin. = 37 mm
*Safety margin = 1 mm

$$Ø\,B = \frac{20 + 37}{2} = 28{,}5 + 1 = 29{,}5\ \text{mm}$$

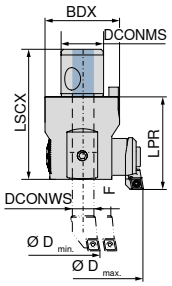
5

SpinTools – Vario-Head – boring and fine boring head

- For boring bars with a diameter of 16 mm and insert holders
- with thro' coolant supply
- LSCX = Recess depth of boring bar

Scope of supply:
Without boring bar and insert holder
Incl. coolant insert

STM





Digital
STM Modular

62 364 ...

D_{min} - D_{max} mm	Adapter	DCONMS mm	BDX mm	DCONWS mm	LPR mm	LSCX mm	ADJRGR mm	
3 - 152,1	STM 36	36	63	16	76,5	110	0 - 6,5	**101**



Coolant insert

62 366 ...

Spare parts for Article no.
62 364 101 **002**



Clamping screw VH

62 950 ...

M10X12 **341**



Grubscrew

62 950 ...

M3X14 **340**



Cylindrical screw

62 950 ...

Spare parts for Article no.
62 364 101
M10x25 **343**



Clamping screw

62 950 ...

M10X18 **342**

Suitable base adapters can be found on → **page 51.**

SpinTools – Digital Stick

- suitable for all SpinTools digital heads as well as for hi.flex Digital
- revised software for even more precise adjustment

Scope of supply:
incl. AAA Battery



NEW

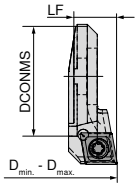
62 309 ...

00100

SpinTools – Insert holder, 90°

▲ for Vario-Head boring and fine boring head 62 364 101

Scope of supply:
incl. Torx clamping screw for inserts, without fixing bolt for holder





90°

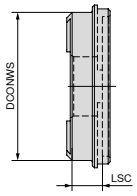
62 365 ...

LF mm	DCONMS mm	Insert	D_{min} - D_{max} mm	D_{min} - D_{max} extended mm	
13,05	30	CC.. 09T3	87,75 - 101,1	100,75 - 114,1	**101**
22,05	30	CC.. 09T3	105,75 - 119,1	118,75 - 132,1	**119**
32,05	30	CC.. 09T3	125,75 - 139,1	138,75 - 152,1	**139**

Suitable inserts can be found on → **Page 63.**

SpinTools – Spacer

▲ For insert holder article no. 62 365 ...





62 366 ...

LSC mm	DCONWS mm	
6,5	30	**001**

5

SpinTools – Vario Digital single point boring head (set)

▲ Suitable for Ø 3 – Ø 152 mm
▲ supplied with Ø 9.75 – Ø 101.1 mm
▲ with thro' coolant supply

Scope of supply:

- ▲ **1 tool kit**
- ▲ **1 single point finish boring head**
  - 62 364 101
- ▲ **2 boring bars**
  - 62 345 015 Ø 9.75 – Ø 20.1 mm
  - 62 345 024 Ø 19.75 – Ø 30.1 mm
- ▲ **Boring bars, adjustable**
  - 62 375 048 Ø 29.75 – Ø 48.1 mm
  - 62 375 088 Ø 47.75 – Ø 88.1 mm
- ▲ **3 insert holders**
  - 62 377 048 Ø 29.75 – Ø 48.1 mm
  - 62 377 088 Ø 47.75 – Ø 88.1 mm
  - 62 365 101 Ø 87.75 – Ø 101.1 mm
- ▲ **1 coolant insert 62 366 002**
- ▲ **1 digital display unit 62 309 00100**
- ▲ **4 Allen keys – SW2.5/4/5/8**
- ▲ **2 Torx keys – T7/15**



STM Modular

62 364 ...

D_{min} - D_{max} mm	Adapter	
9,75 - 101,1	STM 36	**999**

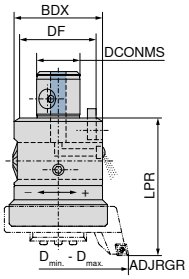
SpinTools – Single point finish boring heads

- With internal coolant supply
- extremely stable connection between insert holder and boring head

Scope of supply:

Boring head, without insert holder, pressure plate and support

STM





STM Modular

62 305 ...

D_{min} - D_{max} mm	Adapter	DCONMS mm	BDX mm	DF mm	LPR mm	ADJRGR mm	WT kg	
86 - 402	STM 36	36	72	63	120	± 1,25	2,94	**302**



Cylindrical screw

62 950 ...



Screw for drivers

62 950 ...



Driver

62 950 ...



Clamping screw ST

62 950 ...

Spare parts for Article no.									
62 305 302	M8x45	**292**	M6x12	**167**	16x26,5x8	**040**	M8x60	**011**

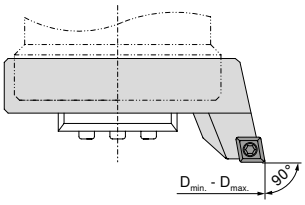
Suitable base adapters can be found on → **page 51.**

SpinTools – Tool holder

- for single point finish boring heads
- Approach angle 90°

Scope of supply:

incl. cover plate and support





62 438 ...

D_{min} - D_{max} mm	Insert	
86 - 138	CC.. 09T3	**138**
86 - 138	CC.. 1204	**238**
136 - 220	CC.. 09T3	**220**
136 - 220	CC.. 1204	**320**
188 - 302	CC.. 09T3	**302**
242 - 402	CC.. 09T3	**402**

Suitable inserts can be found on → **Page 63.**

Spare parts – insert holder

		 TORX® Screws		 Key D	 Pressure plate	 Support
		62 950 ...		80 950 ...	62 950 ...	62 950 ...
Spare parts for Article no.						
62 438 138	M4x9	**023**	T15	**113**	**152**	**149**
62 438 238	M5x10	**232**	T20	**114**	**152**	**149**
62 438 220	M4x9	**023**	T15	**113**	**153**	**150**
62 438 320	M5x10	**232**	T20	**114**	**153**	**150**
62 438 302	M4x9	**023**	T15	**113**	**153**	**150**
62 438 402	M4x9	**023**	T15	**113**	**153**	**150**

5

SpinTools – Boring set

- suitable for Ø 86 – Ø 402 mm
- supplied with Ø 86 – Ø 302 mm
- with thro' coolant

Scope of supply:

- **1 Case**
- **1 single point finish boring head**
  - 62 305 302
- **3 insert holders**
  - 62 438 138 Ø 86 – Ø 138 mm
  - 62 438 220 Ø 136 – Ø 220 mm
  - 62 438 302 Ø 188 – Ø 302 mm
- **2 pressure plates and 2 supports**
  - 62 950 149
  - 62 950 150
  - 62 950 152
  - 62 950 153
- **1 Allen Key – SW5**
- **1 Torx Key – T15**



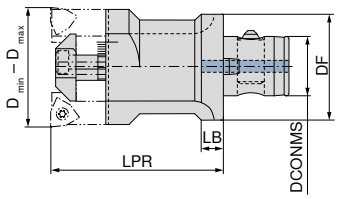
D_{min} - D_{max} mm	Adapter	STM Modular 62 439 ...
86 - 302	STM 36	**999**

TwinKom – Base body

Scope of supply:

Clamping plate incl. adjustment and fixing screws
Order tool holder (+ indexable insert) and indexable inserts separately

ABS





							NEW long	NEW short
							62 870 ...	62 870 ...
D_{min} - D_{max} mm	KOMET no.	DCONMS mm	DF mm	Adapter	LPR mm	LB mm		
24 - 32	G01 70552	13	25	ABS 25	45	6,0		**03290**
24 - 32	G01 71072	16	32	ABS 32	70	7,0	**13289**	
30 - 41	G01 70562	13	25	ABS 25	50			**04190**
30 - 41	G01 71132	16	32	ABS 32	85	7,5	**14189**	
39 - 53	G01 71022	16	32	ABS 32	60			**05389**
39 - 53	G01 71622	20	40	ABS 40	120	8,0	**15388**	
51 - 71	G01 71522	20	40	ABS 40	60			**07188**
51 - 71	G01 72122	28	50	ABS 50	135	10,0	**17197**	
64 - 91	G01 72022	28	50	ABS 50	70			**09197**
64 - 91	G01 72622	34	63	ABS 63	155	13,0	**19196**	
83 - 124	G01 72522	34	63	ABS 63	70			**12496**
83 - 124	G01 73122	46	80	ABS 80	155	16,5	**12592**	
109 - 167	G01 73032	46	80	ABS 80	90			**16792**[1)]
109 - 167	G01 73042	46	80	ABS 80	175		**16892**[1)]	
139 - 215	G01 73562	56	100	ABS 100	125			**21591**[1)]
139 - 215	G01 73572	56	100	ABS 100	240		**21691**[1)]	

1) Diameter range can only be achieved with TwinKom basic tool holder (radially + axially adjustable) and corresponding indexable insert!


Adjustment pin


Adjustment screw


TwinKom clamping plate


Fixing screw

Spare parts D_{min} - D_{max}		62 950 ...		10 950 ...		62 950 ...		10 950 ...
24 - 32	24-32	**46200**	M2,5X5.SW1,3	**16500**	**46900**	M2x4,5 TX6	**15800**
30 - 41	30-41	**46300**	M2,5X5.SW1,3	**16500**	**47000**	M2,5x5,3 TX8	**15900**
39 - 53	39-53	**46400**	M4x8 - SW2	**11100**	**47100**	M2,5x7 TX8	**16000**
51 - 71	51-71	**46500**	M4x10 - SW2	**11200**	**47200**	M3,5x9,4 TX10	**16300**
64 - 91	64-91	**46600**	M6X12 SW3	**16100**	**47300**	M4,5x11,5 - T15	**13500**
83 - 124	83-124	**46700**	M6X20 SW3	**16200**	**47400**	M5x12 - SW2,5	**11000**
109 - 167	109-167	**46800**	M8X20.SW4	**16600**	**47500**		
139 - 215	139-215	**47800**	M10X20 DIN 913	**17500**	**47700**	M6x20 Sw5	**17600**


Cylindrical screw TwinKom


Cylindrical screw

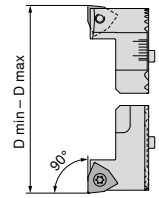
Spare parts D_{min} - D_{max}		62 950 ...		62 950 ...
24 - 32	M3X16	**46000**		
30 - 41	M4X20	**45500**		
39 - 53	M5X25	**45600**		
51 - 71	M6X30	**45700**		
64 - 91	M8X35	**45800**		
83 - 124	M8X45	**45900**		
109 - 167	M10X50	**46100**	M5x16	**00000**
139 - 215	M12x60	**47600**		

A detailed operating manual is available for download in the online shop next to the product.

TwinKom – Tool holder 90°

- ▲ radially adjustable
- ▲ Price per piece

Scope of supply:
including clamping screw
Order indexable inserts separately





NEW

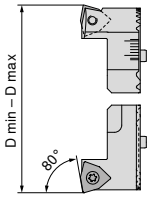
62 871 ...

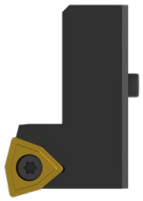
D_{min} - D_{max} mm	KOMET no.	Insert	
24 - 32	G03 70330	WO.X 0403	**03200**
30 - 41	G03 70141	WO.X 05T3	**04100**
39 - 53	G03 70230	WO.X 05T3	**05300**
51 - 71	G03 70240	WO.X 06T3	**07100**
64 - 91	G03 70250	WO.X 0804	**09100**
83 - 124	G03 70260	WO.X 1005	**12400**

TwinKom – Tool holder 80°

- ▲ radially adjustable
- ▲ Price per piece

Scope of supply:
including clamping screw
Order indexable inserts separately





NEW

62 875 ...

D_{min} - D_{max} mm	KOMET no.	Insert	
24 - 32	G03 80310	WO.X 0403	**03200**
30 - 41	G03 80021	WO.X 05T3	**04100**
39 - 53	G03 80090	WO.X 05T3	**05300**
51 - 71	G03 80100	WO.X 06T3	**07100**
64 - 91	G03 80110	WO.X 0804	**09100**
83 - 124	G03 80120	WO.X 1005	**12400**



Clamping screw

10 950 ...

D_{min} - D_{max}	
24 - 32	**10700**
30 - 41	**10500**
39 - 53	**10500**
51 - 71	**10600**
64 - 91	**12700**
83 - 124	**12700**

Suitable inserts can be found on → **Page 59.**

TwinKom – depths of cut

ap_{max}	P	M	K	N	S
WO.X 0302	1,5	1,0	1,5	2,0	1,0
WO.X 0403	2,5	1,5	3,0	3,0	1,5
WO.X 05T3	4,5	3,5	5,0	5,0	3,5
WO.X 05T6	6,0	4,0	6,0	6,0	4,0
WO.X 0804	7,5	6,0	7,5	7,5	6,0
WO.X 1005	9,0	9,0	9,0	9,0	9,0

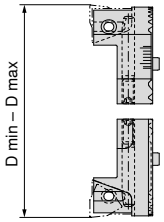
Further cutting data can be found on → **Page 65.**

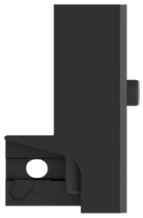
Suitable ABS adapters can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

TwinKom – Basic tool holder, radially and axially adjustable

▲ Price per piece

Scope of supply:
Order indexable insert seats and indexable inserts separately





NEW

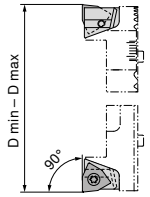
62 872 ...

D_{min} - D_{max} mm	KOMET no.	
24 - 32	G03 70011	03200
30 - 41	G03 70021	04100
39 - 53	G03 70031	05300
51 - 71	G03 70041	07100
64 - 91	G03 70061	09100
83 - 124	G03 70071	12400
109 - 167	G03 70081	16700
139 - 215	G03 70091	21500

TwinKom – Indexable insert, 90°

▲ axially adjustable
▲ Price per piece

Scope of supply:
including clamping screw
Order indexable inserts separately





NEW

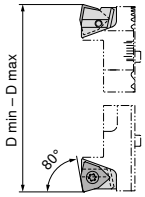
62 873 ...

D_{min} - D_{max} mm	KOMET no.	Insert	
24 - 32	D54 60510	W0.X 0302	03200
30 - 41	D54 60520	W0.X 0403	04100
39 - 53	D54 60030	W0.X 05T3	05300
51 - 71	D54 60040	W0.X 06T3	07100
64 - 91	D54 60050	W0.X 0804	09100
83 - 167	D54 60060	W0.X 1005	12400
139 - 215	D54 60070	W0.X 1206	21500

TwinKom – Indexable insert, 80°

▲ axially adjustable
▲ Price per piece

Scope of supply:
including clamping screw
Order indexable inserts separately





NEW

62 874 ...

D_{min} - D_{max} mm	KOMET no.	Insert	
24 - 32	D54 60610	W0.X 0302	03200
30 - 41	D54 60620	W0.X 0403	04100
39 - 53	D54 60130	W0.X 05T3	05300
51 - 71	D54 60140	W0.X 06T3	07100
64 - 91	D54 60150	W0.X 0804	09100
83 - 167	D54 60160	W0.X 1005	16700
139 - 215	D54 60170	W0.X 1206	21500



Clamping screw

10 950 ...

Spare parts

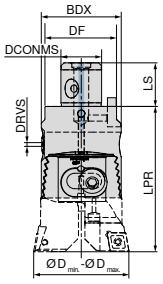
D_{min} - D_{max}	
24 - 32	10000
30 - 41	10700
39 - 53	10800
51 - 71	16400
64 - 91	12700
83 - 167	12700
139 - 215	17400

SpinTools – Twin edged Rough / Finish Boring Head

▲ Adjustable tools with through coolant
▲ each line on the adjustment scale equivalent to 0.01 mm on diameter

Scope of supply:
Boring head with spindle adjustment, carrier, stop pin, 2 screws, 2 lock washers

STM





5

STM Modular

D_{min} - D_{max} mm	Adapter	DCONMS mm	BDX mm	DF mm	LPR mm	LS mm	DRVS mm	WT kg	62 380 ...
29,5 - 40,1	STM 14	14	25	25	55	16	2,5	0,12	**040**
39,5 - 50,5	STM 18	18	32	32	65	20	2,5	0,24	**050**
49,5 - 66,5	STM 22	22	42	40	82	24	3,0	0,48	**066**
65,5 - 87,5	STM 28	28	55	50	100	30	3,0	0,94	**087**
86,5 - 115,5	STM 36	36	72	63	125	40	3,0	1,89	**115**


Fillister-head screw


Spring ring


Location Pin

Spare parts for Article no.		62 950 ...		62 950 ...		62 950 ...
62 380 040	M5x12	**293**	Ø 5,3/9,3	**312**		**231**
62 380 050	M6x16	**294**	Ø 6.4/10,2	**313**		**231**
62 380 066	M8x20	**295**	Ø 8,4/14,0	**314**		**234**
62 380 087	M10x25	**296**	Ø 10,5/17,0	**315**		**234**
62 380 115	M12x25	**297**	Ø 13,0/21,0	**316**		**234**


Screw for drivers


Driver

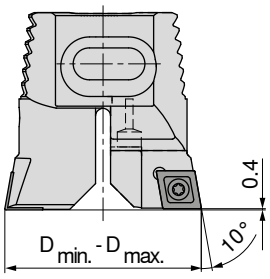
Spare parts for Article no.		62 950 ...		62 950 ...
62 380 040	M2,5x6	**163**	6x10,3x4	**036**
62 380 050	M3x8	**164**	8x15x5	**037**
62 380 066	M4x10	**165**	10x18,1x6	**038**
62 380 087	M5x10	**166**	12x20x6	**039**
62 380 115	M6x12	**167**	16x26,5x8	**040**

Suitable base adapters can be found on → **Page 51.**

SpinTools – Pair of Roughing / Finishing Insert Holders, 90°

- ▲ the insert holder for the finishing process is set back axially by 0.4 mm
- ▲ the insert holder for the finishing process is moved by the adjustable spindle
- ▲ the finishing insert must be mounted in the holder without radial adjustment screw
- ▲ machining allowance for the finishing insert holder approximately 0.3 mm in diameter

Scope of supply:
pair of insert holders, 1 adjusting screw, 2 insert clamping screws, 1 Grub screw





D_{min} - D_{max} mm	Insert	62 381 ...
29,5 - 40,1	CC.. 0602	**040**
39,5 - 50,5	CC.. 09T3	**050**
49,5 - 66,5	CC.. 09T3	**066**
65,5 - 87,5	CC.. 1204	**087**
86,5 - 115,5	CC.. 1204	**115**

Suitable inserts can be found on → **Page 63.**

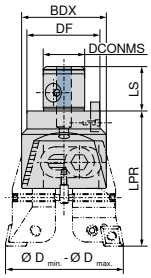
		 TORX® Screws		 Key D		 Adjustment screw		 Backstop screw	
		62 950 ...		80 950 ...		62 950 ...		62 950 ...	
Spare parts for Article no.									
62 381 040	M2,5x6	**022**	T07	**109**	M4x0,5x9,5	**239**	M3x8 - SW1,5	**015**
62 381 050	M4x9	**023**	T15	**113**	M4x0,5x13	**240**	M3x8 - SW1,5	**015**
62 381 066	M4x9	**023**	T15	**113**	M6x14	**241**	M3x8 - SW1,5	**015**
62 381 087	M5x10	**232**	T20	**114**	M6x20	**242**	M3x8 - SW1,5	**015**
62 381 115	M5x10	**232**	T20	**114**	M6x30	**333**	M3x8 - SW1,5	**015**

SpinTools – Boring heads for roughing with 2 cutting edges

▲ With internal coolant supply

Scope of supply:
Boring head incl. drive dog, fixing screws, spring rings, drive dog screw and stop pin

STM





STM Modular

D_{min} - D_{max} mm	Adapter	DCONMS mm	BDX mm	DF mm	LPR mm	LS mm	WT kg	62 295 ...
23,5 - 30,5	STM 11	11	20	20	40	13	0,05	**030**
29,5 - 40,1	STM 14	14	25	25	45	16	0,09	**040**
39,5 - 50,5	STM 18	18	32	32	65	20	0,25	**050**
49,5 - 66,5	STM 22	22	42	40	72	24	0,38	**066**
65,5 - 87,5	STM 28	28	55	50	82	30	0,59	**087**
86,5 - 115,5	STM 36	36	72	63	105	40	1,23	**115**
114,5 - 153,0	STM 36	36	94	94	140	40	2,80	**153**



Fillister-head screw



Spring ring



Location Pin

Spare parts for Article no.		62 950 ...		62 950 ...		62 950 ...
62 295 030	M4x8	**298**	Ø 4,3/7,3	**311**		**231**
62 295 040	M5x12	**293**	Ø 5,3/9,3	**312**		**231**
62 295 050	M6x16	**294**	Ø 6.4/10,2	**313**		**231**
62 295 066	M8x20	**295**	Ø 8,4/14,0	**314**		**234**
62 295 087	M10x25	**296**	Ø 10,5/17,0	**315**		**234**
62 295 115	M12x25	**297**	Ø 13,0/21,0	**316**		**234**
62 295 153	M16x35	**299**	Ø 17,0/34,0	**317**		**234**



Screw for drivers



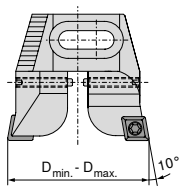
Driver

Spare parts for Article no.		62 950 ...		62 950 ...
62 295 030	M2x2,5	**162**	5x8,5x3	**035**
62 295 040	M2,5x6	**163**	6x10,3x4	**036**
62 295 050	M3x8	**164**	8x15x5	**037**
62 295 066	M4x10	**165**	10x18,1x6	**038**
62 295 087	M5x10	**166**	12x20x6	**039**
62 295 115	M6x12	**167**	16x26,5x8	**040**
62 295 153	M6x12	**167**	16x26,5x8	**040**

Suitable base adapters can be found on → **page 51.**

SpinTools – Pair of tool holders, standard, 90°

Scope of supply:
Adjustment screws, positioning pin, insert clamping screws

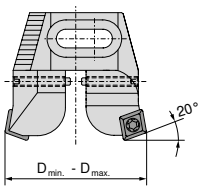




		62 296 ...
D_{min} - D_{max} mm	Insert	
23,5 - 30,5	CC.. 0602	**030**
29,5 - 40,1	CC.. 0602	**040**
39,5 - 50,5	CC.. 09T3	**050**
49,5 - 66,5	CC.. 09T3	**066**
65,5 - 87,5	CC.. 1204	**087**
65,5 - 87,5	CN.. 1204	**088**
86,5 - 115,5	CC.. 1204	**115**
86,5 - 115,5	CN.. 1606	**116**
114,5 - 153	CN.. 1606	**154**
114,5 - 153	CC.. 1204	**153**

SpinTools – Pair of tool holders, standard, 70°

Scope of supply:
Adjustment screws, positioning pin, insert clamping screws





		62 299 ...
D_{min} - D_{max} mm	Insert	
23,5 - 30,5	CC.. 0602	**030**
29,5 - 40,1	CC.. 0602	**040**
39,5 - 50,5	CC.. 09T3	**050**
49,5 - 66,5	CC.. 09T3	**066**
65,5 - 87,5	CC.. 1204	**087**
65,5 - 87,5	CN.. 1204	**088**
86,5 - 115,5	CC.. 1204	**115**
86,5 - 115,5	CN.. 1606	**116**
114,5 - 153	CN.. 1606	**154**

Suitable indexable inserts can be found in this chapter on → **page 63.**
Other indexable inserts can be found in Chapter 9 Indexable insert tools.


TORX® Screws

Key D

Adjustment screw

			62 950 ...		80 950 ...		62 950 ...
Spare parts							
D_{min} - D_{max}	**Insert**						
114,5 - 153	CC.. 1204	M5x10	**232**	T20	**114**	M6x40	**335**
23,5 - 30,5	CC.. 0602	M2,5x6	**022**	T07	**109**	M4x0,5x7	**238**
29,5 - 40,1	CC.. 0602	M2,5x6	**022**	T07	**109**	M4x0,5x9,5	**239**
39,5 - 50,5	CC.. 09T3	M4x9	**023**	T15	**113**	M4x0,5x13	**240**
49,5 - 66,5	CC.. 09T3	M4x9	**023**	T15	**113**	M6x14	**241**
65,5 - 87,5	CC.. 1204	M5x10	**232**	T20	**114**	M6x20	**242**
86,5 - 115,5	CC.. 1204	M5x10	**232**	T20	**114**	M6x30	**333**


Shim


Elbow lever screw


Lever

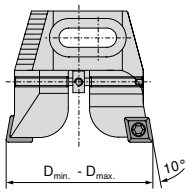

Carbide type C

Adjustment screw

			62 950 ...	62 950 ...	62 950 ...	62 950 ...	62 950 ...
Spare parts							
D_{min} - D_{max}	**Insert**						
114,5 - 153	CN.. 1606	**177**	**180**	**179**	**178**	M8x40	**334**
65,5 - 87,5	CN.. 1204	**096**	**136**	**125**	**117**	M6x20	**242**
86,5 - 115,5	CN.. 1606	**177**	**180**	**179**	**178**	M6x30	**333**

SpinTools – Pair of tool holders, ‘Synchro’, 90°

Scope of supply:
Insert clamping screws, synchronization screw

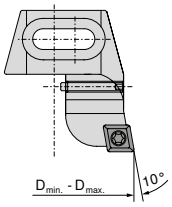




D_{min} - D_{max} mm	Insert	62 297 ...
23,5 - 30,5	CC.. 0602	030
29,5 - 40,1	CC.. 0602	040
39,5 - 50,5	CC.. 09T3	050
49,5 - 66,5	CC.. 09T3	066
65,5 - 87,5	CC.. 1204	087
86,5 - 115,5	CC.. 1204	115
114,5 - 153	CC.. 1204	153

SpinTools – Tool holder 90°, axial offset 0.4 mm

Scope of supply:
2 adjustment screws, 1 positioning pin, insert clamping screw





D_{min} - D_{max} mm	Insert	62 298 ...
23,5 - 30,5	CC.. 0602	030
29,5 - 40,1	CC.. 0602	040
39,5 - 50,5	CC.. 09T3	050
49,5 - 66,5	CC.. 09T3	066
65,5 - 87,5	CC.. 1204	087
86,5 - 115,5	CC.. 1204	115
114,5 - 153	CC.. 1204	153

5

Suitable indexable inserts can be found in this chapter on → **page 63.**
Other indexable inserts can be found in Chapter 9 Indexable insert tools.


TORX® Screws


Synchronization screw

Key D

Adjustment screw

Spare parts for Article no.		62 950 ...		62 950 ...		80 950 ...		62 950 ...
62 297 030	M2,5x6	022	M4x0,5x18	207	T07	109	M4x0,5x7	238
62 297 040	M2,5x6	022	M4x0,5x23	208	T07	109	M4x0,5x9,5	239
62 297 050	M4x9	023	M4x0,5x30	209	T15	113	M4x0,5x13	240
62 297 066	M4x9	023	M6x40	210	T15	113	M6x14	241
62 297 087	M5x10	232	M6x52	211	T20	114	M6x20	242
62 297 115	M5x10	232	M6x68	212	T20	114	M6x30	333
62 297 153	M5x10	232	M6x90	220	T20	114	M6x40	335

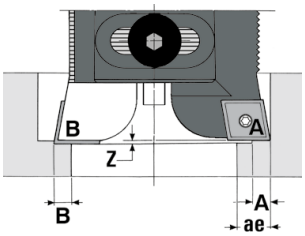

TORX® Screws

Key D

Adjustment screw

Spare parts for Article no.		62 950 ...		80 950 ...		62 950 ...
62 298 030	M2,5x6	022	T07	109	M4x0,5x7	238
62 298 040	M2,5x6	022	T07	109	M4x0,5x9,5	239
62 298 050	M4x9	023	T15	113	M4x0,5x13	240
62 298 066	M4x9	023	T15	113	M6x14	241
62 298 087	M5x10	232	T20	114	M6x20	242
62 298 115	M5x10	232	T20	114	M6x30	333
62 298 153	M5x10	232	T20	114	M6x40	335

Asynchronous machining (divided cut)



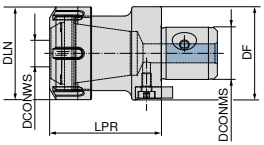
Asynchronous boring is possible using a tool holder (A) with offset 0.4mm. This tool holder is black finished and characterized by 3 dots, and must be in the outer position (with regard to the 2 tool holders)

SpinTools – ER collet chuck

- ▲ for ER clamping to DIN 6499
- ▲ With internal coolant supply

Scope of supply:
axial tool length adjustment and lock nut

STM





DCONWS mm	SZID	DCONMS mm	DF mm	DLN mm	LPR mm	for collet	WT kg	STM Modular 62 306 ...
1 - 20	STM 28	28	50	50	60	470E (ER32)	0,644	032


Y clamping key — 83 357 ...


Screw for drivers — 62 950 ...


Driver — 62 950 ...


Driver — 83 950 ...


Stop screw IK — 62 950 ...

Spare parts for Article no.					
62 306 032	132	166	039	121	406

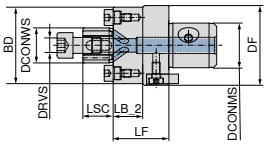
Suitable collets can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

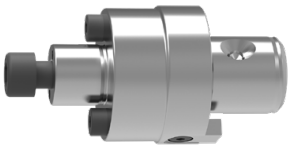
SpinTools – Shell mill adapter

- ▲ for use on mills with parallel or transverse slot to ISO 3937
- ▲ With internal coolant supply

Scope of supply:
drive dogs, drive key and clamping bolt

STM





DCONWS mm	SZID	DCONMS mm	BD mm	DF mm	LSC mm	LB_2 mm	LF mm	DRVS mm	WT kg	STM Modular 62 307 ...
16	STM 22	22	38	40	17	17,1	30	6	0,363	016
22	STM 28	28	48	50	19	19,1	35	8	0,685	022


Parallel key — 83 950 ...


Screw for drivers — 62 950 ...


Drive dogs — 62 950 ...

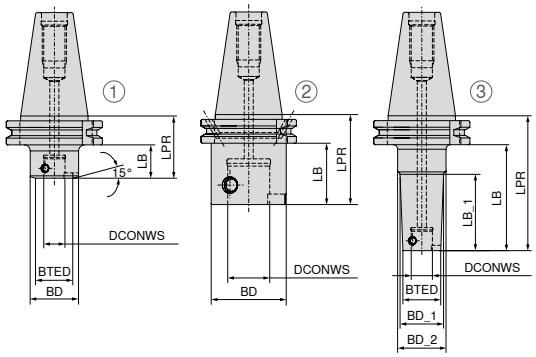

Driver — 62 950 ...

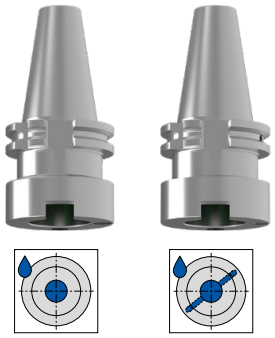

clamping screw — 83 950 ...

Spare parts for Article no.					
62 307 016	284	165	442	038	113
62 307 022	285	166	443	039	124

SpinTools – Base adapters ISO 7388-1 (DIN 69871)

STM





AD SK | AD/B SK

5

	Adapter	Fig.	SZID	DCONWS mm	BTED mm	BD mm	BD_1 mm	BD_2 mm	LPR mm	LB mm	LB_1 mm	WT kg	62 107 ...		62 108 ...
short	SK 30	2	STM 28	28		50			55	35,9		0,62	**328**		
	SK 40	1	STM 11	11	20	32			40	20,9		0,91	**111** 1)		
	SK 40	1	STM 14	14	25	32			40	20,9		0,93	**114** 1)		
	SK 40	2	STM 18	18		32			40	20,9		0,89	**118**		
	SK 40	2	STM 22	22		40			50	30,9		1,02	**122**		
	SK 40	2	STM 28	28		50			50	30,9		1,11	**128**		**128**
	SK 40	2	STM 36	36		63			60	40,9		1,27	**136**		**136**
	SK 50	2	STM 28	28		50			50	30,9		2,92	**428**		**428**
	SK 50	2	STM 36	36		63			63	43,9		3,27	**436**		**436**
long	SK 40	3	STM 11	11	20		23	32	80	60,9	40,9	1,04	**211** 1)		
	SK 40	3	STM 14	14	25		28	32	80	60,9	40,9	1,07	**214** 1)		
	SK 40	2	STM 18	18		32			80	60,9		1,13	**218**		
	SK 40	2	STM 22	22		40			100	80,9		1,47	**222**		
	SK 40	2	STM 28	28		50			100	80,9		1,84	**228**		
	SK 40	2	STM 36	36		63			120	100,9		2,68	**236**		**236**
	SK 50	2	STM 36	36		63			120	100,9		4,60	**536**		**536**

1) Note! BD/BD_1 is larger than BTED, which may lead to a limited bore depth!



O-Ring



Clamping screw ST

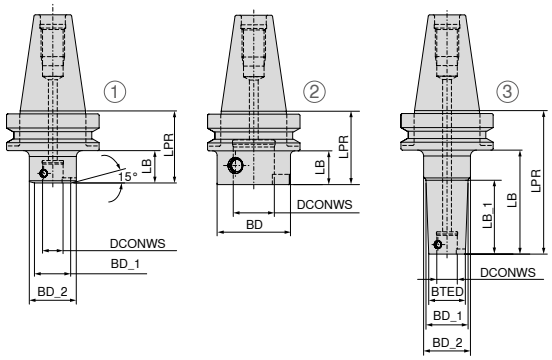
Spare parts DCONWS			62 950 ...		62 950 ...
11	9x1,5	**254**	M4x0,5x6	**026**	
14	12x1,5	**255**	M5x0,5x7,5	**027**	
18	16x1,5	**256**	M6x0,75x9,5	**028**	
22	19x2	**257**	M8x0,75x12	**029**	
28	25x2	**258**	M10x1x14,2	**030**	
36	33x2	**259**	M12x1x18	**031**	

Suitable pull studs can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

SpinTools – Base adapters ISO 7388-2 (JIS B 6339 / MAS-BT)

▲ form B available upon request

STM







MAS-BT

62 112 ...

	Adapter	Fig.	SZID	DCONWS mm	BTED mm	BD mm	BD_1 mm	BD_2 mm	LPR mm	LB mm	LB_1 mm	WT kg	
short	BT 30	2	STM 28	28		50			55			0,64	**328**
	BT 40	1	STM 11	11	20	32			50	23		1,09	**111** [1]
	BT 40	1	STM 14	14	25	32			50	23		1,08	**114** [1]
	BT 40	2	STM 18	18		32			50	23		1,06	**118**
	BT 40	2	STM 22	22		40			50	23		1,10	**122**
	BT 40	2	STM 28	28		50			50	23		1,14	**128**
	BT 40	2	STM 36	36		63			60	33		1,38	**136**
	BT 50	2	STM 28	28		50			63	25		3,75	**428**
	BT 50	2	STM 36	36		63			63	25		3,78	**436**
long	BT 40	3	STM 11	11	20		23	32	90	63	43	1,20	**211** [1]
	BT 40	3	STM 14	14	25		28	32	90	63	43	1,24	**214** [1]
	BT 40	2	STM 18	18		32			90	63		1,30	**218**
	BT 40	2	STM 22	22		40			100	73		1,57	**222**
	BT 40	2	STM 28	28		50			100	73		1,87	**228**
	BT 40	2	STM 36	36		63			120	93		2,78	**236**
	BT 50	2	STM 36	36		63			120	82		5,18	**536**

1) Note! BD/BD_1 is larger than BTED, which may lead to a limited bore depth!



O-Ring



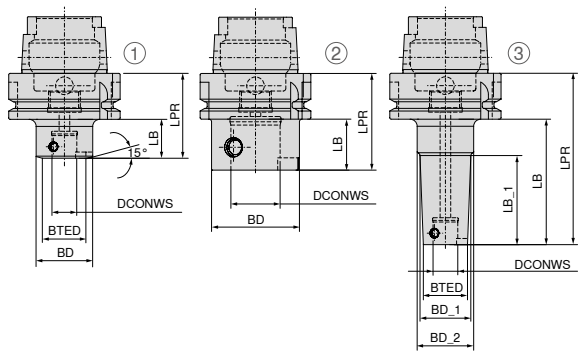
Clamping screw ST

Spare parts DCONWS	O-Ring	62 950 ...	Clamping screw ST	62 950 ...
11	9x1,5	**254**	M4x0,5x6	**026**
14	12x1,5	**255**	M5x0,5x7,5	**027**
18	16x1,5	**256**	M6x0,75x9,5	**028**
22	19x2	**257**	M8x0,75x12	**029**
28	25x2	**258**	M10x1x14,2	**030**
36	33x2	**259**	M12x1x18	**031**

Suitable pull studs can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

SpinTools – Base adapters HSK-A ISO 12164-1 (DIN 69893-1)

STM







HSK-A

62 122 ...

	Adapter	Fig.	SZID	DCONWS mm	BTED mm	BD mm	BD_1 mm	BD_2 mm	LPR mm	LB mm	LB_1 mm	WT kg	
short	HSK-A 63	1	STM 11	11	20	32			50	24		0,77	**111** [1]
	HSK-A 63	1	STM 14	14	25	32			50	24		0,76	**114** [1]
	HSK-A 63	2	STM 18	18		32			50	24		0,74	**118**
	HSK-A 63	2	STM 22	22		40			50	24		0,79	**122**
	HSK-A 63	2	STM 28	28		50			55	24		0,91	**128**
	HSK-A 63	2	STM 36	36		63			65	34		1,10	**136**
	HSK-A 100	2	STM 28	28		50			63	34		2,32	**428**
	HSK-A 100	2	STM 36	36		63			70	34		2,61	**436**
long	HSK-A 63	3	STM 11	11	20		23	32	90	64	44	0,87	**211** [1]
	HSK-A 63	3	STM 14	14	25		28	32	90	64	44	0,93	**214** [1]
	HSK-A 63	2	STM 18	18		32			90	64		0,98	**218**
	HSK-A 63	2	STM 22	22		40			100	74		1,26	**222**
	HSK-A 63	2	STM 28	28		50			100	74		1,58	**228**
	HSK-A 63	2	STM 36	36		63			120	94		2,41	**236**
	HSK-A 100	2	STM 36	36		63			120	91		3,77	**536**

1) Note! BD/BD_1 is larger than BTED, which may lead to a limited bore depth!



O-Ring



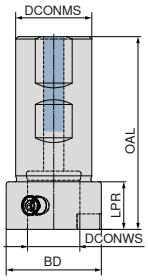
Clamping screw ST

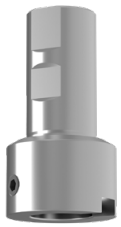
Spare parts DCONWS				
	62 950 ...		**62 950 ...**	
11	9x1,5	**254**	M4x0,5x6	**026**
14	12x1,5	**255**	M5x0,5x7,5	**027**
18	16x1,5	**256**	M6x0,75x9,5	**028**
22	19x2	**257**	M8x0,75x12	**029**
28	25x2	**258**	M10x1x14,2	**030**
36	33x2	**259**	M12x1x18	**031**

SpinTools – Adapters to DIN 1835-B

▲ with thro' coolant

STM





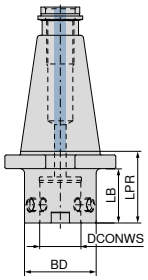
DIN 1835-B

62 104 ...

DCONMS mm	BD mm	SZID	DCONWS mm	LPR mm	OAL mm	WT kg	
25	25	STM 14	14	15	72	0,24	**014**
32	32	STM 18	18	15	76	0,42	**018**
32	50	STM 28	28	35	96	0,72	**028**
32	63	STM 36	36	45	106	1,05	**036**

SpinTools – Base adapter DIN 2080

STM





short
SK

62 109 ...

Adapter	SZID	DCONWS mm	BD mm	LPR mm	LB mm	WT kg	
SK 40	STM 36	36	63	60	48,4	1,52	**136**
SK 50	STM 36	36	63	63	47,8	3,33	**436**



O-Ring

62 950 ...



Clamping screw
ST

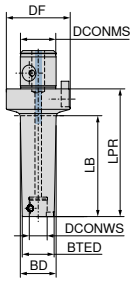
62 950 ...

Spare parts DCONWS				
14	12x1,5	**255**	M5x0,5x7,5	**027**
18	16x1,5	**256**	M6x0,75x9,5	**028**
28	25x2	**258**	M10x1x14,2	**030**
36	33x2	**259**	M12x1x18	**031**

SpinTools – Reductions

▲ With internal coolant supply

STM





STM Modular

62 357 ...

Adapter	LPR mm	SZID	DCONMS mm	DCONWS mm	DF mm	BTED mm	BD mm	LB mm	WT kg	
STM 11	30	STM 14	14	11	25	20	23	15	0,04	**111**
STM 11	30	STM 18	18	11	32	20	23	17	0,14	**211**
STM 14	30	STM 18	18	14	32	25	28	17	0,16	**214**
STM 11	30	STM 22	22	11	40	20	23	15	0,21	**311**
STM 14	30	STM 22	22	14	40	25	28	15	0,22	**314**
STM 18	30	STM 22	22	18	40	32	37	15	0,25	**318**
STM 11	40	STM 28	28	11	50	20	23	20	0,44	**411**
STM 14	40	STM 28	28	14	50	25	28	20	0,49	**414**
STM 18	40	STM 28	28	18	50	32	37	20	0,45	**418**
STM 22	40	STM 28	28	22	50	40	46	20	0,55	**422**
STM 11	40	STM 36	36	11	63	20	22	16	0,82	**511**
STM 11	70	STM 36	36	11	63	20	23	42	0,90	**811**
STM 11	95	STM 36	36	11	63	20	23	71	0,98	**611**
STM 11	115	STM 36	36	11	63	20	23	87	1,02	**911**
STM 11	135	STM 36	36	11	63	20	23	111	1,08	**711**
STM 14	40	STM 36	36	14	63	25	27	16	0,84	**514**
STM 14	80	STM 36	36	14	63	25	28	52	1,00	**814**
STM 14	120	STM 36	36	14	63	25	28	96	1,16	**614**
STM 14	145	STM 36	36	14	63	25	28	117	1,27	**914**
STM 14	170	STM 36	36	14	63	25	28	146	1,38	**714**
STM 18	40	STM 36	36	18	63	32	37	16	0,85	**518**
STM 18	100	STM 36	36	18	63	32	38	74	1,24	**818**
STM 18	150	STM 36	36	18	63	32	38	126	1,66	**918**
STM 18	207	STM 36	36	18	63	32	38	183	2,07	**618**
STM 22	40	STM 36	36	22	63	40	46	16	0,89	**522**
STM 22	120	STM 36	36	22	63	40	48	95	1,76	**822**
STM 22	183	STM 36	36	22	63	40	48	159	2,52	**622**
STM 22	263	STM 36	36	22	63	40	48	239	3,44	**722**
STM 28	40	STM 36	36	28	63	50	58	21	1,03	**528**
STM 28	140	STM 36	36	28	63	50	60	117	2,70	**828**
STM 28	233	STM 36	36	28	63	50	60	209	4,41	**628**
STM 28	333	STM 36	36	28	63	50	60	309	6,25	**728**

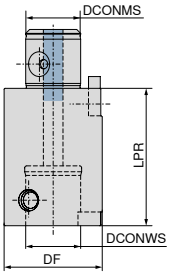
Reductions – Spare Parts

		 O-Ring		 Screw for drivers		 Driver		 Clamping screw ST	
		62 950 ...		**62 950 ...**		**62 950 ...**		**62 950 ...**	
Spare parts for Article no.									
62 357 111	9x1,5	**254**	M2,5x6	**163**	6x10,3x4	**036**	M4x0,5x6	**026**
62 357 211	9x1,5	**254**	M3x8	**164**	8x15x5	**037**	M4x0,5x6	**026**
62 357 214	12x1,5	**255**	M3x8	**164**	8x15x5	**037**	M5x0,5x7,5	**027**
62 357 311	9x1,5	**254**	M4x10	**165**	10x18,1x6	**038**	M4x0,5x6	**026**
62 357 314	12x1,5	**255**	M4x10	**165**	10x18,1x6	**038**	M5x0,5x7,5	**027**
62 357 318	16x1,5	**256**	M4x10	**165**	10x18,1x6	**038**	M6x0,75x9,5	**028**
62 357 411	9x1,5	**254**	M5x10	**166**	12x20x6	**039**	M4x0,5x6	**026**
62 357 414	12x1,5	**255**	M5x10	**166**	12x20x6	**039**	M5x0,5x7,5	**027**
62 357 418	16x1,5	**256**	M5x10	**166**	12x20x6	**039**	M6x0,75x9,5	**028**
62 357 422	19x2	**257**	M5x10	**166**	12x20x6	**039**	M8x0,75x12	**029**
62 357 511	9x1,5	**254**	M6x12	**167**	16x26,5x8	**040**	M4x0,5x6	**026**
62 357 811	9x1,5	**254**	M6x12	**167**	16x26,5x8	**040**	M4x0,5x6	**026**
62 357 611	9x1,5	**254**	M6x12	**167**	16x26,5x8	**040**	M4x0,5x6	**026**
62 357 911	9x1,5	**254**	M6x12	**167**	16x26,5x8	**040**	M4x0,5x6	**026**
62 357 711	9x1,5	**254**	M6x12	**167**	16x26,5x8	**040**	M4x0,5x6	**026**
62 357 514	12x1,5	**255**	M6x12	**167**	16x26,5x8	**040**	M5x0,5x7,5	**027**
62 357 814	12x1,5	**255**	M6x12	**167**	16x26,5x8	**040**	M5x0,5x7,5	**027**
62 357 614	12x1,5	**255**	M6x12	**167**	16x26,5x8	**040**	M5x0,5x7,5	**027**
62 357 914	12x1,5	**255**	M6x12	**167**	16x26,5x8	**040**	M5x0,5x7,5	**027**
62 357 714	12x1,5	**255**	M6x12	**167**	16x26,5x8	**040**	M5x0,5x7,5	**027**
62 357 518	16x1,5	**256**	M6x12	**167**	16x26,5x8	**040**	M6x0,75x9,5	**028**
62 357 818	16x1,5	**256**	M6x12	**167**	16x26,5x8	**040**	M6x0,75x9,5	**028**
62 357 918	16x1,5	**256**	M6x12	**167**	16x26,5x8	**040**	M6x0,75x9,5	**028**
62 357 618	16x1,5	**256**	M6x12	**167**	16x26,5x8	**040**	M6x0,75x9,5	**028**
62 357 522	19x2	**257**	M6x12	**167**	16x26,5x8	**040**	M8x0,75x12	**029**
62 357 822	19x2	**257**	M6x12	**167**	16x26,5x8	**040**	M8x0,75x12	**029**
62 357 622	19x2	**257**	M6x12	**167**	16x26,5x8	**040**	M8x0,75x12	**029**
62 357 722	19x2	**257**	M6x12	**167**	16x26,5x8	**040**	M8x0,75x12	**029**
62 357 528	25x2	**258**	M6x12	**167**	16x26,5x8	**040**	M10x1x14,2	**030**
62 357 828	25x2	**258**	M6x12	**167**	16x26,5x8	**040**	M10x1x14,2	**030**
62 357 628	25x2	**258**	M6x12	**167**	16x26,5x8	**040**	M10x1x14,2	**030**
62 357 728	25x2	**258**	M6x12	**167**	16x26,5x8	**040**	M10x1x14,2	**030**

SpinTools – Extensions

▲ With internal coolant supply

STM





STM Modular

62 351 ...

Adapter	LPR mm	SZID	DCONWS mm	DF mm	DCONMS mm	WT kg	
STM 11	25	STM 11	11	20	11	0,06	**111**
STM 11	35	STM 11	11	20	11	0,09	**211**
STM 14	30	STM 14	14	25	14	0,11	**114**
STM 14	45	STM 14	14	25	14	0,17	**214**
STM 18	40	STM 18	18	32	18	0,23	**118**
STM 18	60	STM 18	18	32	18	0,35	**218**
STM 22	50	STM 22	22	40	22	0,45	**122**
STM 22	80	STM 22	22	40	22	0,73	**222**
STM 28	50	STM 28	28	50	28	0,71	**128**
STM 28	75	STM 28	28	50	28	1,07	**228**
STM 28	100	STM 28	28	50	28	1,44	**328**
STM 36	60	STM 36	36	63	36	1,33	**136**
STM 36	90	STM 36	36	63	36	2,02	**236**
STM 36	120	STM 36	36	63	36	2,72	**336**



O-Ring

62 950 ...



Screw for drivers

62 950 ...



Driver

62 950 ...



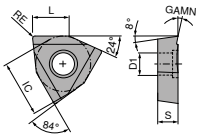
Clamping screw ST

62 950 ...

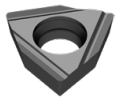
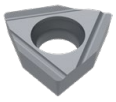
Spare parts DCONWS								
11	9x1,5	**254**	M2x2,5	**162**	5x8,5x3	**035**	M4x0,5x6	**026**
14	12x1,5	**255**	M2,5x6	**163**	6x10,3x4	**036**	M5x0,5x7,5	**027**
18	16x1,5	**256**	M3x8	**164**	8x15x5	**037**	M6x0,75x9,5	**028**
22	19x2	**257**	M4x10	**165**	10x18,1x6	**038**	M8x0,75x12	**029**
28	25x2	**258**	M5x10	**166**	12x20x6	**039**	M10x1x14,2	**030**
36	33x2	**259**	M6x12	**167**	16x26,5x8	**040**	M12x1x18	**031**

WOHX

Designation	L mm	S mm	D1 mm	IC mm
WOHX 02T0..	2,6	1,20	2	4



WOHX

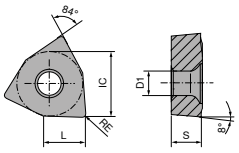
	-G12 BK2710	-G12 BK8440	-G12 K10
			
	F	**F**	**F**
	WOHX	WOHX	WOHX
	62 600 ...	**62 600 ...**	**62 600 ...**

ISO	KOMET no.	RE mm			
02T001EL	W00 04120.018440	0,1		**00102**	
02T001EL	W00 04120.012710	0,1	**10102**		
02T001FL	W00 04120.0121	0,1			**20102**
P			●	●	
M			●	●	
K			●	●	
N					●
S					●
H				●	
O					●

→ v_c Page 65

WOEX / WOGX

Designation	L mm	S mm	D1 mm	IC mm
WOGX 0302..	3,2	2,30	2,30	5,00
WOGX 0403..	4,1	3,18	2,55	6,35
WO.X 05T3..	5,3	3,80	2,85	8,00
WO.X 06T3..	6,6	3,80	4,05	10,00
WO.X 0804..	7,9	4,80	4,90	12,00
WOEX 1005..	9,9	5,30	4,90	15,00



WOGX / WOEX

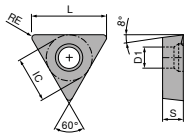
5

			NEW	NEW		
			-15 BK8430	-02 BK6440	-01 BK8425	-01 BK6115
						
			WOGX	WOEX	WOEX	WOEX
			10 821 ...	10 821 ...	10 821 ...	10 821 ...
ISO	KOMET no.	RE mm				
030204	W29 10010.048425	0,4			30301	
030204	W29 10150.048430	0,4	00315			
030204	W29 10010.046115	0,4				40301
040304	W29 18010.048425	0,4			30401	
040304	W29 18150.048430	0,4	00415			
040304	W29 18010.046115	0,4				40401
05T304	W29 24010.048425	0,4			30501	
05T304	W29 24020.046440	0,4		25502		
05T304	W29 24150.048430	0,4	00515			
05T304	W29 24010.046115	0,4				40501
06T304	W29 34010.048425	0,4			30601	
06T304	W29 34020.046440	0,4		25602		
06T304	W29 34150.048430	0,4	00615			
06T304	W29 34010.046115	0,4				40601
080404	W29 42010.048425	0,4			30801	
080404	W29 42020.046440	0,4		25802		
080404	W29 42150.048430	0,4	00815			
080404	W29 42010.046115	0,4				40801
100504	W29 50010.048425	0,4			31001	
100504	W29 50020.046440	0,4		26002		
100504	W29 50010.046115	0,4				41001
120608	W29 58010.088425	0,8			31201	
120608	W29 58020.086440	0,8		21202		
120608	W29 58010.086115	0,8				41201
P			○	●	●	●
M			○	●	●	●
K			○		●	●
N					○	
S			●			
H			●		○	○
O						

→ v_c Page 65

TOGX

Designation	L mm	S mm	D1 mm	IC mm
TOGX 06T1..	6,64	1,80	2,2	4,0
TOGX 0902..	9,12	2,50	2,8	5,6
TOGX 1403..	13,62	3,00	3,8	8,2



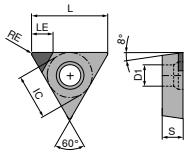
TOGX

			NEW		NEW			NEW
			-18 CK32		-14 CK3230	-14 BK60	-12 K10	CBN40
								
			F		F	F	F	F
			TOGX		TOGX	TOGX	TOGX	TOGX
			62 607 ...		62 606 ...	62 601 ...	62 601 ...	62 601 ...
ISO	KOMET no.	RE mm						
06T102EN	W57 04140.0260	0,2				90206		
06T102EN	W57 04140.023230	0,2			10201			
06T102EN	W57 04180.0432	0,4	20401					
06T102FN	W57 04120.0223	0,2					50206	
06T102TN	W30 04990.0240	0,2						60206
090204EN	W57 14140.0460	0,4				70409		
090204EN	W57 14140.043230	0,4			11401			
090204EN	W57 14180.0432	0,4	21401					
090204FN	W57 14120.0423	0,4					50409	
090204TN	W30 14990.0440	0,4						60409
140304EN	W57 26140.0460	0,4				70414		
140304EN	W57 26140.043230	0,4			12601			
140304EN	W57 26180.0432	0,4	22601					
140304FN	W57 26120.0423	0,4					50414	
140304TN	W30 26990.0440	0,4						62600
P			●		●	●		
M			●		●	●		
K						●		
N							●	
S							●	
H								●
O							●	

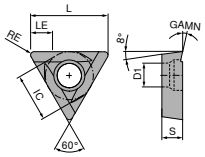
→ v_c Page 65

TOEX / TOHX

Designation	L mm	S mm	D1 mm	IC mm	LE mm
TOEX 06T1..	6,64	1,80	2,2	4,0	1,8
TOEX 0902..	9,12	2,50	2,8	5,6	2,7
TOEX 1403..	13,62	3,00	3,8	8,2	2,7
TOHX 06T1..	6,50	1,80	2,2	4,0	-
TOHX 0902..	9,12	2,50	2,8	5,6	-
TOHX 1403..	13,62	3,00	3,8	8,2	-



TOEX



TOHX

TOEX / TOHX

5

	NEW	NEW	NEW		NEW
	PKD5510 CTDPU20	-G12 BK8425	-G06 BK2710	-G06 BK6110	-G06 BK7615
					
	F	F	F	F	F
	DIAMOND TOEX	TOHX	TOHX	TOHX	TOHX
	62 605 ...	62 603 ...	62 602 ...	62 602 ...	62 602 ...

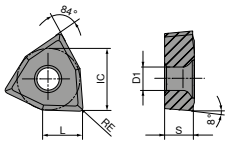
ISO	KOMET no.	RE mm					
06T102FN	W30 04990.025510	0,2	**00201**				
06T103EL	W30 04060.032710	0,3			**10606**		
06T103EL	W30 04060.036110	0,3				**40606**	
06T103EL	W30 04120.038425	0,3		**30200**			
06T103EL	W30 04060.037615	0,3					**80606**
090204EL	W30 14060.042710	0,4			**10409**		
090204EL	W30 14120.048425	0,4		**31800**			
090204EL	W30 14060.046110	0,4				**40409**	
090204EL	W30 14060.047615	0,4					**80409**
090204FN	W30 14990.045510	0,4	**01401**				
140304EL	W30 26060.042710	0,4			**12600**		
140304EL	W30 26120.048425	0,4		**32600**			
140304EL	W30 26060.046110	0,4				**40414**	
140304EL	W30 26060.047615	0,4					**82600**
140304FN	W30 26990.045510	0,4	**02601**				

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

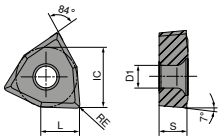
→ v_c Page 65

WCMT / WCGT

Designation	L mm	S mm	D1 mm	IC mm
WCGT 0201..	2,71	1,59	2,1	3,97
WCMT 0201..	4,34	1,59	2,1	3,97



WCMT



WCGT

WCMT / WCGT

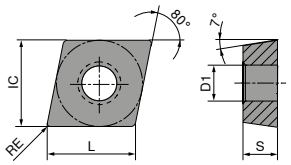
		-SF30 CWC06	-SF20 CWN10	-SF16 CWP25
				
		F	**F**	**F**
		CERMET		
		WCMT	WCGT	WCGT
		70 294 ...	**70 295 ...**	**70 295 ...**
ISO	RE mm			
020102	0,2	**850**	**850**	**500**
020104	0,4		**852**	
P		●	●	●
M		○	●	●
K		●	●	○
N		●	●	●
S			●	
H			●	
O				

→ v_c Page 66

Additional inserts can be found in → **Chapter 9, Turning Tools**

CCGT

Designation	L mm	S mm	D1 mm	IC mm
CCGT 06..	6,4	2,38	2,8	6,35
CCGT 09..	9,7	3,97	4,4	9,52



CCGT

	-SF20 CWN10	-SF15 CWC06	-SF14 CWC10
	F	F	F
		CERMET	CERMET
	CCGT	CCGT	CCGT
	70 296 ...	70 296 ...	70 300 ...
ISO / RE mm			
060202L 0,2	300	850	903
060204L 0,4	302	852	905
09T302L 0,2	304	854	911
09T304L 0,4	306	856	913
P	●	●	●
M	●	○	●
K	●	●	●
N	●	●	
S	●		
H	●		
O			

→ v_c Page 66

Additional inserts can be found in → **Chapter 9, Turning Tools**

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²				
		O.3.1	Graphite						

*** Tensile strength**

Cutting data standard values for indexable inserts – MicroKom tools

	Indexable inserts for ...													
	62 820 ... / 62 840 ... / 62 800 ... / 62 815 ... / 62 810 ... / 62 858 ...											62 870 ...		
Index	BK8440	BK8425	BK2710	K10	BK60	BK6110	BK7615	CBN40	PKD5510 CTDPU20	CK3230	CK32	BK6440	BK6115	BK8430
	v_c m/min													
P.1.1	**170**	**200**	**230**		**270**	**300**				**350**	**350**	**240**	**300**	200
P.1.2	**170**	**200**	**230**		**270**	**300**				**350**	**350**	**240**	**300**	200
P.1.3	**170**	**200**	**230**		**270**	**300**				**350**	**350**	**220**	**270**	200
P.1.4	**150**	**180**	**210**		**250**	**300**				**320**	**320**	**220**	**250**	180
P.1.5	**150**	**180**	**210**		**250**	**300**				**320**	**320**	**220**	**270**	180
P.2.1	**140**	**160**	**180**		**210**	**270**				**280**	**280**	**200**	**270**	160
P.2.2	**140**	**160**	**180**		**210**	**270**				**280**	**280**	**200**	**260**	160
P.2.3	**140**	**160**	**180**		**210**	**270**				**280**	**280**	**200**	**240**	160
P.2.4	**140**	**160**	**180**		**210**	**270**				**280**	**280**	**200**	**190**	160
P.3.1	**120**	**140**	**160**		**190**	**250**				**250**	**250**	**180**	**200**	140
P.3.2	**120**	**140**	**160**		**190**	**250**				**250**	**250**	**160**	**160**	140
P.3.3	**120**	**140**	**160**		**190**	**250**				**250**	**250**	**160**	**140**	140
P.4.1	**100**	**120**	**140**		**160**	**220**				**210**	**210**	**140**	**220**	120
P.4.2	**100**	**120**	**140**		**160**	**220**				**210**	**210**	**140**	**160**	120
M.1.1	**140**	**160**	**180**		**280**	**220**				**280**	**280**	**200**	**220**	160
M.2.1	**120**	**140**	**160**		**250**	**220**				**250**	**250**	**180**	**220**	140
M.3.1	**90**	**100**	**120**		**180**	**200**				**180**	**180**	**160**	**200**	100
K.1.1	**150**	**180**	**210**		**210**	**290**	**290**						**240**	180
K.1.2	**140**	**160**	**180**		**180**	**290**	**290**						**140**	160
K.2.1	**120**	**140**	**160**		**160**	**270**	**270**						**160**	140
K.2.2	**120**	**140**	**160**		**160**	**250**	**250**						**100**	140
K.3.1	**100**	**120**	**140**		**140**	**220**	**220**						**120**	120
K.3.2	**100**	**120**	**140**		**140**	**220**	**220**						**100**	120
N.1.1				**250**					**500**					
N.1.2				**250**					**500**					
N.2.1				**250**					**500**					
N.2.2				**250**					**500**					
N.2.3				**250**					**500**					
N.3.1				**230**					**450**					
N.3.2				**230**					**450**					
N.3.3				**230**					**450**					
N.4.1				**230**					**450**					
S.1.1		**60**		**20**										**60**
S.1.2		**50**		**20**										**50**
S.2.1		**60**		**20**										**60**
S.2.2		**50**		**20**										**50**
S.2.3		**30**		**20**										**30**
S.3.1		**100**		**60**										**100**
S.3.2		**80**		**30**										**80**
S.3.3		**50**		**30**										**50**
H.1.1	**90**	100				**100**		**160**					100	**100**
H.1.2	**70**	80				**80**		**185**					80	**80**
H.1.3	**40**	50				**50**		**215**					50	**50**
H.1.4								**240**						
H.2.1	**90**	100				**100**							100	**100**
H.3.1	**70**	80				**80**							80	**80**
O.1.1				**100**					**500**					
O.1.2				**100**					**500**					
O.2.1									**500**					
O.2.2				**100**					**300**					
O.3.1				**100**					**300**					

The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The stated values are possible cutting data which have to be increased or reduced according to the application conditions! The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions. It is essential to observe the v_c values of the type used **(page 65 + 66)**, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length. You can find these on pages **72 + 73**.

Cutting data standard values for indexable inserts – SpinTools

	Indexable inserts for ...									Cutting insert / carbide boring bar	
	62 295 ...					62 304 ... / 62 372 ... / 62 373 ... / 62 326 ... / 62 332 ... / 62 333 ... / 62 363 ... / 62 308 ... / 62 303 ... / 62 346... / 62 380 ...					62 386 ... / 62 382 ...
Index	CTCP125 (HCX1125)	CTCP115 (HCX1115)	CTCP135 (HCR1135)	CTC2135 (CWN2135)	H10T (CWK15)	CWN10	CWP25	CWC06	CWC10	K10 uncoated	TiN
						v_c m/min					
P.1.1	**295**	**370**	**210**	360		**185**	**185**	**250**	**175**	**175**	**190**
P.1.2	**250**	**315**	**175**	360		**185**	**185**	**250**	**140**	**175**	**200**
P.1.3	**210**	**270**	**145**	360		**185**	**185**	**250**	**140**	**175**	**170**
P.1.4	**200**	**250**	**135**	375		**185**	**185**	**250**	**140**	**175**	**170**
P.1.5	**180**	**230**	**120**	375		**185**	**185**	**250**	**140**	**175**	**160**
P.2.1	**260**	**325**	**180**	385		**185**	**185**	**250**	**140**	**175**	**180**
P.2.2	**195**	**250**	**130**	385		**185**	**185**	**250**	**175**	**175**	**150**
P.2.3	**180**	**230**	**120**	385		**185**	**185**	**250**	**140**	**175**	**160**
P.2.4	**130**	**170**	**85**	385		**185**	**185**	**250**	**140**	**175**	**160**
P.3.1	**170**	**200**	**150**	310		**185**	**185**	**250**	**175**	**175**	**120**
P.3.2	**105**	**140**	**95**	310		**135**	**135**	**165**	**140**	**65**	**100**
P.3.3	**40**	**85**	**35**	310		**135**	**135**	**165**	**140**	**65**	**100**
P.4.1	**170**	**200**	**155**	320		**125**	**125**	120	**120**	100	**80**
P.4.2	**135**	**170**	**125**	320		**125**	**125**	120	**120**	100	**80**
M.1.1			155	**300**		**120**	**120**	120	**120**	100	**80**
M.2.1			95	**310**		**100**	**100**	100	**110**	70	**80**
M.3.1			135	**325**		**120**	**120**	120	**120**	100	**80**
K.1.1	170	255			140	**160**	160	**160**	**225**	135	**200**
K.1.2	160	235			115	**160**	160	**160**	**225**	135	**150**
K.2.1	180	270			150	**160**	160	**160**	**125**	135	**120**
K.2.2	160	205			110	**140**	140	**140**	**125**	115	**110**
K.3.1	200	250			170	**140**	140	**140**	**125**	115	**180**
K.3.2	160	210			140	**140**	140	**140**	**125**	115	**150**
N.1.1					**1400**	**400**	**400**	**400**		**250**	**300**
N.1.2					**1100**	**400**	**400**	**400**		**250**	**240**
N.2.1					**950**	**400**	**400**	**400**		**250**	**240**
N.2.2					**950**	**400**	**400**	**400**		**250**	**240**
N.2.3					**500**	**400**	**400**	**400**		**250**	**240**
N.3.1					**425**	**400**	**400**	**400**		**250**	**290**
N.3.2					**400**	**400**	**400**	**400**		**250**	**290**
N.3.3					**275**	**400**	**400**	**400**		**250**	**290**
N.4.1					**225**						**220**
S.1.1				**30**		**55**					**60**
S.1.2				**25**		**55**					**40**
S.2.1				**15**		**55**					**30**
S.2.2				**10**		**55**					**30**
S.2.3				**10**		**55**					**30**
S.3.1				**105**		**55**					**30**
S.3.2				**25**		**55**					**25**
S.3.3						**55**					**25**
H.1.1						**125**					110
H.1.2						**100**					80
H.1.3						**80**					70
H.1.4											
H.2.1						**170**					70
H.3.1						**125**					70
O.1.1					130						**240**
O.1.2											**240**
O.2.1					105						**180**
O.2.2											**180**
O.3.1											**180**

The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The stated values are possible cutting data which have to be increased or reduced according to the application conditions! The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions. It is essential to observe the v_c values of the type used **(page 65 + 66)**, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length. You can find these on pages **72 + 73**.

Cutting data standard values for precision adjustment heads

Fine machining with depth of cut a_p = 0.1 – 0.2 mm

● 1st choice
○ suitable

Index	BlueFlex 2, hi.flex 62 820 ... / 62 840 ... / 62 800 ... f in mm/rev.					Emulsion	Compressed air	MMS	M03 Speed 62 815 ... f in mm/rev.		FF 62 810 ... f in mm/rev.			Emulsion	Compressed air	MMS
	Ø 6–7,9	Ø 8–11,9	Ø 12–25	Ø 25–44	Ø 44–365				Ø 24,8–63	Ø 63–206	Ø 29,5–50	Ø 47–83	Ø 79–199			
P.1.1	0,04	0,07	0,10	0,08	0,10	●	○		0,08	0,10	0,08	0,10	0,15	●	○	○
P.1.2	0,04	0,07	0,12	0,10	0,15	●	○		0,10	0,15	0,10	0,15	0,20	●	○	○
P.1.3	0,04	0,06	0,12	0,08	0,12	●	○		0,08	0,12	0,08	0,12	0,20	●	○	○
P.1.4	0,04	0,06	0,10	0,08	0,10	●	○		0,07	0,10	0,08	0,12	0,18	●	○	○
P.1.5	0,04	0,07	0,12	0,10	0,15	●	○		0,09	0,13	0,09	0,13	0,18	●	○	○
P.2.1	0,04	0,06	0,12	0,08	0,12	●	○		0,08	0,12	0,08	0,12	0,20	●	○	○
P.2.2	0,04	0,06	0,10	0,08	0,10	●	○		0,07	0,10	0,08	0,12	0,18	●	○	○
P.2.3	0,03	0,06	0,10	0,08	0,10	●	○		0,08	0,10	0,08	0,10	0,20	●	○	○
P.2.4	0,03	0,04	0,06	0,06	0,06	●	○		0,06	0,08	0,06	0,08	0,10	●	○	○
P.3.1	0,03	0,05	0,10	0,06	0,10	●	○		0,06	0,10	0,06	0,10	0,15	●	○	○
P.3.2	0,03	0,04	0,07	0,04	0,07	●	○		0,04	0,08	0,04	0,08	0,12	●	○	○
P.3.3	0,03	0,04	0,07	0,04	0,07	●	○		0,04	0,07	0,04	0,08	0,10	●	○	○
P.4.1	0,03	0,05	0,10	0,06	0,10	●	○		0,06	0,10	0,06	0,10	0,15	●	○	○
P.4.2	0,03	0,04	0,07	0,04	0,07	●	○		0,04	0,08	0,04	0,08	0,12	●	○	○
M.1.1	0,01	0,05	0,10	0,06	0,10	●	○		0,06	0,10	0,06	0,10	0,15	●	○	○
M.2.1	0,01	0,04	0,08	0,06	0,10	●	○		0,06	0,10	0,06	0,10	0,15	●	○	○
M.3.1	0,01	0,04	0,07	0,05	0,08	●	○		0,05	0,09	0,05	0,08	0,12	●	○	○
K.1.1	0,05	0,10	0,15	0,15	0,20	○	●		0,15	0,20	0,15	0,20	0,30	○	●	○
K.1.2	0,05	0,10	0,15	0,15	0,20	○	●		0,15	0,20	0,15	0,20	0,30	○	●	○
K.2.1	0,04	0,08	0,15	0,10	0,15	○	●		0,10	0,15	0,10	0,15	0,25	○	●	○
K.2.2	0,03	0,07	0,12	0,08	0,12	○	●		0,08	0,12	0,08	0,12	0,20	○	●	○
K.3.1	0,04	0,08	0,15	0,10	0,15	○	●		0,10	0,15	0,10	0,15	0,25	○	●	○
K.3.2	0,03	0,07	0,12	0,08	0,12	○	●		0,08	0,12	0,08	0,12	0,20	○	●	○
N.1.1	0,02	0,06	0,10	0,08	0,12	●	○		0,08	0,12	0,08	0,12	0,15	●	○	○
N.1.2	0,02	0,06	0,10	0,08	0,12	●	○		0,08	0,12	0,08	0,12	0,15	●	○	○
N.2.1	0,05	0,08	0,12	0,10	0,15	●	○		0,10	0,15	0,10	0,15	0,20	●	○	○
N.2.2	0,05	0,08	0,12	0,10	0,15	●	○		0,10	0,15	0,10	0,15	0,20	●	○	○
N.2.3	0,05	0,08	0,12	0,10	0,15	●	○		0,09	0,12	0,09	0,12	0,18	●	○	○
N.3.1	0,02	0,04	0,08	0,10	0,15	●	○		0,10	0,15	0,10	0,15	0,20	●	○	○
N.3.2	0,02	0,04	0,08	0,10	0,15	●	○		0,10	0,15	0,11	0,16	0,22	●	○	○
N.3.3	0,05	0,08	0,15	0,10	0,15	●	○		0,10	0,15	0,10	0,15	0,20	●	○	○
N.4.1	0,02	0,04	0,08	0,10	0,15	●	○		0,10	0,15	0,10	0,15	0,20	●	○	○
S.1.1	0,01	0,04	0,08	0,06	0,08	●	○		0,06	0,08	0,06	0,08	0,10	●	○	○
S.1.2	0,01	0,03	0,06	0,04	0,06	●	○		0,04	0,06	0,04	0,06	0,08	●	○	○
S.2.1	0,01	0,04	0,08	0,06	0,08	●	○		0,06	0,08	0,06	0,08	0,10	●	○	○
S.2.2	0,01	0,03	0,06	0,04	0,06	●	○		0,04	0,06	0,04	0,06	0,08	●	○	○
S.2.3	0,05	0,08	0,06	0,08	0,08	●	○		0,04	0,06	0,04	0,06	0,06	●	○	○
S.3.1	0,01	0,04	0,08	0,06	0,08	●	○		0,06	0,08	0,07	0,09	0,11	●	○	○
S.3.2	0,01	0,04	0,08	0,06	0,08	●	○		0,06	0,08	0,06	0,08	0,10	●	○	○
S.3.3	0,01	0,02	0,04	0,03	0,04	●	○		0,04	0,06	0,06	0,08	0,10	●	○	○
H.1.1		0,05	0,08	0,08	0,08		●		0,08	0,08	0,08	0,08	0,10		●	○
H.1.2		0,05	0,08	0,06	0,08		●		0,06	0,06	0,06	0,06	0,08		●	○
H.1.3		0,02	0,04	0,03	0,04		●		0,04	0,04	0,03	0,04	0,04		●	○
H.1.4																
H.2.1		0,05	0,08	0,08	0,08		●		0,05	0,06	0,08	0,08	0,10		●	○
H.3.1		0,05	0,08	0,06	0,08		●		0,05	0,06	0,06	0,06	0,08		●	○
O.1.1		0,04	0,04	0,06	0,06	○	●		0,08	0,08	0,08	0,08	0,08	○	●	○
O.1.2		0,04	0,04	0,06	0,06	○	●		0,08	0,08	0,08	0,08	0,08	○	●	○
O.2.1																
O.2.2		0,03	0,03	0,04	0,04		●		0,04	0,05	0,04	0,04	0,04		●	
O.3.1		0,03	0,03	0,04	0,04		●		0,04	0,05	0,04	0,04	0,04		●	

The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The stated values are possible cutting data which have to be increased or reduced according to the application conditions! The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions. It is essential to observe the v_c values of the type used **(page 65 + 66)**, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length. You can find these on pages **72 + 73**.

Cutting data values for fine and rough boring heads

Fine machining with depth of cut a_p = 0.1 – 0.4 mm

	M10 boring bar	● 1st choice ○ suitable			Single point finish boring heads	Twin edged rough / fine boring head	Single point finish boring heads	● 1st choice ○ suitable		
	62 858 ...	Emulsion	Compressed air	MMS	62 305 ...	62 380 ...	62 303 ...	Emulsion	Compressed air	MMS
Index	Ø 15,9–26				Ø 86–402	Ø 29,5–115,5	Ø 23,9–116,1			
	f in mm/rev.				f in mm/rev.					
P.1.1	0,07	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.1.2	0,07	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.1.3	0,06	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.1.4	0,05	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.1.5	0,06	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.2.1	0,06	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.2.2	0,05	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.2.3	0,06	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.2.4	0,05	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.3.1	0,05	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.3.2	0,04	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.3.3	0,04	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.4.1	0,06	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.4.2	0,04	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
M.1.1	0,05	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
M.2.1	0,04	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
M.3.1	0,05	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
K.1.1	0,10	○	●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
K.1.2	0,10	○	●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
K.2.1	0,08	○	●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
K.2.2	0,07	○	●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
K.3.1	0,08	○	●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
K.3.2	0,07	○	●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
N.1.1	0,06	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
N.1.2	0,06	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
N.2.1	0,08	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
N.2.2	0,08	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
N.2.3	0,07	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
N.3.1	0,04	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
N.3.2	0,04	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
N.3.3	0,10	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
N.4.1	0,04	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
S.1.1	0,04	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
S.1.2	0,03	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
S.2.1	0,04	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
S.2.2	0,03	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
S.2.3	0,03	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
S.3.1	0,05	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
S.3.2	0,04	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
S.3.3	0,02	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
H.1.1	0,05		●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
H.1.2	0,04		●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
H.1.3	0,02		●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
H.1.4				○						
H.2.1	0,05		●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
H.3.1	0,03		●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
O.1.1	0,08	○	●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
O.1.2	0,08	○	●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
O.2.1				○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
O.2.2	0,04		●	○	0,03–0,12	0,08–0,20	0,03–0,12		●	
O.3.1	0,04		●	○	0,03–0,12	0,08–0,20	0,03–0,12		●	

The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The stated values are possible cutting data which have to be increased or reduced according to the application conditions! The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions. It is essential to observe the v_c values of the type used **(page 65 + 66)**, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length. You can find these on pages **72 + 73**.

Cutting data values for fine and rough boring heads

Single point finish boring heads: Fine machining with depth of cut a_p = 0,1 – 0,4 mm | Micro-Boring Head: Fine machining with depth of cut a_p = 0,1 – 0,2 mm

Index	Fine boring head	Multi-Head boring and fine boring head	Single point boring head	Vario-Head - boring and fine boring head	Micro Boring Head	● 1st choice ○ suitable		
	62 304 ...	62 372 ... / 62 373 ...	62 326 ... / 62 332 ... / 62 333 ... / 62 363 ...	62 364 ...	62 386 ... / 62 382 ...	Emulsion	Compressed air	MMS
	Ø 14,7–24,1	Ø 2–320	Ø 3–88	Ø 3–152,1	Ø 0,3–19,1			
	f in mm/rev.							
P.1.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.1.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.1.3	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.1.4	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.1.5	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.2.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.2.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.2.3	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.2.4	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.3.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.3.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.3.3	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.4.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.4.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
M.1.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
M.2.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
M.3.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
K.1.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
K.1.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
K.2.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
K.2.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
K.3.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
K.3.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
N.1.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
N.1.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
N.2.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
N.2.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
N.2.3	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
N.3.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
N.3.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
N.3.3	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
N.4.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
S.1.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
S.1.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
S.2.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
S.2.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
S.2.3	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
S.3.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
S.3.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
S.3.3	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
H.1.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
H.1.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
H.1.3	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
H.1.4								
H.2.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
H.3.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
O.1.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
O.1.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
O.2.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	
O.2.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02		●	
O.3.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02		●	

The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The stated values are possible cutting data which have to be increased or reduced according to the application conditions! The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions. It is essential to observe the v_c values of the type used **(page 65 + 66)**, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length. You can find these on pages **72 + 73**.

Cutting data values for rough boring heads

Cutting depth a_p = 1,0 – 9,0 mm

Index	TwinKom 62 870 ... Ø 24–32	Ø 30–41	Ø 39–53	Ø 51–71	Ø 64–91	Ø 83–124	Ø 109–167	● 1st choice ○ suitable Emulsion	Compressed air	MMS
	f in mm/rev.									
P.1.1	0,15	0,16	0,18	0,20	0,22	0,25	0,28	●	○	○
P.1.2	0,15	0,16	0,18	0,20	0,21	0,24	0,27	●	○	○
P.1.3	0,15	0,16	0,18	0,20	0,21	0,24	0,27	●	○	○
P.1.4	0,15	0,16	0,18	0,20	0,21	0,24	0,27	●	○	○
P.1.5	0,15	0,16	0,18	0,20	0,21	0,24	0,27	●	○	○
P.2.1	0,14	0,16	0,17	0,18	0,20	0,23	0,26	●	○	○
P.2.2	0,14	0,16	0,17	0,18	0,20	0,23	0,26	●	○	○
P.2.3	0,14	0,16	0,17	0,18	0,20	0,23	0,26	●	○	○
P.2.4	0,14	0,16	0,17	0,18	0,20	0,23	0,26	●	○	○
P.3.1	0,13	0,15	0,16	0,17	0,19	0,22	0,25	●	○	○
P.3.2	0,13	0,15	0,16	0,17	0,19	0,22	0,25	●	○	○
P.3.3	0,13	0,15	0,16	0,17	0,19	0,22	0,25	●	○	○
P.4.1	0,12	0,13	0,14	0,15	0,16	0,18	0,20	●	○	○
P.4.2	0,12	0,13	0,14	0,15	0,16	0,18	0,20	●	○	○
M.1.1	0,14	0,15	0,16	0,17	0,18	0,2	0,24	●	○	○
M.2.1	0,12	0,13	0,14	0,15	0,16	0,18	0,20	●	○	○
M.3.1	0,12	0,13	0,14	0,15	0,16	0,18	0,20	●	○	○
K.1.1	0,22	0,23	0,24	0,25	0,26	0,30	0,30	○	●	○
K.1.2	0,22	0,23	0,24	0,25	0,26	0,30	0,30	○	●	○
K.2.1	0,22	0,23	0,24	0,25	0,26	0,30	0,30	○	●	○
K.2.2	0,22	0,23	0,24	0,25	0,26	0,30	0,30	○	●	○
K.3.1	0,20	0,20	0,22	0,23	0,24	0,26	0,26	○	●	○
K.3.2	0,20	0,20	0,22	0,23	0,24	0,26	0,26	○	●	○
N.1.1	0,12	0,15	0,25	0,25	0,30	0,35	0,35	●	○	○
N.1.2	0,12	0,15	0,25	0,25	0,30	0,35	0,35	●	○	○
N.2.1	0,12	0,15	0,25	0,25	0,30	0,35	0,35	●	○	○
N.2.2	0,12	0,15	0,25	0,25	0,30	0,35	0,35	●	○	○
N.2.3	0,11	0,14	0,23	0,23	0,27	0,32	0,32	●	○	○
N.3.1	0,12	0,15	0,25	0,25	0,30	0,35	0,35	●	○	○
N.3.2	0,13	0,16	0,27	0,27	0,32	0,35	0,35	●	○	○
N.3.3	0,12	0,15	0,25	0,25	0,30	0,35	0,35	●	○	○
N.4.1	0,12	0,15	0,25	0,25	0,30	0,35	0,35	●	○	○
S.1.1	0,06	0,06	0,07	0,08	0,08	0,10	0,10	●	○	○
S.1.2	0,04	0,04	0,05	0,06	0,06	0,08	0,08	●	○	○
S.2.1	0,06	0,06	0,07	0,08	0,08	0,10	0,10	●	○	○
S.2.2	0,04	0,04	0,05	0,06	0,06	0,08	0,08	●	○	○
S.2.3	0,04	0,04	0,05	0,06	0,06	0,08	0,08	●	○	○
S.3.1	0,06	0,06	0,07	0,08	0,08	0,10	0,10	●	○	○
S.3.2	0,06	0,06	0,07	0,08	0,08	0,10	0,10	●	○	○
S.3.3	0,04	0,04	0,05	0,06	0,06	0,08	0,08	●	○	○
H.1.1	0,08	0,08	0,08	0,08	0,08	0,08	0,08		●	○
H.1.2	0,06	0,06	0,06	0,06	0,06	0,06	0,06		●	○
H.1.3	0,04	0,04	0,04	0,04	0,04	0,04	0,04		●	○
H.1.4										○
H.2.1	0,05	0,05	0,06	0,06	0,06	0,06	0,06		●	○
H.3.1	0,05	0,05	0,06	0,06	0,06	0,06	0,06		●	○
O.1.1	0,08	0,08	0,08	0,10	0,10	0,10	0,10	○	●	○
O.1.2	0,08	0,08	0,08	0,10	0,10	0,10	0,10	○	●	○
O.2.1										
O.2.2	0,04	0,04	0,05	0,05	0,06	0,06	0,07		●	
O.3.1	0,04	0,04	0,05	0,05	0,06	0,06	0,07		●	

The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The stated values are possible cutting data which have to be increased or reduced according to the application conditions! The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions. It is essential to observe the v_c values of the type used **(page 65 + 66)**, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length. You can find these on pages **72 + 73**.

Cutting data values for rough boring heads

Cutting depth a_p = 2.5 – 7 mm

Index	Twin rough boring head 62 295 ... Ø 23,5–40,5 f in mm/rev.	Ø 40,5–66,5 f in mm/rev.	Ø 66,5–87,5 f in mm/rev.	Ø 87,5–153 f in mm/rev.	● 1st choice ○ suitable Emulsion	Compressed air	MMS
P.1.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.1.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.1.3	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.1.4	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.1.5	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.2.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.2.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.2.3	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.2.4	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.3.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.3.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.3.3	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.4.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.4.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
M.1.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
M.2.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
M.3.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
K.1.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
K.1.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
K.2.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
K.2.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
K.3.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
K.3.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
N.1.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
N.1.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
N.2.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
N.2.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
N.2.3	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
N.3.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
N.3.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
N.3.3	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
N.4.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
S.1.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
S.1.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
S.2.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
S.2.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
S.2.3	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
S.3.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
S.3.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
S.3.3	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
H.1.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
H.1.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
H.1.3	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
H.1.4							
H.2.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
H.3.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
O.1.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
O.1.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
O.2.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○		
O.2.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8		●	
O.3.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8		●	

The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The stated values are possible cutting data which have to be increased or reduced according to the application conditions! The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions. It is essential to observe the v_c values of the type used **(page 65 + 66)**, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length. You can find these on pages **72 + 73**.

Maximum Speeds and Scale Accuracy

Maximum speeds for precision adjustment heads and Micro-Boring Heads

System	Boring range	Maximum speed n_{max} in $1/_{min}$
BlueFlex 2 (62 820 ... / 62 840 ...)	Ø 5,6–365 mm	20.000
hi.flex (62 800 ...)	Ø 5,6–365 mm	17.500
M10 boring bar (62 858 ...)	Ø 15,9–26 mm	18.000
Micro Boring Head (62 386 ... / 62 382 ...)	Ø 0,3–19,1 mm	30.000
M03 Speed (62 815 ...)	Ø 24–39 mm	40.000
	Ø 38–50 mm	31.000
	Ø 49–63 mm	24.000
	Ø 62–80 mm	18.500
	Ø 79– 103 mm	15.000
	Ø 100– 130 mm	11.500
	Ø 128–168 mm	10.000
	Ø 166–206 mm	8.000
FF (62 810 ...)	Ø 29,5–42 mm	25.000
	Ø 39–50 mm	18.000
	Ø 47–66 mm	12.000
	Ø 58–83 mm	9.000
	Ø 79– 108 mm	6.000
	Ø 100–141 mm	4.000
	Ø 138–179 mm	3.500
	Ø 178–199 mm	3.000





Maximum speeds for finish boring heads

Article no.	Boring range	Offset X = ≤ 0,5 mm n_{max} in $1/_{min}$	Offset X = > 0,5 mm n_{max} in $1/_{min}$
62 372 ... / 62 373 ... / 62 326 ... / 62 332 ... / 62 333 ... / 62 363 ... / 62 364 ... with boring bars	Ø 3–20 mm	16.000	6.000
	Ø 20–48 mm	12.000	4.000
	Ø 48–88 mm	8.000	2.000



Article no.	Boring range	Maximum speed with unbalanced system n_{max} in $1/_{min}$	Maximum speed with balanced System n_{max} in $1/_{min}$
62 308 ... / 62 303 ... / 62 364 ... with insert holders	Ø 24–31 mm	9.000	12.000
	Ø 31–40 mm	7.500	10.000
	Ø 40–51 mm	5.250	8.000
	Ø 51–67 mm	4.000	6.500
	Ø 67– 87 mm	3.000	5.000
	Ø 87–116 mm	2.500	4.000
	Ø 116–153 mm	1.750	3.000



Article no.	Boring range	Maximum speed n_{max} in $1/_{min}$
62 372 ... / 62 373 ... with bridges	Ø 88–164 mm	900
	Ø 164–320 mm	250
62 305 ... with insert holders	Ø 86–138 mm	1.150
	Ø 136–220 mm	720
	Ø 188–302 mm	520
	Ø 242–402 mm	400





Maximum speeds for two-edged systems

System	Boring range	Maximum speed n_{max} in $1/_{min}$
TwinKom (62 380 ...)	Ø 24–31 mm	12.000
	Ø 31–40 mm	10.000
	Ø 40–51 mm	8.000
Twin edged rough / fine boring head (62 295 ...)	Ø 51–68 mm	6.500
	Ø 67–87 mm	5.000
	Ø 87–116 mm	4.000
Twin rough boring head (62 870 ...)	Ø 116–153 mm	3.000
	Ø 153–215 mm	2.200



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

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

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

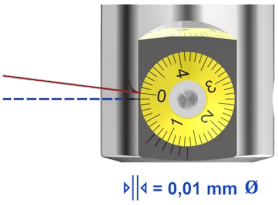
> 6xD n_{max} identify with caution

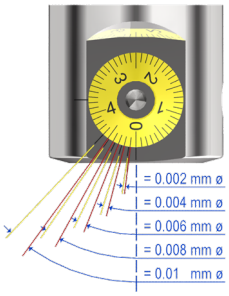
5

Scale accuracy

Large scale with 0.002 mm adjustment

How it works:

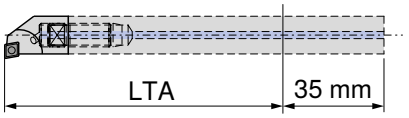




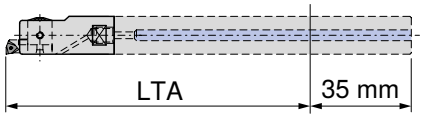
Maximum overhang length LTA

for 35 mm shank clamping depth

Boring bar		High Speed Boring Head 62 361 ...																Fine boring head 62 304 ...		
62 353 ...		014	015	016	017	018	019	020	021	022	023	025	027	030	033	037	040	017	020	024
008	LTA mm	**56**																		
009			**63**																	
010				**70**																
011					**77**															
012						**84**														
013							**91**													
014								**98**	**98**									**115**		
016										**112**	**112**	**112**	**112**	**112**	**112**	**112**	**112**		**125**	
018																				**105**
118																				**145**
218																				**185**

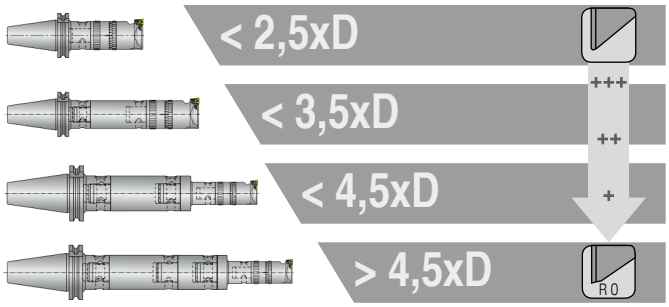


High Speed Boring Head 62 361 ...

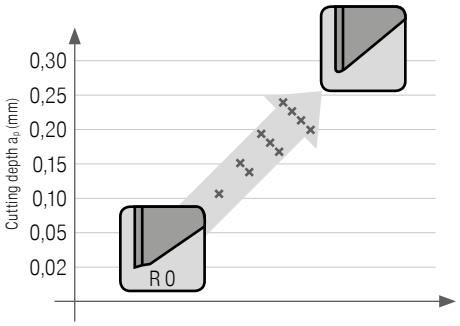


Fine boring head 62 304 ...

Selection of the cutting radius depending on the overhang lengh



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



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

Resulting force

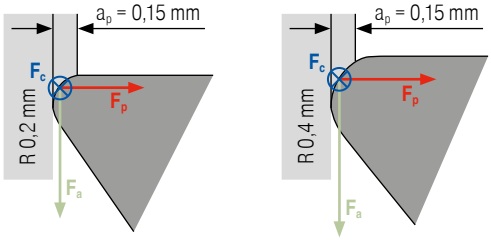
$$F_{res} = \sqrt{F^2_a + F^2_p} = \sqrt{F^2_c + F^2_f + F^2_p}$$

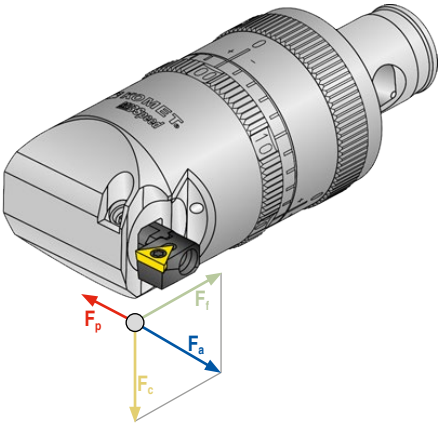
Tangential cutting force (F_c)
- ▲ pushes the tool down from the vertical central axis
- ▲ is influenced by the cutting depth and the chip thickness
- ▲ reduces the clearance angle

Passive cutting force (F_p)
- ▲ pushes the tool away from the horizontal central axis
- ▲ increases the risk of vibrations and causes dimensional inaccuracies

Feed force (F_f)
- ▲ acts in the machining direction of the tool

Active cutting force (F_a)
- ▲ determined by F_c and F_f





Selection of the rake angle

Recommendations for the use of inserts with ground Chip breakers

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

Chip groove description → **page 77**

Types of wear

Wear on clearance face

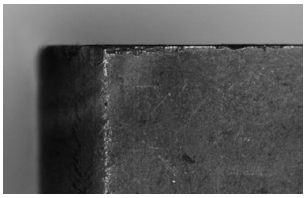


Abrasion on the flank: normal wear after a certain period of operation

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

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

Edge chipping

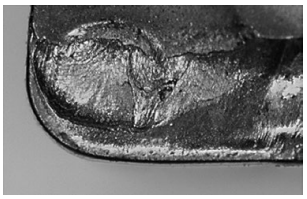


Increased mechanical stress on the cutting edge may result in carbide particles breaking off.

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

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

Cratering

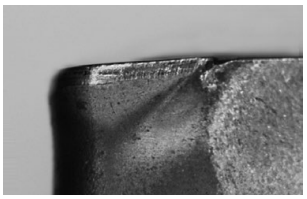


The outgoing hot chip is causing cratering of the cutting insert on the clamping surface.

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

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

Plastic deformation

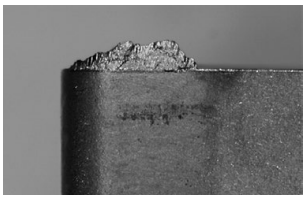


High machining temperature with simultaneous mechanical stress can lead to plastic deformation.

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

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

Built-up edge

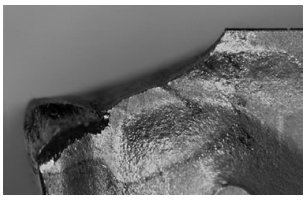


Material builds up on the cutting edge if the chip does not flow correctly due to the cutting temperature being too low.

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

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

Insert breakage



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

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

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

Type

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

BK2710
- Carbide, TiAlN-coated
- ISO | P10 | M10 | **K10**
- Extremely wear-resistant carbide grade for machining stainless steels, structural steels and tool steels as well as cast iron materials

BK8440
- Carbide, TiCN-TiN-coated
- ISO | **P35** | M10
- Very tough carbide grade for medium cutting speeds and interrupted cut

BK7615
- Carbide, TiCN-Al_2O_3-coated
- ISO | **K15**
- Highly productive grade with extreme edge stability for wet and dry machining of all cast iron materials

CWN10
- Carbide, TiN-coated
- ISO | **K10**
- The carbide grade for machining steels, stainless steels and non-ferrous metals

CWC10
- Cermet, uncoated
- ISO | **P15** | **M10** | K10
- The uncoated cermet grade for finish machining stainless and hardened steel
- Particularly wear resistant thanks to high heat resistance

BK6440
- Carbide, CVD-TiCn-Al2O3-TiN coated
- ISO | **M25** | **K35**
- Extremely tough standard grain grade; good wear resistance in steel and stainless steel materials, even in unfavourable cutting conditions / interrupted cut

BK6115
- Carbide, TiCN-TiN-Al_2O_3-coated
- ISO | **P20** | **K20** | H20
- High-quality, surface-treated coating for machining cast iron materials in normal to stable conditions and at high cutting speeds

BK8430
- Carbide, TiAlN/TiN-coated
- ISO | **P25** | **M25**
- Fine-grain grade with high wear resistance
- Extreme edge stability and maximum wear resistance in the middle and top speed range

BK60
- Carbide, TiC-TiCN-TiN-coated
- ISO | P25 | **M10**
- Multi-layer coating for long service life even in the upper cutting speed range

CBN40
- Cubic boron nitride, uncoated
- ISO | **H05**
- Uncoated cutting material made of cubic boron nitride for machining hardened steels over 45 HRC, heat-resistant nickel-based or cobalt-based alloys

BK8425
- Carbide, TiAlN/TiN-coated
- ISO | **P25** | **M25** | **K25**
- Universal grade with greater wear resistance thanks to innovative PVD multi-layer coating

BK6110
- Carbide, TiCN-TiN-Al_2O_3-coated
- ISO | P10 | **K10**
- Wear-resistant carbide for machining cast iron and steel materials

CWC06
- Cermet, TiC/TiN-coated
- ISO | **P10** | M10 | **K10** | N10
- Coated cermet grade for fine boring at high cutting speed and with a uniform cut

CWP25
- Carbide, uncoated
- ISO | **P25** | **M25** | K25 | **N25** | S25
- Uncoated carbide grade for fine boring with large hole depths and small machining allowances

CK32
- Cermet, uncoated
- ISO | **P10** | **M15** | K05 | N15
- For fine and finish turning
- Less wear and greater cutting speed result in longer tool life and high surface quality
- Cutting material for high productivity in the top cutting speed range

CK3230
- Cermet, uncoated
- ISO | **P20** | **M20** | K10 | N20
- Extremely tough behaviour with good wear resistance suitable for use also in interrupted cut

PKD5510 CTDPU20
- Polycrystalline diamond cutting material with mixed grain, uncoated
- ISO | **N15**
- Outstanding wear resistance, even where Si content > 12% and high proportion of abrasive reinforcements
- Used in plastics and fibre composites (GFK, CFK)

Coatings

TiN

- TiN coating
- Maximum application temperature: 450 °C

Chip breakers

-SF14

- Rake angle 14°
- Specially developed chip breakers with remarkable chip control for a range of applications, from fine finishing to medium machining

-SF15

- Rake angle 15°
- Balanced geometry: High stability for high cutting edge sharpness
- Very good chip control with very little built-up edge formation
- Extremely good chip breakage for small and medium feeds
- Initial recommendation for machining C-steel, alloyed and stainless steels

-SF16

- Rake angle 15°
- Balanced geometry: High stability for high cutting edge sharpness
- Large chip chamber, therefore good chip control at low feeds
- Initial recommendation for machining C-steel, alloyed and stainless steels

-SF20

- Rake angle 20°
- Extremely smooth-cutting thanks to the very positive rake angle
- Very good chip control and very little built-up edge formation
- Perfect cutting performance, due to the very positive rake angle, especially for low clamping depths and feeds
- Initial recommendation for machining stainless steel, alloy steels, carbon steel and non-ferrous metals

-SF30

- Rake angle 15°
- Balanced geometry: High stability for high cutting edge sharpness
- Chip breaker geometry: Very good chip breakage for small and medium feeds
- Initial recommendation for machining C-steel, alloyed and stainless steels

-01

- Rake angle 12°
- All-round topography chamfered, rounded
- Very smooth-cutting thanks to positive cutting edge geometry
- Also suitable for less-powerful machines and unstable workpieces
- Easily controllable chip formation also in less solid materials

-02

- Rake angle 0°
- Roughing topography, extremely stable (significant wedge angle)
- Excellent chip formation for chips that are difficult to control
- For small cutting depths < 1.5 mm only suitable under certain circumstances

-12

- Rake angle 30°
- Peripheral ground indexable insert with pressed chip breaker
- Highly positive, sharp and all-round cutting edge, therefore extremely smooth-cutting
- Peripheral ground flanks guarantee controlled chip formation and best surface quality at low cutting forces

-14

- Rake angle 14°
- Peripheral ground, sintered topography
- Controlled chip formation in fine and extremely fine machining

-15

- Rake angle 15°
- Semi-finishing chip breaker; peripheral ground, sintered
- Controlled chip formation in fine and extremely fine machining

-18

- Rake angle 14°
- Peripheral ground and sintered topography
- Controlled chip formation in fine and extremely fine machining
- Positive wiper geometry for maximum demands on surface quality

-G06

- Rake angle 6°
- For P / M / K materials
- High stability due to significant wedge angle

-G12

- Rake angle 12°
- For P / N / S materials
- Extremely smooth-cutting thanks to positive cutting edge geometry
- Extremely suitable for less-powerful machines and unstable workpieces
- Easily controllable chip formation also in less solid materials

New products for machining technicians

NEW Through hole – machine taps right-hand, type Stabil NW



M → Page 26 | MF → Page 64 | G → Page 82

- Highly efficient machining of non-ferrous metals
- 1 – 2 µm thick DLC monolayer coating ensures minimal friction values and therefore ideal chip clearance
- 4xD

NEW Blind hole – machine taps right-hand, type Salo-Rex NW



M → Page 42 | MF → Page 73 | G → Page 85

- Highly efficient machining of non-ferrous metals
- 1 – 2 µm thick DLC monolayer coating ensures minimal friction values and therefore ideal chip clearance
- 3xD

NEW Through hole – machine taps right-hand, type Stabil HR



M → Page 25

- Specialist for thread production in high-strength steels
- New optimised hard material/carbon coating delivers the very best results
- 4xD

NEW Blind hole – machine taps right-hand, type SL HR



M → Page 38

- Specialist for thread production in high-strength steels
- New optimised hard material/carbon coating delivers the very best results
- 2xD



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

Table of contents

Symbol explanation	2
Tap types	3
Toolfinder	
Toolfinder – WNT Performance	4+5
Toolfinder – WNT Standard	6+7
Taps Overview	8–20
Product programme	21–108
Technical Information	
Thread core hole diameter for tapered threads	109
Tapped hole pilot diameter	110+111
Tap Type Explanation	112
Thread tolerances and recommended manufacturing tolerances	113
Thread formers	114
Troubleshooting	115
Coatings/coloured rings – overview	116

WNT \ Performance

Premium quality tools for high performance.

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

WNT \ Standard

Quality tools for standard applications.

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

Symbol explanation

Chamfer form



Form B
(with spiral point, 4 – 5 cutting leads)



Form C
(without spiral point, 2 – 3 cutting leads)



Form D
(without spiral point, 4 – 5 cutting leads)



Form E
(without spiral point, 1.5 – 2 cutting leads)

Helix angle



Example: helix angle 42°

Tolerances

ISO 2 6H

Explanation of the tolerances can be found on → **Page 113.**

Tensile strength

≤ 1100 N/mm²

Example up to 1100 N/mm²



Tool Material

HSS	High-speed steel
HSS-E	High-performance high speed steel
HSS-PM	High-performance sintered high-speed steel
VHM	Solid carbide

Coloured rings

WNT \ Performance

An explanation of the coloured rings can be found on → **Page 116.**

Thread types

M

Explanation of the thread types can be found on → **Page 3.**

Coolant supply version


Int. coolant supply

The cutting data is highly dependent on external conditions, such as stability of the tool and workpiece clamping, material and machine type!
The values indicated represent possible cutting data which may need to be corrected depending on operating conditions !

Tap types

Tool type

WNT \ Performance

Stabil	for through holes to 4xD	**Salo-Rex**	for blind holes up to 3xD, high helix angle for secure chip evacuation	**TWIN**	straight flutes for through and blind holes up 2xD
DL	left hand helix for through holes up to 4xD	**SL**	for blind holes up to 2xD, 15°, 25° or 30° helix angle	**Spanlos**	Thread former for through and blind holes up to 3xD

A detailed explanation of the types of tools can be found on → **Page 112.**

Application range

WNT \ Performance

UNI	for universal application	**ST**	for good quality free machining steel	**VG**	for tempered and heat-resistant steels < 1100 N/mm²
HR	for high-tensile steels < 1400 N/mm²	**GG**	for cast iron	**VA**	for stainless and acid-resistant steels up to 1100 N/mm²
NW	for aluminium	**Soft**	for soft materials	**Ms**	for short chipping brass
Ti	for titanium and titanium alloys	**Ni**	special for Inconel 718	**AMPCO**	for Ampco alloys
HT	for hardened steel and chilled iron up to 55 HRc	**EC**	Spanlos – Thread former for universal application	**NEO**	Spanlos – Thread former for heat resistant alloys
ERGO	Hand Taps for stainless, heat-resistant and heat-treated steels up to 1100 N/mm²	**ERGO F.T.**	Hand tap for steel up to 1400 N/mm², wolfram, chilled iron	**FE**	Dies for steel

WNT \ Standard

UNI	for universal application up to 1000 N/mm²	**FE**	for steel to 850 N/mm²	**FE-HF**	for high-tensile steel to 1100 N/mm ²
VA	for corrosion and acid-resistant steels	**GG**	for cast iron	**AL**	for aluminium and aluminium alloys

Special Features

CNC	for synchronised CNC machining with minimum length compensation chuck	**NC**	for synchronised CNC machining with minimum length compensation chuck	**NCW**	with Weldon flat for synchronised CNC machining without length compensation chuck
AZ	with intermittent teeth, reduces friction	**S**	with back taper, for deep threads	**DRY**	for dry machining or minimum quantity lubrication (MMS)
TS	for high-speed machining, up to 100 m/min.	**LH**	for left hand threads	**EL**	extra long, with double overall length
AUT	short version for automatic use	**SN**	Thread formers with lubrication grooves	**ES**	extra short
MMB	Machine taps	**R_z=1**	Lapped Dies		

Thread types

M	ISO metric coarse thread DIN 13	**UNF**	Unified fine thread ASME – B1.1	**NPTF**	American taper pipe thread with sealing (1:16) ANSI/ASME B1.20.3
EG M	ISO Metric coarse thread for wire inserts DIN 8140-2	**EG UNF**	EG Unified fine thread for wire inserts ASME B18.29.1	**Rp**	Cyl. Whitworth coarse thread DIN EN 10226-1 (ISO7-1)
MF	ISO Metric fine thread DIN 13	**UNJC**	Unified coarse thread ASME – B1.15 and ISO 3161	**Rc**	Whitworth taper pipe thread (1:16) DIN EN 10226-2 (ISO7-1)
G	Whitworth pipe thread DIN EN ISO 228	**UNJF**	Unified fine thread ASME – B1.15 and ISO 3161	**Tr**	ISO metric trapezoidal thread DIN 103
UNC	Unified coarse thread ASME – B1.1	**BSW**	Whitworth thread BS84		
EG UNC	EG Unified coarse thread for wire inserts ASME B18.29.1	**NPT**	American taper pipe thread with sealing (1:16) ANSI/ASME B1.20.1		

The thread types BSW, NPTF, Rp and Rc as well as hand taps and dies are now available in the online shop.

6

Toolfinder – WNT Performance

Thread formers

for cold-formable materials

HSS taps

-  Through hole-Blind hole

for universal application up to 1100 N/mm²

-  Through hole
-  Blind hole

for steel up to 750 N/mm²

-  Through hole
-  Blind hole
-  Through hole-Blind hole

for steel up to 1400 N/mm²

-  Through hole
-  Blind hole
-  Through hole-Blind hole

for corrosion and acid-resistant steels

-  Through hole
-  Blind hole

For cast iron materials

-  Through hole-Blind hole

for heat-resistant materials

-  Through hole
-  Blind hole

for aluminium and non-ferrous metal

-  Through hole
-  Blind hole
-  Through hole-Blind hole

Hard materials

-  Through hole-Blind hole

For tools for other applications, refer to the taps overview on → **Pages 8–20.**

Shank extensions for taps and thread-cutting oils can be found in our online shop at cuttingtools.ceratizit.com

WNT \ Performance

Tool type	Application range	M	EG M	MF	G	UNC	EG UNC	UNJC	UNF	EG UNF	UNJF	BSW	NPT	NPTF	Rp	Tr
Spanlos	EC	57+58		80	88	93			102							
Stabil	UNI	21–23	61	63+64	82	89	94		97	103		🛒				
Salo-Rex	UNI	34–37	62	67+68	84+85	91	95		99	104		🛒	🛒			
Stabil	ST	24+25		64	82											108
Salo-Rex	ST	39+40		69+70	85											
TWIN	ST	51+52		78–79	87								107	🛒	🛒	
Stabil	HR	25														
Salo-Rex	HR	40														
TWIN	HR	51+52		77+78	87											
Stabil	VA	26			82	89										
Salo-Rex	VA	41		72	85	91			99				105			
TWIN	GG	53		78												
Stabil	Ti	27				89			97		🛒					
SL	Ti	43				🛒		96	100		🛒					
Stabil	NW	26		64	82											
Salo-Rex	NW	42		73	85											
TWIN	AMPCO	51+52														
TWIN	HT	54		77												

6

🛒 This article can be found in our online shop at cuttingtools.ceratizit.com

Toolfinder – WNT Standard

Thread formers

for cold-formable materials

-  Through hole-Blind hole

HSS taps

for universal application up to 1000 N/mm²

-  Through hole
-  Blind hole

for steel to 850 N/mm²

-  Through hole
-  Blind hole

for high-tensile steels up to 1100 N/mm²

-  Through hole
-  Blind hole

for corrosion and acid-resistant steels

-  Through hole
-  Blind hole

For cast iron materials

-  Through hole-Blind hole

for aluminium and non-ferrous metal

-  Through hole
-  Blind hole

For tools for other applications, refer to the taps overview on → **Pages 8–20.**

Shank extensions for taps and thread-cutting oils can be found in our online shop at cuttingtools.ceratizit.com

Application range	WNT \ Standard M	MF	G	UNC	UNF
UNI	60	81			
UNI	31+32	65+66	83	90	98
UNI	48+49	74	86	92	101
FE	32	66			
FE	49	75			
FE-HF	32			90	
FE-HF	49			92	
VA	33	66		90	98
VA	49+50	76		92	101
GG	56				
AL	33				
AL	50				

 This article can be found in our online shop at cuttingtools.ceratizit.com

Taps Overview

M – Metric ISO Standard Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
Universal				Stabil	UNI	ISO 2 6H ISO 3 6G 7G	HSS-E	■			21+22	
					UNI	ISO 2 6H	HSS-E HSS-PM	■				31
				Stabil	UNI NCW	ISO 2 6H	HSS-PM	■		with Weldon flat for synchronised CNC machining without length compensation chuck	23	
					UNI NCW	ISO 2 6H	HSS-PM	■		with Weldon flat for synchronised CNC machining without length compensation chuck		32
				Stabil	UNI CNC	ISO 2X 6HX ISO 3X 6GX 7GX	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck	23	
					UNI NC	ISO 2 6H	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck		32
				Stabil	UNI EL	ISO 2 6H	HSS-E	■		extra long, with double overall length	29	
Steel				Stabil	ST	ISO 2 6H	HSS-E		□		24	
				Stabil	ST	ISO 1 4H ISO 3 6G	HSS-E		□			
					FE	ISO 2 6H	HSS-E		□			32
					FE ES	ISO 2 6H	HSS-E		□	extra short		
				Stabil	ST LH	ISO 2 6H	HSS-E		□	for left hand threads	24	
				Stabil	ST TS	ISO 2X 6HX	HSS-E	■		for high-speed machining, up to 100 m/min.	25	
				Stabil	HR	ISO 2X 6HX	HSS-PM	■			25	
				Stabil	VG	ISO 2X 6HX	HSS-E	■			25	
						ISO 2 6H	HSS-E	■				32

 This article can be found in our online shop at cuttingtools.ceratizit.com

Taps Overview

M – Metric ISO Standard Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
Steel	✓			Stabil	ST EL	ISO 2 6H	HSS-E		□	extra long, with double overall length	29	
	✓				ST MMB	ISO 2 6H	HSS-E		□	Machine taps	30	
Stainless steel	✓			Stabil	VA	ISO 2 6H	HSS-E	■			26	
	✓				VA	ISO 2 6H	HSS-PM HSS-E	■				33
Non ferrous metals	✓			Stabil	NW	ISO 2 6H	HSS-E	■			26	
	✓				AL	ISO 2 6H	HSS-E	■	□			33
	✓			Stabil	Soft	ISO 2 6H	HSS-E	■			🛒	
Heat resistant	✓			Stabil	Ti	ISO 1X 4HX ISO 2X 6HX	HSS-PM	■			27	
	✓			DL	Ti	ISO 2X 6HX	HSS-E	■			28	
	✓			DL	Ni	ISO 2X 6HX	HSS-E	■			28	
Universal		✓		Salo-Rex	UNI	ISO 2 6H 7G	HSS-E	■			34+35	
		✓		Salo-Rex	UNI	ISO 1 4H ISO 3 6G	HSS-E	■			🛒	
		✓			UNI	ISO 2 6H	HSS-E HSS-PM	■				48
		✓		Salo-Rex	UNI NCW	ISO 2 6H	HSS-PM	■		with Weldon flat for synchronised CNC machining without length compensation chuck	35	
		✓			UNI NCW	ISO 2 6H	HSS-PM	■		with Weldon flat for synchronised CNC machining without length compensation chuck		49
		✓		Salo-Rex	UNI CNC	ISO 2X 6HX ISO 2 6H, 7G	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck	36	
		✓		Salo-Rex	UNI CNC	ISO 3 6G	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck	🛒	
		✓			UNI NC	ISO 2 6H	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck		48

6

🛒 This article can be found in our online shop at cuttingtools.ceratizit.com

Taps Overview

M – Metric ISO Standard Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
Universal				Salo-Rex	UNI DRY	ISO 2 6H	HSS-E	■		for dry machining or minimum quantity lubrication (MMS), with thro' coolant	37	
				Salo-Rex	UNI S	ISO 2 6H	HSS-E	■		with back taper, for deep threads		
				Salo-Rex	UNI ES	ISO 2 6H	HSS-E	■		extra short	44	
				Salo-Rex	UNI EL	ISO 2 6H	HSS-E	■		extra long, with double overall length	46	
				SL	UNI	ISO 2 6H	HSS-E		□			
Steel				SL	ST	ISO 2 6H	HSS-E		□			
				SL	ST CNC	ISO 2X 6HX	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck, with thro' coolant	38	
				SL	ST TS	ISO 2 6H	HSS-PM	■		for high-speed machining, up to 100 m/min.		
				SL	ST TS	ISO 2X 6HX	HSS-E	■		for high-speed machining, up to 100 m/min.	38	
				SL	ST ES	ISO 2 6H	HSS-E		□	extra short	45	
				SL	ST EL	ISO 2 6H	HSS-E		□	extra long, with double overall length	47	
				SL	HR	ISO 2 6H	HSS-PM		□		38	
				Salo-Rex	ST	ISO 2 6H	HSS-E	■	□		39	
				Salo-Rex	ST	ISO 1 4H ISO 3 6G	HSS-E	■	□			
					FE	ISO 2 6H	HSS-E		□			49
					FE-HF	ISO 2 6H	HSS-E	■				49
				Salo-Rex	ST LH	ISO 2 6H	HSS-E		□	for left hand threads	39	
				Salo-Rex	ST ES	ISO 2 6H	HSS-E		□	extra short		
				Salo-Rex	ST EL	ISO 2 6H	HSS-E		□	extra long, with double overall length	46	

 This article can be found in our online shop at cuttingtools.ceratizit.com

Taps Overview

M – Metric ISO Standard Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
Steel		✓		Salo-Rex	HR	ISO 2 6H	HSS-PM	■	□		40	
		✓		Salo-Rex	ST TS	ISO 2 6H	HSS-E	■			40	
Stainless steel		✓		Salo-Rex	VA	ISO 2 6H	HSS-E	■			41	
		✓			VA	ISO 2 6H	HSS-E HSS-PM	■	□			49+50
		✓		Salo-Rex	VA S	ISO 2 6H	HSS-E	■		with back taper, for deep threads	🛒	
Non ferrous metals		✓		Salo-Rex	Soft	ISO 2 6H	HSS-E	■	□		42	
		✓		Salo-Rex	NW	ISO 2 6H	HSS-E	■			42	
		✓			AL	ISO 2 6H	HSS-E	■	□			50
Heat resistant		✓		SL	Ti	ISO 2X 6HX	HSS-PM	■			43	
		✓		SL	Ni	ISO 2X 6HX ISO 2 6H	HSS-PM	■			43	
Steel			✓	TWIN	ST	ISO 2X 6HX	HSS-E		□		51+52	
			✓	TWIN	ST AZ	ISO 2X 6HX	HSS-E		□	with intermittent teeth, reduces friction	🛒	
			✓	TWIN	ST ES	ISO 2X 6HX	HSS-E		□	extra short	🛒	
			✓	TWIN	ST LH/ES	ISO 2X 6HX	HSS-E		□	for left hand threads; extra short	🛒	
			✓	TWIN	HR	ISO 2X 6HX	HSS-E	■			51+52	
			✓	TWIN	HR EL	ISO 2X 6HX	HSS-E	■		extra long, with double overall length	55	
Cast iron			✓	TWIN	GG	ISO 2X 6HX	HSS-E	■			53	
			✓		GG	ISO 2X 6HX	HSS-E	■				56
Non ferrous metals			✓	TWIN	Ms	ISO 2X 6HX	HSS-E		□		🛒	

🛒 This article can be found in our online shop at cuttingtools.ceratizit.com

Taps Overview

M – Metric ISO Standard Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
Non ferrous metals				TWIN	AMPCO	ISO 2X 6HX	HSS-PM		□		51+52	
hardened materials				TWIN	HT	ISO 2X 6HX	VHM HSS-PM	■			54	
Machine thread formers				Spanlos	EC	ISO 2X 6HX	HSS-E	■			57	
				Spanlos	EC SN	ISO 2X 6HX ISO 3X 6GX	HSS-E	■		Thread formers with lubrication grooves	58	
				Spanlos	NEO SN	ISO 2X 6HX	HSS-PM	■		Thread formers with lubrication grooves	59	
					UNI	ISO 2X 6HX	HSS-E	■				60
					UNI SN	ISO 2X 6HX	HSS-E	■		Thread formers with lubrication grooves		60
Hand taps					ST	ISO 2X 6HX	HSS-E VHM		□			
					ERGO	ISO 2X 6HX	HSS-E		□			
					ERGO F.T.	ISO 2X 6HX	HSS-E	■				
Dies					FE	ISO 6g ISO 6e	HSS		□			
					FE	ISO 6g	HSS		□			
					FE R_z=1	ISO 6g	HSS		□	Lapped Dies		
					FE LH	ISO 6g	HSS		□	for left hand threads		
					VA	ISO 6g	HSS-E		□			
					VA R_z=1	ISO 6g	HSS-E		□	Lapped Dies		
					Ms R_z=1	ISO 6g	HSS		□	Lapped Dies		

 This article can be found in our online shop at cuttingtools.ceratizit.com

Taps Overview

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
Metric ISO standard thread for wire thread inserts												
Universal	✓			Stabil	UNI	6H mod	HSS-E	■			61	
Universal		✓		Stabil	UNI	6H mod	HSS-E	■			62	
Non ferrous metals		✓		Stabil	Soft	6H mod	HSS-E	■			62	
MF – Metric ISO Fine Thread												
Universal	✓			Stabil	UNI	ISO 2 6H	HSS-E	■			63+64	
Universal	✓			Stabil	UNI	ISO 3 6G	HSS-E	■			🛒	
Universal	✓				UNI	ISO 2 6H	HSS-PM HSS-E	■				65+66
Steel	✓			Stabil	ST	ISO 2 6H	HSS-E		□		🛒	
Steel	✓				FE	ISO 2 6H	HSS-E		□			66
Steel	✓				FE-HF	ISO 2 6H	HSS-E	■				🛒
Steel	✓			Stabil	ST TS	ISO 2X 6HX	HSS-E	■		for high-speed machining, up to 100 m/min.	64	
Steel	✓			Stabil	ST LH	ISO 2 6H	HSS-E		□	for left hand threads	64	
Stainless steel	✓			Stabil	VA	ISO 2 6H	HSS-E	■			🛒	
Stainless steel	✓				VA	ISO 2 6H	HSS-E	■				66
Non ferrous metals	✓			Stabil	NW	ISO 2 6H	HSS-E	■			64	
Universal		✓		Salo-Rex	UNI	ISO 2 6H ISO 3 6G	HSS-E	■			67+68	
Universal		✓			UNI	ISO 2 6H	HSS-E HSS-PM	■				74
Universal		✓		Salo-Rex	UNI CNC	ISO 3 6G	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck	🛒	

6

🛒 This article can be found in our online shop at cuttingtools.ceratizit.com

Taps Overview

MF – Metric ISO Fine Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
Universal				Salo-Rex	UNI CNC	7G ISO 2 6H	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck	68	
					UNI NC	ISO 2 6H	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck		75
Steel				Salo-Rex	ST	ISO 2 6H	HSS-E		□		69	
				Salo-Rex	ST	ISO 1 4H	HSS-E		□		🛒	
					FE	ISO 2 6H	HSS-E		□			75
					FE-HF	ISO 2 6H	HSS-E	■				🛒
				Salo-Rex	ST TS	ISO 2 6H	HSS-E	■		for high-speed machining, up to 100 m/min.	🛒	
				Salo-Rex	ST LH	ISO 2 6H	HSS-E		□	for left hand threads	69	
				SL	ST	ISO 2 6H	HSS-E		□		70+71	
				SL	ST CNC	ISO 2X 6HX	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck	🛒	
Stainless steel				Salo-Rex	VA	ISO 2 6H	HSS-E	■			72+73	
					VA	ISO 2 6H	HSS-E HSS-PM	■				76
Non ferrous metals				Salo-Rex	NW	ISO 2 6H	HSS-E	■			73	
Steel				TWIN	ST	ISO 2X 6HX	HSS-E		□		77+78	
				TWIN	ST ES	ISO 2X 6HX	HSS-E		□	extra short	79	
				TWIN	ST LH/ES	ISO 2X 6HX	HSS-E		□	for left hand threads	79	
				TWIN	HR	ISO 2X 6HX	HSS-E	■			77+78	
Cast iron				TWIN	GG	ISO 2X 6HX	HSS-E	■			78	
hardened materials				TWIN	HT	ISO 2X 6HX	VHM	■			77	

🛒 This article can be found in our online shop at cuttingtools.ceratizit.com

Taps Overview

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
MF – Metric ISO Fine Thread												
Machine thread formers				Spanlos	EC	ISO 2X 6HX	HSS-E	■			80	
Machine thread formers				Spanlos	EC SN	ISO 2X 6HX	HSS-E	■		Thread formers with lubrication grooves	80	
Machine thread formers					UNI	ISO 2X 6HX	HSS-E	■				81
Machine thread formers					UNI SN	ISO 2X 6HX	HSS-E	■		Thread formers with lubrication grooves		81
Hand taps					ST	ISO 2X 6HX	HSS-E		□			
Dies					FE	ISO 6g	HSS		□			
Dies					FE	ISO 6g	HSS		□			
Dies					FE LH	ISO 6g	HSS		□	for left hand threads		
Dies					VA	ISO 6g	HSS-E		□			
G – Whitworth Pipe Thread												
Universal				Stabil	UNI	ISO 228	HSS-E	■			82	
Universal					UNI	ISO 228	HSS-E	■				83
Steel				Stabil	ST	ISO 228	HSS-E		□		82	
Steel					FE	ISO 228	HSS-E		□			
Stainless steel				Stabil	VA	ISO 228	HSS-E	■			82	
Non ferrous metals				Stabil	NW	ISO 228	HSS-E	■			82	
Universal				Salo-Rex	UNI	ISO 228 ISO 228 +0,05	HSS-E	■			84	
Universal					UNI	ISO 228	HSS-E	■				86
Universal				Salo-Rex	UNI CNC	ISO 228	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck	85	

 This article can be found in our online shop at cuttingtools.ceratizit.com

6

Taps Overview

G – Whitworth Pipe Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
Steel		✓		Salo-Rex	ST	ISO 228	HSS-E		□		85	
Steel		✓		SL	ST	ISO 228	HSS-E		□		🛒	
Stainless steel		✓		Salo-Rex	VA	ISO 228	HSS-E	■			85	
Non ferrous metals		✓		Salo-Rex	NW	ISO 228	HSS-E	■			85	
Steel			✓	TWIN	ST	ISO 228X	HSS-E		□		87	
Steel			✓	TWIN	HR	ISO 228X	HSS-E	■			87	
Cast iron			✓	TWIN	GG	ISO 228X	HSS-E	■			🛒	
Machine thread formers			✓	Spanlos	EC	ISO 228	HSS-E	■			88	
Machine thread formers			✓	Spanlos	EC SN	ISO 228	HSS-E	■		Thread formers with lubrication grooves	88	
Hand taps					ERGO	ISO 228	HSS-E		□		🛒	
Dies					FE	ISO 228A	HSS		□		🛒	

UNC – Unified Coarse Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
Universal	✓			Stabil	UNI	3B	HSS-E	■			🛒	
Universal	✓			Stabil	UNI	2B	HSS-E	■			89	
Universal	✓				UNI	2B	HSS-E	■				90
Steel	✓			Stabil	ST	2B	HSS-E		□		🛒	
Steel	✓				FE-HF	2B	HSS-E	■				90
Stainless steel	✓			Stabil	VA	2B	HSS-E	■			89	
Stainless steel	✓				VA	2B	HSS-E	■				90

🛒 This article can be found in our online shop at cuttingtools.ceratizit.com

Taps Overview

UNC – Unified Coarse Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
Heat resistant	✓			Stabil	Ti	2BX	HSS-PM	■			89	
Universal		✓		Salo-Rex	UNI	2B	HSS-E	■			91	
Universal		✓		Salo-Rex	UNI	2B +0,05	HSS-E	■			🛒	
Universal		✓			UNI	2B	HSS-E	■				92
Steel		✓		Salo-Rex	ST	2B	HSS-E		□		🛒	
Steel		✓			FE-HF	2B	HSS-E	■				92
Stainless steel		✓		Salo-Rex	VA	2B	HSS-E	■			91	
Stainless steel		✓			VA	2B	HSS-E		□			92
Heat resistant		✓		SL	Ti	2BX	HSS-PM	■			🛒	
Cast iron			✓	TWIN	GG	2BX	HSS-E	■			🛒	
Machine thread formers			✓	Spanlos	EC	2BX	HSS-E	■			93	
Machine thread formers			✓	Spanlos	EC SN	2BX	HSS-E	■		Thread formers with lubrication grooves	93	
Hand taps			✓		ERGO	2BX	HSS-E		□		🛒	
Dies			✓		FE	2A	HSS-E		□		🛒	

EG UNC – Unified coarse thread for wire inserts

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
Universal	✓			Stabil	UNI	2B	HSS-E	■			94	
Universal		✓		Salo-Rex	UNI	2B	HSS-E	■			95	

🛒 This article can be found in our online shop at cuttingtools.ceratizit.com

6

Taps Overview

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
UNJC – Unified Coarse Thread												
Heat resistant				SL	Ti	3BX	HSS-E	■			96	
UNF – Unified Fine Thread												
Universal				Stabil	UNI	2B	HSS-E	■			97	
					UNI	2B	HSS-E	■				98
Steel				Stabil	ST	2B	HSS-E		□			
					FE	2B	HSS-E		□			98
Stainless steel					VA	2B	HSS-E	■				98
Heat resistant				Stabil	Ti	2BX	HSS-PM	■			97	
Universal				Salo-Rex	UNI	2B 2B +0,05	HSS-E	■			99	
					UNI	2B	HSS-E	■				101
Steel					FE	2B	HSS-E		□			
Stainless steel				Salo-Rex	VA	2B	HSS-E	■			99	
					VA	2B	HSS-E		□			101
Heat resistant				SL	Ti	2BX 3BX	HSS-PM	■			100	
Cast iron				TWIN	GG	2BX	HSS-E	■				
Thread formers				Spanlos	EC SN	2BX	HSS-E	■		Thread formers with lubrication grooves	102	
Dies					FE	2A	HSS		□			

 This article can be found in our online shop at cuttingtools.ceratizit.com

Taps Overview

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
EG UNF – Unified fine thread for wire inserts												
Universal	✓			Stabil	UNI	2B	HSS-E	■			103	
		✓		Salo-Rex	UNI	2B	HSS-E	■			104	
UNJF – Unified Extra Fine Thread												
Heat resistant	✓			DL	Ti	3BX	HSS-E	■			🛒	
		✓		SL	Ti	3BX	HSS-E	■			🛒	
BSW – Whitworth Thread												
Universal	✓			Stabil	UNI	med.	HSS-E	■			🛒	
		✓		Salo-Rex	UNI	med.	HSS-E	■			🛒	
NPT – American Tapered Pipe Thread												
Stainless steel		✓		Salo-Rex	VA		HSS-E	■			105	
Steel			✓	TWIN	VG		HSS-E		□		106	
			✓	TWIN	VG AZ		HSS-E		□	with intermittent teeth, reduces friction	🛒	
			✓	TWIN	ST ES		HSS-E		□	extra short	107	
Dies					FE		HSS-E		□		🛒	

6

🛒 This article can be found in our online shop at cuttingtools.ceratizit.com

Taps Overview

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT \ Performance	WNT \ Standard
NPTF – American Tapered Pipe Thread												
Steel				TWIN	ST		HSS-E		□			
Steel				TWIN	VG		HSS-E		□			
Steel				TWIN	ST ES		HSS-E		□	extra short		
Rp – Cylindrical Whitworth Pipe Thread												
Steel				TWIN	ST	X	HSS-E		□			
Rc – Tapered Whitworth Pipe Thread												
Steel				TWIN	VG		HSS-E		□			
Tr – Metric ISO Trapezoidal Thread												
Steel					ST	7H	HSS-E		□		108	

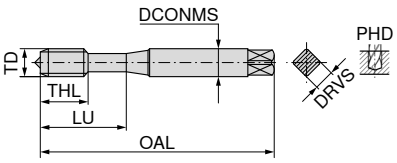
Accessories

Shank extensions for taps	
Tapping Oil, Chlorine Free	

 This article can be found in our online shop at cuttingtools.ceratizit.com

Through hole – Machine taps, right hand

M | Stabil



DIN 371 with reinforced shank

UNI	UNI	UNI	UNI	UNI	
B 4–5	B 4–5	B 4–5	B 4–5	B 4–5	
ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 3 6G	7G	
nitr. + vap.	TiN	TiCN	nitr. + vap.	nitr. + vap.	
					
HSS-E ◁ 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E ◁ 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E ◁ 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E ◁ 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E ◁ 0° ≤ 1100 N/mm² ≤ 4xD	
22 501 ...	**22 503 ...**	**22 505 ...**	**22 508 ...**	**22 510 ...**	

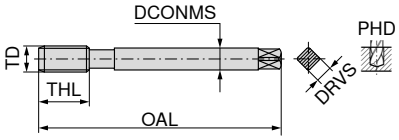
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 501 ...	22 503 ...	22 505 ...	22 508 ...	22 510 ...
M1	0,25	40	2,5	2,1	0,75	5	13	2	**010** [1]				
M1,2	0,25	40	2,5	2,1	0,95	5	13	2	**012** [1]				
M1,4	0,30	40	2,5	2,1	1,10	7	13	3	**014** [1]				
M1,6	0,35	40	2,5	2,1	1,25	8	11	3	**016**				
M1,7	0,35	40	2,5	2,1	1,35	6	11	2	**017**				
M1,8	0,35	40	2,5	2,1	1,45	6	11	2	**018**				
M2	0,40	45	2,8	2,1	1,60	7	12	2		**020**		**020**	**020**
M2	0,40	45	2,8	2,1	1,60	7	12	3	**020**				
M2,2	0,45	45	2,8	2,1	1,75	7	12	2	**022**				
M2,5	0,45	50	2,8	2,1	2,05	9	14	2	**025**			**025**	**025**
M3	0,50	56	3,5	2,7	2,50	11	18	3	**030**	**030**	**030**	**030**	**030**
M3,5	0,60	56	4,0	3,0	2,90	12	20	3	**035**			**035**	
M4	0,70	63	4,5	3,4	3,30	13	21	3	**040**	**040**	**040**	**040**	**040**
M5	0,80	70	6,0	4,9	4,20	15	25	3	**050**	**050**	**050**	**050**	**050**
M6	1,00	80	6,0	4,9	5,00	17	30	3	**060**	**060**	**060**	**060**	**060**
M7	1,00	80	7,0	5,5	6,00	17	30	3	**070**				
M8	1,25	90	8,0	6,2	6,80	20	35	3	**080**	**080**	**080**	**080**	**080**
M10	1,50	100	10,0	8,0	8,50	22	39	3	**100**	**100**	**100**	**100**	**100**
M12	1,75	110	12,0	9,0	10,20	24	44	3	**120**				
P									**12**	**15**	**15**	**12**	**12**
M									**7**	**9**	**9**	**7**	**7**
K									**12**	**18**	**18**	**12**	**12**
N										**12**	**12**		
S													
H													
O													

1) Tol. ISO 1 4H ≤ M1.4

DIN 376 can be found on the next page

Through hole – Machine taps, right hand

M | Stabil



DIN 376 with reduced shank

	UNI	UNI	UNI	UNI
	B 4–5	B 4–5	B 4–5	B 4–5
	ISO 2 6H	ISO 2 6H	ISO 3 6G	7G
	nitr. + vap.	TiN	nitr. + vap.	nitr. + vap.
				
	HSS-E	HSS-E	HSS-E	HSS-E
	◁ 0° ≤ 1100 N/mm² ≤ 4xD	◁ 0° ≤ 1100 N/mm² ≤ 4xD	◁ 0° ≤ 1100 N/mm² ≤ 4xD	◁ 0° ≤ 1100 N/mm² ≤ 4xD
	22 502 ...	**22 504 ...**	**22 509 ...**	**22 511 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes							
M3	0,50	56	2,2		2,5	11	3	**030**						
M4	0,70	63	2,8	2,1	3,3	13	3	**040**						
M5	0,80	70	3,5	2,7	4,2	15	3	**050**						
M6	1,00	80	4,5	3,4	5,0	17	3	**060**						
M8	1,25	90	6,0	4,9	6,8	20	3	**080**						
M10	1,50	100	7,0	5,5	8,5	22	3	**100**						
M12	1,75	110	9,0	7,0	10,2	24	3	**120**		**120**		**120**		**120**
M14	2,00	110	11,0	9,0	12,0	26	3	**140**		**140**				
M16	2,00	110	12,0	9,0	14,0	27	3	**160**		**160**		**160**		**160**
M18	2,50	125	14,0	11,0	15,5	30	3	**180**		**180**				
M20	2,50	140	16,0	12,0	17,5	32	3	**200**		**200**		**200**		
M22	2,50	140	18,0	14,5	19,5	32	3	**220**		**220**				
M24	3,00	160	18,0	14,5	21,0	34	3	**240**		**240**				
M27	3,00	160	20,0	16,0	24,0	36	3	**270**						
M30	3,50	180	22,0	18,0	26,5	40	4	**300**						
M33	3,50	180	25,0	20,0	29,5	40	4	**330**						
M36	4,00	200	28,0	22,0	32,0	50	4	**360**						
M42	4,50	200	32,0	24,0	37,5	56	4	**420**						
M48	5,00	250	36,0	29,0	43,0	65	4	**480**						

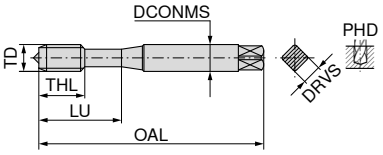
P	**12**	**15**	**12**	**12**
M	**7**	**9**	**7**	**7**
K	**12**	**18**	**12**	**12**
N		**12**		
S				
H				
O				

Through hole – Machine taps, right hand

▲ CNC = for synchronised CNC machining with minimum length compensation chuck

▲ NCW = with Weldon flat for synchronised CNC machining without length compensation chuck

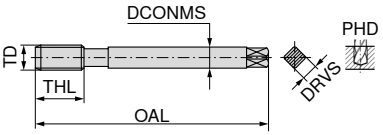
M | Stabil



DIN 371 with reinforced shank

	UNI NCW	UNI CNC	UNI CNC	UNI CNC
	B 4–5	B 4–5	B 4–5	B 4–5
	ISO 2 6H	ISO 2X 6HX	ISO 3X 6GX	7GX
	TiN	TiN GS	TiN GS	TiN GS
				
	HSS-PM ◁ 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E ◁ 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E ◁ 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E ◁ 0° ≤ 1100 N/mm² ≤ 4xD
	22 148 ...	22 542 ...	22 596 ...	22 592 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes							
M3	0,50	70	6,0	4,9	2,5	6	18	3	030						
M3	0,50	56	3,5	2,7	2,5	6	18	3		030					
M4	0,70	70	6,0	4,9	3,3	7	21	3	040						
M4	0,70	63	4,5	3,4	3,3	7	21	3		040		040		040	
M5	0,80	70	6,0	4,9	4,2	8	25	3	050	050		050		050	
M6	1,00	80	6,0	4,9	5,0	10	30	3	060	060		060		060	
M8	1,25	90	8,0	6,2	6,8	14	35	3	080						
M8	1,25	90	8,0	6,2	6,8	14	35	4		080		080		080	
M10	1,50	100	10,0	8,0	8,5	16	39	3	100						
M10	1,50	100	10,0	8,0	8,5	16	39	4		100		100		100	
M12	1,75	110	10,0	8,0	10,2	18		3	120						
M16	2,00	110	12,0	9,0	14,0	22		3	160						



DIN 376 with reduced shank

								22 543 ...		22 597 ...		22 593 ...	
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes						
M12	1,75	110	9	7	10,2	18	4		120		120		120
M14	2,00	110	11	9	12,0	20	4		140				
M16	2,00	110	12	9	14,0	22	4		160				
M20	2,50	140	16	12	17,5	25	4		200				

P	15	15	15	15
M	8	9	9	9
K	15	18	18	18
N	22	12	12	12
S				
H				
O				

6

Through hole – Machine taps

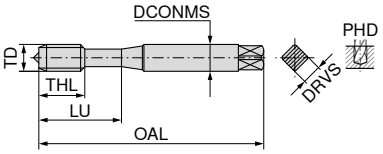
▲ LH = for left hand threads

M | Stabil

ST | ST LH

B 4–5

ISO 2 6H | ISO 2 6H



DIN 371 with reinforced shank

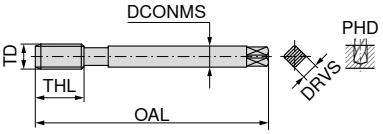




HSS-E
0°
≤ 750 N/mm²
≤ 4xD

HSS-E
0°
≤ 750 N/mm²
≤ 4xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 020 ...	22 127 ...
M2	0,40	45	2,8	2,1	1,60	7	12	2	**020**	
M2,3	0,40	45	2,8	2,1	1,90	7	12	2	**023**	
M2,5	0,45	50	2,8	2,1	2,05	9	14	2	**025**	
M2,6	0,45	50	2,8	2,1	2,15	9	14	2	**026**	
M3	0,50	56	3,5	2,7	2,50	11	18	3	**030**	**030**
M3,5	0,60	56	4,0	3,0	2,90	12	20	3	**035**	
M4	0,70	63	4,5	3,4	3,30	13	21	3	**040**	**040**
M5	0,80	70	6,0	4,9	4,20	15	25	3	**050**	**050**
M6	1,00	80	6,0	4,9	5,00	17	30	3	**060**	**060**
M8	1,25	90	8,0	6,2	6,80	20	35	3	**080**	**080**
M10	1,50	100	10,0	8,0	8,50	22	39	3	**100**	**100**



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 021 ...	22 147 ...
M5	0,80	70	3,5	2,7	4,2	15	3	**050**	
M6	1,00	80	4,5	3,4	5,0	17	3	**060**	
M8	1,25	90	6,0	4,9	6,8	20	3	**080**	
M10	1,50	100	7,0	5,5	8,5	22	3	**100**	
M12	1,75	110	9,0	7,0	10,2	24	3	**120**	**120**
M14	2,00	110	11,0	9,0	12,0	26	3	**140**	
M16	2,00	110	12,0	9,0	14,0	27	3	**160**	**160**
M18	2,50	125	14,0	11,0	15,5	30	3	**180**	
M20	2,50	140	16,0	12,0	17,5	32	3	**200**	**200**
M22	2,50	140	18,0	14,5	19,5	32	3	**220**	
M24	3,00	160	18,0	14,5	21,0	34	3	**240**	
M27	3,00	160	20,0	16,0	24,0	36	3	**270**	
M30	3,50	180	22,0	18,0	26,5	40	4	**300**	

P	**12**	**12**
M		
K	**12**	**12**
N	**12**	**22**
S		
H		
O		

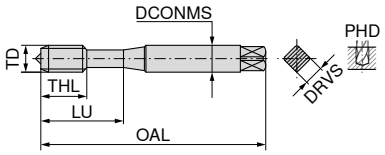
Through hole – Machine taps, right hand

▲ TS = for high-speed machining, up to 100 m/min.

M | Stabil

NEW

ST TS	HR	VG
B 4–5	B 4–5	B 4–5
ISO 2X 6HX	ISO 2X 6HX	ISO 2X 6HX
TiN	AlTiN-HD	TiN

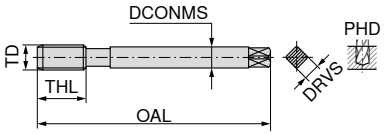


DIN 371 with reinforced shank



	HSS-E	HSS-PM	HSS-E
	0° ≤ 1100 N/mm² ≤ 4xD	0° ≤ 1400 N/mm² ≤ 4xD	0° ≤ 1100 N/mm² ≤ 4xD
	22 092 ...	**22 468 ...**	**22 120 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes			
M2	0,40	45	2,8	2,1	1,60	7	12	2		02000	
M2	0,40	45	2,8	2,1	1,60	4	12	2	020		020
M2,5	0,45	50	2,8	2,1	2,05	9	14	2		02500	
M2,5	0,45	50	2,8	2,1	2,05	5	15	2	025		025
M3	0,50	56	3,5	2,7	2,50	11	18	2		03000	
M3	0,50	56	3,5	2,7	2,50	6	18	3	030		030
M4	0,70	63	4,5	3,4	3,30	13	21	2		04000	
M4	0,70	63	4,5	3,4	3,30	7	21	3	040		040
M5	0,80	70	6,0	4,9	4,20	15	25	2		05000	
M5	0,80	70	6,0	4,9	4,20	8	25	3	050		050
M6	1,00	80	6,0	4,9	5,00	17	30	3		06000	
M6	1,00	80	6,0	4,9	5,00	10	30	3	060		060
M8	1,25	90	8,0	6,2	6,80	20	35	3		08000	
M8	1,25	90	8,0	6,2	6,80	14	35	4	080		080
M10	1,50	100	10,0	8,0	8,50	22	39	3		10000	
M10	1,50	100	10,0	8,0	8,50	16	39	4	100		100

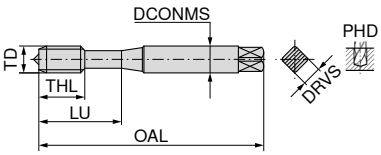


DIN 376 with reduced shank

								22 093 ...		22 121 ...
TD mm	**TP mm**	**OAL mm**	**DCONMS mm**	**DRVS mm**	**PHD mm**	**THL mm**	**Flutes**			
M12	1,75	110	9	7	10,2	18	4	120		120
M16	2,00	110	12	9	14,0	22	4	160		160
M20	2,50	140	16	12	17,5	25	4	200		200
P								65	8	10
M									8	8
K								65		
N								75	10	22
S									4	
H										
O										

Through hole – Machine taps, right hand

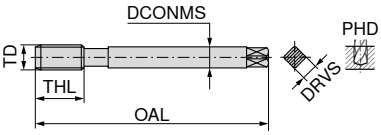
M | Stabil



DIN 371 with reinforced shank

	VA	VA		NEW NW
	B 4–5	B 4–5	B 4–5	B 4–5
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	nitr.	TiN GS	vap.	DLC
	HSS-E ◁ 0° ≤ 900 N/mm² ≤ 4xD	HSS-E ◁ 0° ≤ 900 N/mm² ≤ 4xD	HSS-E ◁ 0° ≤ 500 N/mm² ≤ 4xD	HSS-E ◁ 0° ≤ 880 N/mm² ≤ 4xD
	22 056 ...	**22 038 ...**	**22 058 ...**	**22 464 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes							
M1,6	0,35	40	2,5	2,1	1,25	6	11	2			**016**				
M2	0,40	45	2,8	2,1	1,60	7	12	2	**020**		**020**		**020**		**02000**
M2,3	0,40	45	2,8	2,1	1,90	7	12	2					**023**		
M2,5	0,45	50	2,8	2,1	2,05	9	14	2	**025**		**025**		**025**		**02500**
M2,6	0,45	50	2,8	2,1	2,15	9	14	2					**026**		
M3	0,50	56	3,5	2,7	2,50	11	18	3	**030**		**030**		**030**		**03000**
M3,5	0,60	56	4,0	3,0	2,90	12	20	3	**035**				**035**		
M4	0,70	63	4,5	3,4	3,30	13	21	3	**040**		**040**		**040**		**04000**
M5	0,80	70	6,0	4,9	4,20	15	25	3	**050**		**050**		**050**		**05000**
M6	1,00	80	6,0	4,9	5,00	17	30	3	**060**		**060**		**060**		**06000**
M8	1,25	100	8,0	6,2	6,80	20	35	3							**08000**
M8	1,25	90	8,0	6,2	6,80	20	35	3	**080**		**080**		**080**		
M10	1,50	110	10,0	8,0	8,50	22	39	3							**10000**
M10	1,50	100	10,0	8,0	8,50	22	39	3	**100**		**100**		**100**		

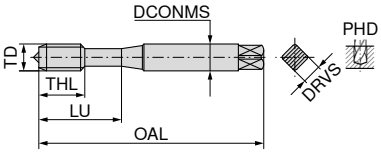


DIN 376 with reduced shank

									22 057 ...		**22 039 ...**		**22 059 ...**		**22 465 ...**
TD mm	**TP mm**	**OAL mm**	**DCONMS mm**	**DRVS mm**	**PHD mm**	**THL mm**	**Flutes**								
M12	1,75	110	9	7,0	10,2	24	3		**120**		**120**		**120**		**12000**
M14	2,00	110	11	9,0	12,0	26	3		**140**		**140**				
M16	2,00	110	12	9,0	14,0	27	3		**160**		**160**		**160**		**16000**
M18	2,50	125	14	11,0	15,5	30	3		**180**						
M20	2,50	140	16	12,0	17,5	32	3		**200**		**200**				**20000**
M22	2,50	140	18	14,5	19,5	32	3		**220**						
M24	3,00	160	18	14,5	21,0	34	3		**240**						
M27	3,00	160	20	16,0	24,0	36	3		**270**						
M30	3,50	180	22	18,0	26,5	40	4		**300**						
P									**8**		**10**		**15**		
M									**6**		**8**		**6**		
K															
N															**15**
S															
H															
O															

Through hole – Machine taps, right hand

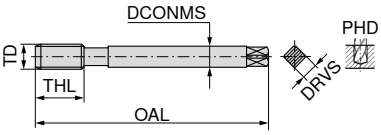
M | Stabil



DIN 371 with reinforced shank

	Ti	Ti	Ti
	B 4–5	B 4–5	B 4–5
	ISO 1X 4HX	ISO 2X 6HX	ISO 2X 6HX
	TiN	vap.	TiN
			
	HSS-PM	HSS-PM	HSS-PM
	◁ 0° ≤ 44 HRC ≤ 4xD	◁ 0° ≤ 1400 N/mm² ≤ 4xD	◁ 0° ≤ 44 HRC ≤ 4xD
	22 081 ...	**22 075 ...**	**22 077 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes					
M1,6	0,35	40	2,5	2,1	1,25	8	9,5	3			**016**		
M2	0,40	45	2,8	2,1	1,60	8	9,5	3	**020**		**020**		
M2,5	0,45	50	2,8	2,1	2,05	9	14,0	3			**025**		
M3	0,50	56	3,5	2,7	2,50	11	18,0	3	**030**		**030**		**030**
M3,5	0,60	56	4,0	3,0	2,90	12	20,0	3			**035**		
M4	0,70	63	4,5	3,4	3,30	13	21,0	3	**040**		**040**		**040**
M5	0,80	70	6,0	4,9	4,20	15	25,0	3	**050**		**050**		**050**
M6	1,00	80	6,0	4,9	5,00	17	30,0	3	**060**		**060**		**060**
M8	1,25	90	8,0	6,2	6,80	20	35,0	3	**080**		**080**		**080**
M10	1,50	100	10,0	8,0	8,50	22	39,0	3			**100**		**100**



DIN 376 with reduced shank

									22 140 ...		**22 142 ...**	
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes					
M12	1,75	110	9	7	10,2	24	3			**120**		**120**
P									**7**	**5**	**7**	
M									**7**	**5**	**7**	
K												
N												
S									**5**	**3**	**5**	
H												
O												

6

Through hole – Machine taps, right hand

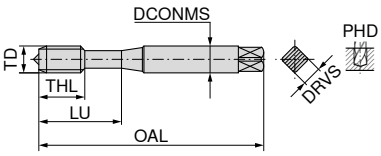
M | DL

Ti | Ni

D 4–5 | D 4–5

ISO 2X 6HX | ISO 2X 6HX

TiCN | TiCN



DIN 371 with reinforced shank





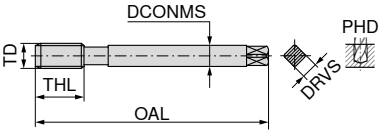
HSS-E | HSS-E

◁ 15° | ◁ 15°

≤ 1200 N/mm² | ≤ 1600 N/mm²

≤ 4xD | ≤ 4xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 159 ...	22 297 ...
M3	0,50	56	3,5	2,7	2,5	11	18	2	030	030
M4	0,70	63	4,5	3,4	3,3	13	21	3	040	040
M5	0,80	70	6,0	4,9	4,2	15	25	3	050	050
M6	1,00	80	6,0	4,9	5,0	17	30	3	060	060
M8	1,25	90	8,0	6,2	6,8	20	35	3	080	080
M10	1,50	100	10,0	8,0	8,5	22	39	3	100	100



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 160 ...	22 298 ...
M12	1,75	110	9	7,0	10,2	24	3	120	120
M16	2,00	110	12	9,0	14,0	27	3	160	160
M20	2,50	140	16	12,0	17,5	32	3	200	200
M24	3,00	160	18	14,5	21,0	34	3	240	

P	7	
M	7	
K		
N	22	22
S	5	2
H		
O		

Through hole – Machine taps, right hand

▲ EL = extra long, with double overall length

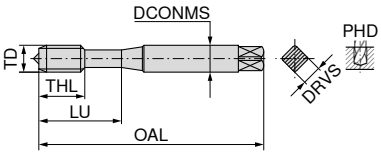
M | Stabil

UNI EL | ST EL

B 4–5

ISO 2 6H | ISO 2 6H

nitr. + vap.



DIN 371 with reinforced shank

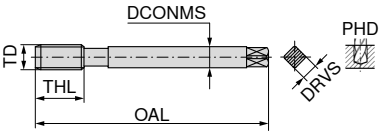




HSS-E
0°
≤ 1100 N/mm²
≤ 4xD

HSS-E
0°
≤ 950 N/mm²
≤ 4xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 514 ...	22 233 ...
M3	0,50	100	3,5	2,7	2,5	11	18	3	030	030
M4	0,70	125	4,5	3,4	3,3	13	21	3	040	040
M5	0,80	140	6,0	4,9	4,2	15	25	3	050	050
M6	1,00	160	6,0	4,9	5,0	17	30	3	060	060
M8	1,25	180	8,0	6,2	6,8	20	35	3	080	080



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 515 ...	22 234 ...
M6	1,00	160	4,5	3,4	5,0	17	3	060	060
M8	1,25	180	6,0	4,9	6,8	20	3	080	080
M10	1,50	200	7,0	5,5	8,5	22	3	100	100
M12	1,75	224	9,0	7,0	10,2	24	3	120	120
M14	2,00	224	11,0	9,0	12,0	26	3	140	140
M16	2,00	224	12,0	9,0	14,0	27	3	160	160
M18	2,50	250	14,0	11,0	15,5	30	3	180	180
M20	2,50	280	16,0	12,0	17,5	32	3	200	200

P	12	12
M	7	
K	12	12
N		22
S		
H		
O		

6

Through hole – Machine taps, right hand

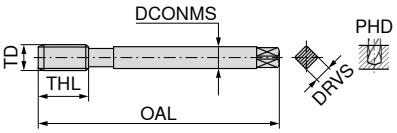
▲ MMB = Nut taps

M

ST
MMB

≈ 20

ISO 2
6H



DIN 357 with reduced shank



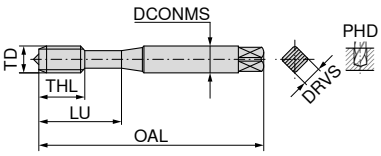
HSS-E
0°
≤ 850 N/mm²
≤ 1xD

22 098 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	
M3	0,50	70	2,2		2,5	16	3	**030**
M4	0,70	90	2,8	2,1	3,3	22	3	**040**
M5	0,80	100	3,5	2,7	4,2	24	3	**050**
M6	1,00	110	4,5	3,4	5,0	30	3	**060**
M8	1,25	125	6,0	4,9	6,8	38	3	**080**
M10	1,50	140	7,0	5,5	8,5	45	3	**100**
M12	1,75	180	9,0	7,0	10,2	50	3	**120**
M16	2,00	200	12,0	9,0	14,0	63	3	**160**
P								**15**
M								
K								
N								
S								
H								
O								

Through hole – Machine taps, right hand

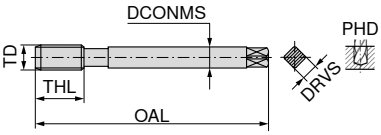
M



DIN 371 with reinforced shank

	UNI	UNI	UNI
	B 4–5	B 4–5	B 4–5
	ISO 2 6H	ISO 2 6H	ISO 2 6H
	nitr. + vap.	TiN	TiN
			
	HSS-E	HSS-E	HSS-PM
	0° ≤ 1000 N/mm² ≤ 3xD	0° ≤ 1000 N/mm² ≤ 3xD	0° ≤ 1000 N/mm² ≤ 3xD
	23 110 ...	**23 112 ...**	**23 010 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes			
M2	0,40	45	2,8	2,1	1,60	7	12,0	2	**020**	**020**	
M2	0,40	45	2,8	2,1	1,60	4	13,5	2			**020**
M2,5	0,45	50	2,8	2,1	2,05	9	14,0	2	**025**	**025**	
M3	0,50	56	3,5	2,7	2,50	11	18,0	3	**030**	**030**	**030**
M4	0,70	63	4,5	3,4	3,30	13	21,0	3	**040**	**040**	**040**
M5	0,80	70	6,0	4,9	4,20	15	25,0	3	**050**	**050**	**050**
M6	1,00	80	6,0	4,9	5,00	17	30,0	3	**060**	**060**	**060**
M8	1,25	90	8,0	6,2	6,80	20	35,0	3	**080**	**080**	**080**
M10	1,50	100	10,0	8,0	8,50	22	39,0	3	**100**	**100**	**100**



DIN 376 with reduced shank

			23 111 ...	**23 113 ...**	**23 021 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes			
M3	0,50	56	2,2		2,5	11	3	**030**		
M4	0,70	63	2,8	2,1	3,3	13	3	**040**		
M5	0,80	70	3,5	2,7	4,2	15	3	**050**		
M6	1,00	80	4,5	3,4	5,0	17	3	**060**		
M8	1,25	90	6,0	4,9	6,8	20	3	**080**		
M10	1,50	100	7,0	5,5	8,5	22	3	**100**		
M12	1,75	110	9,0	7,0	10,2	24	3	**120**	**120**	**120**
M14	2,00	110	11,0	9,0	12,0	26	3	**140**	**14000**	
M14	2,00	110	11,0	9,0	12,0	20	4			**140**
M16	2,00	110	12,0	9,0	14,0	27	3	**160**	**160**	**160**
M18	2,50	125	14,0	11,0	15,5	30	3		**18000**	
M18	2,50	125	14,0	11,0	15,5	25	4			**180**
M20	2,50	140	16,0	12,0	17,5	32	3	**200**	**200**	**200**
M22	2,50	140	18,0	14,5	19,5	32	3		**22000**	
M24	3,00	160	18,0	14,5	21,0	34	3		**240**	
M27	3,00	160	20,0	16,0	24,0	36	3		**27000**	
M30	3,50	180	22,0	18,0	26,5	40	4		**30000**	
M33	3,50	180	25,0	20,0	29,5	40	4		**33000**	
M36	4,00	200	28,0	22,0	32,0	50	4		**36000**	

P	**12**	**15**	**15**
M	**7**	**9**	**9**
K	**12**	**18**	**18**
N		**12**	**12**
S			
H			
O			

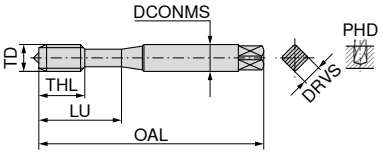
6

Through hole – Machine taps, right hand

▲ NCW = with Weldon flat for synchronised CNC machining without length compensation chuck

▲ NC = for synchronised CNC machining with minimum length compensation chuck

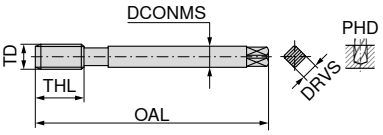
M



DIN 371 with reinforced shank

	UNI NC	UNI NCW	FE	FE-HF
	B 4–5	B 4–5	B 4–5	B 4–5
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	TiN GS	TiCN		TiCN
				
	HSS-E ◁ 0° ≤ 1000 N/mm² ≤ 3xD	HSS-PM ◁ 0° ≤ 1000 N/mm² ≤ 3xD	HSS-E ◁ 0° ≤ 850 N/mm² ≤ 3xD	HSS-E ◁ 0° ≤ 1100 N/mm² ≤ 3xD
	23 114 ...	23 116 ...	23 212 ...	23 310 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes							
M1,6	0,35	40	2,5	2,1	1,25	6	11	2						016	
M2	0,40	45	2,8	2,1	1,60	7	12	2						020	
M2,5	0,45	50	2,8	2,1	2,05	9	14	2						025	
M3	0,50	70	6,0	4,9	2,50	6	18	3			030				
M3	0,50	56	3,5	2,7	2,50	11	18	3	030					030	030
M3,5	0,60	56	4,0	3,0	2,90	12	20	3						035	
M4	0,70	70	6,0	4,9	3,30	7	21	3			040				
M4	0,70	63	4,5	3,4	3,30	13	21	3	040					040	040
M5	0,80	70	6,0	4,9	4,20	15	25	3	050					050	050
M5	0,80	70	6,0	4,9	4,20	8	25	3			050				
M6	1,00	80	6,0	4,9	5,00	17	30	3	060					060	060
M6	1,00	80	6,0	4,9	5,00	10	30	3			060				
M8	1,25	90	8,0	6,2	6,80	20	35	3	080					080	080
M8	1,25	90	8,0	6,2	6,80	14	35	3			080				
M10	1,50	100	10,0	8,0	8,50	22	39	3	100					100	100
M10	1,50	100	10,0	8,0	8,50	16	39	3			100				



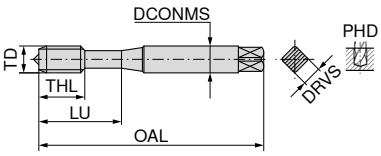
DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes							
M12	1,75	110	10	8	10,2	18	3			120				
M12	1,75	110	9	7	10,2	24	3	120					120	120
M14	2,00	110	11	9	12,0	26	3						140	
M16	2,00	110	12	9	14,0	22	3			160				
M16	2,00	110	12	9	14,0	27	3	160					160	160
M20	2,50	140	16	12	17,5	32	3	200					200	200

P	15	15	12	15
M	9	8		
K	18	15	12	15
N	12	22	12	15
S				
H				
O				

Through hole – Machine taps, right hand

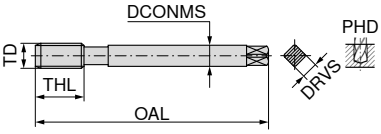
M



DIN 371 with reinforced shank

	VA	VA	VA	AL	AL
	B 4–5	B 4–5	B 4–5	B 4–5	B 4–5
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	nitr.	nitr.	TiN		CrN
					
	HSS-PM	HSS-E	HSS-E	HSS-E	HSS-E
	◁ 0° ≤ 1200 N/mm² ≤ 3xD	◁ 0° ≤ 1200 N/mm² ≤ 3xD	◁ 0° ≤ 1200 N/mm² ≤ 3xD	◁ 0° ≤ 500 N/mm² ≤ 3xD	◁ 0° ≤ 500 N/mm² ≤ 3xD
	23 450 ...	23 410 ...	23 412 ...	23 610 ...	23 612 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes									
M2	0,40	45	2,8	2,1	1,60	7	12	2			020		020				
M2,5	0,45	50	2,8	2,1	2,05	9	14	2			025		025				
M3	0,50	56	3,5	2,7	2,50	11	18	3	030		030		030		030		030
M4	0,70	63	4,5	3,4	3,30	13	21	3	040		040		040		040		040
M5	0,80	70	6,0	4,9	4,20	15	25	3	050		050		050		050		050
M6	1,00	80	6,0	4,9	5,00	17	30	3	060		060		060		060		060
M8	1,25	90	8,0	6,2	6,80	20	35	3	080		080		080		080		080
M10	1,50	100	10,0	8,0	8,50	22	39	3	100		100		100		100		100



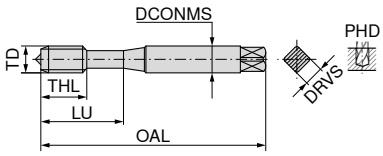
DIN 376 with reduced shank

								23 451 ...		23 411 ...		23 413 ...		23 611 ...		23 613 ...	
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes										
M12	1,75	110	9	7,0	10,2	24	3	120		120		120		120		120	
M14	2,00	110	11	9,0	12,0	26	3	140									
M16	2,00	110	12	9,0	14,0	27	3	160		160		160					
M20	2,50	140	16	12,0	17,5	32	3	200		200		200					
M24	3,00	160	18	14,5	21,0	34	3			240							
P								8		8		10					
M								6		6		8					
K																	
N								22		22		24		15		15	
S																	
H																	
O																	

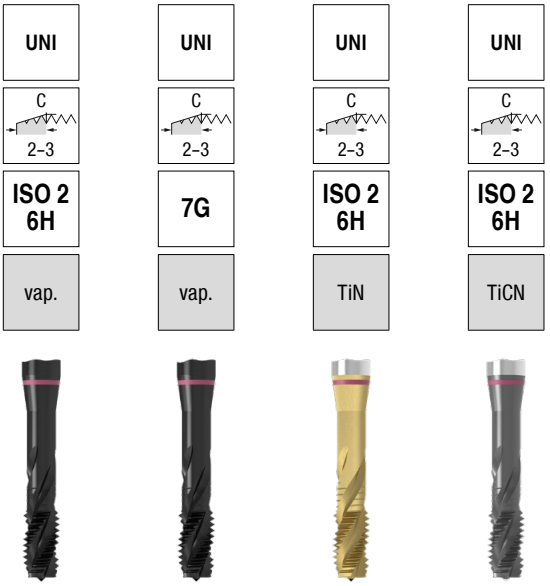
6

Blind hole – Machine taps, right hand

M | Salo-Rex

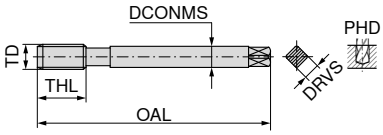


DIN 371 with reinforced shank



HSS-E
42°
≤ 1100 N/mm²
≤ 3xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	22 518 ...		22 532 ...		22 520 ...		22 522 ...	
mm	mm	mm	mm	mm	mm	mm	mm									
M2	0,40	45	2,8	2,1	1,60	4,0	12	2	020				020			
M2,2	0,45	45	2,8	2,1	1,75	4,5	12	2	022							
M2,3	0,40	45	2,8	2,1	1,90	4,5	12	2	023							
M2,5	0,45	50	2,8	2,1	2,05	5,0	15	2	025							
M2,6	0,45	50	2,8	2,1	2,15	5,0	15	2	026							
M3	0,50	56	3,5	2,7	2,50	6,0	18	3	030		030		030		030	
M3,5	0,60	56	4,0	3,0	2,90	7,0	20	3	035							
M4	0,70	63	4,5	3,4	3,30	7,0	21	3	040		040		040		040	
M5	0,80	70	6,0	4,9	4,20	8,0	25	3	050		050		050		050	
M6	1,00	80	6,0	4,9	5,00	10,0	30	3	060		060		060		060	
M7	1,00	80	7,0	5,5	6,00	10,0	30	3	070							
M8	1,25	90	8,0	6,2	6,80	14,0	35	3	080		080		080		080	
M10	1,50	100	10,0	8,0	8,50	16,0	39	3	100		100		100		100	
M12	1,75	110	12,0	9,0	10,20	18,0	44	3	120				120		120	



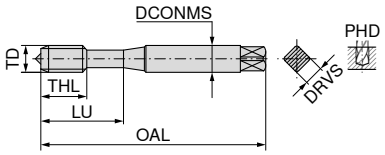
DIN 376 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	22 519 ...		22 533 ...		22 521 ...		22 523 ...	
mm	mm	mm	mm	mm	mm	mm									
M3	0,50	56	2,2		2,5	6	3	030							
M4	0,70	63	2,8	2,1	3,3	7	3	040							
M5	0,80	70	3,5	2,7	4,2	8	3	050							
M6	1,00	80	4,5	3,4	5,0	10	3	060							
M8	1,25	90	6,0	4,9	6,8	14	3	080							
M10	1,50	100	7,0	5,5	8,5	16	3	100							
M12	1,75	110	9,0	7,0	10,2	18	3	120		120		120		120	
M14	2,00	110	11,0	9,0	12,0	20	3	140				140		140	
M16	2,00	110	12,0	9,0	14,0	22	3	160		160		160		160	
M18	2,50	125	14,0	11,0	15,5	25	3	180				180		180	
M20	2,50	140	16,0	12,0	17,5	25	3	200		200		200		200	
M22	2,50	140	18,0	14,5	19,5	27	4	220				220			
M24	3,00	160	18,0	14,5	21,0	30	4	240				240			
M27	3,00	160	20,0	16,0	24,0	30	4	270							
M30	3,50	180	22,0	18,0	26,5	35	4	300							
M33	3,50	180	25,0	20,0	29,5	35	4	330							
M36	4,00	200	28,0	22,0	32,0	40	4	360							
P								12		12		15		15	
M								7		7		9		9	
K								12		12		18		18	
N												12		12	
S															
H															
O															

Blind hole – Machine taps, right hand

▲ NCW = with Weldon flat for synchronised CNC machining without length compensation chuck

M | Salo-Rex

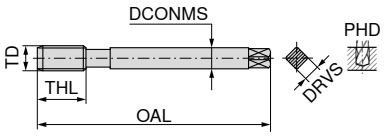


DIN 371 with reinforced shank



	UNI NCW	UNI	UNI	UNI
	C 2–3	E 1,5–2	E 1,5–2	E 1,5–2
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	TiN	vap.	vap.	TiN
	HSS-PM	HSS-E	HSS-E	HSS-E
	◁ 42° ≤ 1100 N/mm² ≤ 3xD	◁ 42° ≤ 1100 N/mm² ≤ 3xD	◁ 42° ≤ 1100 N/mm² ≤ 3xD	◁ 42° ≤ 1100 N/mm² ≤ 3xD
	22 149 ...	**22 524 ...**	**22 534 ...**	**22 526 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes				
M3	0,50	70	6,0	4,9	2,5	6	18	3	030			
M3	0,50	56	3,5	2,7	2,5	6	18	3		030		030
M4	0,70	63	4,5	3,4	3,3	7	21	3		040		040
M4	0,70	70	6,0	4,9	3,3	7	21	3	040			
M5	0,80	70	6,0	4,9	4,2	8	25	3	050	050	050	050
M6	1,00	80	6,0	4,9	5,0	10	30	3	060	060	060	060
M8	1,25	90	8,0	6,2	6,8	14	35	3	080	080	080	080
M10	1,50	100	10,0	8,0	8,5	16	39	3	100	100	100	100



DIN 376 with reduced shank

								22 149 ...	22 525 ...	22 535 ...	22 527 ...
TD mm	**TP mm**	**OAL mm**	**DCONMS mm**	**DRVS mm**	**PHD mm**	**THL mm**	**Flutes**				
M12	1,75	110	10	8,0	10,2	18	3	120			
M12	1,75	110	9	7,0	10,2	18	4		120	120	120
M14	2,00	110	11	9,0	12,0	20	4		140	140	
M16	2,00	110	12	9,0	14,0	22	3	160			
M16	2,00	110	12	9,0	14,0	22	4		160	160	160
M18	2,50	125	14	11,0	15,5	25	4		180		
M20	2,50	140	16	12,0	17,5	25	4		200	200	200
M22	2,50	140	18	14,5	19,5	27	5		220		
M24	3,00	160	18	14,5	21,0	30	5		240		

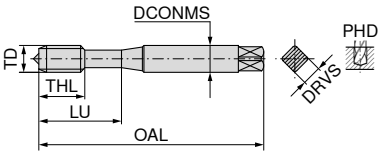
P	15	12	12	15
M	8	7	7	9
K	15	12	12	18
N	22			12
S				
H				
O				

6

Blind hole – Machine taps, right hand

▲ CNC = for synchronised CNC machining with minimum length compensation chuck

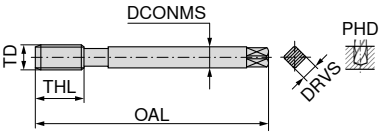
M | Salo-Rex



DIN 371 with reinforced shank

	UNI CNC	UNI CNC	UNI CNC	UNI CNC
	C 2–3	C 2–3	E 1,5–2	C 2–3
	ISO 2X 6HX	ISO 2 6H	ISO 2 6H	7G
	TiN	TiN GS	TiN GS	TiN GS
				
	HSS-E ◁ 50° ≤ 1100 N/mm² ≤ 3xD	HSS-E ◁ 45° ≤ 1100 N/mm² ≤ 3xD	HSS-E ◁ 45° ≤ 1100 N/mm² ≤ 3xD	HSS-E ◁ 45° ≤ 1100 N/mm² ≤ 3xD
	22 416 ...	**22 544 ...**	**22 546 ...**	**22 594 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes				
M3	0,50	56	3,5	2,7	2,5	6	18	3	**030**	**030**		**030**
M4	0,70	63	4,5	3,4	3,3	7	21	3	**040**	**040**		**040**
M5	0,80	70	6,0	4,9	4,2	8	25	3	**050**	**050**	**050**	**050**
M6	1,00	80	6,0	4,9	5,0	10	30	3	**060**	**060**	**060**	**060**
M8	1,25	90	8,0	6,2	6,8	14	35	3	**080**	**080**	**080**	**080**
M10	1,50	100	10,0	8,0	8,5	16	39	3	**100**	**100**	**100**	**100**



DIN 376 with reduced shank

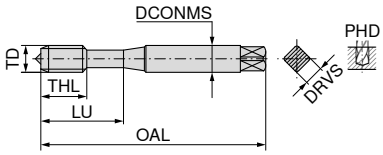
									22 417 ...	**22 545 ...**		**22 595 ...**
TD mm	**TP mm**	**OAL mm**	**DCONMS mm**	**DRVS mm**	**PHD mm**	**THL mm**	**Flutes**					
M12	1,75	110	9	7	10,2	18	3		**120**			
M12	1,75	110	9	7	10,2	18	4			**120**		**120**
M14	2,00	110	11	9	12,0	20	3		**140**			
M14	2,00	110	11	9	12,0	20	4			**140**		**140**
M16	2,00	110	12	9	14,0	22	3		**160**			
M16	2,00	110	12	9	14,0	22	4			**160**		**160**
M20	2,50	140	16	12	17,5	25	3		**200**			
M20	2,50	140	16	12	17,5	25	4			**200**		**200**
P									**15**	**15**	**15**	**15**
M									**9**	**9**	**9**	**9**
K									**18**	**18**	**18**	**18**
N									**22**	**12**	**12**	**12**
S												
H												
O												

Blind hole – Machine taps, right hand

▲ DRY = for dry machining or minimum quantity lubrication (MMS)

M | Salo-Rex

UNI DRY | C 2–3 | ISO 2 6H | TiN



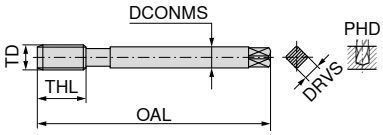


DIN 371 with reinforced shank

HSS-E
42°
≤ 1100 N/mm²
≤ 3xD

22 449 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
M5	0,80	70	6	4,9	4,2	8	25	3	**050**
M6	1,00	80	6	4,9	5,0	10	30	3	**060**
M8	1,25	90	8	6,2	6,8	14	35	3	**080**
M10	1,50	100	10	8,0	8,5	16	39	3	**100**



DIN 376 with reduced shank

22 450 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	
M12	1,75	110	9	7	10,2	18	4	**120**
M16	2,00	110	12	9	14,0	22	4	**160**
M20	2,50	140	16	12	17,5	25	4	**200**

P	**12**
M	
K	**12**
N	**22**
S	
H	
O	

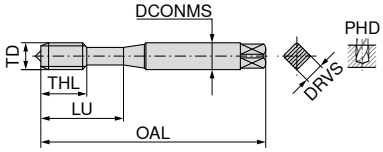
6

Blind hole – Machine taps, right hand

▲ CNC = for synchronised CNC machining with minimum length compensation chuck

▲ TS = for high-speed machining, up to 100 m/min.

M | SL



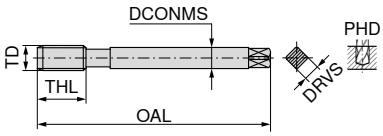
DIN 371 with reinforced shank

	ST TS	ST CNC	NEW HR	ST CNC
	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2X 6HX	ISO 2X 6HX	ISO 2 6H	ISO 2X 6HX
	TiN	TiN	AlTiN-HD	TiN



	HSS-E	HSS-E	HSS-PM	HSS-E
	◁ 15° ≤ 1050 N/mm² ≤ 2xD	◁ 15° ≤ 1100 N/mm² ≤ 2xD	◁ 25° ≤ 1400 N/mm² ≤ 2xD	◁ 15° ≤ 1100 N/mm² ≤ 2xD
	22 406 ...	**22 328 ...**	**22 469 ...**	**22 443 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes				
M3	0,50	56	3,5	2,7	2,5	6	18	2	030	030		
M3	0,50	56	3,5	2,7	2,5	11	18	3			03000	
M4	0,70	63	4,5	3,4	3,3	13	21	3			04000	
M4	0,70	63	4,5	3,4	3,3	7	21	3	040	040		
M5	0,80	70	6,0	4,9	4,2	15	25	3			05000	
M5	0,80	70	6,0	4,9	4,2	8	25	3	050	050		050
M6	1,00	80	6,0	4,9	5,0	17	30	3			06000	
M6	1,00	80	6,0	4,9	5,0	10	30	3	060	060		060
M8	1,25	90	8,0	6,2	6,8	20	35	3			08000	
M8	1,25	90	8,0	6,2	6,8	14	35	3	080	080		080
M10	1,50	100	10,0	8,0	8,5	22	39	3			10000	
M10	1,50	100	10,0	8,0	8,5	16	39	3	100	100		100
M12	1,75	110	12,0	9,0	10,2	24	44	3			12000	



DIN 376 with reduced shank

									22 407 ...	**22 329 ...**		**22 444 ...**
TD mm	**TP mm**	**OAL mm**	**DCONMS mm**	**DRVS mm**	**PHD mm**	**THL mm**	**Flutes**					
M12	1,75	110	9	7	10,2	18	3		120	120		120
M16	2,00	110	12	9	14,0	22	3		160	160		160
M20	2,50	140	16	12	17,5	25	3		200	200		
P									65	12	8	12
M										8	8	8
K									65	20		20
N									22	22	10	22
S											4	
H												
O												

Blind hole – Machine taps

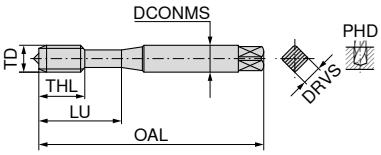
▲ LH = for left hand threads

M | Salo-Rex

ST | C 2–3 | ISO 2 6H

ST | C 2–3 | ISO 2 6H | TiN

ST LH | C 2–3 | ISO 2 6H



DIN 371 with reinforced shank

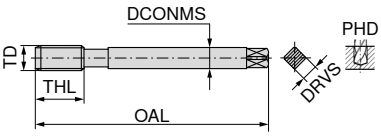


HSS-E ◁ 42° ≤ 750 N/mm² ≤ 3xD

HSS-E ◁ 42° ≤ 750 N/mm² ≤ 3xD

HSS-E ◁ 42° ≤ 750 N/mm² ≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 082 ...	22 084 ...	22 138 ...
M2	0,40	45	2,8	2,1	1,60	4,0	12	2	020	020	
M2,3	0,40	45	2,8	2,1	1,90	4,5	12	2	023		
M2,5	0,45	50	2,8	2,1	2,05	5,0	15	2	025		
M3	0,50	56	3,5	2,7	2,50	6,0	18	3	030	030	030
M3,5	0,60	56	4,0	3,0	2,90	7,0	20	3	035		
M4	0,70	63	4,5	3,4	3,30	7,0	21	3	040	040	040
M5	0,80	70	6,0	4,9	4,20	8,0	25	3	050	050	050
M6	1,00	80	6,0	4,9	5,00	10,0	30	3	060	060	060
M8	1,25	90	8,0	6,2	6,80	14,0	35	3	080	080	080
M10	1,50	100	10,0	8,0	8,50	16,0	39	3	100	100	100



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 083 ...	22 085 ...	22 139 ...
M3	0,50	56	2,2		2,5	6	3	030		
M4	0,70	63	2,8	2,1	3,3	7	3	040		
M5	0,80	70	3,5	2,7	4,2	8	3	050		
M6	1,00	80	4,5	3,4	5,0	10	3	060		
M8	1,25	90	6,0	4,9	6,8	14	3	080		
M10	1,50	100	7,0	5,5	8,5	16	3		100	
M12	1,75	110	9,0	7,0	10,2	18	3	120	120	120
M14	2,00	110	11,0	9,0	12,0	20	3	140		
M16	2,00	110	12,0	9,0	14,0	22	3	160	160	160
M18	2,50	125	14,0	11,0	15,5	25	3	180		
M20	2,50	140	16,0	12,0	17,5	25	3	200	200	200
M22	2,50	140	18,0	14,5	19,5	27	4	220		
M24	3,00	160	18,0	14,5	21,0	30	4	240		
M30	3,50	180	22,0	18,0	26,5	35	4	300		
M33	3,50	180	25,0	20,0	29,5	35	4	330		
M36	4,00	200	28,0	22,0	32,0	40	4	360		

P	12	15	12
M			
K	12	15	12
N	12	15	22
S			
H			
O			

6

Blind hole – Machine taps, right hand

▲ TS = for high-speed machining, up to 100 m/min.

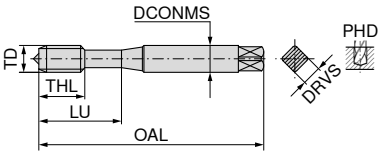
M | Salo-Rex

HR | HR | ST TS | ST TS

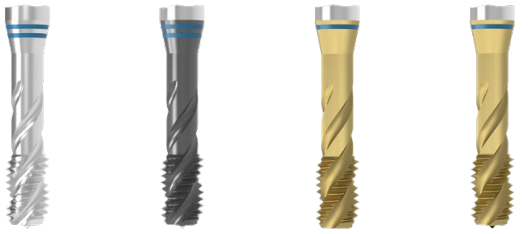
C 2–3 | C 2–3 | C 2–3 | C 2–3

ISO 2 6H | ISO 2 6H | ISO 2 6H | ISO 2 6H

OSM | TiN | TiN



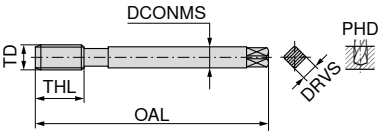
DIN 371 with reinforced shank



HSS-PM | HSS-PM | HSS-E | HSS-E

∢ 42° ≤ 1400 N/mm² ≤ 3xD | ∢ 42° ≤ 1400 N/mm² ≤ 3xD | ∢ 40° ≤ 1100 N/mm² ≤ 2xD | ∢ 40° ≤ 1100 N/mm² ≤ 2xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 498 ...	22 499 ...	22 046 ...	22 044 ...
M3	0,50	56	3,5	2,7	2,5	6	18	3	030	030		
M4	0,70	63	4,5	3,4	3,3	7	21	3	040	040		040
M5	0,80	70	6,0	4,9	4,2	8	25	3	050	050	050	050
M6	1,00	80	6,0	4,9	5,0	10	30	3	060	060	060	060
M8	1,25	90	8,0	6,2	6,8	14	35	3	080	080	080	080
M10	1,50	100	10,0	8,0	8,5	16	39	3	100	100	100	100



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 045 ...
M5	0,80	70	6	4,9	4,2	8	3	
M6	1,00	80	6	4,9	5,0	10	3	
M8	1,25	90	8	6,2	6,8	14	3	
M10	1,50	100	10	8,0	8,5	16	3	
M12	1,75	110	9	7,0	10,2	18	4	120
M16	2,00	110	12	9,0	14,0	22	4	160

P	6	8	65	65
M	6	8		
K			65	65
N	8	12	75	75
S				
H				
O				

Blind hole – Machine taps, right hand

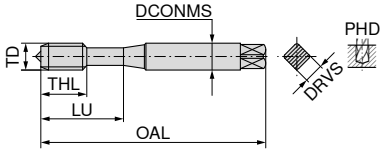
M | Salo-Rex

VA | VA | VA

C 2–3 | E 1,5–2 | C 2–3

ISO 2 6H | ISO 2 6H | ISO 2 6H

vap. | TiN GS | TiN GS

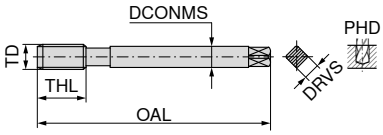


DIN 371 with reinforced shank



HSS-E ◁ 42° ≤ 900 N/mm² ≤ 3xD | HSS-E ◁ 45° ≤ 900 N/mm² ≤ 3xD | HSS-E ◁ 45° ≤ 900 N/mm² ≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 090 ...	22 042 ...	22 040 ...
M1,6	0,35	40	2,5	2,1	1,25	4	11	2			016
M2	0,40	45	2,8	2,1	1,60	4	12	2	020		020
M2,5	0,45	50	2,8	2,1	2,05	5	15	2	025		
M2,5	0,45	50	2,8	2,1	2,05	5	15	3			025
M3	0,50	56	3,5	2,7	2,50	6	18	3	030		030
M4	0,70	63	4,5	3,4	3,30	7	21	3	040		040
M5	0,80	70	6,0	4,9	4,20	8	25	3	050	050	050
M6	1,00	80	6,0	4,9	5,00	10	30	3	060	060	060
M8	1,25	90	8,0	6,2	6,80	14	35	3	080	080	080
M10	1,50	100	10,0	8,0	8,50	16	39	3	100	100	100



DIN 376 with reduced shank

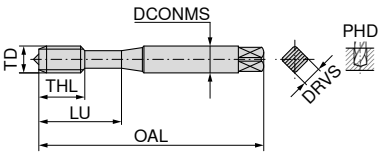
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 091 ...	22 041 ...
M12	1,75	110	9	7,0	10,2	18	4	120	120
M14	2,00	110	11	9,0	12,0	20	4	140	140
M16	2,00	110	12	9,0	14,0	22	4	160	160
M20	2,50	140	16	12,0	17,5	25	4	200	200
M22	2,50	140	18	14,5	19,5	27	5	220	
M24	3,00	160	18	14,5	21,0	30	5	240	
M30	3,50	180	22	18,0	26,5	35	5	300	

P	8	10	10
M	6	8	8
K			
N			
S			
H			
O			

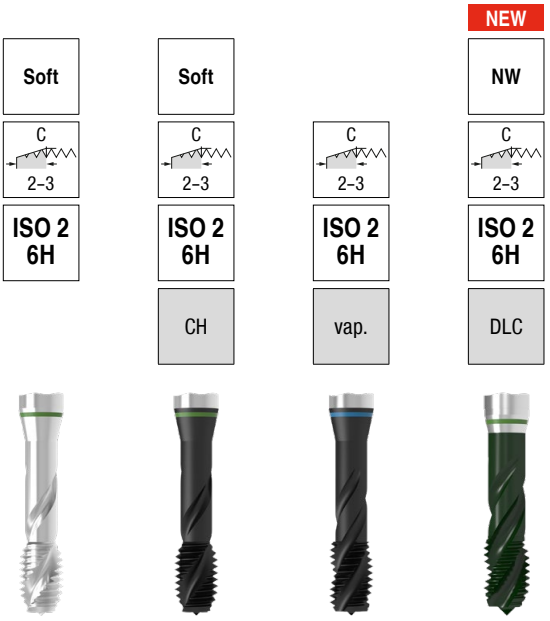
6

Blind hole – Machine taps, right hand

M | Salo-Rex



DIN 371 with reinforced shank



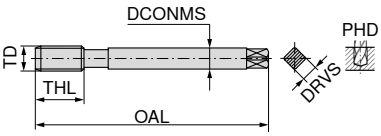
HSS-E
∢ 42°
≤ 500 N/mm²
≤ 3xD

HSS-E
∢ 42°
≤ 500 N/mm²
≤ 3xD

HSS-E
∢ 38°
≤ 500 N/mm²
≤ 3xD

HSS-E
∢ 38°
≤ 880 N/mm²
≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 326 ...		22 324 ...		22 086 ...		22 460 ...	
M2	0,40	45	2,8	2,1	1,60	4	12	2		020		020		020		02000
M2,5	0,45	50	2,8	2,1	2,05	5	15	2		025		025		025		
M2,5	0,45	50	2,8	2,1	2,05	5	14	2								02500
M3	0,50	56	3,5	2,7	2,50	6	18	2		030		030				
M3	0,50	56	3,5	2,7	2,50	6	18	3						030		03000
M4	0,70	63	4,5	3,4	3,30	7	21	2		040		040				
M4	0,70	63	4,5	3,4	3,30	7	21	3						040		04000
M5	0,80	70	6,0	4,9	4,20	8	25	2		050		050				
M5	0,80	70	6,0	4,9	4,20	8	25	3						050		05000
M6	1,00	80	6,0	4,9	5,00	10	30	2		060		060				
M6	1,00	80	6,0	4,9	5,00	10	30	3						060		06000
M8	1,25	90	8,0	6,2	6,80	14	35	2		080		080				
M8	1,25	90	8,0	6,2	6,80	14	35	3						080		08000
M10	1,50	100	10,0	8,0	8,50	16	39	2		100		100				
M10	1,50	100	10,0	8,0	8,50	16	39	3						100		10000



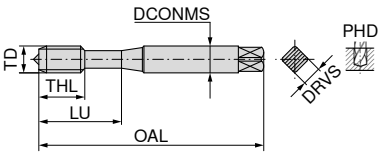
DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 087 ...		22 461 ...	
M12	1,75	110	9	7	10,2	18	3		120		12000
M14	2,00	110	11	9	12,0	20	3				14000
M16	2,00	110	12	9	14,0	22	3		160		16000
M20	2,50	140	16	12	17,5	25	3				20000

P	15			15		
M				6		
K						
N	22	22				15
S						
H						
O						

Blind hole – Machine taps, right hand

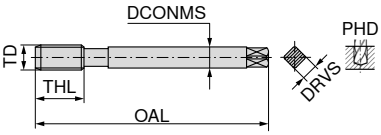
M | SL



DIN 371 with reinforced shank

	Ti	Ti	Ni	Ni
	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2X 6HX	ISO 2X 6HX	ISO 2 6H	ISO 2X 6HX
	TiN	TiCN	TiCN	TiCN
				
	HSS-PM ◁ 30° ≤ 1400 N/mm² ≤ 1,5xD	HSS-PM ◁ 15° ≤ 1200 N/mm² ≤ 2xD	HSS-PM ◁ 15° ≤ 1600 N/mm² ≤ 1,5xD	HSS-PM ◁ 15° ≤ 1600 N/mm² ≤ 2xD
	22 076 ...	**22 163 ...**	**22 073 ...**	**22 424 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes				
M3	0,50	56	3,5	2,7	2,5	11	18	2		030		030
M3	0,50	56	3,5	2,7	2,5	11	18	3			030	
M3	0,50	56	3,5	2,7	2,5	6	18	3	030			
M3,5	0,60	56	4,0	3,0	2,9	12	20	3		035		
M4	0,70	63	4,5	3,4	3,3	7	21	3	040			
M4	0,70	63	4,5	3,4	3,3	13	21	3		040	040	040
M5	0,80	70	6,0	4,9	4,2	8	25	3	050			
M5	0,80	70	6,0	4,9	4,2	15	25	3		050	050	050
M6	1,00	80	6,0	4,9	5,0	10	30	3	060			
M6	1,00	80	6,0	4,9	5,0	17	30	3		060	060	060
M8	1,25	90	8,0	6,2	6,8	14	35	3	080			
M8	1,25	90	8,0	6,2	6,8	20	35	3		080	080	080
M10	1,50	100	10,0	8,0	8,5	16	39	3	100			
M10	1,50	100	10,0	8,0	8,5	22	39	3		100	100	100
M12	1,75	110	12,0	9,0	10,2	18	44	3	120			



DIN 376 with reduced shank

									22 164 ...		**22 124 ...**	**22 425 ...**
TD mm	**TP mm**	**OAL mm**	**DCONMS mm**	**DRVS mm**	**PHD mm**	**THL mm**	**Flutes**					
M12	1,75	110	9	7,0	10,2	24	3			120		120
M12	1,75	110	9	7,0	10,2	24	4				120	
M14	2,00	110	11	9,0	12,0	26	3					140
M14	2,00	110	11	9,0	12,0	26	4				140	
M16	2,00	110	12	9,0	14,0	27	3			160		160
M16	2,00	110	12	9,0	14,0	27	5				160	
M20	2,50	140	16	12,0	17,5	32	3			200		200
M24	3,00	160	18	14,5	21,0	34	3			240		

P	**7**	**7**		
M	**7**	**7**		
K				
N		**22**	**22**	**22**
S	**5**	**5**	**2**	**2**
H				
O				

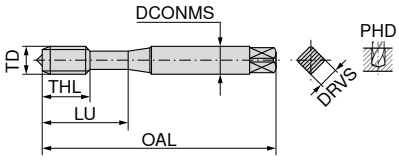
6

Blind hole – Machine taps, right hand

▲ ES = extra short

M | Salo-Rex

UNI ES | E 1,5–2 | ISO 2 6H | vap.



DIN 352 with reinforced shank



HSS-E
42°
≤ 1100 N/mm²
≤ 3xD

22 500 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
M3	0,50	40	3,5	2,7	2,5	6	18	3	**030**
M4	0,70	45	4,5	3,4	3,3	7	22	3	**040**
M5	0,80	50	6,0	4,9	4,2	9	25	3	**050**
M6	1,00	56	6,0	4,9	5,0	10	28	3	**060**
M8	1,25	63	6,0	4,9	6,8	14		3	**080**
M10	1,50	70	7,0	5,5	8,5	16		3	**100**
M12	1,75	75	9,0	7,0	10,2	18		4	**120**
M16	2,00	80	12,0	9,0	14,0	22		4	**160**

P	**12**
M	**7**
K	**12**
N	
S	
H	
O	

Blind hole – Machine taps, right hand

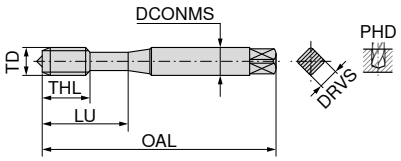
▲ ES = extra short

M | SL

ST
ES

C
2–3

ISO 2
6H



DIN 352 with reinforced shank



HSS-E
15°
≤ 750 N/mm²
≤ 2xD

22 016 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
M3	0,50	40	3,5	2,7	2,5	10	18	2	**030**
M4	0,70	45	4,5	3,4	3,3	12	22	3	**040**
M5	0,80	50	6,0	4,9	4,2	14	25	3	**050**
M6	1,00	56	6,0	4,9	5,0	16	28	3	**060**
M8	1,25	63	6,0	4,9	6,8	20		3	**080**
M10	1,50	70	7,0	5,5	8,5	22		3	**100**
M12	1,75	75	9,0	7,0	10,2	24		3	**120**

P	**12**
M	
K	**12**
N	**12**
S	
H	
O	

6

Blind hole – Machine taps, right hand

▲ EL = extra long, with double overall length

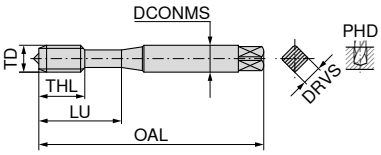
M | Salo-Rex

UNI EL | ST EL

C 2–3 | C 2–3

ISO 2 6H | ISO 2 6H

vap.



DIN 371 with reinforced shank

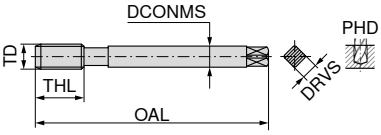




HSS-E
∢ 42°
≤ 1100 N/mm²
≤ 3xD

HSS-E
∢ 42°
≤ 750 N/mm²
≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 538 ...	22 422 ...
M3	0,50	100	3,5	2,7	2,5	6	18	3	**030**	**030**
M4	0,70	125	4,5	3,4	3,3	7	21	3	**040**	**040**
M5	0,80	140	6,0	4,9	4,2	8	25	3	**050**	**050**
M6	1,00	160	6,0	4,9	5,0	10	30	3	**060**	**060**
M8	1,25	180	8,0	6,2	6,8	14	35	3	**080**	**080**



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 539 ...	22 423 ...
M6	1,00	160	4,5	3,4	5,0	10	3	**060**	**060**
M8	1,25	180	6,0	4,9	6,8	14	3	**080**	**080**
M10	1,50	200	7,0	5,5	8,5	16	3	**100**	**100**
M12	1,75	224	9,0	7,0	10,2	18	3	**120**	**120**
M14	2,00	224	11,0	9,0	12,0	20	3	**140**	**140**
M16	2,00	224	12,0	9,0	14,0	22	3	**160**	**160**
M18	2,50	250	14,0	11,0	15,5	25	3	**180**	**180**
M20	2,50	280	16,0	12,0	17,5	25	3	**200**	**200**

P	**12**	**12**
M	**7**	
K	**12**	**12**
N		**22**
S		
H		
O		

Blind hole – Machine taps, right hand

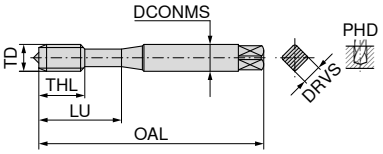
▲ EL = extra long, with double overall length

M | SL

ST
EL

E
1,5–2

ISO 2
6H



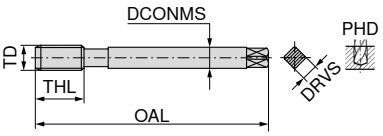
DIN 371 with reinforced shank



HSS-E
∢ 15°
≤ 750 N/mm²
≤ 2xD

22 078 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
M3	0,50	100	3,5	2,7	2,5	11	18	2	**030**
M4	0,70	125	4,5	3,4	3,3	13	21	3	**040**
M5	0,80	140	6,0	4,9	4,2	15	25	3	**050**
M6	1,00	160	6,0	4,9	5,0	17	30	3	**060**
M8	1,25	180	8,0	6,2	6,8	20	35	3	**080**



DIN 376 with reduced shank

22 080 ...

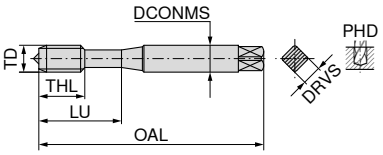
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	
M6	1,00	160	4,5	3,4	5,0	17	3	**060**
M8	1,25	180	6,0	4,9	6,8	20	3	**080**
M10	1,50	200	7,0	5,5	8,5	22	3	**100**
M12	1,75	224	9,0	7,0	10,2	24	3	**120**
M14	2,00	224	11,0	9,0	12,0	26	3	**140**
M16	2,00	224	12,0	9,0	14,0	27	3	**160**
M20	2,50	280	16,0	12,0	17,5	32	3	**200**

P	**12**
M	
K	**12**
N	**12**
S	
H	
O	

Blind hole – Machine taps, right hand

▲ NC = for synchronised CNC machining with minimum length compensation chuck

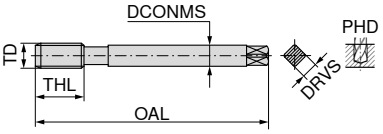
M



DIN 371 with reinforced shank

	UNI	UNI	UNI	UNI	UNI NC
	C 2–3	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	vap.	TiN	TiN	TiCN	TiN GS
					
	HSS-E ◁ 35° ≤ 1000 N/mm² ≤ 2,5xD	HSS-E ◁ 35° ≤ 1000 N/mm² ≤ 2,5xD	HSS-PM ◁ 50° ≤ 1000 N/mm² ≤ 2,5xD	HSS-E ◁ 45° ≤ 1000 N/mm² ≤ 3xD	HSS-E ◁ 45° ≤ 1000 N/mm² ≤ 3xD
	23 118 ...	**23 120 ...**	**23 026 ...**	**23 122 ...**	**23 124 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes					
M2	0,40	45	2,8	2,1	1,60	4	12	2	**020**	**020**			
M2,5	0,45	50	2,8	2,1	2,05	5	14	2	**025**	**025**			
M3	0,50	56	3,5	2,7	2,50	6	18	3	**030**	**030**	**030**	**030**	**030**
M4	0,70	63	4,5	3,4	3,30	7	21	3	**040**	**040**	**040**	**040**	**040**
M5	0,80	70	6,0	4,9	4,20	8	25	3	**050**	**050**	**050**	**050**	**050**
M6	1,00	80	6,0	4,9	5,00	10	30	3	**060**	**060**	**060**	**060**	**060**
M8	1,25	90	8,0	6,2	6,80	14	35	3	**080**	**080**	**080**	**080**	**080**
M10	1,50	100	10,0	8,0	8,50	16	39	3	**100**	**100**	**100**	**100**	**100**



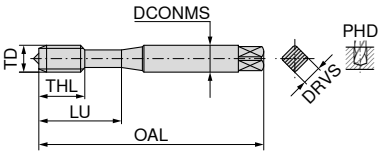
DIN 376 with reduced shank

									23 119 ...	**23 121 ...**	**23 027 ...**	**23 123 ...**	**23 125 ...**
TD mm	**TP mm**	**OAL mm**	**DCONMS mm**	**DRVS mm**	**PHD mm**	**THL mm**	**Flutes**						
M3	0,50	56	2,2		2,5	6	3		**030**				
M4	0,70	63	2,8	2,1	3,3	7	3		**040**				
M5	0,80	70	3,5	2,7	4,2	8	3		**050**				
M6	1,00	80	4,5	3,4	5,0	10	3		**060**				
M8	1,25	90	6,0	4,9	6,8	14	3		**080**				
M10	1,50	100	7,0	5,5	8,5	16	3		**100**				
M12	1,75	110	9,0	7,0	10,2	18	3		**120**	**120**			
M12	1,75	110	9,0	7,0	10,2	18	4				**120**	**120**	**120**
M14	2,00	110	11,0	9,0	12,0	20	3			**14000**			
M14	2,00	110	11,0	9,0	12,0	20	4				**140**		
M16	2,00	110	12,0	9,0	14,0	22	3		**160**	**160**			
M16	2,00	110	12,0	9,0	14,0	22	4				**160**	**160**	**160**
M18	2,50	125	14,0	11,0	15,5	25	3			**18000**			
M20	2,50	140	16,0	12,0	17,5	25	3		**200**	**200**	**200**		
M20	2,50	140	16,0	12,0	17,5	25	4					**200**	**200**
M22	2,50	140	18,0	14,5	19,5	27	4			**22000**			
M24	3,00	160	18,0	14,5	21,0	34	4			**240**			
M27	3,00	160	20,0	16,0	24,0	30	4			**27000**			
M30	3,50	180	22,0	18,0	26,5	35	4			**30000**			
M33	3,50	180	25,0	20,0	29,5	35	4			**33000**			
M36	4,00	200	28,0	22,0	32,0	40	4			**36000**			
P									**12**	**15**	**15**	**15**	**15**
M									**7**	**9**	**9**	**9**	**9**
K									**12**	**18**	**18**	**18**	**18**
N										**12**	**12**	**12**	**12**
S													
H													
O													

Blind hole – Machine taps, right hand

▲ NCW = with Weldon flat for synchronised CNC machining without length compensation chuck

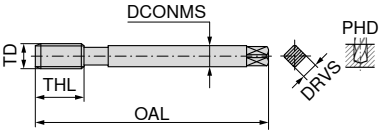
M



DIN 371 with reinforced shank

	UNI NCW	FE	FE-HF	VA
	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	TiCN		TiCN	
				
	HSS-PM ◁ 35° ≤ 1000 N/mm² ≤ 2,5xD	HSS-E ◁ 35° ≤ 850 N/mm² ≤ 2,5xD	HSS-E ◁ 35° ≤ 1100 N/mm² ≤ 2,5xD	HSS-E ◁ 35° ≤ 1200 N/mm² ≤ 2,5xD
	23 126 ...	**23 216 ...**	**23 312 ...**	**23 414 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes				
M2	0,40	45	2,8	2,1	1,60	4	12	2		020		020
M2,5	0,45	50	2,8	2,1	2,05	5	14	2		025		025
M3	0,50	56	3,5	2,7	2,50	6	18	3		030	030	030
M3	0,50	70	6,0	4,9	2,50	6	18	3	030			
M4	0,70	63	4,5	3,4	3,30	7	21	3		040	040	040
M4	0,70	70	6,0	4,9	3,30	7	21	3	040			
M5	0,80	70	6,0	4,9	4,20	8	25	3	050	050	050	050
M6	1,00	80	6,0	4,9	5,00	10	30	3	060	060	060	060
M8	1,25	90	8,0	6,2	6,80	14	35	3	080	080	080	080
M10	1,50	100	10,0	8,0	8,50	16	39	3	100	100	100	100



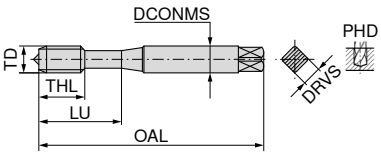
DIN 376 with reduced shank

									23 127 ...	**23 217 ...**	**23 313 ...**	**23 415 ...**
TD mm	**TP mm**	**OAL mm**	**DCONMS mm**	**DRVS mm**	**PHD mm**	**THL mm**	**Flutes**					
M12	1,75	110	10	8,0	10,2	18	3		120			
M12	1,75	110	9	7,0	10,2	18	3			120	120	120
M14	2,00	110	11	9,0	12,0	20	3			140		
M16	2,00	110	12	9,0	14,0	22	3		160	160	160	160
M20	2,50	140	16	12,0	17,5	25	3			200	200	200
M24	3,00	160	18	14,5	21,0	30	4					240
P									**15**	**12**	**15**	**8**
M									**8**			**6**
K									**15**	**12**	**15**	
N									**22**	**22**	**24**	**22**
S												
H												
O												

6

Blind hole – Machine taps, right hand

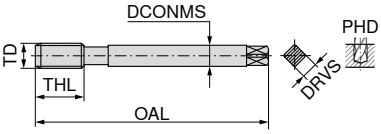
M



DIN 371 with reinforced shank

	VA	VA	VA	AL	AL
	C 2–3	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	TiN		TiN		CrN
					
	HSS-E ◁ 45° ≤ 1200 N/mm² ≤ 3xD	HSS-PM ◁ 40° ≤ 1200 N/mm² ≤ 2,5xD	HSS-PM ◁ 40° ≤ 1200 N/mm² ≤ 2,5xD	HSS-E ◁ 35° ≤ 500 N/mm² ≤ 2,5xD	HSS-E ◁ 35° ≤ 500 N/mm² ≤ 2,5xD
	23 416 ...	**23 426 ...**	**23 456 ...**	**23 616 ...**	**23 614 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes									
M2	0,40	45	2,8	2,1	1,60	4	12	2	**020**								
M2,5	0,45	50	2,8	2,1	2,05	5	14	2	**025**								
M3	0,50	56	3,5	2,7	2,50	6	18	3	**030**		**030**		**030**		**030**		**030**
M4	0,70	63	4,5	3,4	3,30	7	21	3	**040**		**040**		**040**		**040**		**040**
M5	0,80	70	6,0	4,9	4,20	8	25	3	**050**		**050**		**050**		**050**		**050**
M6	1,00	80	6,0	4,9	5,00	10	30	3	**060**		**060**		**060**		**060**		**060**
M8	1,25	90	8,0	6,2	6,80	14	35	3	**080**		**080**		**080**		**080**		**080**
M10	1,50	100	10,0	8,0	8,50	16	39	3	**100**		**100**		**100**		**100**		**100**



DIN 376 with reduced shank

								23 417 ...		**23 427 ...**		**23 457 ...**		**23 617 ...**		**23 615 ...**	
TD mm	**TP mm**	**OAL mm**	**DCONMS mm**	**DRVS mm**	**PHD mm**	**THL mm**	**Flutes**										
M12	1,75	110	9	7,0	10,2	18	3			**120**		**120**		**120**		**120**	
M12	1,75	110	9	7,0	10,2	18	4	**120**									
M14	2,00	110	11	9,0	12,0	20	4			**140**							
M16	2,00	110	12	9,0	14,0	22	3			**160**		**160**					
M16	2,00	110	12	9,0	14,0	22	4	**160**									
M20	2,50	140	16	12,0	17,5	25	3			**200**		**200**					
M20	2,50	140	16	12,0	17,5	25	4	**200**									
M24	3,00	160	18	14,5	21,0	30	4			**240**							

P	**10**	**8**	**10**			
M	**8**	**6**	**8**			
K						
N	**24**	**22**	**24**	**15**	**20**	
S						
H						
O						

Through hole / Blind hole – Machine taps, right hand

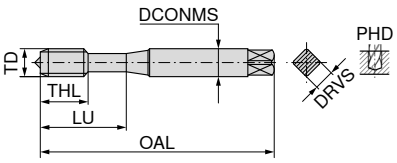
M | TWIN

ST | HR | AMPCO

C 2–3

ISO 2X 6HX

nitr.



DIN 371 with reinforced shank



HSS-E | HSS-E | HSS-PM

0°
≤ 750 N/mm² | ≤ 1400 N/mm² | ≤ 800 N/mm²
≤ 2xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 028 ...	22 006 ...		22 030 ...	
M1,2	0,25	40	2,5	2,1	0,95	5	13	2	**012** [1]				
M1,4	0,30	40	2,5	2,1	1,10	6	13	2	**014** [1]				
M1,6	0,35	40	2,5	2,1	1,25	6	11	2	**016**				
M1,7	0,35	40	2,5	2,1	1,35	6	11	2	**017**				
M1,8	0,35	40	2,5	2,1	1,45	6	11	2	**018**				
M2	0,40	45	2,8	2,1	1,60	7	12	3	**020**				
M2,2	0,45	45	2,8	2,1	1,75	7	12	3	**022**				
M2,3	0,40	45	2,8	2,1	1,90	7	12	3	**023**				
M2,5	0,45	50	2,8	2,1	2,05	9	14	3	**025**				
M2,6	0,45	50	2,8	2,1	2,15	9	14	3	**026**				
M3	0,50	56	3,5	2,7	2,50	11	18	3	**030**		**030**		**030**
M3,5	0,60	56	4,0	3,0	2,90	12	20	3	**035**				
M4	0,70	63	4,5	3,4	3,30	13	21	3	**040**		**040**		**040**
M5	0,80	70	6,0	4,9	4,20	15	25	3	**050**		**050**		**050**
M6	1,00	80	6,0	4,9	5,00	17	30	3	**060**		**060**		**060**
M7	1,00	80	7,0	5,5	6,00	17	30	3	**070**				
M8	1,25	90	8,0	6,2	6,80	20	35	3	**080**		**080**		**080**
M10	1,50	100	10,0	8,0	8,50	22	39	3	**100**		**100**		**100**

P	**12**	**6**	
M			
K	**12**	**16**	
N		**12**	**8**
S			
H			
O			

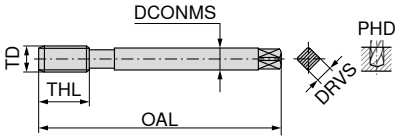
1) Tol. 4H/5H ≤ M1.4

DIN 376 can be found on the next page

6

Through hole / Blind hole – Machine taps, right hand

M | TWIN



DIN 376 with reduced shank

ST | HR | AMPCO

C 2–3

ISO 2X 6HX

nitr.



HSS-E | HSS-E | HSS-PM

0° | 0° | 0°

≤ 750 N/mm² | ≤ 1400 N/mm² | ≤ 800 N/mm²

≤ 2xD | ≤ 2xD | ≤ 2xD

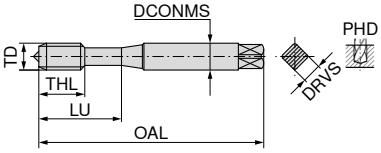
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 029 ...	22 007 ...	22 031 ...
M4	0,70	63	2,8	2,1	3,3	13	3	040		
M5	0,80	70	3,5	2,7	4,2	15	3	050		
M6	1,00	80	4,5	3,4	5,0	17	3	060		
M8	1,25	90	6,0	4,9	6,8	20	3	080		
M10	1,50	100	7,0	5,5	8,5	22	3	100		
M12	1,75	110	9,0	7,0	10,2	24	3	120	120	
M12	1,75	110	9,0	7,0	10,2	24	4			120
M14	2,00	110	11,0	9,0	12,0	26	3	140		
M16	2,00	110	12,0	9,0	14,0	27	3	160	160	
M16	2,00	110	12,0	9,0	14,0	27	4			160
M18	2,50	125	14,0	11,0	15,5	30	4	180		
M20	2,50	140	16,0	12,0	17,5	32	4	200		200
M22	2,50	140	18,0	14,5	19,5	32	4	220		
M24	3,00	160	18,0	14,5	21,0	34	4	240		240
M33	3,50	180	25,0	20,0	29,5	40	4	330		
P								12	6	
M										
K								12	16	
N									12	8
S										
H										
O										

Through hole / Blind hole – Machine taps, right hand

M | TWIN

GG | C 2–3 | ISO 2X 6HX | nitr.

GG | C 2–3 | ISO 2X 6HX | nitr.



DIN 371 with reinforced shank

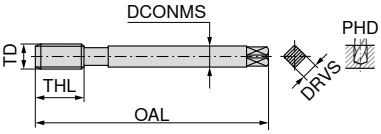




HSS-E
0°
≤ 1050 N/mm²
≤ 2xD

HSS-E
0°
≤ 1050 N/mm²
≤ 2xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 032 ...	22 036 ...
M2	0,40	45	2,8	2,1	1,60	7	12	3	020	
M2,5	0,45	50	2,8	2,1	2,05	9	14	3	025	
M3	0,50	56	3,5	2,7	2,50	11	18	3	030	
M3,5	0,60	56	4,0	3,0	2,90	12	20	3	035	
M4	0,70	63	4,5	3,4	3,30	13	21	3	040	
M5	0,80	70	6,0	4,9	4,20	15	25	3	050	050
M6	1,00	80	6,0	4,9	5,00	17	30	3	060	060
M8	1,25	90	8,0	6,2	6,80	20	35	3	080	080
M10	1,50	100	10,0	8,0	8,50	22	39	3	100	100



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 033 ...	22 037 ...
M6	1,00	80	4,5	3,4	5,0	17	3	060	
M8	1,25	90	6,0	4,9	6,8	20	3	080	
M10	1,50	100	7,0	5,5	8,5	22	3	100	
M12	1,75	110	9,0	7,0	10,2	24	3	120	120
M14	2,00	110	11,0	9,0	12,0	26	3	140	140
M16	2,00	110	12,0	9,0	14,0	27	3	160	160
M18	2,50	125	14,0	11,0	15,5	30	4	180	
M20	2,50	140	16,0	12,0	17,5	32	4	200	200
M22	2,50	140	18,0	14,5	19,5	32	4	220	
M24	3,00	160	18,0	14,5	21,0	34	4	240	

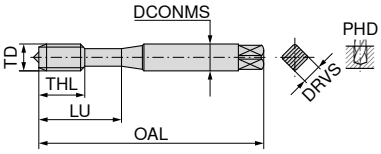
P		
M		
K	16	16
N	12	12
S		
H		
O		

Through hole / Blind hole – Machine taps, right hand

M | TWIN

HT | D 4–5 | ISO 2X 6HX | OSM

HT | C 2–3 | ISO 2X 6HX | TiCN



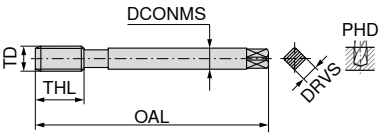
DIN 371 with reinforced shank





	Solid carbide	HSS-PM
	0° ≤ 63 HRC ≤ 1,5xD	0° 44 - 52 HRC ≤ 1,5xD
	22 806 ...	**22 227 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes		
M3	0,50	63	4,5	3,4	2,55	6	18	4	**030**	
M4	0,70	63	4,5	3,4	3,40	8	20	4	**040**	
M5	0,80	70	6,0	4,9	4,30	10	26	4	**050**	
M6	1,00	80	6,0	4,9	5,00	10	30	4		**060**
M6	1,00	80	6,0	4,9	5,10	12	28	4	**060**	
M8	1,25	90	8,0	6,2	6,80	14	35	5		**080**
M8	1,25	90	8,0	6,2	6,90	15	35	5	**080**	
M10	1,50	100	10,0	8,0	8,50	18	38	5	**100**	
M10	1,50	100	10,0	8,0	8,50	16	39	5		**100**
M12	1,75	110	12,0	9,0	10,40	21	41	5	**120**	
M16	2,00	110	16,0	12,0	14,20	24	44	6	**160**	



DIN 376 with reduced shank

	22 228 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	
M12	1,75	110	9	7	10,4	18	5	**120**
M16	2,00	110	12	9	14,2	22	6	**160**

P		
M		
K		
N		**22**
S		
H	**2**	**2**
O		

Through hole / Blind hole – Machine taps, right hand

▲ EL = extra long, with double overall length

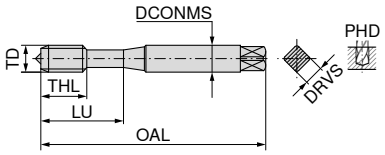
M | TWIN

HR EL

C 2–3

ISO 2X 6HX

nitr.



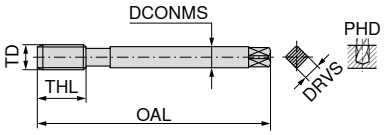
DIN 371 with reinforced shank



HSS-E
0°
≤ 1400 N/mm²
≤ 2xD

22 122 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
M3	0,50	100	3,5	2,7	2,5	11	18	3	**030**
M4	0,70	125	4,5	3,4	3,3	13	21	3	**040**
M5	0,80	140	6,0	4,9	4,2	15	25	3	**050**
M6	1,00	160	6,0	4,9	5,0	17	30	3	**060**
M8	1,25	180	8,0	6,2	6,8	20	35	3	**080**



DIN 376 with reduced shank

22 123 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	
M10	1,50	200	7	5,5	8,5	22	3	**100**
M12	1,75	224	9	7,0	10,2	24	3	**120**
M16	2,00	224	12	9,0	14,0	27	3	**160**
M20	2,50	280	16	12,0	17,5	32	4	**200**

P	**6**
M	
K	**16**
N	**22**
S	
H	
O	

Through hole / Blind hole – Machine taps, right hand

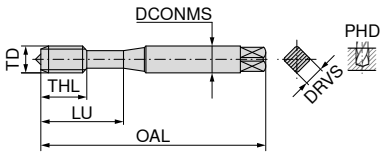
M

GG

C
2–3

ISO 2X
6HX

TiCN



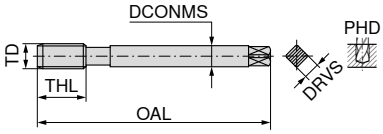
DIN 371 with reinforced shank



HSS-E
0°
≤ 900 N/mm²
≤ 2xD

23 512 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
M3	0,50	56	3,5	2,7	2,5	11	18	3	**030**
M4	0,70	63	4,5	3,4	3,3	13	21	3	**040**
M5	0,80	70	6,0	4,9	4,2	15	25	3	**050**
M6	1,00	80	6,0	4,9	5,0	17	30	3	**060**
M8	1,25	90	8,0	6,2	6,8	20	35	3	**080**
M10	1,50	100	10,0	8,0	8,5	22	39	3	**100**



DIN 376 with reduced shank

23 513 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	
M12	1,75	110	9	7	10,2	24	3	**120**

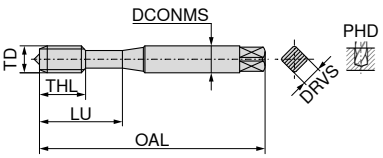
P	
M	
K	**20**
N	**24**
S	
H	
O	

Through hole / Blind hole – Machine thread formers, right hand

M | Spanlos

EC | C 2–3 | ISO 2X 6HX | HCr

EC | C 2–3 | ISO 2X 6HX | TiN



DIN 2174 with reinforced shank



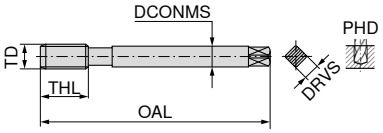


HSS-E
≤ 1100 N/mm²
≤ 1,5xD

HSS-E
≤ 1100 N/mm²
≤ 1,5xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	22 128 ...	22 100 ...
M1	0,25	40	2,5	2,1	0,90	5	6,5		010 [1]
M1,2	0,25	40	2,5	2,1	1,10	5	6,5		012 [1]
M1,4	0,30	40	2,5	2,1	1,28	6	9,0		014 [1]
M1,6	0,35	40	2,5	2,1	1,47	6	9,0		016
M1,7	0,35	40	2,5	2,1	1,57	6	9,0		017
M2	0,40	45	2,8	2,1	1,85	7	10,0	020	020
M2,5	0,45	50	2,8	2,1	2,33	9	14,0	025	025
M2,6	0,45	50	2,8	2,1	2,43	9	14,0		026
M3	0,50	56	3,5	2,7	2,80	11	18,0	030	030
M3,5	0,60	56	4,0	3,0	3,25	12	20,0		035
M4	0,70	63	4,5	3,4	3,70	13	21,0	040	040
M5	0,80	70	6,0	4,9	4,65	15	25,0	050	050
M6	1,00	80	6,0	4,9	5,60	17	30,0	060	060
M8	1,25	90	8,0	6,2	7,40	20	35,0		080
M8	1,25	90	8,0	6,2	7,45	20	35,0	080	
M10	1,50	100	10,0	8,0	9,35	22	39,0	100	100

1) Tol. ISO 1X 4HX ≤ M1.4



DIN 2174 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	22 101 ...
M12	1,75	110	9	7	11,25	24	120
M16	2,00	110	12	9	15,10	27	160

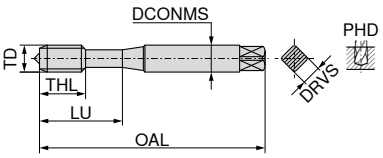
P	18	18
M	10	10
K	10	10
N	18	22
S		
H		
O		

6

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

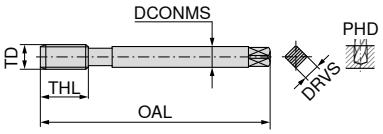
M | Spanlos



DIN 2174 with reinforced shank

	EC SN	EC SN	EC SN	EC SN	EC SN
	C 2–3	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2X 6HX	ISO 2X 6HX	ISO 3X 6GX	ISO 2X 6HX	ISO 2X 6HX
	nitr.	HCr	TiN	TiN GS	TiN
					
	HSS-E ≤ 1100 N/mm² ≤ 3xD	HSS-E ≤ 1100 N/mm² ≤ 3xD	HSS-E ≤ 1100 N/mm² ≤ 3xD	HSS-E ≤ 1100 N/mm² ≤ 3xD	HSS-E ≤ 1100 N/mm² ≤ 3xD
	22 104 ...	**22 107 ...**	**22 108 ...**	**22 154 ...**	**22 105 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes									
M2	0,40	45	2,8	2,1	1,85	7	10	3									020
M2,5	0,45	50	2,8	2,1	2,33	9	14	3									025
M3	0,50	56	3,5	2,7	2,80	11	18	3		030		030		030		030	030
M3,5	0,60	56	4,0	3,0	3,25	12	20	3									035
M4	0,70	63	4,5	3,4	3,70	13	21	4		040		040		040		040	040
M5	0,80	70	6,0	4,9	4,65	15	25	4		050		050		050		050	
M5	0,80	70	6,0	4,9	4,65	15	25	5									050
M6	1,00	80	6,0	4,9	5,60	17	30	4		060		060		060		060	060
M8	1,25	90	8,0	6,2	7,45	20	35	5		080		080		080		080	080
M10	1,50	100	10,0	8,0	9,35	22	39	6		100		100		100		100	100



DIN 2174 with reduced shank

		22 106 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes										
M12	1,75	110	9	7	11,25	24	6										120
M14	2,00	110	11	9	13,10	26	5										140
M16	2,00	110	12	9	15,10	27	7										160

P									12		18		18		18		18
M											10		10		10		10
K									8		10		10		10		10
N									12		18		22		22		22
S																	
H																	
O																	

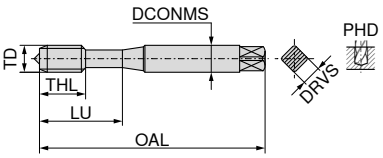
Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

M | Spanlos

NEO SN | C 2–3 | ISO 2X 6HX | TiN

NEO SN | C 2–3 | ISO 2X 6HX | TiN



DIN 2174 with reinforced shank

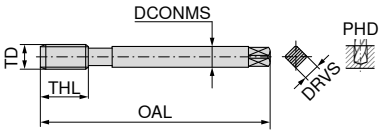




HSS-PM
≤ 1100 N/mm²
≤ 3xD

HSS-PM
≤ 1100 N/mm²
≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 452 ...		22 453 ...	
M3	0,50	56	3,5	2,7	2,80	11	18	4	**030**			
M4	0,70	63	4,5	3,4	3,70	13	21	4	**040**			
M5	0,80	70	6,0	4,9	4,65	15	25	4	**050**			**050**
M6	1,00	80	6,0	4,9	5,60	17	30	5	**060**			**060**
M8	1,25	90	8,0	6,2	7,45	20	35	5	**080**			**080**
M10	1,50	100	10,0	8,0	9,35	22	39	5	**100**			**100**



DIN 2174 with reduced shank

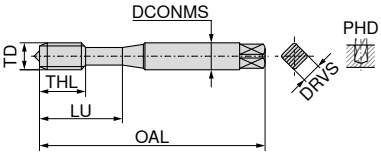
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 452 ...		22 454 ...	
M12	1,75	110	9	7	11,25	24	6	**120**			**120**
M16	2,00	110	12	9	15,10	27	6	**160**			**160**
P								**18**			**18**
M								**10**			**10**
K								**10**			**10**
N								**22**			**22**
S											
H											
O											

6

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

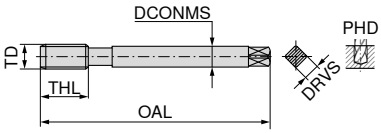
M



DIN 2174 with reinforced shank

	UNI	UNI	UNI SN	UNI SN
	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2X 6HX	ISO 2X 6HX	ISO 2X 6HX	ISO 2X 6HX
	TiN	CrN	TiN	CrN
				
	HSS-E ◁ 0° ≤ 850 N/mm² ≤ 3xD	HSS-E ◁ 0° ≤ 850 N/mm² ≤ 3xD	HSS-E ◁ 0° ≤ 850 N/mm² ≤ 3xD	HSS-E ◁ 0° ≤ 850 N/mm² ≤ 3xD
	23 810 ...	**23 812 ...**	**23 814 ...**	**23 816 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes				
M2	0,40	45	2,8	2,1	1,85	7	12		020	020		
M2	0,40	45	2,8	2,1	1,85	7	12	3			020	020
M2,5	0,45	50	2,8	2,1	2,33	9	14	3			025	025
M2,5	0,45	50	2,8	2,1	2,33	9	14		025	025		
M3	0,50	56	3,5	2,7	2,80	11	18	3			030	030
M3	0,50	56	3,5	2,7	2,80	11	18		030	030		
M4	0,70	63	4,5	3,4	3,70	13	21	4			040	040
M4	0,70	63	4,5	3,4	3,70	13	21		040	040		
M5	0,80	70	6,0	4,9	4,65	15	25	4			050	050
M5	0,80	70	6,0	4,9	4,65	15	25		050	050		
M6	1,00	80	6,0	4,9	5,60	17	30	4			060	060
M6	1,00	80	6,0	4,9	5,60	17	30		060	060		
M8	1,25	90	8,0	6,2	7,45	20	35	5			080	080
M8	1,25	90	8,0	6,2	7,45	20	35		080	080		
M10	1,50	100	10,0	8,0	9,35	22	39	5			100	100
M10	1,50	100	10,0	8,0	9,35	22	39		100	100		



DIN 2174 with reduced shank

								23 811 ...	23 813 ...	23 815 ...	23 817 ...
M12	1,75	110	9	7,0	11,25	24		120	120		
M12	1,75	110	9	7,0	11,25	24	5			120	120
M16	2,00	110	12	9,0	15,10	27	6			160	160
M16	2,00	110	12	9,0	15,10	27		160	160		
M18	2,50	125	14	11,0	16,80	30	6			18000	
M20	2,50	140	16	12,0	18,80	32	6			20000	
M24	3,00	160	18	14,5	22,60	34	6			24000	

P	**18**	**18**	**18**	**18**
M	**10**	**10**	**10**	**10**
K	**10**		**10**	
N	**22**	**18**	**22**	**18**
S				
H				
O				

Through hole – machine taps for wire thread inserts, right hand

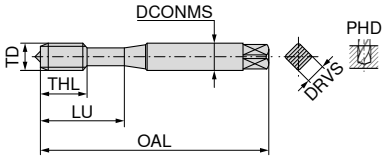
EG M | Stabil

UNI

B
4–5

6H mod

nitr. + vap.



DIN 40435 with reinforced shank

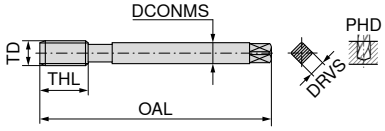


HSS-E

0°
≤ 1100 N/mm²
≤ 4xD

22 662 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
EG-M2,5	0,45	56	3,5	2,7	2,65	11	18	3	**025**
EG-M3	0,50	63	4,5	3,4	3,15	10	21	3	**030**
EG-M4	0,70	70	6,0	4,9	4,20	12	25	3	**040**
EG-M5	0,80	80	6,0	4,9	5,25	13	30	3	**050**
EG-M6	1,00	90	8,0	6,2	6,30	17	35	3	**060**
EG-M8	1,25	100	10,0	8,0	8,40	18	39	3	**080**



DIN 40435 with reduced shank

22 663 ...

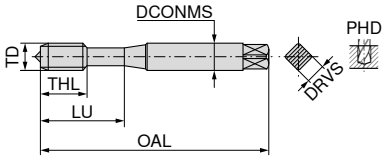
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	
EG-M10	1,50	100	9	7,0	10,50	22	3	**100**
EG-M12	1,75	110	11	9,0	12,50	26	3	**120**
EG-M16	2,00	125	14	11,0	16,50	27	3	**160**
EG-M20	2,50	160	18	14,5	20,75	34	3	**200**

P	**12**
M	**7**
K	**12**
N	
S	
H	
O	

6

Blind hole – machine taps for wire thread inserts, right hand

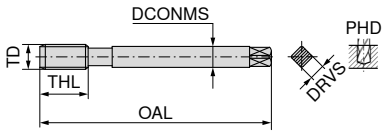
EG M | Salo-Rex



DIN 40435 with reinforced shank

	Soft	UNI
	C 2–3	C 2–3
	6H mod	6H mod
	CH	vap.
		
	HSS-E	HSS-E
	42° ≤ 500 N/mm² ≤ 3xD	42° ≤ 1100 N/mm² ≤ 3xD
	22 280 ...	**22 664 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes		
EG-M2,5	0,45	56	3,5	2,7	2,65	5	18	2	025	
EG-M2,5	0,45	56	3,5	2,7	2,65	5	18	3		025
EG-M3	0,50	63	4,5	3,4	3,15	5	21	2	030	
EG-M3	0,50	63	4,5	3,4	3,15	5	21	3		030
EG-M4	0,70	70	6,0	4,9	4,20	8	25	2	040	
EG-M4	0,70	70	6,0	4,9	4,20	8	25	3		040
EG-M5	0,80	80	6,0	4,9	5,25	8	30	2	050	
EG-M5	0,80	80	6,0	4,9	5,25	8	30	3		050
EG-M6	1,00	90	8,0	6,2	6,30	10	35	2	060	
EG-M6	1,00	90	8,0	6,2	6,30	10	35	3		060
EG-M8	1,25	100	10,0	8,0	8,40	16	39	2	080	
EG-M8	1,25	100	10,0	8,0	8,40	16	39	3		080



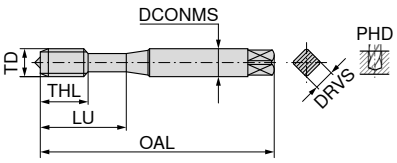
DIN 40435 with reduced shank

									22 665 ...
EG-M10	1,50	100	9	7,0	10,50	15	5		100
EG-M12	1,75	110	11	9,0	12,50	20	4		120
EG-M16	2,00	125	14	11,0	16,50	20	5		160
EG-M20	2,50	160	18	14,5	20,75	30	4		200

P		12
M		7
K		12
N	22	
S		
H		
O		

Through hole – Machine taps, right hand

MF | Stabil



DIN 371 with reinforced shank

	UNI	UNI
	B 4–5	B 4–5
	ISO 2 6H	ISO 2 6H
	nitr. + vap.	TiN
		
	HSS-E	HSS-E
	0° ≤ 1100 N/mm² ≤ 4xD	0° ≤ 1100 N/mm² ≤ 4xD
	22 590 ...	**22 550 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes		
M4x0,5	0,50	63	4,5	3,4	3,5	10	21	3	**040**	**040**
M5x0,5	0,50	70	6,0	4,9	4,5	11	25	3	**050**	**050**
M6x0,5	0,50	80	6,0	4,9	5,5	13	30	3	**060**	**060**
M6x0,75	0,75	80	6,0	4,9	5,2	13	30	3	**062**	**062**
M8x1	1,00	90	8,0	6,2	7,0	17	35	3	**084**	**080**
M10x1	1,00	90	10,0	8,0	9,0	18	35	4	**102**	**100**

P	**12**	**15**
M	**7**	**9**
K	**12**	**18**
N		**12**
S		
H		
O		

DIN 374 can be found on the next page

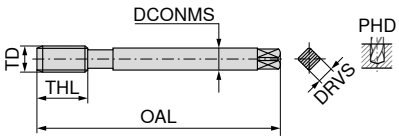
6

Through hole – Machine taps, right hand

▲ TS = for high-speed machining, up to 100 m/min.

▲ LH = for left hand threads

MF | Stabil



DIN 374 with reduced shank

	ST LH	ST TS	UNI	UNI	NW
	B 4–5	B 4–5	B 4–5	B 4–5	B 4–5
	ISO 2 6H	ISO 2X 6HX	ISO 2 6H	ISO 2 6H	ISO 2X 6HX
		TiN	nitr. + vap.	TiN	DLC
	NEW				NEW
	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E
	0° ≤ 750 N/mm² ≤ 4xD	0° ≤ 1100 N/mm² ≤ 4xD	0° ≤ 1100 N/mm² ≤ 4xD	0° ≤ 1100 N/mm² ≤ 4xD	0° ≤ 880 N/mm² ≤ 4xD
	22 210 ...	22 193 ...	22 551 ...	22 552 ...	22 466 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes									
M6x0,5	0,50	80	4,5	3,4	5,5	13	3					060				
M6x0,75	0,75	80	4,5	3,4	5,2	13	3					062				
M8x0,75	0,75	80	6,0	4,9	7,2	14	3					082				
M8x1	1,00	90	6,0	4,9	7,0	10	4			080						
M8x1	1,00	90	6,0	4,9	7,0	17	3	084				084		080		08000
M10x0,75	0,75	90	7,0	5,5	9,2	18	4					100				
M10x1,25	1,25	100	7,0	5,5	8,8	22	3					104				10200
M10x1	1,00	90	7,0	5,5	9,0	10	4			100						
M10x1	1,00	90	7,0	5,5	9,0	18	4	102				102		100		10000
M12x1,5	1,50	100	9,0	7,0	10,5	22	3	124				124		120		12400
M12x1,25	1,25	100	9,0	7,0	10,8	22	3					122				12200
M12x1,5	1,50	100	9,0	7,0	10,5	15	4			120						
M12x1	1,00	100	9,0	7,0	11,0	18	4	120				120		121		12000
M14x1,5	1,50	100	11,0	9,0	12,5	22	3	144				144		140		14400
M14x1,25	1,25	100	11,0	9,0	12,8	22	3									14200
M14x1,5	1,50	100	11,0	9,0	12,5	15	4			140						
M14x1	1,00	100	11,0	9,0	13,0	18	4					140				14000
M16x1,5	1,50	100	12,0	9,0	14,5	22	3	162				162		160		16200
M16x1,5	1,50	100	12,0	9,0	14,5	15	4			160						
M16x1	1,00	100	12,0	9,0	15,0	18	4									16000
M18x1	1,00	110	14,0	11,0	17,0	20	5					180				
M18x2	2,00	125	14,0	11,0	16,0	26	3					184				
M18x1,5	1,50	110	14,0	11,0	16,5	17	4			180						
M18x1,5	1,50	110	14,0	11,0	16,5	25	4	182				182				
M20x1	1,00	125	16,0	12,0	19,0	20	5					200				
M20x1,5	1,50	125	16,0	12,0	18,5	17	4			200						
M20x1,5	1,50	125	16,0	12,0	18,5	25	4	202				202		200		
M25x1,5	1,50	140	18,0	14,5	23,5	28	4					250				
M26x1,5	1,50	140	18,0	14,5	24,5	28	4					260				
M24x1,5	1,50	140	18,0	14,5	22,5	27	4					242				
M24x2	2,00	140	18,0	14,5	22,0	27	4					244				
M22x1,5	1,50	125	18,0	14,5	20,5	25	4					222		220		
M27x2	2,00	140	20,0	16,0	25,0	28	4					272				
M28x1,5	1,50	140	20,0	16,0	26,5	28	5					280				
M30x1,5	1,50	150	22,0	18,0	28,5	28	5					302				

P	12	65	12	15	
M			7	9	
K	12	65	12	18	
N	22	22		12	15
S					
H					
O					

Through hole – Machine taps, right hand

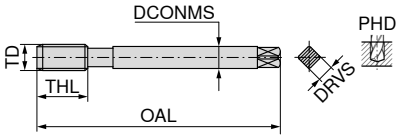
MF

UNI

B
4–5

ISO 2
6H

TiN



DIN 374 with reduced shank



HSS-PM

0°
≤ 1000 N/mm²
≤ 3xD

23 041 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	
M8x1	1,00	90	6	4,9	7,0	17	3	**081**
M10x1	1,00	90	7	5,5	9,0	18	4	**102**
M10x1,25	1,25	100	7	5,5	8,8	22	3	**104**
M12x1	1,00	100	9	7,0	11,0	18	4	**120**
M12x1,25	1,25	100	9	7,0	10,8	22	3	**122**
M12x1,5	1,50	100	9	7,0	10,5	22	3	**121**
M14x1,5	1,50	100	11	9,0	12,5	22	3	**144**
M14x1,25	1,25	100	11	9,0	12,8	22	3	**142**
M16x1,5	1,50	100	12	9,0	14,5	22	3	**162**
M18x1,5	1,50	110	14	11,0	16,5	17	4	**182**
M20x1,5	1,50	125	16	12,0	18,5	17	4	**202**
M24x1,5	1,50	140	18	14,5	22,5	27	4	**242**
M24x2	2,00	140	18	14,5	22,0	27	4	**244**
M22x1,5	1,50	125	18	14,5	20,5	25	4	**222**

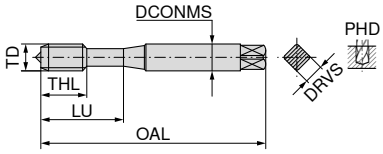
P	**15**
M	**9**
K	**18**
N	**12**
S	
H	
O	

Through hole – Machine taps, right hand

MF

UNI	UNI	FE	VA
B 4–5	B 4–5	B 4–5	B 4–5
ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
nitr. + vap.	TiN		TiN

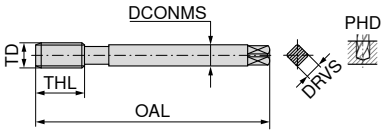




DIN 371 with reinforced shank

	HSS-E	HSS-E	HSS-E	HSS-E
	◁ 0° ≤ 1000 N/mm² ≤ 3xD	◁ 0° ≤ 1000 N/mm² ≤ 3xD	◁ 0° ≤ 850 N/mm² ≤ 3xD	◁ 0° ≤ 1200 N/mm² ≤ 4xD
	23 140 ...	**23 142 ...**	**23 240 ...**	**23 440 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes							
M4x0,5	0,50	63	4,5	3,4	3,5	10	21	3	**040**		**040**		**040**		
M5x0,5	0,50	70	6,0	4,9	4,5	11	25	3	**050**		**050**		**050**		**050**
M6x0,5	0,50	80	6,0	4,9	5,5	13	30	3	**060**		**060**		**060**		
M6x0,75	0,75	80	6,0	4,9	5,2	13	30	3	**062**		**062**		**062**		**062**



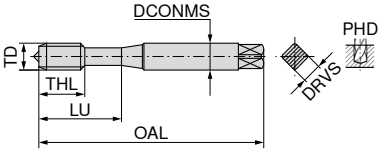
DIN 374 with reduced shank

									23 141 ...		**23 143 ...**		**23 241 ...**		**23 441 ...**
TD mm	**TP mm**	**OAL mm**	**DCONMS mm**	**DRVS mm**	**PHD mm**	**THL mm**	**Flutes**								
M8x0,5	0,50	80	6	8,0	7,5	14	3						**080**		
M8x1	1,00	90	6	4,9	7,0	17	3		**084**				**084**		**084**
M8x1	1,00	90	6	4,9	7,0	17	4				**084**				
M8x0,75	0,75	80	6	4,9	7,2	14	3		**082**		**082**		**082**		**082**
M10x0,75	0,75	90	7	5,5	9,2	18	4		**100**		**100**		**100**		
M10x1,25	1,25	100	7	5,5	8,8	22	3		**104**		**104**		**104**		
M10x1	1,00	90	7	5,5	9,0	18	4		**102**		**102**		**102**		**102**
M12x1,5	1,50	100	9	7,0	10,5	22	3		**124**		**124**		**124**		**124**
M12x1,25	1,25	100	9	7,0	10,8	22	3		**122**		**122**		**122**		
M12x1	1,00	100	9	7,0	11,0	18	4		**120**		**120**		**120**		**120**
M14x1	1,00	100	11	9,0	13,0	18	4		**140**		**140**		**140**		
M14x1,5	1,50	100	11	9,0	12,5	22	3		**144**		**144**		**144**		**144**
M16x1	1,00	100	12	9,0	15,0	18	4		**160**		**160**		**160**		
M16x1,5	1,50	100	12	9,0	14,5	22	3		**162**		**162**		**162**		**162**
M18x1	1,00	110	14	11,0	17,0	20	5						**180**		
M18x1,5	1,50	110	14	11,0	16,5	25	4		**182**		**182**		**182**		
M20x1,5	1,50	125	16	12,0	18,5	25	4		**202**		**202**		**202**		
M20x1	1,00	125	16	12,0	19,0	20	5						**200**		
M22x1,5	1,50	125	18	14,5	20,5	25	4		**222**		**222**		**222**		
M24x1,5	1,50	140	18	14,5	22,5	27	4		**242**		**242**		**242**		
M26x1,5	1,50	140	18	14,5	24,5	28	4						**260**		
M28x1,5	1,50	140	20	16,0	26,5	28	5						**280**		
M30x1,5	1,50	150	22	18,0	28,5	28	5						**300**		

P	**12**	**15**	**12**	**10**
M	**7**	**9**		**8**
K	**12**	**18**	**12**	
N		**12**	**12**	**24**
S				
H				
O				

Blind hole – Machine taps, right hand

MF | Salo-Rex

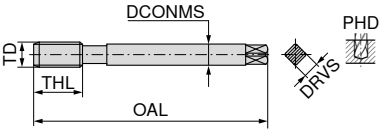


DIN 371 with reinforced shank

UNI	UNI	UNI	UNI	
E 1,5–2	E 1,5–2	E 1,5–2	E 1,5–2	
ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 3 6G	
vap.	TiN	vap.	vap.	



HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD	
				22 441 ...
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
M4x0,5	0,50	63	4,5	3,4	3,50	5	21	3	**040**
M5x0,5	0,50	70	6,0	4,9	4,50	5	25	3	**050**
M6x0,75	0,75	80	6,0	4,9	5,25	8	30	3	**062**



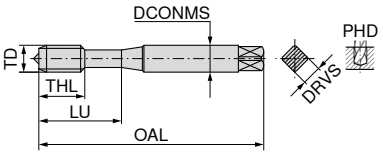
DIN 374 with reduced shank

22 555 ...	**22 556 ...**	**22 491 ...**	**22 490 ...**
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes				
M8x1	1,0	90	6	4,9	7,0	10	3	**080**	**080**		**080**
M10x1	1,0	90	7	5,5	9,0	10	4	**100**	**100**		**100**
M12x1,5	1,5	100	9	7,0	10,5	15	5	**120**	**120**	**120**	**120**
M14x1,5	1,5	100	11	9,0	12,5	15	5	**140**	**140**	**140**	**140**
M16x1,5	1,5	100	12	9,0	14,5	15	5	**160**	**160**	**160**	**160**
M18x1,5	1,5	110	14	11,0	16,5	17	5				**180**
M20x1,5	1,5	125	16	12,0	18,5	17	5			**200**	**200**
P								**12**	**15**	**12**	**12**
M								**7**	**9**	**7**	**7**
K								**12**	**18**	**12**	**12**
N									**12**		
S											
H											
O											

Blind hole – Machine taps, right hand

▲ CNC = for synchronised CNC machining with minimum length compensation chuck

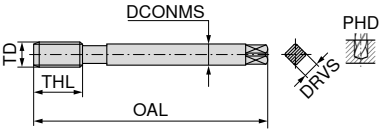
MF | Salo-Rex



DIN 371 with reinforced shank

	UNI	UNI	UNI CNC	UNI CNC
	C 2–3	C 2–3	E 1,5–2	E 1,5–2
	ISO 2 6H	ISO 2 6H	7G	ISO 2 6H
	vap.	TiN	TiN GS	TiN GS
				
	HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E ◁ 45° ≤ 1100 N/mm² ≤ 3xD	HSS-E ◁ 45° ≤ 1100 N/mm² ≤ 3xD
	22 202 ...			**22 548 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes				
M4x0,5	0,50	63	4,5	3,4	3,5	5	21	3	**040**			
M5x0,5	0,50	70	6,0	4,9	4,5	5	25	3	**050**			**050**
M6x0,75	0,75	80	6,0	4,9	5,2	8	30	3	**062**			**062**
M6x0,5	0,50	80	6,0	4,9	5,5	5	30	3	**060**			**060**



DIN 374 with reduced shank

								22 553 ...	22 554 ...	22 563 ...	22 549 ...
TD mm	**TP mm**	**OAL mm**	**DCONMS mm**	**DRVS mm**	**PHD mm**	**THL mm**	**Flutes**				
M6x0,75	0,75	80	4,5	3,4	5,2	8	3	**062**			
M8x0,75	0,75	80	6,0	4,9	7,2	8	3	**080**			**082**
M8x1	1,00	90	6,0	4,9	7,0	10	3	**082**	**080**	**084**	**084**
M10x0,75	0,75	90	7,0	5,5	9,2	10	4	**101**			
M10x1	1,00	90	7,0	5,5	9,0	10	3	**100**	**100**		
M10x1	1,00	90	7,0	5,5	9,0	10	4			**102**	**102**
M10x1,25	1,25	100	7,0	5,5	8,8	16	3	**102**			
M12x1	1,00	100	9,0	7,0	11,0	11	4	**120**	**121**		**120**
M12x1,25	1,25	100	9,0	7,0	10,8	15	4	**122**			
M12x1,5	1,50	100	9,0	7,0	10,5	15	4	**124**	**120**		
M12x1,5	1,50	100	9,0	7,0	10,5	15	5			**124**	**124**
M14x1,5	1,50	100	11,0	9,0	12,5	15	5			**144**	**144**
M14x1,5	1,50	100	11,0	9,0	12,5	15	4	**140**	**140**		
M16x1,5	1,50	100	12,0	9,0	14,5	15	4	**160**	**160**		
M16x1,5	1,50	100	12,0	9,0	14,5	15	5			**162**	**162**
M18x1,5	1,50	110	14,0	11,0	16,5	17	5				**182**
M18x1,5	1,50	110	14,0	11,0	16,5	17	4	**180**	**182**		
M20x1,5	1,50	125	16,0	12,0	18,5	17	5			**202**	**202**
M20x1,5	1,50	125	16,0	12,0	18,5	17	4	**200**	**202**		
M22x1,5	1,50	125	18,0	14,5	20,5	17	4	**220**			
M26x1,5	1,50	140	18,0	14,5	24,5	20	5	**260**			
M24x1,5	1,50	140	18,0	14,5	22,5	20	5	**240**			
M28x1,5	1,50	140	20,0	16,0	26,5	20	5	**280**			
M30x1,5	1,50	150	22,0	18,0	28,5	22	6	**300**			

P	**12**	**15**	**15**	**15**
M	**7**	**9**	**9**	**9**
K	**12**	**18**	**18**	**18**
N		**12**	**12**	**12**
S				
H				
O				

Blind hole – Machine taps

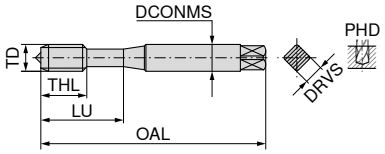
▲ LH = for left hand threads

MF | Salo-Rex

ST LH | ST

C 2–3 | C 2–3

ISO 2 6H | ISO 2 6H



DIN 371 with reinforced shank

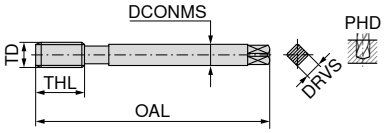




HSS-E
42°
≤ 750 N/mm²
≤ 3xD

HSS-E
42°
≤ 750 N/mm²
≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 238 ...
M2,5x0,35	0,35	50	2,8	2,1	2,15	5,0	15	2	025
M3x0,35	0,35	56	3,5	2,7	2,65	4,5	18	3	030
M3,5x0,35	0,35	56	4,0	3,0	3,15	5,0	20	3	035
M4x0,5	0,50	63	4,5	3,4	3,50	5,0	21	3	040
M5x0,5	0,50	70	6,0	4,9	4,50	5,0	25	3	050
M6x0,75	0,75	80	6,0	4,9	5,20	8,0	30	3	060
M8x0,75	0,75	80	8,0	6,2	7,20	8,0	30	3	080
M8x1	1,00	90	8,0	6,2	7,00	10,0	35	3	082



DIN 374 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 601 ...	22 186 ...
M6x0,75	0,75	80	4,5	3,4	5,2	8	3		060
M8x0,75	0,75	80	6,0	4,9	7,2	8	3		080
M8x1	1,00	90	6,0	4,9	7,0	10	3	082	082
M10x1	1,00	90	7,0	5,5	9,0	10	3	100	100
M12x1,5	1,50	100	9,0	7,0	10,5	15	4		122
M12x1	1,00	100	9,0	7,0	11,0	11	4	120	120
M14x1,5	1,50	100	11,0	9,0	12,5	15	4	140	140
M16x1,5	1,50	100	12,0	9,0	14,5	15	4	160	160
M18x1,5	1,50	110	14,0	11,0	16,5	17	4	180	180
M20x1,5	1,50	125	16,0	12,0	18,5	17	4	200	200
M22x1,5	1,50	125	18,0	14,5	20,5	17	4		220
M26x1,5	1,50	140	18,0	14,5	24,5	20	5		260
M24x1,5	1,50	140	18,0	14,5	22,5	20	5		240
P								12	12
M									
K								12	12
N								12	22
S									
H									
O									

6

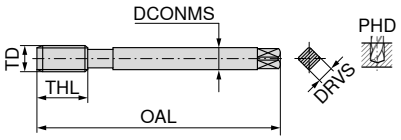
Blind hole – Machine taps, right hand

MF | SL

ST

C
2–3

ISO 2
6H



DIN 374 with reduced shank



HSS-E
15°
≤ 750 N/mm²
≤ 2xD

22 182 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	
M6x0,75	0,75	80	4,5	3,4	5,2	13	3	**062**
M8x0,75	0,75	80	6,0	4,9	7,2	14	3	**082**
M8x1	1,00	90	6,0	4,9	7,0	17	3	**084**
M10x1	1,00	90	7,0	5,5	9,0	18	3	**102**
M10x0,75	0,75	90	7,0	5,5	9,2	18	3	**100**
M10x1,25	1,25	100	7,0	5,5	8,8	22	3	**104**
M9x1	1,00	90	7,0	5,5	8,0	17	3	**090**
M11x1	1,00	90	8,0	6,2	10,0	18	3	**110**
M12x1,25	1,25	100	9,0	7,0	10,8	22	3	**122**
M12x1,5	1,50	100	9,0	7,0	10,5	22	3	**124**
M12x1	1,00	100	9,0	7,0	11,0	18	3	**120**
M14x1	1,00	100	11,0	9,0	13,0	18	4	**140**
M14x1,5	1,50	100	11,0	9,0	12,5	22	3	**144**
M16x1	1,00	100	12,0	9,0	15,0	18	4	**160**
M16x1,5	1,50	100	12,0	9,0	14,5	22	3	**162**
M15x1	1,00	100	12,0	9,0	14,0	18	4	**150**
M18x1,5	1,50	110	14,0	11,0	16,5	25	4	**182**
M18x2	2,00	125	14,0	11,0	16,0	26	3	**184**
M18x1	1,00	110	14,0	11,0	17,0	20	4	**180**
M20x1	1,00	125	16,0	12,0	19,0	20	4	**200**
M20x2	2,00	140	16,0	12,0	18,0	27	3	**204**
M20x1,5	1,50	125	16,0	12,0	18,5	25	4	**202**
M22x2	2,00	140	18,0	14,5	20,0	27	4	**224**
M24x1,5	1,50	140	18,0	14,5	22,5	27	4	**242**
M24x1	1,00	140	18,0	14,5	23,0	20	5	**240**
M24x2	2,00	140	18,0	14,5	22,0	27	4	**244**
M22x1,5	1,50	125	18,0	14,5	20,5	25	4	**222**
M25x1,5	1,50	140	18,0	14,5	23,5	28	4	**252**
M22x1	1,00	125	18,0	14,5	21,0	20	4	**220**
M27x1,5	1,50	140	20,0	16,0	25,5	28	4	**270**
M28x2	2,00	140	20,0	16,0	26,0	28	4	**282**
M27x2	2,00	140	20,0	16,0	25,0	28	4	**272**
M30x1,5	1,50	150	22,0	18,0	28,5	28	5	**302**
M32x1,5	1,50	150	22,0	18,0	30,5	28	6	**320**
M30x2	2,00	150	22,0	18,0	28,0	28	4	**304**
M33x2	2,00	160	25,0	20,0	31,0	30	4	**332**
M36x2	2,00	170	28,0	22,0	34,0	30	5	**362**
M36x3	3,00	200	28,0	22,0	33,0	42	4	**364**
M34x1,5	1,50	170	28,0	22,0	32,5	30	6	**340**
M40x1,5	1,50	170	32,0	24,0	38,5	30	6	**400**
M42x3	3,00	200	32,0	24,0	39,0	45	4	**424**
M42x2	2,00	170	32,0	24,0	40,0	30	6	**422**
M45x1,5	1,50	180	36,0	29,0	43,5	32	6	**450**
M48x2	2,00	190	36,0	29,0	46,0	32	6	**482**
M48x3	3,00	225	36,0	29,0	45,0	50	5	**484**

P	**12**
M	
K	**12**
N	**22**
S	
H	
O	

Continued on next page

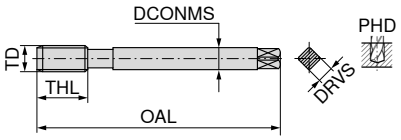
Blind hole – Machine taps, right hand

MF | SL

ST

C
2–3

ISO 2
6H



DIN 374 with reduced shank



HSS-E
15°
≤ 750 N/mm²
≤ 2xD

22 182 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	
M45x3	3,00	200	36,0	29,0	42,0	45	5	**454**
M48x1,5	1,50	190	36,0	29,0	46,5	32	6	**480**
M52x2	2,00	190	40,0	32,0	50,0	32	6	**522**

P	**12**
M	
K	**12**
N	**22**
S	
H	
O	

6

Blind hole – Machine taps, right hand

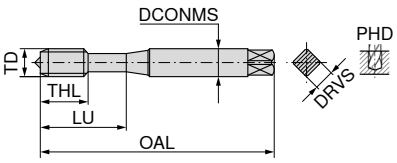
MF | Salo-Rex

VA

E
1,5–2

ISO 2
6H

TiN GS





DIN 371 with reinforced shank

HSS-E
45°
≤ 900 N/mm²
≤ 3xD

22 176 ...

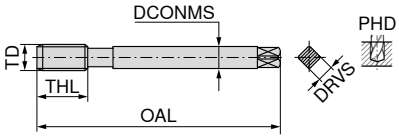
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
M4x0,5	0,50	63	4,5	3,4	3,5	5	21	3	**040**
M5x0,5	0,50	70	6,0	4,9	4,5	5	25	3	**050**
M6x0,5	0,50	80	6,0	4,9	5,5	5	30	3	**060**
M6x0,75	0,75	80	6,0	4,9	5,2	8	30	3	**062**

P	**10**
M	**8**
K	
N	**22**
S	
H	
O	

DIN 374 can be found on the next page

Blind hole – Machine taps, right hand

MF | Salo-Rex



DIN 374 with reduced shank

	NEW			
NW	NW	VA	VA	
C	C	E	E	
2–3	2–3	1,5–2	1,5–2	
ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H	
vap.	DLC	vap.	TiN GS	
				
HSS-E	HSS-E	HSS-E	HSS-E	
◁ 42° ≤ 500 N/mm² ≤ 3xD	◁ 38° ≤ 880 N/mm² ≤ 3xD	◁ 42° ≤ 750 N/mm² ≤ 3xD	◁ 45° ≤ 900 N/mm² ≤ 3xD	
22 188 ...	**22 462 ...**	**22 189 ...**	**22 177 ...**	

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes							
M8x1	1,00	90	6	4,9	7,0	10	3		**081**		**08000**		**082**		**084**
M8x0,75	0,75	80	6	4,9	7,2	8	3								**082**
M10x1	1,00	90	7	5,5	9,0	10	3		**100**		**10000**				
M10x1,25	1,25	100	7	5,5	8,8	16	3				**10200**				
M10x1	1,00	90	7	5,5	9,0	10	4						**100**		**102**
M12x1,25	1,25	100	9	7,0	10,8	15	4				**12200**				
M12x1,5	1,50	100	9	7,0	10,5	15	4		**122**		**12400**				
M12x1,5	1,50	100	9	7,0	10,5	15	5						**120**		**124**
M12x1	1,00	100	9	7,0	11,0	11	4		**120**		**12000**		**121**		**120**
M14x1	1,00	100	11	9,0	13,0	11	4				**14000**				
M14x1,25	1,25	100	11	9,0	12,8	15	4				**14200**				
M14x1,5	1,50	100	11	9,0	12,5	15	4		**140**		**14400**				
M14x1,5	1,50	100	11	9,0	12,5	15	5						**140**		**144**
M16x1	1,00	100	12	9,0	15,0	12	4				**16000**				
M16x1,5	1,50	100	12	9,0	14,5	15	4		**160**		**16200**				
M16x1,5	1,50	100	12	9,0	14,5	15	5						**160**		**162**
M18x1,5	1,50	110	14	11,0	16,5	17	5								**182**
M18x1,5	1,50	110	14	11,0	16,5	17	4		**180**						
M20x1,5	1,50	125	16	12,0	18,5	17	5						**200**		**202**
M20x1,5	1,50	125	16	12,0	18,5	17	4		**200**						
M26x1,5	1,50	140	18	14,5	24,5	20	6						**260**		
M28x1,5	1,50	140	20	16,0	26,5	20	6						**280**		
M30x1,5	1,50	150	22	18,0	28,5	22	6						**300**		
P									**15**				**8**		**10**
M													**6**		**8**
K															
N									**22**		**15**		**22**		**22**
S															
H															
O															

6

Blind hole – Machine taps, right hand

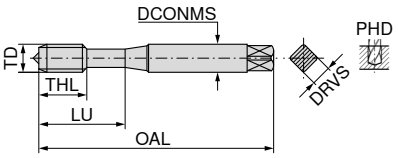
MF

UNI

C
2–3

ISO 2
6H

TiN



DIN 374 with reinforced shank



HSS-PM
40°
≤ 1000 N/mm²
≤ 2,5xD

23 047 ...

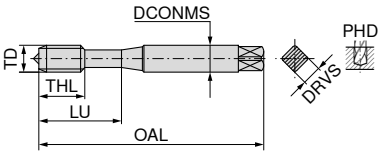
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
M8x1	1,00	90	6	4,9	7,0	10	35	3	**081**
M10x1	1,00	90	7	5,5	9,0	10	35	4	**102**
M10x1,25	1,25	100	7	5,5	8,8	16	39	4	**104**
M12x1	1,00	100	9	7,0	11,0	11	40	4	**120**
M12x1,25	1,25	100	9	7,0	10,8	15	40	5	**122**
M12x1,5	1,50	100	9	7,0	10,5	15	40	5	**121**
M14x1	1,00	100	11	9,0	12,8	11	40	4	**140**
M14x1,5	1,50	100	11	9,0	12,5	15	40	5	**144**
M16x1,5	1,50	100	12	9,0	14,5	15	44	5	**162**
M18x1,5	1,50	110	14	11,0	16,5	17	44	5	**182**
M20x1,5	1,50	125	16	12,0	18,5	17	44	5	**202**
M22x1,5	1,50	125	18	14,5	20,5	17	44	5	**222**
M24x1,5	1,50	140	18	14,5	22,5	20	48	5	**242**
M24x2	2,00	140	18	14,5	22,0	20	48	5	**244**

P	**15**
M	**9**
K	**18**
N	**12**
S	
H	
O	

Blind hole – Machine taps, right hand

▲ NC = for synchronised CNC machining with minimum length compensation chuck

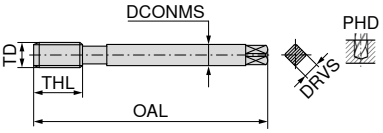
MF



DIN 371 with reinforced shank

	UNI	UNI	UNI NC	FE
	C 2–3	C 2–3	E 1,5–2	C 2–3
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	vap.	TiN	TiN GS	
				
	HSS-E ◁ 35° ≤ 1000 N/mm² ≤ 2,5xD	HSS-E ◁ 35° ≤ 1000 N/mm² ≤ 2,5xD	HSS-E ◁ 45° ≤ 1000 N/mm² ≤ 3xD	HSS-E ◁ 35° ≤ 850 N/mm² ≤ 2,5xD
	23 144 ...	**23 146 ...**	**23 148 ...**	**23 242 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes				
M4x0,5	0,50	63	4,5	3,4	3,5	5	21	3	040	040		040
M5x0,5	0,50	70	6,0	4,9	4,5	5	25	3	050	050	050	050
M6x0,5	0,50	80	6,0	4,9	5,5	5	30	3	060	060	060	060
M6x0,75	0,75	80	6,0	4,9	5,2	8	30	3	062	062	062	062



DIN 374 with reduced shank

								23 145 ...	23 147 ...	23 149 ...	23 243 ...
TD mm	**TP mm**	**OAL mm**	**DCONMS mm**	**DRVS mm**	**PHD mm**	**THL mm**	**Flutes**				
M4x0,5	0,50	63	2,8	2,1	3,5	5	3	040			
M5x0,5	0,50	70	3,5	2,7	4,5	5	3	050			
M6x0,75	0,75	80	4,5	3,4	5,2	8	3	062			
M8x1	1,00	90	6,0	4,9	7,0	10	3	084	084	084	084
M8x0,75	0,75	80	6,0	4,9	7,2	8	3	082	082	082	082
M8x0,5	0,50	80	6,0	8,0	7,5	6	3				080
M10x1,25	1,25	100	7,0	5,5	8,8	16	3	104	104		104
M10x1	1,00	90	7,0	5,5	9,0	10	3	102	102		102
M10x1	1,00	90	7,0	5,5	9,0	10	4			102	
M10x0,75	0,75	90	7,0	5,5	9,2	10	4	100	100		100
M12x1,25	1,25	100	9,0	7,0	10,8	15	4	122	122		122
M12x1,5	1,50	100	9,0	7,0	10,5	15	4	124	124		124
M12x1,5	1,50	100	9,0	7,0	10,5	15	5			124	
M12x1	1,00	100	9,0	7,0	11,0	11	4	120	120	120	120
M14x1,5	1,50	100	11,0	9,0	12,5	15	4	144	144		144
M14x1,5	1,50	100	11,0	9,0	12,5	15	5			144	
M14x1	1,00	100	11,0	9,0	13,0	11	4	140	140		140
M16x1,5	1,50	100	12,0	9,0	14,5	15	4	162	162		162
M16x1,5	1,50	100	12,0	9,0	14,5	15	5			162	
M16x1	1,00	100	12,0	9,0	15,0	12	4	160	160		160
M18x1,5	1,50	110	14,0	11,0	16,5	17	4	182	182		182
M18x1,5	1,50	110	14,0	11,0	16,5	17	5			182	
M20x1,5	1,50	125	16,0	12,0	18,5	17	5			202	
M20x1,5	1,50	125	16,0	12,0	18,5	17	4	202	202		202
M22x1,5	1,50	125	18,0	14,5	20,5	17	4	222	222		222
M24x1,5	1,50	140	18,0	14,5	22,5	20	5	242	242		242

P	12	15	15	12
M	7	9	9	
K	12	18	18	12
N		12	12	22
S				
H				
O				

6

Blind hole – Machine taps, right hand

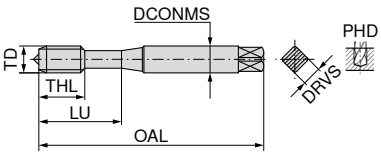
MF

VA

E
1,5–2

ISO 2
6H

TiN



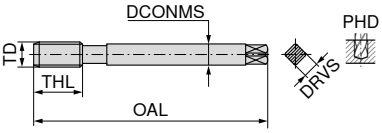
DIN 371 with reinforced shank



HSS-E
∢ 45°
≤ 1200 N/mm²
≤ 3xD

23 442 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
M5x0,5	0,50	70	6	4,9	4,5	5	25	3	**050**
M6x0,75	0,75	80	6	4,9	5,2	8	30	3	**062**



DIN 374 with reduced shank

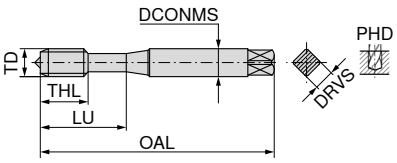
23 443 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	
M8x1	1,00	90	6	4,9	7,0	10	3	**084**
M8x0,75	0,75	80	6	4,9	7,2	8	3	**082**
M10x1	1,00	90	7	5,5	9,0	10	4	**102**
M12x1	1,00	100	9	7,0	11,0	11	4	**120**
M12x1,5	1,50	100	9	7,0	10,5	15	5	**124**
M14x1,5	1,50	100	11	9,0	12,5	15	5	**144**
M16x1,5	1,50	100	12	9,0	14,5	15	5	**162**

P	**10**
M	**8**
K	
N	**24**
S	
H	
O	

Through hole / Blind hole – Machine taps, right hand

MF | TWIN



DIN 371 with reinforced shank

ST	HR	HT
C 2–3	C 2–3	D 4–5
ISO 2X 6HX	ISO 2X 6HX	ISO 2X 6HX
	nitr.	OSM



	HSS-E	HSS-E	Solid carbide
	0° ≤ 750 N/mm² ≤ 2xD	0° ≤ 1400 N/mm² ≤ 2xD	0° ≤ 63 HRC ≤ 1,5xD
	22 144 ...	**22 146 ...**	**22 817 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes				
M4x0,5	0,50	63	4,5	3,4	3,5	10	21	3	**040**		**040**		
M5x0,5	0,50	70	6,0	4,9	4,5	11	25	3	**050**		**050**		
M6x0,5	0,50	80	6,0	4,9	5,5	13	30	3	**060**		**060**		
M6x0,75	0,75	80	6,0	4,9	5,2	13	30	3	**062**		**062**		
M8x1	1,00	90	8,0	6,2	7,0	17	35	3	**084**				
M8x1	1,00	90	8,0	6,2	7,1	15	35	5					**080**
M10x1	1,00	100	10,0	8,0	9,1	18	38	5					**100**
M10x1	1,00	90	10,0	8,0	9,0	18	35	4	**104**				
M12x1,5	1,50	110	12,0	9,0	10,6	21	41	5					**120**
M14x1,5	1,50	110	14,0	11,0	12,6	24	44	6					**140**
M16x1,5	1,50	110	16,0	12,0	14,6	24	44	6					**160**

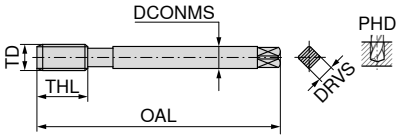
P									**12**		**6**		
M													
K									**12**		**16**		
N									**22**		**22**		
S													
H													**2**
O													

DIN 374 can be found on the next page

6

Through hole / Blind hole – Machine taps, right hand

MF | TWIN



DIN 374 with reduced shank

ST	HR	GG
C 2–3	C 2–3	C 2–3
ISO 2X 6HX	ISO 2X 6HX	ISO 2X 6HX
	nitr.	nitr.



	HSS-E	HSS-E	HSS-E
	0° ≤ 750 N/mm² ≤ 2xD	0° ≤ 1400 N/mm² ≤ 2xD	0° ≤ 1050 N/mm² ≤ 2xD
	22 171 ...	22 209 ...	22 173 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes			
M4x0,5	0,50	63	2,8	2,1	3,5	10	3	042		
M5x0,5	0,50	70	3,5	2,7	4,5	11	3	050		050
M6x0,75	0,75	80	4,5	3,4	5,2	13	3	062		062
M6x0,5	0,50	80	4,5	3,4	5,5	13	3	060		060
M8x0,75	0,75	80	6,0	4,9	7,2	14	3	082		080
M8x1	1,00	90	6,0	4,9	7,0	17	3	084	082	082
M10x1	1,00	90	7,0	5,5	9,0	18	4	104	100	100
M10x1,25	1,25	100	7,0	5,5	8,8	22	3	106		
M10x0,75	0,75	90	7,0	5,5	9,2	18	4	102		
M11x1	1,00	90	8,0	6,2	10,0	18	4	110		
M12x1	1,00	100	9,0	7,0	11,0	18	4	122		120
M12x1,25	1,25	100	9,0	7,0	10,8	22	4	124		
M12x1,5	1,50	100	9,0	7,0	10,5	22	4	126	120	124
M14x1	1,00	100	11,0	9,0	13,0	18	4	140		140
M14x1,25	1,25	100	11,0	9,0	12,8	22	4	142		
M14x1,5	1,50	100	11,0	9,0	12,5	22	4	144	140	142
M16x1	1,00	100	12,0	9,0	15,0	18	5	160		
M16x1,5	1,50	100	12,0	9,0	14,5	22	4	162	160	160
M18x1	1,00	110	14,0	11,0	17,0	20	5	180		
M18x2	2,00	125	14,0	11,0	16,0	26	4	184		
M18x1,5	1,50	110	14,0	11,0	16,5	25	4	182	180	180
M20x1	1,00	125	16,0	12,0	19,0	20	5	200		
M20x2	2,00	140	16,0	12,0	18,0	27	4	204		
M20x1,5	1,50	125	16,0	12,0	18,5	25	4	202	200	200
M24x2	2,00	140	18,0	14,5	22,0	27	4	244		
M22x2	2,00	140	18,0	14,5	20,0	27	4	224		
M22x1	1,00	125	18,0	14,5	21,0	20	5	220		
M24x1	1,00	140	18,0	14,5	23,0	20	6	240		
M26x1,5	1,50	140	18,0	14,5	24,5	28	4	260		260
M24x1,5	1,50	140	18,0	14,5	22,5	27	4	242		240
M25x1,5	1,50	140	18,0	14,5	23,5	28	4	250		
M22x1,5	1,50	125	18,0	14,5	20,5	25	4	222		220
M28x1,5	1,50	140	20,0	16,0	26,5	28	5			280
M27x2	2,00	140	20,0	16,0	25,0	28	4	274		
M27x1,5	1,50	140	20,0	16,0	25,5	28	5	272		
M30x2	2,00	150	22,0	18,0	28,0	28	4	302		
M32x2	2,00	150	22,0	18,0	30,0	28	5	322		
M32x1,5	1,50	150	22,0	18,0	30,5	28	6	320		
M30x1,5	1,50	150	22,0	18,0	28,5	28	5	300		300
M33x2	2,00	160	25,0	20,0	31,0	30	5	332		
M36x2	2,00	170	28,0	22,0	34,0	30	5	362		
M36x1,5	1,50	170	28,0	22,0	34,5	30	6	360		
M35x1,5	1,50	170	28,0	22,0	33,5	30	6	350		
M42x1,5	1,50	170	32,0	24,0	40,5	30	6	420		
M42x3	3,00	200	32,0	24,0	39,0	45	5	424		
M40x2	2,00	170	32,0	24,0	38,0	30	6	402		
M50x1,5	1,50	190	36,0	29,0	48,5	32	8	500		
M52x1,5	1,50	190	40,0	32,0	50,5	32	8	520		

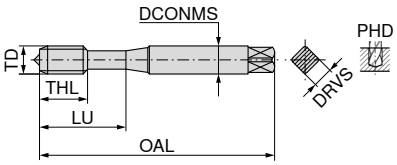
P	12	6	
M			
K	12	16	15
N	22	22	22
S			
H			
O			

Through Hole / Blind Hole – Machine taps

▲ ES = extra short

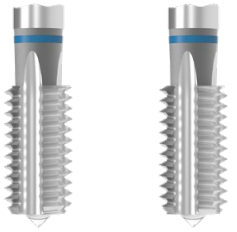
▲ LH = for left hand threads; ES = extra short

MF | TWIN



DIN 2181 with reinforced shank

ST ES	ST LH/ES
C 2–3	C 2–3
ISO 2X 6HX	ISO 2X 6HX



HSS-E
0°
≤ 750 N/mm²
≤ 2xD

HSS-E
0°
≤ 750 N/mm²
≤ 2xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 179 ...	22 200 ...
M2,5x0,35	0,35	40	2,8	2,1	2,15	9		3	025	
M3x0,35	0,35	40	3,5	2,7	2,65	8	18	3	030	
M4x0,35	0,35	45	4,5	3,4	3,65	9	22	3	040	
M4x0,5	0,50	45	4,5	3,4	3,50	9	22	3	042	
M4,5x0,5	0,50	50	6,0	4,9	4,00	10	24	3	045	
M5x0,5	0,50	50	6,0	4,9	4,50	11	25	3	050	
M6x0,5	0,50	56	6,0	4,9	5,50	12	27	3	060	
M6x0,75	0,75	56	6,0	4,9	5,20	12	27	3	062	062
M7x0,75	0,75	56	6,0	4,9	6,20	14		3	070	
M8x0,5	0,50	56	6,0	4,9	7,50	14		4	080	
M8x0,75	0,75	56	6,0	4,9	7,20	14		3	082	
M8x1	1,00	63	6,0	4,9	7,00	17		3	084	084
M9x1	1,00	63	7,0	5,5	8,00	17		4	090	
M10x0,75	0,75	63	7,0	5,5	9,20	18		4	100	
M10x1	1,00	63	7,0	5,5	9,00	18		4	102	102
M10x1,25	1,25	70	7,0	5,5	8,80	22		3	104	
M11x1	1,00	63	8,0	6,2	10,00	18		4	110	
M12x1	1,00	70	9,0	7,0	11,00	18		4	120	120
M12x1,25	1,25	70	9,0	7,0	10,80	20		4	122	
M12x1,5	1,50	70	9,0	7,0	10,50	20		4	124	124
M13x1	1,00	70	11,0	9,0	12,00	18		4	130	
M14x1	1,00	70	11,0	9,0	13,00	18		4	140	
M14x1,25	1,25	70	11,0	9,0	12,80	20		4	142	
M14x1,5	1,50	70	11,0	9,0	12,50	20		4	144	144
M15x1	1,00	70	12,0	9,0	14,00	18		5	150	
M16x1	1,00	70	12,0	9,0	15,00	18		5	160	
M16x1,5	1,50	70	12,0	9,0	14,50	20		4	162	162
M18x1	1,00	80	14,0	11,0	17,00	18		5	180	
M18x1,5	1,50	80	14,0	11,0	16,50	22		4	182	182
M18x2	2,00	80	14,0	11,0	16,00	22		4	184	
M20x1,5	1,50	80	16,0	12,0	18,50	22		4	202	202
M20x2	2,00	80	16,0	12,0	18,00	22		4	204	

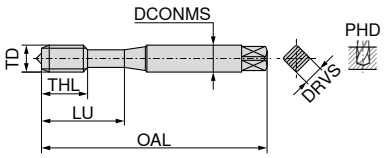
P	12	12
M		
K	12	12
N	22	22
S		
H		
O		

6

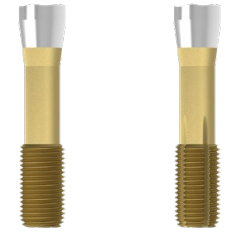
Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

MF | Spanlos



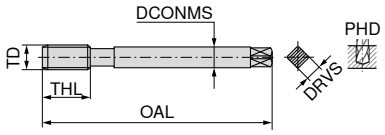
DIN 2174 with reinforced shank



HSS-E
≤ 1100 N/mm²
≤ 1,5xD

HSS-E
≤ 1100 N/mm²
≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 204 ...	22 205 ...
M4x0,5	0,50	63	4,5	3,4	3,8	10	21		040	
M4x0,5	0,50	63	4,5	3,4	3,8	10	21	4		040
M5x0,5	0,50	70	6,0	4,9	4,8	11	25		050	
M5x0,5	0,50	70	6,0	4,9	4,8	11	25	4		050
M6x0,5	0,50	80	6,0	4,9	5,8	13	30		060	
M6x0,5	0,50	80	6,0	4,9	5,8	13	30	5		060
M6x0,75	0,75	80	6,0	4,9	5,7	13	30		062	
M6x0,75	0,75	80	6,0	4,9	5,7	13	30	4		062
M8x0,75	0,75	80	8,0	6,2	7,7	14	30		080	
M8x0,75	0,75	80	8,0	6,2	7,7	14	30	5		080
M8x1	1,00	90	8,0	6,2	7,6	17	35		082	
M8x1	1,00	90	8,0	6,2	7,6	17	35	5		082
M10x1	1,00	90	10,0	8,0	9,6	18	35		100	
M10x1	1,00	90	10,0	8,0	9,6	18	35	5		100



DIN 2174 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 196 ...	22 197 ...
M12x1	1,0	100	9	7	11,60	18		120	
M12x1	1,0	100	9	7	11,60	18	6		120
M12x1,5	1,5	100	9	7	11,35	22		124	
M12x1,5	1,5	100	9	7	11,35	22	6		124
M14x1,5	1,5	100	11	9	13,35	22		140	
M14x1,5	1,5	100	11	9	13,35	22	6		140
M16x1,5	1,5	100	12	9	15,35	22		160	
M16x1,5	1,5	100	12	9	15,35	22	6		160
M20x1,5	1,5	125	16	12	19,35	25		200	
M20x1,5	1,5	125	16	12	19,35	25	6		200

P	18	18
M	10	10
K	10	10
N	22	22
S		
H		
O		

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

MF

UNI

C
2–3

ISO 2X
6HX

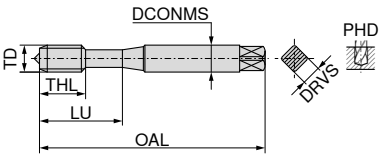
TiN

UNI
SN

C
2–3

ISO 2X
6HX

TiN



DIN 2174 with reinforced shank

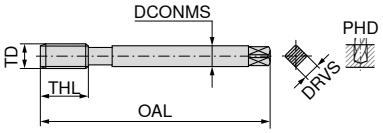




HSS-E
≤ 850 N/mm²
≤ 3xD

HSS-E
≤ 850 N/mm²
≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	23 840 ...	23 842 ...
M4x0,5	0,50	63	4,5	3,4	3,80	10	21		040	
M4x0,5	0,50	63	4,5	3,4	3,80	10	21	4		040
M5x0,5	0,50	70	6,0	4,9	4,80	11	25		050	
M5x0,5	0,50	70	6,0	4,9	4,80	11	25	4		050
M6x0,5	0,50	80	6,0	4,9	5,80	13	30		060	
M6x0,5	0,50	80	6,0	4,9	5,80	13	30	5		060
M8x1	1,00	90	8,0	6,2	7,60	17	35		084	
M8x1	1,00	90	8,0	6,2	7,60	17	35	5		084
M10x1	1,00	90	10,0	8,0	9,60	18	35		102	
M10x1	1,00	90	10,0	8,0	9,60	18	35	5		102
M10x1,25	1,25	100	10,0	8,0	9,45	18	39		104	
M10x1,25	1,25	100	10,0	8,0	9,45	18	39	5		104



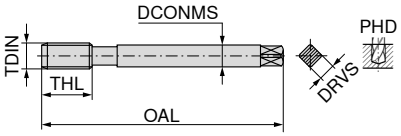
DIN 2174 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 841 ...	23 843 ...
M12x1,25	1,25	100	9	7	11,45	22		122	
M12x1,25	1,25	100	9	7	11,45	22	6		122
M12x1,5	1,50	100	9	7	11,35	22		124	
M12x1,5	1,50	100	9	7	11,35	22	6		124
M14x1,5	1,50	100	11	9	13,35	22		144	
M14x1,5	1,50	100	11	9	13,35	22	6		144
M16x1,5	1,50	100	12	9	15,35	22		162	
M16x1,5	1,50	100	12	9	15,35	22	6		162
P								**18**	**18**
M								**10**	**10**
K								**10**	**10**
N								**22**	**22**
S									
H									
O									

6

Through hole – Machine taps, right hand

G | Stabil



DIN 5156 with reduced shank

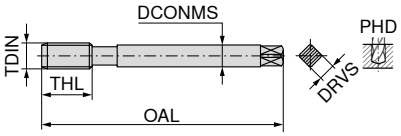
	UNI	UNI	ST	NW	VA
	B 4–5	B 4–5	B 4–5	B 4–5	B 4–5
	ISO 228	ISO 228	ISO 228	ISO 228	ISO 228
	nitr. + vap.	TiN		DLC	nitr.
				NEW	
					
	HSS-E ◁ 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E ◁ 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E ◁ 0° ≤ 750 N/mm² ≤ 4xD	HSS-E ◁ 0° ≤ 880 N/mm² ≤ 4xD	HSS-E ◁ 0° ≤ 900 N/mm² ≤ 4xD
	22 632 ...	**22 630 ...**	**22 346 ...**	**22 467 ...**	**22 352 ...**

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes									
1/8-28	0,907	90	7	5,5	8,80	18	3	**012**		**012**		**012**		**01200**		**012**
1/4-19	1,337	100	11	9,0	11,80	22	3	**025**		**025**		**025**		**02500**		**025**
3/8-19	1,337	100	12	9,0	15,25	22	3	**037**		**037**		**037**		**03700**		**037**
1/2-14	1,814	125	16	12,0	19,00	25	4	**050**		**050**		**050**		**05000**		**050**
3/4-14	1,814	140	20	16,0	24,50	28	4	**075**				**075**		**07500**		**075**
1-11	2,309	160	25	20,0	30,75	30	4	**100**				**100**		**10000**		**100**

P	**12**	**15**	**12**		**8**
M	**7**	**9**			**6**
K	**12**	**18**	**12**		
N		**12**	**22**	**15**	**22**
S					
H					
O					

Through hole – Machine taps, right hand

G



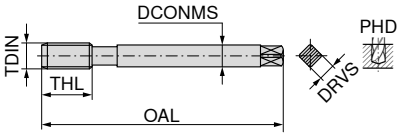
DIN 5156 with reduced shank

								UNI	UNI
								B 4–5	B 4–5
								ISO 228	ISO 228
								nitr. + vap.	TiN
									
								HSS-E	HSS-E
								∢ 0° ≤ 1100 N/mm² ≤ 3xD	∢ 0° ≤ 1100 N/mm² ≤ 3xD
								23 161 ...	**23 160 ...**
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes		
1/8-28	0,907	90	7	5,5	8,80	18	3	**012**	**012**
1/4-19	1,337	100	11	9,0	11,80	22	3	**025**	**025**
3/8-19	1,337	100	12	9,0	15,25	22	3	**037**	**037**
1/2-14	1,814	125	16	12,0	19,00	25	4	**050**	**050**
3/4-14	1,814	140	20	16,0	24,50	28	4	**075**	**075**
1-11	2,309	160	25	20,0	30,75	30	4	**100**	**100**
P								**12**	**15**
M								**7**	**9**
K								**12**	**18**
N									**12**
S									
H									
O									

6

Blind hole – Machine taps, right hand

G | Salo-Rex



DIN 5156 with reduced shank

UNI	UNI	UNI	UNI	UNI
C 2–3	C 2–3	E 1,5–2	E 1,5–2	E 1,5–2
ISO 228	ISO 228	ISO 228	ISO 228	ISO 228 +0,05
vap.	TiN	vap.	TiN	vap.
				
HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD
22 633 ...	**22 634 ...**	**22 635 ...**	**22 636 ...**	**22 639 ...**

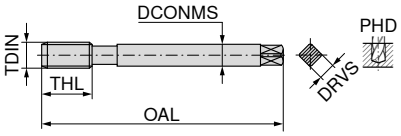
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes									
1/8-28	0,907	90	7	5,5	8,80	10	3	**012**		**012**						
1/8-28	0,907	90	7	5,5	8,80	10	4					**012**		**012**		**012**
1/4-19	1,337	100	11	9,0	11,80	15	4	**025**		**025**						
1/4-19	1,337	100	11	9,0	11,80	15	5					**025**		**025**		**025**
3/8-19	1,337	100	12	9,0	15,25	15	4	**037**		**037**						
3/8-19	1,337	100	12	9,0	15,25	15	5					**037**		**037**		**037**
1/2-14	1,814	125	16	12,0	19,00	17	4	**050**		**050**						
1/2-14	1,814	125	16	12,0	19,00	17	5					**050**		**050**		**050**
5/8-14	1,814	125	18	14,5	21,00	17	4	**062**								
3/4-14	1,814	140	20	16,0	24,50	20	4	**075**								
3/4-14	1,814	140	20	16,0	24,50	20	5									**075**
7/8-14	1,814	150	22	18,0	28,25	22	5	**087**								
1-11	2,309	160	25	20,0	30,75	24	5	**100**								
1-11	2,309	160	25	20,0	30,75	24	6									**100**
1 1/4-11	2,309	170	32	24,0	39,50	25	6	**125**								
1 1/2-11	2,309	190	36	29,0	45,25	27	6	**150**								

P	**12**	**15**	**12**	**15**	**12**
M	**7**	**9**	**7**	**9**	**7**
K	**12**	**18**	**12**	**18**	**12**
N		**12**		**12**	
S					
H					
O					

Blind hole – Machine taps, right hand

▲ CNC = for synchronised CNC machining with minimum length compensation chuck

G | Salo-Rex



DIN 5156 with reduced shank

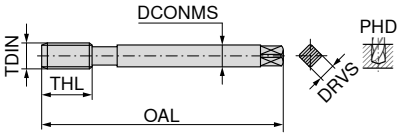
	UNI CNC	ST	NW (NEW)	VA	VA
	E 1,5–2	C 2–3	C 2–3	E 1,5–2	E 1,5–2
	ISO 228	ISO 228	ISO 228	ISO 228	ISO 228
	TiN GS		DLC	vap.	TiN GS
					
	HSS-E ◁ 45° ≤ 1100 N/mm² ≤ 3xD	HSS-E ◁ 42° ≤ 750 N/mm² ≤ 3xD	HSS-E ◁ 36° ≤ 880 N/mm² ≤ 2,5xD	HSS-E ◁ 42° ≤ 900 N/mm² ≤ 3xD	HSS-E ◁ 45° ≤ 900 N/mm² ≤ 3xD
	22 624 ...	**22 354 ...**	**22 463 ...**	**22 355 ...**	**22 358 ...**

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 624 ...	22 354 ...	22 463 ...	22 355 ...	22 358 ...
1/8-28	0,907	90	7	5,5	8,80	10	3		012	01200		012
1/8-28	0,907	90	7	5,5	8,80	10	4	012			012	
1/4-19	1,337	100	11	9,0	11,80	15	4		025	02500		
1/4-19	1,337	100	11	9,0	11,80	15	5	025			025	025
3/8-19	1,337	100	12	9,0	15,25	15	4		037	03700		
3/8-19	1,337	100	12	9,0	15,25	15	5	037			037	037
1/2-14	1,814	125	16	12,0	19,00	17	4		050	05000		
1/2-14	1,814	125	16	12,0	19,00	17	5	050			050	050
5/8-14	1,814	125	18	14,5	21,00	17	5				062	
3/4-14	1,814	140	20	16,0	24,50	20	4		075	07500		
3/4-14	1,814	140	20	16,0	24,50	20	5				075	
1-11	2,309	160	25	20,0	30,75	24	5		100	10000		
1-11	2,309	160	25	20,0	30,75	24	6				100	
P								15	12		8	10
M								9			6	8
K								18	12			
N								12	22	15	22	22
S												
H												
O												

6

Blind hole – Machine taps, right hand

G



DIN 5156 with reduced shank

								UNI	UNI
								C 2–3	C 2–3
								ISO 228	ISO 228
								vap.	TiN
									
								HSS-E	HSS-E
								∢ 35° ≤ 1100 N/mm² ≤ 2,5xD	∢ 35° ≤ 1100 N/mm² ≤ 2,5xD
								23 163 ...	**23 162 ...**
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes		
1/8-28	0,907	90	7	5,5	8,80	10	3	**012**	**012**
1/4-19	1,337	100	11	9,0	11,80	15	4	**025**	**025**
3/8-19	1,337	100	12	9,0	15,25	15	4	**037**	**037**
1/2-14	1,814	125	16	12,0	19,00	17	4	**050**	**050**
3/4-14	1,814	140	20	16,0	24,50	20	4	**075**	**075**
1-11	2,309	160	25	20,0	30,75	24	5	**100**	**100**
P								**12**	**15**
M								**7**	**9**
K								**12**	**18**
N									**12**
S									
H									
O									

Through hole / Blind hole – Machine taps, right hand

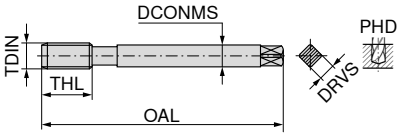
G | TWIN

ST | HR

C 2–3

ISO 228 X

nitr.



DIN 5156 with reduced shank





HSS-E
0°
≤ 750 N/mm²
≤ 2xD

HSS-E
0°
≤ 1400 N/mm²
≤ 2xD

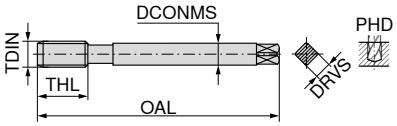
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 347 ...	22 339 ...
1/16-28	0,907	90	6	4,9	6,80	17	3	**006**	
1/8-28	0,907	90	7	5,5	8,80	18	4	**012**	**012**
1/4-19	1,337	100	11	9,0	11,80	22	4	**025**	**025**
3/8-19	1,337	100	12	9,0	15,25	22	4	**037**	**037**
1/2-14	1,814	125	16	12,0	19,00	25	4	**050**	**050**
3/4-14	1,814	140	20	16,0	24,50	28	4	**075**	**075**
1-11	2,309	160	25	20,0	30,75	30	5	**100**	**100**
1 1/8-11	2,309	170	28	22,0	35,50	30	5	**112**	**112**
1 1/4-11	2,309	170	32	24,0	39,50	30	6	**125**	**125**
1 3/8-11	2,309	180	36	29,0	41,75	32	6	**137**	**137**
1 1/2-11	2,309	190	36	29,0	45,25	32	6	**150**	**150**
1 3/4-11	2,309	190	40	32,0	51,00	32	6		**175**
P								**12**	**6**
M									
K								**12**	**16**
N								**22**	**22**
S									
H									
O									

6

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

G | Spanlos



DIN 2189 with reduced shank

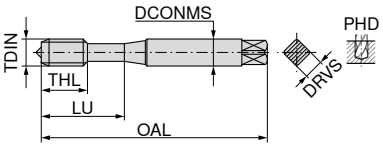
	EC	EC SN
	C 2–3	C 2–3
	ISO 228	ISO 228
	TiN	TiN
		
	HSS-E ≤ 1100 N/mm² ≤ 1,5xD	HSS-E ≤ 1100 N/mm² ≤ 3xD
	22 360 ...	**22 359 ...**

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes		
1/8-28	0,907	90	7	5,5	9,25	18		**012**	
1/8-28	0,907	90	7	5,5	9,25	18	5		**012**
1/4-19	1,337	100	11	9,0	12,55	22		**025**	
1/4-19	1,337	100	11	9,0	12,55	22	6		**025**
3/8-19	1,337	100	12	9,0	16,05	22		**037**	
3/8-19	1,337	100	12	9,0	16,05	22	6		**037**
1/2-14	1,814	125	16	12,0	20,10	25		**050**	
1/2-14	1,814	125	16	12,0	20,10	25	6		**050**

P	**18**	**18**
M	**10**	**10**
K	**10**	**10**
N	**22**	**22**
S		
H		
O		

Through hole – Machine taps, right hand

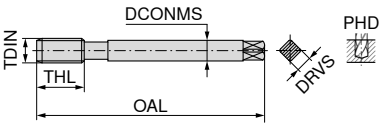
UNC | Stabil



DIN 371 with reinforced shank

	VA	Ti	UNI
	B 4–5	B 4–5	B 4–5
	2B	2BX	2B
	nitr.	TiN	nitr. + vap.
			
	HSS-E	HSS-PM	HSS-E
	0° ≤ 900 N/mm² ≤ 4xD	0° ≤ 44 HRC ≤ 4xD	0° ≤ 1100 N/mm² ≤ 4xD
	22 250 ...	**22 269 ...**	**22 572 ...**

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes			
Nr. 2-56	0,454	45	2,8	2,1	1,85	7	12	2			002
Nr. 4-40	0,635	56	3,5	2,7	2,35	11	18	2			004
Nr. 4-40	0,635	56	3,5	2,7	2,35	11	18	3		004	
Nr. 6-32	0,794	56	4,0	3,0	2,85	12	20	3	006	006	006
Nr. 8-32	0,794	63	4,5	3,4	3,50	13	21	3	008	008	008
Nr. 10-24	1,058	70	6,0	4,9	3,90	15	25	3	010	010	010
Nr. 12-24	1,058	80	6,0	4,9	4,50	16	30	3			012
1/4-20	1,270	80	7,0	5,5	5,10	17	30	3	025	025	025
5/16-18	1,411	90	8,0	6,2	6,60	20	35	3	031	031	031
3/8-16	1,588	100	10,0	8,0	8,00	22	39	3	037	037	037



DIN 376 with reduced shank

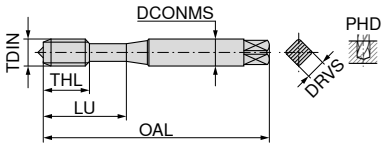
									22 573 ...
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes		
1/2-13	1,954	110	9	7,0	10,80	25	3		050
5/8-11	2,309	110	12	9,0	13,50	27	3		062
3/4-10	2,540	125	14	11,0	16,50	30	3		075
7/8-9	2,822	140	18	14,5	19,50	32	3		087
1-8	3,175	160	18	14,5	22,25	36	3		100

P	8	7	12
M	6	7	7
K			12
N	22		
S		5	
H			
O			

Through hole – Machine taps, right hand

UNC

UNI	FE-HF	VA
B	B	B
4–5	4–5	4–5
2B	2B	2B
TiN	TiCN	nitr.



DIN 371 with reinforced shank

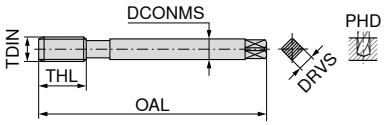


HSS-E
0°
≤ 1000 N/mm²
≤ 3xD

HSS-E
0°
≤ 1100 N/mm²
≤ 3xD

HSS-E
0°
≤ 1000 N/mm²
≤ 3xD

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	23 170 ...	23 370 ...	23 470 ...
Nr. 4-40	0,635	56	3,5	2,7	2,30	11	18	2	004	004	004
Nr. 6-32	0,794	56	4,0	3,0	2,85	12	20	3	006	006	006
Nr. 8-32	0,794	63	4,5	3,4	3,50	13	21	3	008	008	008
Nr. 10-24	1,058	70	6,0	4,9	3,90	15	25	3	010	010	010
1/4-20	1,270	80	7,0	5,5	5,20	17	30	3	025	025	025
5/16-18	1,411	90	8,0	6,2	6,60	20	35	3	031	031	031
3/8-16	1,588	100	10,0	8,0	8,00	22	39	3	037	037	037



DIN 376 with reduced shank

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 171 ...	23 371 ...	23 471 ...
7/16-14	1,814	100	8	6,2	9,40	22	3	043	043	043
1/2-13	1,954	110	9	7,0	10,75	25	3	050	050	050
5/8-11	2,309	110	12	9,0	13,50	27	3	062	062	062
3/4-10	2,540	125	14	11,0	16,50	30	3	075	075	075

P	15	15	8
M	9		6
K	18	15	
N	12	15	22
S			
H			
O			

Blind hole – Machine taps, right hand

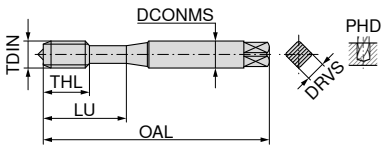
UNC | Salo-Rex

UNI | VA

C 2–3 | C 2–3

2B | 2B

vap. | vap.



DIN 371 with reinforced shank

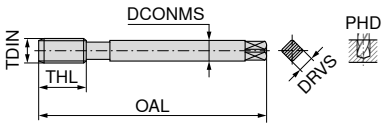




HSS-E
◁ 42°
≤ 1100 N/mm²
≤ 3xD

HSS-E
◁ 42°
≤ 900 N/mm²
≤ 3xD

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 582 ...	22 266 ...
Nr. 2-56	0,454	45	2,8	2,1	1,85	4,5	12	2	**002**	
Nr. 4-40	0,635	56	3,5	2,7	2,35	6,0	18	2	**004**	
Nr. 6-32	0,794	56	4,0	3,0	2,85	7,0	20	3	**006**	**006**
Nr. 8-32	0,794	63	4,5	3,4	3,50	8,0	21	3	**008**	**008**
Nr. 10-24	1,058	70	6,0	4,9	3,90	10,0	25	3	**010**	**010**
1/4-20	1,270	80	7,0	5,5	5,10	13,0	30	3	**025**	**025**
5/16-18	1,411	90	8,0	6,2	6,60	14,0	35	3	**031**	**031**
3/8-16	1,588	100	10,0	8,0	8,00	16,0	39	3	**037**	**037**



DIN 376 with reduced shank

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 583 ...	22 267 ...
7/16-14	1,814	100	8	6,2	9,40	18	3	**043**	
7/16-14	1,814	100	8	6,2	9,40	18	4		**043**
1/2-13	1,954	110	9	7,0	10,80	20	3	**050**	
1/2-13	1,954	110	9	7,0	10,80	20	4		**050**
9/16-12	2,117	110	11	9,0	12,25	20	3	**056**	
5/8-11	2,309	110	12	9,0	13,50	22	3	**062**	
5/8-11	2,309	110	12	9,0	13,50	22	4		**062**
3/4-10	2,540	125	14	11,0	16,50	25	3	**075**	
3/4-10	2,540	125	14	11,0	16,50	25	4		**075**
7/8-9	2,822	140	18	14,5	19,50	27	4	**087**	
1-8	3,175	160	18	14,5	22,25	30	4	**100**	
1-8	3,175	160	18	14,5	22,25	30	5		**100**

P	**12**	**8**
M	**7**	**6**
K	**12**	
N		**22**
S		
H		
O		

6

Blind hole – Machine taps, right hand

UNC

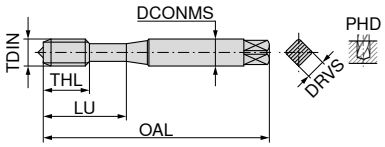
UNI | FE-HF | VA

C 2–3

2B

TiN | TiCN

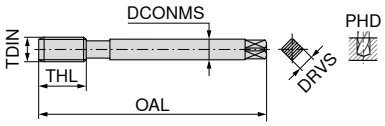




DIN 371 with reinforced shank

HSS-E
◁ 35°
≤ 1000 N/mm²
≤ 2,5xD

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	23 172 ...	23 372 ...	23 472 ...
Nr. 4-40	0,635	56	3,5	2,7	2,30	11	18	2		004	
Nr. 4-40	0,635	56	3,5	2,7	2,30	6	18	2	004		004
Nr. 6-32	0,794	56	4,0	3,0	2,85	7	20	3	006		006
Nr. 6-32	0,794	56	4,0	3,0	2,85	12	20	3		006	
Nr. 8-32	0,794	63	4,5	3,4	3,50	8	21	3	008		008
Nr. 8-32	0,794	63	4,5	3,4	3,50	13	21	3		008	
Nr. 10-24	1,058	70	6,0	4,9	3,90	10	25	3	010		010
Nr. 10-24	1,058	70	6,0	4,9	3,90	15	25	3		010	
1/4-20	1,270	80	7,0	5,5	5,20	13	30	3	025		025
1/4-20	1,270	80	7,0	5,5	5,20	17	30	3		025	
5/16-18	1,411	90	8,0	6,2	6,60	14	35	3	031		031
5/16-18	1,411	90	8,0	6,2	6,60	20	35	3		031	
3/8-16	1,588	100	10,0	8,0	8,00	16	39	3	037		037
3/8-16	1,588	100	10,0	8,0	8,00	22	39	3		037	



DIN 376 with reduced shank

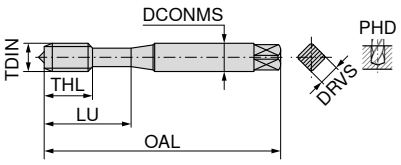
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 173 ...	23 373 ...	23 473 ...
7/16-14	1,814	100	8	6,2	9,40	22	3		043	
7/16-14	1,814	100	8	6,2	9,40	18	3	043		043
1/2-13	1,954	110	9	7,0	10,75	20	3	050		050
1/2-13	1,954	110	9	7,0	10,75	25	3		050	
5/8-11	2,309	110	12	9,0	13,50	22	3	062		062
5/8-11	2,309	110	12	9,0	13,50	27	3		062	
3/4-10	2,540	125	14	11,0	16,50	25	3	075		075
3/4-10	2,540	125	14	11,0	16,50	30	3		075	

P	15	15	8
M	9		6
K	18	15	
N	12	24	22
S			
H			
O			

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

UNC | Spanlos



DIN 2174 with reduced shank

	EC	EC SN
	C 2–3	C 2–3
	2BX	2BX
	TiN	TiN
		
	HSS-E ≤ 1100 N/mm² ≤ 1,5xD	HSS-E ≤ 1100 N/mm² ≤ 3xD
	22 270 ...	**22 271 ...**

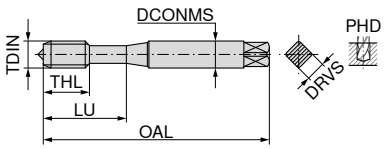
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes		
Nr. 4-40	0,635	56	3,5	2,7	2,55	11	18		**004**	
Nr. 4-40	0,635	56	3,5	2,7	2,55	11	18	3		**004**
Nr. 6-32	0,794	56	4,0	3,0	3,15	12	20		**006**	
Nr. 6-32	0,794	56	4,0	3,0	3,15	12	20	3		**006**
Nr. 8-32	0,794	63	4,5	3,4	3,80	13	21		**008**	
Nr. 8-32	0,794	63	4,5	3,4	3,80	13	21	4		**008**
Nr. 10-24	1,058	70	6,0	4,9	4,35	15	25		**010**	
Nr. 10-24	1,058	70	6,0	4,9	4,35	15	25	4		**010**
1/4-20	1,270	80	7,0	5,5	5,75	17	30		**025**	
1/4-20	1,270	80	7,0	5,5	5,75	17	30	4		**025**
5/16-18	1,411	90	8,0	6,2	7,30	20	35		**031**	
5/16-18	1,411	90	8,0	6,2	7,30	20	35	5		**031**
3/8-16	1,588	100	10,0	8,0	8,80	22	39		**037**	
3/8-16	1,588	100	10,0	8,0	8,80	22	39	5		**037**
P									**18**	**18**
M									**10**	**10**
K									**10**	**10**
N									**22**	**22**
S										
H										
O										

6

Through hole – machine taps for wire thread inserts, right hand

EG UNC | Stabil

UNI | B 4–5 | 2B | nitr. + vap.



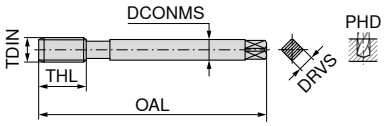
DIN 371 with reinforced shank



HSS-E
0°
≤ 1100 N/mm²
≤ 4xD

22 668 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
EG Nr. 4-40	0,635	63	4,5	3,4	3,1	13	21	3	**004**
EG Nr. 6-32	0,794	70	6,0	4,9	3,8	14	25	3	**006**
EG Nr. 8-32	0,794	80	6,0	4,9	4,4	16	30	3	**008**
EG Nr. 10-24	1,058	80	7,0	5,5	5,2	17	30	3	**010**
EG 1/4-20	1,270	90	8,0	6,2	6,7	20	35	3	**025**
EG 5/16-18	1,411	100	10,0	8,0	8,4	22	39	3	**031**



DIN 376 with reduced shank

22 670 ...

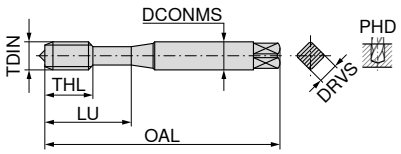
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	
EG 3/8-16	1,588	100	9	7,0	10,00	22	3	**037**
EG 7/16-14	1,814	110	11	9,0	11,60	26	3	**043**
EG 1/2-13	1,954	110	12	9,0	13,30	27	3	**050**
EG 5/8-11	2,309	125	14	11,0	16,50	30	3	**062**
EG 3/4-10	2,540	140	18	14,5	19,75	32	3	**075**

P	**12**
M	**7**
K	**12**
N	
S	
H	
O	

Blind hole – machine taps for wire thread inserts, right hand

EG UNC | Salo-Rex

UNI | E 1,5–2 | 2B | vap.



DIN 371 with reinforced shank



HSS-E
42°
≤ 1100 N/mm²
≤ 3xD

22 672 ...

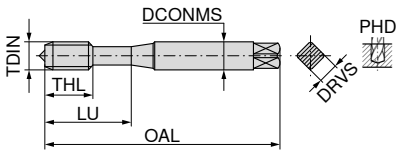
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
EG Nr. 4-40	0,635	63	4,5	3,4	3,1	7	21	3	**004**
EG Nr. 6-32	0,794	70	6,0	4,9	3,8	8	25	3	**006**
EG Nr. 8-32	0,794	80	6,0	4,9	4,4	8	30	3	**008**
EG Nr. 10-24	1,058	80	7,0	5,5	5,2	10	30	3	**010**
EG 1/4-20	1,270	90	8,0	6,2	6,7	14	35	3	**025**
EG 5/16-18	1,411	100	10,0	8,0	8,4	16	39	3	**031**

P	**12**
M	**7**
K	**12**
N	
S	
H	
O	

Blind hole – Machine taps, right hand

UNJC | SL

Ti | C 2–3 | 3BX | TiCN



DIN 371 with reinforced shank



HSS-E
15°
≤ 1200 N/mm²
≤ 2xD

22 166 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
Nr. 4-40	0,635	56	3,5	2,7	2,30	11	18	2	**004**
Nr. 6-32	0,794	56	4,0	3,0	2,85	12	20	3	**006**
Nr. 8-32	0,794	63	4,5	3,4	3,50	13	21	3	**008**
Nr. 10-24	1,058	70	6,0	4,9	3,90	15	25	3	**010**
1/4-20	1,270	80	7,0	5,5	5,25	17	30	3	**025**
3/8-16	1,588	100	10,0	8,0	8,10	22	39	3	**037**

P	**7**
M	**7**
K	
N	**22**
S	**5**
H	
O	

Through hole – Machine taps, right hand

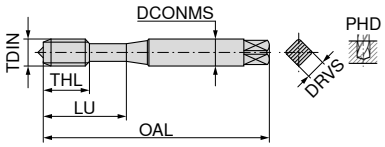
UNF | Stabil

UNI | Ti

B 4–5 | B 4–5

2B | 2BX

nitr. + vap. | TiN



DIN 371 with reinforced shank

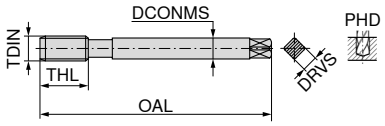




HSS-E
0°
≤ 1100 N/mm²
≤ 4xD

HSS-PM
0°
≤ 44 HRC
≤ 4xD

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 602 ...	22 317 ...
Nr. 4-48	0,529	56	3,5	2,7	2,40	11	18	2	004	
Nr. 4-48	0,529	56	3,5	2,7	2,40	11	18	3		004
Nr. 5-44	0,577	56	3,5	2,7	2,70	11	18	3		005
Nr. 6-40	0,635	56	4,0	3,0	2,95	12	20	3	006	006
Nr. 8-36	0,706	63	4,5	3,4	3,50	13	21	3	008	008
Nr. 10-32	0,794	70	6,0	4,9	4,10	15	25	3	010	010
1/4-28	0,907	80	7,0	5,5	5,50	17	30	3	025	025
5/16-24	1,058	90	8,0	6,2	6,90	17	35	3	031	031
3/8-24	1,058	90	10,0	8,0	8,50	18	35	3		037



DIN 374 with reduced shank

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 603 ...	22 421 ...
7/16-20	1,270	100	8	6,2	9,90	22	3	043	
1/2-20	1,270	100	9	7,0	11,50	22	3	050	050
9/16-18	1,411	100	11	9,0	12,90	22	3	056	
5/8-18	1,411	100	12	9,0	14,50	22	3	062	
3/4-16	1,588	110	14	11,0	17,50	25	4	075	
7/8-14	1,814	125	18	14,5	20,50	25	4	087	
1-12	2,117	140	18	14,5	23,25	28	4	100	
1 1/8-12	2,117	150	22	18,0	26,50	28	4	112	
1 1/4-12	2,117	150	22	18,0	29,75	28	4	125	
1 3/8-12	2,117	170	28	22,0	33,00	30	5	137	

P	12	7
M	7	7
K	12	
N		22
S		5
H		
O		

Through hole – Machine taps, right hand

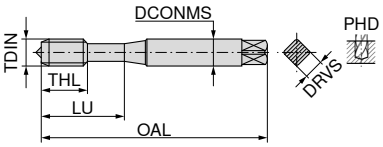
UNF

UNI | FE | VA

B 4–5

2B

TiN | | nitr.



DIN 371 with reinforced shank

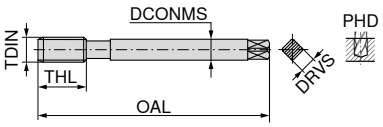


HSS-E | HSS-E | HSS-E

0° | 0° | 0°

≤ 1100 N/mm² ≤ 3xD | ≤ 850 N/mm² ≤ 3xD | ≤ 1100 N/mm² ≤ 3xD

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	23 180 ...	23 280 ...	23 480 ...
Nr. 10-32	0,794	70	6	4,9	4,1	15	25	3	010	010	010
1/4-28	0,907	80	7	5,5	5,5	17	30	3	025	025	025
5/16-24	1,058	90	8	6,2	6,9	17	35	3	031	031	031
3/8-24	1,058	90	10	8,0	8,5	18	35	4	037	037	037



DIN 374 with reduced shank

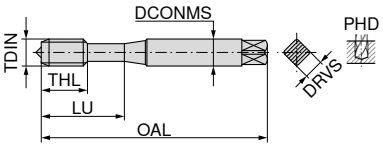
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 181 ...	23 281 ...	23 481 ...
7/16-20	1,270	100	8	6,2	9,9	22	3	043	043	043
1/2-20	1,270	100	9	7,0	11,5	22	3	050	050	050
9/16-18	1,411	100	11	9,0	12,9	22	3	056	056	056
5/8-18	1,411	100	12	9,0	14,5	22	3	062	062	062
3/4-16	1,588	110	14	11,0	17,5	25	4	075	075	075

P	15	12	8
M	9		6
K	18	12	
N	12	22	22
S			
H			
O			

Blind hole – Machine taps, right hand

UNF | Salo-Rex

VA	UNI	UNI
E 1,5–2	C 2–3	E 1,5–2
2B	2B	2B +0,05
vap.	vap.	vap.

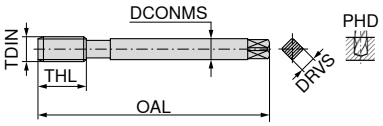


DIN 371 with reinforced shank



HSS-E ◁ 42° ≤ 900 N/mm² ≤ 3xD | HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD | HSS-E ◁ 42° ≤ 1100 N/mm² ≤ 3xD

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 308 ...	22 606 ...	22 307 ...
Nr. 2-64	0,397	45	2,8	2,1	1,85	4,5	12	2	002		
Nr. 4-48	0,529	56	3,5	2,7	2,40	6,0	18	2	004	004	
Nr. 6-40	0,635	56	4,0	3,0	2,95	7,0	20	3	006	006	
Nr. 6-40	0,635	56	4,0	3,0	3,00	7,0	20	3			006
Nr. 8-36	0,706	63	4,5	3,4	3,50	8,0	21	3	008	008	
Nr. 10-32	0,794	70	6,0	4,9	4,10	10,0	25	3	010	010	
Nr. 10-32	0,794	70	6,0	4,9	4,15	10,0	25	3			010
1/4-28	0,907	80	7,0	5,5	5,50	10,0	30	3	025	025	
1/4-28	0,907	80	7,0	5,5	5,55	10,0	30	3			025
5/16-24	1,058	90	8,0	6,2	6,90	10,0	35	3	031	031	
5/16-24	1,058	90	8,0	6,2	6,95	10,0	35	3			031
3/8-24	1,058	90	10,0	8,0	8,50	10,0	35	3	037		
3/8-24	1,058	90	10,0	8,0	8,55	10,0	35	3			037



DIN 374 with reduced shank

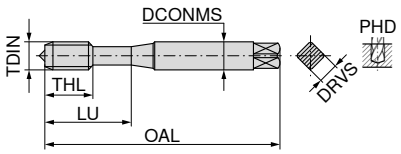
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 607 ...	22 409 ...
7/16-20	1,270	100	8	6,2	9,90	13	3	043	
7/16-20	1,270	100	8	6,2	9,95	13	4		043
1/2-20	1,270	100	9	7,0	11,50	13	4	050	
1/2-20	1,270	100	9	7,0	11,55	13	5		050
9/16-18	1,411	100	11	9,0	12,90	15	4	056	
9/16-18	1,411	100	11	9,0	12,95	15	5		056
5/8-18	1,411	100	12	9,0	14,50	15	4	062	
5/8-18	1,411	100	12	9,0	14,55	15	5		062
3/4-16	1,588	110	14	11,0	17,50	17	4	075	
3/4-16	1,588	110	14	11,0	17,55	17	5		075
7/8-14	1,814	125	18	14,5	20,50	17	4	087	
1-12	2,117	140	18	14,5	23,25	20	4	100	
1-12	2,117	140	18	14,5	23,30	20	5		100
1 1/8-12	2,117	150	22	18,0	26,50	22	4	112	
1 1/4-12	2,117	150	22	18,0	29,75	22	5	125	
1 3/8-12	2,117	170	28	22,0	33,00	24	5	137	

P	8	12	12
M	6	7	7
K		12	12
N	22		22
S			
H			
O			

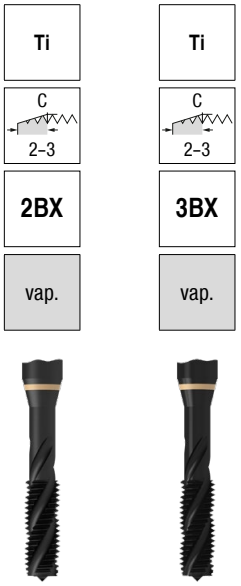
6

Blind hole – Machine taps, right hand

UNF | SL



DIN 371 with reinforced shank



HSS-PM
◁ 30°
≤ 1400 N/mm²
≤ 1,5xD

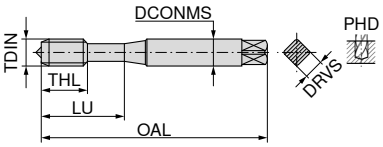
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 302 ...	22 303 ...
Nr. 10-32	0,794	70	6	4,9	4,1	10	25	3	**010**	**010**
1/4-28	0,907	80	7	5,5	5,5	10	30	3	**025**	**025**
5/16-24	1,058	90	8	6,2	6,9	10	35	3	**031**	**031**
3/8-24	1,058	90	10	8,0	8,5	10	35	3	**037**	**037**
P									**5**	**5**
M									**5**	**5**
K										
N									**22**	**22**
S									**3**	**3**
H										
O										

Blind hole – Machine taps, right hand

UNF

UNI
C
2–3
2B
TiN

VA
C
2–3
2B



DIN 371 with reinforced shank

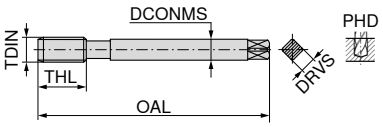




HSS-E
◁ 35°
≤ 1100 N/mm²
≤ 2,5xD

HSS-E
◁ 35°
≤ 1100 N/mm²
≤ 2,5xD

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	23 182 ...		23 482 ...	
Nr. 10-32	0,794	70	6	4,9	4,1	10	25	3	**010**		**010**	
1/4-28	0,907	80	7	5,5	5,5	10	30	3	**025**		**025**	
5/16-24	1,058	90	8	6,2	6,9	10	35	3	**031**		**031**	
3/8-24	1,058	90	10	8,0	8,5	10	35	3	**037**		**037**	



DIN 374 with reduced shank

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 183 ...		23 483 ...	
7/16-20	1,270	100	8	6,2	9,9	13	3	**043**		**043**	
1/2-20	1,270	100	9	7,0	11,5	13	4	**050**		**050**	
9/16-18	1,411	100	11	9,0	12,9	15	4	**056**		**056**	
5/8-18	1,411	100	12	9,0	14,5	15	4	**062**		**062**	
3/4-16	1,588	110	14	11,0	17,5	17	4	**075**		**075**	

P	**15**	**8**
M	**9**	**6**
K	**18**	
N	**12**	**22**
S		
H		
O		

6

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

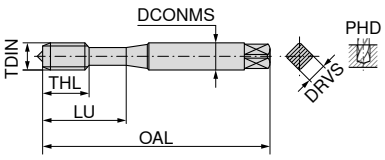
UNF | Spanlos

EC
SN

C
2–3

2BX

TiN



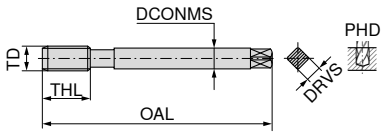
DIN 2174 with reduced shank



HSS-E
≤ 1100 N/mm²
≤ 3xD

22 312 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
Nr. 4-48	0,529	56	3,5	2,7	2,62	11	18	3	**004**
Nr. 6-40	0,635	56	4,0	3,0	3,22	12	20	3	**006**
Nr. 8-36	0,706	63	4,5	3,4	3,85	13	21	4	**008**
Nr. 10-32	0,794	70	6,0	4,9	4,45	15	25	4	**010**
1/4-28	0,907	80	7,0	5,5	5,95	17	30	4	**025**



DIN 2174 with reduced shank

22 313 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	
7/16-20	1,27	100	8	6,2	10,55	22	6	**043**
1/2-20	1,27	100	9	7,0	12,15	22	6	**050**

P	**18**
M	**10**
K	**10**
N	**22**
S	
H	
O	

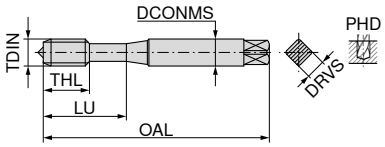
Through hole – machine taps for wire thread inserts, right hand

EG UNF | Stabil

UNI | B 4–5 | 2B | nitr. + vap.



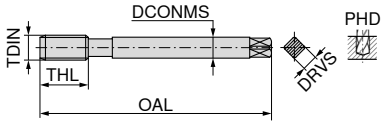
HSS-E
0°
≤ 1100 N/mm²
≤ 4xD



DIN 371 with reinforced shank

22 676 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
EG Nr. 4-48	0,529	56	4	3,0	3,0	9	20	3	**004**
EG Nr. 6-40	0,635	70	6	4,9	3,7	11	25	3	**006**
EG Nr. 8-36	0,706	80	6	4,9	4,4	13	30	3	**008**
EG Nr. 10-32	0,794	80	6	4,9	5,1	13	30	3	**010**
EG 1/4-28	0,907	90	8	6,2	6,6	17	35	3	**025**



DIN 374 with reduced shank

22 677 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	
EG 3/8-24	1,058	90	8	6,2	9,80	18	4	**037**
EG 7/16-20	1,270	100	9	7,0	11,50	22	3	**043**
EG 1/2-20	1,270	100	11	9,0	13,10	22	3	**050**
EG 5/8-18	1,411	110	14	11,0	16,25	25	4	**062**
EG 3/4-16	1,588	125	16	12,0	19,50	25	4	**075**

P	**12**
M	**7**
K	**12**
N	
S	
H	
O	

Blind hole – machine taps for wire thread inserts, right hand

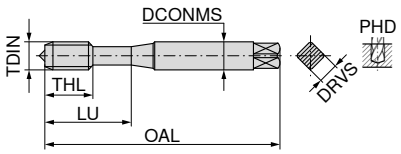
EG UNF | Salo-Rex

UNI

E
1,5–2

2B

vap.



DIN 371 with reinforced shank



HSS-E
42°
≤ 1100 N/mm²
≤ 3xD

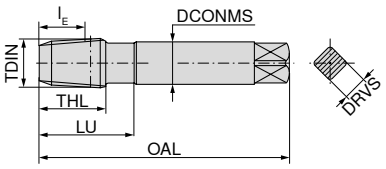
22 680 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	
EG Nr. 4-48	0,529	56	4	3,0	3,0	7	20	3	**004**
EG Nr. 6-40	0,635	70	6	4,9	3,7	8	25	3	**006**
EG Nr. 8-36	0,706	80	6	4,9	4,4	8	30	3	**008**
EG Nr. 10-32	0,794	80	6	4,9	5,1	8	30	3	**010**
EG 1/4-28	0,907	90	8	6,2	6,6	10	35	3	**025**

P	**12**
M	**7**
K	**12**
N	
S	
H	
O	

Blind hole – Machine taps, right hand

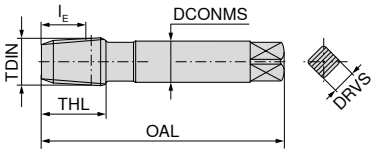
NPT | Salo-Rex



DIN 371 with reinforced shank

	VA	VA
	C 2–3	C 2–3
	vap.	TiN
		
	HSS-E ◁ 35° ≤ 900 N/mm²	HSS-E ◁ 42° ≤ 1100 N/mm²
	22 364 ...	**22 365 ...**

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	l_E mm	THL mm	LU mm	Flutes		
1/16-27	0,941	90	8	6,2	9,24	13,0	26,0	3	**006**	
1/8-27	0,941	90	10	8,0	9,28	13,0	26,0	3	**012**	
1/8-27	0,941	90	10	8,0	9,28	12,0	26,0	4		**012**
1/4-18	1,411	100	14	11,0	13,55	19,5	34,5	3	**025**	
1/4-18	1,411	100	14	11,0	13,55	18,0	34,5	4		**025**



DIN 374 with reduced shank

									22 371 ...	22 372 ...
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	l_E mm	THL mm	Flutes			
3/8-18	1,411	110	14	11	13,86	19,5	3		**037**	
3/8-18	1,411	110	14	11	13,86	18,0	5			**037**
1/2-14	1,814	140	16	12	18,11	25,0	5		**050**	
1/2-14	1,814	140	16	12	18,11	23,0	5			**050**
3/4-14	1,814	150	20	16	18,59	26,0	5		**075**	
1-11,5	2,209	170	25	20	22,31	32,0	5		**100**	

P	**4**	**5**
M	**3**	**4**
K		
N	**22**	**22**
S		
H		
O		

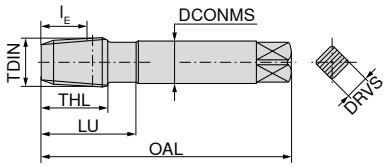
6

Through hole / Blind hole – Machine taps, right hand

NPT | TWIN

VG

C
2–3



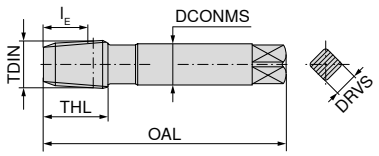
DIN 371 with reinforced shank



HSS-E
0°
≤ 1100 N/mm²

22 374 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	l_E mm	THL mm	LU mm	Flutes	
1/16-27	0,941	90	8	6,2	9,24	13,0	26,0	3	**006**
1/8-27	0,941	90	10	8,0	9,28	13,0	26,0	3	**012**
1/4-18	1,411	100	14	11,0	13,55	19,5	34,5	3	**025**



DIN 374 with reduced shank

22 375 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	l_E mm	THL mm	Flutes	
3/8-18	1,411	110	14	11	13,86	19,5	3	**037**
1/2-14	1,814	140	16	12	18,11	25,0	5	**050**
3/4-14	1,814	150	20	16	18,59	26,0	5	**075**
1-11,5	2,209	170	25	20	22,31	30,0	5	**100**

P	**4**
M	
K	**6**
N	**22**
S	
H	
O	

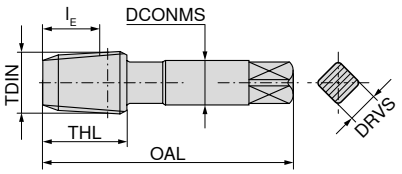
Through hole / Blind hole – Machine taps, right hand

▲ ES = extra short

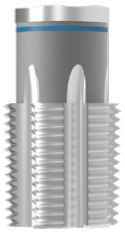
NPT | TWIN

ST
ES

C
2–3



DIN 2181 with reduced shank



HSS-E
0°
≤ 750 N/mm²

22 361 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	l_E mm	THL mm	Flutes	
1/16-27	0,941	63	6	4,9	9,24	13,0	4	**006**
1/8-27	0,941	63	7	5,5	9,28	13,0	5	**012**
1/4-18	1,411	63	11	9,0	13,55	19,5	5	**025**
3/8-18	1,411	70	12	9,0	13,86	19,5	5	**037**
1/2-14	1,814	80	16	12,0	18,11	23,0	5	**050**
3/4-14	1,814	100	20	16,0	18,59	26,0	6	**075**
1-11,5	2,209	110	25	20,0	22,31	32,0	6	**100**

P	**6**
M	
K	**6**
N	**22**
S	
H	
O	

6

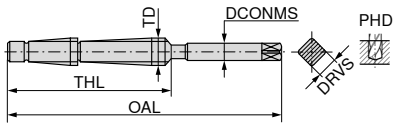
Through hole – Machine taps, right hand

▲ Single finishing trapezoidal taps (2 steps)
▲ do not reverse

Tr

ST

7H





Factory standard

HSS-E
5°
≤ 900 N/mm²
≤ 2xD

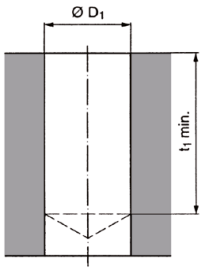
22 402 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	
Tr 8	1,5	105	6	4,9	6,60	55	3	**080**
Tr 9	2,0	130	7	5,5	7,20	70	3	**090**
Tr 10	2,0	130	7	5,5	8,20	70	3	**102**
Tr 10	3,0	155	7	5,5	7,25	95	3	**103**
Tr 12	3,0	160	9	7,0	9,25	95	3	**123**
Tr 14	3,0	170	10	8,0	11,25	100	3	**143**
Tr 14	4,0	195	10	8,0	10,25	125	3	**144**
Tr 16	4,0	225	12	9,0	12,25	130	3	**164**
Tr 18	4,0	225	14	11,0	14,25	116	3	**184**
Tr 20	4,0	225	16	12,0	16,25	130	3	**204**
Tr 22	5,0	260	16	12,0	17,25	160	3	**225**
Tr 24	5,0	285	18	14,5	19,25	165	3	**245**

P	●
M	
K	●
N	●
S	
H	
O	

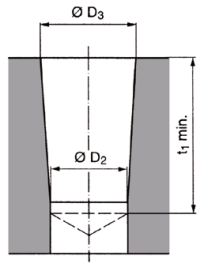
Core hole diameters for taper threads (taper 1:16)

Pre-drilling of cylindrical holes without reamer



		NPT		NPTF				Rc	
Ø d_1 inch	Pitch Gg/1"	Ø D_1 mm	t_1 min. mm	Ø D_1 mm	t_1 min. mm	Ø d_1 inch	Pitch Gg/1"	Ø D_1 mm	t_1 min. mm
1/16	27	6,15	12	6,1	12	1/16	28	6,2	11,9
1/8	27	8,5	12	8,45	12	1/8	28	8,2	11,9
1/4	18	11	17,5	10,9	17,5	1/4	19	10,85	16,3
3/8	18	14,5	17,6	14,3	17,6	3/8	19	14,5	18,1
1/2	14	17,85	22,9	17,6	22,9	1/2	14	18	24
3/4	14	23,2	23	23	23	3/4	14	23,5	25,3
1	11½	29,5	27,4	28,75	27,4	1	11	29,5	30,6
1¼	11½	37,8	28,1	37,5	28,1				
1½	11½	44	28,4	43,75	28,4				
2	11½	56	28,4	55,75	28,4				

Pre-drilling of cylindrical holes and conical boring with reamer

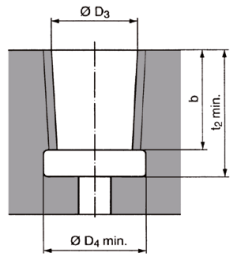


Taper 1:16

		NPT			NPTF		
Ø d_1 inch	Pitch Gg/1"	Ø d_2 mm	Ø d_3 mm	t_1 min. mm	Ø D_2 mm	Ø D_3 mm	t_1 min. mm
1/16	27	5,95	6,39	12	5,95	6,41	12
1/8	27	8,25	8,74	12	8,25	8,76	12
1/4	18	10,75	11,36	17,5	10,75	11,4	17,5
3/8	18	14,1	14,8	17,6	14,1	14,84	17,6
1/2	14	17,5	18,32	22,9	17,5	18,33	22,9
3/4	14	22,7	23,67	23	22,7	23,68	23
1	11½	28,6	29,69	27,4	28,6	29,72	27,4
1¼	11½	37,3	38,45	28,1	37,3	38,48	28,1
1½	11½	43,4	44,52	28,4	43,4	44,5	28,4
2	11½	55,5	56,56	28,4	55,5	56,59	28,4

		Rc		
Ø d_1 inch	Pitch Gg/1"	Ø D_2 mm	Ø D_3 mm	t_1 min. mm
1/16	28	6,1	6,56	11,9
1/8	28	8,1	8,57	11,9
1/4	19	10,75	11,45	17,7
3/8	19	14,25	14,95	18,1
1/2	14	17,75	18,63	24
3/4	14	23	24,12	25,3
1	11	29	30,29	30,6

Recommendation for the pre-drilling of blind hole threads



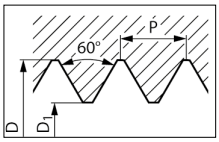
Taper 1:16

		NPT				NPTF			
Ø d_1 inch	Pitch Gg/1"	Ø D_3 mm	b mm	t_2 min. mm	Ø D_4 mm	Ø D_3 mm	b mm	t_2 min. mm	Ø D_4 min. mm
1/16	27	6,39	7	10	7,6	6,41	8	11	7,4
1/8	27	8,74	7	10	10	8,76	8	11	9,8
1/4	18	11,36	10,2	14,5	13,1	11,4	11,6	15,5	12,9
3/8	18	14,8	10,6	15	16,5	14,84	12	16	16,3
1/2	14	18,32	13,8	19	20,5	18,33	15,6	20,5	20,3
3/4	14	23,67	14,2	20	25,8	23,68	16	21,5	25,6
1	11½	29,69	17	24	32,2	29,72	19,2	26	32
1¼	11½	38,45	17,5	24,5	41	38,48	19,7	26,5	40,8
1½	11½	44,52	17,5	24,5	47,2	44,5	19,7	26,5	47
2	11½	56,56	18	25	59,2	56,59	20,2	27	59

		Rc			
Ø d_1 inch	Pitch Gg/1"	Ø D_3 mm	b mm	t_2 min. mm	Ø D_4 min. mm
1/16	28	6,56	5,6	9,5	7,6
1/8	28	8,57	5,6	9,5	9,6
1/4	19	11,45	8,4	14	13
3/8	19	14,95	8,8	14,4	16,5
1/2	14	18,63	11,4	19	20,6
3/4	14	24,12	12,7	20,3	26
1	11	30,29	14,5	24,3	32,8

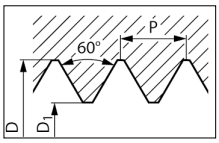
Tapped hole pilot diameter

M ISO metric coarse threads 6H to DIN 13 and DIN ISO 965-1 (M1-M1,4 = 5H)



Thread nominal Ø		Ø D_1		Core hole	Thread nominal Ø		Ø D_1		Core hole
D	P	min.	max.		D	P	min.	max.	
M1	0,25	0,729	0,785	0,75	M12	1,75	10,106	10,441	10,2
M1,1	0,25	0,829	0,885	0,85	M14	2,0	11,835	12,210	12
M1,2	0,25	0,929	0,985	0,95	M16	2,0	13,835	14,210	14
M1,4	0,3	1,075	1,142	1,1	M18	2,5	15,294	15,744	15,5
M1,6	0,35	1,221	1,321	1,25	M20	2,5	17,294	17,744	17,5
M1,8	0,35	1,421	1,521	1,45	M22	2,5	19,294	19,744	19,5
M2	0,4	1,567	1,679	1,6	M24	3,0	20,752	21,252	21
M2,2	0,45	1,713	1,838	1,75	M27	3,0	23,752	24,252	24
M2,5	0,45	2,013	2,138	2,05	M30	3,5	26,211	26,771	26,5
M3	0,5	2,459	2,599	2,5	M33	3,5	29,211	29,771	29,5
M3,5	0,6	2,850	3,010	2,9	M36	4,0	31,670	32,270	32
M4	0,7	3,242	3,422	3,3	M39	4,0	34,670	35,270	35
M4,5	0,75	3,688	3,878	3,7	M42	4,5	37,129	37,799	37,5
M5	0,8	4,134	4,334	4,2	M45	4,5	40,129	40,799	40,5
M6	1,0	4,917	5,153	5	M48	5,0	42,587	43,297	43
M7	1,0	5,917	6,153	6	M52	5,0	46,587	47,297	47
M8	1,25	6,647	6,912	6,8	M56	5,5	50,046	50,796	50,5
M9	1,25	7,647	7,912	7,8	M60	5,5	54,046	54,796	54,5
M10	1,5	8,376	8,676	8,5	M64	6,0	57,505	58,305	58
M11	1,5	9,376	9,676	9,5	M68	6,0	61,505	62,305	62

MF ISO metric fine threads 6H to DIN 13 and DIN ISO 965-1

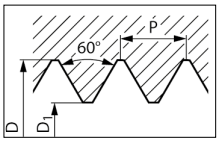


Thread nominal Ø			Ø D_1		Core hole	Thread nominal Ø			Ø D_1		Core hole
D	x	P	min.	max.		D	x	P	min.	max.	
M2	x	0,25	1,729	1,774	1,75	M20	x	1,0	18,917	19,153	19
M2,2	x	0,25	1,929	1,974	1,95	M20	x	1,5	18,376	18,676	18,5
M2,5	x	0,35	2,121	2,221	2,15	M20	x	2,0	17,835	18,210	18
M3	x	0,35	2,621	2,721	2,65	M24	x	1,5	22,376	22,676	22,5
M3,5	x	0,35	3,121	3,221	3,15	M30	x	2,0	27,835	28,210	28
M4	x	0,35	3,621	3,721	3,65	M36	x	1,5	34,376	34,676	34,5
M4	x	0,5	3,459	3,599	3,5	M36	x	3,0	32,752	33,252	33
M4,5	x	0,5	3,959	4,099	4	M42	x	2,0	39,835	40,210	40
M5	x	0,5	4,459	4,599	4,5	M48	x	1,5	46,376	46,676	46,5
M6	x	0,5	5,459	5,599	5,5	M48	x	3,0	44,752	45,252	45
M6	x	0,75	5,188	5,378	5,2	M48	x	4,0	43,670	44,270	44
M8	x	0,75	7,188	7,378	7,2	M56	x	1,5	54,376	54,676	54,5
M8	x	1,0	6,917	7,153	7	M56	x	2,0	53,835	54,210	54
M10	x	0,75	9,188	9,378	9,2	M56	x	3,0	52,752	53,252	53
M10	x	1,0	8,917	9,153	9	M56	x	4,0	51,670	52,270	52
M10	x	1,25	8,647	8,912	8,8	M64	x	3,0	60,752	61,252	61
M12	x	1,0	10,917	11,153	11	M64	x	4,0	59,670	60,270	60
M12	x	1,5	10,376	10,676	10,5	M72	x	4,0	67,670	68,270	68
M14	x	1,25	12,647	12,912	12,8	M80	x	6,0	73,505	74,305	74
M16	x	1,0	14,917	15,153	15	M95	x	6,0	88,505	89,305	89
M16	x	1,5	14,376	14,676	14,5	M110	x	6,0	103,505	104,305	104

Dimensions in mm; P = Pitch

Thread former pilot hole diameter

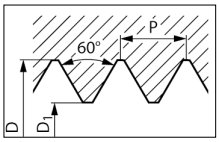
M ISO metric coarse threads 6H to DIN 13 and DIN ISO 965-1 (M1-M1,4 = 5H)



Thread nominal Ø		Ø D_1		Core hole
D	P	min.	max.	
M1	0,25	0,89		0,9
M1,2	0,25	1,09		1,1
M1,4	0,3	1,26		1,26
M1,6	0,35	1,45		1,45
M1,8	0,35	1,65		1,65
M2	0,4	1,83	1,86	1,85
M2,2	0,45	2,00	2,04	2,0
M2,5	0,45	2,30	2,34	2,3
M3	0,5	2,77	2,82	2,8
M3,5	0,6	3,23	3,28	3,25
M4	0,7	3,68	3,73	3,7
M4,5	0,75	4,15	4,21	4,15
M5	0,8	4,63	4,68	4,65

Thread nominal Ø		Ø D_1		Core hole
D	P	min.	max.	
M6	1	5,51	5,59	5,55
M7	1	6,51	6,59	6,55
M8	1,25	7,39	7,48	7,4
M9	1,25	8,39	8,48	8,4
M10	1,5	9,25	9,35	9,3
M11	1,5	10,25	10,35	10,3
M12	1,75	11,12	11,25	11,2
M14	2	13,00	13,15	13,0
M16	2	15,00	15,15	15,0
M18	2,5	16,72	16,90	16,8
M20	2,5	18,72	18,90	18,8
M22	2,5	20,72	20,9	20,8
M24	3	22,46	22,7	22,5

MF ISO metric fine threads 6H to DIN 13 and DIN ISO 965-1



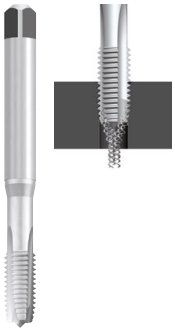
Thread nominal Ø			Ø D_1		Core hole
D	x	P	min.	max.	
M2	x	0,25	1,89		1,9
M2,2	x	0,25	2,09		2,1
M2,5	x	0,25	2,39		2,4
M2,5	x	0,35	2,35		2,35
M3	x	0,25	2,89		2,9
M3	x	0,35	2,85		2,85
M3,5	x	0,35	3,35		3,35
M3,5	x	0,5	3,27	3,32	3,3
M4	x	0,35	3,85		3,85
M4	x	0,5	3,77	3,82	3,8
M4,5	x	0,5	4,27	4,32	4,3
M5	x	0,5	4,77	4,82	4,8
M5	x	0,75	4,65	4,71	4,65
M5,5	x	0,5	5,27	5,32	5,3
M6	x	0,5	5,78	5,83	5,8
M6	x	0,75	5,65	5,71	5,65
M7	x	0,5	6,78	6,83	6,8
M7	x	0,75	6,65	6,71	6,65
M8	x	0,5	7,78	7,83	7,8
M8	x	0,75	7,65	7,71	7,65
M8	x	1,0	7,51	7,59	7,55
M9	x	0,5	8,78	8,83	8,8
M9	x	0,75	8,65	8,71	8,65
M9	x	1,0	8,51	8,59	8,55
M10	x	0,5	9,78	9,83	9,8
M10	x	0,75	9,65	9,71	9,65
M10	x	1,0	9,51	9,59	9,55
M10	x	1,25	9,39	9,48	9,4
M11	x	0,75	10,65	10,71	10,7
M11	x	1,0	10,51	10,59	10,5
M12	x	0,75	11,66	11,72	11,7

Thread nominal Ø			Ø D_1		Core hole
D	x	P	min.	max.	
M12	x	1,0	11,52	11,6	11,5
M12	x	1,25	11,4	11,49	11,4
M12	x	1,5	11,26	11,36	11,3
M13	x	0,75	12,66	12,72	12,7
M13	x	1,0	12,52	12,6	12,5
M13	x	1,5	12,26	12,36	12,3
M14	x	0,75	13,66	13,72	13,7
M14	x	1,0	13,52	13,6	13,5
M14	x	1,25	13,4	13,49	13,4
M14	x	1,5	13,26	13,36	13,3
M15	x	0,75	14,66	14,72	14,7
M15	x	1,0	14,52	14,6	14,5
M15	x	1,5	14,26	14,36	14,3
M16	x	0,75	15,66	15,72	15,7
M16	x	1,0	15,52	15,6	15,5
M16	x	1,5	15,26	15,36	15,3
M18	x	1,0	17,52	17,6	17,5
M18	x	1,5	17,26	17,36	17,3
M18	x	2,0	17	17,15	17
M20	x	1,0	19,52	19,6	19,5
M20	x	1,5	19,26	19,36	19,3
M20	x	2,0	19	19,15	19
M22	x	1,5	21,26	21,36	21,3
M22	x	2,0	21	21,15	21
M24	x	1,5	23,26	23,38	23,3
M24	x	2,0	23,01	23,16	23
M25	x	1,5	24,26	24,38	24,3
M26	x	1,5	25,26	25,38	25,3
M27	x	2,0	26,01	26,16	26
M28	x	1,5	27,26	27,38	27,25
M30	x	1,5	29,26	29,38	29,25
M30	x	2,0	29,01	29,16	29

Dimensions in mm; P = Pitch

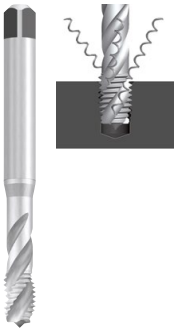
Tap Type Explanation

Stabil Through hole tap type Stabil



- For through holes up to 4xD
- Lead Form B: 3.5–5 cutting leads, with spiral point
- Straight Flutes
- Also suitable for synchronised machining, with Wedlon flat and with extra long version
- Due to the special geometry of the flutes, the chips are removed in the direction of cut

Salo-Rex Blind hole tap type Salo-Rex



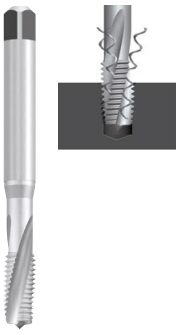
- For blind holes up to 3xD
- Lead Form C: 2–3 cutting leads, without spiral point
- Lead Form E: 1.5–2 cutting leads, without spiral point
- (35°, 42°, 45°, 50°) right hand helix
- Also suitable for syncronised machining, with Weldon flat, with extra long version and through coolant
- The high helix angle ensures chips are discharged effectively against the direction of cut

TWIN Through and blind hole tap Type TWIN



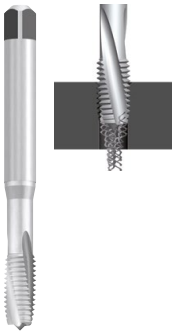
- For blind and through holes up to 2xD
- Lead Form C: 2–3 cutting leads, without spiral point
- Lead Form D: 3.5–5 cutting leads, without spiral point
- Lead Form E: 1.5–2 cutting leads, without spiral point
- Straight Flutes
- For steel, short chipping and hardened materials to 55 (62) HRc
- Also with extra long version and through coolant

SL Blind hole tap type SL



- For blind holes up to 2xD
- Lead Form C: 2–3 cutting leads, without spiral point
- Lead Form E: 1.5–2 cutting leads, without spiral point
- (15°, 25°, 30°) slow right hand helix
- For steel, titanium alloys and Inconel 718
- Also suitable for synchronised machining, with extra long version and through coolant
- Also suitable for difficult operating conditions such as cross holes

DL Through hole tap type DL



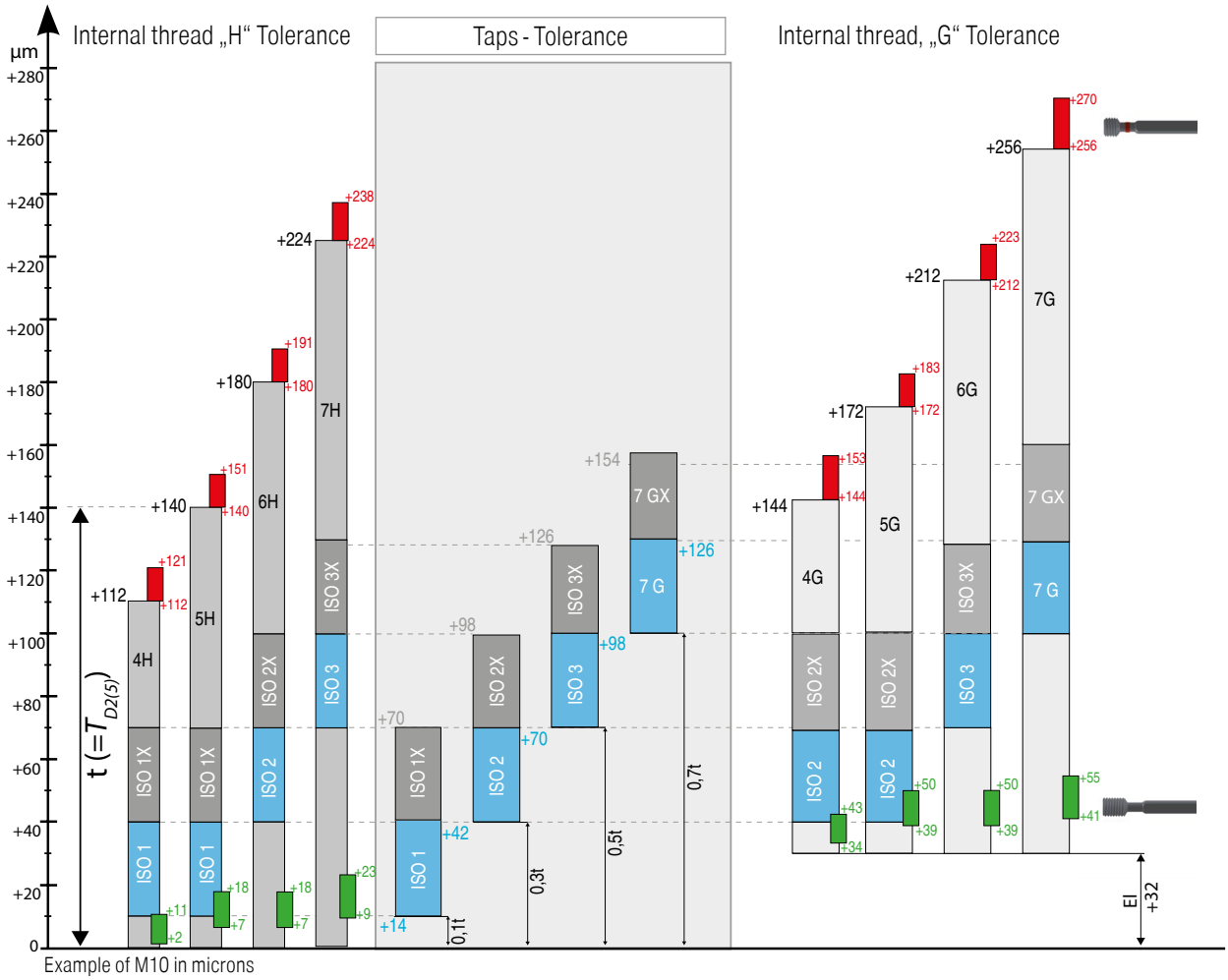
- For through holes up to 4xD
- Lead Form C: 3.5–5 cutting leads, without spiral point
- 15° left hand helix
- Suitable for steel, titanium alloys and Inconel 718
- The chips are discharged in the direction of cut

Spanlos Thread former type Spanlos



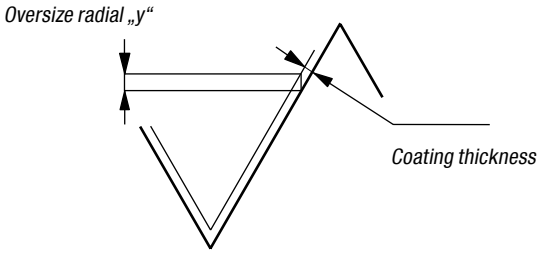
- For blind and through holes up to 3xD
- Lead Form C: 2–3 cutting leads, without spiral point
- For cold formable materials up to 1400 N/mm^2
- Suitable for synchronised machining, with lubrication grooves and internal cooling

Thread tolerances and recommended manufacturing tolerances



Workpieces to be plated require oversize taps.
The interference depends on the coating thickness and the flank angle.

at	60° Flank angle	Oversize ≙ 4 x coating thickness
	55° Flank angle	Oversize ≙ 4.331 x coating thickness
	30° Flank angle	Oversize ≙ 7.727 x coating thickness

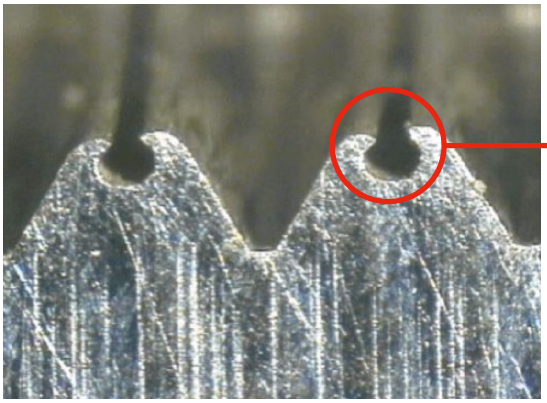


Application class of the tap Designation according to		Tolerance class of the internal thread to be cut				
DIN	ISO					
4H	ISO1	4H	5H	–	–	–
6H	ISO2	4G	5G	6H	–	–
6G	ISO3	–	(4E)	6G	7H	8H
7G	–	–	–	(6E)	7G	8G

For special applications, e.g. abrasive cast iron materials or plastics other dimensions have to be chosen which are determined on previous experience. In such cases an „X“ is added to the short designation of the tolerance, e.g. ISO 2X, however the tolerance zone assignment may be limited (6HX for tolerance zone 6H and 5G). In addition it should be taken into account that the dimensions of the internal thread do not only depend on the dimensions of the tap but on the material to be machined and all production conditions. For first taps and intermediate taps no thread dimensions are determined.

Thread formers

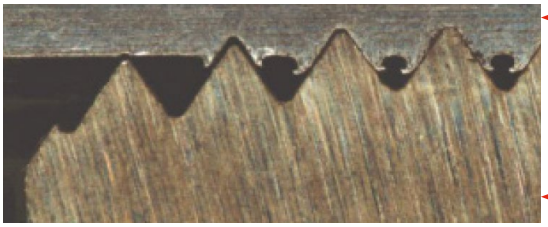
Spanlos thread forming taps for cold-formable materials up to 1400 N/mm² or at least 5 % elongation.
The thread is produced by plastic deformation. The molded thread has very high strength.



Prior to forming a thread, you should ensure that a molded thread is acceptable. In certain sectors, the forming of a thread is **not** permitted. Dirt or bacteria can settle in the formed crown.

Important

Incremental pressure forming

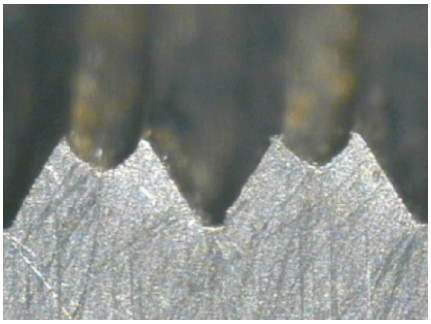




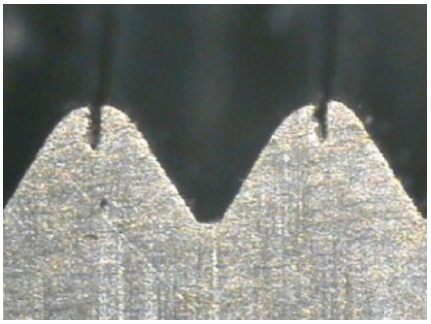
The thread profile is pressed gradually into the material via the start (leading edge) of the tap.

Properties

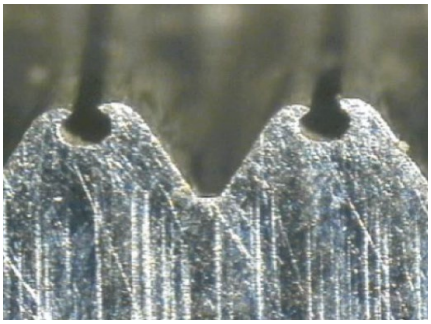
- One type can be used in different materials
- For through and blind holes
- Very good thread surface quality
- High static and dynamic strength thread
- Secure machining of deep and counterbored threads
- Short machining times
- No chip problems
- No swarf
- High process security
- HSS-E and HSS-PM taps for materials up to 33 HRC with a minimum elongation of 5 %



Underformed – core hole too large



Overformed – core hole too small



Perfect form – Core hole correct

Troubleshooting

Poor tool life

Cause

- Overload fractures of the cutting edge on the lead
- Hardness or tool material not suitable for the application
- Core hole too small, or work hardened
- Insufficient lubrication or incorrect application parameters

Remedy

- A longer lead or more flutes for the same lead length, giving a greater number of cutting teeth
- In reground tools the hardness can be reduced, apply correct parameters for regrinding
- Increase frequency of changes or regrinding of the drill
- Use the correct operating parameters for drilling
- Select the correct lubricant and ensure adequate supply

Axial thread error

Cause

- Selected geometry is not suitable
- Spindle speed is wrong compared with feed (synchronisation error)
- Blind hole taps are used with high feed pressure
- Through hole taps are used with low feed pressure

Remedy

- Check programming and pitch control or machine synchronisation
- Use tapping chuck with length compensation
- Increase retraction feed pessure
- Increase feed pessure

Oversize thread

Cause

- Thread tolerances of tool and thread gauge do not match
- Burred tool edges after regrinding
- Cold pressure welding

Remedy

- Check the correct tolerances for tool and thread gauge
- Carefully deburr
- Use appropriate (positive) geometry
- Reduce cutting speed
- Use different surface treatment or coating
- Use tapping chuck with length compensation
- Use appropriate lubricant

Broken tool

Cause

- Tool is worn
- Tool has hit the bottom of the hole
- Weld deposits
- Core hole too small
- Chip trapping
- Incorrect cutting speed
- Chip trapping in the flute
- Insufficient cooling / lubrication

Remedy

- Employ set taps
- Use a tool with lower helix
- Use tools with a shorter / longer lead
- Check the pre-drilling depth and the thread depth
- Drill core hole deeper
- Correct cutting speed
- Use a different coating or surface treatment
- Use tool holder with length compensation
- Use suitable lubricant
- Use correct core hole
- Change geometry and / or flute type
- Note chip shape and chip formation

Coatings

vap.
- Vaporised
- Vaporisation (vapour-deposition) prevents cold welds from forming on the tool and increases the surface hardness and thus the wear resistance

nitr.
- Nitrided
- Nitriding increases wear resistance and offers low friction properties

vap. + nitr.
- Vaporized + Nitrated
- Combination of increased surface hardness and lubricant carrier

TiN
- TiN coating
- Maximum application temperature: 450 °C

TiN GS
- Titanium nitride low friction layer
- High wear resistance with low friction properties
- Maximum application temperature: 450 °C

TiCN
- TiCN multilayer coating
- Maximum application temperature: 450 °C

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

Ti200
- TiN coating
- Well suited for high cutting speeds during thread forming
- Maximum application temperature: 450 °C

OSM
- Hard material layer and anti-friction layer
- For use in high-strength steels

CH
- Amorphous carbon layer
- For use in non-ferrous metals or aluminum
- Reduces the material adhesion

HCr
- Hard chromed
- For use in non-ferrous metals or aluminum
- Very low surface roughness

CrN
- Chromium-nitrogen coating
- Very wear-resistant coating
- Especially suitable for use in aluminum, but also for P, M and S materials

ALTiNHD
- AlTiN-based nanolayer hard material coating
- Maximum application temperature 500 °C

Coloured rings - overview

WNT \ Performance



for steel up to 750 N/mm²

Type ST uncoated tap for steel up to 750 N/mm² tensile strength



for steel to 1100 N/mm²

Type ST and VG coated tap for steel up to 1100 N/mm² tensile strength



for steel up to 1400 N/mm²

Type HR for steel up to 1400 N/mm² tensile strength



for corrosion and acid-resistant steels

Type VA for stainless steel



For cast iron materials

Type GG for cast iron



for aluminium and non-ferrous metal

Type NW, Soft and Ms for aluminium, short-chipping brass and soft materials



for heat resistant alloys

Type Ti, Ni and AMPCO for heat-resistant steel, titanium and Inconel



for hardened steels

Type HT for hard machining



for universal application up to 1100 N/mm²

Type UNI for the all-purpose use



New products for machining technicians

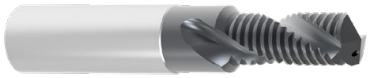
NEW HPC solid carbide thread milling cutters



▲ Just one tool for countersink and thread

→ Page 58

NEW Drill thread milling cutter with chamfer facet



▲ Just one tool for core hole, countersink, thread and thread undercut

→ Page 54+55

NEW Micro thread milling cutter



▲ Specialist for the smallest threads in hard materials

→ Page 57

NEW Circular shank thread milling cutter



▲ Specialist for the machining of deep threads

→ Page 63



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling 7

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

Table of contents

Symbol explanation	2
Overview Circular and Thread Milling Cutters	3
Toolfinder	4+5
Product programme	6–69
Technical Information	
Cutting Data	70–76
Milling Procedures	77
Calculation of cutting data for thread milling	78
Internal thread production	78
Thread types/coatings	79

WNT \ Performance

Premium quality tools for high performance.

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

WNT \ Standard

Quality tools for standard applications.

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

Symbol explanation

Version


no drilling required


central internal coolant


lateral internal coolant


Coolant supply either via the flange or centrally


left-hand cutting



Shank





● = **Main Application**

○ = Extended application

Thread / Flank angle



Explanation of the types of thread can be found on → **Page 79.**



Flank angle 60°

Applications



Circlip Grooves


Full radius slot milling


Slot milling


Multipurpose milling


Chamfering and Deburring


Gear milling



IR = internal right, IL = internal left



ER = external right, EL = external left


IR/IL + ER/EL

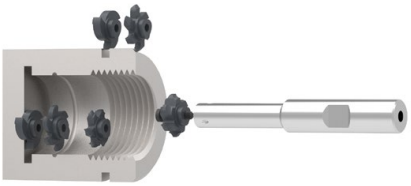
Tool types

EAW	Single-tooth thread milling cutter with carbide indexable inserts and Weldon flat
EWM	Single-tooth thread milling cutter with carbide indexable insert and SK adapter
GZD	Multi-tooth thread milling cutter with carbide indexable inserts (angled insert seat) and Weldon flat
GZG	Multi-tooth thread milling cutter with carbide indexable inserts (straight insert seat) and Weldon flat
SFSE	Thread milling cutter with chamfer facet
Mini Mill	Circular milling cutter with solid carbide milling insert (with three-rib insert connection)
MWN	Multi-tooth thread milling cutter with carbide indexable inserts (straight insert seat) and Weldon flat
Polygon	Circular shank milling cutter with carbide indexable insert (polygon insert seat)
SGF	Thread milling cutter
Micro Mill	Solid Carbide Circular End Milling Cutter
System 300	Circular milling cutter with solid carbide insert
BGF	Solid carbide drill thread milling cutter
ZBGF	Solid carbide circular drill thread milling cutter
SFSE Micro	Thread milling cutter for smallest threads

Overview Circular and Thread Milling Cutters

Modular Circular Milling Cutters with Carbide Indexable Inserts

- the perfect tool for every application
- various holders, depending on overhang
- the same threading insert for different pitches and diameters
- highest flexibility and stability
- in addition to circular thread milling, circular and linear milling operations can also be carried out



1st choice for small batch sizes and large threads

Thread Milling Cutters with Indexable Carbide Inserts

- exchange of the insert for different threads
- same threading insert for different diameters



Solid Carbide Thread Milling Cutters

- short machining times, ideal for volume production
- one tool for all thread types
- one thread milling cutter for different diameters with the same pitch



MicroMill



SGF



ZBGF



BGF

Toolfinder

				from bore diameter in mm
Modular Circular Milling Cutters with Carbide Indexable Inserts	Polygon		▲ high power transmission through polygon connection ▲ 3 and 6 edged inserts ▲ stable holders in solid carbide and steel	9,6
	Mini Mill		▲ three interlocking rib location ▲ compatible with popular manufacturer systems ▲ 3 and 6 edged inserts ▲ stable holders in solid carbide and steel	9,6
	System 300		▲ proven circular milling tool ▲ 3 edged inserts	7,9
Thread Milling Cutters with Indexable Carbide Inserts	MWN		▲ multi tooth thread milling cutter ▲ double sided inserts ▲ exclusively for thread production ▲ holder for tapered threads	9,0
	GZD		▲ multi tooth drilling and thread milling cutter ▲ for thread milling in solid material ▲ core hole and thread with one tool	14,0
	GZG		▲ multi tooth thread milling cutter ▲ exclusively for thread production	18,5
	EAW		▲ single point thread milling cutter ▲ inserts with 2 or 4 cutting edges ▲ exclusively for thread production ▲ insert holder with cylindrical shank DIN 1835	17,5
	EWM		▲ single point thread milling cutter ▲ inserts with 2 or 4 cutting edges ▲ exclusively for thread production ▲ integral insert holder to DIN 69871	43,0
Solid Carbide Thread Milling Cutters	Micro Mill		▲ solid carbide circular milling cutter for small diameters	1,25
	BGF		▲ Drill thread milling cutter ▲ Core hole, countersink, thread and thread undercut with one tool	2,45
	ZBGF		▲ Circular drill thread milling cutter ▲ Core hole, countersink and thread with one tool	2,3
	SFSE Micro		▲ Solid carbide shank thread milling cutter with chamfer facet ▲ Just one tool for countersink and thread ▲ Specially developed for the smallest threads in hard materials	0,75
	SFSE		▲ solid carbide thread milling cutter with chamfering facet ▲ only one tool for threading and chamfering	2,4
	SGF		▲ solid carbide thread milling cutter without chamfering facet ▲ exclusively for thread production	3,15

Thread / Flank angle								Applications						Tool holder
60°	55°	55°	60°	60°	80°	60°	30°	DIN 471/472						
M	G	BSW	UN	UNC	Pg	NPT	Tr							
MF		BSF		UNF										
11+12	13	13		15			14	6+7	8+9	10	10	16+17		18
26+27	28							19+20	21+22 23	22	24		25	29+30
34	35	35						31+32	33		33			36
37	38		38		39	39								40+41
42	42													43
44	45		46		45									47
48	48		48											49
50	50		50											51
53									52		52			
54+55														
56														
57														
58+59 61	59+61			62		60+62								
63+64 66+69	65+66			67+68										

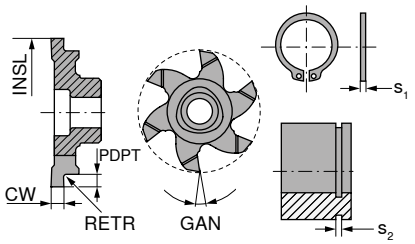
This article can be found in our online shop at cuttingtools.ceratizit.com

7

Milling inserts for circlip grooves without chamfer

Polygon

DIN 471/472



Ti500



Solid carbide

50 880 ...

Size	$s_{2\ H13}$ mm	INSL mm	CW $_{-0,03}$ mm	PDPT mm	RETR mm	GAN °	s_1 mm	NOF	
6	0,90	9,6	0,98	1,20	0,3	6	0,80	3	**292**
	1,10	11,7	1,18	1,00	0,3	6	1,00	3	**294**
	1,30	11,7	1,38	1,00	0,3	6	1,20	3	**296**
	1,60	11,7	1,68	1,00	0,3	6	1,50	3	**298**
7	1,10	16,0	1,18	0,90	0,3	6	1,00	6	**301**
	1,30	16,0	1,38	1,10	0,3	6	1,20	6	**302**
	1,60	16,0	1,68	1,25	0,3	6	1,50	6	**304**
	1,85	16,0	1,93	1,25	0,3	6	1,75	6	**306**
	1,10	17,7	1,18	0,90	0,3	6	1,00	6	**308**
	1,30	17,7	1,38	1,10	0,3	6	1,20	6	**309**
	1,60	17,7	1,68	1,25	0,3	6	1,50	6	**310**
	1,85	17,7	1,93	1,25	0,3	6	1,75	6	**311**
9	1,10	20,0	1,18	0,90	0,3	6	1,00	6	**313**
	1,30	20,0	1,38	1,10	0,3	6	1,20	6	**314**
	1,60	20,0	1,68	1,25	0,3	6	1,50	6	**315**
	1,85	20,0	1,93	1,25	0,3	6	1,75	6	**316**
	1,60	21,7	1,68	1,25	0,3	6	1,50	6	**318**
	1,85	21,7	1,93	1,25	0,3	6	1,75	6	**319**
	2,15	21,7	2,23	1,75	0,3	6	2,00	6	**320**
	2,65	21,7	2,73	1,75	0,3	6	2,50	6	**321**
10	1,30	26,0	1,38	1,10	0,3	6	1,20	6	**322**
	1,60	26,0	1,68	1,25	0,3	6	1,50	6	**324**
	1,85	26,0	1,93	1,25	0,3	6	1,75	6	**326**
	2,15	26,0	2,23	1,75	0,3	6	2,00	6	**328**
	2,65	26,0	2,73	1,75	0,3	6	2,20	6	**330**
	3,15	26,0	3,23	2,20	0,3	6	3,00	6	**332**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 73

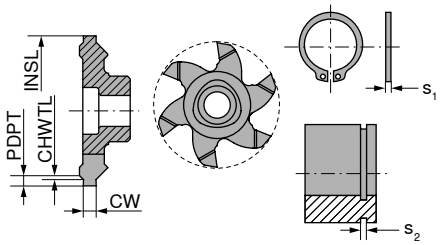
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Milling inserts for circlip grooves with chamfer

▲ Both edges chamfered 0.1 x 45°

Polygon

DIN 471/472



Ti500



Solid carbide

50 879 ...

Size	$s_{2\ H13}$ mm	INSL mm	$CW_{-0,03}$ mm	PDPT mm	CHWTL mm	s_1 mm	NOF	
7	1,10	16,0	1,18	0,50	0,10	1,00	6	292
	1,30	16,0	1,38	0,85	0,15	1,20	6	302
	1,60	16,0	1,68	1,00	0,15	1,50	6	304
	1,85	16,0	1,93	1,25	0,20	1,75	6	306
9	1,10	20,0	1,18	0,50	0,10	1,00	6	307
	1,30	20,0	1,38	0,85	0,15	1,20	6	308
	1,60	20,0	1,68	1,00	0,15	1,50	6	309
	1,60	21,7	1,68	1,00	0,15	1,50	6	312
	1,85	20,0	1,93	1,25	0,20	1,75	6	310
	1,85	21,7	1,93	1,25	0,20	1,75	6	314
	2,15	21,7	2,23	1,50	0,20	2,00	6	316
	2,65	21,7	2,73	1,75	0,20	2,50	6	318
10	1,30	26,0	1,38	0,85	0,15	1,20	6	322
	1,60	26,0	1,68	1,00	0,15	1,50	6	324
	1,85	26,0	1,93	1,25	0,20	1,75	6	326
	2,15	26,0	2,23	1,50	0,20	2,00	6	328
	2,65	26,0	2,73	1,75	0,20	2,50	6	330
	3,15	26,0	3,23	1,75	0,20	3,00	6	332

P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 73

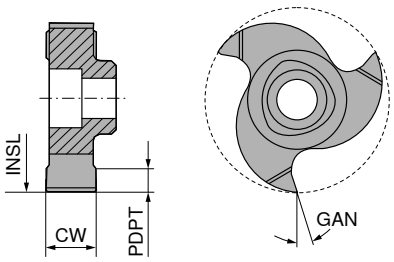
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

7

Milling insert without profile

- with double sided edge break of 0.1 x 45°
- Size 7: from 5.0 mm groove width with ground chip breaker
- Size 10: from 6.5 mm groove width with ground chip breaker

Polygon



Ti500



Solid carbide

50 875 ...

Size	CW +/-0,02 mm	INSL mm	PDPT mm	GAN °	NOF	
6	1,5	11,7	2,25	6	3	**302**
	2,0	11,7	2,25	6	3	**304**
	2,5	11,7	2,25	6	3	**306**
	3,0	11,7	2,25	6	3	**308**
7	3,5	16,0	3,50	0	3	**310**
	3,5	16,0	3,50	8	3	**312**
	3,5	16,0	3,50	12	3	**314**
	5,0	16,0	3,50	0	3	**316**
	5,0	16,0	3,50	8	3	**318**
	5,0	16,0	3,50	12	3	**320**
10	4,0	25,0	5,70	0	3	**330**
	4,0	25,0	5,70	8	3	**332**
	4,0	25,0	5,70	12	3	**334**
	5,0	25,0	5,70	8	3	**337**
	6,5	25,0	5,70	0	3	**340**
	6,5	25,0	5,70	8	3	**342**
	6,5	25,0	5,70	12	3	**344**
	8,0	25,0	5,70	0	3	**350**
	8,0	25,0	5,70	8	3	**352**
	8,0	25,0	5,70	12	3	**354**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

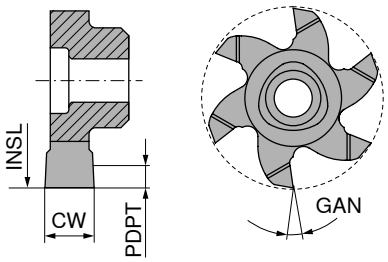
→ v_c/f_z Page 73

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Milling insert without profile

▲ Both edges chamfered 0.1 x 45°

Polygon



Ti500



Solid carbide

50 876 ...

Size	CW +/-0,02 mm	INSL mm	PDPT mm	GAN °	NOF	
7	1,5	17,7	4,0	6	6	**307**
	2,0	17,7	4,0	6	6	**308**
	2,5	17,7	4,0	6	6	**309**
	3,0	16,0	3,5	6	6	**302**
	4,0	16,0	3,5	6	6	**304**
	5,0	16,0	3,5	6	6	**306**
9	1,5	21,7	5,0	6	6	**314**
	2,0	21,7	5,0	6	6	**315**
	2,5	21,7	5,0	6	6	**316**
	3,0	21,7	5,0	6	6	**317**
	3,0	20,0	4,2	6	6	**311**
	4,0	20,0	4,2	6	6	**312**
	5,0	20,0	4,2	6	6	**313**
10	1,5	27,7	6,8	6	6	**330**
	2,0	27,7	6,8	6	6	**332**
	2,5	27,7	6,8	6	6	**334**
	3,0	26,0	6,2	6	6	**322**
	3,0	27,7	6,8	6	6	**336**
	4,0	26,0	6,2	6	6	**324**
	5,0	26,0	6,2	6	6	**326**
	6,5	26,0	6,2	6	6	**328**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

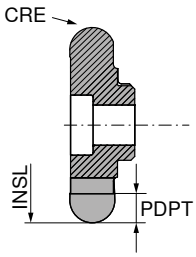
→ v_c/f_z Page 73

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

7

Milling inserts for radius milling

Polygon



Ti500



Solid carbide

50 886 ...

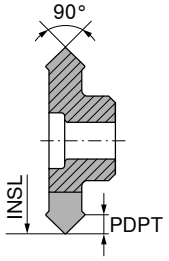
Size	CRE mm	INSL mm	PDPT mm	NOF	
6	1,100	9,6	1,20	3	702
	0,788	11,7	2,25	3	704
	1,100	11,7	2,25	3	708
	1,190	11,7	2,25	3	706
7	0,788	17,7	4,20	6	712
	1,100	17,7	4,20	6	714
9	0,785	21,7	5,00	6	720
	1,000	21,7	5,00	6	722
	1,200	21,7	5,00	6	724
	1,400	21,7	5,00	6	726
	1,500	21,7	5,00	6	728

P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 73

Milling inserts for chamfering and deburring

Polygon



Ti500



Solid carbide

50 884 ...

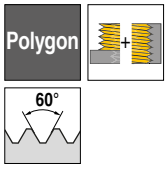
Size	PDPT mm	INSL mm	NOF	
6	1,20	9,6	3	292
	1,50	11,7	3	294
7	1,90	16,0	6	302
	1,30	17,7	6	304
9	1,90	20,0	6	312
	1,95	21,7	6	314
10	2,10	26,0	6	322

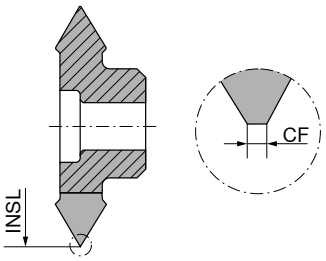
P	●
M	●
K	●
N	●
S	●
H	●
O	●

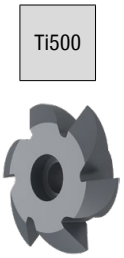
→ v_c/f_z Page 73

Thread milling insert – Partial profile

▲ with holder 50 805 010 / 50 805 011 maximum pitch of 3 mm is possible!







Solid carbide

50 882 ...

Size	TP mm	INSL mm	CF mm	NOF	
6	1 - 3	11,7	0,10	3	**292**
7	1 - 3	17,7	0,10	6	**306**
	1 - 4	16,0	0,10	6	**302**
	2,5 - 4	16,0	0,25	6	**304**
9	1 - 2	21,7	0,10	6	**314**
	1 - 3	20,0	0,10	6	**312**
	2 - 4	21,7	0,15	6	**316**
10	1 - 3	26,0	0,10	6	**322**
	2,5 - 5	26,0	0,25	6	**324**

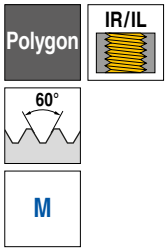
P	●
M	●
K	●
N	●
S	●
H	●
O	●

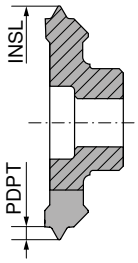
→ v_c/f_z Page 73

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

7

Thread milling insert – Full profile





Ti500



Solid carbide

50 881 ...

Size	TP mm	INSL mm	PDPT mm	NOF	
6	1	9,6	0,572	3	**292**
	1,5	9,6	0,875	3	**293**
	2	10,5	1,157	3	**296**
7	1,5	16,0	0,875	6	**302**
	2	16,0	1,157	6	**304**
	2,5	16,0	1,430	6	**306**
	3	16,0	1,702	6	**310**
	M20x2,5	16,0	1,430	6	**308** 1)
9	1,5	20,0	0,875	6	**312**
	2	20,0	1,157	6	**314**
	M24x3	20,0	1,702	6	**316** 1)
10	1,5	26,0	0,875	6	**322**
	2	26,0	1,157	6	**324**
	3	26,0	1,702	6	**330**
	3,5	26,0	1,982	6	**332**
	4	26,0	2,263	6	**334**
	4,5	26,0	2,553	6	**336**
	5	26,0	2,836	6	**337**
	M30x3,5	24,0	1,982	6	**331** 1)
	M36x4	26,0	2,263	6	**335** 1)

P	●
M	●
K	●
N	●
S	●
H	●
O	●

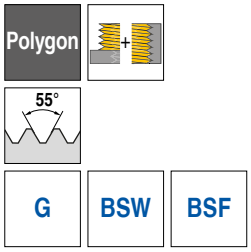
1) profile corrected

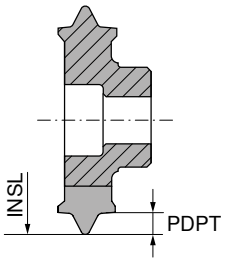
→ v_c/f_z Page 73

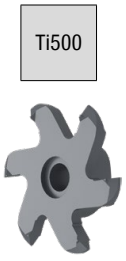
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling insert – Full profile

▲ 50 883 322 for threads > 1"







Solid carbide

Size	TPI 1/"	TP mm	INSL mm	PDPT mm	NOF	50 883 ...
6	19	1,337	9,6	0,871	3	292
7	14	1,814	17,7	1,177	6	308
	14	1,814	16,0	1,177	6	304
	11	2,309	16,0	1,494	6	302
	10	2,540	16,0	1,646	6	306
9	14	1,814	20,0	1,177	6	316
	11	2,309	20,0	1,494	6	314
10	11	2,309	26,0	1,494	6	322

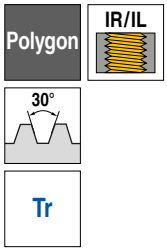
P	●
M	●
K	●
N	●
S	●
H	●
O	●

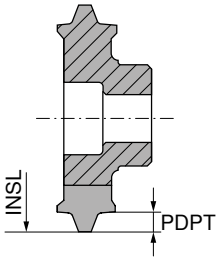
→ v_c/f_z Page 73

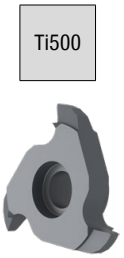
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling insert – Full profile

▲ DIN 103







Solid carbide

50 872 ...

Size	TP mm	INSL mm	PDPT mm	NOF	Thread	
6	2	11,7	1,25	3	Tr 16x2 - Tr 20x2	**292**
	3	11,0	1,75	3	Tr 18x3 - Tr 20x3	**294**
	4	12,0	2,25	3	Tr 20x4	**296** 1)
7	3	14,0	1,75	3	Tr 24x3 - Tr 32x3	**302** 2)
	5	15,3	2,75	3	Tr 28x5 - Tr 36x5	**306** 3)
	5	15,3	2,75	3	Tr 26x5	**304** 3)
	6	16,2	3,50	3	Tr 34x6 - Tr 42x6	**310** 2)
	6	16,2	3,50	3	Tr 30x6 - Tr 32x6	**308** 2)
10	5	25,0	2,75	3	Tr 44x5 - Tr 48x5	**322** 4)
	7	22,0	3,75	3	Tr 38x7 - Tr 42x7	**324** 4)
	7	22,0	3,75	3	Tr 44x7	**326** 1)
	8	25,0	4,50	3	Tr 46x8 - Tr 48x8	**328** 4)
	8	25,0	4,50	3	Tr 50x8 - Tr 52x8	**330** 4)
	9	25,0	5,00	3	Tr 55x9 - Tr 60x9	**332** 4)
	10	25,0	5,50	3	Tr 60x10 - Tr 80x10	**334** 4)

P	●
M	●
K	●
N	●
S	●
H	●
O	●

1) profile corrected

→ v_c/f_z Page 73

2) Not suitable for the 50 805 011 and 50 805 010 holders

3) Not suitable for the 50 805 011 and 50 805 010 holders / profile corrected

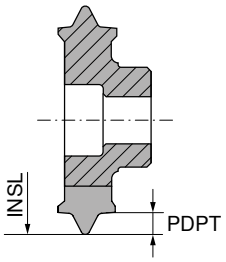
4) Not suitable for the 50 805 026, 50 805 025 and 50 805 024 holders

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling insert – Full profile

▲ with holder 50 805 010 / 50 805 011 maximum pitch of 3 mm is possible!

Polygon | IR/IL | 60° | UNC



Ti500



Solid carbide

50 886 ...

Size	TPI 1/"	INSL mm	PDPT mm	NOF	
6	12,0	9,6	1,228	3	202
	11,0	10,5	1,355	3	204
	10,0	11,7	1,485	3	206
7	9,0	16,0	1,577	6	212
9	8,0	18,0	1,809	6	222
	7,0	20,0	2,043	6	224
10	6,0	24,0	2,454	6	232
	5,0	26,0	2,979	6	234
	4,5	26,0	3,289	6	236

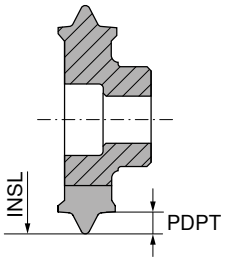
P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 73

Thread milling insert – Full profile

▲ with holder 50 805 010 / 50 805 011 maximum pitch of 3 mm is possible!

Polygon | IR/IL | 60° | UNF



Ti500



Solid carbide

50 886 ...

Size	Thread	INSL mm	PDPT mm	NOF	
6	1/2 - 20	9,6	0,733	3	302
	9/16 - 18	10,5	0,827	3	304
	3/4 - 16	11,7	0,945	3	306
7	7/8 - 14	17,7	1,071	6	312
9	1 - 12	20,0	1,228	6	322

P	●
M	●
K	●
N	●
S	●
H	●
O	●

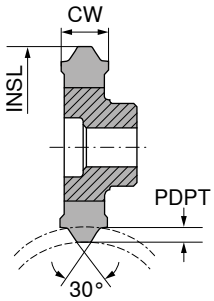
→ v_c/f_z Page 73

Gear cutters, DIN 5480

▲ Z_w = Tooth Number Wave

Polygon





Ti500



Solid carbide

50 874 ...

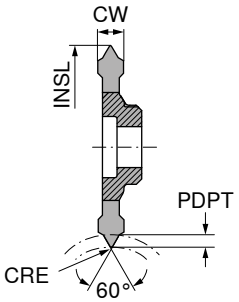
Size	Wave	module	Z_w	CW mm	INSL mm	PDPT mm	NOF	
7	W11	0,80	12	3	15,85	0,80	6	**011**
	W14	0,80	16	3	16,00	0,80	6	**014**
	W16	0,80	18	3	16,00	0,80	6	**016**
	W20	0,80	24	3	16,00	0,80	6	**020**
	W24	1,25	18	4	16,00	1,25	6	**024**
	W25	2,00	11	7	16,00	2,00	3	**025**
	W30	1,25	22	4	16,00	1,25	6	**031**
	W30	1,25	20	5	16,00	1,25	6	**030**
	W35	2,00	16	5	16,00	2,00	6	**035**
	W42	1,25	32	4	16,00	1,25	6	**042**
	W50	2,00	24	5	16,00	2,00	6	**050**

Gear cutters, DIN 5481

▲ Z_w = Tooth Number Wave

Polygon





Ti500



Solid carbide

50 874 ...

Size	Wave	Z_w	CW mm	INSL mm	CRE mm	PDPT mm	NOF	
10	26 x 30	35	3	26	0,3	1,638	6	**126**
	40 x 44	38	3	26	0,4	1,940	6	**140**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 73

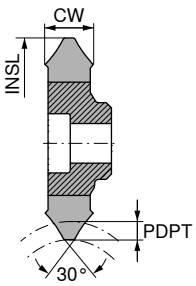
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Gear cutters, DIN 5482

▲ Z_w = Tooth Number Wave

Polygon





Ti500



Solid carbide

50 874 ...

Size	Wave	module	Z_w	CW mm	INSL mm	PDPT mm	NOF	
7	15 x 12	1,60	8	3,0	16	1,50	6	**215**
	17 x 14	1,60	9	5,0	16	1,50	6	**217**
	20 x 17	1,60	12	5,0	16	1,50	6	**220**
	25 x 22	1,60	14	5,0	16	1,65	6	**225**
10	35 x 31	1,75	18	6,5	26	2,00	6	**235**
	55 x 50	2,00	26	6,5	26	2,75	6	**255**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 73

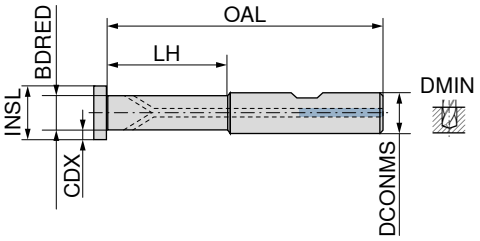
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

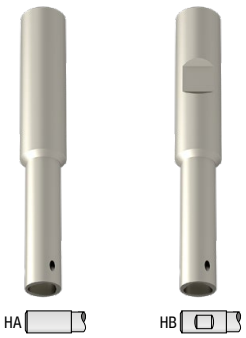
Circular milling cutter

- ▲ For maximum machining depth, note insert width (CW)
- ▲ Size 6 = for INSL 9.6; 10.5; 11.7; 12
- ▲ Size 7 = for INSL 16; 17.7
- ▲ Size 9 = for INSL 18; 20; 21.7
- ▲ Size 10 = for INSL 24; 25; 26; 27.7
- ▲ Holder available as screw-in variant in the online shop

Polygon







Size	LH mm	CDX mm	DCONMS $_{h6}$ mm	OAL mm	BDRED mm	DMIN mm	torque moment Nm	HM 50 805 ...		HM 50 805 ...	
6	20,00	2,25	12	67,5	7,0	12	1,0				050 [1]
	20,00	2,25	12	67,5	7,0	12	1,0				051
	20,00	2,25	12	67,5	7,0	12	1,0	052			
	30,00	2,25	12	80,0	7,0	12	1,0				053
	30,00	2,25	12	80,0	7,0	12	1,0	054			
	40,00	2,25	12	100,0	7,0	12	1,0				055
	40,00	2,25	12	100,0	7,0	12	1,0	056			
7	20,90	4,00	12	67,4	9,0	18	1,1				002 [1]
	21,00	4,00	12	67,4	9,0	18	1,1				004
	21,00	4,00	12	67,4	9,0	18	1,1	005			
	36,00	4,00	12	82,4	9,0	18	1,1				008
	36,00	4,00	12	82,4	9,0	18	1,1	085			
		4,00	12	122,5	12,0	18	1,1	010			
		4,00	12	82,4	12,0	18	1,1	011			
9	29,75	5,00	16	80,0	11,5	22	3,8				070 [1]
	30,00	5,00	16	80,0	11,5	22	3,8				071
	30,00	5,00	16	80,0	11,5	22	3,8	072			
	50,00	5,00	16	100,0	11,5	22	3,8				073
	50,00	5,00	16	100,0	11,5	22	3,8	074			
10	20,50	5,70	16	105,0	15,5	28	5,5	025			
	20,50	6,80	16	149,7	15,5	28	5,5	024			
	20,50	6,80	20	175,4	15,5	28	5,5	026			
	30,40	6,80	16	79,6	13,6	28	5,5				012 [1]
	30,50	6,80	16	79,6	13,6	28	5,5	015			
	30,50	6,80	16	79,6	13,6	28	5,5				014
	45,50	6,80	16	94,6	13,6	28	5,5	021			
	45,50	6,80	16	94,6	13,6	28	5,5				020
	60,50	6,80	16	109,6	13,6	28	5,5				022
	60,50	6,80	16	109,6	13,6	28	5,5	023			

1) Steel version



Key D



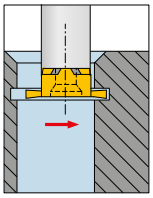
Clamping screw

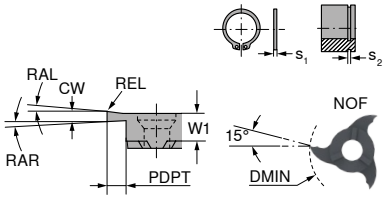
Spare parts Size		80 950 ...		70 960 ...	
6	T08 - IP	125	M2,5x7	246
7	T08 - IP	125	M3x13	231
9	T15 - IP	128	M4x13	236
10	T20 - IP	129	M5x13,5	243

MiniMill – Milling insert for circlip grooves

Mini Mill | ≥ Ø 10 mm | DIN 471/472

CWX500







53 006 ...

Size	DMIN mm	$s_{2\ H13}$ mm	$CW_{-0.02}$ mm	PDPT mm	W1 mm	RAR °	REL mm	s_1 mm	NOF	
10	10	0,70	0,74	1,5	3,50	1		0,60	3	070
	10	0,80	0,84	1,5	3,50	1		0,70	3	080
	10	0,90	0,94	1,5	3,50	1		0,80	3	090
	10	1,10	1,21	1,5	3,50	3		1,00	3	110
	10	1,30	1,41	1,5	3,50	3	0,10	1,20	3	130
	10	1,60	1,71	1,5	3,50	3	0,10	1,50	3	160
	12	1,10	1,21	2,5	3,50	3		1,00	3	112
	12	1,30	1,41	2,5	3,50	3	0,10	1,20	3	132
	12	1,60	1,71	2,5	3,50	3	0,10	1,50	3	162
18	18	0,70	0,74	1,5	5,75	1		0,60	3	270
	18	0,80	0,84	1,7	5,75	1		0,70	3	280
	18	0,90	0,94	1,9	5,75	1		0,80	3	290
	18	1,10	1,21	3,5	5,75	3		1,00	3	310
	18	1,30	1,41	3,5	5,75	3	0,10	1,20	3	330
	18	1,60	1,71	3,5	5,75	3	0,10	1,50	3	360
22	22	0,70	0,74	1,5	5,70	1		0,60	3	470
	22	0,80	0,84	1,7	5,70	1		0,70	3	480
	22	0,90	0,94	1,9	5,70	1		0,80	3	490
	22	1,00	1,04	2,1	5,70	1		0,90	3	500
	22	1,10	1,21	2,5	5,70	1		1,00	3	510
	22	1,30	1,41	4,5	5,70	3	0,10	1,20	3	530
	22	1,60	1,71	4,5	5,70	3	0,10	1,50	3	560
	22	1,85	1,96	4,5	5,70	3	0,15	1,75	3	585
	22	2,15	2,26	4,5	5,70	3	0,15	2,00	3	615
	22	2,65	2,76	4,5	5,70	3	0,15	2,50	3	665
	22	3,15	3,26	4,5	5,70	3	0,20	3,00	3	415
	22	4,15	4,26	4,5	5,70	3	0,20	4,00	3	515
	22	5,15	5,26	4,5	5,70	3	0,20	5,00	3	605

P	●
M	●
K	●
N	●
S	○
H	○
O	●

→ v_c/f_z Page 76

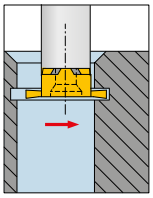
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

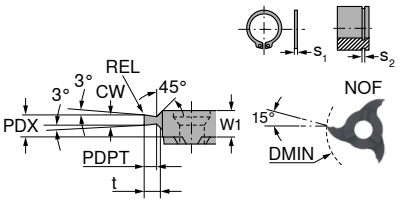
7

MiniMill – Milling insert for circlip grooves with chamfer facet

Mini Mill | ≥ Ø 22 mm | DIN 471/472

CWX500







53 006 ...

Size	DMIN mm	$s_{2\ H13}$ mm	$CW_{-0.02}$ mm	t mm	PDPT mm	W1 mm	PDX mm	REL mm	s_1 mm	NOF	
22	22	1,10	1,21	0,50	0,49	5,85	5,07		1,00	3	**805**
	22	1,30	1,41	0,70	0,67	5,85	5,17		1,20	3	**807**
	22	1,30	1,41	0,85	0,83	5,85	5,17		1,20	3	**808**
	22	1,60	1,71	0,85	0,83	5,85	5,07		1,50	3	**809**
	22	1,60	1,71	1,00	0,97	5,85	5,07		1,50	3	**810**
	22	1,85	1,96	1,25	1,23	5,85	5,19	0,15	1,75	3	**812**
	22	2,15	2,26	1,50	1,47	5,85	5,34	0,15	2,00	3	**815**
	22	2,65	2,76	1,75	1,72	5,85	5,09	0,15	2,50	3	**817**
	22	2,65	2,76	1,50	1,47	5,85	5,09	0,15	2,50	3	**816**
	22	3,15	3,26	1,75	1,72	5,85	5,34	0,20	3,00	3	**818**
	22	4,15	4,26	2,50	2,47	5,85	5,34	0,20	4,00	3	**825**
	22	4,15	4,26	2,00	1,97	5,85	5,34	0,20	4,00	3	**820**

P	●
M	●
K	●
N	●
S	○
H	○
O	●

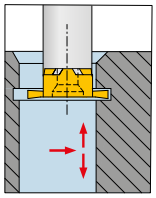
→ v_c/f_z Page 76

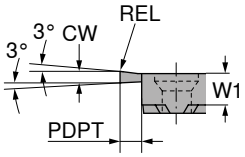
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

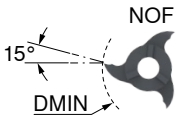
MiniMill – Milling insert for groove milling

Mini Mill | ≥ Ø 10 mm

CWX500









53 007 ...

Size	DMIN mm	CW $_{0.02}$ mm	PDPT mm	W1 mm	REL mm	NOF	
10	10	1,0	1,5	3,50	0,1	3	010
	10	1,5	1,5	3,50	0,2	3	015
	10	2,0	1,5	3,50	0,2	3	020
	10	2,5	1,5	3,50	0,2	3	025
	12	1,5	2,0	3,50	0,2	6	114
	12	1,5	2,5	3,50	0,2	3	115
	12	2,0	2,0	3,50	0,2	6	119
	12	2,0	2,5	3,50	0,2	3	120
	12	2,5	2,5	3,50	0,2	3	125
14	14	1,0	2,5	4,50		3	210
	14	1,5	2,5	4,50	0,2	3	215
	14	2,0	2,5	4,50	0,2	3	220
	14	2,5	2,5	4,50	0,2	3	225
	16	1,5	3,5	4,50	0,2	3	315
	16	2,0	3,5	4,50	0,2	3	320
	16	2,5	3,5	4,50	0,2	3	325
18	18	1,5	3,5	5,75	0,1	6	414
	18	1,5	3,5	5,75	0,2	3	415
	18	2,0	3,5	5,75	0,2	6	419
	18	2,0	3,5	5,75	0,2	3	420
	18	2,5	3,5	5,75	0,2	6	424
	18	2,5	3,5	5,75	0,2	3	425
	18	3,0	3,5	5,75	0,2	6	429
	18	3,0	3,5	5,75	0,2	3	430
	18	4,0	3,5	5,75	0,2	3	440
22	22	1,0	4,5	6,20	0,1	6	810
	22	1,5	4,5	6,20	0,1	6	815
	22	1,5	4,5	5,70	0,2	3	515
	22	2,0	4,5	5,70	0,2	3	520
	22	2,0	4,5	6,20	0,2	6	820
	22	2,5	4,5	5,70	0,2	3	525
	22	2,5	4,5	6,20	0,2	6	825
	22	3,0	4,5	5,70	0,2	3	530
	22	3,0	4,5	6,20	0,2	6	830
	22	3,5	4,5	5,70	0,2	3	535
	22	4,0	4,5	5,70	0,2	3	540
	22	4,0	4,5	6,20	0,2	6	840
28	25	2,0	5,0	6,50	0,2	3	620
	25	2,5	5,0	6,50	0,2	3	625
	25	3,0	5,0	6,50	0,2	3	630
	25	3,5	5,0	6,50	0,2	3	635
	25	4,0	5,0	6,50	0,2	3	640
	28	1,0	6,5	6,25	0,1	6	610
	28	1,5	6,5	6,25	0,1	6	615
	28	1,5	6,5	6,50	0,2	3	715
	28	2,0	6,5	6,25	0,2	6	721
	28	2,0	6,5	6,50	0,2	3	720
	28	2,5	6,5	6,25	0,2	6	726
	28	2,5	6,5	6,50	0,2	3	725
	28	3,0	6,5	6,50	0,2	3	730
	28	3,0	6,5	6,25	0,2	6	731
	28	3,5	6,5	6,50	0,2	3	735
	28	4,0	6,5	6,25	0,2	6	741
	28	4,0	6,5	6,50	0,2	3	740
	28	5,0	6,5	6,50	0,2	3	750
	28	6,0	6,5	6,50	0,2	3	760

P	●
M	●
K	●
N	●
S	○
H	○
O	●

→ v_c/f_z Page 76

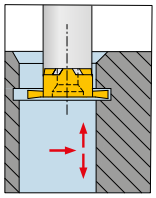
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

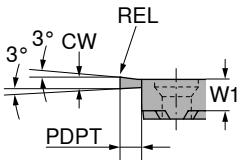
7

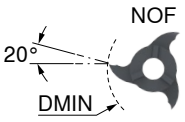
MiniMill – Milling insert for groove milling (Specialist for aluminium)

Mini Mill | ≥ Ø 32 mm

CWX500









53 007 ...

Size	DMIN mm	CW $_{0.02}$ mm	PDPT mm	W1 mm	REL mm	NOF	
28	32	2,0	8,5	6,5	0,2	3	920
	32	2,5	8,5	6,5	0,2	3	925
	32	3,0	8,5	6,5	0,2	3	930

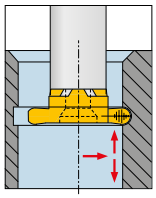
P	
M	
K	
N	●
S	
H	
O	

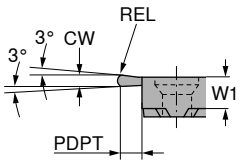
→ v_c/f_z Page 76

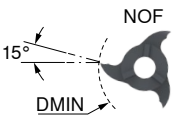
MiniMill – Milling insert for groove milling with full radius

Mini Mill | ≥ Ø 12 mm

CWX500









53 008 ...

Size	DMIN mm	CW $_{+0,03}$ mm	PDPT mm	W1 mm	REL mm	NOF	
10	12	2,2	2,5	3,50	1,1	3	011
14	16	2,2	3,5	4,60	1,1	3	111
18	18	2,2	3,5	5,75	1,1	3	211
22	22	1,0	4,5	5,75	0,5	3	305
	22	1,6	4,5	5,75	0,8	3	308
	22	2,0	4,5	5,75	1,0	3	310
	22	2,4	4,5	5,75	1,2	3	312
	22	2,8	4,5	5,75	1,4	3	314
	22	3,0	4,5	5,75	1,5	3	315
	22	4,0	4,5	5,75	2,0	3	320
	22	4,4	4,5	5,75	2,2	3	322
	22	5,0	4,5	5,75	2,5	3	325

P	●
M	●
K	●
N	●
S	○
H	○
O	●

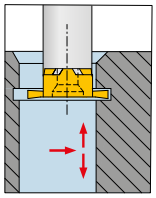
→ v_c/f_z Page 76

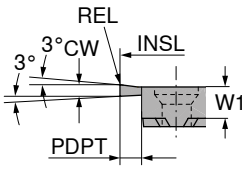
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

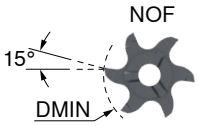
MiniMill – Milling insert for groove milling, cross-pitched

Mini Mill | ≥ Ø 12 mm

CWX500









53 015 ...

Size	DMIN mm	INSL mm	CW +0,02 mm	PDPT mm	W1 mm	REL mm	NOF	
10	12	11,7	1,5	2,0	3,5	0,2	6	114
	12	11,7	2,0	2,0	3,5	0,2	6	119
14	16	15,7	1,5	2,5	4,5	0,2	6	314
	16	15,7	2,0	2,5	4,5	0,2	6	319
	16	15,7	2,5	2,5	4,5	0,2	6	324
18	18	17,7	2,0	4,0	5,8	0,2	6	419
	18	17,7	2,5	4,0	5,8	0,2	6	424
	18	17,7	3,0	4,0	5,8	0,2	6	429
	20	19,7	2,0	5,0	5,8	0,2	6	469
	20	19,7	2,5	5,0	5,8	0,2	6	474
	20	19,7	3,0	5,0	5,8	0,2	6	479
22	22	21,7	2,0	4,5	6,2	0,2	6	820
	22	21,7	2,5	4,5	6,2	0,2	6	825
	22	21,7	3,0	4,5	6,2	0,2	6	830
	22	21,7	4,0	4,5	6,2	0,2	6	840
	37	36,7	1,5	12,0	6,2	0,1	6	865
	37	36,7	2,0	12,0	6,2	0,2	6	870
28	25	24,8	2,5	5,0	6,4	0,2	6	626
	25	24,8	3,0	5,0	6,4	0,2	6	631
	25	24,8	4,0	5,0	6,4	0,2	6	641
	25	24,8	5,0	5,0	6,4	0,2	6	651
	25	24,8	6,0	5,0	6,4	0,2	6	661
	28	27,7	2,5	6,5	6,2	0,2	6	726
	28	27,7	3,0	6,5	6,2	0,2	6	731
	28	27,7	4,0	6,5	6,2	0,2	6	741
	28	27,7	5,0	6,5	6,2	0,2	6	751
	28	27,7	6,0	6,5	6,2	0,2	6	761
	35	34,7	2,0	10,0	6,2	0,2	6	770
	35	34,7	2,5	10,0	6,2	0,2	6	775
	35	34,7	3,0	10,0	6,2	0,2	6	780

P	●
M	●
K	●
N	●
S	○
H	○
O	●

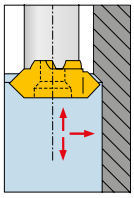
→ v_c/f_z Page 76

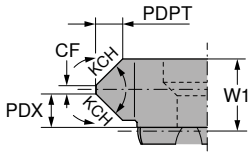
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

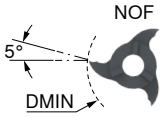
7

MiniMill – Milling insert for groove milling and chamfering

Mini Mill | ≥ Ø 10 mm | CWX500









53 009 ...

Size	DMIN mm	CF +0,03 mm	PDPT mm	W1 mm	KCH °	PDX mm	NOF	
10	10	0,2	0,35	3,60	15	1,80	6	015
	10	0,2	0,45	3,60	20	1,80	6	020
	10	0,2	0,70	3,60	30	1,80	6	030
	10	0,2	1,20	3,60	45	1,80	6	045
	12	1,2	0,80	3,50	45	1,20	3	035
14	16	1,4	1,20	4,50	45	1,60	3	145
18	18	2,5	1,40	5,85	45	1,70	3	258
	18	0,2	2,20	5,75	45	3,00	6	259
22	22	2,0	1,70	5,85	45	2,00	3	358
	22	0,2	2,50	6,40	45	3,90	6	463
	22	3,0	3,00	9,40	45	3,25	3	394 1)
28	28	0,2	1,90	6,05	45	3,75	6	560

P	●
M	●
K	●
N	●
S	○
H	○
O	●

1) Use clamping screw 73 082 006

→ v_c/f_z Page 76

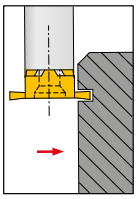
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

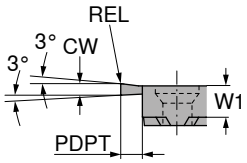
MiniMill – Milling insert for part-off

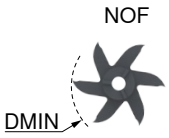
▲ PDPT = 12,0 mm in combination with holder 53 003 624
▲ reduce feed rate by 50 %

Mini Mill | ≥ Ø 37 mm

CWX500









Size	DMIN mm	CW +0,02 mm	PDPT mm	W1 mm	REL mm	NOF	53 013 ...
22	37	0,5	12	5,6		6	705 1)
	37	0,6	12	5,7		6	706 1)
	37	0,8	12	6,0		6	708 1)
	37	1,0	12	6,2	0,1	6	710
	37	1,5	12	6,2	0,1	6	715

P	●
M	●
K	●
N	●
S	○
H	
O	●

1) The end face is not ground free to the center

→ v_c/f_z Page 76

7

MiniMill – Set for cut off

▲ Size 22

Mini Mill

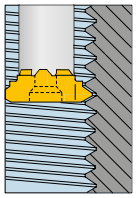


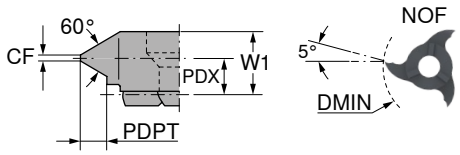
Tool	Designation	Article no.	Bore-Ø mm	Piece	53 014 ...
Inserts	Milling inserts for separating	53 013 715	37	2	990
Tool holder	Endmill short	53 003 624		1	
Screw	M5 x 12	73 082 005		1	
Tightening Key	T20			1	

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

MiniMill – Milling insert for internal thread milling – Partial profile

Mini Mill | ≥ M12 | 60° | CWX500







53 010 ...

Size	Thread$_{min}$	TP mm	DMIN mm	CF mm	PDPT mm	W1 mm	PDX mm	NOF	
10	M12	1,0 - 1,75	9,8	0,13	1,02	3,20	2,4	6	017
	M14	1,0 - 1,75	11,7	0,13	1,08	3,60	2,8	3	010
	M14	1,0 - 2,0	10,1	0,13	1,25	3,20	2,2	6	021
	M14	1,0 - 2,0	11,7	0,13	1,25	3,60	2,8	3	020
	M16	1,5 - 2,75	11,0	0,19	1,67	3,20	2,0	6	027
	M16	1,5 - 2,75	11,7	0,19	1,67	3,60	2,4	3	015
	M16	2,0 - 3,0	11,1	0,25	1,78	3,20	1,9	6	029
	M16	2,0 - 3,0	11,7	0,25	1,78	3,60	2,2	3	030
14	M18	1,0 - 1,75	15,7	0,12	1,08	4,60	3,8	3	210
	M18	1,0 - 2,0	15,7	0,12	1,25	4,60	3,5	3	220
	M20	1,5 - 2,75	15,7	0,18	1,67	4,60	3,5	3	215
	M22	2,5 - 3,0	15,7	0,31	1,78	4,60	3,4	3	230
18	M22	1,0 - 1,75	17,7	0,12	1,03	5,85	5,0	3	410
	M22	1,0 - 2,0	17,7	0,12	1,19	5,85	4,7	3	412
	M22	1,0 - 2,0	17,7	0,12	1,19	5,85	5,0	6	416
	M22	1,5 - 2,75	17,7	0,19	1,62	5,85	4,6	3	415
	M24	2,0 - 3,0	17,7	0,25	1,73	5,85	4,4	3	425
	M24	2,0 - 3,5	17,7	0,25	2,06	5,85	4,2	3	455
	M24	2,0 - 3,5	17,7	0,25	2,06	5,85	4,3	6	434
	M24	2,0 - 3,75	17,7	0,25	2,22	5,85	4,2	3	420
	M24	2,5 - 5,0	17,7	0,31	2,98	5,85	3,8	3	430
	M24	3,0 - 5,5	17,7	0,38	3,25	5,85	4,2	3	435
22	M27	1,0 - 2,0	21,7	0,12	1,19	5,85	4,6	3	610
	M27	1,0 - 2,0	21,7	0,12	1,19	6,20	5,0	6	710
	M27	1,5 - 2,75	21,7	0,18	1,62	5,85	4,5	3	615
	M27	2,0 - 3,75	21,7	0,25	2,22	5,85	4,2	3	620
	M27	2,5 - 4,5	21,7	0,25	2,70	5,85	3,7	3	655
	M27	2,0 - 4,5	21,7	0,25	2,70	6,05	4,2	6	755
	M30	2,5 - 5,0	21,7	0,31	2,98	5,85	3,8	3	630
	M30	3,5 - 6,0	21,7	0,44	3,52	5,85	3,4	3	640
	M30	3,5 - 6,5	21,7	0,44	3,84	5,85	3,2	3	645
28	M33	1,0 - 2,0	27,7	0,12	1,20	6,60	4,5	3	820
	M33	1,5 - 2,5	27,7	0,18	1,49	6,60	4,3	3	825
	M33	1,5 - 2,5	27,7	0,19	1,60	6,10	5,0	6	826
	M36	2,5 - 5,0	27,7	0,38	2,93	6,10	2,3	6	850
	M36	2,5 - 5,0	27,7	0,37	2,93	6,60	4,0	3	840
	M39	4,0 - 6,0	27,7	0,62	3,37	6,60	3,6	3	860

P	●
M	●
K	●
N	●
S	○
H	○
O	●

→ v_c/f_z Page 76

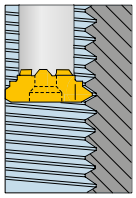
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

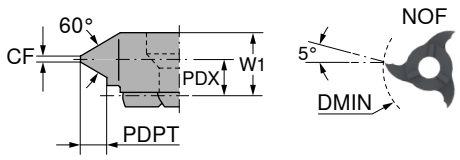
MiniMill – Milling insert for internal thread milling – Full profile

Mini Mill | ≥ M22

60° | M

CWX500







53 011 ...

Size	Thread$_{min}$	TP mm	DMIN mm	CF mm	PDPT mm	W1 mm	PDX mm	NOF	
18	M22	1,50	17,7	0,18	0,81	5,85	4,8	3	**415**
	M22	1,75	17,7	0,20	0,95	5,85	4,7	3	**417**
	M22	2,00	17,7	0,25	1,08	5,85	4,6	3	**420**
	M24	2,50	17,7	0,31	1,35	5,85	4,4	3	**425**
	M27	3,00	17,7	0,37	1,62	5,85	4,3	3	**430**
	M27	3,50	17,7	0,43	1,89	5,85	4,0	3	**435**
22	M24	1,50	21,7	0,19	0,81	5,85	4,8	3	**615**
	M24	1,50	21,7	0,19	0,81	6,20	5,3	6	**715**
	M27	1,75	21,7	0,22	0,95	6,20	5,2	6	**717**
	M27	1,75	21,7	0,22	0,95	5,85	4,7	3	**617**
	M27	2,00	21,7	0,25	1,08	5,85	4,6	3	**620**
	M27	2,00	21,7	0,25	1,08	6,20	5,0	6	**720**
	M30	3,00	21,7	0,37	1,62	5,85	4,3	3	**630**
	M30	3,00	21,7	0,37	1,62	6,20	4,8	6	**730**
	M30	3,50	21,7	0,43	1,89	5,85	4,0	3	**635**
	M33	4,00	21,7	0,50	2,16	5,85	3,9	3	**640**
	M33	4,00	21,7	0,50	2,16	6,20	4,4	6	**740**
	M33	4,50	21,7	0,56	2,43	5,85	3,7	3	**645**

P	●
M	●
K	●
N	●
S	○
H	
O	●

→ v_c/f_z Page 76

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

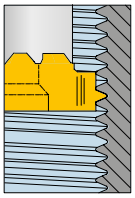
7

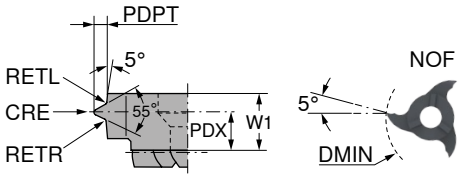
MiniMill – Milling insert for internal thread milling – Full profile

Mini Mill | ≥ G 3/8"

55° | G

CWX500







53 012 ...

Size	Thread$_{min}$	TP mm	DMIN mm	TPI 1/"	W1 mm	PDX mm	PDPT mm	CRE mm	RETL mm	RETR mm	NOF	
10	G 3/8"	1,34	11,7	19	3,60	2,5	0,860	0,18	0,18	0,18	3	**113**
	G 1/2"	1,81	11,7	14	3,60	2,3	1,160	0,24	0,24	0,24	3	**118**
	G 1"	2,31	11,7	11	3,60	2,0	1,480	0,31	0,31	0,31	3	**123**
18		1,34	17,7	19	5,85	4,9	0,856	0,18	0,18	0,18	3	**219**
	G 3/4"	1,81	17,7	14	5,85	4,6	1,160	0,24	0,24	0,24	3	**214**
	G 1"	2,31	17,7	11	5,85	4,4	1,480	0,31	0,31	0,31	3	**211**
22	G 1"	2,31	21,7	11	5,85	4,0	1,480	0,31	0,31	0,31	3	**311**
		3,17	21,7	8	5,85	3,5	2,030	0,43	0,43	0,43	3	**308**
	BSW 1 1/2"	4,23	21,7	6	5,85	3,1	2,710	0,58	0,58	0,58	3	**306**

P	●
M	●
K	●
N	●
S	○
H	
O	●

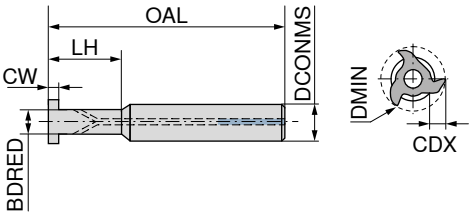
→ v_c/f_z Page 76

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

MiniMill – Circular milling cutter, extra short

▲ Steel Version

Mini Mill





Steel

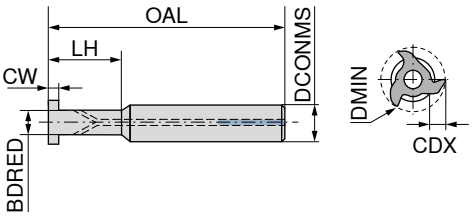
53 004 ...

Size	DCONMS h6 mm	BDRED mm	OAL mm	LH mm	DMIN mm	CW mm	CDX mm	torque moment Nm	
10	10	6,0	60	15,2	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	015
14	10	8,0	60	17,7	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	217
	13	8,0	70	25,7	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	225
18	10	9,0	60	17,0	17,7	≤5,6	3,5	4,5	417
	13	9,0	70	25,0	17,7	≤5,6	3,5	4,5	425
22	10	11,3	60	10,7	21,7	≤9,15	4,5	7,0	610
	13	11,3	70	25,7	21,7	≤9,15	4	7,0	625
28	13	14,0	70	10,7	27,7	≤10	6,5	7,0	810
	20	14,0	100	35,7	27,7	≤10	6,5	7,0	835

MiniMill – Circular milling cutter, short

▲ Steel Version

Mini Mill





Steel | Steel

53 002 ... | **53 003 ...**

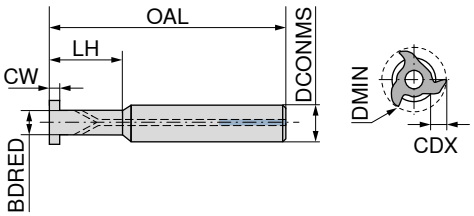
Size	DCONMS h6 mm	BDRED mm	OAL mm	LH mm	DMIN mm	CW mm	CDX mm	torque moment Nm		
10	16	6	80	12,0	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	012	012
14	16	8	80	16,0	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	216	216
18	16	9	80	18,0	17,7	≤5,6	3,5	4,5	418	418
22	16	12	80	24,0	21,7	≤9,15	4,5	7,0	624	624
28	20	14	100	35,7	27,7	≤10	6,5	7,0		835

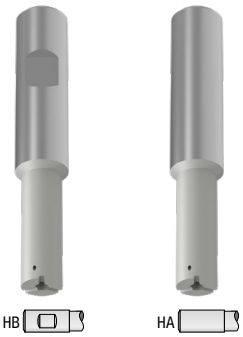
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

7

MiniMill – Circular milling cutter, vibration-damped

Mini Mill





HM 53 001 ...

HM 53 000 ...

Size	DCONMS h6 mm	BDRED mm	OAL mm	LH mm	DMIN mm	CW mm	CDX mm	torque moment Nm				
10	12	6,0	80	21	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0		021		021
	12	6,0	90	30	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0		030		030
	12	6,0	100	42	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0		042		042
	12	7,3	90	30	9,7 / 11,7	≤3,35	0,9 / 1,85	2,0		130		130
	16	7,3	100	25	9,7 / 11,7	≤3,35	0,9 / 1,85	2,0		025		025
14	12	8,0	95	29	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5		229		229
	12	8,0	110	42	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5		242		242
	12	8,0	120	56	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5		256		256
	12	9,5	110	42	13,7 / 15,7	≤4,35	1,65 / 2,7	3,5		342		342
	16	9,5	110	33	13,7 / 15,7	≤4,35	1,65 / 2,7	3,5		233		233
18	12	9,0	100	32	17,7	≤5,6	3,5	4,5		432		432
	12	9,0	100	45	17,7	≤5,6	3,5	4,5		445		445
	12	9,0	120	64	17,7	≤5,6	3,5	4,5		464		464
	16	9,0	93	25	17,7	≤5,6	3,5	4,5		425		425
	16	9,0	100	32	17,7	≤5,6	3,5	4,5		532		532
	16	9,0	110	45	17,7	≤5,6	3,5	4,5		545		545
	16	9,0	130	64	17,7	≤5,6	3,5	4,5		564		564
	16	13,0	110	64	17,7	≤5,6	1,5	4,5		465		465
	16	13,0	130	66	17,7	≤5,6	1,5	4,5		466		466
22	12		100	42	21,7	≤9,15	4,5	7,0		642		642
	12		130	60	21,7	≤9,15	4,5	7,0		660		660
	16	11,5	90	30	21,7	≤9,15	4,5	7,0		630		630
	16	12,0	100	42	21,7	≤9,15	4,5	7,0		742		742
	16	12,0	130	60	21,7	≤9,15	4,5	7,0		760		760
	16	12,0	160	85	21,7	≤9,15	4,5	7,0		685		685
	20	16,0	110	45	21,7	≤9,15	2,5	7,0		645		645
	20	16,0	130	65	21,7	≤9,15	2,5	7,0		665		665
28	16	14,3	100	42	27,7 / 24,8	≤10	6,5 / 5	7,0		842		842
	16	14,3	130	60	27,7 / 24,8	≤10	6,5 / 5	7,0		860		860
	16	14,3	160	85	27,7 / 24,8	≤10	6,5 / 5	7,0		885		885
	20	13,5	104	35	27,7 / 24,8	≤10	6,5 / 5	7,0		835		835
	20	14,3	160	85	27,7 / 24,8	≤10	6,5 / 5	7,0		985		985


Key D


Clamping screw


Clamping screw

Spare parts Size		80 950 ...		73 082 ...		73 082 ...
10	T08	110			M2,6	002
14	T10	112			M3,5	003
18	T15	113			M4	004
22	T20	114	M5	006	M5	005
28	T20	114			M5	005

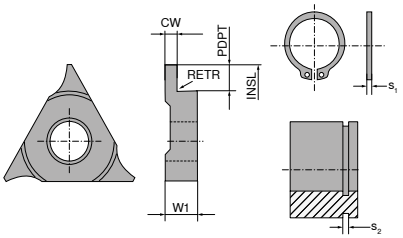
Clamping screw 73 082 006 only for insert 53 009 394

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

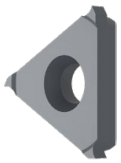
Milling inserts for circlip grooves without chamfer

System 300

DIN 471/472



Ti500



Solid carbide

50 853 ...

Size	$s_{2\ H13}$ mm	INSL mm	W1 mm	$CW_{-0,03}$ mm	PDPT mm	RETR mm	s_1 mm	
04	0,90	7,9	2,34	0,98	0,70	0,3	0,80	300
03	0,90	10,6	2,34	0,98	0,70	0,3	0,80	302
	1,10	10,6	2,34	1,18	0,90	0,3	1,00	304
	1,30	10,6	2,34	1,38	1,10	0,3	1,20	306
	1,60	10,6	2,34	1,68	1,25	0,3	1,50	308
	1,85	10,6	2,34	1,93	1,25	0,3	1,75	310
02	0,90	17,5	3,50	0,98	0,70	0,3	0,80	312
	1,10	17,5	3,50	1,18	0,90	0,3	1,00	314
	1,30	17,5	3,50	1,38	1,10	0,3	1,20	316
	1,60	17,5	3,50	1,68	1,25	0,3	1,50	318
	1,85	17,5	3,50	1,93	1,25	0,3	1,75	320
	2,15	17,5	3,50	2,23	1,75	0,3	2,00	322
	2,65	17,5	3,50	2,73	1,75	0,3	2,50	324
	3,15	17,5	3,50	3,23	2,20	0,3	3,00	326
01	0,90	23,0	4,00	0,98	0,70	0,3	0,80	328
	1,10	23,0	4,00	1,18	0,90	0,3	1,00	330
	1,30	23,0	4,00	1,38	1,10	0,3	1,20	332
	1,60	23,0	4,00	1,68	1,25	0,3	1,50	334
	1,85	23,0	4,00	1,93	1,25	0,3	1,75	336
	2,15	23,0	4,00	2,23	1,75	0,3	2,00	338
	2,65	23,0	4,00	2,73	1,75	0,3	2,50	340
	3,15	23,0	4,00	3,23	2,20	0,3	3,00	342

P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c/f_z Page 73

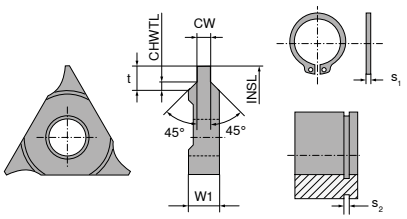
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

7

Milling inserts for circlip grooves with chamfer

System 300

DIN 471/472



Ti500



Solid carbide

50 852 ...

Size	$s_{2\ H13}$ mm	INSL mm	W1 mm	$CW_{-0,03}$ mm	t mm	CHWTL mm	s_1 mm	
03	1,10	10,6	2,34	1,18	0,50	0,10	1,00	**302**
02	1,10	17,5	3,50	1,18	0,50	0,10	1,00	**312**
	1,30	17,5	3,50	1,38	0,85	0,15	1,20	**314**
	1,60	17,5	3,50	1,68	1,00	0,15	1,50	**316**
	1,85	17,5	3,50	1,93	1,25	0,20	1,75	**317**
	2,15	17,5	3,50	2,23	1,50	0,20	2,00	**318**
	2,65	17,5	3,50	2,73	1,50	0,20	2,50	**319**
01	1,10	23,0	4,00	1,18	0,50	0,10	1,00	**320**
	1,30	23,0	4,00	1,38	0,70	0,15	1,20	**321**
	1,30	23,0	4,00	1,38	0,85	0,15	1,20	**322**
	1,60	23,0	4,00	1,68	1,00	0,15	1,50	**324**
	1,60	23,0	4,00	1,68	0,85	0,15	1,50	**323**
	1,85	23,0	4,00	1,93	1,25	0,20	1,75	**325**
	2,15	23,0	4,00	2,23	1,50	0,20	2,00	**326**
	2,65	23,0	4,00	2,73	1,75	0,20	2,50	**328**
	2,65	23,0	4,00	2,73	1,50	0,20	2,50	**327**
	3,15	23,0	4,00	3,32	1,75	0,20	3,00	**329**

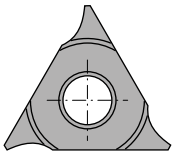
P	●
M	●
K	●
N	●
S	●
H	○
O	●

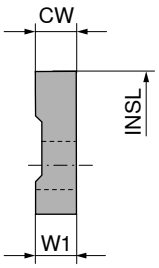
→ v_c/f_z Page 73

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Milling inserts without profile, ground ready-for-use

System 300





Ti500



Solid carbide

50 851 ...

Size	CW $^{+0,02}$ mm	INSL mm	W1 mm	
04	2,00	7,9	2,34	302
03	2,34	10,6	2,34	304
	3,00	10,6	3,00	306
02	3,50	17,5	3,50	312
	5,00	17,5	5,00	314
	6,00	17,5	6,00	316
01	4,00	23,0	4,00	322 1)
	6,50	23,0	6,50	324 1)

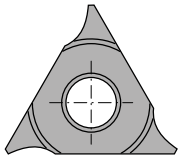
P	●
M	●
K	●
N	●
S	●
H	○
O	●

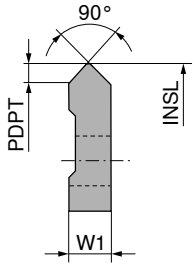
1) with circular milling cutter 50 800 090 PDPT = 3.0 mm

→ v_c/f_z Page 73

Milling inserts for chamfering and deburring

System 300





Ti500



Solid carbide

50 857 ...

Size	PDPT mm	INSL mm	W1 mm	
03	1,50	10,6	3,0	304
02	2,50	17,5	5,0	314
01	3,25	23,0	6,5	322 1)

P	●
M	●
K	●
N	●
S	●
H	○
O	●

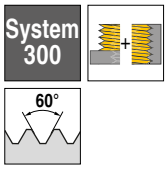
1) with circular milling cutter 50 800 090 PDPT = 3.0 mm

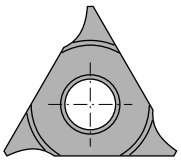
→ v_c/f_z Page 73

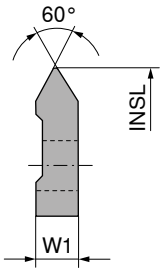
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

7

Thread milling insert – Partial profile







Ti500



Solid carbide

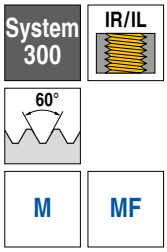
50 855 ...

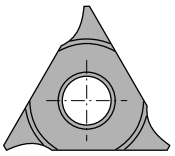
Size	TP mm	INSL mm	W1 mm	
02	1 - 3,5	17,5	3,5	314
01	1 - 4,0	23,0	4,0	324

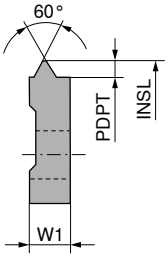
P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c/f_z Page 73

Thread milling insert – Full profile







Ti500



Solid carbide

50 859 ...

Size	TP mm	INSL mm	W1 mm	PDPT mm	
03	1,0	10,6	2,34	0,578	304
	1,5	10,6	2,34	0,864	308
	2,0	10,6	2,34	1,159	310
02	1,0	17,5	3,50	0,578	311
	1,5	17,5	3,50	0,864	312
	2,0	17,5	3,50	1,159	314
	2,5	16,0	3,50	1,444	317 1)
	2,5	17,5	3,50	1,444	316
	3,0	17,5	3,50	1,728	318
01	1,0	23,0	4,00	0,578	320
	1,5	23,0	4,00	0,864	322
	2,0	23,0	4,00	1,159	324
	2,5	23,0	4,00	1,444	326
	3,0	23,0	4,00	1,728	328
	3,5	23,0	4,00	2,023	330
	4,0	23,0	4,00	2,308	332
	4,5	23,0	6,50	2,602	334
	5,0	23,0	6,50	2,887	336
	6,0	23,0	6,50	3,467	338 2)

P	●
M	●
K	●
N	●
S	●
H	○
O	●

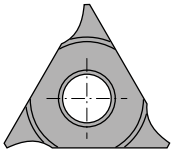
1) M20x2,5 - profile corrected

2) with circular milling cutter 50 800 090 PDPT = 3.0 mm

→ v_c/f_z Page 73

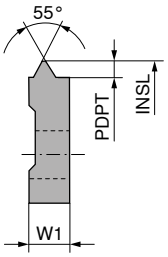
Thread milling insert – Full profile

System 300



55°

G BSW BSF



Ti500



Solid carbide

50 858 ...

Size	TP mm	TPI 1/"	INSL mm	W1 mm	PDPT mm	
02	1,814	14	17,5	3,5	1,162	**314**
	2,309	11	17,5	3,5	1,494	**312**
01	2,309	11	23,0	4,0	1,494	**322**

P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c/f_z Page 73

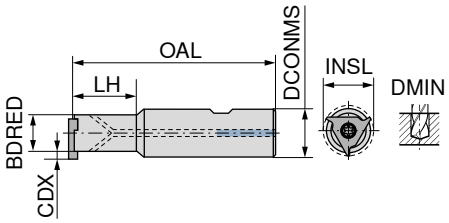
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

7

Circular milling cutter

▲ Size refers to milling inserts

System 300





HB

50 800 ...

Size	INSL mm	CDX mm	LH mm	DCONMS $_{h6}$ mm	OAL mm	BDRED mm	DMIN mm	torque moment Nm	
04	7,9	0,35	17,2	10	57,20	7,1	8	0,9	015 [1]
03	10,6	1,60	17,2	10	57,20	7,4	11	0,9	020 [1]
	10,6	1,60	34,2	10	74,20	7,4	11	0,9	025 [2]
02	17,5	2,60	28,7	12	74,05	12,0	20	3,8	030
	17,5	2,60	63,7	12	108,70	12,0	20	3,8	045 [2]
01	23,0	3,45	38,5	16	87,00	16,1	25	5,5	050
	23,0	3,45	67,5	16	116,00	16,1	25	5,5	070
	23,0	3,00	88,5	16	137,00	17,0	25	5,5	090 [2]

1) Without Through Coolant
2) Carbide version



Key D

80 950 ...



Clamping screw

70 960 ...

Spare parts Size				
04	T06 - IP	123	M2x9	232
03	T06 - IP	123	M2x9	232
02	T15 - IP	128	M4x12,3	233
01	T20 - IP	129	M5x15	234

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

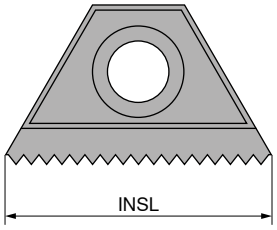
Thread milling insert

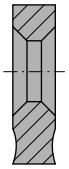
▲ Can be used on both sides (except for INSL 10.4)

MWN

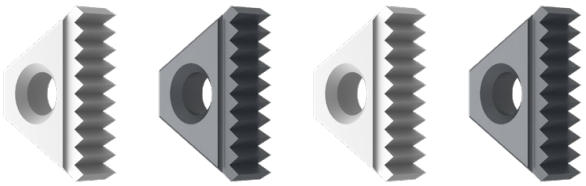
60°

M | MF





IR/IL | IR/IL TiAlN | ER/EL | ER/EL TiAlN



INSL mm	TP mm	Solid carbide 50 890 ...		Solid carbide 50 890 ...		Solid carbide 50 891 ...		Solid carbide 50 891 ...	
10,4	0,50	100							
	0,75	101							
	1,00	102		302					
	1,25	103							
	1,50	104		304					
11,0	0,50	120							
	0,75	121							
	1,00	122		322					
	1,25	123							
	1,50	124		324					
16,0	0,50	140							
	0,75	141							
	1,00	142		342		142		342	
	1,25	143				143			
	1,50	144		344		144		344	
	1,75	145				145			
	2,00	146		346		146		346	
27,0	1,00	162		362		162		362	
	1,25	163				163			
	1,50	164		364		164		364	
	1,75	165							
	2,00	166		366		166		366	
	2,50	167				167			
	3,00	168		368		168		368	
	3,50	169				169			
	4,00	170				170			
P		●		●		●		●	
M		○		●		○		●	
K		●		●		●		●	
N		●		●		●		●	
S									
H									
O		●		○		●		○	

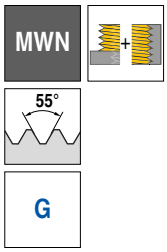
→ v_c/f_z Page 72

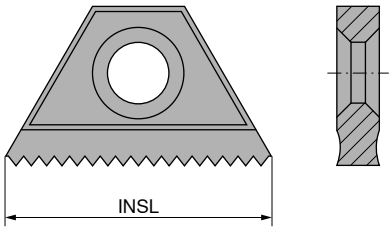
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

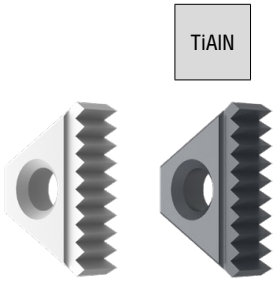
7

Thread milling insert

▲ Can be used on both sides (except for INSL 10.4)





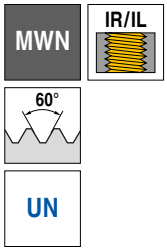


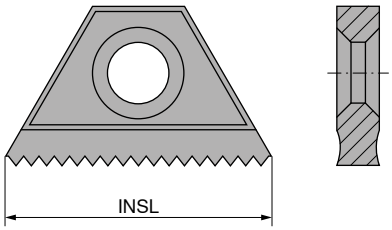
INSL mm	TPI 1/"	TP mm	Solid carbide 50 895 ...	Solid carbide 50 895 ...
10,4	19	1,337	100	300
16,0	14	1,814	142	342
	11	2,309	144	344
27,0	11	2,309	166	366
P			●	●
M			○	●
K			●	●
N			●	●
S				
H				
O			●	○

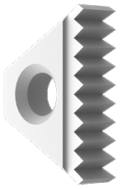
→ v_c/f_z Page 72

Thread milling insert

▲ Can be used on both sides (except for INSL 10.4)







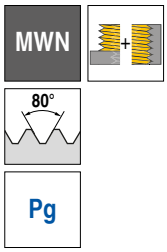
INSL mm	TPI 1/"	TP mm	Solid carbide 50 892 ...
10,4	20	1,270	100
	18	1,411	102
16,0	16	1,588	144
	12	2,117	146
27,0	12	2,117	166
	8	3,175	168
P			●
M			○
K			●
N			●
S			
H			
O			●

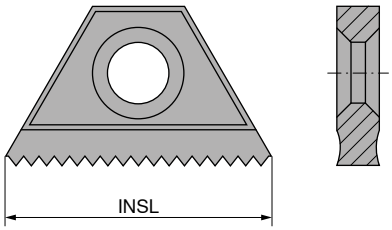
→ v_c/f_z Page 72

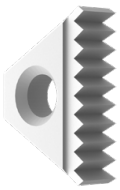
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling insert

▲ double sided







Solid carbide

50 896 ...

INSL mm	TPI 1/"	TP mm	
11	18	1,411	122
16	18	1,411	142
	16	1,588	144

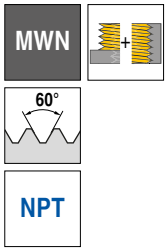
P	●
M	○
K	●
N	●
S	
H	
O	●

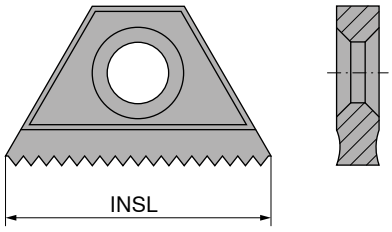
→ v_c/f_z Page 72

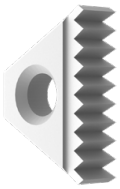
7

Thread milling insert

▲ double sided







Solid carbide

50 897 ...

INSL mm	TPI 1/"	TP mm	
16	14,0	1,814	142
	11,5	2,209	144
27	11,5	2,209	164
	8,0	3,175	166

P	●
M	○
K	●
N	●
S	
H	
O	●

→ v_c/f_z Page 72

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

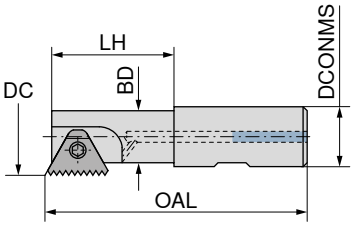
Note! Thread milling inserts are marked R (right-hand thread) and L (left-hand thread). The standard tool holder cannot be used to produce a left-hand thread! Tool holder for left-hand thread available on special request.

Circular milling cutter

▲ INSL refers to milling inserts

Scope of supply:
includes key

MWN 





B 

50 843 ...

INSL mm	BD mm	LH mm	DCONMS h6 mm	OAL mm	DC mm	torque moment Nm	
10,4	6,8	12	12	69	9,0	0,9	101
	6,8	17	20	84	9,0	0,9	102
11,0	8,9	12	12	70	11,5	1,2	111
	8,9	20	20	85	11,5	1,2	112
16,0	13,6	22	16	90	17,0	2,5	161
	16,6	43	20	95	20,0	2,5	162
	18,6	25	25	125	22,0	2,5	163
27,0	24,0	52	25	110	30,0	9,0	271
	31,0	58	32	120	37,0	9,0	273
	24,0	92	25	150	30,0	9,0	272
	31,0	98	32	160	37,0	9,0	274

Pilot hole diameter for circular end mill 50 843 ...

BD	TP in mm									
	0,5 mm 48 G/"	0,75 mm 32 G/"	1,0 mm 24 G/"	1,25 mm 20 G/"	1,5 mm 16 G/"	2,0 mm 12 G/"	2,5 mm 10 G/"	3,0 mm 8 G/"	3,5 mm 7 G/"	4,0 mm 6 G/"
6,8	9,5	10	10,7	11,4	12					
8,9	12	12,5	13,2	13,9	14,5					
13,6	17,6	18,2	19	19,6	20	21				
16,6	20,7	21,4	22	22,6	23	24				
18,6	22,7	23,4	24	24,6	25	26				
24,0	30,7	31,4	32	32,8	33,5	34,6	36,6	39	42	45
31,0	38	38,6	39,5	40,4	41	42	44	46,5	49	52



Key D



Clamping screw

Spare parts INSL		80 950 ...		70 950 ...	
10,4	T07	109	M2,2x5,0	200
11	T08	110	M2,6x6,5	201
16	T10	112	UNC5-40 x 8	202
27	T25	115	M5x15	203

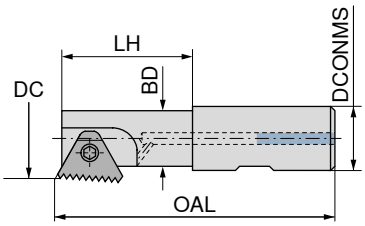
Circular milling cutter

▲ INSL refers to milling inserts

MWN



NPT





B

50 844 ...

INSL mm	BD mm	Thread	LH mm	DCONMS $_{h6}$ mm	OAL mm	DC mm	torque moment Nm	
16	12,5	NPT 1/2	22	16	90	15,5	2,5	161
	15,0	NPT 3/4 - 1 1/4	23	20	85	19,0	2,5	162
27	24,0	NPT 1 1/2 - 2	52	25	110	30,0	9,0	271
	31,0	NPT > 2	58	32	120	37,0	9,0	272



Key D

80 950 ...



Clamping screw

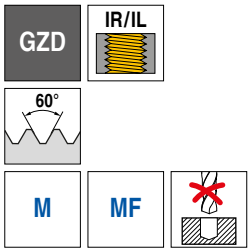
70 950 ...

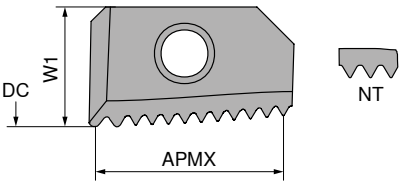
Spare parts INSL				
16	T10	112	UNC5-40 x 8	202
27	T25	115	M5x15	203

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

7

Thread milling insert







Solid carbide

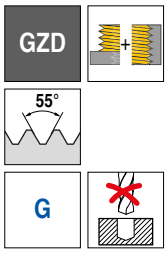
50 863 ...

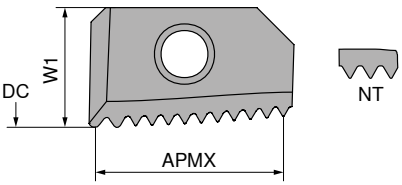
DC mm	TP mm	W1 mm	APMX mm	NT	
12	1,0	7,5	12,0	13	300
	1,5	7,5	10,5	8	302
17	1,0	11,0	16,0	17	310
	1,5	11,0	16,5	12	312
	2,0	11,0	16,0	9	314
20	1,0	7,5	12,0	13	320
	1,5	7,5	10,5	8	322
25	1,0	11,0	16,0	17	330
	1,5	11,0	16,5	12	332
	2,0	11,0	16,0	9	334

P	●
M	●
K	●
N	●
S	
H	
O	

→ v_c/f_z Page 73

Thread milling insert







Solid carbide

50 864 ...

DC mm	TPI 1/"	W1 mm	APMX mm	NT	
12	14	7,5	9,07	6	300
17	14	11,0	16,33	10	312 1)
	14	11,0	16,33	10	314 2)
	11	11,0	16,16	8	310
25	14	11,0	16,33	10	332
	11	11,0	16,16	8	330

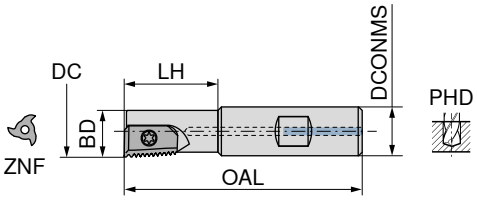
P	●
M	●
K	●
N	●
S	
H	
O	

1) Thread: 5/8 – 3/4 – 7/8
2) 1/2" Profile corrected

→ v_c/f_z Page 73

Circular milling cutter

GZD





B

50 842 ...

DC mm	LH mm	DCONMS $_{h6}$ mm	OAL mm	BD mm	ZNF	PHD mm	torque moment Nm	
12	18	16	74,0	9,4	1	14	1,1	**121**
17	30	16	79,0	13,7	1	19	3,8	**171**
20	32	20	83,0	17,5	3	22	1,1	**201**
25	50	25	107,6	21,7	3	26	3,8	**251**
	85	25	142,6	21,7	3	26	3,8	**252** 1)

1) Heavy metal version with mounted head



Key D



Clamping screw

Spare parts DC		**80 950 ...**		**70 960 ...**	
12	T08 - IP	**125**	M2,5x6,5	**244**
17	T15 - IP	**128**	M4x7,5	**245**
20	T08 - IP	**125**	M2,5x6,5	**244**
25	T15 - IP	**128**	M4x7,5	**245**

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

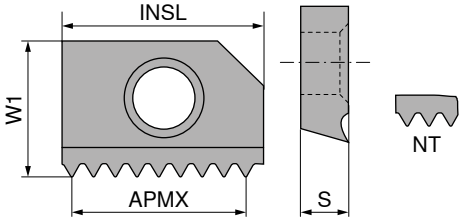
7

Thread milling insert

GZG

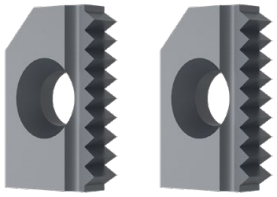
60°

M MF



ER/EL Ti500

IR/IL Ti500



INSL mm	TP mm	W1 mm	APMX mm	S mm	NT	Solid carbide 50 887 ...	Solid carbide 50 885 ...
14,5	0,50	10,0	13,50	3,18	28		350
	0,75	10,0	13,50	3,18	19		352
	1,00	10,0	13,00	3,18	14	304	354
	1,25	10,0	12,50	3,18	11		356
	1,50	10,0	12,00	3,18	9	308	358
	1,75	10,0	12,25	3,18	8		360
	2,00	10,0	12,00	3,18	7	312	362
	2,50	10,0	10,00	3,18	5		364
	2,50	10,0	10,00	3,18	5		366 1)
15,0	3,00	10,5	12,00	3,18	5		370 2)
	3,50	10,5	10,50	3,18	4		372 2)
21,0	1,00	10,0	19,00	3,18	20		380
	1,50	10,0	19,50	3,18	14		382
	1,50	10,0	18,00	3,18	13	320	
	2,00	10,0	18,00	3,18	10		384
26,0	1,50	15,0	24,00	5,00	17		390
	2,00	15,0	24,00	5,00	13		392
	3,00	15,0	21,00	5,00	8		396
	3,50	15,0	20,00	5,00	7		398
	4,00	15,0	20,00	5,00	6		400

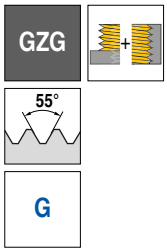
P	●	●
M	●	●
K	●	●
N	●	●
S		
H		
O		

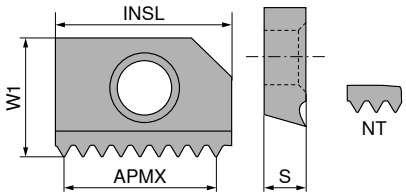
1) M20x2,5 - profile corrected
2) Without chamfer

→ v_c/f_z Page 73

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling insert







Solid carbide

50 888 ...

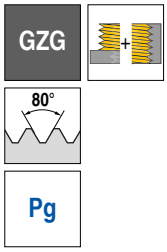
INSL mm	TPI 1/"	TP mm	W1 mm	APMX mm	S mm	NT	
14,5	18	1,411	10	11,28	3,18	9	310
	16	1,587	10	11,11	3,18	8	312
	14	1,814	10	12,69	3,18	8	314
	12	2,116	10	10,58	3,18	6	316
	11	2,309	10	11,54	3,18	6	318
21,0	14	1,814	10	18,14	3,18	11	320
	11	2,309	10	18,47	3,18	9	322
26,0	11	2,309	15	23,09	5,00	11	330

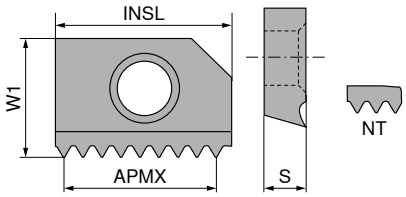
P	●
M	●
K	●
N	●
S	
H	
O	

→ v_c/f_z Page 73

7

Thread milling insert







Solid carbide

50 894 ...

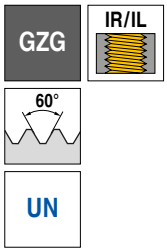
INSL mm	TPI 1/"	TP mm	W1 mm	APMX mm	S mm	NT	
14,5	18	1,411	10	12,69	3,18	10	302
	16	1,587	10	11,11	3,18	8	304

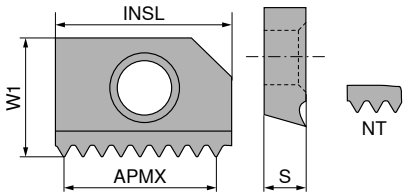
P	●
M	●
K	●
N	●
S	
H	
O	

→ v_c/f_z Page 73

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling insert







Solid carbide

50 889 ...

INSL mm	TPI 1/"	TP mm	W1 mm	APMX mm	S mm	NT	
14,5	18	1,411	10	12,69	3,18	10	**310**
	16	1,587	10	12,70	3,18	9	**312**
21,0	16	1,587	10	19,05	3,18	13	**320**
	14	1,814	10	18,14	3,18	11	**322**
	12	2,116	10	18,04	3,18	10	**324**

P	●
M	●
K	●
N	●
S	
H	
O	

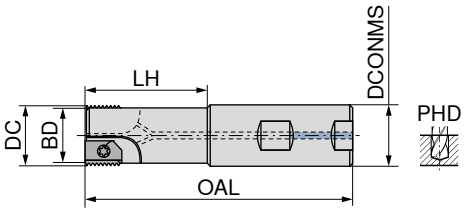
→ v_c/f_z Page 73

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Circular milling cutter

▲ INSL refers to milling inserts

GZG





B

50 841 ...

INSL mm	DC mm	LH mm	DCONMS $_{h6}$ mm	OAL mm	BD mm	ZNP	PHD mm	torque moment Nm	
14,5	16	30,0	16	78	12,7	1	18,5	3,8	016
	16	50,0	16	98	12,7	1	18,5	3,8	017 1)
	20	60,0	20	110	16,8	1	23,0	3,8	020
	25	48,2	25	106	21,5	2	30,0	3,8	025
	25	92,2	25	150	21,5	2	30,0	3,8	026 1)
15,0	18	30,0	16	79	12,7	1	20,0	3,8	218
	22	60,0	20	110	16,8	1	26,0	3,8	222
	27	48,2	25	106	21,5	2	32,0	3,8	227
21,0	16	31,3	20	85	12,7	1	18,5	3,8	316
	22	32,8	25	92	18,7	1	26,0	3,8	322
	22	62,8	25	122	18,7	1	26,0	3,8	323 1)
	28	38,3	32	102	24,7	2	35,0	3,8	328
	28	78,3	32	142	24,5	2	35,0	3,8	327 1)
26,0	25	48,5	25	107	20,0	1	30,0	3,8	125

1) Heavy metal version



Key D



Clamping screw

Spare parts for Article no.	80 950 ...		70 960 ...	
50 841 016	T15 - IP	128	M4x6,9	237
50 841 017	T15 - IP	128	M4x6,9	237
50 841 020	T15 - IP	128	M4x7,5	245
50 841 025	T15 - IP	128	M4x8	242
50 841 026	T15 - IP	128	M4x8	242
50 841 218	T15 - IP	128	M4x6,9	237
50 841 222	T15 - IP	128	M4x6,9	237
50 841 227	T15 - IP	128	M4x8	242
50 841 316	T15 - IP	128	M4x6,9	237
50 841 322	T15 - IP	128	M4x6,9	237
50 841 323	T15 - IP	128	M4x8	242
50 841 328	T15 - IP	128	M4x8	242
50 841 327	T15 - IP	128	M4x8	242
50 841 125	T15 - IP	128	M4x11,5	241

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

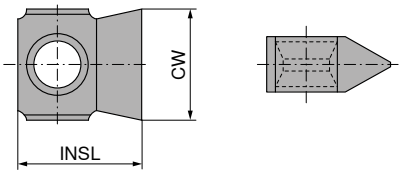
7

Thread milling insert – partial profile

EAW

60°

M UN



TiN



Solid carbide

50 867 ...

DC mm	TP mm	TPI 1/"	CW mm	INSL mm	
16,5	1,5 - 3,0	16 - 10	5	7,0	**115**
18	2,5 - 3,5	10 - 7	5	7,8	**225**

55° G

50 868 ...

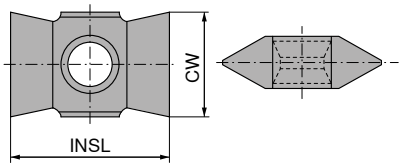
DC mm	TP mm	TPI 1/"	CW mm	INSL mm	
16,5	1,814	14	5	7	**114**

Thread milling insert – partial profile

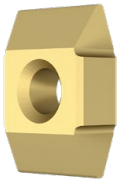
EAW

60°

M UN



TiN



Solid carbide

50 860 ...

DC mm	TP mm	TPI 1/"	CW mm	INSL mm	
23,85	1,5 - 2,5	16 - 10	6,35	9,52	**315**
23,85	2,5 - 4,0	10 - 6	6,35	9,52	**325**
32,85	1,5 - 2,5	16 - 10	8,50	13,50	**415**
32,85	2,5 - 5,5	10 - 4,5	8,50	13,50	**425**

55° G

50 861 ...

DC mm	TP mm	TPI 1/"	CW mm	INSL mm	
23,85	2,309	11	6,35	9,52	**311**
32,85	2,309	11	8,50	13,50	**411**

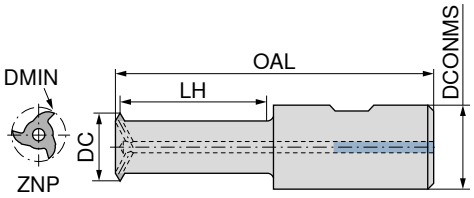
P	●
M	●
K	●
N	●
S	●
H	○
O	○

→ v_c/f_z Page 72

Circular milling cutter

Scope of supply:
including key

EAW  IR/IL





50 848 ...

DC mm	DMIN mm	TP mm	TPI 1/"	LH mm	DCONMS $_{h6}$ mm	OAL mm	ZNP	torque moment Nm	
16,5 / 18,0	17,5 / 19,0	1,5 - 3,0	16 - 10	60	20	114	2	0,9	**020**
23,85	25,5	1,5 - 4,0	24 - 6	90	32	154	3	0,9	**030**
32,85	35,0	1,5 - 5,5	16 - 4,5	115	32	179	3	2,5	**040**

7


Key D

80 950 ...


Clamping screw

70 950 ...

Spare parts for Article no.				
50 848 020	T07 - IP	**124**	M2,5x8,5	**739**
50 848 030	T07 - IP	**124**	M2,5x8,5	**739**
50 848 040	T09 - IP	**126**	M3x11	**740**

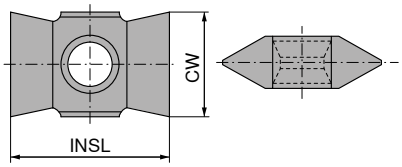
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling insert – partial profile

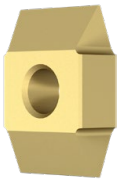
EWM

60°

M | UN



TiN



Solid carbide

50 870 ...

DC mm	TP mm	TPI 1/"	CW mm	INSL mm	
40,25	1,5 - 3,0	16 - 9	9,5	15,50	**515**
40,25	3,0 - 6,0	9 - 4	9,5	15,50	**530**
52,55 / 66,55	1,5 - 3,0	16 - 9	12,5	19,00	**615**
52,55 / 66,55	3,0 - 6,0	9 - 4	12,5	19,00	**630**
92	6,0 - 8,0	4	14,3	28,58	**760**

55°

G

50 871 ...

DC mm	TP mm	TPI 1/"	CW mm	INSL mm	
40,25	2,309	11	9,5	15,5	**511**
52,55	2,309	11	12,5	19,0	**611**

P	●
M	●
K	●
N	●
S	●
H	○
O	○

→ v_c/f_z Page 72

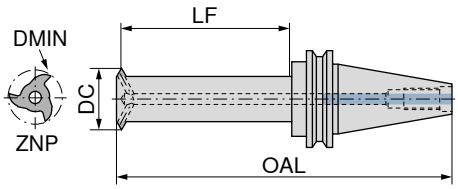
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Circular milling cutter

Scope of supply:

including key

EWM IR/IL







DIN 69871

50 849 ...

DC mm	DMIN mm	TP mm	TPI 1/"	LF mm	OAL mm	Adapter	ZNP	torque moment Nm	
40,25	43,0	1,5 - 6,0	16 - 4,0	145	247,0	SK 40	4	5,5	**048**
40,25	43,0	1,5 - 6,0	16 - 4,0	145	280,5	SK 50	4	5,5	**148**
52,55	56,0	1,5 - 6,0	16 - 4,0	195	331,0	SK 50	4	8,0	**164**
66,55	70,5	1,5 - 6,0	16 - 4,0	260	398,0	SK 50	7	8,0	**080**
92,00	100,0	6,0 - 8,0	4,0	360	497,0	SK 50	7	8,0	**115**



Key D

80 950 ...



Clamping screw

70 950 ...

Spare parts DC				
40,25	T15 - IP	**128**	M4x13	**741**
52,55 - 92	T20 - IP	**129**	M5x15	**742**

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

MicroMill – Solid Carbide Circular End Milling Cutter

Micro Mill

CWX500





HA

Solid carbide

53 050 ...

DC mm	CW ±0,02 mm	CDX mm	LH mm	OAL mm	DN mm	DCONMS h6 mm	ZEFP	DMIN mm	
5,8	0,7	0,8	15,2	58	3,8	6	3	6	070
	0,8	0,8	15,2	58	3,8	6	3	6	080
	0,9	0,8	15,2	58	3,8	6	3	6	090
	1,0	0,8	15,2	58	3,8	6	3	6	100
	1,5	0,8	15,2	58	3,8	6	3	6	150
7,8	0,7	1,2	25,4	68	5,0	8	3	8	170
	0,8	1,2	25,4	68	5,0	8	3	8	180
	0,9	1,2	25,4	68	5,0	8	3	8	190
	1,0	1,2	25,4	68	5,0	8	3	8	200
	1,5	1,2	25,4	68	5,0	8	3	8	250
	2,0	1,2	25,4	68	5,0	8	3	8	300

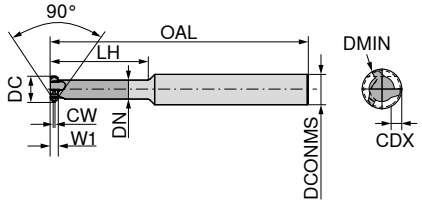
P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 76

MicroMill – Solid Carbide Circular End Milling Cutter

Micro Mill

CWX500





HA

Solid carbide

53 051 ...

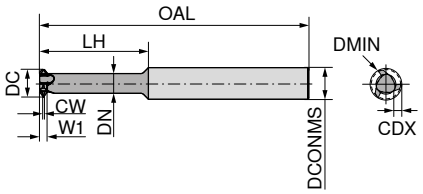
DC mm	W1 mm	CW mm	CDX mm	LH mm	OAL mm	DN mm	DCONMS h6 mm	ZEFP	DMIN mm	
5,8	2	0,2	0,8	15	58	4,2	6	3	6	010
	2	0,2	0,8	25	68	4,2	6	3	6	020
7,8	2	0,2	1,2	25	68	5,0	8	3	8	110
	2	0,2	1,2	35	78	5,0	8	3	8	120

P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 76

MicroMill – Solid Carbide Circular Thread Milling Cutter – Full profile

Micro Mill | IR/IL | 60° | M



CWX500



HA

Solid carbide

53 052 ...

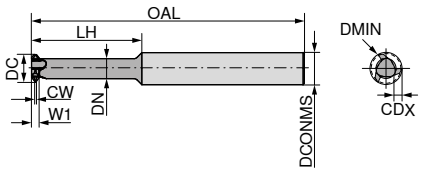
DC mm	Thread	TP mm	W1 mm	CW mm	CDX mm	LH mm	OAL mm	DN mm	DCONMS $_{h6}$ mm	ZEFP	DMIN mm	
1,18	M1,6	0,35	0,40	0,04	0,19	4,0	32	0,64	3	3	1,38	**160**
1,38	M1,8	0,35	0,50	0,04	0,19	5,0	32	0,70	3	3	1,58	**180**
1,50	M2	0,40	0,56	0,05	0,22	5,0	32	0,90	3	4	1,70	**200**
1,95	M2,5	0,45	0,60	0,06	0,25	6,0	32	1,15	3	4	2,15	**250**
2,40	M3	0,50	0,60	0,06	0,27	7,0	32	1,60	3	4	2,60	**300**
2,80	M3,5	0,60	0,74	0,08	0,33	8,0	32	1,80	3	4	3,00	**350**
3,10	M4	0,70	0,82	0,09	0,38	9,0	44	1,98	5	4	3,30	**400**
3,60	M5	0,80	0,98	0,10	0,43	10,0	44	2,20	5	4	3,80	**500**
4,10	M6	1,00	0,98	0,13	0,54	12,2	44	2,70	5	4	4,30	**600**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 76

MicroMill – Solid Carbide Circular Thread Milling Cutter – Partial profile

Micro Mill | IR/IL | 60°



CWX500



HA

Solid carbide

53 053 ...

DC mm	TP mm	W1 mm	CW mm	CDX mm	LH mm	OAL mm	DN mm	DCONMS $_{h6}$ mm	ZEFP	DMIN mm	
5,8	0,5 - 1,5	2	0,06	0,91	15,2	58	3,5	6	3	6	**010**
7,8	0,5 - 1,5	2	0,06	0,91	25,4	68	5,5	8	3	8	**110**
7,8	1,0 - 2,0	2	0,12	1,19	25,4	68	5,0	8	3	8	**120**

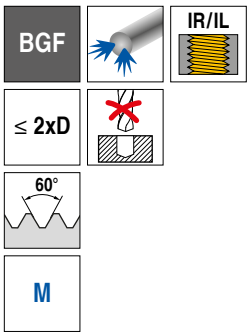
P	●
M	●
K	●
N	●
S	●
H	●
O	●

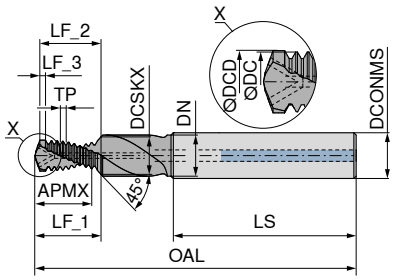
→ v_c/f_z Page 76

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

7

Drill thread milling cutter with chamfer facet





NEW NEW

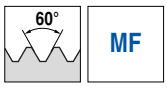
Ti601



Solid carbide Solid carbide

DC mm	Thread	KOMET no.	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	DCD mm	DCSKX mm	DN mm	LF_1 mm	LF_2 mm	LF_3 mm	ZEFP	50 869 ...	50 854 ...
2,45	M3	88901001000013	0,50	49	5,8	36	6	2,5	3,3	4,5	6,8	6,4	0,5	2	**03000**[1)]	**03000**[1)]
2,45	M3	88906001000013	0,50	49	5,8	36	6	2,5	3,3	4,5	6,8	6,4	0,5	2		
3,24	M4	88935001000015	0,70	49	7,3	36	6	3,3	4,3	4,5	9,4	8,9	0,7	2		**04000**
3,24	M4	88941001000015	0,70	49	7,3	36	6	3,3	4,3	4,5	9,4	8,9	0,7	2	**04000**	
4,10	M5	88935001000017	0,80	55	9,2	36	6	4,2	5,3	5,5	11,7	11,0	0,8	2		**05000**
4,10	M5	88941001000017	0,80	55	9,2	36	6	4,2	5,3	5,5	11,7	11,0	0,8	2	**05000**	
4,85	M6	88935001000018	1,00	62	11,4	36	8	5,0	6,3	6,6	14,5	13,7	1,0	2		**06000**
4,85	M6	88941001000018	1,00	62	11,4	36	8	5,0	6,3	6,6	14,5	13,7	1,0	2	**06000**	
6,45	M8	88935001000020	1,25	74	14,2	40	10	6,8	8,3	9,0	18,2	17,1	1,3	2		**08000**
6,45	M8	88941001000020	1,25	74	14,2	40	10	6,8	8,3	9,0	18,2	17,1	1,3	2	**08000**	
8,08	M10	88935001000022	1,50	79	18,5	45	12	8,5	10,3	11,0	23,4	22,1	1,5	2		**10000**
8,08	M10	88941001000022	1,50	79	18,5	45	12	8,5	10,3	11,0	23,4	22,1	1,5	2	**10000**	
9,74	M12	88935001000024	1,75	89	21,6	45	14	10,3	12,3	13,5	27,1	25,5	1,5	2		**12000**
9,74	M12	88941001000024	1,75	89	21,6	45	14	10,3	12,3	13,5	27,1	25,5	1,5	2	**12000**	
11,35	M14	88935001000025	2,00	102	26,6	48	16	12,0	14,3	15,5	32,8	30,9	1,5	2		**14000**
11,35	M14	88941001000025	2,00	102	26,6	48	16	12,0	14,3	15,5	32,8	30,9	1,5	2	**14000**	
13,28	M16	88935001000026	2,00	102	30,6	48	18	14,0	16,3	17,5	37,1	35,0	1,5	2		**16000**
13,28	M16	88941001000026	2,00	102	30,6	48	18	14,0	16,3	17,5	37,1	35,0	1,5	2	**16000**	

1) Without Through Coolant



NEW NEW

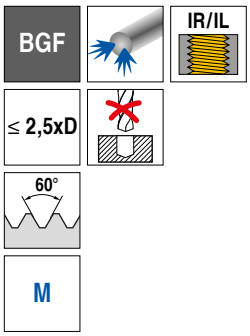
DC mm	Thread	KOMET no.	TP mm	OAL mm	APMX mm	LS mm	DCONMS mm	DCD mm	DCSKX mm	DN mm	LF_1 mm	LF_2 mm	LF_3 mm	ZEFP	50 869 ...	50 854 ...
6,79	M8x1	88935002000070	1,0	74	15,40	40	10	7,0	8,3	9,0	18,8	17,7	1,0	2		**08100**
6,79	M8x1	88941002000070	1,0	74	15,40	40	10	7,0	8,3	9,0	18,8	17,7	1,0	2	**08100**	
8,75	M10x1	88941002000094	1,0	79	19,40	45	12	9,0	10,3	11,0	23,2	21,8	1,0	2	**10100**	
8,75	M10x1	88935002000094	1,0	79	19,40	45	12	9,0	10,3	11,0	23,2	21,8	1,0	2		**10100**
10,74	M12x1	88935002000111	1,0	89	22,40	45	14	11,0	12,3	13,5	26,4	24,8	1,0	2		**12100**
10,06	M12x1,5	88935002000113	1,5	89	23,01	45	14	10,5	12,3	13,5	28,2	26,6	1,5	2		**12200**
10,06	M12x1,5	88941002000113	1,5	89	23,01	45	14	10,5	12,3	13,5	28,2	26,6	1,5	2	**12200**	

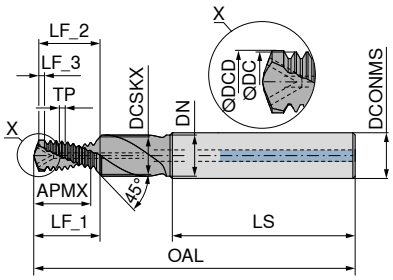
P		
M		
K	○	●
N	●	○
S		
H		
O	●	○

→ v_c/f_z Page 75

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Drill thread milling cutter with chamfer facet





NEW



HA

Solid carbide

50 898 ...

NEW

Ti601



HA

Solid carbide

50 862 ...

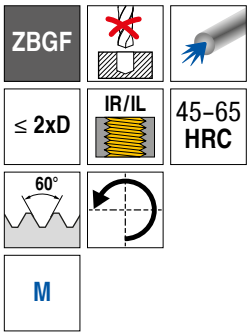
DC mm	Thread	KOMET no.	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	DCD mm	DCSKX mm	DN mm	LF_1 mm	LF_2 mm	LF_3 mm	ZEFP		
4,10	M5	88961001000017	0,80	55	11,57	36	6	4,2	5,3	5,5	14,1	13,4	0,8	2	**05000**	
4,85	M6	88961001000018	1,00	62	13,40	36	8	5,0	6,3	6,6	16,5	15,7	1,0	2	**06000**	
4,85	M6	88956001000018	1,00	62	13,40	36	8	5,0	6,3	6,6	16,5	15,7	1,0	2		**06000**
6,45	M8	88956001000020	1,25	74	19,20	40	10	6,8	8,3	9,0	23,2	22,1	1,3	2		**08000**
6,45	M8	88961001000020	1,25	74	19,20	40	10	6,8	8,3	9,0	23,2	22,1	1,3	2	**08000**	
8,08	M10	88956001000022	1,50	79	23,00	45	12	8,5	10,3	11,0	27,9	26,6	1,5	2		**10000**
8,08	M10	88961001000022	1,50	79	23,00	45	12	8,5	10,3	11,0	27,9	26,6	1,5	2	**10000**	
9,74	M12	88956001000024	1,75	89	28,60	45	14	10,3	12,3	13,5	34,1	32,5	1,5	2		**12000**
9,74	M12	88961001000024	1,75	89	28,60	45	14	10,3	12,3	13,5	34,1	32,5	1,5	2	**12000**	
P																
M																
K															○	●
N															●	○
S																
H																
O															●	○

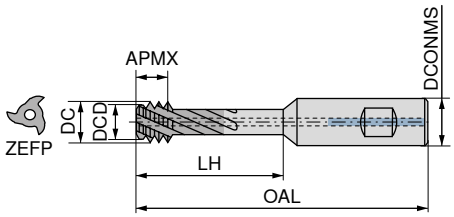
→ v_c/f_z Page 75

7

Circular Thread Milling Cutter

▲ Note: left-hand cutting (M04)







Solid carbide

50 840 ...

DC mm	Thread	TP mm	APMX mm	LH mm	DCONMS mm	DCD mm	OAL mm	ZEFP	
2,3	M3x0,5	0,50	2,0	7,0	6	2,10	51	4	**030** 1)
3,0	M4x0,7	0,70	2,8	9,4	6	2,60	51	4	**040** 1)
3,8	M5x0,8	0,80	3,2	11,6	6	3,40	51	4	**050** 1)
4,6	M6x1 - M7x1	1,00	4,0	14,0	8	4,10	60	4	**060** 1)
6,2	M8x1,25 - M10x1,25	1,25	5,0	19,0	10	5,60	71	4	**080**
7,8	M10x1,5 - M12x1,5	1,50	6,0	25,0	10	7,00	76	4	**100**
9,2	M12x1,75	1,75	7,0	31,0	12	8,30	86	4	**120**
11,1	M14x2 - M16x2	2,00	8,0	36,0	16	10,04	98	4	**140**

P	
M	
K	
N	
S	○
H	●
O	○

1) Without Through Coolant

→ v_c/f_z Page 71

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Caution: left-hand cutting (M04) → spindle rotation left!

Shank thread milling cutter with shank-end countersink

▲ Note: left-hand cutting

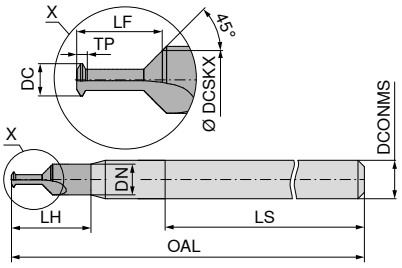
SFSE Micro

60°

M

NEW

Ti602





HA

Solid carbide

50 804 ...

DC mm	Thread	KOMET no.	TP mm	OAL mm	DN mm	LS mm	LH mm	DCONMS $_{h6}$ mm	DCSKX mm	LF mm	ZEFP	
0,75	M1	88977001000001	0,25	40	1,8	28	5,2	3	1,5	2,1	2	**01000**
1,10	M1,4	88977001000004	0,30	40	2,0	28	5,7	3	1,7	2,6	2	**01400**
1,25	M1,6	88977001000005	0,35	40	2,4	28	6,0	3	2,1	3,1	2	**01600**
1,60	M2	88977001000008	0,40	40	3,0	28		3	2,6	3,7	2	**02000**
1,75	M2,2	88977001000009	0,45	40	3,0	28		3	2,5	3,9	2	**02200**
2,05	M2,5	88977001000011	0,45	40	3,0	28		3	2,9	4,5	2	**02500**

P	○
M	○
K	
N	○
S	○
H	●
O	

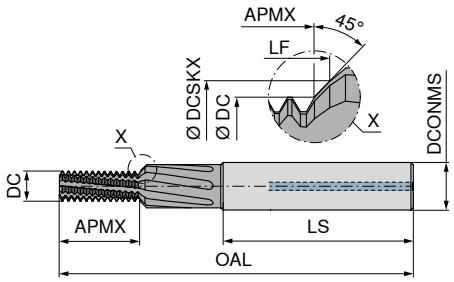
→ v_c/f_z Page 75

Caution: left-hand cutting (M04) → spindle rotation left!

7

Thread Milling Cutter with Chamfer Facet

SFSE | IR/IL | ≤ 2xD | 60° | M



NEW

AlCrN



HA

Solid carbide

50 806 ...

DC mm	Thread	KOMET no.	TP mm	OAL mm	APMX mm	LS mm	DCONMS h6 mm	DCSKX mm	LF mm	ZEFP	
3,14	M4	88296001000015	0,70	49	8,0	36	6	4,3	8,6	5	**04000**
3,95	M5	88296001000017	0,80	55	9,9	36	6	5,3	10,6	5	**05000**
4,68	M6	88296001000018	1,00	62	12,3	36	8	6,3	13,2	6	**06000**
6,22	M8	88296001000020	1,25	74	16,6	40	10	8,3	17,8	7	**08000**
7,79	M10	88296001000022	1,50	79	19,9	45	12	10,3	21,3	7	**10000**
9,38	M12	88296001000024	1,75	89	24,9	45	14	12,3	26,6	7	**12000**
10,92	M14	88296001000025	2,00	102	28,5	48	16	14,3	30,4	7	**14000**
12,83	M16	88296001000026	2,00	102	32,4	48	18	16,3	34,4	8	**16000**

60° | MF | ≤ 2xD

NEW

50 807 ...

DC mm	Thread	KOMET no.	TP mm	OAL mm	APMX mm	LS mm	DCONMS h6 mm	DCSKX mm	LF mm	ZEFP	
3,95	M5x0,5	88296002000037	0,50	55	10,2	36	6	5,3	10,8	5	**05100**
4,68	M6x0,75	88296002000048	0,75	62	12,2	36	8	6,3	13,0	5	**06200**
6,22	M8x1	88296002000070	1,00	74	16,2	40	10	8,3	17,3	6	**08300**
7,79	M10x1	88296002000094	1,00	79	20,1	45	12	10,3	21,5	7	**10300**
9,38	M12x1	88296002000111	1,00	89	24,0	45	14	12,3	25,6	7	**12300**
9,38	M12x1,5	88296002000113	1,50	89	24,3	45	14	12,3	25,9	7	**12500**
10,92	M14x1,5	88296002000131	1,50	102	28,7	48	16	14,3	30,6	7	**14500**
12,82	M16X1,5	88296002000147	1,50	102	31,7	48	18	16,3	33,6	8	**16500**

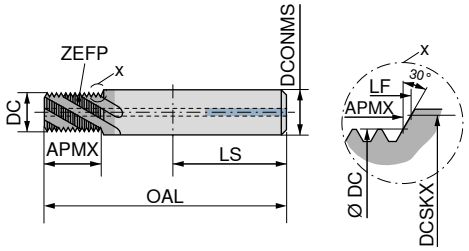
P	●
M	●
K	●
N	
S	●
H	
O	

→ v_c/f_z Page 75

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread Milling Cutter with Chamfer Facet

SFSE | IR/IL | ≤ 2xD | 60° | M



TiAlN



Solid carbide

50 811 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	DCSKX mm	LF mm	ZEFP	
4,0	M5	0,80	62	11	36	8	5,3	11,16	3	**050**
4,7	M6	1,00	62	13	36	8	6,3	13,93	3	**060**
6,5	M8	1,25	74	18	40	10	8,3	18,62	3	**080**
8,0	M10	1,50	74	22	40	10			3	**100** 1)
10,0	M12	1,75	90	26	45	14	12,3	26,47	4	**120**
12,5	M16	2,00	100	35	48	16			4	**160** 2)

1) Without chamfer
2) Chamfer section at the front of the tool

60° | MF

50 816 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	DCSKX mm	LF mm	ZEFP	
6,5	M8x1	1,00	74	18	40	10	8,3	18,00	3	**082**
8,0	M10x1	1,00	74	22	40	10			3	**102** 1)
8,0	M10x1,25	1,25	74	22	40	10			3	**103** 1)
10,0	M12x1,25	1,25	90	26	45	14	12,3	26,61	4	**123**
10,0	M12x1,5	1,50	90	26	45	14	12,3	27,30	4	**124**
11,0	M14x1	1,00	100	31	48	16	14,3	32,70	4	**142**
11,0	M14x1,5	1,50	100	31	48	16	14,3	32,08	4	**144**
12,5	M16x1,5	1,50	100	35	48	16			4	**164** 2)

1) Without chamfer
2) Chamfer section at the front of the tool

55° | G

50 818 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	DCSKX mm	LF mm	ZEFP	
7,6	G 1/8-28	0,907	80	20	45	12	10,0	20,97	3	**018**
11,0	G 1/4-19	1,337	100	27	48	16	13,5	28,39	4	**014**
13,0	G 3/8-19	1,337	100	34	48	16			4	**038** 1)
16,0	G1/2-14	1,814	110	44	50	20			5	**012** 1)

P	●
M	●
K	●
N	●
S	●
H	
O	●

1) Chamfer section at the front of the tool

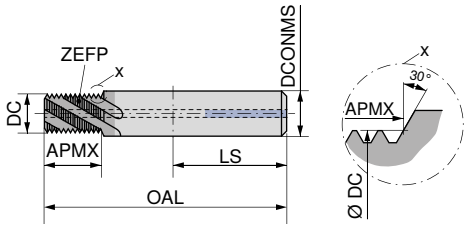
→ v_c/f_z Page 71

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

7

Thread Milling Cutter with Chamfer Facet

SFSE | IR/IL | ≤ 2xD | 60° | NPT



TiAlN



Solid carbide

50 819 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	ZEFP	
5,8	NPT 1/16-27	0,941	62	10	36	8	3	**116** [1]
7,6	NPT 1/8-27	0,941	74	10	40	10	3	**018** [1]
10,1	NPT 1/4-18	1,411	90	15	45	14	3	**014** [1]
16,0	NPT 1/2-14	1,814	110	19	50	20	5	**012** [1]

P	●
M	●
K	●
N	●
S	●
H	
O	●

1) Without chamfer

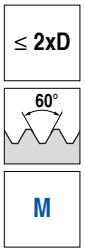
→ v_c/f_z Page 71

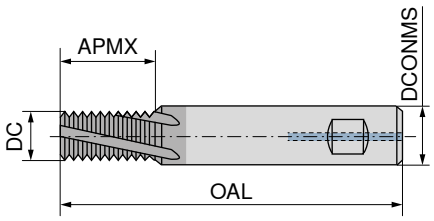
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling cutter with chamfer facet

- ▲ Profile-corrected
- ▲ Hard machining to Ø DC = 4 mm possible
- ▲ Chamfer section at end of shank







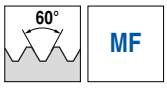


Solid carbide

54 801 ...

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	
4,00	M5	0,80	11	8	62	3	**050** 1)
4,80	M6	1,00	13	8	62	3	**060** 1)
6,50	M8	1,25	18	10	74	3	**080**
7,95	M10	1,50	22	12	80	3	**100**
9,90	M12	1,75	26	14	90	4	**120**
11,60	M14	2,00	31	16	100	4	**140**
11,95	M16	2,00	35	12	90	4	**160** 2)
13,95	M18	2,50	39	20	110	4	**180**
15,95	M20	2,50	44	16	100	4	**200** 2)

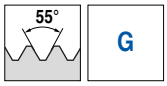
1) Without Through Coolant
2) Chamfer section at the front of the tool



54 803 ...

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	
6,0	M8x1	1,00	18	10	74	3	**080**
8,0	M10x1	1,00	22	12	80	3	**100**
8,0	M10x1,25	1,25	22	12	80	3	**101**
9,9	M12x1	1,00	26	14	90	4	**120**
9,9	M12x1,25	1,25	26	14	90	4	**121**
9,9	M12x1,5	1,50	26	14	90	4	**122**
11,6	M14x1	1,00	31	16	100	4	**140**
11,6	M14x1,5	1,50	31	16	100	4	**141**
12,0	M16x1,5	1,50	35	12	90	4	**160** 1)
14,0	M18x1,5	1,50	39	20	110	4	**180**
16,0	M20x1,5	1,50	44	16	100	4	**200** 1)

1) Chamfer section at the front of the tool



54 805 ...

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	
6,00	G 1/16-28	0,907	16	10	74	3	**116**
7,95	G 1/8-28	0,907	20	12	80	3	**018**
9,90	G 1/4-19	1,337	27	16	100	4	**014**
13,95	G 3/8-19	1,337	34	14	90	4	**038** 1)
15,95	G 1/2-14	1,814	43	16	100	4	**012** 1)
17,95	G 5/8-14	1,814	47	18	110	4	**058** 1)

P	●
M	●
K	●
N	●
S	●
H	●
O	●

1) Chamfer section at the front of the tool

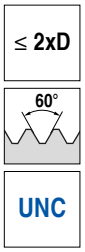
→ v_c/f_z Page 74

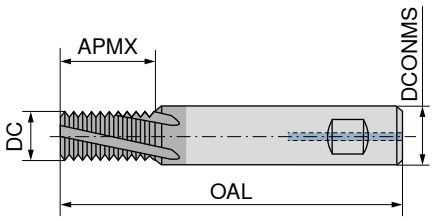
7

Thread milling cutter with chamfer facet

- ▲ Profile-corrected
- ▲ Hard machining to Ø DC = 4 mm possible
- ▲ Chamfer section at end of shank







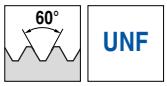


Solid carbide

54 811 ...

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	
4,80	UNC 1/4-20	1,270	14	8	62	3	**014** [1]
5,95	UNC 5/16-18	1,411	18	10	74	3	**516**
7,95	UNC 3/8-16	1,588	22	12	80	3	**038**
7,95	UNC 7/16-14	1,814	22	14	90	3	**716**
9,90	UNC 1/2-13	1,954	27	14	90	4	**012**
11,80	UNC 9/16-12	2,117	31	16	100	4	**916**
12,70	UNC 5/8-11	2,309	34	14	90	4	**058** [2]
15,20	UNC 3/4-10	2,540	38	20	110	5	**034**

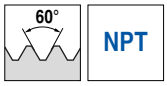
1) Without Through Coolant
2) Chamfer section at the front of the tool



54 813 ...

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	
4,80	UNF 1/4-28	0,907	14	8	62	3	**014** [1]
5,95	UNF 5/16-24	1,058	18	10	74	3	**516**
7,60	UNF 3/8-24	1,058	21	12	80	3	**038**
7,95	UNF 7/16-20	1,270	22	14	90	3	**716**
9,90	UNF 1/2-20	1,270	26	14	90	4	**012**
12,00	UNF 9/16-18	1,411	30	16	100	4	**916**
13,50	UNF 5/8-18	1,411	33	14	90	4	**058** [2]
17,00	UNF 3/4-16	1,588	38	20	110	5	**034**

1) Without Through Coolant
2) Chamfer section at the front of the tool



54 809 ...

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	
10,1	NPT 1/4-18	1,411	15	14	90	3	**014** [1]
12,8	NPT 3/8-18	1,411	15	16	100	4	**038** [1]
16,0	NPT 1/2-14	1,814	19	20	110	5	**012** [1]
18,5	NPT 3/4-14	1,814	19	20	110	5	**034** [1]

P	●
M	●
K	●
N	●
S	●
H	●
O	●

1) Chamfer section at the front of the tool

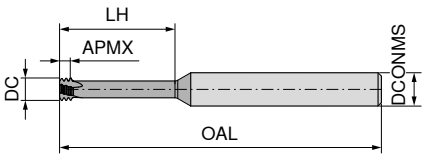
→ v_c/f_z Page 74

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Circular shank thread milling cutter

▲ Available on request from M1

SGF | IR/IL | ≤ 3xD | 60° | M



NEW

Ti600



Solid carbide

50 802 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LH mm	DCONMS $_{h6}$ mm	ZEFP	
1,53	M2	0,40	39	0,80	6,0	3	3	**02000**
2,37	M3	0,50	58	1,35	9,5	6	3	**03000**
3,10	M4	0,70	58	1,95	12,5	6	3	**04000**
3,80	M5	0,80	58	2,30	16,0	6	3	**05000**
4,65	M6	1,00	58	2,70	20,0	6	3	**06000**
6,00	M8	1,25	58	3,20	24,0	6	3	**08000**
7,80	M10	1,50	64	3,80	31,5	8	3	**10000**
9,00	M12	1,75	73	4,55	37,8	10	3	**12000**

7

60° | M | ≤ 4xD

NEW

50 803 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LH mm	DCONMS $_{h6}$ mm	ZEFP	
1,53	M2	0,40	39	1,00	10,4	3	3	**02000**
2,40	M3	0,50	39	1,30	12,5	3	3	**03000**
3,10	M4	0,70	58	1,80	16,7	6	3	**04000**
4,00	M5	0,80	58	2,10	20,8	6	3	**05000**
4,80	M6	1,00	58	2,55	25,0	6	3	**06000**
6,40	M8	1,25	64	3,15	33,5	8	3	**08000**
8,00	M10	1,50	76	3,85	41,5	8	3	**10000**

P	●
M	●
K	●
N	●
S	●
H	
O	●

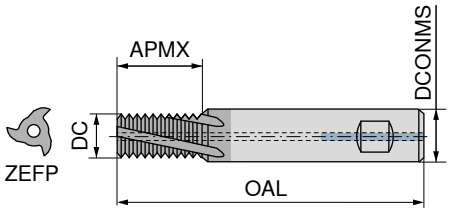
→ v_c/f_z Page 74

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread Milling Cutter

▲ Available on request: M30, M36, M42, M48, M56, M64

SGF | IR/IL | ≤ 2xD | 60° | M



TiAlN



Solid carbide

50 825 ...

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	
2,40	M3	0,50	6	4	42	3	**030** [1]
3,15	M4	0,70	8	6	55	3	**040**
4,00	M5	0,80	10	6	55	3	**050**
4,80	M6	1,00	12	6	55	3	**060**
6,00	M8	1,25	16	6	63	3	**080**
8,00	M10	1,50	20	8	70	3	**100**
9,90	M12	1,75	24	10	80	4	**120**
11,60	M14	2,00	28	12	90	4	**140**
12,00	M16	2,00	32	12	90	4	**160**
14,00	M18	2,50	36	14	90	4	**180**
14,00	M22	2,50	44	14	95	4	**220**
14,00	M20	2,50	40	14	90	4	**200**

1) Without Through Coolant

60° | MF

50 826 ...

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	
3,35	M4x0,5	0,50	8	6	55	3	**040**
4,20	M5x0,5	0,50	10	6	55	3	**050**
5,00	M6x0,75	0,75	12	6	55	3	**061**
6,00	M8x0,75	0,75	16	6	63	3	**081**
6,00	M8x1	1,00	16	6	63	3	**082**
8,00	M10x1	1,00	20	8	70	3	**102**
10,00	M12x1	1,00	24	10	80	4	**122**
10,00	M12x1,5	1,50	24	10	80	4	**124**
10,00	M14x1,5	1,50	28	10	80	4	**144**
12,00	M16x1,5	1,50	32	12	90	4	**164**
14,00	M18x1,5	1,50	36	14	90	4	**184**
14,00	M20x1,5	1,50	40	14	90	4	**204**
14,00	M22x1,5	1,50	44	14	95	4	**224**
16,00	M24x1,5	1,50	36	16	90	5	**244**

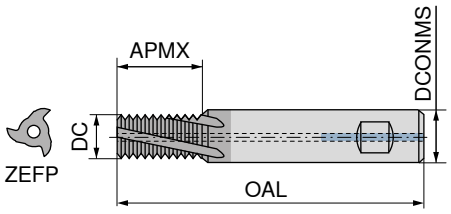
P	●
M	●
K	●
N	●
S	●
H	
O	●

→ v_c/f_z Page 71

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread Milling Cutter

SGF | IR/IL | ≤ 2xD | 55° | G



TiAlN



Solid carbide

50 827 ...

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	
8	G 1/8-28	0,907	19,5	8	70	3	**018**
11	G 1/4-19	1,337	26,5	12	90	4	**014**
12	G 3/8-19	1,337	33,0	12	90	4	**038**
14	G 1/2-14	1,814	42,0	14	95	4	**012**
16	G 3/4-14	1,814	34,0	16	90	5	**034**
16	G 1-11	2,309	33,0	16	90	5	**100**
16	G 5/8-14	1,814	34,0	16	90	5	**058**

P	●
M	●
K	●
N	●
S	●
H	
O	●

→ v_c/f_z Page 71

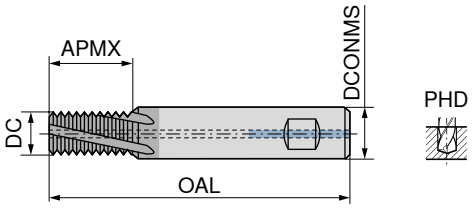
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

7

Thread milling cutter

▲ Profile corrected
▲ Hard machining to Ø DC = 4 mm possible

SGF | IR/IL | ≤ 2xD | 60° | M



Ti500



HB

Solid carbide

54 800 ...

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	PHD mm	
2,40	M3	0,50	6,5	4	42	2	2,50	030 1)
3,15	M4	0,70	9,0	6	55	3	3,30	040 2)
4,00	M5	0,80	11,0	6	55	3	4,20	050 2)
4,80	M6	1,00	13,0	6	55	3	5,00	060 2)
6,00	M8	1,25	18,0	6	60	3	6,75	080
8,00	M10	1,50	21,0	8	70	3	8,50	100
9,90	M12	1,75	26,0	10	75	4	10,25	120
11,60	M14	2,00	30,0	12	85	4	12,00	140
12,00	M16	2,00	34,0	12	85	4	14,00	160
14,00	M18	2,50	40,0	14	90	4	15,50	180
16,00	M20	2,50	42,0	16	90	4	17,50	200

1) DIN 6535 HA Shank / Without Through Coolant
2) Without Through Coolant

60° | MF

54 802 ...

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	PHD mm	
4,0	M5	0,50	11	6	55	3	4,50	050 1)
4,8	M6	0,75	13	6	55	3	5,25	060 1)
6,0	M8	1,00	18	6	60	3	7,00	080
8,0	M10	1,25	21	8	70	3	8,75	100
9,9	M12	1,00	26	10	75	4	11,00	120
9,9	M12	1,25	26	10	75	4	10,75	121
9,9	M12	1,50	26	10	75	4	10,50	122
11,6	M14	1,00	30	12	85	4	13,00	140
11,6	M14	1,50	30	12	85	4	12,50	141
12,0	M16	1,50	34	12	85	4	14,50	160
14,0	M18	1,50	40	14	90	4	16,50	180
16,0	M20	1,50	42	16	90	4	18,50	200

1) DIN 6535 HA Shank / Without Through Coolant

55° | G

54 804 ...

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	PHD mm	
8,0	G 1/8-28	0,907	21	8	70	3	8,80	018
9,9	G 1/4-19	1,337	26	10	75	4	11,80	014
14,0	G 3/8-19	1,337	40	14	90	4	15,25	038
16,0	G 1/2-14	1,814	42	16	90	4	19,00	012

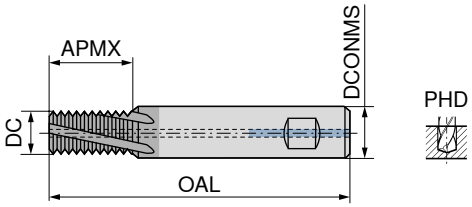
P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 74

Thread milling cutter

▲ Profile corrected

SGF | IR/IL | ≤ 2xD | 60° | UNC



Ti500



HB

Solid carbide

54 810 ...

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	PHD mm	
4,80	UNC 1/4-20	1,270	13	6	55	3	5,1	**014** [1]
6,00	UNC 5/16-18	1,411	18	6	60	3	6,6	**516**
7,95	UNC 3/8-16	1,588	21	8	70	3	8,0	**038**
7,95	UNC 7/16-14	1,814	21	8	70	3	9,4	**716**
9,90	UNC 1/2-13	1,954	26	10	75	4	10,8	**012**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

1) DIN 6535 HA Shank / Without Through Coolant

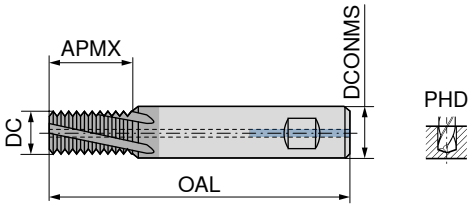
→ v_c/f_z Page 74

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling cutter

▲ Profile corrected

SGF | IR/IL | ≤ 2xD | 60° | UNF



Ti500



HB

Solid carbide

54 812 ...

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	PHD mm	
4,8	UNF 1/4-28	0,907	13	6	55	3	5,5	**014** [1]
6,0	UNF 5/16-24	1,058	18	6	60	3	6,9	**516**
8,0	UNF 3/8-24	1,058	21	8	70	3	8,5	**038**
8,0	UNF 7/16-20	1,270	21	8	70	3	9,9	**716**
9,9	UNF 1/2-20	1,270	26	10	75	4	11,5	**012**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

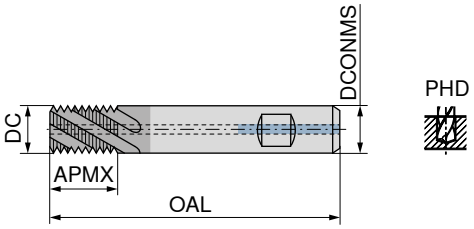
1) Without Through Coolant

→ v_c/f_z Page 74

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling cutter

SGF | IR/IL | ≤ 2xD | 60° | M



Ti500



HB

Solid carbide

54 832 ...

DC mm	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	PHD mm	
8	0,50	12	8	70	3	10	**008**
8	0,75	12	8	70	3	11	**080**
10	1,00	16	10	75	4	14	**100**
10	1,50	16	10	75	4	14	**101**
12	1,00	20	12	85	4	16	**120**
12	1,50	20	12	85	4	16	**121**
12	2,00	20	12	85	4	18	**122**
16	1,00	25	16	90	5	22	**160**
16	1,50	25	16	90	5	22	**161**
16	2,00	25	16	90	5	22	**162**
16	3,00	25	16	90	5	24	**164**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 72

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

7

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²				
		O.3.1	Graphite						

*** Tensile strength**

Cutting data standard values

	ZBGF H VHM 2xD 50 840 ...				SFSE VHM TiAlN 50 811 ..., 50 816 ..., 50 818 ..., 50 819 ...			SGF VHM TiAlN 50 825 ..., 50 826 ..., 50 827 ...		
Index	v_c m/min	Ø 3–5 f_z [mm/tooth]	Ø 6–10 f_z [mm/tooth]	Ø 12–16 f_z [mm/tooth]	v_c m/min	Ø 6–10 f_z [mm/tooth]	Ø 12–20 f_z [mm/tooth]	v_c m/min	Ø 6–10 f_z [mm/tooth]	Ø 12–20 f_z [mm/tooth]
P.1.1					**150**	0,06	0,10	**150**	0,06	0,10
P.1.2					**130**	0,06	0,10	**130**	0,06	0,10
P.1.3					**110**	0,06	0,10	**110**	0,06	0,10
P.1.4					**110**	0,05	0,07	**110**	0,05	0,07
P.1.5					**100**	0,05	0,07	**100**	0,05	0,07
P.2.1					**120**	0,06	0,10	**120**	0,06	0,10
P.2.2					**110**	0,05	0,07	**110**	0,05	0,07
P.2.3					**100**	0,05	0,07	**100**	0,05	0,07
P.2.4					**80**	0,04	0,06	**80**	0,04	0,06
P.3.1					**80**	0,06	0,10	**80**	0,06	0,10
P.3.2					**70**	0,05	0,07	**70**	0,05	0,07
P.3.3					**60**	0,04	0,06	**60**	0,04	0,06
P.4.1					**80**	0,06	0,10	**80**	0,06	0,10
P.4.2					**70**	0,06	0,10	**70**	0,06	0,10
M.1.1					**70**	0,04	0,06	**70**	0,04	0,06
M.2.1					**50**	0,03	0,05	**50**	0,03	0,05
M.3.1					**50**	0,03	0,05	**50**	0,03	0,05
K.1.1					**150**	0,07	0,12	**150**	0,07	0,12
K.1.2					**130**	0,07	0,12	**130**	0,07	0,12
K.2.1					**130**	0,05	0,07	**130**	0,05	0,07
K.2.2					**110**	0,05	0,07	**110**	0,05	0,07
K.3.1					**120**	0,06	0,10	**120**	0,06	0,10
K.3.2					**100**	0,06	0,10	**100**	0,06	0,10
N.1.1					**210**	0,085	0,15	**210**	0,085	0,15
N.1.2					**180**	0,07	0,12	**180**	0,07	0,12
N.2.1					**130**	0,07	0,12	**130**	0,07	0,12
N.2.2					**130**	0,07	0,12	**130**	0,07	0,12
N.2.3					**120**	0,07	0,12	**120**	0,07	0,12
N.3.1					**180**	0,085	0,15	**180**	0,085	0,15
N.3.2					**180**	0,085	0,15	**180**	0,085	0,15
N.3.3					**130**	0,085	0,15	**130**	0,085	0,15
N.4.1					**150**	0,085	0,15	**150**	0,085	0,15
S.1.1					**60**	0,03	0,05	**60**	0,03	0,05
S.1.2	80	0,01	0,03	0,03						
S.2.1	60	0,01	0,02	0,02						
S.2.2	60	0,01	0,02	0,02						
S.2.3	60	0,01	0,02	0,02						
S.3.1					**70**	0,03	0,05	**70**	0,03	0,05
S.3.2	80	0,01	0,03	0,03						
S.3.3	60	0,01	0,02	0,02						
H.1.1	**80**	0,01	0,03	0,03						
H.1.2	**60**	0,01	0,02	0,02						
H.1.3	**40**	0,005	0,01	0,01						
H.1.4										
H.2.1	**100**	0,03	0,04	0,04						
H.3.1	**60**	0,01	0,02	0,02						
O.1.1					**240**	0,10	0,16	**240**	0,10	0,16
O.1.2					**240**	0,10	0,16	**240**	0,10	0,16
O.2.1					**130**	0,05	0,07	**130**	0,05	0,07
O.2.2					**130**	0,05	0,07	**130**	0,05	0,07
O.3.1	180	0,04	0,05	0,08	**110**	0,05	0,07	**110**	0,05	0,07

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

7

Cutting data standard values

	MWN uncoated 50 890 ..., 50 891 ..., 50 892 ..., 50 895 ..., 50 896 ..., 50 897 ...		MWN TiAlN 50 890 ..., 50 891 ..., 50 895 ...		EAW / EWM 50 860 ..., 50 861 ..., 50 867 ..., 50 868 ..., 50 870 ..., 50 871 ...			SGF VHM Ti500 54 832 ...		
Index	v_c m/min	f_z [mm/tooth]	v_c m/min	f_z [mm/tooth]	v_c m/min	EAW f_z [mm/tooth]	EWM f_z [mm/tooth]	v_c m/min	8 mm f_z [mm/tooth]	10–16 mm f_z [mm/tooth]
P.1.1	**85**	0,10	**170**	0,10	**280**	0,20	0,20	**150**	0,03–0,07	0,05–0,15
P.1.2	**75**	0,10	**150**	0,10	**240**	0,20	0,20	**150**	0,03–0,07	0,05–0,15
P.1.3	**65**	0,10	**130**	0,10	**200**	0,20	0,20	**120**	0,03–0,07	0,05–0,10
P.1.4	**65**	0,07	**130**	0,07	**200**	0,15	0,15	**120**	0,03–0,06	0,04–0,06
P.1.5	**60**	0,07	**120**	0,07	**180**	0,15	0,15	**120**	0,03–0,06	0,04–0,06
P.2.1	**70**	0,10	**140**	0,10	**220**	0,20	0,20	**120**	0,03–0,06	0,04–0,06
P.2.2	**65**	0,07	**130**	0,07	**200**	0,15	0,15	**120**	0,03–0,06	0,04–0,06
P.2.3	**60**	0,07	**120**	0,07	**180**	0,15	0,15	**80**	0,03–0,06	0,04–0,06
P.2.4	**45**	0,06	**90**	0,06	**150**	0,12	0,12	**70**	0,03–0,06	0,04–0,06
P.3.1	**45**	0,10	**90**	0,10	**150**	0,20	0,20	**80**	0,03–0,06	0,04–0,06
P.3.2	**40**	0,07	**80**	0,07	**130**	0,10	0,10	**70**	0,03–0,06	0,04–0,06
P.3.3	**35**	0,06	**70**	0,06	**110**	0,10	0,10	**60**	0,03–0,06	0,04–0,06
P.4.1	**45**	0,10	**90**	0,10	**150**	0,20	0,20	**50**	0,03–0,06	0,04–0,06
P.4.2	**40**	0,10	**80**	0,10	**130**	0,20	0,20	**50**	0,03–0,06	0,04–0,06
M.1.1	40	0,06	**80**	0,06	**130**	0,10	0,10	**120**	0,04–0,07	0,05–0,12
M.2.1	30	0,05	**60**	0,05	**90**	0,08	0,08	**120**	0,04–0,07	0,05–0,12
M.3.1	30	0,05	**60**	0,05	**90**	0,08	0,08	**120**	0,04–0,07	0,05–0,12
K.1.1	**85**	0,12	**170**	0,12	**280**	0,25	0,25	**140**	0,04–0,07	0,07–0,15
K.1.2	**75**	0,12	**150**	0,12	**240**	0,25	0,25	**100**	0,04–0,07	0,07–0,15
K.2.1	**75**	0,07	**150**	0,07	**240**	0,15	0,15	**140**	0,04–0,07	0,07–0,15
K.2.2	**65**	0,07	**130**	0,07	**200**	0,15	0,15	**120**	0,04–0,07	0,07–0,15
K.3.1	**70**	0,10	**140**	0,10	**220**	0,20	0,20	**140**	0,04–0,07	0,07–0,15
K.3.2	**60**	0,10	**120**	0,10	**190**	0,20	0,20	**100**	0,04–0,07	0,07–0,15
N.1.1	**120**	0,15	**240**	0,15	**390**	0,30	0,30	**400**	0,05–0,08	0,07–0,15
N.1.2	**105**	0,12	**210**	0,12	**330**	0,25	0,25	**350**	0,05–0,08	0,07–0,15
N.2.1	**75**	0,12	**150**	0,12	**240**	0,25	0,25	**350**	0,05–0,08	0,07–0,15
N.2.2	**75**	0,12	**150**	0,12	**240**	0,25	0,25	**250**	0,05–0,08	0,07–0,15
N.2.3	**70**	0,12	**140**	0,12	**220**	0,25	0,25	**200**	0,05–0,08	0,07–0,15
N.3.1	**105**	0,15	**210**	0,15	**330**	0,30	0,30	**160**	0,05–0,08	0,07–0,15
N.3.2	**105**	0,15	**210**	0,15	**330**	0,30	0,30	**160**	0,05–0,08	0,07–0,15
N.3.3	**75**	0,15	**150**	0,15	**240**	0,30	0,30	**160**	0,05–0,08	0,07–0,15
N.4.1	**85**	0,15	**170**	0,15	**280**	0,30	0,30	**160**	0,05–0,08	0,07–0,15
S.1.1					**110**	0,10	0,10	**100**	0,02–0,04	0,04–0,10
S.1.2					**90**	0,07	0,07	**80**	0,02–0,04	0,04–0,10
S.2.1					**70**	0,05	0,05	**60**	0,03–0,05	0,04–0,06
S.2.2					**70**	0,05	0,05	**40**	0,03–0,05	0,04–0,06
S.2.3					**70**	0,05	0,05	**40**	0,03–0,05	0,04–0,06
S.3.1					**130**	0,10	0,10	**100**	0,02–0,04	0,04–0,10
S.3.2					**90**	0,07	0,07	**80**	0,03–0,05	0,04–0,06
S.3.3					**70**	0,05	0,05	**60**	0,03–0,05	0,04–0,06
H.1.1					80	0,05	0,05	**60**	0,01–0,02	0,03–0,05
H.1.2					60	0,04	0,04	**50**	0,01–0,02	0,03–0,05
H.1.3								**40**	0,01–0,02	0,03–0,05
H.1.4								**30**	0,01–0,02	0,03–0,05
H.2.1					80	0,05	0,05	**60**	0,01–0,02	0,03–0,05
H.3.1					60	0,04	0,04	**50**	0,01–0,02	0,03–0,05
O.1.1	**140**	0,16						**180**	0,05–0,10	0,07–0,25
O.1.2	**140**	0,16						**220**	0,05–0,10	0,07–0,25
O.2.1	**75**	0,07						**120**	0,05–0,10	0,07–0,25
O.2.2	**75**	0,07						**120**	0,05–0,10	0,07–0,25
O.3.1			130	0,07	200	0,14	0,14	**400**	0,05–0,10	0,07–0,25

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values

	GZG / GZD 50 863 ..., 50 864 ..., 50 887 ..., 50 885 ..., 50 888 ..., 50 889 ..., 50 894 ...			Polygon 50 872 ..., 50 874 ..., 50 875 ..., 50 876 ..., 50 879 ..., 50 880 ..., 50 881 ..., 50 882 ..., 50 883 ..., 50 884 ..., 50 886 ...		System 300 50 851 ..., 50 852 ..., 50 853 ..., 50 855 ..., 50 857 ..., 50 858 ..., 50 859 ...	
Index	v_c m/min	12–17 mm f_z [mm/tooth]	20–26 mm f_z [mm/tooth]	v_c m/min	f_z [mm/tooth]	v_c m/min	f_z [mm/tooth]
P.1.1	220	0,10–0,30	0,05–0,30	220	0,05–0,25	220	0,05–0,15
P.1.2	220	0,10–0,30	0,05–0,30	220	0,05–0,25	220	0,05–0,15
P.1.3	190	0,10–0,30	0,05–0,30	190	0,05–0,25	190	0,05–0,15
P.1.4	160	0,10–0,30	0,05–0,30	160	0,05–0,25	160	0,05–0,15
P.1.5	160	0,10–0,30	0,05–0,30	160	0,05–0,25	160	0,05–0,15
P.2.1	150	0,10–0,30	0,05–0,30	150	0,05–0,25	150	0,05–0,15
P.2.2	120	0,10–0,30	0,05–0,30	120	0,05–0,25	120	0,05–0,15
P.2.3	100	0,10–0,30	0,05–0,30	100	0,05–0,25	100	0,05–0,15
P.2.4	90	0,10–0,30	0,05–0,30	90	0,05–0,25	90	0,05–0,15
P.3.1	100	0,10–0,20	0,05–0,20	100	0,05–0,20	100	0,05–0,12
P.3.2	90	0,10–0,20	0,05–0,20	90	0,05–0,20	90	0,05–0,12
P.3.3	80	0,10–0,20	0,05–0,20	80	0,05–0,20	80	0,05–0,12
P.4.1	70	0,10–0,20	0,05–0,20	70	0,05–0,20	70	0,05–0,12
P.4.2	60	0,10–0,20	0,05–0,20	60	0,05–0,20	60	0,05–0,12
M.1.1	130	0,10–0,30	0,05–0,30	130	0,05–0,25	130	0,05–0,15
M.2.1	120	0,10–0,30	0,05–0,30	120	0,05–0,25	120	0,05–0,15
M.3.1	120	0,10–0,30	0,05–0,30	120	0,05–0,25	120	0,05–0,15
K.1.1	140	0,10–0,30	0,05–0,30	140	0,05–0,25	140	0,05–0,15
K.1.2	100	0,10–0,30	0,05–0,30	100	0,05–0,25	100	0,05–0,15
K.2.1	140	0,10–0,30	0,05–0,30	140	0,05–0,25	140	0,05–0,15
K.2.2	120	0,10–0,30	0,05–0,30	120	0,05–0,25	120	0,05–0,15
K.3.1	140	0,10–0,30	0,05–0,30	140	0,05–0,25	140	0,05–0,15
K.3.2	100	0,10–0,30	0,05–0,30	100	0,05–0,25	100	0,05–0,15
N.1.1	700	0,10–0,40	0,05–0,40	700	0,15–0,40	700	0,10–0,25
N.1.2	400	0,10–0,40	0,05–0,40	400	0,15–0,40	400	0,10–0,25
N.2.1	400	0,10–0,40	0,05–0,40	400	0,15–0,40	400	0,10–0,25
N.2.2	300	0,10–0,40	0,05–0,40	300	0,15–0,40	300	0,10–0,25
N.2.3	200	0,10–0,40	0,05–0,40	200	0,15–0,40	200	0,10–0,25
N.3.1	160	0,10–0,40	0,05–0,40	160	0,15–0,40	160	0,10–0,25
N.3.2	160	0,10–0,40	0,05–0,40	160	0,15–0,40	160	0,10–0,25
N.3.3	160	0,10–0,40	0,05–0,40	160	0,15–0,40	160	0,10–0,25
N.4.1	160	0,10–0,40	0,05–0,40	160	0,15–0,40	160	0,10–0,25
S.1.1				100	0,01–0,15	100	0,01–0,12
S.1.2				80	0,01–0,15	80	0,01–0,12
S.2.1				60	0,01–0,15	60	0,01–0,12
S.2.2				40	0,01–0,15	40	0,01–0,12
S.2.3				40	0,01–0,15	40	0,01–0,12
S.3.1				100	0,01–0,15	100	0,01–0,12
S.3.2				80	0,01–0,15	80	0,01–0,12
S.3.3				60	0,01–0,15	60	0,01–0,12
H.1.1				60	0,01–0,10	60	0,01–0,10
H.1.2				50	0,01–0,10	50	0,01–0,10
H.1.3				40	0,01–0,10	40	0,01–0,10
H.1.4				30	0,01–0,10	30	0,01–0,10
H.2.1				60	0,01–0,10	60	0,01–0,10
H.3.1				50	0,01–0,10	50	0,01–0,10
O.1.1				180	0,05–0,25	180	0,05–0,15
O.1.2				220	0,05–0,25	220	0,05–0,15
O.2.1				120	0,05–0,25	120	0,05–0,15
O.2.2				120	0,05–0,25	120	0,05–0,15
O.3.1				800	0,05–0,25	800	0,05–0,15

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

7

Cutting data standard values

Index	SFSE / SGF VHM Ti500 54 800 ..., 54 801 ..., 54 802 ..., 54 803 ..., 54 804 ..., 54 805 ..., 54 809 ..., 54 810 ..., 54 811 ..., 54 812 ..., 54 813 ...				Circular shank thread milling cutter 50 802 ..., 50 803 ...				
	v_c m/min	Ø 2,4–3,15	Ø 4	Ø 4,8–16	v_c m/min	Ø 1–2	Ø 3–5	Ø 6–8	Ø 9–12
		f_z [mm/tooth]	f_z [mm/tooth]	f_z [mm/tooth]		f_z [mm/tooth]	f_z [mm/tooth]	f_z [mm/tooth]	f_z [mm/tooth]
P.1.1	**150**	0,03–0,04	0,03–0,06	0,05–0,15	**110**	0,05	0,09	0,14	0,16
P.1.2	**150**	0,03–0,04	0,03–0,06	0,05–0,15	**110**	0,05	0,09	0,14	0,16
P.1.3	**120**	0,02–0,03	0,02–0,06	0,05–0,10	**110**	0,05	0,09	0,14	0,16
P.1.4	**120**	0,01–0,02	0,03–0,05	0,04–0,06	**110**	0,05	0,09	0,14	0,16
P.1.5	**120**	0,01–0,02	0,03–0,05	0,04–0,06	**110**	0,05	0,09	0,14	0,16
P.2.1	**120**	0,01–0,02	0,03–0,05	0,04–0,06	**80**	0,04	0,08	0,12	0,14
P.2.2	**120**	0,01–0,02	0,03–0,05	0,04–0,06	**80**	0,04	0,08	0,12	0,14
P.2.3	**80**	0,01–0,02	0,03–0,05	0,04–0,06	**80**	0,04	0,08	0,12	0,14
P.2.4	**70**	0,01–0,02	0,03–0,05	0,04–0,06	**80**	0,04	0,08	0,12	0,14
P.3.1	**80**	0,01–0,02	0,03–0,05	0,04–0,06	**60**	0,04	0,08	0,12	0,14
P.3.2	**70**	0,01–0,02	0,03–0,05	0,04–0,06	**60**	0,04	0,08	0,12	0,14
P.3.3	**60**	0,01–0,02	0,03–0,05	0,04–0,06	**60**	0,04	0,08	0,12	0,14
P.4.1	**50**	0,01–0,02	0,03–0,05	0,04–0,06	**60**	0,04	0,08	0,12	0,14
P.4.2	**50**	0,01–0,02	0,03–0,05	0,04–0,06	**80**	0,04	0,08	0,12	0,14
M.1.1	**120**	0,03–0,04	0,03–0,04	0,05–0,12	**80**	0,04	0,05	0,07	0,10
M.2.1	**120**	0,03–0,04	0,03–0,04	0,05–0,12	**80**	0,04	0,05	0,07	0,10
M.3.1	**120**	0,03–0,04	0,03–0,04	0,05–0,12	**80**	0,04	0,05	0,07	0,10
K.1.1	**140**	0,03–0,07	0,03–0,07	0,07–0,12	**50**	0,05	0,09	0,14	0,16
K.1.2	**100**	0,03–0,07	0,03–0,07	0,07–0,12	**50**	0,05	0,09	0,14	0,16
K.2.1	**140**	0,03–0,07	0,03–0,07	0,07–0,12	**50**	0,05	0,09	0,14	0,16
K.2.2	**120**	0,03–0,07	0,03–0,07	0,07–0,10	**50**	0,05	0,09	0,14	0,16
K.3.1	**140**	0,03–0,07	0,03–0,07	0,07–0,10	**50**	0,05	0,09	0,14	0,16
K.3.2	**100**	0,03–0,07	0,03–0,07	0,07–0,10	**50**	0,05	0,09	0,14	0,16
N.1.1	**400**	0,05–0,07	0,05–0,07	0,07–0,15	**130**	0,05	0,09	0,14	0,16
N.1.2	**350**	0,05–0,07	0,05–0,07	0,07–0,15	**130**	0,05	0,09	0,14	0,16
N.2.1	**350**	0,05–0,07	0,05–0,07	0,07–0,15	**120**	0,04	0,05	0,07	0,10
N.2.2	**250**	0,05–0,07	0,05–0,07	0,07–0,15	**100**	0,04	0,05	0,07	0,10
N.2.3	**200**	0,05–0,07	0,05–0,07	0,07–0,15	**100**	0,04	0,05	0,07	0,10
N.3.1	**160**	0,05–0,07	0,05–0,07	0,07–0,15	**130**	0,05	0,09	0,14	0,16
N.3.2	**160**	0,05–0,07	0,05–0,07	0,07–0,15	**130**	0,05	0,09	0,14	0,16
N.3.3	**160**	0,05–0,07	0,05–0,07	0,07–0,15	**130**	0,05	0,09	0,14	0,16
N.4.1	**160**	0,05–0,07	0,05–0,07	0,07–0,15	**110**	0,04	0,05	0,07	0,10
S.1.1	**100**	0,02–0,04	0,02–0,04	0,04–0,10	**30**	0,03	0,04	0,06	0,07
S.1.2	**80**	0,02–0,04	0,02–0,04	0,04–0,10	**30**	0,03	0,04	0,06	0,07
S.2.1	**60**	0,01–0,02	0,03–0,05	0,04–0,06	**30**	0,03	0,04	0,06	0,07
S.2.2	**40**	0,01–0,02	0,03–0,05	0,04–0,06	**30**	0,03	0,04	0,06	0,07
S.2.3	**40**	0,01–0,02	0,03–0,05	0,04–0,06	**30**	0,03	0,04	0,06	0,07
S.3.1	**100**	0,02–0,04	0,02–0,04	0,04–0,10	**30**	0,03	0,04	0,06	0,07
S.3.2	**80**	0,01–0,02	0,03–0,05	0,04–0,06	**30**	0,03	0,04	0,06	0,07
S.3.3	**60**	0,01–0,02	0,03–0,05	0,04–0,06	**30**	0,03	0,04	0,06	0,07
H.1.1	**60**		0,01–0,02	0,03–0,05					
H.1.2	**50**		0,01–0,02	0,03–0,05					
H.1.3	**40**		0,01–0,02	0,03–0,05					
H.1.4	**30**		0,01–0,02	0,03–0,05					
H.2.1	**60**		0,01–0,02	0,03–0,05					
H.3.1	**50**		0,01–0,02	0,03–0,05					
O.1.1	**180**	0,01–0,05	0,05–0,10	0,07–0,25	**150**	0,06	0,12	0,19	0,19
O.1.2	**220**	0,01–0,05	0,05–0,10	0,07–0,25	**150**	0,06	0,12	0,19	0,19
O.2.1	**120**	0,01–0,05	0,05–0,10	0,07–0,25	**150**	0,06	0,12	0,19	0,19
O.2.2	**120**	0,01–0,05	0,05–0,10	0,07–0,25	**150**	0,06	0,12	0,19	0,19
O.3.1	**400**	0,01–0,05	0,05–0,10	0,07–0,25	**100**	0,05	0,09	0,14	0,14

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values

	M/MF-BGF 2xD/2,5xD 50 854 ..., 50 862 ..., 50 869 ..., 50 898 ...						HPC solid carbide thread milling cutters 50 806 ..., 50 807 ...				SFSE Micro VHM 50 804 ...	
Index	v_c TiAlN m/min	v_c uncoated m/min	≤ Ø 6 f_B [mm/tooth] *	≤ Ø 12 f_B [mm/tooth] *	≤ Ø 6 f_z [mm/tooth]	≤ Ø 12 f_z [mm/tooth]	v_c m/min	Ø 3–5 f_z [mm/tooth]	Ø 6–10 f_z [mm/tooth]	Ø 10–13 f_z [mm/tooth]	v_c m/min	Ø 0,7–2,1 f_z [mm/tooth]
P.1.1							**100–140**	0,015–0,03	0,04–0,06	0,06–0,10	20–40	0,01–0,02
P.1.2							**100–120**	0,015–0,03	0,04–0,06	0,06–0,10	20–40	0,01–0,02
P.1.3							**80–100**	0,015–0,02	0,03–0,05	0,03–0,07	20–40	0,01–0,02
P.1.4							**80–100**	0,015–0,02	0,02–0,04	0,03–0,05	20–40	0,01–0,02
P.1.5							**80–100**	0,015–0,02	0,02–0,03	0,03–0,04	20–40	0,01–0,02
P.2.1							**100–120**	0,015–0,03	0,04–0,06	0,06–0,10	20–40	0,01–0,02
P.2.2							**80–100**	0,015–0,03	0,02–0,05	0,03–0,07	20–40	0,01–0,02
P.2.3							**80–100**	0,015–0,02	0,02–0,03	0,03–0,04	20–40	0,01–0,02
P.2.4							**80–100**	0,015–0,02	0,02–0,03	0,03–0,04	20–40	0,01–0,02
P.3.1							**100–120**	0,015–0,03	0,04–0,06	0,06–0,10	20–40	0,01–0,02
P.3.2							**80–100**	0,015–0,02	0,02–0,03	0,03–0,04	20–40	0,01–0,02
P.3.3							**80–100**	0,015–0,02	0,02–0,03	0,03–0,04	20–40	0,01–0,02
P.4.1							**60–80**	0,015–0,03	0,04–0,06	0,06–0,10	20–40	0,01–0,02
P.4.2							**60–80**	0,015–0,03	0,04–0,06	0,06–0,10	20–40	0,01–0,02
M.1.1							**60–80**	0,015–0,03	0,04–0,06	0,06–0,10	20–30	0,01–0,02
M.2.1							**60–80**	0,015–0,03	0,04–0,06	0,06–0,10	20–30	0,01–0,02
M.3.1							**60–80**	0,015–0,03	0,04–0,06	0,06–0,10	20–30	0,01–0,02
K.1.1	**80–120**	50–80	0,10–0,15	0,15–0,22	0,02–0,05	0,05–0,10	**100–120**	0,02–0,04	0,04–0,08	0,06–0,10		
K.1.2	**80–120**	50–80	0,10–0,15	0,15–0,22	0,02–0,05	0,05–0,10	**100–120**	0,02–0,04	0,04–0,08	0,06–0,10		
K.2.1							**100–120**	0,02–0,04	0,04–0,08	0,06–0,10		
K.2.2							**80–100**	0,02–0,04	0,04–0,08	0,06–0,10		
K.3.1							**80–100**	0,02–0,04	0,04–0,08	0,06–0,08		
K.3.2							**80–100**	0,02–0,04	0,04–0,08	0,06–0,08		
N.1.1	100–400	**100–400**	0,10–0,25	0,25–0,30	0,03–0,06	0,06–0,10					30–50	0,02–0,03
N.1.2	100–400	**100–400**	0,10–0,25	0,25–0,30	0,03–0,06	0,06–0,10					30–50	0,02–0,03
N.2.1	100–300		0,10–0,25	0,25–0,30	0,03–0,06	0,06–0,10					30–50	0,02–0,03
N.2.2	100–400	**100–400**	0,10–0,25	0,25–0,30	0,03–0,06	0,06–0,10					30–50	0,02–0,03
N.2.3	100–160		0,10–0,25	0,25–0,30	0,03–0,06	0,06–0,10					30–50	0,02–0,03
N.3.1	100–300	**100–300**	0,10–0,30	0,25–0,30	0,03–0,06	0,06–0,10					30–50	0,02–0,03
N.3.2											30–50	0,02–0,03
N.3.3											30–50	0,02–0,03
N.4.1	100–400	**100–400**	0,10–0,25	0,25–0,30	0,03–0,06	0,06–0,10					30–50	0,02–0,03
S.1.1											20–30	0,01–0,02
S.1.2											20–30	0,01–0,02
S.2.1											20–30	0,01–0,02
S.2.2											20–30	0,01–0,015
S.2.3											20–30	0,01–0,015
S.3.1							**60–80**	0,015–0,02	0,02–0,03	0,03–0,04	20–30	0,01–0,02
S.3.2							**60–80**	0,01–0,015	0,015–0,02	0,025–0,035	20–30	0,01–0,015
S.3.3											20–30	0,01–0,015
H.1.1											**20–30**	0,01–0,015
H.1.2											**20–30**	0,01–0,015
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1	60–100	**60–100**	0,10–0,25	0,25–0,30	0,03–0,06	0,06–0,10						
O.1.2												
O.2.1												
O.2.2												
O.3.1												

* f_B = drilling feed rate in mm / rev

7

Cutting data standard values

	MiniMill 53 006 ..., 53 007 ..., 53 008 ..., 53 009 ..., 53 010 ..., 53 011 ..., 53 012 ..., 53 013 ..., 53 015 ...			MicroMill 53 050 ..., 53 051 ..., 53 052 ..., 53 053 ...	
Index	v_c m/min	f_z (drilling) [mm/tooth]	f_z (Threading) [mm/tooth]	v_c m/min	f_z [mm/tooth]
P.1.1	**120** (80–200)	0,03–0,10	0,05–0,20	**70** (40–120)	0,01–0,05
P.1.2	**110** (70–190)	0,03–0,10	0,05–0,20	**60** (40–110)	0,01–0,05
P.1.3	**90** (60–150)	0,03–0,10	0,05–0,20	**50** (30–80)	0,01–0,05
P.1.4	**90** (60–150)	0,03–0,08	0,05–0,18	**50** (30–80)	0,01–0,05
P.1.5	**70** (50–120)	0,03–0,08	0,05–0,18	**40** (30–70)	0,01–0,05
P.2.1	**90** (60–150)	0,03–0,10	0,05–0,20	**50** (30–80)	0,01–0,05
P.2.2	**70** (50–120)	0,03–0,08	0,05–0,18	**40** (30–70)	0,01–0,05
P.2.3	**60** (40–110)	0,02–0,07	0,05–0,16	**40** (20–70)	0,01–0,05
P.2.4	**60** (40–100)	0,03–0,07	0,05–0,16	**30** (20–60)	0,01–0,04
P.3.1	**60** (40–100)	0,03–0,10	0,05–0,20	**30** (20–60)	0,01–0,05
P.3.2	**50** (30–80)	0,02–0,07	0,05–0,16	**30** (20–50)	0,01–0,04
P.3.3	**30** (20–60)	0,02–0,07	0,05–0,16	**20** (10–40)	0,005–0,03
P.4.1	**80** (50–130)	0,03–0,08	0,05–0,18	**40** (30–70)	0,01–0,05
P.4.2	**60** (40–110)	0,02–0,07	0,05–0,16	**40** (20–70)	0,01–0,05
M.1.1	**90** (60–150)	0,02–0,07	0,05–0,16	**50** (30–80)	0,01–0,03
M.2.1	**60** (40–110)	0,02–0,07	0,05–0,16	**40** (20–70)	0,01–0,03
M.3.1	**50** (30–90)	0,02–0,07	0,05–0,16	**30** (20–50)	0,01–0,03
K.1.1	**110** (70–190)	0,03–0,10	0,05–0,20	**60** (40–110)	0,008–0,06
K.1.2	**80** (50–140)	0,03–0,10	0,05–0,20	**50** (30–80)	0,008–0,06
K.2.1	**70** (50–120)	0,03–0,10	0,05–0,20	**40** (30–70)	0,008–0,06
K.2.2	**60** (40–100)	0,03–0,10	0,05–0,20	**30** (20–60)	0,008–0,06
K.3.1	**110** (70–190)	0,03–0,10	0,05–0,20	**60** (40–110)	0,008–0,06
K.3.2	**90** (60–160)	0,03–0,10	0,05–0,20	**50** (30–90)	0,008–0,06
N.1.1	**230** (150–390)	0,04–0,15	0,06–0,25	**150** (90–260)	0,01–0,06
N.1.2	**220** (140–370)	0,04–0,15	0,06–0,25	**140** (90–240)	0,01–0,06
N.2.1	**190** (120–320)	0,04–0,15	0,06–0,25	**120** (70–210)	0,01–0,06
N.2.2	**160** (110–270)	0,04–0,15	0,06–0,25	**100** (60–180)	0,01–0,06
N.2.3	**90** (60–160)	0,04–0,15	0,06–0,25	**60** (40–110)	0,01–0,06
N.3.1	**170** (110–280)	0,04–0,15	0,06–0,25	**110** (70–180)	0,01–0,06
N.3.2	**140** (90–240)	0,04–0,15	0,06–0,25	**80** (50–150)	0,01–0,06
N.3.3	**120** (80–210)	0,04–0,15	0,06–0,25	**80** (50–140)	0,01–0,06
N.4.1	**170** (110–280)	0,04–0,15	0,06–0,25	**70** (40–120)	0,01–0,06
S.1.1	60 (40–100)	0,04–0,15	0,06–0,25	**30** (20–50)	0,01–0,06
S.1.2	40 (30–70)	0,04–0,15	0,06–0,25	**20** (10–30)	0,01–0,06
S.2.1	60 (40–100)	0,04–0,15	0,06–0,25	**30** (20–50)	0,01–0,06
S.2.2	50 (30–80)	0,04–0,15	0,06–0,25	**20** (10–40)	0,01–0,06
S.2.3	30 (20–60)	0,04–0,15	0,06–0,25	**20** (10–30)	0,01–0,06
S.3.1	60 (40–100)	0,04–0,15	0,06–0,25	**20** (10–40)	0,01–0,06
S.3.2	30 (20–60)	0,04–0,15	0,06–0,25	**20** (10–30)	0,01–0,06
S.3.3	30 (20–50)	0,04–0,15	0,06–0,25	**10** (10–20)	0,01–0,06
H.1.1	50 (30–90)	0,02–0,06	0,04–0,14	**20** (10–40)	0,005–0,03
H.1.2					
H.1.3					
H.1.4					
H.2.1					
H.3.1	40 (30–70)	0,02–0,10		**20** (10–40)	0,005–0,03
O.1.1	**180** (120–310)	0,04–0,15	0,06–0,25	**80** (50–130)	0,02–0,09
O.1.2	**170** (110–280)	0,04–0,15	0,06–0,25	**70** (40–120)	0,02–0,09
O.2.1	**140** (90–230)	0,04–0,15	0,06–0,25	**50** (30–100)	0,02–0,09
O.2.2	**100** (70–170)	0,04–0,15	0,06–0,25	**40** (30–70)	0,02–0,09
O.3.1	**140** (90–230)	0,005–0,05	0,06–0,25	**60** (40–110)	0,02–0,09

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

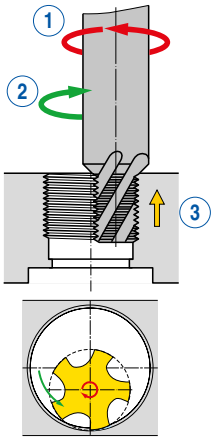
Milling Procedures

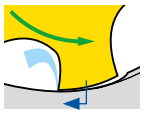
Climb milling

Characteristics:

1. Tool rotation direction „right“
2. Toolpath counter clockwise
3. Feed direction „outwards“

Right hand thread





When climb milling, the chip thickness at the end of cut is always 0 (h=0)

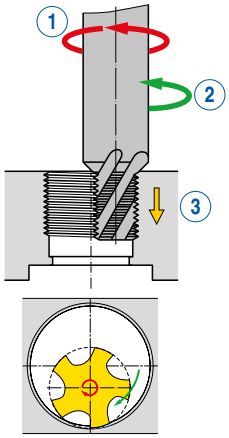
h = 0

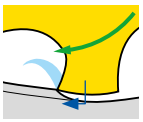
Conventional milling

Characteristics:

1. Tool rotation direction „right“
2. Toolpath clockwise
3. Feed direction „inwards“

Right hand thread



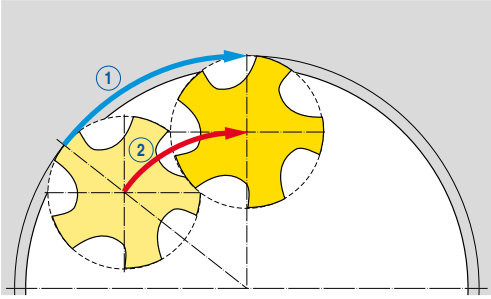


When conventional milling, the chip thickness at the end of cut is always at maximum (h=max)

h = max

7

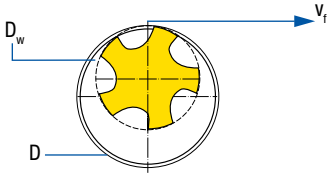
Feed rate calculation



1. Peripheral feedrate v_f
2. Centerline feedrate v_{fm}

Peripheral feedrate v_f

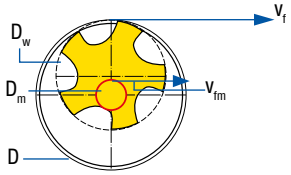
$$v_f = n \cdot f_z \cdot z \quad \text{mm/min.}$$



D_w = Effective diameter in mm
n = RPM in min^{-1}
f_z = Feed per tooth in mm

Centerline feedrate v_{fm}

$$v_{fm} = \frac{v_f \cdot (D - D_w)}{D} \quad \text{mm/min.}$$



z = Number of cutting edges (radial)
D = Nominal thread diameter = external profile diameter in mm
D_m = Centre path diameter ($D-D_W$) in mm

Tips for the User

With thread milling there are two different programme possibilities with the feed motion of the tool.

On the one hand the machine controls the feed at the diameter of the tool, on the other hand the feed control is the tool center line.
In order to ascertain which method the machine control uses, the following method should be employed:

- Enter the thread milling routine into the control.
- Enter a safety margin into the program, so that the tool runs in air.
- Run the program through and check the operating time.
- Compare the actual time with the calculated theoretical time.

If the time is longer than the calculated time the feed is controlling the tool center line.
If the time is shorter than the calculated time the feed is controlling the diameter of the tool.

Numeric calculation of cutting data for thread milling

$$n = \frac{v_c \cdot 1000}{d \cdot \pi}$$

$$v_c = \frac{d \cdot \pi \cdot n}{1000}$$

$$v_f = f_z \cdot z \cdot n$$

$$n = \frac{v_f}{f_z \cdot z}$$

$$f_z = \frac{v_f}{z \cdot n}$$

Milling – external contour

$$v_{fm} = \frac{v_f \cdot (D + d)}{D}$$

$$v_f = \frac{D \cdot v_{fm}}{(D + d)}$$

Milling – internal contour

$$v_{fm} = \frac{v_f \cdot (D - d)}{D}$$

$$v_f = \frac{D \cdot v_{fm}}{(D - d)}$$

Helical plunging

$$U_{arc} = 0{,}25 \cdot v_{fm}$$

Ramping in the arc

$$U_{arc} = v_{fm}$$

n	=	rpm	rev./min.
v_c	=	Cutting speed	m/min
d	=	Tool diameter	mm
D	=	Nominal thread-Ø	mm
v_f	=	Feed rate at the diameter	mm/min.
v_{fm}	=	Feed rate at the centre	mm/min.
U_{arc}	=	programmed ramping feed rate	mm/min.
f_z	=	Feed per tooth	mm
z	=	Number of cutting edges of the cutter	Piece

Correction values for the internal thread milling

The cutting edge diameter of the thread milling cutter which is entered into the machine control, can be calculated as follows:

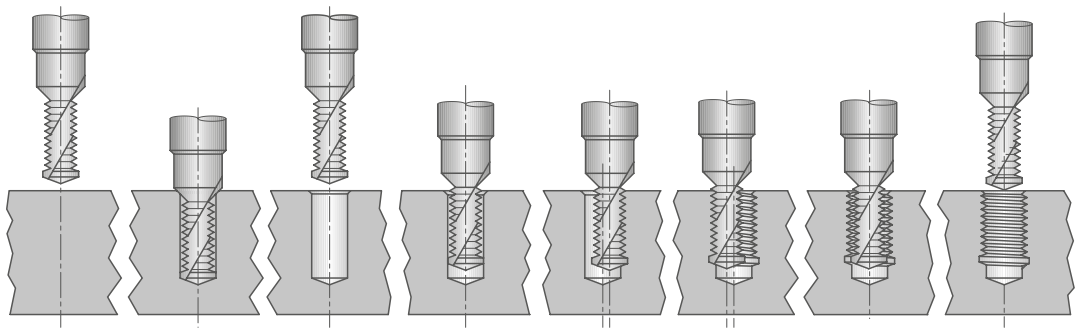
half the cutter Ø – 0.05 x pitch p

Example: M30x3
Cutter-Ø: 20 mm

$$Ø\frac{20}{2} - (0{,}05 \cdot 3) = \underline{9{,}85\ mm}$$

9,85 mm is the cutting radius to be entered into the machine control

Internal thread production



Thread types

M	Metric ISO standard thread
MF	Metric ISO fine thread
G	Whitworth thread
UN	Unified thread
UNC	Unified Standard Thread
UNF	Unified fine thread
BSW	Whitworth thread
BSF	Whitworth fine thread
NPT	American taper pipe thread
Pg	Steel conduit thread
Tr	Trapezoidal thread

Coatings

TiN
- TiN coating
- Maximum application temperature: 450 °C

TiAlN
- TiAlN multilayer coating
- Maximum application temperature: 900 °C

Ti500
- TiAlN-coating
- Maximum application temperature: 500 °C

Ti601
- High-performance TiAlN multilayer coating
- Maximum application temperature: 900°C

AlCrN
- High-performance AlCrN multilayer coating
- max.application temperature: > 1100 ° C

CWX500
- Carbide, TiAlN-coated
- The universal carbide grade for almost all materials

TiCN
- TiCN multilayer coating
- Maximum application temperature: 450 °C

Ti600
- TiAlN multilayer coating
- Maximum application temperature: 650°C

Ti602
- TiCN multilayer coating
- Maximum application temperature: 400°C

New products for machining technicians

NEW Inserts and holders for Mini 06 and 08



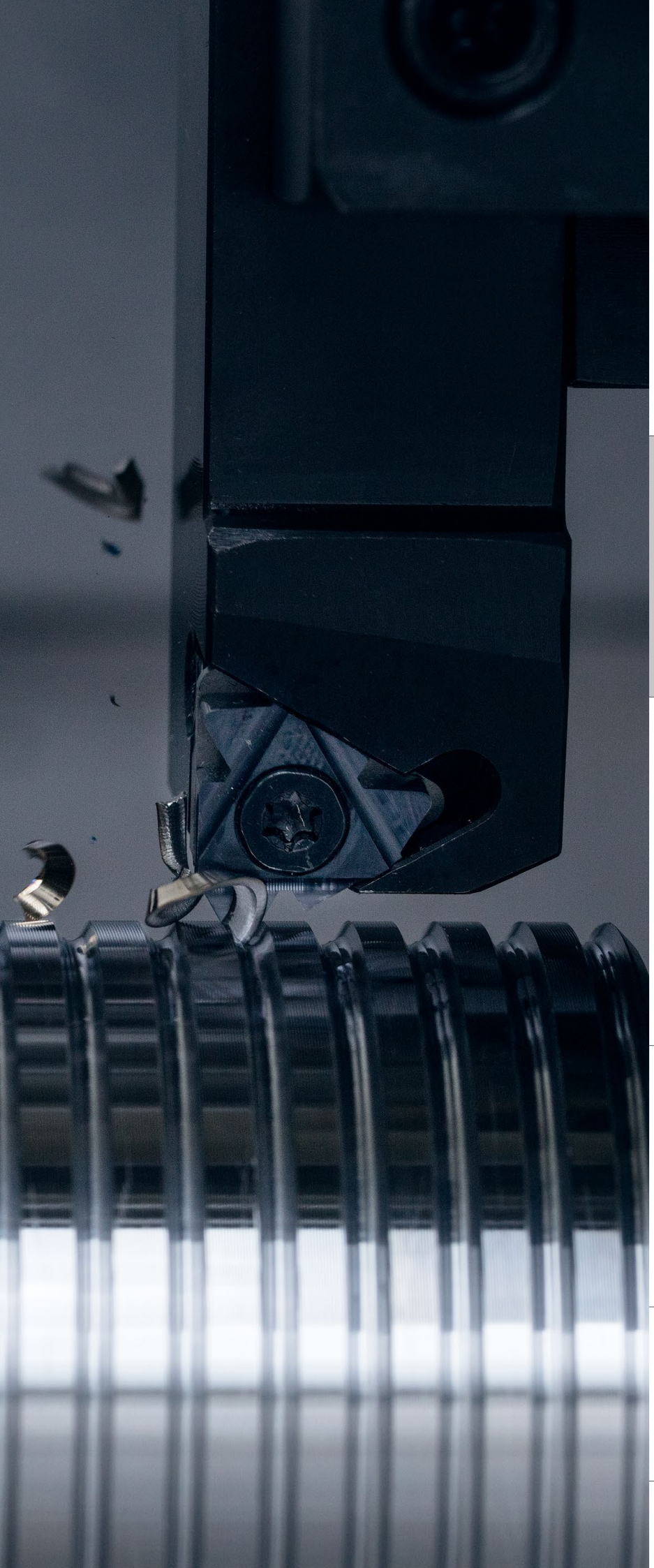
New grade CCN2520: Specialist for corrosion resistant and high-temperature-resistant material machining
Expansion of the existing CCN1525 variety

36–41

NEW Exchangeable head system



Use our standard thread turning inserts with the new exchangeable head system that you can find in Chapter 9 Turning Tools on pages 189–196.



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drills

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

Table of contents

Symbol explanation	3
Toolfinder	2+3
Product programme	4–41
Shims	42
Technical Information	
Pitch angle	43
Cutting Data	44+45
Thread turning methods	46
Troubleshooting	47
Designation Key	48
Grade description and profile explanation	49

WNT \ Performance

Premium quality tools for high performance.

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

Toolfinder

TC threading system (external thread)

M	BSW
Full profile Partial profile	Full profile Partial profile

→ **Chapter 11 – Grooving tools**

TC threading system (internal thread)

M	BSW
Full profile Partial profile	Full profile Partial profile

→ **Chapter 11 – Grooving tools**

MiniCut

M	G	Tr
Full profile Partial profile	Partial profile	Partial profile

→ **Chapter 12 – Miniature turning tools**

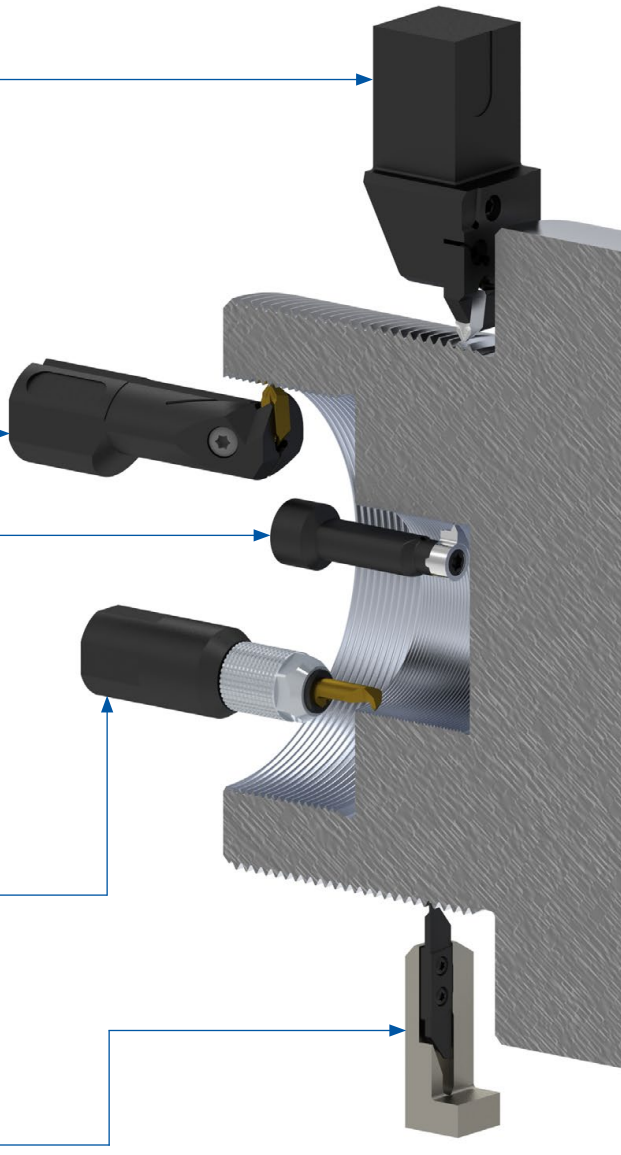
UltraMini

M	MF	G	Tr
Full profile Partial profile	Full profile Partial profile	Partial profile	Partial profile

→ **Chapter 12 – Miniature turning tools**

VertiClamp

→ **Sliding head tooling catalogue**



Symbol explanation

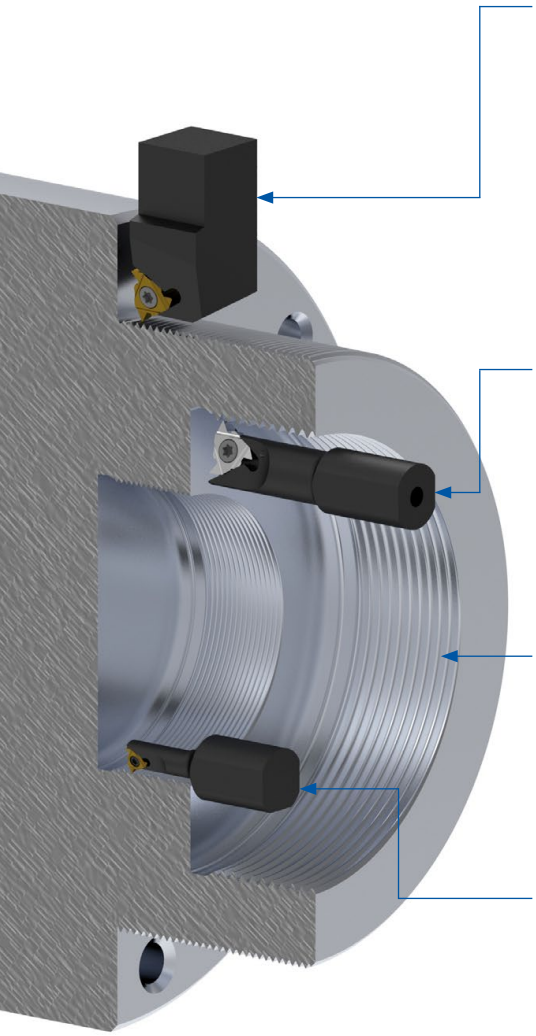
Flank angle

30°	Flank angle 30° (Trapezoidal thread)
30°	Flank angle 30° (Round thread)
55°	Flank angle 55°
60°	Flank angle 60°
80°	Flank angle 80° (Conduit thread)

TP / TPI = Pitch
NT = Number of flutes
● = **Main Application**
○ = Extended application

Thread

M	ISO metric coarse thread DIN 13
MF	ISO Metric fine thread DIN 13
MJ	Metric thread for the aerospace industry DIN ISO 5855
BSW	British Whitworth thread BS 84
UN	American unified thread BS 1580 (ASME B 1.1)
UNC	American unified thread (coarse) BS 1580 (ASME B 1.1)
UNF	American unified thread (fine) BS 1580 (ASME B 1.1)
UNEF	American unified thread (extra fine) BS 1580 (ASME B 1.1)
NPT	American pipe thread ANSI/ASME B 1.20.3
Tr	Trapezoidal thread DIN 103
Rd	Round Thread DIN 405
Pg	Conduit Threads DIN 40430



Standard external thread turning

Full profile

M	MJ	BSW	UN	UNC	UNF	UNEF	NPT	Tr	Rd	Pg
4+5	9	11+12	15+16	15+16	15+16	15+16	19	21	23	25

Partial profile

60°	55°
27	29

Multi-cutting edge

M
8

suitable holder



31+32



Standard internal thread turning

Full profile

M	MJ	BSW	UN	UNC	UNF	UNEF	NPT	Tr	Rd	Pg
6+7	10	13+14	17+18	17+18	17+18	17+18	20	22	24	26

Partial profile

60°	55°
28	30

suitable holder

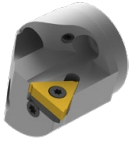


33–35



Standard internal threading with our new exchangeable head system

→ **Chapter 9 – Turning Tools**



Mini 06

Full profile

M	BSW
36	36

Partial profile

60°	55°
37	37

Mini 08

Full profile

M
38

Partial profile

60°	55°
38+39	39+40

suitable holder



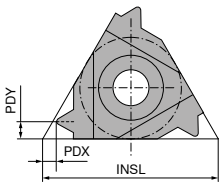
41

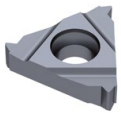
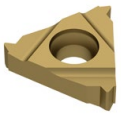
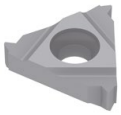
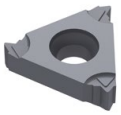
Information on the different thread profiles can be found on → **Page 49.**

Right hand external thread turning insert

- Full profile
- CCN7525 grade with sintered chip breaker for universal application

M | MF | 60°



CCN20	CWN1525	HCN2525	CWK20	CCN7525
				

Designation	TP mm	INSL mm	PDX mm	PDY mm	ER 71 220 ...		ER 71 220 ...		ER 71 220 ...		ER 71 220 ...		ER 71 220 ...	
11 ER 0,35	0,35	11	0,8	0,4	**204**							**604**		
11 ER 0,4	0,40	11	0,7	0,4	**206**							**606**		
11 ER 0,45	0,45	11	0,7	0,4	**208**							**608**		
11 ER 0,5	0,50	11	0,6	0,6	**209**							**609**		
11 ER 0,6	0,60	11	0,6	0,6	**210**							**610**		
11 ER 0,7	0,70	11	0,6	0,6	**211**							**611**		
11 ER 0,75	0,75	11	0,6	0,6	**212**							**612**		
11 ER 0,8	0,80	11	0,6	0,6	**213**							**613**		
11 ER 1,0	1,00	11	0,7	0,7	**214**							**614**		
11 ER 1,25	1,25	11	0,8	0,9	**216**							**616**		
11 ER 1,5	1,50	11	0,8	1,0	**218**							**618**		
11 ER 1,75	1,75	11	0,8	1,1	**220**							**620**		
16 ER 0,35	0,35	16	0,8	0,4	**234**				**734**			**634**		
16 ER 0,4	0,40	16	0,7	0,4	**236**				**736**			**636**		
16 ER 0,45	0,45	16	0,7	0,4	**238**							**638**		
16 ER 0,5	0,50	16	0,6	0,6	**240**		**140**		**740**			**640**		**940**
16 ER 0,7	0,70	16	0,6	0,6	**241**		**141**		**741**			**641**		
16 ER 0,75	0,75	16	0,6	0,6	**242**		**142**		**742**			**642**		**942**
16 ER 0,8	0,80	16	0,6	0,6	**243**		**143**		**743**			**643**		**943**
16 ER 1,0	1,00	16	0,7	0,7	**244**		**144**		**744**			**644**		**944**
16 ER 1,25	1,25	16	0,8	0,9	**246**		**146**		**746**			**646**		**946**
16 ER 1,5	1,50	16	0,8	1,0	**248**		**148**		**748**			**648**		**948**
16 ER 1,75	1,75	16	0,9	1,2	**250**		**150**		**750**			**650**		
16 ER 2,0	2,00	16	1,0	1,3	**252**		**152**		**752**			**652**		**952**
16 ER 2,5	2,50	16	1,1	1,5	**254**		**154**		**754**			**654**		**954**
16 ER 3,0	3,00	16	1,2	1,6	**256**		**156**		**756**			**656**		**956**
22 ER 3,5	3,50	22	1,6	2,3	**270**		**170**		**770**			**670**		
22 ER 4,0	4,00	22	1,6	2,3	**272**		**172**		**772**			**672**		
22 ER 4,5	4,50	22	1,7	2,4	**274**		**174**		**774**			**674**		
22 ER 5,0	5,00	22	1,7	2,5	**276**		**176**		**776**			**676**		
22 ER 5,5	5,50	22	1,7	2,6			**178**							
22 ER 5,5	5,50	22	1,9	2,7	**278**							**678**		
22 EN 5,5	5,50	22	2,3	11,0	**282** [1]							**682** [1]		
22 ER 6,0	6,00	22	1,9	2,7			**180**		**780**					
22 ER 6,0	6,00	22	2,0	2,9	**280**							**680**		
22 EN 6,0	6,00	22	2,6	11,0	**284** [1]							**684** [1]		

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

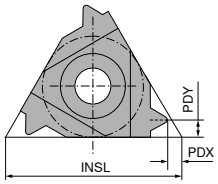
1) Neutral version (N) – for right and left hand thread applications. Neutral toolholder marked (U) is required.

→ v_c Page 45

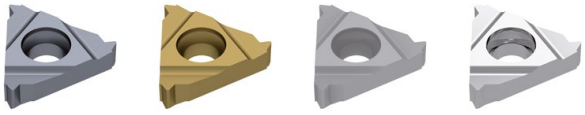
Left hand external thread turning insert

▲ Full profile

M | MF | 60°



CCN20 | CWN1525 | HCN2525 | CWK20



Designation	TP mm	INSL mm	PDX mm	PDY mm	EL 71 222 ...		EL 71 222 ...		EL 71 222 ...		EL 71 222 ...	
11 EL 0,35	0,35	11	0,8	0,4	**204**							**604**
11 EL 0,4	0,40	11	0,7	0,4	**206**							**606**
11 EL 0,45	0,45	11	0,7	0,4	**208**							**608**
11 EL 0,5	0,50	11	0,6	0,6	**209**							**609**
11 EL 0,6	0,60	11	0,6	0,6	**210**							**610**
11 EL 0,7	0,70	11	0,6	0,6	**211**							**611**
11 EL 0,75	0,75	11	0,6	0,6	**212**							**612**
11 EL 0,8	0,80	11	0,6	0,6	**213**							**613**
11 EL 1,0	1,00	11	0,7	0,7	**214**							**614**
11 EL 1,25	1,25	11	0,8	0,9	**216**							**616**
11 EL 1,5	1,50	11	0,8	1,0	**218**							**618**
11 EL 1,75	1,75	11	0,8	1,1	**220**							**620**
16 EL 0,35	0,35	16	0,8	0,4	**234**							**634**
16 EL 0,4	0,40	16	0,7	0,4	**236**							**636**
16 EL 0,45	0,45	16	0,7	0,4	**238**							**638**
16 EL 0,5	0,50	16	0,6	0,6	**240**							**640**
16 EL 0,7	0,70	16	0,6	0,6	**241**							**641**
16 EL 0,75	0,75	16	0,6	0,6	**242**							**642**
16 EL 0,8	0,80	16	0,6	0,6	**243**							**643**
16 EL 1,0	1,00	16	0,7	0,7	**244**		**144**		**744**			**644**
16 EL 1,25	1,25	16	0,8	0,9	**246**		**146**					**646**
16 EL 1,5	1,50	16	0,8	1,0	**248**		**148**		**748**			**648**
16 EL 1,75	1,75	16	0,9	1,2	**250**				**750**			**650**
16 EL 2,0	2,00	16	1,0	1,3	**252**		**152**					**652**
16 EL 2,5	2,50	16	1,1	1,5	**254**							**654**
16 EL 3,0	3,00	16	1,2	1,6	**256**		**156**					**656**
22 EL 3,5	3,50	22	1,6	2,3	**270**							**670**
22 EL 4,0	4,00	22	1,6	2,3	**272**							**672**
22 EL 4,5	4,50	22	1,7	2,4	**274**							**674**
22 EL 5,0	5,00	22	1,7	2,5	**276**							**676**
22 EL 5,5	5,50	22	1,9	2,7	**278**							**678**
22 EL 6,0	6,00	22	2,0	2,9	**280**							**680**
P					●		●		○			
M					●		○		●		○	
K					●		●		○		●	
N							●		○		●	
S					○				○		○	
H					○				○			
O							○					

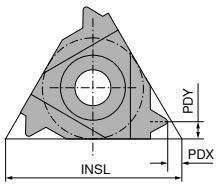
→ v_c Page 45

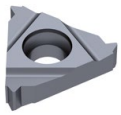
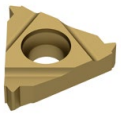
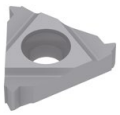
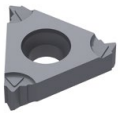
8

Right hand internal thread turning insert

- Full profile
- CCN7525 grade with sintered chip breaker for universal application

M | MF | 60°



CCN20	CWN1525	HCN2525	CWK20	CCN7525
				

Designation	TP mm	INSL mm	PDX mm	PDY mm	IR 71 224 ...	IR 71 224 ...	IR 71 224 ...	IR 71 224 ...	IR 71 224 ...
11 IR 0,35	0,35	11	0,8	0,3	**204**			**604**	
11 IR 0,4	0,40	11	0,8	0,4	**206**			**606**	
11 IR 0,45	0,45	11	0,8	0,4	**208**			**608**	
11 IR 0,5	0,50	11	0,6	0,6	**210**			**610**	
11 IR 0,7	0,70	11	0,6	0,6	**211**			**611**	
11 IR 0,75	0,75	11	0,6	0,6	**212**			**612**	**912**
11 IR 0,8	0,80	11	0,6	0,6	**213**		**713**	**613**	
11 IR 1,0	1,00	11	0,6	0,6					**914**
11 IR 1,0	1,00	11	0,6	0,7	**214**	**114**	**714**	**614**	
11 IR 1,25	1,25	11	0,8	0,9	**216**			**616**	
11 IR 1,5	1,50	11	0,8	0,9					**918**
11 IR 1,5	1,50	11	0,8	1,0	**218**	**118**	**718**	**618**	
11 IR 1,75	1,75	11	0,9	1,1	**220**			**620**	
11 IR 2,0	2,00	11	0,8	0,9		**122**	**722**		
11 IR 2,0	2,00	11	0,9	1,1	**222**			**622**	
11 IR 2,5	2,50	11	0,8	1,2		**124**	**724**		
11 IR 2,5	2,50	11	0,9	1,1	**224**			**624**	
16 IR 0,35	0,35	16	0,8	0,4	**234**			**634**	
16 IR 0,4	0,40	16	0,7	0,4	**236**			**636**	
16 IR 0,45	0,45	16	0,7	0,4	**238**			**638**	
16 IR 0,5	0,50	16	0,6	0,6	**240**			**640**	
16 IR 0,7	0,70	16	0,6	0,6	**241**			**641**	
16 IR 0,75	0,75	16	0,6	0,6	**242**	**142**	**742**	**642**	
16 IR 0,8	0,80	16	0,6	0,6	**243**			**643**	
16 IR 1,0	1,00	16	0,6	0,7		**144**	**744**		**944**
16 IR 1,0	1,00	16	0,7	0,7	**244**			**644**	
16 IR 1,25	1,25	16	0,8	0,9	**246**		**746**	**646**	**946**
16 IR 1,5	1,50	16	0,8	1,0	**248**	**148**	**748**	**648**	**948**
16 IR 1,75	1,75	16	0,9	1,2	**250**		**750**	**650**	
16 IR 2,0	2,00	16	1,0	1,3	**252**	**152**	**752**	**652**	**952**
16 IR 2,5	2,50	16	1,1	1,5	**254**	**154**	**754**	**654**	**954**
16 IR 3,0	3,00	16	1,1	1,5	**256**	**156**	**756**	**656**	**956**
22 IR 3,5	3,50	22	1,6	2,3	**270**	**170**	**770**	**670**	
22 IR 4,0	4,00	22	1,6	2,3	**272**	**172**	**772**	**672**	
22 IR 4,5	4,50	22	1,6	2,4		**174**	**774**		
22 IR 4,5	4,50	22	1,7	2,4	**274**			**674**	
22 IR 5,0	5,00	22	1,6	2,3		**176**			
22 IR 5,0	5,00	22	1,7	2,5	**276**			**676**	
22 IR 5,5	5,50	22	1,6	2,3		**178**			
22 IR 5,5	5,50	22	1,9	2,7	**278**			**678**	
22 IN 5,5	5,50	22	2,3	11,0	**282** [1]			**682** [1]	
22 IR 6,0	6,00	22	1,6	2,4		**180**			
22 IR 6,0	6,00	22	2,0	2,9	**280**			**680**	
22 IN 6,0	6,00	22	2,6	11,0	**284** [1]			**684** [1]	

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

1) Neutral version (N) – for right and left hand thread applications. Neutral toolholder marked (U) is required.

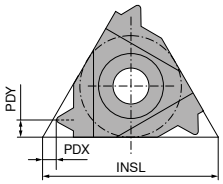
→ v_c Page 45

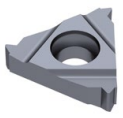
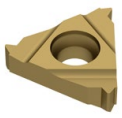
Left hand internal thread turning insert

▲ Full profile

M | MF | 60°

CCN20 | CWN1525 | CWK20




Designation	TP mm	INSL mm	PDX mm	PDY mm	IL 71 226 ...		IL 71 226 ...		IL 71 226 ...	
11 IL 0,35	0,35	11	0,8	0,3	**204**					**604**
11 IL 0,4	0,40	11	0,8	0,4	**206**					**606**
11 IL 0,45	0,45	11	0,8	0,4	**208**					**608**
11 IL 0,5	0,50	11	0,6	0,6	**210**					**610**
11 IL 0,7	0,70	11	0,6	0,6	**211**					**611**
11 IL 0,75	0,75	11	0,6	0,6	**212**					**612**
11 IL 0,8	0,80	11	0,6	0,6	**213**					**613**
11 IL 1,0	1,00	11	0,6	0,7	**214**					**614**
11 IL 1,25	1,25	11	0,8	0,9	**216**					**616**
11 IL 1,5	1,50	11	0,8	1,0	**218**					**618**
11 IL 1,75	1,75	11	0,9	1,1	**220**					**620**
11 IL 2,0	2,00	11	0,9	1,1	**222**					**622**
11 IL 2,5	2,50	11	0,9	1,1	**224**					**624**
16 IL 0,35	0,35	16	0,8	0,4	**234**					**634**
16 IL 0,4	0,40	16	0,7	0,4	**236**					**636**
16 IL 0,45	0,45	16	0,7	0,4	**238**					**638**
16 IL 0,5	0,50	16	0,6	0,6	**240**					**640**
16 IL 0,7	0,70	16	0,6	0,6	**241**					**641**
16 IL 0,75	0,75	16	0,6	0,6	**242**					**642**
16 IL 0,8	0,80	16	0,6	0,6	**243**					**643**
16 IL 1,0	1,00	16	0,6	0,7			**144**			
16 IL 1,0	1,00	16	0,7	0,7	**244**					**644**
16 IL 1,25	1,25	16	0,8	0,9	**246**					**646**
16 IL 1,5	1,50	16	0,8	1,0	**248**		**148**			**648**
16 IL 1,75	1,75	16	0,9	1,2	**250**					**650**
16 IL 2,0	2,00	16	1,0	1,3	**252**		**152**			**652**
16 IL 2,5	2,50	16	1,1	1,5	**254**					**654**
16 IL 3,0	3,00	16	1,2	1,6	**256**					**656**
22 IL 3,5	3,50	22	1,6	2,3	**270**					**670**
22 IL 4,0	4,00	22	1,6	2,3	**272**					**672**
22 IL 4,5	4,50	22	1,7	2,4	**274**					**674**
22 IL 5,0	5,00	22	1,7	2,5	**276**					**676**
22 IL 5,5	5,50	22	1,9	2,7	**278**					**678**
22 IL 6,0	6,00	22	2,0	2,9	**280**					**680**

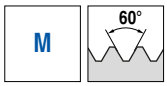
P	●	●	
M	●	○	○
K	●	●	●
N		●	●
S	○		○
H	○		
O		○	

→ v_c Page 45

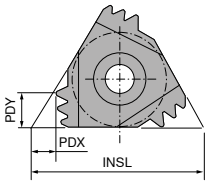
8

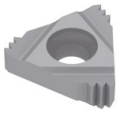
Right hand external thread turning insert

▲ Multi edge insert



HCN2525





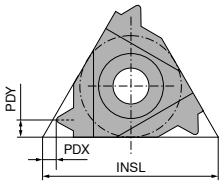
Designation	TP mm	INSL mm	PDX mm	PDY mm	NT	ER 71 221 ...
16 ER 1,0 3M	1,0	16	1,7	2,5	3	**700**
16 ER 1,5 2M	1,5	16	1,5	2,3	2	**702**
P						○
M						●
K						○
N						○
S						○
H						○
O						

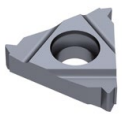
→ v_c Page 45

Right hand external thread turning insert

▲ Full profile

MJ 60°







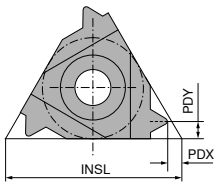
Designation	TP mm	INSL mm	PDX mm	PDY mm	ER 71 286 ...		ER 71 286 ...	
11 ER 1,0	1,00	11	0,7	0,8	**214**		**614**	
11 ER 1,25	1,25	11	0,8	0,9	**216**		**616**	
11 ER 1,5	1,50	11	0,8	1,0	**218**		**618**	
11 ER 2,0	2,00	11	0,9	1,0	**222**		**622**	
16 ER 1,0	1,00	16	0,7	0,8	**244**		**644**	
16 ER 1,25	1,25	16	0,8	0,9	**246**		**646**	
16 ER 1,5	1,50	16	0,8	1,0	**248**		**648**	
16 ER 2,0	2,00	16	1,0	1,3	**252**		**652**	
P					●			
M					●		○	
K					●		●	
N							●	
S					○		○	
H					○			
O								

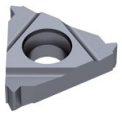
→ v_c Page 45

Left hand external thread turning insert

▲ Full profile

MJ 60°







Designation	TP mm	INSL mm	PDX mm	PDY mm	EL 71 287 ...		EL 71 287 ...	
11 EL 1,0	1,00	11	0,7	0,8	**214**		**614**	
11 EL 1,25	1,25	11	0,8	0,9	**216**		**616**	
11 EL 1,5	1,50	11	0,8	1,0	**218**		**618**	
11 EL 2,0	2,00	11	0,9	1,0	**222**		**622**	
16 EL 1,0	1,00	16	0,7	0,8	**244**		**644**	
16 EL 1,25	1,25	16	0,8	0,9	**246**		**646**	
16 EL 1,5	1,50	16	0,8	1,0	**248**		**648**	
16 EL 2,0	2,00	16	1,0	1,3	**252**		**652**	
P					●			
M					●		○	
K					●		●	
N							●	
S					○		○	
H					○			
O								

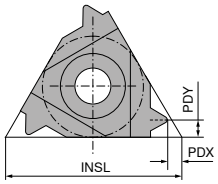
→ v_c Page 45

8

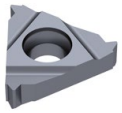
Right hand internal thread turning insert

▲ Full profile





CCN20 | CWK20





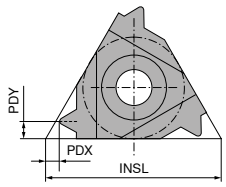
Designation	TP mm	INSL mm	PDX mm	PDY mm	IR 71 284 ...	IR 71 284 ...
11 IR 1,0	1,00	11	0,7	0,8	**214**	**614**
11 IR 1,25	1,25	11	0,8	0,9	**216**	**616**
11 IR 1,5	1,50	11	0,8	1,0	**218**	**618**
11 IR 2,0	2,00	11	0,9	1,0	**222**	**622**
16 IR 1,0	1,00	16	0,7	0,8	**244**	**644**
16 IR 1,25	1,25	16	0,8	0,9	**246**	**646**
16 IR 1,5	1,50	16	0,8	1,0	**248**	**648**
16 IR 2,0	2,00	16	1,0	1,3	**252**	**652**
P					●	
M					●	○
K					●	●
N						●
S					○	○
H					○	
O						

→ v_c Page 45

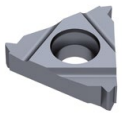
Left hand internal thread turning insert

▲ Full profile





CCN20 | CWK20





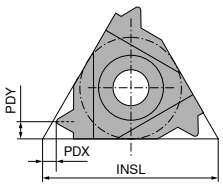
Designation	TP mm	INSL mm	PDX mm	PDY mm	IL 71 285 ...	IL 71 285 ...
11 IL 1,0	1,00	11	0,7	0,8	**214**	**614**
11 IL 1,25	1,25	11	0,8	0,9	**216**	**616**
11 IL 1,5	1,50	11	0,8	1,0	**218**	**618**
11 IL 2,0	2,00	11	0,9	1,0	**222**	**622**
16 IL 1,0	1,00	16	0,7	0,8	**244**	**644**
16 IL 1,25	1,25	16	0,8	0,9	**246**	**646**
16 IL 1,5	1,50	16	0,8	1,0	**248**	**648**
16 IL 2,0	2,00	16	1,0	1,3	**252**	**652**
P					●	
M					●	○
K					●	●
N						●
S					○	○
H					○	
O						

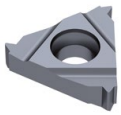
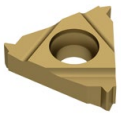
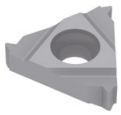
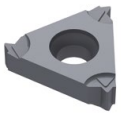
→ v_c Page 45

Right hand external thread turning insert

- Full profile
- CCN7525 grade with sintered chip breaker for universal application

BSW | 55°



CCN20	CWN1525	HCN2525	CWK20	CCN7525
				

Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	ER 71 228 ...	ER 71 228 ...	ER 71 228 ...	ER 71 228 ...	ER 71 228 ...
11 ER 72	72,0	11	0,7	0,4	202			602	
11 ER 60	60,0	11	0,7	0,4	204			604	
11 ER 56	56,0	11	0,7	0,4	206			606	
11 ER 48	48,0	11	0,6	0,6	208			608	
11 ER 40	40,0	11	0,6	0,6	210			610	
11 ER 36	36,0	11	0,6	0,6	212			612	
11 ER 32	32,0	11	0,6	0,6	214			614	
11 ER 28	28,0	11	0,6	0,7	216			616	
11 ER 26	26,0	11	0,7	0,8	218			618	
11 ER 24	24,0	11	0,7	0,8	220			620	
11 ER 22	22,0	11	0,8	0,9	222			622	
11 ER 20	20,0	11	0,8	0,9	224			624	
11 ER 19	19,0	11	0,8	1,0	226			626	
11 ER 18	18,0	11	0,8	1,0	228			628	
11 ER 16	16,0	11	0,9	1,1	230			630	
11 ER 14	14,0	11	0,9	1,1	232			632	
16 ER 40	40,0	16	0,6	0,6	240			640	
16 ER 36	36,0	16	0,6	0,6	242			642	
16 ER 32	32,0	16	0,6	0,6	244			644	
16 ER 28	28,0	16	0,6	0,7	246	146	746	646	
16 ER 26	26,0	16	0,7	0,7			748		
16 ER 26	26,0	16	0,7	0,8	248			648	
16 ER 24	24,0	16	0,7	0,8	250			650	
16 ER 22	22,0	16	0,8	0,9	252			652	
16 ER 20	20,0	16	0,8	0,9	254		754	654	
16 ER 19	19,0	16	0,8	1,0	256	156	756	656	956
16 ER 18	18,0	16	0,8	1,0	258			658	
16 ER 16	16,0	16	0,9	1,1	260	160	760	660	
16 ER 14	14,0	16	1,0	1,2	262	162	762	662	962
16 ER 12	12,0	16	1,1	1,4	264	164	764	664	
16 ER 11	11,0	16	1,1	1,5	266	166	766	666	966
16 ER 10	10,0	16	1,1	1,5	268			668	
16 ER 9	9,0	16	1,2	1,7	270			670	
16 ER 8	8,0	16	1,2	1,5	272			672	
22 ER 7	7,0	22	1,6	2,3	280			680	
22 ER 6	6,0	22	1,6	2,3	282			682	
22 ER 5	5,0	22	1,7	2,4	284			684	
22 EN 4,5	4,5	22	2,3	11,0	290 [1]			690 [1]	
22 EN 4	4,0	22	1,8	11,0	292 [1]			692 [1]	

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

1) Neutral version (N) – for right and left hand thread applications. Neutral toolholder marked (U) is required.

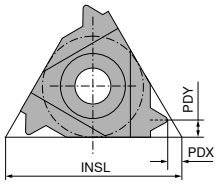
→ v_c Page 45

8

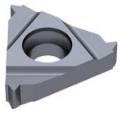
Left hand external thread turning insert

▲ Full profile





CCN20



CWK20



Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	EL 71 229 ...		EL 71 229 ...	
11 EL 72	72	11	0,7	0,4		**202**		**602**
11 EL 60	60	11	0,7	0,4		**204**		**604**
11 EL 56	56	11	0,7	0,4		**206**		**606**
11 EL 48	48	11	0,6	0,6		**208**		**608**
11 EL 40	40	11	0,6	0,6		**210**		**610**
11 EL 36	36	11	0,6	0,6		**212**		**612**
11 EL 32	32	11	0,6	0,6		**214**		**614**
11 EL 28	28	11	0,6	0,7		**216**		**616**
11 EL 26	26	11	0,7	0,8		**218**		**618**
11 EL 24	24	11	0,7	0,8		**220**		**620**
11 EL 22	22	11	0,8	0,9		**222**		**622**
11 EL 20	20	11	0,8	0,9		**224**		**624**
11 EL 19	19	11	0,8	1,0		**226**		**626**
11 EL 18	18	11	0,8	1,0		**228**		**628**
11 EL 16	16	11	0,9	1,1		**230**		**630**
11 EL 14	14	11	0,9	1,1		**232**		**632**
16 EL 40	40	16	0,6	0,6		**240**		**640**
16 EL 36	36	16	0,6	0,6		**242**		**642**
16 EL 32	32	16	0,6	0,6		**244**		**644**
16 EL 28	28	16	0,6	0,7		**246**		**646**
16 EL 26	26	16	0,7	0,8		**248**		**648**
16 EL 24	24	16	0,7	0,8		**250**		**650**
16 EL 22	22	16	0,8	0,9		**252**		**652**
16 EL 20	20	16	0,8	0,9		**254**		**654**
16 EL 19	19	16	0,8	1,0		**256**		**656**
16 EL 18	18	16	0,8	1,0		**258**		**658**
16 EL 16	16	16	0,9	1,1		**260**		**660**
16 EL 14	14	16	1,0	1,2		**262**		**662**
16 EL 12	12	16	1,1	1,4		**264**		**664**
16 EL 11	11	16	1,1	1,5		**266**		**666**
16 EL 10	10	16	1,1	1,5		**268**		**668**
16 EL 9	9	16	1,2	1,7		**270**		**670**
16 EL 8	8	16	1,2	1,5		**272**		**672**
22 EL 7	7	22	1,6	2,3		**280**		**680**
22 EL 6	6	22	1,6	2,3		**282**		**682**
22 EL 5	5	22	1,7	2,4		**284**		**684**
P						●		
M						●		○
K						●		●
N								●
S						○		○
H						○		
O								

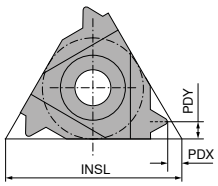
→ v_c Page 45

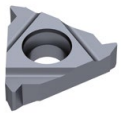
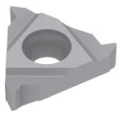
Right hand internal thread turning insert

- Full profile
- CCN7525 grade with sintered chip breaker for universal application

BSW





	CCN20	CWN1525	HCN2525	CWK20	CCN7525
					
	IR	IR	IR	IR	IR
	71 230 ...	71 230 ...	71 230 ...	71 230 ...	71 230 ...

Designation	TPI 1/"	INSL mm	PDX mm	PDY mm								
11 IR 48	48	11	0,6	0,6	**206**					**606**		
11 IR 40	40	11	0,6	0,6	**208**					**608**		
11 IR 36	36	11	0,6	0,6	**210**					**610**		
11 IR 32	32	11	0,6	0,6	**212**					**612**		
11 IR 28	28	11	0,6	0,7	**214**					**614**		
11 IR 26	26	11	0,7	0,8	**216**					**616**		
11 IR 24	24	11	0,7	0,8	**218**					**618**		
11 IR 22	22	11	0,8	0,9	**220**					**620**		
11 IR 20	20	11	0,8	0,9	**222**					**622**		
11 IR 19	19	11	0,8	0,9								**924**
11 IR 19	19	11	0,8	1,0	**224**		**124**		**724**	**624**		
11 IR 18	18	11	0,8	1,0	**226**					**626**		
11 IR 16	16	11	0,9	1,1	**228**					**628**		
11 IR 14	14	11	0,8	0,9								**930**
11 IR 14	14	11	0,9	1,1	**230**		**130**		**730**	**630**		
16 IR 40	40	16	0,6	0,6	**240**					**640**		
16 IR 36	36	16	0,6	0,6	**242**					**642**		
16 IR 32	32	16	0,6	0,6	**244**					**644**		
16 IR 28	28	16	0,6	0,7	**246**					**646**		
16 IR 26	26	16	0,7	0,8	**248**					**648**		
16 IR 24	24	16	0,7	0,8	**250**					**650**		
16 IR 22	22	16	0,8	0,9	**252**					**652**		
16 IR 20	20	16	0,8	0,9	**254**					**654**		
16 IR 19	19	16	0,8	1,0	**256**					**656**		
16 IR 18	18	16	0,8	1,0	**258**					**658**		
16 IR 16	16	16	0,9	1,1	**260**				**760**	**660**		
16 IR 14	14	16	1,0	1,2	**262**		**162**		**762**	**662**		**962**
16 IR 12	12	16	1,1	1,4	**264**					**664**		
16 IR 11	11	16	1,1	1,5	**266**		**166**		**766**	**666**		**966**
16 IR 10	10	16	1,1	1,5	**268**					**668**		
16 IR 9	9	16	1,2	1,7	**270**					**670**		
16 IR 8	8	16	1,2	1,5	**272**					**672**		
22 IR 7	7	22	1,6	2,3	**280**					**680**		
22 IR 6	6	22	1,6	2,3	**282**					**682**		
22 IR 5	5	22	1,7	2,4	**284**					**684**		

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

→ v_c Page 45

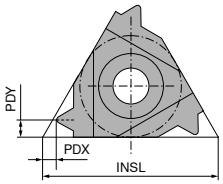
8

Left hand internal thread turning insert

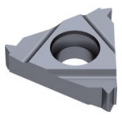
▲ Full profile

BSW





CCN20



CWK20



Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IL 71 231 ...	IL 71 231 ...
11 IL 48	48	11	0,6	0,6	**206**	**606**
11 IL 40	40	11	0,6	0,6	**208**	**608**
11 IL 36	36	11	0,6	0,6	**210**	**610**
11 IL 32	32	11	0,6	0,6	**212**	**612**
11 IL 28	28	11	0,6	0,7	**214**	**614**
11 IL 26	26	11	0,7	0,8	**216**	**616**
11 IL 24	24	11	0,7	0,8	**218**	**618**
11 IL 22	22	11	0,8	0,9	**220**	**620**
11 IL 20	20	11	0,8	0,9	**222**	**622**
11 IL 19	19	11	0,8	1,0	**224**	**624**
11 IL 18	18	11	0,8	1,0	**226**	**626**
11 IL 16	16	11	0,9	1,1	**228**	**628**
11 IL 14	14	11	0,9	1,1	**230**	**630**
16 IL 40	40	16	0,6	0,6	**240**	**640**
16 IL 36	36	16	0,6	0,6	**242**	**642**
16 IL 32	32	16	0,6	0,6	**244**	**644**
16 IL 28	28	16	0,6	0,7	**246**	**646**
16 IL 26	26	16	0,7	0,8	**248**	**648**
16 IL 24	24	16	0,7	0,8	**250**	**650**
16 IL 22	22	16	0,8	0,9	**252**	**652**
16 IL 20	20	16	0,8	0,9	**254**	**654**
16 IL 19	19	16	0,8	1,0	**256**	**656**
16 IL 18	18	16	0,8	1,0	**258**	**658**
16 IL 16	16	16	0,9	1,1	**260**	**660**
16 IL 14	14	16	1,0	1,2	**262**	**662**
16 IL 12	12	16	1,1	1,4	**264**	**664**
16 IL 11	11	16	1,1	1,5	**266**	**666**
16 IL 10	10	16	1,1	1,5	**268**	**668**
16 IL 9	9	16	1,2	1,7	**270**	**670**
16 IL 8	8	16	1,2	1,5	**272**	**672**
22 IL 7	7	22	1,6	2,3	**280**	**680**
22 IL 6	6	22	1,6	2,3	**282**	**682**
22 IL 5	5	22	1,7	2,4	**284**	**684**

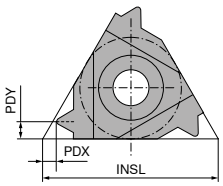
P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

→ v_c Page 45

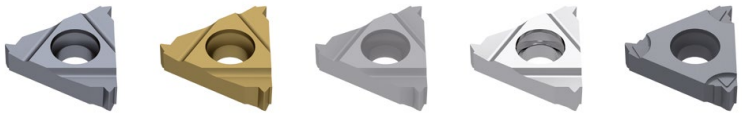
Right hand external thread turning insert

- Full profile
- CCN7525 grade with sintered chip breaker for universal application

UN | UNC | UNF | UNEF | 60°



CCN20 | CWN1525 | HCN2525 | CWK20 | CCN7525



Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	ER 71 264 ...	ER 71 264 ...	ER 71 264 ...	ER 71 264 ...	ER 71 264 ...
11 ER 72	72,0	11	0,8	0,4	202			602	
11 ER 64	64,0	11	0,8	0,4	204			604	
11 ER 56	56,0	11	0,7	0,4	206			606	
11 ER 48	48,0	11	0,6	0,6	208			608	
11 ER 44	44,0	11	0,6	0,6	210			610	
11 ER 40	40,0	11	0,6	0,6	212			612	
11 ER 36	36,0	11	0,6	0,6	214			614	
11 ER 32	32,0	11	0,6	0,6	216			616	
11 ER 28	28,0	11	0,6	0,7	218			618	
11 ER 27	27,0	11	0,7	0,8	220			620	
11 ER 24	24,0	11	0,7	0,8	222			622	
11 ER 20	20,0	11	0,8	0,9	224			624	
11 ER 18	18,0	11	0,8	1,0	226			626	
11 ER 16	16,0	11	0,9	1,1	228			628	
11 ER 14	14,0	11	0,9	1,1	230			630	
16 ER 72	72,0	16	0,8	0,4	232			632	
16 ER 64	64,0	16	0,8	0,4	234			634	
16 ER 56	56,0	16	0,7	0,4	236			636	
16 ER 48	48,0	16	0,6	0,6	238			638	
16 ER 44	44,0	16	0,6	0,6	240			640	
16 ER 40	40,0	16	0,6	0,6	242			642	
16 ER 36	36,0	16	0,6	0,6	244			644	
16 ER 32	32,0	16	0,6	0,6	246		746	646	
16 ER 28	28,0	16	0,6	0,7	248		748	648	
16 ER 27	27,0	16	0,7	0,8	250			650	
16 ER 24	24,0	16	0,7	0,8	252	152	752	652	
16 ER 20	20,0	16	0,8	0,9	254	154	754	654	954
16 ER 18	18,0	16	0,8	1,0	256	156	756	656	
16 ER 16	16,0	16	0,9	1,1	258	158	758	658	958
16 ER 14	14,0	16	1,0	1,2	260	160	760	660	
16 ER 13	13,0	16	1,0	1,3	262			662	
16 ER 12	12,0	16	1,1	1,4	264	164	764	664	
16 ER 11,5	11,5	16	1,1	1,5	266			666	
16 ER 11	11,0	16	1,1	1,5	268	168		668	
16 ER 10	10,0	16	1,1	1,5	270			670	
16 ER 9	9,0	16	1,2	1,7	272			672	
16 ER 8	8,0	16	1,1	1,1					974
16 ER 8	8,0	16	1,1	1,5		174			
16 ER 8	8,0	16	1,2	1,6	274			674	
22 ER 7	7,0	22	1,6	2,3	276			676	
22 ER 6	6,0	22	1,6	2,3	278			678	
22 ER 5	5,0	22	1,7	2,5	280			680	
22 EN 4,5	4,5	22	2,0	11,0	282 [1]			682 [1]	
22 EN 4	4,0	22	2,0	11,0	284 [1]			684 [1]	

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

1) Neutral version (N) – for right and left hand thread applications. Neutral toolholder marked (U) is required.

→ v_c Page 45

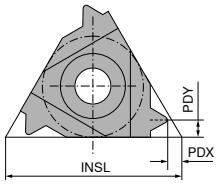
8

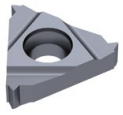
Left hand external thread turning insert

▲ Full profile

UN | UNC | UNF | UNEF | 60°

CCN20 | CWK20







Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	EL 71 266 ...		EL 71 266 ...	
11 EL 72	72,0	11	0,8	0,4		202		602
11 EL 64	64,0	11	0,8	0,4		204		604
11 EL 56	56,0	11	0,7	0,4		206		606
11 EL 48	48,0	11	0,6	0,6		208		608
11 EL 44	44,0	11	0,6	0,6		210		610
11 EL 40	40,0	11	0,6	0,6		212		612
11 EL 36	36,0	11	0,6	0,6		214		614
11 EL 32	32,0	11	0,6	0,6		216		616
11 EL 28	28,0	11	0,6	0,7		218		618
11 EL 27	27,0	11	0,7	0,8		220		620
11 EL 24	24,0	11	0,7	0,8		222		622
11 EL 20	20,0	11	0,8	0,9		224		624
11 EL 18	18,0	11	0,8	1,0		226		626
11 EL 16	16,0	11	0,9	1,1		228		628
11 EL 14	14,0	11	0,9	1,1		230		630
16 EL 72	72,0	16	0,8	0,4		232		632
16 EL 64	64,0	16	0,8	0,4		234		634
16 EL 56	56,0	16	0,7	0,4		236		636
16 EL 48	48,0	16	0,6	0,6		238		638
16 EL 44	44,0	16	0,6	0,6		240		640
16 EL 40	40,0	16	0,6	0,6		242		642
16 EL 36	36,0	16	0,6	0,6		244		644
16 EL 32	32,0	16	0,6	0,6		246		646
16 EL 28	28,0	16	0,6	0,7		248		648
16 EL 27	27,0	16	0,7	0,8		250		650
16 EL 24	24,0	16	0,7	0,8		252		652
16 EL 20	20,0	16	0,8	0,9		254		654
16 EL 18	18,0	16	0,8	1,0		256		656
16 EL 16	16,0	16	0,9	1,1		258		658
16 EL 14	14,0	16	1,0	1,2		260		660
16 EL 13	13,0	16	1,0	1,3		262		662
16 EL 12	12,0	16	1,1	1,4		264		664
16 EL 11,5	11,5	16	1,1	1,5		266		666
16 EL 11	11,0	16	1,1	1,5		268		668
16 EL 10	10,0	16	1,1	1,5		270		670
16 EL 9	9,0	16	1,2	1,7		272		672
16 EL 8	8,0	16	1,2	1,6		274		674
22 EL 7	7,0	22	1,6	2,3		276		676
22 EL 6	6,0	22	1,6	2,3		278		678
22 EL 5	5,0	22	1,7	2,5		280		680

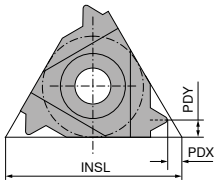
P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

→ v_c Page 45

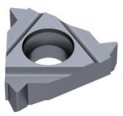
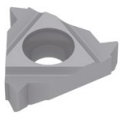
Right hand internal thread turning insert

▲ Full profile

UN | UNC | UNF | UNEF | 60°



CCN20 | HCN2525 | CWK20


Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IR 71 268 ...	IR 71 268 ...	IR 71 268 ...
11 IR 72	72,0	11	0,8	0,3	**202**		**602**
11 IR 64	64,0	11	0,8	0,4	**204**		**604**
11 IR 56	56,0	11	0,7	0,4	**206**		**606**
11 IR 48	48,0	11	0,6	0,6	**208**		**608**
11 IR 44	44,0	11	0,6	0,6	**210**		**610**
11 IR 40	40,0	11	0,6	0,6	**212**		**612**
11 IR 36	36,0	11	0,6	0,6	**214**		**614**
11 IR 32	32,0	11	0,6	0,6	**216**		**616**
11 IR 28	28,0	11	0,6	0,7	**218**		**618**
11 IR 27	27,0	11	0,7	0,8	**220**		**620**
11 IR 24	24,0	11	0,7	0,8	**222**		**622**
11 IR 20	20,0	11	0,8	0,9	**224**		**624**
11 IR 18	18,0	11	0,8	1,0	**226**		**626**
11 IR 16	16,0	11	0,9	1,1	**228**		**628**
11 IR 14	14,0	11	1,0	1,1	**230**		**630**
16 IR 72	72,0	16	0,8	0,3	**232**		**632**
16 IR 64	64,0	16	0,8	0,4	**234**		**634**
16 IR 56	56,0	16	0,7	0,4	**236**		**636**
16 IR 48	48,0	16	0,6	0,6	**238**		**638**
16 IR 44	44,0	16	0,6	0,6	**240**		**640**
16 IR 40	40,0	16	0,6	0,6	**242**		**642**
16 IR 36	36,0	16	0,6	0,6	**244**		**644**
16 IR 32	32,0	16	0,6	0,6	**246**		**646**
16 IR 28	28,0	16	0,6	0,7	**248**		**648**
16 IR 27	27,0	16	0,7	0,8	**250**		**650**
16 IR 24	24,0	16	0,7	0,8	**252**		**652**
16 IR 20	20,0	16	0,8	0,9	**254**		**654**
16 IR 18	18,0	16	0,8	1,0	**256**		**656**
16 IR 16	16,0	16	0,9	1,1	**258**		**658**
16 IR 14	14,0	16	1,0	1,2	**260**	**760**	**660**
16 IR 13	13,0	16	1,0	1,3	**262**		**662**
16 IR 12	12,0	16	1,1	1,4	**264**	**764**	**664**
16 IR 11,5	11,5	16	1,1	1,5	**266**		**666**
16 IR 11	11,0	16	1,1	1,5	**268**		**668**
16 IR 10	10,0	16	1,1	1,5	**270**		**670**
16 IR 9	9,0	16	1,2	1,7	**272**		**672**
16 IR 8	8,0	16	1,2	1,6	**274**		**674**
16 IR 8	8,0	16	1,1	1,5		**774**	
22 IR 7	7,0	22	1,6	2,3	**276**	**776**	**676**
22 IR 6	6,0	22	1,6	2,3	**278**		**678**
22 IR 5	5,0	22	1,7	2,5	**280**		**680**
22 IN 4,5	4,5	22	2,0	11,0	**282** [1)]		**682** [1)]
22 IN 4	4,0	22	2,0	11,0	**284** [1)]		**684** [1)]

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

1) Neutral version (N) – for right and left hand thread applications. Neutral toolholder marked (U) is required.

→ v_c Page 45

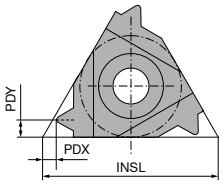
8

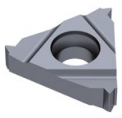
Left hand internal thread turning insert

▲ Full profile

UN | UNC | UNF | UNEF | 60°

CCN20 | CWK20







Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IL 71 270 ...		IL 71 270 ...	
11 IL 72	72,0	11	0,8	0,3		202		602
11 IL 64	64,0	11	0,8	0,4		204		604
11 IL 56	56,0	11	0,7	0,4		206		606
11 IL 48	48,0	11	0,6	0,6		208		608
11 IL 44	44,0	11	0,6	0,6		210		610
11 IL 40	40,0	11	0,6	0,6		212		612
11 IL 36	36,0	11	0,6	0,6		214		614
11 IL 32	32,0	11	0,6	0,6		216		616
11 IL 28	28,0	11	0,6	0,7		218		618
11 IL 27	27,0	11	0,7	0,8		220		620
11 IL 24	24,0	11	0,7	0,8		222		622
11 IL 20	20,0	11	0,8	0,9		224		624
11 IL 18	18,0	11	0,8	1,0		226		626
11 IL 16	16,0	11	0,9	1,1		228		628
11 IL 14	14,0	11	0,9	1,1		230		630
16 IL 72	72,0	16	0,8	0,3		232		632
16 IL 64	64,0	16	0,8	0,4		234		634
16 IL 56	56,0	16	0,7	0,4		236		636
16 IL 48	48,0	16	0,6	0,6		238		638
16 IL 44	44,0	16	0,6	0,6		240		640
16 IL 40	40,0	16	0,6	0,6		242		642
16 IL 36	36,0	16	0,6	0,6		244		644
16 IL 32	32,0	16	0,6	0,6		246		646
16 IL 28	28,0	16	0,6	0,7		248		648
16 IL 27	27,0	16	0,7	0,8		250		650
16 IL 24	24,0	16	0,7	0,8		252		652
16 IL 20	20,0	16	0,8	0,9		254		654
16 IL 18	18,0	16	0,8	1,0		256		656
16 IL 16	16,0	16	0,9	1,1		258		658
16 IL 14	14,0	16	1,0	1,2		260		660
16 IL 13	13,0	16	1,0	1,3		262		662
16 IL 12	12,0	16	1,1	1,4		264		664
16 IL 11,5	11,5	16	1,1	1,5		266		666
16 IL 11	11,0	16	1,1	1,5		268		668
16 IL 10	10,0	16	1,1	1,5		270		670
16 IL 9	9,0	16	1,2	1,7		272		672
16 IL 8	8,0	16	1,2	1,6		274		674
22 IL 7	7,0	22	1,6	2,3		276		676
22 IL 6	6,0	22	1,6	2,3		278		678
22 IL 5	5,0	22	1,7	2,5		280		680

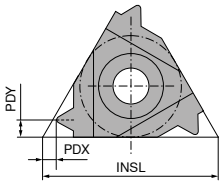
P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

→ v_c Page 45

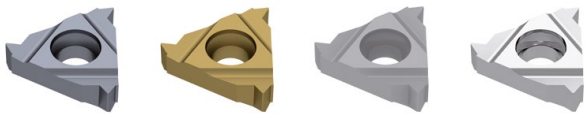
Right hand external thread turning insert

▲ Full profile

NPT 60°



CCN20 | CWN1525 | HCN2525 | CWK20



Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	ER 71 256 ...	ER 71 256 ...	ER 71 256 ...	ER 71 256 ...
16 ER 27	27,0	16	0,7	0,8	**240**			**640**
16 ER 18	18,0	16	0,8	1,0	**242**		**742**	**642**
16 ER 14	14,0	16	0,9	1,2	**244**	**144**	**744**	**644**
16 ER 11,5	11,5	16	1,1	1,5	**246**	**146**	**746**	**646**
16 ER 8	8,0	16	1,3	1,8	**248**			**648**
P					●	●	○	
M					●	○	●	○
K					●	●	○	●
N						●	○	●
S					○		○	○
H					○		○	
O						○		

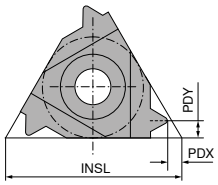
→ v_c Page 45

8

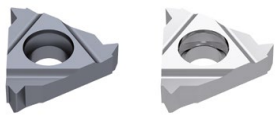
Left hand external thread turning insert

▲ Full profile

NPT 60°



CCN20 | CWK20



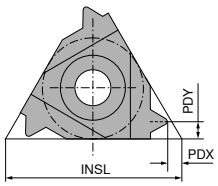
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	EL 71 258 ...	EL 71 258 ...
16 EL 27	27,0	16	0,7	0,8	**240**	**640**
16 EL 18	18,0	16	0,8	1,0	**242**	**642**
16 EL 14	14,0	16	0,9	1,2	**244**	**644**
16 EL 11,5	11,5	16	1,1	1,5	**246**	**646**
16 EL 8	8,0	16	1,3	1,8	**248**	**648**
P					●	
M					●	○
K					●	●
N						●
S					○	○
H					○	
O						

→ v_c Page 45

Right hand internal thread turning insert

▲ Full profile
▲ CCN7525 grade with sintered chip breaker for universal application

NPT 60°



CCN20 | CWK20 | CCN7525



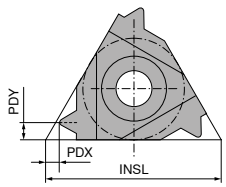
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IR 71 260 ...	IR 71 260 ...	IR 71 260 ...
11 IR 27	27,0	11	0,7	0,8	**210**	**610**	
11 IR 18	18,0	11	0,8	1,0	**212**	**612**	
11 IR 14	14,0	11	0,9	1,1	**214**	**614**	
16 IR 27	27,0	16	0,7	0,8	**240**	**640**	
16 IR 18	18,0	16	0,8	1,0	**242**	**642**	
16 IR 14	14,0	16	0,9	1,2	**244**	**644**	**944**
16 IR 11,5	11,5	16	1,1	1,5	**246**	**646**	**946**
16 IR 8	8,0	16	1,3	1,8	**248**	**648**	
P					●		●
M					●	○	●
K					●	●	●
N						●	
S					○	○	●
H					○		○
O							

→ v_c Page 45

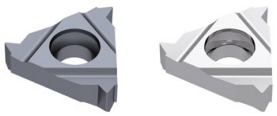
Left hand internal thread turning insert

▲ Full profile

NPT 60°



CCN20 | CWK20



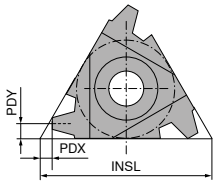
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IL 71 262 ...	IL 71 262 ...
11 IL 27	27,0	11	0,7	0,8	**210**	**610**
11 IL 18	18,0	11	0,8	1,0	**212**	**612**
11 IL 14	14,0	11	0,9	1,1	**214**	**614**
16 IL 27	27,0	16	0,7	0,8	**240**	**640**
16 IL 18	18,0	16	0,8	1,0	**242**	**642**
16 IL 14	14,0	16	0,9	1,2	**244**	**644**
16 IL 11,5	11,5	16	1,1	1,5	**246**	**646**
16 IL 8	8,0	16	1,3	1,8	**248**	**648**
P					●	
M					●	○
K					●	●
N						●
S					○	○
H					○	
O						

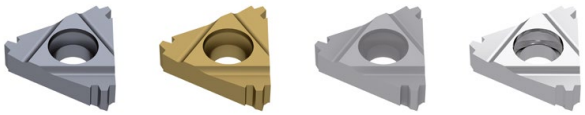
→ v_c Page 45

Right hand external thread turning insert

▲ Full profile
▲ Trapezoidal thread DIN 103

Tr | 30°





Designation	TP mm	INSL mm	PDX mm	PDY mm	ER 71 232 ...	ER 71 232 ...	ER 71 232 ...	ER 71 232 ...
16 ER 1,5	1,5	16	1,0	1,1	**240**			**640**
16 ER 2,0	2,0	16	1,1	1,3	**242**			**642**
16 ER 2,0	2,0	16	1,0	1,3		**142**	**742**	
16 ER 3,0	3,0	16	1,3	1,5	**244**	**144**		**644**
22 ER 4,0	4,0	22	1,7	1,9	**270**			**670**
22 ER 4,0	4,0	22	1,8	1,9		**170**	**770**	
22 ER 5,0	5,0	22	2,0	2,4		**172**		
22 ER 5,0	5,0	22	2,1	2,5	**272**			**672**
22 ER 6,0	6,0	22	2,3	2,7	**274**			**674**
22 EN 6,0	6,0	22	2,0	11,0	**276** [1]			**676** [1]
22 EN 7,0	7,0	22	2,3	11,0	**278** [1]			**678** [1]
P					●	●	○	
M					●	○	●	○
K					●	●	○	●
N						●	○	●
S					○		○	○
H					○		○	
O						○		

1) Neutral version (N) – for right and left hand thread applications. Neutral toolholder marked (U) is required.

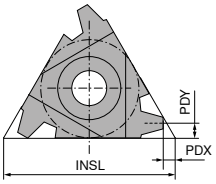
→ v_c Page 45

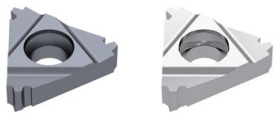
8

Left hand external thread turning insert

▲ Full profile
▲ Trapezoidal thread DIN 103

Tr | 30°





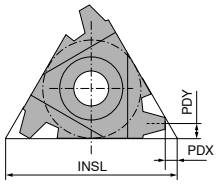
Designation	TP mm	INSL mm	PDX mm	PDY mm	EL 71 234 ...	EL 71 234 ...
16 EL 1,5	1,5	16	1,0	1,1	**240**	**640**
16 EL 2,0	2,0	16	1,1	1,3	**242**	**642**
16 EL 3,0	3,0	16	1,3	1,5	**244**	**644**
22 EL 4,0	4,0	22	1,7	1,9	**270**	**670**
22 EL 5,0	5,0	22	2,1	2,5	**272**	**672**
22 EL 6,0	6,0	22	2,3	2,7	**274**	**674**
P					●	
M					●	○
K					●	●
N						●
S					○	○
H					○	
O						

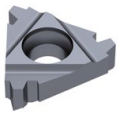
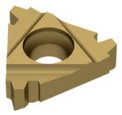
→ v_c Page 45

Right hand internal thread turning insert

▲ Full profile
▲ Trapezoidal thread DIN 103

Tr | 30°




Designation	TP mm	INSL mm	PDX mm	PDY mm	CCN20 IR 71 236 ...	CWN1525 IR 71 236 ...	CWK20 IR 71 236 ...
11 IR 1,5	1,5	11	0,815	0,9	**210**		**610**
16 IR 1,5	1,5	16	1,000	1,1	**240**		**640**
16 IR 2,0	2,0	16	1,100	1,3	**242**		**642**
16 IR 3,0	3,0	16	1,300	1,5	**244**	**144**	**644**
22 IR 4,0	4,0	22	1,800	1,9		**170**	
22 IR 4,0	4,0	22	1,700	1,9	**270**		**670**
22 IR 5,0	5,0	22	2,000	2,4		**172**	
22 IR 5,0	5,0	22	2,100	2,5	**272**		**672**
22 IR 6,0	6,0	22	2,300	2,7	**274**		**674**
22 IN 6,0	6,0	22	2,000	11,0	**276** [1]		**676** [1]
22 IN 7,0	7,0	22	2,300	11,0	**278** [1]		**678** [1]
P					●	●	
M					●	○	○
K					●	●	●
N						●	●
S					○		○
H					○		
O						○	

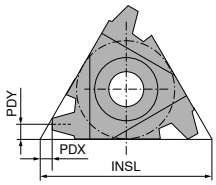
1) Neutral version (N) – for right and left hand thread applications. Neutral toolholder marked (U) is required.

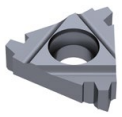
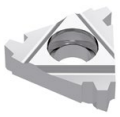
→ v_c Page 45

Left hand internal thread turning insert

▲ Full profile
▲ Trapezoidal thread DIN 103

Tr | 30°



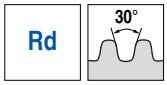



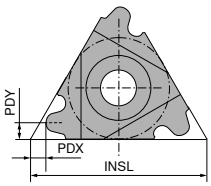
Designation	TP mm	INSL mm	PDX mm	PDY mm	CCN20 IL 71 238 ...	CWK20 IL 71 238 ...
11 IL 1,5	1,5	11	0,8	0,9	**210**	**610**
16 IL 1,5	1,5	16	1,0	1,1	**240**	**640**
16 IL 2,0	2,0	16	1,1	1,3	**242**	**642**
16 IL 3,0	3,0	16	1,3	1,5	**244**	**644**
22 IL 4,0	4,0	22	1,7	1,9	**270**	**670**
22 IL 5,0	5,0	22	2,1	2,5	**272**	**672**
22 IL 6,0	6,0	22	2,3	2,7	**274**	**674**
P					●	
M					●	○
K					●	●
N						●
S					○	○
H					○	
O						

→ v_c Page 45

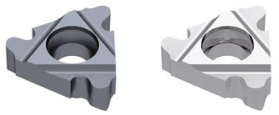
Right hand external thread turning insert

▲ Full profile
▲ Round thread DIN 405





CCN20 | CWK20

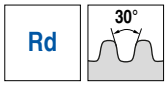


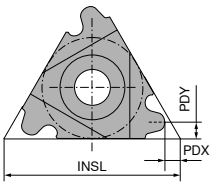
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	ER 71 248 ...	ER 71 248 ...
16 ER 10	10	16	1,1	1,2	**240**	**640**
16 ER 8	8	16	1,4	1,3	**242**	**642**
16 ER 6	6	16	1,5	1,7	**246**	**646**
22 ER 6	6	22	1,5	1,7	**270**	**670**
22 ER 4	4	22	2,2	2,3	**272**	**672**
P					●	
M					●	○
K					●	●
N						●
S					○	○
H					○	
O						

→ v_c Page 45

Left hand external thread turning insert

▲ Full profile
▲ Round thread DIN 405





CCN20 | CWK20



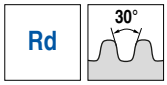
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	EL 71 250 ...	EL 71 250 ...
16 EL 10	10	16	1,1	1,2	**240**	**640**
16 EL 8	8	16	1,4	1,3	**242**	**642**
16 EL 6	6	16	1,5	1,7	**246**	**646**
22 EL 6	6	22	1,5	1,7	**270**	**670**
22 EL 4	4	22	2,2	2,3	**272**	**672**
P					●	
M					●	○
K					●	●
N						●
S					○	○
H					○	
O						

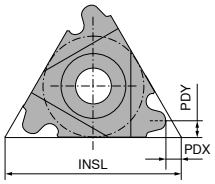
→ v_c Page 45

8

Right hand internal thread turning insert

▲ Full profile
▲ Round thread DIN 405





CCN20 CWK20

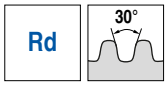


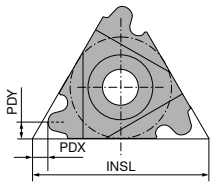
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IR 71 252 ...	IR 71 252 ...
16 IR 10	10	16	1,1	1,2	**240**	**640**
16 IR 8	8	16	1,4	1,4	**242**	**642**
16 IR 6	6	16	1,4	1,5	**246**	**646**
22 IR 6	6	22	1,5	1,7	**270**	**670**
22 IR 4	4	22	2,2	2,3	**272**	**672**
P					●	
M					●	○
K					●	●
N						●
S					○	○
H					○	
O						

→ v_c Page 45

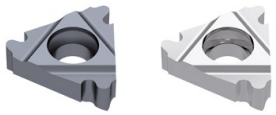
Left hand internal thread turning insert

▲ Full profile
▲ Round thread DIN 405





CCN20 CWK20



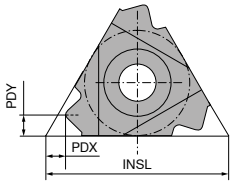
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IL 71 254 ...	IL 71 254 ...
16 IL 10	10	16	1,1	1,2	**240**	**640**
16 IL 8	8	16	1,4	1,4	**242**	**642**
16 IL 6	6	16	1,4	1,5	**246**	**646**
22 IL 6	6	22	1,5	1,7	**270**	**670**
22 IL 4	4	22	2,2	2,3	**272**	**672**
P					●	
M					●	○
K					●	●
N						●
S					○	○
H					○	
O						

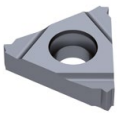
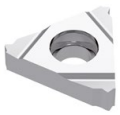
→ v_c Page 45

Right hand external thread turning insert

▲ Full profile
▲ Conduit thread DIN 40430

Pg | 80°



	CCN20	CWK20
		
	ER	ER
	71 240 ...	71 240 ...

Designation	TPI 1/"	INSL mm	PDX mm	PDY mm		
16 ER 20	20	16	0,8	0,8	**240**	**640**
16 ER 18	18	16	0,8	0,9	**242**	**642**
16 ER 16	16	16	0,8	1,0	**244**	**644**

P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

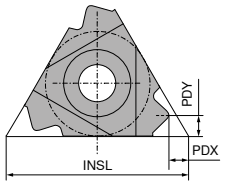
→ v_c Page 45

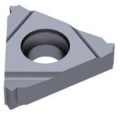
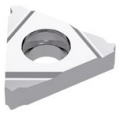
8

Left hand external thread turning insert

▲ Full profile
▲ Conduit thread DIN 40430

Pg | 80°



	CCN20	CWK20
		
	EL	EL
	71 242 ...	71 242 ...

Designation	TPI 1/"	INSL mm	PDX mm	PDY mm		
16 EL 20	20	16	0,8	0,8	**240**	**640**
16 EL 18	18	16	0,8	0,9	**242**	**642**
16 EL 16	16	16	0,8	1,0	**244**	**644**

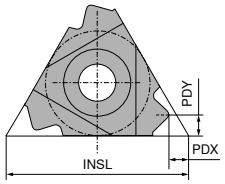
P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

→ v_c Page 45

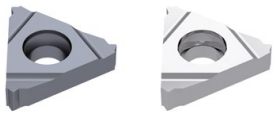
Right hand internal thread turning insert

▲ Full profile
▲ Conduit thread DIN 40430

Pg | 80°



CCN20 | CWK20



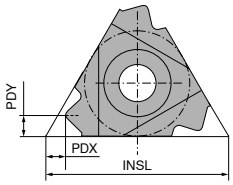
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IR 71 244 ...	IR 71 244 ...
11 IR 18	18	11	0,8	0,9	**238**	**638**
16 IR 18	18	16	0,8	0,9	**242**	**642**
16 IR 16	16	16	0,8	1,0	**244**	**644**
P					●	
M					●	○
K					●	●
N						●
S					○	○
H					○	
O						

→ v_c Page 45

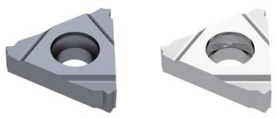
Left hand internal thread turning insert

▲ Full profile
▲ Conduit thread DIN 40430

Pg | 80°



CCN20 | CWK20



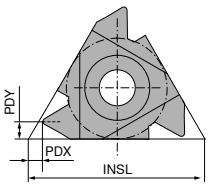
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IL 71 246 ...	IL 71 246 ...
11 IL 18	18	11	0,8	0,9	**238**	**638**
16 IL 18	18	16	0,8	0,9	**242**	**642**
16 IL 16	16	16	0,8	1,0	**244**	**644**
P					●	
M					●	○
K					●	●
N						●
S					○	○
H					○	
O						

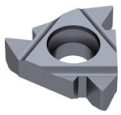
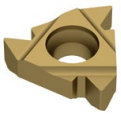
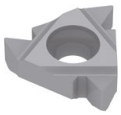
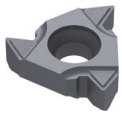
→ v_c Page 45

Right hand external thread turning insert

▲ Partial profile
▲ CCN7525 grade with sintered chip breaker for universal application





	CCN20	CWN1525	HCN2525	CWK20	CCN7525
					
	ER 71 206 ...	ER 71 206 ...	ER 71 206 ...	ER 71 206 ...	ER 71 206 ...

Designation	TP mm	INSL mm	PDX mm	PDY mm									
16 ER A60	0,5 - 1,5	16	0,8	0,9	**240**		**140**		**740**		**640**		**940**
16 ER G60	1,75 - 3	16	1,2	1,7	**242**		**142**		**742**		**642**		**942**
16 ER AG60	0,5 - 3	16	1,2	1,7	**244**		**144**		**744**		**644**		**944**
22 ER N60	3,5 - 5	22	1,7	2,5	**270**		**170**				**670**		
22 EN U60	5,5 - 8	22	0,9	11,0	**272** 1)						**672** 1)		
P					●		●		○				●
M					●		○		●		○		●
K					●		●		○		●		●
N							●		○		●		
S					○				○		○		●
H					○				○				○
O							○						

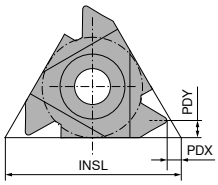
1) Neutral version (N) – for right and left hand thread applications. Neutral toolholder marked (U) is required.

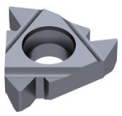
→ v_c Page 45

Left hand external thread turning insert

▲ Partial profile





	CCN20	CWK20
		
	EL 71 208 ...	EL 71 208 ...

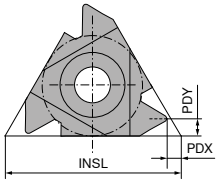
Designation	TP mm	INSL mm	PDX mm	PDY mm		
16 EL A60	0,5 - 1,5	16	0,8	0,9	**240**	**640**
16 EL G60	1,75 - 3	16	1,2	1,7	**242**	**642**
16 EL AG60	0,5 - 3	16	1,2	1,7	**244**	**644**
22 EL N60	3,5 - 5	22	1,7	2,5	**270**	**670**
P					●	
M					●	○
K					●	●
N						●
S					○	○
H					○	
O						

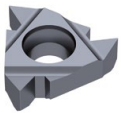
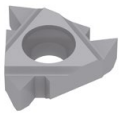
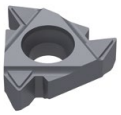
→ v_c Page 45

Right hand internal thread turning insert

▲ Partial profile
▲ CCN7525 grade with sintered chip breaker for universal application





	CCN20	CWN1525	HCN2525	CWK20	CCN7525
					
	IR	IR	IR	IR	IR
	71 210 ...	71 210 ...	71 210 ...	71 210 ...	71 210 ...
Designation					
11 IR A60	**210**	**110**		**610**	
16 IR A60	**240**	**140**		**640**	
16 IR G60	**242**	**142**		**642**	
16 IR AG60	**244**	**144**	**744**	**644**	**944**
22 IR N60	**270**	**170**		**670**	
22 IN U60	**272** [1]			**672** [1]	
P	●	●	○		●
M	●	○	●	○	●
K	●	●	○	●	●
N		●	○	●	
S	○		○	○	●
H	○		○		○
O		○			

TP mm	INSL mm	PDX mm	PDY mm
0,5 - 1,5	11	0,8	0,9
0,5 - 1,5	16	0,8	0,9
1,75 - 3	16	1,2	1,7
0,5 - 3	16	1,2	1,7
3,5 - 5	22	1,7	2,5
5,5 - 8	22	0,9	11,0

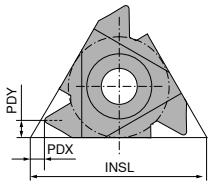
1) Neutral version (N) – for right and left hand thread applications. Neutral toolholder marked (U) is required.

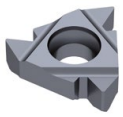
→ v_c Page 45

Left hand internal thread turning insert

▲ Partial profile





	CCN20	CWK20
		
	IL	IL
	71 212 ...	71 212 ...
Designation		
11 IL A60	**210**	**610**
16 IL A60	**240**	**640**
16 IL G60	**242**	**642**
16 IL AG60	**244**	**644**
22 IL N60	**270**	**670**
P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

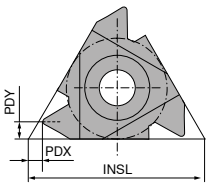
TP mm	INSL mm	PDX mm	PDY mm
0,5 - 1,5	11	0,8	0,9
0,5 - 1,5	16	0,8	0,9
1,75 - 3	16	1,2	1,7
0,5 - 3	16	1,2	1,7
3,5 - 5	22	1,7	2,5

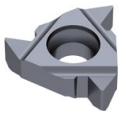
→ v_c Page 45

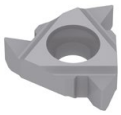
Right hand external thread turning insert

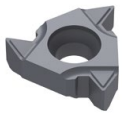
▲ Partial profile
▲ CCN7525 grade with sintered chip breaker for universal application











Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	CCN20 ER 71 200 ...	CWN1525 ER 71 200 ...	HCN2525 ER 71 200 ...	CWK20 ER 71 200 ...	CCN7525 ER 71 200 ...
16 ER A55	48 - 16	16	0,8	0,9	**240**	**140**	**740**	**640**	**940**
16 ER AG55	48 - 8	16	1,2	1,7	**244**	**144**	**744**	**644**	**944**
16 ER G55	14 - 8	16	1,2	1,7	**242**	**142**	**742**	**642**	**942**
22 ER N55	7 - 5	22	1,7	2,5	**270**	**170**	**770**	**670**	
22 EN U55	4,5 - 3,25	22	0,9	11,0	**272** [1]			**672** [1]	
P					●	●	○		●
M					●	○	●	○	●
K					●	●	○	●	●
N						●	○	●	
S					○		○	○	●
H					○		○		○
O						○			

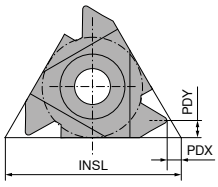
1) Neutral version (N) – for right and left hand thread applications. Neutral toolholder marked (U) is required.

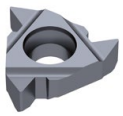
→ v_c Page 45

Left hand external thread turning insert

▲ Partial profile







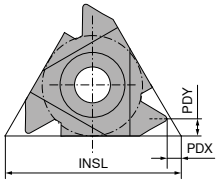

Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	CCN20 EL 71 202 ...	CWK20 EL 71 202 ...
16 EL A55	48 - 16	16	0,8	0,9	**240**	**640**
16 EL AG55	48 - 8	16	1,2	1,7	**244**	**644**
16 EL G55	14 - 8	16	1,2	1,7	**242**	**642**
22 EL N55	7 - 5	22	1,7	2,5	**270**	**670**
P					●	
M					●	○
K					●	●
N						●
S					○	○
H					○	
O						

→ v_c Page 45

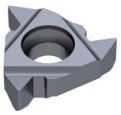
Right hand internal thread turning insert

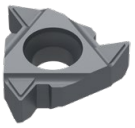
▲ Partial profile
▲ CCN7525 grade with sintered chip breaker for universal application





CCN20 | CWN1525 | CWK20 | CCN7525



Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IR 71 204 ...	IR 71 204 ...	IR 71 204 ...	IR 71 204 ...
11 IR A55	48 - 16	11	0,8	0,9	**210**		**610**	
16 IR A55	48 - 16	16	0,8	0,9	**240**		**640**	
16 IR AG55	48 - 8	16	1,2	1,7	**244**		**644**	
16 IR G55	14 - 8	16	1,2	1,7	**242**	**142**	**642**	**942**
22 IR N55	7 - 5	22	1,7	2,5	**270**		**670**	
22 IN U55	4,5 - 3,25	22	0,9	11,0	**272** 1)		**672** 1)	
P					●	●		●
M					●	○	○	●
K					●	●	●	●
N						●	●	
S					○		○	●
H					○			○
O						○		

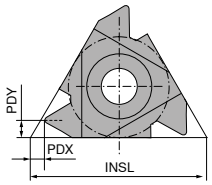
1) Neutral version (N) – for right and left hand thread applications. Neutral toolholder marked (U) is required.

→ v_c Page 45

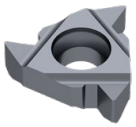
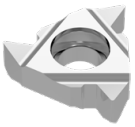
Left hand internal thread turning insert

▲ Partial profile





CCN20 | CWK20

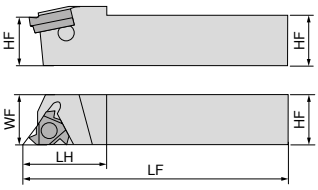



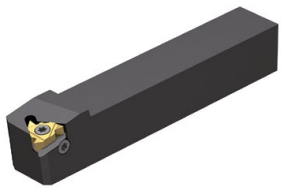
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IL 71 203 ...	IL 71 203 ...
11 IL A55	48 - 16	11	0,8	0,9	**210**	**610**
16 IL A55	48 - 16	16	0,8	0,9	**240**	**640**
16 IL AG55	48 - 8	16	1,2	1,7	**244**	**644**
16 IL G55	14 - 8	16	1,2	1,7	**242**	**642**
22 IL N55	7 - 5	22	1,7	2,5	**270**	**670**
P					●	
M					●	○
K					●	●
N						●
S					○	○
H					○	
O						

→ v_c Page 45

Standard External Thread Turning Holder

▲ Tool Holder with Approach Angle ß = 1,5°





Illustrations show right-hand versions

Designation	HF mm	WF mm	LF mm	LH mm	Insert	torque moment Nm	Left-hand 71 281 ...	Right-hand 71 280 ...
SE R/L 08 08 H11	8	11	100	16	11 ..	1,3	**908** [2]	**908** [2]
SE R/L 10 10 H11	10	12	100	18	11 ..	1,3	**910** [2]	**910** [2]
SE R/L 12 12 K11	12	12	125	20	11 ..	1,3	**912** [2]	**912** [2]
SE R/L 12 12 F16	12	16	80	22	16 ..	3,5	**012**	**012**
SE R/L 16 16 H16	16	16	100	25	16 ..	3,5	**016**	**016**
SE R/L 20 20 K16	20	20	125	30	16 ..	3,5	**020**	**020**
SE R/L 25 25 M16	25	25	150	30	16 ..	3,5	**025**	**025**
SE R/L 32 32 P16	32	32	170	30	16 ..	3,5	**032**	**032**
SE R/L 25 25 M22	25	25	150	32	22 ..	10	**125**	**125**
SE R 32 32 P22	32	32	170	34	22 ..	10		**132**
SE R 32 32 P22U	32	21	170	32	22 .N	10		**232** [1]

1) Neutral insert indicated by marking (N)
2) without shim


Multi tooth shim


Shim


Screw-U

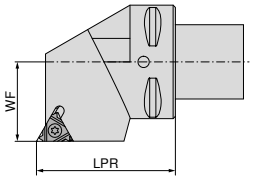
Key D


Clamping screw

Spare parts for Article no.										
		71 950 ...			71 950 ...		71 950 ...		80 950 ...	
71 280 908 / 71 281 908								T08	110	230
71 280 910 / 71 281 910								T08	110	230
71 280 912 / 71 281 912								T08	110	230
71 280 012	ER 16 / IL 16	101	ER 16 / IL 16	121		234		T10	112	231
71 281 012	EL 16 / IR 16	108	EL 16 / IR 16	129		234		T10	112	231
71 280 016	ER 16 / IL 16	101	ER 16 / IL 16	121		234		T10	112	231
71 281 016	EL 16 / IR 16	108	EL 16 / IR 16	129		234		T10	112	231
71 280 020	ER 16 / IL 16	101	ER 16 / IL 16	121		234		T10	112	231
71 281 020	EL 16 / IR 16	108	EL 16 / IR 16	129		234		T10	112	231
71 280 025	ER 16 / IL 16	101	ER 16 / IL 16	121		234		T10	112	231
71 281 025	EL 16 / IR 16	108	EL 16 / IR 16	129		234		T10	112	231
71 280 032	ER 16 / IL 16	101	ER 16 / IL 16	121		234		T10	112	231
71 281 032	EL 16 / IR 16	108	EL 16 / IR 16	129		234		T10	112	231
71 280 125	ER 22 / IL 22	110	ER 22 / IL 22	137		235		T20	114	232
71 281 125	EL 22 / IR 22	115	EL 22 / IR 22	145		235		T20	114	232
71 280 132			ER 22 / IL 22	137		235		T20	114	232
71 280 232			ER 22U / IL 22U	153		235		T20	114	232

Shims for correction of helix angle see page → **Page 42.**

External threading holder





Illustrations show right-hand versions

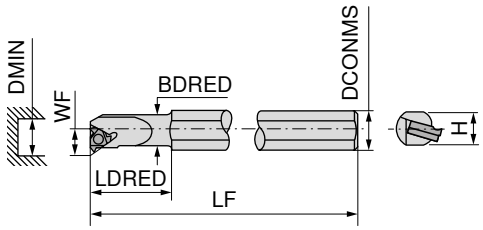
ISO designation	Adapter	LPR mm	WF mm	Insert	torque moment Nm	Left-hand 84 191 ...	Right-hand 84 190 ...
PSC40 SE R/L 27050-16.IK	PSC 40	50	27	16 ..	3,5	**412**	**412**
PSC40 SE R/L 27050-22.IK	PSC 40	50	27	22 ..	10	**422**	**422**
PSC50 SE R/L 35060-16.IK	PSC 50	60	35	16 ..	3,5	**512**	**512**
PSC50 SE R/L 35060-22.IK	PSC 50	60	35	22 ..	10	**522**	**522**
PSC63 SE R/L 45065-16.IK	PSC 63	65	45	16 ..	3,5	**612**	**612**
PSC63 SE R/L 45065-22.IK	PSC 63	65	45	22 ..	10	**622**	**622**
PSC80 SE R/L 55080-22.IK	PSC 80	80	55	22 ..	10	**822**	**822**

Spare parts for Article no.	Multi tooth shim 71 950 ...		Shim 71 950 ...		Screw-U 71 950 ...		Key D 80 950 ...		Clamping screw 71 950 ...	
84 190 412	ER 16 / IL 16	**101**	ER 16 / IL 16	**121**		**234**	T10	**112**		**231**
84 191 412	EL 16 / IR 16	**108**	EL 16 / IR 16	**129**		**234**	T10	**112**		**231**
84 190 422	ER 22 / IL 22	**110**	ER 22 / IL 22	**137**		**235**	T20	**114**		**232**
84 191 422	EL 22 / IR 22	**115**	EL 22 / IR 22	**145**		**235**	T20	**114**		**232**
84 190 512	ER 16 / IL 16	**101**	ER 16 / IL 16	**121**		**234**	T10	**112**		**231**
84 191 512	EL 16 / IR 16	**108**	EL 16 / IR 16	**129**		**234**	T10	**112**		**231**
84 190 522	ER 22 / IL 22	**110**	ER 22 / IL 22	**137**		**235**	T20	**114**		**232**
84 191 522	EL 22 / IR 22	**115**	EL 22 / IR 22	**145**		**235**	T20	**114**		**232**
84 190 612	ER 16 / IL 16	**101**	ER 16 / IL 16	**121**		**234**	T10	**112**		**231**
84 191 612	EL 16 / IR 16	**108**	EL 16 / IR 16	**129**		**234**	T10	**112**		**231**
84 190 622	ER 22 / IL 22	**110**	ER 22 / IL 22	**137**		**235**	T20	**114**		**232**
84 191 622	EL 22 / IR 22	**115**	EL 22 / IR 22	**145**		**235**	T20	**114**		**232**
84 190 822	ER 22 / IL 22	**110**	ER 22 / IL 22	**137**		**235**	T20	**114**		**232**
84 191 822	EL 22 / IR 22	**115**	EL 22 / IR 22	**145**		**235**	T20	**114**		**232**

Shims for correction of helix angle see page → **Page 42.**

Standard Internal Thread Turning Holder

▲ Tool Holder with Approach Angle ß = 1,5°





Illustrations show right-hand versions

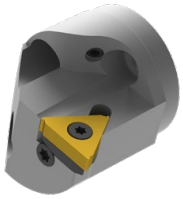
Designation	H mm	LF mm	LDRED mm	DCONMS mm	BDRED mm	WF mm	DMIN mm	Insert	torque moment Nm	Left-hand 71 283 ...	Right-hand 71 282 ...
SI R 0010 H11	9,0	100	25	10	9,5	7,4	12	11 ..	1,3		011 [1]
SI R/L 0010 K11	14,0	125	25	16	10,0	7,4	12	11 ..	1,3	010 [1]	010 [1]
SI R 0013 L11	14,0	140	32	16	12,0	8,9	15	11 ..	1,3		013 [1]
SI R/L 0013 M16	14,0	150	32	16	13,0	10,2	16	16 ..	3,5	015 [1]	015 [1]
SI R/L 0016 P16	18,0	170	40	20	15,0	11,7	19	16 ..	3,5	016 [1]	016 [1]
SI R/L 0020 P16	18,0	170	40	20	19,5	13,7	24	16 ..	3,5	020	020
SI R 0025 R16	22,6	200	40	25	24,5	16,2	29	16 ..	3,5		026
SI R/L 0032 S16	28,8	250	50	32	31,5	19,7	36	16 ..	3,5	032	032
SI R 0040 T16	36,0	300	50	40	39,5	23,7	44	16 ..	3,5		040
SI R 0020 P22	18,0	170	40	20	19,5	15,6	24	22 ..	10		120 [1]
SI R/L 0025 R22	22,6	200	40	25	24,5	18,1	29	22 ..	10	126	126
SI R 0032 S22	28,8	250	50	32	31,5	21,6	38	22 ..	10		132
SI R 0040 T22	36,0	300	60	40	39,5	25,6	46	22 ..	10		140
SI R 0032 S22U	28,8	250	60	32	31,5	24,4	38	22 .N	10		133 [2]

1) without shim

2) Neutral insert indicated by marking (N)

Spare parts for Article no.		Multi tooth shim 71 950 ...		Shim 71 950 ...		Screw-U 71 950 ...		Key D 80 950 ...		Clamping screw 71 950 ...	
71 282 011								T08	110		230
71 282 010 / 71 283 010								T08	110		230
71 282 013								T08	110		230
71 282 015 / 71 283 015								T10	112		236
71 282 016 / 71 283 016								T10	112		236
71 282 020	EL 16 / IR 16		108	EL 16 / IR 16	129		234	T10	112		231
71 283 020	ER 16 / IL 16		101	ER 16 / IL 16	121		234	T10	112		231
71 282 026	EL 16 / IR 16		108	EL 16 / IR 16	129		234	T10	112		231
71 282 032	EL 16 / IR 16		108	EL 16 / IR 16	129		234	T10	112		231
71 283 032	ER 16 / IL 16		101	ER 16 / IL 16	121		234	T10	112		231
71 282 040	EL 16 / IR 16		108	EL 16 / IR 16	129		234	T10	112		231
71 282 120							234	T20	114		237
71 282 126	EL 22 / IR 22		115	EL 22 / IR 22	145		235	T20	114		232
71 283 126	ER 22 / IL 22		110	ER 22 / IL 22	137		235	T20	114		232
71 282 132	EL 22 / IR 22		115	EL 22 / IR 22	145		235	T20	114		232
71 282 140	EL 22 / IR 22		115	EL 22 / IR 22	145		235	T20	114		232
71 282 133				AL 22U / IR 22U	161		235				232

Shims for correction of helix angle see page → **Page 42.**



Have you seen our new exchangeable head system?

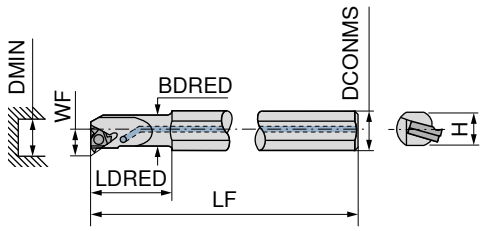
Use our standard thread turning inserts with the new exchangeable head system.

Further information and products can be found in the → **Chapter 9 – Turning Tools**

Standard Internal Thread Turning Holder with thro' coolant

▲ Tool Holder with Approach Angle ß = 1,5°





Illustrations show right-hand versions

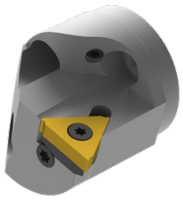


Designation	H mm	LF mm	LDRED mm	DCONMS mm	BDRED mm	WF mm	DMIN mm	Insert	torque moment Nm	Left-hand 71 283 ...	Right-hand 71 282 ...
SI R 0010 M11CB	9,0	150	25	10	9,5	7,4	12	11 ..	1,3		510 [2]
SI R 0012 P11CB	11,0	170	30	12	11,5	8,4	15	11 ..	1,3		512 [2]
SI R/L 0010 K11B	14,0	125	25	16	10,0	7,4	12	11 ..	1,3	310	310
SI R/L 0013 M16B	14,0	150	32	16	13,0	10,2	16	16 ..	3,5	315	315
SI R 0016 P16B	18,0	170	40	20	16,0	11,7	19	16 ..	3,5		316
SI R 0020 P16B	18,0	170	40	20	19,5	13,7	24	16 ..	3,5		320 [1]
SI R/L 0032 S16B	28,8	250	50	32	31,5	19,7	36	16 ..	3,5	332 [1]	332 [1]

1) with shim seat
2) Carbide version

Spare parts for Article no.	Multi tooth shim 71 950 ...		Shim 71 950 ...		Screw-U 71 950 ...	Key D 80 950 ...		Clamping screw 71 950 ...	
71 282 510						T08	110		230
71 282 512						T08	110		230
71 282 310 / 71 283 310						T08	110		230
71 282 315 / 71 283 315						T10	112		236
71 282 316						T10	112		236
71 282 320	EL 16 / IR 16	108	EL 16 / IR 16	129	234	T10	112		231
71 282 332	EL 16 / IR 16	108	EL 16 / IR 16	129	234	T10	112		231
71 283 332	ER 16 / IL 16	101	ER 16 / IL 16	121	234	T10	112		231

Shims for correction of helix angle see page → **Page 42.**

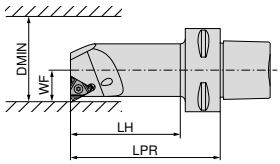


Have you seen our new exchangeable head system?

Use our standard thread turning inserts with the new exchangeable head system.

Further information and products can be found in the → **Chapter 9 – Turning Tools**

Internal threading holder





Illustrations show right-hand versions

ISO designation	Adapter	WF mm	LPR mm	LH mm	DMIN mm	Insert	torque moment Nm	Left-hand 84 197 ...	Right-hand 84 196 ...
PSC40 SI R/L 12060-16.IK	PSC 40	12	60	37	20	16 ..	3,5	410	410
PSC40 SI R/L 14060-16.IK	PSC 40	14	60	38	25	16 ..	3,5	412	412
PSC40 SI R/L 17070-16.IK	PSC 40	17	70	48	32	16 ..	3,5	414	414
PSC40 SI R/L 22090-16.IK	PSC 40	22	90	69	40	16 ..	3,5	416	416
PSC40 SI R/L 27080-16.IK	PSC 40	27	80	60	50	16 ..	3,5	418	418
PSC40 SI R/L 15065-22.IK	PSC 40	15	65	42	25	22 ..	10	420	420
PSC40 SI R/L 19070-22.IK	PSC 40	19	70	48	32	22 ..	10	422	422
PSC40 SI R/L 22090-22.IK	PSC 40	22	90	69	40	22 ..	10	424	424
PSC40 SI R/L 27080-22.IK	PSC 40	27	80	60	50	22 ..	10	426	426
PSC50 SI R/L 12060-16.IK	PSC 50	12	60	35	20	16 ..	3,5	510	510
PSC50 SI R/L 14060-16.IK	PSC 50	14	60	36	25	16 ..	3,5	512	512
PSC50 SI R/L 17070-16.IK	PSC 50	17	70	47	32	16 ..	3,5	514	514
PSC50 SI R/L 22090-16.IK	PSC 50	22	90	68	40	16 ..	3,5	516	516
PSC50 SI R/L 27105-16.IK	PSC 50	27	105	84	50	16 ..	3,5	518	518
PSC50 SI R/L 15065-22.IK	PSC 50	15	65	41	25	22 ..	10	520	520
PSC50 SI R/L 19070-22.IK	PSC 50	19	70	47	32	22 ..	10	522	522
PSC50 SI R/L 22090-22.IK	PSC 50	22	90	68	40	22 ..	10	524	524
PSC50 SI R/L 27105-22.IK	PSC 50	27	105	84	50	22 ..	10	526	526
PSC63 SI R/L 14070-16.IK	PSC 63	14	70	42	25	16 ..	3,5	610	610
PSC63 SI R/L 17075-16.IK	PSC 63	17	75	48	32	16 ..	3,5	612	612
PSC63 SI R/L 22090-16.IK	PSC 63	22	90	64	40	16 ..	3,5	614	614
PSC63 SI R/L 27105-16.IK	PSC 63	27	105	80	50	16 ..	3,5	616	616
PSC63 SI R/L 19075-22.IK	PSC 63	19	75	48	32	22 ..	10	620	620
PSC63 SI R/L 22090-22.IK	PSC 63	22	90	64	40	22 ..	10	622	622
PSC63 SI R/L 27105-22.IK	PSC 63	27	105	80	50	22 ..	10	624	624


Multi tooth shim


Shim

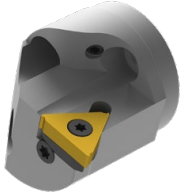

Screw-U


Key D


Clamping screw

Spare parts Insert	R/L/N		71 950 ...		71 950 ...		71 950 ...		80 950 ...		71 950 ...
16 ..	Right-hand	EL 16 / IR 16	108	EL 16 / IR 16	129	234	T10	112		231
16 ..	Left-hand	ER 16 / IL 16	101	ER 16 / IL 16	121	234	T10	112		231
22 ..	Left-hand	ER 22 / IL 22	110	ER 22 / IL 22	137	235	T20	114		232
22 ..	Right-hand	EL 22 / IR 22	115	EL 22 / IR 22	145	235	T20	114		232

Shims for correction of helix angle see page → **Page 42.**



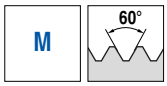
Have you seen our new exchangeable head system?

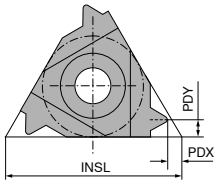
Use our standard thread turning inserts with the new exchangeable head system.

Further information and products can be found in the → **Chapter 9 – Turning Tools**

Right hand internal thread turning insert – Mini size 06

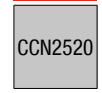
▲ Full profile
▲ Thread production from diameter 6 mm





NEW









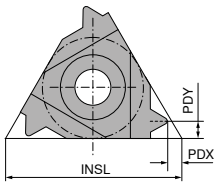
Designation	TP mm	PDX mm	PDY mm	INSL mm	IR 71 271 ...	IR 71 224 ...
06 IR 0,5	0,50	0,9	0,5	6	**110**	**35700**
06 IR 0,75	0,75	0,8	0,5	6	**112**	**36100**
06 IR 1,0	1,00	0,7	0,6	6	**114**	**36500**
06 IR 1,25	1,25	0,6	0,6	6	**116**	**36700**
P					●	○
M					●	●
K					●	○
N					○	
S						●
H						○
O					○	

→ v_c Page 45

Right hand internal thread turning insert – Mini size 06

▲ Full profile
▲ Thread production from diameter 6 mm





NEW



NEW







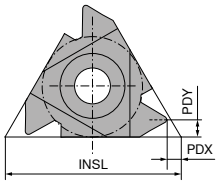
Designation	TPI 1/"	PDX mm	PDY mm	INSL mm	IR 71 230 ...	IR 71 230 ...
06 IR 26	26	0,7	0,6	6	**13500**	**33500**
06 IR 22	22	0,6	0,6	6	**13100**	**33100**
06 IR 20	20	0,6	0,7	6	**12900**	**32900**
06 IR 18	18	0,6	0,7	6	**12500**	**32500**
P					●	○
M					●	●
K					●	○
N					○	
S						●
H						○
O					○	

→ v_c Page 45

Right hand internal thread turning insert – Mini size 06

▲ Partial profile
▲ Thread production from diameter 6 mm

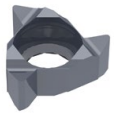




NEW

CCN1525 | CCN2520





Designation	TP mm	INSL mm	PDX mm	PDY mm	IR 71 274 ... 210	IR 71 272 ... 30000
06 IR A60	0,5 - 1,25	6	0,6	0,6		
P					●	○
M					●	●
K					●	○
N					○	
S						●
H						○
O					○	

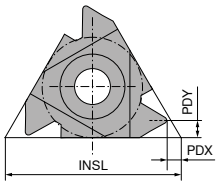
→ v_c Page 45

8

Right hand internal thread turning insert – Mini size 06

▲ Partial profile
▲ Thread production from diameter 6 mm

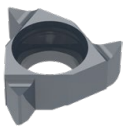




NEW

CCN1525 | CCN2520



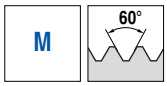


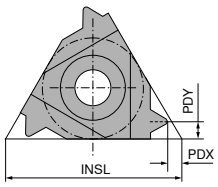
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IR 71 272 ... 10100	IR 71 272 ... 30100
06 IR A55	48 - 20	6	0,5	0,6		
P					●	○
M					●	●
K					●	○
N					○	
S						●
H						○
O					○	

→ v_c Page 45

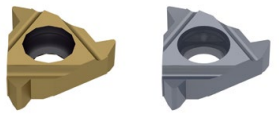
Right hand internal thread turning insert – Mini size 08

▲ Full profile
▲ Thread production from diameter 8 mm





NEW CCN1525 NEW CCN2520



Designation	TP mm	PDX mm	PDY mm	INSL mm	IR 71 224 ...	IR 71 224 ...
08 IR 0,5	0,50	0,6	0,5	8	**14300**	**34300**
08 IR 0,75	0,75	0,6	0,5	8	**13700**	**33700**
08 IR 1,0	1,00	0,6	0,6	8	**13300**	**33300**
08 IR 1,25	1,25	0,6	0,7	8	**13100**	**33100**
08 IR 1,5	1,50	0,6	0,7	8	**12900**	**32900**
08 IR 1,75	1,75	0,6	0,8	8	**12700**	**32700**
08 IN 2,0	2,00	0,9	4,0	8	**12500** [1)]	**32500** [1)]
P					●	○
M					●	●
K					●	○
N					○	
S						●
H						○
O					○	

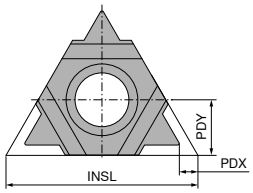
1) Neutral version (N)

→ v_c Page 45

Right hand internal thread turning insert – Mini size 08

▲ Partial profile
▲ Thread production from diameter 8 mm





NEW CCN1525 NEW CCN2520



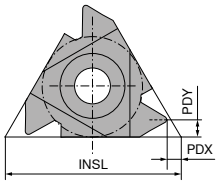
Designation	TP mm	INSL mm	PDX mm	PDY mm	IN 71 273 ...	IN 71 273 ...
08 IN M60	1,75 - 2,0	8	0,8	4	**10800**	**30800**
P					●	○
M					●	●
K					●	○
N					○	
S						●
H						○
O					○	

→ v_c Page 45

Right hand internal thread turning insert – Mini size 08

▲ Partial profile
▲ Thread production from diameter 8 mm

60°



NEW CCN1525



NEW CCN2520



Designation	TP mm	PDX mm	PDY mm	INSL mm	IR 71 272 ...	IR 71 272 ...
08 IR A60	0,5 - 1,25	0,6	0,6	8	**10600**	
08 IR A60	0,5 - 1,5	0,6	0,7	8		**30600**
P					●	○
M					●	●
K					●	○
N					○	
S						●
H						○
O					○	

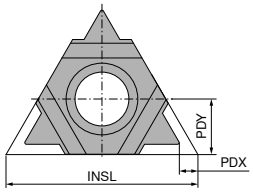
→ v_c Page 45

8

Right hand internal thread turning insert – Mini size 08

▲ Partial profile
▲ Thread production from diameter 8 mm

55°



NEW CCN1525



NEW CCN2520



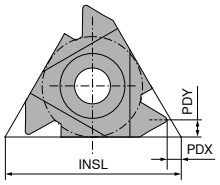
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IN 71 273 ...	IN 71 273 ...
08 IN M55	14 - 11	8	0,9	4	**10900**	
						30900
P					●	○
M					●	●
K					●	○
N					○	
S						●
H						○
O					○	

→ v_c Page 45

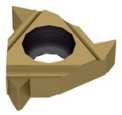
Right hand internal thread turning insert – Mini size 08

- Partial profile
- Thread production from diameter 8 mm

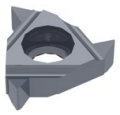




NEW
CCN1525



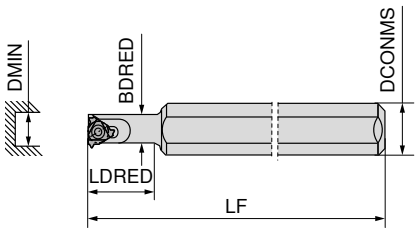
NEW
CCN2520



Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IR 71 272 ... 10700	IR 71 272 ... 30700
08 IR A55	48 - 16	8	0,6	0,7		
P					●	○
M					●	●
K					●	○
N					○	
S						●
H						○
O					○	

→ v_c Page 45

Right Hand Internal Thread Holder – Mini size 06





NEW
Right-hand
71 282 ...

Designation	LF mm	LDRED mm	DCONMS mm	BDRED mm	DMIN mm	Insert	torque moment Nm	
SI R 0005 H06	100	12	12	5,1	6	06 ..	0,6	**00500**
SI R 0005 H06 C	100	26	6	5,1	6	06 ..	0,6	**10500**[1]

1) Solid Carbide Shank with Thro' Coolant

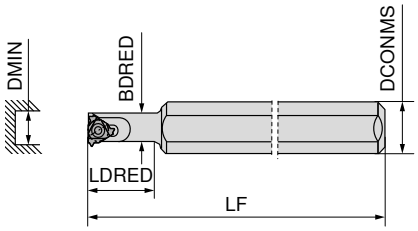

Key D


Clamping screw

Spare parts for Article no.			**80 950 ...**	**71 950 ...**
71 282 00500	T06	**108**		**23800**
71 282 10500	T06	**108**		**23800**

8

Right Hand Internal Thread Holder – Mini size 08





NEW
Right-hand
71 282 ...

Designation	LF mm	LDRED mm	DCONMS mm	BDRED mm	DMIN mm	Insert	torque moment Nm	
SI R 0007 K08	125	18	16	6,6	7,8	08 ..	0,6	**00700**
SI R 0007 K08C	125	30	8	6,6	7,8	08 ..	0,6	**10700**[2]
SI R 0007 K08U	125	31	16	7,3	9,0	08 .N	0,6	**00800**[1]

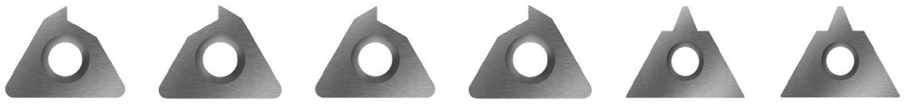
1) Neutral insert indicated by marking (N)
2) Solid Carbide Shank with Thro' Coolant


Key D


Clamping screw

Spare parts for Article no.			**80 950 ...**	**71 950 ...**
71 282 00700	T06	**108**		**23900**
71 282 10700	T06	**108**		**23900**
71 282 00800	T06	**108**		**23900**

Shims for Standard Threading Inserts



Pitch-angle β	AE 16 ER 16 / IL 16 71 950 ...	AI 16 EL 16 / IR 16 71 950 ...	AE 22 ER 22 / IL 22 71 950 ...	AI 22 EL 22 / IR 22 71 950 ...	AE 22 U ER 22 / IL 22 71 950 ...	AI 22 U EL 22 / IR 22 71 950 ...
+ 4,5°	118	126	134	142	150 [1]	158 [1]
+ 3,5°	119	127	135	143	151 [1]	159 [1]
+ 2,5°	120	128	136	144	152 [1]	160 [1]
+ 1,5°	121	129	137	145	153 [1]	161 [1]
+ 0,5°	122	130	138	146	154 [1]	162 [1]
0°	123	131	139	147		
- 0,5°	124	132	140	148	156 [1]	164 [1]
- 1,5°	125	133	141	149	157 [1]	165 [1]

1) Neutral version for tool holder identified by (U).

Shims for Multi-Tooth Threading Inserts



Pitch-angle β	AE 16 M ER 16 / IL 16 71 950 ...	AI 16 M EL 16 / IR 16 71 950 ...	AE 22 M ER 22 / IL 22 71 950 ...	AI 22 M EL 22 / IR 22 71 950 ...
+ 1,5°	101	108	110	115

Pitch angle

Important Information about Standard Shims

- the pitch angle should be determined through calculation or by using the chart below.
- the standard threading holder is supplied with a 1.5 ° inclined insert seat and a shim without angular correction.
  Hence the Tool holders are delivered with an angle of inclination β of 1.5 °.

Without the appropriate correction of the helix angle, the following may occur

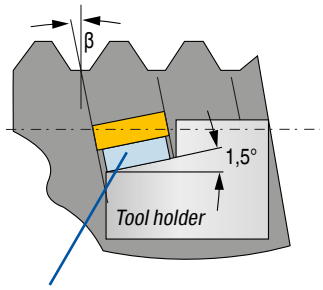
- the profile will be distorted.
- insufficient clearance angle.
- the tool life of the insert is greatly reduced.

Method 1: Calculation

Calculating the helix angle β:

$$\beta = \frac{20 \times TP}{DMIN}$$

20 = constant
β = Helix angle (°)
TP = Pitch (mm)
DMIN = Nominal diameter (mm)



Example calculation

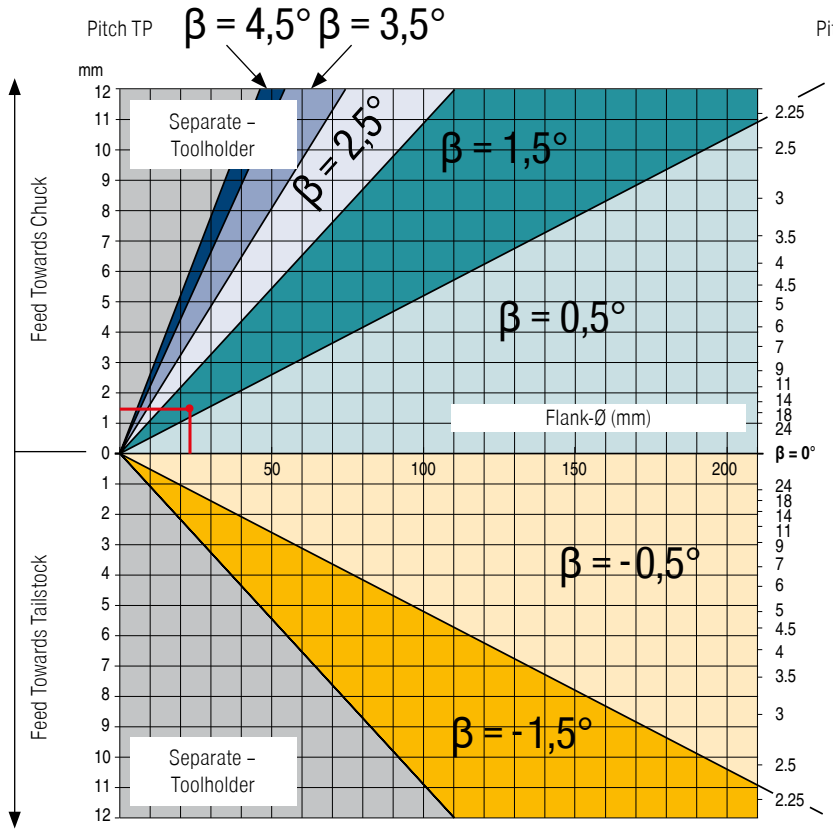
External thread M24 x 1.5
Feed towards chuck
DMIN = Nominal Ø: M24 = 24 mm
TP = Pitch: 1.5 mm

$$\beta = \frac{20 \times 1{,}5 \text{ mm}}{24 \text{ mm}}$$

β = 1,25°

Method 2: Diagram

From the flank Ø in the diagram, a line is drawn vertically upwards until it intersects with the line of the pitch of the thread to be produced. In the color-coded region in which it is now, a horizontal line to the edge of the chart indicates the appropriate factor.



calculated pitch angle β value	Shim
0,0°–0,99°	0,5°
1,0°–1,99°	1,5°
2,0°–2,99°	2,5°
3,0°–3,99°	3,5°
4,0°–4,99°	4,5°
0,0°–(-0,99°)	-0,5°
-1,0°–(-1,99°)	-1,5°

8

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²				
		O.3.1	Graphite						

*** Tensile strength**

Cutting data standard values

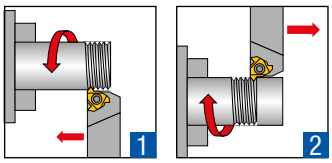
	Mini CCN1525	Mini CCN2520	CWN1525	HCN2525	CCN7525	CCN20	CWK20
Index	v_c in m/min						
P.1.1	**80**	120	**120**	120	**120**	**120**	
P.1.2	**80**	120	**120**	120	**120**	**120**	
P.1.3	**80**	120	**120**	120	**120**	**120**	
P.1.4	**80**	80	**80**	90	**80**	**80**	
P.1.5	**70**	80	**80**	90	**80**	**80**	
P.2.1	**50**	80	**80**	90	**80**	**80**	
P.2.2	**50**	80	**80**	90	**80**	**80**	
P.2.3	**50**	80	**80**	90	**80**	**80**	
P.2.4	**50**	80	**80**	90	**80**	**80**	
P.3.1	**50**	50	**60**	70	**50**	**50**	
P.3.2	**50**	50	**60**	70	**50**	**50**	
P.3.3	**50**	50	**60**	70	**50**	**50**	
P.4.1	**50**	50	**60**	70	**50**	**50**	
P.4.2	**50**	50	**60**	70	**50**	**50**	
M.1.1	**40**	**90**	60	**110**	**90**	**60**	40
M.2.1	**40**	**90**	60	**110**	**90**	**60**	40
M.3.1	**40**	**90**	60	**110**	**90**	**60**	40
K.1.1	**60**	120	**90**	140	**120**	**120**	**80**
K.1.2	**60**	120	**90**	140	**120**	**120**	**80**
K.2.1	**60**	100	**80**	120	**100**	**100**	**70**
K.2.2	**60**	100	**80**	120	**100**	**100**	**70**
K.3.1	**50**	100	**80**	110	**100**	**100**	**70**
K.3.2	**50**	100	**80**	110	**100**	**100**	**70**
N.1.1	500		**600**	700			**150**
N.1.2	300		**600**	700			**150**
N.2.1	120		**250**	280			**120**
N.2.2	120		**250**	280			**120**
N.2.3	120		**250**	280			**120**
N.3.1	110		**150**	190			**100**
N.3.2	150		**150**	190			**100**
N.3.3	150		**150**	190			**100**
N.4.1	300		**300**	220			**150**
S.1.1		**25**		20	**25**	20	20
S.1.2		**25**		20	**25**	20	20
S.2.1		**25**		20	**25**	20	20
S.2.2		**25**		20	**25**	20	20
S.2.3		**25**		20	**25**	20	20
S.3.1		**35**		30	**35**	30	30
S.3.2		**35**		30	**35**	30	30
S.3.3		**35**		30	**35**	30	30
H.1.1		35		30	35	30	
H.1.2		35		30	35	30	
H.1.3		35		30	35	30	
H.1.4		35		30	35	30	
H.2.1		25		20	25	20	
H.3.1		25		20	25	20	
O.1.1	150		200				
O.1.2	150		200				
O.2.1	150		200				
O.2.2	150		200				
O.3.1	150		200				

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

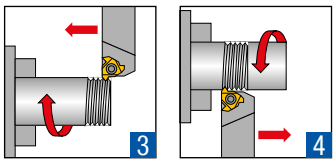
8

Thread turning methods

External right-hand thread

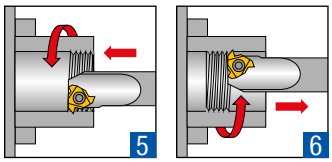


External left-hand thread

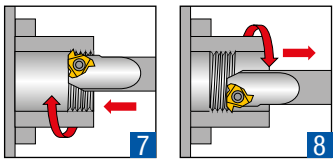


The machining examples 2, 4, 6 and 8 require negative shims!
These shims can be found on → **Page 42.**

Internal right-hand thread

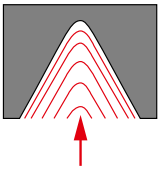


Internal left-hand thread



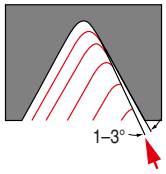
Thread infeed methods

Radial Infeed



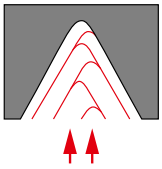
- for pitches less than 1.5mm
- for short chipping materials
- for machining hardened materials
- simple and quick method

Flank infeed



- for pitches larger than 1.5mm
- with radial penetration the effective cutting edge length is too large, which may lead to chattering
- with trapezoidal and ACME threads, chip flow on three sides can be problematic

Alternating infeed



- with large pitches
- for long chipping materials
- uniform wear of the cutting edges
- complicated programming process

Recommended number of cuts and cutting depths

Standard Threading Inserts

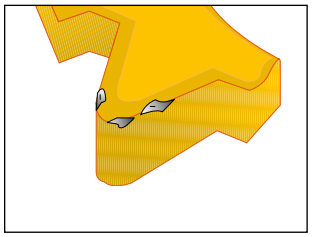
Pitch (TP/TPI)		mm	0,50	0,75	1,00	1,25	1,50	1,75	2,00	2,50	3,00	3,50	4,00	4,50	5,00	5,50	6,00	8,00
		TPI	48	32	24	20	16	14	12	10	8	7	6	5.5	5	4.5	4	3
Number of passes			4–6	4–7	4–8	5–9	6–10	7–12	7–12	8–14	9–16	10–18	11–18	11–19	12–20	12–20	12–20	15–24
Number of passes	**(CCN7525)**		3–4	3–4	3–5	4–6	5–6	6–8	6–8	8–10								
Number of passes	**Mini Inserts**		6–9	6–11	6–12	8–14	9–15	11–18	11–18									

Multi edge thread turning insert

Standard	Insert	Insert size		Pitch (TP)	Number of flutes (NT)	Designation	Passes	Cutting depth per pass		
		IC	L mm					1	2	3
ISO external	M	3/8"	16	1,0 mm	3	3 ER 1.0 ISO 3M	2	0,38	0,25	
ISO external	M	3/8"	16	1,5 mm	2	3 ER 1.5 ISO 2M	3	0,42	0,30	0,20

Troubleshooting

Edge chipping



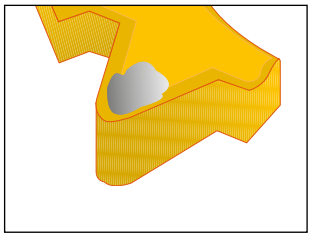
Cause

- Common in stainless materials
- Incorrect grade

Remedy

- Minimize tool overhang length
- Check that the insert is clamped
- Minimize vibration
- Use a tougher grade

Cratering



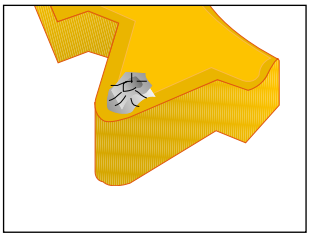
Cause

- Common in stainless materials
- Cutting speed too high
- Incorrect grade

Remedy

- Apply coolant
- Reduce depth of cut
- Use a harder grade

Built-up edge



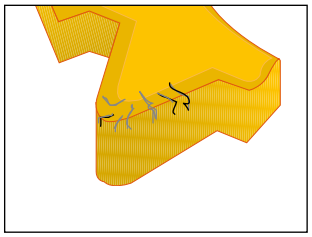
Cause

- Cutting speed too low
- Incorrect grade

Remedy

- Apply coolant
- Increase cutting speed
- Use a tougher grade

Thermal cracking



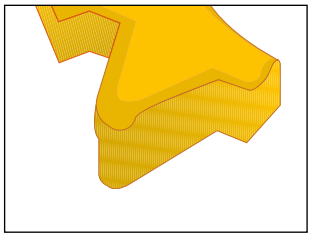
Cause

- Insufficient coolant
- Cutting speed too high
- Incorrect grade

Remedy

- Apply coolant
- Reduce cutting speed
- Use a tougher grade

Plastic deformation



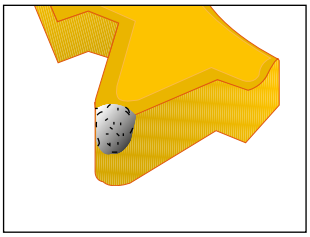
Cause

- Infeed too large
- Insufficient coolant
- Cutting speed too high
- Incorrect grade

Remedy

- Apply coolant
- Reduce depth of cut
- Reduce cutting speed
- Use a harder grade

Breakage



Cause

- Infeed too large
- Insufficient coolant
- Plastic deformation
- Instability
- Helix angle not appropriate
- Incorrect grade

Remedy

- Reduce depth of cut
- Check machine and tool stability
- Reduce cutting speed
- Check helix angle
- Use a tougher grade

8

Designation Key

Inserts

16	E	R	AG 60	

Insert size

L	I.C.
06	5/32"
08	3/16"
11	1/4"
16	3/8"
22	1/2"

Insert

E	External
I	Internal

Cutting design

R	Right-hand
L	Left-hand
N	neutral

Pitch (TP/TPI)

Full profile

	mm	G/Z
	0,35	72–4

Partial profile

	mm	G/Z
A	0,5–1,5	48–16
AG	0,5–3,0	48–8
M	1,7–2,0	14–11
G	1,75–3,0	14–8
N	3,5–5,0	7–5
U	5,5–8,0	4,5–3,5

Flank angle
55°
60°

Number of flutes (NT)

2M	Multi-tooth insert with 2 teeth
3M	Multi-tooth insert with 3 teeth

Example

16 ER AG 60
ER16 right hand - external insert with a pitch of 0.5-3.0 mm

Tool holder

SE	R	1212	F	16	

Tool holder

SE	External
SI	Internal

Cutting design

R	Right-hand
L	Left-hand

Shank cross-section

Example	
External holder square shank	1212 = 12 mm x 12 mm
Internal boring bar	0020 = 20 mm Diameter

Overall length

	mm
F	80
H	100
K	125
L	140
M	150
P	170
R	200
S	250
T	300

Insert size

L	I.C.
06	5/32"
08	3/16"
11	1/4"
16	3/8"
22	1/2"

Properties

B	with thro' coolant
C	with carbide shank
U	neutral holder

Example

SE R 1212 F 16
Right hand holder with 12 x 12 mm square shank, overall length of 80 mm, only suitable for an ER16 threading insert

Grade description

Universal

CCN7525
- Carbide, TiAlN-coated
- ISO | **P25** | **M25** | **K25** | **S25** | H25
- The universal carbide grade with sintered chip breaker for medium to high cutting speeds

CCN2520
- Carbide, TiAlN-coated
- ISO | P25 | **M25** | K25 | **S25** | H25
- The coated carbide grade for the machining of stainless steels at medium to high cutting speeds

CCN1525
- Carbide, TiN-coated
- ISO | **P25** | **M25** | **K25** | N25 | O25
- The coated carbide grade for machining steels and stainless steels at low cutting speeds

Non ferrous metals

CWK20
- Carbide, uncoated
- ISO | M10 | **K10** | **N10** | S10
- The wear-resistant carbide grade for machining aluminium and other non-ferrous metals

Steel

CCN20
- Carbide, TiAlN-coated
- ISO | **P20** | **M20** | **K20** | S20 | H20
- The all-round carbide grade for machining steels at low cutting speeds

CWN1525
- Carbide, TiN-coated
- ISO | **P25** | M25 | **K25** | **N25** | O25
- The universal carbide grade for machining steels and non-ferrous metals at low cutting speeds

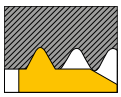
Stainless steel

HCN2525
- Carbide, TiAlN-coated
- ISO | P25 | **M25** | K25 | N25 | S25 | H25
- The coated carbide grade for machining stainless steels at high cutting speeds
- Also suitable for exotic materials

8

Profile Type Description

Full profile



- Thread diameter must not be turned to final thread size
- a minimum infeed of 0.07 mm is necessary
- Insert can only be used only for a specific pitch

Advantages:
- High-quality thread
- No burr formation
- No rework
- In part longer service life

Partial profile



- Core diameter must be premachined to the finished size
- A minimum infeed of 0.07 mm is required

Advantages:
- One threading insert can be used to machine several pitches
- Threading insert can be used for any application
- Reduced stock requirements

Multi-Tooth Thread Turning Insert



- Thread diameter must not be turned to final thread size
- a minimum infeed of 0.07 mm is necessary
- Insert can only be used only for a specific pitch

Advantages:
- Fewer passes required
- Thread production in less time

Attention:
- Check there is sufficient thread run-out

Mini Thread Turning Insert



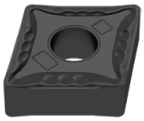


- From a min. core hole diameter of Ø 6 mm or Ø 8 mm

Advantages:
- Special cutting materials for low cutting speeds
- 3 cutting edges for miniature applications

New products for machining technicians

NEW CTCM120 and CTCM130 for stainless turning



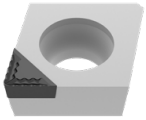
In addition to the all-rounder CTPM125 grade, the CTCM120 and CTCM130 stainless turning grades now provide a tougher and a more wear-resistant option for finer adjustment to the material to be machined. What's more, the stainless range offers geometric compatibility across all three grades.

NEW Standard line



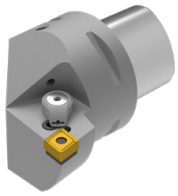
Attractively priced indexable inserts for steel machining – our ISO turning standard line not only impresses on price but also by providing the best levels of performance!

NEW CBN/PCD update



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

NEW MaxiLock tool holders with PSC connection



Our MaxiLock tool holders with PSC connection provide the most stable conditions for your machining process and can be purchased with high-performance cooling to improve the service life of the tools and provide optimal chip control.

NEW Exchangeable head system



Our modular exchangeable head system provides a wide selection of exchangeable cutting heads for PSC and HSK-T base bodies.
You can also opt for the vibration-damped base holder, which will make your internal turning operations much easier.



Solid drilling and bore machining

1 HSS drilling
2 Solid carbide drilling
3 Indexable insert drills
4 Reaming and Countersinking
5 Spindle Tooling

Threading

6 Taps and thread formers
7 Circular and Thread Milling
8 Thread turning

Turning

9 Turning Tools
10 Multifunctional Tools – EcoCut and FreeTurn
11 Grooving Tools
12 Miniature turning tools

Milling

13 HSS Milling Cutters
14 Solid Carbide milling cutters
15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories
17 Workpiece clamping

18 Material examples and article no. Index

Table of contents

Symbol explanation / Coding of the chip breaker	3
Toolfinder – Application	2+3
Toolfinder – negative inserts	4+5
Toolfinder – positive inserts	6+7
Toolfinder – holders	8
Product programme	9–195
Technical Information	
Cutting Data	196–217
Application range of CBN grades	218
Diamond as a cutting material	219
Chip breakers	220–227
Masterfinish – wiper geometry – notes	228+229
ISO designation system	230–235
Wear types in indexable inserts	236+237
Grades Overview	238+239

CERATIZIT \ Performance

Premium quality tools for high performance.

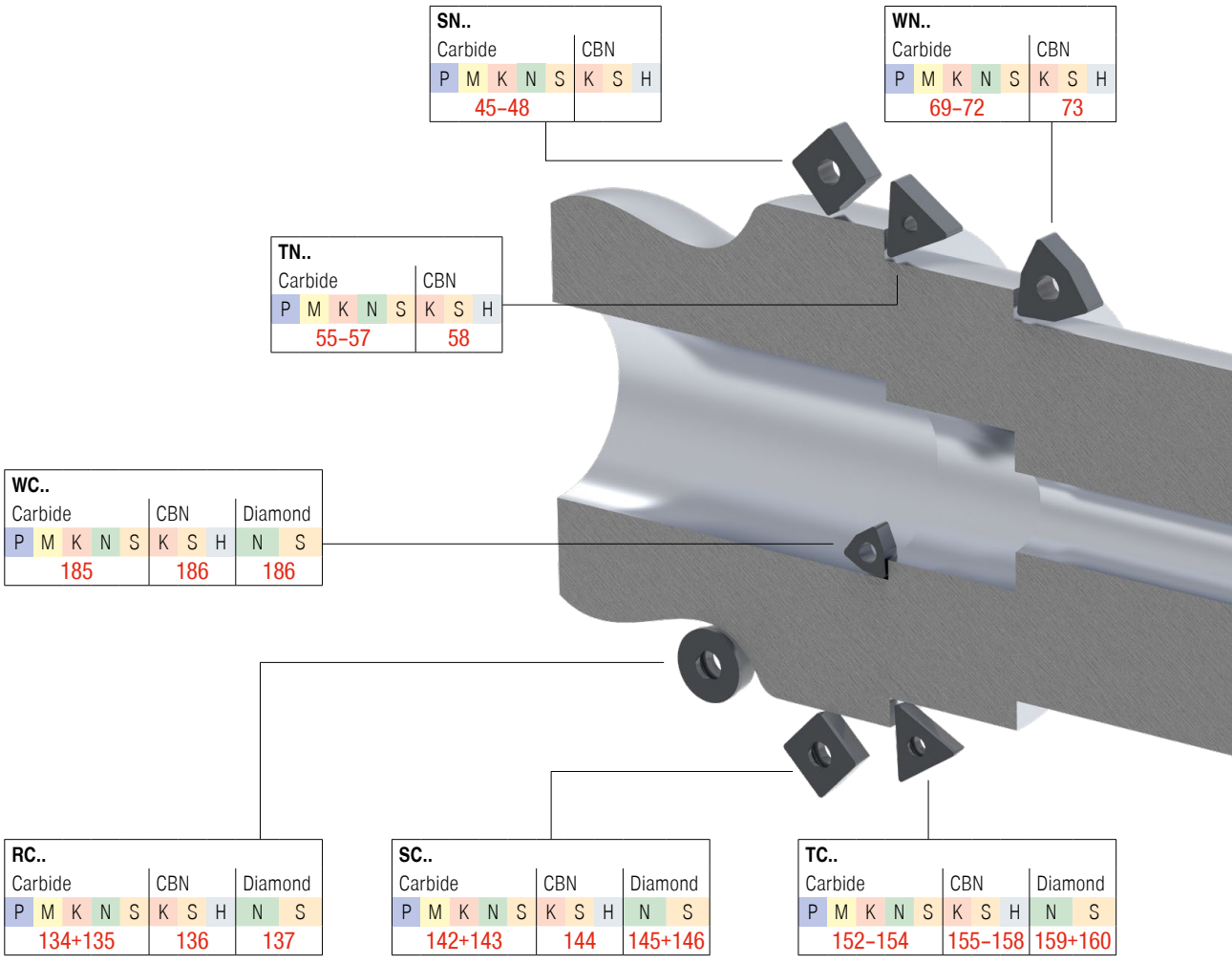
The premium quality tools from the **CERATIZIT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium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

CERATIZIT \ Standard

Quality tools for standard applications.

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

Toolfinder – Application



Coding of the chip breakers

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

-M50

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

Detailed information on the chip breakers can be found in the technical appendix → **pages 220–227**

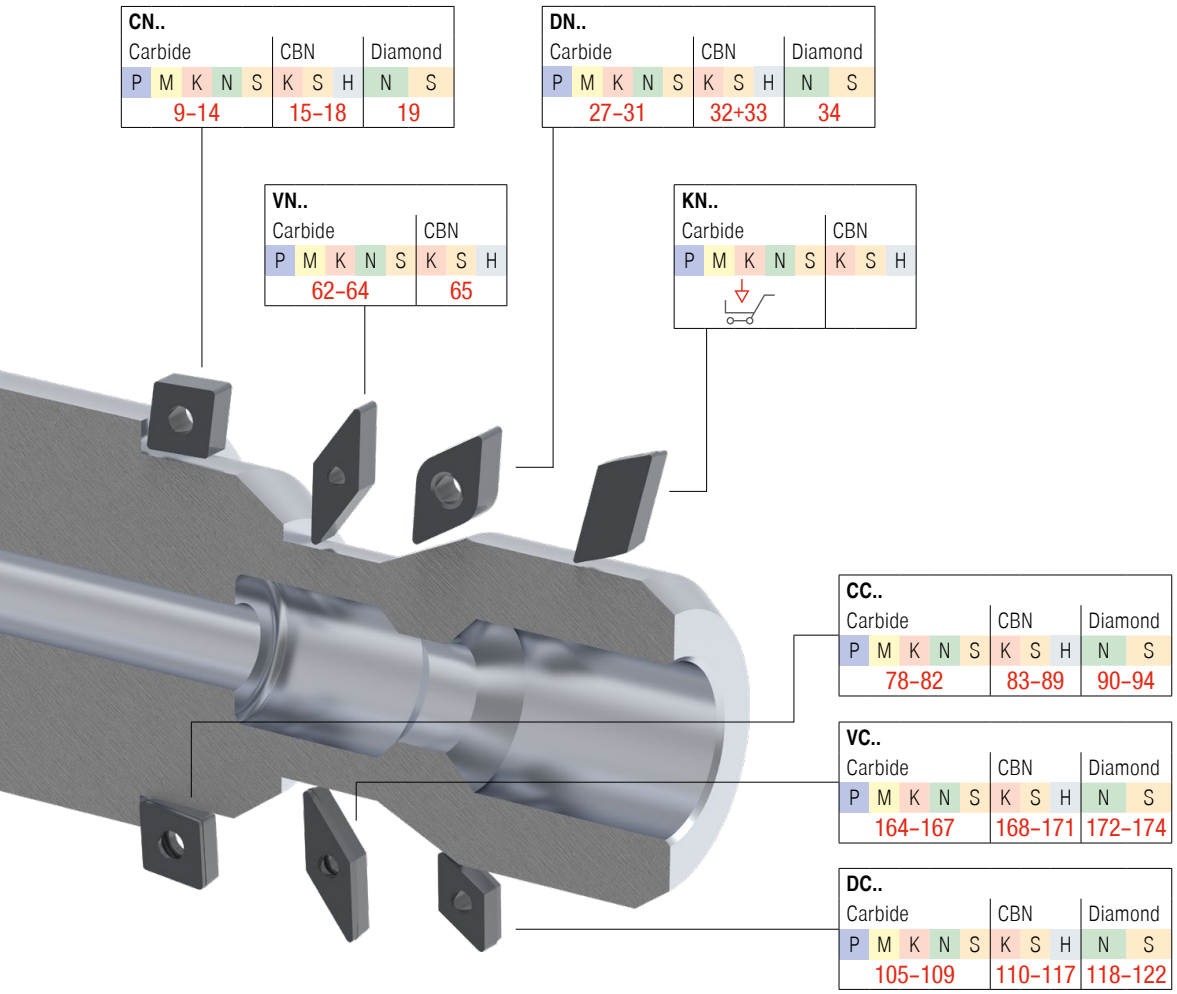
Symbol explanation

CTCP125 *Carbide Grade*

F	Fine Machining
M	Medium Machining
R	Rough Machining

	Smooth cut
	Irregular cutting depth
	Interrupted cut

A detailed overview of grades can be found in the technical appendix on → **page 238**



This article can be found in our online shop at cuttingtools.ceratizit.com

Toolfinder – negative inserts

				Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant S	hardened materials H	Non metal materials O	Geometry CN..	DN..	KN..	SN..	TN..	VN..	WN..
Main application: **Steel and cast iron**	Sharp ▲ stable ▼	Fine	-CF / -CF20	●	○	○					9	27			55		69
			-F40	●		○										62	
			-F50	●		○					9	27		45	55	62	69
			-TFQ	●	○	○					9+10	27+28					69
		Medium	-XU	●		○					10	28				62	70
			-FMS	●		○					14	31				64	72
			-M40	●		○										62	
			-M50	●	○	○					10	28+29		45	55	62	70
			-TMQ	●		○					10	29					70
			-MRS	●	○						14	31					72
			-M70 | -11, -12	●	○	○					10+11	29	🛒	45+46	56		70
		Rough	.NMA	●	○						11	29		46+47	56		71
			-R28	●	○	○					11	29		47	56		
			-R58	●	○	○					11+12	29+30		47	56+57		
			-R88	●	○	○					12			48			
Main application: **Stainless**	Sharp ▲ stable ▼	Fine	-F30	○	●			○			13	30		48	57	62	71
		Medium	-M30	○	●			○			13	30		48	57	62+63	71
			-M42	○	●			●			🛒	🛒		🛒	🛒		🛒
			-M60	○	●			○			13	30		48	57		71
Main application: **Heat-resistant**	Sharp ▲ stable ▼	Fine	-F32		●		○	●			🛒	🛒				🛒	
		Medium	-M34	●	●		○	●			13	30		48	57	63	71
			-M42	○	●		○	●			🛒	🛒			🛒		🛒
			-M52		●		○	●			🛒	🛒		🛒	🛒		🛒

🛒 This article can be found in our online shop at cuttingtools.ceratizit.com

Toolfinder – negative inserts

Main application:				Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant S	hardened materials H	Non metal materials O	Geometry CN..	DN..	KN..	SN..	TN..	VN..	WN..
Cast iron, sintered steels, heat resistant, hardened	Fine	CTBS05U				●											73
		CTBS10U				●		●			15+16						
		CTBS10C				●		●			15+16						
		CTBS20U				●		●			15+16	32					
		CTBS20C				●		●			15+16	32					73
		CTBH15U							●								
		CTBH15C							●		17	32					
		CTBH20U							●		17	32			58		
		CTBH20C	48–62 HRC						●		17	33			58	65	73
		CTBH21U	52–65 HRC						●								
	Rough	CTBH40U	54–65 HRC						●		18	33			58	65	
		CTBH40C	48–65 HRC						●		18	33			58	65	73
		CTBH41U	48–65 HRC						●		18						
	Diamond	CTD PD20					●			●	19	34					
		CTD PS30					●			●	19						

With the PCBN grades CTB S10 and CTB S20, sintered steels can also be machined. You can find the cutting data on → **page 200–203**

9

Toolfinder – positive inserts

				Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant S	hardened materials H	Non metal materials O	Geometry CC..	DC..	RC..	SC..	SP..	TC..	TP..	VC..	WC..
Main application: **Steel and cast iron**	Sharp	Fine	-CF05	●	○	○					78	105		142		152		164	
			-SF	●	○	○					78+79	105		142		152		164	185
		Medium	-CF55	●	○	○					78	105		142		152		164	
			-SMF	●	○	○					78+79	105	134	142		152+153		164+165	
			-FMS	●	○						82	109						167	
			-SM	●	○	●					79	105+106	134	142		153		165	
			-SMQ	●		○					79+80	106							
			-MRS	●	○						82	109						167	
	stable		EN, EL, ER	●	○	●								142	🛒		🛒		
Main application: **Stainless**	Sharp	Fine	-F43	○	●			●			🛒	🛒				🛒			
			-M81	○	●			○			🛒	🛒						🛒	
		Medium	-M25	○	●			●			80	106				153		165	
	stable		-M55	○	●			●			80	106		143		153		165	
Main application: **Non-ferrous metals**	Sharp	Fine	-23P			○	●			○	80	107							
		Medium	-25P	●	●	○	●	●		○	80	107		143				166	
			-25Q	●	●	○	●	●		○	80	107						166	
			-27	●	●	○	●	●		○	80+81	107+108	135	143		154		166	
	stable		-29			○	●			○	81	108						166	
Main application: **Heat-resistant**	Sharp	Fine	-F05	●	●		●	●				108						166	
	stable		-F23		●	○	○	●			🛒	🛒						🛒	

🛒 This article can be found in our online shop at cuttingtools.ceratizit.com

Toolfinder – positive inserts

Main application:				Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant S	hardened materials H	Non metal materials O	Geometry CC..	DC..	RC..	SC..	SP..	TC..	TP..	VC..	WC..
Cast iron, sintered steels, heat resistant, hardened	Fine	CTBS10U				●		●			83	110	136	144		155+156		168+169	186
		CTBS10C				●		●				111+112							
		CTBS20U				●		●			84+85	111+112				155+156		168+169	
		CTBS20C				●		●			84+85	111+112				155+156		168+169	
		CTBH15U	< 32 HRC						●		86	111–113				155+156		168+169	186
		CTBH15C	< 32 HRC						●		86	113				157+158		168+169	
		CTBH21U	52–65 HRC						●		87	113–115						170	
		CTBH21C	52–65 HRC						●			114+115							
		CTBH20U							●		87	114+115				155+156		170	186
		CTBH20C	48–62 HRC						●		84–88	113–115				157+158		170	
	Rough	CTBH40U	54–65 HRC						●		88	114–117				157+158		171	186
		CTBH40C	48–65 HRC						●		89	116+117				157+158		171	
		CTBH41U	48–65 HRC						●									171	
		CTBH41C	48–65 HRC						●			116+117							
	Diamond	CTD PD20					●			●	90+91	118+120	137	145		159		172+173	186
		CTD PS30					●			●	92+93	119–121	137	145+146		159+160		173	
		CTD PU20					●			●	93	119–122		146		160		173+174	
		CTD CD10					●			●	94	122				160		174	
		CTD MD05					●			●	90	118						172	

With the PCBN grades CTB S10 and CTB S20, sintered steels can also be machined. You can find the cutting data on → **page 200–203**

9

Toolfinder – holders

Toolholders and Boring Bars for negative inserts

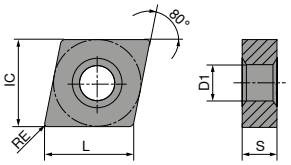
Geometry	Tool holder	Boring bars	HSK-T	PSC	Exchangeable head system	
					Exchangeable cutting heads	Basic holder
CN..	20–22	25+26	23	24	191	188–190
DN..	35+36	43+44	37–39	39–42	191+192	188–190
SN..	49–53	54	53			
TN..	59+60	61				
VN..	66		67	67+68		
WN..	74	76+77	75	75+77	192	188–190

Toolholders and boring bars for positive inserts

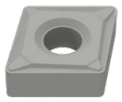
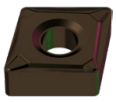
Geometry	Tool holder	Boring bars	HSK-T	PSC	Exchangeable head system	
					Exchangeable cutting heads	Basic holder
CC..	95–97	100–104	98+104	99	193	188–190
DC..	123–125	129–133	126+133	127+128	193+194	188–190
RC..	138–140		141			
SC..	147–149	150+151				
TC..	161+162	163				
VC..	175–178	182–184	178–184	180+181		
WC..		187				

CNMG / CNMA / CNMM

Designation	L mm	S mm	D1 mm	IC mm
CNMG 0903..	9,7	3,18	3,81	9,52
CNM. 1204..	12,9	4,76	5,16	12,70
CNM. 1606..	16,1	6,35	6,35	15,87
CNM. 1906..	19,3	6,35	7,94	19,05
CNMM 2509..	25,8	9,52	9,12	25,40

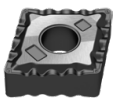
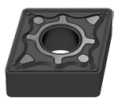
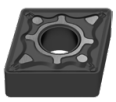
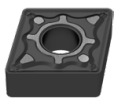
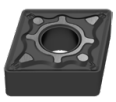


CNMG

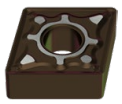
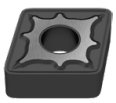
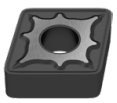
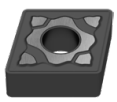
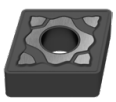
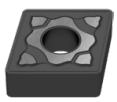
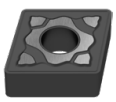
	-CF TCM10	-CF20 CTEP110	-TFQ CTEP110	-F50 CTCP115	-F50 CTCP125	-F50 CTCP135	-TFQ CTCP115
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	F	F	F	F	F	F	F
	CERMET CNMG	CERMET CNMG	CERMET CNMG	CNMG	CNMG	CNMG	CNMG
	70 101 ...	76 101 ...	76 110 ...	76 132 ...	76 132 ...	76 132 ...	76 110 ...
ISO / RE mm							
090304EN / 0,4				316	516	716	
090308EN / 0,8				318	518	718	
120404EN / 0,4	904	028	028	328	528	728	328
120408EN / 0,8	908	030	030	330	530	730	330
120412EN / 1,2			032	332	532	732	320
P	●	●	●	●	●	●	●
M	o	o	o			o	
K	o	o	o	o	o		o
N							
S							
H							
O							

9

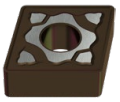
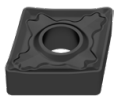
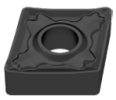
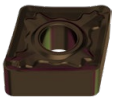
CNMG

		-TFQ CTCP125	-XU CTCP115	-XU CTCP125	-M50 CTCK110	-M50 CTCK120	-M50 CTCP115	-M50 CTCP125
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		F	M	M	M	M	M	M
		CNMG	CNMG	CNMG	CNMG	CNMG	CNMG	CNMG
		76 110 ...	76 290 ...	76 290 ...	70 132 ...	70 132 ...	76 135 ...	76 135 ...
ISO	RE mm							
120404EN	0,4	528	328	528	028		328	528
120408EN	0,8	530	330	530	030	530	330	530
120412EN	1,2	532	332	532	032	532	320	532
120416EN	1,6						334	534
160608EN	0,8						342	542
160612EN	1,2						344	544
160616EN	1,6						346	546
P		●	●	●	○	○	●	●
M								
K		○	○	○	●	●	○	○
N								
S								
H								
O								

CNMG

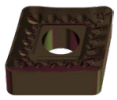
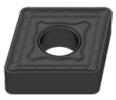
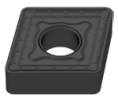
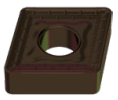
		-M50 CTCP135	-TMQ CTCP115	-TMQ CTCP125	-M70 CTCK110	-M70 CTCK120	-M70 CTCP115	-M70 CTCP125
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		M	M	M	M	M	M	M
		CNMG	CNMG	CNMG	CNMG	CNMG	CNMG	CNMG
		76 135 ...	76 196 ...	76 196 ...	70 119 ...	70 119 ...	76 119 ...	76 119 ...
ISO	RE mm							
120404EN	0,4	728						
120408EN	0,8	730	33000	530	030	530	330	530
120412EN	1,2	732	320	532	032	532	320	532
120416EN	1,6	734			034	534	334	534
160608EN	0,8	742			042	542	342	542
160612EN	1,2	744			044	544	344	544
160616EN	1,6	746			046	546	346	546
160624EN	2,4						348	548
190608EN	0,8						354	554
190612EN	1,2				056	556	356	556
190616EN	1,6				058	558	358	558
190624EN	2,4						360	560
P		●	●	●	○	○	●	●
M		○						
K			○	○	●	●	○	○
N								
S								
H								
O								

CNMG / CNMA / CNMM

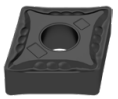
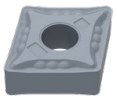
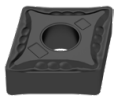
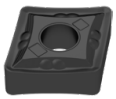
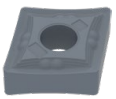
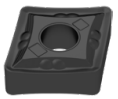
	-M70 CTCP135	CTCK110	CTCK120	-R28 CTCP115	-R28 CTCP125	-R28 CTCP135	-R58 CTCP115
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	M	R	R	R	R	R	R
	CNMG	CNMA	CNMA	CNMM	CNMM	CNMM	CNMM
	76 119 ...	70 100 ...	70 100 ...	76 114 ...	76 114 ...	76 114 ...	76 115 ...
ISO / RE mm							
120404EN 0,4		028	528				
120408EN 0,8	730	030	530	330	530		330
120412EN 1,2	732	032	532	332	532	732	332
120416EN 1,6	734	034	534	334	534	734	334
160608EN 0,8	742	042	542				
160612EN 1,2	744	044	544	344	544	744	344
160616EN 1,6	746	046	546	346	546	746	346
160624EN 2,4	748						348
190608EN 0,8	754						
190612EN 1,2	756	056	556	356	556	756	356
190616EN 1,6	758	058	558	358	558	758	358
190624EN 2,4	760			360	560	760	360
250924EN 2,4				38400	58400	78400	384
P	●	○	○	●	●	●	●
M	○					○	
K		●	●	○	○		○
N							
S							
H							
O							

9

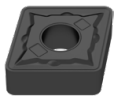
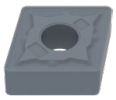
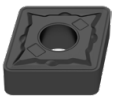
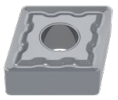
CNMM

		-R58 CTCP125	-R58 CTCP135	-R88 CTCP115	-R88 CTCP125	-R88 CTCP135
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		R	R	R	R	R
		CNMM	CNMM	CNMM	CNMM	CNMM
		76 115 ...	76 115 ...	76 133 ...	76 133 ...	76 133 ...
ISO	RE mm					
120408EN	0,8	530	730			
120412EN	1,2	532	732			
120416EN	1,6	534	734			
160612EN	1,2	544	744			
160616EN	1,6	546	746			
160624EN	2,4	548	748			
160624SN	2,4			348	548	748
190612EN	1,2	556	756			
190616EN	1,6	558	758			
190616SN	1,6			358	558	758
190624EN	2,4	524	760			
190624SN	2,4			360	560	760
250924EN	2,4	584	784			
250924SN	2,4			384	584	784
P		●	●	●	●	●
M			○			○
K		○		○	○	
N						
S						
H						
O						

CNMG

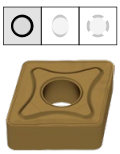
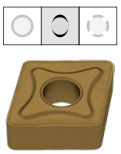
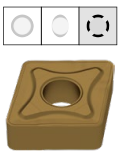
		NEW		NEW	NEW		NEW
		-F30 CTCM120	-F30 CTPM125	-F30 CTCM130	-M30 CTCM120	-M30 CTPM125	-M30 CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		F	F	F	M	M	M
		CNMG	CNMG	CNMG	CNMG	CNMG	CNMG
		75 010 ...	75 010 ...	75 010 ...	75 011 ...	75 011 ...	75 011 ...
ISO	RE mm						
120404EN	0,4	12800	280	32800			
120408EN	0,8	13000	230	33000	13000	230	33000
120412EN	1,2				13200	232	33200
120416EN	1,6				13400	234	33400
P		○	○	○	○	○	○
M		●	●	●	●	●	●
K							
N							
S				○			○
H							
O							

CNMG

		NEW		NEW	NEW
		-M60 CTCM120	-M60 CTPM125	-M60 CTCM130	-M34 CTPX710
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		M	M	M	M
		CNMG	CNMG	CNMG	CNMG
		75 012 ...	75 012 ...	75 012 ...	75 003 ...
ISO	RE mm				
120404EN	0,4				62800
120408EN	0,8	13000	230	33000	63000
120412EN	1,2	13200	232	33200	63200
120416EN	1,6	13400	234	33400	63400
P		○	○	○	●
M		●	●	●	●
K					
N					○
S				○	●
H					
O					

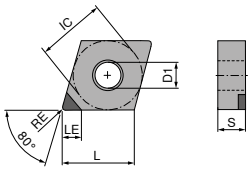
9

CNMG

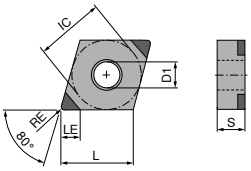
		NEW	NEW	NEW	NEW	NEW
		-FMS CT-P15	-FMS CT-P25	-MRS CT-P15	-MRS CT-P25	-MRS CT-P35
						
		F CNMG	F CNMG	M CNMG	M CNMG	M CNMG
		75 302 ...	75 302 ...	75 303 ...	75 303 ...	75 303 ...
ISO	RE mm					
120404EN	0,4	02809	12809			
120408EN	0,8	03009	13009	03009	13009	23009
120412EN	1,2	03209	13209	03209	13209	23209
120416EN	1,6			03409	13409	23409
160612EN	1,2			04409	14409	24409
160616EN	1,6			04609	14609	24609
190612EN	1,2			05609	15609	25609
190616EN	1,6			05809	15809	25809
P		●	●	●	●	●
M		○	○	○	○	○
K						
N						
S						
H						
O						

CNGA

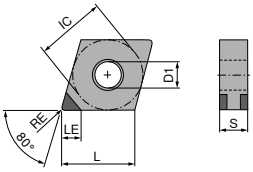
Designation	L mm	S mm	D1 mm	IC mm
CNGA 1204..	12,9	4,76	5,13	12,7



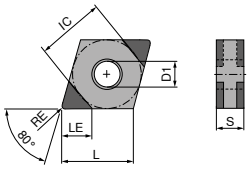
CNGA A



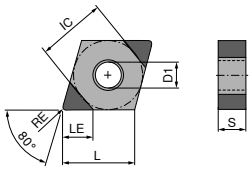
CNGA B



CNGA K



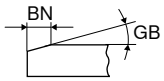
CNGA L



CNGA U

CNGA

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



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

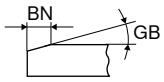
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm									
120402FN	0,2			A (1)	3,4	10000								
120402TN	0,2	0,12	20°	A (1)	3,4	10100								
120404SN	0,4	0,09	10°	L (4)	2,8									122
120404TN	0,4	0,09	15°	A (1)	3,1					20000				
120404TN	0,4	0,09	15°	L (4)	2,8			80000						
120404SN	0,4	0,09	15°	L (4)	2,8									132
120404SN	0,4	0,11	15°	K (2)	2,8							142		
120404SN	0,4	0,11	15°	L (4)	2,8									16200
120404SN	0,4	0,09	20°	L (4)	2,8									152
120404TN	0,4	0,12	20°	A (1)	3,1	10300								
120404SN	0,4	0,14	20°	K (2)	2,8							162		
120404SN	0,4	0,14	20°	L (4)	2,8									17100
120404TN	0,4	0,15	25°	L (4)	2,8			80100						
120404SN	0,4	0,18	30°	K (2)	2,8							182		
120404FN	0,4			A (1)	3,1	10200								
120404SN	0,4	0,18	30°	L (4)	2,8									182
120408TN	0,8	0,09	10°	L (4)	2,5			80200						
120408SN	0,8	0,09	10°	L (4)	2,5									124
120408SN	0,8	0,09	15°	L (4)	2,5									134
120408TN	0,8	0,09	15°	L (4)	2,5			80300						
120408SN	0,8	0,11	15°	K (2)	2,5							144		

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

9

CNGA

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



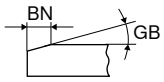
	NEW	NEW	NEW		
	CTBS10U	CTBS10C	CTBS20U	CTBS20C	CTBS20C
	F	F	F	F	F
	CBN CNGA	CBN CNGA	CBN CNGA	CBN CNGA	CBN CNGA
	71 406 ...	71 408 ...	71 406 ...	71 400 ...	71 401 ...

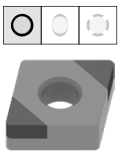
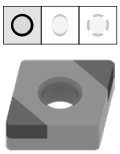
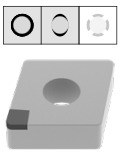
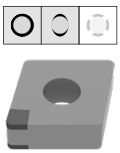
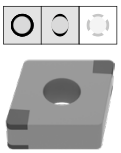
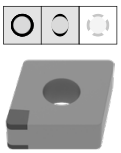
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm										
120408SN	0,8	0,11	15°	**L (4)**	2,5										**16300**
120408SN	0,8	0,09	20°	**L (4)**	2,5										**154**
120408TN	0,8	0,11	20°	**L (4)**	2,5			**80400**							
120408TN	0,8	0,12	20°	**A (1)**	2,8	**10500**									
120408SN	0,8	0,14	20°	**K (2)**	2,5								**164**		
120408SN	0,8	0,14	20°	**L (4)**	2,5										**17200**
120408TN	0,8	0,15	25°	**L (4)**	2,5			**80500**							
120408SN	0,8	0,16	25°	**L (4)**	2,5										**18000**
120408SN	0,8	0,18	30°	**K (2)**	2,5								**184**		
120408SN	0,8	0,18	30°	**L (4)**	2,5										**184**
120408FN	0,8			**A (1)**	2,8	**10400**									
120412SN	1,2	0,09	10°	**L (4)**	2,2										**126**
120412TN	1,2	0,09	15°	**L (4)**	2,2			**80600**							
120412SN	1,2	0,09	15°	**L (4)**	2,2										**136**
120412SN	1,2	0,11	15°	**K (2)**	2,2								**146**		
120412SN	1,2	0,11	15°	**L (4)**	2,2										**16400**
120412SN	1,2	0,09	20°	**L (4)**	2,2										**156**
120412TN	1,2	0,12	20°	**A (1)**	2,5	**10700**									
120412SN	1,2	0,14	20°	**K (2)**	2,2								**166**		
120412SN	1,2	0,14	20°	**L (4)**	2,2										**17300**
120412TN	1,2	0,15	25°	**L (4)**	2,2			**80700**							
120412SN	1,2	0,18	30°	**K (2)**	2,2								**186**		
120412FN	1,2			**A (1)**	2,5	**10600**				**20100**					
120412SN	1,2	0,18	30°	**L (4)**	2,2										**186**

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

CNGA

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

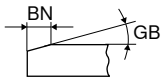


								NEW								NEW							
						CTBH15C		CTBH15C		CTBH20U		CTBH20C		CTBH20C		-Q CTBH20C							
																							
						F		F		F		F		F		F							
						CBN CNGA		CBN CNGA		CBN CNGA		CBN CNGA		CBN CNGA		CBN CNGA							
						71 003 ...		71 005 ...		71 406 ...		71 400 ...		71 401 ...		71 407 ...							
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm																		
120402FN	0,2			A (1)	3,4						40000												
120402TN	0,2	0,12	20°	A (1)	3,4						40100												
120404TN	0,4	0,09	15°	K (2)	2,8								222										
120404TN	0,4	0,09	15°	L (4)	2,8										21200								
120404SN	0,4	0,11	15°	B (2)	3,0		32814																
120404SN	0,4	0,11	20°	K (2)	2,8								25800										
120404SN	0,4	0,11	20°	L (4)	2,8										242								
120404TN	0,4	0,12	20°	A (1)	3,1						40300												
120404TN	0,4	0,11	25°	K (2)	2,8								252										
120404FN	0,4			K (2)	2,8								212										
120404FN	0,4			A (1)	3,1						40200												
120404TN	0,4	0,11	25°	L (4)	2,8										25200								
120404SN	0,4	0,13	25°	L (4)	2,8										262								
120404SN	0,4	0,14	25°	B (2)	3,0		32829																
120404RN	0,4			B (2)	3,0		22800																
120404FN	0,4			L (4)	2,8										20200								
120408TN	0,8	0,09	15°	K (2)	2,5								224										
120408SN	0,8	0,11	15°	B (2)	2,7		33014																
120408TN	0,8	0,09	20°	K (2)	2,5								234										
120408SN	0,8	0,11	20°	K (2)	2,5								26000										
120408SN	0,8	0,11	20°	L (4)	2,5										244								
120408TN	0,8	0,12	20°	A (1)	2,8						40500												
120408TN	0,8	0,11	25°	K (2)	2,5								254										
120408TN	0,8	0,11	25°	L (4)	2,5										25300								
120408FN	0,8			L (4)	2,5										20300								
120408FN	0,8			A (1)	2,8						40400												
120408SN	0,8	0,13	25°	L (4)	2,5										264								
120408SN	0,8	0,14	25°	B (2)	2,7		33029																
120408SN	0,8	0,14	30°	L (4)	2,5										274								
120408RN	0,8			B (2)	2,7		23000																
120408FN	0,8			K (2)	2,5																		30000
120412TN	1,2	0,09	15°	K (2)	2,2								226										
120412SN	1,2	0,11	15°	B (2)	2,4				33214														
120412SN	1,2	0,11	20°	K (2)	2,2								26200										
120412SN	1,2	0,11	20°	L (4)	2,2										246								
120412TN	1,2	0,11	25°	K (2)	2,2								256										
120412FN	1,2			K (2)	2,2								216										
120412TN	1,2	0,11	25°	L (4)	2,2										25400								
120412SN	1,2	0,13	25°	L (4)	2,2										266								
120412SN	1,2	0,14	25°	B (2)	2,4				33229														
120412RN	1,2			B (2)	2,4				23200														
P																							
M																							
K																							
N																							
S																							
H							●		●		●		●		●		●						
O																							

9

CNGA

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

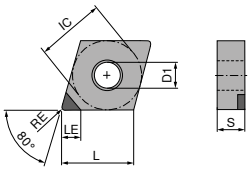


						NEW			NEW	NEW
						CTBH40U	CTBH40C	CTBH40C	-Q CTBH40C	CTBH41U
						F	F	F	F	F
						CBN CNGA	CBN CNGA	CBN CNGA	CBN CNGA	CBN CNGA
						71 406 ...	71 400 ...	71 401 ...	71 407 ...	71 409 ...
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm					
120402FN	0,2			A (1)	3,4	50000				
120402TN	0,2	0,12	25°	A (1)	3,4	50100				
120404SN	0,4	0,09	20°	L (4)	2,8			332		
120404SN	0,4	0,11	20°	L (4)	2,8			34200		
120404SN	0,4	0,11	25°	K (2)	2,8		352			
120404SN	0,4	0,11	25°	L (4)	2,8			352		
120404TN	0,4	0,12	25°	A (1)	3,1	50300				
120404TN	0,4	0,08	30°	U (2)	2,8					70000
120404SN	0,4	0,14	30°	L (4)	2,8			372		
120404SN	0,4	0,14	35°	L (4)	2,8			38000		
120404FN	0,4			A (1)	3,1	50200				
120404SN	0,4	0,14	35°	K (2)	2,8		382			
120408SN	0,8	0,09	15°	L (4)	2,5			31200		
120408EN	0,8			L (4)	2,5			30200		
120408SN	0,8	0,09	20°	L (4)	2,5			334		
120408SN	0,8	0,11	20°	L (4)	2,5			34300		
120408SN	0,8	0,11	20°	K (2)	2,5		35800			
120408SN	0,8	0,11	25°	K (2)	2,5		354			
120408SN	0,8	0,11	25°	L (4)	2,5			354		
120408TN	0,8	0,12	25°	A (1)	2,8	50500				
120408SN	0,8	0,13	25°	L (4)	2,5			364		
120408SN	0,8	0,13	25°	K (2)	2,5		36200			
120408TN	0,8	0,08	30°	U (2)	2,6					70100
120408SN	0,8	0,14	30°	L (4)	2,5			374		
120408SN	0,8	0,14	30°	K (2)	2,5		38800		60000	
120408SN	0,8	0,14	35°	L (4)	2,5			38100		
120408EN	0,8			K (2)	2,5		314			
120408FN	0,8			A (1)	2,8	50400				
120408SN	0,8	0,14	35°	K (2)	2,5		384		60100	
120412SN	1,2	0,09	20°	L (4)	2,2			336		
120412SN	1,2	0,11	25°	K (2)	2,2		356			
120412SN	1,2	0,11	25°	L (4)	2,2			356		
120412TN	1,2	0,12	25°	A (1)	2,5	50700				
120412SN	1,2	0,13	25°	L (4)	2,2			366		
120412TN	1,2	0,08	30°	U (2)	2,4					70200
120412SN	1,2	0,14	30°	L (4)	2,2			376		
120412FN	1,2			A (1)	2,5	50600				
120412SN	1,2	0,14	35°	K (2)	2,2		386			
P										
M										
K										
N										
S										
H						●	●	●	●	●
O										

For fast and efficient determination of the most appropriate edge preparation CNGA test inserts are available. → **Page 218**

CNGA

Designation	L mm	S mm	D1 mm	IC mm
CNGA 1204..	12,9	4,76	5,13	12,7



CNGA A

CNGA

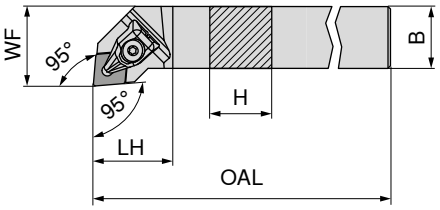
▲ TCE(NOI) = Design and number of equipped cutting edge corners

ISO	RE mm	TCE (NOI)	LE mm	NEW CTDPD20 F DIAMOND CNGA 71 127 ...	NEW CTDPS30 F DIAMOND CNGA 71 127 ...
120404FN	0,4	**A (1)**	6,3	**10001**	**20001**
120408FN	0,8	**A (1)**	6,0	**10101**	**20101**
120412FN	1,2	**A (1)**	5,7	**10201**	**20201**
P					
M					
K					
N				●	●
S					
H					
O				●	●

9

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





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 509 ...	Right-hand 70 508 ...
DCLN R/L 1616 H09	16	16	100	23	20	2	CN.. 0903	516	516
DCLN R/L 2020 K09	20	20	125	24	25	2	CN.. 0903	520	520
DCLN R/L 2020 K12	20	20	125	32	25	4	CN.. 1204	620	620
DCLN R/L 2525 M12	25	25	150	32	32	4	CN.. 1204	625	625
DCLN R/L 3225 P12	32	25	170	32	32	4	CN.. 1204	632	632
DCLN R/L 2525 M16	25	25	150	38	32	6,5	CN.. 1606	725	725
DCLN R/L 3232 P16	32	32	170	36	40	6,5	CN.. 1606	732	732
DCLN R/L 3232 P19	32	32	170	42	40	6,5	CN.. 1906	832	832
DCLN R/L 4040 S19	40	40	250	42	50	6,5	CN.. 1906	940	940
DCLN R/L 4040 S25	40	40	250	60	50	6,5	CN.. 2509	440	440


XPress type

Key D

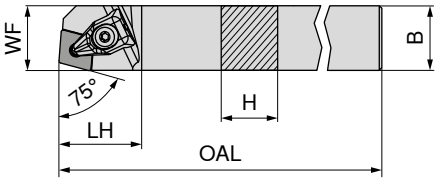

Clamping screw


Carbide type C

Spare parts for Article no.	XPress type 70 950 ...		Key D 80 950 ...		Clamping screw 70 950 ...		Carbide type C 70 950 ...	
70 508 516 / 70 509 516	823	T09 - IP	126	M3x7 - IP	819		848	
70 508 520 / 70 509 520	823	T09 - IP	126	M3x7 - IP	819		848	
70 508 620 / 70 509 620	824	T15 - IP	128	M4,5x12 - IP	820		810	
70 508 625 / 70 509 625	824	T15 - IP	128	M4,5x12 - IP	820		810	
70 508 632 / 70 509 632	824	T15 - IP	128	M4,5x12 - IP	820		810	
70 508 725 / 70 509 725	825	T20 - IP	129	M5x14 - IP	821		814	
70 508 732 / 70 509 732	825	T20 - IP	129	M5x14 - IP	821		814	
70 508 832 / 70 509 832	826	T20 - IP	129	M5x14 - IP	821		816	
70 508 940 / 70 509 940	826	T20 - IP	129	M5x14 - IP	821		816	
70 508 440 / 70 509 440	827	T25 - IP	130	M6x16 - IP	822		625	

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





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 501 ...	Right-hand 70 500 ...
DCBN R/L 2525 M12	25	25	150	32	22	4	CN.. 1204	825	825


XPress type

Key D

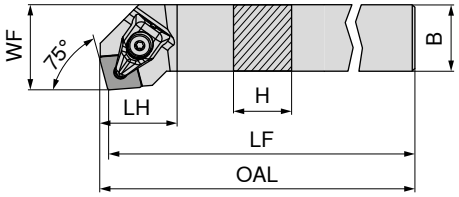

Clamping screw


Carbide type C

Spare parts for Article no.	XPress type 70 950 ...		Key D 80 950 ...		Clamping screw 70 950 ...		Carbide type C 70 950 ...	
70 501 825 / 70 500 825	824	T15 - IP	128	M4,5x12 - IP	820		810	

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





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LF mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 505 ...	Right-hand 70 504 ...
DCKN R/L 2525 M12	25	25	152,9	150	28,9	32	4	CN.. 1204	**825**	**825**



XPress type

70 950 ...

824

Key D

80 950 ...

128



Clamping screw

70 950 ...

820



Carbide type C

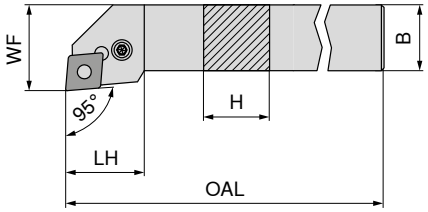
70 950 ...

810

Spare parts for Article no.				
70 505 825 / 70 504 825	T15 - IP	**128**	M4,5x12 - IP	**820**

MaxiLock-N – PCLN 95° – Toolholder with lever clamping





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 509 ...	Right-hand 70 508 ...
PCLN R/L 1616 H12	16	16	100	26,2	20	4	CN.. 1204	**016**	**016**
PCLN R/L 2020 K12	20	20	125	27,5	25	4	CN.. 1204	**020**	**020**
PCLN R/L 2525 M12	25	25	150	28,1	32	4	CN.. 1204	**025**	**025**
PCLN R/L 3225 P12	32	25	170	28,1	32	4	CN.. 1204	**032**	**032**
PCLN R/L 2525 M16	25	25	150	32,7	32	4	CN.. 1606	**125**	**125**
PCLN R/L 3232 P16	32	32	170	32,6	40	4	CN.. 1606	**132**	**132**
PCLN R/L 3232 P19	32	32	170	38,0	40	8	CN.. 1906	**232**	**232**
PCLN R/L 4040 S19	40	40	250	38,0	50	8	CN.. 1906	**54000**	**54000**
PCLN R/L 4040 S25	40	40	250	50,0	50	8	CN.. 2509	**340**	**340**

Key I

70 950 ...

176



Shim

70 950 ...

198



Assembly pin

70 950 ...

192



Lever

70 950 ...

187



Clamping screw

70 950 ...

209



Carbide type C

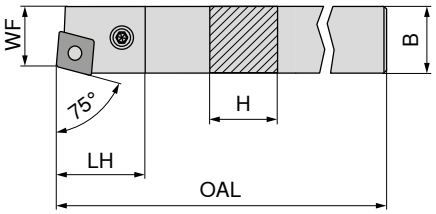
70 950 ...

233

Spare parts for Article no.												
70 508 016 / 70 509 016	SW3	**176**	**198**	**192**	**187**	**209**	**233**
70 508 020 / 70 509 020	SW3	**176**	**198**	**192**	**187**	**209**	**233**
70 508 025 / 70 509 025	SW3	**176**	**198**	**192**	**187**	**209**	**233**
70 508 032 / 70 509 032	SW3	**176**	**198**	**192**	**187**	**209**	**233**
70 508 125 / 70 509 125	SW3	**176**	**391**	**394**	**385**	**388**	**380**
70 508 132 / 70 509 132	SW3	**176**	**391**	**394**	**385**	**388**	**380**
70 508 232 / 70 509 232	SW4	**396**	**392**	**395**	**386**	**389**	**381**
70 508 54000 / 70 509 54000	SW4	**396**	**392**	**395**	**386**	**389**	**381**
70 508 340 / 70 509 340	SW5	**265**	**621**	**623**	**620**	**622**	**624**

MaxiLock-N – PCBN 75° – Toolholder with lever clamping





Illustrations show right-hand versions

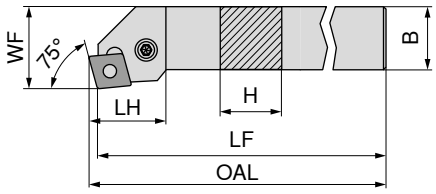


ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 501 ...	Right-hand 70 500 ...
PCBN R/L 2525 M12	25	25	150	27,70	22	4	CN.. 1204	**025**	**025**
PCBN R/L 2525 M16	25	25	150	31,81	22	4	CN.. 1606	**12500**	**125**
PCBN R/L 3232 P19	32	32	170	38,00	27	8	CN.. 1906	**032**	**032**

Spare parts for Article no.		 Key I 70 950 ...	 Shim 70 950 ...	 Assembly pin 70 950 ...	 Lever 70 950 ...	 Clamping screw 70 950 ...	 Carbide type C 70 950 ...
70 500 025 / 70 501 025	SW3	**176**	**198**	**192**	**187**	**209**	**233**
70 500 125 / 70 501 12500	SW3	**176**	**391**	**394**	**385**	**388**	**380**
70 500 032 / 70 501 032	SW4	**396**	**392**	**395**	**386**	**389**	**381**

MaxiLock-N – PCKN 75° – Toolholder with lever clamping





Illustrations show right-hand versions

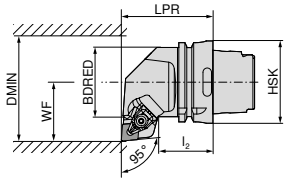


ISO designation	H mm	B mm	OAL mm	LF mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 505 ...	Right-hand 70 504 ...
PCKN R/L 2525 M12	25	25	153,07	150	31,4	32	4	CN.. 1204	**025**	**025**

Spare parts for Article no.		 Key I 70 950 ...	 Shim 70 950 ...	 Assembly pin 70 950 ...	 Lever 70 950 ...	 Clamping screw 70 950 ...	 Carbide type C 70 950 ...
70 505 025 / 70 504 025	SW3	**176**	**198**	**192**	**187**	**209**	**233**

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





Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 504 ...	Right-hand 74 503 ...
HSK T63 DCLN R/L 12	HSK-T 63	70	42	53	45	100	4	CN.. 1204	**512**	**512**
HSK T63 DCLN R/L 16	HSK-T 63	70	42	53	45	125	4	CN.. 1606	**516**	**516**
HSK T63 DCLN R/L 19	HSK-T 63	70	42	53	45	125	8	CN.. 1906	**519**	**519**
HSK T100 DCLN R/L 12	HSK-T 100	80	45	88	55	125	4	CN.. 1204	**712**	**712**
HSK T100 DCLN R/L 19	HSK-T 100	80	45	88	55	125	8	CN.. 1906	**719**	**719**


XPress type **70 950 ...**


Key D **80 950 ...**


Clamping screw **70 950 ...**

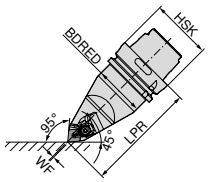

Carbide type C **70 950 ...**

Spare parts for Article no.						
74 504 512 / 74 503 512	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**810**
74 504 516 / 74 503 516	**825**	T20 - IP	**129**	M5x14 - IP	**821**	**814**
74 504 519 / 74 503 519	**826**	T20 - IP	**129**	M5x14 - IP	**821**	**816**
74 504 712 / 74 503 712	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**810**
74 504 719 / 74 503 719	**826**	T20 - IP	**129**	M5x14 - IP	**821**	**816**

9

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







ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	Neutral 74 506 ...
HSK T63 DCMN N 12	HSK-T 63	115	53	0	4	CN.. 1204	**512**
HSK T100 DCMN N 12	HSK-T 100	150	88	0	4	CN.. 1204	**712**


XPress type **70 950 ...**


Key D **80 950 ...**


Clamping screw **70 950 ...**

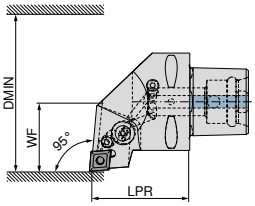

Carbide type C **70 950 ...**

Spare parts for Article no.						
74 506 512	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**810**
74 506 712	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**810**

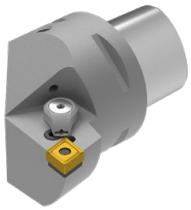
MaxiLock-N – PCLN 95° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set





Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	NEW Left-hand 84 657 ...	NEW Right-hand 84 656 ...
PSC40 PCLN R/L 50050-12	PSC 40	50	27	50	5	CN.. 1204	DC	**01295**	**01295**
PSC50 PCLN R/L 65060-12	PSC 50	60	35	65	5	CN.. 1204	DC	**01294**	**01294**
PSC63 PCLN R/L 80065-12	PSC 63	65	45	80	5	CN.. 1204	DC	**01293**	**01293**

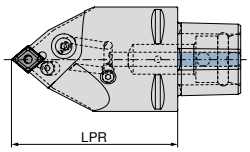
The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.

Spare parts Adapter	Shim 84 950 ...		Elbow lever screw 84 950 ...		Lever 84 950 ...	Carbide type C 84 950 ...
PSC 40	**29200**	M8X1/L17 SW3	**28700**		**29000**	**27800**
PSC 50	**29200**	M8X1/L17 SW3	**28700**		**29000**	**27800**
PSC 63	**29200**	M8X1/L17 SW3	**28700**		**29000**	**27800**

MaxiLock-N – PCMN 50° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set







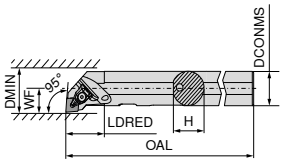
ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Direct cooling compatible	NEW Neutral 84 675 ...
PSC63 PCMN N 0100-12	PSC 63	100	5	CN.. 1204	DC	**01293**
PSC63 PCMN N 0130-12	PSC 63	130	5	CN.. 1204	DC	**11293**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.

Spare parts Adapter	Shim 84 950 ...		Elbow lever screw 84 950 ...		Lever 84 950 ...	Carbide type C 84 950 ...
PSC 63	**29200**	M8X1/L17 SW3	**28700**		**29000**	**27800**

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







Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 557 ...	Right-hand 70 556 ...
A20Q DCLN R/L 09	20	19	180	35	13	25	2	CN.. 0903	**720**	**720**
A25R DCLN R/L 12	25	24	200	36	17	32	4	CN.. 1204	**825**	**825**
A32S DCLN R/L 12	32	31	250	40	22	40	4	CN.. 1204	**832**	**832**
A40T DCLN R/L 12	40	39	300	45	27	50	4	CN.. 1204	**840**	**840**
A40U DCLN L 16	50	47	350	45	35	63	6,5	CN.. 1606	**85000**	


XPress type

70 950 ...


Key D

80 950 ...


Clamping screw

70 950 ...


Carbide type C

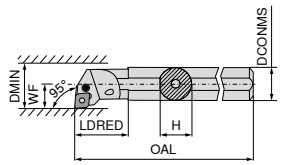
70 950 ...

Spare parts for Article no.							
70 556 720 / 70 557 720	**823**	T09 - IP	**126**	M3x7 - IP	**819**		**848**
70 556 825 / 70 557 825	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		
70 556 832 / 70 557 832	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**810**
70 556 840 / 70 557 840	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**810**
70 557 85000	**825**	T20 - IP	**129**	M5x14 - IP	**821**		**814**

MaxiLock-N – PCLN 95° – Boring bar with lever clamping

- ▲ A... = with thro' coolant
- ▲ S... = without thro' coolant







Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 557 ...	Right-hand 70 556 ...
A25R PCLN R/L 12	25	23	200	36,0	17	32	4	CN.. 1204	**225**	**225**
S25T PCLN R/L 12	25	23	300	22,0	17	32	4	CN.. 1204	**025**	**025**
A32S PCLN R/L 12	32	30	250	50,0	22	40	4	CN.. 1204	**232**	**232**
S32U PCLN R/L 12	32	30	350	24,1	22	40	4	CN.. 1204	**032**	**032**
A40T PCLN R/L 12	40	38	300	60,0	27	50	4	CN.. 1204	**240**	**240**
S40V PCLN R/L 12	40	38	400	24,1	27	50	4	CN.. 1204	**040**	**04000**[1]
S50W PCLN R/L 16	50	47	450	31,0	35	63	4	CN.. 1606	**050**	**050**

1) nickel-plated


Key I

70 950 ...


Shim

70 950 ...


Assembly pin

70 950 ...


Lever

70 950 ...


Clamping screw

70 950 ...


Carbide type C

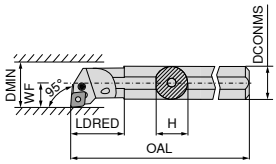
70 950 ...

Spare parts for Article no.												
70 556 225 / 70 557 225	SW3	**176**		**198**		**192**		**187**		**205**		**233**
70 556 025 / 70 557 025	SW3	**176**		**198**		**192**		**187**		**205**		**233**
70 556 232 / 70 557 232	SW3	**176**		**198**		**192**		**187**		**205**		**233**
70 556 032 / 70 557 032	SW3	**176**		**198**		**192**		**187**		**205**		**233**
70 556 240 / 70 557 240	SW3	**176**		**198**		**192**		**187**		**209**		**233**
70 556 04000 / 70 557 040	SW3	**176**		**198**		**192**		**187**		**209**		**233**
70 556 050 / 70 557 050	SW3	**176**		**391**		**394**		**385**		**388**		**380**

MaxiLock-N – PCLN 95° – Boring bar with lever clamping

▲ with carbide core







Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 559 ...	Right-hand 70 558 ...
E-A25R PCLN R/L 12	25	23	200	40	17	31	4	CN.. 1204	**025**	**025**
E-A32S PCLN R/L 12	32	30	250	50	22	39	4	CN.. 1204	**032**	**032**
E-A40T PCLN R/L 12	40	38	300	60	27	48	4	CN.. 1204	**040**	**040**


Key l


Shim


Assembly pin


Lever

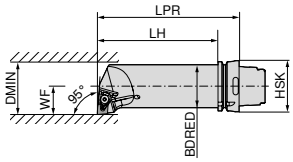

Clamping screw


Carbide type C

Spare parts for Article no.		Key l 70 950 ...	Shim 70 950 ...	Assembly pin 70 950 ...	Lever 70 950 ...	Clamping screw 70 950 ...	Carbide type C 70 950 ...
70 558 025 / 70 559 025	SW3	**176**	**198**	**192**	**187**	**205**	**233**
70 558 032 / 70 559 032	SW3	**176**	**198**	**192**	**187**	**205**	**233**
70 558 040 / 70 559 040	SW3	**176**	**198**	**192**	**187**	**209**	**233**

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







Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	LH mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 529 ...	Right-hand 74 528 ...
HSK T63 50Q DCLN R/L 12	HSK-T 63	175	149	50	35	63	4	CN.. 1204	**512**	**512**


XPress type


Key D

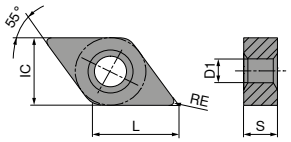

Clamping screw


Carbide type C

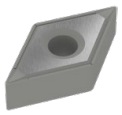
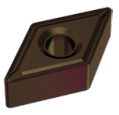
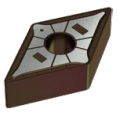
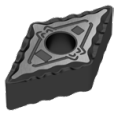
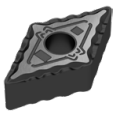
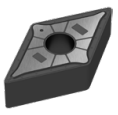
Spare parts for Article no.		XPress type 70 950 ...		Key D 80 950 ...		Clamping screw 70 950 ...	Carbide type C 70 950 ...
74 528 512 / 74 529 512		**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**810**

DNMG / DNMA / DNMM

Designation	L mm	S mm	D1 mm	IC mm
DNMG 1104..	11,6	4,76	3,81	9,52
DNMG 1504..	15,5	4,76	5,16	12,70
DNM. 1506..	15,5	6,35	5,16	12,70

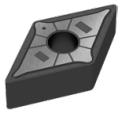
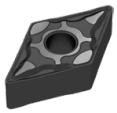
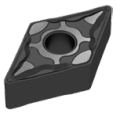
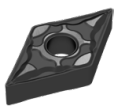
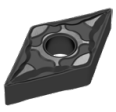


DNMG

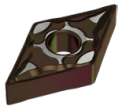
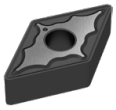
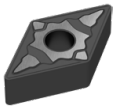
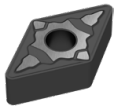
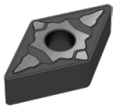
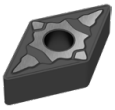
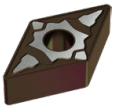
	-CF TCM10	-CF20 CTEP110	-TFQ CTEP110	-F50 CTCP115	-F50 CTCP125	-F50 CTCP135	-TFQ CTCP115
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	F	F	F	F	F	F	F
	CERMET DNMG	CERMET DNMG	CERMET DNMG	DNMG	DNMG	DNMG	DNMG
	70 155 ...	76 102 ...	76 153 ...	76 134 ...	76 134 ...	76 134 ...	76 153 ...
ISO / RE mm							
110402EN 0,2				302	502	702	
110404EN 0,4	904	004		304	504	704	
110408EN 0,8		006		306	506	706	
110412EN 1,2				308	508	708	
150404EN 0,4				316	516	716	
150408EN 0,8				318	518	718	
150412EN 1,2				320	520	720	
150604EN 0,4	914	028	028	328	528	728	32800
150608EN 0,8		030	030	330	530	730	330
150612EN 1,2		032		332	532	732	
P	●	●	●	●	●	●	●
M	o	o	o			o	
K	o	o	o	o	o		o
N							
S							
H							
O							

9

DNMG

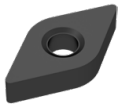
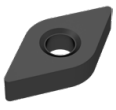
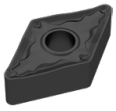
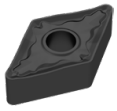
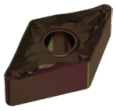
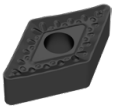
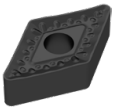
	-TFQ CTCP125	-XU CTCP115	-XU CTCP125	-M50 CTCK110	-M50 CTCK120	-M50 CTCP115	-M50 CTCP125
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	F	M	M	M	M	M	M
	DNMG	DNMG	DNMG	DNMG	DNMG	DNMG	DNMG
	76 153 ...	76 291 ...	76 291 ...	70 133 ...	70 133 ...	76 136 ...	76 136 ...
ISO / RE mm							
110404EN 0,4						304	504
110408EN 0,8						306	506
110412EN 1,2						308	508
150404EN 0,4						316	514
150408EN 0,8				018	518	318	518
150412EN 1,2				020	520	320	516
150416EN 1,6						322	522
150604EN 0,4	528	328	528			328	528
150608EN 0,8	530	330	530	030	530	330	530
150612EN 1,2		332	532	032	532	332	532
150616EN 1,6						334	534
P	●	●	●	○	○	●	●
M							
K	○	○	○	●	●	○	○
N							
S							
H							
O							

DNMG

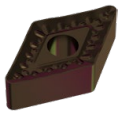
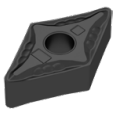
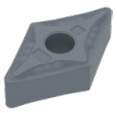
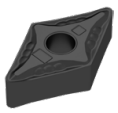
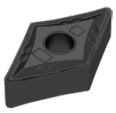
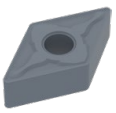
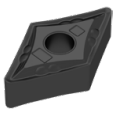
	-M50 CTCP135	-TMQ CTCP125	-M70 CTCK110	-M70 CTCK120	-M70 CTCP115	-M70 CTCP125	-M70 CTCP135
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	M	M	M	M	M	M	M
	DNMG	DNMG	DNMG	DNMG	DNMG	DNMG	DNMG
	76 136 ...	76 197 ...	70 263 ...	70 263 ...	76 263 ...	76 263 ...	76 263 ...
ISO / RE mm							
110404EN 0,4	704						
110408EN 0,8	706				306	506	706
110412EN 1,2	708				308	508	708
150404EN 0,4	716						
150408EN 0,8	718		018	518	318	518	718
150412EN 1,2	720		020	520	320	520	720
150416EN 1,6	722				322	522	722
150604EN 0,4	728						
150608EN 0,8	730	530	030	530	330	530	730
150612EN 1,2	732	532	032	532	332	532	732
150616EN 1,6	734		034	534	334	534	734
P	●	●	○	○	●	●	●
M	○						○
K		○	●	●	○	○	
N							
S							
H							
O							

9

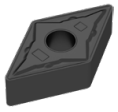
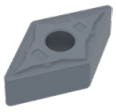
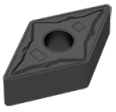
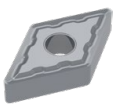
DNMA / DNMM

	CTCK110	CTCK120	-R28 CTCP115	-R28 CTCP125	-R28 CTCP135	-R58 CTCP115	-R58 CTCP125
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	R	R	R	R	R	R	R
	DNMA	DNMA	DNMM	DNMM	DNMM	DNMM	DNMM
	70 156 ...	70 156 ...	76 165 ...	76 165 ...	76 165 ...	76 166 ...	76 166 ...
ISO / RE mm							
150408EN 0,8	018	518					
150412EN 1,2	020	520					
150608EN 0,8	030	530					
150612EN 1,2	032	532	332	532	732	332	532
150616EN 1,6			334	534	734	334	534
P	○	○	●	●	●	●	●
M					○		
K	●	●	○	○		○	○
N							
S							
H							
O							

DNMM / DNMG

			NEW		NEW	NEW		NEW
		-R58 CTCP135	-F30 CTCM120	-F30 CTPM125	-F30 CTCM130	-M30 CTCM120	-M30 CTPM125	-M30 CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		R	F	F	F	M	M	M
		DNMM	DNMG	DNMG	DNMG	DNMG	DNMG	DNMG
		76 166 ...	75 013 ...	75 013 ...	75 013 ...	75 014 ...	75 014 ...	75 014 ...
ISO	RE mm							
110404EN	0,4		10400	204	30400			
110408EN	0,8		10600	206	30600	10600	206	30600
110412EN	1,2					10800	208	30800
150604EN	0,4		12800	228	32800			
150608EN	0,8		13000	230	33000	13000	230	33000
150612EN	1,2	732				13200	232	33200
150616EN	1,6	734						
P		●	○	○	○	○	○	○
M		○	●	●	●	●	●	●
K								
N								
S					○			○
H								
O								

DNMG

		NEW		NEW	NEW
		-M60 CTCM120	-M60 CTPM125	-M60 CTCM130	-M34 CTPX710
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		M	M	M	M
		DNMG	DNMG	DNMG	DNMG
		75 015 ...	75 015 ...	75 015 ...	75 004 ...
ISO	RE mm				
150404EN	0,4				61600
150408EN	0,8				61800
150412EN	1,2				62000
150608EN	0,8	13000	230	33000	63000
150612EN	1,2	13200	232	33200	63200
P		○	○	○	●
M		●	●	●	●
K					
N					○
S				○	●
H					
O					

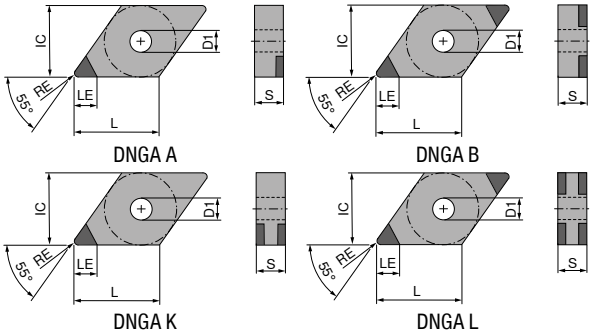
DNMG

		NEW	NEW	NEW	NEW	NEW
		-FMS CT-P15	-FMS CT-P25	-MRS CT-P15	-MRS CT-P25	-MRS CT-P35
						
		F	F	M	M	M
		DNMG	DNMG	DNMG	DNMG	DNMG
		75 306 ...	75 306 ...	75 307 ...	75 307 ...	75 307 ...
ISO	RE mm					
150404EN	0,4	01609	11609			
150408EN	0,8	01809	11809	01809	11809	
150604EN	0,4	02809	12809			
150608EN	0,8	03009	13009	03009	13009	23009
150612EN	1,2	03209	13209	03209	13209	23209
150616EN	1,6			03409	13409	23409
P		●	●	●	●	●
M		○	○	○	○	○
K						
N						
S						
H						
O						

9

DNGA

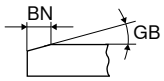
Designation	L mm	S mm	D1 mm	IC mm
DNGA 1504..	15,5	4,76	5,13	12,7
DNGA 1506..	15,5	6,35	5,16	12,7
DNGA 1506..	15,5	6,35	5,13	12,7



DNGA A DNGA B DNGA K DNGA L

DNGA

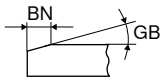
▲ TCE(NOI) = Design and number of equipped cutting edge corners



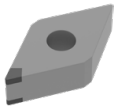
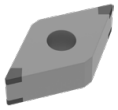
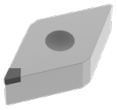
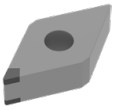
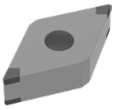
						NEW		NEW						NEW	
						CTBS20U		CTBS20C		CTBS20C		CTBH15C		CTBH20U	
						F		F		F		F		F	
						CBN DNGA		CBN DNGA		CBN DNGA		CBN DNGA		CBN DNGA	
						71 410 ...		71 411 ...		71 403 ...		71 017 ...		71 410 ...	
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm										
150604SN	0,4	0,09	10°	L (4)	2,8						122				
150604SN	0,4	0,09	15°	L (4)	2,8						132				
150604TN	0,4	0,09	15°	A (1)	3,5	20000									
150604SN	0,4	0,11	15°	B (2)	2,8								32814		
150604SN	0,4	0,09	20°	L (4)	2,8						152				
150404SN	0,4	0,09	20°	L (4)	2,8						10200				
150604SN	0,4	0,09	20°	K (2)	2,8			20000							
150604TN	0,4	0,12	20°	A (1)	3,5										40500
150404TN	0,4	0,12	20°	A (1)	3,5										40100
150604SN	0,4	0,14	25°	B (2)	2,8								32829		
150604FN	0,4			A (1)	3,5										40400
150604SN	0,4	0,18	30°	L (4)	2,8						182				
150404FN	0,4			A (1)	3,5										40000
150608SN	0,8	0,09	10°	L (4)	2,6						124				
150608SN	0,8	0,09	15°	L (4)	2,6						134				
150608TN	0,8	0,09	15°	A (1)	3,0	20100									
150608TN	0,8	0,09	15°	A (1)	5,0	20200									
150608SN	0,8	0,11	15°	K (2)	2,6			20100							
150608SN	0,8	0,11	15°	B (2)	2,6								33014		
150608SN	0,8	0,09	20°	L (4)	2,6						154				
150408SN	0,8	0,09	20°	L (4)	2,6						10300				
150608TN	0,8	0,12	20°	A (1)	3,0										40700
150408TN	0,8	0,12	20°	A (1)	3,0										40300
150608SN	0,8	0,14	25°	B (2)	2,6								33029		
150608SN	0,8	0,16	25°	K (2)	2,6			20200							
150608SN	0,8	0,18	30°	L (4)	2,6						184				
150608FN	0,8			A (1)	3,0										40600
150408FN	0,8			A (1)	3,0										40200
150612SN	1,2	0,11	15°	B (2)	2,8								33214		
150612SN	1,2	0,14	25°	B (2)	2,8								33229		
P															
M															
K						●		●		●					
N															
S						●		●		●					
H													●		●
O															

DNGA

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



NEW

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

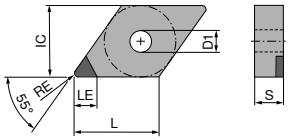
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm									
150604FN	0,4			A (1)	3,5					50400				
150604TN	0,4	0,09	15°	K (2)	2,8	222								
150604SN	0,4	0,09	20°	K (2)	2,8							32600		
150404SN	0,4	0,09	20°	L (4)	2,8									30200
150604SN	0,4	0,09	20°	L (4)	2,8									332
150404SN	0,4	0,11	20°	L (4)	2,8									30300
150604SN	0,4	0,11	20°	K (2)	2,8	24200								
150604SN	0,4	0,11	20°	L (4)	2,8		242							
150604SN	0,4	0,11	25°	K (2)	2,8							352		
150404TN	0,4	0,11	25°	L (4)	2,8		20200							
150604TN	0,4	0,11	25°	L (4)	2,8		24800							
150404SN	0,4	0,11	25°	L (4)	2,8									30400
150604TN	0,4	0,11	25°	K (2)	2,8	252								
150604SN	0,4	0,11	25°	L (4)	2,8									352
150404TN	0,4	0,12	25°	A (1)	3,5					50100				
150604TN	0,4	0,12	25°	A (1)	3,5					50500				
150604SN	0,4	0,13	25°	L (4)	2,8		262							
150404FN	0,4			A (1)	3,5					50000				
150404SN	0,4	0,13	25°	L (4)	2,8		20300							
150604SN	0,4	0,14	30°	L (4)	2,8									372
150604SN	0,4	0,14	35°	K (2)	2,8							382		
150604FN	0,4			L (4)	2,8		29300							
150604FN	0,4			K (2)	2,8	212								
150604SN	0,4	0,14	35°	L (4)	2,8									37500
150408FN	0,8			A (1)	3,0					50200				
150608TN	0,8	0,09	15°	K (2)	2,6	224								
150608SN	0,8	0,09	20°	L (4)	2,6									334
150608SN	0,8	0,11	20°	K (2)	2,6	24300						34200		
150608SN	0,8	0,11	20°	L (4)	2,6		244							34400
150408SN	0,8	0,11	20°	L (4)	2,6									30500
150608SN	0,8	0,11	25°	K (2)	2,6							354		
150408TN	0,8	0,11	25°	L (4)	2,6		20500							
150608TN	0,8	0,11	25°	L (4)	2,6		24900							
150408SN	0,8	0,11	25°	L (4)	2,6									30600
150608TN	0,8	0,11	25°	K (2)	2,6	254								
150608SN	0,8	0,11	25°	L (4)	2,6									354
150408TN	0,8	0,12	25°	A (1)	3,0					50300				
150608FN	0,8			A (1)	3,0					50600				
150608TN	0,8	0,12	25°	A (1)	3,0					50700				
150608SN	0,8	0,13	25°	K (2)	2,6	26000								
150608SN	0,8	0,13	25°	L (4)	2,6		264							364
150408SN	0,8	0,14	30°	L (4)	2,6									30700
150608SN	0,8	0,14	30°	L (4)	2,6		274							374
150608SN	0,8	0,14	35°	K (2)	2,6							384		
150608FN	0,8			L (4)	2,6		29400							
150408FN	0,8			L (4)	2,6		20400							
150608FN	0,8			K (2)	2,6	214								
150608SN	0,8	0,14	35°	L (4)	2,6									37600

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

9

DNGA

Designation	L mm	S mm	D1 mm	IC mm
DNGA 1504..	15,5	4,76	5,13	12,7
DNGA 1506..	15,5	6,35	5,13	12,7



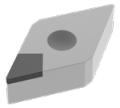
DNGA A

DNGA

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

NEW





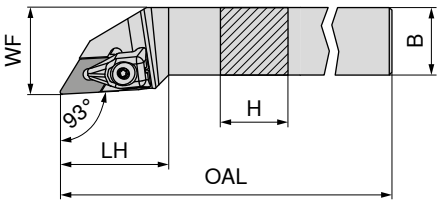
F
DIAMOND
DNGA
71 128 ...

ISO	RE mm	TCE (NOI)	LE mm	
150404FN	0,4	**A (1)**	6,4	**10001**
150408FN	0,8	**A (1)**	6,0	**10101**
150412FN	1,2	**A (1)**	5,6	**10201**
150604FN	0,4	**A (1)**	6,4	**10301**
150608FN	0,8	**A (1)**	6,0	**10401**
150612FN	1,2	**A (1)**	5,6	**10501**

P	
M	
K	
N	●
S	
H	
O	●

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







Illustrations show right-hand versions

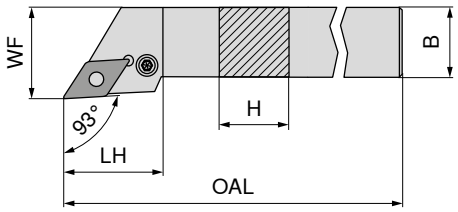
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 541 ...		Right-hand 70 540 ...	
DDJN R/L 1616 H11	16	16	100	33	20	2	DN.. 1104	**816**		**816**	
DDJN R/L 2020 K11	20	20	125	33	25	2	DN.. 1104	**820**		**820**	
DDJN R/L 2525 M11	25	25	150	33	32	2	DN.. 1104	**825**		**825**	
DDJN R/L 2020 K15	20	20	125	40	25	4	DN.. 1504 / 1506	**720**		**720**	
DDJN R/L 2525 M15	25	25	150	40	32	4	DN.. 1504 / 1506	**725**		**725**	
DDJN R/L 3225 P15	32	25	170	40	32	4	DN.. 1504 / 1506	**832**		**832**	

When using DN.. 1504 indexable inserts, use insert seat article no. 70 950 40000.

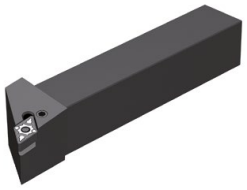
Spare parts for Article no.	XPress type 70 950 ...		Key D 80 950 ...		Clamping screw 70 950 ...		Solid Carbide Seat D 70 950 ...	
70 541 816 / 70 540 816	**835**	T09 - IP	**126**	M3x7 - IP	**819**		**808**	
70 541 820 / 70 540 820	**835**	T09 - IP	**126**	M3x7 - IP	**819**		**808**	
70 541 825 / 70 540 825	**835**	T09 - IP	**126**	M3x7 - IP	**819**		**808**	
70 541 720 / 70 540 720	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**811**	
70 541 725 / 70 540 725	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**811**	
70 541 832 / 70 540 832	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**811**	

MaxiLock-N – PDJN 93° – Toolholder with lever clamping





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 541 ...	Right-hand 70 540 ...
PDJN R/L 1616 H11	16	16	100	30,0	20	3	DN.. 1104	**116**	**116**
PDJN R/L 2020 K11	20	20	125	30,0	25	3	DN.. 1104	**12000** [1]	**12000** [1]
PDJN R/L 2525 M11	25	25	150	30,0	32	3	DN.. 1104	**12500** [1]	**12500** [1]
PDJN R/L 2020 K15	20	20	125	34,9	25	3,2	DN.. 1506	**020**	**020**
PDJN R/L 2525 M15	25	25	150	35,4	32	3,2	DN.. 1506	**025**	**025**
PDJN R/L 3225 P15	32	25	170	35,4	32	3,2	DN.. 1506	**032**	**032**
PDJN R/L 3232 P15	32	32	170	34,7	40	3,2	DN.. 1506	**13200**	**13200**

1) nickel-plated


Key I


Shim


Assembly pin


Lever

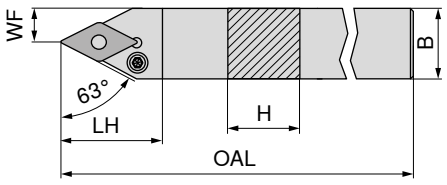

Clamping screw


Solid Carbide Seat D

Spare parts for Article no.		70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...
70 540 116 / 70 541 116	SW2,5	**175**	**122**	**191**	**121**	**208**	**120**
70 540 12000 / 70 541 12000	SW2,5	**175**	**122**	**191**	**121**	**208**	**120**
70 540 12500 / 70 541 12500	SW2,5	**175**	**122**	**191**	**121**	**208**	**120**
70 540 020 / 70 541 020	SW3	**176**	**198**	**192**	**188**	**388**	**236**
70 540 025 / 70 541 025	SW3	**176**	**198**	**192**	**188**	**388**	**236**
70 540 032 / 70 541 032	SW3	**176**	**198**	**192**	**188**	**388**	**236**
70 540 13200 / 70 541 13200	SW3	**176**	**198**	**192**	**188**	**388**	

MaxiLock-N – PDNN 63° – Toolholder with lever clamping





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 537 ...	Right-hand 70 536 ...
PDNN R/L 2525 M11	25	25	150	30,0	12,5	3	DN.. 1104	**125**	**125**
PDNN R/L 2525 M15	25	25	150	36,5	12,5	3,2	DN.. 1506	**025**	**025**


Key I


Shim


Assembly pin

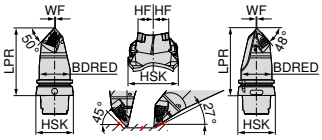

Lever


Clamping screw


Solid Carbide Seat D

Spare parts for Article no.		70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...
70 537 125 / 70 536 125	SW2,5	**175**	**122**	**191**	**121**	**208**	**120**
70 537 025 / 70 536 025	SW3	**176**	**198**	**192**	**188**	**388**	**236**

MaxiLock-D – DCMN + DDMN – Toolholder with top clamping



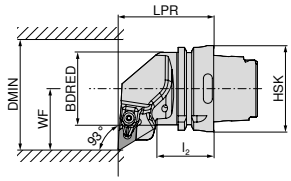


ISO designation	Adapter	LPR mm	BDRED mm	WF mm	HF mm	torque moment Nm	Insert	Neutral 74 600 ...
HSK T63 DCMN L 12 + DDMN L 15	HSK-T 63	115	53	0,5	20	4	CN.. 1204 / DN.. 1506	**501**
HSK T100 DCMN L 12 + DDMN L 15	HSK-T 100	150	88	0,5	20	4	CN.. 1204 / DN.. 1506	**701**

Face turning maximum 78 mm

	XPress type	Key D		Clamping screw	Solid Carbide Seat D	Carbide type C
	70 950 ...	**80 950 ...**		**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.						
74 600 501	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**811**	**810**
74 600 701	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**811**	**810**

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





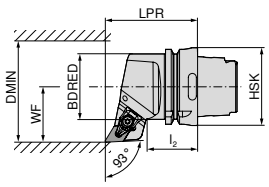
Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 516 ...	Right-hand 74 515 ...
HSK T63 DDUN R/L 15	HSK-T 63	70	42	53	45	125	4	DN.. 1506	**515**	**515**
HSK T100 DDUN R/L 15	HSK-T 100	80	45	88	55	125	4	DN.. 1506	**715**	**715**

	XPress type	Key D		Clamping screw	Solid Carbide Seat D
	70 950 ...	**80 950 ...**		**70 950 ...**	**70 950 ...**
Spare parts for Article no.					
74 516 515 / 74 515 515	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**811**
74 516 715 / 74 515 715	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**811**

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







Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 512 ...	Right-hand 74 511 ...
HSK T63 DDJN R/L 15	HSK-T 63	75	42	53	45	125	4	DN.. 1506	**515**	**515**
HSK T100 DDJN R/L 15	HSK-T 100	85	45	88	55	125	4	DN.. 1506	**715**	**715**


XPress type
70 950 ...


Key D
80 950 ...

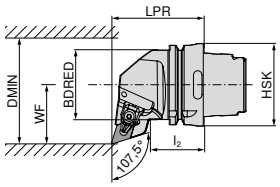

Clamping screw
70 950 ...


Solid Carbide Seat D
70 950 ...

Spare parts for Article no.						
74 512 515 / 74 511 515	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**811**
74 512 715 / 74 511 715	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**811**

MaxiLock-D – DDHN 107.5° – Toolholder with top clamping







Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 508 ...	Right-hand 74 507 ...
HSK T63 DDHN R/L 15	HSK-T 63	70	42	53	45	125	4	DN.. 1506	**515**	**515**


XPress type
70 950 ...

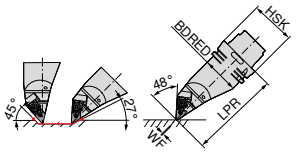

Key D
80 950 ...


Clamping screw
70 950 ...


Solid Carbide Seat D
70 950 ...

Spare parts for Article no.						
74 508 515 / 74 507 515	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**811**

MaxiLock-D – DDMN 48° – Toolholder with top clamping



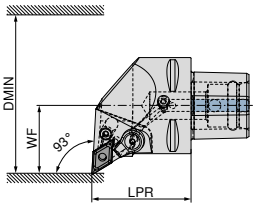


ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	Left-hand 74 519 ...
HSK T63 DDMN L 15	HSK-T 63	130	53	0	4	DN.. 1506	**515**
HSK T100 DDMN L 15	HSK-T 100	160	88	0	4	DN.. 1506	**715**

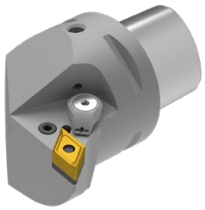
Spare parts for Article no.	XPress type 70 950 ...		Key D 80 950 ...		Clamping screw 70 950 ...		Solid Carbide Seat D 70 950 ...	
74 519 515	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**811**
74 519 715	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**811**

MaxiLock-N – PDUN 93° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set



Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	NEW Left-hand 84 661 ...	NEW Right-hand 84 660 ...
PSC40 PDUN R/L 50050-15	PSC 40	50	27	50	5	DN.. 1506	DC	**01595**	**01595**
PSC50 PDUN R/L 65060-15	PSC 50	60	35	65	5	DN.. 1506	DC	**01594**	**01594**
PSC63 PDUN R/L 80065-15	PSC 63	65	45	80	5	DN.. 1506	DC	**01593**	**01593**

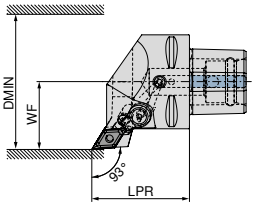
The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.

Spare parts Adapter	Shim 84 950 ...		Elbow lever screw 84 950 ...		Lever 84 950 ...	Solid Carbide Seat D 84 950 ...
PSC 40	**29200**	M8X1/L17 SW3	**28700**		**28900**	**27900**
PSC 50	**29200**	M8X1/L17 SW3	**28700**		**28900**	**27900**
PSC 63	**29200**	M8X1/L17 SW3	**28700**		**28900**	**27900**

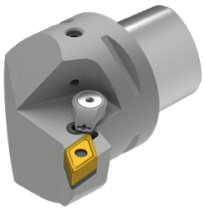
MaxiLock-N – PDJN 93° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set





Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	NEW Left-hand 84 665 ...	NEW Right-hand 84 664 ...
PSC40 PDJN R/L 50050-15	PSC 40	50	27	50	5	DN.. 1506	DC	**01595**	**01595**
PSC50 PDJN R/L 65060-15	PSC 50	60	35	65	5	DN.. 1506	DC	**01594**	**01594**
PSC63 PDJN R/L 80065-15	PSC 63	65	45	80	5	DN.. 1506	DC	**01593**	**01593**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.


Shim


Elbow lever screw


Lever

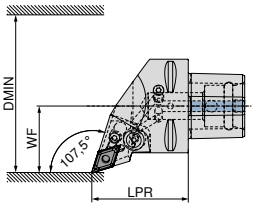

Solid Carbide Seat D

Spare parts Adapter	Shim 84 950 ...		Elbow lever screw 84 950 ...	Lever 84 950 ...	Solid Carbide Seat D 84 950 ...
PSC 40	**29200**	M8X1/L17 SW3	**28700**	**28900**	**27900**
PSC 50	**29200**	M8X1/L17 SW3	**28700**	**28900**	**27900**
PSC 63	**29200**	M8X1/L17 SW3	**28700**	**28900**	**27900**

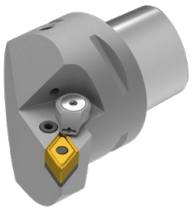
MaxiLock-N – PDHN 107,5° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set





Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	NEW Left-hand 84 669 ...	NEW Right-hand 84 668 ...
PSC40 PDHN R/L 50050-15	PSC 40	50	27	50	5	DN.. 1506		**01595**	**01595**
PSC50 PDHN R/L 65060-15	PSC 50	60	35	65	5	DN.. 1506		**01594**	**01594**
PSC63 PDHN R/L 80065-15	PSC 63	65	45	80	5	DN.. 1506	DC	**01593**	**01593**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.


Shim


Elbow lever screw


Lever

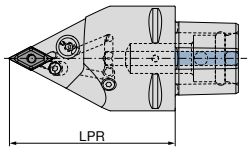

Solid Carbide Seat D

Spare parts Adapter	Shim 84 950 ...		Elbow lever screw 84 950 ...	Lever 84 950 ...	Solid Carbide Seat D 84 950 ...
PSC 40	**29200**	M8X1/L17 SW3	**28700**	**28900**	**27900**
PSC 50	**29200**	M8X1/L17 SW3	**28700**	**28900**	**27900**
PSC 63	**29200**	M8X1/L17 SW3	**28700**	**28900**	**27900**

MaxiLock-N – PDNN 62,5° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set







NEW
Neutral
84 676 ...

ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Direct cooling compatible	
PSC63 PDNN N 0100-15	PSC 63	100	5	DN.. 1506	DC	**01593**
PSC63 PDNN N 0130-15	PSC 63	130	5	DN.. 1506	DC	**11593**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.



Clamping screw
84 950 ...

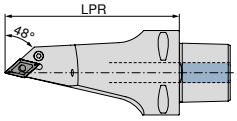
Adapter
PSC 63 **27600**

9

MaxiLock-N – PDMN 48° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set







NEW
Neutral
84 680 ...

ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Direct cooling compatible	
PSC63 PDMN L 0130-15	PSC 63	130	5	DN.. 1506	DC	**11593**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.

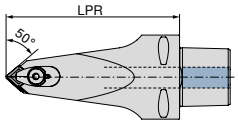


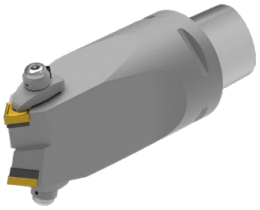
Clamping screw
84 950 ...

Adapter
PSC 63 **27600**

Toolholder DCMN – DDMN 50°/48°







NEW

Neutral

84 683 ...

ISO designation	Adapter	LPR mm	torque moment Nm	Insert	
PSC63 DCMN-DDMN L 0130-12/15	PSC 63	130	10	CN.. 1204 / DN.. 1506	**01293**



Clamping Screw

84 950 ...



Clamping claw

84 950 ...



Ring-shaped nozzle

84 950 ...



Clamping screw

84 950 ...



Solid Carbide Seat D

84 950 ...



Carbide type C

84 950 ...

Spare parts Adapter		
PSC 63	M6X28 SW4	**28300**
		28500
		28400
		27500
		27900
		27800

High-performance coolant set

- Using the DC kit blocks the other coolant outlet so that all of the pressure is concentrated by the kit!
- Can be used up to 100 bar

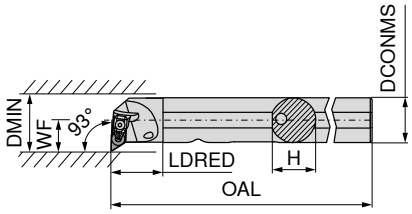
Scope of supply:
Direct cooling nozzle and O-ring



84 950 ...

Coolant set	**27400**

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



Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 569 ...	Right-hand 70 568 ...
A25R DDUN R/L 11	25	24	200	30	17	32	2	DN.. 1104	**725**	**725**
A32S DDUN R/L 11	32	31	250	40	22	40	2	DN.. 1104	**732**	**732**
A40T DDUN R/L 15	40	39	300	45	27	50	4	DN.. 1506	**840**	**840**


XPress type

Key D


Clamping screw

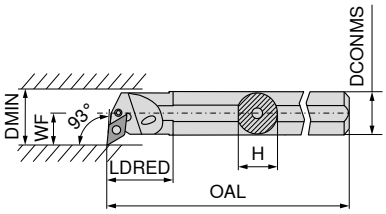

Solid Carbide Seat D

Spare parts for Article no.	XPress type 70 950 ...		Key D 80 950 ...		Clamping screw 70 950 ...		Solid Carbide Seat D 70 950 ...	
70 568 725 / 70 569 725	**835**	T09 - IP	**126**	M3x7 - IP	**819**		**808**	
70 568 732 / 70 569 732	**835**	T09 - IP	**126**	M3x7 - IP	**819**		**808**	
70 568 840 / 70 569 840	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**811**	

MaxiLock-N – PDUN 93° – Boring bar with lever clamping

9

- A... = with thro' coolant
- S... = without thro' coolant



Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 569 ...	Right-hand 70 568 ...
A20Q PDUN R/L 11	20	18,5	180	36	16,0	28	3	DN.. 1104	**12000** [1]	**12000** [1]
A25R PDUN R/L 11	25	23,0	200	36	18,5	32	3	DN.. 1104	**125**	**12500** [1]
A32S PDUN R/L 11	32	30,0	250	36	22,0	40	3	DN.. 1104	**13200** [1]	**132**
A32S PDUN R/L 15	32	30,0	250	50	22,0	40	3,2	DN.. 1506	**232**	**232**
A40T PDUN R/L 15	40	38,0	300	60	27,0	50	3,2	DN.. 1506	**240**	**240**
S50W PDUN R/L 15	50	47,0	450	31	35,0	63	3,2	DN.. 1506	**050**	**050**

1) nickel-plated


Key I


Shim

Assembly pin


Lever


Clamping screw

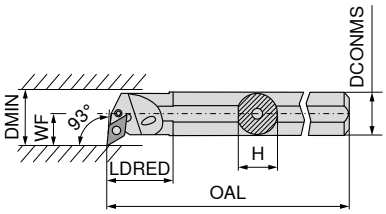

Solid Carbide Seat D

Spare parts for Article no.		Key I 70 950 ...		Shim 70 950 ...		Assembly pin 70 950 ...		Lever 70 950 ...		Clamping screw 70 950 ...		Solid Carbide Seat D 70 950 ...	
70 568 12000 / 70 569 12000	SW2,5	**175**						**125**		**126**			
70 568 12500 / 70 569 125	SW2,5	**175**		**122**		**191**		**121**		**208**		**120**	
70 568 132 / 70 569 13200	SW2,5	**175**		**122**		**191**		**121**		**208**		**120**	
70 568 232 / 70 569 232	SW3	**176**		**198**		**192**		**188**		**209**		**236**	
70 568 240 / 70 569 240	SW3	**176**		**198**		**192**		**188**		**209**		**236**	
70 568 050 / 70 569 050	SW3	**176**		**198**		**192**		**188**		**388**		**236**	

MaxiLock-N – PDUN 93° – Boring bar with lever clamping

▲ with carbide core





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 563 ...	Right-hand 70 562 ...
E-A25R PDUN R/L 11	25	23	200	40	17	31	3	DN.. 1104	**025**	**025**
E-A32S PDUN R/L 15	32	30	250	50	22	39	3,2	DN.. 1506	**032**	**032**
E-A40T PDUN R/L 15	40	38	300	60	27	48	3,2	DN.. 1506	**040**	**040**


Key l


Shim


Assembly pin


Lever

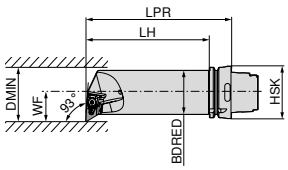

Clamping screw


Solid Carbide Seat D

Spare parts for Article no.		70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...
70 562 025 / 70 563 025	SW2,5	**175**	**122**	**191**	**121**	**208**	**120**
70 562 032 / 70 563 032	SW3	**176**	**198**	**192**	**188**	**388**	**236**
70 562 040 / 70 563 040	SW3	**176**	**198**	**192**	**188**	**388**	**236**

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





Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	LH mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 533 ...	Right-hand 74 532 ...
HSK T63 50Q DDUN R/L 15	HSK-T 63	175	149	50	35	63	4	DN.. 1506	**515**	**515**


XPress type


Key D

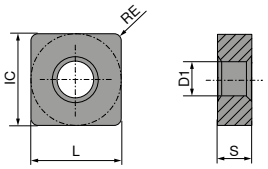

Clamping screw


Solid Carbide Seat D

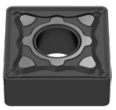
Spare parts for Article no.		70 950 ...		80 950 ...		70 950 ...	70 950 ...
74 533 515 / 74 532 515		**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**811**

SNMG / SNMA / SNMM

Designation	L mm	S mm	D1 mm	IC mm
SNMG 0903..	9,52	3,18	3,81	9,52
SNM. 1204..	12,70	4,76	5,16	12,70
SNM. 1506..	15,87	6,35	6,35	15,87
SNM. 1906..	19,05	6,35	7,94	19,05
SNMM 2507..	25,40	7,94	9,12	25,40
SNMM 2509..	25,40	9,52	9,12	25,40



SNMG

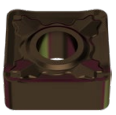
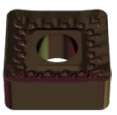
		-F50 CTCP115	-F50 CTCP125	-F50 CTCP135	-M50 CTCP115	-M50 CTCP125	-M50 CTCP135	-M70 CTCK110
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		F	F	F	M	M	M	M
		SNMG	SNMG	SNMG	SNMG	SNMG	SNMG	SNMG
		76 140 ...	76 140 ...	76 140 ...	76 137 ...	76 137 ...	76 137 ...	70 225 ...
ISO	RE mm							
090308EN	0,8	306	506	706				
120404EN	0,4	316	516	716				
120408EN	0,8	318	518	718	318	518	718	018
120412EN	1,2	320	520	720	320	520	720	020
120416EN	1,6				322	522	722	022
150608EN	0,8				330	530	730	
150612EN	1,2				332	532	732	032
150616EN	1,6				334	534	734	034
190612EN	1,2							044
190616EN	1,6							046
P		●	●	●	●	●	●	○
M				○			○	
K		○	○		○	○		●
N								
S								
H								
O								

9

SNMG / SNMA

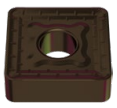
		-M70 CTCK120	-M70 CTCP115	-M70 CTCP125	-M70 CTCP135	CTCP125	CTCP135	CTCK110
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		M	M	M	M	M	M	R
		SNMG	SNMG	SNMG	SNMG	SNMG	SNMG	SNMA
		70 225 ...	76 225 ...	76 225 ...	76 225 ...	76 116 ...	76 116 ...	70 114 ...
ISO	RE mm							
090308EN	0,8					506	706	
120408EN	0,8	518	318	518	718			018
120412EN	1,2	520	320	520	720			020
120416EN	1,6	522	322	522	722			022
150612EN	1,2	532	332	532	732			032
150616EN	1,6	534	334	534	734			034
190612EN	1,2	544	344	544	744			044
190616EN	1,6	546	346	546	746			046
190624EN	2,4		348	548	748			
P		○	●	●	●	●	●	○
M					○		○	
K		●	○	○		○		●
N								
S								
H								
O								

SNMA / SNMM

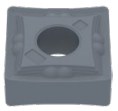
		CTCK120	-R28 CTCP115	-R28 CTCP125	-R28 CTCP135	-R58 CTCP115	-R58 CTCP125	-R58 CTCP135
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		R	R	R	R	R	R	R
		SNMA	SNMM	SNMM	SNMM	SNMM	SNMM	SNMM
		70 114 ...	76 128 ...	76 128 ...	76 128 ...	76 129 ...	76 129 ...	76 129 ...
ISO	RE mm							
120408EN	0,8	518				318	518	718
120412EN	1,2	520				320	520	720
120416EN	1,6	522						
150612EN	1,2	532	332	532	732	332	532	732
150616EN	1,6	534	334	534	734	334	534	734
190612EN	1,2	544				344	544	744
190616EN	1,6	546	346	546	746	346	546	746
190624EN	2,4					348	548	748
250724EN	2,4				760	360	560	760
250924EN	2,4		370	570	770	370	570	770
P		○	●	●	●	●	●	●
M					○			○
K		●	○	○		○	○	
N								
S								
H								
O								

9

SNMM / SNMG

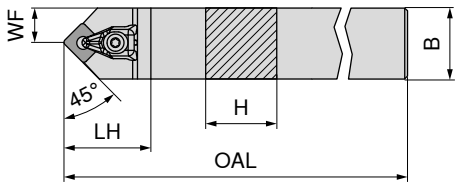
		-R88 CTCP115	-R88 CTCP125	-R88 CTCP135	NEW -F30 CTCM120	-F30 CTPM125	NEW -F30 CTCM130	NEW -M30 CTCM120
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		R	R	R	F	F	F	M
		SNMM	SNMM	SNMM	SNMG	SNMG	SNMG	SNMG
		76 130 ...	76 130 ...	76 130 ...	75 016 ...	75 016 ...	75 016 ...	75 017 ...
ISO	RE mm							
120404EN	0,4				11600	216	31600	
120408EN	0,8				11800	218	31800	11800
120412EN	1,2							12000
190616SN	1,6	346	546	746				
190624SN	2,4	348	548	748				
250724SN	2,4	36000	56000	760				
250924SN	2,4	37000	57000	770				
P		●	●	●	○	○	○	○
M				○	●	●	●	●
K		○	○					
N								
S							○	
H								
O								

SNMG

		-M30 CTPM125	NEW -M30 CTCM130	NEW -M60 CTCM120	-M60 CTPM125	NEW -M60 CTCM130	NEW -M34 CTPX710
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		M	M	M	M	M	M
		SNMG	SNMG	SNMG	SNMG	SNMG	SNMG
		75 017 ...	75 017 ...	75 018 ...	75 018 ...	75 018 ...	75 005 ...
ISO	RE mm						
120408EN	0,8	218	31800	11800	218	31800	61800
120412EN	1,2		32000	12000	210	32000	62000
120416EN	1,6			12200	220	32200	
P		○	○	○	○	○	●
M		●	●	●	●	●	●
K							
N							○
S			○			○	●
H							
O							

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







ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Neutral 70 516 ...
DSDN N 2020 K12	20	20	125	38	10,3	4	SN.. 1204	620
DSDN N 2525 M12	25	25	150	38	12,5	4	SN.. 1204	625


XPress type 70 950 ...


Key D 80 950 ...

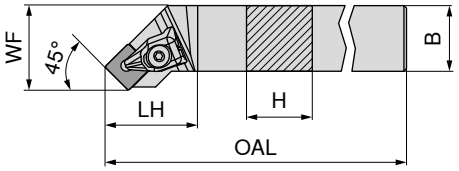

Clamping screw 70 950 ...


Solid Carbide support S 70 950 ...

Spare parts for Article no.						
70 516 620	824	T15 - IP	128	M4,5x12 - IP	820	813
70 516 625	824	T15 - IP	128	M4,5x12 - IP	820	813

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







Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 513 ...	Right-hand 70 512 ...
DSSN R/L 2020 K12	20	20	125	35	25	4	SN.. 1204	620	620
DSSN R/L 2525 M12	25	25	150	35	32	4	SN.. 1204	625	625
DSSN R/L 3225 P12	32	25	170	35	32	4	SN.. 1204	632	632


XPress type 70 950 ...


Key D 80 950 ...

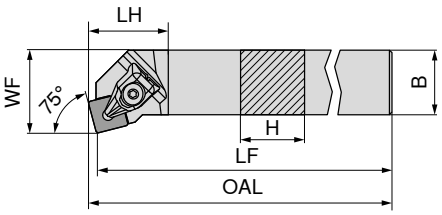

Clamping screw 70 950 ...


Solid Carbide support S 70 950 ...

Spare parts for Article no.						
70 512 620 / 70 513 620	824	T15 - IP	128	M4,5x12 - IP	820	813
70 512 625 / 70 513 625	824	T15 - IP	128	M4,5x12 - IP	820	813
70 512 632 / 70 513 632	824	T15 - IP	128	M4,5x12 - IP	820	813

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





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LF mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 525 ...	Right-hand 70 524 ...
DSKN R/L 2525 M12	25	25	153,3	150	28	32	4	SN.. 1204	625	625



XPress type 70 950 ...

Key D 80 950 ...



Clamping screw 70 950 ...

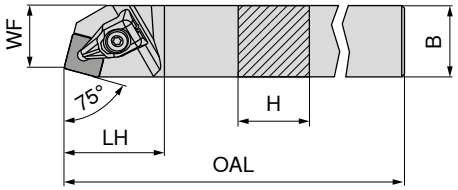


Solid Carbide support S 70 950 ...

Spare parts for Article no.						
70 525 625 / 70 524 625	824	T15 - IP	128	M4,5x12 - IP	820	813

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





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Right-hand 70 520 ...
DSBN R 2020 K12	20	20	125	35	17	4	SN.. 1204	620
DSBN R 2525 M12	25	25	150	35	22	4	SN.. 1204	625
DSBN R 2525 M15	25	25	150	42	22	6,5	SN.. 1506	725
DSBN R 3232 P15	32	32	170	42	27	6,5	SN.. 1506	832
DSBN R 3232 P19	32	32	170	48	27	6,5	SN.. 1906	732
DSBN R 4040 S19	40	40	250	48	35	6,5	SN.. 1906	840
DSBN R 4040 S25	40	40	250	57	35	6,5	SN.. 2507 / SN.. 2509	940

When using SN.. 2509 indexable inserts, use insert seat article no. 70 950 40100.



XPress type 70 950 ...

Key D 80 950 ...



Clamping screw 70 950 ...

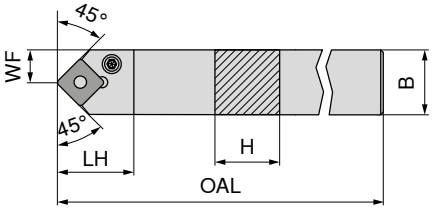


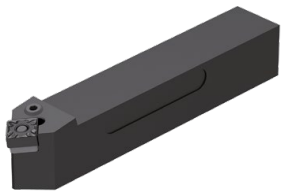
Solid Carbide support S 70 950 ...

Spare parts for Article no.						
70 520 620	824	T15 - IP	128	M4,5x12 - IP	820	813
70 520 625	824	T15 - IP	128	M4,5x12 - IP	820	813
70 520 725	825	T20 - IP	129	M5x14 - IP	821	833
70 520 832	825	T20 - IP	129	M5x14 - IP	821	833
70 520 732	826	T20 - IP	129	M5x14 - IP	821	817
70 520 840	826	T20 - IP	129	M5x14 - IP	821	817
70 520 940	827	T25 - IP	130	M6x16 - IP	822	818

MaxiLock-N – PSDN 45° – Toolholder with lever clamping







								Neutral
								70 516 ...
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	
PSDN N 1616 H09	16	16	100	21,0	8,3	3	SNM. 0903	**016**
PSDN N 2020 K12	20	20	125	27,6	10,3	4	SNM. 1204	**020**
PSDN N 2525 M12	25	25	150	27,6	12,8	4	SNM. 1204	**025**
PSDN N 3225 P19	32	25	170	40,4	12,5	8	SNM. 1906	**03200**
PSDN N 4040 S25	40	40	250	48,8	20,0	8	SNM. 2507 / 2509	**04000**

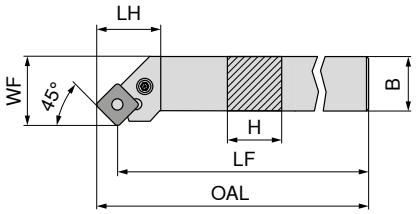
When using SN.. 2509 indexable inserts, use insert seat article no. 70 950 40200.

		 Key I	 Shim	 Assembly pin	 Lever	 Clamping screw	 Solid Carbide support S
		70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...
Spare parts for Article no.							
70 516 016	SW2,5	**175**	**197**	**191**	**185**	**208**	**229**
70 516 020	SW3	**176**	**198**	**192**	**187**	**209**	**230**
70 516 025	SW3	**176**	**198**	**192**	**187**	**209**	**230**
70 516 03200	SW4	**396**	**392**	**395**	**386**	**389**	**383**
70 516 04000	SW5	**265**	**621**	**623**	**620**	**622**	**27600**

9

MaxiLock-N – PSSN 45° – Toolholder with lever clamping





Illustrations show right-hand versions



									Left-hand	Right-hand
									70 513 ...	70 512 ...
ISO designation	H mm	B mm	OAL mm	LF mm	LH mm	WF mm	torque moment Nm	Insert		
PSSN R/L 1616 H09	16	16	106,7	100	21,2	20	3	SNM. 0903	**016**	**01600**[1)]
PSSN R/L 2020 K12	20	20	134,0	125	29,3	25	4	SNM. 1204	**020**	**020**
PSSN R/L 2525 M12	25	25	159,0	150	29,3	32	4	SNM. 1204	**025**	**025**
PSSN R/L 3225 P12	32	25	179,0	170	32,0	32	4	SNM. 1204	**032**	**032**
PSSN R 2525 M15	25	25	161,2	150	29,3	32	4	SNM. 1506		**125**
PSSN R 3232 P15	32	32	181,2	170	32,0	40	4	SNM. 1506		**132**
PSSN R/L 3232 P19	32	32	183,5	170	40,2	40	8	SNM. 1906	**232**	**232**
PSSN R 4040 S25	40	40	268,0	250	48,8	50	8	SNM. 2507 / 2509		**04000**

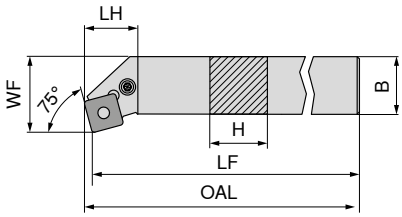
1) nickel-plated

When using SN.. 2509 indexable inserts, use insert seat article no. 70 950 40200.

		Key I	 Shim	Assembly pin	 Lever	 Clamping screw	 Solid Carbide support S
		70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...
Spare parts for Article no.							
70 512 01600 / 70 513 016	SW2,5	**175**	**197**	**191**	**185**	**208**	**229**
70 512 020 / 70 513 020	SW3	**176**	**198**	**192**	**187**	**209**	**230**
70 512 025 / 70 513 025	SW3	**176**	**198**	**192**	**187**	**209**	**230**
70 512 032 / 70 513 032	SW3	**176**	**198**	**192**	**187**	**209**	**230**
70 512 125	SW3	**176**	**391**	**394**	**385**	**388**	**382**
70 512 132	SW3	**176**	**391**	**394**	**385**	**388**	**382**
70 512 232 / 70 513 232	SW4	**396**	**392**	**395**	**386**	**389**	**383**
70 512 04000	SW5	**265**	**621**	**623**	**620**	**622**	**27600**

MaxiLock-N – PSKN 75° – Toolholder with lever clamping





Illustrations show right-hand versions



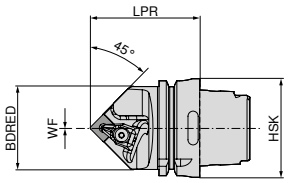
ISO designation	H mm	LF mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 525 ...	Right-hand 70 524 ...
PSKN R/L 1616 H09	16	100	16	102,5	18,7	20	3	SNM. 0903	**016**	**016**
PSKN R/L 2020 K12	20	125	20	128,3	22,7	25	4	SNM. 1204	**020**	**020**
PSKN R/L 2525 M12	25	150	25	153,3	22,7	32	4	SNM. 1204	**025**	**025**
PSKN R/L 3225 P12	32	170	25	173,1	24,1	32	4	SNM. 1204	**03200**	**03200**
PSKN R 4040 S19	40	250	40	254,6	38,3	50	8	SNM. 1906		**04000**

Spare parts for Article no.		 Key I 70 950 ...		 Shim 70 950 ...		Assembly pin 70 950 ...		 Lever 70 950 ...		 Clamping screw 70 950 ...		 Solid Carbide support S 70 950 ...	
70 524 016 / 70 525 016	SW2,5	**175**		**197**		**191**		**185**		**208**		**229**	
70 524 020 / 70 525 020	SW3	**176**		**198**		**192**		**187**		**209**		**230**	
70 524 025 / 70 525 025	SW3	**176**		**198**		**192**		**187**		**209**		**230**	
70 524 03200 / 70 525 03200	SW3	**176**		**198**		**192**		**187**		**209**		**230**	
70 524 04000	SW4	**396**		**392**		**395**		**386**		**389**		**383**	

9

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



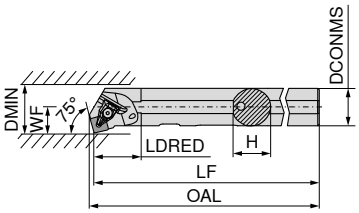




ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	Neutral 74 522 ...
HSK T63 DSDN N 12	HSK-T 63	70	53	0	4	SN.. 1204	**512**
HSK T63 DSDN N 15	HSK-T 63	75	53	0	4	SN.. 1506	**515**
HSK T100 DSDN N 12	HSK-T 100	80	88	0	4	SN.. 1204	**712**
HSK T100 DSDN N 19	HSK-T 100	85	88	0	8	SN.. 1906	**719**

Spare parts for Article no.	 XPress type 70 950 ...		Key D 80 950 ...		 Clamping screw 70 950 ...		 Solid Carbide support S 70 950 ...	
74 522 512	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**813**	
74 522 515	**825**	T20 - IP	**129**	M5x14 - IP	**821**		**833**	
74 522 712	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**813**	
74 522 719	**826**	T20 - IP	**129**	M5x14 - IP	**821**		**817**	

MaxiLock-D – DSKN 75° – Boring bar with top clamping





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	LF mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 561 ...	Right-hand 70 560 ...
A32S DSKN R/L 12	32	31	250	254,2	40	22	40	4	SN.. 1204	**832**	**832**



XPress type

70 950 ...

Key D

80 950 ...



Clamping screw

70 950 ...

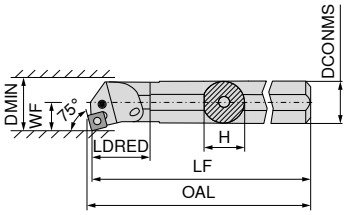


Solid Carbide support S

70 950 ...

Spare parts for Article no.	T15 - IP		M4,5x12 - IP	
70 561 832 / 70 560 832	**824**	**128**	**820**	**813**

MaxiLock-N – PSKN 75° – Boring bar with lever clamping





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	LF mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 561 ...	Right-hand 70 560 ...
A25R PSKN R/L 12	25	23	200	203	15,5	17	32	4	SNM. 1204	**225**	**225**
A32S PSKN R/L 12	32	30	250	253	16,0	22	40	4	SNM. 1204	**232**	**232**
A40T PSKN R/L 12	40	38	300	303	23,0	27	50	4	SNM. 1204	**240**	**240**



Key I

70 950 ...



Shim

70 950 ...

Assembly pin

70 950 ...



Lever

70 950 ...



Clamping screw

70 950 ...



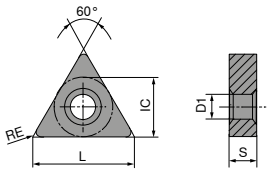
Solid Carbide support S

70 950 ...

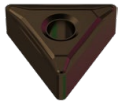
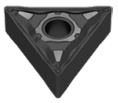
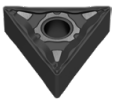
Spare parts for Article no.												
70 561 225 / 70 560 225	SW3	**176**		**198**		**192**		**187**		**205**		**230**
70 561 232 / 70 560 232	SW3	**176**		**198**		**192**		**187**		**205**		**230**
70 561 240 / 70 560 240	SW3	**176**		**198**		**192**		**187**		**209**		**230**

TNMG / TNMA / TNMM

Designation	L mm	S mm	D1 mm	IC mm
TNMG 1103..	11,0	3,18	2,26	6,35
TNM. 1604..	16,5	4,76	3,81	9,52
TNM. 2204..	22,0	4,76	5,16	12,70



TNMG

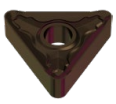
	-CF20 CTEP110	-F50 CTCP115	-F50 CTCP125	-F50 CTCP135	-M50 CTCP115	-M50 CTCP125	-M50 CTCP135
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	F	F	F	F	M	M	M
	CERMET TNMG	TNMG	TNMG	TNMG	TNMG	TNMG	TNMG
	76 149 ...	76 146 ...	76 146 ...	76 146 ...	76 138 ...	76 138 ...	76 138 ...
ISO / RE mm							
110304EN 0,4		304	504	704			
110308EN 0,8		306	506	706			
160404EN 0,4	016	316	516	716	316	516	716
160408EN 0,8	018	318	518	718	318	518	718
160412EN 1,2	020	320	520	720	320	520	720
220408EN 0,8					330	530	730
220412EN 1,2					332	532	732
P	●	●	●	●	●	●	●
M	○			○			○
K	○	○	○		○	○	
N							
S							
H							
O							

9

TNMG

	-M70 CTCK110	-M70 CTCK120	-M70 CTCP115	-M70 CTCP125	-M70 CTCP135	CTCP125	CTCP135
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	M	M	M	M	M	M	M
	TNMG	TNMG	TNMG	TNMG	TNMG	TNMG	TNMG
	70 155 ...	70 155 ...	76 155 ...	76 155 ...	76 155 ...	76 142 ...	76 142 ...
ISO	RE mm						
110302EN	0,2						702
160404ER	0,4					516	716
160408EL	0,8					518	
160408EN	0,8	018	518	318	518	718	
160408ER	0,8					517	717
160412EN	1,2	020	520	320	520	720	
220404EN	0,4				528		
220408EN	0,8	030	530	330	530	730	
220412EN	1,2	032	532	332	532	732	
220416EN	1,6	034	534	334	534	734	
P		○	○	●	●	●	●	●
M						○		○
K		●	●	○	○		○	
N								
S								
H								
O								

TNMA / TNMM

	CTCK110	CTCK120	-R28 CTCP115	-R28 CTCP125	-R28 CTCP135	-R58 CTCP115	-R58 CTCP125
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	R	M	R	R	R	R	R
	TNMA	TNMA	TNMM	TNMM	TNMM	TNMM	TNMM
	70 134 ...	70 134 ...	76 154 ...	76 154 ...	76 154 ...	76 152 ...	76 152 ...
ISO	RE mm						
160408EN	0,8	018	518				
160412EN	1,2	020	520				
160416EN	1,6	022	522				
220408EN	0,8	030	530				
220412EN	1,2	032	532			332	532
220416EN	1,6	034	534	334	534	734	
P		○	○	●	●	●	●	●
M						○		
K		●	●	○	○		○	○
N								
S								
H								
O								

TNMM / TNMG

			NEW		NEW	NEW		NEW
		-R58 CTCP135	-F30 CTCM120	-F30 CTPM125	-F30 CTCM130	-M30 CTCM120	-M30 CTPM125	-M30 CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		R	F	F	F	M	M	M
		TNMM	TNMG	TNMG	TNMG	TNMG	TNMG	TNMG
		76 152 ...	75 019 ...	75 019 ...	75 019 ...	75 020 ...	75 020 ...	75 020 ...
ISO	RE mm							
160404EN	0,4		11600	216	31600			
160408EN	0,8		11800	218	31800	11800	218	31800
160412EN	1,2					12000	220	32000
220412EN	1,2	732						
P		●	○	○	○	○	○	○
M		○	●	●	●	●	●	●
K								
N								
S					○			○
H								
O								

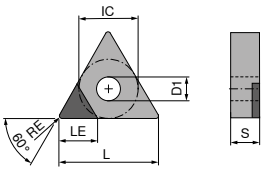
TNMG

			NEW		NEW	NEW
		-M60 CTCM120	-M60 CTPM125	-M60 CTCM130	-M34 CTPX710	
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	
						
		M	M	M	M	
		TNMG	TNMG	TNMG	TNMG	
		75 021 ...	75 021 ...	75 021 ...	75 006 ...	
ISO	RE mm					
160408EN	0,8	11800	218	31800	61800	
160412EN	1,2	12000	220	32000		
220404EN	0,4				62800	
220408EN	0,8				63000	
220416EN	1,6				63400	
P		○	○	○	●	
M		●	●	●	●	
K						
N					○	
S				○	●	
H						
O						

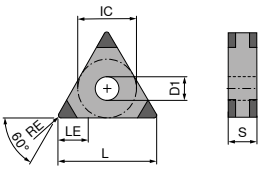
9

TNGA

Designation	L mm	S mm	D1 mm	IC mm
TNGA 1103..	11,0	3,18	2,26	6,35
TNGA 1604..	16,5	4,76	3,81	9,52



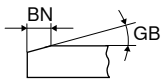
TNGA A

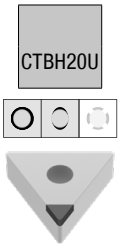


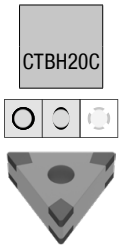
TNGA M

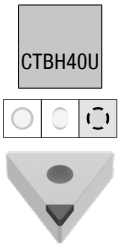
TNGA

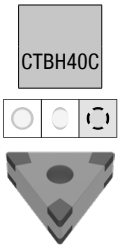
▲ TCE(NOI) = Design and number of equipped cutting edge corners









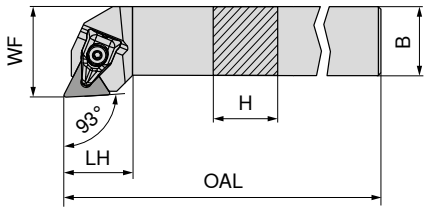


						F	F	F	F
						CBN TNGA	CBN TNGA	CBN TNGA	CBN TNGA
						71 108 ...	71 404 ...	71 108 ...	71 404 ...
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm				
110304TN	0,4	0,12	20°	A (1)	2,8	500			
110308FN	0,8			A (1)	2,5			802 1)	
110308TN	0,8	0,12	20°	A (1)	2,5	502			
160404FN	0,4			A (1)	3,5	404 1)		804 1)	
160404TN	0,4	0,09	15°	M (6)	2,8		222		
160404SN	0,4	0,09	20°	M (6)	2,8				332
160404SN	0,4	0,11	20°	M (6)	2,8		242		342
160404TN	0,4	0,12	20°	A (1)	3,5	504			
160404SN	0,4	0,11	25°	M (6)	2,8				352
160404TN	0,4	0,11	25°	M (6)	2,8		252		
160404TN	0,4	0,12	25°	A (1)	3,5			904	
160404FN	0,4			M (6)	2,8		212		
160404SN	0,4	0,13	25°	M (6)	2,8		262		
160404SN	0,4	0,14	30°	M (6)	2,8				372
160404SN	0,4	0,14	35°	M (6)	2,8				382
160408TN	0,8	0,09	15°	M (6)	2,5		224		
160408SN	0,8	0,09	15°	M (6)	2,5				324
160408SN	0,8	0,09	20°	M (6)	2,5				334
160408TN	0,8	0,09	20°	M (6)	2,5		234		
160408SN	0,8	0,11	20°	M (6)	2,5		244		344
160408TN	0,8	0,12	20°	A (1)	3,0	506			
160408SN	0,8	0,11	25°	M (6)	2,5				354
160408TN	0,8	0,11	25°	M (6)	2,5		254		
160408TN	0,8	0,12	25°	A (1)	3,0			906	
160408SN	0,8	0,13	25°	M (6)	2,5		264		364
160408SN	0,8	0,14	30°	M (6)	2,5		27200		374
160408SN	0,8	0,14	35°	M (6)	2,5				384
160408FN	0,8			M (6)	2,5		214		
160408FN	0,8			A (1)	3,0	406 1)		80500	
160408EN	0,8			M (6)	2,5				314
160412TN	1,2	0,09	15°	M (6)	2,2		226		
160412SN	1,2	0,09	20°	M (6)	2,2				336
160412SN	1,2	0,11	20°	M (6)	2,2		246		346
160412SN	1,2	0,11	25°	M (6)	2,2				356
160412TN	1,2	0,11	25°	M (6)	2,2		256		
160412SN	1,2	0,13	25°	M (6)	2,2		266		366
160412SN	1,2	0,14	30°	M (6)	2,2				376
160412SN	1,2	0,14	35°	M (6)	2,2				386
160412FN	1,2			M (6)	2,2		216		
P									
M									
K									
N									
S									
H						●	●	●	●
O									

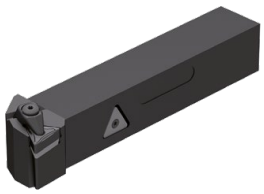
1) Machining to 60 HRC

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





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 591 ...	Right-hand 70 590 ...
DTJN R/L 2020 K16	20	20	125	23	25	2	TNM. 1604	820	820
DTJN R/L 2525 M16	25	25	150	24	32	2	TNM. 1604	825	825


XPress type

70 950 ...

Key D

80 950 ...


Clamping screw

70 950 ...

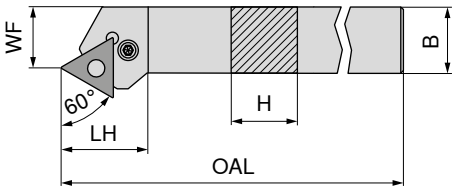

Solid Carbide Seat T

70 950 ...

Spare parts for Article no.						
70 590 820 / 70 591 820	823	T09 - IP	126	M3x7 - IP	819	847
70 590 825 / 70 591 825	823	T09 - IP	126	M3x7 - IP	819	847

MaxiLock-N – PTTN 60° – Toolholder with lever clamping





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 529 ...	Right-hand 70 528 ...
PTTN R/L 2020 K16	20	20	125	25,9	17	3	TNM. 1604	020	020
PTTN R/L 2525 M22	25	25	150	32,7	22	4	TNM. 2204	025	025


Key I

70 950 ...


Shim

70 950 ...

Assembly pin

70 950 ...


Lever

70 950 ...


Clamping screw

70 950 ...

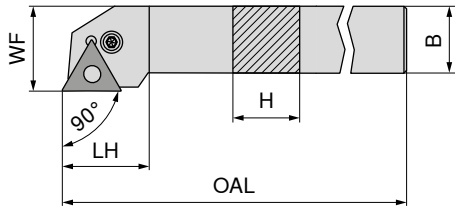

Solid Carbide Seat T

70 950 ...

Spare parts for Article no.											
70 529 020 / 70 528 020	SW2,5	175	197	191	185	208	225
70 529 025 / 70 528 025	SW3	176	198	192	187	209	226

MaxiLock-N – PTGN 90° – Toolholder with lever clamping





Illustrations show right-hand versions

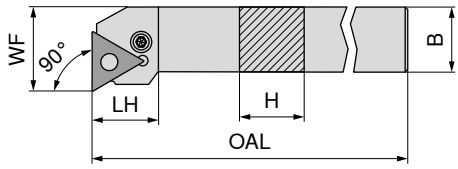


								Left-hand		Right-hand
								70 533 ...		70 532 ...
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert			
PTGN R/L 1616 H16	16	16	100	20	20	3	TNM. 1604	016		016
PTGN R/L 2020 K16	20	20	125	20	25	3	TNM. 1604	020		020
PTGN R/L 2525 M16	25	25	150	22	32	3	TNM. 1604	025		025
PTGN R/L 3225 P16	32	25	170	22	32	3	TNM. 1604	032		032
PTGN R/L 2525 M22	25	25	150	29	32	4	TNM. 2204	125		125
PTGN R/L 3232 P22	32	32	170	29	40	4	TNM. 2204	132		132

		 Key I	 Shim	 Assembly pin	 Lever	 Clamping screw	 Solid Carbide Seat T
		70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...
Spare parts for Article no.							
70 532 016 / 70 533 016	SW2,5	175	197	191	185	208	225
70 532 020 / 70 533 020	SW2,5	175	197	191	185	208	225
70 532 025 / 70 533 025	SW2,5	175	197	191	185	208	225
70 532 032 / 70 533 032	SW2,5	175	197	191	185	208	225
70 532 125 / 70 533 125	SW3	176	198	192	187	209	226
70 532 132 / 70 533 132	SW3	176	198	192	187	209	226

MaxiLock-N – PTFN 90° – Toolholder with lever clamping





Illustrations show right-hand versions



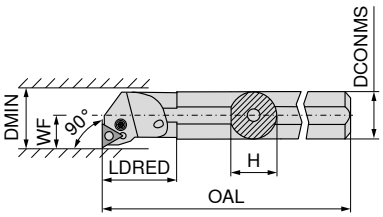
								Left-hand		Right-hand
								70 535 ...		70 534 ...
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert			
PTFN R/L 1616 H16	16	16	100	19,7	20	3	TNM. 1604	016		016
PTFN R/L 2020 K16	20	20	125	20,2	25	3	TNM. 1604	020		020
PTFN R/L 2525 M16	25	25	150	20,2	32	3	TNM. 1604	025		025
PTFN R/L 2525 M22	25	25	150	25,2	32	4	TNM. 2204	125		125
PTFN R/L 3225 P22	32	25	170	25,2	32	4	TNM. 2204	132		132

		 Key I	 Shim	Assembly pin	 Lever	 Clamping screw	 Solid Carbide Seat T
		70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...
Spare parts for Article no.							
70 534 016 / 70 535 016	SW2,5	175	197	191	185	208	225
70 534 020 / 70 535 020	SW2,5	175	197	191	185	208	225
70 534 025 / 70 535 025	SW2,5	175	197	191	185	208	225
70 534 125 / 70 535 125	SW3	176	198	192	187	209	226
70 534 132 / 70 535 132	SW3	176	198	192	187	209	226

MaxiLock-N – PTFN 90° – Boring bar with lever clamping

▲ A... = with thro' coolant
▲ S... = without thro' coolant





Illustrations show right-hand versions

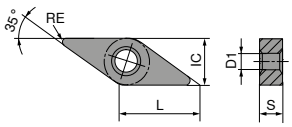


									Left-hand	Right-hand
									70 565 ...	**70 564 ...**
ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert		
A16M PTFN R/L 11	16	15,0	150	14,0	11	20	2,2	TNM. 1103	**216**	**216**
A20Q PTFN R/L 11	20	18,5	180	14,0	13	25	2,2	TNM. 1103	**220**	**220**
A25R PTFN R/L 16	25	23,0	200	17,5	17	32	3	TNM. 1604	**225**	**225**
S25T PTFN R 16	25	23,0	300	17,5	17	32	3	TNM. 1604		**02500**
A32S PTFN R/L 16	32	30,0	250	18,0	22	40	3	TNM. 1604	**232**	**232**
A40T PTFN R/L 22	40	38,0	300	27,0	27	50	4	TNM. 2204	**240**	**240**
S50W PTFN R 22	50	47,0	450	35,0	35	63	4	TNM. 2204		**050**

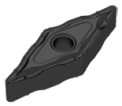
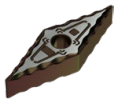
	 Key I	 Shim	 Assembly pin	 Lever	 Clamping screw	 Solid Carbide Seat T
	70 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.						
70 564 216 / 70 565 216	**177**			**184**	**207**	
70 564 220 / 70 565 220	**177**			**184**	**207**	
70 564 225 / 70 565 225	**175**	**197**	**191**	**185**	**208**	**225**
70 564 02500	**175**	**197**	**191**	**185**	**208**	**225**
70 564 232 / 70 565 232	**175**	**197**	**191**	**185**	**208**	**225**
70 564 240 / 70 565 240	**176**	**198**	**192**	**187**	**209**	**226**
70 564 050	**176**	**198**	**192**	**187**	**209**	**226**

VNMG

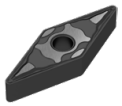
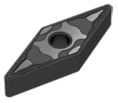
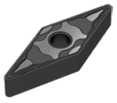
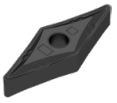
Designation	L mm	S mm	D1 mm	IC mm
VNMG 1604..	16,6	4,76	3,81	9,52



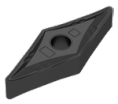
VNMG

	-F40 CTCP125	-F50 CTCP115	-F50 CTCP125	-F50 CTCP135	-XU CTCP115	-XU CTCP125	-M40 CTCP125
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	F	F	F	F	M	M	M
	VNMG	VNMG	VNMG	VNMG	VNMG	VNMG	VNMG
	76 000 ...	76 156 ...	76 156 ...	76 156 ...	76 294 ...	76 294 ...	76 001 ...
ISO / RE mm							
160404EN 0,4	516	316	516	716	316	516	516
160408EN 0,8	518	318	518	718	318	518	518
P	●	●	●	●	●	●	●
M				○			
K	○	○	○		○	○	○
N							
S							
H							
O							

VNMG

		-M50 CTCK120	-M50 CTCP115	-M50 CTCP125	NEW -F30 CTCM120	-F30 CTPM125	NEW -F30 CTCM130	NEW -M30 CTCM120
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		M	M	M	F	F	F	M
		VNMG	VNMG	VNMG	VNMG	VNMG	VNMG	VNMG
		70 131 ...	76 131 ...	76 131 ...	75 022 ...	75 022 ...	75 022 ...	75 023 ...
ISO	RE mm							
160404EN	0,4		316	516	11600	216	31600	
160408EN	0,8	518	318	518	11800	218	31800	11800
160412EN	1,2	520	320	520				
P		○	●	●	○	○	○	○
M					●	●	●	●
K		●	○	○				
N								
S							○	
H								
O								

VNMG

			NEW	NEW
		-M30 CTPM125	-M30 CTCM130	-M34 CTPX710
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
				
		M	M	M
		VNMG	VNMG	VNMG
		75 023 ...	75 023 ...	75 009 ...
ISO	RE mm			
160404EN	0,4			61600
160408EN	0,8	218	31800	61800
160412EN	1,2			62000
P		○	○	●
M		●	●	●
K				
N				○
S			○	●
H				
O				

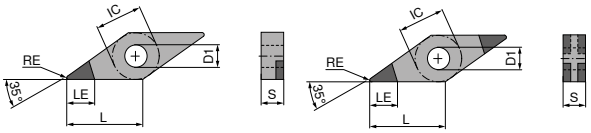
9

VNMG

		NEW	NEW
		-FMS CT-P15	-FMS CT-P25
			
		F	F
		VNMG	VNMG
		75 310 ...	75 310 ...
ISO	RE mm		
160404EN	0,4	01609	11609
160408EN	0,8	01809	11809
P		●	●
M		○	○
K			
N			
S			
H			
O			

VNGA

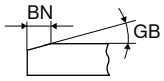
Designation	L mm	S mm	D1 mm	IC mm
VNGA 1604..	16,6	4,76	3,81	9,52



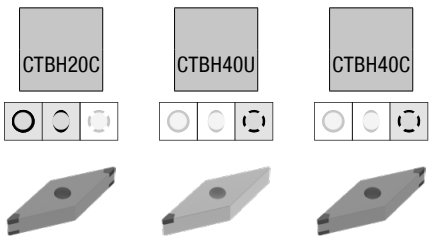
VNGA A VNGA L

VNGA

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



NEW NEW NEW



F F F

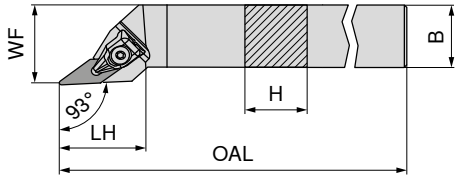
CBN VNGA | CBN VNGA | CBN VNGA

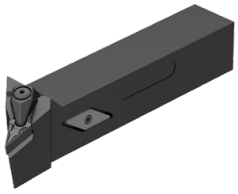
71 413 ... | 71 412 ... | 71 413 ...

ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	71 413 ...	71 412 ...	71 413 ...
160404FN	0,4			A (1)	5,0		50000	
160404SN	0,4	0,09	20°	L (4)	2,8			60000
160404SN	0,4	0,11	20°	L (4)	2,8	30100		
160404TN	0,4	0,11	25°	L (4)	2,8	30200		
160404SN	0,4	0,11	25°	L (4)	2,8			60100
160404TN	0,4	0,12	25°	A (1)	5,0		50100	
160404SN	0,4	0,13	25°	L (4)	2,8			60200
160404SN	0,4	0,14	30°	L (4)	2,8			60300
160404SN	0,4	0,14	35°	L (4)	2,8			60400
160404FN	0,4			L (4)	2,8	30000		
160408SN	0,8	0,09	15°	L (4)	2,2			60500
160408SN	0,8	0,11	20°	L (4)	2,2	30400		60600
160408SN	0,8	0,11	25°	L (4)	2,2			60700
160408TN	0,8	0,11	25°	L (4)	2,2	30500		
160408TN	0,8	0,12	25°	A (1)	4,4		50300	
160408SN	0,8	0,13	25°	L (4)	2,2	30600		60800
160408SN	0,8	0,14	30°	L (4)	2,2			60900
160408SN	0,8	0,14	35°	L (4)	2,2			61000
160408FN	0,8			L (4)	2,2	30300		
160408FN	0,8			A (1)	4,4		50200	
P								
M								
K								
N								
S								
H						●	●	●
O								

9

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



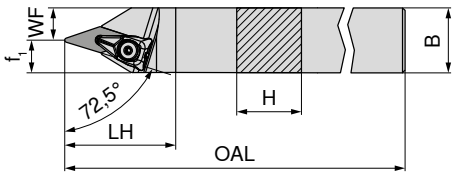


Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 503 ...	Right-hand 70 502 ...
DVJN R/L 2020 K16	20	20	125	39	25	2	VN.. 1604	620	620
DVJN R/L 2525 M16	25	25	150	39	32	2	VN.. 1604	725	725

Spare parts for Article no.	XPress type 70 950 ...		Key D 80 950 ...		Clamping screw 70 950 ...		Solid Carbide Seat V 70 950 ...	
70 502 620 / 70 503 620	835		T09 - IP	126	M3x7 - IP	819		806
70 502 725 / 70 503 725	835		T09 - IP	126	M3x7 - IP	819		806

MaxiLock-D – DVVN 72.5° – Toolholder with top clamping

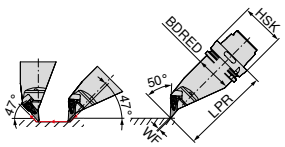




ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	f_1 mm	torque moment Nm	Insert	Neutral 70 506 ...
DVVN N 2020 K16	20	20	125	43	7,5	12,5	2	VN.. 1604	620
DVVN N 2525 M16	25	25	150	43	12,5	12,5	2	VN.. 1604	625

Spare parts for Article no.	XPress type 70 950 ...		Key D 80 950 ...		Clamping screw 70 950 ...		Solid Carbide Seat V 70 950 ...	
70 506 620	835		T09 - IP	126	M3x7 - IP	819		806
70 506 625	835		T09 - IP	126	M3x7 - IP	819		806

MaxiLock-D – DVMN 50° – Toolholder with top clamping





ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	Left-hand 74 525 ...
HSK T63 DVMN L 16	HSK-T 63	130	53	0	2	VN.. 1604	**516**
HSK T100 DVMN L 16	HSK-T 100	160	88	0	2	VN.. 1604	**716**


XPress type

70 950 ...


Key D

80 950 ...


Clamping screw

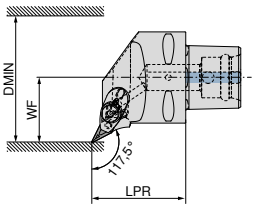
70 950 ...


Solid Carbide Seat V

70 950 ...

Spare parts for Article no.						
74 525 516	**835**	T09 - IP	**126**	M3x7 - IP	**819**	**806**
74 525 716	**835**	T09 - IP	**126**	M3x7 - IP	**819**	**806**

MaxiLock-D – DVPN 117,5° – Toolholder with top clamping



Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	NEW Left-hand 84 673 ...	NEW Right-hand 84 672 ...
PSC40 DVPN R/L 50050-16	PSC 40	50	27	50	10	VN.. 1604	**01695**	**01695**
PSC50 DVPN R/L 65060-16	PSC 50	60	35	65	10	VN.. 1604	**01694**	**01694**
PSC63 DVPN R/L 80065-16	PSC 63	65	45	80	10	VN.. 1604	**01693**	**01693**


Clamping Screw

84 950 ...


Clamping claw

84 950 ...


Ring-shaped nozzle

84 950 ...


Clamping screw

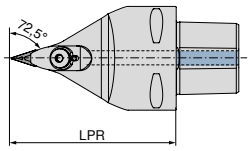
84 950 ...

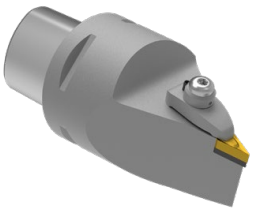

Solid Carbide Seat V

84 950 ...

Spare parts Adapter						
PSC 40	M6X28 SW4	**28300**	**28500**	**28400**	**27600**	**28000**
PSC 50	M6X28 SW4	**28300**	**28500**	**28400**	**27600**	**28000**
PSC 63	M6X28 SW4	**28300**	**28500**	**28400**	**27600**	**28000**

MaxiLock-D – DVVN 72,5° – Toolholder with top clamping





NEW
Neutral
84 679 ...

ISO designation	Adapter	LPR mm	torque moment Nm	Insert	
PSC63 DVVN N 0100-16	PSC 63	100	10	VN.. 1604	**01693**
PSC63 DVVN N 0130-16	PSC 63	130	10	VN.. 1604	**11693**


Clamping Screw
84 950 ...


Clamping claw
84 950 ...

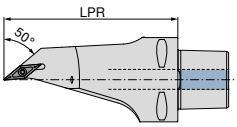

Ring-shaped nozzle
84 950 ...

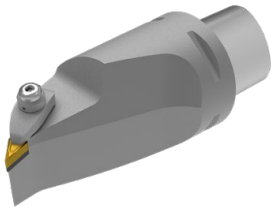

Clamping screw
84 950 ...


Solid Carbide Seat V
84 950 ...

Spare parts Adapter						
PSC 63	M6X28 SW4	**28300**	**28500**	**28400**	**27600**	**28000**

MaxiLock-D – DVMN 50° – Toolholder with top clamping





NEW
Neutral
84 682 ...

ISO designation	Adapter	LPR mm	torque moment Nm	Insert	
PSC63 DVMN L 0130-16	PSC 63	130	10	VN.. 1604	**01693**


Clamping Screw
84 950 ...


Clamping claw
84 950 ...


Ring-shaped nozzle
84 950 ...

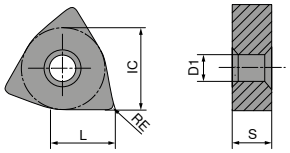

Clamping screw
84 950 ...


Solid Carbide Seat V
84 950 ...

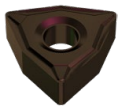
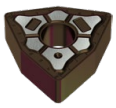
Spare parts Adapter						
PSC 63	M6X28 SW4	**28300**	**28600**	**28400**	**27600**	**28000**

WNMG / WNMA

Designation	L mm	S mm	D1 mm	IC mm
WNMG 0604..	6,5	4,76	3,81	9,52
WNM. 0804..	8,6	4,76	5,16	12,70

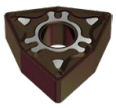


WNMG

		-CF20 CTEP110	-TFQ CTEP110	-F50 CTCP115	-F50 CTCP125	-F50 CTCP135	-TFQ CTCP115	-TFQ CTCP125
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		F	F	F	F	F	F	F
		CERMET WNMG	CERMET WNMG	WNMG	WNMG	WNMG	WNMG	WNMG
		76 171 ...	76 177 ...	76 157 ...	76 157 ...	76 157 ...	76 177 ...	76 177 ...
ISO	RE mm							
060404EN	0,4	004		304	504	704	304	514
060408EN	0,8	006	006	306	506	706	306	506
080404EN	0,4		016	316	516	716		
080408EN	0,8	018	018	318	518	718	318	518
080412EN	1,2			320	520	720	320	520
P		●	●	●	●	●	●	●
M		○	○			○		
K		○	○	○	○		○	○
N								
S								
H								
O								

9

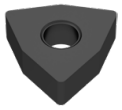
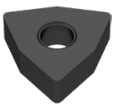
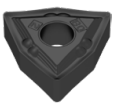
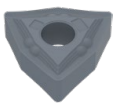
WNMG

		-XU CTCP115	-XU CTCP125	-M50 CTCK110	-M50 CTCK120	-M50 CTCP115	-M50 CTCP125	-M50 CTCP135
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		M	M	M	M	M	M	M
		WNMG	WNMG	WNMG	WNMG	WNMG	WNMG	WNMG
		76 295 ...	76 295 ...	70 139 ...	70 139 ...	76 139 ...	76 139 ...	76 139 ...
ISO	RE mm							
060404EN	0,4					304	504	704
060408EN	0,8					306	506	706
060412EN	1,2					308	508	708
080404EN	0,4	316	516			316	516	716
080408EN	0,8	318	518	018	518	318	518	718
080412EN	1,2	320	520	020	520	320	520	720
080416EN	1,6					322	522	722
P		●	●	○	○	●	●	●
M								○
K		○	○	●	●	○	○	
N								
S								
H								
O								

WNMG

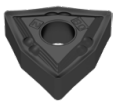
		-TMQ CTCP115	-TMQ CTCP125	-M70 CTCK110	-M70 CTCK120	-M70 CTCP115	-M70 CTCP125	-M70 CTCP135
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		M	M	M	M	M	M	M
		WNMG	WNMG	WNMG	WNMG	WNMG	WNMG	WNMG
		76 198 ...	76 198 ...	70 273 ...	70 273 ...	76 273 ...	76 273 ...	76 273 ...
ISO	RE mm							
060408EN	0,8					306	506	706
060412EN	1,2					308	508	708
080408EN	0,8	31800	518	018	518	318	518	718
080412EN	1,2	320	520	020	520	320	520	720
080416EN	1,6			022	522	322	522	722
P		●	●	○	○	●	●	●
M								○
K		○	○	●	●	○	○	
N								
S								
H								
O								

WNMA / WNMG

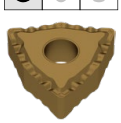
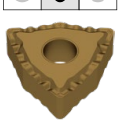
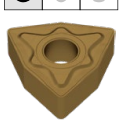
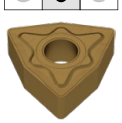
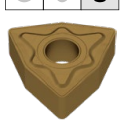
				NEW		NEW	NEW	
		CTCK110	CTCK120	-F30 CTCM120	-F30 CTPM125	-F30 CTCM130	-M30 CTCM120	-M30 CTPM125
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		R	R	F	F	F	M	M
		WNMA	WNMA	WNMG	WNMG	WNMG	WNMG	WNMG
		70 169 ...	70 169 ...	75 024 ...	75 024 ...	75 024 ...	75 025 ...	75 025 ...
ISO	RE mm							
060404EN	0,4			10400	204	30400		
060408EN	0,8			10600	206	30600	10600	206
060412EN	1,2						10800	208
080404EN	0,4			11600	216	31600		
080408EN	0,8	018	518	11800	218	31800	11800	218
080412EN	1,2	020	520				12000	220
080416EN	1,6	022	522					
P		○	○	○	○	○	○	○
M				●	●	●	●	●
K		●	●					
N								
S						○		
H								
O								

9

WNMG

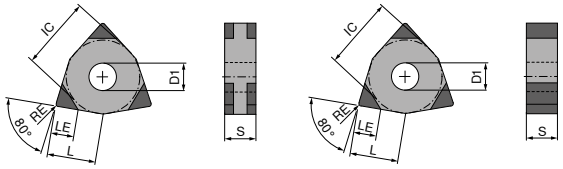
		NEW	NEW		NEW	NEW
		-M30 CTCM130	-M60 CTCM120	-M60 CTPM125	-M60 CTCM130	-M34 CTPX710
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		M	M	M	M	M
		WNMG	WNMG	WNMG	WNMG	WNMG
		75 025 ...	75 026 ...	75 026 ...	75 026 ...	75 008 ...
ISO	RE mm					
060408EN	0,8	30600	10600	206	30600	
060412EN	1,2	30800	10800	208	30800	
080408EN	0,8	31800	11800	218	31800	61800
080412EN	1,2	32000	12000	220	32000	62000
P		○	○	○	○	●
M		●	●	●	●	●
K						
N						○
S		○			○	●
H						
O						

WNMG

		NEW	NEW	NEW	NEW	NEW
		-FMS CT-P15	-FMS CT-P25	-MRS CT-P15	-MRS CT-P25	-MRS CT-P35
						
		F	F	M	M	M
		WNMG	WNMG	WNMG	WNMG	WNMG
		75 311 ...	75 311 ...	75 312 ...	75 312 ...	75 312 ...
ISO	RE mm					
080404EN	0,4	01609	11609			
080408EN	0,8	01809	11809	01809	11809	21809
080412EN	1,2	02009	12009	02009	12009	22009
P		●	●	●	●	●
M		o	o	o	o	o
K						
N						
S						
H						
O						

WNGA

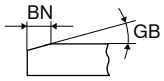
Designation	L mm	S mm	D1 mm	IC mm
WNGA 0804..	8,5	4,76	5,13	12,7



WNGA M WNGA V

WNGA

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

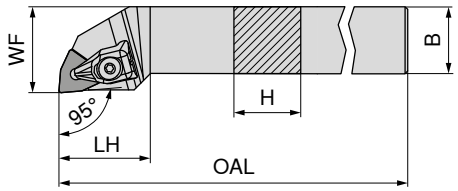


				NEW				NEW
				CTBS05U	CTBS20C	CTBH20C	CTBH40C	-Q CTBH40C
				F	F	F	F	F
				CBN WNGA	CBN WNGA	CBN WNGA	CBN WNGA	CBN WNGA
				71 415 ...	71 405 ...	71 405 ...	71 405 ...	71 414 ...
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm			
080404FN	0,4			M (6)	2,8			20200		
080404SN	0,4	0,09	10°	M (6)	2,8		122			
080404TN	0,4	0,09	15°	M (6)	2,8			23200		
080404SN	0,4	0,09	15°	M (6)	2,8		132			
080404SN	0,4	0,09	20°	M (6)	2,8		152		332	
080404SN	0,4	0,11	20°	M (6)	2,8			242		
080404TN	0,4	0,11	25°	M (6)	2,8			25200		
080404SN	0,4	0,11	25°	M (6)	2,8				352	
080404SN	0,4	0,13	25°	M (6)	2,8			262		
080404SN	0,4	0,14	30°	M (6)	2,8				372	
080404TN	0,4	0,20	30°	V (3)	2,8	00100				
080404TN	0,4	0,20	30°	V (3)	4,5	00200				
080408SN	0,8	0,09	10°	M (6)	2,5		124			
080408TN	0,8	0,09	15°	M (6)	2,5			23300		
080408SN	0,8	0,09	15°	M (6)	2,5		134			
080408SN	0,8	0,09	20°	M (6)	2,5		154		334	
080408SN	0,8	0,11	20°	M (6)	2,5			244		
080408TN	0,8	0,11	25°	M (6)	2,5			25300		
080408SN	0,8	0,11	25°	M (6)	2,5				354	60100
080408SN	0,8	0,13	25°	M (6)	2,5			264	364	
080408SN	0,8	0,16	25°	M (6)	2,5		174			
080408SN	0,8	0,14	30°	M (6)	2,5			274	376	
080408TN	0,8	0,20	30°	V (3)	2,6	00300				
080408TN	0,8	0,20	30°	V (3)	4,2	00400				
080408SN	0,8	0,14	35°	M (6)	2,5				38200	
080408EN	0,8			M (6)	2,5					60000
080412SN	1,2	0,11	20°	M (6)	2,2				34200	
080412SN	1,2	0,11	25°	M (6)	2,2				35100	
080412SN	1,2	0,14	30°	M (6)	2,2				36100	
080412TN	1,2	0,20	30°	V (3)	2,4	00500				
080412TN	1,2	0,20	30°	V (3)	4,0	00600				
080412SN	1,2	0,14	35°	M (6)	2,2				38300	
P										
M										
K						●	●			
N										
S							●			
H								●	●	●
O										

9

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







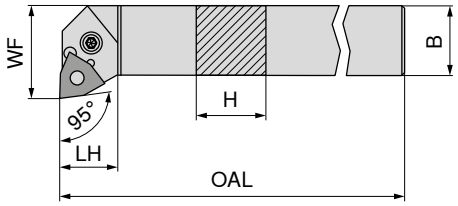
Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 543 ...	Right-hand 70 542 ...
DWLN R/L 1616 H06	16	16	100	25	20	2	WN.. 0604	**716**	**716**
DWLN R/L 2020 K06	20	20	125	27	25	2	WN.. 0604	**720**	**720**
DWLN R/L 2525 M06	25	25	150	27	32	2	WN.. 0604	**725**	**725**
DWLN R/L 2020 K08	20	20	125	34	25	4	WN.. 0804	**620**	**620**
DWLN R/L 2525 M08	25	25	150	34	32	4	WN.. 0804	**625**	**625**

Spare parts for Article no.	XPress type 70 950 ...		Key D 80 950 ...		Clamping screw 70 950 ...		Solid Carbide Seat W 70 950 ...	
70 543 716 / 70 542 716	**823**	T09 - IP	**126**	M3x7 - IP	**819**		**807**	
70 543 720 / 70 542 720	**823**	T09 - IP	**126**	M3x7 - IP	**819**		**807**	
70 543 725 / 70 542 725	**823**	T09 - IP	**126**	M3x7 - IP	**819**		**807**	
70 543 620 / 70 542 620	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**812**	
70 543 625 / 70 542 625	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**812**	

MaxiLock-N – PWLN 95° – Toolholder with lever clamping







Illustrations show right-hand versions

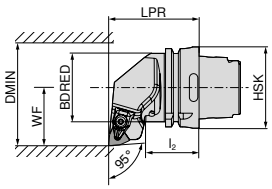
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 543 ...	Right-hand 70 542 ...
PWLN R/L 1616 H06	16	16	100	20	22,5	3	WNMG 0604	**116**	**11600**[1)]
PWLN R/L 2020 K06	20	20	125	26	25,0	3	WNMG 0604	**12000**[1)]	**12000**[1)]
PWLN R/L 2525 M06	25	25	150	19	32,0	3	WNMG 0604	**125**	**12500**[1)]
PWLN R/L 2020 K08	20	20	125	22	25,0	4	WNMG 0804	**020**	**020**
PWLN R/L 2525 M08	25	25	150	22	32,0	4	WNMG 0804	**025**	**025**
PWLN R/L 3225 P08	32	25	170	22	32,0	4	WNMG 0804	**032**	**032**

1) nickel-plated

Spare parts for Article no.		Key I 70 950 ...		Shim 70 950 ...		Assembly pin 70 950 ...		Lever 70 950 ...		Clamping screw 70 950 ...		Solid Carbide Seat W 70 950 ...	
70 542 11600 / 70 543 116	SW2,5	**175**		**122**		**191**		**185**		**208**		**127**	
70 542 12000 / 70 543 12000	SW2,5	**175**		**122**		**191**		**185**		**208**		**127**	
70 542 12500 / 70 543 125	SW2,5	**175**		**122**		**191**		**185**		**208**		**127**	
70 542 020 / 70 543 020	SW3	**176**		**198**		**192**		**187**		**209**		**235**	
70 542 025 / 70 543 025	SW3	**176**		**198**		**192**		**187**		**209**		**235**	
70 542 032 / 70 543 032	SW3	**176**		**198**		**192**		**187**		**209**		**235**	

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





Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	Insert	Left-hand 74 529 ...	Right-hand 74 528 ...
HSK T63 DWLN R/L 08	HSK-T 63	70	42	53	45	125	WN.. 0804	**508**	**508**
HSK T100 DWLN R/L 08	HSK-T 100	80	45	88	55	125	WN.. 0804	**708**	**708**



XPress type **70 950 ...**

Key D **80 950 ...**



Clamping screw **70 950 ...**



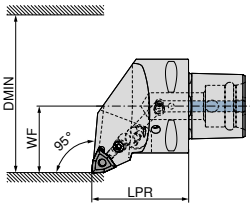
Solid Carbide Seat W **70 950 ...**

Spare parts for Article no.						
74 528 508 / 74 529 508	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**812**
74 528 708 / 74 529 708	**824**	T15 - IP	**128**	M4,5x12 - IP	**820**	**812**

MaxiLock-N – PWLN 95° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set





Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	NEW Left-hand 84 653 ...	NEW Right-hand 84 652 ...
PSC40 PWLN R/L 50050-08	PSC 40	50	27	50	5	WN.. 0804	DC	**00895**	**00895**
PSC50 PWLN R/L 65060-08	PSC 50	60	35	65	5	WN.. 0804	DC	**00894**	**00894**
PSC63 PWLN R/L 80065-08	PSC 63	65	45	80	5	WN.. 0804	DC	**00893**	**00893**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.



Shim **84 950 ...**



Elbow lever screw **84 950 ...**



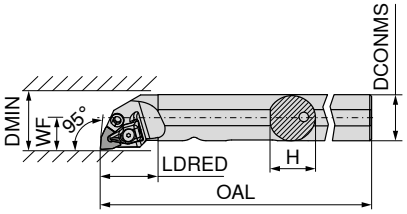
Lever **84 950 ...**



Solid Carbide Seat W **84 950 ...**

Spare parts Adapter						
PSC 40	**29200**	M8X1/L17 SW3	**28700**	**28900**	**27700**
PSC 50	**29200**	M8X1/L17 SW3	**28700**	**28900**	**27700**
PSC 63	**29200**	M8X1/L17 SW3	**28700**	**28900**	**27700**

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





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 573 ...	Right-hand 70 572 ...
A25R DWLN R/L 06	25	24	200	32	17	32	2	WN.. 0604	**725**	**725**
A32S DWLN R/L 08	32	31	250	40	22	40	4	WN.. 0804	**732**	**732**
A40T DWLN R/L 08	40	39	300	45	27	50	4	WN.. 0804	**64000**	**640**


XPress type


Key D

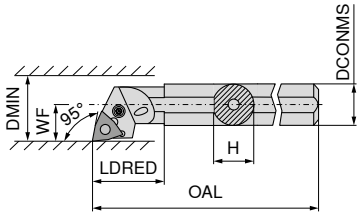

Clamping screw


Hydrant


Solid Carbide Seat W

Spare parts for Article no.		70 950 ...		80 950 ...		70 950 ...		70 950 ...		70 950 ...
70 572 725 / 70 573 725		**823**	T09 - IP	**126**	M3x7 - IP	**819**		**834**		**807**
70 572 732 / 70 573 732		**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**834**		**812**
70 572 640 / 70 573 64000		**824**	T15 - IP	**128**	M4,5x12 - IP	**820**		**834**		**812**

MaxiLock-N – PWLN 95° – Boring bar with lever clamping





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 573 ...	Right-hand 70 572 ...
A16M PWLN R/L 06	16	15	150	20	11	20	3	WNMG 0604	**11600**[1)]	**11600**[1)]
A20Q PWLN R/L 06-1	20	19	180	30	13	25	3	WNMG 0604	**12100**[1)]	**12100**[1)]
A25R PWLN R/L 06	25	23	200	25	17	32	3	WNMG 0604	**12500**[1)]	**12500**[1)]
A32S PWLN R/L 06	32	30	250	50	22	40	3	WNMG 0604	**132**	**132**
A25R PWLN R/L 08	25	23	200	40	17	31	4	WNMG 0804	**225**	**225**
A32S PWLN R/L 08	32	30	250	50	22	40	4	WNMG 0804	**032**	**032**
A40T PWLN R/L 08	40	39	300	60	27	50	4	WNMG 0804	**040**	**040**

1) nickel-plated


Key I


Shim


Assembly pin


Lever


Clamping screw

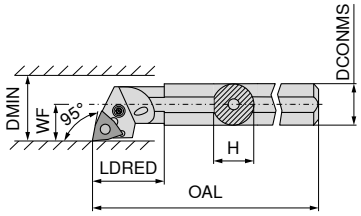

Solid Carbide Seat W

Spare parts for Article no.		70 950 ...		70 950 ...		70 950 ...		70 950 ...		70 950 ...
70 572 11600 / 70 573 11600	SW2	**177**					**129**	**217**		
70 572 12100 / 70 573 12100	SW2	**177**					**129**	**217**		
70 572 12500 / 70 573 12500	SW2,5	**175**	**122**	**191**			**185**	**208**		**127**
70 572 132 / 70 573 132	SW2,5	**175**	**122**	**191**			**185**	**208**		**127**
70 572 225 / 70 573 225	SW3	**176**					**187**	**205**		
70 572 032 / 70 573 032	SW3	**176**	**198**	**192**			**187**	**209**		**235**
70 572 040 / 70 573 040	SW3	**176**	**198**	**192**			**187**	**209**		**235**

MaxiLock-N – PWLN 95° – Boring bar with lever clamping

▲ with carbide core





Illustrations show right-hand versions

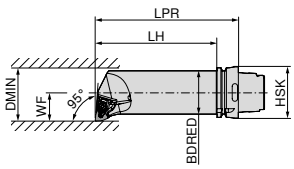


									Right-hand
									70 566 ...
ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	
E-A16M PWLN R 06	16	15	150	24	11	20	3	WNMG 0604	**016**
E-A20Q PWLN R 06	20	18	180	29	13	27	3	WNMG 0604	**020**
E-A25R PWLN R 06	25	23	200	40	17	31	3	WNMG 0604	**025**
E-A25R PWLN R 08	25	23	200	40	17	31	4	WNMG 0804	**125**
E-A32S PWLN R 08	32	30	250	50	22	39	4	WNMG 0804	**032**
E-A40T PWLN R 08	40	38	300	60	27	48	4	WNMG 0804	**040**

			 Key I		 Shim		 Assembly pin		 Lever		 Clamping screw		 Solid Carbide Seat W	
			70 950 ...		**70 950 ...**		**70 950 ...**		**70 950 ...**		**70 950 ...**		**70 950 ...**	
Spare parts for Article no.														
70 566 016	SW2		**177**						**129**		**217**			
70 566 020	SW2		**177**						**129**		**217**			
70 566 025	SW2,5		**175**		**122**		**191**		**185**		**208**		**127**	
70 566 125	SW3		**176**						**187**		**209**			
70 566 032	SW3		**176**		**198**		**192**		**187**		**209**		**235**	
70 566 040	SW3		**176**		**198**		**192**		**187**		**209**		**235**	

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





Illustrations show right-hand versions



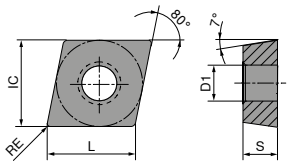
									Left-hand	Right-hand
									74 537 ...	74 536 ...
ISO designation	Adapter	LPR mm	LH mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert		
HSK T63 50Q DWLN R/L 08	HSK-T 63	175	149	50	35	63	4	WN.. 0804	**508**	**508**

			 XPress type		 Key D				 Clamping screw		 Solid Carbide Seat W	
			70 950 ...		**80 950 ...**				**70 950 ...**		**70 950 ...**	
Spare parts for Article no.												
74 536 508 / 74 537 508			**824**	T15 - IP		**128**	M4,5x12 - IP			**820**		**812**

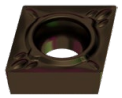
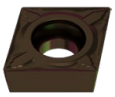
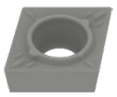
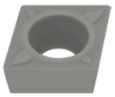
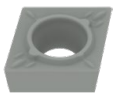
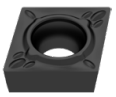
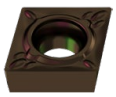
9

CCGT / CCMT

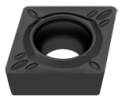
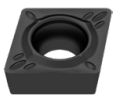
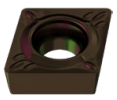
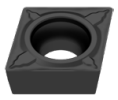
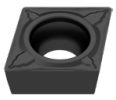
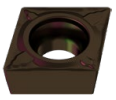
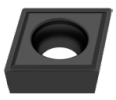
Designation	L mm	S mm	D1 mm	IC mm
CC.T 0602..	6,4	2,38	2,8	6,35
CC.T 09T3..	9,7	3,97	4,4	9,52
CC.T 1204..	12,9	4,76	5,5	12,70



CCGT / CCMT

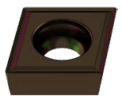
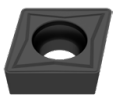
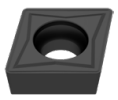
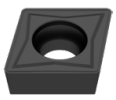
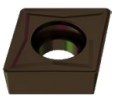
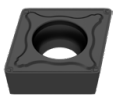
		-CF05 CTEP110	-CF55 CTEP110	-SF TCM10	-SMF TCM10	-SF TCM407	-SF CTCP125	-SF CTCP135
		DRAGONSKIN	DRAGONSKIN				DRAGONSKIN	DRAGONSKIN
								
		F	F	F	F	F	F	F
		CERMET CCGT	CERMET CCMT	CERMET CCGT	CERMET CCMT	CERMET CCGT	CCGT	CCGT
		76 247 ...	76 248 ...	70 251 ...	70 249 ...	70 251 ...	76 251 ...	76 251 ...
ISO	RE mm							
060202EN	0,2	002		900		850	502	702
060204EN	0,4	004	004	902	900	852		
09T302EN	0,2	014		904		854		
09T304EN	0,4	016	016	906	904			
09T308EN	0,8	018	018	908	906			
120404EN	0,4		028	910				
P		●	●	●	●	●	●	●
M		○	○	○	○	○		○
K		○	○	○	○	○	○	
N								
S								
H								
O								

CCMT / CCGT

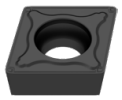
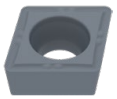
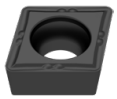
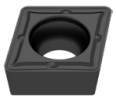
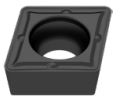
	-SF CTCP115	-SF CTCP125	-SF CTCP135	-SMF CTCP115	-SMF CTCP125	-SMF CTCP135	-SM CTCP125
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	F	F	F	F	F	F	M
	CCMT	CCMT	CCMT	CCMT	CCMT	CCMT	CCGT
	76 253 ...	76 253 ...	76 253 ...	76 249 ...	76 249 ...	76 249 ...	76 250 ...
ISO / RE mm							
060202EN 0,2							502
060204EN 0,4	304	504	704		504	704	
060208EN 0,8					506		
09T304EN 0,4	316	516	716	316	516	716	
09T308EN 0,8	318	518		318	518		
120404EN 0,4		528			528		
120408EN 0,8		530		330		730	
P	●	●	●	●	●	●	●
M			○			○	
K	○	○		○	○		○
N							
S							
H							
O							

9

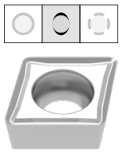
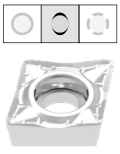
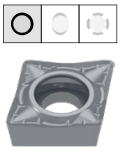
CCGT / CCMT

	-SM CTCP135	-SM CTCK110	-SM CTCK120	-SM CTCP115	-SM CTCP125	-SM CTCP135	-SMQ CTCP115
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	M	M	M	M	M	M	F
	CCGT	CCMT	CCMT	CCMT	CCMT	CCMT	CCMT
	76 250 ...	70 252 ...	70 252 ...	76 252 ...	76 252 ...	76 252 ...	76 194 ...
ISO / RE mm							
060202EN 0,2	702						
060204EN 0,4		004	554	304	504	704	
060208EN 0,8		006	506	306		706	
09T304EN 0,4		016	516	316	516	716	31600
09T308EN 0,8		018	518	318	518	718	31800
09T312EN 1,2		020	520				
120404EN 0,4		028	528	328	528	728	32800
120408EN 0,8		030	530	330	530	730	330
120412EN 1,2					532		
P	●	○	○	●	●	●	●
M	○					○	
K		●	●	○	○		○
N							
S							
H							
O							

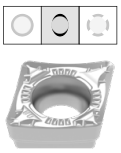
CCMT

			NEW		NEW	NEW		NEW
		-SMQ CTCP125	-M25 CTCM120	-M25 CTPM125	-M25 CTCM130	-M55 CTCM120	-M55 CTPM125	-M55 CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		F	F	F	F	M	M	M
		CCMT	CCMT	CCMT	CCMT	CCMT	CCMT	CCMT
		76 194 ...	75 210 ...	75 210 ...	75 210 ...	75 211 ...	75 211 ...	75 211 ...
ISO	RE mm							
060204EN	0,4		10400	204	30400	10400	204	
09T304EN	0,4	516	11600	216	31600	11600	216	31600
09T308EN	0,8	518	11800	218	31800	11800	218	31800
120404EN	0,4	528				12800	228	32800
120408EN	0,8	530				13000	230	33000
P		●	○	○	○	○	○	○
M			●	●	●	●	●	●
K		○						
N								
S					○			○
H								
O								

CCGT

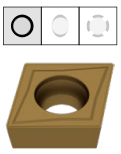
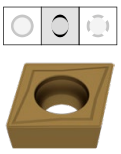
				NEW		NEW		
		-23P H216T	-25P H210T	-25P CTPX710	-25Q H210T	-25Q CTPX710	-27 H10T	-27 CWN15
				DRAGONSKIN		DRAGONSKIN		
								
		F	F	M	M	M	M	M
		CCGT	CCGT	CCGT	CCGT	CCGT	CCGT	CCGT
		70 255 ...	70 248 ...	70 248 ...	70 248 ...	70 248 ...	70 254 ...	70 254 ...
ISO	RE mm							
060202FN	0,2	652	636	70200			600	300
060204FN	0,4	654	638	70400	678	75400	602	302
09T302FN	0,2		639	71400			604	304
09T304FN	0,4	656	640	71600	680	76600	606	306
09T308FN	0,8	658	641	71800	681	76800	608	308
120402FN	0,2		643				610	310
120404FN	0,4		642	72800	682	77800	612	312
120408FN	0,8		644	73000	686	78000	614	314
P				●		●		
M				●		●		○
K		○	○		○		○	
N		●	●	●	●	●	●	●
S			○	●	○	●		
H								
O		○	○		○		○	

CCGT / CCMT

		NEW	NEW
		-27 CTPX715	-29 H216T
		DRAGONSKIN	
			
		M	M
		CCGT	CCMT
		70 254 ...	70 245 ...
ISO	RE mm		
060202FN	0,2	80200	
060204EN	0,4		60400
060204FN	0,4	80400	
09T302FN	0,2	81400	
09T304EN	0,4		61600
09T304FN	0,4	81600	
09T308EN	0,8		61800
09T308FN	0,8	81800	
120402FN	0,2	82600	
120404FN	0,4	82800	
120408FN	0,8	83000	
P		●	
M		●	
K		○	○
N		●	●
S		●	
H			
O		○	○

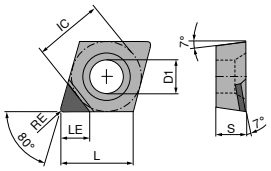
9

CCMT

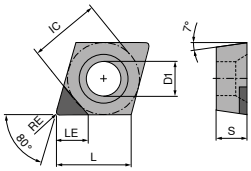
		NEW	NEW	NEW	NEW
		-FMS CT-P15	-FMS CT-P25	-MRS CT-P15	-MRS CT-P25
					
		F	F	M	M
		CCMT	CCMT	CCMT	CCMT
		75 300 ...	75 300 ...	75 301 ...	75 301 ...
ISO	RE mm				
09T304EN	0,4	01609	11609	01609	11609
09T308EN	0,8	01809	11809	01809	11809
120404EN	0,4	02809	12809	02809	12809
120408EN	0,8	03009	13009	03009	13009
120412EN	1,2			03209	13209
P		●	●	●	●
M		○	○	○	○
K					
N					
S					
H					
O					

CCGW / CCGT

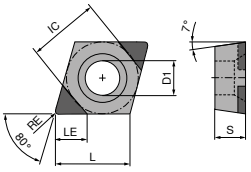
Designation	L mm	S mm	D1 mm	IC mm
CCG. 0602..	6,40	2,38	2,8	6,35
CCGW 0602..	6,45	2,38	2,8	6,35
CCG. 09T3..	9,70	3,97	4,4	9,52
CCGW 1204..	12,90	4,76	5,5	12,70



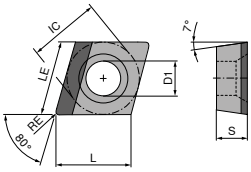
CCGT A



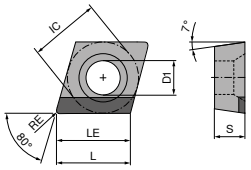
CCGW A



CCGW B



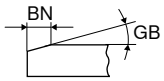
CCGW A LL



CCGW A RR

CCGW / CCGT

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

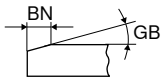


ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	NEW			NEW	NEW
						CTBS10U	CTBS10U	CTBS10U	CTBS10U	CTBS10U
						F	F	F	F	F
						CBN CCGW	CBN CCGW	CBN CCGT	CBN CCGW	CBN CCGW
						71 419 ...	71 120 ...	71 124 ...	71 420 ...	71 420 ...
060202TN	0,2	0,12	20°	A (1)	3,4		300			
060202FN	0,2			A (1)	3,4		200	200		
060204TN	0,4	0,12	20°	A (1)	3,1		302			
060204FN	0,4			A (1)	3,1		202	202		
060208TN	0,8	0,12	20°	A (1)	2,8		30300			
09T302FN	0,2			A (1)	3,4			25000		
09T304FN	0,4			A (1)	2,8		204			
09T304TN	0,4	0,12	20°	A (1)	2,8		304			
09T304FN	0,4			A (1)	3,1			25200		
09T304FN	0,4			B (2)	3,1	10000				
09T304TRR	0,4	0,12	20°	A (1)	9,7				10100	
09T304TN	0,4	0,12	20°	B (2)	3,1	10100				
09T304TLL	0,4	0,12	20°	A (1)	9,7					10000
09T308FN	0,8			A (1)	2,5		206			
09T308TRR	0,8	0,12	20°	A (1)	9,7				10300	
09T308TN	0,8	0,12	20°	A (1)	2,5		306			
09T308TLL	0,8	0,12	20°	A (1)	9,7					10200
120404FN	0,4			A (1)	3,1		208			
120404TN	0,4	0,12	20°	A (1)	3,1		308			
120408TN	0,8	0,12	20°	A (1)	2,8		310			
120408FN	0,8			A (1)	2,8		210			
P										
M										
K						●	●	●	●	●
N										
S						●	●	●	●	●
H										
O										

9

CCGW

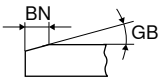
▲ TCE(NOI) = Design and number of equipped cutting edge corners

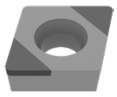


						NEW	NEW	-Q			-Q
						CTBS20U	CTBS20U	CTBS20C	CTBS20C	CTBH20C	CTBH20C
											
						F	F	F	F	F	F
						CBN CCGW	CBN CCGW	CBN CCGW	CBN CCGW	CBN CCGW	CBN CCGW
						71 418 ...	71 420 ...	71 162 ...	71 161 ...	71 161 ...	71 162 ...
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm						
060202SN	0,2	0,09	10°	B (2)	3,4			120		230	230
060202SN	0,2	0,11	15°	B (2)	3,4			130			240
060202TN	0,2	0,12	15°	A (1)	3,4	20000					
060202SN	0,2	0,09	20°	B (2)	3,4					250	
060202TN	0,2	0,15	20°	B (2)	3,4			140			
060202SN	0,2	0,16	20°	B (2)	3,4			150	150		
060202TN	0,2	0,14	25°	B (2)	3,4					260	
060202SN	0,2	0,15	25°	B (2)	3,4					270	
060202EN	0,2			B (2)	3,4			110	110		220
060202TN	0,2	0,17	25°	B (2)	3,4			160	160		
060202FN	0,2			B (2)	3,4						210
060204SN	0,4	0,09	10°	B (2)	3,1			121	121	231	231
060204SN	0,4	0,11	15°	B (2)	3,1			131	131	241	241
060204TN	0,4	0,12	15°	A (1)	3,1	20200					
060204SN	0,4	0,09	20°	B (2)	3,1					251	251
060204TN	0,4	0,15	20°	B (2)	3,1			141	141		
060204SN	0,4	0,16	20°	B (2)	3,1			151	151		
060204TN	0,4	0,14	25°	B (2)	3,1					261	261
060204SN	0,4	0,15	25°	B (2)	3,1					271	
060204TN	0,4	0,17	25°	B (2)	3,1			161	161		
060204SN	0,4	0,18	25°	B (2)	3,1			171			
060204FN	0,4			A (1)	3,1	20100					
060204EN	0,4			B (2)	3,1					221	
060208EN	0,8			B (2)	2,8				112		
060208SN	0,8	0,09	10°	B (2)	2,8				122	232	
060208SN	0,8	0,11	15°	B (2)	2,8				132		
060208SN	0,8	0,09	20°	B (2)	2,8					252	
060208TN	0,8	0,15	20°	B (2)	2,8				142		
060208TN	0,8	0,14	25°	B (2)	2,8					262	
060208TN	0,8	0,17	25°	B (2)	2,8				162		
060208SN	0,8	0,18	25°	B (2)	2,8				172		
060208SN	0,8	0,18	30°	B (2)	2,8				182	282	
060208FN	0,8			B (2)	2,8					212	
09T302SN	0,2	0,09	10°	B (2)	3,4				123	233	
09T302SN	0,2	0,11	15°	B (2)	3,4				133	243	
09T302SN	0,2	0,09	20°	B (2)	3,4					253	
09T302SN	0,2	0,16	20°	B (2)	3,4				153		
09T302SN	0,2	0,15	25°	B (2)	3,4					273	
09T302EN	0,2			B (2)	3,4				113		
09T302TN	0,2	0,17	25°	B (2)	3,4				163		
09T302SN	0,2	0,18	25°	B (2)	3,4				173		
09T304SN	0,4	0,09	10°	B (2)	3,1			124	124	234	
09T304SN	0,4	0,11	15°	B (2)	3,1			134	134	244	
09T304TN	0,4	0,12	15°	A (1)	2,8	20400					
09T304SN	0,4	0,09	20°	B (2)	3,1					254	
09T304TN	0,4	0,15	20°	B (2)	3,1			144	144		
09T304SN	0,4	0,16	20°	B (2)	3,1			154	154		
09T304TN	0,4	0,14	25°	B (2)	3,1					264	
09T304SN	0,4	0,15	25°	B (2)	3,1					274	
09T304TN	0,4	0,17	25°	B (2)	3,1			164	164		
09T304SN	0,4	0,18	25°	B (2)	3,1			174	174		
09T304SN	0,4	0,18	30°	B (2)	3,1				184	284	
P											
M											
K						●	●	●	●		
N											
S						●	●	●	●		
H										●	●
O											

CCGW

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

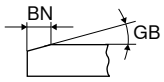


						NEW	NEW				
						CTBS20U	CTBS20U	-Q CTBS20C	CTBS20C	CTBH20C	-Q CTBH20C
											
											
						F	F	F	F	F	F
						CBN CCGW	CBN CCGW	CBN CCGW	CBN CCGW	CBN CCGW	CBN CCGW
						71 418 ...	71 420 ...	71 162 ...	71 161 ...	71 161 ...	71 162 ...
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm						
09T304EN	0,4			B (2)	3,1				114	224	
09T304FN	0,4			A (1)	2,8	20300					
09T308SN	0,8	0,09	10°	B (2)	2,8			125	125	235	235
09T308SN	0,8	0,11	15°	B (2)	2,8			135		245	245
09T308TLL	0,8	0,12	15°	A (1)	9,7		20000				
09T308TN	0,8	0,12	15°	A (1)	2,5	20600					
09T308SN	0,8	0,09	20°	B (2)	2,8						255
09T308TN	0,8	0,15	20°	B (2)	2,8			145	145		
09T308SN	0,8	0,16	20°	B (2)	2,8			155	155		
09T308TN	0,8	0,14	25°	B (2)	2,8					265	265
09T308SN	0,8	0,15	25°	B (2)	2,8					275	
09T308TN	0,8	0,17	25°	B (2)	2,8			165	165		
09T308SN	0,8	0,18	25°	B (2)	2,8				175		
09T308FN	0,8			A (1)	2,5	20500					
09T308EN	0,8			B (2)	2,8			115			225
09T308SN	0,8	0,18	30°	B (2)	2,8				185		
09T308FN	0,8			B (2)	2,8						215
120404FN	0,4			A (1)	3,1	20700					
120404TN	0,4	0,12	15°	A (1)	3,1	20800					
120408TN	0,8	0,12	15°	A (1)	2,8	20900					
P											
M											
K						●	●	●	●		
N											
S						●	●	●	●		
H										●	●
O											

9

CCGW

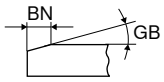
▲ TCE(NOI) = Design and number of equipped cutting edge corners



						NEW CTBH15U	NEW CTBH15C	NEW -Q CTBH15C
						F	F	F
						CBN CCGW	CBN CCGW	CBN CCGW
						71 001 ...	71 000 ...	71 002 ...
ISO	RE mm	BN mm	GB	**TCE (NOI)**	LE mm			
060202SN	0,2	0,11	15°	**B (2)**	3,4	**30214**	**30214**	
060202EN	0,2			**B (2)**	3,4	**00200**	**00200**	
060204SN	0,4	0,11	15°	**B (2)**	3,1	**30414**	**30414**	
060204SN	0,4	0,14	25°	**B (2)**	3,1	**30429**	**30429**	
060204EN	0,4			**B (2)**	3,1	**00400**	**00400**	
060208EN	0,8			**B (2)**	2,8	**00600**	**00600**	
060208SN	0,8	0,11	15°	**B (2)**	2,8	**30614**	**30614**	
060208SN	0,8	0,14	25°	**B (2)**	2,8	**30629**	**30629**	
09T302SN	0,2	0,11	15°	**B (2)**	3,4		**31414**	
09T302SN	0,2	0,14	25°	**B (2)**	3,4		**31429**	
09T304SN	0,4	0,11	15°	**B (2)**	3,1		**31614**	**31614**
09T304SN	0,4	0,14	25°	**B (2)**	3,1		**31629**	**31629**
09T308SN	0,8	0,11	15°	**B (2)**	2,8		**31814**	**31814**
09T308SN	0,8	0,14	25°	**B (2)**	2,8		**31829**	**31829**
P								
M								
K								
N								
S								
H						●	●	●
O								

CCGW / CCGT

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



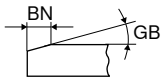
						CTBH21U	CTBH20U	CTBH20U	-Q CTBH20U	CTBH20U	CTBH20C
						F	F	F	F	F	F
						CBN CCGW	CBN CCGT	CBN CCGW	CBN CCGW	CBN CCGW	CBN CCGW
						71 120 ...	71 124 ...	71 121 ...	71 123 ...	71 120 ...	71 161 ...
ISO	RE mm	BN mm	GB	**TCE (NOI)**	LE mm						
060202SN	0,2	0,09	10°	**B (2)**	3,4						230
060202SN	0,2	0,09	20°	**B (2)**	3,4						250
060202TN	0,2	0,12	20°	**A (1)**	3,4					500	
060202TN	0,2	0,14	25°	**B (2)**	3,4						260
060202SN	0,2	0,15	25°	**B (2)**	3,4						270
060202FN	0,2			**A (1)**	3,4		400			400 [1]	
060204SN	0,4	0,09	10°	**B (2)**	3,1						231
060204SN	0,4	0,11	15°	**B (2)**	3,1						241
060204SN	0,4	0,09	20°	**B (2)**	3,1						251
060204TN	0,4	0,12	20°	**A (1)**	3,1					502	
060204TN	0,4	0,14	25°	**B (2)**	3,1						261
060204SN	0,4	0,15	25°	**B (2)**	3,1						271
060204FN	0,4			**A (1)**	3,1		402			402 [1]	
060204EN	0,4			**B (2)**	3,1						221
060208SN	0,8	0,09	10°	**B (2)**	2,8						232
060208SN	0,8	0,09	20°	**B (2)**	2,8						252
060208TN	0,8	0,14	25°	**B (2)**	2,8						262
060208SN	0,8	0,18	30°	**B (2)**	2,8						282
060208FN	0,8			**B (2)**	2,8						212
09T302SN	0,2	0,09	10°	**B (2)**	3,4						233
09T302SN	0,2	0,11	15°	**B (2)**	3,4						243
09T302SN	0,2	0,09	20°	**B (2)**	3,4						253
09T302TN	0,2	0,12	20°	**B (2)**	3,4			50100			
09T302SN	0,2	0,15	25°	**B (2)**	3,4						273
09T304FN	0,4			**A (1)**	2,8					404 [1]	
09T304SN	0,4	0,09	10°	**B (2)**	3,1						234
09T304SN	0,4	0,11	15°	**B (2)**	3,1						244
09T304SN	0,4	0,09	20°	**B (2)**	3,1						254
09T304TN	0,4	0,12	20°	**B (2)**	3,1			502	502		
09T304TN	0,4	0,12	20°	**A (1)**	2,8					504	
09T304TN	0,4	0,14	25°	**B (2)**	3,1						264
09T304SN	0,4	0,15	25°	**B (2)**	3,1						274
09T304FN	0,4			**B (2)**	3,1			402 [1]			
09T304SN	0,4	0,18	30°	**B (2)**	3,1						284
09T304FN	0,4			**A (1)**	3,1	40500	45000				
09T304EN	0,4			**B (2)**	3,1						224
09T308FN	0,8			**A (1)**	2,5					406 [1]	
09T308SN	0,8	0,09	10°	**B (2)**	2,8						235
09T308SN	0,8	0,11	15°	**B (2)**	2,8						245
09T308TN	0,8	0,12	20°	**A (1)**	2,5					506	
09T308FN	0,8			**B (2)**	2,8			404 [1]	404 [1]		
09T308TN	0,8	0,12	20°	**B (2)**	2,8			504	504		
09T308TN	0,8	0,14	25°	**B (2)**	2,8						265
09T308SN	0,8	0,15	25°	**B (2)**	2,8						275
09T308FN	0,8			**A (1)**	2,8		45200				
120404TN	0,4	0,12	20°	**A (1)**	3,1					508	
120408TN	0,8	0,12	20°	**A (1)**	2,8					510	
P											
M											
K											
N											
S											
H						●	●	●	●	●	●
O											

1) Machining to 60 HRC

9

CCGW / CCGT

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



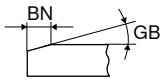
	-Q CTBH20C	CTBH40U	CTBH40U	CTBH40U	-Q CTBH40U
	F	F	F	F	F
	CBN CCGW	CBN CCGW	CBN CCGT	CBN CCGW	CBN CCGW
	71 162 ...	71 120 ...	71 124 ...	71 121 ...	71 123 ...

ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm									
060202SN	0,2	0,09	10°	B (2)	3,4	230								
060202EN	0,2			B (2)	3,4	220								
060202FN	0,2			B (2)	3,4	210								
060202SN	0,2	0,11	15°	B (2)	3,4	240								
060202TN	0,2	0,12	25°	A (1)	3,4			900						
060202FN	0,2			A (1)	3,4			800		800				
060204SN	0,4	0,09	10°	B (2)	3,1	231								
060204SN	0,4	0,11	15°	B (2)	3,1	241								
060204SN	0,4	0,09	20°	B (2)	3,1	251								
060204TN	0,4	0,12	25°	A (1)	3,1			902						
060204TN	0,4	0,14	25°	B (2)	3,1	261								
060204FN	0,4			A (1)	3,1			802		802				
060208TN	0,8	0,12	25°	A (1)	2,8			90300						
09T302FN	0,2			B (2)	3,4							80100		
09T304FN	0,4			A (1)	3,1					85000				
09T304FN	0,4			A (1)	2,8			804						
09T304TN	0,4	0,12	25°	B (2)	3,1							902		902
09T304TN	0,4	0,12	25°	A (1)	2,8			904						
09T304FN	0,4			B (2)	3,1							802		802
09T308FN	0,8			A (1)	2,5			806						
09T308SN	0,8	0,09	10°	B (2)	2,8	235								
09T308EN	0,8			B (2)	2,8	225								
09T308SN	0,8	0,11	15°	B (2)	2,8	245								
09T308SN	0,8	0,09	20°	B (2)	2,8	255								
09T308TN	0,8	0,12	25°	A (1)	2,5			906						
09T308TN	0,8	0,12	25°	B (2)	2,8							904		904
09T308TN	0,8	0,14	25°	B (2)	2,8	265								
09T308FN	0,8			B (2)	2,8	215						804		804
120404TN	0,4	0,12	25°	A (1)	3,1			908						
120404FN	0,4			A (1)	3,1			808						
120408TN	0,8	0,12	25°	A (1)	2,8			910						

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

CCGW

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





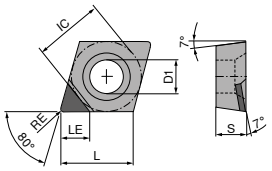


ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	F CBN CCGW 71 161 ...	F CBN CCGW 71 162 ...
060202TN	0,2	0,09	20°	**B (2)**	3,4	**320**	
060202SN	0,2	0,09	20°	**B (2)**	3,4		**330**
060202SN	0,2	0,09	25°	**B (2)**	3,4	**350**	**350**
060202TN	0,2	0,11	25°	**B (2)**	3,4	**340**	**340**
060202TN	0,2	0,14	30°	**B (2)**	3,4	**360**	**360**
060204SN	0,4	0,09	20°	**B (2)**	3,1	**331**	
060204TN	0,4	0,09	20°	**B (2)**	3,1	**32100**	
060204SN	0,4	0,09	25°	**B (2)**	3,1	**351**	**351**
060204TN	0,4	0,11	25°	**B (2)**	3,1	**341**	**341**
060204TN	0,4	0,14	30°	**B (2)**	3,1	**361**	**361**
060204SN	0,4	0,16	30°	**B (2)**	3,1	**371**	**371**
060204SN	0,4	0,17	35°	**B (2)**	3,1	**381**	**381**
060208TN	0,8	0,09	20°	**B (2)**	2,8	**322**	
060208SN	0,8	0,09	25°	**B (2)**	2,8	**352**	
060208TN	0,8	0,11	25°	**B (2)**	2,8	**342**	
060208TN	0,8	0,14	30°	**B (2)**	2,8	**362**	
060208SN	0,8	0,16	30°	**B (2)**	2,8	**372**	
060208SN	0,8	0,17	35°	**B (2)**	2,8	**382**	
09T302TN	0,2	0,09	20°	**B (2)**	3,4	**323**	
09T302SN	0,2	0,09	25°	**B (2)**	3,4	**353**	
09T302TN	0,2	0,11	25°	**B (2)**	3,4	**343**	
09T302SN	0,2	0,16	30°	**B (2)**	3,4	**373**	
09T302SN	0,2	0,17	35°	**B (2)**	3,4	**383**	
09T304SN	0,4	0,09	20°	**B (2)**	3,1	**334**	**334**
09T304TN	0,4	0,09	20°	**B (2)**	3,1	**324**	**324**
09T304SN	0,4	0,09	25°	**B (2)**	3,1	**354**	**354**
09T304TN	0,4	0,11	25°	**B (2)**	3,1	**344**	**344**
09T304TN	0,4	0,14	30°	**B (2)**	3,1	**364**	**364**
09T304EN	0,4			**B (2)**	3,1	**314**	
09T304SN	0,4	0,16	30°	**B (2)**	3,1	**374**	
09T304SN	0,4	0,17	35°	**B (2)**	3,1	**384**	
09T308SN	0,8	0,09	20°	**B (2)**	2,8	**335**	**335**
09T308TN	0,8	0,09	20°	**B (2)**	2,8	**325**	**325**
09T308SN	0,8	0,09	25°	**B (2)**	2,8	**355**	**355**
09T308TN	0,8	0,11	25°	**B (2)**	2,8	**345**	**345**
09T308TN	0,8	0,14	30°	**B (2)**	2,8	**365**	**365**
09T308SN	0,8	0,16	30°	**B (2)**	2,8		**375**
09T308SN	0,8	0,17	35°	**B (2)**	2,8	**385**	
09T308EN	0,8			**B (2)**	2,8		**315**
P							
M							
K							
N							
S							
H						●	●
O							

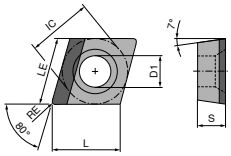
9

CCGW / CCGT

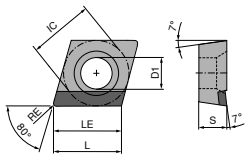
Designation	L mm	S mm	D1 mm	IC mm
CCG. 0602..	6,4	2,38	2,8	6,35
CCG. 0602..	6,5	2,38	2,8	6,35
CCG. 09T3..	9,7	3,97	4,4	9,52
CCG. 1204..	12,9	4,76	5,5	12,70



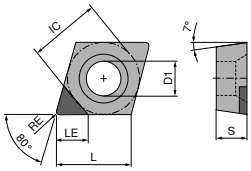
CCGT A



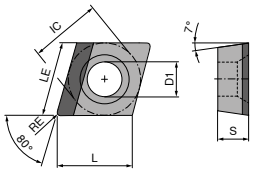
CCGT A LL



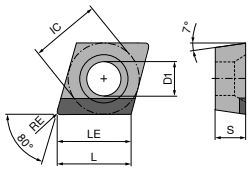
CCGT A RR



CCGW A



CCGW A LL



CCGW A RR

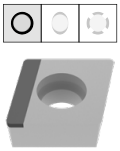
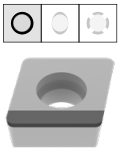
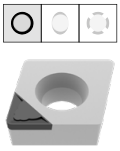
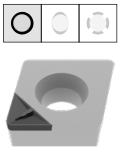
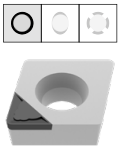
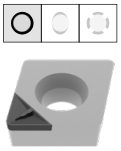
CCGW / CCGT

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

				CTDMD05	CTDPD20	CTDPD20	-Q CTDPD20	-Q CTDPD20
				F	F	F	F	F
				DIAMOND CCGW	DIAMOND CCGW	DIAMOND CCGT	DIAMOND CCGW	DIAMOND CCGT
				71 120 ...	71 120 ...	71 124 ...	71 125 ...	71 126 ...
ISO	RE mm	TCE (NOI)	LE mm					
060201FN	0,1	A (1)	3,4					101
060201FN	0,1	A (1)	3,5			10100		
060202FN	0,2	A (1)	2,5	050				
060202FN	0,2	A (1)	3,3				102	102
060202FN	0,2	A (1)	3,4		100	100		
060204FN	0,4	A (1)	2,5	052				
060204FN	0,4	A (1)	3,1					104
060204FN	0,4	A (1)	3,2		102	102	104	
060208FN	0,8	A (1)	2,5	05300				
060208FN	0,8	A (1)	3,0		10300	10300		
09T301FN	0,1	A (1)	4,5				111	111
09T302FN	0,2	A (1)	4,4				112	112
09T302FN	0,2	A (1)	4,5		10500	10500		
09T304FN	0,4	A (1)	2,5	054				
09T304FN	0,4	A (1)	4,2				114	114
09T304FN	0,4	A (1)	4,3		104	104		
09T308FN	0,8	A (1)	2,5	056				
09T308FN	0,8	A (1)	4,1		106	106		
120402FN	0,2	A (1)	4,4				122	122
120404FN	0,4	A (1)	4,2				124	124
120404FN	0,4	A (1)	4,3		108	108		
120408FN	0,8	A (1)	4,1		110	110		
P								
M								
K								
N				●	●	●	●	●
S								
H								
O				●	●	●	●	●

CCGW / CCGT

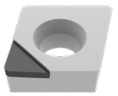
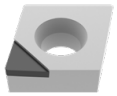
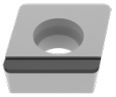
▲ TCE(NOI) = Design and number of equipped cutting edge corners

				NEW	NEW		NEW		NEW
				CTDPD20	CTDPD20	-CB1 CTDPD20	-CB2 CTDPD20	-CB1 CTDPD20	-Q-CB2 CTDPD20
									
				F	F	F	M	F	M
				DIAMOND CCGW	DIAMOND CCGW	DIAMOND CCGT	DIAMOND CCGT	DIAMOND CCGT	DIAMOND CCGT
				71 172 ...	71 172 ...	71 300 ...	71 168 ...	71 305 ...	71 169 ...
ISO	RE mm	TCE (NOI)	LE mm						
060202FN	0,2	A (1)	3,40			102			
060204FN	0,4	A (1)	3,10					104	
060204FN	0,4	A (1)	3,20			104	10001		
060204FRR	0,4	A (1)	6,45		10101				
060204FLL	0,4	A (1)	6,45	10001					
060208FN	0,8	A (1)	3,00			10600			
09T302FN	0,2	A (1)	4,40						10001
09T302FN	0,2	A (1)	4,50			112			
09T304FN	0,4	A (1)	4,20					114	10101
09T304FN	0,4	A (1)	4,30			114			
09T308FN	0,8	A (1)	4,10			118			
09T308FRR	0,8	A (1)	9,70		10301				
09T308FLL	0,8	A (1)	9,70	10201					
09T312FLL	1,2	A (1)	9,70	10401					
120404FN	0,4	A (1)	4,20					124	10201
120404FN	0,4	A (1)	4,30			124			
120408FN	0,8	A (1)	4,10			128			
120412FRR	1,2	A (1)	12,90		10601				
120412FLL	1,2	A (1)	12,90	10501					
P									
M									
K									
N				●	●	●	●	●	●
S									
H									
O				●	●	●	●	●	●

9

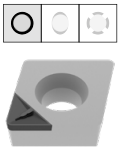
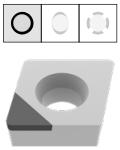
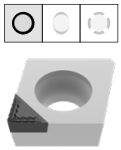
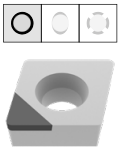
CCGT / CCGW

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

				NEW				NEW	NEW	
				CTDPS30	-Q CTDPS30	-Q CTDPS30	CTDPS30	CTDPS30	-CB2 CTDPS30
									
				F	F	F	F	F	M
				DIAMOND CCGT	DIAMOND CCGW	DIAMOND CCGT	DIAMOND CCGT	DIAMOND CCGT	DIAMOND CCGT
				71 166 ...	71 125 ...	71 126 ...	71 170 ...	71 170 ...	71 301 ...
ISO	RE mm	TCE (NOI)	LE mm						
060201FN	0,1	A (1)	3,50	20001					
060202FN	0,2	A (1)	3,30		152	152			
060202FN	0,2	A (1)	3,40	20101					202
060204FN	0,4	A (1)	3,20						204
060204FRR	0,4	A (1)	6,45					20101	
060204FLL	0,4	A (1)	6,45				20001		
060208FN	0,8	A (1)	3,00						208
060208FRR	0,8	A (1)	6,45					20301	
060208FLL	0,8	A (1)	6,45				20201		
09T301FN	0,1	A (1)	4,50		16300				
09T302FN	0,2	A (1)	4,40		162	162			
09T302FN	0,2	A (1)	4,50	20201					212
09T304FN	0,4	A (1)	4,30						214
09T308FN	0,8	A (1)	4,10						218
09T308FRR	0,8	A (1)	9,70					20501	
09T308FLL	0,8	A (1)	9,70				20401		
120402FN	0,2	A (1)	4,40			172			
120404FN	0,4	A (1)	4,20			174			
120404FN	0,4	A (1)	4,30	20301					224
120408FN	0,8	A (1)	4,10						228
120412FRR	1,2	A (1)	12,90					20701	
120412FLL	1,2	A (1)	12,90				20601		
P									
M									
K									
N				●	●	●	●	●	●
S									
H									
O				●	●	●	●	●	●

CCGT / CCGW

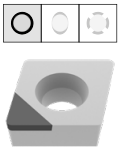
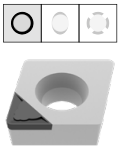
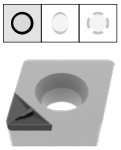
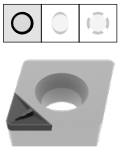
▲ TCE(NOI) = Design and number of equipped cutting edge corners

				NEW		NEW
			-Q-CB2 CTDPS30	CTDPU20	-CB3 CTDPU20	CTDPS30
						
			M	F	R	F
			DIAMOND CCGT	DIAMOND CCGW	DIAMOND CCGT	DIAMOND CCGW
			71 306 ...	71 171 ...	71 302 ...	71 171 ...
ISO	RE mm	TCE (NOI)	LE mm			
060201FN	0,1	A (1)	3,5			20001
060202FN	0,2	A (1)	3,3	202		
060202FN	0,2	A (1)	3,4			20101
060204FN	0,4	A (1)	3,1	204		
060204FN	0,4	A (1)	3,2		204	20201
09T302FN	0,2	A (1)	4,4	212		
09T302FN	0,2	A (1)	4,5			20301
09T304FN	0,4	A (1)	4,2	214		
09T304FN	0,4	A (1)	4,3	30001	214	20401
09T308FN	0,8	A (1)	4,1	30101	218	
120402FN	0,2	A (1)	4,4	222		
120404FN	0,4	A (1)	4,2	224		
120404FN	0,4	A (1)	4,3			20501
P						
M						
K						
N				●	●	● ●
S						
H						
O				●	●	● ●

9

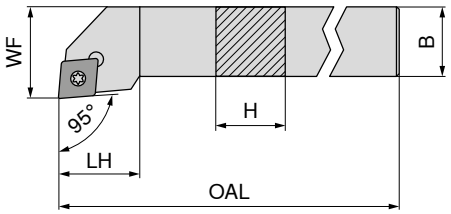
CCGW / CCGT

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

				NEW			NEW			
				CTDCD10	-CB1 CTDCD10		-Q-CB1 CTDCD10		-CB2 CTDCD10		-Q-CB2 CTDCD10	
												
				F	F		F		M		M	
				DIAMOND CCGW	DIAMOND CCGT		DIAMOND CCGT		DIAMOND CCGT		DIAMOND CCGT	
				71 171 ...	71 300 ...		71 167 ...		71 301 ...		71 306 ...	
ISO	RE mm	TCE (NOI)	LE mm									
060202FN	0,2	A (1)	2,3					40001				
060202FN	0,2	A (1)	2,4	40001		302				30200		
060204FN	0,4	A (1)	2,1					40101				304
060204FN	0,4	A (1)	2,2	40101		304				304		
060208FN	0,8	A (1)	2,0			30600						
09T302FN	0,2	A (1)	2,3									31200
09T302FN	0,2	A (1)	2,4	40201						31200		
09T304FN	0,4	A (1)	2,1					40201				314
09T304FN	0,4	A (1)	2,2	40301		314				314		
09T308FN	0,8	A (1)	2,0	40401						31600		
120404FN	0,4	A (1)	2,1					40301				324
120404FN	0,4	A (1)	2,2							32600		
120408FN	0,8	A (1)	2,0	40501								
120408FN	0,8	A (1)	2,1							328		
P												
M												
K												
N				●	●		●		●		●	
S												
H												
O				●	●		●		●		●	

MaxiLock-S – SCLC 95° – Toolholder with screw clamping





Illustrations show right-hand versions

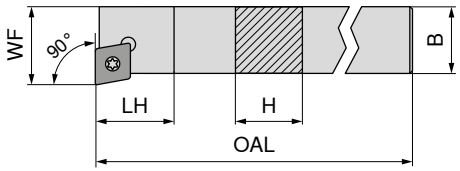


								Left-hand	Right-hand
								70 653 ...	70 652 ...
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert		
SCLC R/L 0808 D06	8	8	60	9	10	1,2	CC.. 0602	**008**	**008**
SCLC R/L 1010 E06	10	10	70	9	12	1,2	CC.. 0602	**010**	**010**
SCLC R/L 1212 F09	12	12	80	15	16	3,2	CC.. 09T3	**012**	**012**
SCLC R/L 1616 H09	16	16	100	17	20	3,2	CC.. 09T3	**016**	**016**
SCLC R/L 2020 K09	20	20	125	17	25	3,2	CC.. 09T3	**020**	**020**
SCLC R/L 1616 H12	16	16	100	20	20	5	CC.. 1204	**116**	**116**
SCLC R/L 2020 K12	20	20	125	20	25	5	CC.. 1204	**120**	**120**
SCLC R/L 2525 M12	25	25	150	20	32	5	CC.. 1204	**125**	**125**
SCLC R/L 3225 P12	32	25	170	20	32	5	CC.. 1204	**132**	**132**

	 Key D	 Combination Key	 Clamping screw	 Carbide type C	 Threaded sleeve
	80 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.					
70 653 008 / 70 652 008	**110**		**112**		
70 653 010 / 70 652 010	**110**		**112**		
70 653 012 / 70 652 012	**113**		**113**		
70 653 016 / 70 652 016		**398**	**113**	**165**	**171**
70 653 020 / 70 652 020		**398**	**113**	**165**	**171**
70 653 116 / 70 652 116		**398**	**114**	**166**	**170**
70 653 120 / 70 652 120		**398**	**114**	**166**	**170**
70 653 125 / 70 652 125		**398**	**114**	**166**	**170**
70 653 132 / 70 652 132		**398**	**114**	**166**	**170**

MaxiLock-S – SCFC 90° – Toolholder with screw clamping







Illustrations show right-hand versions

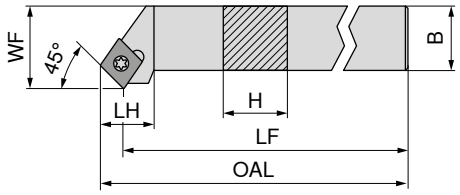
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 761 ...	Right-hand 70 760 ...
SCFC R/L 0808 D06	8	8	60	10	10	1,2	CC.. 0602	**00800** [1]	**008**
SCFC R/L 1010 E06	10	10	70	10	12	1,2	CC.. 0602	**010**	**010**
SCFC R/L 1212 F09	12	12	80	13	16	3,2	CC.. 09T3	**012**	**012**
SCFC R/L 1616 H09	16	16	100	13	20	3,2	CC.. 09T3	**016**	**016**
SCFC R/L 2020 K12	20	20	125	17	25	5	CC.. 1204	**02000** [1]	**020**

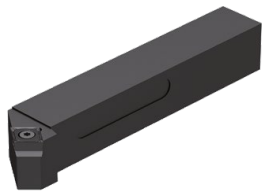
1) nickel-plated

Spare parts for Article no.	Key D 80 950 ...	Combination Key 70 950 ...	Clamping screw 70 950 ...	Carbide type C 70 950 ...	Threaded sleeve 70 950 ...
70 760 008 / 70 761 00800	**110**		**112**		
70 760 010 / 70 761 010	**110**		**112**		
70 760 012 / 70 761 012	**113**		**113**		
70 760 016 / 70 761 016		**398**	**113**	**165**	**171**
70 760 020 / 70 761 02000		**398**	**114**	**166**	**170**

MaxiLock-S – SCSC 45° – Toolholder with screw clamping







Illustrations show right-hand versions

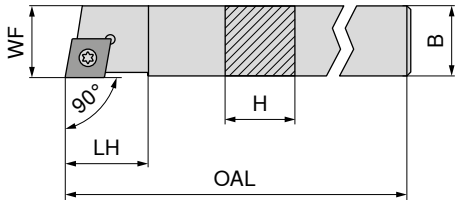
ISO designation	H mm	B mm	OAL mm	LF mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 641 ...	Right-hand 70 640 ...
SCSC R 1616 H12	16	16	109,1	100	20	20	5	CC.. 1204		**016**
SCSC R/L 2020 K12	20	20	134,1	125	20	25	5	CC.. 1204	**020**	**020**
SCSC R/L 2525 M12	25	25	159,1	150	20	32	5	CC.. 1204	**025**	**025**

Spare parts for Article no.	Combination Key 70 950 ...		Clamping screw 70 950 ...		Carbide type C 70 950 ...	Threaded sleeve 70 950 ...	
70 640 016	T15/SW	**398**	M4,5x12	**114**	**166**	M4,5	**170**
70 641 020 / 70 640 020	T15/SW	**398**	M4,5x12	**114**	**166**	M4,5	**170**
70 641 025 / 70 640 025	T15/SW	**398**	M4,5x12	**114**	**166**	M4,5	**170**

MaxiLock-S – SCAC 90° – Toolholder with screw clamping

▲ for sliding head lathes





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 757 ...	Right-hand 70 756 ...
SCAC R/L 0808 K06	8	8	125	9	8	1,2	CC.. 0602	108	108
SCAC R/L 0808 D06	8	8	60	9	8	1,2	CC.. 0602	008	008
SCAC R/L 1010 M06	10	10	150	9	10	1,2	CC.. 0602	110	110
SCAC R/L 1010 E06	10	10	70	9	10	1,2	CC.. 0602	010	010
SCAC R/L 1212 M09	12	12	150	13	12	3,2	CC.. 09T3	112	112
SCAC R/L 1212 F09	12	12	80	13	12	3,2	CC.. 09T3	012	012
SCAC R/L 1414 M09	14	14	150	13	14	3,2	CC.. 09T3	114	114
SCAC R/L 1616 H09	16	16	100	13	16	3,2	CC.. 09T3	116	116
SCAC R/L 2020 K12	20	20	125	17	20	5	CC.. 1204	120	120


Key D


Combination Key


Clamping screw

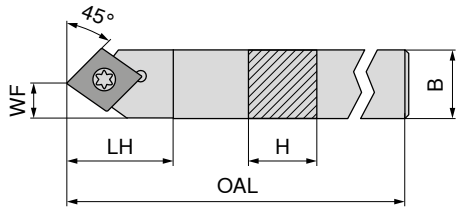

Carbide type C

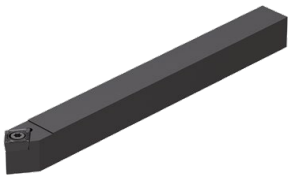

Threaded sleeve

Spare parts for Article no.	80 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...
70 756 108 / 70 757 108	110		112		
70 756 008 / 70 757 008	110		112		
70 756 110 / 70 757 110	110		112		
70 756 010 / 70 757 010	110		112		
70 756 112 / 70 757 112	113		113		
70 756 012 / 70 757 012	113		113		
70 756 114 / 70 757 114	113		113		
70 756 116 / 70 757 116		398	113	165	171
70 756 120 / 70 757 120		398	114	166	170

MaxiLock-S – SCDC 45° – Toolholder with screw clamping







ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Neutral 70 752 ...
SCDC L 0808 K06	8	8	125	13	4	1,2	CC.. 0602	008
SCDC L 1010 M06	10	10	150	13	5	1,2	CC.. 0602	010
SCDC L 1212 M09	12	12	150	18	6	3,2	CC.. 09T3	012
SCDC L 1414 M09	14	14	150	18	7	3,2	CC.. 09T3	014


Key D

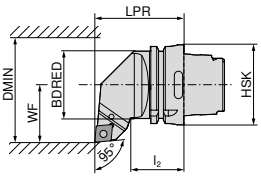

Clamping screw

Spare parts for Article no.		80 950 ...		70 950 ...
70 752 008	T08	110	M2,5x6	112
70 752 010	T08	110	M2,5x6	112
70 752 012	T15	113	M3,5x11	113
70 752 014	T15	113	M3,5x11	113

9

MaxiLock-S – SCLC 95° – Toolholder with screw clamping







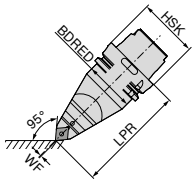
Illustrations show right-hand versions

									Left-hand	Right-hand
									74 541 ...	**74 540 ...**
ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert		
HSK T63 SCLC R/L 12	HSK-T 63	70	42	53	45	100	5	CC.. 1204	**512**	**512**

	 Combination Key	 Clamping screw	 Carbide type C	 Threaded sleeve
	70 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.				
74 540 512 / 74 541 512	T15/SW **398**	M4,5x12 **114**	**166**	M4,5 **170**

MaxiLock-S – SCMC 50° – Toolholder with screw clamping







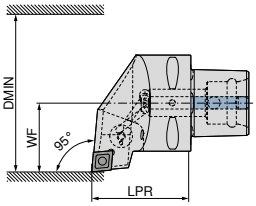
							Neutral
							74 542 ...
ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	
HSK T63 SCMC N 12	HSK-T 63	115	53	0	5	CC.. 1204	**512**

	 Combination Key	 Clamping screw	 Carbide type C	 Threaded sleeve
	70 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.				
74 542 512	T15/SW **398**	M4,5x12 **114**	**166**	M4,5 **170**

MaxiLock-S – SCLC 95° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set





Illustrations show right-hand versions



NEW Left-hand **84 655 ...**

NEW Right-hand **84 654 ...**

ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible		
PSC40 SCLC R/L 50050-12	PSC 40	50	27	50	5	CC.. 1204	DC	**01295**	**01295**
PSC50 SCLC R/L 65060-12	PSC 50	60	35	65	5	CC.. 1204	DC	**01294**	**01294**
PSC63 SCLC R/L 80065-12	PSC 63	65	45	80	5	CC.. 1204	DC	**01293**	**01293**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.



Clamping screw **84 950 ...**

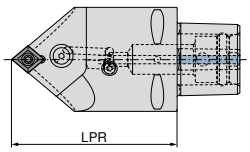
Adapter	
PSC 40	**27500**
PSC 50	**27500**
PSC 63	**27500**

9

MaxiLock-S – SCMC 50° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set







NEW Neutral **84 674 ...**

ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Direct cooling compatible	
PSC63 SCMC N 0100-12	PSC 63	100	5	CC.. 1204	DC	**01293**
PSC63 SCMC N 0130-12	PSC 63	130	5	CC.. 1204	DC	**11293**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.



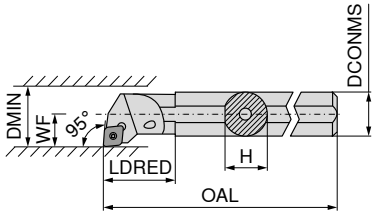
Clamping screw **84 950 ...**

Adapter	
PSC 63	**27500**

MaxiLock-S – SCLC 95° – Boring bar with screw clamping

▲ A... = with thro' coolant
▲ S... = without thro' coolant





Illustrations show right-hand versions



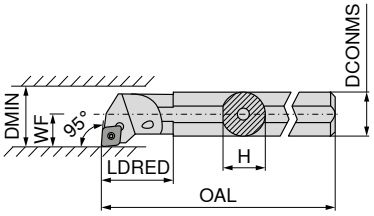
ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 717 ...	Right-hand 70 716 ...
S08H SCLC R/L 06	8	7,2	100		5	11	1,2	CC.. 0602	**008**	**008**
A08F SCLC R/L 06	8	7,6	80	17	5	11	1,2	CC.. 0602	**208**	**208**
A10H SCLC R/L 06	10	9,5	100	19	7	13	1,2	CC.. 0602	**210**	**210**
S10K SCLC R/L 06	10	9,0	125		7	13	1,2	CC.. 0602	**010**	**010**
A12K SCLC R/L 06	12	11,5	125	22	9	16	1,2	CC.. 0602	**212**	**212**
S12Q SCLC R/L 06	12	11,0	180		9	16	1,2	CC.. 0602	**012**	**012**
A16M SCLC R/L 06	16	14,0	150	50	9	18	1,2	CC.. 0602	**116**	**116**
S16R SCLC R/L 09	16	14,5	200		11	20	3,2	CC.. 09T3	**016**	**016**
A16M SCLC R/L 09	16	15,0	150	29	11	20	3,2	CC.. 09T3	**216**	**216**
A20Q SCLC R/L 09	20	18,5	180	32	13	25	3,2	CC.. 09T3	**220**	**220**
S20S SCLC R/L 09	20	18,0	250		13	25	3,2	CC.. 09T3	**020**	**020**
S25T SCLC R/L 09	25	23,0	300		17	32	3,2	CC.. 09T3	**025**	**025**
A25R SCLC R/L 09	25	23,0	200	36	17	32	3,2	CC.. 09T3	**225**	**225**
A32S SCLC R/L 12	32	30,0	250	50	22	40	5	CC.. 1204	**232**	**232**
A40T SCLC R/L 12	40	38,0	300	60	27	50	5	CC.. 1204	**240**	**240**

Spare parts for Article no.	 Key D **80 950 ...**	 Combination Key **70 950 ...**	 Clamping screw **70 950 ...**	 Carbide type C **70 950 ...**	 Threaded sleeve **70 950 ...**
70 716 008 / 70 717 008	**110**		**116**		
70 716 208 / 70 717 208	**110**		**116**		
70 716 210 / 70 717 210	**110**		**116**		
70 716 010 / 70 717 010	**110**		**116**		
70 716 212 / 70 717 212	**110**		**116**		
70 716 012 / 70 717 012	**110**		**116**		
70 716 116 / 70 717 116	**110**		**116**		
70 716 016 / 70 717 016	**113**		**110**		
70 716 216 / 70 717 216	**113**		**110**		
70 716 220 / 70 717 220	**113**		**304**		
70 716 020 / 70 717 020	**113**		**110**		
70 716 025 / 70 717 025	**113**		**113**		
70 716 225 / 70 717 225	**113**		**304**		
70 716 232 / 70 717 232		**398**	**114**	**166**	**170**
70 716 240 / 70 717 240		**398**	**114**	**166**	**170**

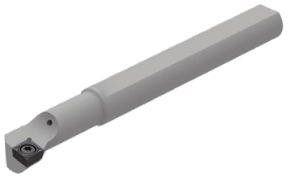
MaxiLock-S – SCLC 95° – Boring bar with screw clamping

▲ with carbide core





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 719 ...	Right-hand 70 718 ...
E-A08F SCLC R/L 06	8	7,5	80	18	6	12	1,2	CC.. 0602	**208**	**208**
E-A10H SCLC R/L 06	10	9,0	100	25	7	14	1,2	CC.. 0602	**210**	**210**
E-A12K SCLC R/L 06	12	11,0	125	20	9	18	1,2	CC.. 0602	**212**	**212**
E-A16M SCLC R/L 09	16	15,0	150	28	11	22	3,2	CC.. 09T3	**216**	**216**
E-A20Q SCLC R/L 09	20	18,0	180	38	13	26	3,2	CC.. 09T3	**220**	**220**
E-A25R SCLC R/L 09	25	23,0	200	38	17	34	3,2	CC.. 09T3	**225**	**225**
E-A32S SCLC R/L 12	32	30,0	250	43	22	39	5	CC.. 1204	**232**	**232**



Key D



Clamping screw

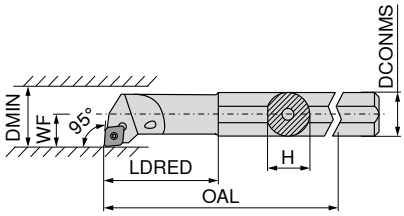
Spare parts for Article no.		80 950 ...		70 950 ...	
70 718 208 / 70 719 208	T08	**110**	M2,5x5	**116**
70 718 210 / 70 719 210	T08	**110**	M2,5x5	**116**
70 718 212 / 70 719 212	T08	**110**	M2,5x5	**116**
70 718 216 / 70 719 216	T15	**113**	M4x9,5	**449**
70 718 220 / 70 719 220	T15	**113**	M4x9,5	**449**
70 718 225 / 70 719 225	T15	**113**	M4x9,5	**449**
70 718 232 / 70 719 232	T15	**113**	M4x11	**174**

9

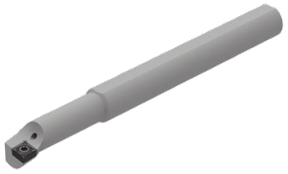
MaxiLock-S – SCLC 95° – Boring bar with screw clamping

▲ with carbide core





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 719 ...	Right-hand 70 718 ...
E-A0608F SCLC R/L 06	8	7,5	100	25	4	8	1,2	CC.. 0602	**308**	**308**
E-A0810H SCLC R/L 06	10	9,0	110	32	6	12	1,2	CC.. 0602	**310**	**310**
E-A1012K SCLC R/L 06	12	11,0	125	38	7	14	1,2	CC.. 0602	**312**	**312**
E-A1216M SCLC R/L 06	16	15,0	150	50	9	18	1,2	CC.. 0602	**316**	**316**



Key D



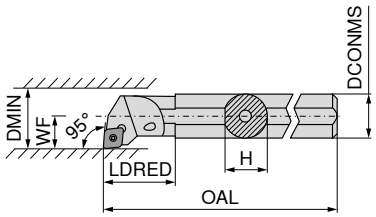
Clamping screw

Spare parts for Article no.	Key D 80 950 ...	Clamping screw 70 950 ...
70 718 308 / 70 719 308	**110**	**116**
70 718 310 / 70 719 310	**110**	**116**
70 718 312 / 70 719 312	**110**	**116**
70 718 316 / 70 719 316	**110**	**116**

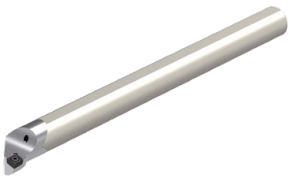
MaxiLock-S – SCLC 95° – Boring bar with screw clamping

▲ Type: Solid carbide





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 719 ...	Right-hand 70 718 ...
E08H SCLC R/L 06	8	7,6	100		6	11	1,2	CC.. 0602	**008**	**008**
E10K SCLC R/L 06	10	9,0	125	22	7	13	1,2	CC.. 0602	**010**	**010**
E12Q SCLC R/L 06	12	11,5	180	26	9	16	1,2	CC.. 0602	**012**	**012**
E16R SCLC R/L 09	16	15,0	200	34	11	20	3,2	CC.. 09T3	**016**	**016**
E20S SCLC R/L 09	20	18,5	250	38	13	25	3,2	CC.. 09T3	**020**	**020**
E25T SCLC R/L 09	25	23,0	300	43	17	32	3,2	CC.. 09T3	**025**	**025**



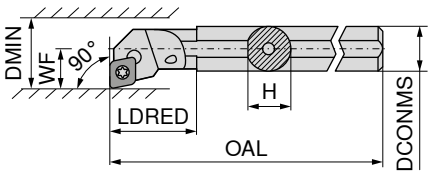
Key D



Clamping screw

Spare parts for Article no.		Key D 80 950 ...		Clamping screw 70 950 ...
70 719 008 / 70 718 008	T08	**110**	M2,5x5	**116**
70 719 010 / 70 718 010	T08	**110**	M2,5x5	**116**
70 719 012 / 70 718 012	T08	**110**	M2,5x5	**116**
70 719 016 / 70 718 016	T15	**113**	M3,5x7,2	**110**
70 719 020 / 70 718 020	T15	**113**	M3,5x8,6	**304**
70 719 025 / 70 718 025	T15	**113**	M3,5x11	**113**

MaxiLock-S – SCFC 90° – Boring bar with screw clamping





Illustrations show right-hand versions

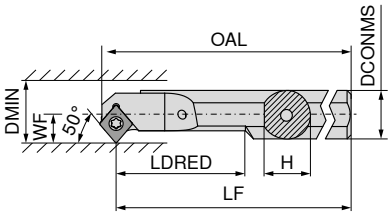
ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 793 ...		Right-hand 70 792 ...	
A08F SCFC R/L 06	8	7,6	80	17	5	11	1,2	CC.. 0602		**208**		**208**
A10H SCFC R/L 06	10	9,5	100	19	7	13	1,2	CC.. 0602		**210**		**210**
A12K SCFC R/L 06	12	11,5	125	22	9	16	1,2	CC.. 0602		**212**		**212**


Key D


Clamping screw

Spare parts for Article no.		80 950 ...		70 950 ...	
70 792 208 / 70 793 208	T08	**110**	M2,5x5	**116**
70 792 210 / 70 793 210	T08	**110**	M2,5x5	**116**
70 792 212 / 70 793 212	T08	**110**	M2,5x5	**116**

MaxiLock-S – SCMC 50° – Boring bar with screw clamping





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LF mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 723 ...		Right-hand 70 722 ...	
A08H SCMC R/L 06	8	7	104,15	100	20	5,5	10,5	1,2	CC.. 0602		**208**		**208**
A10H SCMC R/L 06	10	9	114,15	110	26	6,0	11,0	1,2	CC.. 0602		**210**		**210**
A12K SCMC R/L 06	12	11	129,15	125	32	7,0	13,0	1,2	CC.. 0602		**212**		**212**
A16M SCMC R/L 06	16	14	154,15	150	40	9,0	16,0	1,2	CC.. 0602		**216**		**216**


Key D

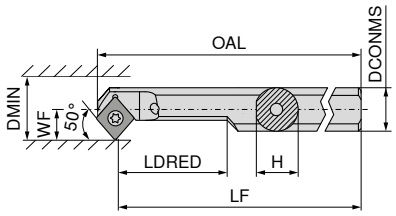

Clamping screw

Spare parts for Article no.		80 950 ...		70 950 ...	
70 723 208 / 70 722 208	T08	**110**	M2,5x5	**116**
70 723 210 / 70 722 210	T08	**110**	M2,5x5	**116**
70 723 212 / 70 722 212	T08	**110**	M2,5x5	**116**
70 723 216 / 70 722 216	T08	**110**	M2,5x5	**116**

MaxiLock-S – SCMC 50° – Boring bar with screw clamping

▲ with carbide core





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LF mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 707 ...	Right-hand 70 706 ...
E-A0608H SCMC R/L 06	8	7,5	104,15	100	20	5,5	10,5	1,2	CC.. 0602	**008**	**008**
E-A0810H SCMC R/L 06	10	9,0	114,15	110	26	6,0	11,0	1,2	CC.. 0602	**010**	**010**
E-A1012K SCMC R/L 06	12	11,0	129,15	125	32	7,0	13,0	1,2	CC.. 0602	**012**	**012**
E-A1216M SCMC R/L 06	16	15,0	154,15	150	40	9,0	16,0	1,2	CC.. 0602	**016**	**016**



Key D

80 950 ...



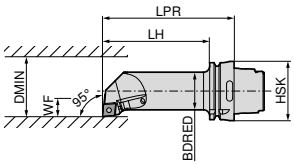
Clamping screw

70 950 ...

Spare parts for Article no.		
70 706 008 / 70 707 008	**110**	**116**
70 706 010 / 70 707 010	**110**	**116**
70 706 012 / 70 707 012	**110**	**116**
70 706 016 / 70 707 016	**110**	**116**

MaxiLock-S – SCLC 95° – Boring bar with screw clamping





Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	LH mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 564 ...	Right-hand 74 563 ...
HSK T63 40L SCLC R/L 12	HSK-T 63	140	114	40	27	50	5	CC.. 1204	**512**	**512**



Combination Key

70 950 ...



Clamping screw

70 950 ...



Carbide type C

70 950 ...



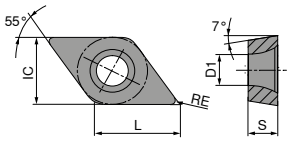
Threaded sleeve

70 950 ...

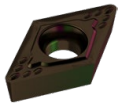
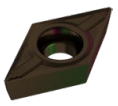
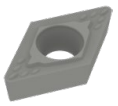
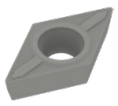
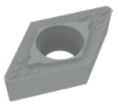
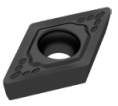
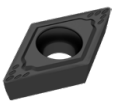
Spare parts for Article no.						
74 563 512 / 74 564 512	T15/SW	**398**	M4,5x12	**114**	**166**	M4,5	**170**

DCGT / DCMT / DCET

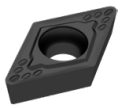
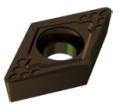
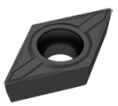
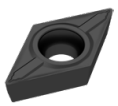
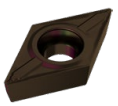
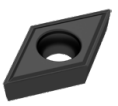
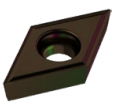
Designation	L mm	S mm	D1 mm	IC mm
DC.T 0702..	7,75	2,38	2,8	6,35
DC.T 11T3..	11,60	3,97	4,4	9,52



DCGT / DCMT

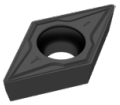
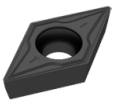
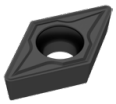
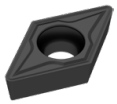
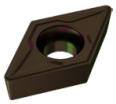
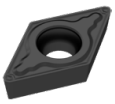
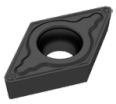
	-CF05 CTEP110	-CF55 CTEP110	-SF TCM10	-SMF TCM10	-SF TCM407	-SF CTCP125	-SF CTCP115
	DRAGONSKIN	DRAGONSKIN				DRAGONSKIN	DRAGONSKIN
							
	F	F	F	F	F	F	F
	CERMET DCGT	CERMET DCMT	CERMET DCGT	CERMET DCMT	CERMET DCGT	DCGT	DCMT
	76 245 ...	76 246 ...	70 257 ...	70 265 ...	70 257 ...	76 257 ...	76 259 ...
ISO RE mm							
070201EN 0,1			898				
070202EN 0,2	002	002	900	898		502	
070204EN 0,4	004	004	902	900	852		304
11T302EN 0,2	014		904		854		
11T304EN 0,4	016	016	906	904	856		316
11T308EN 0,8	018	018	908	906	858		318
P	●	●	●	●	●	●	●
M	○	○	○	○	○		
K	○	○	○	○	○	○	○
N							
S							
H							
O							

DCMT / DCGT

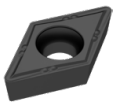
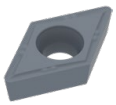
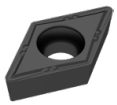
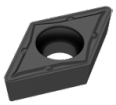
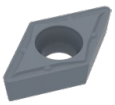
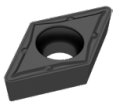
	-SF CTCP125	-SF CTCP135	-SMF CTCP115	-SMF CTCP125	-SMF CTCP135	-SM CTCP125	-SM CTCP135
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	F	F	F	F	F	M	M
	DCMT	DCMT	DCMT	DCMT	DCMT	DCGT	DCGT
	76 259 ...	76 259 ...	76 265 ...	76 265 ...	76 265 ...	76 256 ...	76 256 ...
ISO RE mm							
070202EN 0,2						502	702
070204EN 0,4	504	704		504	704		
070208EN 0,8					706		
11T304EN 0,4	516	716	316	516	716		
11T308EN 0,8	518	718	318	518	718		
P	●	●	●	●	●	●	●
M		○			○		○
K	○		○	○		○	
N							
S							
H							
O							

9

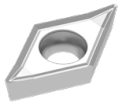
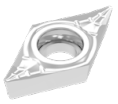
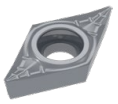
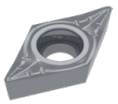
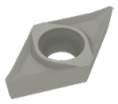
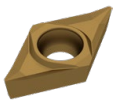
DCMT

	-SM CTCK110	-SM CTCK120	-SM CTCP115	-SM CTCP125	-SM CTCP135	-SMQ CTCP115	-SMQ CTCP125
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	M	M	M	M	M	M	M
	DCMT	DCMT	DCMT	DCMT	DCMT	DCMT	DCMT
	70 258 ...	70 258 ...	76 258 ...	76 258 ...	76 258 ...	76 195 ...	76 195 ...
ISO / RE mm							
070204EN 0,4	004	554	304	504	704	304	504
070208EN 0,8	006	506	306	506	706		
11T304EL 0,4						31600	516
11T304EN 0,4	016	516	316	516	716	31500	515
11T304ER 0,4						31700	517
11T308EN 0,8	018	518	318	518	718	31800	518
11T312EN 1,2				520			
P	○	○	●	●	●	●	●
M					○		
K	●	●	○	○		○	○
N							
S							
H							
O							

DCMT

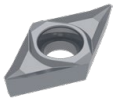
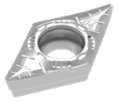
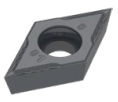
	NEW -M25 CTCM120	-M25 CTPM125	NEW -M25 CTCM130	NEW -M55 CTCM120	-M55 CTPM125	NEW -M55 CTCM130
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
	F	F	F	M	M	M
	DCMT	DCMT	DCMT	DCMT	DCMT	DCMT
	75 213 ...	75 213 ...	75 213 ...	75 214 ...	75 214 ...	75 214 ...
ISO / RE mm						
070202EN 0,2	10200	202	30200			
070204EN 0,4	10400	204	30400	10400	204	30400
070208EN 0,8				10600	206	30600
11T302EN 0,2	11400	214	31400			
11T304EN 0,4	11600	216	31600	11600	216	31600
11T308EN 0,8	11800	218	31800	11800	218	31800
P	○	○	○	○	○	○
M	●	●	●	●	●	●
K						
N						
S			○			○
H						
O						

DCGT

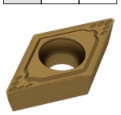
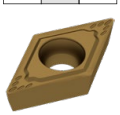
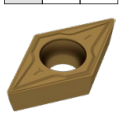
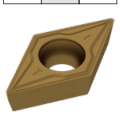
		-23P H216T	-25P H210T	NEW -25P CTPX710 DRAGONSKIN	-25Q H210T	NEW -25Q CTPX710 DRAGONSKIN	-27 H10T	-27 CWN15
								
		F	F	M	M	M	M	M
		DCGT	DCGT	DCGT	DCGT	DCGT	DCGT	DCGT
		70 261 ...	70 263 ...	70 263 ...	70 263 ...	70 263 ...	70 260 ...	70 260 ...
ISO	RE mm							
070202FN	0,2		632	70200			600	300
070204FN	0,4	654	634	70400			602	302
11T302FN	0,2		635	71400			604	304
11T304FL	0,4				670	75700		
11T304FN	0,4	664	636	71600	660	75600	606	306
11T304FR	0,4				680	75800		
11T308FL	0,8				672			
11T308FN	0,8	666	638	71800	662	76000	608	308
11T308FR	0,8				682			
P				●		●		
M				●		●		○
K		○	○		○		○	
N		●	●	●	●	●	●	●
S			○	●	○	●		
H								
O		○	○		○		○	

9

DCGT / DCMT / DCET

		NEW	NEW	NEW
		-27 CTPX715	-29 H216T	-F05 CTPX710
		DRAGONSKIN		DRAGONSKIN
				
		M	M	F
		DCGT	DCMT	DCET
		70 260 ...	70 246 ...	76 254 ...
ISO	RE mm			
0702005FN	0,05			10200
070201FN	0,10			10400
0702015FN	0,15			10600
070202FN	0,20	80200		10800
070204FN	0,40	80400		
070204EN	0,40		60400	
11T3005FN	0,05			11400
11T301FN	0,10			11600
11T3015FN	0,15			11800
11T302FN	0,20	81400		12000
11T304EN	0,40		61600	
11T304FN	0,40	81600		12200
11T308EN	0,80		61800	
11T308FN	0,80	81800		
P		●		●
M		●		●
K		○	○	
N		●	●	●
S		●		●
H				
O		○	○	

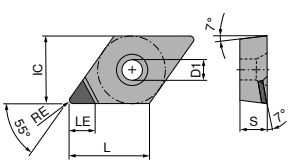
DCMT

		NEW	NEW	NEW	NEW
		-FMS CT-P15	-FMS CT-P25	-MRS CT-P15	-MRS CT-P25
					
		F DCMT	F DCMT	M DCMT	M DCMT
		75 304 ...	75 304 ...	75 305 ...	75 305 ...
ISO	RE mm				
070204EN	0,4	00409	10409	00409	10409
070208EN	0,8	00609	10609	00609	10609
11T304EN	0,4	01609	11609	01609	11609
11T308EN	0,8	01809	11809	01809	11809
P		●	●	●	●
M		○	○	○	○
K					
N					
S					
H					
O					

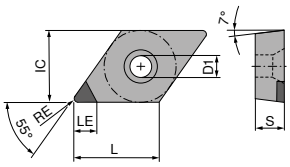
9

DCGW / DCGT

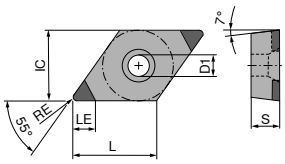
Designation	L mm	S mm	D1 mm	IC mm
DCG. 0702..	7,75	2,38	2,80	6,35
DCG. 11T3..	11,60	3,97	4,40	9,52
DCGW 0702..	7,75	2,38	2,38	6,35



DCGT A



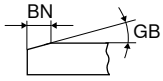
DCGW A

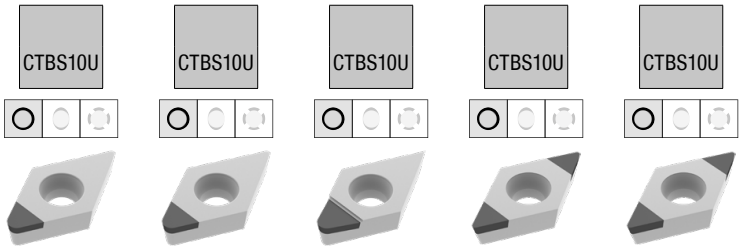


DCGW B

DCGW / DCGT

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

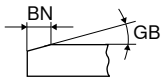


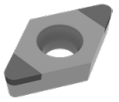
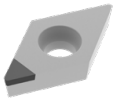
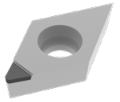
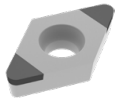
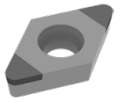
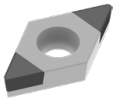


						F		F		F		F		F	
						CBN DCGW		CBN DCGW		CBN DCGT		CBN DCGW		CBN DCGW	
						71 130 ...		71 130 ...		71 134 ...		71 131 ...		71 131 ...	
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm										
070202TN	0,2	0,12	20°	A (1)	3,9		300								
070202FN	0,2			A (1)	3,9				200		200				
070204FN	0,4			A (1)	3,5				202		202				
070204TN	0,4	0,12	20°	A (1)	3,5		302								
070208FN	0,8			A (1)	3,0				204		204				
070208TN	0,8	0,12	20°	A (1)	3,0		304								
11T302FN	0,2			A (1)	3,9				206		206				
11T302TN	0,2	0,12	20°	B (2)	3,9								300		
11T302TN	0,2	0,12	20°	A (1)	3,9		306								
11T302FN	0,2			B (2)	3,9										200
11T304TN	0,4	0,12	20°	B (2)	3,5								302		
11T304FN	0,4			A (1)	3,5				208		208				
11T304TN	0,4	0,12	20°	A (1)	3,5		308								
11T304FN	0,4			B (2)	3,5										202
11T308TN	0,8	0,12	20°	B (2)	3,0								304		
11T308FN	0,8			A (1)	3,0				210		210				
11T308TN	0,8	0,12	20°	A (1)	3,0		310								
11T308FN	0,8			B (2)	3,0										204
P															
M															
K							●		●		●		●		●
N															
S							●		●		●		●		●
H															
O															

DCGW / DCGT

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



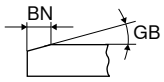
						NEW	NEW	NEW	NEW		NEW
						CTBS10C	CTBS20U	CTBS20U	CTBS20U	CTBS20C	CTBH15U
											
						F	F	F	F	F	F
						CBN DCGW	CBN DCGW	CBN DCGT	CBN DCGW	CBN DCGW	CBN DCGW
						71 424 ...	71 422 ...	71 421 ...	71 163 ...	71 163 ...	71 008 ...
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm						
070202SN	0,2	0,09	10°	B (2)	3,9	80100				120	
070202SN	0,2	0,11	15°	B (2)	3,9					130	30214
070202TN	0,2	0,12	15°	A (1)	3,9		20100				
070202TN	0,2	0,15	20°	B (2)	3,9					140	
070202SN	0,2	0,16	20°	B (2)	3,9					150	
070202TN	0,2	0,17	25°	B (2)	3,9					160	
070202FN	0,2			A (1)	3,9		20000				
070202FN	0,2			B (2)	3,9	80000					
070202EN	0,2			B (2)	3,9						00200
070204SN	0,4	0,09	10°	B (2)	3,5					121	
070204TN	0,4	0,09	15°	B (2)	3,5	80300					
070204SN	0,4	0,11	15°	B (2)	3,5					131	30414
070204TN	0,4	0,12	15°	A (1)	3,5		20200				
070204SN	0,4	0,14	15°	B (2)	3,5	80400					
070204TN	0,4	0,15	20°	B (2)	3,5					141	
070204SN	0,4	0,16	20°	B (2)	3,5					151	
070204SN	0,4	0,14	25°	B (2)	3,5						30429
070204TN	0,4	0,17	25°	B (2)	3,5					161	
070204SN	0,4	0,18	30°	B (2)	3,5					181	
070204FN	0,4			B (2)	3,5	80200					
070204EN	0,4			B (2)	3,5						00400
070208SN	0,8	0,11	15°	B (2)	3,0					132	
070208TN	0,8	0,15	20°	B (2)	3,0					142	
070208SN	0,8	0,16	20°	B (2)	3,0					152	
070208TN	0,8	0,17	25°	B (2)	3,0					162	
070208SN	0,8	0,18	25°	B (2)	3,0					172	
070208EN	0,8			B (2)	3,0					112	
11T302SN	0,2	0,11	15°	B (2)	3,9					133	
11T302TN	0,2	0,12	15°	A (1)	3,9		20400				
11T302TN	0,2	0,15	20°	B (2)	3,9					143	
11T302SN	0,2	0,16	20°	B (2)	3,9					153	
11T302TN	0,2	0,17	25°	B (2)	3,9					163	
11T302FN	0,2			A (1)	3,9		20300				
11T302EN	0,2			B (2)	3,9					113	
11T304SN	0,4	0,09	10°	B (2)	3,5					124	
11T304TN	0,4	0,09	15°	B (2)	3,5	80600					
11T304TN	0,4	0,12	15°	B (2)	3,5				13400		
11T304TN	0,4	0,12	15°	A (1)	3,5		20500				
11T304SN	0,4	0,14	15°	B (2)	3,5	80700					
11T304SN	0,4	0,14	20°	B (2)	3,5	80800					
11T304TN	0,4	0,15	20°	B (2)	3,5					144	
11T304SN	0,4	0,16	20°	B (2)	3,5					154	
11T304TN	0,4	0,17	25°	B (2)	3,5					164	
11T304FN	0,4			A (1)	3,5			20000			
11T304FN	0,4			B (2)	3,5	80500					
11T304SN	0,4	0,18	25°	B (2)	3,5					174	
11T304SN	0,4	0,18	30°	B (2)	3,5					184	
P											
M											
K						●	●	●	●	●	
N											
S						●	●	●	●	●	
H											●
O											

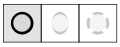
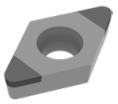
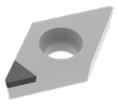
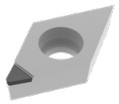
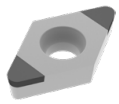
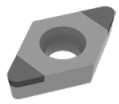
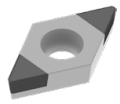
9

Continued on next page

DCGW / DCGT

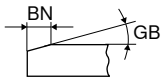
▲ TCE(NOI) = Design and number of equipped cutting edge corners

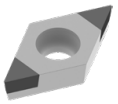
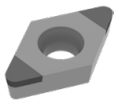
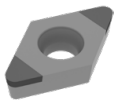
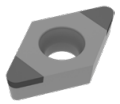
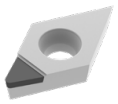
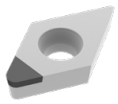


						NEW	NEW	NEW	NEW		NEW
						CTBS10C	CTBS20U	CTBS20U	CTBS20U	CTBS20C	CTBH15U
											
											
						F	F	F	F	F	F
						CBN DCGW	CBN DCGW	CBN DCGT	CBN DCGW	CBN DCGW	CBN DCGW
						71 424 ...	71 422 ...	71 421 ...	71 163 ...	71 163 ...	71 008 ...
ISO	RE mm	BN mm	GB	**TCE (NOI)**	LE mm						
11T308SN	0,8	0,09	10°	**B (2)**	3,0	**81000**					
11T308TN	0,8	0,09	15°	**B (2)**	3,0	**81100**					
11T308SN	0,8	0,11	15°	**B (2)**	3,0					**135**	
11T308TN	0,8	0,12	15°	**A (1)**	3,0		**20600**				
11T308SN	0,8	0,14	15°	**B (2)**	3,0	**81200**					
11T308SN	0,8	0,14	20°	**B (2)**	3,0	**81300**					
11T308TN	0,8	0,15	20°	**B (2)**	3,0					**145**	
11T308SN	0,8	0,16	20°	**B (2)**	3,0					**155**	
11T308TN	0,8	0,17	25°	**B (2)**	3,0					**165**	
11T308SN	0,8	0,18	30°	**B (2)**	3,0					**185**	
11T308FN	0,8			**A (1)**	3,0			**20100**			
11T308EN	0,8			**B (2)**	3,0	**80900**				**115**	
P											
M											
K						●	●	●	●	●	
N											
S						●	●	●	●	●	
H											●
O											

DCGW / DCGT

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

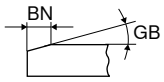


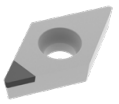
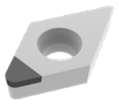
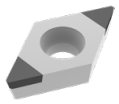
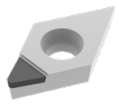
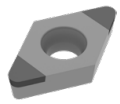
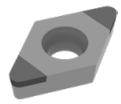
						NEW		NEW	NEW		NEW
						CTBH15U	CTBH20C	CTBH15C	CTBH15C	CTBH21U	CTBH21U
											
						F	F	F	F	F	F
						CBN DCGW	CBN DCGW	CBN DCGW	CBN DCGW	CBN DCGT	CBN DCGW
						71 012 ...	71 163 ...	71 007 ...	71 009 ...	71 134 ...	71 422 ...
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm						
070202SN	0,2	0,09	10°	B (2)	3,9		230				
070202SN	0,2	0,11	15°	B (2)	3,9		240	30214			
070202EN	0,2			B (2)	3,9			00200			
070202SN	0,2	0,09	20°	B (2)	3,9		250				
070202FN	0,2			A (1)	3,9					400	
070202TN	0,2	0,13	25°	A (1)	3,9						40000
070202TN	0,2	0,14	25°	B (2)	3,9		260				
070204FN	0,4			B (2)	3,5		211				
070204SN	0,4	0,09	10°	B (2)	3,5		231				
070204SN	0,4	0,11	15°	B (2)	3,5		241	30414			
070204SN	0,4	0,09	20°	B (2)	3,5		251				
070204TN	0,4	0,13	25°	A (1)	3,5						40100
070204SN	0,4	0,14	25°	B (2)	3,5			30429			
070204TN	0,4	0,14	25°	B (2)	3,5		261				
070204EN	0,4			B (2)	3,5			00400			
070204SN	0,4	0,15	25°	B (2)	3,5		271				
070204FN	0,4			A (1)	3,5					402	
070208FN	0,8			B (2)	3,0		212				
070208SN	0,8	0,09	10°	B (2)	3,0		232				
070208SN	0,8	0,11	15°	B (2)	3,0	30614			30614		
070208SN	0,8	0,09	20°	B (2)	3,0		252				
070208SN	0,8	0,14	25°	B (2)	3,0	30629			30629		
070208TN	0,8	0,14	25°	B (2)	3,0		262				
070208EN	0,8			B (2)	3,0	00600	222		00600		
11T302RN	0,2			B (2)	3,9			21400			
11T302SN	0,2	0,09	15°	B (2)	3,9		233				
11T302SN	0,2	0,11	15°	B (2)	3,9		243	31414			
11T302SN	0,2	0,09	20°	B (2)	3,9		253				
11T302TN	0,2	0,14	25°	B (2)	3,9		263				
11T302SN	0,2	0,14	25°	B (2)	3,9			31429			
11T302SN	0,2	0,15	25°	B (2)	3,9		273				
11T302FN	0,2			A (1)	3,9					406	
11T304FN	0,4			B (2)	3,5		214				
11T304EN	0,4			B (2)	3,5		224				
11T304SN	0,4	0,09	10°	B (2)	3,5		234				
11T304SN	0,4	0,11	15°	B (2)	3,5		244	31614			
11T304SN	0,4	0,09	20°	B (2)	3,5		254				
11T304TN	0,4	0,14	25°	B (2)	3,5		264				
11T304RN	0,4			B (2)	3,5			21600			
11T304SN	0,4	0,14	25°	B (2)	3,5			31629			
11T304SN	0,4	0,15	25°	B (2)	3,5		274				
11T304SN	0,4	0,18	30°	B (2)	3,5		284				
11T304FN	0,4			A (1)	3,5					408	
11T308EN	0,8			B (2)	3,0		225				
11T308FN	0,8			B (2)	3,0		215				
11T308RN	0,8			B (2)	3,0				21800		
11T308SN	0,8	0,11	15°	B (2)	3,0		245		31814		
11T308SN	0,8	0,09	20°	B (2)	3,0		255				
11T308TN	0,8	0,14	25°	B (2)	3,0		265				
11T308SN	0,8	0,14	25°	B (2)	3,0				31829		
11T308SN	0,8	0,18	30°	B (2)	3,0		285				
11T308FN	0,8			A (1)	3,0					410	
P											
M											
K											
N											
S											
H						●	●	●	●	●	●
O											

9

DCGW / DCGT

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

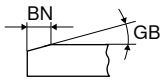


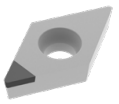
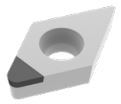
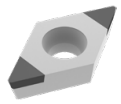
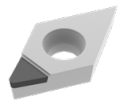
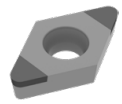
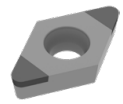
						NEW					NEW
						-Q CTBH21U	CTBH20U	CTBH20U	CTBH40U	CTBH20C	CTBH21C
											
											
						F	F	F	F	F	F
						CBN DCGW	CBN DCGW	CBN DCGW	CBN DCGT	CBN DCGW	CBN DCGW
						71 423 ...	71 130 ...	71 131 ...	71 134 ...	71 163 ...	71 424 ...
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm						
070201EL	0,1			A (1)	3,0	40000					
070201ER	0,1			A (1)	3,0	40100					
070202SN	0,2	0,09	10°	B (2)	3,9					230	
070202SN	0,2	0,11	15°	B (2)	3,9					240	
070202SN	0,2	0,09	20°	B (2)	3,9					250	
070202TN	0,2	0,11	20°	B (2)	3,4						90100
070202TN	0,2	0,12	20°	B (2)	3,9			53000			
070202TN	0,2	0,12	20°	A (1)	3,9		500				
070202TN	0,2	0,14	25°	B (2)	3,9					260	
070202FN	0,2			A (1)	3,9		400 1)		800		
070202EN	0,2			B (2)	3,4						90000
070204SN	0,4	0,09	10°	B (2)	3,5					231	
070204SN	0,4	0,09	10°	B (2)	3,0						90300
070204SN	0,4	0,11	15°	B (2)	3,5					241	
070204SN	0,4	0,09	20°	B (2)	3,5					251	
070204TN	0,4	0,11	20°	B (2)	3,0						90400
070204TN	0,4	0,12	20°	B (2)	3,5			53200			
070204TN	0,4	0,12	20°	A (1)	3,5		502				
070204TN	0,4	0,14	25°	B (2)	3,5					261	
070204SN	0,4	0,15	25°	B (2)	3,5					271	
070204FN	0,4			B (2)	3,5					211	
070204FN	0,4			A (1)	3,5		402 1)		802		
070204EN	0,4			B (2)	3,0						90200
070208SN	0,8	0,09	10°	B (2)	3,0					232	
070208SN	0,8	0,09	20°	B (2)	3,0					252	
070208EN	0,8			B (2)	3,0					222	
070208FN	0,8			B (2)	3,0					212	
070208TN	0,8	0,11	20°	B (2)	2,6						90600
070208TN	0,8	0,12	20°	A (1)	3,0		504				
070208TN	0,8	0,14	25°	B (2)	3,0					262	
070208TN	0,8	0,15	35°	B (2)	2,6						90700
070208FN	0,8			A (1)	3,0		404 1)				
070208EN	0,8			B (2)	2,6						90500
11T302SN	0,2	0,09	15°	B (2)	3,9					233	
11T302SN	0,2	0,11	15°	B (2)	3,9					243	
11T302SN	0,2	0,09	20°	B (2)	3,9					253	
11T302TN	0,2	0,11	20°	B (2)	3,4						90900
11T302TN	0,2	0,12	20°	B (2)	3,9			500			
11T302TN	0,2	0,12	20°	A (1)	3,9		506				
11T302TN	0,2	0,14	25°	B (2)	3,9					263	
11T302FN	0,2			A (1)	3,9		406 1)		806		
11T302SN	0,2	0,15	25°	B (2)	3,9					273	
11T302FN	0,2			B (2)	3,9			400 1)			
11T302EN	0,2			B (2)	3,4						90800
11T304SN	0,4	0,09	10°	B (2)	3,5					234	
11T304SN	0,4	0,09	10°	B (2)	3,0						91000
11T304TN	0,4	0,09	15°	B (2)	3,0						91100
11T304SN	0,4	0,11	15°	B (2)	3,5					244	
P											
M											
K											
N											
S											
H						•	•	•	•	•	•
O											

1) Machining to 60 HRC

DCGW / DCGT

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



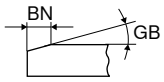
						NEW					NEW
						-Q CTBH21U	CTBH20U	CTBH20U	CTBH40U	CTBH20C	CTBH21C
											
											
						F	F	F	F	F	F
						CBN DCGW	CBN DCGW	CBN DCGW	CBN DCGT	CBN DCGW	CBN DCGW
						71 423 ...	71 130 ...	71 131 ...	71 134 ...	71 163 ...	71 424 ...
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm						
11T304SN	0,4	0,09	20°	B (2)	3,5					254	
11T304TN	0,4	0,11	20°	B (2)	3,0						91200
11T304TN	0,4	0,12	20°	B (2)	3,5			502			
11T304TN	0,4	0,12	20°	A (1)	3,5		508				
11T304TN	0,4	0,14	25°	B (2)	3,5					264	
11T304EN	0,4			B (2)	3,5					224	
11T304SN	0,4	0,14	25°	B (2)	3,0						91300
11T304SN	0,4	0,15	25°	B (2)	3,5					274	
11T304TN	0,4	0,15	30°	B (2)	3,0						91400
11T304SN	0,4	0,18	30°	B (2)	3,5					284	
11T304FN	0,4			A (1)	3,5		408 [1]		808		
11T304FN	0,4			B (2)	3,5			402 [1]		214	
11T308SN	0,8	0,11	15°	B (2)	3,0					245	
11T308SN	0,8	0,09	20°	B (2)	3,0					255	
11T308TN	0,8	0,11	20°	B (2)	2,6						91600
11T308TN	0,8	0,12	20°	B (2)	3,0			504			
11T308TN	0,8	0,12	20°	A (1)	3,0		510				
11T308TN	0,8	0,14	25°	B (2)	3,0					265	
11T308EN	0,8			B (2)	3,0					225	
11T308FN	0,8			B (2)	3,0			404 [1]		215	
11T308TN	0,8	0,15	30°	B (2)	2,6						91700
11T308SN	0,8	0,18	30°	B (2)	3,0					285	
11T308FN	0,8			A (1)	3,0		410 [1]		810		
11T308EN	0,8			B (2)	2,6						91500
P											
M											
K											
N											
S											
H						●	●	●	●	●	●
O											

1) Machining to 60 HRC

9

DCGW

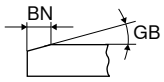
▲ TCE(NOI) = Design and number of equipped cutting edge corners

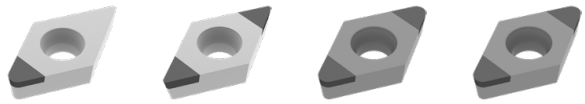


| | | |

DCGW

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





						CTBH40U	CTBH40U	CTBH40C	NEW CTBH41C
						F	F	F	F
						CBN DCGW	CBN DCGW	CBN DCGW	CBN DCGW
						71 130 ...	71 131 ...	71 163 ...	71 424 ...
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm				
11T304SN	0,4	0,09	15°	B (2)	3,0				01201
11T304TN	0,4	0,09	20°	B (2)	3,5			324	
11T304SN	0,4	0,09	20°	B (2)	3,5			334	
11T304SN	0,4	0,13	20°	B (2)	3,0				01301
11T304SN	0,4	0,09	25°	B (2)	3,5			354	
11T304TN	0,4	0,11	25°	B (2)	3,5			344	
11T304TN	0,4	0,12	25°	B (2)	3,0		902		
11T304TN	0,4	0,12	25°	A (1)	3,5	908			
11T304SN	0,4	0,14	25°	B (2)	3,0				01401
11T304TN	0,4	0,14	30°	B (2)	3,5			364	
11T304SN	0,4	0,15	30°	B (2)	3,0				01501
11T304SN	0,4	0,16	30°	B (2)	3,5			374	
11T304SN	0,4	0,17	35°	B (2)	3,5			384	
11T304EN	0,4			B (2)	3,5			314	
11T304FN	0,4			B (2)	3,5		802 1)		
11T304FN	0,4			A (1)	3,5	808			
11T304FN	0,4			B (2)	3,0				01101
11T308TN	0,8	0,09	10°	B (2)	2,6				01701
11T308SN	0,8	0,09	20°	B (2)	3,0			335	
11T308TN	0,8	0,09	20°	B (2)	3,0			325	
11T308SN	0,8	0,09	25°	B (2)	3,0			355	
11T308TN	0,8	0,11	25°	B (2)	3,0			345	
11T308TN	0,8	0,12	25°	B (2)	3,0		904		
11T308TN	0,8	0,12	25°	A (1)	3,0	910			
11T308SN	0,8	0,14	25°	B (2)	2,6				01801
11T308TN	0,8	0,14	30°	B (2)	3,0			365	
11T308SN	0,8	0,15	30°	B (2)	2,6				01901
11T308SN	0,8	0,16	30°	B (2)	3,0			375	
11T308SN	0,8	0,17	35°	B (2)	3,0			385	
11T308FN	0,8			B (2)	3,0		804 1)		
11T308FN	0,8			B (2)	2,6				01601

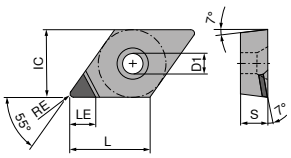
P				
M				
K				
N				
S				
H	●	●	●	●
O				

1) Machining to 60 HRC

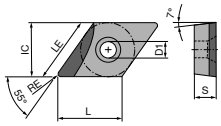
9

DCGW / DCGT

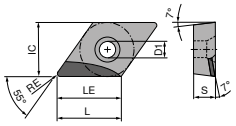
Designation	L mm	S mm	D1 mm	IC mm
DCG. 0702..	7,75	2,38	2,8	6,35
DCG. 11T3..	11,60	3,97	4,4	9,52



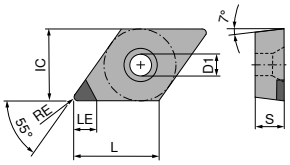
DCGT A



DCGT A L



DCGT A R



DCGW A

DCGW / DCGT

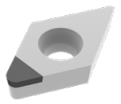
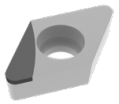
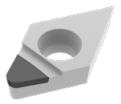
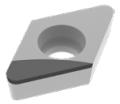
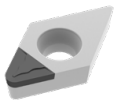
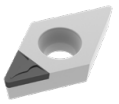
▲ TCE(NOI) = Design and number of equipped cutting edge corners

				CTDMD05		CTDMD05		NEW -Q CTDMD05		NEW -Q CTDMD05	
				F DIAMOND DCGW		F DIAMOND DCGT		F DIAMOND DCGW		F DIAMOND DCGT	
				71 130 ...		71 134 ...		71 178 ...		71 176 ...	
ISO	RE mm	TCE (NOI)	LE mm								
070202FN	0,2	A (1)	2,5		00200		050				
070202FN	0,2	A (1)	3,7								
070204FN	0,4	A (1)	2,5		00400		052				
070204FR	0,4	A (1)	2,5								50001
070204FN	0,4	A (1)	3,4								
070208FN	0,8	A (1)	2,5		00600		054				
070208FN	0,8	A (1)	3,0								
11T302FN	0,2	A (1)	2,5				056				
11T302FN	0,2	A (1)	3,0		056						
11T302FN	0,2	A (1)	4,7								
11T304FN	0,4	A (1)	2,5				058				
11T304FL	0,4	A (1)	3,0						50001		
11T304FN	0,4	A (1)	3,0		058						
11T304FN	0,4	A (1)	4,3								
11T308FN	0,8	A (1)	2,5				060				
11T308FN	0,8	A (1)	4,0								
11T312FN	1,2	A (1)	3,5								
11T312FN	1,2	A (1)	3,6								
P											
M											
K											
N				●		●		●		●	
S											
H											
O				●		●		●		●	

				CTDPD20		CTDPD20	
				F DIAMOND DCGW		F DIAMOND DCGT	
				71 130 ...		71 134 ...	
ISO	RE mm	TCE (NOI)	LE mm				
070202FN	0,2	A (1)	2,5				
070202FN	0,2	A (1)	3,7		100		100
070204FN	0,4	A (1)	2,5				
070204FR	0,4	A (1)	2,5				
070204FN	0,4	A (1)	3,4		102		102
070208FN	0,8	A (1)	2,5				
070208FN	0,8	A (1)	3,0		104		104
11T302FN	0,2	A (1)	2,5				
11T302FN	0,2	A (1)	3,0				
11T302FN	0,2	A (1)	4,7		106		106
11T304FN	0,4	A (1)	2,5				
11T304FL	0,4	A (1)	3,0				
11T304FN	0,4	A (1)	3,0				
11T304FN	0,4	A (1)	4,3		108		108
11T308FN	0,8	A (1)	2,5				
11T308FN	0,8	A (1)	4,0		110		110
11T312FN	1,2	A (1)	3,5				11200
11T312FN	1,2	A (1)	3,6		11200		
P							
M							
K							
N				●			●
S							
H							
O				●			●

DCGW / DCGT

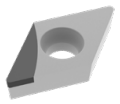
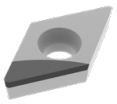
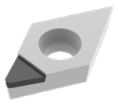
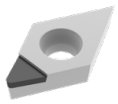
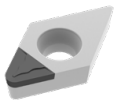
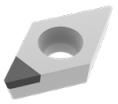
▲ TCE(NOI) = Design and number of equipped cutting edge corners

				NEW	NEW	NEW	NEW	NEW	NEW
				CTDPS30	CTDPS30	CTDPS30	CTDPS30	-CB1 CTDPU20	-CB2 CTDPU20
									
				F	F	F	F	F	M
				DIAMOND DCGW	DIAMOND DCGT	DIAMOND DCGT	DIAMOND DCGT	DIAMOND DCGT	DIAMOND DCGT
				71 177 ...	71 173 ...	71 173 ...	71 173 ...	71 174 ...	71 175 ...
ISO	RE mm	TCE (NOI)	LE mm						
070201FN	0,1	A (1)	3,8	20001		20001			
070202FN	0,2	A (1)	3,7	20101		20101		30001	
070204FN	0,4	A (1)	3,4	20201				30101	30001
070204FL	0,4	A (1)	5,5		20201				
070208FN	0,8	A (1)	3,0	20301					
11T301FN	0,1	A (1)	4,8	20401		20301			
11T302FN	0,2	A (1)	4,7	20501		20401			
11T304FN	0,4	A (1)	4,3	20601				30201	30101
11T304FL	0,4	A (1)	7,5		20501				
11T308FN	0,8	A (1)	4,0	20701				30301	
11T308FL	0,8	A (1)	7,0		20601				
11T308FR	0,8	A (1)	7,0				20701		
11T312FN	1,2	A (1)	3,6	20801					
11T312FL	1,2	A (1)	6,5		20801				
11T312FR	1,2	A (1)	6,5				20901		
P									
M									
K									
N				●	●	●	●	●	●
S									
H									
O				●	●	●	●	●	●

9

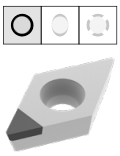
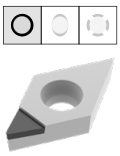
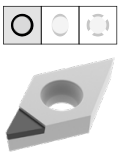
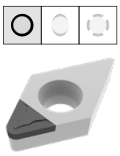
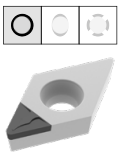
DCGT / DCGW

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

				CTDPD20	CTDPD20	-Q CTDPD20	-Q CTDPD20	-CB1 CTDPD20	-Q CTDPS30
									
				F	F	F	F	F	F
				DIAMOND DCGT	DIAMOND DCGT	DIAMOND DCGT	DIAMOND DCGT	DIAMOND DCGT	DIAMOND DCGW
				71 136 ...	71 135 ...	71 144 ...	71 145 ...	71 310 ...	71 138 ...
ISO	RE mm	**TCE (NOI)**	LE mm						
070201FN	0,1	**A (1)**	3,8					10100	
070202FN	0,2	**A (1)**	3,7					102	
070204FL	0,4	**A (1)**	3,0				104		
070204FR	0,4	**A (1)**	3,0			104			
070204FN	0,4	**A (1)**	3,4					104	
070204FRR	0,4	**A (1)**	5,5		102				
070204FLL	0,4	**A (1)**	5,5	102					
070208FN	0,8	**A (1)**	3,0					108	
070208FRR	0,8	**A (1)**	5,0		104				
070208FLL	0,8	**A (1)**	5,0	104					
11T301FN	0,1	**A (1)**	4,8					11100	
11T302FR	0,2	**A (1)**	4,0						162
11T302FN	0,2	**A (1)**	4,7					112	
11T304FL	0,4	**A (1)**	4,0				114		
11T304FR	0,4	**A (1)**	4,0			114			164
11T304FN	0,4	**A (1)**	4,3					114	
11T304FRR	0,4	**A (1)**	7,5		108				
11T304FLL	0,4	**A (1)**	7,5	108					
11T308FN	0,8	**A (1)**	4,0					118	
11T308FRR	0,8	**A (1)**	7,0		110				
11T308FLL	0,8	**A (1)**	7,0	110					
P									
M									
K									
N				●	●	●	●	●	●
S									
H									
O				●	●	●	●	●	●

DCGW / DCGT

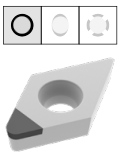
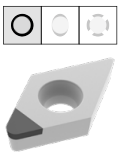
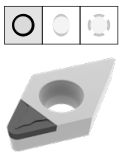
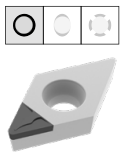
▲ TCE(NOI) = Design and number of equipped cutting edge corners

				-Q CTDPS30	-Q CTDPS30	-Q CTDPS30	-CB1 CTDPS30	-CB2 CTDPS30	-CB3 CTDPU20
									
				F	F	F	F	M	R
				DIAMOND DCGW	DIAMOND DCGT	DIAMOND DCGT	DIAMOND DCGT	DIAMOND DCGT	DIAMOND DCGT
				71 139 ...	71 144 ...	71 145 ...	71 310 ...	71 311 ...	71 312 ...
ISO	RE mm	TCE (NOI)	LE mm						
070201FL	0,1	A (1)	3,0			151			
070201FR	0,1	A (1)	3,0		15000				
070201FN	0,1	A (1)	3,8				20100		
070202FL	0,2	A (1)	3,0			152			
070202FR	0,2	A (1)	3,0		152				
070202FN	0,2	A (1)	3,7				202	202	
070204FN	0,4	A (1)	3,4				204	204	204
070208FN	0,8	A (1)	3,0					208	
11T301FL	0,1	A (1)	4,0			161			
11T301FR	0,1	A (1)	4,0		161				
11T301FN	0,1	A (1)	4,8				21100	21100	
11T302FL	0,2	A (1)	4,0			162			
11T302FR	0,2	A (1)	4,0		162				
11T302FN	0,2	A (1)	4,7				212	212	
11T304FL	0,4	A (1)	4,0	164					
11T304FN	0,4	A (1)	4,3				214	214	214
11T308FN	0,8	A (1)	4,0				218	218	218
P									
M									
K									
N				●	●	●	●	●	●
S									
H									
O				●	●	●	●	●	●

9

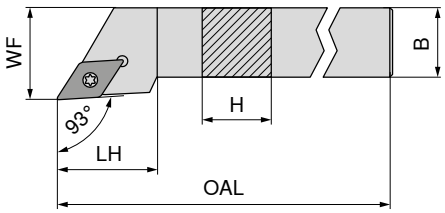
DCGT / DCGW

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

				-CB3 CTDPU20	NEW CTDPU20	NEW CTDCD10	-CB1 CTDCD10	-CB2 CTDCD10
								
				R	F	F	F	M
				DIAMOND DCGT	DIAMOND DCGW	DIAMOND DCGW	DIAMOND DCGT	DIAMOND DCGT
				71 312 ...	71 177 ...	71 177 ...	71 310 ...	71 311 ...
ISO	RE mm	**TCE (NOI)**	LE mm					
070202FN	0,2	**A (1)**	2,6			**40001**	**302**	**30200**
070204FN	0,4	**A (1)**	2,3			**40101**	**304**	**304**
070204FN	0,4	**A (1)**	3,4	**204**	**30001**			
070208FN	0,8	**A (1)**	2,0			**40201**		**308**
070208FN	0,8	**A (1)**	3,0		**30101**			
11T302FN	0,2	**A (1)**	2,6			**40301**	**31200**	**31200**
11T304FN	0,4	**A (1)**	2,3			**40401**	**314**	**314**
11T304FN	0,4	**A (1)**	4,3	**214**	**30201**			
11T308FN	0,8	**A (1)**	2,0			**40501**	**318**	**318**
11T308FN	0,8	**A (1)**	4,0	**218**	**30301**			
P								
M								
K								
N				●	●	●	●	●
S								
H								
O				●	●	●	●	●

MaxiLock-S – SDJC 93° – Toolholder with screw clamping





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 685 ...	Right-hand 70 684 ...
SDJC R/L 0808 D07	8	8	60	13,0	10	1,2	DC.. 0702	008	008
SDJC R/L 1010 E07	10	10	70	13,0	12	1,2	DC.. 0702	010	010
SDJC R/L 1212 F07	12	12	80	14,5	16	1,2	DC.. 0702	012	012
SDJC R/L 1616 H11	16	16	100	20,0	20	3,2	DC.. 11T3	016	016
SDJC R/L 2020 K11	20	20	125	20,5	25	3,2	DC.. 11T3	020	020
SDJC R/L 2525 M11	25	25	150	21,5	32	3,2	DC.. 11T3	025	025
SDJC R/L 3225 P11	32	25	170	21,5	32	3,2	DC.. 11T3	032	032


Key D


Combination Key


Clamping screw


Solid Carbide Seat D


Threaded sleeve

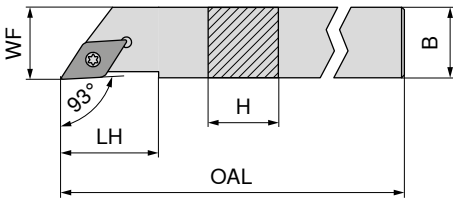
Spare parts Insert	80 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...
DC.. 0702	110		112		
DC.. 11T3		398	113	106	171

9

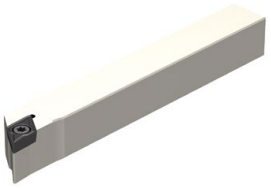
MaxiLock-S – SDJC 93° – Toolholder with screw clamping

▲ for sliding head lathes





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 685 ...	Right-hand 70 684 ...
SDJC R/L 0808 H07	8	8	100	13,0	8	1,2	DC.. 0702	108	108
SDJC R/L 1010 H07	10	10	100	13,0	10	1,2	DC.. 0702	110	110
SDJC R/L 1212 H07	12	12	100	14,5	12	1,2	DC.. 0702	112	112
SDJC R/L 1616 K07	16	16	125	33,0	16	1,2	DC.. 0702	116	116
SDJC R/L 1212 H11	12	12	100	22,0	12	3,2	DC.. 11T3	212	212
SDJC R/L 1616 K11	16	16	125	33,0	16	3,2	DC.. 11T3	216	216

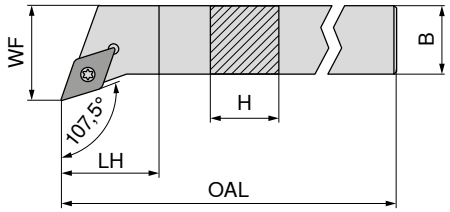

Key D


Clamping screw

Spare parts Insert		80 950 ...	72 950 ...
DC.. 0702	T08	110	002
DC.. 11T3	T15	113	006

MaxiLock-S – SDHC 107.5° – Toolholder with screw clamping





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 689 ...	Right-hand 70 688 ...
SDHC R/L 1010 E07	10	10	70	5,5	12	1,2	DC.. 0702	**010**	**010**
SDHC R/L 1212 F07	12	12	80	12,0	16	1,2	DC.. 0702	**012**	**012**
SDHC R/L 1616 H11	16	16	100	10,4	20	3,2	DC.. 11T3	**016**	**016**
SDHC R/L 2020 K11	20	20	125	14,0	32	3,2	DC.. 11T3	**020**	**020**
SDHC R/L 2525 M11	25	25	150	20,0	32	3,2	DC.. 11T3	**025**	**025**

Key D — **80 950 ...**


Combination Key — **70 950 ...**


Clamping screw — **70 950 ...**


Solid Carbide Seat D — **70 950 ...**

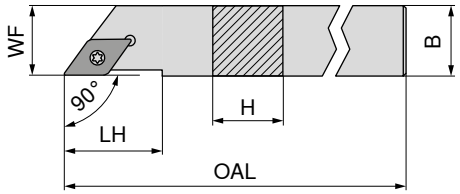

Threaded sleeve — **70 950 ...**

Spare parts for Article no.					
70 689 010 / 70 688 010	**110**		**112**		
70 689 012 / 70 688 012	**110**		**112**		
70 689 016 / 70 688 016		**398**	**113**	**106**	**171**
70 689 020 / 70 688 020		**398**	**113**	**106**	**171**
70 689 025 / 70 688 025		**398**	**113**	**106**	**171**

MaxiLock-S – SDAC 90° – Toolholder with screw clamping

▲ for sliding head lathes





Illustrations show right-hand versions



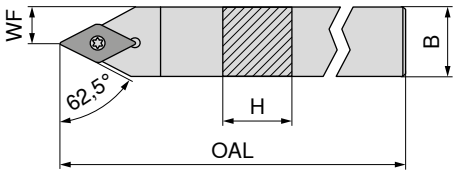
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 789 ...	Right-hand 70 788 ...
SDAC R/L 0808 K07	8	8	125	14	8	1,2	DC.. 0702	**008**	**008**
SDAC R/L 1010 M07	10	10	150	14	10	1,2	DC.. 0702	**010**	**010**
SDAC R/L 1212 M07	12	12	150	14	12	1,2	DC.. 0702	**012**	**012**
SDAC R/L 1212 M11	12	12	150	21	12	3,2	DC.. 11T3	**11200**	**11200**
SDAC R/L 1414 M11	14	14	150	21	14	3,2	DC.. 11T3	**014**	**014**

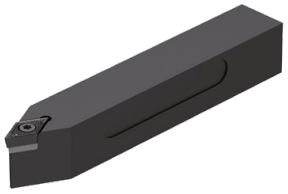

Key D — **80 950 ...**


Clamping screw — **70 950 ...**

Spare parts for Article no.				
70 788 008 / 70 789 008	T08	**110**	M2,5x6	**112**
70 788 010 / 70 789 010	T08	**110**	M2,5x6	**112**
70 788 012 / 70 789 012	T08	**110**	M2,5x6	**112**
70 788 11200 / 70 789 11200	T15	**113**	M3,5x11	**113**
70 788 014 / 70 789 014	T15	**113**	M3,5x11	**113**

MaxiLock-S – SDNC 62.5° – Toolholder with screw clamping



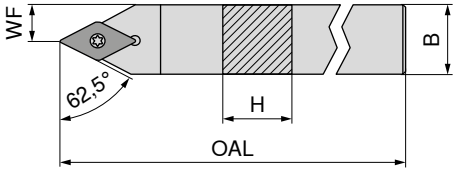


						Neutral	
						70 680 ...	
ISO designation	H mm	B mm	OAL mm	WF mm	torque moment Nm	Insert	
SDNC N 0808 D07	8	8	60	4,0	1,2	DC.. 0702	**008**
SDNC N 1010 E07	10	10	70	5,0	1,2	DC.. 0702	**010**
SDNC N 1212 F07	12	12	80	6,0	1,2	DC.. 0702	**012**
SDNC N 1616 H11	16	16	100	8,0	3,2	DC.. 11T3	**016**
SDNC N 2020 K11	20	20	125	10,0	3,2	DC.. 11T3	**020**
SDNC N 2525 M11	25	25	150	12,5	3,2	DC.. 11T3	**025**

	 Key D	 Combination Key	 Clamping screw	 Solid Carbide Seat D	 Threaded sleeve
	80 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.					
70 680 008	**110**		**112**		
70 680 010	**110**		**112**		
70 680 012	**110**		**112**		
70 680 016		**398**	**113**	**106**	**171**
70 680 020		**398**	**113**	**106**	**171**
70 680 025		**398**	**113**	**106**	**171**

9

MaxiLock-S – SDNC 62.5° – Toolholder with screw clamping

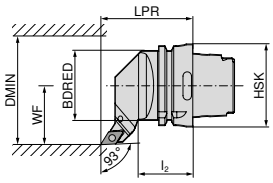




						Neutral	
						70 784 ...	
ISO designation	H mm	B mm	OAL mm	WF mm	torque moment Nm	Insert	
SDNC N 0808 K07	8	8	125	4	1,2	DC.. 0702	**008**
SDNC N 1010 M07	10	10	150	5	1,2	DC.. 0702	**010**
SDNC N 1212 M07	12	12	150	6	1,2	DC.. 0702	**012**
SDNC N 1212 M11	12	12	150	6	3,2	DC.. 11T3	**11200**
SDNC N 1414 M11	14	14	150	7	3,2	DC.. 11T3	**014**

		 Key D		 Clamping screw
		80 950 ...		**70 950 ...**
Spare parts for Article no.				
70 784 008	T08	**110**	M2,5x6	**112**
70 784 010	T08	**110**	M2,5x6	**112**
70 784 012	T08	**110**	M2,5x6	**112**
70 784 11200	T15	**113**	M3,5x11	**113**
70 784 014	T15	**113**	M3,5x11	**113**

MaxiLock-S – SDJC 93° – Toolholder with screw clamping



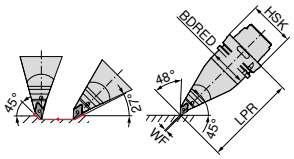


Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 544 ...	Right-hand 74 543 ...
HSK T63 SDJC R/L 11	HSK-T 63	70	42	53	45	100	3.2	DC.. 11T3	**511**	**511**

	Combination Key	Clamping screw	Solid Carbide Seat D	Threaded sleeve
	70 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.				
74 543 511 / 74 544 511	T15/SW **398**	M3,5x11 **113**	**106**	M3,5 **171**

MaxiLock-S – SDMC 48° – Toolholder with screw clamping



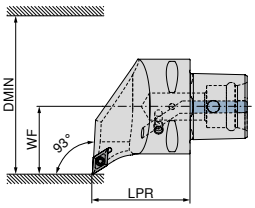


ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	Left-hand 74 546 ...
HSK T63 SDMC L 11	HSK-T 63	130	53	0	3.2	DC.. 11T3	**511**

	Combination Key	Clamping screw	Solid Carbide Seat D	Threaded sleeve
	70 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.				
74 546 511	T15/SW **398**	M3,5x11 **113**	**106**	M3,5 **171**

MaxiLock-S – SDUC 93° – Toolholder with screw clamping





Illustrations show right-hand versions



							NEW Left-hand 84 659 ...	NEW Right-hand 84 658 ...
ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert		
PSC40 SDUC R/L 50050-11	PSC 40	50	27	50	3	DC.. 11T3	**01195**	**01195**
PSC50 SDUC R/L 65060-11	PSC 50	60	35	65	3	DC.. 11T3	**01194**	**01194**
PSC63 SDUC R/L 80065-11	PSC 63	65	45	80	3	DC.. 11T3	**01193**	**01193**



Clamping screw

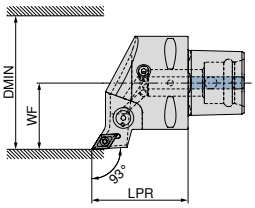
84 950 ...

Adapter	
PSC 40	**27600**
PSC 50	**27600**
PSC 63	**27600**

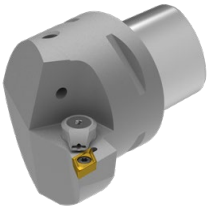
MaxiLock-S – SDJC 93° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set





Illustrations show right-hand versions



								NEW Left-hand 84 663 ...	NEW Right-hand 84 662 ...
ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible		
PSC40 SDJC R/L 50050-11	PSC 40	50	27	50	3	DC.. 11T3	DC	**01195**	**01195**
PSC50 SDJC R/L 65060-11	PSC 50	60	35	65	3	DC.. 11T3	DC	**01194**	**01194**
PSC63 SDJC R/L 80065-11	PSC 63	65	45	80	3	DC.. 11T3	DC	**01193**	**01193**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.



Clamping screw

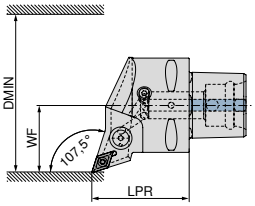
84 950 ...

Adapter	
PSC 40	**27600**
PSC 50	**27600**
PSC 63	**27600**

MaxiLock-S – SDHC 107.5° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set





Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	NEW Left-hand 84 667 ...	NEW Right-hand 84 666 ...
PSC40 SDHC R/L 50050-11	PSC 40	50	27	50	3	DC.. 11T3	DC	**01195**	**01195**
PSC50 SDHC R/L 65060-11	PSC 50	60	35	65	3	DC.. 11T3	DC	**01194**	**01194**
PSC63 SDHC R/L 80065-11	PSC 63	65	45	80	3	DC.. 11T3	DC	**01193**	**01193**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.



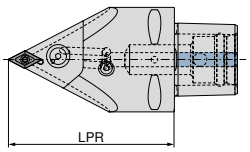
Clamping screw

Adapter	84 950 ...
PSC 40	**27600**
PSC 50	**27600**
PSC 63	**27600**

MaxiLock-S – SDNC 62.5° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set







ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Direct cooling compatible	NEW Neutral 84 677 ...
PSC63 SDNC N 0100-11	PSC 63	100	3	DC.. 11T3	DC	**01193**
PSC63 SDNC N 0130-11	PSC 63	130	3	DC.. 11T3	DC	**11193**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.



Clamping Screw



Clamping claw



Ring-shaped nozzle



Clamping screw



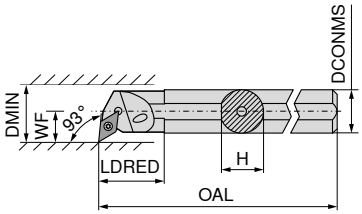
Carbide seat

Adapter		84 950 ...	84 950 ...	84 950 ...	84 950 ...	84 950 ...
PSC 63	M6X28 SW4	**28300**	**28600**	**28400**	**27500**	**27900**

MaxiLock-S – SDUC 93° – Boring bar with screw clamping

▲ A... = with thro' coolant
▲ S... = without thro' coolant





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 737 ...	Right-hand 70 736 ...
S12Q SDUC R/L 07	12	11,0	180		9	17	1,2	DC.. 0702	**012**	**012**
A12K SDUC R/L 07	12	11,5	125	22	9	16	1,2	DC.. 0702	**212**	**212**
A16M SDUC R/L 07	16	15,0	150	29	11	20	1,2	DC.. 0702	**216**	**216**
S16R SDUC R/L 07	16	15,0	200		11	21	1,2	DC.. 0702	**016**	**016**
A20Q SDUC R/L 07	20	18,5	180	32	13	25	1,2	DC.. 0702	**220**	**220**
S20S SDUC R 07	20	18,0	250		13	25	1,2	DC.. 0702		**020**
S20S SDUC R 11	20	18,0	250		13	25	3,2	DC.. 11T3		**120**
A20Q SDUC R/L 11	20	18,5	180	32	13	25	3,2	DC.. 11T3	**320**	**320**
A25R SDUC R/L 11	25	23,0	200	36	17	32	3,2	DC.. 11T3	**325**	**325**
S25T SDUC R/L 11	25	23,0	300		17	32	3,2	DC.. 11T3	**125**	**125**
A32S SDUC R/L 11	32	30,0	250	50	22	40	3,2	DC.. 11T3	**332**	**332**
S32U SDUC R 11	32	30,0	350		22	40	3,2	DC.. 11T3		**132**
A40T SDUC R/L 11	40	38,0	300	60	27	50	3,2	DC.. 11T3	**340**	**340**

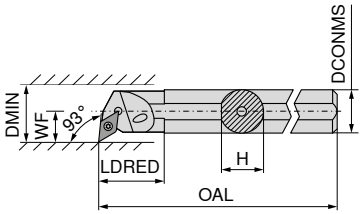
Spare parts for Article no.	Key D **80 950 ...**	 Combination Key **70 950 ...**	 Clamping screw **70 950 ...**	 Solid Carbide Seat D **70 950 ...**	 Threaded sleeve **70 950 ...**
70 736 012 / 70 737 012	**110**		**112**		
70 736 212 / 70 737 212	**110**		**112**		
70 736 216 / 70 737 216	**110**		**112**		
70 736 016 / 70 737 016	**110**		**112**		
70 736 220 / 70 737 220	**110**		**112**		
70 736 020	**110**		**112**		
70 736 120	**113**		**110**		
70 736 320 / 70 737 320	**113**		**110**		
70 736 325 / 70 737 325	**113**		**113**		
70 736 125 / 70 737 125		**398**	**113**	**106**	**171**
70 736 332 / 70 737 332		**398**	**113**	**106**	**171**
70 736 132		**398**	**113**	**106**	**171**
70 736 340 / 70 737 340		**398**	**113**	**106**	**171**

9

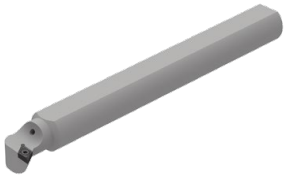
MaxiLock-S – SDUC 93° – Boring bar with screw clamping

▲ with carbide core





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 739 ...	Right-hand 70 738 ...
E-A10H SDUC R/L 07	10	9	100	28	8	13	1,2	DC.. 0702	**210**	**210**
E-A12K SDUC R/L 07	12	11	125	18	9	18	1,2	DC.. 0702	**212**	**212**
E-A16M SDUC R/L 07	16	15	150	30	11	22	1,2	DC.. 0702	**216**	**216**
E-A20Q SDUC R/L 07	20	18	180	38	13	26	1,2	DC.. 0702	**220**	**220**
E-A20Q SDUC R/L 11	20	18	180	38	13	26	3,2	DC.. 11T3	**320**	**320**
E-A25R SDUC R/L 11	25	23	200	38	17	34	3,2	DC.. 11T3	**225**	**225**
E-A32S SDUC R/L 11	32	30	250	43	22	39	3,2	DC.. 11T3	**232**	**232**



Key D



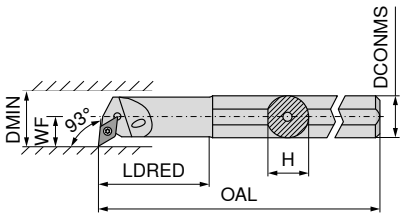
Clamping screw

Spare parts for Article no.	80 950 ...	70 950 ...
70 738 210 / 70 739 210	**110**	**112**
70 738 212 / 70 739 212	**110**	**112**
70 738 216 / 70 739 216	**110**	**112**
70 738 220 / 70 739 220	**110**	**112**
70 738 320 / 70 739 320	**113**	**449**
70 738 225 / 70 739 225	**113**	**449**
70 738 232 / 70 739 232	**113**	**449**

MaxiLock-S – SDUC 93° – Boring bar with screw clamping

▲ with carbide core





Illustrations show right-hand versions



NEW

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 739 ...	Right-hand 70 738 ...
E-A0810H SDUC R/L 07	10	9	100	22	7	12,5	1,2	DC.. 0702	**410**	**410**
E-A1012K SDUC R/L 07	12	11	125	28	9	15,5	1,2	DC.. 0702	**412**	**412**
E-A1216M SDUC R/L 07	16	15	150	36	11	19,5	1,2	DC.. 0702	**416**	**416**

Key D



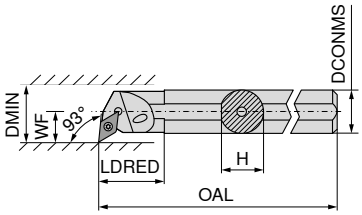
Clamping screw

Spare parts for Article no.	80 950 ...	70 950 ...
70 738 410 / 70 739 410	**110**	**112**
70 738 412 / 70 739 412	**110**	**112**
70 738 416 / 70 739 416	**110**	**112**

MaxiLock-S – SDUC 93° – Boring bar with screw clamping

▲ Type: Solid carbide





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 739 ...	Right-hand 70 738 ...
E12Q SDUC R/L 07	12	11,5	180	26	9	16	1,2	DC.. 0702	**012**	**012**
E16R SDUC R/L 07	16	15,0	200	34	11	20	1,2	DC.. 0702	**016**	**016**
E20S SDUC R/L 11	20	18,5	250	38	13	25	3,2	DC.. 11T3	**120**	**120**
E25T SDUC R/L 11	25	23,0	300	43	17	32	3,2	DC.. 11T3	**125**	**125**



Key D



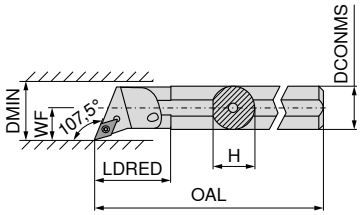
Clamping screw

Spare parts for Article no.	Key D 80 950 ...	Clamping screw 70 950 ...
70 739 012 / 70 738 012	**110**	**112**
70 739 016 / 70 738 016	**110**	**112**
70 739 120 / 70 738 120	**113**	**304**
70 739 125 / 70 738 125	**113**	**113**

9

MaxiLock-S – SDQC 107.5° – Boring bar with screw clamping





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 741 ...	Right-hand 70 740 ...
A10H SDQC R/L 07	10	9,0	100	22	7	12,5	1,2	DC.. 0702	**210**	**210**
A12K SDQC R/L 07	12	11,5	125	22	9	16,0	1,2	DC.. 0702	**212**	**212**
A16M SDQC R/L 07	16	15,0	150	29	11	20,0	1,2	DC.. 0702	**216**	**216**
A20Q SDQC R/L 07	20	18,5	180	32	13	25,0	1,2	DC.. 0702	**220**	**220**
A25R SDQC R/L 11	25	23,0	200	36	17	32,0	3,2	DC.. 11T3	**225**	**225**
A32S SDQC R/L 11	32	30,0	250	50	22	40,0	3,2	DC.. 11T3	**232**	**232**
A40T SDQC R/L 11	40	38,0	300	60	27	50,0	3,2	DC.. 11T3	**240**	**240**



Key D



Combination Key



Clamping screw



Solid Carbide Seat D



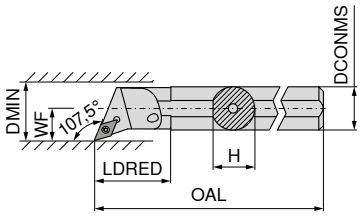
Threaded sleeve

Spare parts for Article no.	Key D 80 950 ...	Combination Key 70 950 ...	Clamping screw 70 950 ...	Solid Carbide Seat D 70 950 ...	Threaded sleeve 70 950 ...
70 740 210 / 70 741 210	**110**		**112**		
70 740 212 / 70 741 212	**110**		**112**		
70 740 216 / 70 741 216	**110**		**112**		
70 740 220 / 70 741 220	**110**		**112**		
70 740 225 / 70 741 225		**398**	**113**	**106**	**171**
70 740 232 / 70 741 232		**398**	**113**	**106**	**171**
70 740 240 / 70 741 240		**398**	**113**	**106**	**171**

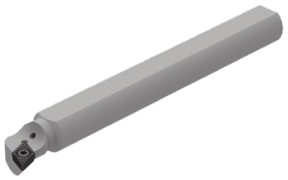
MaxiLock-S – SDQC 107.5° – Boring bar with screw clamping

▲ with carbide core





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 751 ...	Right-hand 70 750 ...
E-A12K SDQC R/L 07	12	11	125	24	9	18	1,2	DC.. 0702	**012**	**012**
E-A16M SDQC R/L 07	16	15	150	30	11	22	1,2	DC.. 0702	**016**	**016**
E-A20Q SDQC R/L 07	20	18	180	38	13	26	1,2	DC.. 0702	**020**	**020**
E-A20Q SDQC R/L 11	20	18	180	38	13	26	3,2	DC.. 11T3	**120**	**120**
E-A25R SDQC R/L 11	25	23	200	38	17	34	3,2	DC.. 11T3	**025**	**025**
E-A32S SDQC R/L 11	32	30	250	43	22	39	3,2	DC.. 11T3	**032**	**032**



Key D



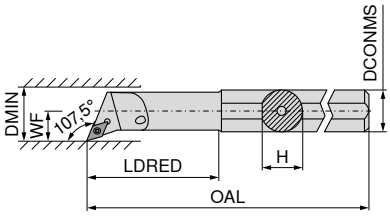
Clamping screw

Spare parts for Article no.	80 950 ...	70 950 ...
70 750 012 / 70 751 012	**110**	**112**
70 750 016 / 70 751 016	**110**	**112**
70 750 020 / 70 751 020	**110**	**112**
70 750 120 / 70 751 120	**113**	**449**
70 750 025 / 70 751 025	**113**	**449**
70 750 032 / 70 751 032	**113**	**449**

MaxiLock-S – SDQC 107.5° – Boring bar with screw clamping

▲ with carbide core





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 751 ...	Right-hand 70 750 ...
E-A0810H SDQC R/L 07	10	9	100	22	7	12,5	1,2	DC.. 0702	**210**	**210**
E-A1012K SDQC R/L 07	12	11	125	28	9	15,5	1,2	DC.. 0702	**212**	**212**
E-A1216M SDQC R/L 07	16	15	150	36	11	19,5	1,2	DC.. 0702	**216**	**216**



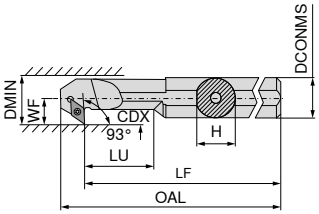
Key D



Clamping screw

Spare parts for Article no.	80 950 ...	70 950 ...
70 750 210 / 70 751 210	**110**	**112**
70 750 212 / 70 751 212	**110**	**112**
70 750 216 / 70 751 216	**110**	**112**

MaxiLock-S – SDXC 93° – Boring bar with screw clamping





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	LF mm	OAL mm	LU mm	WF mm	DMIN mm	CDX mm	torque moment Nm	Insert	Left-hand 70 733 ...	Right-hand 70 732 ...
A12K SDXC R/L 07	12	11,5	125	137,0	24	9	16	4,5	1,2	DC.. 0702	**212**	**212**
A16M SDXC R/L 07	16	15,0	150	162,0	36	11	20	4,5	1,2	DC.. 0702	**216**	**216**
A20Q SDXC R/L 11	20	18,5	180	196,5	40	13	25	6,5	3,2	DC.. 11T3	**220**	**220**
A25R SDXC R/L 11	25	23,0	200	216,8	50	17	32	9,5	3,2	DC.. 11T3	**225**	**225**

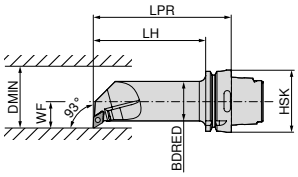

Key D


Clamping screw

Spare parts for Article no.	Key D 80 950 ...	Clamping screw 70 950 ...
70 733 212 / 70 732 212	**110**	**112**
70 733 216 / 70 732 216	**110**	**112**
70 733 220 / 70 732 220	**113**	**304**
70 733 225 / 70 732 225	**113**	**304**

9

MaxiLock-S – SDUC 93° – Boring bar with screw clamping





Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	LH mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 566 ...	Right-hand 74 565 ...
HSK T63 40L SDUC R/L 11	HSK-T 63	140	114	40	27	50	3.2	DC.. 11T3	**511**	**511**


Combination Key


Clamping screw

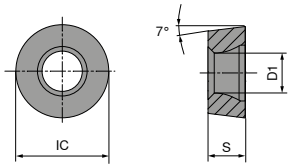

Solid Carbide Seat D


Threaded sleeve

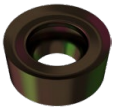
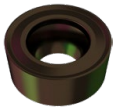
Spare parts for Article no.	Combination Key 70 950 ...		Clamping screw 70 950 ...		Solid Carbide Seat D 70 950 ...	Threaded sleeve 70 950 ...	
74 565 511 / 74 566 511	T15/SW	**398**	M3,5x11	**113**	**106**	M3,5	**171**

RCMT / RCGT

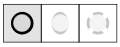
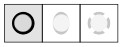
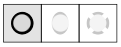
Designation	S mm	D1 mm	IC mm
RCGT 0602..	2,38	2,8	6
RCGT 0803..	3,18	3,4	8
RC.T 1003..	3,18	4,0	10
RCMT 1204..	4,76	4,9	12
RCMT 1606..	6,35	5,3	16
RCMT 2006..	6,35	6,5	20
RCMT 2507..	7,94	7,2	25



RCMT / RCGT

		-SMF CTCK110	-SM CTCP115	-SM CTCP125	-SM CTCP125	-SM CTCP135	-SM CTCP135
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		F	M	M	M	M	M
		RCMT	RCMT	RCGT	RCMT	RCGT	RCMT
		70 188 ...	76 264 ...	76 262 ...	76 264 ...	76 262 ...	76 264 ...
ISO	RE mm						
0602M0EN	3,0			502		702	
0803M0EN	4,0			512		712	
1003M0SN	5,0				514		714
1204M0SN	6,0		328		526		726
1606M0EN	8,0	038					
1606M0SN	8,0		340		538		738
2006M0SN	10,0				550		750
2507M0SN	12,5		36200		562		762
P		○	●	●	●	●	●
M						○	○
K		●	○	○	○		
N							
S							
H							
O							

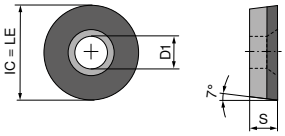
RCGT

		NEW		
		-27 H10T	-27 CWN15	-27 CTPX715
				DRAGONSKIN
				
				
		M	M	M
		RCGT	RCGT	RCGT
		70 266 ...	70 266 ...	70 266 ...
ISO	RE mm			
0602M0FN	3	600	300	
0803M0FN	4	602	302	80200
1003M0FN	5	604		80400
P				●
M			○	●
K		○		○
N		●	●	●
S				●
H				
O		○		○

9

RCGW

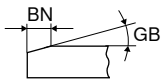
Designation	S mm	D1 mm	IC mm
RCGW 1204..	4,76	4,4	12



RCGW F

RCGW

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



NEW

CTBS10U



F

CBN

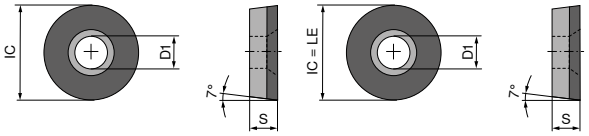
RCGW

71 425 ...

ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	
1204M0TN	6	0,12	20°	**F**	12	**10000**
P						
M						
K						●
N						
S						●
H						
O						

RCGW / RCGT

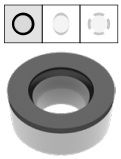
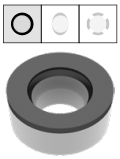
Designation	S mm	D1 mm	IC mm
RCG. 0602..	2,38	2,8	6
RCGW 0803..	3,18	3,4	8
RCGW 1003..	3,97	4,4	10
RCGT 10T3..	3,97	4,4	10
RCGW 1204..	4,76	4,4	12



RCGT F RCGW F

RCGW / RCGT

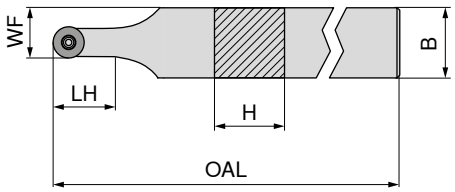
▲ TCE(NOI) = Design and number of equipped cutting edge corners

				NEW		NEW		
				CTDPD20	-CB1 CTDPD20	CTDPS30	-CB1 CTDPS30	-CB2 CTDPS30
								
				F	F	F	F	M
				DIAMOND RCGW	DIAMOND RCGT	DIAMOND RCGW	DIAMOND RCGT	DIAMOND RCGT
				71 179 ...	71 315 ...	71 179 ...	71 315 ...	71 316 ...
ISO	RE mm	TCE (NOI)	LE mm					
0602M0FN	3	F	6	10001	102	20001	202	202
0803M0FN	4	F	8	10101		20101		
1003M0FN	6	F	10	10201				
10T3M0FN	5	F	10		104		204	204
1204M0FN	6	F	12	10301				
P								
M								
K								
N				●	●	●	●	●
S								
H								
O				●	●	●	●	●

9

MaxiLock-S – SRDC 0° – Toolholder with screw clamping





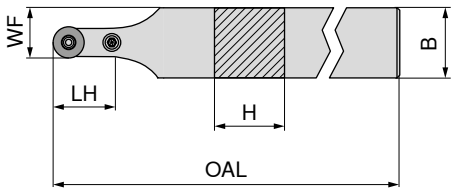


ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Neutral 70 708 ...
SRDC N 1212 F06	12	12	80	12,4	9,0	1,2	RC.. 0602 M0	**012**
SRDC N 1616 H06	16	16	100	12,4	11,0	1,2	RC.. 0602 M0	**016**
SRDC N 2020 K06	20	20	125	12,4	13,0	1,2	RC.. 0602 M0	**020**
SRDC N 2525 M06	25	25	150	12,4	15,5	1,2	RC.. 0602 M0	**025**
SRDC N 1616 H08	16	16	100	16,4	12,0	1,8	RC.. 0803 M0	**116**
SRDC N 2020 K08	20	20	125	16,4	14,0	1,8	RC.. 0803 M0	**120**
SRDC N 2525 M08	25	25	150	16,4	16,5	1,8	RC.. 0803 M0	**125**
SRDC N 1616 H10	16	16	100	20,3	13,0	3,2	RC.. 1003 M0	**216**
SRDC N 2020 K10	20	20	125	20,3	15,0	3,2	RC.. 1003 M0	**220**
SRDC N 2525 M10	25	25	150	20,3	17,5	3,2	RC.. 1003 M0	**225**

Spare parts for Article no.	 Key D **80 950 ...**		 Combination Key **70 950 ...**		 Clamping screw **70 950 ...**		 Solid carbide support R **70 950 ...**		 Threaded sleeve **70 950 ...**	
70 708 012	**110**				**112**					
70 708 016	**110**				**112**					
70 708 020	**110**				**112**					
70 708 025	**110**				**112**					
70 708 116	**110**				**115**					
70 708 120	**110**				**115**					
70 708 125	**110**				**115**					
70 708 216			**398**		**113**		**117**		**171**	
70 708 220			**398**		**113**		**117**		**171**	
70 708 225			**398**		**113**		**117**		**171**	

MaxiLock-N – PRDC 0° – Toolholder with lever clamping







Neutral

70 544 ...

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	
PRDC N 2525 M12	25	25	150	24	18,5	3	RCMT 1204	**025**
PRDC N 3225 P12	32	25	170	24	18,5	3	RCMT 1204	**032**
PRDC N 3225 P16	32	25	170	28	20,5	4	RCMT 1606	**132**


Key I


Shim


Assembly pin


Lever

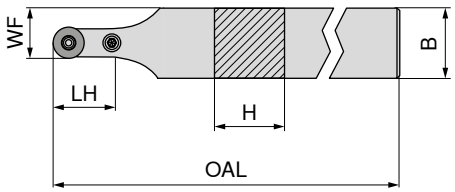

Clamping screw

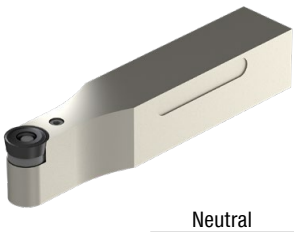

Solid carbide support R

Spare parts for Article no.		70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...
70 544 025	SW2,5	**175**	**197**	**191**	**178**	**208**	**215**
70 544 032	SW2,5	**175**	**197**	**191**	**178**	**208**	**215**
70 544 132	SW3	**176**	**196**	**192**	**387**	**390**	**384**

MaxiLock-N – PRDC 0° – Toolholder with lever clamping







Neutral

70 545 ...

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	
PRDC N 3225 P20	32	32	170	32	26,0	5	RCMT 2006	**23200**[1)]
PRDC N 4040 S25	40	40	250	42	32,5	6	RCMT 2507	**40400**[1)]

1) nickel-plated


Key I


Shim


Assembly pin


Lever

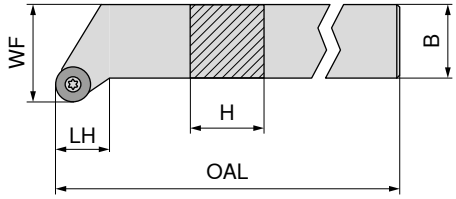

Clamping screw


Solid carbide support R

Spare parts for Article no.	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...
70 545 23200	**177**	**391**	**394**	**28100**	**28500**	**27400**
70 545 40400	**396**	**392**	**395**	**28400**	**28600**	**27500**

MaxiLock-S – SRGC – Toolholder with screw clamping





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 713 ...	Right-hand 70 712 ...
SRGC R/L 1212 F06	12	12	80	10,0	16	1,2	RC.. 0602 M0	**012**	**012**
SRGC R 1616 H06	16	16	100	10,0	20	1,2	RC.. 0602 M0		**016**
SRGC R/L 2020 K06	20	20	125	11,5	25	1,2	RC.. 0602 M0	**020**	**020**
SRGC R/L 2525 M06	25	25	150	15,0	32	1,2	RC.. 0602 M0	**025**	**025**
SRGC R/L 1616 H08	16	16	100	11,0	20	1,8	RC.. 0803 M0	**11600**[1)]	**116**
SRGC R 2020 K08	20	20	125	13,0	25	1,8	RC.. 0803 M0		**120**
SRGC R/L 2525 M08	25	25	150	16,0	32	1,8	RC.. 0803 M0	**125**	**125**
SRGC R/L 1616 H10	16	16	100	12,0	20	3,2	RC.. 1003 M0	**216**	**216**
SRGC R/L 2020 K10	20	20	125	13,5	25	3,2	RC.. 1003 M0	**220**	**220**
SRGC R/L 2525 M10	25	25	150	17,0	32	3,2	RC.. 1003 M0	**225**	**225**

1) nickel-plated


Clamping screw


Solid carbide support R


Threaded sleeve

Spare parts for Article no.		70 950 ...	Solid carbide support R 70 950 ...	Threaded sleeve 70 950 ...	
70 712 012 / 70 713 012	M2,5x6	**112**			
70 712 016	M2,5x6	**112**			
70 712 020 / 70 713 020	M2,5x6	**112**			
70 712 025 / 70 713 025	M2,5x6	**112**			
70 712 116 / 70 713 11600	M3x7,3	**115**			
70 712 120	M3x7,3	**115**			
70 712 125 / 70 713 125	M3x7,3	**115**			
70 712 216 / 70 713 216	M3,5x11	**113**	**117**	M3,5	**171**
70 712 220 / 70 713 220	M3,5x11	**113**	**117**	M3,5	**171**
70 712 225 / 70 713 225	M3,5x11	**113**	**117**	M3,5	**171**

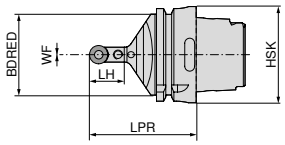

Key D


Combination Key

Spare parts for Article no.		Key D 80 950 ...		Combination Key 70 950 ...	
70 712 012 / 70 713 012	T08		**110**		
70 712 016	T08		**110**		
70 712 020 / 70 713 020	T08		**110**		
70 712 025 / 70 713 025	T08		**110**		
70 712 116 / 70 713 11600	T08		**110**		
70 712 120	T08		**110**		
70 712 125 / 70 713 125	T08		**110**		
70 712 216 / 70 713 216				T15/SW	**398**
70 712 220 / 70 713 220				T15/SW	**398**
70 712 225 / 70 713 225				T15/SW	**398**

MaxiLock-N – PRDC 0° – Toolholder with lever clamping





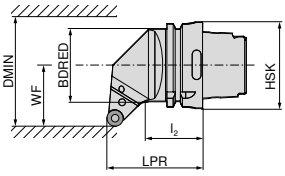


ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	Neutral 74 548 ...
HSK T63 PRDC N 12	HSK-T 63	70	53	0	3	RC.. 1204 M0	**512**
HSK T100 PRDC N 12	HSK-T 100	80	88	0	3	RC.. 1204 M0	**712**
HSK T100 PRDC N 16	HSK-T 100	80	88	0	4	RC.. 1606 M0	**716**

Spare parts for Article no.		Key I 70 950 ...	Shim 70 950 ...	Assembly pin 70 950 ...	Lever 70 950 ...	Clamping screw 70 950 ...	Solid carbide support R 70 950 ...
74 548 512	SW2,5	**175**	**197**	**191**	**178**	**208**	**215**
74 548 712	SW2,5	**175**	**197**	**191**	**178**	**208**	**215**
74 548 716	SW3	**176**	**196**	**192**	**387**	**390**	**384**

MaxiLock-N – PRSC – Toolholder with lever clamping







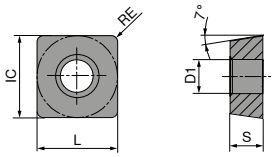
Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 552 ...	Right-hand 74 551 ...
HSK T63 PRSC R/L 12	HSK-T 63	70	44	53	45	100	3	RC.. 1204 M0	**512**	**512**
HSK T100 PRSC R/L 12	HSK-T 100	80	57	88	55	106	3	RC.. 1204 M0	**712**	**712**
HSK T100 PRSC R/L 16	HSK-T 100	80	55	88	55	125	4	RC.. 1606 M0	**716**	**716**

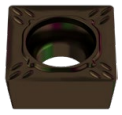
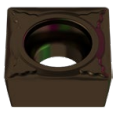
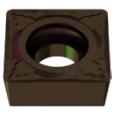
Spare parts for Article no.		Key I 70 950 ...	Shim 70 950 ...	Assembly pin 70 950 ...	Lever 70 950 ...	Clamping screw 70 950 ...	Solid carbide support R 70 950 ...
74 551 512 / 74 552 512	SW2,5	**175**	**197**	**191**	**178**	**208**	**215**
74 551 712 / 74 552 712	SW2,5	**175**	**197**	**191**	**178**	**208**	**215**
74 551 716 / 74 552 716	SW3	**176**	**196**	**192**	**387**	**390**	**384**

SCGT / SCMT / SCMX

Designation	L mm	S mm	D1 mm	IC mm
SC.T 09T3..	9,52	3,97	4,4	9,52
SC.. 1204..	12,70	4,76	5,5	12,70



SCGT / SCMT

	-CF05 CTEP110	-CF55 CTEP110	-SF TCM10	-SF TCM407	-SF CTCP125	-SMF CTCP115	-SMF CTCP135
	DRAGONSKIN	DRAGONSKIN			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	F	F	F	F	F	F	F
	CERMET SCGT	CERMET SCMT	CERMET SCGT	CERMET SCGT	SCMT	SCMT	SCMT
	76 261 ...	76 260 ...	70 271 ...	70 271 ...	76 269 ...	76 267 ...	76 267 ...
ISO / RE mm							
09T304EN 0,4	004	004	902		504	304	
09T308EN 0,8	006	006	904	852	506	306	
120408EN 0,8					518		718
P	●	●	●	●	●	●	●
M	o	o	o	o			o
K	o	o	o	o	o	o	
N							
S							
H							
O							

SCMT / SCMX

	-SM CTCK110	-SM CTCK120	-SM CTCP115	-SM CTCP125	-SM CTCP135	CTCP135
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
	M	M	M	M	M	M
	SCMT	SCMT	SCMT	SCMT	SCMT	SCMX
	70 268 ...	70 268 ...	76 268 ...	76 268 ...	76 268 ...	76 182 ...
ISO / RE mm						
09T304EN 0,4	004	504	304	504	704	
09T308EN 0,8	006	506	306	506	706	
120408EN 0,8	018	518	318	518	718	718
120412EN 1,2	020	520		520		
P	o	o	●	●	●	●
M					o	o
K	●	●	o	o		
N						
S						
H						
O						

SCMT

		NEW		NEW
		-M55 CTCM120	-M55 CTPM125	-M55 CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
				
		M	M	M
		SCMT	SCMT	SCMT
		75 216 ...	75 216 ...	75 216 ...
ISO	RE mm			
09T308EN	0,8	10600	206	30600
120408EN	0,8	11800	218	31800
P		○	○	○
M		●	●	●
K				
N				
S				○
H				
O				

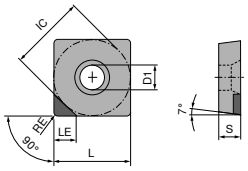
SCGT

			NEW	NEW		
		-25P H210T	-25P CTPX710	-27 CTPX715	-27 H10T	-27 CWN15
			DRAGONSKIN	DRAGONSKIN		
						
		F	M	M	M	M
		SCGT	SCGT	SCGT	SCGT	SCGT
		70 283 ...	70 283 ...	70 270 ...	70 270 ...	70 270 ...
ISO	RE mm					
09T304FN	0,4			80400	600	300
09T308FN	0,8			80600	602	302
120408FN	0,8	634	71600		604	304
P			●	●		
M			●	●		○
K		○		○	○	
N		●	●	●	●	●
S		○	●	●		
H						
O		○		○	○	

9

SCGW

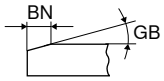
Designation	L mm	S mm	D1 mm	IC mm
SCGW 09T3..	9,52	3,97	4,4	9,52
SCGW 1204..	12,70	4,76	5,5	12,70



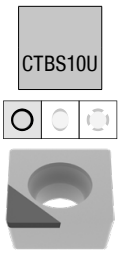
SCGW A

SCGW

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



NEW



F
CBN
SCGW

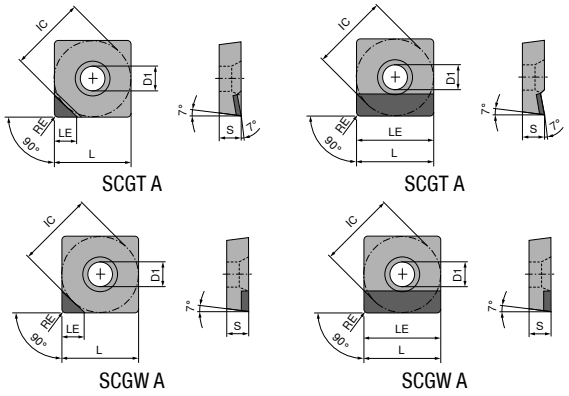
71 426 ...

ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	
09T304TN	0,4	0,12	20°	A (1)	3,5	10100
09T304FN	0,4			A (1)	3,5	10000
09T308FN	0,8			A (1)	3,4	10200
09T308TN	0,8	0,12	20°	A (1)	3,4	10300
120404FN	0,4			A (1)	3,5	10400
120404TN	0,4	0,12	20°	A (1)	3,5	10500
120408FN	0,8			A (1)	3,4	10600
120408TN	0,8	0,12	20°	A (1)	3,4	10700

P	
M	
K	●
N	
S	●
H	
O	

SCGW / SCGT

Designation	L mm	S mm	D1 mm	IC mm
SCG. 09T3..	9,52	3,97	4,4	9,52
SCG. 1204..	12,70	4,76	5,5	12,70



SCGT A SCGT A SCGW A SCGW A

SCGW / SCGT

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

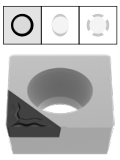
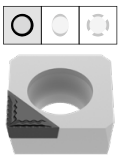
	NEW	NEW		NEW	NEW
	CTDPD20	CTDPD20	-CB1 CTDPD20	CTDPS30	CTDPS30
	F	F	F	F	F
	DIAMOND SCGW	DIAMOND SCGW	DIAMOND SCGT	DIAMOND SCGW	DIAMOND SCGT
	71 182 ...	71 183 ...	71 320 ...	71 182 ...	71 180 ...

ISO	RE mm	TCE (NOI)	LE mm									
09T304FN	0,4	A (1)	9,52			10001						
09T304FN	0,4	A (1)	4,40	10001				114		20601		20001
09T308FN	0,8	A (1)	4,30	10101				118				20101
09T308FN	0,8	A (1)	9,52			10101						
09T312FN	1,2	A (1)	4,20	10201								20201
120404FN	0,4	A (1)	12,70			10201						
120404FN	0,4	A (1)	4,40	10301								
120408FN	0,8	A (1)	4,30	10401								
120408FN	0,8	A (1)	12,70			10301						
120412FN	1,2	A (1)	12,70			10401						
120412FN	1,2	A (1)	4,20	10501								
P												
M												
K												
N				●		●		●		●		●
S												
H												
O				●		●		●		●		●

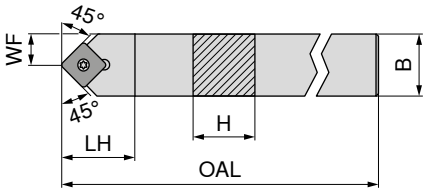
9

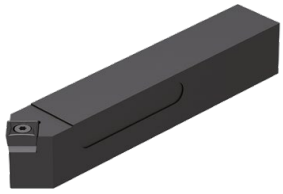
SCGT

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

				NEW	NEW	
				CTDPS30	-CB2 CTDPS30	-CB3 CTDPU20
						
				F	M	R
				DIAMOND SCGT	DIAMOND SCGT	DIAMOND SCGT
				71 181 ...	71 321 ...	71 322 ...
ISO	RE mm	**TCE (NOI)**	LE mm			
09T304FN	0,4	**A (1)**	4,4		214	214
09T308FN	0,8	**A (1)**	9,5	20001		
09T308FN	0,8	**A (1)**	4,3		218	218
120408FN	0,8	**A (1)**	12,7	20101		
120412FN	1,2	**A (1)**	12,0	20201		
P						
M						
K						
N				●	●	●
S						
H						
O				●	●	●

MaxiLock-S – SSDC 45° – Toolholder with screw clamping



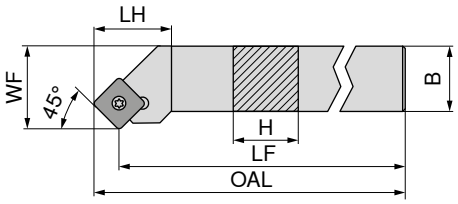


ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Neutral 70 656 ...
SSDC N 1212 F09	12	12	80	16	6,0	3,2	SC.. 09T3..	012
SSDC N 1616 H09	16	16	100	20	8,0	3,2	SC.. 09T3..	016
SSDC N 2020 K09	20	20	125	20	10,0	3,2	SC.. 09T3..	020
SSDC N 1616 H12	16	16	100	25	8,0	5	SC.. 1204..	116
SSDC N 2020 K12	20	20	125	25	10,0	5	SC.. 1204..	120
SSDC N 2525 M12	25	25	150	25	12,5	5	SC.. 1204..	125

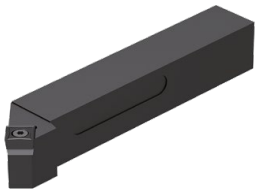
Spare parts for Article no.	 Key D 80 950 ...	 Combination Key 70 950 ...	 Clamping screw 70 950 ...	 Solid Carbide support S 70 950 ...	 Threaded sleeve 70 950 ...
70 656 012	113		113		
70 656 016		398	113	167	171
70 656 020		398	113	167	171
70 656 116		398	114	168	170
70 656 120		398	114	168	170
70 656 125		398	114	168	170

9

MaxiLock-S – SSSC 45° – Toolholder with screw clamping



Illustrations show right-hand versions

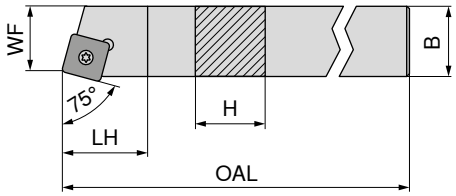


ISO designation	H mm	B mm	LF mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 661 ...	Right-hand 70 660 ...
SSSC R/L 1212 F09	12	12	80	86,40	18	16	3,2	SC.. 09T3..	012	012
SSSC R/L 1616 H09	16	16	100	106,40	20	20	3,2	SC.. 09T3..	016	016
SSSC R/L 2020 K09	20	20	125	131,40	20	25	3,2	SC.. 09T3..	020	020
SSSC R/L 1616 H12	16	16	100	108,63	25	20	5	SC.. 1204..	116	116
SSSC R/L 2020 K12	20	20	125	133,63	25	25	5	SC.. 1204..	120	120
SSSC R/L 2525 M12	25	25	150	158,63	25	32	5	SC.. 1204..	125	125
SSSC R 3225 P12	32	25	170	178,63	25	32	5	SC.. 1204..		132

Spare parts for Article no.	 Key D 80 950 ...	 Combination Key 70 950 ...	 Clamping screw 70 950 ...	 Solid Carbide support S 70 950 ...	 Threaded sleeve 70 950 ...
70 661 012 / 70 660 012	113		113		
70 661 016 / 70 660 016		398	113	167	171
70 661 020 / 70 660 020		398	113	167	171
70 661 116 / 70 660 116		398	114	168	170
70 661 120 / 70 660 120		398	114	168	170
70 661 125 / 70 660 125		398	114	168	170
70 660 132		398	114	168	170

MaxiLock-S – SSBC 75° – Toolholder with screw clamping







Illustrations show right-hand versions

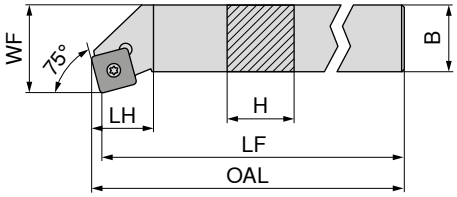
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 665 ...	Right-hand 70 664 ...
SSBC R/L 1616 H09	16	16	100	20	13	3,2	SC.. 09T3..	**016**	**016**
SSBC R 2020 K09	20	20	125	20	17	3,2	SC.. 09T3..		**020**
SSBC R/L 2020 K12	20	20	125	20	17	5	SC.. 1204..	**12000** [1]	**120**
SSBC R/L 2525 M12	25	25	150	20	22	5	SC.. 1204..	**125**	**125**

1) nickel-plated

Spare parts for Article no.	Key D 80 950 ...	Combination Key 70 950 ...	Clamping screw 70 950 ...	Solid Carbide support S 70 950 ...	Threaded sleeve 70 950 ...
70 664 016 / 70 665 016	**113**	**398**	**113**	**167**	**171**
70 664 020	**113**	**398**	**113**	**167**	**171**
70 664 120 / 70 665 12000	**113**	**398**	**114**	**168**	**170**
70 664 125 / 70 665 125	**113**	**398**	**114**	**168**	**170**

MaxiLock-S – SSKC 75° – Toolholder with screw clamping







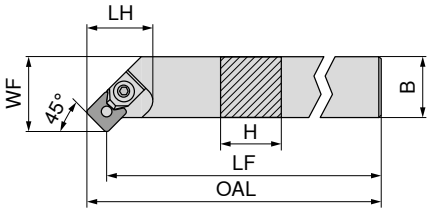
Illustrations show right-hand versions

ISO designation	H mm	B mm	LF mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 669 ...	Right-hand 70 668 ...
SSKC R/L 1616 H09	16	16	100	102,3	22	20	3,2	SC.. 09T3..	**016**	**016**
SSKC R/L 2020 K09	20	20	125	127,3	22	25	3,2	SC.. 09T3..	**020**	**020**
SSKC R 2020 K12	20	20	125	127,3	23	25	5	SC.. 1204..		**120**
SSKC R 2525 M12	25	25	150	153,3	23	32	5	SC.. 1204..		**125**

Spare parts for Article no.	Key D 80 950 ...	Combination Key 70 950 ...	Clamping screw 70 950 ...	Solid Carbide support S 70 950 ...	Threaded sleeve 70 950 ...
70 668 016 / 70 669 016	**113**	**398**	**113**	**167**	**171**
70 668 020 / 70 669 020	**113**	**398**	**113**	**167**	**171**
70 668 120	**113**	**398**	**114**	**168**	**170**
70 668 125	**113**	**398**	**114**	**168**	**170**

MaxiLock-P – MSSC 45° – Toolholder with top clamping





Illustrations show right-hand versions



ISO designation	H mm	B mm	LF mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 589 ...	Right-hand 70 588 ...
MSSC R/L 2020 K12	20	20	125	133,65	32	25	5	SCMX 1204	**020**	**020**
MSSC R/L 2525 M12	25	25	150	158,65	28	32	5	SCMX 1204	**025**	**025**
MSSC R/L 3225 P12	32	25	170	178,65	28	32	5	SCMX 1204	**032**	**032**





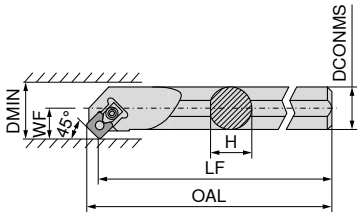


Spare parts for Article no.		Key D 80 950 ...	Dowel pin 70 950 ...	Clamping Element 70 950 ...	Wedge 70 950 ...	Solid Carbide support S 70 950 ...
70 588 020 / 70 589 020	T20	**114**	**153**	**159**	**150**	**140**
70 588 025 / 70 589 025	T20	**114**	**153**	**159**	**150**	**140**
70 588 032 / 70 589 032	T20	**114**	**153**	**159**	**150**	**140**

9

MaxiLock-P – MSSC 45° – Boring bar with top clamping





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	LF mm	OAL mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 625 ...	Right-hand 70 624 ...
S32S MSSC R/L 12	32	30	250	258	22	40	5	SCMX 1204	**032**	**032**


Key D


Dowel pin


Clamping Element


Wedge

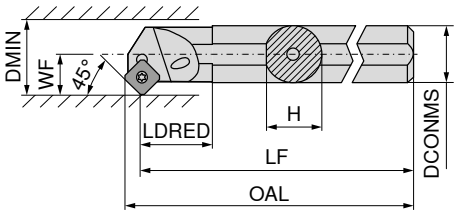

Solid Carbide support S

Spare parts for Article no.		80 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...
70 625 032 / 70 624 032	T20	**114**	**155**	**163**	**150**	**147**

MaxiLock-S – SSSC 45° – Boring bar with screw clamping

- A... = with thro' coolant
- S... = without thro' coolant





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	LF mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 721 ...	Right-hand 70 720 ...
S16R SSSC R 09	16	15,00	200	206,0	13,97	11	20	3,2	SC.. 09T3..		**016**
A16M SSSC R/L 09	16	15,25	150	156,0	29,00	11	20	3,2	SC.. 09T3..	**216**	**216**
A20Q SSSC R/L 09	20	19,00	180	186,0	32,00	13	25	3,2	SC.. 09T3..	**220**	**220**
A25R SSSC R/L 09	25	24,50	200	206,0	36,00	17	32	3,2	SC.. 09T3..	**225**	**225**
A32S SSSC R/L 12	32	31,00	250	258,3	50,00	22	40	5	SC.. 1204..	**232**	**232**
A40T SSSC R/L 12	40	39,00	300	308,1	60,00	27	50	5	SC.. 1204..	**240**	**240**


Key D


Combination Key

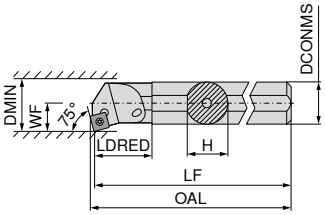

Clamping screw


Solid Carbide support S


Threaded sleeve

Spare parts for Article no.								
70 720 016		**113**			**110**			
70 720 216 / 70 721 216		**113**			**110**			
70 720 220 / 70 721 220		**113**			**304**			
70 720 225 / 70 721 225		**113**			**304**			
70 720 232 / 70 721 232			**398**		**114**	**168**		**170**
70 720 240 / 70 721 240			**398**		**114**	**168**		**170**

MaxiLock-S – SSKC 75° – Boring bar with screw clamping



Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	LF mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 725 ...	Right-hand 70 724 ...
A16M SSKC R/L 09	16	15,0	150	152,4	29	11	20	3,2	SC.. 09T3..	**216**	**216**
A20Q SSKC R/L 09	20	18,5	180	182,4	32	13	25	3,2	SC.. 09T3..	**220**	**220**
A25R SSKC R/L 09	25	23,0	200	202,4	36	17	32	3,2	SC.. 09T3..	**225**	**225**



Key D



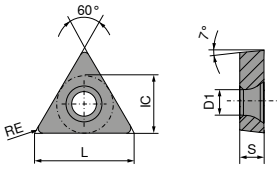
Clamping screw

Spare parts for Article no.		80 950 ...		70 950 ...
70 724 216 / 70 725 216	T15	**113**	M3,5x7,2	**110**
70 724 220 / 70 725 220	T15	**113**	M3,5x8,6	**304**
70 724 225 / 70 725 225	T15	**113**	M3,5x8,6	**304**

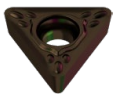
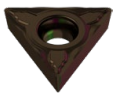
9

TCGT / TCMT

Designation	L mm	S mm	D1 mm	IC mm
TCMT 0902..	9,6	2,38	2,50	5,56
TC.T 1102..	11,0	2,38	2,80	6,35
TC.T 16T3..	16,5	3,97	4,40	9,52
TCMT 2204..	22,0	4,76	5,16	12,70



TCGT / TCMT

	-CF05 CTEP110	-CF55 CTEP110	-SF TCM10	-SMF TCM10	-SF CTCP125	-SMF CTCP115
	DRAGONSKIN	DRAGONSKIN			DRAGONSKIN	DRAGONSKIN
						
	F	F	F	F	F	F
	CERMET TCGT	CERMET TCMT	CERMET TCGT	CERMET TCMT	TCMT	TCMT
	76 272 ...	76 266 ...	70 273 ...	70 284 ...	76 275 ...	76 284 ...
ISO / RE mm						
110202EN 0,2	014		900			
110204EN 0,4	016	016	902	902	516	
110208EN 0,8	018				518	318
16T304EN 0,4	028		906		528	328
16T308EN 0,8		030			530	330
P	●	●	●	●	●	●
M	○	○	○	○		
K	○	○	○	○	○	○
N						
S						
H						
O						

TCMT / TCGT

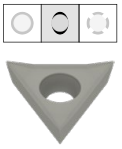
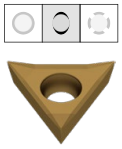
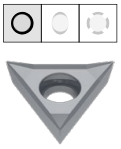
	-SMF CTCP135	-SM CTCP135	-SM CTCK110	-SM CTCK120	-SM CTCP115	-SM CTCP125	-SM CTCP135
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	F	M	M	M	M	M	M
	TCMT	TCGT	TCMT	TCMT	TCMT	TCMT	TCMT
	76 284 ...	76 270 ...	70 274 ...	70 274 ...	76 274 ...	76 274 ...	76 274 ...
ISO / RE mm							
090204EN 0,4						504	704
110202EN 0,2		714					
110204EN 0,4			016	516	316	516	716
110208EN 0,8	718		018	518	318		718
16T304EN 0,4			028	528	328	528	728
16T308EN 0,8			030	530	330	530	730
16T312EN 1,2			032	532			
220408EN 0,8						542	742
P	●	●	○	○	●	●	●
M	○	○					○
K			●	●	○	○	
N							
S							
H							
O							

9

TCMT

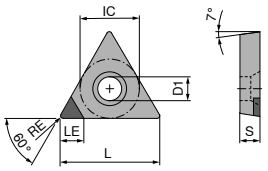
	NEW -M25 CTCM120	-M25 CTPM125	NEW -M25 CTCM130	NEW -M55 CTCM120	-M55 CTPM125	NEW -M55 CTCM130
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
	F	F	F	M	M	M
	TCMT	TCMT	TCMT	TCMT	TCMT	TCMT
	75 217 ...	75 217 ...	75 217 ...	75 218 ...	75 218 ...	75 218 ...
ISO / RE mm						
090204EN 0,4				10400	204	30400
110204EN 0,4	11600	216	31600	11600	216	31600
16T304EN 0,4	12800	228	32800			
16T308EN 0,8	13000	230	33000	13000	230	33000
P	○	○	○	○	○	○
M	●	●	●	●	●	●
K						
N						
S			○			○
H						
O						

TCGT

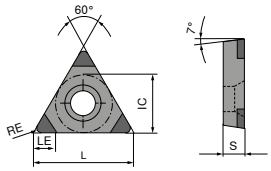
		-27 H10T	-27 CWN15	NEW -27 CTPX715 DRAGONSKIN
				
		M	M	M
		TCGT	TCGT	TCGT
		70 276 ...	70 276 ...	70 276 ...
ISO	RE mm			
110202FN	0,2	600	300	
110204FN	0,4	602	302	81600
16T302FN	0,2	604	304	
16T304FN	0,4	606	306	
16T308FN	0,8	608	308	83000
P				●
M			○	●
K		○		○
N		●	●	●
S				●
H				
O		○		○

TCGW

Designation	L mm	S mm	D1 mm	IC mm
TCGW 0902..	9,6	2,38	2,5	5,56
TCGW 1102..	11,0	2,38	2,8	6,35
TCGW 16T3..	16,5	3,97	4,4	9,52



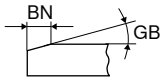
TCGW A



TCGW C

TCGW

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

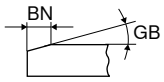


						NEW		NEW			NEW	
						CTBS10U	CTBH15U	CTBH15U	CTBH20U	CTBS20U	CTBS20C	
						F	F	F	F	F	F	
						CBN TCGW	CBN TCGW	CBN TCGW	CBN TCGW	CBN TCGW	CBN TCGW	
						71 140 ...	71 028 ...	71 029 ...	71 140 ...	71 427 ...	71 164 ...	
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm							
090202SN	0,2	0,09	10°	C (3)	2,6							120
090202SN	0,2	0,11	15°	C (3)	2,6			30214				130
090202TN	0,2	0,12	20°	A (1)	3,8	300			500			
090202TN	0,2	0,15	20°	C (3)	2,6							140
090202SN	0,2	0,16	20°	C (3)	2,6							150
090202FN	0,2			A (1)	3,8				400			
090202EN	0,2			C (3)	2,6			00200				
090204SN	0,4	0,09	10°	C (3)	2,2							121
090204SN	0,4	0,11	15°	C (3)	2,2		30414					131
090204TN	0,4	0,12	15°	A (1)	3,5					20000		
090204TN	0,4	0,12	20°	A (1)	3,5	302			502			
090204SN	0,4	0,16	20°	C (3)	2,2							151
090204TN	0,4	0,17	25°	C (3)	2,2							161
090204FN	0,4			A (1)	3,5	202			402			
090204EN	0,4			C (3)	2,2		00400					111
090208SN	0,8	0,09	10°	C (3)	1,8							122
090208SN	0,8	0,11	15°	C (3)	1,8		30614					132
090208TN	0,8	0,12	20°	A (1)	3,0				504			
090208TN	0,8	0,15	20°	C (3)	1,8							142
090208EN	0,8			C (3)	1,8		00600					
090208TN	0,8	0,17	25°	C (3)	1,8							162
110202SN	0,2	0,09	10°	C (3)	2,9							123
110202SN	0,2	0,11	15°	C (3)	2,9							133
110202TN	0,2	0,12	20°	A (1)	3,8	306			506			
110202TN	0,2	0,15	20°	C (3)	2,9							143
110202SN	0,2	0,16	20°	C (3)	2,9							153
110202FN	0,2			A (1)	3,8	206			406			
110204SN	0,4	0,09	10°	C (3)	2,5							124
110204SN	0,4	0,11	15°	C (3)	2,5							134
110204TN	0,4	0,12	20°	A (1)	3,5	308			508			
110204TN	0,4	0,15	20°	C (3)	2,5							144
110204SN	0,4	0,16	20°	C (3)	2,5							154
110204TN	0,4	0,17	25°	C (3)	2,5							164
110204FN	0,4			A (1)	3,5	208			40700			
110204EN	0,4			C (3)	2,5							114
P												
M												
K						●				●	●	
N												
S						●				●	●	
H							●	●	●			
O												

9

TCGW

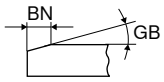
▲ TCE(NOI) = Design and number of equipped cutting edge corners

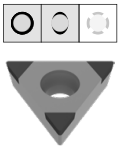
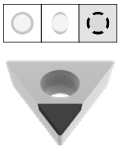


							NEW	NEW		NEW	
						CTBS10U	CTBH15U	CTBH15U	CTBH20U	CTBS20U	CTBS20C
						F	F	F	F	F	F
						CBN TCGW	CBN TCGW	CBN TCGW	CBN TCGW	CBN TCGW	CBN TCGW
						71 140 ...	71 028 ...	71 029 ...	71 140 ...	71 427 ...	71 164 ...
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm						
110208SN	0,8	0,09	10°	C (3)	2,1						125
110208SN	0,8	0,11	15°	C (3)	2,1						135
110208TN	0,8	0,12	20°	A (1)	3,0	310			510		
110208TN	0,8	0,15	20°	C (3)	2,1						145
110208TN	0,8	0,17	25°	C (3)	2,1						165
110208FN	0,8			A (1)	3,0	210			410		
16T304SN	0,4	0,09	10°	C (3)	3,2						126
16T304SN	0,4	0,11	15°	C (3)	3,2						136
16T308SN	0,8	0,09	10°	C (3)	2,7						127
16T308SN	0,8	0,11	15°	C (3)	2,7						137
16T308SN	0,8	0,16	20°	C (3)	2,7						157
16T308TN	0,8	0,17	25°	C (3)	2,7						167
16T308EN	0,8			C (3)	2,7						117
P											
M											
K						●				●	●
N											
S						●				●	●
H							●	●	●		
O											

TCGW

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

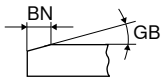


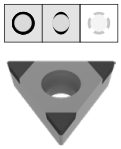
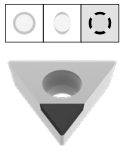
						NEW	NEW			
						CTBH15C	CTBH15C	CTBH20C	CTBH40U	CTBH40C
										
						F	F	F	F	F
						CBN TCGW	CBN TCGW	CBN TCGW	CBN TCGW	CBN TCGW
						71 027 ...	71 034 ...	71 164 ...	71 140 ...	71 164 ...
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm					
090202SN	0,2	0,11	15°	C (3)	2,6		30214			
090202SN	0,2	0,09	20°	C (3)	2,6			250		330
090202TN	0,2	0,09	20°	C (3)	2,6					320
090202TN	0,2	0,11	25°	C (3)	2,6					340
090202TN	0,2	0,12	25°	A (1)	3,8				900	
090202FN	0,2			A (1)	3,8				80100	
090202FN	0,2			C (3)	2,6			210		
090202EN	0,2			C (3)	2,6		00200	220		
090204SN	0,4	0,11	15°	C (3)	2,2	30414		241		
090204TN	0,4	0,09	20°	C (3)	2,2					321
090204SN	0,4	0,09	25°	C (3)	2,2					351
090204TN	0,4	0,11	25°	C (3)	2,2					341
090204TN	0,4	0,12	25°	A (1)	3,5				902	
090204EN	0,4			C (3)	2,2	00400		221		
090204FN	0,4			A (1)	3,5				802	
090204TN	0,4	0,14	25°	C (3)	2,2			261		
090204SN	0,4	0,15	25°	C (3)	2,2			271		
090204TN	0,4	0,14	30°	C (3)	2,2					361
090204SN	0,4	0,16	30°	C (3)	2,2					371
090208SN	0,8	0,09	10°	C (3)	1,8			232		
090208SN	0,8	0,11	15°	C (3)	1,8	30614		242		
090208SN	0,8	0,09	20°	C (3)	1,8			252		
090208TN	0,8	0,14	20°	C (3)	1,8					362
090208SN	0,8	0,09	25°	C (3)	1,8					352
090208TN	0,8	0,11	25°	C (3)	1,8					342
090208TN	0,8	0,12	25°	A (1)	3,0				904	
090208EN	0,8			C (3)	1,8	00600				312
110202FN	0,2			A (1)	3,8				806	
110202SN	0,2	0,11	15°	C (3)	2,9		31414			
110202SN	0,2	0,09	20°	C (3)	2,9			253		333
110202TN	0,2	0,09	20°	C (3)	2,9					323
110202TN	0,2	0,11	25°	C (3)	2,9					343
110202TN	0,2	0,12	25°	A (1)	3,8				906	
110202EN	0,2			C (3)	2,9			223		
110202FN	0,2			C (3)	2,9			213		
110202SN	0,2	0,14	25°	C (3)	2,9		31429			
110202TN	0,2	0,14	30°	C (3)	2,9					363
110204FN	0,4			A (1)	3,5				808	
110204SN	0,4	0,09	10°	C (3)	2,5			234		
110204SN	0,4	0,11	15°	C (3)	2,5		31614	244		
110204TN	0,4	0,09	20°	C (3)	2,5					324
110204SN	0,4	0,09	25°	C (3)	2,5					354
110204TN	0,4	0,11	25°	C (3)	2,5					344
110204TN	0,4	0,12	25°	A (1)	3,5				908	
110204EN	0,4			C (3)	2,5			224		
110204TN	0,4	0,14	25°	C (3)	2,5			264		
110204FN	0,4			C (3)	2,5			214		
P										
M										
K										
N										
S										
H						●	●	●	●	●
O										

9

TCGW

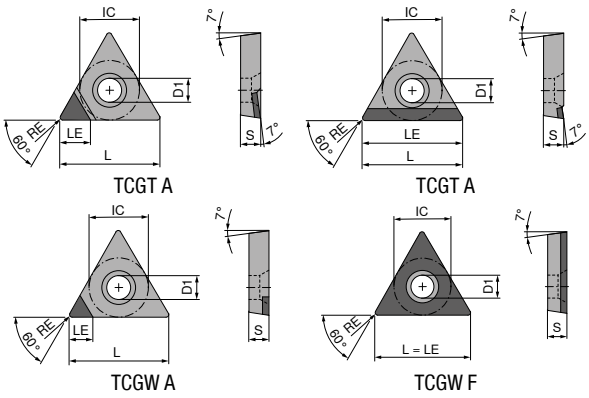
▲ TCE(NOI) = Design and number of equipped cutting edge corners



						NEW	NEW			
						CTBH15C	CTBH15C	CTBH20C	CTBH40U	CTBH40C
										
						F	F	F	F	F
						CBN TCGW	CBN TCGW	CBN TCGW	CBN TCGW	CBN TCGW
						71 027 ...	71 034 ...	71 164 ...	71 140 ...	71 164 ...
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm					
110204SN	0,4	0,14	25°	C (3)	2,5		31629			
110204SN	0,4	0,15	25°	C (3)	2,5			274		
110204TN	0,4	0,14	30°	C (3)	2,5					364
110204SN	0,4	0,16	30°	C (3)	2,5					374
110208SN	0,8	0,09	10°	C (3)	2,1			235		
110208SN	0,8	0,11	15°	C (3)	2,1	31814		245		
110208SN	0,8	0,09	20°	C (3)	2,1			255		
110208TN	0,8	0,09	20°	C (3)	2,1					325
110208SN	0,8	0,09	25°	C (3)	2,1					355
110208TN	0,8	0,12	25°	A (1)	3,0				910	
110208EN	0,8			C (3)	2,1					315
110208TN	0,8	0,14	25°	C (3)	2,1			265		
110208SN	0,8	0,14	25°	C (3)	2,1	31829				
110208TN	0,8	0,14	30°	C (3)	2,1					365
110208SN	0,8	0,16	30°	C (3)	2,1					375
16T304SN	0,4	0,09	20°	C (3)	3,2			256		
16T304SN	0,4	0,09	25°	C (3)	3,2					356
16T304TN	0,4	0,11	25°	C (3)	3,2					346
16T304SN	0,4	0,15	25°	C (3)	3,2			276		
16T304TN	0,4	0,14	30°	C (3)	3,2					366
16T304SN	0,4	0,17	35°	C (3)	3,2					386
16T304FN	0,4			C (3)	3,2			216		
16T304EN	0,4			C (3)	3,2			226		
16T308SN	0,8	0,11	15°	C (3)	2,7			247		
16T308SN	0,8	0,09	20°	C (3)	2,7					337
16T308SN	0,8	0,09	25°	C (3)	2,7					357
16T308TN	0,8	0,11	25°	C (3)	2,7					347
16T308TN	0,8	0,14	25°	C (3)	2,7			267		
16T308SN	0,8	0,15	25°	C (3)	2,7			277		
16T308TN	0,8	0,14	30°	C (3)	2,7					367
16T308SN	0,8	0,16	30°	C (3)	2,7					377
16T308SN	0,8	0,18	30°	C (3)	2,7			287		
16T308EN	0,8			C (3)	2,7			227		317
P										
M										
K										
N										
S										
H						●	●	●	●	●
O										

TCGW / TCGT

Designation	L mm	S mm	D1 mm	IC mm
TCG. 0902..	9,6	2,38	2,5	5,56
TCG. 1102..	11,0	2,38	2,8	6,35
TCG. 16T3..	16,5	3,97	4,4	9,52



TCGW / TCGT

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

	NEW	NEW		NEW		NEW
	CTDPD20	CTDPD20	CTDPD20	CTDPD20	-CB1 CTDPD20	CTDPS30
	F	F	F	F	F	F
	DIAMOND TCGW	DIAMOND TCGW	DIAMOND TCGW	DIAMOND TCGT	DIAMOND TCGT	DIAMOND TCGT
	71 188 ...	71 187 ...	71 140 ...	71 184 ...	71 325 ...	71 184 ...

ISO	RE mm	TCE (NOI)	LE mm											
090202FN	0,2	A (1)	3,7						100			112		20001
090204FN	0,4	A (1)	3,4						102			114		20101
090208FN	0,8	A (1)	3,0						104		10001			
090208FN	0,8	A (1)	9,6	10001										
110202FN	0,2	A (1)	3,7						106		10101		122	
110202FN	0,2	F	11,0			10001								
110204FN	0,4	A (1)	3,4						108		10201		124	20201
110204FN	0,4	F	11,0			10101								
110204FN	0,4	A (1)	11,0	10101										
110208FN	0,8	A (1)	3,0						110		10301			
110208FN	0,8	A (1)	11,0	10201										
16T304FN	0,4	A (1)	4,6						112		10401		134	20301
16T304FN	0,4	A (1)	16,5	10301										
16T308FN	0,8	A (1)	4,2						114		10501		13600	
16T308FN	0,8	A (1)	16,5	10401										
16T312FN	1,2	A (1)	3,8						11600					
P														
M														
K														
N				●		●		●		●		●		●
S														
H														
O				●		●		●		●		●		●

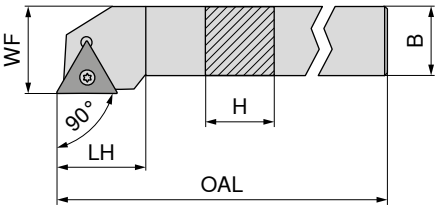
9

TCGW / TCGT

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

				NEW		NEW			NEW				NEW	
				CTDPS30		CTDPS30		-CB2 CTDPS30		CTDPU20		-CB3 CTDPU20		CTDCD10	
															
				F		F		M		F		R		F	
				DIAMOND TCGW		DIAMOND TCGT		DIAMOND TCGT		DIAMOND TCGW		DIAMOND TCGT		DIAMOND TCGW	
				71 186 ...		71 185 ...		71 326 ...		71 188 ...		71 327 ...		71 186 ...	
ISO	RE mm	TCE (NOI)	LE mm												
090202FN	0,2	A (1)	3,7		20001				212						
090204FN	0,4	A (1)	3,4						214						
090204FN	0,4	A (1)	9,6				20001								
110202FN	0,2	A (1)	2,6												40001
110202FN	0,2	A (1)	3,7		20101				222						
110204FN	0,4	A (1)	2,3												40101
110204FN	0,4	A (1)	3,4		20201				224				224		
110204FN	0,4	A (1)	11,0				20101				30001				
110208FN	0,8	A (1)	2,0												40201
110208FN	0,8	A (1)	11,0				20201								
16T304FN	0,4	A (1)	2,3												40301
16T304FN	0,4	A (1)	4,6						234						
16T304FN	0,4	A (1)	16,5				20301								
16T308FN	0,8	A (1)	2,0												40401
16T308FN	0,8	A (1)	4,2										238		
16T308FN	0,8	A (1)	16,5				20401								
P															
M															
K															
N				●		●		●		●		●		●	
S															
H															
O				●		●		●		●		●		●	

MaxiLock-S – STGC 90° – Toolholder with screw clamping



Illustrations show right-hand versions



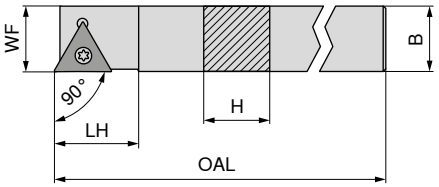
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 677 ...	Right-hand 70 676 ...
STGC R/L 1010 E09	10	10	70	12	12	1	TC.. 0902	**010**	**010**
STGC R/L 1212 F11	12	12	80	15	16	1,2	TC.. 1102	**012**	**012**
STGC R/L 1616 H16	16	16	100	22	20	3,2	TC.. 16T3	**016**	**016**
STGC R/L 2020 K16	20	20	125	22	25	3,2	TC.. 16T3	**020**	**020**
STGC R/L 2525 M16	25	25	150	22	32	3,2	TC.. 16T3	**025**	**025**

Spare parts for Article no.	Key D 80 950 ...	Combination Key 70 950 ...	Clamping screw 70 950 ...	Solid Carbide Seat T 70 950 ...	Threaded sleeve 70 950 ...
70 676 010 / 70 677 010	**109**		**111**		
70 676 012 / 70 677 012	**110**		**112**		
70 676 016 / 70 677 016		**398**	**113**	**169**	**171**
70 676 020 / 70 677 020		**398**	**113**	**169**	**171**
70 676 025 / 70 677 025		**398**	**113**	**169**	**171**

9

MaxiLock-S – STAC 90° – Toolholder with screw clamping

▲ for sliding head lathes



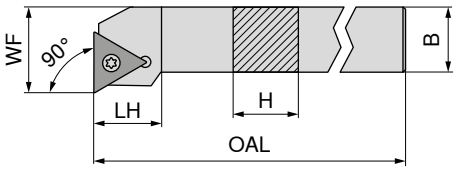
Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 769 ...	Right-hand 70 768 ...
STAC R/L 1010 K09	10	10	125	12	10	1	TC.. 0902	**010**	**010**
STAC R/L 1212 K11	12	12	125	15	12	1,2	TC.. 1102	**012**	**012**
STAC R 1414 K11	14	14	125	15	14	1,2	TC.. 1102		**014**

Spare parts for Article no.	Key D 80 950 ...		Clamping screw 70 950 ...	
70 769 010 / 70 768 010	T07	**109**	M2,2x5	**111**
70 769 012 / 70 768 012	T08	**110**	M2,5x6	**112**
70 768 014	T08	**110**	M2,5x6	**112**

MaxiLock-S – STFC 90° – Toolholder with screw clamping



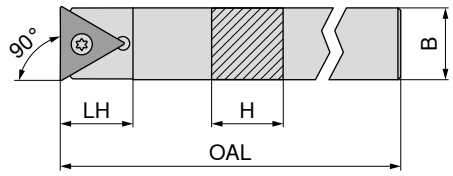


Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 673 ...	Right-hand 70 672 ...
STFC R/L 1212 F11	12	12	80	15	16	1,2	TC.. 1102	**012**	**012**
STFC R/L 1616 H16	16	16	100	20	20	3,2	TC.. 16T3	**016**	**016**
STFC R/L 2020 K16	20	20	125	20	25	3,2	TC.. 16T3	**020**	**020**
STFC R/L 2525 M16	25	25	150	20	32	3,2	TC.. 16T3	**025**	**025**

Spare parts for Article no.	Key D 80 950 ...	Combination Key 70 950 ...	Clamping screw 70 950 ...	Solid Carbide Seat T 70 950 ...	Threaded sleeve 70 950 ...
70 673 012 / 70 672 012	**110**		**112**		
70 673 016 / 70 672 016		**398**	**113**	**169**	**171**
70 673 020 / 70 672 020		**398**	**113**	**169**	**171**
70 673 025 / 70 672 025		**398**	**113**	**169**	**171**

MaxiLock-S – STCC 90° – Toolholder with screw clamping





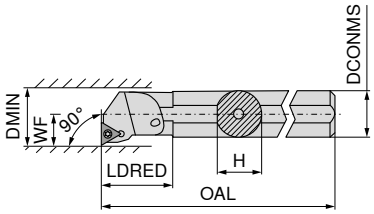
ISO designation	H mm	B mm	OAL mm	LH mm	torque moment Nm	Insert	Neutral 70 782 ...
STCC N 0808 K09	8	8	125	11	1	TC.. 0902	**008**
STCC N 1010 K11	10	10	125	15	1,2	TC.. 1102	**010**
STCC N 1212 K11	12	12	125	15	1,2	TC.. 1102	**012**
STCC N 1414 K11	14	14	125	21	1,2	TC.. 1102	**014**
STCC N 1616 K11	16	16	125	24	1,2	TC.. 1102	**016**

Spare parts for Article no.	Key D 80 950 ...		Clamping screw 70 950 ...	
70 782 008	T07	**109**	M2,2x5	**111**
70 782 010	T08	**110**	M2,5x6	**112**
70 782 012	T08	**110**	M2,5x6	**112**
70 782 014	T08	**110**	M2,5x6	**112**
70 782 016	T08	**110**	M2,5x6	**112**

MaxiLock-S – STFC 90° – Boring bar with screw clamping

▲ A... = with thro' coolant
▲ S... = without thro' coolant





Illustrations show right-hand versions



									Left-hand	Right-hand
									70 729 ...	70 728 ...
ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert		
A10H STFC R/L 09	10	9,5	100	19	7	13	1	TC.. 0902	**210**	**210**
A12K STFC R/L 11	12	11,5	125	22	9	16	1,2	TC.. 1102	**212**	**212**
A16M STFC R/L 11	16	15,0	150	29	11	20	1,2	TC.. 1102	**216**	**216**
S16R STFC R 11	16	15,0	200		11	21	1,2	TC.. 1102		**016**
A20Q STFC R/L 11	20	18,5	180	32	13	25	1,2	TC.. 1102	**220**	**220**
S20S STFC R 11	20	18,0	250		13	25	1,2	TC.. 1102		**020**
A25R STFC R/L 16	25	24,0	200	36	17	32	3,2	TC.. 16T3	**225**	**225**
A32S STFC R/L 16	32	31,0	250	50	22	40	3,2	TC.. 16T3	**232**	**232**
A40T STFC R/L 16	40	39,0	300	60	27	50	3,2	TC.. 16T3	**240**	**240**


Clamping screw


Solid Carbide Seat T


Threaded sleeve

Spare parts for Article no.		**70 950 ...**	**70 950 ...**		**70 950 ...**
70 729 210 / 70 728 210	M2,2x5	**111**			
70 729 212 / 70 728 212	M2,5x6	**112**			
70 729 216 / 70 728 216	M2,5x6	**112**			
70 728 016	M2,5x6	**112**			
70 729 220 / 70 728 220	M2,5x6	**112**			
70 728 020	M2,5x6	**112**			
70 729 225 / 70 728 225	M3,5x11	**113**	**169**	M3,5	**171**
70 729 232 / 70 728 232	M3,5x11	**113**	**169**	M3,5	**171**
70 729 240 / 70 728 240	M3,5x11	**113**	**169**	M3,5	**171**


Key D

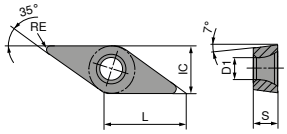

Combination Key

Spare parts for Article no.		**80 950 ...**		**70 950 ...**
70 729 210 / 70 728 210	T07	**109**		
70 729 212 / 70 728 212	T08	**110**		
70 729 216 / 70 728 216	T08	**110**		
70 728 016	T08	**110**		
70 729 220 / 70 728 220	T08	**110**		
70 728 020	T08	**110**		
70 729 225 / 70 728 225			T15/SW	**398**
70 729 232 / 70 728 232			T15/SW	**398**
70 729 240 / 70 728 240			T15/SW	**398**

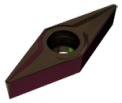
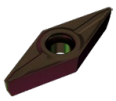
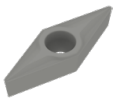
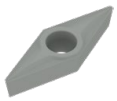
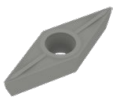
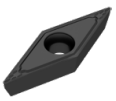
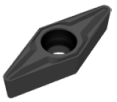
9

VCGT / VCMT / VCET

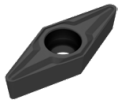
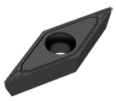
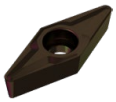
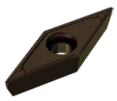
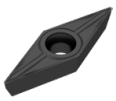
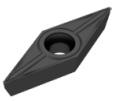
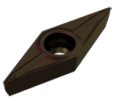
Designation	L mm	S mm	D1 mm	IC mm
VCET 1103..	11,1	3,18	2,8	6,35
VC.T 1103..	11,1	3,18	2,9	6,35
VC.T 1604..	16,6	4,76	4,4	9,52
VCGT 2205..	22,1	5,56	5,5	12,70



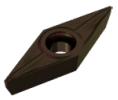
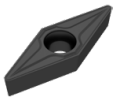
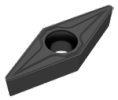
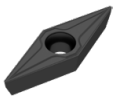
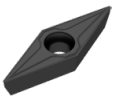
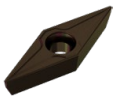
VCGT / VCMT

	-CF05 CTEP110	-CF55 CTEP110	-SF TCM10	-SF TCM407	-SMF TCM10	-SF CTCP115	-SF CTCP115
	DRAGONSKIN	DRAGONSKIN				DRAGONSKIN	DRAGONSKIN
							
	F	F	F	F	F	F	F
	CERMET VCGT	CERMET VCMT	CERMET VCGT	CERMET VCGT	CERMET VCMT	VCMT	VCGT
	76 276 ...	76 292 ...	70 277 ...	70 277 ...	70 288 ...	76 279 ...	76 277 ...
ISO RE mm							
110301EN 0,1			892				
110302EN 0,2	014		894	844			314
110304EN 0,4	016	016	896	846	896		316
110308EN 0,8							318
160404EN 0,4	028	028	900	850	900	328	
160408EN 0,8	030	030	902		902	330	
P	●	●	●	●	●	●	●
M	○	○	○	○	○		
K	○	○	○	○	○	○	○
N							
S							
H							
O							

VCGT / VCMT

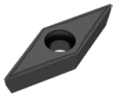
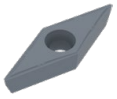
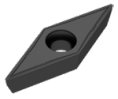
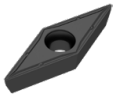
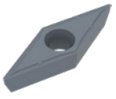
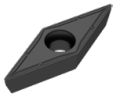
	-SF CTCP125	-SF CTCP125	-SF CTCP135	-SF CTCP135	-SMF CTCP115	-SMF CTCP125	-SMF CTCP135
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	F	F	F	F	F	F	F
	VCGT	VCMT	VCGT	VCMT	VCMT	VCMT	VCGT
	76 277 ...	76 279 ...	76 277 ...	76 279 ...	76 288 ...	76 288 ...	76 285 ...
ISO RE mm							
110302EN 0,2	514		714				714
110304EN 0,4	516		716		316	516	
110308EN 0,8	518		718				
160404EN 0,4		528		728	328	528	
160408EN 0,8		530			330	530	
P	●	●	●	●	●	●	●
M			○	○			○
K	○	○			○	○	
N							
S							
H							
O							

VCMT

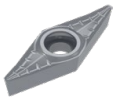
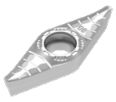
		-SMF CTCP135	-SM CTCK110	-SM CTCK120	-SM CTCP115	-SM CTCP125	-SM CTCP135
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		F	M	M	M	M	M
		VCMT	VCMT	VCMT	VCMT	VCMT	VCMT
		76 288 ...	70 278 ...	70 278 ...	76 278 ...	76 278 ...	76 278 ...
ISO	RE mm						
110304EN	0,4	716					
160404EN	0,4	728	028	528	328	528	728
160406EN	0,6				329		
160408EN	0,8	730	030	530	330	530	730
160412EN	1,2		032	532	33200	53200	732
P		●	○	○	●	●	●
M		○					○
K			●	●	○	○	
N							
S							
H							
O							

VCMT

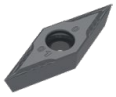
9

		NEW -M25 CTCM120	-M25 CTPM125	NEW -M25 CTCM130	NEW -M55 CTCM120	-M55 CTPM125	NEW -M55 CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		F	F	F	M	M	M
		VCMT	VCMT	VCMT	VCMT	VCMT	VCMT
		75 219 ...	75 219 ...	75 219 ...	75 220 ...	75 220 ...	75 220 ...
ISO	RE mm						
160404EN	0,4	12800	228	32800	12800	228	32800
160408EN	0,8	13000	23000	33000	13000	230	33000
P		○	○	○	○	○	○
M		●	●	●	●	●	●
K							
N							
S				○			○
H							
O							

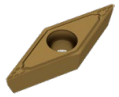
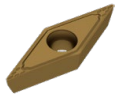
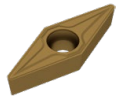
VCGT / VCMT

		-25P H210T	NEW -25P CTPX710 DRAGONSKIN	-25Q H210T	-27 H10T	-27 CWN15	NEW -27 CTPX715 DRAGONSKIN	NEW -29 H216T
								
		F	M	M	M	M	M	M
		VCGT	VCGT	VCGT	VCGT	VCGT	VCGT	VCMT
		70 282 ...	70 282 ...	70 282 ...	70 280 ...	70 280 ...	70 280 ...	70 247 ...
ISO	RE mm							
110302FN	0,2	638	71400		606	306	81400	
110304FL	0,4			670				
110304FN	0,4	640	71600		608	308	81600	
110304FR	0,4			680				
110308FN	0,8				610	310		
160404EN	0,4							62800
160404FN	0,4	642	72800		612	312	82800	
160408EN	0,8							63000
160408FN	0,8	644	73000		614	314	83000	
160412EN	1,2							63200
160412FN	1,2	646	73200		616	316		
220530FN	3,0	648	75000		618			
P			●				●	
M			●			○	●	
K		○		○	○		○	○
N		●	●	●	●	●	●	●
S		○	●	○			●	
H								
O		○		○	○		○	○

VCET

		NEW -F05 CTPX710 DRAGONSKIN
		
		F
		VCET
		76 255 ...
ISO	RE mm	
1103005FN	0,05	11400
1103015FN	0,15	11800
110301FN	0,10	11600
110302FN	0,20	12000
110304FN	0,40	12200
P		●
M		●
K		
N		●
S		●
H		
O		

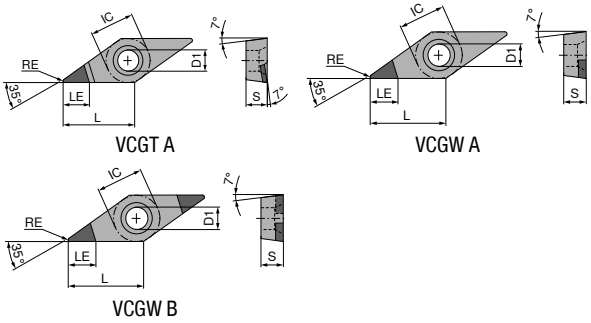
VCMT

		NEW -FMS CT-P15	NEW -FMS CT-P25	NEW -MRS CT-P15	NEW -MRS CT-P25
					
		F VCMT 75 308 ...	F VCMT 75 308 ...	M VCMT 75 309 ...	M VCMT 75 309 ...
ISO	RE mm				
110304EN	0,4	**01609**	**11609**		
160404EN	0,4	**02809**	**12809**	**02809**	**12809**
160408EN	0,8	**03009**	**13009**	**03009**	**13009**
P		●	●	●	●
M		○	○	○	○
K					
N					
S					
H					
O					

9

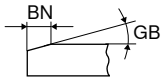
VCGW / VCGT

Designation	L mm	S mm	D1 mm	IC mm
VCG. 1103..	11,1	3,18	2,9	6,35
VCG. 1604..	16,6	4,76	4,4	9,52
VCGW 0702..	6,9	2,38	2,2	3,97



VCGW

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

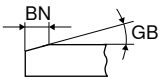


						NEW			NEW	NEW
						CTBS10U	CTBS20U	CTBS20C	CTBH15U	CTBH15C
						F	F	F	F	F
						CBN VCGW	CBN VCGW	CBN VCGW	CBN VCGW	CBN VCGW
						71 160 ...	71 429 ...	71 165 ...	71 036 ...	71 035 ...
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm					
110302SN	0,2	0,11	15°	B (2)	3,4				32014	32014
110302TN	0,2	0,12	15°	A (1)	4,7		20000			
110302FN	0,2			A (1)	4,7	200				
110302TN	0,2	0,12	20°	A (1)	4,7	300				
110302SN	0,2	0,14	25°	B (2)	3,4				32029	32029
110302EN	0,2			B (2)	3,4				02000	02000
110304SN	0,4	0,09	10°	B (2)	3,1			121		
110304SN	0,4	0,11	15°	B (2)	3,1			131	32214	32214
110304TN	0,4	0,12	20°	A (1)	4,5	302				
110304TN	0,4	0,15	20°	B (2)	3,1			141		
110304SN	0,4	0,16	20°	B (2)	3,1			151		
110304SN	0,4	0,14	25°	B (2)	3,1					32229
110304SN	0,4	0,18	25°	B (2)	3,1			171		
110304FN	0,4			A (1)	4,5	202				
110304EN	0,4			B (2)	3,1				02200	02200
110308SN	0,8	0,09	10°	B (2)	2,5			122		
110308SN	0,8	0,11	15°	B (2)	2,5			132	32414	32414
110308TN	0,8	0,12	20°	A (1)	4,2	304				
110308SN	0,8	0,16	20°	B (2)	2,5			152		
110308SN	0,8	0,14	25°	B (2)	3,1				32229	
110308SN	0,8	0,14	25°	B (2)	2,5				32429	32429
110308TN	0,8	0,17	25°	B (2)	2,5			162		
110308SN	0,8	0,18	25°	B (2)	2,5			172		
110308FN	0,8			A (1)	4,2	204				
110308EN	0,8			B (2)	2,5			112	02400	02400
160402SN	0,2	0,11	15°	B (2)	3,4				33614	33614
160402TN	0,2	0,12	20°	A (1)	5,3	305				
160404SN	0,2	0,14	25°	B (2)	3,4				33629	
160402RN	0,2			B (2)	3,4					23600
160402FN	0,2			A (1)	5,3	205				
160402SN	0,2	0,14	25°	B (2)	3,4					33629
160404SN	0,4	0,09	10°	B (2)	3,1			125		
160404SN	0,4	0,11	15°	B (2)	3,1			135	33814	33814
P										
M										
K						●	●	●		
N										
S						●	●	●		
H									●	●
O										

→ v_c Page 200–207
Continued on next page

VCGW

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

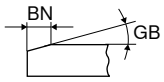


							CTBS10U		NEW CTBS20U		CTBS20C		NEW CTBH15U		NEW CTBH15C	
							F		F		F		F		F	
							CBN VCGW		CBN VCGW		CBN VCGW		CBN VCGW		CBN VCGW	
							71 160 ...		71 429 ...		71 165 ...		71 036 ...		71 035 ...	
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm											
160404TN	0,4	0,12	15°	A (1)	5,0				20100							
160404TN	0,4	0,12	20°	A (1)	5,0		306									
160404TN	0,4	0,15	20°	B (2)	3,1							145				
160404SN	0,4	0,16	20°	B (2)	3,1							155				
160404RN	0,4			B (2)	3,4									23600		
160404SN	0,4	0,14	25°	B (2)	3,1									33829		33829
160404SN	0,4	0,18	25°	B (2)	3,1							175				
160404FN	0,4			A (1)	5,0		206									
160404RN	0,4			B (2)	3,1									23800		23800
160408SN	0,8	0,09	10°	B (2)	2,5							126				
160408SN	0,8	0,11	15°	B (2)	2,5							136		34014		34014
160408TN	0,8	0,12	15°	A (1)	4,4				20200							
160408TN	0,8	0,12	20°	A (1)	4,4		308									
160408SN	0,8	0,16	20°	B (2)	2,5							156				
160408SN	0,8	0,14	25°	B (2)	2,5									34029		34029
160408TN	0,8	0,17	25°	B (2)	2,5							166				
160408SN	0,8	0,18	25°	B (2)	2,5							176				
160408EN	0,8			B (2)	2,5							116				
160408FN	0,8			A (1)	4,4		208									
160408RN	0,8			B (2)	2,5									24000		24000
P																
M																
K							●		●		●					
N																
S							●		●		●					
H														●		●
O																

9

VCGW / VCGT

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



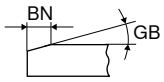
						CTBH20U		CTBH21U		NEW CTBH21U		NEW CTBH21U		CTBH20C						
						F		F		F		F		F						
						CBN VCGW		CBN VCGW		CBN VCGW		CBN VCGT		CBN VCGW						
						71 160 ...		71 160 ...		71 430 ...		71 428 ...		71 165 ...						
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm															
070202TN	0,2	0,13	25°	A (1)	3,5			55000												
070204FN	0,4			A (1)	3,2			45000												
110302TN	0,2	0,12	20°	A (1)	4,7	500														
110302TN	0,2	0,13	25°	B (2)	3,5						40100									
110302FN	0,2			A (1)	4,7	400	1)													
110302FN	0,2			B (2)	3,5						40000									
110304FN	0,4			A (1)	3,2								40000							
110304SN	0,4	0,09	20°	B (2)	3,1														251	
110304TN	0,4	0,12	20°	A (1)	4,5	502														
110304TN	0,4	0,13	25°	B (2)	3,2						40300									
110304TN	0,4	0,14	25°	B (2)	3,1														261	
110304SN	0,4	0,15	25°	B (2)	3,1														271	
110304FN	0,4			B (2)	3,2						40200									
110304EN	0,4			B (2)	3,1														221	
110304FN	0,4			A (1)	4,5	402	1)													
110304FN	0,4			B (2)	3,1														211	
110308SN	0,8	0,11	15°	B (2)	2,5														242	
110308SN	0,8	0,09	20°	B (2)	2,5														252	
110308TN	0,8	0,12	20°	A (1)	4,2	504														
110308TN	0,8	0,14	25°	B (2)	2,5														262	
110308SN	0,8	0,15	25°	B (2)	2,5														272	
110308SN	0,8	0,18	30°	B (2)	2,5														282	
110308FN	0,8			A (1)	4,2	404	1)													
110308EN	0,8			B (2)	2,5														222	
160402FN	0,2			A (1)	3,5			43000					40100							
160402TN	0,2	0,12	20°	A (1)	5,3	505														
160402TN	0,2	0,13	25°	A (1)	3,5			52000												
160402TN	0,2	0,13	25°	B (2)	3,5						40400									
160402FN	0,2			A (1)	5,3	405	1)													
160404SN	0,4	0,11	15°	B (2)	3,1															24400
160404SN	0,4	0,09	20°	B (2)	3,1														255	
160404TN	0,4	0,12	20°	A (1)	5,0	506														
160404TN	0,4	0,13	25°	B (2)	3,2						40600									
160404FN	0,4			B (2)	3,2						40500									
160404TN	0,4	0,13	25°	A (1)	3,2			52200												
160404TN	0,4	0,14	25°	B (2)	3,1														265	
160404FN	0,4			A (1)	3,2			41200												
160404EN	0,4			B (2)	3,1														225	
160404FN	0,4			A (1)	5,0	406	1)													
160404FN	0,4			B (2)	3,1														215	
160408SN	0,8	0,11	15°	B (2)	2,5														246	
160408SN	0,8	0,09	20°	B (2)	2,5														256	
160408TN	0,8	0,12	20°	A (1)	4,4	508														
160408TN	0,8	0,13	25°	B (2)	2,8						40800									
160408TN	0,8	0,14	25°	B (2)	2,5														266	
160408SN	0,8	0,15	25°	B (2)	2,5														276	
160408SN	0,8	0,18	30°	B (2)	2,5														286	
160408FN	0,8			A (1)	4,4	408	1)													
160408FN	0,8			B (2)	2,8						40700									
160408EN	0,8			B (2)	2,5														226	
160412TN	1,2	0,12	20°	A (1)	3,9	510														

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

1) Machining to 60 HRC

VCGW

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

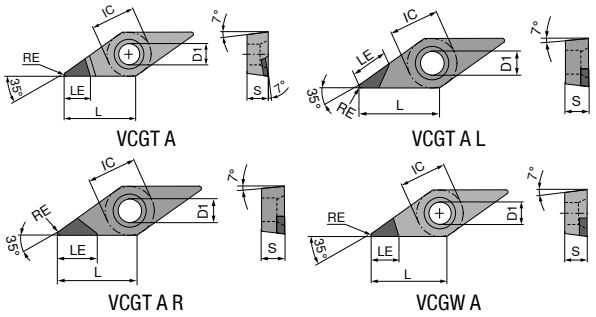


						CTBH40U	CTBH40C	NEW CTBH41U	NEW CTBH41U
						F	F	F	F
						CBN VCGW	CBN VCGW	CBN VCGW	CBN VCGW
						71 160 ...	71 165 ...	71 429 ...	71 430 ...
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm				
070202FN	0,2			A (1)	3,5			70000	
070204FN	0,4			A (1)	3,2			70100	
110302FN	0,2			A (1)	4,7	800			
110302TN	0,2	0,12	25°	A (1)	4,7	900			
110302FN	0,2			B (2)	3,5				70000
110304SN	0,4	0,09	20°	B (2)	3,1		331		
110304SN	0,4	0,09	25°	B (2)	3,1		351		
110304TN	0,4	0,11	25°	B (2)	3,1		341		
110304TN	0,4	0,12	25°	A (1)	4,5	902			
110304TN	0,4	0,14	30°	B (2)	3,1		361		
110304SN	0,4	0,17	35°	B (2)	3,1		381		
110304FN	0,4			A (1)	4,5	802			
110304FN	0,4			B (2)	3,2				70100
110308SN	0,8	0,09	20°	B (2)	2,5		332		
110308SN	0,8	0,09	25°	B (2)	2,5		352		
110308TN	0,8	0,11	25°	B (2)	2,5		342		
110308TN	0,8	0,14	30°	B (2)	2,5		362		
110308SN	0,8	0,16	30°	B (2)	2,5		372		
110308SN	0,8	0,17	35°	B (2)	2,5		382		
110308FN	0,8			A (1)	4,2	804			
110308EN	0,8			B (2)	2,5		312		
160402FN	0,2			A (1)	5,3	805			
160402FN	0,2			A (1)	3,5			70200	
160402TN	0,2	0,12	25°	A (1)	5,3	905			
160402FN	0,2			B (2)	3,5				70200
160404SN	0,4	0,09	20°	B (2)	3,1		335		
160404SN	0,4	0,09	25°	B (2)	3,1		355		
160404TN	0,4	0,11	25°	B (2)	3,1		345		
160404TN	0,4	0,12	25°	A (1)	5,0	906			
160404TN	0,4	0,08	30°	A (1)	3,2			70400	
160404TN	0,4	0,14	30°	B (2)	3,1		365		
160404SN	0,4	0,17	35°	B (2)	3,1		385		
160404FN	0,4			A (1)	3,2			70300	
160404FN	0,4			A (1)	5,0	806			
160404FN	0,4			B (2)	3,2				70300
160408SN	0,8	0,09	20°	B (2)	2,5		336		
160408SN	0,8	0,09	25°	B (2)	2,5		356		
160408TN	0,8	0,11	25°	B (2)	2,5		346		
160408TN	0,8	0,12	25°	A (1)	4,4	908			
160408TN	0,8	0,14	30°	B (2)	2,5		366		
160408SN	0,8	0,16	30°	B (2)	2,5		376		
160408SN	0,8	0,17	35°	B (2)	2,5		386		
160408EN	0,8			B (2)	2,5		316		
160408FN	0,8			A (1)	4,4	808			
160408FN	0,8			A (1)	2,8			70500	
160408FN	0,8			B (2)	2,8				70400
160412TN	1,2	0,12	25°	A (1)	3,9	90900			
P									
M									
K									
N									
S									
H						●	●	●	●
O									

9

VCGT / VCGW

Designation	L mm	S mm	D1 mm	IC mm
VCG. 0702..	6,9	2,38	2,2	3,97
VCG. 1103..	11,1	3,18	2,9	6,35
VCG. 1103..	11,1	3,18	2,8	6,35
VCG. 1303..	13,3	3,18	3,4	7,94
VCG. 1604..	16,6	4,76	4,4	9,52



VCGT / VCGW

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

NEW

			CTDMD05		CTDMD05		CTDPD20		CTDPD20		CTDPD20		CTDPD20	
			F		F		F		F		F		F	
			DIAMOND VCGT		DIAMOND VCGW		DIAMOND VCGW		DIAMOND VCGT		DIAMOND VCGT		DIAMOND VCGT	
			71 189 ...		71 160 ...		71 160 ...		71 062 ...		71 063 ...		71 064 ...	
ISO	RE mm	TCE (NOI)	LE mm											
070202FN	0,2	A (1)		50001										
070204FN	0,4	A (1)		50101										
110301FN	0,1	A (1)	5,4							10100				
110302FN	0,2	A (1)	3,0			050								
110302FN	0,2	A (1)	4,6	50201				100		100				
110304FN	0,4	A (1)	3,0			052								
110304FN	0,4	A (1)	3,9	50301				102		102				
110304FR	0,4	A (1)	6,5									102		
110304FL	0,4	A (1)	6,5											102
110308FN	0,8	A (1)	3,3					104		104				
110308FR	0,8	A (1)	6,0									104		
110308FL	0,8	A (1)	6,0											104
160401FN	0,1	A (1)	6,0							10700				
160402FN	0,2	A (1)	5,9					105		105				
160402FN	0,2	A (1)		50401										
160404FN	0,4	A (1)	5,5					106		106				
160404FR	0,4	A (1)	7,5									106		
160404FN	0,4	A (1)		50501										
160404FL	0,4	A (1)	7,5											106
160408FN	0,8	A (1)	5,0			07800		108		108				
160408FR	0,8	A (1)	7,0									108		
160408FN	0,8	A (1)		50601										
160408FL	0,8	A (1)	7,0											108
160412FN	1,2	A (1)	4,5					110		110				
160412FR	1,2	A (1)	7,0									110		
160412FL	1,2	A (1)	7,0											110
P														
M														
K														
N				●		●		●		●		●		●
S														
H														
O				●		●		●		●		●		●

VCGT / VCGW

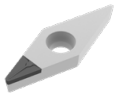
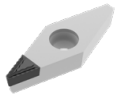
▲ TCE(NOI) = Design and number of equipped cutting edge corners

					NEW		NEW				NEW		
				-CB1 CTDPD20		CTDPS30		CTDPS30	-CB1 CTDPS30		-CB2 CTDPS30		CTDPU20
				F DIAMOND VCGT		F DIAMOND VCGW		F DIAMOND VCGT	F DIAMOND VCGT		M DIAMOND VCGT		F DIAMOND VCGW
				71 330 ...		71 191 ...		71 189 ...	71 330 ...		71 331 ...		71 191 ...
ISO	RE mm	TCE (NOI)	LE mm										
070201FN	0,1	A (1)	3,8					20001					
070202FN	0,2	A (1)	3,6			20001							
070204FN	0,4	A (1)	3,2			20101							
110301FN	0,1	A (1)	5,4	11000		20201		20101					
110302FN	0,2	A (1)	4,6	112		20301		20201	21200		212		
110304FN	0,4	A (1)	3,9	114		20401		20301	214		214		
110308FN	0,8	A (1)	3,3								21800		
130302FN	0,2	A (1)	5,9			20501		20401					
160401FN	0,1	A (1)	6,0			20601		20501					
160402FN	0,2	A (1)	5,9	13200				20601			23200		
160404FN	0,4	A (1)	5,5	134		20701		20701	234		234		30001
160408FN	0,8	A (1)	5,0	138		20801			238		238		
160412FN	1,2	A (1)	4,5	14000		20901			24000		242		
P													
M													
K													
N				●		●		●	●		●		●
S													
H													
O				●		●		●	●		●		●

9

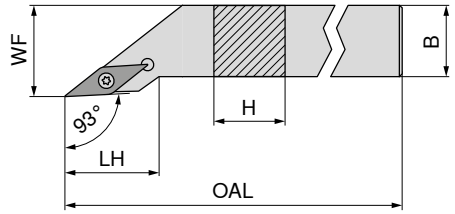
VCGT / VCGW

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

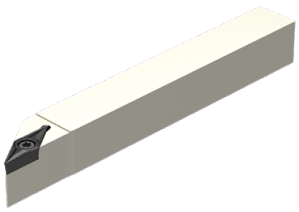
				NEW			NEW		
				-CB2 CTDPU20	-CB3 CTDPU20	CTDCD10	-CB1 CTDCD10	-CB2 CTDCD10	
									
				M	R	F	F	M	
				DIAMOND VCGT	DIAMOND VCGT	DIAMOND VCGW	DIAMOND VCGT	DIAMOND VCGT	
				71 190 ...	71 332 ...	71 191 ...	71 330 ...	71 331 ...	
ISO	RE mm	TCE (NOI)	LE mm						
110301FN	0,1	A (1)	3,0				31000		
110302FN	0,2	A (1)	3,0			40001	312	312	
110304FN	0,4	A (1)	3,0			40101	314	314	
110304FN	0,4	A (1)	3,9		214				
110308FN	0,8	A (1)	3,0			40201			
160402FN	0,2	A (1)	3,0			40301	32200	33200	
160404FN	0,4	A (1)	3,0			40401	32400	334	
160404FN	0,4	A (1)	5,5	30001	234				
160408FN	0,8	A (1)	3,0			40501	32600	338	
160412FN	1,2	A (1)	3,0				32800	34000	
P									
M									
K									
N				●	●	●	●	●	
S									
H									
O				●	●	●	●	●	

MaxiLock-S – SVJC 93° – Toolholder with screw clamping





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 697 ...	Right-hand 70 696 ...
SVJC R/L 1212 F11	12	12	80	21,5	16	1,2	VC.. 1103	**012**	**012**
SVJC R/L 1616 H11	16	16	100	21,5	20	1,2	VC.. 1103	**016**	**016**
SVJC R/L 2020 K11	20	20	125	23,0	25	1,2	VC.. 1103	**020**	**020**
SVJC R/L 2525 M11	25	25	150	25,5	32	1,2	VC.. 1103	**025**	**025**
SVJC R/L 2020 K16	20	20	125	29,5	25	3,2	VC.. 1604	**120**	**120**
SVJC R/L 2525 M16	25	25	150	32,5	32	3,2	VC.. 1604	**125**	**125**
SVJC R/L 3225 P16	32	25	170	32,5	32	3,2	VC.. 1604	**132**	**132**





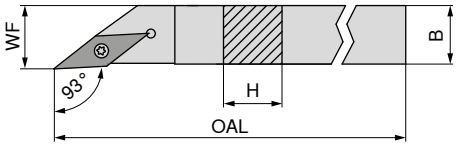


Spare parts Insert	Key D 80 950 ...	Combination Key 70 950 ...	Clamping screw 70 950 ...	Solid Carbide Seat V 70 950 ...	Threaded sleeve 70 950 ...
VC.. 1103	**110**		**112**		
VC.. 1604		**398**	**113**	**107**	**171**

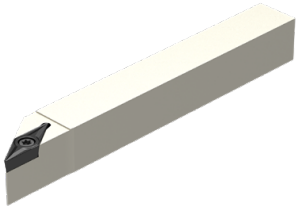
9

MaxiLock-S – SVJC 93° – Toolholder with screw clamping





Illustrations show right-hand versions

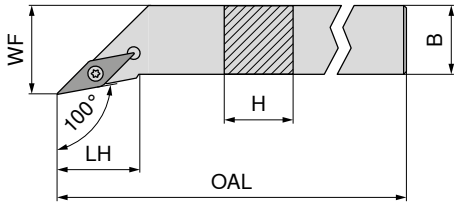


ISO designation	H mm	B mm	OAL mm	WF mm	torque moment Nm	Insert	Left-hand 70 697 ...	Right-hand 70 696 ...
SVJC R/L 0808 H11	8	8	100	8	1,2	VC.. 1103	**008**	**008**
SVJC R/L 1010 H11	10	10	100	10	1,2	VC.. 1103	**010**	**010**
SVJC R/L 1212 H11	12	12	100	12	1,2	VC.. 1103	**112**	**112**
SVJC R/L 1616 K11	16	16	125	16	1,2	VC.. 1103	**116**	**116**




Spare parts Insert	Key D 80 950 ...	Clamping screw 70 950 ...
VC.. 1103	**110**	**112**

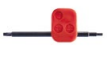
MaxiLock-S – SVZC 100° – Toolholder with screw clamping





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 701 ...	Right-hand 70 700 ...
SVZC R/L 2525 M16	25	25	150	28,5	32	3,2	VC.. 1604	**025**	**025**


Combination Key 70 950 ...

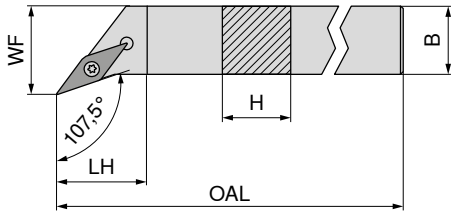

Clamping screw 70 950 ...


Solid Carbide Seat V 70 950 ...


Threaded sleeve 70 950 ...

Spare parts for Article no.						
70 701 025 / 70 700 025	T15/SW	**398**	M3,5x11	**113**	**107**	M3,5	**171**

MaxiLock-S – SVHC 107.5° – Toolholder with screw clamping





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 705 ...	Right-hand 70 704 ...
SVHC R/L 1212 F11	12	12	80	11,4	16	1,2	VC.. 1103	**012**	**012**
SVHC R/L 1616 H11	16	16	100	11,4	20	1,2	VC.. 1103	**016**	**016**
SVHC R/L 2020 K11	20	20	125	14,6	25	1,2	VC.. 1103	**020**	**020**
SVHC R/L 2525 M11	25	25	150	20,9	32	1,2	VC.. 1103	**025**	**025**
SVHC R/L 2020 K16	20	20	125	13,2	25	3,2	VC.. 1604	**120**	**120**
SVHC R/L 2525 M16	25	25	150	19,6	32	3,2	VC.. 1604	**125**	**125**
SVHC R/L 3225 P16	32	25	170	19,6	32	3,2	VC.. 1604	**132**	**132**
SVHC R/L 2525 M22	25	25	150	19,6	32	5	VC.. 2205	**225**	**225**
SVHC R/L 3225 P22	32	25	170	19,6	32	5	VC.. 2205	**232**	**232**


Key D 80 950 ...


Combination Key 70 950 ...


Clamping screw 70 950 ...


Solid Carbide Seat V 70 950 ...

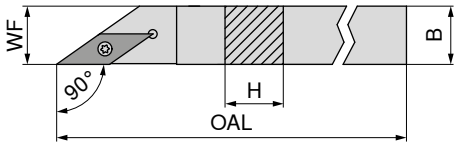

Threaded sleeve 70 950 ...

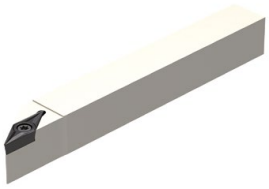
Spare parts for Article no.									
70 704 012 / 70 705 012	**110**		**112**						
70 704 016 / 70 705 016	**110**		**112**						
70 704 020 / 70 705 020	**110**		**112**						
70 704 025 / 70 705 025	**110**		**112**						
70 704 120 / 70 705 120		**398**	**113**		**107**		**171**		
70 704 125 / 70 705 125		**398**	**113**		**107**		**171**		
70 704 132 / 70 705 132		**398**	**113**		**107**		**171**		
70 704 225 / 70 705 225		**398**	**114**		**109**		**170**		
70 704 232 / 70 705 232		**398**	**114**		**109**		**170**		

MaxiLock-S – SVAC 90° – Toolholder with screw clamping

▲ for sliding head lathes







Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	WF mm	torque moment Nm	Insert	Left-hand 70 695 ...	Right-hand 70 694 ...
SVAC R/L 0808 H11	8	8	100	8	1,2	VC.. 1103	008	008
SVAC R/L 1010 H11	10	10	100	10	1,2	VC.. 1103	010	010
SVAC R/L 1212 H11	12	12	100	12	1,2	VC.. 1103	012	012

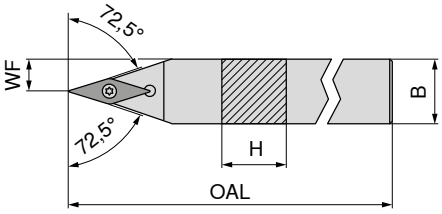

Key D

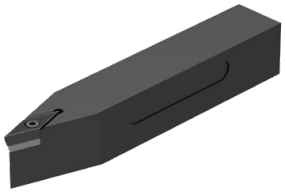

Clamping screw

Spare parts for Article no.	Key D 80 950 ...		Clamping screw 70 950 ...	
70 694 008 / 70 695 008	T08	110	M2,5x6	112
70 694 010 / 70 695 010	T08	110	M2,5x6	112
70 694 012 / 70 695 012	T08	110	M2,5x6	112

MaxiLock-S – SVVC 72.5° – Toolholder with screw clamping







ISO designation	H mm	B mm	OAL mm	WF mm	torque moment Nm	Insert	Neutral 70 692 ...
SVVC N 1212 F11	12	12	80	6,0	1,2	VC.. 1103	012
SVVC N 1616 H11	16	16	100	8,0	1,2	VC.. 1103	016
SVVC N 2020 K11	20	20	125	10,0	1,2	VC.. 1103	020
SVVC N 2525 M11	25	25	150	12,5	1,2	VC.. 1103	025
SVVC N 2020 K16	20	20	125	10,0	3,2	VC.. 1604	120
SVVC N 2525 M16	25	25	150	12,5	3,2	VC.. 1604	125
SVVC N 3225 P16	32	25	170	12,5	3,2	VC.. 1604	132


Key D


Combination Key


Clamping screw


Solid Carbide Seat V


Threaded sleeve

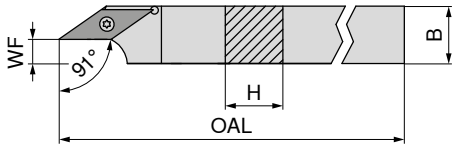
Spare parts for Article no.	Key D 80 950 ...		Combination Key 70 950 ...		Clamping screw 70 950 ...		Solid Carbide Seat V 70 950 ...		Threaded sleeve 70 950 ...	
70 692 012		110				112				
70 692 016		110				112				
70 692 020		110				112				
70 692 025		110				112				
70 692 120				398		113		107		171
70 692 125				398		113		107		171
70 692 132				398		113		107		171

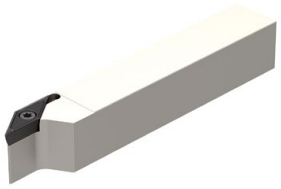
9

MaxiLock-S – SVXC 91° – Toolholder with screw clamping

▲ for sliding head lathes







Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	WF mm	torque moment Nm	Insert	Left-hand 70 691 ...	Right-hand 70 690 ...
SVXC R/L 1010 H11	10	10	100	3,4	1,2	VC.. 1103	**010**	**010**
SVXC R/L 1212 H11	12	12	100	5,4	1,2	VC.. 1103	**012**	**012**
SVXC R/L 1616 K11	16	16	125	8,9	1,2	VC.. 1103	**016**	**016**
SVXC R/L 2020 K16	20	20	125	10,4	3,2	VC.. 1604	**020**	**020**



Key D

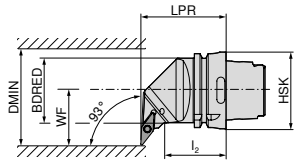


Clamping screw

Spare parts for Article no.	Key D 80 950 ...		Clamping screw 70 950 ...	
70 691 010 / 70 690 010	T08	**110**	M2,5x6	**112**
70 691 012 / 70 690 012	T08	**110**	M2,5x6	**112**
70 691 016 / 70 690 016	T08	**110**	M2,5x6	**112**
70 691 020 / 70 690 020	T15	**113**	M3,5x11	**113**

MaxiLock-S – SVUC 93° – Toolholder with screw clamping







Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 557 ...	Right-hand 74 558 ...
HSK T63 SVUC R/L 16	HSK-T 63	70	42	53	45	100	3.2	VC.. 1604	**516**	**516**



Combination Key



Clamping screw



Solid Carbide Seat V

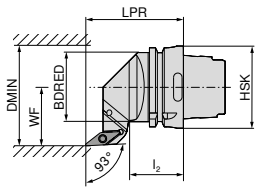


Threaded sleeve

Spare parts for Article no.	Combination Key 70 950 ...		Clamping screw 70 950 ...		Solid Carbide Seat V 70 950 ...	Threaded sleeve 70 950 ...	
74 558 516 / 74 557 516	T15/SW	**398**	M3,5x11	**113**	**107**	M3,5	**171**

MaxiLock-S – SVJC 93° – Toolholder with screw clamping







Illustrations show right-hand versions

									Left-hand	Right-hand
									74 556 ...	**74 555 ...**
ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert		
HSK T63 SVJC R/L 16	HSK-T 63	75	42	53	45	100	3.2	VC.. 1604	**516**	**516**



Combination Key

70 950 ...



Clamping screw

70 950 ...



Solid Carbide Seat V

70 950 ...



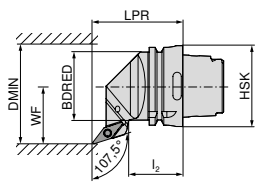
Threaded sleeve

70 950 ...

Spare parts for Article no.							
74 555 516 / 74 556 516	T15/SW	**398**	M3,5x11	**113**	**107**	M3,5	**171**

MaxiLock-S – SVHC 107.5° – Toolholder with screw clamping







Illustrations show right-hand versions

									Left-hand	Right-hand
									74 554 ...	**74 553 ...**
ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert		
HSK T63 SVHC R/L 16	HSK-T 63	70	42	53	45	100	3.2	VC.. 1604	**516**	**516**



Combination Key

70 950 ...



Clamping screw

70 950 ...



Solid Carbide Seat V

70 950 ...

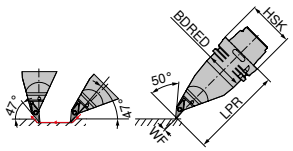


Threaded sleeve

70 950 ...

Spare parts for Article no.							
74 553 516 / 74 554 516	T15/SW	**398**	M3,5x11	**113**	**107**	M3,5	**171**

MaxiLock-S – SVMC 50° – Toolholder with screw clamping





ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	Left-hand 74 560 ...
HSK T63 SVMC L 16	HSK-T 63	130	53	0	3.2	VC.. 1604	**516**


Combination Key


Clamping screw

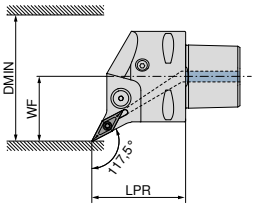

Solid Carbide Seat V


Threaded sleeve

Spare parts for Article no.		70 950 ...		70 950 ...		70 950 ...		70 950 ...
74 560 516	T15/SW	**398**	M3,5x11	**113**		**107**	M3,5	**171**

MaxiLock-S – SVPC 117,5° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set



Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	NEW Left-hand 84 671 ...	NEW Right-hand 84 670 ...
PSC40 SVPC R/L 50050-16	PSC 40	50	27	50	3	VC.. 1604	DC	**01695**	**01695**
PSC50 SVPC R/L 65060-16	PSC 50	60	35	65	3	VC.. 1604	DC	**01694**	**01694**
PSC63 SVPC R/L 80065-16	PSC 63	65	45	80	3	VC.. 1604	DC	**01693**	**01693**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.

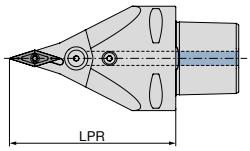

Clamping screw

Spare parts Adapter	84 950 ...
PSC 40	**27600**
PSC 50	**27600**
PSC 63	**27600**

MaxiLock-S – SVVC 72.5° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set







NEW
Neutral
84 678 ...

ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Direct cooling compatible	
PSC63 SVVC N 0100-16	PSC 63	100	3	VC.. 1604	DC	**01693**
PSC63 SVVC N 0130-16	PSC 63	130	3	VC.. 1604	DC	**11693**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.



Clamping screw
84 950 ...

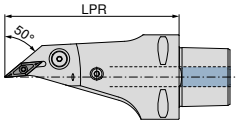
Spare parts
Adapter

PSC 63	**27600**

MaxiLock-S – SVMC 50° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set







NEW
Neutral
84 681 ...

ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Direct cooling compatible	
PSC63 SVMC L 0130-16	PSC 63	130	3	VC.. 1604	DC	**11693**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.



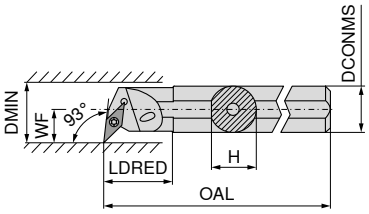
Clamping screw
84 950 ...

Spare parts
Adapter

PSC 63	**27600**

9

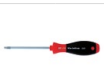
MaxiLock-S – SVUC 93° – Boring bar with screw clamping



Illustrations show right-hand versions

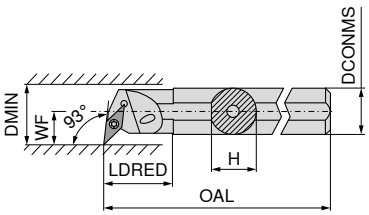


ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 745 ...	Right-hand 70 744 ...
A16M SVUC R/L 11	16	15,0	150	29	11	20	1,2	VC.. 1103	**216**	**216**
A20Q SVUC R/L 11	20	18,5	180	32	13	25	1,2	VC.. 1103	**220**	**220**
A25R SVUC R/L 11	25	23,0	200	36	17	32	1,2	VC.. 1103	**225**	**225**
A32S SVUC R/L 16	32	30,0	250	50	22	40	3,2	VC.. 1604	**232**	**232**
A40T SVUC R/L 16	40	38,0	300	60	27	50	3,2	VC.. 1604	**240**	**240**

Spare parts for Article no.	 Key D 80 950 ...	 Combination Key 70 950 ...	 Clamping screw 70 950 ...	 Solid Carbide Seat V 70 950 ...	 Threaded sleeve 70 950 ...
70 744 216 / 70 745 216	**110**		**112**		
70 744 220 / 70 745 220	**110**		**112**		
70 744 225 / 70 745 225	**110**		**112**		
70 744 232 / 70 745 232		**398**	**113**	**107**	**171**
70 744 240 / 70 745 240		**398**	**113**	**107**	**171**

MaxiLock-S – SVUC 93° – Boring bar with screw clamping

▲ with carbide core



Illustrations show right-hand versions



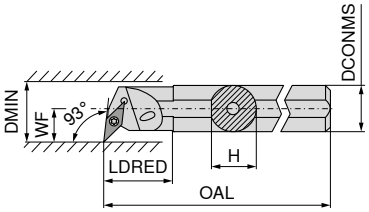
ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Right-hand 70 746 ...
E-A16M SVUC R 11	16	15	150	16,5	11	21	1,2	VC.. 1103	**216**
E-A20Q SVUC R 11	20	18	180	20,5	13	25	1,2	VC.. 1103	**220**
E-A25R SVUC R 11	25	23	200	25,5	17	31	1,2	VC.. 1103	**225**
E-A25R SVUC R 16	25	23	200	25,5	17	31	3,2	VC.. 1604	**325**
E-A32S SVUC R 16	32	30	250	32,5	22	39	3,2	VC.. 1604	**232**

Spare parts for Article no.	 Key D 80 950 ...	 Clamping screw 70 950 ...
70 746 216	**110**	**112**
70 746 220	**110**	**112**
70 746 225	**110**	**112**
70 746 325	**113**	**449**
70 746 232	**113**	**449**

MaxiLock-S – SVUC 93° – Boring bar with screw clamping

▲ Type: Solid carbide





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 747 ...	Right-hand 70 746 ...
E16R SVUC R/L 11	16	15,0	200	34	11	20	1,2	VC.. 1103	**016**	**016**
E20S SVUC R/L 11	20	18,5	250	38	13	25	1,2	VC.. 1103	**020**	**020**



Key D

80 950 ...



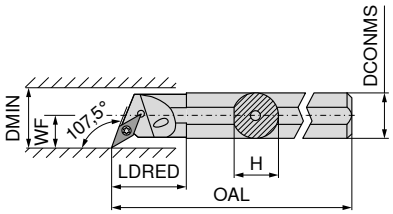
Clamping screw

70 950 ...

Spare parts for Article no.				
70 746 016 / 70 747 016	T08	**110**	M2,5x6	**112**
70 746 020 / 70 747 020	T08	**110**	M2,5x6	**112**

MaxiLock-S – SVQC 107.5° – Boring bar with screw clamping





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 749 ...	Right-hand 70 748 ...
A16M SVQC R/L 11	16	15,0	150	29	11	20	1,2	VC.. 1103	**216**	**216**
A20Q SVQC R/L 11	20	18,5	180	32	13	25	1,2	VC.. 1103	**220**	**220**
A25R SVQC R/L 11	25	23,0	200	36	17	32	1,2	VC.. 1103	**225**	**225**
A32S SVQC R/L 16	32	30,0	250	50	22	40	3,2	VC.. 1604	**232**	**232**
A40T SVQC R/L 16	40	38,0	300	60	27	50	3,2	VC.. 1604	**240**	**240**



Key D

80 950 ...



Combination Key

70 950 ...



Clamping screw

70 950 ...



Solid Carbide Seat V

70 950 ...



Threaded sleeve

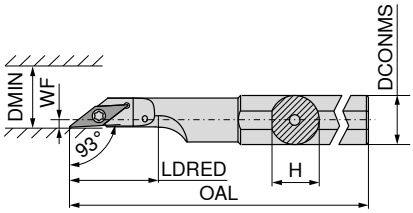
70 950 ...

Spare parts for Article no.								
70 748 216 / 70 749 216	**110**			**112**				
70 748 220 / 70 749 220	**110**			**112**				
70 748 225 / 70 749 225	**110**			**112**				
70 748 232 / 70 749 232		**398**		**113**		**107**		**171**
70 748 240 / 70 749 240		**398**		**113**		**107**		**171**

9

MaxiLock-S – SVJC 93° – Boring bar with screw clamping





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 727 ...	Right-hand 70 726 ...
A16M SVJC R/L 11	16	15	150	30	2	22	1,2	VC.. 1103	**216**	**216**
A20M SVJC R/L 11	20	19	150	38	2	25	1,2	VC.. 1103	**220**	**220**
A25M SVJC R/L 16	25	24	150	44	2	28	3,2	VC.. 1604	**225**	**225**



Key D

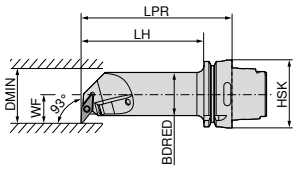


Clamping screw

Spare parts for Article no.	Key D 80 950 ...	Clamping screw 70 950 ...
70 727 216 / 70 726 216	**110**	**112**
70 727 220 / 70 726 220	**110**	**112**
70 727 225 / 70 726 225	**113**	**174**

MaxiLock-S – SVUC 93° – Boring bar with screw clamping





Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	LH mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 568 ...	Right-hand 74 567 ...
HSK T63 40L SVUC R/L 16	HSK-T 63	140	114	40	27	50	3.2	VC.. 1604	**516**	**516**



Combination Key



Clamping screw



Solid Carbide Seat V

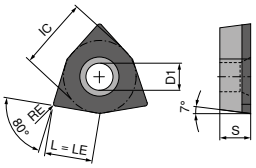


Threaded sleeve

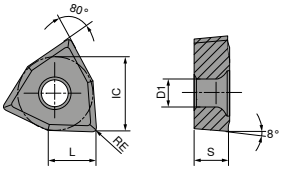
Spare parts for Article no.	Combination Key 70 950 ...		Clamping screw 70 950 ...		Solid Carbide Seat V 70 950 ...		Threaded sleeve 70 950 ...	
74 567 516 / 74 568 516	T15/SW	**398**	M3,5x11	**113**	**107**	M3,5		**171**

WCGT / WCGW

Designation	L mm	S mm	D1 mm	IC mm
WCGW 0201..	2,70	1,58	2,3	3,97
WCGT 0201..	2,71	1,59	2,1	3,97



CBN/PKD WCGW F



WCGT

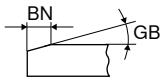
WCGT

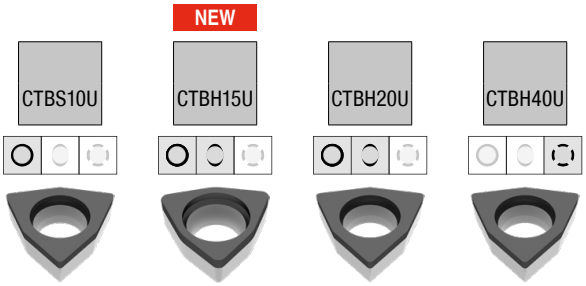
	-SF TCM10	-SF CTPP430	-SF H216T
		DRAGONSKIN	
			
	F	F	F
	CERMET WCGT	WCGT	WCGT
	70 287 ...	70 287 ...	70 287 ...
ISO RE mm			
020102EN 0,2	**900**	**450**	**600**
020104EN 0,2	**902**	**452**	**602**
P	●	●	
M	○	●	
K	○	○	○
N		○	●
S		○	
H			
O			○

9

WCGW

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





						CTBS10U	CTBH15U	CTBH20U	CTBH40U
						F	F	F	F
						CBN WCGW	CBN WCGW	CBN WCGW	CBN WCGW
						71 154 ...	71 037 ...	71 154 ...	71 154 ...
ISO	RE mm	BN mm	GB	**TCE (NOI)**	LE mm				
020102EN	0,2			**F**	2,7		00200		
020102SN	0,2	0,11	15°	**F**	2,7		30214		
020102TN	0,2	0,12	20°	**F**	2,7			500	
020102TN	0,2	0,12	25°	**F**	2,7				900
020102FN	0,2			**F**	2,7	200		400 1)	800
020104SN	0,4	0,11	15°	**F**	2,7		30414		
020104TN	0,4	0,12	20°	**F**	2,7			502	
020104FN	0,4			**F**	2,7			402 1)	80100
020104EN	0,4			**F**	2,7		00400		
020104TN	0,4	0,12	25°	**F**	2,7				902
P									
M									
K						●			
N									
S						●			
H							●	●	●
O									

1) Machining to 60 HRC

WCGW

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

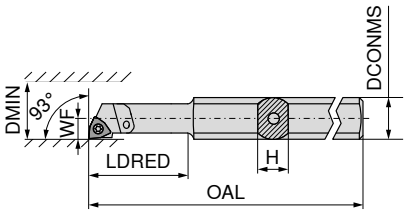


				CTDPD20
				F
				DIAMOND WCGW
				71 154 ...
ISO	RE mm	**TCE (NOI)**	LE mm	
020102FN	0,2	**F**	2,7	100
020104FN	0,4	**F**	2,7	102
P				
M				
K				
N				●
S				
H				
O				●

→ v_c Page 196–207

MaxiLock-S – SWUC 93° – Boring bar with screw clamping





Illustrations show right-hand versions



									Left-hand	Right-hand
									70 731 ...	70 730 ...
ISO designation	H mm	OAL mm	LDRED mm	WF mm	DCONMS mm	DMIN mm	torque moment Nm	Insert		
A0508H SWUC R/L 02	7	100	24	2,9	8	5,8	0,4	WC.. 0201..	**005**	**005**
A0608H SWUC R/L 02	7	100	24	3,9	8	7,8	0,4	WC.. 0201..	**006**	**006**



Key D



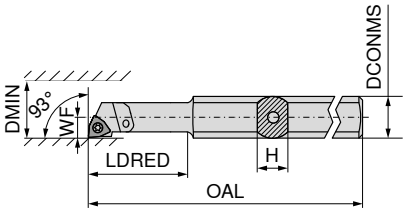
Clamping screw

				80 950 ...	70 950 ...
Spare parts for Article no.					
70 731 005 / 70 730 005	T06	**108**	M1,8x3,4	**334**	
70 731 006 / 70 730 006	T06	**108**	M1,8x3,4	**334**	

MaxiLock-S – SWUC 93° – Boring bar with screw clamping

▲ with carbide core





Illustrations show right-hand versions



									Left-hand	Right-hand
									70 743 ...	70 742 ...
ISO designation	H mm	OAL mm	LDRED mm	WF mm	DCONMS mm	DMIN mm	torque moment Nm	Insert		
E-A0508H SWUC R/L 02	7	100	24	2,9	8	5,8	0,4	WC.. 0201..	**005**	**005**
E-A0608H SWUC R/L 02	7	100	24	3,9	8	7,8	0,4	WC.. 0201..	**006**	**006**
SET							0,4	WC.. 0201..	**999**	**999**

Set includes boring bars 70 743 005 and 70 743 006 or 70 742 005 and 70 742 006



Key D

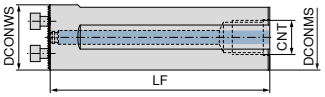


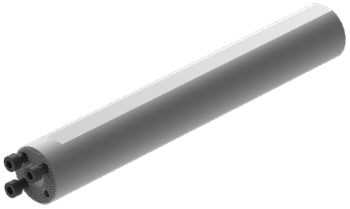
Clamping screw

				80 950 ...	70 950 ...
Spare parts for Article no.					
70 743 005 / 70 742 005	T06	**108**	M1,8x3,4	**334**	
70 743 006 / 70 742 006	T06	**108**	M1,8x3,4	**334**	

Base holders for the exchangeable head system – cylindrical

- ▲ Connection thread for thro' coolant
- ▲ 3 clamping flats





NEW



84 194 ...

DCONWS mm	LF mm	DCONMS mm	CNT	
25	200	25	1/4	**02599**
32	218	32	3/8	**03299**
40	283	40	1/2	**04099**



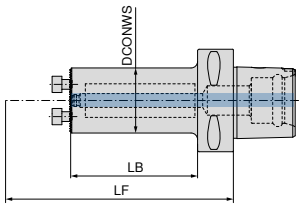
Clamping Screw

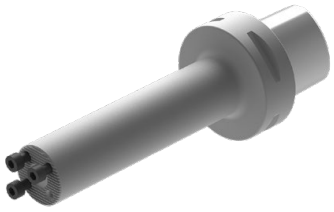
84 950 ...

Spare parts for Article no.		
84 194 02599	M4X12 (SW3)	**30000**
84 194 03299	M5X14 (SW4)	**29900**
84 194 04099	M6X16 (SW5)	**29800**

Base holders for the exchangeable head system – vibration-damped

Scope of supply:
Includes clamping screws





NEW



right / left

84 195 ...

Adapter	LF mm	LB mm	DCONWS mm	
PSC 63	150	93	25	**02593**
PSC 63	185	128	32	**03293**
PSC 63	225	163	40	**04093**



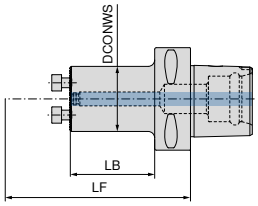
Clamping Screw

84 950 ...

Spare parts for Article no.		
84 195 02593	M4X12 (SW3)	**30000**
84 195 03293	M5X14 (SW4)	**29900**
84 195 04093	M6X16 (SW5)	**29800**

Base holders for the exchangeable head system

Scope of supply:
Includes clamping screws





NEW



right / left

Adapter	LF mm	LB mm	DCONWS mm	84 192 ...
PSC 40	90	35	25	**02595**
PSC 40	110	55	32	**03295**
PSC 40	120		40	**04095**
PSC 50	90	35	25	**02594**
PSC 50	110	55	32	**03294**
PSC 50	140	80	40	**04094**
PSC 63	100	43	25	**02593**
PSC 63	125	68	32	**03293**
PSC 63	140	78	40	**04093**
PSC 63	160	68	32	**13293**
PSC 63	180	118	40	**14093**

9

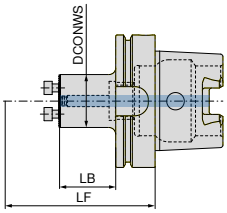


Clamping Screw

Spare parts for Article no.		84 950 ...
84 192 02595	M4X12 (SW3)	**30000**
84 192 03295	M5X14 (SW4)	**29900**
84 192 04095	M6X16 (SW5)	**29800**
84 192 02594	M4X12 (SW3)	**30000**
84 192 03294	M5X14 (SW4)	**29900**
84 192 04094	M6X16 (SW5)	**29800**
84 192 02593	M4X12 (SW3)	**30000**
84 192 03293	M5X14 (SW4)	**29900**
84 192 04093	M6X16 (SW5)	**29800**
84 192 13293	M5X14 (SW4)	**29900**
84 192 14093	M6X16 (SW5)	**29800**

Base holders for the exchangeable head system

Scope of supply:
Includes clamping screws





NEW



right / left

Adapter	LF mm	LB mm	DCONWS mm	84 193 ...
HSK-T 40	90	35	25	**02539**
HSK-T 40	110	55	25	**12539**
HSK-T 40	115	60	32	**03239**
HSK-T 40	120		40	**04039**
HSK-T 63	105	35	25	**02537**
HSK-T 63	125	64	32	**03237**
HSK-T 63	140	74	40	**04037**
HSK-T 63	160	99	32	**13237**
HSK-T 63	180	114	40	**14037**
HSK-T 100	180	111	40	**04035**

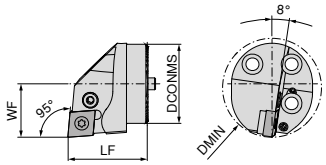


Clamping Screw

Spare parts for Article no.		84 950 ...
84 193 02539	M4X12 (SW3)	**30000**
84 193 12539	M4X12 (SW3)	**30000**
84 193 03239	M5X14 (SW4)	**29900**
84 193 04039	M6X16 (SW5)	**29800**
84 193 02537	M4X12 (SW3)	**30000**
84 193 03237	M5X14 (SW4)	**29900**
84 193 04037	M6X16 (SW5)	**29800**
84 193 13237	M5X14 (SW4)	**29900**
84 193 14037	M6X16 (SW5)	**29800**
84 193 04035	M6X16 (SW5)	**29800**

Exchangeable cutting head PCLN 95°







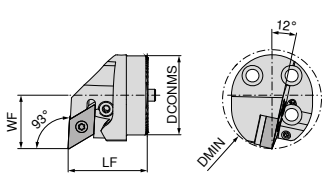
Illustrations show right-hand versions

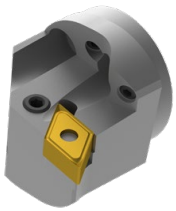
DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	NEW Left-hand 84 159 ...	NEW Right-hand 84 160 ...
25	35	32	17	10	CN.. 1204	**02500**	**02500**
32	35	40	22	10	CN.. 1204	**03200**	**03200**
40	40	50	27	10	CN.. 1204	**04000**	**04000**

Spare parts for Article no.	 Shim 84 950 ...		 Elbow lever screw 84 950 ...		 Lever 84 950 ...	 Carbide seat 84 950 ...
84 160 02500 / 84 159 02500	**29200**	M8X1/L17 SW3	**28700**		**29000**	**27800**
84 160 03200 / 84 159 03200	**29200**	M8X1/L17 SW3	**28700**		**29000**	**27800**
84 160 04000 / 84 159 04000	**29200**	M8X1/L17 SW3	**28700**		**29000**	**27800**

Exchangeable cutting head PDUN 93°







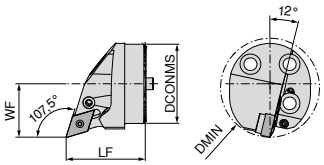
Illustrations show right-hand versions

DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	NEW Left-hand 84 161 ...	NEW Right-hand 84 162 ...
25	35	32	17	5	DN.. 1104	**02500**	**02500**
32	35	40	22	5	DN.. 1104	**03200**	**03200**
32	35	40	22	5	DN.. 1506	**13200**	**13200**
40	40	50	27	5	DN.. 1104	**04000**	**04000**
40	40	50	27	5	DN.. 1506	**14000**	**14000**

Spare parts for Article no.	 Shim 84 950 ...		 Elbow lever screw 84 950 ...		 Lever 84 950 ...	 Carbide seat 84 950 ...
84 162 02500 / 84 161 02500	**29300**	M6/ L14 SW2,5	**28800**		**29100**	**28100**
84 162 03200 / 84 161 03200	**29300**	M6/ L14 SW2,5	**28800**		**29100**	**28100**
84 162 13200 / 84 161 13200	**29200**	M8X1/L17 SW3	**28700**		**28900**	**27900**
84 162 04000 / 84 161 04000	**29300**	M6/ L14 SW2,5	**28800**		**29100**	**28100**
84 162 14000 / 84 161 14000	**29200**	M8X1/L17 SW3	**28700**		**28900**	**27900**

Exchangeable cutting head PDQN 107.5°







Illustrations show right-hand versions

DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	NEW Left-hand 84 163 ...	NEW Right-hand 84 164 ...
25	35	32	17	5	DN.. 1104	**02500**	**02500**
32	35	40	22	5	DN.. 1104	**03200**	**03200**
40	40	50	27	5	DN.. 1104	**04000**	**04000**


Shim


Elbow lever screw

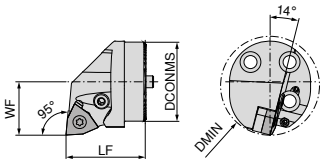

Lever


Carbide seat

Spare parts for Article no.	Shim 84 950 ...		Elbow lever screw 84 950 ...	Lever 84 950 ...	Carbide seat 84 950 ...
84 163 02500 / 84 164 02500	**29300**	M6/ L14 SW2,5	**28800**	**29100**	**28100**
84 163 03200 / 84 164 03200	**29300**	M6/ L14 SW2,5	**28800**	**29100**	**28100**
84 163 04000 / 84 164 04000	**29300**	M6/ L14 SW2,5	**28800**	**29100**	**28100**

Exchangeable cutting head PWLN 95°







Illustrations show right-hand versions

DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	NEW Left-hand 84 165 ...	NEW Right-hand 84 166 ...
32	35	40	22	5	WN.. 0804	**03200**	**03200**
40	40	50	27	5	WN.. 0804	**04000**	**04000**


Shim


Elbow lever screw

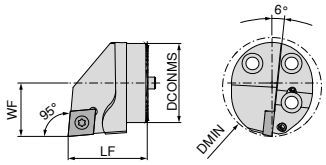

Lever

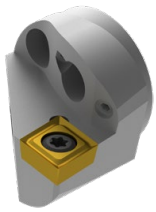

Carbide seat

Spare parts for Article no.	Shim 84 950 ...		Elbow lever screw 84 950 ...	Lever 84 950 ...	Carbide seat 84 950 ...
84 166 03200 / 84 165 03200	**29200**	M8X1/L17 SW3	**28700**	**28900**	**27700**
84 166 04000 / 84 165 04000	**29200**	M8X1/L17 SW3	**28700**	**28900**	**27700**

Exchangeable cutting head SCLC 95°







Illustrations show right-hand versions

DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	NEW Left-hand 84 147 ...	NEW Right-hand 84 148 ...
25	35	32	17	5	CC.. 1204	**02500**	**02500**
32	35	40	22	5	CC.. 1204	**03200**	**03200**
40	40	50	27	5	CC.. 1204	**04000**	**04000**



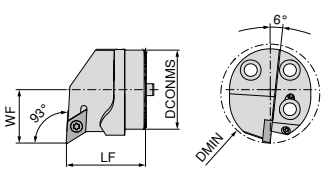
Clamping screw

84 950 ...

Spare parts for Article no.	
84 148 02500 / 84 147 02500	**27500**
84 148 03200 / 84 147 03200	**27500**
84 148 04000 / 84 147 04000	**27500**

Exchangeable cutting head SDUC 93°







Illustrations show right-hand versions

DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	NEW Left-hand 84 143 ...	NEW Right-hand 84 144 ...
25	35	32	17	3	DC.. 11T3	**02500**	**02500**
32	35	40	22	3	DC.. 11T3	**03200**	**03200**
40	40	50	27	3	DC.. 11T3	**04000**	**04000**



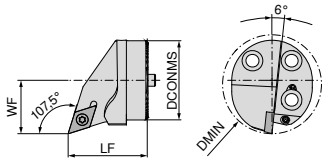
Clamping screw

84 950 ...

Spare parts for Article no.	
84 144 02500 / 84 143 02500	**27600**
84 144 03200 / 84 143 03200	**27600**
84 144 04000 / 84 143 04000	**27600**

Exchangeable cutting head SDQC 107.5°







Illustrations show right-hand versions

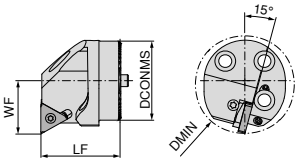
DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	NEW Left-hand 84 145 ...	NEW Right-hand 84 146 ...
25	35	32	17	3	DC.. 11T3	**02500**	**02500**
32	35	40	22	3	DC.. 11T3	**03200**	**03200**
40	40	50	27	3	DC.. 11T3	**04000**	**04000**

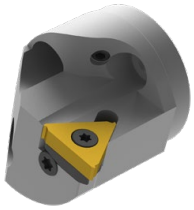


Clamping screw

Spare parts for Article no.	84 950 ...
84 146 02500 / 84 145 02500	**27600**
84 146 03200 / 84 145 03200	**27600**
84 146 04000 / 84 145 04000	**27600**

Exchangeable cutting head for internal thread





Illustrations show right-hand versions

DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	NEW Left-hand 84 167 ...	NEW Right-hand 84 168 ...
25	35	32	17	2	16 ..	**02500**	**02500**
32	35	40	22	2	16 ..	**03200**	**03200**
40	40	50	27	2	16 ..	**04000**	**04000**

Suitable internal thread inserts can be found in → **Chapter 8 – Thread Turning, pages 6-30**

Spare parts for Article no.	 Shim 84 950 ...		 Clamping Screw 84 950 ...	 Clamping screw 84 950 ...
84 168 02500	**29500**	UNC5x7,3	**29700**	**29400**
84 167 02500	**29600**	UNC5x7,3	**29700**	**29400**
84 168 03200	**29500**	UNC5x7,3	**29700**	**29400**
84 167 03200	**29600**	UNC5x7,3	**29700**	**29400**
84 168 04000	**29500**	UNC5x7,3	**29700**	**29400**
84 167 04000	**29600**	UNC5x7,3	**29700**	**29400**

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²				
		O.3.1	Graphite						

*** Tensile strength**

Cutting data standard values

			DRAGONSKIN														
	TCM407	TCM10	CTEP110	CTCP115	CTCP125	CTCP135	CTCK110	CTCK120	CTPM125	CTCM120	CTCM130	CTPX710 -M34	CTPX710 -25P/-25Q	CTPX715 -27	H210T	H10T/ H216T	CWN15
Index	v_c in m/min																
P.1.1	**379**	**309**	**463**	**370**	**295**	**210**	395	328	203	229	184	**325**	**340**	**275**			
P.1.2	**328**	**266**	**404**	**315**	**250**	**175**	344	281	171	200	152	**286**	**300**	**236**			
P.1.3	**280**	**227**	**348**	**270**	**210**	**145**	297	238	142	173	123	**250**	**260**	**200**			
P.1.4	**265**	**213**	**330**	**250**	**200**	**135**	281	223	132	164	113	**238**	**250**	**188**			
P.1.5	**241**	**193**	**302**	**230**	**180**	**120**	258	202	118	150	98	**220**	**235**	**170**			
P.2.1	**336**	**273**	**413**	**325**	**260**	**180**	352	288	176	204	157	**292**	**300**	**242**			
P.2.2	**261**	**210**	**325**	**250**	**195**	**130**	278	220	130	161	110	**235**	**250**	**185**			
P.2.3	**241**	**193**	**302**	**230**	**180**	**120**	258	202	118	150	98	**220**	**235**	**170**			
P.2.4	**182**	**144**	**233**	**170**	**130**	**85**	199	148	81	116	61	**175**	**190**	**125**			
P.3.1	**281**	**219**	**344**	**200**	**170**	**150**	273	220	142	159	124	**140**	**150**	**138**			
P.3.2	**224**	**167**	**278**	**140**	**105**	**95**	225	176	97	116	81	**85**	**95**	**81**			
P.3.3	**167**	**114**	**213**	**85**	**40**	**35**	178	131	51	73	38	**30**	**35**	**24**			
P.4.1	**281**	**219**	**344**	**200**	**170**	**155**			142	159	124	**140**	**155**	**138**			
P.4.2	**253**	**193**	**311**	**170**	**135**	**125**			119	138	103	**113**	**130**	**109**			
M.1.1	281	219	344			155			**142**	**159**	**124**	**140**	**150**	**138**			100
M.2.1						95			**97**	**116**	**81**	**85**	**90**	**81**			55
M.3.1						135			**128**	**146**	**111**	**124**	**130**	**120**			85
K.1.1			410	255	170		**400**	**275**						200	170	140	
K.1.2			310	235	160		**310**	**265**						160	130	115	
K.2.1	355	260	440	270	180		**320**	**290**						190	180	150	
K.2.2	315	215	350	205	160		**275**	**230**						150	130	110	
K.3.1	325	300	415	250	200		**310**	**275**						210	190	170	
K.3.2	250	205	250	210	160		**265**	**230**						180	160	140	
N.1.1												1840	**1840**	**1750**	**1650**	**1400**	**1650**
N.1.2												1600	**1600**	**1500**	**1350**	**1100**	**1400**
N.2.1												1250	**1250**	**1200**	**1200**	**950**	**1250**
N.2.2												1250	**1250**	**1200**	**1100**	**950**	**1200**
N.2.3												750	**750**	**700**	**600**	**500**	**750**
N.3.1												650	**650**	**625**	**525**	**425**	**600**
N.3.2												630	**630**	**600**	**500**	**400**	**570**
N.3.3												500	**500**	**475**	**375**	**275**	**460**
N.4.1												340	**340**	**325**	**275**	**225**	**280**
S.1.1											35	**100**	**110**	**40**	43		
S.1.2											26	**80**	**85**	**30**	33		
S.2.1											20	**63**	**75**	**30**	33		
S.2.2											20	**40**	**45**	**24**	25		
S.2.3											18	**38**	**43**	**20**	20		
S.3.1											110	**95**	**100**	**110**	110		
S.3.2											63	**55**	**60**	**70**	70		
S.3.3											45	**40**	**45**	**50**	50		
H.1.1																	
H.1.2																	
H.1.3																	
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1														140	160	130	
O.1.2																	
O.2.1														150	140	105	
O.2.2																	
O.3.1																	

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

9

Cutting data standard values

	CT-P15	CT-P25	CT-P35
Index	v_c in m/min		
P.1.1	**290**	**235**	**165**
P.1.2	**250**	**200**	**140**
P.1.3	**215**	**170**	**115**
P.1.4	**200**	**160**	**110**
P.1.5	**185**	**145**	**100**
P.2.1	**260**	**210**	**145**
P.2.2	**200**	**155**	**105**
P.2.3	**185**	**145**	**95**
P.2.4	**135**	**105**	**65**
P.3.1	**160**	**135**	**120**
P.3.2	**115**	**85**	**75**
P.3.3	**65**	**34**	**26**
P.4.1	**160**	**135**	**120**
P.4.2	**140**	**110**	**100**
M.1.1	150	130	120
M.2.1	125	105	75
M.3.1	140	120	110
K.1.1			
K.1.2			
K.2.1			
K.2.2			
K.3.1			
K.3.2			
N.1.1			
N.1.2			
N.2.1			
N.2.2			
N.2.3			
N.3.1			
N.3.2			
N.3.3			
N.4.1			
S.1.1			
S.1.2			
S.2.1			
S.2.2			
S.2.3			
S.3.1			
S.3.2			
S.3.3			
H.1.1			
H.1.2			
H.1.3			
H.1.4			
H.2.1			
H.3.1			
O.1.1			
O.1.2			
O.2.1			
O.2.2			
O.3.1			

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Machinability of non-ferrous metals with carbide indexable inserts

	Material group	Material examples			Machinability of aluminium alloys *	Comments
N	Pure aluminium	non hardenable	Al 99,5	W7	5	▲ Snarl chips ▲ Possibly bad surface ▲ Excessive built-up edge ▲ Long tool life ▲ Use coolant emulsion
			Al 99,5	F13	4	
			Al 99	W8	5	
			Al 99	F14	4	
	Aluminium wrought alloys	non hardenable	Al Mn	W10	5	▲ Snarl, continuous or fragmented chip ▲ Large feed rates necessary for good swarf control ▲ Built-up edge ▲ Long tool life ▲ Emulsion coolant is advantageous
			Al Mn	F16	4	
			Al Mg 1	W10	5	
			Al Mg 1	F19	4	
			Al Mg 3	W18	4	
			Al Mg 3	F25	3	
			Al Mg 5	W25	4	
			AL Mg 5	F28	2	
			Al Mg 4,5 Mn	W27	4	
			Al Mg 4,5 Mn	G35	3	
		hardenable	Al Mg Si 0,5	W	4	▲ Good swarf control with higher feed rates
			Al Mg Si 0,5	F13-25	3	
			Al Mg Si 1	W	4	
			Al Mg Si 1	F21-30	3	
			Al Mg Si Pb	F20-28	2	▲ Very good swarf control ▲ No built up edge ▲ Very good surface quality
			Al Cu Si Pb	F28-37	1	
			Al Cu Mg Pb	F34-37	1	
			Al Cu Mg 1	W	3	▲ Good swarf control ▲ Good surface quality ▲ Little built-up edge
			Al Cu Mg 1	F33-40	2	
			Al Cu Mg 2	W	3	
			Al Cu Mg 2	F40-47	2	
			Al Cu Si Mn	W	3	
			Al Cu Si Mn	F43-46	2	
			Al Zn Mg Cu 1,5	F50-52	2	
			Al Sn 6 Cu		1	
	Cast Aluminium Alloys	non hardenable	G-Al Si 12		3	▲ Good swarf control ▲ Built-up edge ▲ Higher Si content results in lower tool life
			G-Al Si 10 Mg		3	
			G-Al Si 5 Mg		2	
			G-Al Si 7 Mg (9 Mg)		2	
			G-Al Si Cu 3		2	▲ High wear of the carbide
			G-Al Si 6 Cu 4		2	
			G-Al Mg 3 (Mg 5)		2	▲ Good swarf control ▲ Good surface quality ▲ Long tool life
			G-Al Mg 9		2	
			G-Al Mg 10		2	
			G-Al Mg 3 Si (5 Si)		2	
			G-Al Cu 4 Ti (Mg)		2	
			G-Al Si 12 Cu Mg Ni		2	
	Copper wrought alloys		Cu Ag			
			Cu As			
			Cu Cd			
			Cu Cd Sn			
			Cu Mg			
			Cu Mn			
		brass	Cu Zn Al			
		bronze	Cu Sn			
			Cu Sn Zn			
			Cu Ni			
			Cu Ni Fe			
			Cu Al			
O	Non metal materials	Duroplastics				
		Fibre-reinforced plastics				
		hard rubber				

* 1 = good machinability, 5 = bad machinability

9

Cutting data values for CBN inserts

			CTB S05U					
	Cutting edges code negative insert*		EN			F / TN-F		
	Cutting edges code positive insert*		EN			TN-D		
Index	Material	Strength N/mm²* / HB / HRC	v_c	f	a_p	v_c	f	a_p
	Sintered steels (< HV300)							
	general sintered steel (> HV300)							
	high density sintered steel (> HV600)							
K.1.1	Grey cast iron	350 N/mm² / 180 HB	900–1600	0,02–0,25	0,15–4,5	900–1600	0,02–0,25	0,15–4,5
K.1.2		500 N/mm² / 260 HB	900–1600	0,02–0,25	0,15–4,5	900–1600	0,02–0,25	0,15–4,5
K.2.1	Spherulitic graphite cast iron	540 N/mm² / 160 HB	1000–1750	0,02–0,25	0,15–4,5	1000–1750	0,02–0,25	0,15–4,5
K.2.2		845 N/mm² / 250 HB	1000–1750	0,02–0,25	0,15–4,5	1000–1750	0,02–0,25	0,15–4,5
K.3.1	Malleable iron	440 N/mm² / 130 HB	1000–1750	0,02–0,25	0,15–4,5	1000–1750	0,02–0,25	0,15–4,5
K.3.2		780 N/mm² / 220 HB	1000–1750	0,02–0,25	0,15–4,5	1000–1750	0,02–0,25	0,15–4,5
S.1.1	Heat-resistant alloys	680 N/mm² / 200 HB						
S.1.2		950 N/mm² / 280 HB						
S.2.1		840 N/mm² / 250 HB						
S.2.2		1180 N/mm² / 350 HB						
S.2.3		1080 N/mm² / 320 HB						
S.3.1	Titanium alloys	400 N/mm²						
S.3.2		1050 N/mm² / 320 HB						
S.3.3		1400 N/mm² / 410 HB						

* Tensile strength

			CTB S10U / CTB S10C					
	Cutting edges code negative insert*		EN			F / FN		
	Cutting edges code positive insert*		EN / FN			TN-D		
Index	Material	Strength N/mm²* / HB / HRC	v_c	f	a_p	v_c	f	a_p
	Sintered steels (< HV300)		250–750	0,02–0,25	0,02–0,4	210–550	0,08–0,35	0,1–0,4
	general sintered steel (> HV300)		200–700	0,02–0,25	0,02–0,4	150–400	0,08–0,35	0,1–0,4
	high density sintered steel (> HV600)		150–350	0,02–0,25	0,02–0,4	100–220	0,08–0,35	0,1–0,4
K.1.1	Grey cast iron	350 N/mm² / 180 HB	900–1600	0,02–0,25	0,05–0,25	700–1200	0,08–0,35	0,08–0,4
K.1.2		500 N/mm² / 260 HB	900–1600	0,02–0,25	0,05–0,25	700–1200	0,08–0,35	0,08–0,4
K.2.1	Spherulitic graphite cast iron	540 N/mm² / 160 HB	1000–1750	0,02–0,25	0,02–0,25	800–1250	0,08–0,35	0,08–0,4
K.2.2		845 N/mm² / 250 HB	1000–1750	0,02–0,25	0,02–0,25	800–1250	0,08–0,35	0,08–0,4
K.3.1	Malleable iron	440 N/mm² / 130 HB	1000–1750	0,02–0,25	0,02–0,25	800–1250	0,08–0,35	0,08–0,4
K.3.2		780 N/mm² / 220 HB	1000–1750	0,02–0,25	0,02–0,25	800–1250	0,08–0,35	0,08–0,4
S.1.1	Heat-resistant alloys	680 N/mm² / 200 HB	300–700	0,02–0,25	0,02–0,4	250–400	0,08–0,35	0,08–0,4
S.1.2		950 N/mm² / 280 HB	300–700	0,02–0,25	0,02–0,4	250–400	0,08–0,35	0,08–0,4
S.2.1		840 N/mm² / 250 HB	300–700	0,02–0,25	0,02–0,4	250–400	0,08–0,35	0,08–0,4
S.2.2		1180 N/mm² / 350 HB	300–700	0,02–0,25	0,02–0,4	250–400	0,08–0,35	0,08–0,4
S.2.3		1080 N/mm² / 320 HB	300–700	0,02–0,25	0,02–0,4	250–400	0,08–0,35	0,08–0,4
S.3.1	Titanium alloys	400 N/mm²						
S.3.2		1050 N/mm² / 320 HB						
S.3.3		1400 N/mm² / 410 HB						

* Tensile strength

* Note chamfer width: The wider the chamfer, the more stable the cutting edge.

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

CTB S10C								
TN-B			TN-C			TN-D / TN-E		
SN-B			SN-C / TN-C			TN-D / SN-D		
v_c	f	a_p	v_c	f	a_p	v_c	f	a_p
200-400	0,05-0,4	0,06-0,4	150-350	0,06-0,5	0,08-0,5	150-300	0,1-0,35	0,1-0,4
350-550	0,05-0,4	0,06-0,4	300-500	0,06-0,5	0,08-0,5	250-450	0,1-0,35	0,1-0,4
300-500	0,05-0,4	0,06-0,4	200-400	0,06-0,5	0,08-0,5	200-400	0,1-0,35	0,1-0,4
750-1200	0,05-0,4	0,06-0,4	800-1300	0,06-0,5	0,08-0,5	600-1100	0,1-0,35	0,1-0,4
750-1200	0,05-0,4	0,06-0,4	800-1300	0,06-0,5	0,08-0,5	600-1100	0,1-0,35	0,1-0,4
750-1200	0,05-0,4	0,06-0,4	800-1300	0,06-0,5	0,08-0,5	600-1100	0,1-0,35	0,1-0,4
750-1200	0,05-0,4	0,06-0,4	800-1300	0,06-0,5	0,08-0,5	600-1100	0,1-0,35	0,1-0,4
750-1200	0,05-0,4	0,06-0,4	800-1300	0,06-0,5	0,08-0,5	600-1100	0,1-0,35	0,1-0,4
750-1200	0,05-0,4	0,06-0,4	800-1300	0,06-0,5	0,08-0,5	600-1100	0,1-0,35	0,1-0,4
400-600	0,05-0,4	0,06-0,4	300-500	0,06-0,5	0,08-0,5	250-450	0,1-0,35	0,1-0,4
400-600	0,05-0,4	0,06-0,4	300-500	0,06-0,5	0,08-0,5	250-450	0,1-0,35	0,1-0,4
400-600	0,05-0,4	0,06-0,4	300-500	0,06-0,5	0,08-0,5	250-450	0,1-0,35	0,1-0,4
400-600	0,05-0,4	0,06-0,4	300-500	0,06-0,5	0,08-0,5	250-450	0,1-0,35	0,1-0,4
400-600	0,05-0,4	0,06-0,4	300-500	0,06-0,5	0,08-0,5	250-450	0,1-0,35	0,1-0,4

CCGW 120404 FN-...

CTB H15U / CT
FN
FN
1,6 - 6,4

v_c	f	a_p
0-240	0,03-0,15	0,06
240	0,03-0,15	0,0
	0,03-0,15	

Cutting data values for CBN inserts

			CTB S20C / CTB S20U					
	Cutting edges code negative insert*		EN / FN			SN-B		
	Cutting edges code positive insert*		EN / FN			SN-B		
Index	Material	Strength N/mm²* / HB / HRC	v_c	f	a_p	v_c	f	a_p
	Sintered steels (< HV300)		250–750	0,02–0,25	0,02–0,4	250–700	0,04–0,25	0,03–0,4
	general sintered steel (> HV300)		200–700	0,02–0,25	0,02–0,4	200–700	0,04–0,25	0,03–0,4
	high density sintered steel (> HV600)		150–350	0,02–0,25	0,02–0,4	150–350	0,04–0,25	0,03–0,4
K.1.1	Grey cast iron	350 N/mm² / 180 HB	800–1450	0,02–0,25	0,05–0,25	700–1400	0,04–0,25	0,05–0,25
K.1.2		500 N/mm² / 260 HB	800–1450	0,02–0,25	0,05–0,25	700–1400	0,04–0,25	0,05–0,25
K.2.1	Spherulitic graphite cast iron	540 N/mm² / 160 HB	900–1600	0,02–0,25	0,05–0,25	800–1600	0,04–0,25	0,05–0,25
K.2.2		845 N/mm² / 250 HB	900–1600	0,02–0,25	0,05–0,25	800–1600	0,04–0,25	0,05–0,25
K.3.1	Malleable iron	440 N/mm²/ 130 HB	900–1600	0,02–0,25	0,05–0,25	800–1600	0,04–0,25	0,05–0,25
K.3.2		780 N/mm² / 220 HB	900–1600	0,02–0,25	0,05–0,25	800–1600	0,04–0,25	0,05–0,25
S.1.1	Heat-resistant alloys	680 N/mm² / 200 HB	200–600	0,02–0,25	0,02–0,4	200–550	0,04–0,25	0,03–0,4
S.1.2		950 N/mm² / 280 HB	200–600	0,02–0,25	0,02–0,4	200–550	0,04–0,25	0,03–0,4
S.2.1		840 N/mm² / 250 HB	200–600	0,02–0,25	0,02–0,4	200–550	0,04–0,25	0,03–0,4
S.2.2		1180 N/mm² / 350 HB	200–600	0,02–0,25	0,02–0,4	200–550	0,04–0,25	0,03–0,4
S.2.3		1080 N/mm² / 320 HB	200–600	0,02–0,25	0,02–0,4	200–550	0,04–0,25	0,03–0,4
S.3.1	Titanium alloys	400 N/mm²						
S.3.2		1050 N/mm² / 320 HB						
S.3.3		1400 N/mm² / 410 HB						

* Tensile strength

			CTB S20C / CTB S20U					
	Cutting edges code negative insert*					SN-E		
	Cutting edges code positive insert*		TN-E			SN-E		
Index	Material	Strength N/mm²* / HB / HRC	v_c	f	a_p	v_c	f	a_p
	Sintered steels (< HV300)		210–550	0,08–0,35	0,1–0,4	200–520	0,1–0,35	0,1–0,4
	general sintered steel (> HV300)		150–400	0,08–0,35	0,1–0,4	130–350	0,1–0,35	0,1–0,4
	high density sintered steel (> HV600)		100–220	0,08–0,35	0,1–0,4	100–200	0,1–0,35	0,1–0,4
K.1.1	Grey cast iron	350 N/mm² / 180 HB	550–1000	0,08–0,35	0,08–0,4	550–950	0,1–0,35	0,1–0,4
K.1.2		500 N/mm² / 260 HB	550–1000	0,08–0,35	0,08–0,4	550–950	0,1–0,35	0,1–0,4
K.2.1	Spherulitic graphite cast iron	540 N/mm² / 160 HB	700–1200	0,08–0,35	0,08–0,4	700–1100	0,1–0,35	0,1–0,4
K.2.2		845 N/mm² / 250 HB	700–1200	0,08–0,35	0,08–0,4	700–1100	0,1–0,35	0,1–0,4
K.3.1	Malleable iron	440 N/mm²/ 130 HB	700–1200	0,08–0,35	0,08–0,4	700–1100	0,1–0,35	0,1–0,4
K.3.2		780 N/mm² / 220 HB	700–1200	0,08–0,35	0,08–0,4	700–1100	0,1–0,35	0,1–0,4
S.1.1	Heat-resistant alloys	680 N/mm² / 200 HB	150–350	0,08–0,35	0,08–0,4	150–320	0,1–0,35	0,1–0,4
S.1.2		950 N/mm² / 280 HB	150–350	0,08–0,35	0,08–0,4	150–320	0,1–0,35	0,1–0,4
S.2.1		840 N/mm² / 250 HB	150–350	0,08–0,35	0,08–0,4	150–320	0,1–0,35	0,1–0,4
S.2.2		1180 N/mm² / 350 HB	150–350	0,08–0,35	0,08–0,4	150–320	0,1–0,35	0,1–0,4
S.2.3		1080 N/mm² / 320 HB	150–350	0,08–0,35	0,08–0,4	150–320	0,1–0,35	0,1–0,4
S.3.1	Titanium alloys	400 N/mm²						
S.3.2		1050 N/mm² / 320 HB						
S.3.3		1400 N/mm² / 410 HB						

* Tensile strength

* Note chamfer width: The wider the chamfer, the more stable the cutting edge.

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

CTB S20C / CTB S20U								
			SN-C / TN-C			SN-D		
SN-C / TN-C			TN-D			SN-D		
v_c	f	a_p	v_c	f	a_p	v_c	f	a_p
250-650	0,05-0,25	0,06-0,4	250-600	0,05-0,35	0,06-0,4	220-580	0,06-0,35	0,08-0,4
200-600	0,05-0,25	0,06-0,4	180-550	0,05-0,35	0,06-0,4	170-510	0,06-0,35	0,08-0,4
150-350	0,05-0,25	0,06-0,4	130-300	0,05-0,35	0,06-0,4	120-250	0,06-0,35	0,08-0,4
650-1300	0,05-0,25	0,06-0,4	650-1100	0,05-0,35	0,06-0,4	600-1000	0,06-0,35	0,08-0,5
650-1300	0,05-0,25	0,06-0,4	650-1100	0,05-0,35	0,06-0,4	600-1000	0,06-0,35	0,08-0,5
780-1400	0,05-0,25	0,06-0,4	750-1300	0,05-0,35	0,06-0,4	700-1250	0,06-0,35	0,08-0,5
780-1400	0,05-0,25	0,06-0,4	750-1300	0,05-0,35	0,06-0,4	700-1250	0,06-0,35	0,08-0,5
780-1400	0,05-0,25	0,06-0,4	750-1300	0,05-0,35	0,06-0,4	700-1250	0,06-0,35	0,08-0,5
780-1400	0,05-0,25	0,06-0,4	750-1300	0,05-0,35	0,06-0,4	700-1250	0,06-0,35	0,08-0,5
200-550	0,05-0,25	0,06-0,4	180-500	0,05-0,4	0,06-0,4	180-450	0,06-0,5	0,08-0,5
200-550	0,05-0,25	0,06-0,4	180-500	0,05-0,4	0,06-0,4	180-450	0,06-0,5	0,08-0,5
200-550	0,05-0,25	0,06-0,4	180-500	0,05-0,4	0,06-0,4	180-450	0,06-0,5	0,08-0,5
200-550	0,05-0,25	0,06-0,4	180-500	0,05-0,4	0,06-0,4	180-450	0,06-0,5	0,08-0,5
200-550	0,05-0,25	0,06-0,4	180-500	0,05-0,4	0,06-0,4	180-450	0,06-0,5	0,08-0,5

CTB S20C / CTB S20U		
SN-F		
SN-F		
v_c	f	a_p
180-480	0,12-0,35	0,12-0,4
80-250	0,12-0,35	0,12-0,4
80-150	0,12-0,35	0,12-0,4
500-850	0,12-0,35	0,12-0,4
500-850	0,12-0,35	0,12-0,4
650-1000	0,12-0,35	0,12-0,4
650-1000	0,12-0,35	0,12-0,4
650-1000	0,12-0,35	0,12-0,4
650-1000	0,12-0,35	0,12-0,4
130-300	0,12-0,35	0,12-0,4
130-300	0,12-0,35	0,12-0,4
130-300	0,12-0,35	0,12-0,4
130-300	0,12-0,35	0,12-0,4
130-300	0,12-0,35	0,12-0,4

CCGW 120404 FN-...

CTB H15U / CT		
FN		
FN		
1,6 - 6,4		
v_c	f	a_p
0-240	0,03-0,15	0,06
240	0,03-0,15	0,0
	0,03-0,15	

9

Cutting data values for CBN inserts

					CTB H15U / CTB H15C					
		Cutting edges code negative insert*			FN			EN		
		Cutting edges code positive insert*			FN			EN		
			Ra (theo.)		1,6–6,4			1,0–3,2		
Index	Material	Strength			v_c	f	a_p	v_c	f	a_p
H.1.1	Hardened steel	46–55 HRC	x		160–240	0,03–0,15	0,06–0,3	160–240	0,03–0,15	0,06–0,3
H.1.2		56–60 HRC	x		160–240	0,03–0,15	0,06–0,3	160–240	0,03–0,15	0,06–0,3
H.1.3		61–65 HRC	x		160–240	0,03–0,15	0,06–0,3	160–240	0,03–0,15	0,06–0,3
H.1.4		66–70 HRC	x		160–240	0,03–0,15	0,06–0,3	160–240	0,03–0,15	0,06–0,3
H.2.1	Chilled iron	400 HB	x		160–240	0,03–0,15	0,06–0,3	160–240	0,03–0,15	0,06–0,3
H.3.1	Hardened cast iron	55 HRC								

					CTB H21U / CTB H20C / CTB H21C					
		Cutting edges code negative insert*			FN			TN-C		
		Cutting edges code positive insert*			EN / FN			TN-C		
			Ra (theo.)		1,6–6,4			1,0–4,5		
Index	Material	Strength			v_c	f	a_p	v_c	f	a_p
H.1.1	Hardened steel	46–55 HRC	x		300–380	0,04–0,25	0,05–0,5	280–350	0,04–0,15	0,05–0,5
H.1.2		56–60 HRC	x		300–380	0,04–0,25	0,05–0,5	280–350	0,04–0,15	0,05–0,5
H.1.3		61–65 HRC	x		300–380	0,04–0,25	0,05–0,5	280–350	0,04–0,15	0,05–0,5
H.1.4		66–70 HRC	x		300–380	0,04–0,25	0,05–0,5	280–350	0,04–0,15	0,05–0,5
H.2.1	Chilled iron	400 HB	x		300–380	0,04–0,25	0,05–0,5	280–350	0,04–0,15	0,05–0,5
H.3.1	Hardened cast iron	55 HRC								

					CTB H21U / CTB H20C / CTB H21C					
		Cutting edges code negative insert*			TN-E / SN-E			SN-F		
		Cutting edges code positive insert*			TN-E			TN-F / SN-E		
			Ra (theo.)		0,35–1,6			0,2–0,8		
Index	Material	Strength			v_c	f	a_p	v_c	f	a_p
H.1.1	Hardened steel	46–55 HRC	x		210–260	0,05–0,15	0,1–0,5	180–230	0,06–0,20	0,1–0,5
H.1.2		56–60 HRC	x		210–260	0,05–0,15	0,1–0,5	180–230	0,06–0,20	0,1–0,5
H.1.3		61–65 HRC	x		210–260	0,05–0,15	0,1–0,5	180–230	0,06–0,20	0,1–0,5
H.1.4		66–70 HRC	x		210–260	0,05–0,15	0,1–0,5	180–230	0,06–0,20	0,1–0,5
H.2.1	Chilled iron	400 HB	x		210–260	0,05–0,15	0,1–0,5	180–230	0,06–0,20	0,1–0,5
H.3.1	Hardened cast iron	55 HRC								

					CTB H40U / CTB H40C / CTB H41U / CTB H41C					
		Cutting edges code negative insert*			FN / EN					
		Cutting edges code positive insert*			FN / EN			SN-B / TN-B		
			Ra (theo.)		1,0–3,2			1,6–3,2		
Index	Material	Strength			v_c	f	a_p	v_c	f	a_p
H.1.1	Hardened steel	46–55 HRC	x		190–250	0,03–0,15	0,03–0,5	180–250	0,03–0,2	0,05–0,7
H.1.2		56–60 HRC	x		190–250	0,03–0,15	0,03–0,5	180–250	0,03–0,2	0,05–0,7
H.1.3		61–65 HRC	x		190–250	0,03–0,15	0,03–0,5	180–250	0,03–0,2	0,05–0,7
H.1.4		66–70 HRC	x		190–250	0,03–0,15	0,03–0,5	180–250	0,03–0,2	0,05–0,7
H.2.1	Chilled iron	400 HB	x		190–250	0,03–0,15	0,03–0,5	180–250	0,03–0,2	0,05–0,7
H.3.1	Hardened cast iron	55 HRC								

					CTB H40U / CTB H40C / CTB H41U / CTB H41C					
		Cutting edges code negative insert*			EN-T / SN-E			TN-E / SN-E		
		Cutting edges code positive insert*			EN-T / TN-E / SN-E			TN-F		
			Ra (theo.)		0,5–1,6			0,4–1,0		
Index	Material	Strength			v_c	f	a_p	v_c	f	a_p
H.1.1	Hardened steel	46–55 HRC	x		140–200	0,05–0,15	0,08–0,5	180–230	0,05–0,25	0,1–0,5
H.1.2		56–60 HRC	x		140–200	0,05–0,15	0,08–0,5	180–230	0,05–0,25	0,1–0,5
H.1.3		61–65 HRC	x		140–200	0,05–0,15	0,08–0,5	180–230	0,05–0,25	0,1–0,5
H.1.4		66–70 HRC	x		140–200	0,05–0,15	0,08–0,5	180–230	0,05–0,25	0,1–0,5
H.2.1	Chilled iron	400 HB	x		140–200	0,05–0,15	0,08–0,5	180–230	0,05–0,25	0,1–0,5
H.3.1	Hardened cast iron	55 HRC								

* Note chamfer width: The wider the chamfer, the more stable the cutting edge.

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

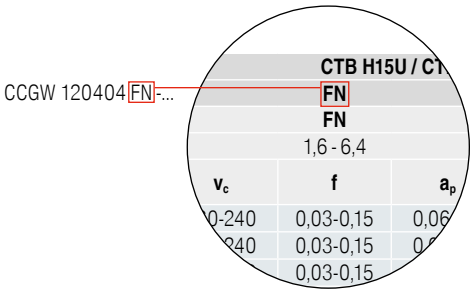
CTB H15U / CTB H15C								
SN-C			**SN-E**			**RN** (Rounded chamfer)		
SN-C			**SN-E**			**RN** (Rounded chamfer)		
0,5-1,6			0,1-0,8			0,1-0,8		
v_c	f	a_p	v_c	f	a_p	v_c	f	a_p
140-200	0,06-0,2	0,08-0,3	120-180	0,06-0,25	0,1-0,4	130-210	0,06-0,2	0,08-0,3
140-200	0,06-0,2	0,08-0,3	120-180	0,06-0,25	0,1-0,4	130-210	0,06-0,2	0,08-0,3
140-200	0,06-0,2	0,08-0,3	120-180	0,06-0,25	0,1-0,4	130-210	0,06-0,2	0,08-0,3
140-200	0,06-0,2	0,08-0,3	120-180	0,06-0,25	0,1-0,4	130-210	0,06-0,2	0,08-0,3
140-200	0,06-0,2	0,08-0,3	120-180	0,06-0,25	0,1-0,4	130-210	0,06-0,2	0,08-0,3

CTB H21U / CTB H20C / CTB H21C								
TN-D			**TN-D / SN-D**			**TN-E**		
SN-B			**TN-D / SN-C**			**SN-D**		
0,8-3,0			0,5-2,0			0,35-2,5		
v_c	f	a_p	v_c	f	a_p	v_c	f	a_p
270-330	0,06-0,25	0,05-0,5	250-320	0,06-0,25	0,08-1,0	220-290	0,05-0,15	0,08-0,5
270-330	0,06-0,25	0,05-0,5	250-320	0,06-0,25	0,08-1,0	220-290	0,05-0,15	0,08-0,5
270-330	0,06-0,25	0,05-0,5	250-320	0,06-0,25	0,08-1,0	220-290	0,05-0,15	0,08-0,5
270-330	0,06-0,25	0,05-0,5	250-320	0,06-0,25	0,08-1,0	220-290	0,05-0,15	0,08-0,5
270-330	0,06-0,25	0,05-0,5	250-320	0,06-0,25	0,08-1,0	220-290	0,05-0,15	0,08-0,5

CTB H21U / CTB H20C / CTB H21C		
SN-G		
TN-G / SN-F		
0,1-0,5		
v_c	f	a_p
160-200	0,05-0,12	0,1-0,5
160-200	0,05-0,12	0,1-0,5
160-200	0,05-0,12	0,1-0,5
160-200	0,05-0,12	0,1-0,5
160-200	0,05-0,12	0,1-0,5

CTB H40U / CTB H40C / CTB H41U / CTB H41C								
SN-C			**SN-D**					
SN-C / TN-D			**SN-D**			**TN-D**		
0,8-3,0			0,8-2,0			0,5-1,6		
v_c	f	a_p	v_c	f	a_p	v_c	f	a_p
180-240	0,04-0,15	0,03-0,5	160-220	0,04-0,15	0,03-0,5	150-210	0,04-0,25	0,08-0,5
180-240	0,04-0,15	0,03-0,5	160-220	0,04-0,15	0,03-0,5	150-210	0,04-0,25	0,08-0,5
180-240	0,04-0,15	0,03-0,5	160-220	0,04-0,15	0,03-0,5	150-210	0,04-0,25	0,08-0,5
180-240	0,04-0,15	0,03-0,5	160-220	0,04-0,15	0,03-0,5	150-210	0,04-0,25	0,08-0,5
180-240	0,04-0,15	0,03-0,5	160-220	0,04-0,15	0,03-0,5	150-210	0,04-0,25	0,08-0,5

CTB H40U / CTB H40C / CTB H41U / CTB H41C					
TN-F / SN-F			**SN-G**		
SN-F			**SN-G**		
0,2-0,8			0,1-0,5		
v_c	f	a_p	v_c	f	a_p
130-200	0,04-0,15	0,1-0,5	120-190	0,04-0,12	0,1-0,5
130-200	0,04-0,15	0,1-0,5	120-190	0,04-0,12	0,1-0,5
130-200	0,04-0,15	0,1-0,5	120-190	0,04-0,12	0,1-0,5
130-200	0,04-0,15	0,1-0,5	120-190	0,04-0,12	0,1-0,5
130-200	0,04-0,15	0,1-0,5	120-190	0,04-0,12	0,1-0,5



9

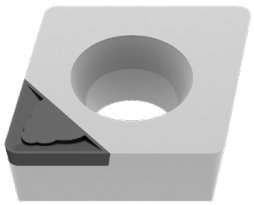
Cutting data standard values for diamond cutting materials CTD PD20 / PS30 / PU20 / CD10 / MD05

Index	Material group			a_p = 0,04–0,4 mm Surface roughness R_z in µm 2,5–5,0	a_p = 0,04–0,4 mm Surface roughness R_z in µm 5,0–10	a_p = 0,4–1,0 mm Surface roughness R_z in µm 2,5–5,0	a_p = 0,4–1,0 mm Surface roughness R_z in µm 5,0–10	a_p = 0,4–2,5 mm Surface roughness R_z in µm 2,5–5,0	a_p = 0,4–2,5 mm Surface roughness R_z in µm 5,0–10
				CTD ...	CTD ...	CTD ...	CTD ...	CTD ...	CTD ...
N.1.1 N.1.2	Aluminium wrought alloys without Si f=0.05–0.5 mm/rev.	○	Tool Material	PD20 / PU20 / CD10 / MD05	PD20 / PU20 / CD10 / MD05	PD20 / PU20 / CD10 / MD05	PD20 / PU20 / CD10 / MD05	PD20 / PU20 / CD10 / MD05	PD20 / PU20 / CD10 / MD05
			v_c in m/min	**400–2500**	**400–2500**	**400–2000**	**400–2000**	**400–1600**	**400–1600**
		◐	Tool Material		PD20 / CD10		PD20 / CD10		PD20 / CD10
			v_c in m/min		**400–2500**		**400–2000**		**400–1600**
		◌	Tool Material	PD20 / PU20	PD20 / PU20	PD20 / PU20	PD20 / PU20	PD20 / PU20	PD20 / PU20
			v_c in m/min	**400–2500**	**400–2500**	**400–2000**	**400–2000**	**400–1600**	**400–1600**
N.2.1	Cast Aluminium Alloys Si≤12 % – hardened or Si=12–20% – non hardened f=0,05–0,5 mm/rev.	○	Tool Material	PS30 / PU20 / CD10 / MD05	PS30 / PU20 / CD10 / MD05	PS30 / PU20 / CD10 / MD05	PS30 / PU20 / CD10 / MD05	PS30 / PU20 / CD10 / MD05	PS30 / PU20 / CD10 / MD05
			v_c in m/min	**600–2000**	**600–2200**	**600–1800**	**600–2000**	**600–1500**	**600–1800**
		◐	Tool Material	PD20 / PU20 / CD10	PD20 / PU20 / CD10	PD20 / PU20 / CD10	PS30 / PU20 / CD10	PS30 / PU20 / CD10	PS30 / PU20 / CD10
			v_c in m/min	**400–2000**	**400–2200**	**400–1800**	**600–2000**	**400–1500**	**400–1800**
		◌	Tool Material	PS30	PS30	PS30	PS30	PS30	
			v_c in m/min	**600–2000**	**600–2200**	**600–1800**	**600–2000**	**600–1500**	
N.2.2 N.2.3	Aluminium cast alloys Si=12–20 % f=0.05–0.5 mm/rev.	○	Tool Material	PU20 / CD10 / MD05	PU20 / CD10 / MD05	PU20 / CD10 / MD05	PU20 / CD10 / MD05	PU20 / CD10 / MD05	PU20 / CD10 / MD05
			v_c in m/min	**800-1200**	**400–1800**	**700–1000**	**400–1500**	**600–900**	**400–1200**
		◐	Tool Material		PU20 / CD10		PU20 / CD10		PU20 / CD10
			v_c in m/min		**600–1800**		**600–1500**		**600–1200**
		◌	Tool Material		PU20		PU20		
			v_c in m/min		**600–1800**		**600–1500**		
N.3.1 N.3.2 N.3.3	Copper and copper wrought alloys f=0.05–0.5 mm/rev.	○	Tool Material	PD20 / PU20 / CD10 / MD05	PD20 / PU20 / CD10 / MD05	PD20 / PU20 / CD10 / MD05	PS30 / PU20 / CD10 / MD05	PD20 / PU20 / CD10 / MD05	PD20 / PU20 / CD10 / MD05
			v_c in m/min	**400–1800**	**300–1600**	**400–1600**	**300–1600**	**400–1400**	**400–1500**
		◐	Tool Material	PU20 / CD10	PD20 / PU20 / CD10	PD20 / PU20 / CD10	PS30 / PU20 / CD10	PD20 / PU20 / CD10	PD20 / PU20 / CD10
			v_c in m/min	**300–1500**	**300–1500**	**400–1600**	**300–1500**	**400–1500**	**300–1400**
		◌	Tool Material		PD20 / PU20		PS30 / PU20	PD20 / PU20	PS30 / PU20
			v_c in m/min		**300–1800**		**300–1700**	**300–1600**	**200–1300**
O.1.1 O.1.2	Plastic materials without reinforcement (acrylic glass) f=0.05–0.7 mm/rev.	○	Tool Material		PD20 / CD10 / MD05		PD20 / CD10 / MD05		PS30 / CD10 / MD05
			v_c in m/min		**400–1200**		**300–1000**		**200–1000**
		◐	Tool Material		PD20 / CD10		PD20 / CD10		PS30 / CD10
			v_c in m/min		**300–1200**		**200–1000**		**200–900**
		◌	Tool Material		PD20 / CD10		PD20 / CD10		PD20 / CD10
			v_c in m/min		**400–1200**		**300–1000**		**200–1000**
O.2.1 O.2.2	Plastic materials with reinforcement (glass-fibre, carbon-fibre reinforced) f=0.05–0.7 mm/rev.	○	Tool Material	PS30 / PU20 / CD10 / MD05		PS30 / PU20 / CD10 / MD05	PS30 / PU20 / CD10 / MD05	PS30 / PU20 / CD10 / MD05	PS30 / PU20 / CD10 / MD05
			v_c in m/min	**500–1000**		**400–900**	**300–900**	**300–800**	**200–1200**
		◐	Tool Material	PS30 / PU20 / CD10		PS30 / PU20 / CD10	PS30 / PU20 / CD10	PS30 / PU20 / CD10	PS30 / PU20 / CD10
			v_c in m/min	**400–900**		**300–800**	**200–900**	**200–800**	**200–1400**
		◌	Tool Material	PU20		PU20	PU20	PU20	
			v_c in m/min	**500–1000**		**400–800**	**300–1000**	**300–800**	
O.3.1	Graphite		Tool Material	PD20 / PS30 / PU20 / CD10		PD20 / PS30 / PU20 / CD10		PD20 / PS30 / PU20 / CD10	
			v_c in m/min	**100–3000**		**100–3000**		**100–3000**	

○ Smooth cut | ◐ Irregular cutting depth | ◌ Interrupted cut

Cutting data standard values for the CB chip breaker geometries

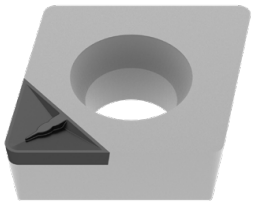
-CB1



3D-Chip Breaker -CB1				
Corner Radius	a_p in mm		f_z in mm/rev.	
	min.	max.	min.	max.
0,1 mm	0,05	0,30	0,02	0,05
0,2 mm	0,06	0,40	0,03	0,08
0,4 mm	0,10	0,80	0,04	0,15
0,8 mm	0,15	1,00	0,08	0,20
1,2 mm	0,30	1,50	0,12	0,25

- Finish and Superfinish
- Extremely sharp cutting edge geometry
- Depth of Cut a_p: 0.05–1.5 mm
- Smallest cutting pressure for highest accuracies
- For machining of thin-walled and unstable workpieces

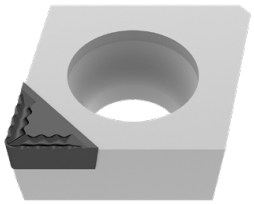
-CB2



3D-Chip Breaker -CB2				
Corner Radius	a_p in mm		f_z in mm/rev.	
	min.	max.	min.	max.
0,2 mm	0,50	0,80	0,08	0,12
0,4 mm	0,60	1,50	0,08	0,20
0,8 mm	0,70	1,50	0,15	0,30
1,2 mm	0,80	2,00	0,20	0,40

- Semi-finish and Finish machining
- Negative edge preperation
- Cutting Depth a_p: 0,5–2,0 mm
- High surface quality and tight tolerances
- Machining of solid workpieces under stable conditions

-CB3



3D-Chip Breaker -CB3				
Corner Radius	a_p in mm		f_z in mm/rev.	
	min.	max.	min.	max.
0,4 mm	1,00	3,00	0,10	0,20
0,8 mm	1,00	3,00	0,15	0,35

- Medium and rough machining
- Highly aggressive chip breaker
- Cutting depth a_p: 1,0–3,0 mm
- Stable component conditions necessary
- Cooling must be ensured

Cutting data standard values for negative inserts

	Designation	-CF20 (Cermet)						-F50					
		f			a_p			f			a_p		
		min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
		mm/rev.			mm			mm/rev.			mm		
	CN.. 090304							0,06	**0,15**	0,25	0,2	**0,5**	1,5
	CN.. 090308							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	CN.. 120404	0,05	**0,15**	0,25	0,3	**0,5**	1,5	0,06	**0,15**	0,25	0,2	**0,6**	1,5
	CN.. 120408	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	CN.. 120412							0,14	**0,25**	0,35	0,6	**1,4**	2,6
	CN.. 120416												
	CN.. 160608												
	CN.. 160612												
	CN.. 160616												
	CN.. 160624												
	CN.. 190608												
	CN.. 190612												
	CN.. 190616												
	CN.. 190624												
	CN.. 250924												
	DN.. 110402							0,04	**0,10**	0,20	0,1	**0,4**	2,3
	DN.. 110404	0,05	**0,15**	0,25	0,3	**0,5**	1,5	0,06	**0,15**	0,25	0,2	**0,6**	1,5
	DN.. 110408	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	DN.. 110412							0,14	**0,25**	0,35	0,6	**1,4**	2,6
	DN.. 150404							0,06	**0,15**	0,25	0,2	**0,6**	1,5
	DN.. 150408							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	DN.. 150412							0,14	**0,25**	0,35	0,6	**1,4**	2,6
	DN.. 150416												
	DN.. 150604	0,05	**0,15**	0,25	0,3	**0,5**	1,5	0,06	**0,15**	0,25	0,2	**0,6**	1,5
	DN.. 150608	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	DN.. 150612	0,10	**0,20**	0,30	0,5	**0,7**	1,5	0,14	**0,25**	0,35	0,6	**1,4**	2,6
	DN.. 150616												
	SN.. 090308							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	SN.. 120404							0,06	**0,15**	0,25	0,2	**0,6**	1,5
	SN.. 120408							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	SN.. 120412							0,14	**0,25**	0,35	0,6	**1,4**	2,6
	SN.. 120416												
	SN.. 150608												
	SN.. 150612												
	SN.. 150616												
	SN.. 190612												
	SN.. 190616												
	SN.. 190624												
	SN.. 250724												
	SN.. 250924												
	TN.. 110304							0,06	**0,15**	0,25	0,2	**0,6**	1,5
	TN.. 110308							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	TN.. 160404	0,05	**0,15**	0,25	0,3	**0,5**	1,5	0,06	**0,15**	0,25	0,2	**0,6**	1,5
	TN.. 160408	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	TN.. 160412	0,10	**0,20**	0,30	0,5	**0,7**	1,5	0,14	**0,25**	0,35	0,6	**1,4**	2,6
	TN.. 220404												
	TN.. 220408												
	TN.. 220412												
	TN.. 220416												
	VN.. 160404							0,06	**0,15**	0,25	0,2	**0,6**	1,5
	VN.. 160408							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	VN.. 160412												
	WN.. 060404	0,05	**0,15**	0,25	0,3	**0,5**	1,5	0,06	**0,15**	0,25	0,2	**0,6**	1,5
	WN.. 060408	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	WN.. 060412												
	WN.. 080404							0,06	**0,15**	0,25	0,2	**0,6**	1,5
	WN.. 080408	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	WN.. 080412							0,14	**0,25**	0,35	0,6	**1,4**	2,6
	WN.. 080416												

Sharp ◄——————————————————————► stable

The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-TFQ						-XU						-M50					
	f			a_p			f			a_p			f			a_p		
	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.
	mm/rev.			mm			mm/rev.			mm			mm/rev.			mm		
CN.. 090304																		
CN.. 090308																		
CN.. 120404	0,10	**0,15**	0,35	0,4	**1,0**	3,0	0,08	**0,15**	0,25	0,3	**1,5**	2,5	0,10	**0,20**	0,30	0,4	**2,0**	5,0
CN.. 120408	0,10	**0,25**	0,50	0,5	**1,5**	4,0	0,13	**0,25**	0,35	0,6	**2,0**	3,0	0,15	**0,25**	0,40	0,6	**2,0**	5,0
CN.. 120412	0,15	**0,30**	0,70	0,8	**2,0**	5,0	0,15	**0,30**	0,45	0,9	**2,0**	3,5	0,20	**0,30**	0,50	1,0	**2,0**	5,0
CN.. 120416													0,25	**0,40**	0,60	1,4	**2,0**	5,0
CN.. 160608													0,15	**0,25**	0,40	0,6	**3,0**	8,0
CN.. 160612													0,20	**0,30**	0,50	1,0	**3,0**	8,0
CN.. 160616													0,25	**0,40**	0,60	1,4	**3,0**	8,0
CN.. 160624																		
CN.. 190608																		
CN.. 190612																		
CN.. 190616																		
CN.. 190624																		
CN.. 250924																		
DN.. 110402																		
DN.. 110404													0,10	**0,20**	0,30	0,4	**1,5**	4,0
DN.. 110408													0,15	**0,25**	0,40	0,6	**1,5**	4,0
DN.. 110412													0,20	**0,30**	0,50	1,0	**1,5**	4,0
DN.. 150404													0,10	**0,20**	0,30	0,4	**2,0**	5,0
DN.. 150408													0,15	**0,25**	0,40	0,6	**2,0**	5,0
DN.. 150412													0,20	**0,30**	0,50	1,0	**2,0**	5,0
DN.. 150416													0,25	**0,40**	0,60	1,4	**2,0**	5,0
DN.. 150604	0,10	**0,15**	0,30	0,4	**1,0**	3,0	0,08	**0,15**	0,25	0,3	**1,5**	2,5	0,10	**0,20**	0,30	0,4	**2,0**	5,0
DN.. 150608	0,10	**0,25**	0,40	0,5	**1,5**	4,0	0,13	**0,25**	0,35	0,6	**2,0**	3,0	0,15	**0,25**	0,40	0,6	**2,0**	5,0
DN.. 150612							0,15	**0,25**	0,40	0,9	**2,0**	3,5	0,20	**0,30**	0,50	1,0	**2,0**	5,0
DN.. 150616													0,25	**0,40**	0,60	1,4	**2,0**	5,0
SN.. 090308																		
SN.. 120404																		
SN.. 120408													0,15	**0,25**	0,40	0,6	**2,0**	5,0
SN.. 120412													0,20	**0,30**	0,50	1,0	**2,0**	5,0
SN.. 120416													0,25	**0,40**	0,60	1,4	**2,0**	5,0
SN.. 150608													0,15	**0,25**	0,40	0,6	**3,0**	8,0
SN.. 150612													0,20	**0,30**	0,50	1,0	**3,0**	8,0
SN.. 150616													0,25	**0,40**	0,60	1,4	**3,0**	8,0
SN.. 190612																		
SN.. 190616																		
SN.. 190624																		
SN.. 250724																		
SN.. 250924																		
TN.. 110304																		
TN.. 110308																		
TN.. 160404													0,10	**0,20**	0,30	0,4	**2,0**	5,0
TN.. 160408													0,15	**0,25**	0,40	0,6	**2,0**	5,0
TN.. 160412													0,20	**0,30**	0,50	1,0	**2,0**	5,0
TN.. 220404																		
TN.. 220408													0,15	**0,25**	0,40	0,6	**3,0**	8,0
TN.. 220412													0,20	**0,30**	0,50	1,0	**3,0**	8,0
TN.. 220416																		
VN.. 160404							0,08	**0,15**	0,20	0,3	**1,0**	1,8	0,10	**0,20**	0,30	0,4	**1,0**	4,0
VN.. 160408							0,13	**0,20**	0,30	0,6	**1,5**	2,5	0,15	**0,25**	0,40	0,6	**1,0**	4,0
VN.. 160412													0,20	**0,30**	0,50	1,0	**1,0**	4,0
WN.. 060404	0,10	**0,18**	0,35	0,4	**0,8**	3,0							0,10	**0,20**	0,30	0,4	**1,0**	3,0
WN.. 060408	0,10	**0,20**	0,50	0,5	**1,5**	3,0							0,15	**0,25**	0,40	0,6	**1,0**	3,0
WN.. 060412													0,20	**0,30**	0,50	1,0	**1,0**	3,0
WN.. 080404							0,08	**0,15**	0,25	0,3	**1,5**	2,5	0,10	**0,20**	0,30	0,4	**1,5**	4,0
WN.. 080408	0,10	**0,25**	0,50	0,5	**1,5**	4,0	0,13	**0,22**	0,35	0,6	**2,0**	3,0	0,15	**0,25**	0,40	0,6	**1,5**	4,0
WN.. 080412	0,15	**0,30**	0,70	0,8	**2,0**	5,0	0,15	**0,25**	0,45	0,9	**2,0**	3,5	0,20	**0,30**	0,50	1,0	**1,5**	4,0
WN.. 080416													0,25	**0,40**	0,60	1,4	**1,5**	4,0

Sharp ◄——————————————————————► stable

Information on the cutting data of chip breakers not included in this overview, can be found on → **Page 220–227**

9

Cutting data standard values for negative inserts

	Designation	-TMQ						-M70					
		f			a_p			f			a_p		
		min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
		mm/rev.			mm			mm/rev.			mm		
	CN.. 090304												
	CN.. 090308												
	CN.. 120404												
	CN.. 120408	0,20	**0,40**	0,65	0,8	**3,0**	5,0	0,20	**0,30**	0,45	0,8	**3,0**	6,0
	CN.. 120412	0,25	**0,50**	0,85	1,0	**3,0**	6,0	0,25	**0,40**	0,60	1,2	**3,0**	6,0
	CN.. 120416							0,30	**0,45**	0,70	1,6	**3,0**	6,0
	CN.. 160608							0,20	**0,30**	0,45	0,8	**4,0**	8,0
	CN.. 160612							0,25	**0,40**	0,60	1,2	**4,0**	8,0
	CN.. 160616							0,30	**0,45**	0,70	1,6	**4,0**	8,0
	CN.. 160624							0,40	**0,70**	1,20	2,4	**4,0**	8,0
	CN.. 190608							0,20	**0,30**	0,45	0,8	**4,5**	9,0
	CN.. 190612							0,25	**0,40**	0,60	1,2	**4,5**	9,0
	CN.. 190616							0,30	**0,45**	0,70	1,6	**4,5**	9,0
	CN.. 190624							0,40	**0,70**	1,20	2,4	**4,5**	9,0
	CN.. 250924							0,40	**0,70**	1,20	2,4	**6,0**	13,0
	DN.. 110402												
	DN.. 110404												
	DN.. 110408							0,20	**0,25**	0,45	0,8	**2,0**	5,0
	DN.. 110412							0,25	**0,35**	0,60	1,2	**2,0**	5,0
	DN.. 150404												
	DN.. 150408							0,20	**0,25**	0,45	0,8	**2,5**	6,0
	DN.. 150412							0,25	**0,35**	0,60	1,2	**2,5**	6,0
	DN.. 150416							0,30	**0,40**	0,70	1,6	**2,5**	6,0
	DN.. 150604												
	DN.. 150608	0,15	**0,30**	0,50	0,8	**2,5**	5,0	0,20	**0,25**	0,45	0,8	**2,5**	6,0
	DN.. 150612	0,20	**0,40**	0,60	1,0	**3,0**	5,0	0,25	**0,35**	0,60	1,2	**2,5**	6,0
	DN.. 150616							0,30	**0,40**	0,70	1,6	**2,5**	6,0
	SN.. 090308												
	SN.. 120404												
	SN.. 120408							0,20	**0,30**	0,50	0,8	**3,0**	6,0
	SN.. 120412							0,25	**0,40**	0,65	1,2	**3,0**	6,0
	SN.. 120416							0,30	**0,45**	0,70	1,6	**3,0**	6,0
	SN.. 150608												
	SN.. 150612							0,25	**0,40**	0,65	1,2	**4,0**	8,0
	SN.. 150616							0,30	**0,45**	0,75	1,6	**4,0**	8,0
	SN.. 190612							0,25	**0,40**	0,65	1,2	**4,5**	9,0
	SN.. 190616							0,30	**0,45**	0,75	1,6	**4,5**	9,0
	SN.. 190624							0,40	**0,70**	1,20	2,4	**4,5**	9,0
	SN.. 250724												
	SN.. 250924							0,40	**0,70**	1,20	2,4	**6,0**	13,0
	TN.. 110304												
	TN.. 110308												
	TN.. 160404												
	TN.. 160408							0,20	**0,25**	0,45	0,8	**2,5**	6,0
	TN.. 160412							0,25	**0,35**	0,60	1,2	**2,5**	6,0
	TN.. 220404							0,15	**0,20**	0,30	0,4	**3,0**	7,0
	TN.. 220408							0,20	**0,25**	0,45	0,8	**3,0**	7,0
	TN.. 220412							0,25	**0,35**	0,60	1,2	**3,0**	7,0
	TN.. 220416							0,30	**0,40**	0,70	1,6	**3,0**	7,0
	VN.. 160404												
	VN.. 160408												
	VN.. 160412												
	WN.. 060404												
	WN.. 060408							0,20	**0,30**	0,45	0,8	**2,0**	4,0
	WN.. 060412							0,25	**0,40**	0,60	1,2	**2,0**	4,0
	WN.. 080404												
	WN.. 080408	0,20	**0,30**	0,65	0,8	**3,0**	5,0	0,20	**0,30**	0,45	0,8	**2,5**	5,0
	WN.. 080412	0,25	**0,40**	0,85	1,0	**3,0**	6,0	0,25	**0,40**	0,60	1,2	**2,5**	5,0
	WN.. 080416							0,30	**0,45**	0,70	1,6	**2,5**	5,0

Sharp ← → stable

The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-R28						-R58						-R88					
	f			a_p			f			a_p			f			a_p		
	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
	mm/rev.			mm			mm/rev.			mm			mm/rev.			mm		
CN.. 090304																		
CN.. 090308																		
CN.. 120404																		
CN.. 120408	0,25	**0,35**	0,55	0,8	**3,0**	7,0	0,25	**0,45**	0,70	1,0	**3,0**	7,0						
CN.. 120412	0,30	**0,45**	0,70	1,0	**3,0**	7,0	0,30	**0,55**	0,85	1,5	**3,0**	7,0						
CN.. 120416	0,30	**0,60**	0,90	1,5	**3,0**	7,0	0,35	**0,65**	1,00	2,0	**3,0**	7,0						
CN.. 160608																		
CN.. 160612	0,30	**0,45**	0,70	1,0	**4,0**	9,0	0,30	**0,55**	0,85	1,5	**4,0**	9,0						
CN.. 160616	0,35	**0,60**	0,90	1,5	**4,0**	9,0	0,35	**0,65**	1,00	2,0	**4,0**	9,0						
CN.. 160624							0,40	**0,75**	1,20	2,5	**4,0**	9,0	0,40	**0,70**	1,20	2,0	**5,0**	9,0
CN.. 190608																		
CN.. 190612	0,30	**0,45**	0,70	1,0	**5,5**	12,0	0,35	**0,55**	0,85	1,5	**5,5**	12,0						
CN.. 190616	0,35	**0,60**	0,90	1,5	**5,5**	12,0	0,40	**0,65**	1,00	2,0	**5,5**	12,0	0,40	**0,70**	1,00	2,0	**5,0**	12,0
CN.. 190624	0,35	**0,65**	1,00	2,0	**5,5**	12,0	0,40	**0,75**	1,20	2,5	**5,5**	12,0	0,40	**0,70**	1,20	2,0	**5,0**	12,0
CN.. 250924							0,45	**0,80**	1,30	2,5	**8,0**	16,0	0,60	**1,00**	1,50	3,5	**10,0**	18,0
DN.. 110402																		
DN.. 110404																		
DN.. 110408																		
DN.. 110412																		
DN.. 150404																		
DN.. 150408																		
DN.. 150412																		
DN.. 150416																		
DN.. 150604																		
DN.. 150608																		
DN.. 150612	0,25	**0,45**	0,70	1,0	**2,5**	6,0	0,30	**0,50**	0,80	1,5	**2,5**	6,0						
DN.. 150616	0,30	**0,60**	0,85	1,5	**2,5**	6,0	0,35	**0,60**	0,90	2,0	**2,5**	6,0						
SN.. 090308																		
SN.. 120404																		
SN.. 120408							0,25	**0,45**	0,70	1,0	**3,0**	7,0						
SN.. 120412							0,30	**0,55**	0,85	1,5	**3,0**	7,0						
SN.. 120416																		
SN.. 150608																		
SN.. 150612	0,30	**0,35**	0,70	1,0	**4,0**	9,0	0,30	**0,55**	0,85	1,5	**4,0**	9,0						
SN.. 150616	0,35	**0,60**	0,90	1,5	**4,0**	9,0	0,35	**0,65**	1,00	2,0	**4,0**	9,0						
SN.. 190612							0,35	**0,55**	0,85	1,5	**5,5**	12,0						
SN.. 190616	0,35	**0,60**	0,90	1,5	**5,5**	12,0	0,40	**0,65**	1,00	2,0	**5,5**	12,0	0,40	**0,70**	1,00	2,0	**5,0**	12,0
SN.. 190624							0,40	**0,75**	1,20	2,0	**5,5**	12,0	0,40	**0,70**	1,20	2,0	**5,0**	12,0
SN.. 250724	0,35	**0,65**	1,00	2,0	**7,0**	16,0	0,45	**0,80**	1,30	2,5	**8,0**	16,0	0,60	**1,00**	1,50	3,5	**10,0**	18,0
SN.. 250924	0,35	**0,65**	1,00	2,0	**7,0**	16,0	0,45	**0,80**	1,30	2,5	**8,0**	16,0	0,60	**1,00**	1,50	3,5	**10,0**	18,0
TN.. 110304																		
TN.. 110308																		
TN.. 160404																		
TN.. 160408																		
TN.. 160412																		
TN.. 220404																		
TN.. 220408																		
TN.. 220412							0,30	**0,50**	0,80	1,5	**3,0**	7,0						
TN.. 220416	0,30	**0,55**	0,85	1,5	**3,0**	7,0												
VN.. 160404																		
VN.. 160408																		
VN.. 160412																		
WN.. 060404																		
WN.. 060408																		
WN.. 060412																		
WN.. 080404																		
WN.. 080408																		
WN.. 080412																		
WN.. 080416																		

Sharp ◄——————————————————————► stable

Information on the cutting data of chip breakers not included in this overview, can be found on → **Page 220–227**

Cutting data standard values for negative inserts

	Designation	-F30						-M30					
		f			a_p			f			a_p		
		min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
		mm/rev.			mm			mm/rev.			mm		
	CN.. 090304												
	CN.. 090308												
	CN.. 120404	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	CN.. 120408	0,10	**0,22**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**2,0**	4,5
	CN.. 120412							0,20	**0,30**	0,50	1,2	**2,5**	5,0
	CN.. 120416							0,25	**0,35**	0,55	1,6	**2,5**	5,0
	CN.. 160608												
	CN.. 160612												
	CN.. 160616												
	CN.. 160624												
	CN.. 190608												
	CN.. 190612												
	CN.. 190616												
	CN.. 190624												
	CN.. 250924												
	DN.. 110402												
	DN.. 110404	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	DN.. 110408	0,10	**0,20**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**2,0**	4,5
	DN.. 110412							0,20	**0,30**	0,50	1,2	**2,0**	4,5
	DN.. 150404												
	DN.. 150408												
	DN.. 150412												
	DN.. 150416												
	DN.. 150604	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	DN.. 150608	0,10	**0,20**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**2,0**	5,5
	DN.. 150612							0,20	**0,30**	0,50	1,2	**2,0**	5,5
	DN.. 150616												
	SN.. 090308												
	SN.. 120404	0,10	**0,15**	0,30	0,4	**1,0**	2,0						
	SN.. 120408	0,15	**0,20**	0,40	0,8	**1,5**	2,5	0,20	**0,25**	0,45	1,0	**2,0**	4,5
	SN.. 120412	0,15	**0,20**	0,40	1,2	**1,8**	2,5	0,25	**0,30**	0,50	1,2	**2,0**	5,0
	SN.. 120416												
	SN.. 150608												
	SN.. 150612												
	SN.. 150616												
	SN.. 190612												
	SN.. 190616												
	SN.. 190624												
	SN.. 250724												
	SN.. 250924												
	TN.. 110304												
	TN.. 110308												
	TN.. 160404	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	TN.. 160408	0,10	**0,15**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**2,0**	4,5
	TN.. 160412							0,20	**0,30**	0,50	1,2	**2,0**	4,5
	TN.. 220404												
	TN.. 220408												
	TN.. 220412												
	TN.. 220416												
	VN.. 160404	0,08	**0,10**	0,20	0,4	**1,0**	2,0						
	VN.. 160408	0,10	**0,15**	0,30	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**1,5**	4,0
	VN.. 160412												
	WN.. 060404	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	WN.. 060408	0,10	**0,20**	0,30	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**1,5**	3,5
	WN.. 060412							0,20	**0,30**	0,45	1,2	**1,5**	4,0
	WN.. 080404	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	WN.. 080408	0,10	**0,20**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**2,0**	4,5
	WN.. 080412							0,20	**0,30**	0,50	1,2	**2,0**	5,0
	WN.. 080416												

Sharp ◄——————————————————————► stable

The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-M60						-M34					
	f			a_p			f			a_p		
	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.
	mm/rev.			mm			mm/rev.			mm		
CN.. 090304												
CN.. 090308												
CN.. 120404							0,08	**0,12**	0,18	1,0	**1,5**	3,0
CN.. 120408	0,25	**0,30**	0,50	1,5	**2,5**	6,0	0,10	**0,15**	0,35	1,0	**1,8**	3,5
CN.. 120412	0,30	**0,35**	0,55	2,0	**3,0**	6,0	0,13	**0,20**	0,40	1,5	**2,0**	4,0
CN.. 120416	0,30	**0,40**	0,60	2,0	**3,0**	6,0	0,15	**0,25**	0,45	2,0	**3,0**	4,5
CN.. 160608												
CN.. 160612	0,30	**0,35**	0,55	2,0	**3,0**	8,0						
CN.. 160616												
CN.. 160624												
CN.. 190608												
CN.. 190612												
CN.. 190616												
CN.. 190624												
CN.. 250924												
DN.. 110402												
DN.. 110404												
DN.. 110408												
DN.. 110412												
DN.. 150404							0,08	**0,12**	0,18	0,8	**1,2**	2,5
DN.. 150408							0,10	**0,15**	0,30	1,0	**1,8**	3,5
DN.. 150412							0,13	**0,20**	0,38	1,5	**2,0**	4,0
DN.. 150416												
DN.. 150604												
DN.. 150608	0,25	**0,30**	0,45	1,5	**2,5**	6,0	0,10	**0,15**	0,30	1,0	**1,8**	3,5
DN.. 150612	0,30	**0,40**	0,55	1,5	**2,5**	6,0	0,13	**0,20**	0,38	1,5	**2,0**	4,0
DN.. 150616												
SN.. 090308												
SN.. 120404												
SN.. 120408	0,30	**0,35**	0,50	1,5	**2,0**	6,0	0,15	**0,25**	0,40	1,0	**2,0**	4,0
SN.. 120412	0,30	**0,40**	0,55	2,0	**2,5**	6,0	0,15	**0,25**	0,45	1,5	**2,5**	4,5
SN.. 120416	0,30	**0,40**	0,60	2,0	**2,5**	6,0						
SN.. 150608												
SN.. 150612												
SN.. 150616												
SN.. 190612												
SN.. 190616												
SN.. 190624												
SN.. 250724												
SN.. 250924												
TN.. 110304												
TN.. 110308												
TN.. 160404												
TN.. 160408	0,25	**0,25**	0,45	1,5	**2,5**	5,0	0,10	**0,15**	0,35	1,0	**2,0**	4,0
TN.. 160412	0,30	**0,30**	0,55	2,0	**2,5**	5,5						
TN.. 220404							0,10	**0,15**	0,35	1,0	**2,0**	4,0
TN.. 220408							0,13	**0,20**	0,40	1,5	**2,5**	4,0
TN.. 220412												
TN.. 220416							0,15	**0,25**	0,45	2,0	**2,5**	4,5
VN.. 160404							0,07	**0,10**	0,18	0,8	**1,2**	2,0
VN.. 160408							0,10	**0,15**	0,20	1,0	**1,5**	2,5
VN.. 160412							0,13	**0,18**	0,25	1,5	**1,8**	3,0
WN.. 060404												
WN.. 060408	0,25	**0,30**	0,45	1,5	**2,0**	4,0						
WN.. 060412	0,30	**0,35**	0,50	2,0	**2,5**	4,5						
WN.. 080404												
WN.. 080408	0,25	**0,30**	0,50	1,5	**2,0**	5,0	0,10	**0,15**	0,35	1,0	**2,0**	4,0
WN.. 080412	0,30	**0,35**	0,55	2,0	**2,5**	5,5	0,13	**0,20**	0,40	1,5	**2,0**	4,0
WN.. 080416												

Sharp ◄——————————————————————► stable

Information on the cutting data of chip breakers not included in this overview, can be found on → **Page 220–227**

9

Cutting data values for positive inserts

	Designation	-CF05						-SF					
		f			a_p			f			a_p		
		min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
		mm/rev.			mm			mm/rev.			mm		
	CC.. 060200							0,02	**0,035**	0,05	0,1	**0,4**	1,5
	CC.. 060201							0,02	**0,035**	0,05	0,2	**0,4**	1,5
	CC.. 060202	0,03	**0,08**	0,12	0,1	**0,3**	1,3	0,03	**0,1**	0,15	0,2	**0,4**	1,5
	CC.. 060204	0,05	**0,10**	0,12	0,1	**0,3**	1,3	0,05	**0,1**	0,2	0,2	**0,6**	1,5
	CC.. 060208							0,05	**0,125**	0,2	0,2	**1**	1,5
	CC.. 09T300							0,02	**0,035**	0,05	0,2	**0,75**	2
	CC.. 09T301							0,02	**0,035**	0,05	0,2	**0,75**	2
	CC.. 09T302	0,03	**0,08**	0,12	0,1	**0,3**	1,3	0,05	**0,075**	0,1	0,2	**0,75**	2
	CC.. 09T304	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,75**	2
	CC.. 09T308	0,06	**0,13**	0,25	0,2	**0,4**	1,3	0,05	**0,125**	0,25	0,4	**1**	2
	CC.. 09T312												
	CC.. 120402							0,05	**0,075**	0,1	0,2	**0,8**	2,5
	CC.. 120404							0,05	**0,12**	0,2	0,2	**1**	2,5
	CC.. 120408							0,08	**0,15**	0,25	0,4	**1**	2,5
	CC.. 120412							0,08	**0,15**	0,25	0,4	**1,5**	2,5
	DC.. 0702005												
	DC.. 070201												
	DC.. 0702015												
	DC.. 070202	0,03	**0,08**	0,12	0,1	**0,3**	1,3	0,03	**0,1**	0,15	0,1	**0,4**	1,5
	DC.. 070204	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,6**	1,5
	DC.. 070208												
	DC.. 11T3005												
	DC.. 11T301												
	DC.. 11T3015												
	DC.. 11T302	0,03	**0,08**	0,12	0,1	**0,3**	1,3						
	DC.. 11T304	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,7**	2
	DC.. 11T308	0,06	**0,13**	0,25	0,2	**0,4**	1,3	0,08	**0,15**	0,25	0,4	**1**	2
	DC.. 11T312												
	RC.. 0602M0												
	RC.. 0803M0												
	RC.. 1003M0												
	RC.. 1204M0												
	RC.. 1606M0												
	RC.. 2006M0												
	RC.. 2507M0												
	SC.. 09T304	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,7**	2
	SC.. 09T308	0,06	**0,13**	0,25	0,2	**0,4**	1,3	0,08	**0,15**	0,25	0,4	**1**	2
	SC.. 120408							0,08	**0,15**	0,25	0,4	**1**	2,5
	SC.. 120412												
	TC.. 090204												
	TC.. 110202	0,03	**0,08**	0,12	0,1	**0,3**	1,3						
	TC.. 110204	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,7**	2
	TC.. 110208	0,06	**0,13**	0,25	0,2	**0,4**	1,3	0,08	**0,15**	0,25	0,4	**1**	2
	TC.. 16T302												
	TC.. 16T304	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,8**	2,5
	TC.. 16T308							0,08	**0,15**	0,25	0,4	**1**	2,5
	TC.. 16T312												
	TC.. 220408												
	VC.. 1103005												
	VC.. 110301												
	VC.. 1103015												
	VC.. 110302	0,03	**0,06**	0,12	0,1	**0,3**	1,3	0,02	**0,08**	0,15	0,1	**0,4**	1,5
	VC.. 110304	0,05	**0,08**	0,22	0,2	**0,4**	1,3	0,05	**0,1**	0,2	0,2	**0,6**	1,5
	VC.. 110308							0,08	**0,12**	0,22	0,4	**1**	1,5
	VC.. 160402												
	VC.. 160404	0,05	**0,08**	0,22	0,2	**0,4**	1,3	0,05	**0,1**	0,2	0,2	**0,7**	2
	VC.. 160408	0,06	**0,10**	0,22	0,2	**0,4**	1,3	0,08	**0,12**	0,22	0,4	**1**	2
	VC.. 160412												
	VC.. 220530												
	WC.. 020102							0,02	**0,075**	0,1	0,1	**0,4**	1
	WC.. 020104							0,02	**0,1**	0,2	0,1	**0,6**	1,5

Sharp ◄——————————————————————► stable

The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-CF55						-SMF						-SM					
	f			a_p			f			a_p			f			a_p		
	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.
	mm/rev.			mm			mm/rev.			mm			mm/rev.			mm		
CC.. 060200																		
CC.. 060201																		
CC.. 060202													0,04	**0,12**	0,2	0,2	**0,6**	2,5
CC.. 060204	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**0,7**	2	0,08	**0,17**	0,3	0,4	**0,8**	2,5
CC.. 060208							0,1	**0,17**	0,27	0,6	**1**	2	0,12	**0,2**	0,35	0,8	**1**	2,5
CC.. 09T300																		
CC.. 09T301																		
CC.. 09T302																		
CC.. 09T304	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**0,8**	2,5	0,08	**0,17**	0,3	0,4	**1**	3
CC.. 09T308	0,06	**0,15**	0,25	0,2	**0,5**	1,3	0,1	**0,17**	0,27	0,6	**1**	2,5	0,12	**0,2**	0,35	0,8	**1,2**	3
CC.. 09T312													0,15	**0,22**	0,4	1,2	**1,5**	3
CC.. 120402																		
CC.. 120404	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**1**	3	0,08	**0,17**	0,3	0,4	**1,2**	3,5
CC.. 120408							0,1	**0,17**	0,27	0,6	**1,2**	3	0,12	**0,2**	0,35	0,8	**1,5**	3,5
CC.. 120412													0,15	**0,22**	0,4	1,2	**2**	3,5
DC.. 0702005																		
DC.. 070201																		
DC.. 0702015																		
DC.. 070202	0,03	**0,10**	0,12	0,1	**0,4**	1,3							0,04	**0,12**	0,2	0,2	**0,6**	2,5
DC.. 070204	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**0,7**	2	0,08	**0,17**	0,3	0,4	**0,8**	2,5
DC.. 070208							0,1	**0,17**	0,27	0,6	**1**	2	0,12	**0,2**	0,3	0,8	**1**	2,5
DC.. 11T3005																		
DC.. 11T301																		
DC.. 11T3015																		
DC.. 11T302																		
DC.. 11T304	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**0,8**	2,5	0,8	**0,17**	0,3	0,4	**1**	3
DC.. 11T308	0,06	**0,15**	0,25	0,2	**0,5**	1,3	0,1	**0,17**	0,27	0,6	**1,2**	2,5	0,12	**0,2**	0,35	0,8	**1,2**	3
DC.. 11T312													0,15	**0,22**	0,4	1,2	**1,7**	3
RC.. 0602M0													0,2	**0,3**	0,5	0,2	**0,5**	1,5
RC.. 0803M0													0,2	**0,3**	0,6	0,2	**0,6**	2
RC.. 1003M0													0,25	**0,4**	0,7	0,2	**0,7**	2,5
RC.. 1204M0													0,3	**0,5**	0,8	0,2	**0,8**	3
RC.. 1606M0							0,15	**0,3**	0,6	0,25	**2**	3,5	0,4	**0,6**	1	0,3	**1**	3,5
RC.. 2006M0													0,5	**0,8**	1,2	0,4	**1,2**	4
RC.. 2507M0													0,6	**0,9**	1,4	0,6	**2**	5
SC.. 09T304	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**0,8**	2,5	0,08	**0,17**	0,3	0,4	**1**	3
SC.. 09T308	0,06	**0,15**	0,25	0,2	**0,5**	1,3	0,1	**0,17**	0,27	0,6	**1**	2,5	0,12	**0,2**	0,35	0,8	**1,2**	3
SC.. 120408							0,1	**0,17**	0,27	0,6	**1,2**	3	0,12	**0,2**	0,35	0,8	**1,5**	3,5
SC.. 120412													0,15	**0,22**	0,4	1,2	**2**	3,5
TC.. 090204													0,08	**0,12**	0,2	0,4	**0,8**	2
TC.. 110202													0,08	**0,1**	0,2	0,4	**0,6**	3
TC.. 110204	0,05	**0,12**	0,22	0,2	**0,5**	1,3							0,12	**0,2**	0,35	0,8	**1,2**	3
TC.. 110208							0,1	**0,17**	0,27	0,6	**1**	2,5	0,12	**0,2**	0,35	0,8	**1,2**	3
TC.. 16T302																		
TC.. 16T304							0,07	**0,15**	0,25	0,3	**1**	3	0,08	**0,17**	0,3	0,4	**1,2**	3,5
TC.. 16T308	0,06	**0,15**	0,25	0,2	**0,5**	1,3	0,1	**0,17**	0,27	0,6	**1,2**	3	0,12	**0,2**	0,35	0,8	**1,5**	3,5
TC.. 16T312													0,15	**0,22**	0,4	1,2	**1,7**	3,5
TC.. 220408													0,12	**0,2**	0,35	0,8	**2,5**	6
VC.. 1103005																		
VC.. 110301																		
VC.. 1103015																		
VC.. 110302							0,05	**0,1**	0,18	0,2	**0,5**	2						
VC.. 110304	0,05	**0,10**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,23	0,3	**0,7**	2						
VC.. 110308																		
VC.. 160402																		
VC.. 160404	0,05	**0,10**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,23	0,3	**0,8**	2,5	0,08	**0,17**	0,25	0,4	**1**	3
VC.. 160408	0,06	**0,12**	0,22	0,2	**0,5**	1,3	0,1	**0,17**	0,27	0,6	**1**	2,5	0,12	**0,2**	0,3	0,8	**1,2**	3
VC.. 160412													0,15	**0,22**	0,32	1,2	**1,5**	3
VC.. 220530																		
WC.. 020102																		
WC.. 020104																		

Sharp ◄——————————————————————————————► stable

Information on the cutting data of chip breakers not included in this overview, can be found on → **Page 220–227**

9

Cutting data values for positive inserts

	Designation	-SMQ						-M25					
		f			a_p			f			a_p		
		min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.
		mm/rev.			mm			mm/rev.			mm		
	CC.. 060200												
	CC.. 060201												
	CC.. 060202												
	CC.. 060204							0,06	**0,13**	0,20	0,2	**1,1**	2,0
	CC.. 060208												
	CC.. 09T300												
	CC.. 09T301												
	CC.. 09T302												
	CC.. 09T304	0,10	**0,25**	0,4	0,4	**2**	4	0,06	**0,14**	0,22	0,2	**1,2**	2,2
	CC.. 09T308	0,15	**0,30**	0,5	0,8	**2**	4	0,10	**0,20**	0,30	0,4	**1,8**	3,2
	CC.. 09T312												
	CC.. 120402												
	CC.. 120404	0,10	**0,25**	0,4	0,4	**2**	4						
	CC.. 120408	0,15	**0,30**	0,5	0,8	**2**	4						
	CC.. 120412												
	DC.. 0702005												
	DC.. 070201												
	DC.. 0702015												
	DC.. 070202							0,04	**0,09**	0,13	0,1	**0,9**	1,6
	DC.. 070204	0,10	**0,18**	0,25	0,4	**1,5**	3	0,06	**0,12**	0,18	0,2	**1,1**	2,0
	DC.. 070208												
	DC.. 11T3005												
	DC.. 11T301												
	DC.. 11T3015												
	DC.. 11T302							0,04	**0,10**	0,16	0,1	**1,1**	2,0
	DC.. 11T304	0,10	**0,25**	0,4	0,4	**2**	4	0,06	**0,14**	0,22	0,2	**1,2**	2,2
	DC.. 11T308	0,15	**0,30**	0,5	0,8	**2**	4	0,10	**0,20**	0,30	0,4	**1,8**	3,2
	DC.. 11T312												
	RC.. 0602M0												
	RC.. 0803M0												
	RC.. 1003M0												
	RC.. 1204M0												
	RC.. 1606M0												
	RC.. 2006M0												
	RC.. 2507M0												
	SC.. 09T304												
	SC.. 09T308												
	SC.. 120408												
	SC.. 120412												
	TC.. 090204												
	TC.. 110202												
	TC.. 110204							0,06	**0,13**	0,20	0,2	**1,2**	2,2
	TC.. 110208												
	TC.. 16T302												
	TC.. 16T304							0,06	**0,14**	0,22	0,2	**1,6**	3,0
	TC.. 16T308							0,10	**0,20**	0,30	0,4	**1,9**	3,4
	TC.. 16T312												
	TC.. 220408												
	VC.. 1103005												
	VC.. 110301												
	VC.. 1103015												
	VC.. 110302												
	VC.. 110304												
	VC.. 110308												
	VC.. 160402												
	VC.. 160404							0,06	**0,13**	0,20	0,2	**1,2**	2,2
	VC.. 160408							0,10	**0,15**	0,25	0,4	**1,4**	3,0
	VC.. 160412												
	VC.. 220530												
	WC.. 020102												
	WC.. 020104												

Sharp ◄——————————————————————► stable

The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-M55						-F05					
	f			a_p			f			a_p		
	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.
	mm/rev.			mm			mm/rev.			mm		
CC.. 060200												
CC.. 060201												
CC.. 060202												
CC.. 060204	0,06	**0,13**	0,20	0,4	**1,5**	2,6						
CC.. 060208												
CC.. 09T300												
CC.. 09T301												
CC.. 09T302												
CC.. 09T304	0,08	**0,16**	0,24	0,4	**1,7**	3,0						
CC.. 09T308	0,12	**0,24**	0,35	0,8	**2,4**	4,0						
CC.. 09T312												
CC.. 120402												
CC.. 120404	0,08	**0,18**	0,28	0,4	**2,2**	4,0						
CC.. 120408	0,12	**0,26**	0,40	0,8	**2,8**	4,8						
CC.. 120412												
DC.. 0702005							0,02	**0,025**	0,04	0,1	**1**	2
DC.. 070201							0,02	**0,03**	0,05	0,1	**1**	2
DC.. 0702015							0,02	**0,04**	0,075	0,1	**1**	2
DC.. 070202							0,02	**0,05**	0,1	0,1	**1**	2
DC.. 070204	0,06	**0,14**	0,22	0,4	**1,3**	2,2						
DC.. 070208	0,08	**0,16**	0,24	0,8	**1,6**	2,4						
DC.. 11T3005							0,02	**0,025**	0,04	0,1	**1,25**	2,5
DC.. 11T301							0,02	**0,03**	0,05	0,1	**1,25**	2,5
DC.. 11T3015							0,02	**0,04**	0,075	0,1	**1,25**	2,5
DC.. 11T302							0,02	**0,075**	0,1	0,1	**1,25**	2,5
DC.. 11T304	0,08	**0,16**	0,24	0,4	**1,7**	3,0	0,02	**0,1**	0,25	0,1	**1,25**	2,5
DC.. 11T308	0,12	**0,24**	0,35	0,8	**2,4**	4,0						
DC.. 11T312												
RC.. 0602M0												
RC.. 0803M0												
RC.. 1003M0												
RC.. 1204M0												
RC.. 1606M0												
RC.. 2006M0												
RC.. 2507M0												
SC.. 09T304	0,12	**0,24**	0,35	0,8	**2,4**	4,0						
SC.. 09T308	0,12	**0,26**	0,40	0,8	**2,8**	4,8						
SC.. 120408												
SC.. 120412												
TC.. 090204	0,06	**0,12**	0,18	0,4	**1,3**	2,2						
TC.. 110202												
TC.. 110204	0,06	**0,14**	0,22	0,4	**1,4**	2,4						
TC.. 110208												
TC.. 16T302												
TC.. 16T304												
TC.. 16T308	0,12	**0,24**	0,35	0,8	**2,6**	4,4						
TC.. 16T312												
TC.. 220408												
VC.. 1103005							0,02	**0,025**	0,04	0,1	**1,25**	2,5
VC.. 110301							0,02	**0,03**	0,05	0,1	**1,25**	2,5
VC.. 1103015							0,02	**0,04**	0,075	0,1	**1,25**	2,5
VC.. 110302							0,02	**0,075**	0,1	0,1	**1,25**	2,5
VC.. 110304							0,02	**0,15**	0,25	0,1	**1,25**	2,5
VC.. 110308												
VC.. 160402												
VC.. 160404	0,08	**0,14**	0,20	0,4	**1,7**	3,0						
VC.. 160408	0,12	**0,21**	0,30	0,8	**2,1**	3,4						
VC.. 160412												
VC.. 220530												
WC.. 020102												
WC.. 020104												

Sharp ◄——————————————————————► stable

Information on the cutting data of chip breakers not included in this overview, can be found on → **Page 220–227**

9

Application range of CBN grades

Cutting material grade	Cutting material designation	Properties		Application range	Interrupted cut	Material suitability / ISO hardness			
						Cast iron	Sintered steels	Heat resistant	hardened
		PCBN content	Main binder			K	P	S	H
High PCBN content	**CTB S05U**	90 %		Chilled iron (NiHard), grey cast iron	Smooth to strongly interrupted cut	05		05	
	CTB S10C	95 %		Grey cast iron (GG252), sintered steels, super alloys	Smooth to medium interrupted cut	10	10	10	
	CTB S10U	95 %		Grey cast iron, sintered steels, super alloys		10	10	10	
	CTB S20C	90 %		Spheroidal graphite cast iron, sintered steels, super alloys		20	20	20	
Low PCBN content	**CTB H15C**	40 %	TiN	Tempered steels from 32 HRC	Smooth cut				15
	CTB H15U	40 %	TiN		Smooth to slightly interrupted cut				15
	CTB H20C	65 %	TiCN	48–62 HRC					20
	CTB H21C	65 %	TiCN	52–65 HRC					20
	CTB H21U	65 %	TiCN	52–65 HRC					20
	CTB H40C	55 %	TiN	48–65 HRC	Interrupted cut				40
	CTB H40U	65 %	TiN	54–65 HRC					40
	CTB H41C	65 %	TiN	48–65 HRC	Strongly interrupted cut				40
	CTB H41U	65 %	TiN	54–65 HRC					40

CBN – The Next Generation

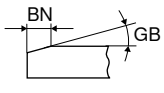
The ‚Sandwich' Technology

The singular system (patent), to apply CBN segments on a tungsten carbide base in a single process reduces the edge price significantly and opens up the possibility for the development of different CBN grades.

Specialized edge preperations! To achieve the highest efficiency for each application, the new CBN sandwich inserts are available with up to 8 edge preperations.

CBN Test Insert

The type CNGA test insert was specifically used, in order to identify the **quickest and most effective** type. The insert is manufactured with four edge preperations for trial. The cutting edge with highest performance gives the correct chamfer style.



Article no.	Designation	Chamfers (BN x GB)				
71 499 ...		**Cutting edge 1**	**Cutting edge 2**	**Cutting edge 3**	**Cutting edge 4**	
290	CNGA 120408XN_L2 **CTBS20C**	009B (0,09 mm x 10°)	011C (0,11 mm x 15°)	014D (0,14 mm x 20°)	018F (0,18 mm x 30°)	
292	CNGA 120408XN_L2 **CTBH20C**	009D (0,09 mm x 20°)	011E (0,11 mm x 25°)	014F (0,14 mm x 30°)	018F (0,18 mm x 30°)	
294	CNGA 120408XN_L2 **CTBH40C**	009D (0,09 mm x 20°)	011E (0,11 mm x 25°)	013E (0,13 mm x 25°)	014F (0,14 mm x 30°)	

Diamond as a cutting material



Ensures

- Optimal surface quality
- burr-free workpieces
- high service lives
- lowest cutting forces
- High Process Security

Complete programme of roughing, finishing and wiper inserts for machining aluminium, non ferrous metals, plastics, ...

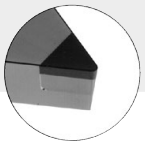
The cutting materials

	CTD CD10 (CVD)	CTD PD20 (PKD)	CTD PU20 (PKD)	CTD PS30 (PKD)
	Fine grain Size (N10)	Fine grain grade (N20)	Coarse grain grade (N20)	Coarse grain Size (N30)
Properties	▲ perfect sharp edges ▲ no cutting pressure ▲ very close tolerances ▲ highest abrasion resistance with highest toughness ▲ very high heat conductivity	▲ high sharpness ▲ lower cutting pressure than PDC-S ▲ close tolerance ▲ lower abrasion resistance with increased toughness	▲ Very sharp cutting edge ▲ Reduced cutting pressure ▲ Tight tolerances ▲ Very high level of wear resistance and toughness	▲ high sharpness ▲ lower cutting pressure ▲ close tolerance ▲ lower abrasion resistance than with the PDC, with increased toughness
Material	suitable for superfinishing and semi-finishing of all non ferrous metals and NE-composite materials with small to high levels of abrasiveness	suitable for fine machining of all NE-materials with low abrasiveness	suitable for finishing to roughing non-ferrous metals and non-ferrous materials with highly abrasive alloying element. High chip removal on fibre-reinforced plastics such as CFRP and GFRP.	suitable for fine machining of all NE-materials and non-ferrous metals with low to very high levels of abrasiveness

Cutting Geometries

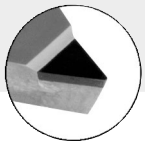
Neutral rake angle:

- higher cuting force
- higher temperature
- improved surface quality
- for stable workpieces



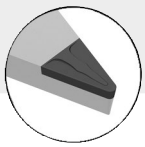
Positive rake angle:

- Lower cutting force
- Lower temperature
- reduction in surface quality
- for unstable workpieces
- improved accuracy



CB chip breaker geometries:

- Reliable chip control
- Ideal for low-alloy aluminium
- For F | M | R applications



Notes on diamond usage

- Coolant is not generally needed, however it facilitates chip removal
- Note the chemical reaction to carbide-forming elements (PCD)
- Note the thermal interaction and critical temperature:
  PCD: 600 °C, CVD: 700 °C
  Depending on the material, use cooling.

Standard chip breakers / application notes

Main application steel and cast iron, secondary application stainless steels

Negative

Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-CF / -CF20 ▲ Fine finishing ▲ Sharp cutting edge for low cutting forces ▲ Good chip control even at small depths of cut	**CTEP110 / TCM10** CTEP110 / TCM10 CTEP110 / TCM10			0,30–1,50	0,07–0,25	CN.. DN.. TN.. WN..
-F40 ▲ Fine turning chip breaker for machining steels ▲ Good chip control ▲ Ideal for copy turning work	**CTCP125** CTCP125	**CTCP125** CTCP125		0,50–2,00	0,10–0,30	VN..
-F50 ▲ Fine turning chip breaker for fine machining ▲ Steel and stainless steels ▲ Excellent chip control ▲ High surface quality	**CTCP115 / CTCP125**	**CTCP115 / CTCP125 / CTCP135** CTCP135	**CTCP135** CTCP135	0,10–2,60	0,06–0,35	CN.. DN.. SN.. TN.. VN.. WN..
-TFQ ▲ Wiper geometry ▲ Finishing to medium machining ▲ Very high feedrate ▲ High surface quality	**CTEP110 / CTCP115** CTEP110 CTEP110 / CTCP115	**CTCP115 / CTCP125** CTCP115 / CTCP125		0,50–5,00	0,10–0,60	CN.. DN.. WN..
-XU ▲ Finishing to light roughing ▲ Universal chip breaker ▲ Copy turning ▲ Excellent chip formation ▲ Low cutting forces	**CTCP115 / CTCP125** CTCP115	CTCP115 / **CTCP125** CTCP115 / CTCP125	CTCP125	0,40–4,50	0,12–0,40	CN.. DN.. VN.. WN..
-FMS ▲ Finishing to medium machining ▲ very good chip control ▲ universal chip breaker ▲ low cutting forces	**CT-P15 / CT-P25** CT-P15 / CT-P25 CT-P15 / CT-P25	CT-P15 / **CT-P25** CT-P25 CT-P15 / CT-P25	CT-P25	0,40–3,00	0,10–0,30	CN.. DN.. VN.. WN..

Standard chip breakers / application notes

Main application steel and cast iron, secondary application stainless steels

Negative

Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-M40 ▲ Stable geometry ▲ Medium feed rates ▲ Can be used for any application ▲ Good chip control	**CTCP125** CTCP125	**CTCP125** CTCP125		0,50–3,00	0,50–3,00	VN..
-M50 ▲ Medium machining ▲ First choice for steel machining ▲ Universal application ▲ Wide range of applications	**CTCP115 / CTCP125 / CTCK110 / CTCK120** CTCP115 CTCP115 / CTCP125 / **CTCK110 / CTCK120**	CTCP115 / **CTCP125** CTCP125 CTCP115 / CTCP125 / **CTCK110 / CTCK120**	CTCP125 / **CTCP135** CTCP135 CTCP125 / **CTCK120**	0,50–5,00	0,12–0,40	CN.. DN.. SN.. TN.. VN.. WN..
-TMQ ▲ Wiper geometry ▲ Light to medium rough machining ▲ Very high feedrate ▲ High surface quality	**CTCP115** CTCP125 CTCP125	**CTCP125** CTCP125 CTCP125		0,80–6,00	0,20–0,85	CN.. DN.. WN..
-MRS ▲ medium to rough machining ▲ well suited for components with cast crust or forged skin ▲ works well with interrupted cuts	**CT-P15 / CT-P25 /** CT-P35 CT-P15 / CT-P25	**CT-P15 / CT-P25 / CT-P35** CT-P25 / CT-P35	**CT-P25 / CT-P35** CT-P35	0,50–4,50	0,20–0,60	CN.. DN.. WN..
-M70 ▲ Light to medium rough machining ▲ Cast crust and forging skin ▲ Stable cutting edge ▲ Interrupted cut ▲ Raw materials and forgings	**CTCK110 / CTCK120 / CTCP115** CTCP115 **CTCK110 / CTCK120 /** CTCP115 / CTCP125	CTCP115 / **CTCP125** CTCP125 **CTCK120 /** CTCP125	**CTCP125 / CTCP135** CTCP135 CTCP125 / **CTCK120**	1,50–4,50	0,20–0,80	CN.. DN.. SN.. TN.. WN..
.NMA ▲ Rough machining ▲ Stable cutting edge ▲ For short-chipping materials ▲ First choice for grey cast iron	**CTCK110**	**CTCK110 / CTCK120**	**CTCK120**	1,50–4,50	0,20–0,80	CN.. DN.. SN.. TN.. WN..
-R28 ▲ Single sided roughing geometry ▲ Longitudinal, face and copy turning ▲ Varying depths of cut ▲ Steels with low tensile strength (800 N / mm²) ▲ Good chip control	**CTCP115** / CTCP125 CTCP115 / CTCP125 CTCP115	**CTCP115 / CTCP135 / CTCP125** CTCP125 / CTCP135 CTCP125	**CTCP135** CTCP135 CTCP135	1,00–12,00	0,25–0,80	CN.. DN.. SN..

9

Standard chip breakers / application notes

Negative

Main application steel and cast iron, secondary application stainless steels

Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-R58 ▲ Single sided roughing geometry ▲ Longitudinal and face turning ▲ Light interrupted cut ▲ Low cutting forces ▲ Unstable machines	**CTCP115 / CTCP125** CTCP115 / CTCP125 CTCP115	**CTCP115 / CTCP125 / CTCP135** CTCP125 / CTCP135 CTCP115 / CTCP125	**CTCP135** CTCP135 CTCP125	1,50–12,00	0,30–1,20	CN.. DN.. SN.. TN..
-R88 ▲ Single sided roughing geometry ▲ Longitudinal and face turning ▲ High feedrate ▲ Large depths of cut ▲ Heavily interrupted cut	**CTCP115 / CTCP125** CTCP115 / CTCP125 CTCP115	**CTCP115 / CTCP125 / CTCP135** CTCP115 / CTCP125 CTCP115 / CTCP125	**CTCP135** CTCP135 CTCP125	3,50–16,00	0,50–1,50	SN..

Negative

Main application stainless steels, secondary application steel and super alloys

Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-F30 ▲ Finishing of stainless steels ▲ Continous cut ▲ High surface quality ▲ Good swarf control	CTCM120 / CTPM125 **CTCM120 / CTPM125**	CTCM120 / CTPM125 / CTCM130 **CTCM120 / CTPM125 / CTCM130**	CTCM130 **CTCM130**	0,08–2,5	0,10–0,35	CN.. DN.. SN.. TN.. VN.. WN..
-M30 ▲ Option for stainless steel machining ▲ Good swarf control ▲ Little edg build up ▲ Low cutting forces ▲ Little built-up edge ▲ Applicable on unstable machines	CTCM120 / CTPM125 **CTCM120 / CTPM125**	CTCM120 / CTPM125 / CTCM130 **CTCM120 / CTPM125 / CTCM130**	CTCM130 **CTCM130**	1,00-4,50	0,15-0,40	CN.. DN.. SN.. TN.. VN.. WN..
-M60 ▲ Light to medium roughing ▲ Stable cutting edge ▲ Interrupted cut ▲ Forged skin and cast crust	CTCM120 / CTPM125 **CTCM120 / CTPM125**	CTCM120 / CTPM125 / CTCM130 **CTCM120 / CTPM125 / CTCM130**	CTCM130 **CTCM130**	1,50–6,00	0,25–0,50	CN.. DN.. SN.. TN.. WN..

Standard chip breakers / application notes

Negative

Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
Main application super alloys, secondary application stainless steels						
-M34 ▲ First choice for superalloys ▲ Light cutting geometry ▲ Little built-up edge ▲ Low cutting forces	**CTPX710** **CTPX710** CTPX710 **CTPX710**	**CTPX710** **CTPX710** CTPX710 **CTPX710**		0,80–3,0	0,10–0,30	CN.. DN.. SN.. VN.. WN..
M						

Positive

Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
Main application steel and cast iron, secondary application stainless steels and super alloys						
-CF05 ▲ Fine finishing ▲ For all common steel materials, stainless steels and GGG ▲ Good swarf control ▲ High surface quality	**CTEP110 / TCM407** CTEP110 CTEP110	TCM10 / TCM407 TCM10 / TCM407		0,20–1,30	0,06–0,25	CC.. DC.. SC.. TC.. VC..
F						
-SF ▲ Finishing / contour turning ▲ Good swarf control ▲ High surface quality ▲ Low cutting forces	**CTCP115**	**CTCP125**	**CTCP125 / CTCP135**	0,05–2,50	0,05–0,25	CC.. DC.. SC.. TC.. VC.. WC..
F		CTCP125	CTCP125			
-CF55 ▲ Finishing to medium machining ▲ Suitable for general and stainless steels ▲ Low cutting forces ▲ Good swarf control ▲ High surface quality	**CTEP110** CTEP110 CTEP110	**TCM10 /** CTEP110 CTEP110 CTEP110		0,20–1,30	0,06–0,25	CC.. DC.. SC.. TC.. VC..
F **M**						

9

Standard chip breakers / application notes

Positive

Main application steel and cast iron, secondary application stainless steels and super alloys

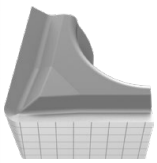
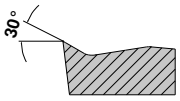
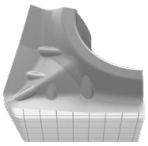
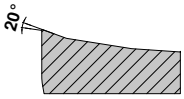
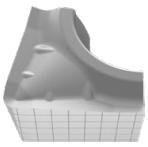
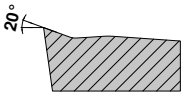
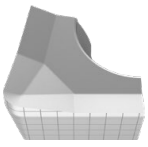
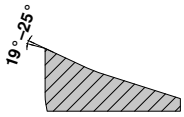
Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-SMF ▲ Finishing to medium machining ▲ Low cutting forces ▲ Good swarf control ▲ High surface quality	**CTEP110 / CTCP115** CTEP110 CTEP110	**TCM10 / CTCP125 / CTCP115** CTCP135	**CTCP135** CTCP135	13°		CC.. DC.. SC.. TC.. VC..
F M				0,20–1,30	0,06–0,25	
-FMS ▲ Finishing to medium machining ▲ very good chip control ▲ universal chip breaker ▲ low cutting forces	**CT-P15 / CT-P25** CT-P15 / CT-P25	**CT-P15 / CT-P25** CT-P15 / CT-P25	CT-P25	15°		CC.. DC.. VC..
F M				0,10–2,00	0,05–0,20	
-SM ▲ Medium machining ▲ Universal application ▲ Stable cutting edge ▲ Varying depths of cut ▲ Wide range of applications	**CTCP115 / CTCP125** CTCP115 / **CTCK110 / CTCK120**	**CTCP125 / CTCP135 / CTCP115** CTCP135 CTCP125 / **CTCK110 / CTCK120**	**CTCP125 / CTCP135** CTCP135 CTCK120	15° 0,1		CC.. DC.. RC.. SC.. TC.. VC..
M				0,05–5,00	0,15–0,45	
-SMQ ▲ Positive wiper geometry ▲ Finishing to medium machining ▲ Very high feedrate ▲ High surface quality	**CTCP115** CTCP125 / CTCP115	**CTCP125** CTCP125	**CTCP125** CTCP125	15° 0,2		CC.. DC..
M				1,00–4,00	0,15–0,45	
-MRS ▲ light to medium roughing ▲ universal chip breaker ▲ stable cutting edge	**CT-P15 / CT-P25** CT-P15 / CT-P25	**CT-P15 / CT-P25** CT-P15 / CT-P25	**CT-P25**	15° 0,1		CC.. DC.. VC..
M R				0,15–3,50	0,15–0,35	

Positive

Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-M25 ▲ First choice for medium machining of stainless steels ▲ High surface quality ▲ Little built-up edge	CTCM120 / CTPM125 **CTCM120 / CTPM125**	CTCM120 / CTPM125 / CTCM130 **CTCM120 / CTPM125 / CTCM130**	CTCM130 **CTCM130**	10° 0,1–0,15		CC.. DC.. TC.. VC..
F M				0,40–3,20	0,10–0,30	
-M55 ▲ First choice for medium machining to roughing of stainless steels ▲ Smooth to lightly interrupted cut ▲ Good swarf control ▲ Stable cutting edge	CTCM120 / CTPM125 **CTCM120 / CTPM125**	CTCM120 / CTPM125 / CTCM130 **CTCM120 / CTPM125 / CTCM130**	CTCM130 **CTCM130**	16° 0,15-0,2		CC.. DC.. SC.. TC.. VC..
M				0,40–4,80	0,06–0,35	

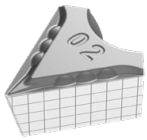
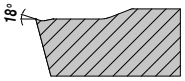
Standard chip breakers / application notes

Main application non-ferrous metals,
secondary application stainless steels, steels, super alloys, cast iron

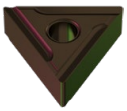
Positive	Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-23P ▲ Low adhesion ▲ Good chip control with soft aluminium alloys							CC.. DC..
		H216T	H216T				
		H216T	**H216T**	**H216T**			
	F	H216T	H216T	H216T	0,2–4,0	0,05–0,3	
-25P ▲ Sharp cutting edge ▲ Good swarf control on soft aluminium alloys ▲ Low adhesion		**CTPX710**	CTPX710				CC.. DC.. SC.. VC..
		CTPX710	CTPX710				
		CTPX710 / H216T	**CTPX710 / H216T**	**CTPX710 / H216T**			
		CTPX710	CTPX710				
	F						
	M	CTPX710	CTPX710		0,50–4,50	0,05–0,60	
-25Q ▲ Wiper geometry ▲ High feed rates ▲ High surface quality ▲ Good swarf control on soft aluminium alloys ▲ Low adhesion		**CTPX710**	CTPX710				CC.. DC.. VC..
		CTPX710	CTPX710				
		H210T	H210T				
		H210T / CTPX710	**H210T / CTPX710**	**H210T / CTPX710**			
		H210T / **CTPX710**	H210T / CTPX710				
	M	H210T	H210T	H210T	0,05–6,50	0,05–0,60	
-27 ▲ The universal Alu geometry ▲ Sharp cutting edge ▲ Extremely positive rake angle ▲ Low adhesion ▲ High feed rates		**CTPX715**	CTPX715				CC.. DC.. RC.. SC.. TC.. VC..
		CTPX715	CTPX715				
		CTPX715 / H216T	CTPX715 / H216T				
		CTPX715 / H216T	**CTPX715 / H216T**	**CTPX715 / H216T**			
		CTPX715	CTPX715				
	M						
	R	CTPX715 / H216T	CTPX715 / H216T	CTPX715 / H216T	1,00–10,00	0,10–0,75	

9

Standard chip breakers / application notes

Positive	Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
Main application super alloys and stainless steels, secondary application steels and non-ferrous metals	-F05 ▲ Maximum tolerance class ▲ Outstanding chip control, even with the smallest cutting depths ▲ Very low cutting forces	 **F**	**CTPX710** **CTPX710** CTPX710 **CTPX710** **CTPX710** CTPX710	CTPX710 CTPX710 CTPX710 **CTPX710** **CTPX710** CTPX710	 0,10–2,50	0,02–0,25	DC.. VC..

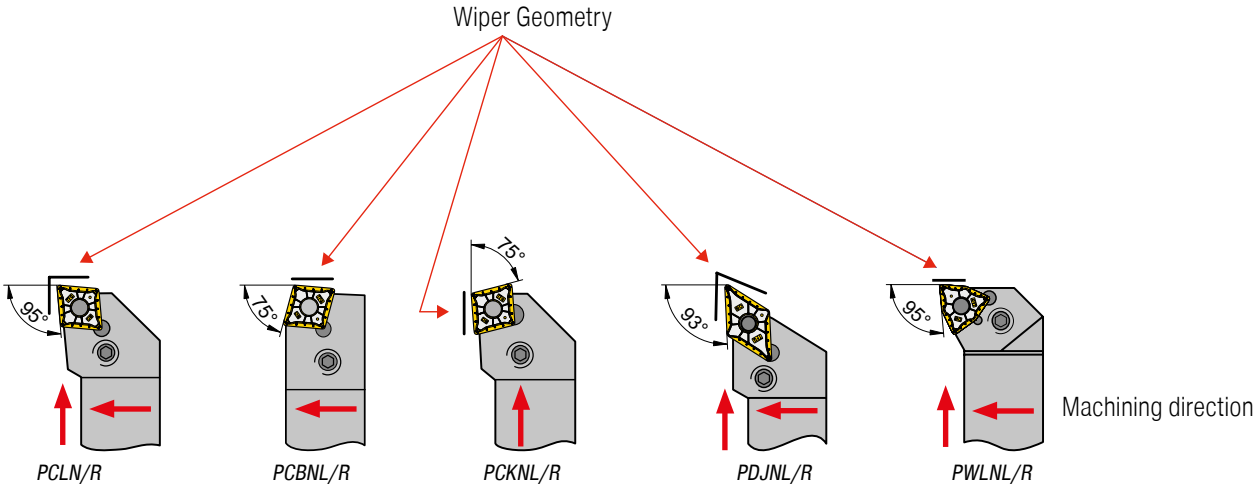
Supplementary chip breakers / application notes

	Model	Smooth cut	Irregular cutting depth	Interrupted cut
-EN ▲ Universal chip breaker for general steels	 M	**CTCP115** CTCP125 **CTCK110**	**CTCP125** CTCP135 **CTCK120**	**CTCP135** CTCP135 CTCP125
-ER|EL ▲ A problem solver for unstable conditions ▲ Can be used on less powerful machines ▲ Can be used for general steels and on stainless materials as a secondary application	 M		**CTCP125**	**CTCP135**

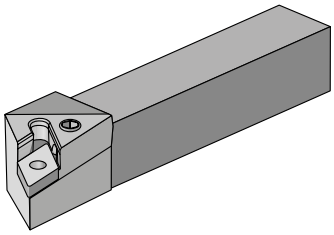
9

Masterfinish – wiper geometry – notes

Through the use of indexable inserts with wiper edge (-TFQ; -TMQ; -SMQ; -25Q) high quality surfaces can be produced economically.

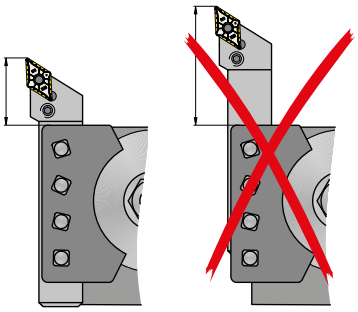


All turning inserts with wiper cutting edge are clamped in standard ISO tool holders.

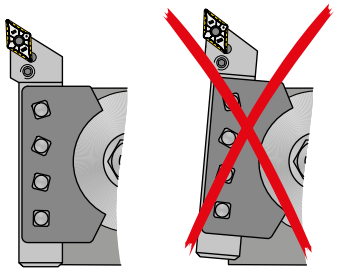


Check toolholder:

- Insert seat
- Shim
- Clamping Lever



Short tool overhang



Ensure correct tool alignment

Feed rate guide values for surface finish quality

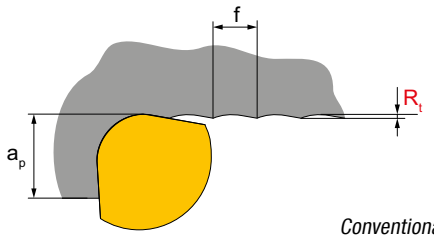
Roughness range R_z in µm	$R_{t\,max.}$	Corresponds to R_a	Roughness index	ISO 1302	Corner radius r_ε in mm and feed rate f in mm/rev.			
					r_ε = 0,4	r_ε = 0,8	r_ε = 1,2	r_ε = 1,6
63–100	R_t100	12,5–25	N11	25		0,51	0,69	0,88
40–63	R_t63	6,3–25	N10	12,5	0,27	0,43	0,56	0,68
31,5–40	R_t40	4,9–6,3	N9	6,3	0,25	0,37	0,49	0,57
25–31,5	R_t31,5	4,0–4,9			0,22	0,32	0,41	0,47
16–25	R_t25	2,5–4,0	N8	3,2	0,20	0,28	0,36	0,39
10–16	R_t16	1,6–2,5			0,15	0,22	0,29	0,31
6,3–10	R_t10	1,0–1,6	N7	1,6	0,10	0,13	0,18	0,20

Masterfinish – wiper geometry – functional principle

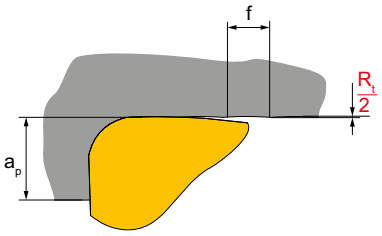
Relationship of feed rate to surface roughness

Improved Surface Quality

With the same feed rate an insert with wiper cutting edge reaches a roughness value R_t which is many times better than a conventional insert.



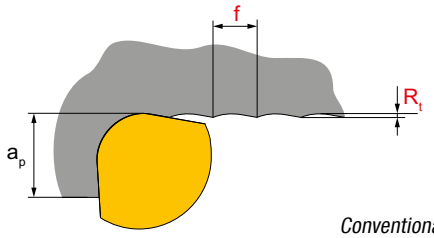
Conventional



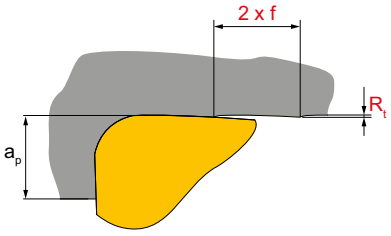
-TFQ

Shorter machining time

To achieve the same R_t-value as with a standard insert, double the feed rate can be applied for the insert with wiper cutting edge **(= shorter production time per component!)**



Conventional



-TFQ

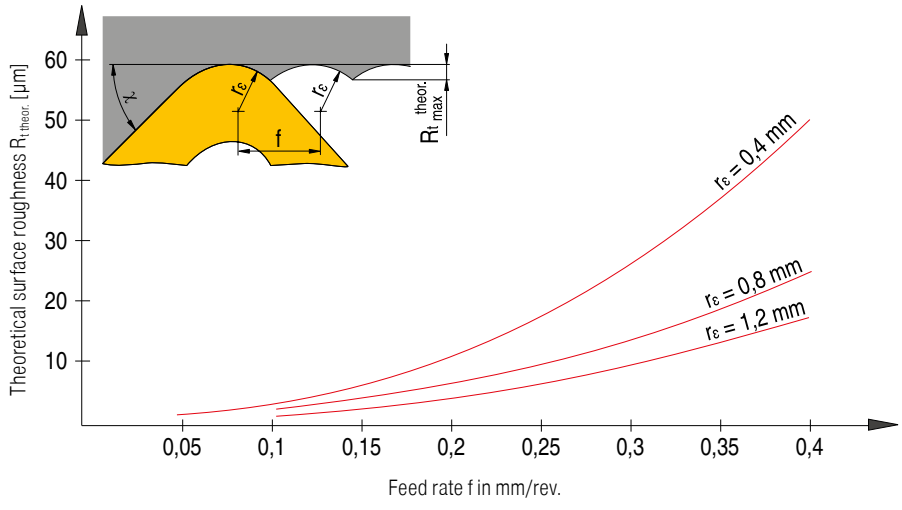
Theoretical Surface Quality

The maximum theoretical surface roughness with turning $Rt_{theor.}$ is the combination of feed rate and corner radius:

$$Rt_{theor.} = \left(r_\varepsilon - \sqrt{r_\varepsilon^2 - \frac{f^2}{4}}\right) \cdot 1000$$

or approximately:

$$Rt_{theor.} = \frac{125 \cdot f^2}{r\varepsilon} \quad [\mu m]$$



9

ISO designation system for inserts

Indexable inserts – metric

C	N	M	G	12	04	08	E	N	-	M50
1	2	3	4	5	6	7	8	9		13

Indexable inserts – inch

C	N	M	G	4	3	2	E	N	-	M50
1	2	3	4	5	6	7	8	9		13

Indexable inserts, CBN, ceramic – metric

C	N	G	A	12	04	08	S	N	-	020D	_	B	3	-	Q
1	2	3	4	5	6	7	8	9		10		11	12		13

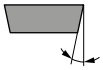
Indexable inserts, CBN, ceramic – inch

C	N	G	A	4	3	2	S	N	-	020D	_	B	3	-	Q
1	2	3	4	5	6	7	8	9		10		11	12		13

1 Insert shape

V	35°	Included angle
D	55°	
E	75°	
C	80°	
M	86°	
K	55°	Included angle
B	82°	
A	85°	
L	90°	Other shapes
P	108°	
H	120°	
O	135°	
R	-	
S	90°	
T	60°	
W	80°	

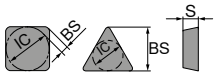
2 Clearance angle



	α		α
A	3°	F	25°
B	5°	G	30°
C	7°	N	0°
D	15°	P	11°
E	20°		

O — Clearance angles not included within the standard for which particular information is necessary.

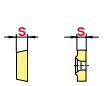
3 Tolerances



	IC±		BS		S	
	mm	inch	mm	inch	mm	inch
A	0,025	.0010	0,005	.0002	0,025	.001
F	0,013	.0005	0,005	.0002	0,025	.001
C	0,025	.0010	0,013	.0005	0,025	.001
H	0,013	.0005	0,013	.0005	0,025	.001
E	0,025	.0010	0,025	.0010	0,025	.001
G	0,025	.0010	0,025	.0010	0,13	.005
J	0,05-0,15*	.002-.006*	0,005	.0002	0,025	.001
K	0,05-0,15*	.002-.006*	0,013	.0005	0,025	.001
L	0,05-0,15*	.002-.006*	0,025	.0010	0,025	.001
M	0,05-0,15*	.002-.006*	0,05-0,20*	.003-.008*	0,13	.005
N	0,05-0,15*	.002-.006*	0,05-0,20*	.003-.008*	0,025	.001
U	0,08-0,25*	.003-.010*	0,13-0,38*	.005-.015*	0,13	.005

* Depends on insert size

6 Insert thickness



		Code	
mm	inch	mm	inch
1,59	1/16	01	1
2,38	3/32	02	
3,18	1/8	03	2
3,97	5/32	T3	
4,76	3/16	04	3
5,56	7/32	05	
6,35	1/4	06	4
7,94	5/16	07	5
9,52	3/8	09	6

7 Corner radius

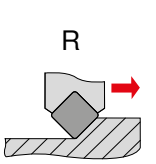


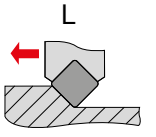
		Code		RN **00** RC **MO**
mm	inch	mm	inch	
≤ 0,05	.0015	00	X0	
0,1	.004	01	0	
0,2	.008	02	.5	
0,4	1/64	04	1	
0,8	1/32	08	2	
1,2	3/64	12	3	
1,6	1/16	16	4	
2,0	5/64	20	5	
2,4	3/32	24	6	
2,8	7/64	28	7	
3,2	1/8	32	8	

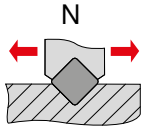
8 Cutting edge

F	Sharp
E	rounded
T	chamfered
S	Chamfered and honed
K	Double-chamfered
P	Double-chamfered and honed
R	Round chamfer

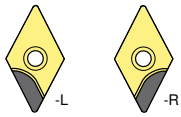
9 Direction of cut

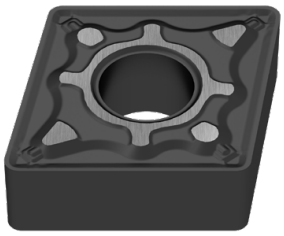






CBN and PCD segment orientation





4 Characteristics

N	
R	
F	
A	
M, P	
G, P	
W	
T	
Q	
U	
B	
H	
C	
J	
X	Special version

inch
Change at inscribed circle
IK < 1/4"

IK > 1/4“	IK < 1/4“
N / R / F	E
A / M / G	D
X	X

5 Cutting length

Type	ISO	ANSI	L mm	L inch	d mm	d inch
C	06	2	6,4	.250	6,35	.250
	09	3	9,7	.382	9,525	.375
	12	4	12,9	.508	12,70	.500
	16	5	16,1	.634	15,875	.625
	19	6	19,3	.760	19,05	.750
	25	8	25,8	1.016	25,4	1.000
	32	12	35,24	1.269	31,75	1.250
S	06	2	6,35	.250	6,35	.250
	09	3	9,525	.375	9,525	.375
	12	4	12,7	.500	12,7	.500
	15	5	15,875	.625	15,875	.625
	19	6	19,05	.750	19,05	.750
	25	8	25,4	1.000	25,4	1.000
	31	10	31,75	1.250	31,75	1.250
D	07	2	7,7	.303	6,35	.250
	11	3	11,6	.457	9,525	.375
	15	4	15,5	.610	12,70	.500
V	11	2	11,1	.437	6,35	.250
	16	3	16,6	.653	9,525	.375
	22	4	22,10	.870	12,70	.500

* inch version

Type	ISO	ANSI	L mm	L inch	d mm	d inch
T	06	1.2	6,9	.272	3,97	.156
	09	1.8	9,6	.378	5,56	.219
	11	2	11,0	.433	6,35	.250
	16	3	16,5	.650	9,525	.375
	22	4	22,	.079	12,70	.039
	27	5	27,5	1.083	15,875	.625
	33	6	33,0	1.299	19,05	.750
W	06	3	6,5	.256	9,525	.375
	08	4	8,7	.331	12,70	.039
	10	5	10,9	.429	15,875	.625
R	06	2	6,35	.250	6,35	.250
	08	-	8,0	.315	8,0	.315
	09	3	9,52	.375	9,52	.375
	10	-	10,0	.394	10,0	.394
	12*	-	12,0	.472	12,0	.472
	12	4	12,7	.488	12,70	.488
	15	5	15,875	.625	15,875	.625
	16	-	16,0	.630	16,0	.630
	19	6	19,05	.750	19,05	.750
	25	8	25,0	.984	25,0	.984
	25*	-	25,4	1.000	25,4	1.000
	31	10	31,75	1.250	31,75	1.250
	32	-	32,0	1.260	32,0	1.260

9

10 Chamfer type

T / S

K / P [1)]

	mm	inch		
015	0,15	.006	A	05°
020	0,20	.008	B	10°
025	0,25	.010	C	15°
050	0,50	.020	D	20°
075	0,75	.030	E	25°
100	1,00	.040	F	30°
			G	35°

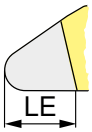
1) Two letters are assigned for double-chamfered cutting edges
e.g. BE =
chamfer angle 1 (y_1) = 10°
chamfer angle 2 (y_2) = 25°

11 Number of cutting edges

Single sided		Complete insert thickness	
A		T	
B		U	
C		V	
D		W	
G		X	
H		Y	

Double sided		Entire clamping flat	
K		S	
L		F	
M		E	
N			
P			
Q			

12 Segment length



Approx. specification in mm

13 Chip breaker designation

You can find a comprehensive chip breaker overview on
→ **page 220–227**

ISO designation system for tool holders

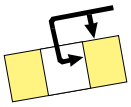
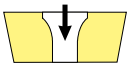
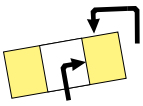
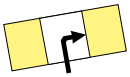
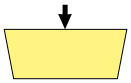
	P	C	L	N	R	20	20	K	12	-	T
	1	2	3	4	5	6	7	8	9		10
UT50	-	P	C	L	N	R			-12		
0		1	2	3	4	5	6	7	8	9	10
HSK-T63	-	D	C	L	N	R			-12		
0		1	2	3	4	5	6	7	8	9	10

0 System/size

UT = UTS
according to ISO 26622
UT40 = UTS 40 mm
UT50 = UTS 50 mm
UT63 = UTS 63 mm

HSK-T
according to ISO 12164
HSK-T63 = 63 mm
HSK-T100 = 100 mm

1 Tool holder

D  Retained from above and via bore	**S**  Retained via centre screw
M  Retained from above and via bore	**P**  Retained via the bore
C  Retained from above	**X** Special version

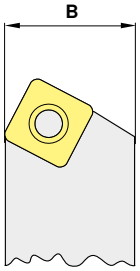
2 Insert shape

V	35°	Included angle
D	55°	
E	75°	
C	80°	
M	86°	
K	55°	Included angle
B	82°	
A	85°	
L	90°	Other shapes
P	108°	
H	120°	
O	135°	
R	-	
S	90°	
T	60°	
W	80°	

6 Shank height

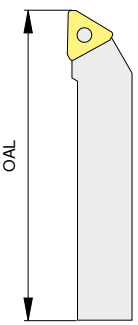


7 Shank width



8 Tool length

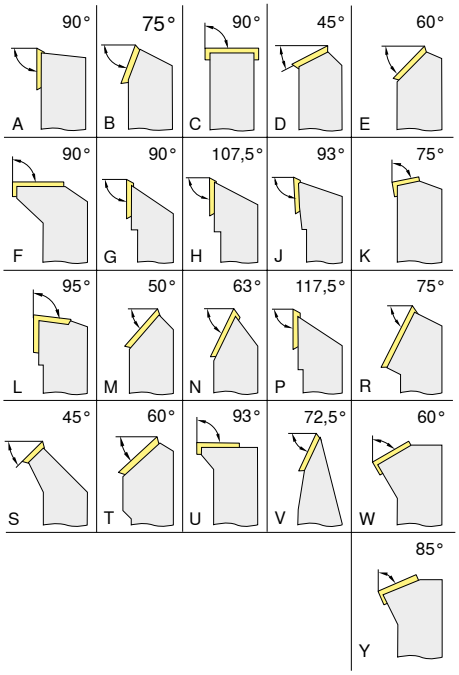
OAL mm	OAL inch		OAL mm	OAL inch	
32	4.000	**A**	160	4.500	**N**
40	4.500	**B**	170	5.500	**P**
50	5.000	**C**	180	–	**Q**
60	6.000	**D**	200	6.000	**R**
70	7.000	**E**	250	7.000	**S**
80	8.000	**F**	300	8.000	**T**
90	5.500	**G**	350	5.500	**U**
100	5.625	**H**	400	3.500	**V**
110	5.300	**J**	450	3.500	**W**
125	14.000	**K**	500	3.750	**Y**
140	6.800	**L**	Special version		**X**
150	4.400	**M**			





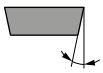
3

Style



4

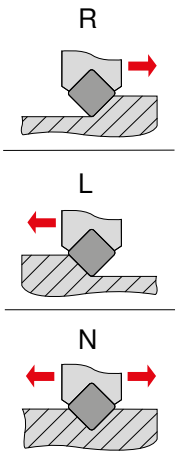
Clearance angle



	α		α
A	3°	**F**	25°
B	5°	**G**	30°
C	7°	**N**	0°
D	15°	**P**	11°
E	20°		
O	Clearance angles not included within the standard for which particular information is necessary.		

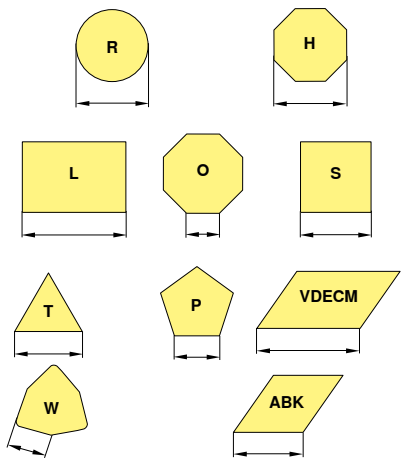
5

Direction of cut



9

Cutting length



10

Manufacturer specification

T = Toggle
Special length (mm)
Insert thickness (deviating from standard)
Special version (X..)
Machine manufacturer (specific)

ISO designation system for boring bars

		A	25	R	P	C	L	N	R	12	
		1	2	3	4	5	6	7	8	9	10
UT40	-		25	G	- P	C	L	N	R	- 12	
0		1	2	3	4	5	6	7	8	9	10
HSK-T63	-		50	Q	- D	C	L	N	R	- 12	
0		1	2	3	4	5	6	7	8	9	10

0 System/size

UT = UTS
according to ISO 26622
UT40 = UTS 40 mm
UT50 = UTS 50 mm
UT63 = UTS 63 mm

HSK-T
according to ISO 12164
HSK-T63 = 63 mm
HSK-T100 = 100 mm

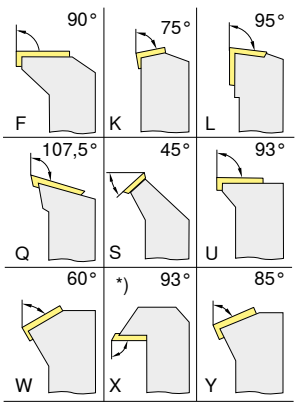
1 Shank type

S	Steel shank	**E**	As C with coolant hole
A	Steel shank with coolant hole	**F**	As C with antivibration system
B	Steel shank with antivibration system	**G**	As C with coolant hole and antivibration system
D	Steel shank with coolant hole and antivibration system	**H**	Heavy metal
C	Carbide shank with steel head	**J**	Heavy metal with coolant hole

5 Insert shape

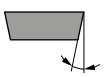
V	35°	Included angle
D	55°	
E	75°	
C	80°	
M	86°	
K	55°	Included angle
B	82°	
A	85°	
L	90°	Other shapes
P	108°	
H	120°	
O	135°	
R	-	
S	90°	
T	60°	
W	80°	

6 Style



*) CERATIZIT factory standard

7 Clearance angle



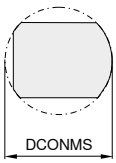
	α		α
A	3°	**F**	25°
B	5°	**G**	30°
C	7°	**N**	0°
D	15°	**P**	11°
E	20°		
O	Clearance angles not included within the standard for which particular information is necessary.		



2

Shank type & size

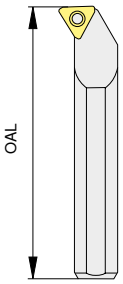
DCONMS mm	DCONMS inch
08	A two-digit figure indicating the boring bar diameter in 1/16 of an inch.
10	
12	
16	
20	
25	
32	
40	
50	
60	



3

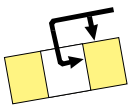
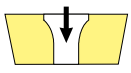
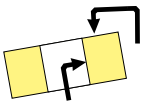
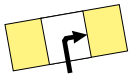
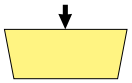
Tool length

OAL mm	OAL inch	
80	3	F
100	3,5	H
110	4	J
125	4,5	K
140	5	L
150	5,5	M
160	6	N
170	6,5	P
180	6,75	Q
200	7	R
250	8	S
300	10	T
350	12	U
400	14	V
450	16	W
500	18	Y
	20	
Special version		X



4

Clamping method

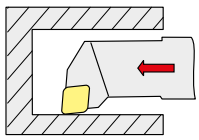
D  Retained from above and via bore	**S**  Retained via centre screw
M  Retained from above and via bore	**P**  Retained via the bore
C  Retained from above	**X** Special version

9

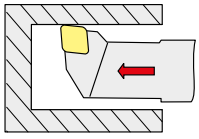
8

Direction of cut

R

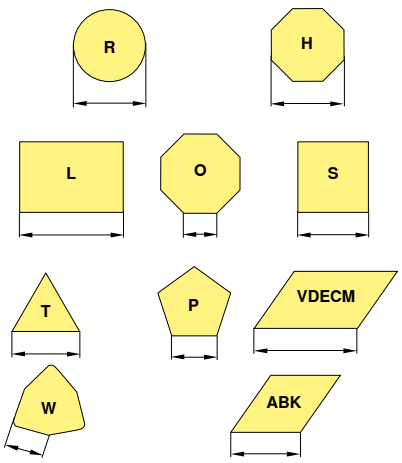


L



9

Cutting length



10

Manufacturer specification

T = Toggle
Special length (mm)
Insert thickness (deviating from standard)
Special version (X..)
Machine manufacturer (specific)

Types of wear

Wear on clearance face

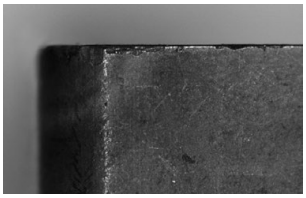


Abrasion on flank: normal wear after a certain machining time

Cause
- Too high cutting speed
- Carbide grade with too low wear resistance
- Feed rate not adapted

Remedy
- Reduce cutting speed
- Use grade with higher wear resistance
- Adapt feed rate to cutting speed and cutting depth

Edge chipping

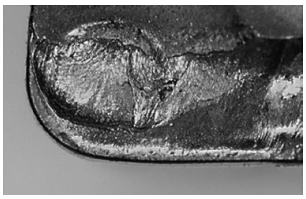


Through excessive mechanical stress at the cutting edge fracture and chipping can occur.

Cause
- Grade with too high wear resistance
- Vibration
- Too high cutting speed and / or feed rate
- Interrupted cut
- Swarf damage

Remedy
- Use tougher grade
- Use negative cutting edge geometry with chip groove
- Improve stability (tool, work piece)

Cratering

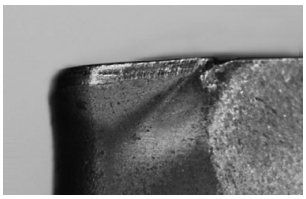


The hot chip which is being evacuated causes cratering at the rake face of the cutting edge.

Cause
- Too high cutting speed and / or feed rate
- Rake angle too shallow
- Grade with insufficient wear resistance
- Insufficient coolant supply

Remedy
- Reduce cutting speed and / or feed rate
- Use grade with higher wear resistance
- Increase coolant quantity and / or pressure, optimise coolant supply
- Use grade which is more resistant to cratering

Plastic deformation

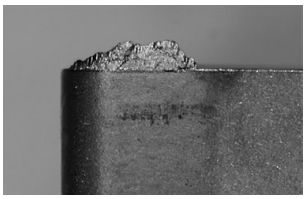


High machining temperature and simultaneous mechanical stress can lead to plastic deformation.

Cause
- Too high machining temperature resulting in softening of substrate
- Damage of coating
- Grade with insufficient wear resistance
- Insufficient coolant supply

Remedy
- Reduce cutting speed
- Use grade with higher wear resistance
- Provide cooling

Built-up edge

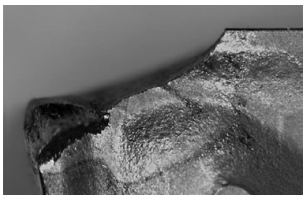


Built-up material / edges occur when the chip is not evacuated properly due to insufficient cutting temperature.

Cause
- Insufficient cutting speed
- Rake angle too shallow
- Wrong cutting material
- Lack of cooling / lubrication

Remedy
- Increase cutting speed
- Increase rake angle
- Apply TiN coating
- Use emulsion with higher concentration

Insert breakage

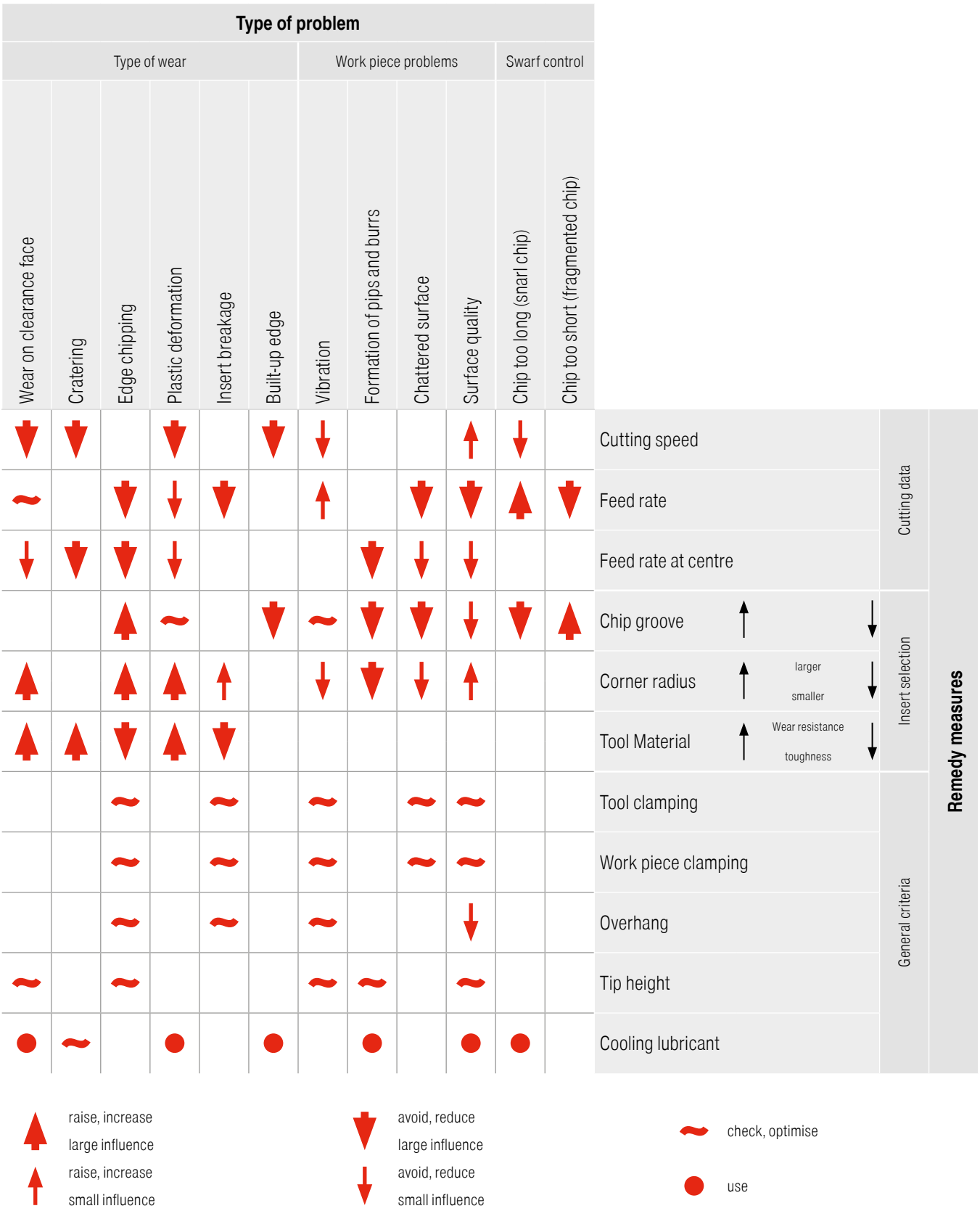


Excessive stress of the insert causes breakage.

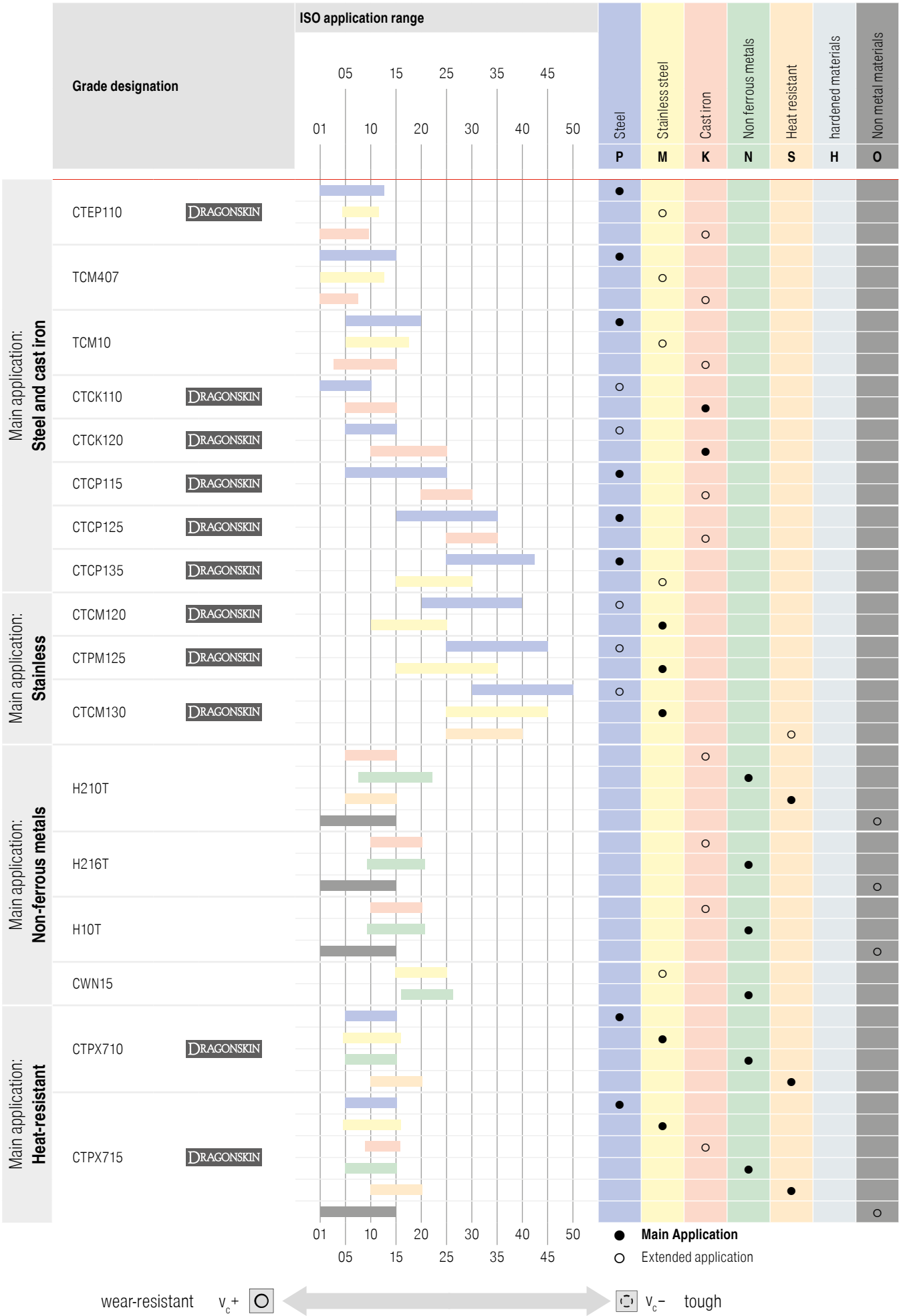
Cause
- Excessive stress of cutting material
- Lack of stability
- Clearance angle too small

Remedy
- Use tougher grade
- Use protective edge chamfer
- Increase edge hone
- Use geometry with higher stability

Recommendation for Optimum Results



Grades Overview



Grade description

TCM407
- Cermet, uncoated
- ISO | **P10** | M05 | K05
- The uncoated cermet grade for super-fine finishing steel materials

CTEP110
- Cermet, TiCN-Al_2O_3-coated
- ISO | **P10** | M10 | K05
- The cermet grade with reserves of toughness for finish machining at high cutting speeds

TCM10
- Cermet, uncoated
- ISO | **P15** | M10 | K10
- The uncoated cermet grade for finish machining stainless and hardened steel
- Particularly wear resistant thanks to high heat resistance

CTCP115
- Carbide, TiCN-Al_2O_3-coated
- ISO | **P15** | K25
- The wear-resistant high-performance grade for stable conditions and a continuous cut

CTCP125
- Carbide, TiCN-Al_2O_3-coated
- ISO | **P25** | K30
- The first choice for universal machining of steels

CTCP135
- Carbide, TiCN-Al_2O_3-coated
- ISO | **P35** | M25
- The tough alternative for heavily interrupted cut and unstable conditions

CT-P15
- Carbide, coated
- ISO | **P15** | M10
- Wear-resistant standard steel grade for smooth cut

CT-P25
- Carbide, coated
- ISO | **P25** | M20
- Standard steel grade for universal steel machining

CT-P35
- Carbide, coated
- ISO | **P35** | M25
- Tough standard steel grade for interrupted cutting

CTCM120
- Carbide, TiCN-Al_2O_3-coated
- ISO | P15 | **M20**
- Wear-resistant turning grade for austenitic stainless steel; top performance for smooth cuts

CTCM130
- Carbide, TiCN-Al_2O_3-coated
- ISO | P25 | **M30**
- Robust turning grade for austenitic stainless steel with interrupted cuts

CTPM125
- ISO | P35 | **M25**
- The universal carbide grade with maximum toughness, without affecting the necessary hot hardness and wear resistance for stainless machining

CTCK110
- Carbide, TiCN-Al_2O_3-coated
- ISO | P05 | **K10**
- The wear-resistant grade for machining cast iron materials at high cutting speeds in a continuous cut

CTCK120
- Carbide, TiCN-Al_2O_3-coated
- ISO | P10 | **K20**
- The grade for cast iron machining, with high toughness reserves for difficult conditions and interrupted cuts

H10T
- Carbide, uncoated
- ISO | K15 | **N15** | O10
- The uncoated carbide grade for machining aluminium and other non-ferrous metals

H210T
- Carbide, uncoated
- ISO | **N10** | **S10** | K10 | O10
- The wear-resistant carbide grade for machining aluminium and other non-ferrous metals

H216T
- Carbide, uncoated
- ISO | K15 | **N15** | O10
- The uncoated carbide grade for machining aluminium and other non-ferrous metals
- Also highly suitable for HSC machining

CWN15
- Carbide, TiN-coated
- ISO | M15 | **K15**
- Special carbide grade for abrasive aluminium alloys

CTPX710
- Carbide, AlTiN-coated
- ISO | **P10** | **M10** | K10 | **N10** | **S15**
- Universal multi-material grade from the X7 line for highest machining requirements

CTPX715
- Carbide, AlTiN-coated
- ISO | **P10** | **M10** | K10 | **N10** | **S15** | O10
- Universal multi-material grade from the X7 line for highest machining requirements

Grade description

C T C P 1 2 5 (Example)

Main application – material

1|P	Steel
2|M	Stainless steel
3|K	Cast iron
4|N	Light and non ferrous metals
5|S	Super alloys, titanium
6|H	Hard materials
7|X	Universal application

Application

1	Turning
2	Milling
3	Grooving
4	Drilling
5	Thread turning
6	Others
7	Several processes

Degree of hardness

05	ISO 05
10	ISO 10
15	ISO 15
	...

New products for machining technicians



→ Page 17–24

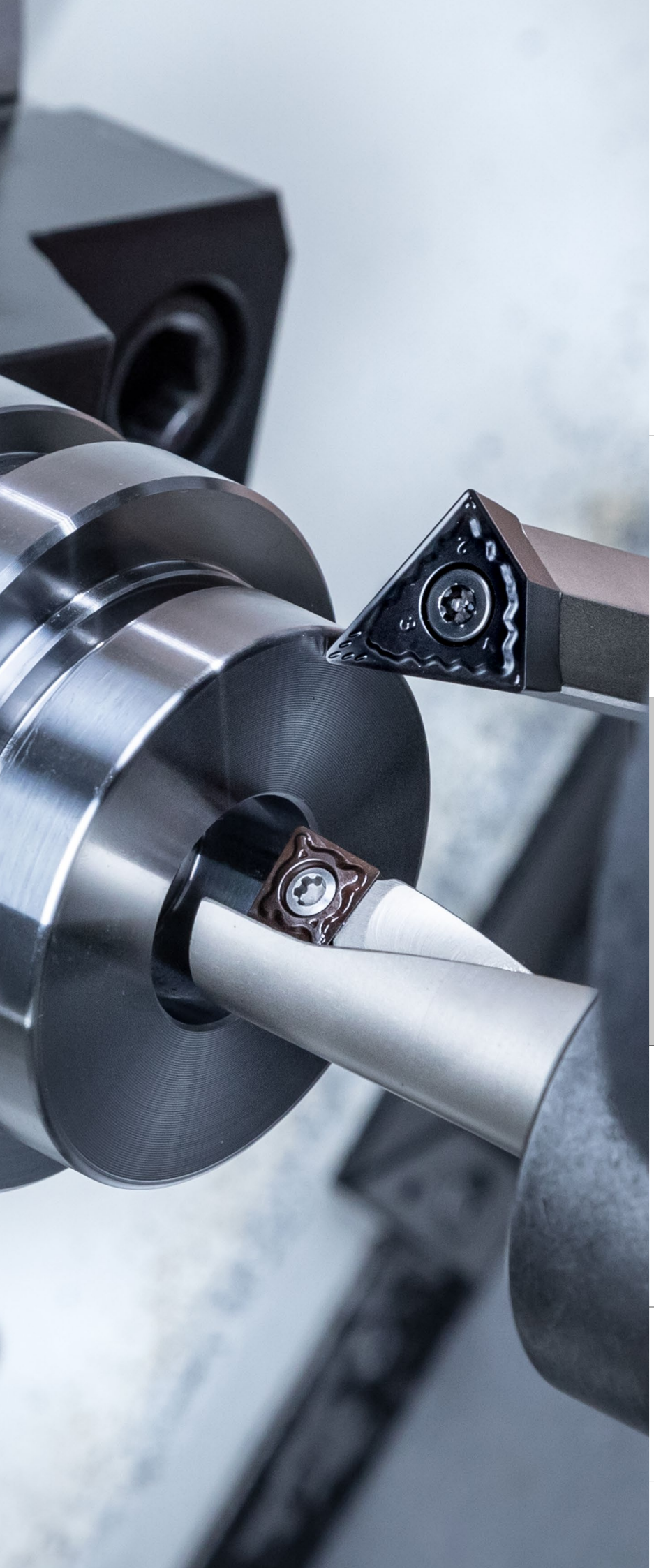
NEW FreeTurn

The innovative and extremely flexible FreeTurn tools have 3 cutting edges and are suitable for almost all external turning operations.

With High Dynamic Turning, HDT for short, and the dynamic FreeTurn turning tools, CERATIZIT is turning the conventional method of turning completely on its head. All familiar turning operations such as roughing, finishing, contour turning, facing and longitudinal turning can now be completed using just one tool.

Curious? More information about High Dynamic Turning and FreeTurn can be found on our website:

https://cuttingtools.ceratizit.com/int/en/freeturn.html



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drills

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

Table of contents

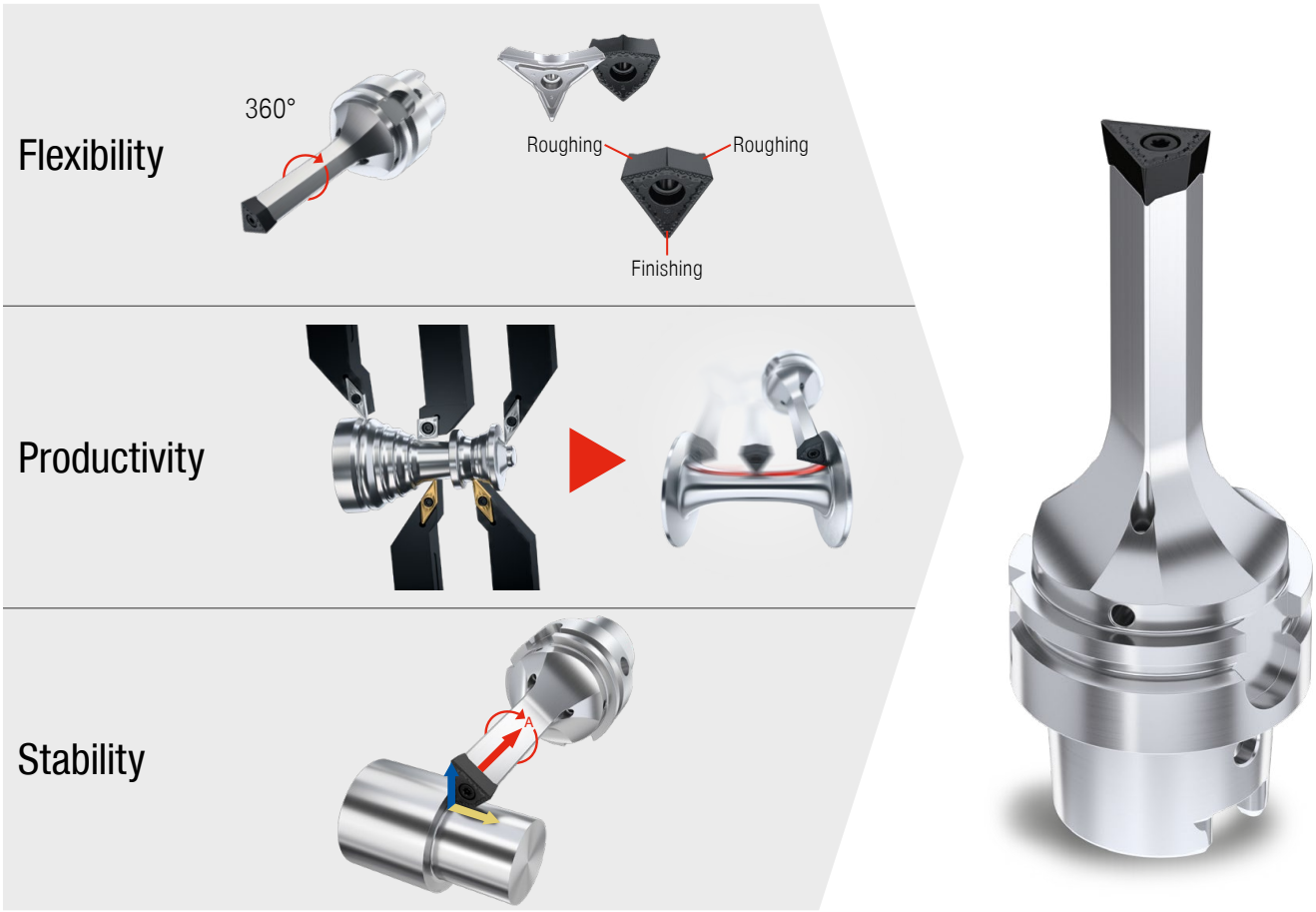
Advantages of FreeTurn / EcoCut	2+3
Example applications / explanation of symbols	3
Toolfinder	4+5
Product programme	6–24
Technical Information	
General cutting data	25–27
EcoCut Mini Cutting Data	28+29
EcoCut Classic Cutting Data	30+31
EcoCut ProfileMaster Cutting Data	32+33
FreeTurn cutting data	34
EcoCut chip breaker overview	35
FreeTurn chip breaker overview	36
Application information	37–45
Grade overview and application	46+47
FreeTurn / EcoCut designation system	48+49

CERATIZIT \ Performance

Premium quality tools for high performance.

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

Advantages of FreeTurn



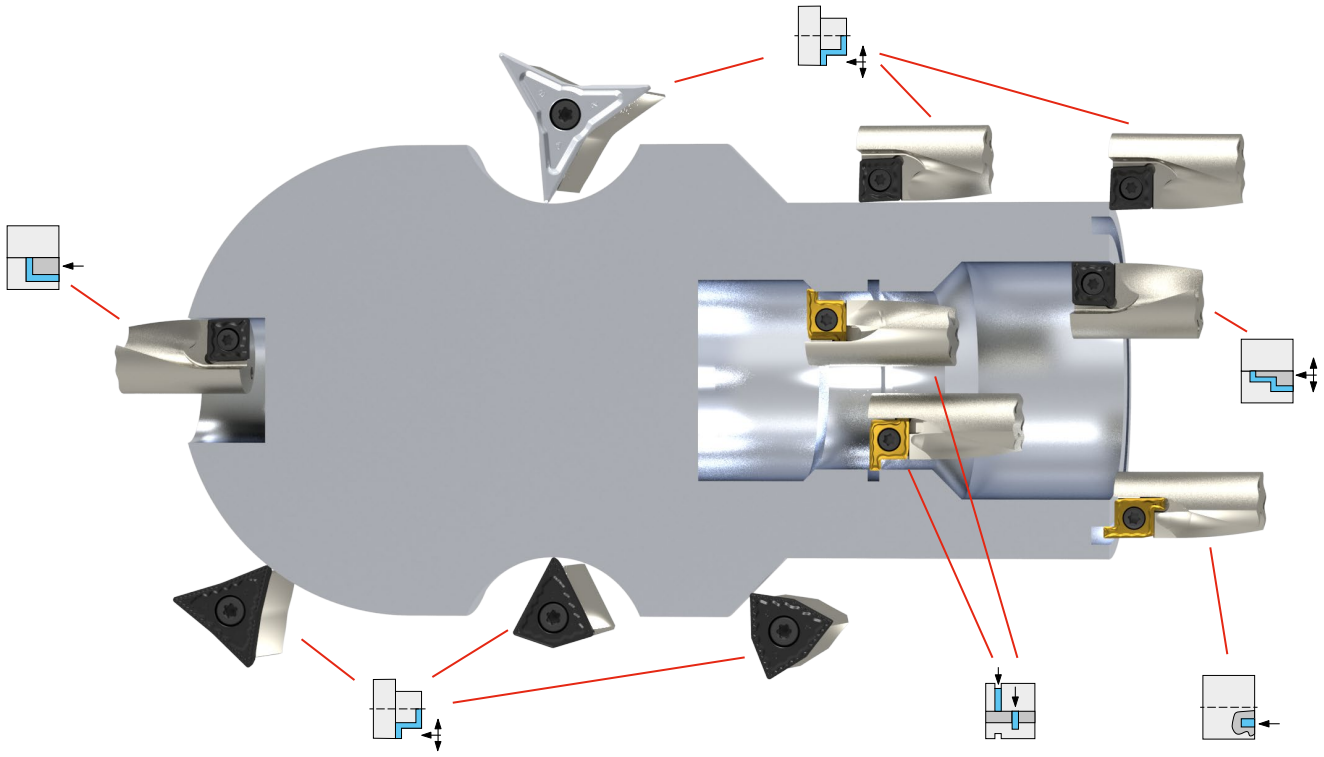
Advantages of EcoCut

- reduced machining time
- reduced need for tool positions
- generates flat bottom of hole
- less programming
- lower set-up costs / reduced setting time
- time savings due to fewer tool changes





Application examples



Symbol explanation


Turning outside profiles


Drilling into full material


Turning internal profiles


External / internal radial grooving


Axial grooving


Int. coolant supply

-28P Polished chip breaker
H216T Carbide Grade

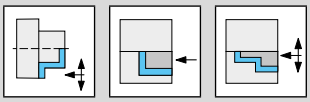
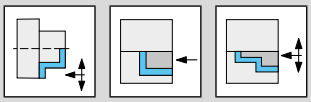
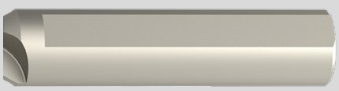
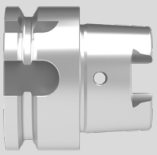
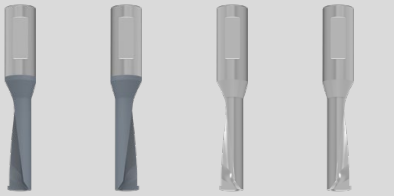
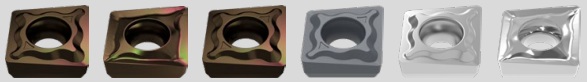
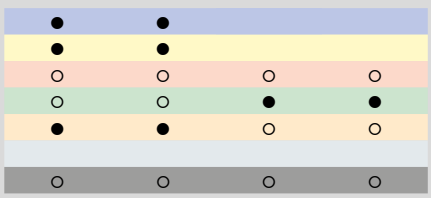
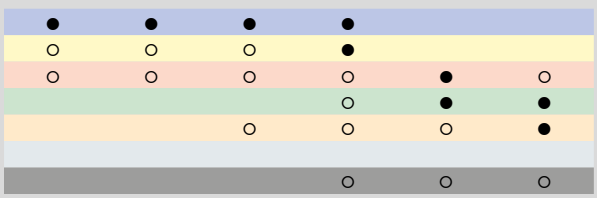
F	Fine Machining
M	Medium Machining
R	Rough Machining




Smooth cut
Irregular cutting depth
Interrupted cut

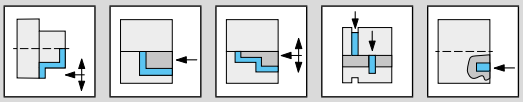
10

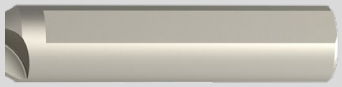
Toolfinder

Tool system	EcoCut Mini	EcoCut Classic
Application		
Machine interface	  → 7+8 Adapter for EcoCut Mini	  HSK-T 63
Lengths and diameters Versions	2,25xD Ø 2–8  → 6 4,0xD Ø 2–8  → 6	1,5xD Ø 8–32  → 10 2,25xD Ø 8–32  → 11 3,0xD Ø 8–32  → 12 2,25xD Ø 25–32  → 13
Cutting material designation	CTPP435 | CTPP435 | CTWN425 | CTWN425	CTCP425 | -M50Q CTCP425 | CTCP435 | CTPP430 | -27P H216T | -27Q H210T
Cutting conditions	DRAGONSKIN	DRAGONSKIN
		
	Solid carbide Left-hand | Solid carbide Right-hand | Solid carbide Left-hand | Solid carbide Right-hand	M XCNT | M XCNT | M XCNT | M XCNT | M XCET | M XCET
Application range		
Page No.	→ 6 | → 6 | → 6 | → 6	→ 9 | → 9 | → 9 | → 9 | → 9 | → 9
	→ v_c Page 26	→ v_c Page 26

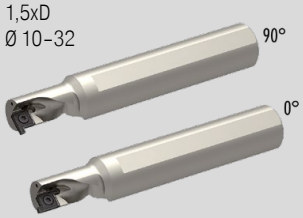
EcoCut tools are suitable for off-centre drilling. This permits certain deviations from the nominal tool diameter to be achieved → **For details, see the technical information.**

EcoCut ProfileMaster





1,5xD
Ø 10–32



→ 15

2,25xD
Ø 10–32



→ 16

-M20 CTPP430	-M20 CTPP430
DRAGONSKIN	DRAGONSKIN

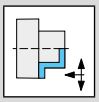


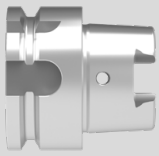
M	M
PM-R	PM-L
●	●
●	●
○	○
○	○
●	●
○	○

→ 14 → 14

→ v_c Page 26

FreeTurn





HSK-T 63



PSC 63

LPR = 100
LPR = 125



→ 20+23

LPR = 100
LPR = 125



→ 21+24

CTCP125	CTPM125	-28P H216T	CTCP125	CTPM125	CTCP125	CTPM125
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



M M F	F F F	F F F	M M M
FT15 . 808055...	FT15 . 353535...	FT15 . 555555...	FT17 . 808080...
● ○		● ○	● ○
●		●	●
○	○	○	○
	●		
	○		

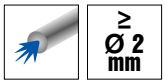
→ 17 → 17 → 18 → 19 → 19 → 22 → 22

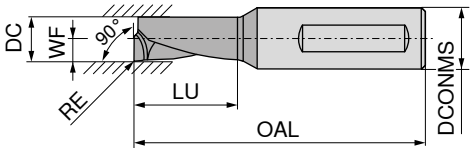
→ v_c Page 27

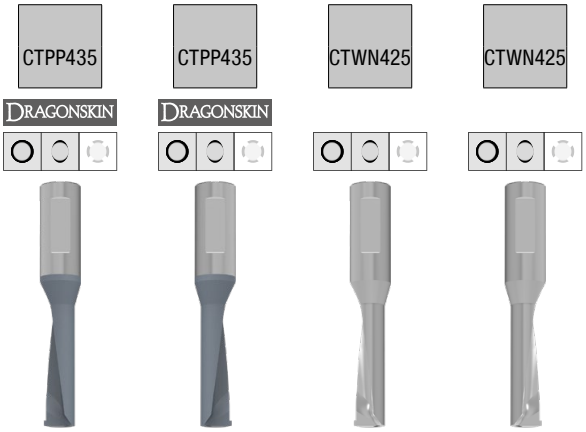
10

EcoCut – Mini

▲ Drilling and turning tool for small diameters







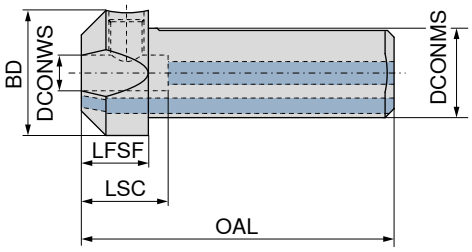
Solid carbide Left-hand | Solid carbide Right-hand | Solid carbide Left-hand | Solid carbide Right-hand

70 805 ... | **70 804 ...** | **70 805 ...** | **70 804 ...**

Designation	DC mm	DCONMS mm	OAL mm	LU mm	WF mm	RE mm	70 805 ...	70 804 ...	70 805 ...	70 804 ...
ECM 02 R/L 2,25D	2,0	4	28	4,50	1,00	0,1	320	320		
ECM 02 R/L 2,25D AL	2,0	4	28	4,50	1,00	0,1			420	420
ECM 02 R/L 4,00D	2,0	4	31	8,00	1,00	0,1	321	321		
ECM 02 R/L 4,00D AL	2,0	4	31	8,00	1,00	0,1			421	421
ECM 02,5 R/L 2,25D	2,5	4	29	5,63	1,25	0,1	325	325		
ECM 02,5 R/L 2,25D AL	2,5	4	29	5,63	1,25	0,1			425	425
ECM 02,5 R/L 4,00D	2,5	4	33	10,00	1,25	0,1	326	326		
ECM 02,5 R/L 4,00D AL	2,5	4	33	10,00	1,25	0,1			426	426
ECM 03 R/L 2,25D	3,0	4	31	6,75	1,50	0,1	330	330		
ECM 03 R/L 2,25D AL	3,0	4	31	6,75	1,50	0,1			430	430
ECM 03 R/L 4,00D	3,0	4	35	12,00	1,50	0,1	331	331		
ECM 03 R/L 4,00D AL	3,0	4	35	12,00	1,50	0,1			431	431
ECM 03,5 R/L 2,25D	3,5	4	32	7,88	1,75	0,1	335	335		
ECM 03,5 R/L 2,25D AL	3,5	4	32	7,88	1,75	0,1			435	435
ECM 03,5 R/L 4,00D	3,5	4	37	14,00	1,75	0,1	336	336		
ECM 03,5 R/L 4,00D AL	3,5	4	37	14,00	1,75	0,1			436	436
ECM 04 R/L 2,25D	4,0	6	35	9,00	2,00	0,2	300	300		
ECM 04 R/L 2,25D AL	4,0	6	35	9,00	2,00	0,2			450	450
ECM 04 R/L 4,00D	4,0	6	41	16,00	2,00	0,2	301	301		
ECM 04 R/L 4,00D AL	4,0	6	41	16,00	2,00	0,2			451	451
ECM 05 R/L 2,25D	5,0	6	37	11,25	2,50	0,2	302	302		
ECM 05 R/L 2,25D AL	5,0	6	37	11,25	2,50	0,2			452	452
ECM 05 R/L 4,00D	5,0	6	45	20,00	2,50	0,2	303	303		
ECM 05 R/L 4,00D AL	5,0	6	45	20,00	2,50	0,2			453	453
ECM 06 R/L 2,25D	6,0	8	38	13,50	3,00	0,2	306	306		
ECM 06 R/L 2,25D AL	6,0	8	38	13,50	3,00	0,2			456	456
ECM 06 R/L 4,00D	6,0	8	49	24,00	3,00	0,2	312	312		
ECM 06 R/L 4,00D AL	6,0	8	49	24,00	3,00	0,2			462	462
ECM 07 R/L 2,25D	7,0	8	42	15,75	3,50	0,2	308	308		
ECM 07 R/L 2,25D AL	7,0	8	42	15,75	3,50	0,2			458	458
ECM 07 R/L 4,00D	7,0	8	53	28,00	3,50	0,2	314	314		
ECM 07 R/L 4,00D AL	7,0	8	53	28,00	3,50	0,2			464	464
ECM 08 R/L 2,25D	8,0	8	45	18,00	4,00	0,2	310	310		
ECM 08 R/L 2,25D AL	8,0	8	45	18,00	4,00	0,2			460	460
ECM 08 R/L 4,00D	8,0	8	57	32,00	4,00	0,2	316	316		
ECM 08 R/L 4,00D AL	8,0	8	57	32,00	4,00	0,2			466	466
P							●	●		
M							●	●		
K							○	○	○	○
N							○	○	●	●
S							●	●	○	○
H										
O							○	○	○	○

→ v_c Page 26

EcoCut – Adapter Mini





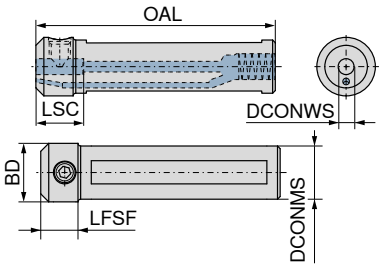
Designation	DCONWS mm	DCONMS mm	BD mm	OAL mm	LFSF mm	LSC mm	70 800 ...
EC-ADX16-04	4	16,00	22	59,0	14	18	**716**
EC-ADX12-04-E	4	19,05	25	63,5	14	18	**719**
EC-ADX20-04	4	20,00	25	64,0	14	18	**720**
EC-ADX16-06	6	16,00	22	59,0	14	18	**976**
EC-ADX12-06-E	6	19,05	25	63,5	14	18	**986**
EC-ADX20-06	6	20,00	25	64,0	14	18	**996**
EC-ADX16-08	8	16,00	22	59,0	14	18	**978**
EC-ADX12-08-E	8	19,05	25	63,5	14	18	**988**
EC-ADX20-08	8	20,00	25	64,0	14	18	**998**


Clamping screw

Spare parts for Article no.		70 950 ...
70 800 716	M5x10 ISO 4026	**867**
70 800 719	M5x10 ISO 4026	**867**
70 800 720	M5x10 ISO 4026	**867**
70 800 976	M8x1x8 - SW4	**123**
70 800 986	M8x1x8 - SW4	**123**
70 800 996	M8x1x8 - SW4	**123**
70 800 978	M8x1x8 - SW4	**123**
70 800 988	M8x1x8 - SW4	**123**
70 800 998	M8x1x8 - SW4	**123**

EcoCut – Mini adapter with coolant connection thread







Designation	DCONWS mm	DCONMS mm	BD mm	OAL mm	LFSF mm	LSC mm	Thread	70 801 ...
ECA 16-04	4	16,00	20,0	75	14	18	G 1/8	**716**
ECA 0750-04	4	19,05	20,0	100	14	18	G 1/8	**719**
ECA 20-04	4	20,00	19,6	90	14	18	G 1/8	**720**
ECA 22-04	4	22,00	21,6	110	14	18	G 1/8	**722**
ECA 25-04	4	25,00	24,6	110	14	18	G 1/8	**725**
ECA 1000-04	4	25,40	25,0	110	14	18	G 1/8	**726**
ECA 16-06	6	16,00	22,0	75	14	18	G 1/8	**816**
ECA 0750-06	6	19,05	22,0	100	14	18	G 1/8	**819**
ECA 20-06	6	20,00	22,0	90	14	18	G 1/8	**820**
ECA 22-06	6	22,00	21,6	110	14	18	G 1/8	**822**
ECA 25-06	6	25,00	24,6	110	14	18	G 1/8	**825**
ECA 1000-06	6	25,40	25,0	110	14	18	G 1/8	**826**
ECA 16-08	8	16,00	22,0	75	14	18	G 1/8	**916**
ECA 0750-08	8	19,05	22,0	100	14	18	G 1/8	**919**
ECA 20-08	8	20,00	22,0	90	14	18	G 1/8	**920**
ECA 22-08	8	22,00	21,6	110	14	18	G 1/8	**922**
ECA 25-08	8	25,00	24,6	110	14	18	G 1/8	**925**
ECA 1000-08	8	25,40	25,0	110	14	18	G 1/8	**926**

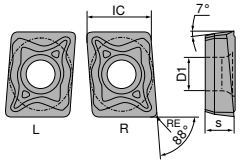


Clamping screw

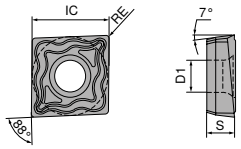
Spare parts for Article no.		70 950 ...
70 801 716	M5X8 - DIN 913	**13200**
70 801 719	M5X8 - DIN 913	**13200**
70 801 720	M5X8 - DIN 913	**13200**
70 801 722	M5X8 - DIN 913	**13200**
70 801 725	M5x10 ISO 4026	**867**
70 801 726	M5x10 ISO 4026	**867**
70 801 816	M8x1x8 - SW4	**123**
70 801 819	M8x1x8 - SW4	**123**
70 801 820	M8x1x8 - SW4	**123**
70 801 822	M8x1x8 - SW4	**123**
70 801 825	M8x1x8 - SW4	**123**
70 801 826	M8x1x8 - SW4	**123**
70 801 916	M8x1x8 - SW4	**123**
70 801 919	M8x1x8 - SW4	**123**
70 801 920	M8x1x8 - SW4	**123**
70 801 922	M8x1x8 - SW4	**123**
70 801 925	M8x1x8 - SW4	**123**
70 801 926	M8x1x8 - SW4	**123**

XCNT / XCET

Designation	S mm	D1 mm	IC mm
XC.T 0401..	1,80	2,10	4,5
XC.T 0502..	2,10	2,25	5,8
XC.T 0602..	2,38	2,50	6,5
XC.T 0703..	3,18	2,80	7,6
XC.T 0803..	3,18	3,40	8,5
XC.T 09T3..	3,97	3,40	9,6
XC.T 10T3..	3,97	4,40	10,6
XC.T 1304..	4,76	5,30	13,5
XC.T 1705..	5,56	5,30	17,5

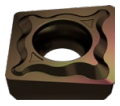
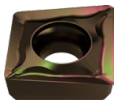
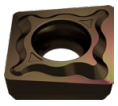
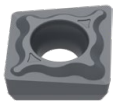
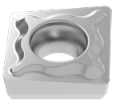


XC. T 04..



XC. T 05../06../07../08../09../10../13../17..

XCNT / XCET

	CTCP425	-M50Q CTCP425	CTCP435	CTPP430	-27P H216T	-27Q H210T
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		
						
	M	M	M	M	M	M
	XCNT	XCNT	XCNT	XCNT	XCET	XCET
	70 386 ...	70 386 ...	70 386 ...	70 386 ...	70 286 ...	70 286 ...
ISO	RE mm					
040102EL	0,2	720		820	920		
040102ER	0,2	722		822	922		
040102FL	0,2					620	120
040102FR	0,2					622	122
040104EL	0,4	700	750	800	900		
040104ER	0,4	702	752	802	902		
040104FL	0,4					600	100
040104FR	0,4					602	102
050202EN	0,2	723		823	923		
050202FN	0,2					623	123
050204EN	0,4	703	753	803	903		
050204FN	0,4					603	103
060202EN	0,2	724		824	924		
060202FN	0,2					624	124
060204EN	0,4	704	754	804	904		
060204FN	0,4					604	104
070304EN	0,4	705	755	805	905		
070304FN	0,4					605	105
080304EN	0,4	706	756	806	906		
080304FN	0,4					606	106
09T304EN	0,4	707	757	807	907		
09T304FN	0,4					607	107
10T304EN	0,4	708	758	808	908		
10T304FN	0,4					608	108
10T308EN	0,8	738	788	838	938		
10T308FN	0,8					628	128
130404EN	0,4	710	760	810	910		
130404FN	0,4					610	110
130408EN	0,8	740	790	840	940		
130408FN	0,8					611	111
170508EN	0,8	712	762	812	912		
170508FN	0,8					612	112
P		●	●	●	●		
M		○	○	○	●		
K		○	○	○	○	●	○
N					○	●	●
S				○	○	○	●
H							
O					○	○	○

→ v_c Page 26

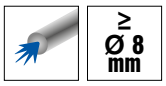
10

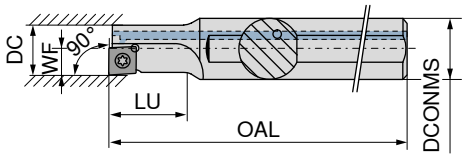
EcoCut – Classic 1.5xD

▲ Drilling and turning tool

Scope of supply:

Toolholder with 1 clamping screw + 2 spare screws and screwdriver







Left-hand | Right-hand

Designation	DC mm	DCONMS mm	OAL mm	LU mm	WF mm	torque moment Nm	Insert	70 805 ...	70 804 ...
ECC 08 L 1,5D 04	8	12	80	12,0	4,0	0,4	XC.T 0401..EL	**008** [2]	
ECC 08 R 1,5D 04	8	12	80	12,0	4,0	0,4	XC.T 0401..ER		**008** [1]
ECC 10 R/L 1,5D 05	10	12	90	15,0	5,0	0,7	XC.T 0502..	**010**	**010**
ECC 12 R/L 1,5D 06	12	16	100	18,0	6,0	1,0	XC.T 0602..	**012**	**012**
ECC 14 R/L 1,5D 07	14	16	110	21,0	7,0	1,2	XC.T 0703..	**014**	**014**
ECC 16 R/L 1,5D 08	16	20	125	24,0	8,0	2,2	XC.T 0803..	**016**	**016**
ECC 18 R/L 1,5D 09	18	25	135	27,0	9,0	2,2	XC.T 09T3..	**018**	**018**
ECC 20 R/L 1,5D 10	20	25	150	30,0	10,0	3,2	XC.T 10T3..	**020**	**020**
ECC 25 R/L 1,5D 13	25	32	180	37,5	12,5	5,0	XC.T 1304..	**025**	**025**
ECC 32 R/L 1,5D 17	32	40	200	48,0	16,0	5,0	XC.T 1705..	**032**	**032**

1) Note! Right-hand insert on right-hand tool → **Page 39**
2) Note! Left-hand insert on left-hand tool → **Page 39**



Key D



Clamping screw

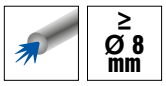
Spare parts for Article no.	80 950 ...		70 950 ...	
70 805 008	T06 - IP	**123**	M1,8x3,6 - IP	**862**
70 804 008	T06 - IP	**123**	M1,8x3,6 - IP	**862**
70 805 010 / 70 804 010	T06 - IP	**123**	M2x4,3 - IP	**863**
70 805 012 / 70 804 012	T07 - IP	**124**	M2,2x5 - IP	**856**
70 805 014 / 70 804 014	T08 - IP	**125**	M2,5x6 - IP	**857**
70 805 016 / 70 804 016	T09 - IP	**126**	M3x7 - IP	**819**
70 805 018 / 70 804 018	T09 - IP	**126**	M3x7 - IP	**819**
70 805 020 / 70 804 020	T15 - IP	**128**	M3,5x8,6 - IP	**859**
70 805 025 / 70 804 025	T20 - IP	**129**	M4,5x10,5 - IP	**864**
70 805 032 / 70 804 032	T20 - IP	**129**	M4,5x10,5 - IP	**864**

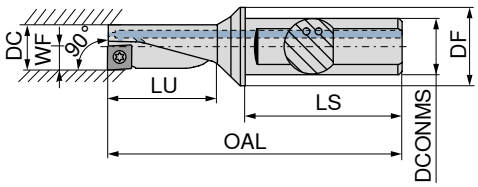
EcoCut – Classic 2.25xD

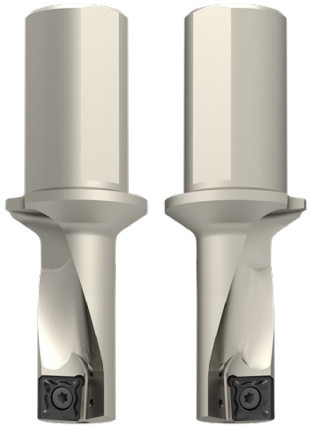
▲ Drilling and turning tool

Scope of supply:

Toolholder with 1 clamping screw + 2 spare screws and screwdriver







Left-hand | Right-hand

Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LS mm	WF mm	torque moment Nm	Insert	70 805 ...	70 804 ...
ECC 08 L 2,25D 04	8	10	12	60,0	18,0	38	4,0	0,4	XC.T 0401..EL	**108** [2]	
ECC 08 R 2,25D 04	8	10	12	60,0	18,0	38	4,0	0,4	XC.T 0401..ER		**108** [1]
ECC 10 R/L 2,25D 05	10	12	16	69,5	22,5	42	5,0	0,7	XC.T 0502..	**110**	**110**
ECC 12 R/L 2,25D 06	12	16	20	78,0	27,0	45	6,0	1,0	XC.T 0602..	**112**	**112**
ECC 14 R/L 2,25D 07	14	16	20	83,5	31,5	45	7,0	1,2	XC.T 0703..	**114**	**114**
ECC 16 R/L 2,25D 08	16	20	25	94,0	36,0	50	8,0	2,2	XC.T 0803..	**116**	**116**
ECC 18 R/L 2,25D 09	18	25	32	109,5	40,5	56	9,0	2,2	XC.T 09T3..	**118**	**118**
ECC 20 R/L 2,25D 10	20	25	32	111,0	45,0	56	10,0	3,2	XC.T 10T3..	**120**	**120**
ECC 25 R/L 2,25D 13	25	32	40	129,0	56,5	60	12,5	5,0	XC.T 1304..	**125**	**125**
ECC 32 R/L 2,25D 17	32	40	50	158,0	72,0	70	16,0	5,0	XC.T 1705..	**132**	**132**

1) Note! Right-hand insert on right-hand tool → **Page 39**
2) Note! Left-hand insert on left-hand tool → **Page 39**


Key D


Clamping screw

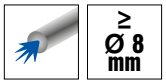
Spare parts for Article no.	80 950 ...		70 950 ...	
70 805 108	T06 - IP	**123**	M1,8x3,6 - IP	**862**
70 804 108	T06 - IP	**123**	M1,8x3,6 - IP	**862**
70 805 110 / 70 804 110	T06 - IP	**123**	M2x4,3 - IP	**863**
70 805 112 / 70 804 112	T07 - IP	**124**	M2,2x5 - IP	**856**
70 805 114 / 70 804 114	T08 - IP	**125**	M2,5x6 - IP	**857**
70 805 116 / 70 804 116	T09 - IP	**126**	M3x7 - IP	**819**
70 805 118 / 70 804 118	T09 - IP	**126**	M3x7 - IP	**819**
70 805 120 / 70 804 120	T15 - IP	**128**	M3,5x8,6 - IP	**859**
70 805 125 / 70 804 125	T20 - IP	**129**	M4,5x10,5 - IP	**864**
70 805 132 / 70 804 132	T20 - IP	**129**	M4,5x10,5 - IP	**864**

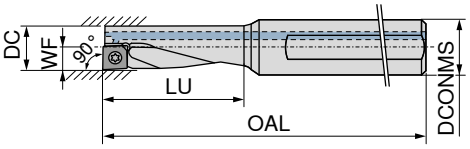
EcoCut – Classic 3xD – Heavy metal

▲ Drilling and turning tool
▲ vibration-damped

Scope of supply:

Toolholder with 1 clamping screw + 2 spare screws and screwdriver







Left-hand



Right-hand

Designation	DC mm	DCONMS mm	OAL mm	LU mm	WF mm	torque moment Nm	Insert	70 805 ... Left-hand	70 804 ... Right-hand
ECC 08 L 3,00D 04 H	8	12	80	24	4,0	0,4	XC.T 0401..EL	**608** [2]	
ECC 08 R 3,00D 04 H	8	12	80	24	4,0	0,4	XC.T 0401..ER		**608** [1]
ECC 10 R/L 3,00D 05 H	10	12	85	30	5,0	0,7	XC.T 0502..	**610**	**610**
ECC 12 R/L 3,00D 06 H	12	16	95	36	6,0	1,0	XC.T 0602..	**612**	**612**
ECC 14 R/L 3,00D 07 H	14	16	100	42	7,0	1,2	XC.T 0703..	**614**	**614**
ECC 16 R/L 3,00D 08 H	16	20	110	48	8,0	2,2	XC.T 0803..	**616**	**616**
ECC 18 R/L 3,00D 09 H	18	25	125	54	9,0	2,2	XC.T 09T3..	**618**	**618**
ECC 20 R/L 3,00D 10 H	20	25	130	60	10,0	3,2	XC.T 10T3..	**620**	**620**
ECC 25 R/L 3,00D 13 H	25	32	150	75	12,5	5,0	XC.T 1304..	**625**	**625**
ECC 32 R/L 3,00D 17 H	32	40	185	96	16,0	5,0	XC.T 1705..	**632**	**632**

1) Note! Right-hand insert on right-hand tool → **Page 39**
2) Note! Left-hand insert on left-hand tool → **Page 39**



Key D



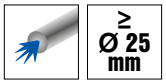
Clamping screw

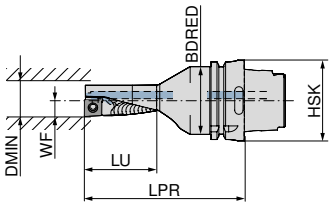
Spare parts for Article no.	80 950 ... Key D		70 950 ... Clamping screw	
70 805 608	T06 - IP	**123**	M1,8x3,6 - IP	**862**
70 804 608	T06 - IP	**123**	M1,8x3,6 - IP	**862**
70 805 610 / 70 804 610	T06 - IP	**123**	M2x4,3 - IP	**863**
70 805 612 / 70 804 612	T07 - IP	**124**	M2,2x5 - IP	**856**
70 805 614 / 70 804 614	T08 - IP	**125**	M2,5x6 - IP	**857**
70 805 616 / 70 804 616	T09 - IP	**126**	M3x7 - IP	**819**
70 805 618 / 70 804 618	T09 - IP	**126**	M3x7 - IP	**819**
70 805 620 / 70 804 620	T15 - IP	**128**	M3,5x8,6 - IP	**859**
70 805 625 / 70 804 625	T20 - IP	**129**	M4,5x10,5 - IP	**864**
70 805 632 / 70 804 632	T20 - IP	**129**	M4,5x10,5 - IP	**864**

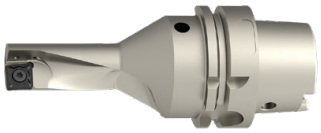
EcoCut – HSK-T 2.25xD

Scope of supply:

Toolholder with 1 clamping screw + 2 spare screws and screwdriver







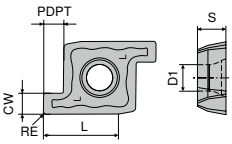
Illustrations show right-hand versions

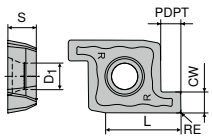
ISO designation	Adapter	LPR mm	LU mm	BDRED mm	WF mm	DMIN mm	Left-hand 74 591 ...	Right-hand 74 590 ...
HSK T63 EC 25 R/L 2,25D 13	HSK-T 63	125	56,5	53	12,5	25	**525**	**525**
HSK T63 EC 32 R/L 2,25D 17	HSK-T 63	125	72,0	53	16,0	32	**532**	**532**

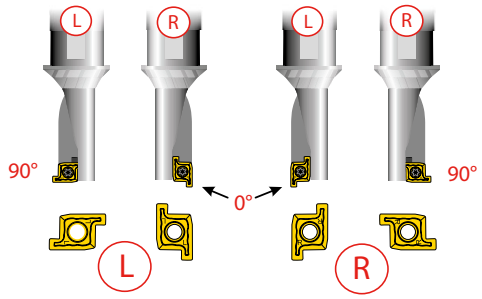
Spare parts for Article no.	Key D 80 950 ...	Clamping screw 70 950 ...
74 590 525 / 74 591 525	**114**	**01200**
74 590 532 / 74 591 532	**114**	**01200**

PM-R / PM-L

Designation	CW mm	PDPT mm	L mm	S mm	D1 mm
PM 10 G 201504	2,0	1,5	5,0	2,10	2,1
PM 12 G 201804	2,0	1,8	6,0	2,30	2,5
PM 16 G 252004	2,5	2,0	8,0	2,80	3,4
PM 20 G 302504	3,0	2,5	10,0	3,70	4,0
PM 25 G 353004	3,5	3,0	12,5	4,50	4,4
PM 32 G 404004	4,0	4,0	16,0	5,60	6,0



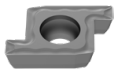


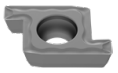


PM-L / PM-R









ISO	RE mm	M PM-L 70 289 ...	M PM-R 70 289 ...
PM 10 G 201504	0,4	510	511
PM 12 G 201804	0,4	515	516
PM 16 G 252004	0,4	520	521
PM 20 G 302504	0,4	525	526
PM 25 G 353004	0,4	530	531
PM 32 G 404004	0,4	535	536
P		●	●
M		●	●
K		○	○
N		○	○
S		●	●
H			
O		○	○

→ v_c Page 26

EcoCut – ProfileMaster 1.5xD

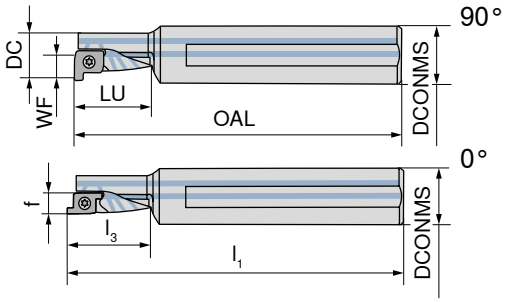
▲ Drilling, turning and grooving tool

Scope of supply:

Toolholder with one clamping screw and one screwdriver









											Left-hand	Right-hand
											70 821 ...	70 820 ...
Designation	DC mm	DCONMS mm	OAL mm	LU mm	WF mm	l_1 mm	l_3 mm	f mm	torque moment Nm	Insert		
PMC 10 R/L 1,5D	10	12	80	15,0	5,0				0,4	PM 10R/L	**010** 1)	**010** 1)
PMC 12 R/L 1,5D	12	16	90	18,0	6,0				1,0	PM 12R/L	**012** 1)	**012** 1)
PMC 16 R/L 1,5D	16	20	125	24,0	8,0	127,3	26,3	5,7	2,2	PM 16R/L	**016**	**016**
PMC 20 R/L 1,5D	20	25	150	30,0	10,0	152,8	32,8	7,2	2,2	PM 20R/L	**020**	**020**
PMC 25 R/L 1,5D	25	32	180	37,5	12,5	183,3	40,8	9,2	3,2	PM 25R/L	**025**	**025**
PMC 32 R/L 1,5D	32	40	200	48,0	16,0	204,3	52,3	11,7	5,0	PM 32R/L	**032**	**032**

1) only usable as 90° version


Key D


Clamping screw

			80 950 ...	70 950 ...
Spare parts for Article no.				
70 820 010 / 70 821 010	T06 - IP	**123**	M1,8x3,6 - IP	**862**
70 820 012 / 70 821 012	T07 - IP	**124**	M2,2x4,2 - IP	**137**
70 820 016 / 70 821 016	T09 - IP	**126**	M3x5,7 - IP	**008**
70 820 020 / 70 821 020	T15 - IP	**128**	M3x5,7 - IP	**009**
70 820 025 / 70 821 025	T15 - IP	**128**	M3,5x8,6 - IP	**859**
70 820 032 / 70 821 032	T20 - IP	**129**	M5x10,8 - IP	**010**

EcoCut – ProfileMaster 2.25xD

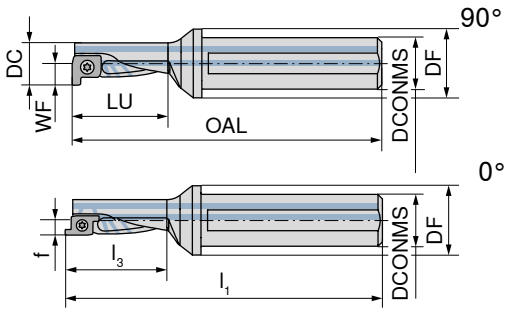
▲ Drilling, turning and grooving tool

Scope of supply:

Toolholder with one clamping screw and one screwdriver









												Left-hand		Right-hand	
												70 821 ...		70 820 ...	
Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	WF mm	l_1 mm	l_3 mm	f mm	torque moment Nm	Insert				
PMC 10 R/L 2,25D	10	12	18	72,4	22,5	5,0				0,4	PM 10R/L	**110**	1)	**110**	1)
PMC 12 R/L 2,25D	12	16	22	78,0	27,0	6,0				1,0	PM 12R/L	**112**	1)	**112**	1)
PMC 16 R/L 2,25D	16	20	28	96,5	36,0	8,0	98,8	38,3	5,7	2,2	PM 16R/L	**116**		**116**	
PMC 20 R/L 2,25D	20	25	35	111,0	45,0	10,0	113,8	47,8	7,2	2,2	PM 20R/L	**120**		**120**	
PMC 25 R/L 2,25D	25	32	44	132,6	56,3	12,5	135,9	59,6	9,2	3,2	PM 25R/L	**125**		**125**	
PMC 32 R/L 2,25D	32	40	54	158,0	72,0	16,0	162,3	76,3	11,7	5,0	PM 32R/L	**132**		**132**	

1) only usable as 90° version



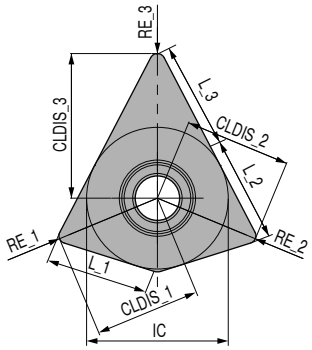
Key D

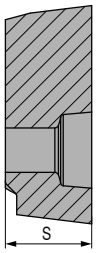


Clamping screw

		80 950 ...		**70 950 ...**
Spare parts for Article no.				
70 820 110 / 70 821 110	T06 - IP	**123**	M1,8x3,6 - IP	**862**
70 820 112 / 70 821 112	T07 - IP	**124**	M2,2x4,2 - IP	**137**
70 820 116 / 70 821 116	T09 - IP	**126**	M3x5,7 - IP	**008**
70 820 120 / 70 821 120	T15 - IP	**128**	M3x5,7 - IP	**009**
70 820 125 / 70 821 125	T15 - IP	**128**	M3,5x8,6 - IP	**859**
70 820 132 / 70 821 132	T20 - IP	**129**	M5x10,8 - IP	**010**

FT15 . 808055...



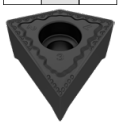


Designation	IC mm	CLDIS_1 mm	L_1 mm	CLDIS_2 mm	L_2 mm	CLDIS_3 mm	L_3 mm	S mm
FT15 M 808055R080804-MMF	15	11,22	10,8	11,22	11,4	15,78	11,4	9,14
FT15 M 808055R08-MMF	15	11,22	10,8	11,22	11,2	15,31	11,2	9,14
FT15 M 808055R121208-MMF	15	11,00	10,7	11,00	11,2	15,31	11,2	9,14

NEW

CTCP125

DRAGONSKIN



M M F

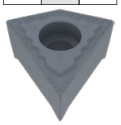
FT15 . 808055...

74 003 ...

NEW

CTPM125

DRAGONSKIN



M M F

FT15 . 808055...

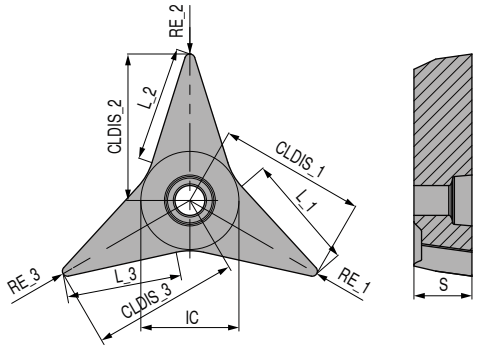
74 003 ...

ISO	RE_1 mm	RE_2 mm	RE_3 mm		
FT15 M 808055R080804-MMF	0,8	0,8	0,4	**00400**	
FT15 M 808055R08-MMF	0,8	0,8	0,8	**00200**	**10200**
FT15 M 808055R121208-MMF	1,2	1,2	0,8	**00600**	
P				●	○
M					●
K				○	
N					
S					
H					
O					

→ v_c Page 27

10

FT15 . 353535...



Designation	IC mm	CLDIS_1 mm	L_1 mm	CLDIS_2 mm	L_2 mm	CLDIS_3 mm	L_3 mm	S mm
FT15 G 353535R04-28P	15	24,01	16,1	24,01	16,1	24,01	16,1	9,14
FT15 G 353535R08-28P	15	23,08	15,2	23,08	15,2	23,08	15,2	9,14

NEW

-28P
H216T

DRAGONSKIN

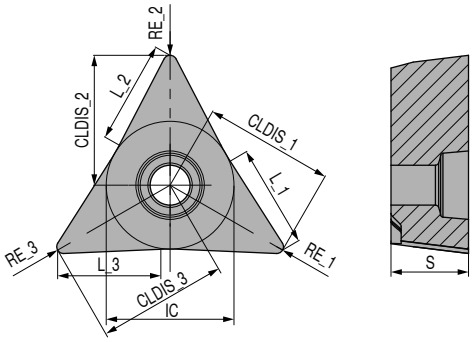


F F F
FT15 . 353535...
74 001 ...

ISO	RE_1 mm	RE_2 mm	RE_3 mm	
FT15 G 353535R04-28P	0,4	0,4	0,4	**20200**
FT15 G 353535R08-28P	0,8	0,8	0,8	**20400**
P				
M				
K				○
N				●
S				
H				
O				○

→ v_c Page 27

FT15 . 555555...



Designation	IC mm	CLDIS_1 mm	L_1 mm	CLDIS_2 mm	L_2 mm	CLDIS_3 mm	L_3 mm	S mm
FT15 M 555555R04-FFF	15	15,78	12,6	15,78	12,6	15,78	12,6	9,14
FT15 M 555555R08-FFF	15	15,31	12,3	15,31	12,3	15,31	12,3	9,14

NEW



F F F

FT15 . 555555...

74 002 ...

NEW



F F F

FT15 . 555555...

74 002 ...

ISO	RE_1 mm	RE_2 mm	RE_3 mm		
FT15 M 555555R04-FFF	0,4	0,4	0,4	**00200**	
FT15 M 555555R08-FFF	0,8	0,8	0,8	**00400**	**10400**
P				●	○
M					●
K				○	
N					
S					
H					
O					

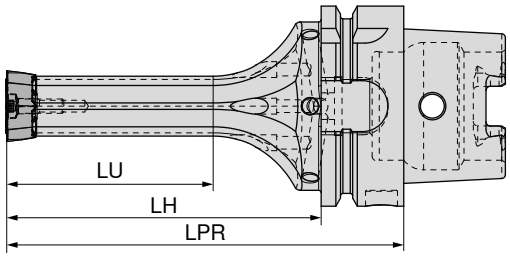
10

→ v_c Page 27

FreeTurn – HSK-T tool holder FT15

- Tool holder for FreeTurn indexable insert
- DirectCooling coolant supply







Figures show version FT15 . 808055...

NEW

DirectCooling

ISO designation	Adapter	LPR mm	LH mm	LU mm	Insert	74 700 ...
HSK-T63-100-FT15 353535	HSK-T 63	100	74	40	FT15 . 353535...	**00137**
HSK-T63-100-FT15 555555	HSK-T 63	100	74	40	FT15 . 555555...	**00337**
HSK-T63-100-FT15 808055	HSK-T 63	100	74	40	FT15 . 808055...	**00537**
HSK-T63-125-FT15 353535	HSK-T 63	125	99	65	FT15 . 353535...	**00237**
HSK-T63-125-FT15 555555	HSK-T 63	125	99	65	FT15 . 555555...	**00437**
HSK-T63-125-FT15 808055	HSK-T 63	125	99	65	FT15 . 808055...	**00637**



Key D

80 950 ...



Clamping screw

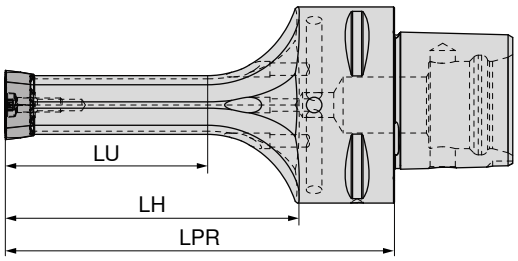
70 950 ...

Spare parts Adapter				
HSK-T 63	T20 - IP	**121**	M4,5x18 - IP	**25900**

FreeTurn – PSC tool holder FT15

- Tool holder for FreeTurn indexable insert
- DirectCooling coolant supply







Figures show version FT15 . 808055...

NEW

DirectCooling

74 700 ...

ISO designation	Adapter	LPR mm	LH mm	LU mm	Insert	
PSC-63-100-FT15 353535	PSC 63	100	69,4	40	FT15 . 353535...	**00193**
PSC-63-100-FT15 555555	PSC 63	100	69,6	40	FT15 . 555555...	**00393**
PSC-63-100-FT15 808055	PSC 63	100	69,3	40	FT15 . 808055...	**00593**
PSC-63-125-FT15 353535	PSC 63	125	94,4	65	FT15 . 353535...	**00293**
PSC-63-125-FT15 555555	PSC 63	125	94,6	65	FT15 . 555555...	**00493**
PSC-63-125-FT15 808055	PSC 63	125	94,3	65	FT15 . 808055...	**00693**



Key D

80 950 ...



Clamping screw

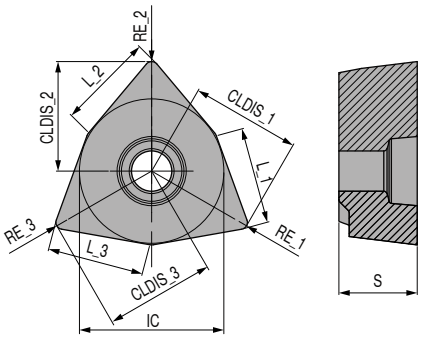
70 950 ...

Spare parts

Adapter				
PSC 63	T20 - IP	**121**	M4,5x18 - IP	**25900**

10

FT17 . 808080...

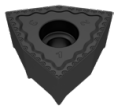


Designation	IC mm	CLDIS_1 mm	L_1 mm	CLDIS_2 mm	L_2 mm	CLDIS_3 mm	L_3 mm	S mm
FT17 M 808080R04-MMM	17	13,00	11,3	13,00	11,3	13,00	11,3	9,14
FT17 M 808080R08-MMM	17	12,78	11,3	12,78	11,3	12,78	11,3	9,14
FT17 M 808080R12-MMM	17	12,56	11,2	12,56	11,2	12,56	11,2	9,14

NEW

CTCP125

DRAGONSKIN



M M M

FT17 . 808080...

74 000 ...

NEW

CTPM125

DRAGONSKIN



M M M

FT17 . 808080...

74 000 ...

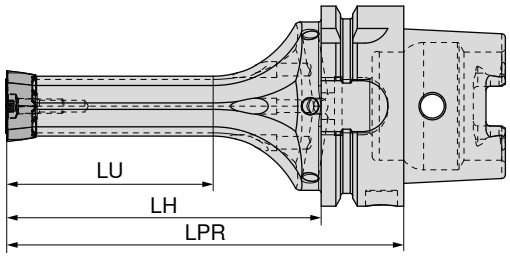
ISO	RE_1 mm	RE_2 mm	RE_3 mm		
FT17 M 808080R04-MMM	0,4	0,4	0,4	**00200**	
FT17 M 808080R08-MMM	0,8	0,8	0,8	**00400**	**10400**
FT17 M 808080R12-MMM	1,2	1,2	1,2	**00600**	
P				●	○
M					●
K				○	
N					
S					
H					
O					

→ v_c Page 27

FreeTurn – HSK-T tool holder FT17

- Tool holder for FreeTurn indexable insert
- DirectCooling coolant supply







NEW

DirectCooling

74 701 ...

ISO designation	Adapter	LPR mm	LH mm	LU mm	Insert	
HSK-T63-100-FT17 808080	HSK-T 63	100	74	40	FT17 . 808080...	**00737**
HSK-T63-125-FT17 808080	HSK-T 63	125	99	65	FT17 . 808080...	**00837**



Key D

80 950 ...



Clamping screw

70 950 ...

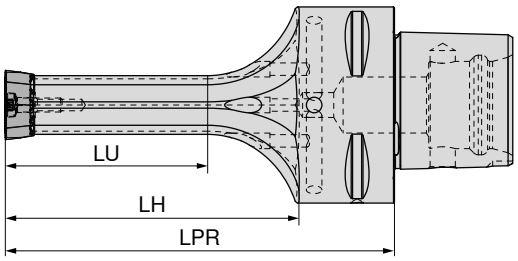
Spare parts				
Adapter				
HSK-T 63	T20 - IP	**121**	M4,5x18 - IP	**25900**

10

FreeTurn – PSC tool holder FT17

- Tool holder for FreeTurn indexable insert
- DirectCooling coolant supply







NEW

DirectCooling

74 701 ...

ISO designation	Adapter	LPR mm	LH mm	LU mm	Insert	
PSC-63-100-FT17 808080	PSC 63	100	69,3	40	FT17 . 808080...	**00793**
PSC-63-125-FT17 808080	PSC 63	125	94,3	65	FT17 . 808080...	**00893**



Key D

80 950 ...



Clamping screw

70 950 ...

Spare parts

Adapter				
PSC 63	T20 - IP	**121**	M4,5x18 - IP	**25900**

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²				
		O.3.1	Graphite						

*** Tensile strength**

10

Cutting data standard values for EcoCut

		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN			DRAGONSKIN
	EcoCut Mini CTWN425	EcoCut Mini CTPP435	EcoCut Classic CTCP425	EcoCut Classic CTCP435	EcoCut Classic CTPP430	EcoCut Classic H210T	EcoCut Classic H216T	EcoCut ProfileMaster CTPP430
Index	v_c in m/min							
P.1.1		**146**	**227**	**208**	**182**			**168**
P.1.2		**125**	**197**	**179**	**156**			**141**
P.1.3		**106**	**169**	**151**	**132**			**115**
P.1.4		**100**	**160**	**142**	**124**			**106**
P.1.5		**90**	**146**	**128**	**112**			**94**
P.2.1		**128**	**202**	**183**	**160**			**145**
P.2.2		**98**	**158**	**140**	**122**			**104**
P.2.3		**90**	**146**	**128**	**112**			**94**
P.2.4		**67**	**112**	**94**	**82**			**61**
P.3.1		**104**	**156**	**143**	**116**			**112**
P.3.2		**67**	**113**	**98**	**86**			**76**
P.3.3		**31**	**70**	**53**	**56**			**39**
P.4.1		**104**	**156**	**143**	**116**			**112**
P.4.2		**86**	**134**	**120**	**101**			**94**
M.1.1		**104**	156	143	**116**			**112**
M.2.1		**67**			**86**			**76**
M.3.1		**93**			**107**			**102**
K.1.1	140	140	205	185	160	110	**170**	180
K.1.2	115	120	205	185	140	90	**130**	260
K.2.1	150	140	200	180	160	120	**180**	160
K.2.2	110	120	200	180	140	85	**130**	250
K.3.1	170	150	195	175	125	140	**190**	130
K.3.2	140	125	195	175	110	110	**160**	230
N.1.1	**300**	40			40	**40**	**60**	300
N.1.2	**50**	290			290	**290**	**310**	200
N.2.1	**300**	290			290	**290**	**60**	300
N.2.2	**300**	190			190	**190**	**460**	200
N.2.3	**450**	340			340	**340**	**60**	150
N.3.1	**350**	240			240	**240**	**460**	300
N.3.2	**350**	240			240	**240**	**460**	300
N.3.3	**250**	190			190	**190**	**360**	200
N.4.1	**200**	140			140	**140**	**260**	200
S.1.1	38	**35**		35	55	**33**	43	**35**
S.1.2	28	**30**		30	55	**25**	33	**30**
S.2.1	28	**18**		18	55	**25**	33	**20**
S.2.2	24	**15**		15	55	**20**	25	**15**
S.2.3	20	**15**		15	55	**20**	20	**15**
S.3.1	90	**85**		85	70	**65**	110	**85**
S.3.2	55	**40**		40	60	**43**	70	**40**
S.3.3	40	**30**		30	40	**30**	50	**30**
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1	130	110			110	110	155	130
O.1.2								
O.2.1	105	95			95	95	140	105
O.2.2								
O.3.1								

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values for FreeTurn

	F		M		-28P
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	
	CTCP125	CTPM125	CTCP125	CTPM125	H216T
Index	v_c in m/min		v_c in m/min		v_c in m/min
P.1.1	**296**	203	**296**	203	
P.1.2	**253**	171	**253**	171	
P.1.3	**213**	142	**213**	142	
P.1.4	**199**	132	**199**	132	
P.1.5	**179**	118	**179**	118	
P.2.1	**259**	176	**259**	176	
P.2.2	**196**	130	**196**	130	
P.2.3	**179**	118	**179**	118	
P.2.4	**129**	81	**129**	81	
P.3.1	**169**	142	**169**	142	
P.3.2	**106**	97	**106**	97	
P.3.3	**43**	51	**43**	51	
P.4.1	**169**	142	**169**	142	
P.4.2	**137**	119	**137**	119	
M.1.1		**142**		**142**	
M.2.1		**97**		**97**	
M.3.1		**128**		**128**	
K.1.1	170		170		170
K.1.2	160		160		130
K.2.1	180		180		180
K.2.2	160		160		130
K.3.1	200		200		190
K.3.2	160		160		160
N.1.1					**1650**
N.1.2					**1350**
N.2.1					**1200**
N.2.2					**1100**
N.2.3					**600**
N.3.1					**525**
N.3.2					**500**
N.3.3					**375**
N.4.1					**275**
S.1.1					
S.1.2					
S.2.1					
S.2.2					
S.2.3					
S.3.1					
S.3.2					
S.3.3					
H.1.1					
H.1.2					
H.1.3					
H.1.4					
H.2.1					
H.3.1					
O.1.1					160
O.1.2					
O.2.1					140
O.2.2					
O.3.1					

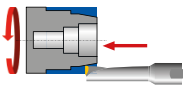
10

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Depth of Cut and Feedrate for EcoCut Mini

Turning

2.25xD

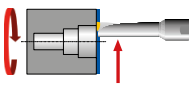


EcoCut Mini Size	Depth of Cut a_p in mm									
	0,25	0,5	0,75	1,0	1,5	2,0	2,5	3,0	3,5	4,0
	Feed rate f in mm/rev.									
ECM 02..	0,02–0,07	0,02–0,07								
ECM 02,5..	0,02–0,07	0,02–0,07	0,02–0,05							
ECM 03..	0,02–0,07	0,02–0,07	0,02–0,05	0,02–0,05						
ECM 03,5..	0,02–0,07	0,02–0,07	0,02–0,05	0,02–0,05	0,02–0,05					
ECM 04..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,07	0,01–0,05				
ECM 05..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,02–0,06	0,01–0,04			
ECM 06..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,02–0,06	0,01–0,04		
ECM 07..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,02–0,06	0,01–0,04	
ECM 08..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,02–0,06	0,01–0,04

4xD

EcoCut Mini Size	Depth of Cut a_p in mm									
	0,25	0,5	0,75	1,0	1,5	2,0	2,5	3,0	3,5	4,0
	Feed rate f in mm/rev.									
ECM 02..	0,02–0,05	0,01–0,05								
ECM 02,5..	0,02–0,05	0,01–0,05								
ECM 03..	0,02–0,05	0,02–0,05	0,01–0,05							
ECM 03,5..	0,02–0,05	0,02–0,05	0,02–0,05	0,01–0,05						
ECM 04..	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,01–0,05					
ECM 05..	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,085	0,02–0,06	0,01–0,04				
ECM 06..	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,085	0,02–0,06	0,01–0,04				
ECM 07..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,02–0,06	0,01–0,04			
ECM 08..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,095	0,03–0,08	0,02–0,06	0,01–0,04		

Face turning

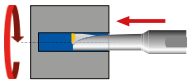


EcoCut Mini Size	2,25xD		4xD	
	$a_{p\,max.}$ in mm	f in mm/rev.	$a_{p\,max.}$ in mm	f in mm/rev.
ECM 02..	0,30	0,01–0,05	0,30	0,01–0,03
ECM 02,5..	0,30	0,01–0,05	0,30	0,01–0,03
ECM 03..	0,50	0,01–0,06	0,50	0,01–0,04
ECM 03,5..	0,50	0,01–0,06	0,50	0,01–0,04
ECM 04..	0,70	0,03–0,07	0,70	0,02–0,05
ECM 05..	0,70	0,03–0,07	0,70	0,02–0,05
ECM 06..	0,70	0,03–0,07	0,70	0,02–0,05
ECM 07..	1,00	0,04–0,08	1,00	0,03–0,06
ECM 08..	1,00	0,04–0,08	1,00	0,03–0,06

Depth of Cut and Feedrate for EcoCut Mini

Drilling

Feed rate



EcoCut Mini Size	2,25xD	4xD
	f in mm/rev.	f in mm/rev.
ECM 02..	0,0025–0,0075	0,0025–0,005
ECM 02,5..	0,0025–0,010	0,0025–0,005
ECM 03..	0,0025–0,0125	0,0025–0,010
ECM 03,5..	0,0025–0,0150	0,0025–0,010
ECM 04..	0,005–0,030	0,005–0,0125
ECM 05..	0,005–0,030	0,005–0,015
ECM 06..	0,005–0,030	0,005–0,020
ECM 07..	0,005–0,035	0,005–0,025
ECM 08..	0,005–0,040	0,005–0,030

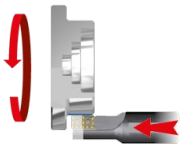
max. bore depth

EcoCut Mini Size	2,25xD	4xD
	Max. hole depth in mm	Max. hole depth in mm
ECM 02..	4,50	8,0
ECM 02,5..	5,63	10,0
ECM 03..	6,75	12,0
ECM 03,5..	7,88	14,0
ECM 04..	9,0	16,0
ECM 05..	11,25	20,0
ECM 06..	13,5	24,0
ECM 07..	15,75	28,0
ECM 08..	18,0	32,0

Depth of Cut and Feedrate for EcoCut Classic

Turning

1.5xD



EcoCut Classic Size	Depth of Cut a_p in mm											
	1	2	3	4	5	6	7	8	9	10	12	14
	Feed rate f in mm/rev.											
ECC 08	0,06–0,12	0,06–0,12	0,04–0,10	0,02–0,08								
ECC 10	0,07–0,15	0,07–0,15	0,05–0,13	0,04–0,11	0,02–0,09							
ECC 12	0,08–0,16	0,08–0,16	0,08–0,16	0,06–0,14	0,04–0,12	0,02–0,10						
ECC 14	0,09–0,18	0,09–0,18	0,09–0,18	0,09–0,18	0,07–0,16	0,05–0,14	0,02–0,11					
ECC 16	0,10–0,20	0,10–0,20	0,10–0,20	0,10–0,20	0,08–0,18	0,06–0,16	0,04–0,14	0,02–0,12				
ECC 18	0,11–0,22	0,11–0,22	0,11–0,22	0,11–0,22	0,11–0,22	0,09–0,20	0,07–0,18	0,05–0,16	0,03–0,13			
ECC 20	0,12–0,24	0,12–0,24	0,12–0,24	0,12–0,24	0,12–0,24	0,11–0,23	0,09–0,21	0,07–0,19	0,05–0,17	0,03–0,15		
ECC 25	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,11–0,24	0,09–0,22	0,07–0,20	0,03–0,16	
ECC 32	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,14–0,30	0,15–0,30	0,15–0,30	0,13–0,28	0,11–0,26	0,07–0,22	0,03–0,18

Feed f may be increased by 50–75 % when using -M50Q and -27Q.

2.25xD

EcoCut Classic Size	Depth of Cut a_p in mm										
	1,0	2,0	2,5	3,0	3,5	4,0	4,5	5,0	5,5	6,0	7,0
	Feed rate f in mm/rev.										
ECC 08	0,06–0,12	0,04–0,10	0,02–0,08								
ECC 10	0,07–0,15	0,05–0,13	0,03–0,11	0,02–0,09							
ECC 12	0,08–0,16	0,08–0,16	0,06–0,14	0,04–0,12	0,02–0,10						
ECC 14	0,09–0,18	0,09–0,18	0,07–0,16	0,05–0,14	0,04–0,13	0,02–0,11					
ECC 16	0,10–0,20	0,10–0,20	0,09–0,19	0,07–0,17	0,05–0,15	0,03–0,13					
ECC 18	0,11–0,22	0,11–0,22	0,11–0,22	0,09–0,20	0,07–0,18	0,05–0,16	0,03–0,14				
ECC 20	0,12–0,24	0,12–0,24	0,12–0,24	0,12–0,24	0,10–0,22	0,08–0,20	0,06–0,18	0,04–0,16			
ECC 25	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,12–0,25	0,10–0,23	0,08–0,21	0,06–0,19	0,04–0,17	
ECC 32	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,14–0,29	0,12–0,27	0,10–0,25	0,08–0,23	0,05–0,20

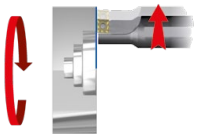
Feed f may be increased by 50–75 % when using -M50Q and -27Q.

3xD

EcoCut Classic Size	Depth of Cut a_p in mm								
	1,0	2,0	2,5	3,0	3,5	4,0	5,0	6,0	7,0
	Feed rate f in mm/rev.								
ECC 08	0,05–0,10	0,02–0,06							
ECC 10	0,06–0,11	0,03–0,07							
ECC 12	0,06–0,12	0,04–0,10	0,02–0,08						
ECC 14	0,07–0,13	0,05–0,11	0,02–0,09						
ECC 16	0,07–0,15	0,06–0,14	0,04–0,12	0,02–0,09					
ECC 18	0,08–0,16	0,08–0,16	0,06–0,14	0,04–0,12					
ECC 20	0,09–0,18	0,09–0,18	0,09–0,18	0,07–0,16	0,05–0,14	0,03–0,12			
ECC 25	0,10–0,19	0,10–0,19	0,10–0,19	0,08–0,17	0,06–0,15	0,03–0,13			
ECC 32	0,11–0,22	0,11–0,22	0,11–0,22	0,11–0,22	0,09–0,20	0,07–0,18	0,03–0,14		

Depth of Cut and Feedrate for EcoCut Classic

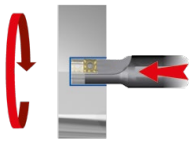
Face turning



EcoCut Classic Size	1,5xD		2,25xD		3xD	
	a_p in mm	f in mm/rev.	a_p in mm	f in mm/rev.	a_p in mm	f in mm/rev.
ECC 08	2,00	0,05–0,10	1,90	0,04–0,09	1,10	0,04–0,07
ECC 10	2,50	0,06–0,12	2,20	0,05–0,10	1,20	0,04–0,09
ECC 12	3,00	0,07–0,14	2,60	0,06–0,12	1,40	0,05–0,11
ECC 14	3,50	0,08–0,16	3,00	0,07–0,14	1,60	0,06–0,12
ECC 16	4,00	0,09–0,18	3,40	0,08–0,16	1,90	0,06–0,13
ECC 18	4,50	0,10–0,20	3,80	0,09–0,18	2,00	0,07–0,14
ECC 20	5,00	0,11–0,22	4,20	0,10–0,20	2,20	0,08–0,15
ECC 25	6,00	0,12–0,24	5,00	0,11–0,22	2,60	0,09–0,18
ECC 32	8,00	0,13–0,27	6,00	0,12–0,25	3,00	0,10–0,20

Drilling

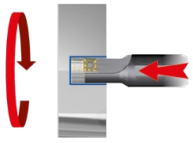
Feed rate



EcoCut Classic Size	1,5xD	2,25xD	3xD
	f in mm/rev.	f in mm/rev.	f in mm/rev.
ECC 08	0,01–0,04	0,01–0,04	0,01–0,02
ECC 10	0,01–0,05	0,01–0,05	0,01–0,03
ECC 12	0,01–0,05	0,01–0,05	0,01–0,04
ECC 14	0,01–0,07	0,01–0,07	0,01–0,05
ECC 16	0,02–0,08	0,02–0,08	0,02–0,06
ECC 18	0,03–0,09	0,03–0,09	0,03–0,07
ECC 20	0,03–0,10	0,03–0,10	0,03–0,08
ECC 25	0,03–0,12	0,03–0,12	0,04–0,09
ECC 32	0,05–0,15	0,05–0,15	0,05–0,11

10

max. bore depth

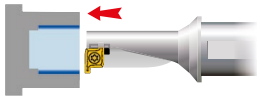


EcoCut Classic Size	1,5xD	2,25xD	3xD
	Max. hole depth in mm	Max. hole depth in mm	Max. hole depth in mm
ECC 08	12,0	18,0	24,0
ECC 10	15,0	22,5	30,0
ECC 12	18,0	27,0	36,0
ECC 14	21,0	31,5	42,0
ECC 16	24,0	36,0	48,0
ECC 18	27,0	40,5	54,0
ECC 20	30,0	45,0	60,0
ECC 25	37,5	56,5	75,0
ECC 32	48,0	72,0	96,0

Depth of Cut and Feedrate for EcoCut ProfileMaster 90°

Turning

1,5xD



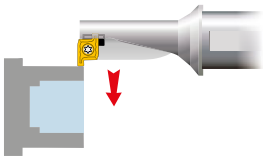
EcoCut ProfileMaster Size	Depth of Cut a_p in mm							
	1	2	3	4	5	6	7	8
	Feed rate f in mm/rev.							
EC PM 10	0,07–0,20	0,05–0,17	0,02–0,12					
EC PM 12	0,07–0,20	0,05–0,17	0,02–0,12					
EC PM 16	0,10–0,25	0,07–0,23	0,05–0,21	0,02–0,17				
EC PM 20	0,12–0,27	0,10–0,26	0,007–0,24	0,05–0,20	0,02–0,14			
EC PM 25	0,15–0,30	0,15–0,30	0,13–0,28	0,10–0,26	0,05–0,22	0,02–0,18		
EC PM 32	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,10–0,27	0,07–0,24	0,05–0,21	0,02–0,15

2,25xD

EcoCut ProfileMaster Size	Depth of Cut a_p in mm							
	1	2	3	4	5	6	7	8
	Feed rate f in mm/rev.							
EC PM 10	0,07–0,19	0,02–0,13						
EC PM 12	0,07–0,19	0,02–0,13						
EC PM 16	0,10–0,25	0,07–0,21	0,02–0,13					
EC PM 20	0,12–0,27	0,07–0,24	0,05–0,19					
EC PM 25	0,15–0,30	0,10–0,27	0,07–0,23	0,02–0,15				
EC PM 32	0,15–0,30	0,15–0,30	0,10–0,27	0,07–0,23	0,02–0,15			

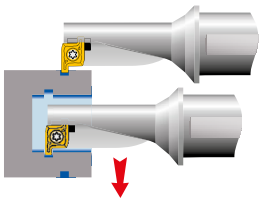
Face turning

1.5xD and 2.25xD



EcoCut ProfileMaster Size	Depth of Cut a_p in mm					
	1,0	1,5	2,0	2,5	3,0	3,5
	Feed rate f in mm/rev.					
EC PM 10	0,02–0,15	0,02–0,15				
EC PM 12	0,02–0,15	0,02–0,15				
EC PM 16	0,05–0,20	0,05–0,20	0,05–0,20			
EC PM 20	0,08–0,22	0,08–0,22	0,08–0,22	0,08–0,22		
EC PM 25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	
EC PM 32	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25

Internal + external – radial grooving

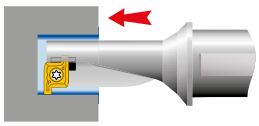


EcoCut ProfileMaster Size	1,5xD
	f in mm/rev.
EC PM 10	0,01–0,08
EC PM 12	0,02–0,10
EC PM 16	0,04–0,15
EC PM 20	0,04–0,16
EC PM 25	0,07–0,20
EC PM 32	0,08–0,22

EcoCut ProfileMaster Size	2,25xD
	f in mm/rev.
EC PM 10	0,01–0,08
EC PM 12	0,02–0,10
EC PM 16	0,04–0,15
EC PM 20	0,04–0,16
EC PM 25	0,07–0,20
EC PM 32	0,08–0,22

Drilling

Feed and max. hole depth



EcoCut ProfileMaster Size	1,5xD	
	f in mm/rev.	Max. hole depth in mm
EC PM 10	0,01–0,05	15,0
EC PM 12	0,01–0,06	18,0
EC PM 16	0,02–0,09	24,0
EC PM 20	0,03–0,10	30,0
EC PM 25	0,04–0,12	37,5
EC PM 32	0,04–0,14	48,0

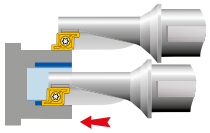
EcoCut ProfileMaster Size	2,25xD	
	f in mm/rev.	Max. hole depth in mm
EC PM 10	0,01–0,05	22,5
EC PM 12	0,01–0,06	27,0
EC PM 16	0,02–0,09	36,0
EC PM 20	0,03–0,10	45,0
EC PM 25	0,04–0,12	56,3
EC PM 32	0,04–0,14	72,0

Depth of Cut and Feedrate for EcoCut ProfileMaster 0°

EcoCut ProfileMaster Sizes 10 and 12 can not be used as 0 ° version.

Turning

1,5xD



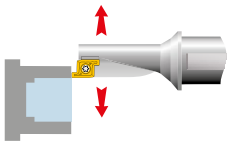
EcoCut ProfileMaster Size	Depth of cut a_p in mm					
	1,0	1,5	2,0	2,5	3,0	3,5
	Feed rate f in mm/rev.					
EC PM 16	0,04–0,20	0,04–0,20	0,04–0,20			
EC PM 20	0,06–0,22	0,06–0,22	0,06–0,22	0,06–0,22		
EC PM 25	0,08–0,25	0,08–0,25	0,08–0,25	0,08–0,25	0,08–0,25	
EC PM 32	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28

2,25xD

EcoCut ProfileMaster Size	Depth of cut a_p in mm					
	1,0	1,5	2,0	2,5	3,0	3,5
	Feed rate f in mm/rev.					
EC PM 16	0,04–0,20	0,04–0,20	0,04–0,20			
EC PM 20	0,06–0,22	0,06–0,22	0,06–0,22	0,06–0,22		
EC PM 25	0,08–0,25	0,08–0,25	0,08–0,25	0,08–0,25	0,08–0,25	
EC PM 32	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28

Face turning

1,5xD

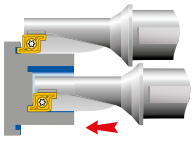


EcoCut ProfileMaster Size	Depth of cut a_p in mm						
	1,0	1,5	2,0	2,5	3,0	3,5	4,0
	Feed rate f in mm/rev.						
EC PM 16	0,05–0,20	0,05–0,20	0,05–0,20				
EC PM 20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20			
EC PM 25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25		
EC PM 32	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25

2,25xD

EcoCut ProfileMaster Size	Depth of cut a_p in mm						
	1,0	1,5	2,0	2,5	3,0	3,5	4,0
	Feed rate f in mm/rev.						
EC PM 16	0,05–0,20	0,05–0,20	0,05–0,20				
EC PM 20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20			
EC PM 25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25		
EC PM 32	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25

Axial grooving external + internal



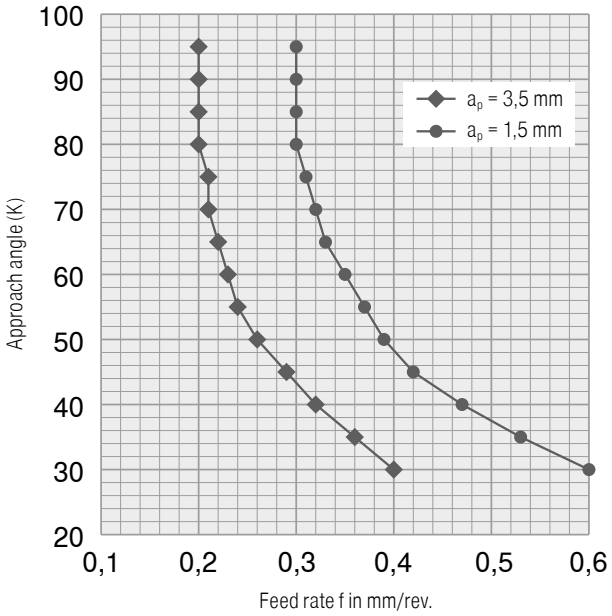
EcoCut ProfileMaster Size	1,5xD
	Feed rate f in mm/rev.
EC PM 16	0,02–0,12
EC PM 20	0,04–0,14
EC PM 25	0,06–0,18
EC PM 32	0,08–0,20

EcoCut ProfileMaster Size	2,25xD
	Feed rate f in mm/rev.
EC PM 16	0,02–0,12
EC PM 20	0,04–0,14
EC PM 25	0,06–0,18
EC PM 32	0,08–0,20

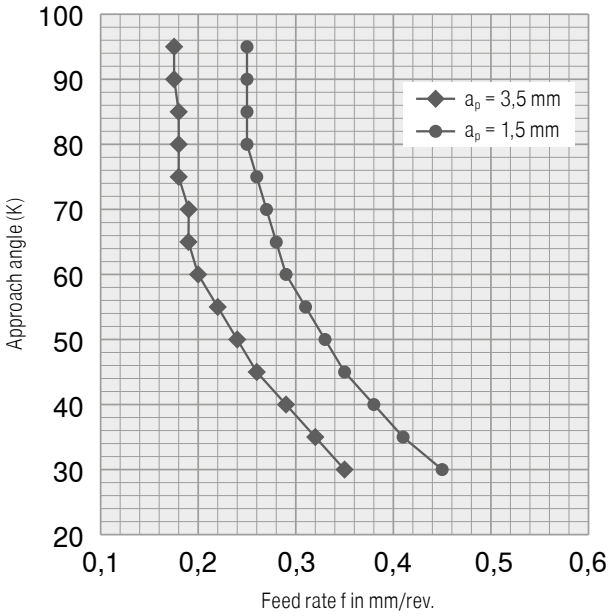
Initial curves for FreeTurn

	Material				Inserts		v_c in m/min	Cooling
Steel	1.7225	42CrMo4	1010 N/mm²	P.2.3	FT1x M 80xxxxR08 -M	CTCP125	200	Emulsion
Stainless steel	1.4301	X5CrNi18-10	610 N/mm²	M.1.1	FT1x M 80xxxxR08 -M	CTPM125	180	Emulsion
Non ferrous metals	3.2341	G-AlSi 5 Mg	200 N/mm²	N.2.2	FT1x G 35xxxxR08-28P	H210T	900	Emulsion

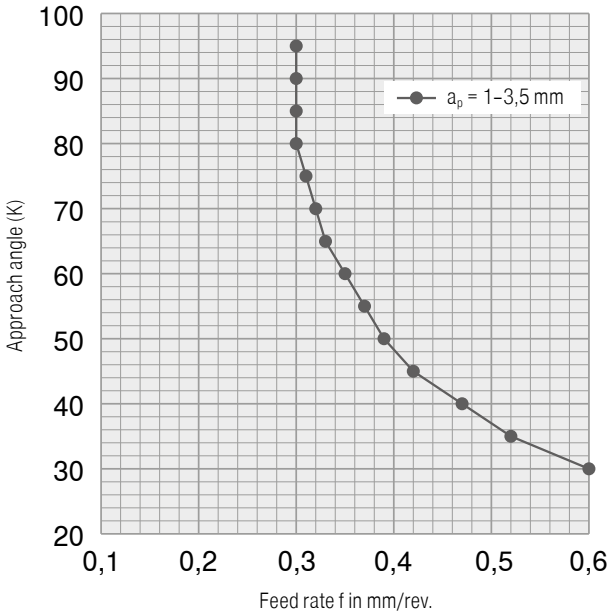
Steel



Stainless steel

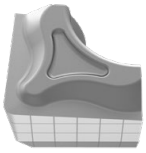
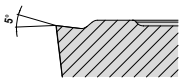
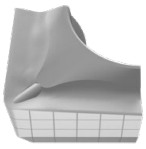
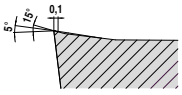
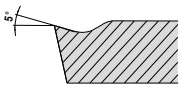
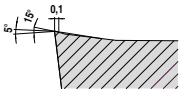


Non ferrous metals

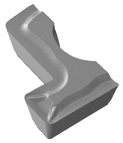
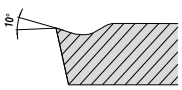


Chip Breakers Overview

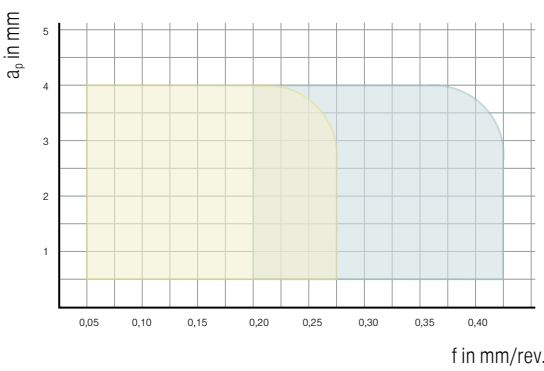
EcoCut Classic

Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration f mm
-EN ▲ Universal geometry ▲ Excellent chip breakage ▲ Positive cutting edge ▲ Low to medium feeds		**CTCP425** **CTCP425 / CTPP430** CTCP425 CTPP430 CTCP435 / CTPP430 CTCP435 / CTPP430	**CTCP435 / CTPP430** **CTPP430** CTCP435 / CTPP430 CTPP430 CTCP435 / CTPP430 CTCP435 / CTPP430	**CTPP430 / CTCP435** **CTPP430** CTCP435 CTPP430 CTCP435 CTCP435	 0,05–0,275
-M50Q ▲ With wiper geometry ▲ Excellent surface qualities ▲ Good chip formation ▲ Medium to high feeds		**CTCP425** CTCP425 CTCP425	**CTCP425** CTCP425	 0,2–0,425
-27P ▲ Positive cutting edge ▲ Periphery ground ▲ Polished rake face ▲ First choice for non-ferrous metals		**H216T** **H216T** H216T H216T	**H216T** **H216T** H216T H216T	**H216T** **H216T**	 0,1–0,4
-27Q ▲ With wiper geometry ▲ Extremely positive geometry ▲ Periphery ground ▲ Low adhesion		H210T **H210T** **H210T** H210T	H210T **H210T** **H210T** H210T	 0,2–0,5

EcoCut ProfileMaster

Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration f mm
-M20 ▲ Positive geometry ▲ Universal application ▲ Low to medium feeds		**CTPP430** **CTPP430** CTPP430 CTPP430 **CTPP430** CTPP430	**CTPP430** **CTPP430** CTPP430 CTPP430 **CTPP430** CTPP430	**CTPP40** **CTPP430** CTPP430 CTPP430 CTPP430	 0,05–0,25

Application area of -EN and -M50Q chip breakers



EcoCut Classic 2.25xD – ECC16 – XCNT 080304

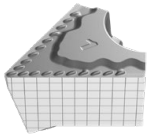
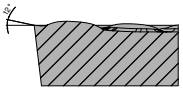
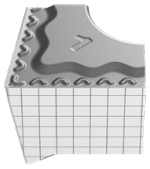
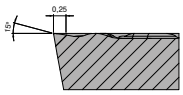
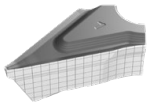
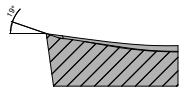
= -M50Q

= Standard

10

Chip Breakers Overview

FreeTurn

	Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration f mm
-F ▲ Traditional finishing geometry ▲ High surface quality ▲ First choice for finishing steel		**CTCP125** CTCP125	**CTCP125** CTCP125		 0–6
-M ▲ Average to rough machining ▲ Aggressive chip breaker		CTPM125 **CTPM125**	CTPM125 **CTPM125**		 0–6
-28P ▲ Traditional finishing geometry ▲ Sharp cutting edge ▲ First choice for aluminium		H216T **H216T** H216T	H216T **H216T** H216T	H216T **H216T**	 0–1,8

EcoCut Classic – Application as the most stable boring tool

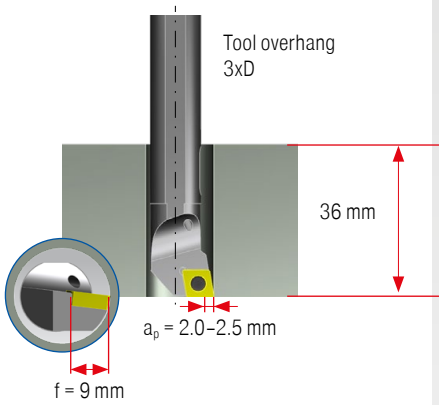
EcoCut can be used not only as a multifunctional tool. In comparison with a boring bar EcoCut used as a pure boring tool gives the user enormous benefits.

Example: machining bores, 16 mm diameter by 36 mm depth

Differences in the tool

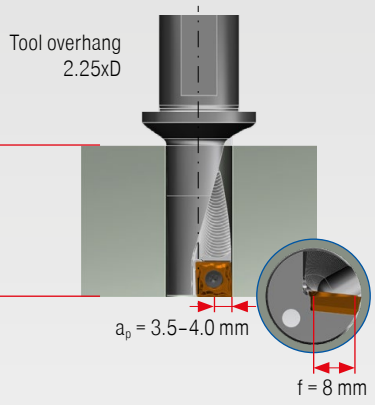
Boring Bar

A12K SCFCR 06



EcoCut Classic

ECC 16R-2.25D 08



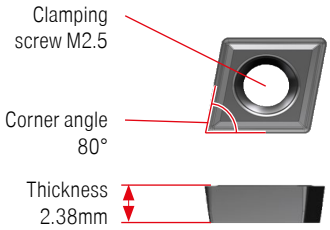
Your Advantages

Large, stable toolholder
- Absorption of high cutting forces
- Low vibration
- Chip Booster for perfect cooling and chip evacuation

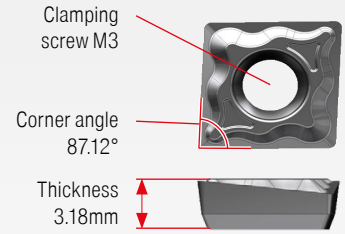
Benefits
- High surface quality
- Perfect chip control
- Max. process security

Differences in the insert

CCMT 060204



XCNT 080304

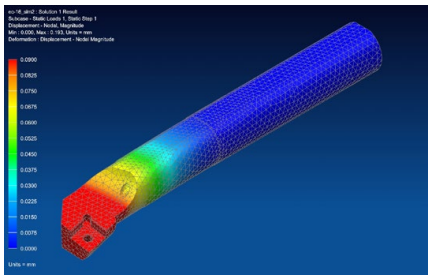


Large and stable insert
- Increased process security
- Enables large depths of cut
- Higher cutting data
- Higher tool life

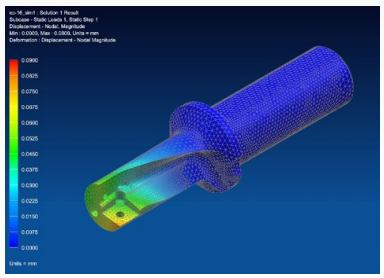
Benefits
- Reduction in machining time
- Increased productivity
- Reduced tooling costs

Stability Comparison

Calculation using FEM
A load of 1000 N on the insert seat corresponds to an approx. a_p of 2.0 mm and f 0.2 mm



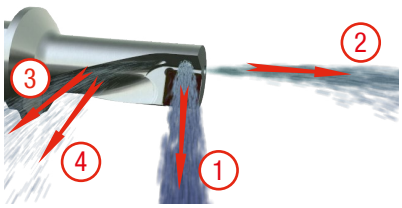
Deflection 0.19mm



Deflection 0.08mm

Practical experience shows:
- Reduced machining time by up to **75 %**
- Increase in tool life by **400 %** possible

Innovative chip removal – Chip-Booster



EcoCut tools are equipped with a unique coolant and chip removal system.

1. Cooling of the indexable insert
2. General coolant stream
3. Chip booster for improved chip transport
4. Chip booster prevents chips from getting stuck between tool and workpiece

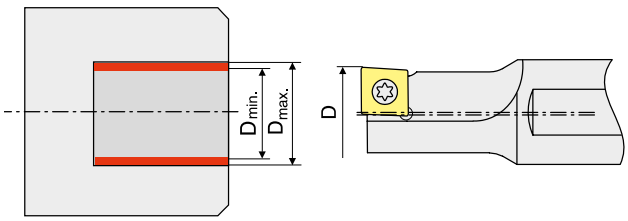
For maximum chip transport efficiency when drilling, coolant pressure must be 3–6 bar minimum (optimal 7–10 bar).

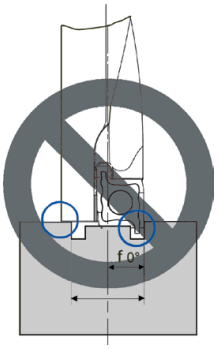
10

Application Tips

Drilling Off centre

Due to the special construction of the EcoCut tool and insert, off-centre drilling is possible.
Deviations from the tool nominal Ø, can be achieved (see adjacent table).





ProfileMaster 0°
Not suitable for drilling!

EcoCut Mini	Tool nominal-Ø	Work piece bore Ø	
	D in mm	$D_{min.}$ in mm	$D_{max.}$ in mm
ECM 02 L/R - ...D	2	1,95	2,1
ECM 02,5 L/R - ...D	2,5	2,45	2,6
ECM 03 L/R - ...D	3	2,95	3,15
ECM 03,5 L/R - ...D	3,5	3,45	3,65
ECM 04 R/L - ...D	4	3,90	4,20
ECM 05 R/L - ...D	5	4,90	5,20
ECM 06 R/L - ...D	6	5,90	6,20
ECM 07 R/L - ...D	7	6,90	7,20
ECM 08 R/L - ...D	8	7,90	8,20

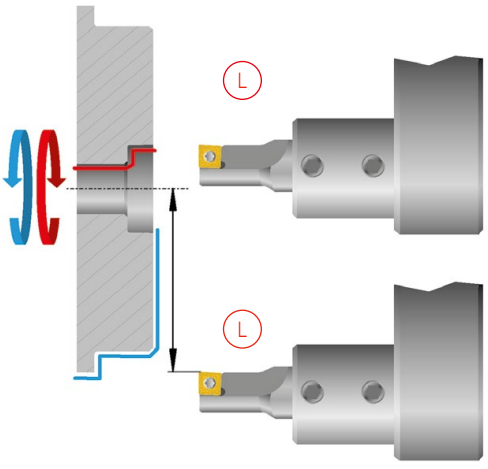
EcoCut Classic	Tool nominal-Ø	Work piece bore Ø	
	D in mm	$D_{min.}$ in mm	$D_{max.}$ in mm
ECC 08 R/L - ... 04	8	7,85	8,30
ECC 10 R/L - ... 05	10	9,85	10,50
ECC 12 R/L - ... 06	12	11,85	12,50
ECC 14 R/L - ... 07	14	13,85	14,50
ECC 16 R/L - ... 08	16	15,85	16,50
ECC 18 R/L - ... 09	18	17,85	18,50
ECC 20 R/L - ... 10	20	19,80	20,50
ECC 25 R/L - ... 13	25	24,80	25,80
ECC 32 R/L - ... 17	32	31,80	33,00

EcoCut ProfileMaster	Tool nominal-Ø	Work piece bore Ø	
	D in mm	$D_{min.}$ in mm	$D_{max.}$ in mm
PM 10R/L ...	10	9,85	12
PM 12R/L ...	12	11,85	15
PM 16R/L ...	16	15,85	19
PM 20R/L ...	20	19,80	24
PM 25R/L ...	25	24,80	29
PM 32R/L ...	32	31,80	38

Machining over centre

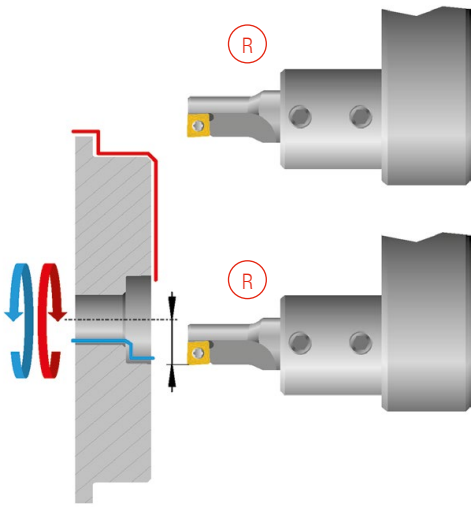
Problem

In case of insufficient movement of the machine across the centre line, the external diameter can not be machined with the same tool.



Solution

Use a right hand EcoCut tool.

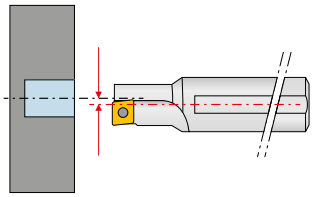


Application Tips

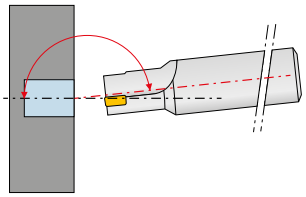
With axial displacement there is the danger of collision!

Problems

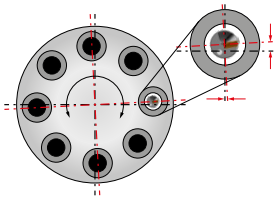
Displacement in x-direction:



Angular error:



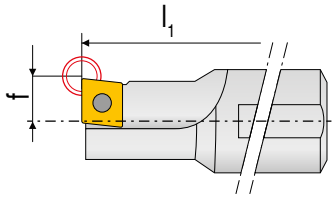
Turret position error:



Remedy

When pre-setting the tool:

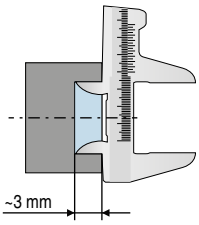
- Definition as an internal turning tool for programming



- Enter the tool nominal Ø as bore target Ø

At the machine:

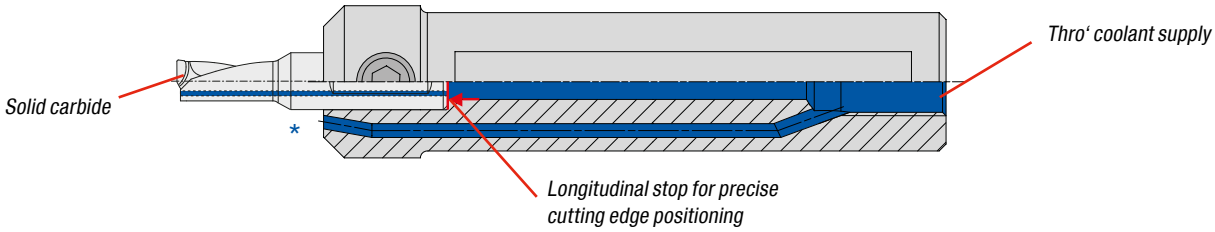
- Make measuring cut, approx. 3 mm deep
- Measure drilled diameter produced



- If necessary correct drilling Ø
- Start machining

10

EcoCut Mini adapter – Design



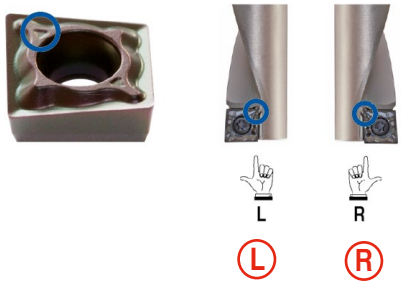
* Cross-section rotated by 90° for clarity

Mounting of the insert for EcoCut Classic

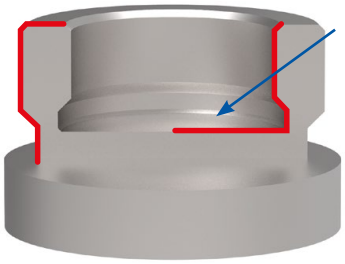
For tools up to Ø 8 mm right and left handed inserts are required. From Ø 10–32 mm neutral inserts are used.

Note!
Ensure correct installation position.





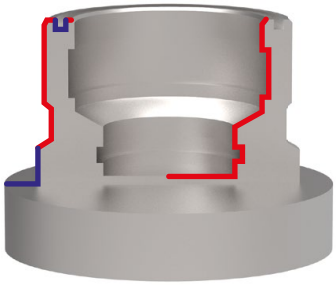
EcoCut ProfileMaster – the highlight with regard to efficiency



Right hand tools



right hand insert



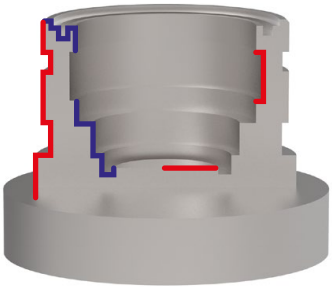
Right hand tools



left hand insert



right hand insert



Left hand tool

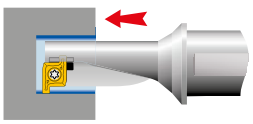


Right hand tools



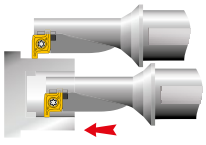
right hand insert

Version 90°



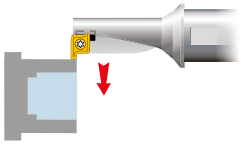
Drilling into solid material with flat bottom hole

Boring

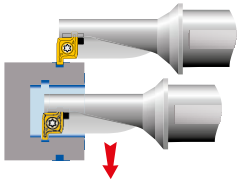


Turning External Diameters

Turning Internal Diameters



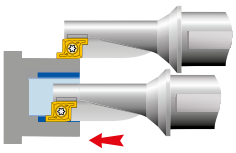
Turning Profiles



External radial grooving

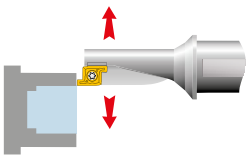
Internal radial grooving

Version 0°

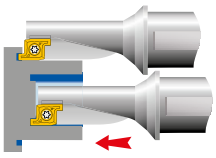


Turning External Diameters

Turning Internal Diameters



Turning Profiles



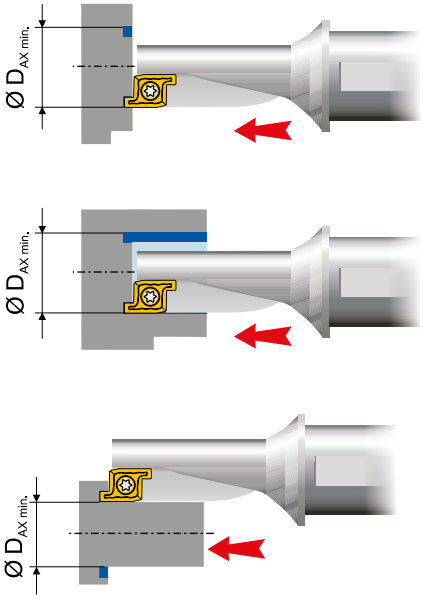
Axial grooving external

Axial grooving internal

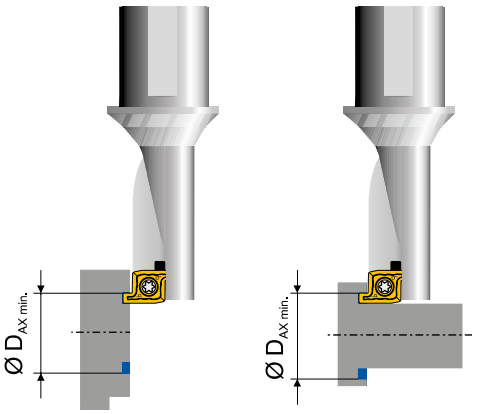
For maximum chip transport efficiency when drilling, coolant pressure must be 3 – 6 bar minimum (optimal 7 – 10 bar).

EcoCut ProfileMaster – Axial Grooving

0° (from Ø 16 mm)

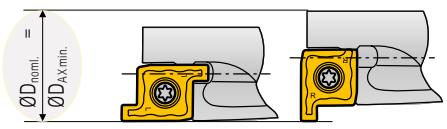


90°



EcoCut ProfileMaster	$ØD_{noml.}$ mm	$ØD_{AX\ min.}$ mm	$ØD_{AX\ max.}$ mm
PM 10R/L 1,5D	10	10	> 10
PM 10R/L 2,25D	10	10	> 10
PM 12R/L 1,5D	12	12	> 12
PM 12R/L 2,25D	12	12	> 12
PM 16R/L 1,5D	16	16	> 16
PM 16R/L 2,25D	16	16	> 16
PM 20R/L 1,5D	20	20	> 20
PM 20R/L 2,25D	20	20	> 20
PM 25R/L 1,5D	25	25	> 25
PM 25R/L 2,25D	25	25	> 25
PM 32R/L 1,5D	32	32	> 32
PM 32R/L 2,25D	32	32	> 32

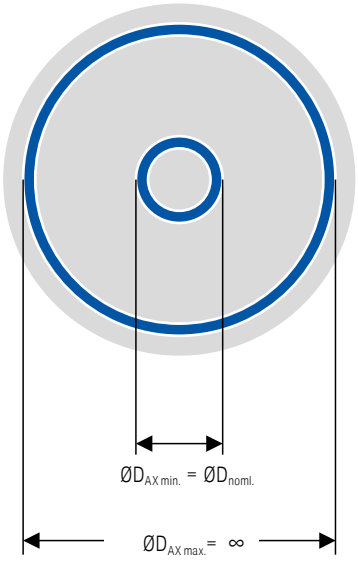
$ØD_{AX\ min.} = ØD_{noml.}$



$ØD_{noml.}$ = Nominal tool diameter

$ØD_{AX\ min.}$ = smallest diameter for axial grooving

$ØD_{AX\ max.}$ = largest diameter for axial grooving



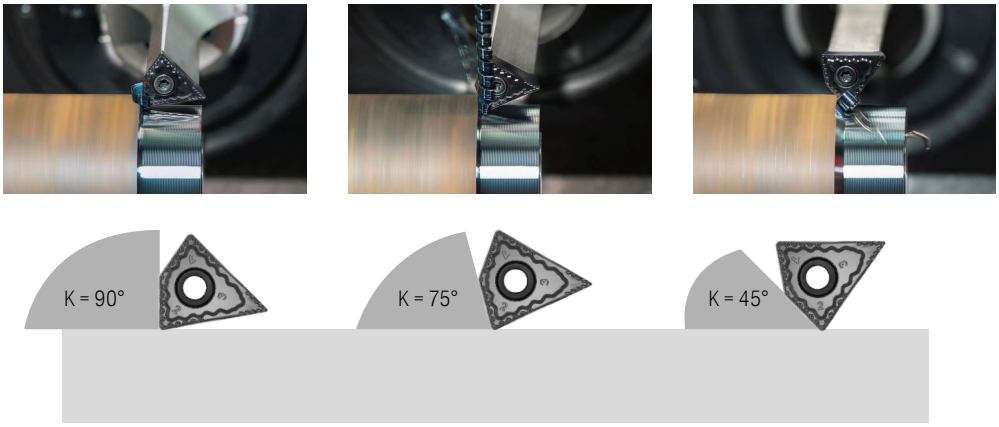
Application Tips

Recommendation for Optimum Results

Type of problem								Remedy measures		
Type of wear				Work piece problems		Swarf control				
Edge breakage	Built-up edge	Wear on clearance face	Plastic deformation	Vibration	Surface quality	Chip too long (snarl chip)	Chip too short (fragmented chip)			
	↑	↓	↓	↓	↑	↓			Cutting data	Cutting speed
↓		~	↓	↑	↓	↑	↓			Feed rate
↑		↑	↑	↓	↑				Insert selection	Corner radius (larger ↑ / smaller ↓)
↓		↑	↑							Tool Material (Wear resistance ↑ / toughness ↓)
~				~	~				General criteria	Tool clamping
~				~	~					Work piece clamping
~				~	↓					Overhang
~		~		~	~					Tip height
	●	●	●		●	●				Cooling lubricant

↑ raise, increase large influence
↑ raise, increase small influence
↓ avoid, reduce large influence
↓ avoid, reduce small influence
~ control, optimize
● use

Factors influencing the selection of the correct cutting angle

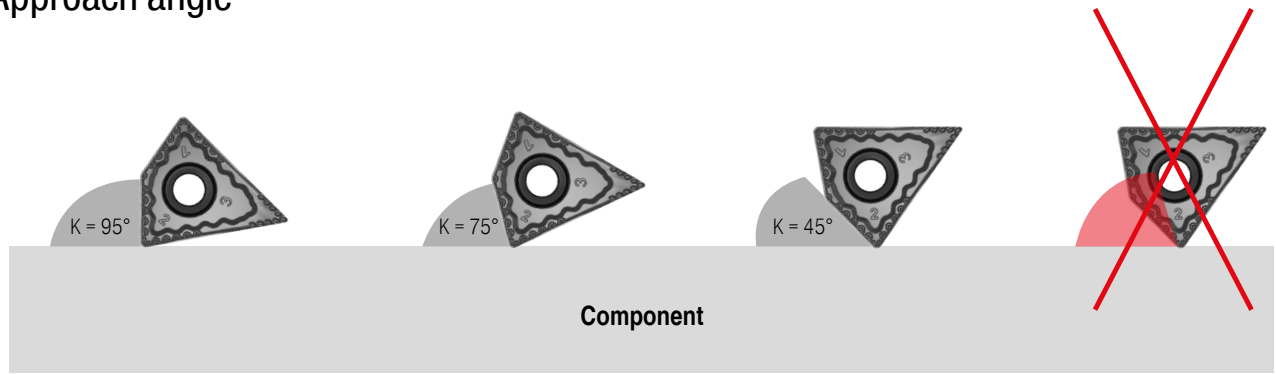


Feed rate	low	high
Axial force	high	low
Radial force	low	high
maximum depth of cut	high	low
Chip thickness	high	low
Heat	high	low
clamping stability	low	high

Heat distribution on the cutting edge

10

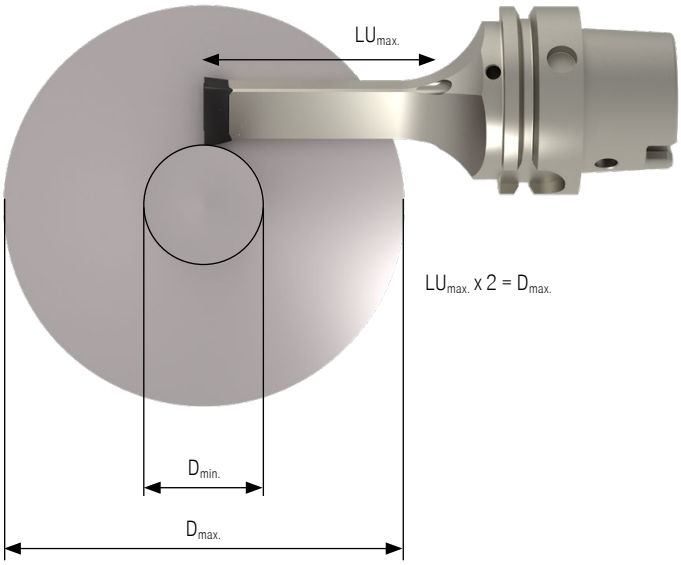
Approach angle



The approach angle always works from the edge of the component to the main cutting edge (tool).

Tool / workpiece length ratio



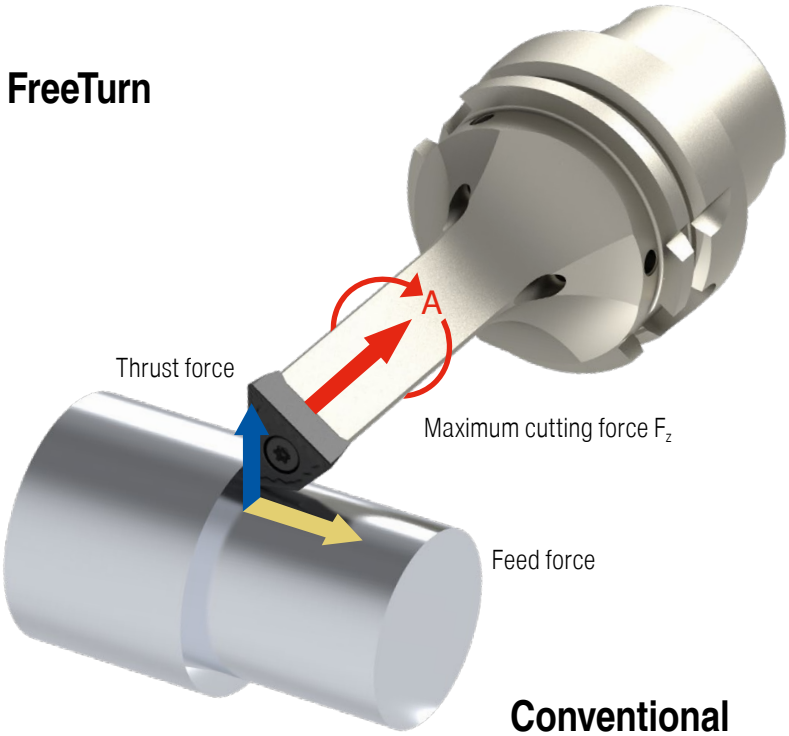


This table shows the diameter ranges you can work in with the different tool lengths.

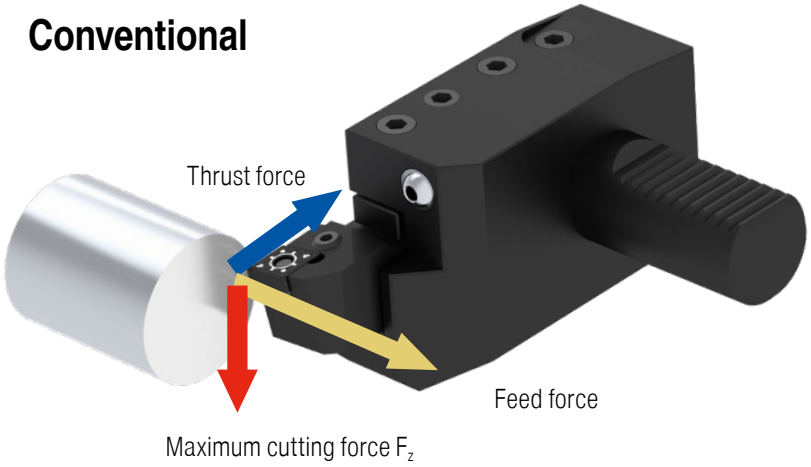
Tool	$D_{max.}$ in mm	200	190	180	170	160	150	140	130	120	110	100	90	80
PSC-63-**100**-FT 808055	$D_{min.}$ in mm					127	115	102	88	73	56	34	0	0
PSC-63-**125**-FT 808055	$D_{min.}$ in mm	138	125	110	90	70	42	0	0	0	0	0	0	0

Force data from the process

FreeTurn



Conventional



Practical test	
Steel machining shaft Ø 60 mm 1.7227 / 42CrMoS4 R_m 850 Nm	Cutting data: v_c = 175 m/min. f = 0.3 mm/rev. a_p = 3.0 mm K = 95°

10

FreeTurn		Conventional
2136 N	F XYZ	2206 N
920 N	F XY (feed force)	2143 N
1928 N	Maximum cutting force F_z	526 N

Grades Overview

EcoCut Classic

CTCP425
Carbide, Ti+Al_2O_3-coated
ISO | **P25** | K30 | M20
The wear-resistant choice for steel and cast iron materials under stable conditions and at high cutting speeds

CTCP435
Carbide, Ti+Al_2O_3-coated
ISO | **P35** | M30 | K40
The reliable choice for steel and cast iron materials under unstable conditions

CTPP430
Carbide. TiAlN-coated
ISO | **P30** | **M25** | K30 | N25 | S25 | O25
The universal high-performance grade for steel, austenitic steel and heat-resistant alloys

H210T
Carbide, uncoated
ISO | K10 | **N10** | **S10** | O10
The wear-resistant carbide grade for machining aluminium and other non-ferrous metals

H216T
Carbide, uncoated
ISO | **K15** | **N15** | S15 | O15
The uncoated carbide grade for machining aluminium and other non-ferrous metals
Also highly suitable for HSC machining

FreeTurn

CTCP125
Carbide, TiCN-Al_2O_3-coated
ISO | **P25** | K25
The first choice for universal machining of steels

CTPM125
ISO | P35 | **M25**
The universal carbide grade with maximum toughness, without affecting the necessary hot hardness and wear resistance for stainless machining

H216T
Carbide, uncoated
ISO | K15 | **N15** | S15 | O15
The uncoated carbide grade for machining aluminium and other non-ferrous metals
Also highly suitable for HSC machining

EcoCut Mini

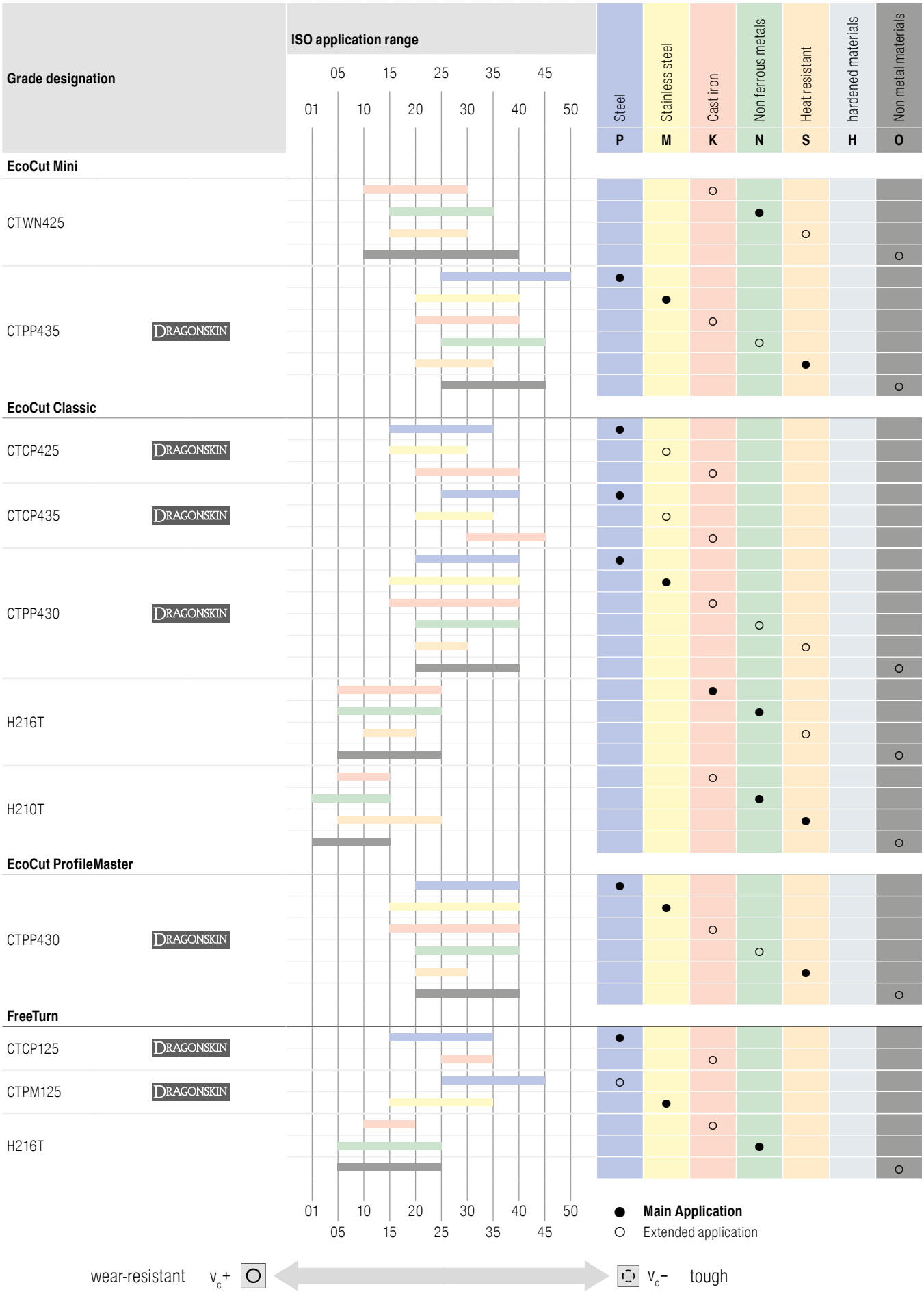
CTPP435
Carbide, TiAlN-coated
ISO | **P35** | **M30** | K30 | N30 | **S30** | O30
The universal high-performance grade for steel, austenitic steel and heat-resistant alloys

CTWN425
Carbide, uncoated
ISO | K20 | **N25** | S25 | O25
The uncoated carbide grade for machining aluminium and other non-ferrous metals

EcoCut ProfileMaster

CTPP430
Carbide. TiAlN-coated
ISO | **P30** | **M25** | K30 | N25 | **S25** | O25
The universal high-performance grade for steel, austenitic steel and heat-resistant alloys

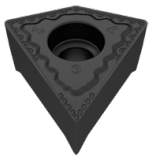
Application



10

Designation System

FreeTurn – indexable insert designation



FT15	M/G	808055	R	080804	Q	MMF	CTCP125
1 2	3	4 5 6	7	8 9	10	11	12

1 FreeTurn
2 Nominal diameter in mm
3 ISO tolerance (M = sintered, G = polished)
4 Cutter angle 1 in degrees
5 Cutter angle 2 in degrees
6 Cutter angle 3 in degrees
7 Corner radius 1 in mm
8 Corner radius 2 in mm
9 Corner radius 3 in mm
10 Masterfinish – wiper geometry
11 Chip breaker (M = medium, F = fine)
12 Carbide Grade

FreeTurn – holder designation



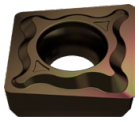
HSK	-	T63	-	100	-	FT15	808055
1		2		3		4 5	6 7 8

1 System
2 Size
3 Overhang length
4 FreeTurn
5 Nominal diameter in mm
6 Cutter angle 1 in degrees
7 Cutter angle 2 in degrees
8 Cutter angle 3 in degrees

Designation System

EcoCut – indexable insert designation

X	C	E	T		17	05	08	F	N	-	27P
1	2	3	4		5	6	7	8	9		10



1 Insert shape
2 Clearance angle
3 Tolerances
4 Characteristics
5 Cutting length
6 Insert thickness
7 Corner radius
8 Cutting edge
9 Direction of cut
10 Chip groove

EcoCut – holder designation

ECC	32	R	-	3.0D	17	H
1	2	3		4	5	6

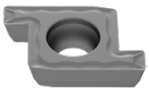


1 System
2 Nominal diameter in mm
3 Direction of cut
4 maximum hole depth
5 insert size
6 Tool holder version in Densimet

10

EcoCut ProfileMaster – indexable insert designation

PM	25	R	G	35	30	04	-	M20
1	2	3	4	5	6	7		8



1 ProfileMaster
2 Nominal diameter in mm
3 Direction of cut
4 Version
5 Groove width in mm/10
6 Groove depth in mm/10
7 Corner radius
8 Chip groove

EcoCut ProfileMaster – holder designation

PMC	25	R	-	2.25D
1	2	3		4



1 ProfileMaster
2 Nominal diameter in mm
3 Direction of cut
4 maximum hole depth





Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools 11

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

Table of contents

Symbol explanation	2
Toolfinder – System Overview	3
Toolfinder – External Machining	4+5
Toolfinder – Internal Machining	6+7
Product programme	8–100
Technical Information	
Cutting Data	101–103
Depths of Cut and Feedrates	104–110
TC – Reference values for profile depth and number of passes	111
Comparison threading system with TC and conventional	112
Grooving depth reduction	113+114
Clamping Methods	115+116
Torque Moment ModularClamp Module Screws	117
Advantages due to DirectCooling	118
Advantages of the trochoidal turning strategy	118
General references	119
Causes of Wear and Corrective Measures	120–122
Chip Breakers Overview	123–126
Example of Coding Grooving Tools	127
Grade overview and application	128+129

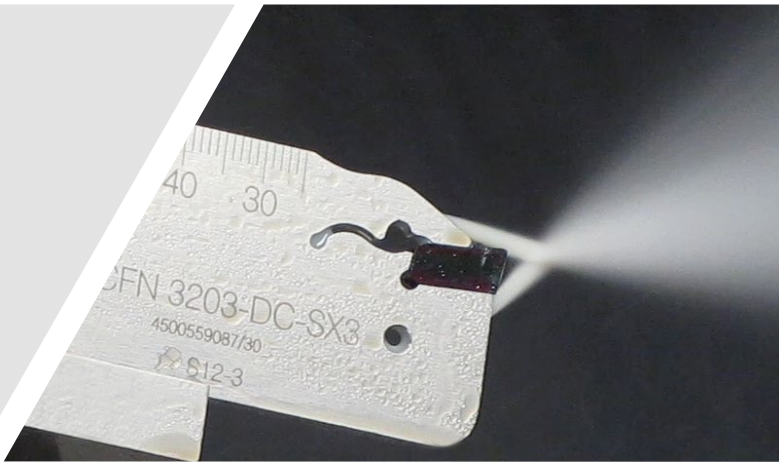
CERATIZIT \ Performance

Premium quality tools for high performance.

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

Advantages of the DirectCooling blade

- The best machining results, even with reduced pump output
  Highest flow volume of all thro' coolant blades on the market
- User friendly
  Reinforced blades without sealing screw
- Process-secure spare part for easy handling and a long service life
  Single-piece sealing screw made from steel (for standard blades)



Symbol explanation


Grooving


Turning


Face turning


Axial grooving


Main Application


Extended application


Repeatability

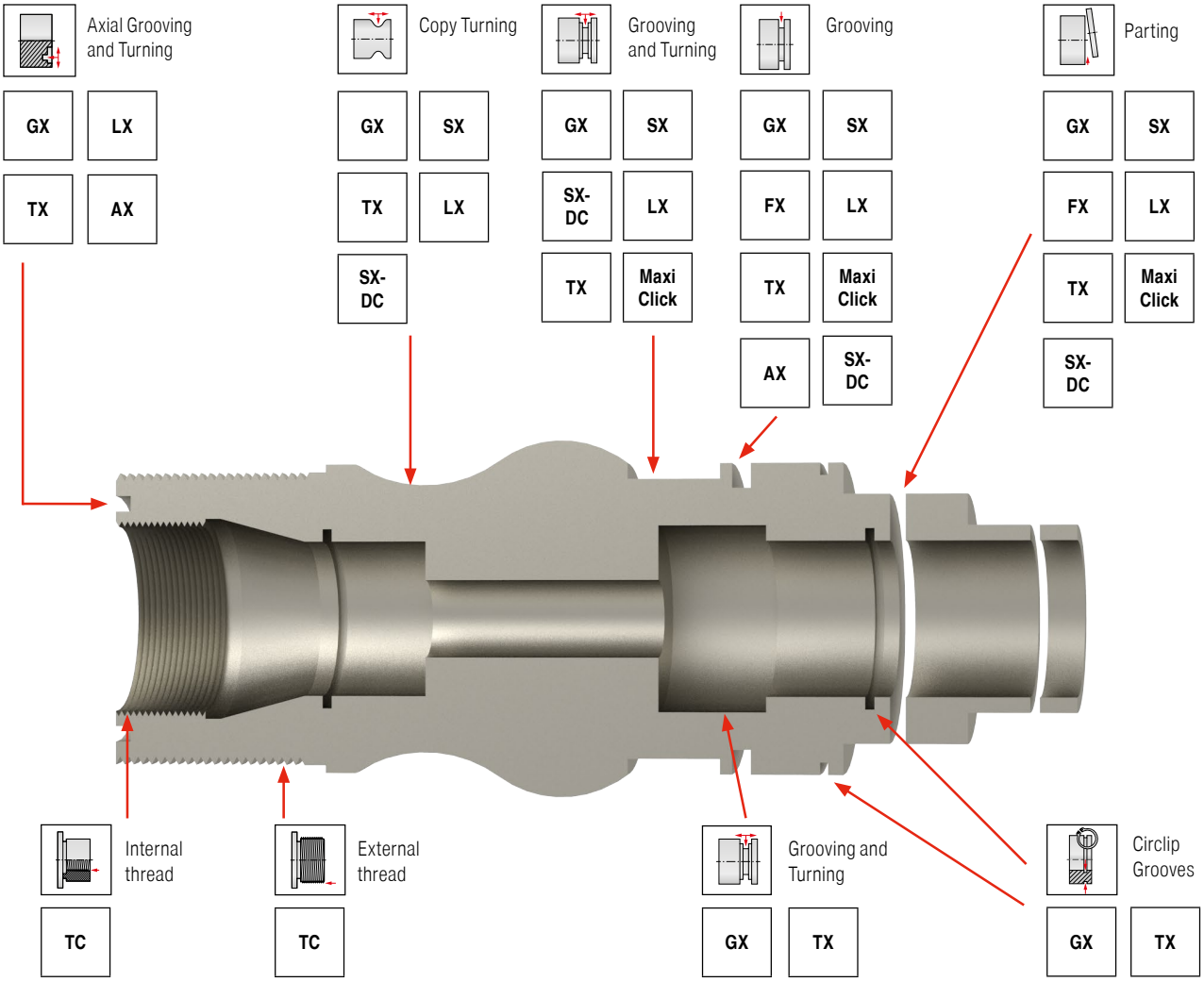
F	M	R

F: Fine Machining
M: Medium Machining
R: Rough Machining


Smooth cut
Irregular cutting depth
Interrupted cut

CTCP325 Carbide Grade

Toolfinder – System Overview

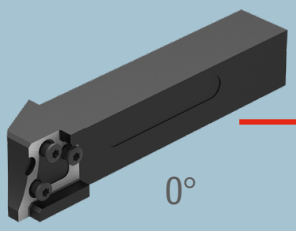


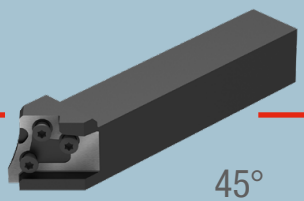
System Description

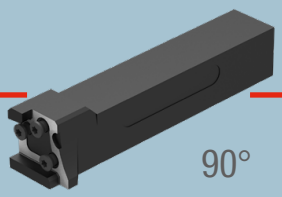
		Page No.
SX	The single edged SX grooving system is even more versatile with the -M3 chip breaker. Besides grooving / parting with the -F2, -M2, or -27P chip breakers, the SX -M3 type also allows copying turning operations with the highest chip control. With this additional option, the SX grooving system can cover all areas of grooving making it a universal grooving tool. Available as a Modular or Mono system.	8–21
SX-DC	Our tried-and-tested single-edged SX grooving system is now available with targeted DirectCooling (DC) thro' coolant supply. The coolant is guided through two coolant holes – one above and one below the grooving insert – straight to the point where it will be most effective: the cutting edge itself.	14–20
FX	A single-edged grooving system with a variety of specialized chip geometries. From fine machining in unstable parts through to high-performance machining under stable conditions. Available as a Modular or Mono system.	22–29
GX	Double edged grooving system for grooving, parting off, turning and for producing circlip grooves. Available in sizes GX09, GX16 and GX24. Available as a Modular or Mono system.	30–60
TX	Three-edged system for parting, grooving, axial grooving, radial grooving, and fine turning. Positive ground cutting geometries, with a very soft cut with minimum cutting forces. Universally applicable for almost all materials. Available as a Monosystem.	61–70
LX	Single edged system for extreme applications starting from a cutting width of 8.0 mm. The LX system is for use in stable conditions. Available as a Modular or Mono system	71–74
AX	Double-edged Axial grooving system for grooving and groove turning with high precision. Due to the three different depths (5 mm, 10 mm and 15 mm) stable tools are available for each application.	75–78
TC	Double-edged thread turning system for the production of external and internal threads. Advantage is the use without pitch angle correction and in narrow or difficult areas of application. Available as a Modular or Mono system.	79–87
Maxi Click	Five-edged grooving system for grooving and parting	88–92

Toolfinder – External Machining

ModularClamp


93
0°


94
45°


95
90°

GX 09


38


39

GX 16


38

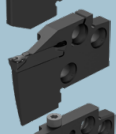

39

GX 24

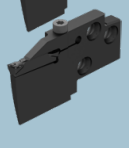
Deep Radial Grooving, Parting and Turning


53

Axial Grooving and Face Turning


55

Deep Axial Grooving and Face Turning


56

GX 09

Circlip grooves


35

Cutting width
CW = 0,5–3,15 mm (H13)

Radius grooves

Standard

36

CRE = 0,8–1,2 mm

Grooving and Turning

-F2

30

Standard

31

-M40

32

Cutting width
CW = 2,0–3,5 mm

GX 16

Circlip grooves


35

Cutting width
CW = 0,5–5,15 mm (H13)

Radius grooves

Standard

36

-27P

37

CRE = 0,8–3,0 mm

Grooving and Turning

-F2

30

Standard

31

-M40

32

-M1

33

-27P

34

Cutting width
CW = 2,0–6,0 mm

GX 24

Radial, axial and deep axial grooving and parting, face turning and turning

-F2

46

-E

47

-M1

48

-M40

49

-27P

51

Cutting width
CW = 2,0–6,0 mm

-M3

50

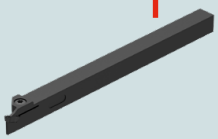
-27P

52

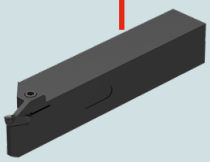
CRE = 1,5–4,0 mm

MonoClamp

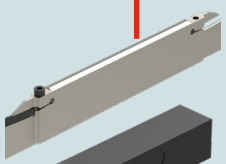
GX 09

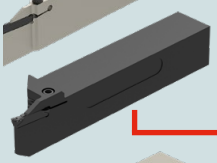

42

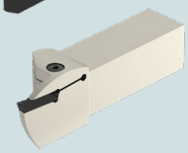
GX 16

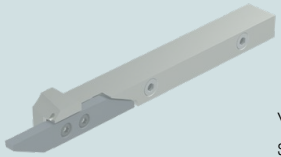

43

GX 24

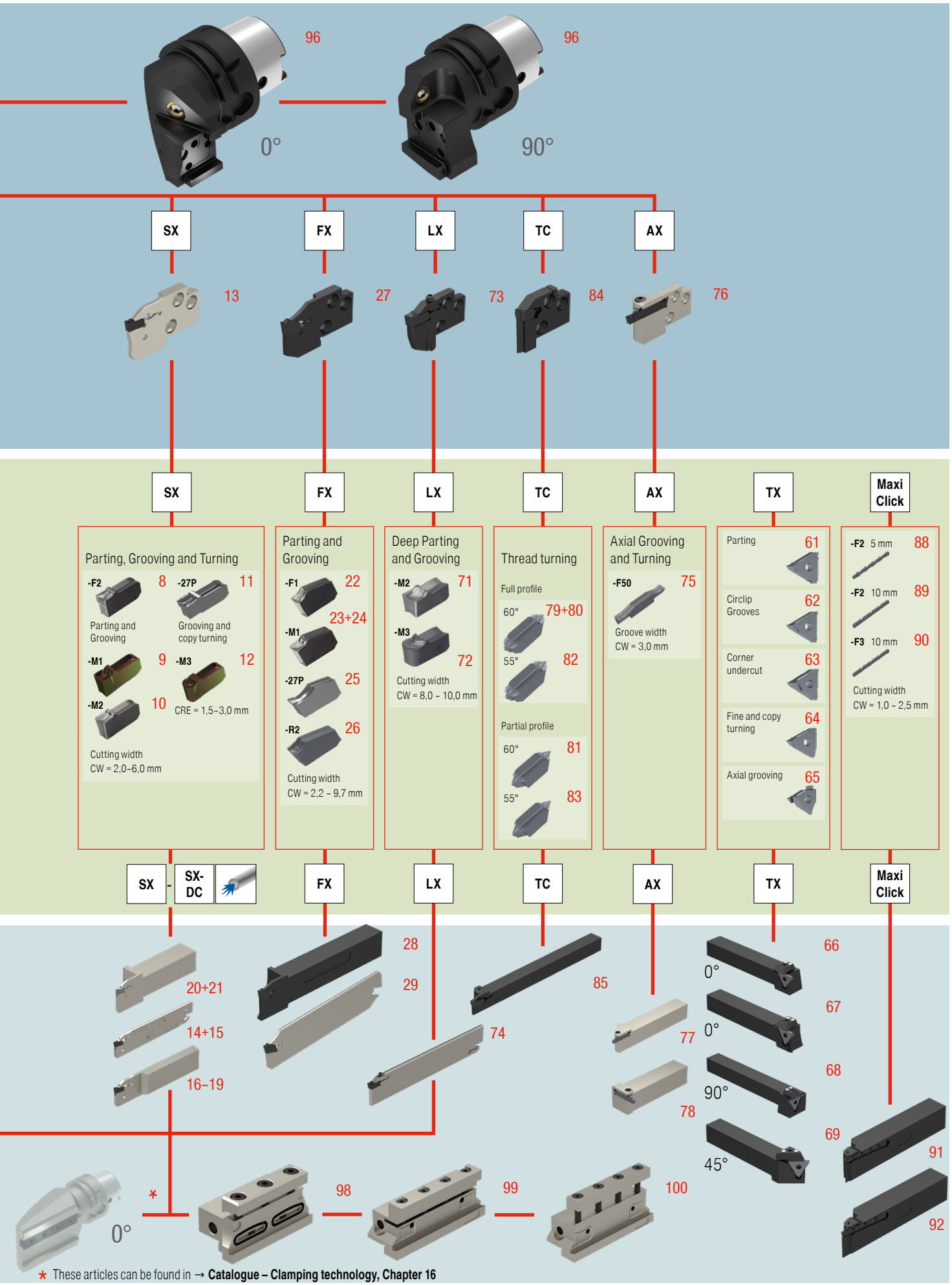

57


58


60



You will find the VertiClamp grooving system → in our sliding head tooling catalogue.

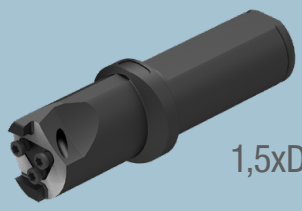


* These articles can be found in → **Catalogue – Clamping technology, Chapter 16**

11

Toolfinder – Internal Machining

ModularClamp



97

1,5xD

GX 09



40



41

GX 16



40



41

GX 09

Circlip grooves



35

Cutting width
CW = 0,5–3,15 mm (H13)

Radius grooves

Standard



36

CRE = 0,8–1,2 mm

Grooving and Turning

-F2



30

Standard



31

-M40



32

Cutting width
CW = 2,0–3,5 mm

GX 16

Circlip grooves



35

Cutting width
CW = 0,5–5,15 mm (H13)

Radius grooves

Standard



36

-27P

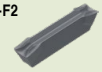


37

CRE = 0,8–3,0 mm

Grooving and Turning

-F2



30

Standard



31

-M40



32

-M1



33

-27P

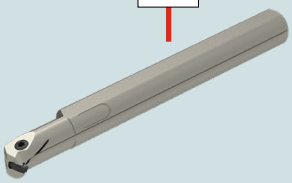


34

Cutting width
CW = 2,0–6,0 mm

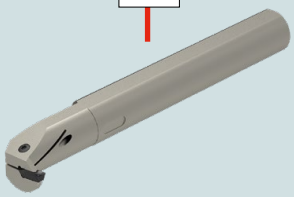
MonoClamp

GX 09

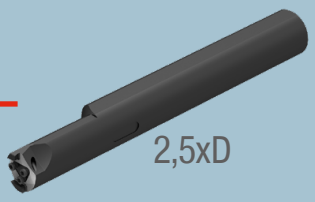


44

GX 16



45



97

GX 24



54

TC



86

GX 24

Radial, axial and deep axial grooving and parting, face turning and turning

-M1 48



-M40 49



-E 47



-F2 46



-27P 51



Cutting width
CW = 2,0 - 6,0 mm

-M3 50



-27PF 52



CRE = 1,5 - 4,0 mm

TC

Thread turning

Partial profile 60° 81



Full profile 60° 80



Full profile 55° 82



Partial profile 55° 83



TX

Parting 61



Circlip Grooving Inserts 62



For corner relief 63



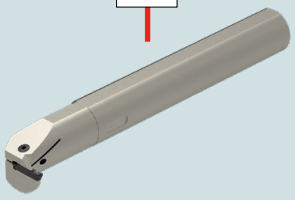
Fine and copy turning 64



Axial grooving 65

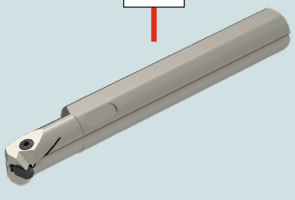


GX 24



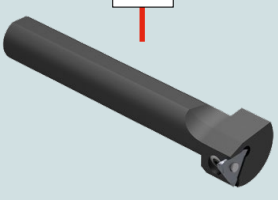
59

TC



87

TX

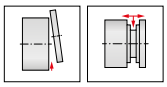


70

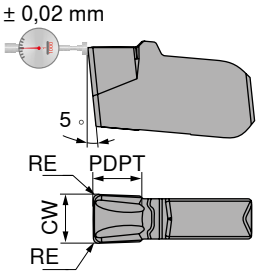
11

Insert SX

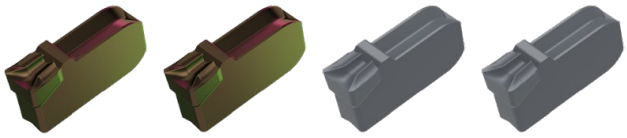
▲ High Precision polished geometry



F	M	R



-F2 CTCP325	-F2 CTCP335	-F2 CTPP345	-F2 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 346 ...	70 346 ...	70 346 ...	70 346 ...
SX E2.00 N 0.20	2	0,2	1,5	-SX2			**822**	**622**
SX E3.00 N 0.30	3	0,3	2,0	-SX3	**923**	**523**	**823**	**623**
SX E4.00 N 0.40	4	0,4	2,5	-SX4			**824**	**624**
P					●	●	●	●
M					○	○	●	●
K					●	●		●
N								○
S					○		○	●
H								
O								○

→ v_c Page 102
→ Application recommendation on page 108

Internal machining | *External machining*



→ 13 | → 14–19 | → 20+21

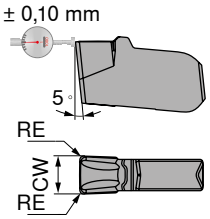
Insert SX

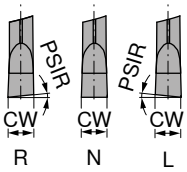
▲ Specially developed geometry with negative edge-chamfers available in right, left and neutral types

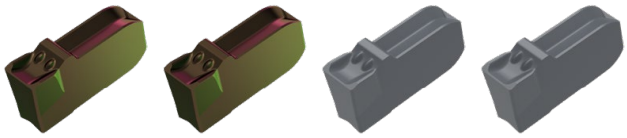


F	M	R
		

-M1 CTCP325	-M1 CTCP335	-M1 CTPP345	-M1 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN







Designation	IH	CW +/-0,05 mm	RE +/-0,05 mm	PSIR	for tool holder	70 342 ...		70 342 ...		70 342 ...		70 342 ...	
SX E2.00 L 6	L	2	0,2	6°	-SX2								**612**
SX E3.00 L 6	L	3	0,2	6°	-SX3		**913**						**613**
SX E4.00 L 6	L	4	0,3	6°	-SX4								**614**
SX E2.00 N 0.20	N	2	0,2		-SX2		**922**				**822**		**622**
SX E3.00 N 0.20	N	3	0,2		-SX3		**923**		**523**		**823**		**623**
SX E4.00 N 0.30	N	4	0,3		-SX4		**924**		**524**		**824**		**624**
SX E5.00 N 0.30	N	5	0,3		-SX5		**925**				**825**		**625**
SX E6.00 N 0.40	N	6	0,4		-SX6		**926**				**826**		**626**
SX E2.00 R 6	R	2	0,2	6°	-SX2								**602**
SX E3.00 R 6	R	3	0,2	6°	-SX3		**903**						**603**
SX E4.00 R 6	R	4	0,3	6°	-SX4								**604**

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

→ v_c Page 102
→ Application recommendation on page 109

Note: reduce feed rate by 20–50 % with R/L version!

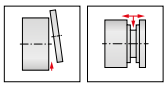
Internal machining *External machining*



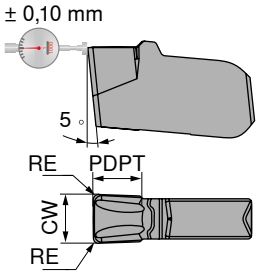
→ 13 → 14–19 → 20+21

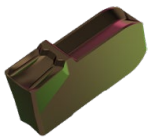
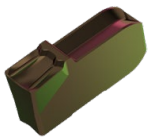
Insert SX

▲ All purpose geometry for parting, grooving & turning.



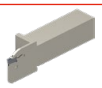
F	M	R
		



-M2 CTCP325	-M2 CTCP335	-M2 CTPP345	-M2 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
			

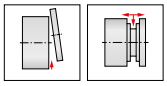
Designation	CW +/-0,05 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 343 ...		70 343 ...		70 343 ...		70 343 ...	
SX E2.00 N 0.20	2	0,2	1,5	-SX2	**922**		**522**		**822**		**622**	
SX E3.00 N 0.30	3	0,3	2,0	-SX3	**923**		**523**		**823**		**623**	
SX E4.00 N 0.40	4	0,4	2,5	-SX4	**924**		**524**		**824**		**624**	
SX E5.00 N 0.40	5	0,4	2,7	-SX5	**925**		**525**		**825**		**625**	
SX E6.00 N 0.50	6	0,5	3,0	-SX6	**926**		**526**		**826**		**626**	
P					●		●		●		●	
M					○		○		●		●	
K					●		●				●	
N											○	
S					○				○		●	
H												
O											○	

→ v_c Page 102
→ Application recommendation on page 108

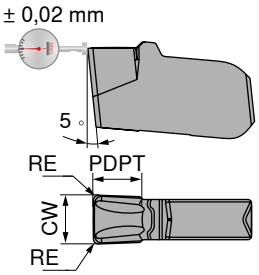
Internal machining	*External machining*						
							
	→ 13	→ 14–19	→ 20+21				

Insert SX

- Insert with highly positive cutting edge geometry and sharp cutting edge
- Specialist for aluminum and other soft long-chipping non-ferrous metals

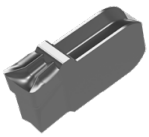


F	M	R
		



-27P
H216T



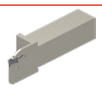


70 349 ...

Designation	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	
SX E2.00 N 0.20	2	0,2	2,0	-SX2	**122**
SX E3.00 N 0.30	3	0,3	2,5	-SX3	**123**
SX E4.00 N 0.40	4	0,4	3,0	-SX4	**124**

P	
M	
K	●
N	●
S	○
H	
O	○

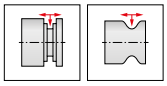
→ v_c Page 102
→ Application recommendation on page 108

Internal machining	*External machining*		
			
	→ 13	→ 14–19	→ 20+21

11

Radius Grooving Insert SX

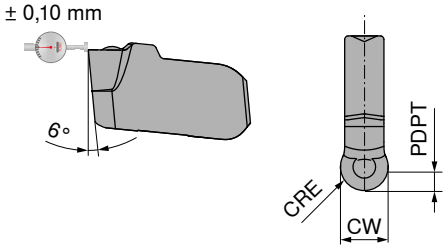
- ▲ for grooving and copy turning
- ▲ very good chip control



F	M	R

-M3
CTCP335

-M3
CTP1340





Designation	CW +/-0,05 mm	CRE mm	PDPT mm	for tool holder	70 344 ...	70 344 ...
SX R3.00 N 1.50	3	1,5	1,5	-SX3	**531**	**631**
SX R4.00 N 2.00	4	2,0	2,0	-SX4	**532**	**632**
SX R5.00 N 2.50	5	2,5	2,5	-SX5	**533**	**633**
SX R6.00 N 3.00	6	3,0	3,0	-SX6	**534**	
P					●	●
M					○	●
K					●	●
N						○
S						●
H						
O						○

→ v_c Page 102
→ Application recommendation on page 109

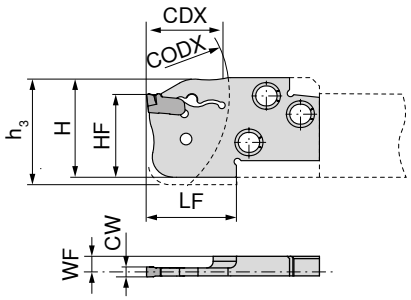
Internal machining | *External machining*



→ 13 | → 14–19 | → 20+21

ModularClamp MSS – Radial grooving module SX

▲ for parting, grooving and finish turning



Illustrations show right-hand versions

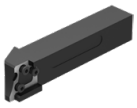


Designation	HF mm	CW mm	WF mm	LF mm	H mm	h_3 mm	CODX mm	CDX mm	for grooving inserts	Left-hand 70 897 ...	Right-hand 70 896 ...
E20 R/L 20-SX2	20	2	3,57	22	24	27	60	20	SX .2..	**020**	**020**
E20 R/L 20-SX3	20	3	3,20	22	24	27	60	20	SX .3..	**120**	**120**
E25 R/L 20-SX2	25	2	5,07	22	30		75	20	SX .2..	**025**	**025**
E25 R/L 25-SX3	25	3	4,70	27	30		75	25	SX .3..	**125**	**125**
E25 R/L 35-SX3	25	3	4,70	37	30		75	35	SX .3..	**225**	**225**
E25 R/L 25-SX4	25	4	4,30	27	30		75	25	SX .4..	**325**	**325**
E25 R/L 35-SX4	25	4	4,30	37	30		75	35	SX .4..	**425**	**425**
E32 R/L 35-SX3	32	3	4,70	37	38		96	35	SX .3..	**032**	**032**
E32 R/L 35-SX4	32	4	4,30	37	38		96	35	SX .4..	**132**	**132**



Ejector SX

Spare parts for grooving inserts		70 950 ...
SX .2..	SX 2-3	**836**
SX .3..	SX 2-3	**836**
SX .4..	SX 4-6	**837**

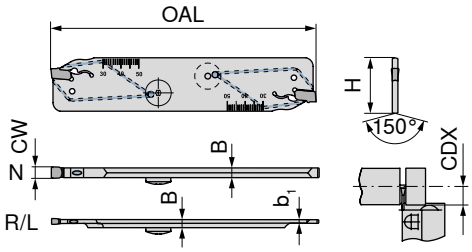

→ 8–12 → 93–95 → 96

Please order SX assembly key separately if required.

11

MonoClamp – Radial Blade SX-DC Standard







Designation	CW mm	H mm	B mm	b_1 mm	OAL mm	CDX mm	for grooving inserts	R/L/N	70 884 ...
XLCF L 2602-DC-SX2	2	26	2,4	1,6	110	25	SX .2..	L	**712**
XLCF L 3202-DC-SX2	2	32	2,4	1,6	150	26	SX .2..	L	**702**
XLCF R 2602-DC-SX2	2	26	2,4	1,6	110	25	SX .2..	R	**512**
XLCF R 3202-DC-SX2	2	32	2,4	1,6	150	26	SX .2..	R	**502**
XLCF N 2603-DC-SX3	3	26	2,5		110	35	SX .3..	N	**613**
XLCF N 3203-DC-SX3	3	32	2,5		150	50	SX .3..	N	**603**
XLCF N 2604-DC-SX4	4	26	3,3		110	40	SX .4..	N	**614**
XLCF N 3204-DC-SX4	4	32	3,3		150	50	SX .4..	N	**604**
XLCF N 3205-DC-SX5	5	32	4,3		150	55	SX .5..	N	**605**
XLCF N 3206-DC-SX6	6	32	5,2		150	60	SX .6..	N	**606**

		Key D		Ejector SX		Sealing screw	
		80 950 ...		**70 950 ...**		**70 950 ...**	
Spare parts for grooving inserts							
SX .2..	T15 - IP	**128**	SX 2-3	**836**	M4 x 3	**450**
SX .3..	T15 - IP	**128**	SX 2-3	**836**	M4 x 3	**450**
SX .4..	T15 - IP	**128**	SX 4-6	**837**	M4 x 3	**450**
SX .5..	T15 - IP	**128**	SX 4-6	**837**	M4 x 3	**450**
SX .6..	T15 - IP	**128**	SX 4-6	**837**	M4 x 3	**450**

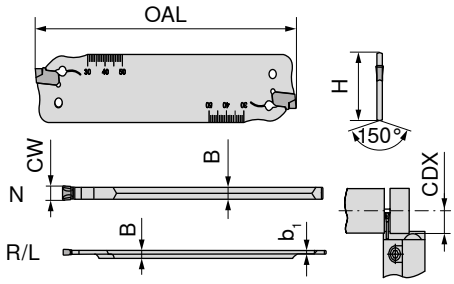


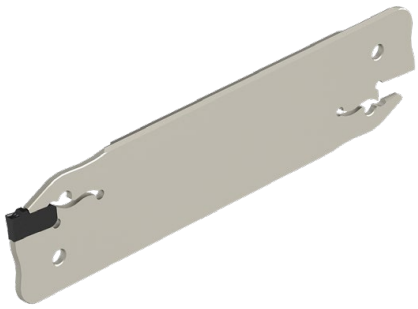



→ 8–12 → 98 → Chapter 16 → Chapter 16

Please order SX assembly key separately if required.

MonoClamp – Radial Blade SX Standard





Designation	CW mm	H mm	B mm	b_1 mm	OAL mm	CDX mm	for grooving inserts	R/L/N	70 884 ...
XLCF L 2602-SX2	2	26	2,4	1,5	110	25	SX .2..	L	**212**
XLCF L 3202-SX2	2	32	2,4	1,5	150	25	SX .2..	L	**202**
XLCF R 2602-SX2	2	26	2,4	1,5	110	25	SX .2..	R	**012**
XLCF R 3202-SX2	2	32	2,4	1,5	150	25	SX .2..	R	**002**
XLCF N 2603-SX3	3	26	2,4		110	35	SX .3..	N	**113**
XLCF N 3203-SX3	3	32	2,4		150	50	SX .3..	N	**103**
XCLF N 2604-SX4	4	26	3,2		110	40	SX .4..	N	**114**
XLCF N 3204-SX4	4	32	3,2		150	50	SX .4..	N	**104**
XLCF N 3205-SX5	5	32	4,2		150	55	SX .5..	N	**105**
XLCF N 3206-SX6	6	32	5,2		150	60	SX .6..	N	**106**



Ejector SX

Spare parts for grooving inserts	70 950 ...
SX .2..	SX 2-3 **836**
SX .3..	SX 2-3 **836**
SX .4..	SX 4-6 **837**
SX .5..	SX 4-6 **837**
SX .6..	SX 4-6 **837**



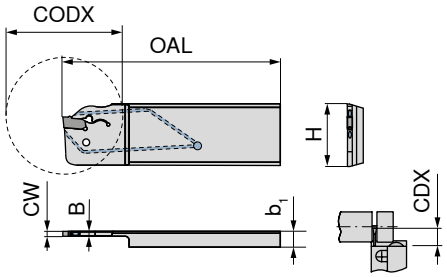



→ 8–12 → 99+100 → Chapter 16 → Chapter 16

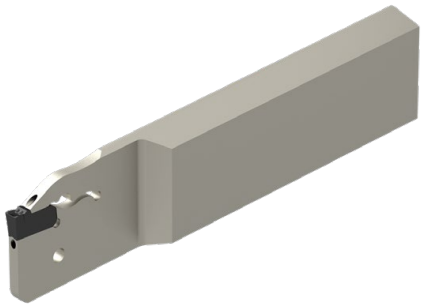
Please order SX assembly key separately if required.

MonoClamp – Radial Blade SX-DC reinforced





Illustrations show right-hand versions



Designation	CW mm	H mm	B mm	b_1 mm	OAL mm	CODX mm	CDX mm	for grooving inserts	R/L/N	70 879 ...
XLCF L 2608-DC-SX3	3	26	2,5	8	110	66	33	SX .3..	L	**713**
XLCF L 3208-DC-SX3	3	32	2,5	8	110	66	33	SX .3..	L	**703**
XLCF R 2608-DC-SX3	3	26	2,5	8	110	66	33	SX .3..	R	**513**
XLCF R 3208-DC-SX3	3	32	2,5	8	110	66	33	SX .3..	R	**503**

Ejector SX

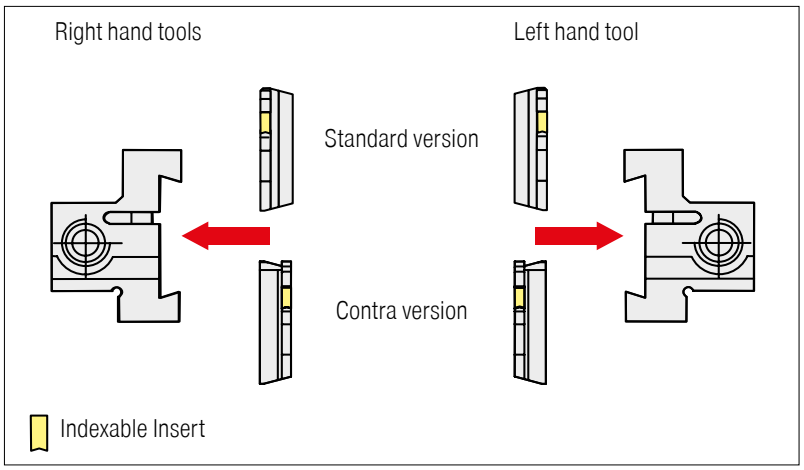
Spare parts for grooving inserts		70 950 ...
SX .3..	SX 2-3	**836**



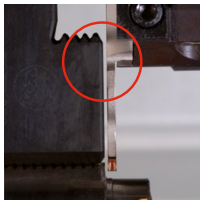



→ 8–12 → 98 → Chapter 16 → Chapter 16

Correct Tool Selection

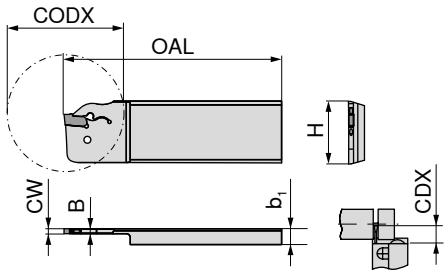


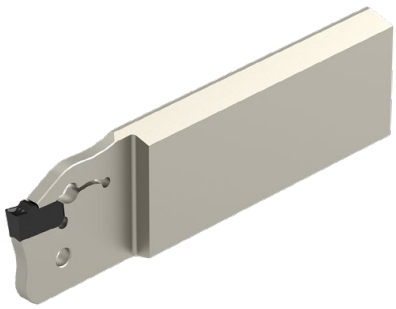




Please order SX assembly key separately if required.

MonoClamp – Radial Blade SX reinforced





Illustrations show right-hand versions

Designation	CW mm	H mm	B mm	b_1 mm	OAL mm	CODX mm	CDX mm	for grooving inserts	R/L/N	70 879 ...
XLCF L 2608-SX2	2	26	1,5	8	110	44	22	SX .2..	L	**212** 1)
XLCF L 2608-SX3	3	26	2,5	8	110	44	22	SX .3..	L	**213** 1)
XLCF L 3208-SX3	3	32	2,5	8	110	66	33	SX .3..	L	**203**
XLCF L 3208-SX4	4	32	3,4	8	110	66	33	SX .4..	L	**204**
XLCF R 2608-SX2	2	26	1,5	8	110	44	22	SX .2..	R	**012** 1)
XLCF R 2608-SX3	3	26	2,5	8	110	44	22	SX .3..	R	**013** 1)
XLCF R 3208-SX3	3	32	2,5	8	110	66	33	SX .3..	R	**003**
XLCF R 3208-SX4	4	32	3,4	8	110	66	33	SX .4..	R	**004**

1) can be used in both directions



Ejector SX

Spare parts for grooving inserts		70 950 ...
SX .2..	SX 2-3	**836**
SX .3..	SX 2-3	**836**
SX .4..	SX 4-6	**837**



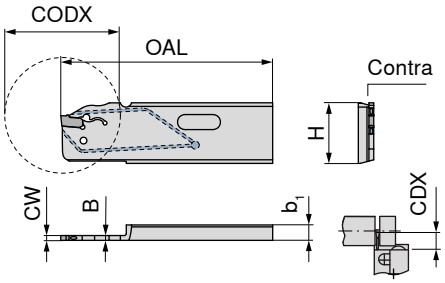



→ 8–12 | → 99+100 | → Chapter 16 | → Chapter 16

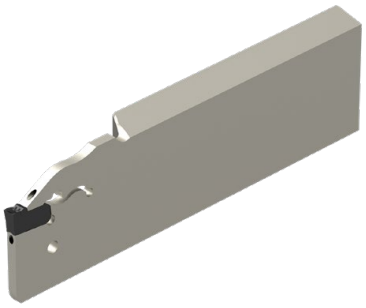
Please order SX assembly key separately if required.

MonoClamp – SX-DC reinforced Contra radial blade





Illustrations show right-hand versions



Designation	CW mm	H mm	B mm	b_1 mm	OAL mm	CODX mm	CDX mm	for grooving inserts	R/L/N	70 877 ...
XLCF L 3208C-DC-SX3	3	32	2,5	8	110	66	33	SX .3..	L	**703**
XLCF R 3208C-DC-SX3	3	32	2,5	8	110	66	33	SX .3..	R	**503**



Ejector SX

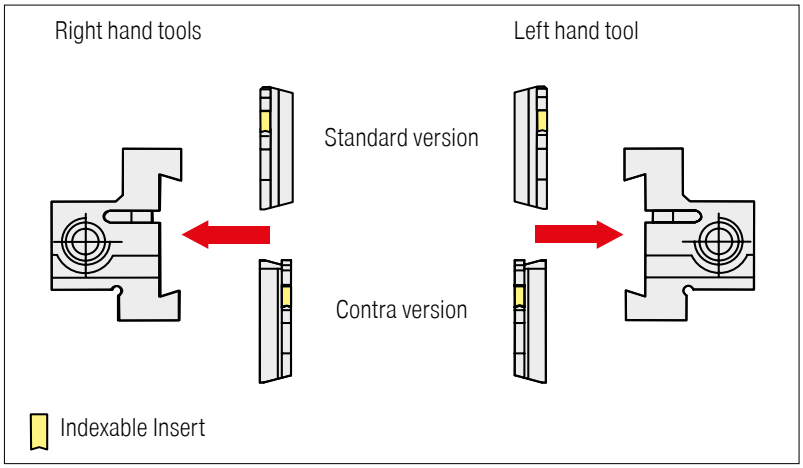
Spare parts for grooving inserts		70 950 ...
SX .3..	SX 2-3	**836**



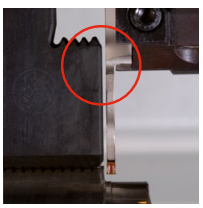



→ 8–12 → 98 → Chapter 16 → Chapter 16

Correct Tool Selection

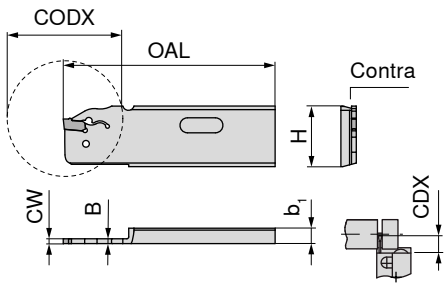


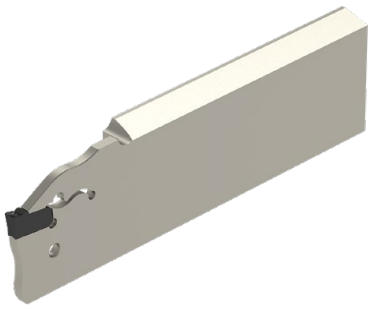




Please order SX assembly key separately if required.

MonoClamp – SX reinforced Contra radial blade





Illustrations show right-hand versions

Designation	CW mm	H mm	B mm	b_1 mm	OAL mm	CODX mm	CDX mm	for grooving inserts	R/L/N	70 877 ...
XLCF L 3208C-SX3	3	32	2,5	8	110	66	33	SX .3..	L	**203**
XLCF R 3208C-SX3	3	32	2,5	8	110	66	33	SX .3..	R	**003**



Ejector SX

Spare parts for grooving inserts		70 950 ...
SX .3..	SX 2-3	**836**





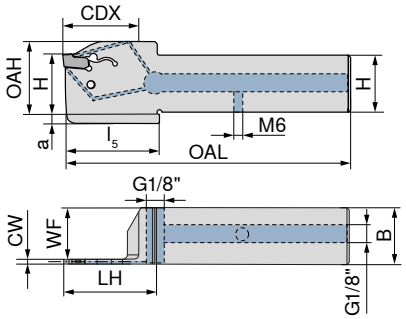

→ 8–12 | → 99+100 | → Chapter 16 | → Chapter 16

Please order SX assembly key separately if required.

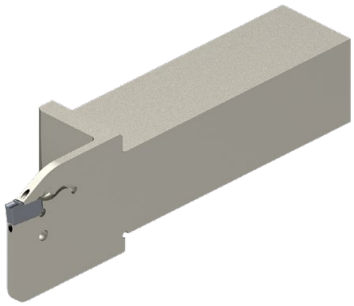
11

MonoClamp – Radial Monoholder SX-DC





Illustrations show right-hand versions



Designation	H mm	B mm	CW mm	WF mm	OAL mm	LH mm	l_5 mm	OAH mm	CDX mm	a mm	for grooving inserts	Left-hand 70 847 ...	Right-hand 70 847 ...
E12 R/L 0022-1212X-K-DC-SX2	12	12	2	11,2	71	27	28	22	22	5	SX .2..	**21201**	**21200**
E16 R/L 0026-1616X-K-DC-SX2	16	16	2	15,2	87	32	33	26	26	4	SX .2..	**21601**	**21600**
E20 R/L 0026-2020X-K-DC-SX2	20	20	2	19,2	102	32	33	31	26	5	SX .2..	**22001**	**22000**
E25 R/L 0033-2525X-K-DC-SX2	25	25	2	24,2	126	41	42	36	33	5	SX .2..	**22501**	**22500**
E16 R/L 0026-1616X-K-DC-SX3	16	16	3	14,8	87	32	33	26	26	4	SX .3..	**31601**	**31600**
E20 R/L 0026-2020X-K-DC-SX3	20	20	3	18,8	102	32	33	31	26	5	SX .3..	**32001**	**32000**
E25 R/L 0026-2525X-K-DC-SX3	25	25	3	23,8	117	33		31	26		SX .3..	**32501**	**32500**
E25 R/L 0033-2525X-K-DC-SX3	25	25	3	23,8	126	41	42	36	33	5	SX .3..	**32601**	**32600**
E20 R/L 0033-2020X-K-DC-SX4	20	20	4	18,3	109	39	40	32	33	5	SX .4..	**42001**	**42000**
E25 R/L 0033-2525X-K-DC-SX4	25	25	4	23,3	126	41	42	36	33	5	SX .4..	**42501**	**42500**
E25 R/L 0040-2525X-K-DC-SX4	25	25	4	23,3	133	48	49	38	40	6	SX .4..	**42601**	**42600**
E25 R/L 0040-2525X-K-DC-SX5	25	25	5	22,9	133	48	49	38	40	6	SX .5..	**52501**	**52500**
E25 R/L 0040-2525X-K-DC-SX6	25	25	6	22,4	133	48	49	38	40	6	SX .6..	**62501**	**62500**

Ejector SX



Coolant screw plug



Grubscrew

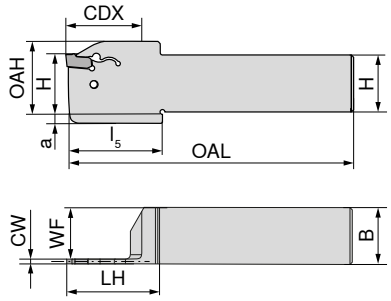
Spare parts for grooving inserts	70 950 ...		70 950 ...		70 950 ...	
SX .2..	SX 2-3	**836**	G 1/8"	**294**	M6x6	**86700**
SX .3..	SX 2-3	**836**	G 1/8"	**294**	M6x6	**86700**
SX .4..	SX 4-6	**837**	G 1/8"	**294**	M6x6	**86700**
SX .5..	SX 4-6	**837**	G 1/8"	**294**	M6x6	**86700**
SX .6..	SX 4-6	**837**	G 1/8"	**294**	M6x6	**86700**

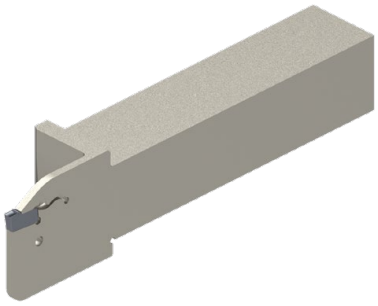


→ 8-12

Please order SX assembly key separately if required.

MonoClamp – Radial Monoholder SX





Illustrations show right-hand versions

Designation	H mm	B mm	CW mm	WF mm	OAL mm	LH mm	l_5 mm	OAH mm	CDX mm	a mm	for grooving inserts	Left-hand 70 846 ...	Right-hand 70 846 ...
E12 R/L 0022-1212K-K-SX2	12	12	2	11,2	125	27	28	22	22	5	SX .2..	**21201**	**21200**
E16 R/L 0026-1616K-K-SX2	16	16	2	15,2	125	33	33	26	26	4	SX .2..	**21601**	**21600**
E20 R/L 0026-2020K-K-SX2	20	20	2	19,2	125	33	33	31	26	5	SX .2..	**22001**	**22000**
E25 R/L 0033-2525M-K-SX2	25	25	2	24,2	150	42	42	36	33	5	SX .2..	**22501**	**22500**
E16 R/L 0026-1616K-K-SX3	16	16	3	14,8	125	33	33	26	26	4	SX .3..	**31601**	**31600**
E20 R/L 0026-2020K-K-SX3	20	20	3	18,8	125	31	33	31	26	5	SX .3..	**32001**	**32000**
E25 R/L 0026-2525M-K-SX3	25	25	3	23,8	150	33		31	26		SX .3..	**32501**	**32500**
E25 R/L 0033-2525M-K-SX3	25	25	3	23,8	150	42	42	36	33	5	SX .3..	**32601**	**32600**
E20 R/L 0033-2020K-K-SX4	20	20	4	18,3	125	40	40	32	33	5	SX .4..	**42001**	**42000**
E25 R/L 0033-2525M-K-SX4	25	25	4	23,3	150	42	42	36	33	5	SX .4..	**42501**	**42500**
E25 R/L 0040-2525M-K-SX4	25	25	4	23,3	150	49	49	38	40	6	SX .4..	**42601**	**42600**
E25 R/L 0040-2525M-K-SX5	25	25	5	22,9	150	49	49	38	40	6	SX .5..	**52501**	**52500**
E25 R/L 0040-2525M-K-SX6	25	25	6	22,4	150	49	49	38	40	6	SX .6..	**62501**	**62500**



Ejector SX

70 950 ...

Spare parts for grooving inserts		
SX .2..	SX 2-3	**836**
SX .3..	SX 2-3	**836**
SX .4..	SX 4-6	**837**
SX .5..	SX 4-6	**837**
SX .6..	SX 4-6	**837**



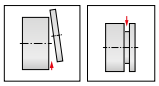
→ 8–12

Please order SX assembly key separately if required.

11

Insert FX

- ▲ Excellent cutting geometry with low cutting forces
- ▲ Very good swarf control also with low feed rates
- ▲ Reduced built-up edge

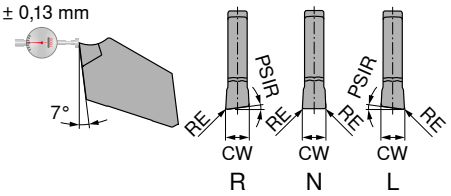


F	M	R

-F1 CTCP325 DRAGONSKIN

-F1 CTPP345 DRAGONSKIN

-F1 CTP1340 DRAGONSKIN





Designation	IH	CW $_{-0.1}$ mm	RE $_{+/-0,05}$ mm	PSIR	for tool holder	70 331 ...	70 331 ...	70 331 ...
FX 2.2 L 5-F1	L	2,2	0,15	5°	-FX 2.2		**847**	**647**
FX 3.1 L 5-F1	L	3,1	0,20	5°	-FX 3.1		**851**	**651**
FX 3.1 L 8-F1	L	3,1	0,20	8°	-FX 3.1		**855**	
FX 2.2 N 0.15-F1	N	2,2	0,15		-FX 2.2	**998**	**848**	**648**
FX 3.1 N 0.40-F1	N	3,1	0,40		-FX 3.1	**906**	**856**	**656**
FX 3.1 N 0.20-F1	N	3,1	0,20		-FX 3.1	**902**	**852**	**652**
FX 4.1 N 0.20-F1	N	4,1	0,20		-FX 4.1		**860**	**660**
FX 4.1 N 0.50-F1	N	4,1	0,50		-FX 4.1		**864**	
FX 2.2 R 5-F1	R	2,2	0,15	5°	-FX 2.2		**849**	**649**
FX 3.1 R 8-F1	R	3,1	0,20	8°	-FX 3.1		**857**	
FX 3.1 R 5-F1	R	3,1	0,20	5°	-FX 3.1		**853**	**653**
P						●	●	●
M						○	●	●
K						●		●
N								○
S						○	○	●
H								
O								○

→ v_c Page 102
→ Application recommendation on page 110

Note: reduce feed rate by 20–50 % with R/L version!

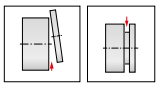
Internal machining *External machining*



→ 27 → 29 → 28

Insert FX

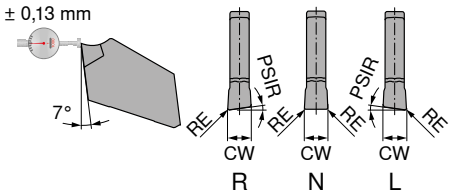
▲ narrow version

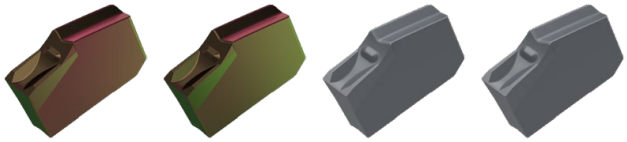


F	M	R
		

-M1 CTCP325 | -M1 CTCP335 | -M1 CTPP345 | -M1 CTP1340

DRAGONSKIN





Designation	IH	CW -0.1 mm	RE +/-0.05 mm	PSIR	for tool holder	70 330 ...		70 330 ...		70 330 ...		70 330 ...	
FX 2.2 L 4-M1	L	2,2	0,1	4°	-FX 2.2				550		800		600
FX 2.2 N 0.10-M1	N	2,2	0,1		-FX 2.2		902		552		802		602
FX 2.2 R 4-M1	R	2,2	0,1	4°	-FX 2.2				554		804		604
P							●		●		●		●
M							○		○		●		●
K							●		●				●
N													○
S							○				○		●
H													
O													○

→ v_c Page 102
→ Application recommendation on page 110

Note: reduce feed rate by 20–50 % with R/L version!

Internal machining | *External machining*

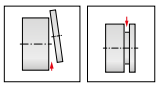


→ 27 | → 29 | → 28

11

Insert FX

▲ wide version



F	M	R
		

-M1 CTCP325



-M1 CTCP335

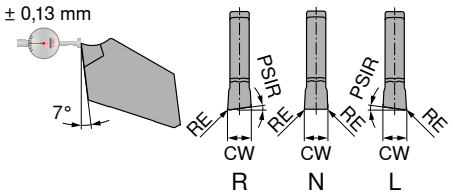


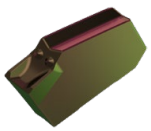
-M1 CTPP345

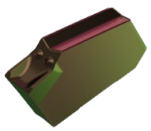


-M1 CTP1340













Designation	IH	CW +/-0,05 mm	RE +/-0,05 mm	PSIR	for tool holder	70 332 ...		70 332 ...		70 332 ...		70 332 ...	
FX 3.1 L 6-M1	L	3,1	0,15	6°	-FX 3.1	**900**		**550**		**800**		**600**	
FX 4.1 L 6-M1	L	4,1	0,20	6°	-FX 4.1			**556**		**806**		**606**	
FX 3.1 N 0.15-M1	N	3,1	0,15		-FX 3.1	**902**		**552**		**802**		**602**	
FX 4.1 N 0.20-M1	N	4,1	0,20		-FX 4.1	**908**		**558**		**808**		**608**	
FX 5.1 N 0.25-M1	N	5,1	0,25		-FX 5.1	**914**		**564**		**814**		**614**	
FX 6.5 N 0.30-M1	N	6,5	0,30		-FX 6.5	**920**		**570**				**620**	
FX 8.2 N 0.40-M1	N	8,2	0,40		XLCEN 4608	**924**		**574**				**624**	
FX 9.7 N 0.40-M1	N	9,7	0,40		XLCEN 4609	**926**		**576**				**626**	
FX 3.1 R 6-M1	R	3,1	0,15	6°	-FX 3.1	**904**		**554**		**804**		**604**	
FX 4.1 R 6-M1	R	4,1	0,20	6°	-FX 4.1			**560**		**810**		**610**	
FX 5.1 R 6-M1	R	5,1	0,25	6°	-FX 5.1					**816**			
P						●		●		●		●	
M						○		○		●		●	
K						●		●				●	
N												○	
S						○				○		●	
H													
O												○	

→ v_c Page 102
→ Application recommendation on page 110

Note: reduce feed rate by 20–50 % with R/L version!

Internal machining | *External machining*



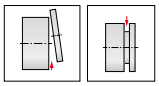




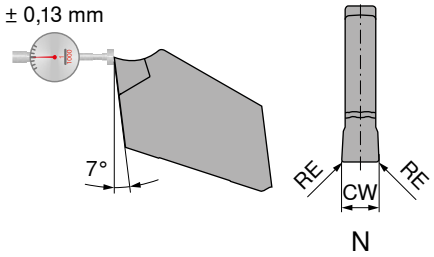
→ 27 → 29 → 28

Insert FX

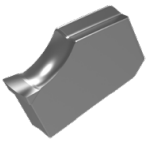
- ▲ Insert with highly positive cutting edge geometry and sharp cutting edge
- ▲ Reduced built-up edge



F	M	R
		



-27P
H216T



70 334 ...

Designation	IH	CW $_{-0,1}$ mm	RE $_{+/-0,05}$ mm	for tool holder	
FX 2.2 N 0.10	N	2,2	0,10	-FX 2.2	**650**
FX 3.1 N 0.15	N	3,1	0,15	-FX 3.1	**652**
FX 4.1 N 0.15	N	4,1	0,15	-FX 4.1	**654**

P	
M	
K	●
N	●
S	○
H	
O	○

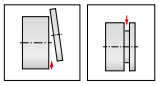
→ v_c Page 102
→ Application recommendation on page 110

Internal machining		*External machining*						
								
		→ 27	→ 29	→ 28				

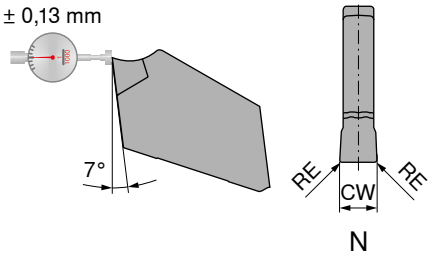
11

Insert FX

- Insert with excellent swarf control for a wide range of feed rates
- Very stable cutting edge



F	M	R



-R2 CTCP325	-R2 CTPP345	-R2 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	IH	CW $_{-0.1}$ mm	RE $_{+/-0,05}$ mm	for tool holder	70 335 ...	70 335 ...	70 335 ...
FX 3.1 N 0.40-R2	N	3,1	0,4	-FX 3.1	**902**	**852**	**652**
FX 4.1 N 0.50-R2	N	4,1	0,5	-FX 4.1	**908**	**858**	**658**
P					●	●	●
M					○	●	●
K					●		●
N							○
S					○	○	●
H							
O							○

→ v_c Page 102
→ Application recommendation on page 110

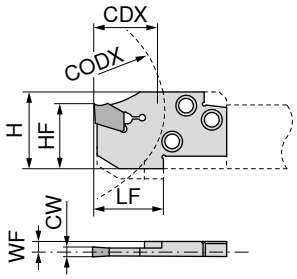
Internal machining *External machining*



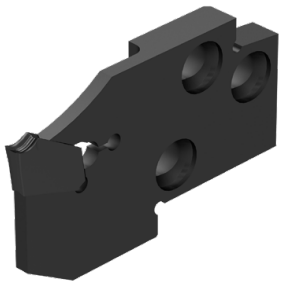
→ 27 → 29 → 28

ModularClamp MSS – Radial grooving module FX short/long

▲ For parting and grooving



Illustrations show right-hand versions



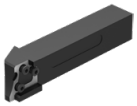
Designation	HF mm	CW mm	WF mm	LF mm	H mm	CODX mm	CDX mm	for grooving inserts	Left-hand 70 876 ...	Right-hand 70 875 ...
E20 R/L 20-FX 2.2	23	2,2	3,58	22	27	60	20	FX 2.2 ..	**020**	**020**
E20 R/L 20-FX 3.1	23	3,1	3,20	22	27	60	20	FX 3.1 ..	**120**	**120**
E20 R/L 20-FX 4.1	23	4,1	2,80	22	27	60	20	FX 4.1 ..	**220**	**220**
E25 R/L 20-FX 2.2	25	2,2	5,08	22	30	75	20	FX 2.2 ..	**025**	**025**
E25 R/L 25-FX 3.1	25	3,1	4,70	27	30	75	25	FX 3.1 ..	**125**	**125**
E25 R/L 25-FX 4.1	25	4,1	4,30	27	30	75	25	FX 4.1 ..	**225**	**225**
E25 R/L 25-FX 5.1	25	5,1	3,90	27	30	75	25	FX 5.1 ..	**325**	**325**
E25 R/L 25-FX 6.5	25	6,5	3,30	27	30	75	25	FX 6.5 ..	**425**	**425**
E25 R/L 35-FX 3.1	25	3,1	4,70	37	30	75	35	FX 3.1 ..	**525**	**525**
E25 R/L 35-FX 4.1	25	4,1	4,30	37	30	75	35	FX 4.1 ..	**625**	**625**
E25 R/L 35-FX 5.1	25	5,1	3,90	37	30	75	35	FX 5.1 ..	**725**	**725**
E25 R/L 35-FX 6.5	25	6,5	3,30	37	30	75	35	FX 6.5 ..	**825**	**825**
E32 R/L 32-FX 3.1	32	3,1	4,70	34	38	96	32	FX 3.1 ..	**032**	**032**
E32 R/L 32-FX 4.1	32	4,1	4,30	34	38	96	32	FX 4.1 ..	**132**	**132**
E32 R/L 32-FX 5.1	32	5,1	3,90	34	38	96	32	FX 5.1 ..	**232**	**232**
E32 R/L 32-FX 6.5	32	6,5	3,30	34	38	96	32	FX 6.5 ..	**332**	**332**
E32 R/L 45-FX 3.1	32	3,1	4,70	47	38	96	45	FX 3.1 ..	**432**	**432**
E32 R/L 45-FX 4.1	32	4,1	4,30	47	38	96	45	FX 4.1 ..	**532**	**532**
E32 R/L 45-FX 5.1	32	5,1	3,90	47	38	96	45	FX 5.1 ..	**632**	**632**
E32 R/L 45-FX 6.5	32	6,5	3,30	47	38	96	45	FX 6.5 ..	**732**	**732**



Ejector

70 950 ...

Spare parts for grooving inserts	
FX 2.2 ..	**375**
FX 3.1 ..	**376**
FX 4.1 ..	**376**
FX 5.1 ..	**376**
FX 6.5 ..	**376**

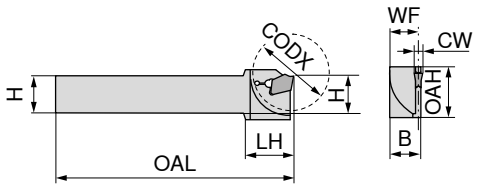



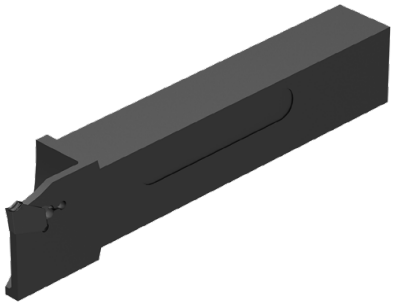

→ 22–26 → 93–95 → 96

MonoClamp – Radial Monoholder FX

Scope of supply:

Blade and ejector





Illustrations show right-hand versions

Designation	H mm	B mm	OAL mm	LH mm	OAH mm	CW mm	WF mm	CODX mm	for grooving inserts	Left-hand 70 837 ...	Right-hand 70 836 ...
XLCE R/L 1010 M-FX2.2	10	10	150	19,4	21	2,2	9,18	30	FX 2.2 ..	**101**	**101**
XLCE R/L 1212 F-FX2.2	12	12	80	21,0	21	2,2	11,18	30	FX 2.2 ..	**102**	**102**
XLCE R/L 1212 M-FX2.2	12	12	150	19,4	21	2,2	11,18	30	FX 2.2 ..	**103**	**103**
XLCE R/L 1414 M-FX2.2	14	14	150	19,4	21	2,2	13,18	30	FX 2.2 ..	**104**	**104**
XLCE R/L 1612 H-FX2.2	16	12	100	21,0	21	2,2	11,18	30	FX 2.2 ..	**105**	**105**
XLCF R/L 1612 H-FX3.1	16	12	100	21,4	25	3,1	10,80	35	FX 3.1 ..	**106**	**106**
XLCF R/L 2016 K-FX3.1	20	16	125	26,4	26	3,1	14,80	40	FX 3.1 ..	**107**	**107**
XLCF R/L 2520 M-FX3.1	25	20	150	35,2	34	3,1	18,80	50	FX 3.1 ..	**108**	**108**
XLCF R/L 2016 K-FX4.1	20	16	125	26,4	26	4,1	14,40	40	FX 4.1 ..	**109**	**109**
XLCF R/L 2520 M-FX4.1	25	20	150	35,2	34	4,1	18,40	50	FX 4.1 ..	**110**	**110**



Ejector

70 950 ...

Spare parts for grooving inserts	
FX 2.2 ..	**375**
FX 3.1 ..	**376**
FX 4.1 ..	**376**

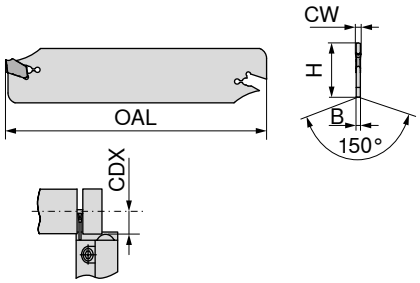


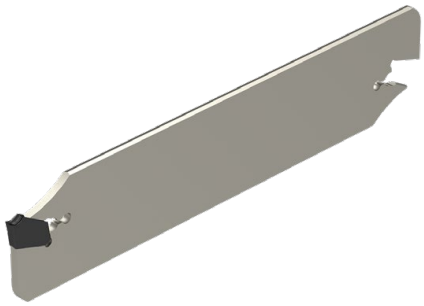
→ 22–26

MonoClamp – Radial Blade FX

Scope of supply:

Blade and ejector





Designation	H mm	B mm	OAL mm	CW mm	CDX mm	for grooving inserts	70 832 ...
XLCEN 2602 J 22 FX	26	1,65	110	2,2	25	FX 2.2 ..	**101**
XLCFN 2603 J 31 FX	26	2,40	110	3,1	35	FX 3.1 ..	**102**
XLCFN 2604 J 41 FX	26	3,20	110	4,1	40	FX 4.1 ..	**103**
XLCEN 3202 M 22 FX	32	1,65	150	2,2	30	FX 2.2 ..	**004**
XLCFN 3203 M 31 FX	32	2,40	150	3,1	50	FX 3.1 ..	**104**
XLCFN 3204 M 41 FX	32	3,20	150	4,1	50	FX 4.1 ..	**105**
XLCFN 3205 M 51 FX	32	4,00	150	5,1	55	FX 5.1 ..	**106**
XLCFN 3206 M 65 FX	32	5,20	150	6,5	55	FX 6.5 ..	**107**
XLCEN 4608 S 82 FX	46	6,80	250	8,2	80	FX 8.2 ..	**108**
XLCEN 4609 S 97 FX	46	8,00	250	9,7	80	FX 9.7 ..	**109**



Ejector

70 950 ...

Spare parts for grooving inserts	
FX 2.2 ..	**375**
FX 3.1 ..	**376**
FX 4.1 ..	**376**
FX 5.1 ..	**376**
FX 6.5 ..	**376**
FX 8.2 ..	**377**
FX 9.7 ..	**377**

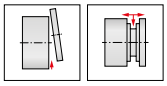




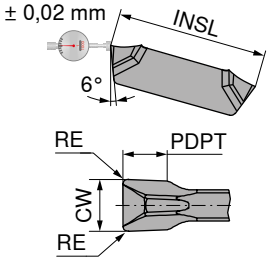
→ 22-26 → 99+100

Insert GX 09/16

▲ Insert with ground periphery
▲ Suitable also for parting off tubes and thin-walled workpieces



F	M	R



-F2
CTP1340

DRAGONSKIN



70 360 ...

Designation	INSL mm	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	
GX 09-1 E2.00 N 0.20	9	2,0	0,2	1,5	GX 09-1	**600**
GX 09-1 E2.50 N 0.20	9	2,5	0,2	1,5	GX 09-1	**602**
GX 09-2 E3.00 N 0.30	9	3,0	0,3	2,0	GX 09-2	**604**
GX 16-1 E2.00 N 0.20	16	2,0	0,2	2,5	GX 16-1	**650**
GX 16-2 E3.00 N 0.30	16	3,0	0,3	3,0	GX 16-2	**652**
GX 16-3 E4.00 N 0.40	16	4,0	0,4	3,5	GX 16-3	**654**
GX 16-3 E5.00 N 0.40	16	5,0	0,4	3,5	GX 16-3	**656**

P	●
M	●
K	●
N	○
S	●
H	
O	○

→ v_c Page 102
→ Application recommendation on page 104

Internal machining | *External machining*





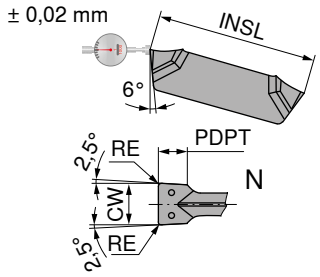

→ 40+41 | → 44+45 | → 38+39 | → 42+43

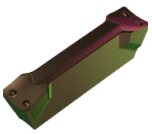
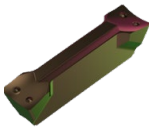
Insert GX 09/16 – Standard

▲ Suitable for parting thin-walled workpieces



F	M	R
		



CTCP325	CTCP335	CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		

Designation	INSL mm	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 350 ...		70 350 ...		70 350 ...	
GX 09-1 E2.00 N 0.20	9	2,0	0,2	1,5	GX 09-1	**984**				**634**	
GX 09-1 E2.50 N 0.20	9	2,5	0,2	1,5	GX 09-1	**988**				**638**	
GX 09-2 E3.00 N 0.30	9	3,0	0,3	2,0	GX 09-2	**992**				**642**	
GX 16-1 E2.00 N 0.20	16	2,0	0,2	2,5	GX 16-1	**900**		**500**		**600**	
GX 16-1 E2.50 N 0.20	16	2,5	0,2	2,5	GX 16-1	**904**		**504**		**604**	
GX 16-2 E3.00 N 0.30	16	3,0	0,3	3,0	GX 16-2	**908**		**508**		**608**	
GX 16-2 E3.00 N 0.50	16	3,0	0,5	3,0	GX 16-2	**910**					
GX 16-2 E3.50 N 0.30	16	3,5	0,3	3,0	GX 16-2	**912**		**512**		**612**	
GX 16-3 E4.00 N 0.60	16	4,0	0,6	3,5	GX 16-3	**918**					
GX 16-3 E4.00 N 0.40	16	4,0	0,4	3,5	GX 16-3	**916**		**516**		**616**	
GX 16-3 E5.00 N 0.40	16	5,0	0,4	3,5	GX 16-3	**924**		**524**		**624**	
GX 16-4 E6.00 N 0.50	16	6,0	0,5	4,0	GX 16-4	**928**				**628**	
GX 16-4 E6.00 N 0.80	16	6,0	0,8	4,0	GX 16-4	**930**					

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

→ v_c Page 102
→ Application recommendation on page 104

11

Internal machining | *External machining*

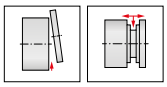




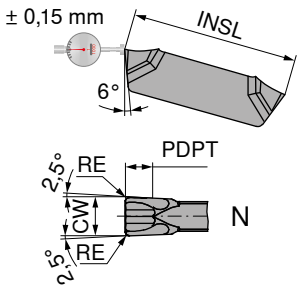

→ 40+41 | → 44+45 | → 38+39 | → 42+43

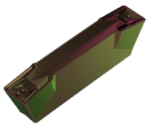
Insert GX 09/16

▲ Very good swarf control



F	M	R
		



-M40 CTCP325	-M40 CTPP345	-M40 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		

Designation	INSL mm	CW +/-0,05 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 351 ...		70 351 ...		70 351 ...	
GX 09-1 E2.00 N 0.20	9	2	0,2	1,5	GX 09-1	**986**		**886**		**686**	
GX 09-2 E3.00 N 0.30	9	3	0,3	2,0	GX 09-2	**994**		**894**		**694**	
GX 16-1 E2.00 N 0.20	16	2	0,2	2,5	GX 16-1	**902**		**802**		**602**	
GX 16-2 E3.00 N 0.30	16	3	0,3	3,0	GX 16-2	**910**		**810**		**610**	
GX 16-3 E4.00 N 0.40	16	4	0,4	3,5	GX 16-3	**918**		**818**		**618**	
GX 16-3 E5.00 N 0.40	16	5	0,4	3,5	GX 16-3	**926**		**826**		**626**	
GX 16-4 E6.00 N 0.50	16	6	0,5	4,0	GX 16-4	**930**		**830**		**630**	
P						●		●		●	
M						○		●		●	
K						●				●	
N										○	
S						○		○		●	
H											
O										○	

→ v_c Page 102
→ Application recommendation on page 104

Internal machining | *External machining*





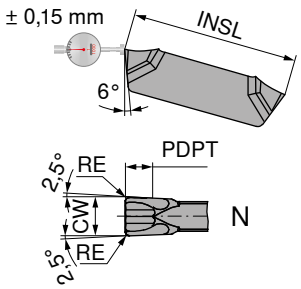

→ 40+41 | → 44+45 | → 38+39 | → 42+43

Insert GX 16

▲ Very good swarf control



F	M	R
		



-M1 CTCP325	-M1 CTPP345	-M1 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		

Designation	INSL mm	CW +/-0,05 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 362 ...	70 362 ...	70 362 ...
GX 16-1 E2.00 N 0.20	16	2	0,2	2,0	GX 16-1		800	600
GX 16-2 E3.00 N 0.20	16	3	0,2	2,5	GX 16-2	902	802	602
GX 16-3 E4.00 N 0.30	16	4	0,3	3,0	GX 16-3	904		604
P						●	●	●
M						○	●	●
K						●		●
N								○
S						○	○	●
H								
O								○

→ v_c Page 102
→ Application recommendation on page 105

Internal machining | *External machining*



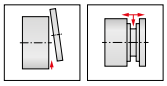



→ 40+41 | → 45 | → 38+39 | → 43

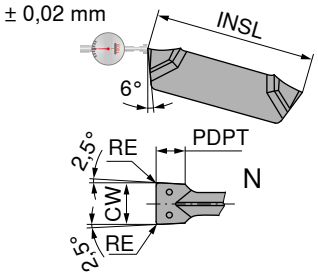
11

Insert GX 16

▲ Insert with highly positive cutting edge geometry and sharp cutting edge
▲ ground periphery

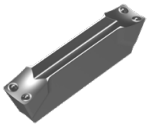


F	M	R
		



-27P
H216T





70 350 ...

Designation	INSL mm	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	
GX 16-1 E2.00 N 0.20	16	2	0,2	2,5	GX 16-1	**650**
GX 16-2 E3.00 N 0.30	16	3	0,3	3,0	GX 16-2	**658**
GX 16-3 E4.00 N 0.40	16	4	0,4	3,5	GX 16-3	**670**
GX 16-4 E6.00 N 0.50	16	6	0,5	4,0	GX 16-4	**678**

P	
M	
K	●
N	●
S	○
H	
O	○

→ v_c Page 102
→ Application recommendation on page 104

Internal machining | *External machining*



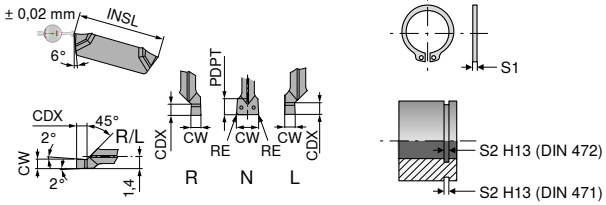


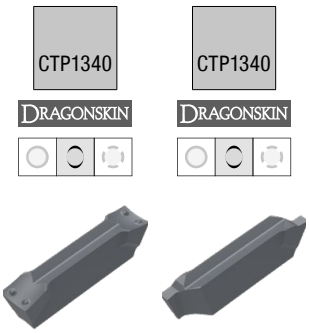

→ 40+41 | → 45 | → 38+39 | → 43

Circlip groove insert GX 09/16 – Standard



F	M	R
		





Designation	IH	INSL	s_1	s_2	CW $_{+/-0,02}$	RE $_{+/-0,05}$	CDX	PDPT	for tool holder	70 352 ...	70 352 ...
		mm	mm	mm	mm	mm	mm	mm			
GX 09-1 S0.60 L	L	9	0,40	0,50	0,60		0,75		R/L 02-GX 09-1		679
GX 09-1 S0.80 L	L	9	0,60	0,70	0,80		0,94		R/L 02-GX 09-1		681
GX 09-1 S0.90 L	L	9	0,70	0,80	0,90		1,04		R/L 02-GX 09-1		683
GX 09-1 S1.00 L	L	9	0,80	0,90	1,00		1,14		R/L 02-GX 09-1		684
GX 09-1 S1.20 L	L	9	1,00	1,10	1,20		1,34		R/L 02-GX 09-1		686
GX 09-1 S1.40 L	L	9	1,20	1,30	1,40		1,53		R/L 02-GX 09-1		688
GX 09-1 S1.70 L	L	9	1,50	1,60	1,70		1,82		R/L 02-GX 09-1		690
GX 16-2 S0.60 L	L	16	0,40	0,50	0,60		0,75		R/L 03-GX 16-2		607
GX 16-2 S0.80 L	L	16	0,60	0,70	0,80		0,94		R/L 03-GX 16-2		609
GX 16-2 S0.90 L	L	16	0,70	0,80	0,90		1,04		R/L 03-GX 16-2		611
GX 16-2 S1.00 L	L	16	0,80	0,90	1,00		1,14		R/L 03-GX 16-2		612
GX 16-2 S1.20 L	L	16	1,00	1,10	1,20		1,34		R/L 03-GX 16-2		614
GX 16-2 S1.40 L	L	16	1,20	1,30	1,40		1,53		R/L 03-GX 16-2		616
GX 16-2 S1.70 L	L	16	1,50	1,60	1,70		1,82		R/L 03-GX 16-2		618
GX 16-2 S1.95 L	L	16	1,75	1,85	1,95		2,07		R/L 03-GX 16-2		620
GX 16-2 S2.25 L	L	16	2,00	2,15	2,25		2,36		R/L 03-GX 16-2		622
GX 09-1 S1.95 N	N	9	1,75	1,85	1,95	0,1		2,0	GX 09-1	692	
GX 09-1 S2.25 N	N	9	2,00	2,15	2,25	0,1		2,0	GX 09-1	694	
GX 09-2 S2.75 N	N	9	2,50	2,65	2,75	0,1		2,0	GX 09-2	696	
GX 09-2 S3.25 N	N	9	3,00	3,15	3,25	0,1		2,0	GX 09-2	698	
GX 16-2 S2.75 N	N	16	2,50	2,65	2,75	0,1		3,0	GX 16-2	624	
GX 16-2 S3.25 N	N	16	3,00	3,15	3,25	0,1		3,0	GX 16-2	626	
GX 16-3 S4.25 N	N	16	4,00	4,15	4,25	0,2		3,5	GX 16-3	628	
GX 16-4 S5.25 N	N	16	5,00	5,15	5,25	0,2		4,0	GX 16-4	630	
GX 09-1 S0.60 R	R	9	0,40	0,50	0,60		0,75		R/L 02-GX 09-1		670
GX 09-1 S0.80 R	R	9	0,60	0,70	0,80		0,94		R/L 02-GX 09-1		672
GX 09-1 S0.90 R	R	9	0,70	0,80	0,90		1,04		R/L 02-GX 09-1		674
GX 09-1 S1.00 R	R	9	0,80	0,90	1,00		1,14		R/L 02-GX 09-1		676
GX 09-1 S1.20 R	R	9	1,00	1,10	1,20		1,34		R/L 02-GX 09-1		678
GX 09-1 S1.40 R	R	9	1,20	1,30	1,40		1,53		R/L 02-GX 09-1		680
GX 09-1 S1.70 R	R	9	1,50	1,60	1,70		1,82		R/L 02-GX 09-1		682
GX 16-2 S0.60 R	R	16	0,40	0,50	0,60		0,75		R/L 03-GX 16-2		695
GX 16-2 S0.80 R	R	16	0,60	0,70	0,80		0,94		R/L 03-GX 16-2		697
GX 16-2 S0.90 R	R	16	0,70	0,80	0,90		1,04		R/L 03-GX 16-2		699
GX 16-2 S1.00 R	R	16	0,80	0,90	1,00		1,14		R/L 03-GX 16-2		600
GX 16-2 S1.20 R	R	16	1,00	1,10	1,20		1,34		R/L 03-GX 16-2		602
GX 16-2 S1.40 R	R	16	1,20	1,30	1,40		1,53		R/L 03-GX 16-2		604
GX 16-2 S1.70 R	R	16	1,50	1,60	1,70		1,82		R/L 03-GX 16-2		606
GX 16-2 S1.95 R	R	16	1,75	1,85	1,95		2,07		R/L 03-GX 16-2		608
GX 16-2 S2.25 R	R	16	2,00	2,15	2,25		2,36		R/L 03-GX 16-2		610
P										●	●
M										●	●
K										●	●
N										○	○
S										●	●
H											
O										○	○

→ v_c Page 102
→ Application recommendation on page 105

Attention – applies only to internal machining:
Right-hand insert → left-hand module or monobloc boring bar
Left-hand insert → right-hand module or monobloc boring bar

Internal machining *External machining*



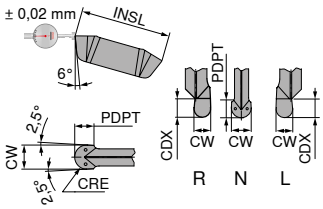
→ 40+41 → 44+45 → 38+39 → 42+43

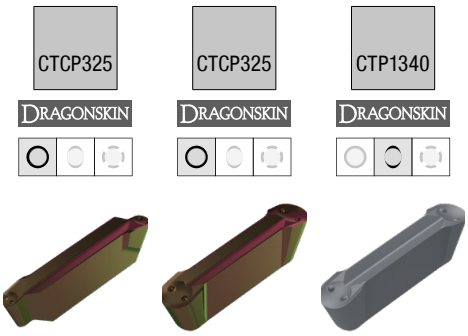
11

Radius groove insert GX 09/16



F	M	R
		





Designation	IH	INSL mm	CW +/-0,02 mm	CRE mm	PDPT mm	CDX mm	for tool holder	70 354 ...		70 354 ...		70 354 ...	
GX 09-1 R0.80 L	L	9	1,6	0,8		1,78	R/L 02-GX 09-1	**988**					
GX 16-2 R0.80 L	L	16	1,6	0,8		1,78	R/L 03-GX 16-2	**912**					
GX 16-2 R1.00 L	L	16	2,0	1,0		2,18	R/L 03-GX 16-2	**916**					
GX 16-2 R1.20 L	L	16	2,4	1,2		2,58	R/L 03-GX 16-2	**920**					
GX 09-1 R1.00 N	N	9	2,0	1,0	1,0		GX 09-1			**992**			
GX 09-1 R1.20 N	N	9	2,4	1,2	1,2		GX 09-1			**996**			
GX 16-2 R1.50 N	N	16	3,0	1,5	1,5		GX 16-2			**924**		**624**	
GX 16-3 R2.00 N	N	16	4,0	2,0	2,0		GX 16-3			**928**		**628**	
GX 16-3 R2.50 N	N	16	5,0	2,5	2,5		GX 16-3			**932**		**632**	
GX 16-4 R3.00 N	N	16	6,0	3,0	3,0		GX 16-4			**936**		**636**	
GX 09-1 R0.80 R	R	9	1,6	0,8		1,78	R/L 02-GX 09-1	**984**					
GX 16-2 R0.80 R	R	16	1,6	0,8		1,78	R/L 03-GX 16-2	**900**					
GX 16-2 R1.00 R	R	16	2,0	1,0		2,18	R/L 03-GX 16-2	**904**					
GX 16-2 R1.20 R	R	16	2,4	1,2		2,58	R/L 03-GX 16-2	**908**					
P								●		●		●	
M								○		○		●	
K								●		●		●	
N												○	
S								○		○		●	
H													
O												○	

→ v_c Page 102
→ Application recommendation on page 105

Attention – applies only to internal machining:
Right-hand insert → left-hand module or monobloc boring bar
Left-hand insert → right-hand module or monobloc boring bar

Internal machining | *External machining*





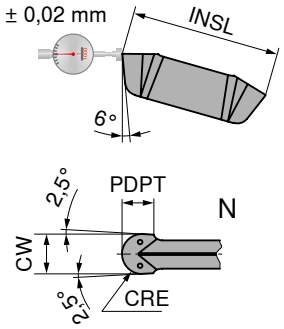

→ 40+41 | → 44+45 | → 38+39 | → 42+43

Radius groove insert GX 16

▲ Insert with highly positive cutting edge geometry and sharp cutting edge
▲ ground periphery



F	M	R
		



-27P
H216T





70 354 ...

Designation	INSL mm	CW +/-0,02 mm	CRE mm	PDPT mm	for tool holder	
GX 16-2 R1.50 N	16	3	1,5	1,5	GX 16-2	**674**
GX 16-3 R2.00 N	16	4	2,0	2,0	GX 16-3	**678**
GX 16-3 R2.50 N	16	5	2,5	2,5	GX 16-3	**682**

P	
M	
K	●
N	●
S	○
H	
O	○

→ v_c Page 102
→ Application recommendation on page 105

Internal machining | *External machining*



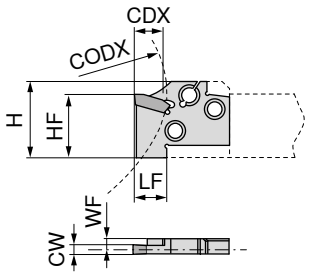



→ 40+41 | → 45 | → 38+39 | → 43

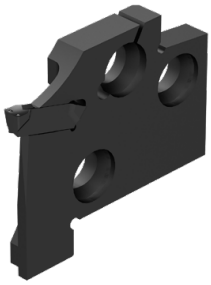
11

ModularClamp MSS – Radial grooving module GX 09/16

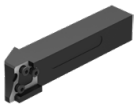
- For circlip grooves ≤ 2.75 mm
- For radius grooves up to ≤ 1.2 mm
- For external recessing



Illustrations show right-hand versions



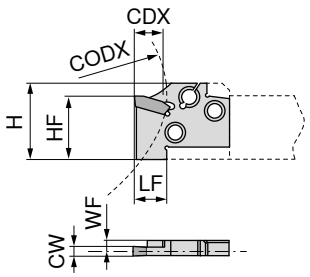
Designation	CW mm	WF mm	LF mm	HF mm	H mm	CODX mm	CDX mm	for grooving inserts	Left-hand 70 871 ...	Right-hand 70 870 ...
E12 R/L 02-GX 09-1	<1,95	3,15	8	12	14,5	36	2	GX 09-1 ..R/L	**112**	**112**
E16 R/L 02-GX 09-1	<1,95	3,15	8	16	19,5	48	2	GX 09-1 ..R/L	**116**	**116**
E20 R/L 03-GX 16-2	<2,75	3,40	13	20	24,0	60	3	GX 16-2 ..R/L	**120**	**120**
E25 R/L 03-GX 16-2	<2,75	4,90	13	25	30,0	75	3	GX 16-2 ..R/L	**125**	**125**
E32 R/L 03-GX 16-2	<2,75	4,90	13	32	38,0	96	3	GX 16-2 ..R/L	**132**	**132**

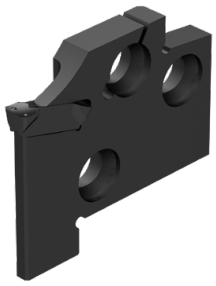

→ 30–37 → 93–95 → 96

ModularClamp MSS – Radial grooving module GX 09/16

- For grooving and turning
- For circlip grooves ≤ 5.25 mm
- For radius grooves up to ≤ 3.0 mm
- For external recessing

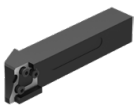


Illustrations show right-hand versions



Designation	CW mm	WF mm	LF mm	HF mm	H mm	CODX mm	CDX mm	for grooving inserts	Left-hand 70 866 ...	Right-hand 70 865 ...
E12 R/L 07-GX 09-1	2,00 - 2,75	3,15	8	12	14,5	36	7	GX 09-1 ..N	**012**	**012**
E12 R/L 07-GX 09-2	2,76 - 3,75	3,15	8	12	14,5	36	7	GX 09-2 ..N	**112**	**112**
E16 R/L 07-GX 09-1	2,00 - 2,75	3,15	8	16	19,5	48	7	GX 09-1 ..N	**016**	**016**
E16 R/L 07-GX 09-2	2,76 - 3,75	3,15	8	16	19,5	48	7	GX 09-2 ..N	**116**	**116**
E20 R/L 12-GX 16-1	2,00 - 2,75	3,75	13	20	24,0	60	12	GX 16-1 ..N	**020**	**020**
E20 R/L 12-GX 16-2	2,76 - 3,75	3,40	13	20	24,0	60	12	GX 16-2 ..N	**120**	**120**
E20 R/L 12-GX 16-3	3,76 - 5,00	2,93	13	20	24,0	60	12	GX 16-3 ..N	**220**	**220**
E25 R/L 12-GX 16-1	2,00 - 2,75	5,25	13	25	30,0	75	12	GX 16-1 ..N	**025**	**025**
E25 R/L 12-GX 16-2	2,76 - 3,75	4,90	13	25	30,0	75	12	GX 16-2 ..N	**125**	**125**
E25 R/L 12-GX 16-3	3,76 - 5,00	4,43	13	25	30,0	75	12	GX 16-3 ..N	**225**	**225**
E25 R/L 12-GX 16-4	5,01 - 6,50	3,80	13	25	30,0	75	12	GX 16-4 ..N	**325**	**325**
E32 R/L 12-GX 16-2	2,76 - 3,75	4,90	13	32	38,0	96	12	GX 16-2 ..N	**132**	**132**
E32 R/L 12-GX 16-3	3,76 - 5,00	4,43	13	32	38,0	96	12	GX 16-3 ..N	**232**	**232**
E32 R/L 12-GX 16-4	5,01 - 6,50	3,80	13	32	38,0	96	12	GX 16-4 ..N	**332**	**332**

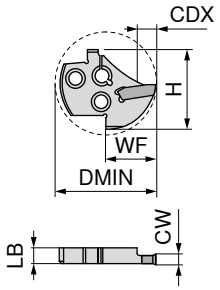
11

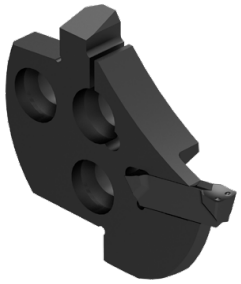

→ 30–37 → 93–95 → 96

ModularClamp MSS – Radial Grooving module GX 09/16 for Internal machining

- For circlip grooves ≤ 2.75 mm
- For radius grooves up to ≤ 1.2 mm



Illustrations show right-hand versions



								Left-hand	Right-hand
								70 886 ...	70 885 ...
Designation	CW mm	LB mm	WF mm	H mm	CDX mm	DMIN mm	for grooving inserts		
I16 R/L 02-GX 09-1	<1,95	3,8	10,0	16,4	2	20	GX 09-1 ..R/L	**016**	**016**
I20 R/L 02-GX 09-1	<1,95	3,8	12,0	20,3	2	25	GX 09-1 ..R/L	**020**	**020**
I25 R/L 02-GX 09-1	<1,95	3,8	15,5	24,9	2	32	GX 09-1 ..R/L	**025**	**025**
I32 R/L 03-GX 16-2	<2,75	5,9	20,0	32,2	3	40	GX 16-2 ..R/L	**032**	**032**
I40 R/L 03-GX 16-2	<2,75	5,9	24,5	39,6	3	50	GX 16-2 ..R/L	**040**	**040**

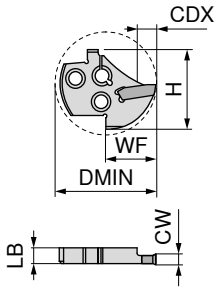
Right hand module → left hand insert only
Left hand module → right hand insert only




→ 30–37 → 97

ModularClamp MSS – Radial Grooving module 09/16 for Internal machining

- For circlip grooves ≤ 5.25 mm
- For radius grooves up to ≤ 3.0 mm



Illustrations show right-hand versions



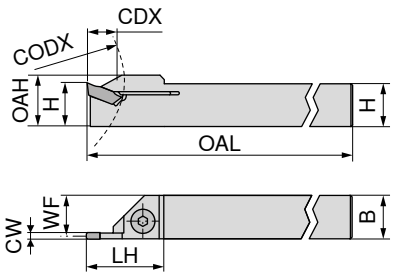
Designation	CW mm	LB mm	WF mm	H mm	CDX mm	DMIN mm	for grooving inserts	Left-hand 70 881 ...	Right-hand 70 880 ...
I16 R/L 04-GX 09-1	2,00 - 2,75	3,8	10,0	16,4	4	20	GX 09-1 ..N	**017**	**017**
I16 R/L 04-GX 09-2	2,76 - 3,75	3,8	10,0	16,4	4	20	GX 09-2 ..N	**117**	**117**
I20 R/L 05-GX 09-1	2,00 - 2,75	3,8	12,0	20,3	5	25	GX 09-1 ..N	**021**	**021**
I20 R/L 05-GX 09-2	2,76 - 3,75	3,8	12,0	20,3	5	25	GX 09-2 ..N	**121**	**121**
I25 R/L 06-GX 09-1	2,00 - 2,75	3,8	15,5	24,9	6	32	GX 09-1 ..N	**026**	**026**
I25 R/L 06-GX 09-2	2,76 - 3,75	3,8	15,5	24,9	6	32	GX 09-2 ..N	**126**	**126**
I32 R/L 09-GX 16-1	2,00 - 2,75	5,9	20,0	32,2	9	40	GX 16-1 ..N	**033**	**033**
I32 R/L 09-GX 16-2	2,76 - 3,75	5,9	20,0	32,2	9	40	GX 16-2 ..N	**133**	**133**
I32 R/L 09-GX 16-3	3,76 - 5,00	5,9	20,0	32,2	9	40	GX 16-3 ..N	**233**	**233**
I32 R/L 09-GX 16-4	5,01 - 6,50	5,9	20,0	32,2	9	40	GX 16-4 ..N	**333**	**333**
I40 R/L 10-GX 16-1	2,00 - 2,75	5,9	24,5	39,6	10	50	GX 16-1 ..N	**041**	**041**
I40 R/L 10-GX 16-2	2,76 - 3,75	5,9	24,5	39,6	10	50	GX 16-2 ..N	**141**	**141**
I40 R/L 10-GX 16-3	3,76 - 5,00	5,9	24,5	39,6	10	50	GX 16-3 ..N	**241**	**241**
I40 R/L 10-GX 16-4	5,01 - 6,50	5,9	24,5	39,6	10	50	GX 16-4 ..N	**341**	**341**

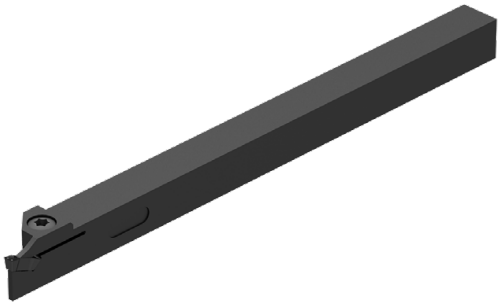



→ 30–37 → 97

11

MonoClamp – Radial Monoholder GX 09

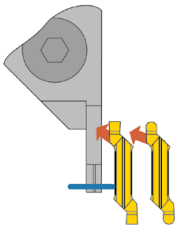




Illustrations show right-hand versions

Designation	H mm	B mm	CW mm	WF mm	OAH mm	OAL mm	LH mm	CODX mm	CDX mm	for grooving inserts	Left-hand 70 863 ...	Right-hand 70 862 ...
E10 R/L 00-1010M-GX09	10	10	2,00 - 3,50	9,35	12	150	18	30	7	GX 09 ..	**010**	**010**

When using 'R' or 'L' tools the tool must be modified at the end face to ensure cutting clearance.




Key D

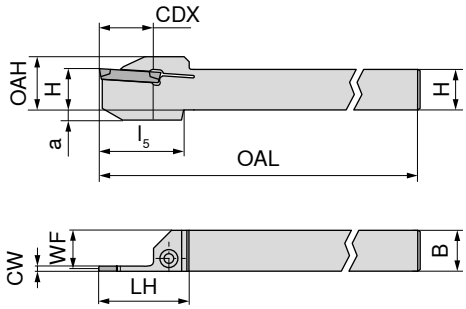

Clamping screw

Spare parts for grooving inserts				
GX 09 ..	T15	**80 950 ... 113**	M4x11	**70 950 ... 442**



→ 30–36

MonoClamp – Radial Monoholder GX 16

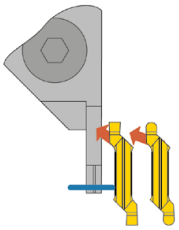




Illustrations show right-hand versions

Designation	H mm	B mm	CW mm	WF mm	OAH mm	OAL mm	LH mm	l_5 mm	a mm	CDX mm	for grooving inserts	Left-hand 70 889 ...	Right-hand 70 888 ...
E12 R/L 0012-1212K-GX16-1	12	12	2,00 - 2,75	11,35	17	125	26	24	4	12	GX 16-1	**212**	**212**
E12 R/L 0012-1212K-GX16-2	12	12	2,76 - 3,75	11,00	17	125	26	24	4	12	GX 16-2	**312**	**312**
E16 R/L 0012-1616K-GX16-1	16	16	2,00 - 2,75	15,35	21	125	26	24	4	12	GX 16-1	**216**	**216**
E16 R/L 0012-1616K-GX16-2	16	16	2,76 - 3,75	15,00	21	125	26	24	4	12	GX 16-2	**316**	**316**
E16 R/L 0012-1616K-GX16-3	16	16	3,76 - 5,00	14,53	21	125	26	24	4	12	GX 16-3	**416**	**416**
E20 R/L 0012-2020K-GX16-1	20	20	2,00 - 2,75	19,35	25	125	26			12	GX 16-1	**220**	**220**
E20 R/L 0012-2020K-GX16-2	20	20	2,76 - 3,75	19,00	25	125	26			12	GX 16-2	**320**	**320**
E20 R/L 0012-2020K-GX16-3	20	20	3,76 - 5,00	18,53	25	125	26			12	GX 16-3	**420**	**420**
E25 R/L 0012-2525M-GX16-2	25	25	2,76 - 3,75	24,00	30	150	26			12	GX 16-2	**325**	**325**
E25 R/L 0012-2525M-GX16-3	25	25	3,76 - 5,00	23,53	30	150	26			12	GX 16-3	**425**	**425**

When using 'R' or 'L' tools the tool must be modified at the end face to ensure cutting clearance.



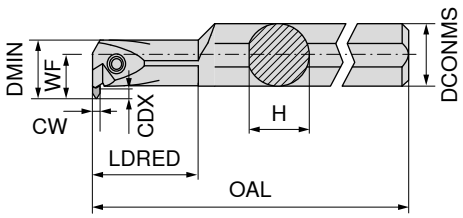
11

Spare parts for grooving inserts		Key D 80 950 ...		Clamping screw 70 950 ...	
GX 16-1	T15	**113**	M3,5x14	**160**
GX 16-2	T15	**113**	M3,5x14	**160**
GX 16-3	T15	**113**	M3,5x14	**160**



→ 30–37

MonoClamp – Radial Mono-boring bars GX 09



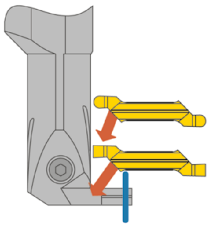


Illustrations show right-hand versions

Designation	H mm	DCONMS mm	DMIN mm	CW mm	CDX mm	WF mm	OAL mm	LDRED mm	for grooving inserts	Left-hand 70 859 ...	Right-hand 70 858 ...
I12 R/L 90-2,5D-GX09	15,25	16	16	2,00 - 3,75	3	11	150	30	GX 09 ..	**012**	**012**

Right hand boring bar→ left hand insert only
Left hand boring bar→ right hand insert only

When using „R“ or „L“ tools the insert support seat requires modification to prevent the insert fouling.




Key D

80 950 ...


Clamping screw

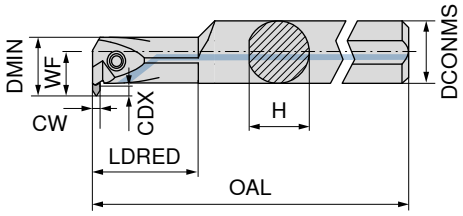
70 950 ...

Spare parts for grooving inserts				
GX 09 ..	T15	**113**	M3,5x12,5	**441**



→ 30–36

MonoClamp – Radial Mono-boring bars GX 16



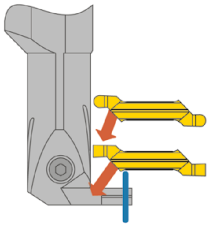


Illustrations show right-hand versions

Designation	H mm	DCONMS mm	DMIN mm	CW mm	CDX mm	WF mm	OAL mm	LDRED mm	for grooving inserts	Left-hand 70 893 ...	Right-hand 70 892 ...
I16 R/L 90-2.0D-GX16-1	15,25	16	20,5	2,00 - 2,75	5,0	13,5	150	32	GX 16-1	**516**	**516**
I16 R/L 90-2.0D-GX16-2	15,25	16	20,5	2,76 - 3,75	5,0	13,5	150	32	GX 16-2	**616**	**616**
I20 R/L 90-2.0D-GX16-2	19,00	20	25,0	2,76 - 3,75	5,5	15,5	180	40	GX 16-2	**620**	**620**
I25 R/L 90-2.0D-GX16-2	24,00	25	32,0	2,76 - 3,75	8,0	20,5	200	50	GX 16-2	**625**	**625**
I25 R/L 90-2.0D-GX16-3	24,00	25	32,0	3,76 - 5,00	10,0	22,5	200	50	GX 16-3	**725**	**725**
I32 R/L 90-2.0D-GX16-2	31,00	32	42,0	2,76 - 3,75	11,0	27,5	250	64	GX 16-2	**632**	**632**
I32 R/L 90-2.0D-GX16-3	31,00	32	42,0	3,76 - 5,00	11,0	27,5	250	64	GX 16-3	**732**	**732**

Right hand boring bar→ left hand insert only
Left hand boring bar→ right hand insert only

When using „R“ or „L“ tools the insert support seat requires modification to prevent the insert fouling.



11


Key D


Clamping screw

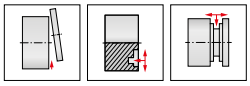
Spare parts for grooving inserts		80 950 ...		70 950 ...
GX 16-1	T15	**113**	M4x14	**403**
GX 16-2	T15	**113**	M4x14	**403**
GX 16-3	T15	**113**	M4x14	**403**



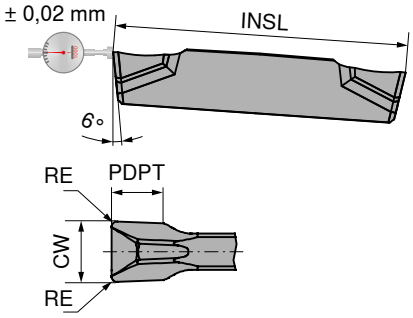
→ 30–37

Insert GX 24

▲ Insert with ground periphery
▲ Suitable also for parting off tubes and thin-walled workpieces



F	M	R



-F2 CTCP325	-F2 CTPP345	-F2 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	INSL mm	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 350 ...	70 350 ...	70 350 ...
GX 24-2 E3.00 N 0.30	24	3,0	0,3	2,5	GX 24-2	**962**	**862**	**662**
GX 24-2 E3.50 N 0.30	24	3,5	0,3	2,5	GX 24-2		**864**	
GX 24-3 E4.00 N 0.40	24	4,0	0,4	3,0	GX 24-3	**966**	**866**	**666**
GX 24-3 E5.00 N 0.40	24	5,0	0,4	3,5	GX 24-3	**970**	**870**	**671**
GX 24-4 E6.00 N 0.50	24	6,0	0,5	4,0	GX 24-4		**872**	**672**
P						●	●	●
M						○	●	●
K						●		●
N								○
S						○	○	●
H								
O								○

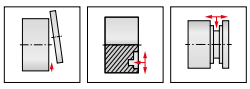
→ v_c Page 102
→ Application recommendation on page 104

Internal machining *External machining*

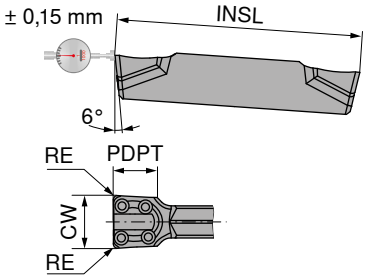


→ 54 → 59 → 53–56 → 57 → 58 → 60

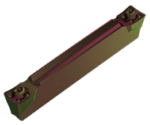
Insert GX 24



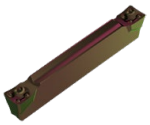
F	M	R



-E CTCP325 DRAGONSKIN



-E CTCP335 DRAGONSKIN



-E CTPP345 DRAGONSKIN



-E CTP1340 DRAGONSKIN



Designation	INSL mm	CW +/-0,05 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 350 ...		70 350 ...		70 350 ...		70 350 ...	
GX 24-2 E3.00 N 0.30	24	3	0,3	2,5	GX 24-2	**932**		**532**		**832**		**632**	
GX 24-3 E4.00 N 0.40	24	4	0,4	3,0	GX 24-3	**936**		**536**		**836**		**636**	
GX 24-3 E5.00 N 0.40	24	5	0,4	3,0	GX 24-3	**940**		**540**		**840**		**640**	
GX 24-4 E6.00 N 0.50	24	6	0,5	3,5	GX 24-4	**944**		**544**		**844**		**644**	
P						●		●		●		●	
M						○		○		●		●	
K						●		●				●	
N												○	
S						○				○		●	
H													
O												○	

→ v_c Page 102
→ Application recommendation on page 104

Internal machining *External machining*








→ 54 → 59 → 53–56 → 57 → 58 → 60

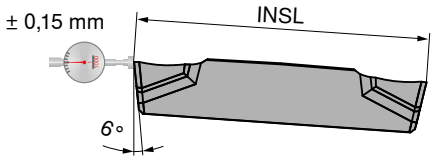
11

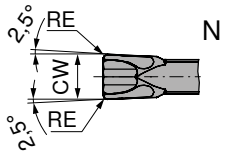
Insert GX 24

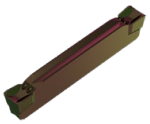
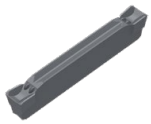
▲ Very good swarf control



F	M	R
		





-M1 CTCP325	-M1 CTPP345	-M1 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		

Designation	INSL mm	CW +/-0,05 mm	RE +/-0,05 mm	for tool holder	70 363 ...	70 363 ...	70 363 ...
GX 24-1 E2.00 N 0.20	24	2	0,2	GX 24-1	**900**	**800**	**600**
GX 24-2 E3.00 N 0.20	24	3	0,2	GX 24-2	**902**	**802**	**602**
GX 24-3 E4.00 N 0.30	24	4	0,3	GX 24-3	**904**	**804**	**604**
P					●	●	●
M					○	●	●
K					●		●
N							○
S					○	○	●
H							
O							○

→ v_c Page 102
→ Application recommendation on page 105

Internal machining | *External machining*



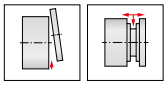




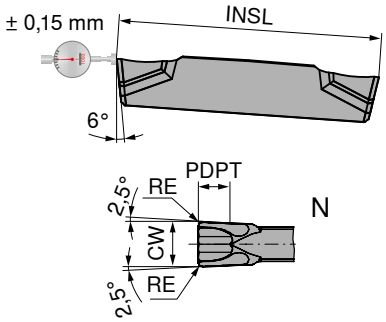

→ 54 | → 59 | → 53–56 | → 57 | → 58 | → 60

Insert GX 24

▲ Very good swarf control



F	M	R



-M40 CTCP325	-M40 CTPP345	-M40 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	INSL mm	CW +/-0,05 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 364 ...		70 364 ...		70 364 ...	
GX 24-2 E3.00 N 0.30	24	3	0,3	3,5	GX 24-2	**900**		**800**		**600**	
GX 24-3 E4.00 N 0.40	24	4	0,4	4,0	GX 24-3	**902**		**802**		**602**	
GX 24-3 E5.00 N 0.40	24	5	0,4	4,0	GX 24-3	**904**		**804**		**604**	
GX 24-4 E6.00 N 0.50	24	6	0,5	4,0	GX 24-4	**906**		**806**		**606**	
P						●		●		●	
M						○		●		●	
K						●				●	
N										○	
S						○		○		●	
H											
O										○	

→ v_c Page 102
→ Application recommendation on page 104

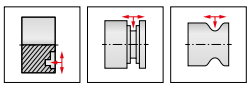
Internal machining | *External machining*



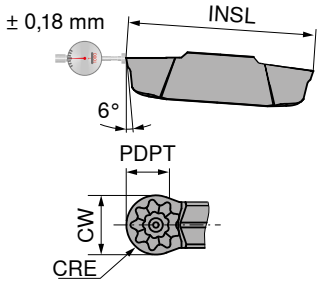
→ 54 | → 59 | → 53–56 | → 57 | → 58 | → 60

11

Radius groove insert GX 24

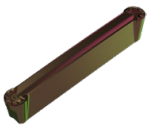


F	M	R



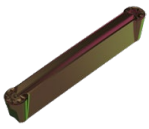
-M3
CTCP325

DRAGONSKIN



-M3
CTCP335

DRAGONSKIN



Designation	INSL mm	CW +/-0,05 mm	CRE mm	PDPT mm	for tool holder	70 354 ...		70 354 ...	
GX 24-2 R1.50 N	24,4	3	1,5	1,5	GX 24-2	**952**		**552**	
GX 24-3 R2.00 N	24,4	4	2,0	2,5	GX 24-3	**954**		**554**	
GX 24-3 R2.50 N	24,4	5	2,5	3,0	GX 24-3	**956**		**556**	
GX 24-4 R3.00 N	24,4	6	3,0	4,0	GX 24-4	**958**		**558**	

P	●	●
M	○	○
K	●	●
N		
S	○	
H		
O		

→ v_c Page 102
→ Application recommendation on page 105

Internal machining *External machining*



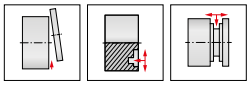




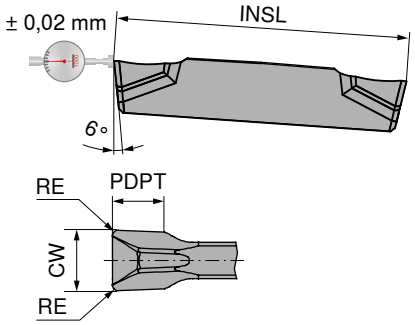

→ 54 → 59 → 53–56 → 57 → 58 → 60

Insert GX 24

▲ Insert with highly positive cutting edge geometry and sharp cutting edge
▲ ground periphery

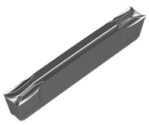


F	M	R



-27P
H216T





70 350 ...

Designation	INSL mm	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	
GX 24-2 E3.00 N 0.30	24	3	0,3	2,5	GX 24-2	**682**
GX 24-3 E4.00 N 0.40	24	4	0,4	3,0	GX 24-3	**684**
GX 24-3 E5.00 N 0.40	24	5	0,4	3,5	GX 24-3	**686**
GX 24-4 E6.00 N 0.50	24	6	0,5	4,0	GX 24-4	**688**

P	
M	
K	●
N	●
S	○
H	
O	○

→ v_c Page 102
→ Application recommendation on page 104

Internal machining *External machining*





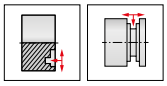



→ 54 | → 59 | → 53–56 | → 57 | → 58 | → 60

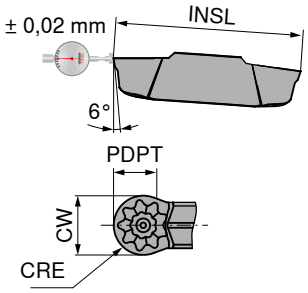
11

Radius grooving insert GX 24

▲ Insert with highly positive cutting edge geometry and sharp cutting edge
▲ ground periphery



F	M	R



-27PF
H216T



70 353 ...

Designation	INSL mm	CW +/-0,02 mm	CRE mm	PDPT mm	for tool holder	
GX 24-4 R3.00 N	25,4	6	3	4	GX 24-4	**500**
GX 24-5 R4.00 N	25,4	8	4	5	GX 24-5	**506**

P	
M	
K	●
N	●
S	○
H	
O	○

→ v_c Page 102
→ Application recommendation on page 105

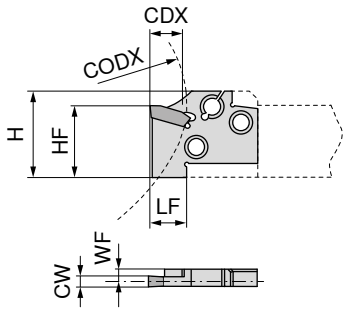
Internal machining | *External machining*



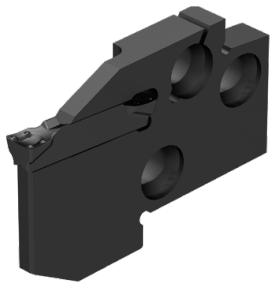
→ 54 | → 59 | → 53–56 | → 57 | → 58 | → 60

ModularClamp MSS – Radial grooving module GX 24

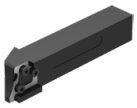
- For deep radial parting and grooving
- For turning



Illustrations show right-hand versions



Designation	CW mm	WF mm	LF mm	HF mm	H mm	CODX mm	CDX mm	for grooving inserts	Left-hand 70 868 ...	Right-hand 70 867 ...
E20 R/L 21-GX 24-1	2,00 - 2,75	3,85	22	20	24	60	21	GX 24-1	**020**	**020**
E20 R/L 21-GX 24-2	3	3,40	22	20	24	60	21	GX 24-2	**120**	**120**
E20 R/L 21-GX 24-3	4/5	3,00	22	20	24	30	21	GX 24-3	**22000**	**22000**
E25 R/L 21-GX 24-1	2,00 - 2,75	5,10	22	25	30	75	21	GX 24-1	**025**	**025**
E25 R/L 21-GX 24-2	3	4,90	22	25	30	75	21	GX 24-2	**125**	**125**
E25 R/L 21-GX 24-3	4/5	4,43	22	25	30	75	21	GX 24-3	**225**	**225**
E25 R/L 21-GX 24-4	6	3,80	22	25	30	75	21	GX 24-4	**325**	**325**
E25 R/L 21-GX 24-5	8	2,95	22	25	30	75	21	GX 24-5	**425**	**425**
E32 R 21-GX 24-2	3	4,95	22	32	38	48	21	GX 24-2		**13200**
E32 R/L 21-GX 24-3	4/5	4,43	22	32	38	96	21	GX 24-3	**232**	**232**
E32 R/L 21-GX 24-4	6	3,80	22	32	38	96	21	GX 24-4	**332**	**332**

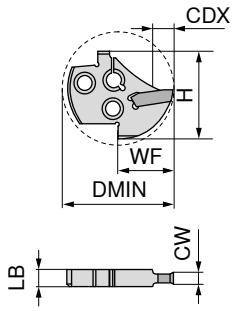




→ 46-52 → 93-95 → 96

11

ModularClamp MSS – Radial Grooving module GX 24 for Internal machining

▲ for grooving and turning





Neutral

70 880 ...

Designation	CW mm	LB mm	WF mm	H mm	CDX mm	DMIN mm	for grooving inserts	
I40 N 19-GX 24-2	2,76 - 3,75	6,2	33,5	40,7	19	60	GX 24-2 ..N	**340**
I40 N 19-GX 24-3	3,76 - 5,00	6,2	33,5	40,7	19	60	GX 24-3 ..N	**440**
I40 N 19-GX 24-4	5,01 - 6,50	6,2	33,5	40,7	19	60	GX 24-4 ..N	**540**

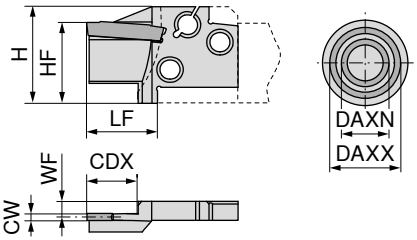




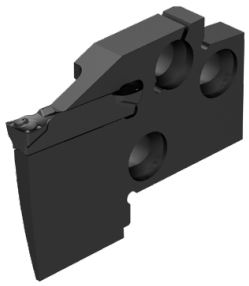
→ 46–52 → 97

ModularClamp MSS – Axial grooving module GX 24 short

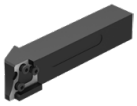
- For axial grooving
- For face turning



Illustrations show right-hand versions



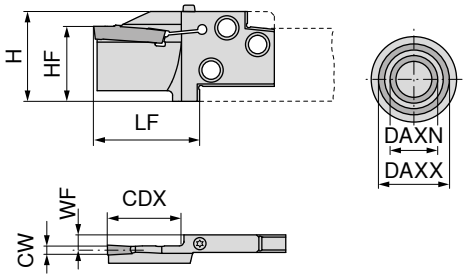
Designation	DAXN mm	DAXX mm	CW mm	WF mm	LF mm	HF mm	H mm	CDX mm	for grooving inserts	Left-hand 70 891 ...	Right-hand 70 890 ...
E20 R/L 14-GX 24-2 A	50	70	3	3,40	22	20	24	14	GX 24-2	**100**	**100**
E20 R/L 14-GX 24-2 A	70	100	3	3,40	22	20	24	14	GX 24-2	**102**	**102**
E20 R/L 14-GX 24-2 A	100	150	3	3,40	22	20	24	14	GX 24-2	**104**	**104**
E25 R/L 15-GX 24-2 A	50	70	3	4,90	22	25	30	15	GX 24-2	**200**	**200**
E25 R/L 15-GX 24-2 A	70	100	3	4,90	22	25	30	15	GX 24-2	**202**	**202**
E25 R/L 15-GX 24-2 A	100	150	3	4,90	22	25	30	15	GX 24-2	**204**	**204**
E25 R/L 15-GX 24-3 A	50	70	4/5	4,43	22	25	30	15	GX 24-3	**206**	**206**
E25 R/L 15-GX 24-3 A	70	100	4/5	4,43	22	25	30	15	GX 24-3	**208**	**208**
E25 R/L 15-GX 24-3 A	100	150	4/5	4,43	22	25	30	15	GX 24-3	**210**	**210**
E25 R/L 15-GX 24-3 A	150	300	4/5	4,43	22	25	30	15	GX 24-3	**212**	**212**
E25 R/L 15-GX 24-4 A	50	70	6	3,80	22	25	30	15	GX 24-4	**214**	**214**
E25 R/L 15-GX 24-4 A	70	100	6	3,80	22	25	30	15	GX 24-4	**216**	**216**
E25 R/L 15-GX 24-4 A	100	150	6	3,80	22	25	30	15	GX 24-4	**218**	**218**
E25 R/L 15-GX 24-4 A	150	300	6	3,80	22	25	30	15	GX 24-4	**220**	**220**
E32 R/L 15-GX 24-3 A	70	100	4/5	4,43	22	32	38	15	GX 24-3	**300**	**300**
E32 R/L 15-GX 24-3 A	100	150	4/5	4,43	22	32	38	15	GX 24-3	**302**	**302**
E32 R/L 15-GX 24-3 A	150	300	4/5	4,43	22	32	38	15	GX 24-3	**304**	**304**
E32 R/L 15-GX 24-4 A	70	100	6	3,80	22	32	38	15	GX 24-4	**306**	**306**
E32 R/L 15-GX 24-4 A	100	150	6	3,80	22	32	38	15	GX 24-4	**308**	**308**
E32 R/L 15-GX 24-4 A	150	300	6	3,80	22	32	38	15	GX 24-4	**310**	**310**
E32 R/L 15-GX 24-4 A	300	900	6	3,80	22	32	38	15	GX 24-4	**312**	**312**


→ 46–52 → 93–95 → 96

ModularClamp MSS – Axial grooving module GX 24 long

- For axial grooving
- For face turning



Illustrations show right-hand versions



Designation	DAXN mm	DAXX mm	CW mm	WF mm	LF mm	HF mm	H mm	CDX mm	for grooving inserts	Left-hand 70 895 ...	Right-hand 70 894 ...
E25 R/L 21-GX 24-3 AS	50	70	4/5	4,53	35	25	30	21	GX 24-3	**200**	**200**
E25 R/L 21-GX 24-3 AS	70	100	4/5	4,53	35	25	30	21	GX 24-3	**202**	**202**
E25 R/L 21-GX 24-3 AS	100	150	4/5	4,53	35	25	30	21	GX 24-3	**204**	**204**
E25 R/L 21-GX 24-3 AS	150	300	4/5	4,53	35	25	30	21	GX 24-3	**206**	**206**
E25 R/L 25-GX 24-4 AS	50	70	6	3,90	35	25	30	25	GX 24-4	**210**	**210**
E25 R/L 25-GX 24-4 AS	70	100	6	3,90	35	25	30	25	GX 24-4	**212**	**212**
E25 R/L 25-GX 24-4 AS	100	150	6	3,90	35	25	30	25	GX 24-4	**214**	**214**
E25 R/L 25-GX 24-4 AS	150	300	6	3,90	35	25	30	25	GX 24-4	**216**	**216**

Axial modules version „GX 24 long“ can be clamped on both sides.

Spare parts for grooving inserts	Key D 80 950 ...		Clamping screw 70 950 ...	
GX 24-3	T15	**113**	M3,5x14	**160**
GX 24-4	T15	**113**	M3,5x14	**160**



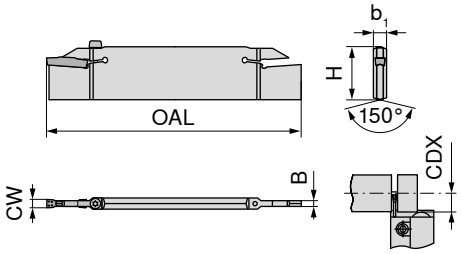


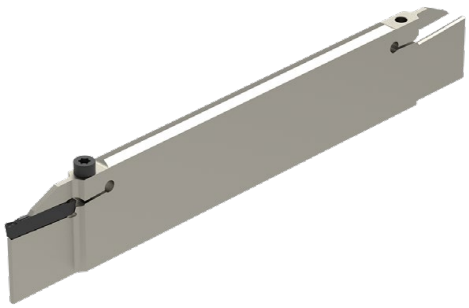
→ 46–52 → 93–95 → 96

MonoClamp – Radial Blade GX 24

Scope of supply:

Blade incl. clamping screw and tightening wrench





Designation	CW mm	H mm	B mm	b_1 mm	OAL mm	CDX mm	for grooving inserts	70 834 ...
XLCF N 3203-GX24-1S	2	32	1,05	6,2	180	21	GX 24-1	**102**
XLCF N 3203-GX24-2S	3	32	2,10	6,2	180	21	GX 24-2	**103**
XLCF N 3204-GX24-3S	4/5	32	3,05	6,2	180	21	GX 24-3	**104**
XLCF N 3206-GX24-4S	6	32	4,20	6,2	180	21	GX 24-4	**106**


Key D


Clamping screw

Spare parts for grooving inserts		80 950 ...		70 950 ...
GX 24-1	T15	**113**	M3,5x14	**160**
GX 24-2	T15	**113**	M3,5x14	**160**
GX 24-3	T15	**113**	M3,5x14	**160**
GX 24-4	T15	**113**	M3,5x14	**160**

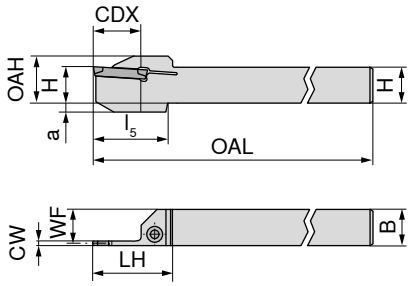




→ 46–52 → 99+100 → **Chapter 16**

11

MonoClamp – Radial Monoholder GX 24





Illustrations show right-hand versions

Designation	H mm	B mm	CW mm	WF mm	OAH mm	OAL mm	LH mm	l_5 mm	CDX mm	a mm	for grooving inserts	Left-hand 70 863 ...	Right-hand 70 862 ...
E16 R/L 0021-1616K-GX24-1	16	16	2,00 - 2,75	15,20	21	125	35	32	21	4	GX 24-1	**160**	**160**
E16 R/L 0021-1616K-GX24-2	16	16	2,76 - 3,75	15,00	21	125	35	32	21	4	GX 24-2	**016**	**016**
E20 R/L 0021-2020K-GX24-1	20	20	2,00 - 2,75	19,20	25	125	35		21		GX 24-1	**200**	**200**
E20 R/L 0021-2020K-GX24-2	20	20	2,76 - 3,75	19,00	25	125	35		21		GX 24-2	**020**	**020**
E20 R/L 0021-2020K-GX24-3	20	20	3,76 - 5,00	18,53	25	125	35		21		GX 24-3	**120**	**120**
E25 R/L 0021-2525M-GX24-2	25	25	2,76 - 3,75	24,00	30	150	35		21		GX 24-2	**025**	**025**
E25 R/L 0021-2525M-GX24-3	25	25	3,76 - 5,00	23,53	30	150	35		21		GX 24-3	**125**	**125**
E25 R/L 0021-2525M-GX24-4	25	25	5,01 - 6,50	22,90	30	150	35		21		GX 24-4	**225**	**225**
E32 R/L 0021-3225P-GX24-2	32	25	2,76 - 3,75	24,00	37	170	35		21		GX 24-2	**032**	**032**
E32 R/L 0021-3225P-GX24-3	32	25	3,76 - 5,00	23,53	37	170	35		21		GX 24-3	**132**	**132**
E32 R/L 0021-3225P-GX24-4	32	25	5,01 - 6,50	22,90	37	170	35		21		GX 24-4	**232**	**232**


Key D

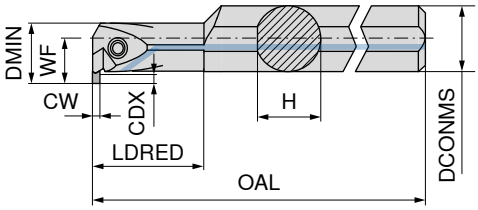

Clamping screw

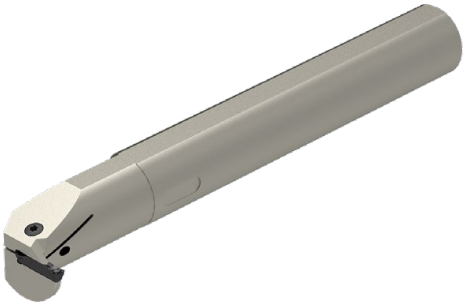
Spare parts for grooving inserts	Key D 80 950 ...		Clamping screw 70 950 ...	
GX 24-1	T20	**114**	M4x18	**204**
GX 24-2	T20	**114**	M4x18	**204**
GX 24-3	T20	**114**	M4x18	**204**
GX 24-4	T20	**114**	M4x18	**204**



→ 46–52

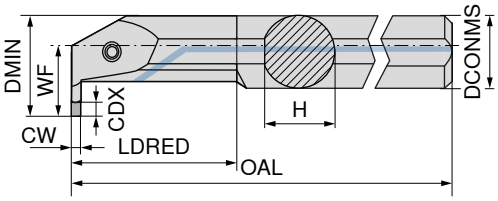
MonoClamp – Radial Mono-boring bars GX 24

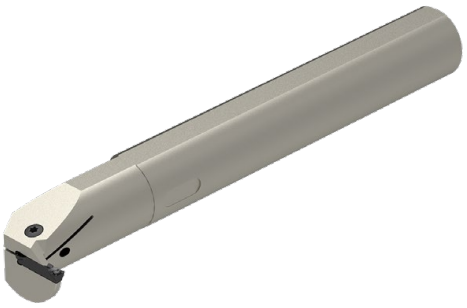




Designation	H mm	DCONMS mm	DMIN mm	CW mm	CDX mm	WF mm	OAL mm	LDRED mm	for grooving inserts	Left-hand 70 895 ...	Right-hand 70 894 ...
I32 R/L 90-2.0D-GX24-2	31,0	32	42	2,76 - 3,75	11	27,5	250	64	GX 24-2	**132**	**132**
I32 R/L 90-2.0D-GX24-3	31,0	32	42	3,76 - 5,00	11	27,5	250	64	GX 24-3	**232**	**232**
I40 R/L 90-2.0D-GX24-3	38,5	40	53	3,76 - 5,00	12	32,5	300	80	GX 24-3	**240**	**240**

MonoClamp – Radial Mono-boring bars GX 24





11

Designation	H mm	DCONMS mm	DMIN mm	CW mm	CDX mm	WF mm	OAL mm	LDRED mm	for grooving inserts	Left-hand 70 895 ...	Right-hand 70 894 ...
I32 R/L 90-2.0D-GX24-4	31,0	32	47	5,01 - 6,50	17,5	30,4	250	64	GX 24-4	**332**	**332**
I40 R/L 90-2.0D-GX24-4	38,5	40	57	5,01 - 6,50	17,5	34,4	300	80	GX 24-4	**340**	**340**


Key D

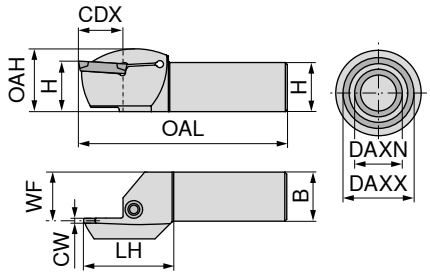

Clamping screw

Spare parts for grooving inserts	80 950 ...	70 950 ...
GX 24-2	**114**	**404**
GX 24-3	**114**	**404**
GX 24-4	**114**	**404**



→ 46–52

MonoClamp – Axial Monoholder GX24





Illustrations show right-hand versions

Designation	H mm	B mm	CW mm	WF mm	DAXN mm	DAXX mm	OAH mm	OAL mm	LH mm	CDX mm	for grooving inserts	Left-hand 70 904 ...	Right-hand 70 903 ...
E25 R/L 0012-2525X-GX24-2	25	25	3	24,7	40	45	32	115	45	12	GX 24-2	**200**	**200**
E25 R/L 0012-2525X-GX24-2	25	25	3	24,7	45	50	32	115	45	12	GX 24-2	**202**	**202**
E25 R/L 0016-2525X-GX24-2	25	25	3	24,7	50	60	32	115	45	16	GX 24-2	**204**	**204**
E25 R/L 0019-2525X-GX24-2	25	25	3	24,7	60	75	32	115	45	19	GX 24-2	**206**	**206**
E25 R/L 0019-2525X-GX24-2	25	25	3	24,7	75	100	32	115	45	19	GX 24-2	**208**	**208**
E25 R/L 0022-2525X-GX24-2	25	25	3	24,7	100	130	32	115	45	22	GX 24-2	**210**	**210**
E25 R/L 0022-2525X-GX24-2	25	25	3	24,7	130	180	32	115	45	22	GX 24-2	**212**	**212**
E25 R/L 0022-2525X-GX24-2	25	25	3	24,7	180	300	32	115	45	22	GX 24-2	**214**	**214**
E25 R/L 0012-2525X-GX24-3	25	25	4+5	24,2	40	45	32	115	45	12	GX 24-3	**230**	**230**
E25 R/L 0012-2525X-GX24-3	25	25	4+5	24,2	45	50	32	115	45	12	GX 24-3	**232**	**232**
E25 R/L 0020-2525X-GX24-3	25	25	4+5	24,2	50	60	32	115	45	20	GX 24-3	**234**	**234**
E25 R/L 0020-2525X-GX24-3	25	25	4+5	24,2	60	75	32	115	45	20	GX 24-3	**236**	**236**
E25 R/L 0022-2525X-GX24-3	25	25	4+5	24,2	75	100	32	115	45	22	GX 24-3	**238**	**238**
E25 R/L 0022-2525X-GX24-3	25	25	4+5	24,2	100	150	32	115	45	22	GX 24-3	**240**	**240**
E25 R/L 0022-2525X-GX24-3	25	25	4+5	24,2	150	300	32	115	45	22	GX 24-3	**242**	**242**
E25 R/L 0020-2525X-GX24-4	25	25	6	23,2	40	50	32	115	45	20	GX 24-4	**260**	**260**
E25 R/L 0022-2525X-GX24-4	25	25	6	23,2	50	70	32	115	45	22	GX 24-4	**262**	**262**
E25 R/L 0025-2525X-GX24-4	25	25	6	23,2	70	100	32	115	45	25	GX 24-4	**264**	**264**
E25 R/L 0025-2525X-GX24-4	25	25	6	23,2	100	150	32	115	45	25	GX 24-4	**266**	**266**
E25 R/L 0025-2525X-GX24-4	25	25	6	23,2	150	300	32	115	45	25	GX 24-4	**268**	**268**


Key D


Clamping screw

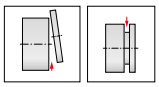
Spare parts for grooving inserts	Key D 80 950 ...		Clamping screw 70 950 ...	
GX 24-2	T15 - IP	**128**	M5x18	**865**
GX 24-3	T15 - IP	**128**	M5x18	**865**
GX 24-4	T15 - IP	**128**	M5x18	**865**



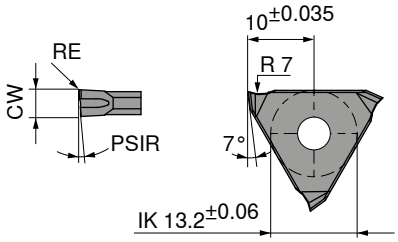
→ 46–52

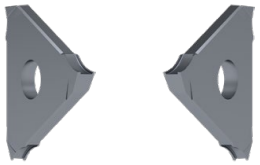
TX grooving insert for grooving and parting off

- Cutting depth 5.0 mm
- Cutting width 1.99–2.79 mm



CWX500 CWX500





Illustrations show right-hand versions

Designation	CW -0,05 mm	RE mm	PSIR	for tool holder	Left-hand 73 302 ...	Right-hand 73 301 ...
TX R/L 0518.00.1	1,99	0,1	5°	R/L 207 .. . / 780 .. . 1	**204**	**204**
TX R/L 0521.00.2	2,29	0,1	5°	R/L 207 .. . / 780 .. . 2	**206**	**206**
TX R/L 0526.00.2	2,79	0,1	5°	R/L 207 .. . / 780 .. . 2	**208**	**208**

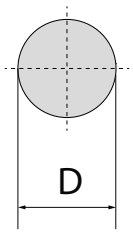
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	○	○
O	●	●

→ v_c Page 103

11

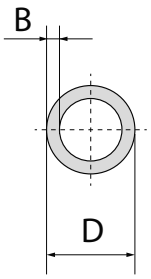
Grooving depth

Full material



max. 10 mm

Pipe



D ≤ 50 mm: Wall thickness B = approx. 5 mm
D ≥ 50 mm: Wall thickness B = approx. 4 mm

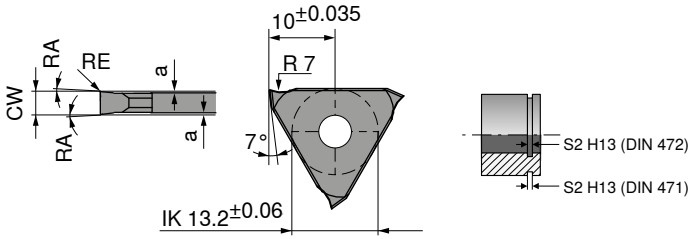
Internal machining	*External machining*
	
	→ 66–68

TX insert for circlip grooves

▲ For circlip grooves according to DIN 471 / 472



CWX500





Neutral

73 300 ...

Designation	s_2 mm	CW $_{-0,05}$ mm	RE mm	RA °	a $_{+/-0,02}$ mm	for tool holder	
TX N 0050.00.1	0,50	0,57	0,05	1	0,07	R/L .. .1	**204**
TX N 0060.00.1	0,60	0,67	0,05	1	0,07	R/L .. .1	**206**
TX N 0070.00.1	0,70	0,77	0,05	1	0,08	R/L .. .1	**208**
TX N 0080.00.1	0,80	0,87	0,05	1	0,08	R/L .. .1	**210**
TX N 0090.00.1	0,90	0,97	0,05	1	0,08	R/L .. .1	**212**
TX N 0100.00.1	1,00	1,07	0,10	1	0,09	R/L .. .1	**214**
TX N 0110.00.1	1,10	1,24	0,10	3	0,15	R/L .. .1	**216**
TX N 0130.00.1	1,30	1,44	0,10	3	0,15	R/L .. .1	**218**
TX N 0160.00.1	1,60	1,74	0,10	3	0,20	R/L .. .1	**220**
TX N 0185.00.1	1,85	1,99	0,10	3	0,20	R/L .. .1	**222**
TX N 0215.00.2	2,15	2,29	0,10	3	0,20	R/L .. .2	**224**
TX N 0265.00.2	2,65	2,79	0,10	3	0,20	R/L .. .2	**226**
TX N 0315.00.3	3,15	3,29	0,10	3	0,20	R/L .. .3	**228**
TX N 0415.00.4	4,15	4,29	0,10	3	0,20	R/L .. .4	**230**
TX N 0515.00.4	5,15	5,29	0,10	3	0,20	R/L .. .4	**232**

P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c Page 103

Internal machining



→ 70

External machining

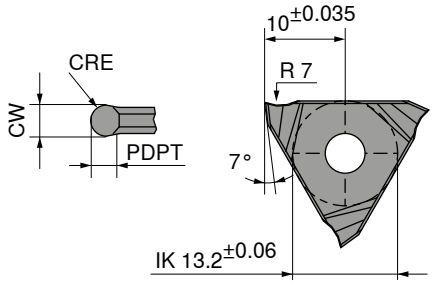


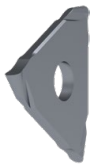
→ 66-69

Radial TX insert for corner recessing

▲ Full radius for cutting width 0.5–5.0 mm

CWX500





Neutral

73 304 ...

Designation	CRE mm	CW +/-0,05 mm	PDPT mm	for tool holder	
TX N 0002.05.1	0,25	0,5	0,20	R/L .. .1	**212**
TX N 0005.10.1	0,50	1,0	0,35	R/L .. .1	**214**
TX N 0006.12.1	0,60	1,2	0,40	R/L .. .1	**216**
TX N 0008.16.1	0,80	1,6	0,55	R/L .. .1	**218**
TX N 0010.20.2	1,00	2,0	0,70	R/L .. .2	**204**
TX N 0012.25.2	1,25	2,5	0,85	R/L .. .2	**220**
TX N 0015.30.3	1,50	3,0	1,00	R/L .. .3	**206**
TX N 0020.40.4	2,00	4,0	1,20	R/L .. .4	**208**
TX N 0025.50.4	2,50	5,0	1,50	R/L .. .4	**210**

P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c Page 103

11

Internal machining



→ 70

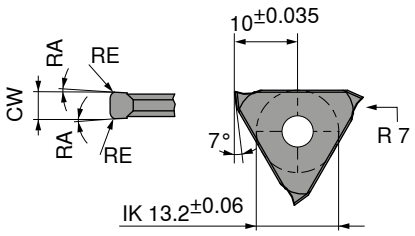
External machining

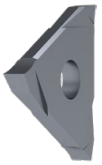


→ 66–69

TX insert for fine and copy turning

CWX500





Neutral

73 303 ...

Designation	CW +0,03 mm	RE mm	RA °	for tool holder	
TX N 0150.02.1	1,5	0,2	3	R/L 207 .. . / 738 .. . / 660 .. . 1	**204**
TX N 0200.02.1	2,0	0,2	3	R/L 207 .. . / 738 .. . / 660 .. . 1	**206**
TX N 0200.04.1	2,0	0,4	3	R/L 207 .. . / 738 .. . / 660 .. . 1	**208**
TX N 0300.06.2	3,0	0,6	3	R/L 207 .. . / 738 .. . / 660 .. . 2	**212**
TX N 0300.08.2	3,0	0,8	3	R/L 207 .. . / 738 .. . / 660 .. . 2	**214**
TX N 0300.02.2	3,0	0,2	3	R/L 207 .. . / 738 .. . / 660 .. . 2	**210**
TX N 0400.02.3	4,0	0,2	3	R/L 207 .. . / 738 .. . / 660 .. . 3	**216**
TX N 0400.12.3	4,0	1,2	3	R/L 207 .. . / 738 .. . / 660 .. . 3	**220**
TX N 0400.08.3	4,0	0,8	3	R/L 207 .. . / 738 .. . / 660 .. . 3	**218**

P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c Page 103

Internal machining



→ 70

External machining



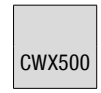
→ 66-68

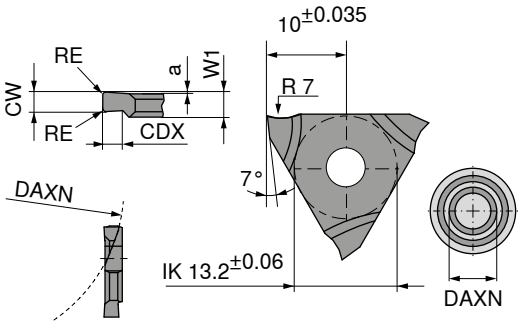
TX insert for axial grooving

- Up to cutting depth 3.5 mm
- Cutting width 1.5–5.0 mm
- Groove-Ø external $D_a \geq 20$ mm

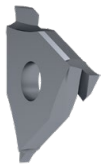








Illustrations show right-hand versions





Designation	CW mm	W1 mm	CDX mm	a mm	DAXN mm	RE mm	for tool holder	Left-hand 73 306 ...	Right-hand 73 305 ...
TX R/L 2015.2.2	1,5	2,7	2,0	0,2	20	0,2	R/L 207 .. . 2	**204**	**204**
TX R/L 3020.2.2	2,0	2,7	3,0	0,2	30	0,2	R/L 207 .. . 2	**206**	**206**
TX R/L 3030.2.3	3,0	3,7	3,0	0,2	30	0,2	R/L 207 .. . 3	**208**	**208**
TX R/L 3040.2.4	4,0	4,3	3,5	0,2	30	0,2	R/L 207 .. . 4	**210**	**210**
TX R/L 3050.2.4	5,0	5,3	3,5	0,2	30	0,2	R/L 207 .. . 4	**212**	**212**
P								●	●
M								●	●
K								●	●
N								●	●
S								●	●
H								○	○
O								●	●

→ v_c Page 103

11

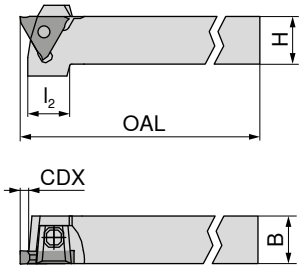
Internal machining | *External machining*

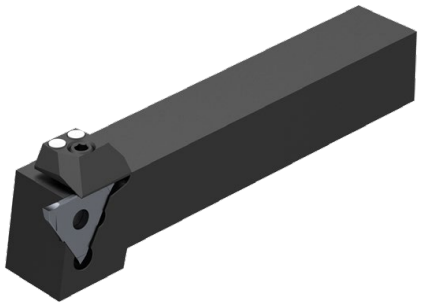


→ 66

MonoClamp – Radial/Axial TX Grooving Holder 0°, 6 mm cutting depth

- For radial and axial grooving
- Cutting width 0.5 – 6.3 mm

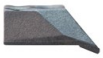


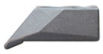


Illustrations show right-hand versions

Designation	H mm	B +/-0,1 mm	OAL mm	l_2 mm	CDX mm	for grooving inserts	Left-hand 73 501 ...	Right-hand 73 500 ...
R/L 207.1212.1	12	12	100	24	4	TX R/N/L ...1	112	112
R/L 207.1616.1	16	16	125	22	4	TX R/N/L ...1	116	116
R/L 207.2020.1	20	20	125	21	4	TX R/N/L ...1	120	120
R/L 207.2525.1	25	25	150		4	TX R/N/L ...1	125	125
R/L 207.3232.1	32	32	170		4	TX R/N/L ...1	132	132
R/L 207.1212.2	12	12	100	24	6	TX R/N/L ...2	212	212
R/L 207.1616.2	16	16	125	22	6	TX R/N/L ...2	216	216
R/L 207.2020.2	20	20	125	21	6	TX R/N/L ...2	220	220
R/L 207.2525.2	25	25	150		6	TX R/N/L ...2	225	225
R/L 207.3232.2	32	32	170		6	TX R/N/L ...2	232	232
R/L 207.1212.3	12	12	100	24	6	TX R/N/L ...3	312	312
R/L 207.1616.3	16	16	125	22	6	TX R/N/L ...3	316	316
R/L 207.2020.3	20	20	125	21	6	TX R/N/L ...3	320	320
R/L 207.2525.3	25	25	150		6	TX R/N/L ...3	325	325
R/L 207.3232.3	32	32	170		6	TX R/N/L ...3	332	332
R/L 207.1616.4	16	16	125	22	6	TX R/N/L ...4	416	416
R/L 207.2020.4	20	20	125	21	6	TX R/N/L ...4	420	420
R/L 207.2525.4	25	25	150		6	TX R/N/L ...4	425	425
R/L 207.3232.4	32	32	170		6	TX R/N/L ...4	432	432


Key I


right hand


left hand


Clamping screw


Guide pin

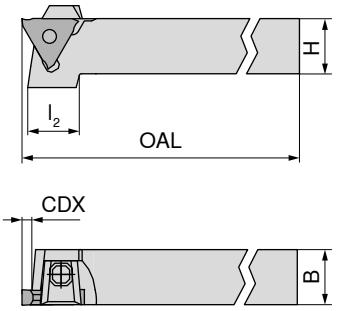
Spare parts for grooving inserts		70 950 ...	73 950 ...	73 950 ...	73 950 ...	73 950 ...
TX R/N/L ...1	SW3	176	020		M6x20 028	Ø 4x18 030
TX R/N/L ...1	SW3	176		024	M6x20 028	Ø 4x18 030
TX R/N/L ...2	SW3	176		024	M6x20 028	Ø 4x18 030
TX R/N/L ...2	SW3	176	020		M6x20 028	Ø 4x18 030
TX R/N/L ...3	SW3	176		024	M6x20 028	Ø 4x18 030
TX R/N/L ...3	SW3	176	020		M6x20 028	Ø 4x18 030
TX R/N/L ...4	SW3	176		026	M6x20 028	Ø 4x18 030
TX R/N/L ...4	SW3	176	022		M6x20 028	Ø 4x18 030

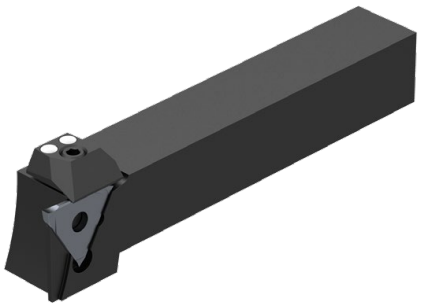


→ 61-65

MonoClamp – Radial TX Grooving holder 0° 8 mm cutting depth

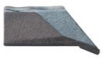
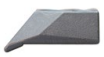
- For radial parting and grooving
- Cutting width 1,9 – 6,3 mm





Illustrations show right-hand versions

Designation	H mm	$B_{+/-0,1}$ mm	OAL mm	l_2 mm	CDX mm	for grooving inserts	Left-hand 73 503 ...	Right-hand 73 502 ...
R/L 780.2020.2	20	20	125	24	8	TX R/N/L ...2	**120**	**120**
R/L 780.2525.2	25	25	150		8	TX R/N/L ...2	**125**	**125**
R/L 780.3232.2	32	32	170		8	TX R/N/L ...2	**132**	**132**
R/L 780.2020.3	20	20	125	24	8	TX R/N/L ...3	**220**	**220**
R/L 780.2525.3	25	25	150		8	TX R/N/L ...3	**225**	**225**
R/L 780.3232.3	32	32	170		8	TX R/N/L ...3	**232**	**232**
R/L 780.2020.4	20	20	125	24	8	TX R/N/L ...4	**320**	**320**
R/L 780.2525.4	25	25	150		8	TX R/N/L ...4	**325**	**325**
R/L 780.3232.4	32	32	170		8	TX R/N/L ...4	**332**	**332**

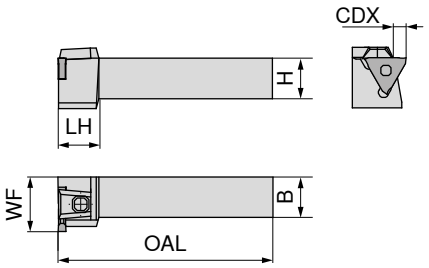
Spare parts for grooving inserts		 Key I 70 950 ...		 right hand 73 950 ...		 left hand 73 950 ...		 Clamping screw 73 950 ...		 Guide pin 73 950 ...	
TX R/N/L ...2	SW3		**176**		**020**			M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...2	SW3		**176**				**024**	M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...3	SW3		**176**		**020**			M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...3	SW3		**176**				**024**	M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...4	SW3		**176**				**026**	M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...4	SW3		**176**		**022**			M6x20	**028**	Ø 4x18	**030**

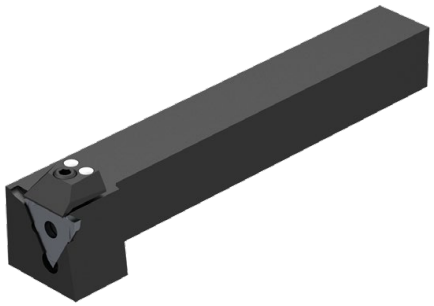


→ 61-63

MonoClamp – Radial TX Grooving holder 90° 6 mm cutting depth

- For radial grooving
- Cutting width 0,5 – 6,3 mm





Illustrations show right-hand versions

Designation	H mm	B +/-0,1 mm	OAL mm	LH mm	WF +/-0,07 mm	CDX mm	for grooving inserts	Left-hand 73 505 ...	Right-hand 73 504 ...
R/L 738.2020.1	20	20	150	20	27	4	TX R/N/L ...1	**120**	**120**
R/L 738.2525.1	25	25	150		32	4	TX R/N/L ...1	**125**	**125**
R/L 738.2020.2	20	20	150	20	27	6	TX R/N/L ...2	**220**	**220**
R/L 738.2525.2	25	25	150		32	6	TX R/N/L ...2	**225**	**225**
R/L 738.2020.3	20	20	150	20	27	6	TX R/N/L ...3	**320**	**320**
R/L 738.2525.3	25	25	150		32	6	TX R/N/L ...3	**325**	**325**
R/L 738.2020.4	20	20	150	20	27	6	TX R/N/L ...4	**420**	**420**
R/L 738.2525.4	25	25	150		32	6	TX R/N/L ...4	**425**	**425**

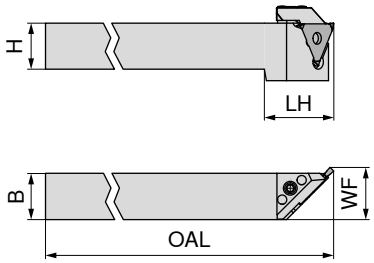
Spare parts for grooving inserts	Key I 70 950 ...		right hand 73 950 ...		left hand 73 950 ...		Clamping screw 73 950 ...		Guide pin 73 950 ...	
TX R/N/L ...1	SW3	**176**		**020**			M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...1	SW3	**176**				**024**	M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...2	SW3	**176**				**024**	M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...2	SW3	**176**		**020**			M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...3	SW3	**176**				**024**	M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...3	SW3	**176**		**020**			M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...4	SW3	**176**				**026**	M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...4	SW3	**176**		**022**			M6x20	**028**	Ø 4x18	**030**

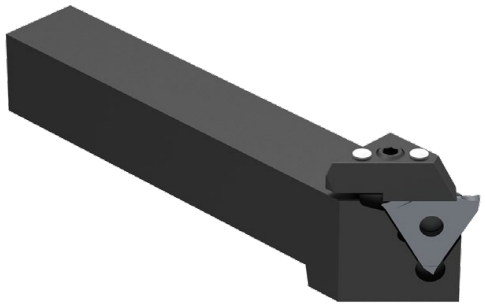


→ 62-64

MonoClamp – Tool holder TX 45°

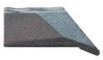
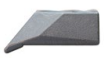
- For recessing
- Cutting width 1,9 – 6,3 mm





Illustrations show right-hand versions

Designation	H mm	B +/-0,1 mm	OAL mm	WF mm	LH mm	for grooving inserts	Left-hand 73 507 ...	Right-hand 73 506 ...
R/L 618.2020.2	20	20	125	21,5	30	TX R/N/L ...2	**120**	**120**
R/L 618.2525.2	25	25	150	26,5		TX R/N/L ...2	**125**	**125**
R/L 618.3232.2	32	32	170	33,5		TX R/N/L ...2	**132**	**132**
R/L 618.2020.3	20	20	125	21,5	30	TX R/N/L ...3	**220**	**220**
R/L 618.2525.3	25	25	150	26,5		TX R/N/L ...3	**225**	**225**
R/L 618.3232.3	32	32	170	33,5		TX R/N/L ...3	**232**	**232**
R/L 618.2020.4	20	20	125	21,5	30	TX R/N/L ...4	**320**	**320**
R/L 618.2525.4	25	25	150	26,5		TX R/N/L ...4	**325**	**325**
R/L 618.3232.4	32	32	170	33,5		TX R/N/L ...4	**332**	**332**

Spare parts for grooving inserts		 Key I 70 950 ...		 right hand 73 950 ...		 left hand 73 950 ...		 Clamping screw 73 950 ...		 Guide pin 73 950 ...	
TX R/N/L ...2	SW3	**176**		**001**				M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...2	SW3	**176**				**005**		M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...3	SW3	**176**		**001**				M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...3	SW3	**176**				**005**		M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...4	SW3	**176**				**007**		M6x20	**028**	Ø 4x18	**030**
TX R/N/L ...4	SW3	**176**		**002**				M6x20	**028**	Ø 4x18	**030**

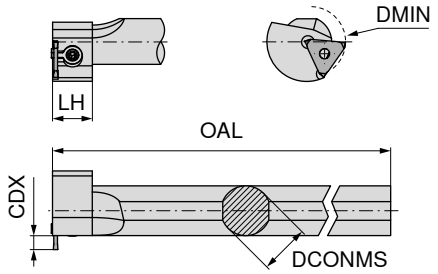


→ 62+63

11

MonoClamp – Radial Boring bar TX

- For radial internal grooving
- Cutting width 0,5 – 6,3 mm





Illustrations show right-hand versions

Designation	DCONMS $_{g7}$ mm	DMIN mm	OAL mm	LH mm	CDX mm	for grooving inserts	Left-hand 73 511 ...	Right-hand 73 510 ...
R/L 660.0025.1	25	46	170	20	2	TX R/N/L ...1	**125**	**125**
R/L 660.0032.1	32	46	200	20	2	TX R/N/L ...1	**132**	**132**
R/L 660.0040.1	40	46	250		2	TX R/N/L ...1	**140**	**140**
R/L 660.0025.2	25	46	170	20	2	TX R/N/L ...2	**225**	**225**
R/L 660.0032.2	32	46	200	20	2	TX R/N/L ...2	**232**	**232**
R/L 660.0040.2	40	46	250		2	TX R/N/L ...2	**240**	**240**
R/L 660.0025.3	25	46	170	20	2	TX R/N/L ...3	**325**	**325**
R/L 660.0032.3	32	46	200	20	2	TX R/N/L ...3	**332**	**332**
R/L 660.0040.3	40	46	250		2	TX R/N/L ...3	**340**	**340**
R/L 660.0025.4	25	46	170	20	2	TX R/N/L ...4	**425**	**425**
R/L 660.0032.4	32	46	200	20	2	TX R/N/L ...4	**432**	**432**
R/L 660.0040.4	40	46	250		2	TX R/N/L ...4	**440**	**440**

Bore-Ø$_{min.}$ in mm	46	50	60	80	100	for grooving insert
CDX$_{max.}$ (mm)	2	3	4	4,5	5	TX R/N/L ...1
	2	3	4	4,5	5	TX R/N/L ...2
	2	3	4	4,5	5	TX R/N/L ...3
	2	3	4	4,5	5	TX R/N/L ...4

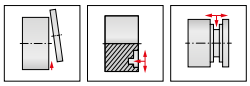
Spare parts for grooving inserts	 Clamping element 73 950 ...		 Key I 70 950 ...		 Clamping screw 73 950 ...	
TX R/N/L ...1	**011**	SW3	**176**	M6x30	**009**	
TX R/N/L ...2	**011**	SW3	**176**	M6x30	**009**	
TX R/N/L ...3	**011**	SW3	**176**	M6x30	**009**	
TX R/N/L ...4	**011**	SW3	**176**	M6x30	**009**	



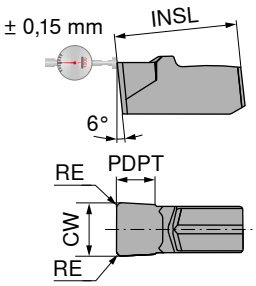
→ 62–64

Insert LX

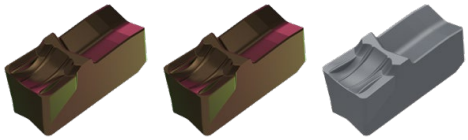
- Grooving width 8 and 10 mm
- Axial grooving from Ø 500 mm onwards
- Internal grooving and turning, from Ø 200 mm onwards



F	M	R



-M2 CTCP325	-M2 CTCP335	-M2 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	INSL mm	CW -/+0,08 mm	RE +/-0,1 mm	PDPT mm	for tool holder	70 337 ...	70 337 ...	70 337 ...
LXE 8.00N0.80-M2	19	8	0,8	5	E32 N ..-LX	**928**	**578**	**682**
LXE 10.00N0.80-M2	19	10	0,8	5	E32 N ..-LX	**932**	**582**	**678**
P						●	●	●
M						○	○	●
K						●	●	●
N								○
S						○		●
H								
O								○

→ v_c Page 102
→ Application recommendation on page 109

Internal machining



→ 73

External machining



→ 73

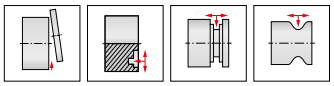


→ 74

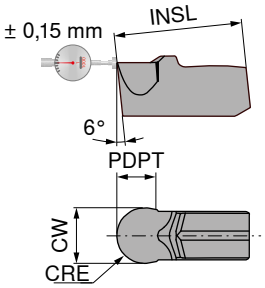
11

Radial Grooving Insert LX

- Grooving width 8 mm
- Axial grooving from Ø 500 mm
- Internal grooving and turning, from Ø 200 mm



F	M	R



-M3 CTCP325	-M3 CTCP335	-M3 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	INSL mm	CW -/+0,08 mm	CRE mm	PDPT mm	for tool holder	70 337 ...	70 337 ...	70 337 ...
LXR 4.00N-M3	19	8	4	5	E32 N ..-LX	**908**	**518**	**618**
P						●	●	●
M						○	○	●
K						●	●	●
N								○
S						○		●
H								
O								○

→ v_c Page 102
→ Application recommendation on page 109

Internal machining



→ 73

External machining



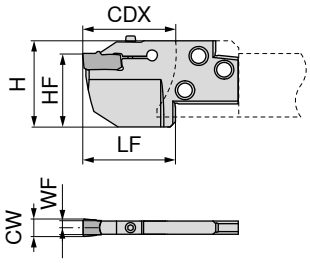
→ 73



→ 74

ModularClamp MSS – Axial and radial grooving module LX

- Grooving width 8 and 10 mm
- Axial grooving from Ø 500 mm onwards
- Internal grooving and turning, from Ø 200 mm onwards

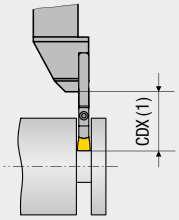




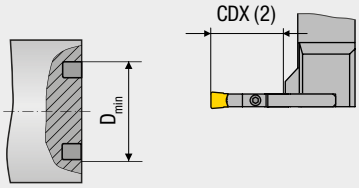
Neutral

Designation	CW mm	WF mm	LF mm	HF mm	H mm	CDX (1) mm	CDX (2) mm	CDX (3) mm	for grooving inserts	70 835 ...
E32 N 25-LX	8 / 10	3,4	27	32	44	25	19	14	LX ..	**032**
E32 N 32-LX	8 / 10	3,4	37	32	44	32	26	21	LX ..	**132**
E32 N 45-LX	8 / 10	3,4	47	32	44	45	39	34	LX ..	**232**

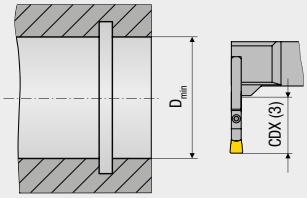
Radial grooving



Axial grooving D_{min} > 500 mm



Internal grooving D_{min} > 200 mm





Key D

80 950 ...

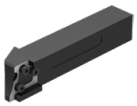


Clamping screw

70 950 ...

Spare parts for grooving inserts				
LX ..	T20	**114**	M4x18	**204**





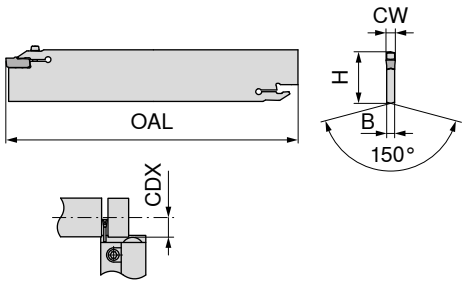
→ 71+72 → 93-95

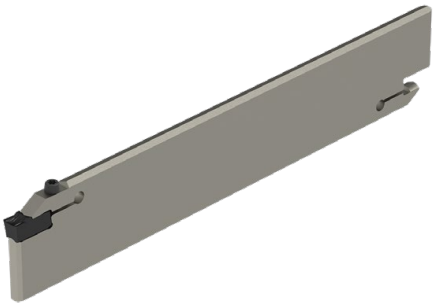
11

MonoClamp – Blade LX

Scope of supply:

Blade incl. clamping screw and tightening wrench





Designation	H mm	B mm	OAL mm	CW mm	CDX mm	for grooving inserts		70 833 ...
XLCEN 4608-LX	46	6,8	250	8/10	80	LX ..		**108**


Key D


Clamping screw

Spare parts for grooving inserts		80 950 ...		70 950 ...
LX ..	T20	**114**	M4x18	**204**





→ 71+72 → 99+100 → **Chapter 16**

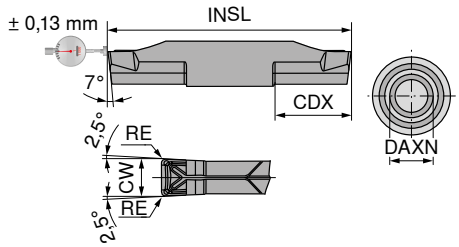
Grooving insert AX

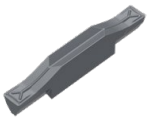
- ▲ very good chip control
- ▲ DAXN minimum groove diameter refers to the outside diameter

F	M	R
		

-F50
CTP1340

DRAGONSKIN





70 327 ...

Designation	IH	INSL mm	CW +/-0,02 mm	RE +/-0,05 mm	CDX mm	DAXN mm	for tool holder	
AX 05 E3.00 N 0.30	N	24	3	0,3	5	10	E.. R/L.. -AX 05	**005**
AX 10 E3.00 N 0.30	N	34	3	0,3	10	20	E.. R/L.. -AX 10	**010**
AX 15 E3.00 N 0.30	N	44	3	0,3	15	30	E.. R/L.. -AX 15	**015**

P	●
M	●
K	●
N	○
S	●
H	
O	○

→ v_c Page 102
→ Application recommendation on page 110

Internal machining | *External machining*



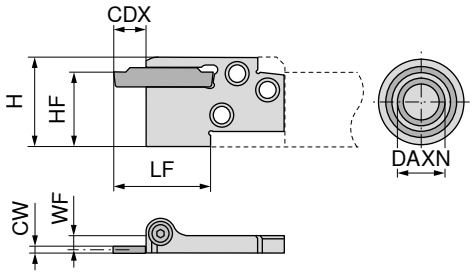


→ 76 → 77 → 78

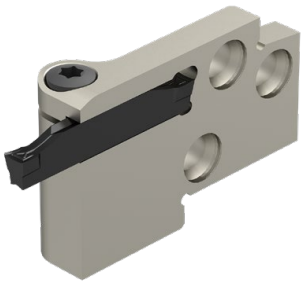
11

ModularClamp MSS – Axial grooving module AX

▲ for axial grooving and turning



Illustrations show right-hand versions



Designation	HF mm	CW mm	WF mm	LF mm	H mm	DAXN mm	CDX mm	for grooving inserts	Left-hand 70 827 ...	Right-hand 70 828 ...
E16 R/L 05-AX 05	16	3	2,5	24,0	20,5	10	5	AX05	**016**	**016**
E20 R/L 05-AX 05	20	3	3,1	28,0	25,0	10	5	AX05	**020**	**020**
E25 R/L 05-AX 05	25	3	4,6	27,5	30,0	10	5	AX05	**025**	**025**
E20 R/L 10-AX 10	20	3	3,1	33,0	25,0	20	10	AX10	**120**	**120**
E25 R/L 10-AX 10	25	3	4,6	32,5	30,0	20	10	AX10	**125**	**125**
E20 R/L 15-AX 15	20	3	3,1	44,0	25,0	30	15	AX15	**220**	**220**
E25 R/L 15-AX 15	25	3	4,6	43,5	30,0	30	15	AX15	**225**	**225**

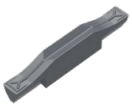
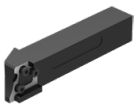


Key D



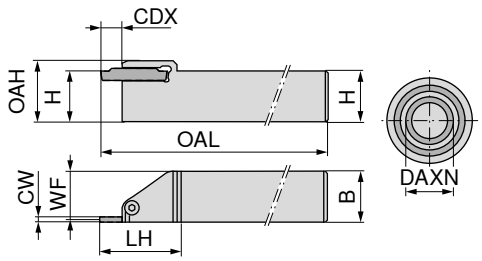
Clamping screw

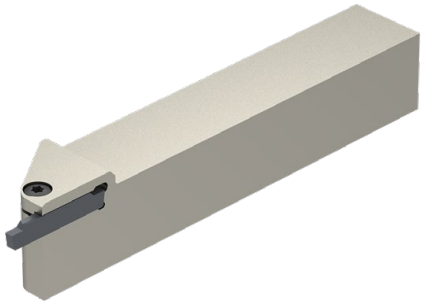
Spare parts for Article no.	80 950 ...		70 950 ...	
70 827 016 / 70 828 016	T15	**113**	M3,5x12,5	**441**
70 827 020 / 70 828 020	T15	**113**	M4x14	**403**
70 827 025 / 70 828 025	T20	**114**	M5x18	**404**
70 827 120 / 70 828 120	T15	**113**	M4x14	**403**
70 827 125 / 70 828 125	T20	**114**	M5x18	**404**
70 827 220 / 70 828 220	T15	**113**	M4x14	**403**
70 827 225 / 70 828 225	T20	**114**	M5x18	**404**


→ 75 → 93–95 → 96

MonoClamp – Axial AX Grooving Holder 0°, up to 15 mm groove depth





Illustrations show right-hand versions

Designation	H mm	B mm	OAL mm	LH mm	OAH mm	CDX mm	CW mm	WF mm	DAXN mm	for grooving inserts	Left-hand 70 823 ...	Right-hand 70 824 ...
E20 R/L 0005-2020-AX 05	20	20	140	28	25	5	3	18,7	10	AX05	**02000**	**02000**
E20 R/L 0010-2020-AX 10	20	20	140	38	25	10	3	18,7	20	AX10	**12000**	**12000**
E20 R/L 0015-2020-AX 15	20	20	140	49	25	15	3	18,7	30	AX15	**22000**	**22000**
E25 R/L 0005-2525-AX 05	25	25	160	28	30	5	3	23,7	10	AX05	**02500**	**02500**
E25 R/L 0010-2525-AX 10	25	25	160	38	30	10	3	23,7	20	AX10	**12500**	**12500**
E25 R/L 0015-2525-AX 15	25	25	160	49	30	15	3	23,7	30	AX15	**22500**	**22500**



Key D



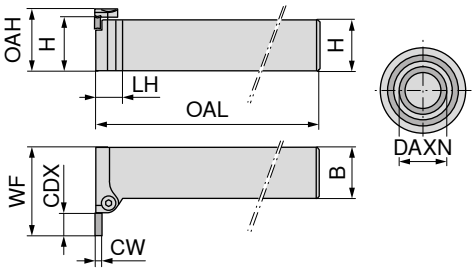
Clamping screw

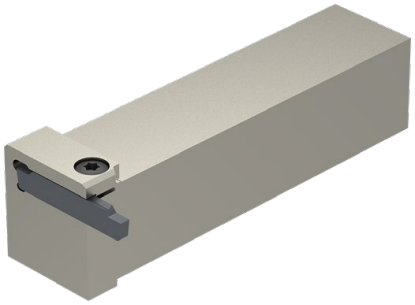
Spare parts for Article no.	80 950 ...		70 950 ...	
70 824 02000 / 70 823 02000	T20	**106**	M5x18	**404**
70 824 12000 / 70 823 12000	T20	**106**	M5x18	**404**
70 824 22000 / 70 823 22000	T20	**106**	M5x18	**404**
70 824 02500 / 70 823 02500	T20	**106**	M5x18	**404**
70 824 12500 / 70 823 12500	T20	**106**	M5x18	**404**
70 824 22500 / 70 823 22500	T20	**106**	M5x18	**404**



→ 75

MonoClamp – Axial AX Grooving Holder 90°, up to 15 mm groove depth





Illustrations show right-hand versions

Designation	H mm	B mm	WF mm	OAH mm	OAL mm	LH mm	CDX mm	DAXN mm	CW mm	Left-hand 70 825 ...	Right-hand 70 826 ...
E20 R/L 9005-2020-AX 05	20	20	28	25	110	12	5	10	3	**02000**	**02000**
E20 R/L 9010-2020-AX 10	20	20	38	25	110	13	10	20	3	**12000**	**12000**
E20 R/L 9015-2020-AX 15	20	20	49	25	110	13	15	30	3	**22000**	**22000**
E25 R/L 9005-2525-AX 05	25	25	33	30	140	12	5	10	3	**02500**	**02500**
E25 R/L 9010-2525-AX 10	25	25	43	30	110	13	10	20	3	**12500**	**12500**
E25 R/L 9015-2525-AX 15	25	25	49	30	140	13	15	30	3	**22500**	**22500**



Key D



Clamping screw

Spare parts for Article no.	80 950 ...		70 950 ...	
70 825 02000 / 70 826 02000	T15	**105**	M4x14	**403**
70 825 12000 / 70 826 12000	T20	**106**	M5x18	**404**
70 825 22000 / 70 826 22000	T20	**106**	M5x18	**404**
70 825 02500 / 70 826 02500	T15	**105**	M4x14	**403**
70 825 12500 / 70 826 12500	T20	**106**	M5x18	**404**
70 825 22500 / 70 826 22500	T20	**106**	M5x18	**404**

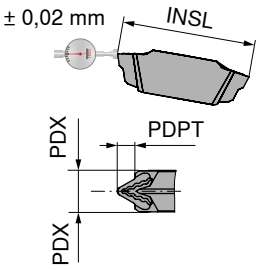


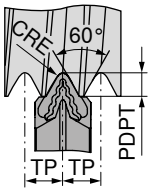
→ 75

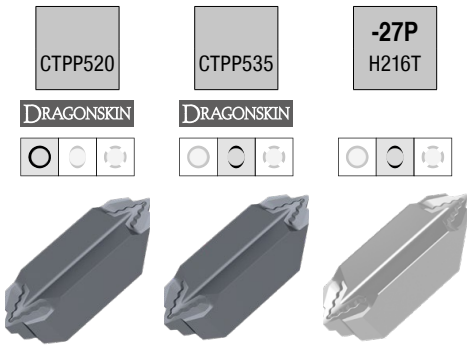
Threading inserts TC full profile – External thread 60°



F	M	R
		







Designation	Size	TP mm	INSL mm	PDPT mm	PDX mm	CRE mm	for tool holder	70 357 ...		70 357 ...		70 357 ...	
TC 16-1 E 0.5 ISO	TC 16-1 ...	0,50	16	0,32	1,05	0,06	E.. R/L TC 16-1	**010**		**110**		**610**	
TC 16-1 E 0.75 ISO	TC 16-1 ...	0,75	16	0,48	1,05	0,09	E.. R/L TC 16-1	**012**		**112**		**612**	
TC 16-1 E 1.0 ISO	TC 16-1 ...	1,00	16	0,64	1,05	0,12	E.. R/L TC 16-1	**014**		**114**		**614**	
TC 16-1 E 1.25 ISO	TC 16-1 ...	1,25	16	0,80	1,05	0,15	E.. R/L TC 16-1	**016**		**116**		**616**	
TC 16-1 E 1.5 ISO	TC 16-1 ...	1,50	16	0,95	1,05	0,18	E.. R/L TC 16-1	**018**		**118**		**618**	
TC 16-2 E 1.75 ISO	TC 16-2 ...	1,75	16	1,10	2,15	0,22	E.. R/L/N TC 16-2	**030**		**130**		**630**	
TC 16-2 E 2.0 ISO	TC 16-2 ...	2,00	16	1,26	2,15	0,25	E.. R/L/N TC 16-2	**032**		**132**		**632**	
TC 16-2 E 2.5 ISO	TC 16-2 ...	2,50	16	1,58	2,15	0,32	E.. R/L/N TC 16-2	**034**		**134**		**634**	
TC 16-2 E 3.0 ISO	TC 16-2 ...	3,00	16	1,89	2,15	0,38	E.. R/L/N TC 16-2	**036**		**136**		**636**	
TC 16-3 E 3.5 ISO	TC 16-3 ...	3,50	16	2,21	3,10	0,44	E25 N TC 16-3	**050**		**150**			
TC 16-3 E 4.0 ISO	TC 16-3 ...	4,00	16	2,53	3,10	0,50	E25 N TC 16-3	**052**		**152**			
TC 16-3 E 5.0 ISO	TC 16-3 ...	5,00	16	3,16	3,10	0,63	E25 N TC 16-3	**056**		**156**			
P								●		●			
M								●		●			
K								●		●		●	
N												●	
S								○		●			
H								○					
O												○	

→ v_c Page 102
→ Application recommendation on page 111

Internal machining *External machining*





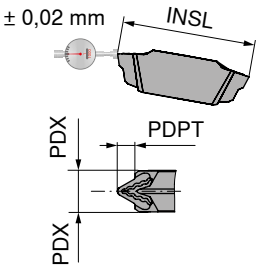
→ 84 → 85

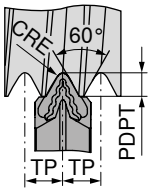
11

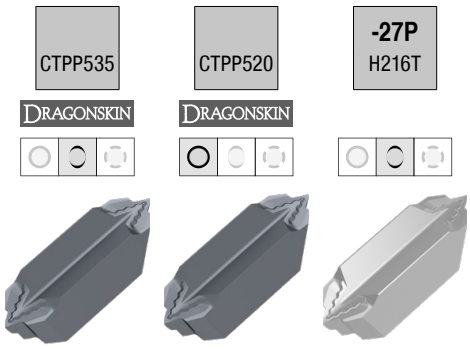
Threading inserts TC full profile – Internal thread 60°



F	M	R
		







Designation	Size	TP mm	INSL mm	PDPT mm	PDX mm	CRE mm	for tool holder	70 358 ...	70 358 ...	70 358 ...
TC 16-1 I 1.0 ISO	TC 16-1 ...	1,00	16	0,59	1,05	0,06	I32 R/L TC 16-1	**114**	**014**	**614**
TC 16-1 I 1.25 ISO	TC 16-1 ...	1,25	16	0,74	1,05	0,07	I32 R/L TC 16-1		**016**	
TC 16-1 I 1.5 ISO	TC 16-1 ...	1,50	16	0,89	1,05	0,09	I32 R/L TC 16-1	**118**	**018**	**618**
TC 16-2 I 1.75 ISO	TC 16-2 ...	1,75	16	1,02	2,15	0,11	I32 R/L TC 16-2		**030**	
TC 16-2 I 2.0 ISO	TC 16-2 ...	2,00	16	1,17	2,15	0,13	I32 R/L TC 16-2	**132**	**032**	**632**
TC 16-2 I 3.0 ISO	TC 16-2 ...	3,00	16	1,76	2,15	0,19	I32 R/L TC 16-2	**136**	**036**	**636**
P								●	●	
M								●	●	
K								●	●	●
N										●
S								●	○	
H									○	
O										○

→ v_c Page 102
→ Application recommendation on page 111

Internal machining *External machining*

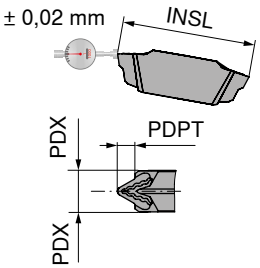


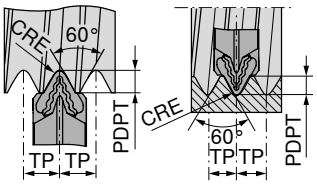

→ 86 → 87

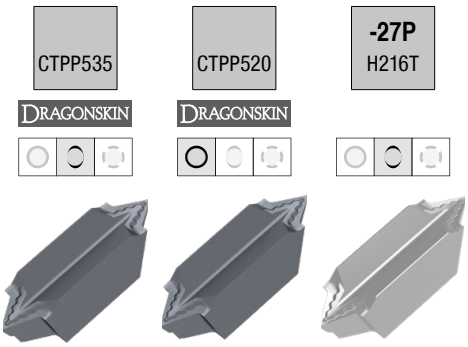
Threading inserts TC partial profile 60°



F	M	R
		







Designation	Size	TP mm	INSL mm	PDPT mm	PDX mm	CRE mm	for tool holder	70 355 ...		70 355 ...		70 355 ...	
TC 16-1 EI A 60	TC 16-1 ...	0,5 - 1,5	16	1,27	1,05	0,03	E/I.. R/L TC 16-1	**110**		**010**		**610**	
TC 16-2 EI G 60	TC 16-2 ...	1,75 - 3,0	16	2,49	2,15	0,11	E/I.. R/L/N TC 16-2	**130**		**030**		**630**	
TC 16-2 EI AG 60	TC 16-2 ...	0,5 - 3,0	16	2,57	2,15	0,03	E/I.. R/L/N TC 16-2	**132**		**032**		**632**	
TC 16-3 EI N 60	TC 16-3 ...	3,5 - 5,0	16	4,11	3,10	0,22	E/I.. N TC 16-3	**150**		**050**		**650**	
P								●		●			
M								●		●			
K								●		●		●	
N												●	
S								●		○			
H										○			
O												○	

→ v_c Page 102
→ Application recommendation on page 111

Internal machining *External machining*





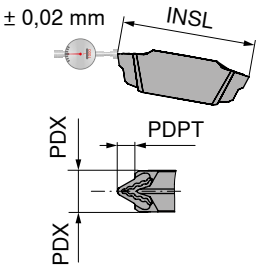

→ 86 → 87 → 84 → 85

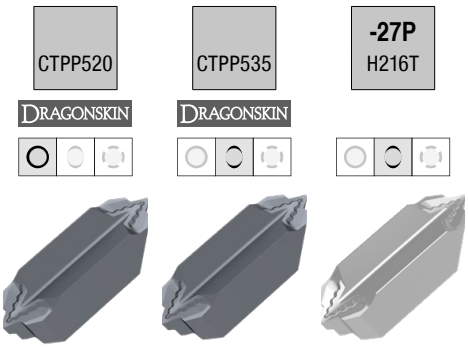
11

Threading inserts TC full profile 55°



F	M	R
		





Designation	Size	TPI 1/"	INSL mm	PDPT mm	PDX mm	CRE mm	for tool holder	70 359 ...		70 359 ...		70 359 ...	
TC 16-1 EI 28 W	TC 16-1 ...	28	16	0,60	1,05	0,12	E/I.. R/L TC 16-1	**010**		**110**			
TC 16-1 EI 20 W	TC 16-1 ...	20	16	0,84	1,05	0,17	E/I.. R/L TC 16-1	**016**					
TC 16-1 EI 19 W	TC 16-1 ...	19	16	0,88	1,05	0,17	E/I.. R/L TC 16-1	**018**		**118**		**618**	
TC 16-1 EI 16 W	TC 16-1 ...	16	16	1,05	1,05	0,21	E/I.. R/L TC 16-1	**022**					
TC 16-2 EI 14 W	TC 16-2 ...	14	16	1,20	2,15	0,23	E/I.. R/L/N TC 16-2	**030**		**130**		**630**	
TC 16-2 EI 12 W	TC 16-2 ...	12	16	1,40	2,15	0,27	E/I.. R/L/N TC 16-2			**132**			
TC 16-2 EI 11 W	TC 16-2 ...	11	16	1,53	2,15	0,30	E/I.. R/L/N TC 16-2	**034**		**134**		**634**	
P								●		●			
M								●		●			
K								●		●		●	
N												●	
S								○		●			
H								○					
O												○	

→ v_c Page 102
→ Application recommendation on page 111

Internal machining | *External machining*

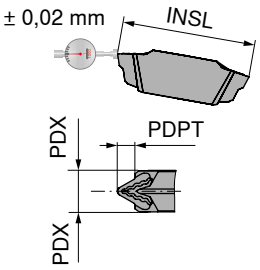


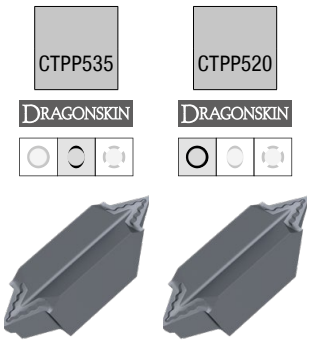
→ 86 | → 87 | → 84 | → 85

Threading inserts TC partial profile 55°



F	M	R
		





Designation	Size	TPI 1/"	INSL mm	PDPT mm	PDX mm	CRE mm	for tool holder	70 356 ...		70 356 ...	
TC 16-1 EI A 55	TC 16-1 ...	28 - 16	16	1,39	1,05	0,12	E/I.. R/L TC 16-1	**110**			**010**
TC 16-2 EI AG 55	TC 16-2 ...	28 - 8	16	2,91	2,15	0,12	E/I.. R/L/N TC 16-2	**132**			**032**
TC 16-2 EI G 55	TC 16-2 ...	14 - 8	16	2,78	2,15	0,23	E/I.. R/L/N TC 16-2	**130**			**030**
TC 16-3 EI N 55	TC 16-3 ...	7 - 5	16	4,34	3,10	0,46	E/I.. N TC 16-3	**150**			**050**
P								●			●
M								●			●
K								●			●
N											
S								●			○
H											○
O											

→ v_c Page 102
→ Application recommendation on page 111

Internal machining *External machining*

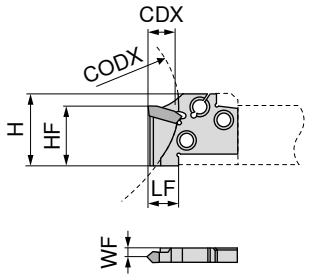




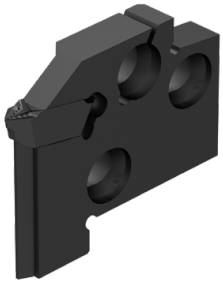

→ 86 → 87 → 84 → 85

11

ModularClamp MSS – Threading module TC for external threads



Illustrations show right-hand versions



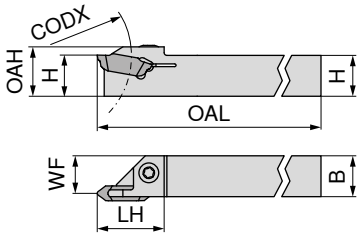
Designation	TP mm	TPI 1/"	WF mm	HF mm	LF mm	H mm	CODX mm	CDX mm	for grooving inserts	Left-hand 70 872 ...	Neutral 70 872 ...	Right-hand 70 872 ...
E20 R/L TC 16-1	0,5 - 1,5	28 - 16	3,45	13	20	24	60	8	TC 16-1 ...	**120**		**020**
E20 N TC 16-2	1,75 - 3,0	14 - 8	2,20	13	20	24		12	TC 16-2 ...		**220**	
E25 R/L TC 16-1	0,5 - 1,5	28 - 16	5,20	13	25	30	75	8	TC 16-1 ...	**125**		**025**
E25 R/L TC 16-2	1,75 - 3,0	14 - 8	4,10	13	25	30	75	10	TC 16-2 ...	**325**		**225**
E25 N TC 16-3	3,5 - 5,0	7 - 5	3,10	13	25	30		12	TC 16-3 ...		**425**	

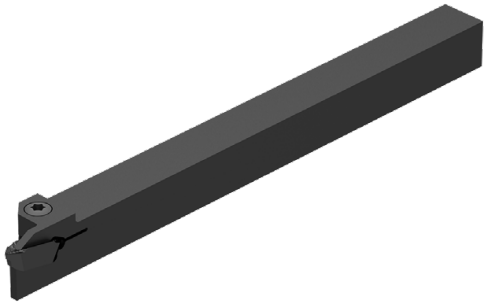




→ 79–83 → 93–95 → 96

MonoClamp – Monoholder TC – external thread





Illustrations show right-hand versions

Designation	TP mm	TPI 1/"	H mm	B mm	OAL mm	LH mm	OAH mm	WF mm	CODX mm	for grooving inserts	Left-hand 70 883 ...		Right-hand 70 882 ...	
E12 R/L 00-1212 TC16	0,5 - 3	28 - 8	12	12	150	20	14,5	11	30	TC16-1/2..		**012**		**012**

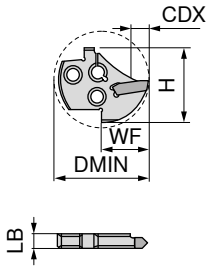
Spare parts for grooving inserts		Key D 80 950 ...		Clamping screw 70 950 ...	
TC16-1/2..	T15		**113**	M4x11	**442**

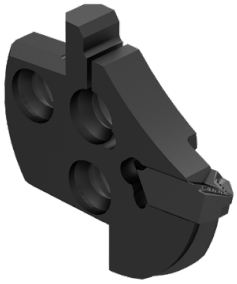


→ 79–83

11

ModularClamp MSS – Threading module TC for internal threads





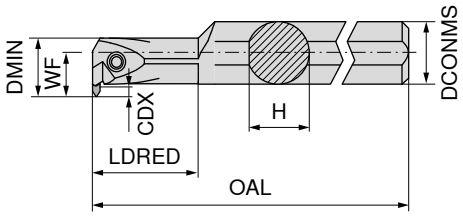
Designation	TP mm	TPI 1/"	LB mm	WF mm	H mm	DMIN mm	CDX mm	for grooving inserts	Left-hand 70 887 ...	Neutral 70 887 ...	Right-hand 70 887 ...
I32 R/L TC 16-1	0,5 - 1,5	28 - 16	6,2	5,2	32,2	40	7	TC 16-1 ...	**132**		**032**
I32 R/L TC 16-2	1,75 - 3,0	14 - 8	6,2	4,1	32,2	40	7	TC 16-2 ...	**332**		**232**
I32 N TC 16-3	3,5 - 5,0	7 - 5	6,2	3,1	32,2	40	7	TC 16-3 ...		**432**	





→ 79–83 → 97

MonoClamp – Monobloc boring bar TC – internal thread





Illustrations show right-hand versions

Designation	WF mm	DCONMS mm	H mm	OAL mm	LDRED mm	CDX mm	DMIN mm	for grooving inserts	Left-hand 70 857 ...	Right-hand 70 856 ...
I16 R/L 90-2D TC16	14,0	20	18	180	32	4	20	TC16-1/2..	**016**	**016**
I20 R/L 90-2D TC16	17,5	25	23	200	40	5	25	TC16-..	**020**	**020**
I25 R/L 90-2D TC16	22,0	32	30	250	50	6	32	TC16-..	**025**	**025**

Key D


Clamping screw

Spare parts for Article no.		**80 950 ...**		**70 950 ...**
70 857 016 / 70 856 016	T15	**113**	M4x14	**403**
70 857 020 / 70 856 020	T20	**114**	M5x18	**404**
70 857 025 / 70 856 025	T25	**115**	M6x20	**405**

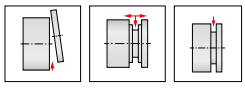


→ 79–83

11

MaxiClick – Insert – cutting depth 5 mm

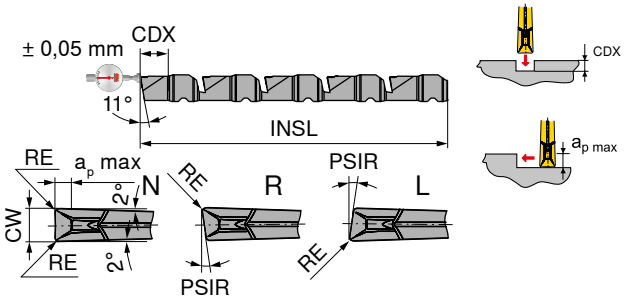
▲ 5 cutting edges

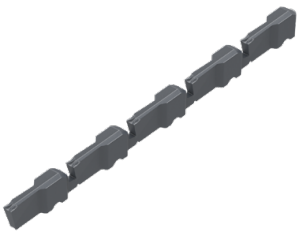


-F2
CTP1340

DRAGONSKIN

F	M	R
		





70 338 ...

Designation	IH	CW mm	RE mm	PSIR	INSL mm	$a_{p\,max}$ mm	CDX mm	for tool holder	
MC 05-5-1.00 L 07-F2	L	1,0	0,1	7°	59,2		5	MC 05 R/L	**250**
MC 05-5-1.50 L 07-F2	L	1,5	0,1	7°	59,2		5	MC 05 R/L	**260**
MC 05-5-1.00 N 0.10-F2	N	1,0	0,1		59,2	0,5	5	MC 05 R/L	**210**
MC 05-5-1.50 N 0.10-F2	N	1,5	0,1		59,2	1,0	5	MC 05 R/L	**220**
MC 05-5-1.00 R 07-F2	R	1,0	0,1	7°	59,2		5	MC 05 R/L	**230**
MC 05-5-1.50 R 07-F2	R	1,5	0,1	7°	59,2		5	MC 05 R/L	**240**

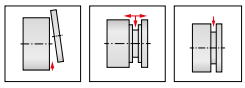
P	●
M	●
K	●
N	○
S	●
H	
O	○

→ v_c Page 102
→ Application recommendation on page 107

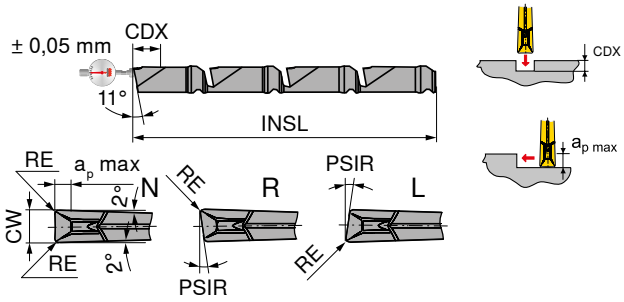
Internal machining	*External machining*
	
	→ 91

MaxiClick – Insert – cutting depth 10 mm

▲ 4 cutting edges



F	M	R
		



-F2
CTP1340

DRAGONSKIN



70 339 ...

Designation	IH	CW mm	RE mm	PSIR	INSL mm	$a_{p\,max}$ mm	CDX mm	for tool holder	
MC 10-4-1.50 L 07-F2	L	1,5	0,1	7°	59,2		10	MC 10 R/L	**270**
MC 10-4-2.00 L 07-F2	L	2,0	0,1	7°	59,2		10	MC 10 R/L	**280**
MC 10-4-2.50 L 07-F2	L	2,5	0,1	7°	59,2		10	MC 10 R/L	**290**
MC 10-4-1.50 N 0.10-F2	N	1,5	0,1		59,2	1,0	10	MC 10 R/L	**210**
MC 10-4-2.00 N 0.10-F2	N	2,0	0,1		59,2	1,5	10	MC 10 R/L	**220**
MC 10-4-2.50 N 0.10-F2	N	2,5	0,1		59,2	2,0	10	MC 10 R/L	**230**
MC 10-4-1.50 R 07-F2	R	1,5	0,1	7°	59,2		10	MC 10 R/L	**240**
MC 10-4-2.00 R 07-F2	R	2,0	0,1	7°	59,2		10	MC 10 R/L	**250**
MC 10-4-2.50 R 07-F2	R	2,5	0,1	7°	59,2		10	MC 10 R/L	**260**

P	●
M	●
K	●
N	○
S	●
H	
O	○

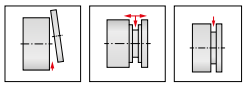
→ v_c Page 102
→ Application recommendation on page 107

11

Internal machining	*External machining*							
								
	→ 92							

MaxiClick – Insert – cutting depth 10 mm

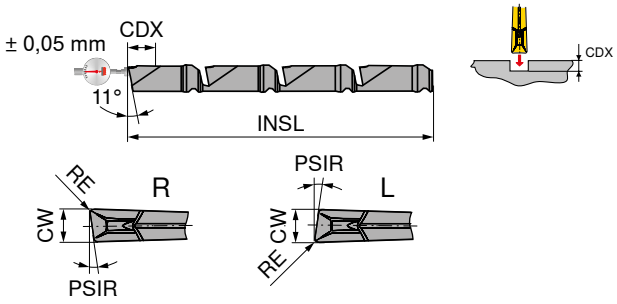
▲ 4 cutting edges



-F3
CTP1340

DRAGONSKIN

F	M	R
		





70 340 ...

Designation	IH	CW mm	RE mm	PSIR	INSL mm	CDX mm	for tool holder	
MC 10-4-1.50 L 12-F3	L	1,5	0,1	12°	59,2	10	MC 10 R/L	**270**
MC 10-4-2.00 L 12-F3	L	2,0	0,1	12°	59,2	10	MC 10 R/L	**280**
MC 10-4-2.50 L 12-F3	L	2,5	0,1	12°	59,2	10	MC 10 R/L	**290**
MC 10-4-1.50 R 12-F3	R	1,5	0,1	12°	59,2	10	MC 10 R/L	**240**
MC 10-4-2.00 R 12-F3	R	2,0	0,1	12°	59,2	10	MC 10 R/L	**250**
MC 10-4-2.50 R 12-F3	R	2,5	0,1	12°	59,2	10	MC 10 R/L	**260**

P	●
M	●
K	●
N	○
S	●
H	
O	○

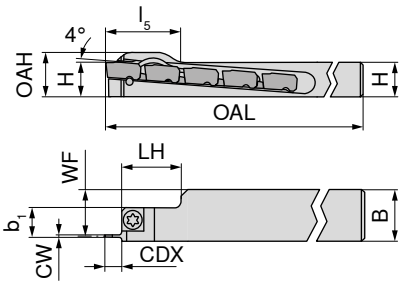
→ v_c Page 102
→ Application recommendation on page 107

Internal machining | *External machining*



→ 92

MaxiClick – Toolholder – cutting depth 5 mm





Illustrations show right-hand versions

Designation	H mm	OAH mm	B mm	CW mm	CDX mm	WF mm	OAL mm	LH mm	l_5 mm	for grooving inserts	Left-hand 70 873 ...	Right-hand 70 873 ...
MC 05 R/L -1010K	10	13	10	1,00 - 1,50	5	8,5	125	23	27	MC 05	**210**	**110**
MC 05 R/L -1212K	12	15	12	1,00 - 1,50	5	10,5	125	23	27	MC 05	**212**	**112**
MC 05 R/L -1616K	16	19	16	1,00 - 1,50	5	14,5	125	23	20	MC 05	**216**	**116**
MC 05 R/L -2020K	20	23	20	1,00 - 1,50	5	18,8	125	23	20	MC 05	**220**	**120**
MC 05 R/L -2525M	25	28	25	1,00 - 1,50	5	23,5	150	23	21	MC 05	**225**	**125**

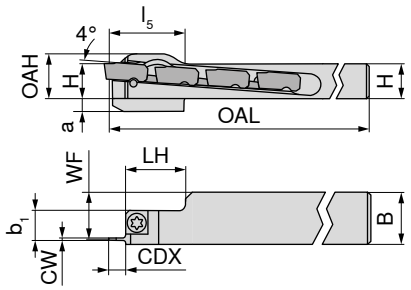
Spare parts for grooving inserts		Key-T 70 950 ...	Clamping screw 70 950 ...
MC 05	T15	**738**	M4x11 **174**

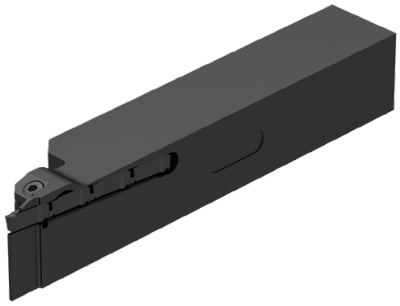


→ 88

11

MaxiClick – Toolholder – cutting depth 10 mm





Illustrations show right-hand versions

Designation	H mm	OAH mm	B mm	a mm	CW mm	CDX mm	WF mm	OAL mm	LH mm	l_5 mm	for grooving inserts	Left-hand 70 874 ...	Right-hand 70 874 ...
MC 10 R/L -1010K	10	13	10		1,50 - 2,50	10	8,5	125	28		MC 10	**210**	**110**
MC 10 R/L -1010K-S	10	13	10	6	1,50 - 2,50	10	8,5	125	28	27	MC 10	**410** 1)	**310** 1)
MC 10 R/L -1212K	12	15	12		1,50 - 2,50	10	10,5	125	28		MC 10	**212**	**112**
MC 10 R/L -1212K-S	12	15	12	4	1,50 - 2,50	10	10,5	125	28	27	MC 10	**412** 1)	**312** 1)
MC 10 R/L -1616K	16	19	16		1,50 - 2,50	10	14,5	125	28	20	MC 10	**216**	**116**
MC 10 R/L -2020K	20	23	20		1,50 - 2,50	10	18,8	125	28	20	MC 10	**220**	**120**
MC 10 R/L -2525M	25	28	25		1,50 - 2,50	10	23,5	150	28	21	MC 10	**225**	**125**

1) -S = strengthened variant



Key-T



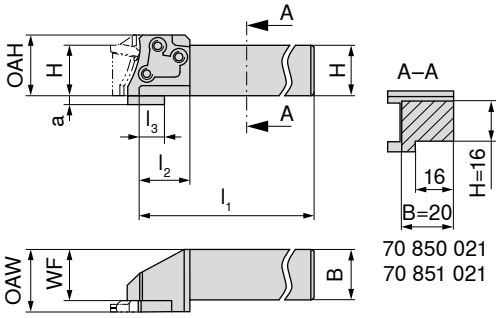
Clamping screw

Spare parts for grooving inserts		70 950 ...		70 950 ...
MC 10	T15	**738**	M4x11	**174**

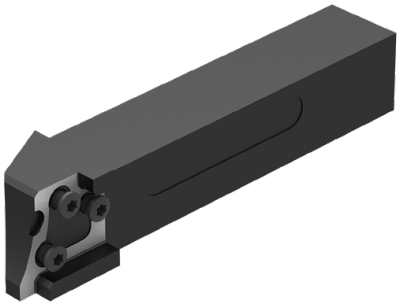


→ 89+90

ModularClamp MSS – Tool holder 0°



70 850 021
70 851 021



Illustrations show right-hand versions

Designation	H mm	B mm	OAW mm	OAH mm	WF mm	l_1 mm	l_2 mm	l_3 mm	for modules	Left-hand 70 851 ...	Right-hand 70 850 ...
E12 R/L 00-1212E	12	12	15,25	14,5	11,75	70	12		E12 R/L ...	**012**	**012**
E16 R/L 00-1616G	16	16	19,25	19,5	15,75	90	16		E16 R/L ...	**016**	**016**
E20 R/L 00-1620G	16	20	24,25	24,0	20,15	90	20		E20 R/L ...	**021** 1)	**021** 1)
E20 R/L 00-2020J	20	20	24,25	24,0	20,15	110	20		E20 R/L ...	**020**	**020**
E25 R/L 00-2525L	25	25	31,00	30,0	25,50	140	25		E25 R/L ...	**025**	**025**
E32 R/L 00-3225N	32	25	31,00	38,0	25,50	160	32		E32 R/L ...	**032**	**032**
E32 L 00-3232N	32	32	38,00	38,8	32,50	180	32	16	E32 R/L ...	**13200**	
E32 R 00-3232Q	32	32	38,00	38,8	32,50	180	32	16	E32 R/L ...		**13200**

1) see view A-A


Key D


Clamping screw

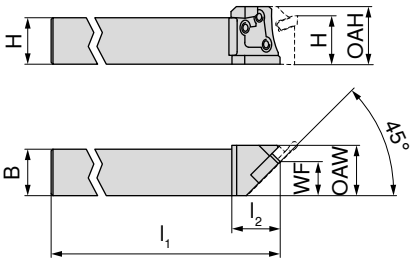
Spare parts for Article no.		80 950 ...		70 950 ...
70 851 012 / 70 850 012	T08	**110**	M2,5x10	**440**
70 851 016 / 70 850 016	T15	**113**	M3,5x12,5	**441**
70 851 021 / 70 850 021	T15	**113**	M4x14	**403**
70 851 020 / 70 850 020	T15	**113**	M4x14	**403**
70 851 025 / 70 850 025	T20	**114**	M5x18	**404**
70 851 032 / 70 850 032	T25	**115**	M6x20	**405**

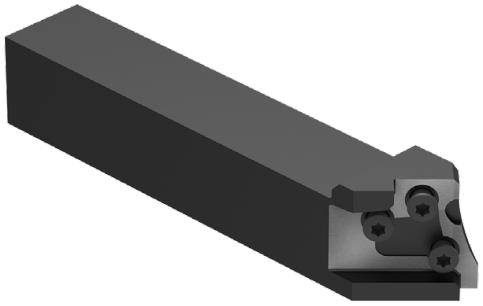
Module Overview



→ 4+5

ModularClamp MSS – Tool holder 45°





Illustrations show right-hand versions

Designation	H mm	B mm	OAW mm	OAH mm	WF mm	l_1 mm	l_2 mm	for modules	Left-hand 70 853 ...	Right-hand 70 852 ...
E20 R/L 45-2020J	20	20	21,5	24	14,5	110	20	E20 R/L ...	**020**	**020**
E25 R/L 45-2525L	25	25	26,0	30	18,0	140	25	E25 R/L ...	**025**	**025**

For right hand holder → left hand module only
For left hand holder → right hand module only

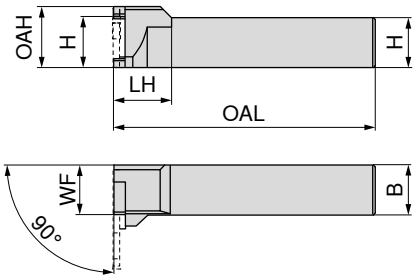
Spare parts for Article no.		Key D 80 950 ...	Clamping screw 70 950 ...		Clamping screw 70 950 ...	
70 853 020 / 70 852 020	T15	**113**	M4x11	**442**	M4x14	**403**
70 853 025 / 70 852 025	T20	**114**	M5x13,5	**513**	M5x18	**404**

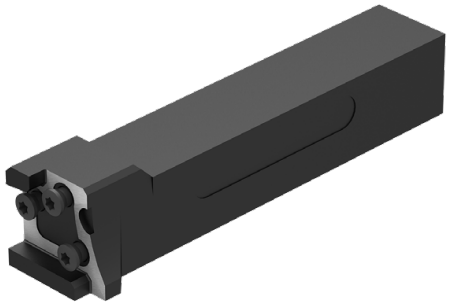
Module Overview



→ 4+5

ModularClamp MSS – Tool holder 90°





Illustrations show right-hand versions

Designation	H mm	B mm	OAH mm	WF mm	OAL mm	LH mm	for modules	Left-hand 70 855 ...	Right-hand 70 854 ...
E20 R/L 90-2020J	20	20	24	20	110	20	E20 R/L ...	**020**	**020**
E25 R/L 90-2525L	25	25	30	25	140	28	E25 R/L ...	**025**	**025**
E32 R/L 90-3225N	32	25	38	32	160	34	E32 R/L ...	**032**	**032**

For right hand holder → left hand module only
For left hand holder → right hand module only


Key D


Clamping screw

Spare parts for Article no.		80 950 ...		70 950 ...
70 855 020 / 70 854 020	T15	**113**	M4x14	**403**
70 855 025 / 70 854 025	T20	**114**	M5x18	**404**
70 855 032 / 70 854 032	T25	**115**	M6x20	**405**

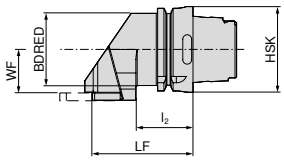
Module Overview



→ 4+5

11

ModularClamp MSS – HSK-T Base Holder 0°



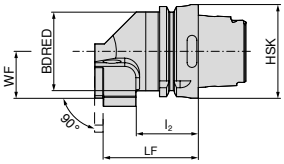


Illustrations show right-hand versions

ISO designation	Adapter	LF mm	l_2 mm	BDRED mm	WF mm	for Grooving Module	Left-hand 74 581 ...	Right-hand 74 580 ...
HSK T63 E25 R/L 00	HSK-T 63	67	42	53	38,7	E25 R/L...	**525**	**525**
HSK T63 E32 R/L 00	HSK-T 63	74	42	53	38,7	E32 R/L...	**532**	**532**
HSK T100 E32 R/L 00	HSK-T 100	77	45	88	48,7	E32 R/L...	**732**	**732**

Spare parts for Article no.	Protection plugs 70 950 ...	Nozzle 70 950 ...	Key D 80 950 ...	Clamping screw 70 950 ...	Hollow key with nose 70 950 ...
74 580 525 / 74 581 525	**05600**	**05500**	**114**	**404**	**05700**
74 580 532 / 74 581 532	**05600**	**05500**	**115**	**405**	**05700**
74 580 732 / 74 581 732	**05600**	**05500**	**115**	**405**	**05700**

ModularClamp MSS – 90° HSK-T Base Holder





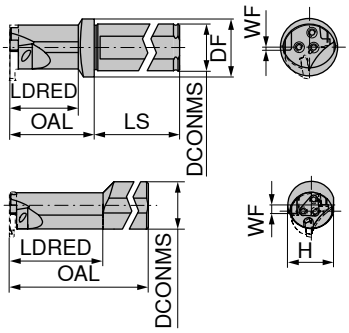
Illustrations show right-hand versions

ISO designation	Adapter	LF mm	l_2 mm	BDRED mm	WF mm	for Grooving Module	Left-hand 74 583 ...	Right-hand 74 582 ...
HSK T63 E32 R/L 90	HSK-T 63	63,7	42	53	31,5	E32 R/L...	**532**	**532**
HSK T100 E32 R/L 90	HSK-T 100	73,7	45	88	50,0	E32 R/L...	**732**	**732**

Spare parts for Article no.	Protection plugs 70 950 ...	Nozzle 70 950 ...	Key D 80 950 ...	Clamping screw 70 950 ...	Hollow key with nose 70 950 ...
74 582 532 / 74 583 532	**05600**	**05500**	**115**	**405**	**05700**
74 582 732 / 74 583 732	**05600**	**05500**	**115**	**405**	**05700**

ModularClamp MSS – Boring bars GX / TC

▲ With internal coolant supply





Illustrations show right-hand versions

	Designation	DCONMS mm	DF mm	WF mm	H mm	OAL mm	LDRED mm	LS mm	for modules	Left-hand 70 861 ...	Right-hand 70 860 ...
≤ 1,5xD	I16 R/L 90-1,5 D-N	20	25	1,0		32	24	50	I 16 R/L	017	017
	I20 R/L 90-1,5 D-N	20	25	1,0		37	30	50	I 20 R/L	021	021
	I25 R/L 90-1,5 D-N	25	32	1,5		46	38	56	I 25 R/L	026	026
	I32 R/L 90-1,5 D-N	32	40	2,0		59	48	60	I 32 R/L	033 1)	033 1)
	I40 R/L 90-1,5 D-N	40	50	2,5		72	60	70	I 40 R/L/N	041	041
≤ 2,5xD	I16 R/L 90-2,5 D-N	20		4,5	19,0	180	40		I 16 R/L	117	117
	I20 R/L 90-2,5 D-N	25		6,0	24,0	200	50		I 20 R/L	121	121
	I25 R/L 90-2,5 D-N	32		7,0	31,0	250	63		I 25 R/L	126	126
	I32 R/L 90-2,5 D-N	40		9,5	38,0	300	80		I 32 R/L	133 1)	133 1)
	I40 R/L 90-2,5 D-N	50		11,5	48,5	350	100		I 40 R/L/N	141	141

1) with 2 clamping surfaces

Spare parts for modules	Key D 80 950 ...		Clamping screw 70 950 ...	
I 16 R/L	T08	110	M2,5x10	440
I 20 R/L	T10	112	M3x11	444
I 25 R/L	T15	113	M3,5x12,5	441
I 32 R/L	T20	114	M4,5x17	445
I 40 R/L/N	T20	114	M5x18	404

Module Overview



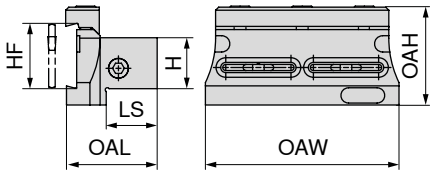
→ 6+7

Split clamping block for blades DC

Scope of supply:

Complete clamping block, but without blade







Designation	H mm	HF mm	OAH mm	LS mm	OAL mm	OAW mm	for blades	70 829 ...
SBN 2020-26-DC	20	26	43,0	20	40,0	82	XLC.. 26..	**020**
SBN 2020-32-DC	20	32	43,0	20	40,0	95	XLC.. 32..	**120**
SBN 2525-32-DC	25	32	48,5	25	44,5	95	XLC.. 32..	**025**
SBN 3232-32-DC	32	32	52,0	32	51,0	95	XLC.. 32..	**032**

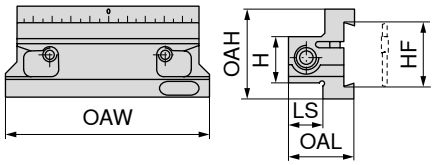
	 Coolant screw plug		 Clamping rail		 clamping screw	
	70 950 ...		**70 950 ...**		**70 950 ...**	
Spare parts for Article no.						
70 829 020	G 1/8"	**294**	CU70	**290**	M6x12	**861**
70 829 120	G 1/8"	**294**	CU85	**291**	M6x12	**861**
70 829 025	G 1/8"	**294**	CU85	**291**	M6x12	**861**
70 829 032	G 1/8"	**294**	CU85	**291**	M6x12	**861**

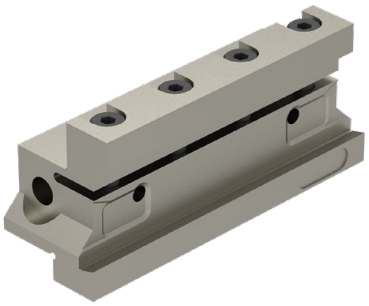
	 Key l		 O-Ring		 O-Ring	
	70 950 ...		**70 950 ...**		**70 950 ...**	
Spare parts for Article no.						
70 829 020	SW5	**265**	19x2,5	**293**		
70 829 120	SW5	**265**	19x2,5	**293**	23x2,5	**292**
70 829 025	SW5	**265**			23x2,5	**292**
70 829 032	SW5	**265**			23x2,5	**292**

Clamping block for blades GX/LX/FX/SX

Scope of supply:

Clamping block complete, but without blade and coolant set





Designation	H mm	HF mm	OAH mm	LS mm	OAL mm	OAW mm	for blades	70 830 ...
SBN 2020-26-K	20	26	39	20	33,0	90	XLC.. 26..	**020**
SBN 2520-32-K	25	32	48	20	36,0	110	XLC.. 32..	**025**
SBN 3229-32-K	32	32	48	29	44,5	120	XLC.. 32..	**032**
SBN 3229-46-K	32	46	70	29	52,0	150	XLC.. 46..	**132**
SBN 4037-46-K	40	46	70	37	60,0	150	XLC.. 46..	**140**


Key I


Cooling agent set


clamping screw

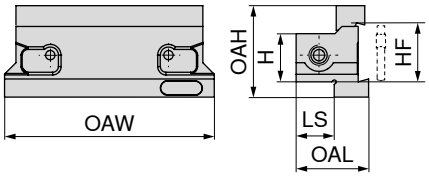
Spare parts for blades		70 950 ...		70 950 ...		70 950 ...
XLC.. 26..	SW5	**265**		**278**	M6x25	**269**
XLC.. 32..	SW5	**265**		**278**	M6x25	**269**
XLC.. 46..	SW6	**266**		**279**	M8x35	**282**

11

Split clamping block for blades GX/LX/FX/SX

Scope of supply:

Clamping block complete, but without blade and coolant set





Designation	H mm	HF mm	OAH mm	LS mm	OAL mm	OAW mm	for blades	70 831 ...
SBN 2020-26-KS	20	26	39	20	35,0	90	XLC.. 26..	**020**
SBN 2520-32-KS	25	32	48	20	38,0	110	XLC.. 32..	**025**
SBN 3229-32-KS	32	32	48	29	46,5	120	XLC.. 32..	**032**


Key I


Cooling agent set


clamping screw

Spare parts for blades		70 950 ...		70 950 ...		70 950 ...
XLC.. 26..	SW5	**265**		**278**	M6x25	**269**
XLC.. 32..	SW5	**265**		**278**	M6x25	**269**

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²				
		O.3.1	Graphite						

*** Tensile strength**

11

Cutting data values for grooving inserts GX/LX/FX/SX/AX/TC/MaxiClick

	DRAGONSKIN CTCP325	DRAGONSKIN CTCP335	DRAGONSKIN CTPP345	DRAGONSKIN CTPP520	DRAGONSKIN CTPP535	DRAGONSKIN CTP1340	H216T (SX/FX/GX)	H216T (TC)
Index	v_c in m/min.							
P.1.1	**220**	**184**	**135**	**236**	**180**	**177**		
P.1.2	**194**	**160**	**119**	**204**	**152**	**149**		
P.1.3	**171**	**138**	**105**	**174**	**126**	**123**		
P.1.4	**163**	**131**	**100**	**165**	**118**	**115**		
P.1.5	**151**	**120**	**93**	**150**	**105**	**102**		
P.2.1	**198**	**164**	**122**	**209**	**157**	**153**		
P.2.2	**161**	**129**	**99**	**162**	**116**	**112**		
P.2.3	**151**	**120**	**93**	**150**	**105**	**102**		
P.2.4	**121**	**92**	**74**	**113**	**73**	**70**		
P.3.1	**149**	**127**	**101**	**185**	**119**	**112**		
P.3.2	**96**	**89**	**80**	**131**	**88**	**76**		
P.3.3	**44**	**51**	**59**	**76**	**58**	**39**		
P.4.1	**149**	**127**	**101**	**185**	**119**	**112**		
P.4.2	**123**	**108**	**90**	**158**	**103**	**94**		
M.1.1	149	127	**101**	**185**	**119**	**112**		
M.2.1	96	89	**80**	**131**	**88**	**76**		
M.3.1	133	116	**94**	**169**	**109**	**102**		
K.1.1	**170**	**135**		**140**	**165**	**150**	**140**	**140**
K.1.2	**150**	**115**		**115**	**150**	**125**	**115**	**115**
K.2.1	**160**	**130**		**180**	**145**	**140**	**150**	**150**
K.2.2	**145**	**105**		**115**	**155**	**120**	**110**	**110**
K.3.1	**210**	**150**		**130**	**190**	**170**	**170**	**170**
K.3.2	**140**	**115**		**110**	**145**	**120**	**140**	**140**
N.1.1						300	**400**	**450**
N.1.2						200	**100**	**450**
N.2.1						300	**450**	**300**
N.2.2						200	**450**	**300**
N.2.3						150	**500**	**225**
N.3.1						300	**425**	**190**
N.3.2						300	**400**	**290**
N.3.3						200	**275**	**290**
N.4.1						200	**225**	**290**
S.1.1	35			40	**30**	**35**	38	
S.1.2	30		30	30	**25**	**30**	28	
S.2.1	20		25	20	**15**	**20**	28	
S.2.2	15			15	**15**	**15**	24	
S.2.3	15			18	**15**	**15**	20	
S.3.1				125	**85**	**85**	90	
S.3.2				50	**35**	**40**	55	
S.3.3				35	**25**	**30**	40	
H.1.1				30				
H.1.2				25				
H.1.3								
H.1.4								
H.2.1				25				
H.3.1				40				
O.1.1						130	130	290
O.1.2								
O.2.1						105	105	290
O.2.2								
O.3.1								

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data values for TX grooving inserts

	CWX500		
Index	v_c m/min.	f mm/rev.	Cooling
P.1.1	**160**	0,03–0,1	Emulsion
P.1.2	**140**	0,03–0,1	Emulsion
P.1.3	**110**	0,03–0,1	Emulsion
P.1.4	**110**	0,03–0,1	Emulsion
P.1.5	**90**	0,03–0,1	Emulsion
P.2.1	**110**	0,03–0,1	Emulsion
P.2.2	**90**	0,03–0,1	Emulsion
P.2.3	**90**	0,03–0,07	Emulsion
P.2.4	**80**	0,03–0,06	Emulsion
P.3.1	**80**	0,03–0,07	Emulsion
P.3.2	**60**	0,03–0,07	Emulsion
P.3.3	**50**	0,03–0,07	Emulsion
P.4.1	**100**	0,03–0,06	Emulsion
P.4.2	**90**	0,03–0,06	Emulsion
M.1.1	**110**	0,02–0,06	Emulsion
M.2.1	**90**	0,02–0,06	Emulsion
M.3.1	**70**	0,02–0,06	Emulsion
K.1.1	**140**	0,03–0,1	Emulsion
K.1.2	**100**	0,03–0,1	Emulsion
K.2.1	**90**	0,03–0,1	Emulsion
K.2.2	**80**	0,03–0,1	Emulsion
K.3.1	**140**	0,03–0,1	Emulsion
K.3.2	**120**	0,03–0,1	Emulsion
N.1.1	**330**	0,05–0,12	Emulsion
N.1.2	**310**	0,05–0,12	Emulsion
N.2.1	**270**	0,05–0,12	Emulsion
N.2.2	**230**	0,05–0,12	Emulsion
N.2.3	**140**	0,05–0,12	Emulsion
N.3.1	**240**	0,05–0,12	Emulsion
N.3.2	**200**	0,05–0,12	Emulsion
N.3.3	**180**	0,05–0,12	Emulsion
N.4.1	**180**	0,05–0,12	Emulsion
S.1.1	**60**	0,02–0,07	Emulsion
S.1.2	**50**	0,02–0,08	Emulsion
S.2.1	**60**	0,02–0,09	Emulsion
S.2.2	**50**	0,02–0,10	Emulsion
S.2.3	**40**	0,02–0,11	Emulsion
S.3.1	**60**	0,02–0,12	Emulsion
S.3.2	**40**	0,02–0,13	Emulsion
S.3.3	**30**	0,02–0,14	Emulsion
H.1.1	50	0,01–0,07	Emulsion
H.1.2			
H.1.3			
H.1.4			
H.2.1			
H.3.1			
O.1.1	**180**	0,05–0,12	Emulsion
O.1.2	**180**	0,05–0,12	Emulsion
O.2.1	**150**	0,05–0,12	Emulsion
O.2.2	**110**	0,05–0,12	Emulsion
O.3.1	**170**	0.03–0,1	Emulsion

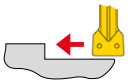
The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

11

GX – Depths of cut and feed rates

GX Standard / GX-E

Turning



Parting / Grooving

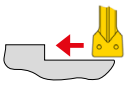


	Depth of Cut a_p in mm							
GX Standard / GX-E	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**GX Standard / GX-E**
Cutting width in mm	Feed rate f in mm/rev.							Feed rate f in mm/rev.
2	0,10–0,15	0,05–0,15	0,05–0,12	0,05–0,10				0,05–0,20
3	0,10–0,17	0,05–0,17	0,05–0,17	0,05–0,15	0,05–0,12			0,10–0,25
4	0,10–0,20	0,07–0,20	0,07–0,20	0,07–0,20	0,07–0,17	0,07–0,15		0,10–0,25
5	0,10–0,25	0,10–0,25	0,07–0,25	0,07–0,25	0,07–0,22	0,07–0,20		0,10–0,30
6	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,25	0,15–0,22	0,15–0,35

When axial grooving reduce feed by 40%.

GX-F2

Turning



Parting / Grooving

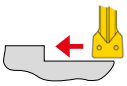


	Depth of Cut a_p in mm								
GX-F2	**0,50**	**0,75**	**1,00**	**1,25**	**1,50**	**1,75**	**2,00**	**2,25**	**2,50**	**GX-F2**
Cutting width in mm	Feed rate f in mm/rev.									Feed rate f in mm/rev.
2	0,03–0,15	0,03–0,15	0,03–0,15	0,03–0,10						0,05–0,15
3	0,04–0,17	0,04–0,17	0,04–0,17	0,04–0,15	0,04–0,13	0,04–0,12				0,075–0,20
4	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,17	0,05–0,15			0,10–0,25
5	0,07–0,20	0,07–0,20	0,07–0,20	0,07–0,20	0,07–0,20	0,07–0,20	0,07–0,17	0,07–0,15		0,10–0,30
6	0,10–0,23	0,10–0,23	0,10–0,23	0,10–0,23	0,10–0,23	0,10–0,23	0,10–0,23	0,10–0,19	0,10–0,15	0,15–0,325

When axial grooving reduce feed by 40%.

GX-M40

Turning



Parting / Grooving

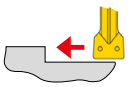


	Depth of Cut a_p in mm								
GX-M40	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**4,0**	**GX-M40**
Cutting width in mm	Feed rate f in mm/rev.								Feed rate f in mm/rev.
2	0,10–0,20	0,05–0,20	0,05–0,17	0,05–0,15					0,05–0,15
3	0,10–0,22	0,10–0,22	0,10–0,21	0,10–0,20	0,10–0,17				0,075–0,20
4	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,22	0,10–0,17			0,10–0,25
5	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,27	0,10–0,23	0,10–0,20		0,10–0,30
6	0,10–0,35	0,10–0,35	0,10–0,35	0,10–0,35	0,10–0,32	0,10–0,27	0,10–0,23	0,10–0,20	0,15–0,325

When axial grooving reduce feed by 40%.

GX-27P

Turning



Parting / Grooving



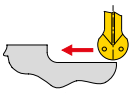
	Depth of Cut a_p in mm								
GX-27P	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**4,0**	**GX-27P**
Cutting width in mm	Feed rate f in mm/rev.								Feed rate f in mm/rev.
2	0,05–0,23	0,05–0,23	0,05–0,23	0,05–0,20					0,05–0,20
3	0,05–0,25	0,05–0,25	0,05–0,25	0,05–0,25	0,05–0,20				0,05–0,25
4	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,25			0,05–0,30
5	0,10–0,35	0,10–0,35	0,10–0,35	0,10–0,35	0,10–0,35	0,10–0,32	0,10–0,30		0,10–0,35
6	0,10–0,40	0,10–0,40	0,10–0,40	0,10–0,40	0,10–0,40	0,10–0,36	0,10–0,33	0,10–0,30	0,10–0,40

When axial grooving reduce feed by 40%.

GX – Depths of cut and feed rates

GX-M3

Turning



Parting / Grooving

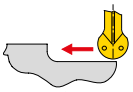


	Depth of Cut a_p in mm							
GX–M3	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**4,0**
Radius RE in mm	Feed rate f in mm/rev.							
1,5	0,15–0,35	0,15–0,35	0,15–0,30					
2	0,15–0,40	0,15–0,40	0,15–0,40	0,15–0,30				
2,5	0,15–0,50	0,15–0,50	0,15–0,50	0,15–0,40	0,15–0,35			
3	0,20–0,70	0,20–0,70	0,20–0,70	0,20–0,60	0,20–0,50	0,20–0,40		

GX–M3
Feed rate f in mm/rev.
0,05–0,20
0,10–0,25
0,10–0,25
0,10–0,35

GX-27P Full Radius

Turning



Parting / Grooving



	Depth of Cut a_p in mm							
GX-27P Full Radius	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**4,0**
Radius RE in mm	Feed rate f in mm/rev.							
1,5	0,10–0,45	0,05–0,45	0,05–0,40					
2	0,15–0,50	0,10–0,50	0,10–0,50	0,10–0,40				
2,5	0,15–0,60	0,10–0,60	0,10–0,60	0,10–0,50	0,10–0,45			
3	0,25–0,70	0,20–0,70	0,15–0,70	0,15–0,70	0,15–0,65	0,15–0,60	0,15–0,55	
4	0,25–0,80	0,20–0,80	0,15–0,80	0,15–0,80	0,15–0,80	0,15–0,80	0,15–0,75	0,15–0,70

GX-27P Full Radius
Feed rate f in mm/rev.
0,05–0,15
0,075–0,20
0,10–0,25
0,10–0,30
0,15–0,35

GX-M1

Parting / Grooving



GX-M1	
Cutting width in mm	Feed rate f in mm/rev.
2	0,05–0,15
3	0,10–0,20
4	0,10–0,25

GX Radius grooving inserts

Parting / Grooving



GX Radius grooving insert	
Radius RE in mm	Feed rate f in mm/rev.
0,80	0,05–0,10
1,00	0,05–0,15
1,20	0,05–0,15

GX circlip grooving

Grooving

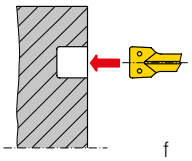
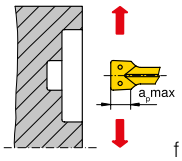


GX circlip grooves	
Cutting width in mm	Feed rate f in mm/rev.
0,60–1,70	0,02–0,09
1,95–2,25	0,05–0,10
2,75–3,25	0,05–0,12

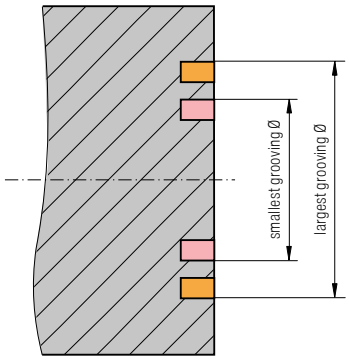
Feed guide and machining instructions for axial grooving and face turning with GX 24 axial

Approximate feed rates

GX

Designation	 f in mm/rev.	 f in mm/rev.	$a_p$max mm
GX 24-2 E 3.00 ..	0,05–0,15	0,05–0,20	2,5
GX 24-3 E 4.00 ..	0,05–0,15	0,05–0,25	3,0
GX 24-3 E 5.00 ..	0,05–0,15	0,10–0,25	3,0
GX 24-4 E 6.00 ..	0,05–0,20	0,10–0,30	3,5

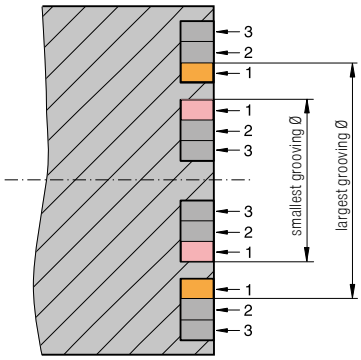
Axial grooving



It is only possible to plunge within the fixed diameter range of the axial grooving module or monoholder (e.g. 50 - 70 mm).

Important: The indicated diameter range is always valid for the external diameter of the groove!

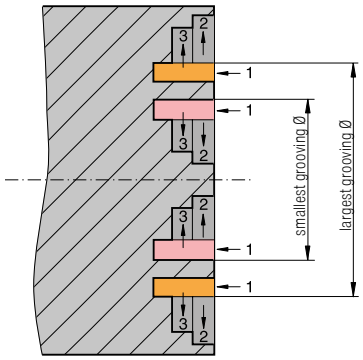
Axial grooving – Groove widening



In case of face turning it is possible to widen the groove above and below the diameter range indicated on the Axial grooving module or monoholder.

Important: Only the first groove must lie within the diameter range of the axial grooving module or axial monoholder. The depth of the widening groove must not be larger than the depth of the original groove.

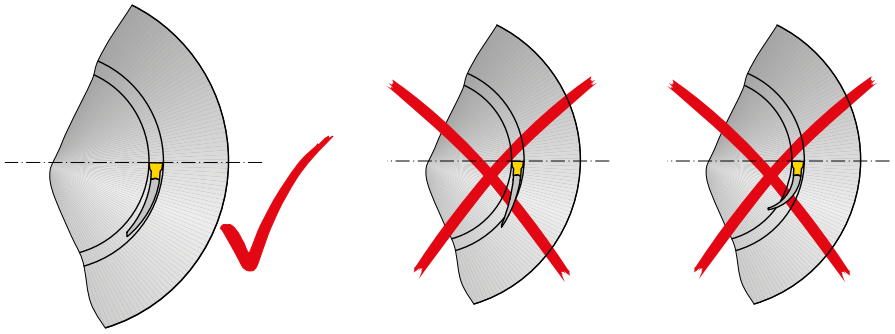
Axial grooving and face turning



Groove widening by face turning in the diameter range above and below the values specified for the Axial grooving module and Axial monoholder are possible.

Important: Only the first groove must lie within the diameter range of the module.

Attention: The diameter of face grooves must lie within the diameter range indicated on the axial grooving module and axial monoholder. Not following this range will result in the tool being damaged or destroyed.



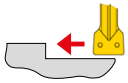
Correct Axial mono holder

Incorrect Axial mono holder

MaxiClick – Depths of cut and feed rates

MaxiClick 05

Turning



	Depth of Cut a_p in mm		
MaxiClick 05	**0,25**	**0,50**	**0,75**
Cutting width in mm	Feed rate f in mm/rev.		
1	0,02–0,15	0,02–0,10	
1,5	0,02–0,20	0,02–0,20	0,02–0,14

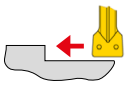
Parting / Grooving



MaxiClick 05
Feed rate f in mm/rev.
0,03–0,10
0,03–0,11

MaxiClick 10

Turning



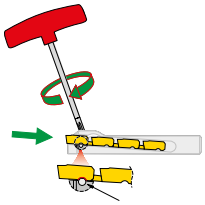
	Depth of Cut a_p in mm				
MaxiClick 10	**0,50**	**0,75**	**1,00**	**1,25**	**1,50**
Cutting width in mm	Feed rate f in mm/rev.				
1,5	0,02–0,20	0,02–0,15	0,02–0,10		
2	0,02–0,20	0,02–0,20	0,02–0,14	0,02–0,10	
2,5	0,02–0,20	0,02–0,20	0,02–0,17	0,02–0,13	0,02–0,10

Parting / Grooving

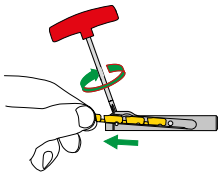


MaxiClick 10
Feed rate f in mm/rev.
0,03–0,11
0,03–0,12
0,03–0,15

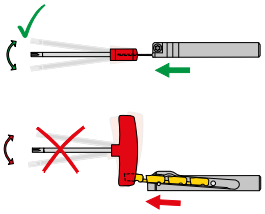
MaxiClick – System function



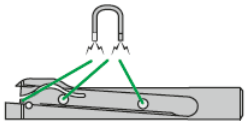
Correct insert location in the seat



Withdraw cutting insert



Worn-out cutting edge is broken off towards the left or right side



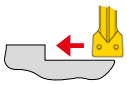
Magnets prevent the cutting insert from falling out of the tool holder during positioning

11

SX – Depths of cut and feed rates

SX-F2

Turning



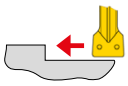
Parting / Grooving



	Depth of Cut a_p in mm									
SX -F2	**0,50**	**0,75**	**1,00**	**1,25**	**1,50**	**1,75**	**2,00**	**2,25**	**2,50**	**SX -F2**
Cutting width in mm	Feed rate f in mm/rev.									Feed rate f in mm/rev.
2	0,03–0,15	0,03–0,15	0,03–0,15	0,03–0,10						0,05–0,15
3	0,04–0,17	0,04–0,17	0,04–0,17	0,04–0,15	0,04–0,13	0,04–0,12				0,075–0,20
4	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,17	0,05–0,15			0,10–0,25

SX-M2

Turning



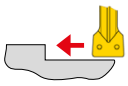
Parting / Grooving



	Depth of Cut a_p in mm								
SX–M2	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**4,0**	**SX–M2**
Cutting width in mm	Feed rate f in mm/rev.								Feed rate f in mm/rev.
2	0,05–0,17	0,05–0,13	0,05–0,10						0,05–0,15
3	0,07–0,20	0,07–0,20	0,07–0,18	0,07–0,15					0,075–0,20
4	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,22	0,10–0,18				0,10–0,25
5	0,12–0,27	0,12–0,27	0,12–0,27	0,12–0,25	0,12–0,22				0,10–0,30
6	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,25	0,15–0,20			0,15–0,35

SX-27P

Turning



Parting / Grooving



	Depth of Cut a_p in mm								
SX-27P	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**4,0**	**SX-27P**
Cutting width in mm	Feed rate f in mm/rev.								Feed rate f in mm/rev.
2	0,05–0,23	0,05–0,23	0,05–0,23	0,05–0,20					0,05–0,20
3	0,05–0,25	0,05–0,25	0,05–0,25	0,05–0,25	0,05–0,20				0,05–0,25
4	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,25			0,05–0,30

SX/LX – Depths of cut and feed rates

SX-M1

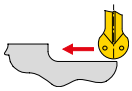
Parting / Grooving



SX-M1	
Cutting width in mm	Feed rate f in mm/rev.
2	0,05–0,15
3	0,10–0,20
4	0,10–0,25
5	0,15–0,30
6	0,15–0,35

SX-M3

Turning



Parting / Grooving

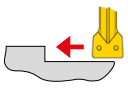


	Depth of Cut a_p in mm							
SX–M3	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**4,0**
Radius in mm	Feed rate f in mm/rev.							
1,5	0,15–0,35	0,15–0,35	0,15–0,30					
2	0,15–0,40	0,15–0,40	0,15–0,40	0,15–0,30				
2,5	0,15–0,50	0,15–0,50	0,15–0,50	0,15–0,40	0,15–0,35			
3	0,20–0,70	0,20–0,70	0,20–0,70	0,20–0,60	0,20–0,50	0,20–0,40		

SX–M3
Feed rate f in mm/rev.
0,05–0,20
0,10–0,25
0,10–0,25
0,10–0,35

LX-M2

Turning



Parting / Grooving

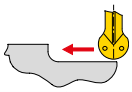


	Depth of Cut a_p in mm							
LX–M2	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**4,0**
Cutting width in mm	Feed rate f in mm/rev.							
8	0,17–0,45	0,17–0,45	0,17–0,45	0,17–0,45	0,17–0,40	0,17–0,37	0,17–0,35	
10	0,20–0,50	0,20–0,50	0,20–0,50	0,20–0,50	0,20–0,46	0,20–0,42	0,20–0,38	0,20–0,35

LX–M2
Feed rate f in mm/rev.
0,20–0,50
0,20–0,50

LX-M3

Turning



Parting / Grooving



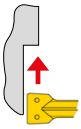
	Depth of Cut a_p in mm							
LX–M3	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**4,0**
Radius in mm	Feed rate f in mm/rev.							
4	0,25–0,80	0,25–0,80	0,25–0,80	0,25–0,80	0,25–0,80	0,25–0,70	0,25–0,60	0,25–0,50

LX–M3
Feed rate f in mm/rev.
0,15–0,35

AX/FX – Depths of cut and feed rates

AX-F50

Face turning



	Depth of Cut a_p in mm			
AX-F50	**0,5**	**1,0**	**1,5**	**2,3**
Size	Feed rate f in mm/rev.			
AX 05	0,03–0,10	0,03–0,10		
AX 10	0,03–0,13	0,03–0,13	0,03–0,135	
AX 15	0,03–0,15	0,03–0,15	0,03–0,15	0,03–0,15

Axial grooving



1. Plunging	
Feed rate f in mm/rev.	Feed rate f in mm/rev.
0,025–0,080	0,025–0,20
0,025–0,065	0,05–0,25
0,025–0,050	0,05–0,30

FX-F1

Parting / Grooving



FX-F1	
Cutting width in mm	Feed rate f in mm/rev.
2,2	0,025–0,10
3,1	0,05–0,15
4,1	0,05–0,20

FX-M1

Parting / Grooving



FX-M1	
Cutting width in mm	Feed rate f in mm/rev.
2,20	0,05–0,15
3,10	0,08–0,18
4,10	0,10–0,20
5,10	0,15–0,28
6,50	0,15–0,33
8,20	0,20–0,40
9,70	0,20–0,40

FX-27P

Parting / Grooving



FX-27P	
Cutting width in mm	Feed rate f in mm/rev.
2,20	0,01–0,10
3,10	0,015–0,125
4,10	0,05–0,15

FX-R2

Grooving



FX-R2	
Cutting width in mm	Feed rate f in mm/rev.
3,10	0,10–0,275
4,10	0,15–0,35

TC – Reference values for profile depth and number of passes

All listed values are guide values for steel machining

Metric ISO 60° external thread

Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0	3,5	4,0	4,5	5,0
Number/cuts	4–6	4–7	4–8	5–9	6–10	7–11	8–12	9–14	10–18	10–18	12–20	12–20	12–20
Thread profile depth in mm	0,32	0,48	0,64	0,8	0,95	1,10	1,26	1,58	1,89	2,21	2,53	2,84	3,16

Metric ISO 60° internal thread

Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0	3,5	4,0	4,5	5,0
Number/cuts	4–6	4–7	4–8	5–9	6–10	7–11	8–12	9–14	10–18	10–18	12–20	12–20	12–20
Thread profile depth in mm	0,30	0,45	0,59	0,74	0,89	1,02	1,17	1,46	1,76	2,02	2,35	2,64	2,93

Whitworth 55° external and internal thread

TPI	28	26	24	20	19	18	16	14	12	11	10	9	8	7	6	5
Number/cuts	5–8	5–8	5–9	5–9	6–10	6–10	7–11	8–12	9–14	9–14	10–17	10–18	10–18	12–20	12–20	12–20
Thread profile depth in mm	0,60	0,65	0,70	0,84	0,88	0,93	1,05	1,20	1,40	1,53	1,68	1,87	2,11	2,41	2,81	3,37

Partial profile 60° external and internal thread

External	TC 16-2EI-AG60																
	TC 16-1EI-A60									TC 16-2EI-G60				TC 16-3EI-N60			
Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0	1,75	2,0	2,5	3,0	3,5	4,0	4,5	5,0
Number/cuts	4–6	4–7	5–9	6–10	7–11	8–12	9–14	10–15	12–19	8–12	9–14	10–15	12–20	12–20	13–21	14–22	14–22
Thread profile depth in mm	0,33	0,52	0,71	0,90	1,09	1,28	1,47	1,84	2,22	1,23	1,42	1,79	2,17	2,45	2,83	3,21	3,59

Internal	TC 16-2EI-AG60																
	TC 16-1EI-A60									TC 16-2EI-G60				TC 16-3EI-N60			
Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0	1,75	2,0	2,5	3,0	3,5	4,0	4,5	5,0
Number/cuts	4–6	4–7	5–9	6–10	7–11	8–12	9–14	10–15	12–19	8–12	9–14	10–15	12–20	12–20	13–21	14–22	14–22
Thread profile depth in mm	0,27	0,44	0,60	0,76	0,92	1,09	1,25	1,57	1,90	1,04	1,20	1,52	1,85	2,07	2,40	2,72	3,05

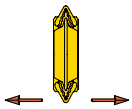
Partial profile 55° external and internal thread

External	TC 16-2EI-AG55												
	TC 16-1EI-A55												
TPI	28	26	24	20	19	18	16	14	12	11	10	9	8
Number/cuts	5–8	5–8	6–9	6–9	7–12	7–12	8–14	9–14	10–16	10–16	11–18	12–20	12–20
Thread profile depth in mm	0,66	0,72	0,79	0,95	1,01	1,07	1,21	1,39	1,63	1,79	1,97	2,20	2,48

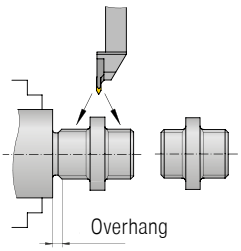
Internal	TC 16-2EI-G55						TC 16-3EI-N55		
TPI	14	12	11	10	9	8	7	6	5
Number/cuts	8–12	9–14	10–15	11–18	12–20	12–20	12–20	12–20	14–22
Thread profile depth in mm	1,22	1,46	1,56	1,80	2,03	2,31	2,40	2,89	3,56

Comparison threading system with TC and conventional

TC

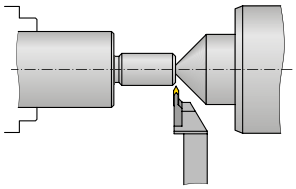


- Neutral configuration of insert makes operation in both directions possible
- Only one threading insert per pitch for partial profile and Whitworth thread; only two threading inserts (internal – external) per pitch for ISO threads
- Reduced stock holding
- good chip formation due to chip breaker with rake angle + 10 °

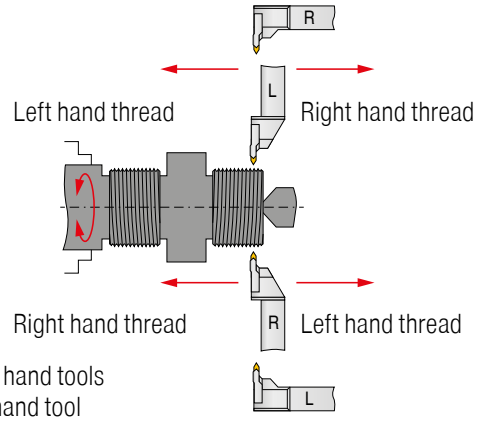


Greater efficiency through:

- shorter operating time
- Less tool changing
- High stability wih small overhang
- Material saving
- Thread turning between shoulders
- Fewer tools and indexable inserts



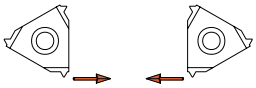
- Very good access to workpiece, therefore use of tailstock also possible with small thread diameters



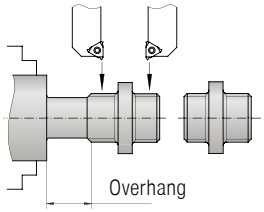
R = Right hand tools
L = Left hand tool

- ease of use, as the tools have no pitch angle correction they can be used in both directions

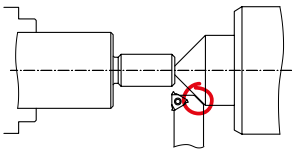
Conventional



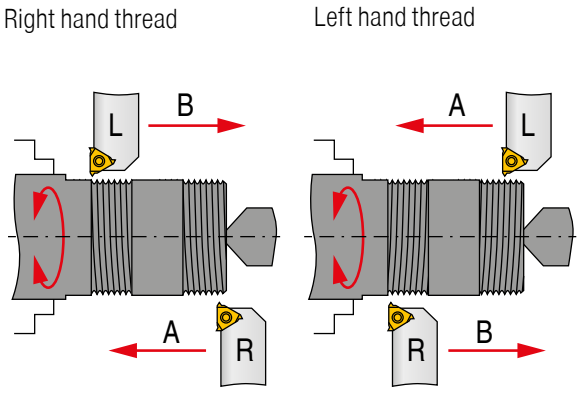
- Right-hand and left-hand version of indexable insert, therefore operation only in one direction
- For every pitch 4 threading inserts are necessary (right – left, internal – external)



- For this machining method 2 tools are required
- additional material and stability loss with large overhang



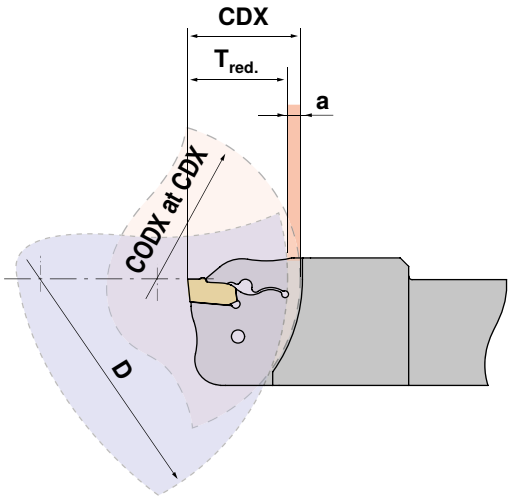
- poor accessibility
- Collision danger



- With conventional thread turning the correction of the helix angle is necessary, therefore a high degree of application know-how is required
- Can only be operated in one direction

ModularClamp

GX SX LX FX



The ModularClamp grooving modules are matched according to size on a particular workpiece diameter CODX. If the diameter of the workpiece is greater than CODX of the grooving Modules, this reduces the achievable penetration depth by the dimension „a“. The extent of reduction can be determined with the following table.

CDX maximum plunge depth in mm
CODX maximum workpiece Ø with full penetration depth in mm
a Reduction amount in mm

$T_{red.}$ = CDX – a

Grooving depth reduction

	Reduction a (mm) of the maximum grooving depth (CDX)																
Size		0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	4,5	5,0	5,5	6,0	6,5	7,0	7,5	8,0
E12	35	40	45	60	75	115	>250										
E16	50	55	60	70	80	100	130	200	>420								
E20	60	65	70	75	85	95	110	130	165	220	>330						
E25	75	80	85	90	100	110	125	140	160	190	240	320	>500				
E32	95	100	105	110	120	125	135	145	160	180	200	225	270	320	400	530	>800
	Workpiece diameter D (mm)																

Maximum workpiece diameter (CODX) with full penetration depth (CDX) in mm

Calculation example:

E25R**21**-GX24-3

Size 25

CDX = 21 mm, Ø 75 mm

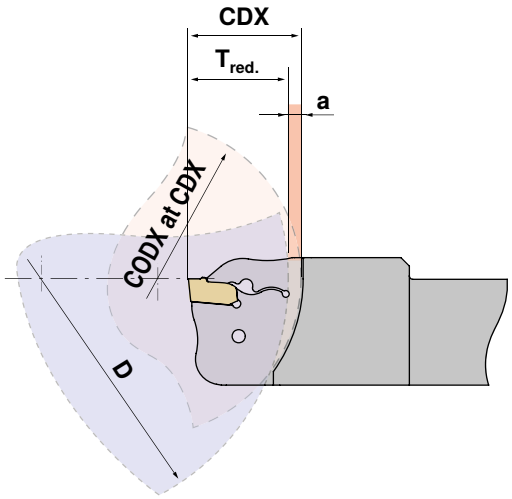
D = Ø 100 mm

CDX - a = $T_{red.}$
21 - 2 = 19 mm

11

MonoClamp

SX



Depending on the groove width and shank size, the MonoClamp tools are designed for use with a specific workpiece diameter CODX. If the workpiece diameter is larger than the CODX of the grooving module, the achievable groove depth is reduced by the dimension „a“. The extent of the reduction is determined using the following table.

CDX maximum plunge depth in mm
CODX maximum workpiece Ø with full penetration depth in mm
a Reduction amount in mm

$T_{red.} = CDX - a$

Grooving depth reduction

	Reduction a (mm) of the maximum grooving depth (CDX)																
Shank	0	0,5	1	1,5	2	2,5	3	3,5	4	4,5	5	5,5	6	6,5	7	7,5	8
E12R/L0022...	44	70	80	95	115	150	225	>450									
E16R/L0026...	52	90	105	125	155	210	305	>600									
E20R/L0026...	52	110	125	140	160	195	240	320	475	>950							
E20R/L0033...	66	110	125	140	160	195	240	320	475	>950							
E25R/L0026...	52	140	160	190	235	310	465	>930									
E25R/L0033...	66	155	175	200	230	275	340	450	675	>1350							
E25R/L0040...	80	155	175	200	230	275	340	450	675	>1350							
	Workpiece diameter D (mm)																

Maximum workpiece diameter (CODX) with full penetration depth (CDX) in mm

Calculation example:

E25R0033...

CDX = 33 mm, Ø 66 mm

D = Ø 200 mm

CDX - a = $T_{red.}$
33 - 1,5 = 31,5 mm

Clamping Method – SX-System

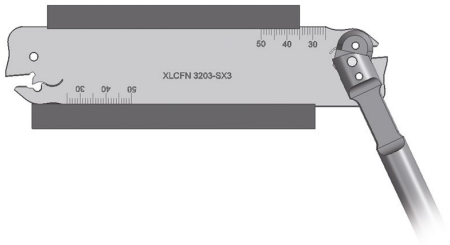
System function – inserting and removing the cutting inserts

Precision system for internal and external grooving.

The key has been designed in such a way that it will not stress the material beyond its 'elastic limit'.

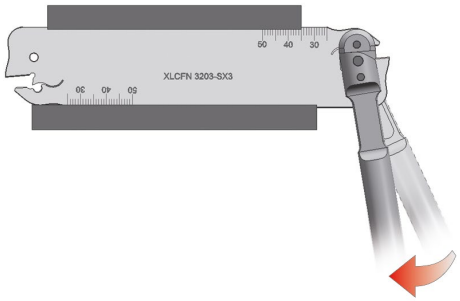
With this alternate system the material always remains in its flexible range and provides a substantial increase in tool life.

1



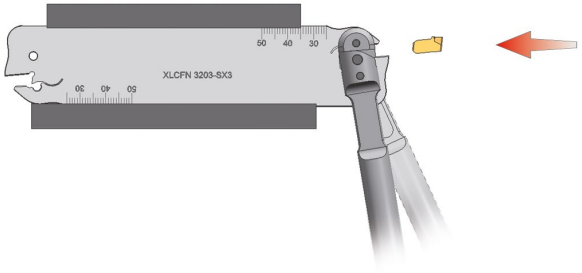
Locate wrench into blade with pins located in two holes

2



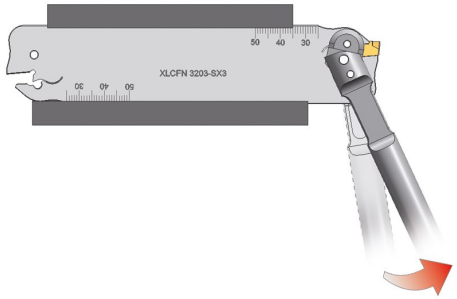
Movement of the fitting key in the direction of the insert seat opens the tool.

3



Load the grooving insert into position and press against the seat.

4

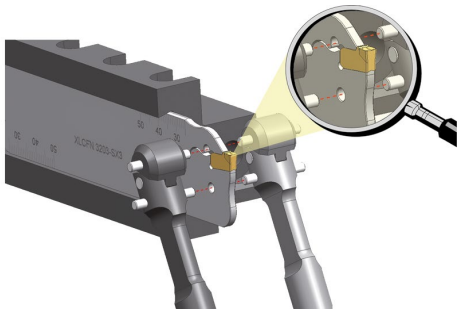


Moving the key forward causes the insert seat to close and clamp the insert.

11

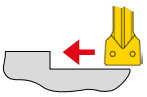
When changing the inserts, always maintain tension on the key!

The clamp is designed so that the wrench can be inserted from both sides of the blade according to the accessibility.



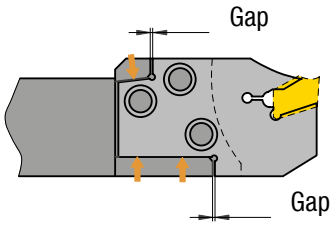
Maximum blade projection when turning

Blade	max. overhang
SX 2 – SX 3	25 mm
SX 4 – SX 5	30 mm
SX 6	35 mm



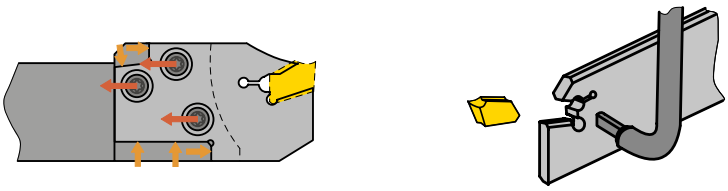
Clamping function – ModularClamp-Module

Module unclamped



- Gap between module and support face for axial clamping

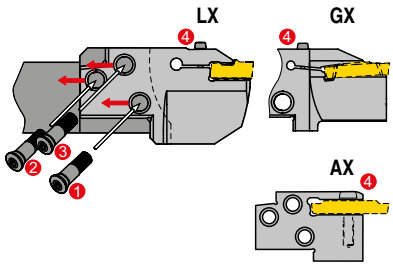
Module clamped



- Axial clamping with support face
- Connection free from play, therefore maximum stability

GX LX AX

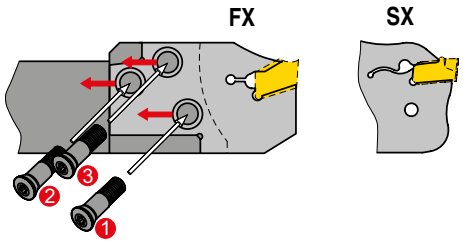
Active insert clamping



Clamping screws 1, 2 and 3 are used to clamp the modules.
The insert is clamped in the module via the additional screw 4.

FX SX

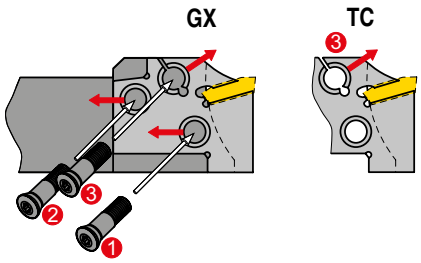
Self clamping of the insert



Clamping screws 1, 2 and 3 are used for clamping the module.
The insert is self-clamping.

GX TC

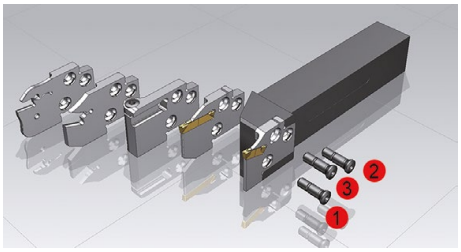
Active insert clamping



Clamping screws 1 and 2 are used for clamping the module.
Important: first tighten clamp screws 1 and 2.
Then clamp the insert with screw 3.

Torque Moment ModularClamp Module Screws

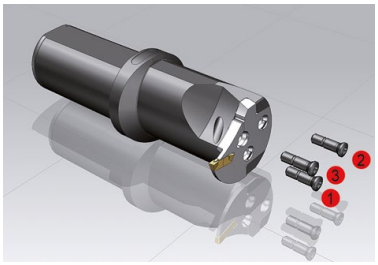
ModularClamp – Tool holder



Tighten screws to the correct Torque moment in this order.

ModularClamp – Tool holder	Screw	Torx	Torque moment	
			Nm	in.lbs
E12..	M2,5x10	T08	1,2	10,6
E16..	M3,5x12,5	T15	3,2	28,3
E20..	M4x14	T15	4,0	35,4
E25..	M5x18	T20	5,0	44,3
E32..	M6x20	T25	6,0	53,1

ModularClamp – Boring bar



Tighten screws to the correct Torque moment in this order.

ModularClamp – Boring bar	Screw	Torx	Torque moment	
			Nm	in.lbs
I16..	M2,5x10	T08	1,2	10,6
I20..	M3x11	T10	2,0	17,7
I25..	M3,5x12,5	T15	3,2	28,3
I32..	M4,5x17	T20	4,0	35,4
I40..	M5x18	T20	5,0	44,3

11

Tightening torque for the insert clamping

Recommended tightening torque

Grooving systems	Screw	Torx	Torque moment	
			Nm	in.lbs
GX / AX / LX	M3,5	T15	3,2	28,3
	M4,0	T15/T20	4,0	35,4
	M5,0	T20	5,0	44,3

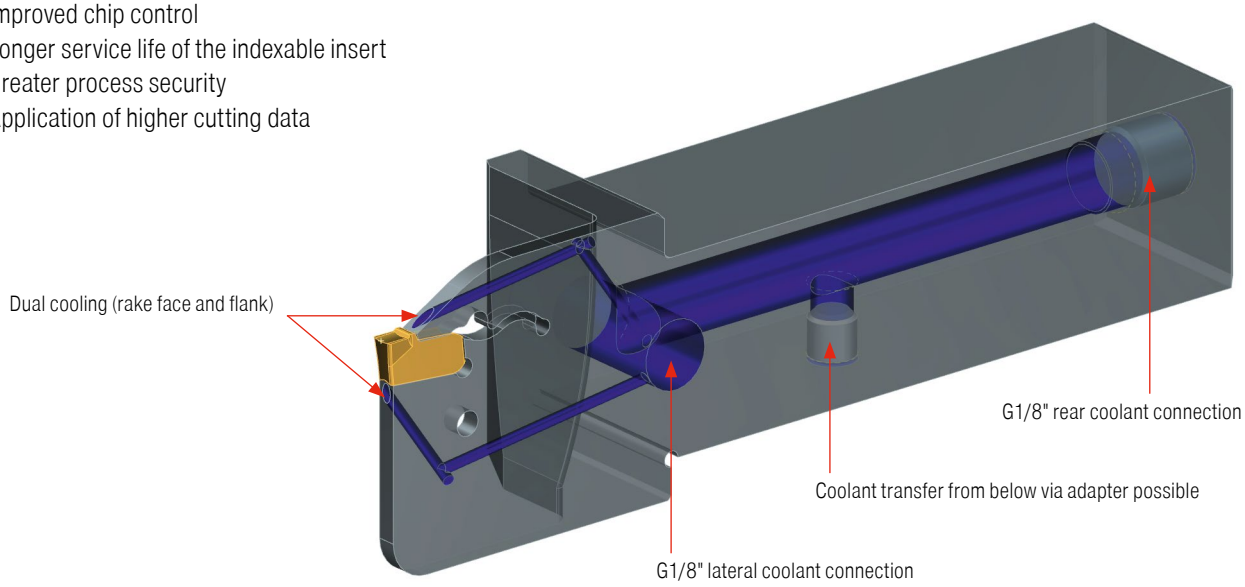
Advantages due to DirectCooling

Internal coolant supply with groove machining has a decisively positive effect on your turning process.
In our CERATIZIT grooving range, the following grooving systems have an internal coolant supply:

- **SX** Grooving holder (single tool)

Advantages due to DirectCooling

- Improved chip control
- Longer service life of the indexable insert
- Greater process security
- Application of higher cutting data



Advantages of the trochoidal turning strategy

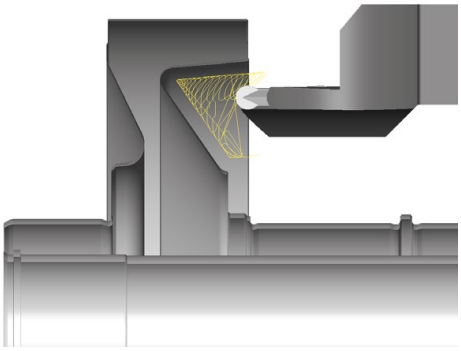
- Less wear and longer tool life due to softer entry and exit
- Smaller angle of engagement = less vibration
- Up to 40% higher feed rate values possible
- Broad field of application in austenitic steels, heat-resistant steels, Inconel and nickel-base alloys as well as long-chipping ductile materials
- Savings on tools

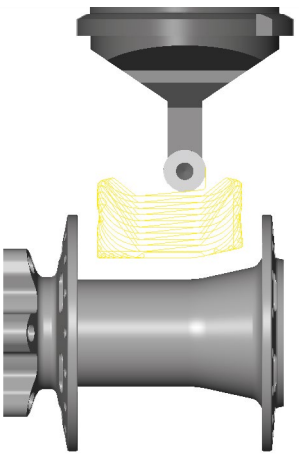
Trochoidal turning with support of the following CAM systems:

- hyperMill – High-performance turning
- Esprit CAM – ProfitTurning
- SolidCAM – Turning
- EdgeCAM – Waveform turning
- MasterCAM – Dynamic turning

Possible applications

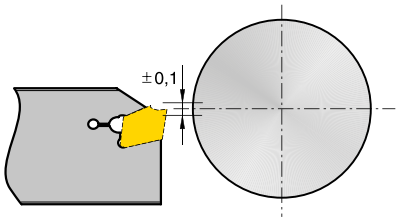
- Radial and axial recesses and grooves
- Rough machining – high-speed turning with button insert

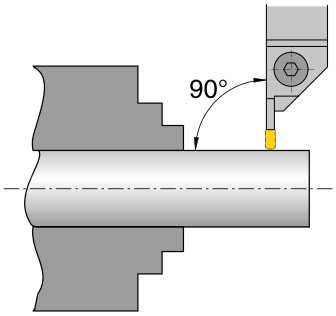




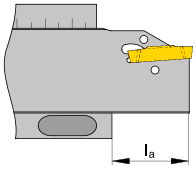
General references

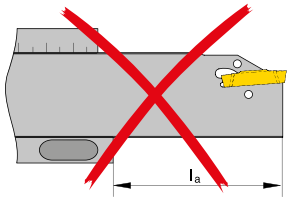
Tool position

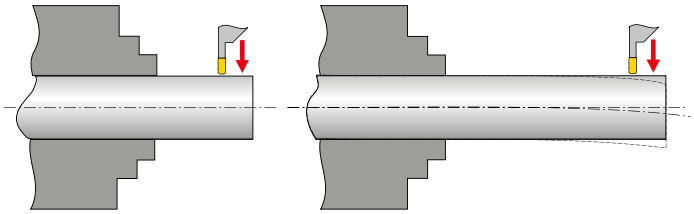




Tool overhang

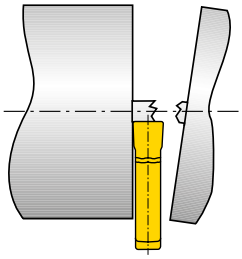




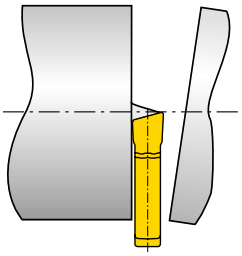


As a rule of thumb: Overhang l_a should not be greater than 8 x s (Groove width).

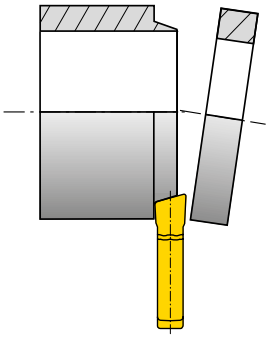
References for Parting off



From Ø 5 mm on, reduce feed “f“ by approx. 50%. No parting across centre (risk of breakage).

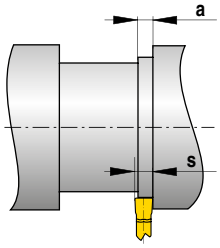


For parting pip-free, use R or L inserts. In order to minimize lateral deflection reduce feed by approx. 20–50 %.

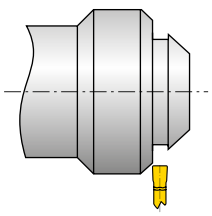


In order to prevent ring formation, use R or L inserts. Reduce feed “f“ because of lateral deflection by approx. 20 % – 50%.

References for grooving



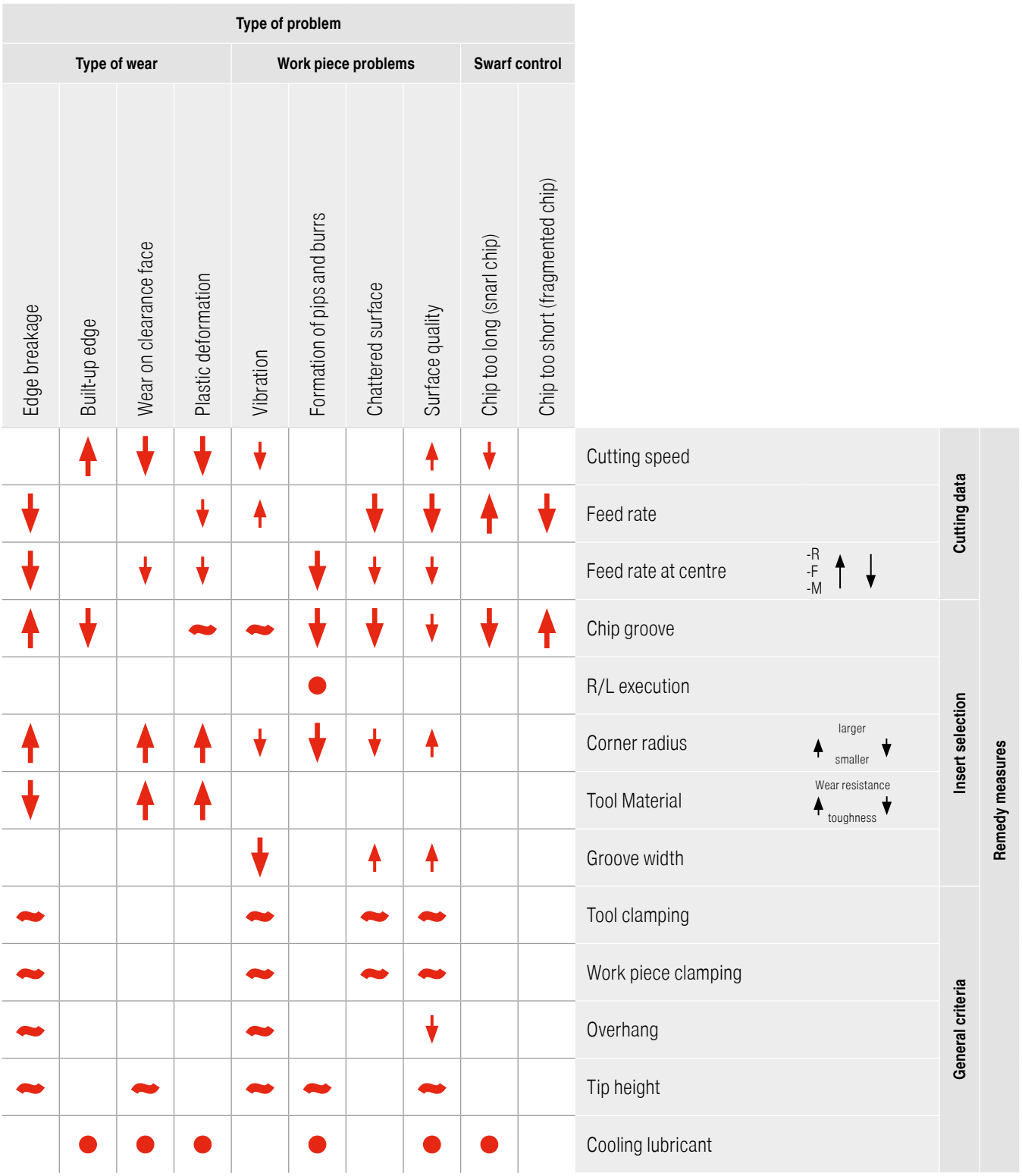
When grooving with an axial displacement the width **„a“** should amount to at least 70 % of the grooving width **„s“**.



When grooving oblique surfaces the feed should be reduced by approx. 20% - 50 % until fully engaged.

11

Trouble shooting guide for grooving FX/SX/GX/LX



raise, increase large influence

raise, increase small influence

avoid, reduce large influence

avoid, reduce small influence

check, optimise

use

Trouble shooting guide for TC threading

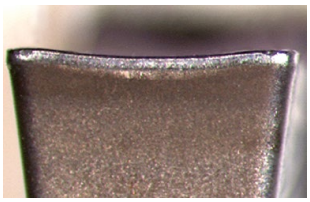
Type of problem												
Type of wear				Workpiece				Swarf control				
Wear on clearance face	Break out cut	Plastic deformation	Built-up edge	Formation of a shoulder at the external thread Ø	Profile	Surface quality	Chatter marks, vibrations	Chip too thick	Chip too thin	Chip shape (snarl chip)		
↓		↓	↑			↑	↓				Cutting speed	Cutting data
a, b	a, b		a, b	a, b		a, b	a, b	a, b		a, b	Feed (a – over the flanks; b – Alternating flanks)	Cutting data
↑	↓	↓		↓	↓	↓	↓	↓	↑	~	Feed (Cutting depth)	Cutting data
↓	↑	↑		~	~	↑	~	↑	↓	↓	Number of passes	Cutting data
				●	●	●					Spring cut (Air cut)	Cutting data
			●			●	●			●	Chip groove	Indexable insert selection
↑	↓	↑									Tool Material (Wear resistance ↑ / toughness ↓)	Indexable insert selection
				●	●	●					Full profile	Indexable insert selection
											Partial profile	Indexable insert selection
	~					~	~				Stable tool holder / insert	Various criteria
	~					~	~				Stable workpiece	Various criteria
	↓					↓	↓				Overhang	Various criteria
~	~	~			~	~	~				Tip height	Various criteria
●	●	●	●	●		●					Cooling lubricant	Various criteria

Remedy measures

↑ raise, increase large influence
↑ raise, increase small influence
↓ avoid, reduce large influence
↓ avoid, reduce small influence
~ check, optimise
● use

Wear causes

Wear on clearance face



Abrasion on the flank, normal wear after a given operation time

Cause

- cutting speed too high
- grade with too low wear resistance
- insufficient coolant

Remedy

- Reduce the cutting speed
- select a more wear resistant grade
- Improve/check coolant feed

Edge chipping



Excessive mechanical stress on the cutting edge causing carbide particles to break out.

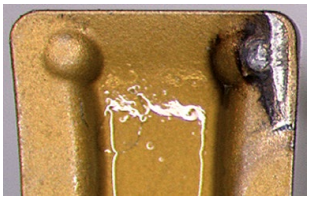
Cause

- too hard grade
- vibration
- too high feed and depth of cut
- chip impact

Remedy

- use tougher grade
- use negative geometry with chip breaker
- reduce overhang, check center height
- stabilize the cutting edge

Cratering



The outgoing hot chip causes cratering of the insert on the clamping surface.

Cause

- too high cutting speed, feed, or both
- too low rake angle
- grade with too low wear resistance
- incorrectly supplied cooling

Remedy

- Reduce cutting speed and / or feed
- Check coolant flow and / or increase pressure
- Use harder grade

Plastic deformation



Large mechanical load produces high temperature machining, this can lead to plastic deformation.

Cause

- too high operating temperature, thus softening the base material
- unsuitable grade
- inadequate coolant supply

Remedy

- Reduce the cutting speed
- select a more wear resistant grade
- use coolant

Built-up edge



Weld deposits of material on the cutting edge occurs when the chip does not flow caused by low average temperature.

Cause

- too low cutting speed
- too low rake angle
- Incorrect grade
- lack of cooling / lubrication

Remedy

- Increase the cutting speed
- Increase rake angle
- Use TiN coating
- increase coolant strength

Notch wear



Contraction at maximum cutting depth.

Cause

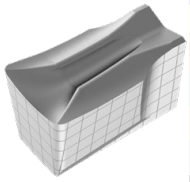
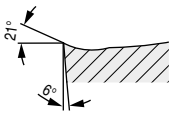
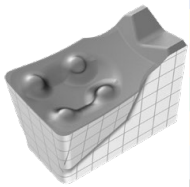
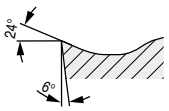
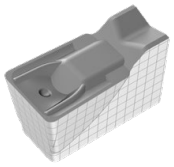
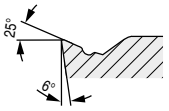
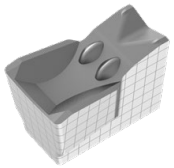
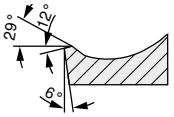
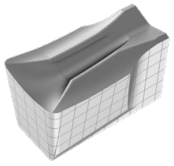
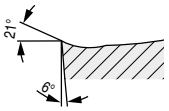
- Oxidation at the cutting edge
- Too high a temperature at the edge

Remedy

- Use different cutting depths
- Reduce cutting speed
- Improve/check coolant feed

Chip breakers / Applications

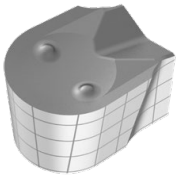
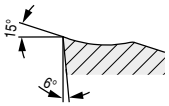
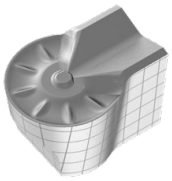
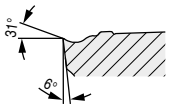
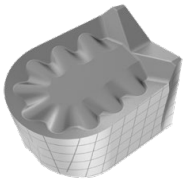
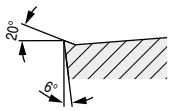
System GX

		smooth cut	irregular cut	interrupted cut	Model	f in mm/rev.
-F2 ▲ very positive geometry ▲ honed cutting edge ▲ low feed rates ▲ low cutting forces ▲ first choice for stainless materials		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTP1340** **CTP1340/CTPP345** **CTP1340** **CTP1340** CTP1340	**CTPP345** **CTPP345** CTPP345 		0,05–0,15
-Standard / -E ▲ positive geometry ▲ low-medium feed rates ▲ low cutting forces ▲ universal application ▲ first choice for axial grooving		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTCP335/CTP1340** **CTP1340/CTPP345** **CTCP335/CTP1340** **CTP1340** CTP1340	**CTPP345** **CTPP345** CTP1340 CTPP345 		0,05–0,17
-M40 ▲ stable geometry ▲ medium feed rates ▲ universal application ▲ good chip control		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTP1340** **CTP1340/CTPP345** **CTCP325/CTP1340** **CTP1340** CTP1340	**CTPP345** **CTPP345** CTP1340 CTPP345 		0,075–0,20
-M1 ▲ very stable cutting edge ▲ medium-high feed rates ▲ for intterrupted cut ▲ for high tensile materials ▲ first choice for parting off		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTP1340** **CTP1340/CTPP345** **CTCP325/CTP1340** **CTP1340** CTP1340	**CTPP345** **CTPP345** CTP1340 CTPP345 		0,1–0,20
-27P ▲ very positive geometry ▲ ground periphery ▲ sharp cutting edge ▲ polished chip breaker ▲ first choice for non-ferrous metals		 **H216T** **H216T** H216T H216T	 **H216T** **H216T** H216T 	 **H216T** **H216T** 		0,05–0,25

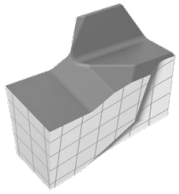
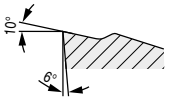
11

Chip breakers / Applications

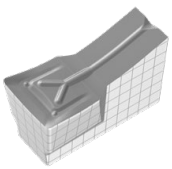
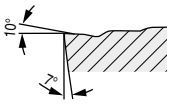
System GX

		smooth cut	irregular cut	interrupted cut	Model	f in mm/rev.
Standard – Radius ▲ positive geometry ▲ honed cutting edge ▲ low-medium feed rates ▲ low cutting forces ▲ Radius grooving/copy turning		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTCP325/CTP1340** **CTP1340** **CTCP325/CTP1340** **CTP1340** CTP1340	CTP1340 CTP1340 CTP1340 		0,05–0,20
-M3 – Radius ▲ stable geometry ▲ medium-high feed rates ▲ high surface quality ▲ Radius grooving/copy turning		**CTCP325** CTCP335 **CTCP325** CTCP325 CTCP325 	**CTCP325/CTCP335** CTCP335 **CTCP325/CTCP335** 	**CTCP335** **CTCP335** 		0,07–0,20
-27P – Radius ▲ very positive geometry ▲ ground periphery ▲ sharp cutting edge ▲ polished chip breaker ▲ first choice for non-ferrous metals		 **H216T** **H216T** H216T H216T	 **H216T** **H216T** H216T 	 **H216T** **H216T** 		0,05–0,30

Circlip grooving

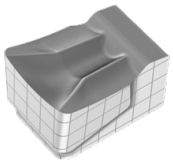
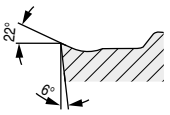
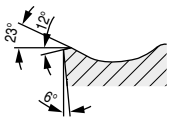
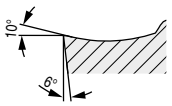
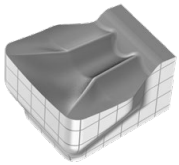
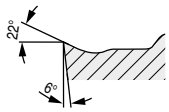
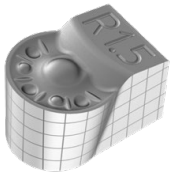
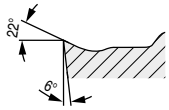
Standard ▲ positive geometry ▲ honed cuttign edge ▲ low feed rates ▲ small corner radius ▲ Circlip grooves		**CTP1340** **CTP1340** **CTP1340** CTP1340 **CTP1340** CTP1340	**CTP1340** **CTP1340** **CTP1340** CTP1340 **CTP1340** CTP1340	CTP1340 CTP1340 CTP1340 CTP1340 CTP1340 		0,05–0,30

System AX

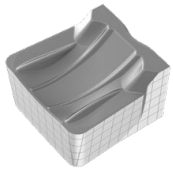
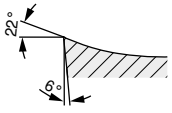
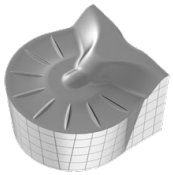
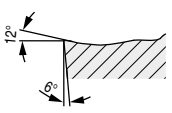
-F50 ▲ positive geometry ▲ honed cuttign edge ▲ low feed rates ▲ small corner radius ▲ Circlip grooves		**CTP1340** **CTP1340** **CTP1340** CTP1340 **CTP1340** CTP1340	**CTP1340** **CTP1340** **CTP1340** CTP1340 **CTP1340** CTP1340	CTP1340 CTP1340 CTP1340 CTP1340 CTP1340 		0,025–0,125

Chip breakers / Applications

System SX

		smooth cut	irregular cut	interrupted cut	Model	f in mm/rev.
-F2 ▲ very positive geometry ▲ honed cutting edge ▲ low feed rates ▲ low cutting forces ▲ first choice for stainless materials		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTCP325/CTP1340** **CTP1340/CTPP345** **CTCP325/CTP1340** **CTP1340** CTP1340	**CTPP345** **CTPP345** **CTP1340** CTPP345		0,05–0,15
-M1 ▲ very stable cutting edge ▲ medium-high feed rates ▲ for intterrupted cut ▲ for high tensile materials ▲ first choice for parting off		CTCP325 **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	CTCP335/CTP1340 **CTP1340** **CTCP325/CTP1340** **CTP1340** CTP1340	CTPP345 **CTPP345** CTP1340 CTPP345		0,10–0,20
-M2 ▲ stable geometry ▲ medium feed rates ▲ universal application ▲ good chip control		CTCP325 **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	CTCP335/CTP1340 **CTP1340** **CTCP325/CTP1340** **CTP1340** CTP1340	CTPP345 **CTPP345** CTP1340 CTPP345		0,075–0,20
-27P ▲ very positive geometry ▲ ground periphery ▲ sharp cutting edge ▲ polished chip breaker ▲ first choice for non-ferrous metals		**H216T** **H216T** H216T H216T	**H216T** **H216T** H216T	**H216T** **H216T**		0,05–0,25
-M3 – Radius ▲ stable geometry ▲ medium-high feed rates ▲ high surface quality ▲ Radius grooving / copy turning		**CTCP335** **CTP1340** **CTCP335** **CTP1340** CTP1340	**CTCP335/CTP1340** **CTP1340** **CTCP335/CTP1340** **CTP1340** CTP1340	**CTP1340** **CTP1340** **CTP1340** CTP1340		0,05–0,20

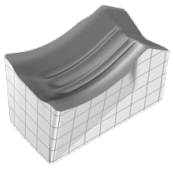
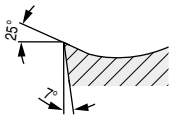
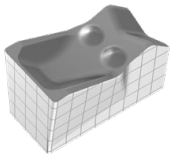
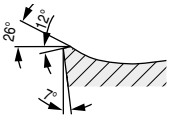
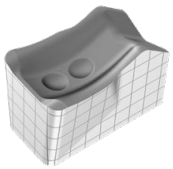
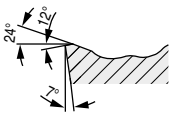
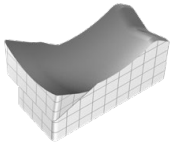
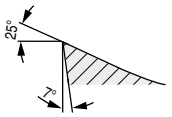
System LX

-M2 ▲ stable geometry ▲ medium feed rates ▲ universal application ▲ good chip control		**CTCP325** CTCP335 **CTCP325** **CTP1340** CTCP325 CTP1340	**CTCP335/CTP1340** **CTP1340** **CTCP325** **CTP1340** CTP1340	**CTCP335** CTP1340 **CTCP335** CTP1340		0,20–0,50
-M3 – Radius ▲ stable geometry ▲ medium-high feed rates ▲ high surface quality ▲ Radius grooving/copy turning		**CTCP325** CTCP335 **CTCP325** **CTP1340** CTCP325 CTP1340	**CTCP335/CTP1340** **CTCP335/CTP1340** **CTCP325/CTCP335** **CTP1340** CTP1340	**CTCP335** CTP1340 **CTCP335** CTP1340		0,15–0,35

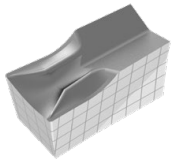
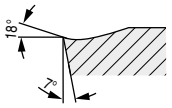
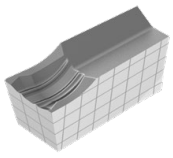
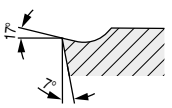
11

Chip breakers / Applications

System FX

		smooth cut	irregular cut	interrupted cut	Model	f in mm/rev.
-F1 ▲ very positive geometry ▲ low-medium feed rates ▲ low cutting forces ▲ good chip control ▲ low cutting edge build up		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTCP325/CTP1340** **CTP1340/CTPP345** **CTCP325/CTP1340** **CTP1340** CTP1340	**CTPP345** **CTPP345** CTP1340 CTPP345 		0,05–0,15
-M1 ▲ very stable cutting edge ▲ medium-high feed rates ▲ for intterrupted cut ▲ for high tensile materials ▲ first choice for parting off		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTCP335/CTP1340** **CTP1340/CTPP345** **CTCP325/CTP1340** **CTP1340** CTP1340	**CTPP345** **CTPP345** CTP1340 CTPP345 		0,08–0,20
-R2 ▲ very stable cutting edge ▲ high feed rates ▲ good chip control		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTCP325/CTP1340** **CTP1340/CTPP345** **CTCP325/CTP1340** **CTP1340** CTP1340	**CTPP345** **CTPP345** CTP1340 CTPP345 		0,10–0,27
-27P ▲ very positive geometry ▲ ground periphery ▲ sharp cutting edge ▲ polished chip breaker ▲ first choice for non-ferrous metals		 **H216T** **H216T** H216T H216T	 **H216T** **H216T** H216T 	 **H216T** **H216T** 		0,03–0,13

System MC

-F2 ▲ very positive geometry ▲ honed cutting edge ▲ low feed rates ▲ low cutting forces ▲ first choice for stainless materials		**CTP1340** **CTP1340** **CTP1340** CTP1340 **CTP1340** CTP1340	**CTP1340** **CTP1340** **CTP1340** CTP1340 **CTP1340** CTP1340	CTP1340 CTP1340 CTP1340 CTP1340 CTP1340 		0,05–0,10
-F3 ▲ very positive geometry ▲ honed cutting edge ▲ low feed rates ▲ low cutting forces ▲ reduced burrs / edge build up		**CTP1340** **CTP1340** **CTP1340** CTP1340 **CTP1340** CTP1340	**CTP1340** **CTP1340** **CTP1340** CTP1340 **CTP1340** CTP1340	CTP1340 CTP1340 CTP1340 CTP1340 CTP1340 		0,02–0,06

Example of Coding Grooving Tools

Grooving insert

GX	16	2	E	3.00	N	0.50
Grooving system (GX)	Insert length (16 mm)	Width class of the holder / module or support surface (2 mm)	Type of insert, application	Groove width (3.0 mm)	Insert seat N=Neutral L=Left Handed R=Right Handed	Corner radius size (0.5 mm)

Module

E	25	R	12	GX	16	2
Application E = external I = internal	Size (25 mm)	Module version R=Right Handed L=Left Handed	Maximum groove depth (12 mm)	Grooving system (GX)	Insert size (16 mm)	Width class 2

Basic holder

E	25	R	00	2525	L
Application E = external I = internal	Size (25 mm)	Holder version R=Right Handed L=Left Handed	Approach angle 0°	Shank type 25x25mm	Shank length L = (sh. ISO)

Monobloc tool holder

E	25	R	00	33	2525	M	K	DC	SX3
Application E = external I = internal	Size (25 mm)	Holder version R=Right Handed L=Left Handed	Approach angle 0°	Groove depth (33 mm)	Shank type 25x25mm	Shank length M = (sh. ISO)	Insert clamping K = Key	Cooling system DC = DirectCooling	Grooving system/width (3 mm)

Compilation

Basic holder: **E25 R 00 - 2525L**

Module: **E25 R 12 - GX 16-2**

Grooving insert: **GX 16-2 E3.00 N 0.50**

Grades Overview

CTCP325

- Carbide, TiCN-Al_2O_3-coated
- ISO | **P25** | M20 | **K30** | S25
- The wear-resistant solution for steel and cast iron materials at high cutting speeds

CTCP335

- Carbide, TiCN-Al_2O_3-coated
- ISO | **P35** | M30 | **K35**
- The reliable choice for machining steel and cast iron materials

CTPP345

- Carbide, TiAlTaN-coated
- ISO | **P45** | **M40** | S40
- The reliable solution for steel materials and austenitic steels under unstable conditions

CTP1340

- Carbide, TiAlTaN-coated
- ISO | **P30** | **M25** | **K30** | N30 | **S30** | O30
- The universal high-performance grade for steel materials, austenitic steel, cast iron materials and heat-resistant alloys

CTPP520

- Carbide, TiAlTaN-coated
- ISO | **P20** | **M15** | **K25** | S25 | H5
- The wear-resistant grade for wet machining of steels

CTPP535

- Carbide, AlTiN-coated
- ISO | **P35** | **M30** | **K25** | **S30**
- The tough thread turning grade for universal application

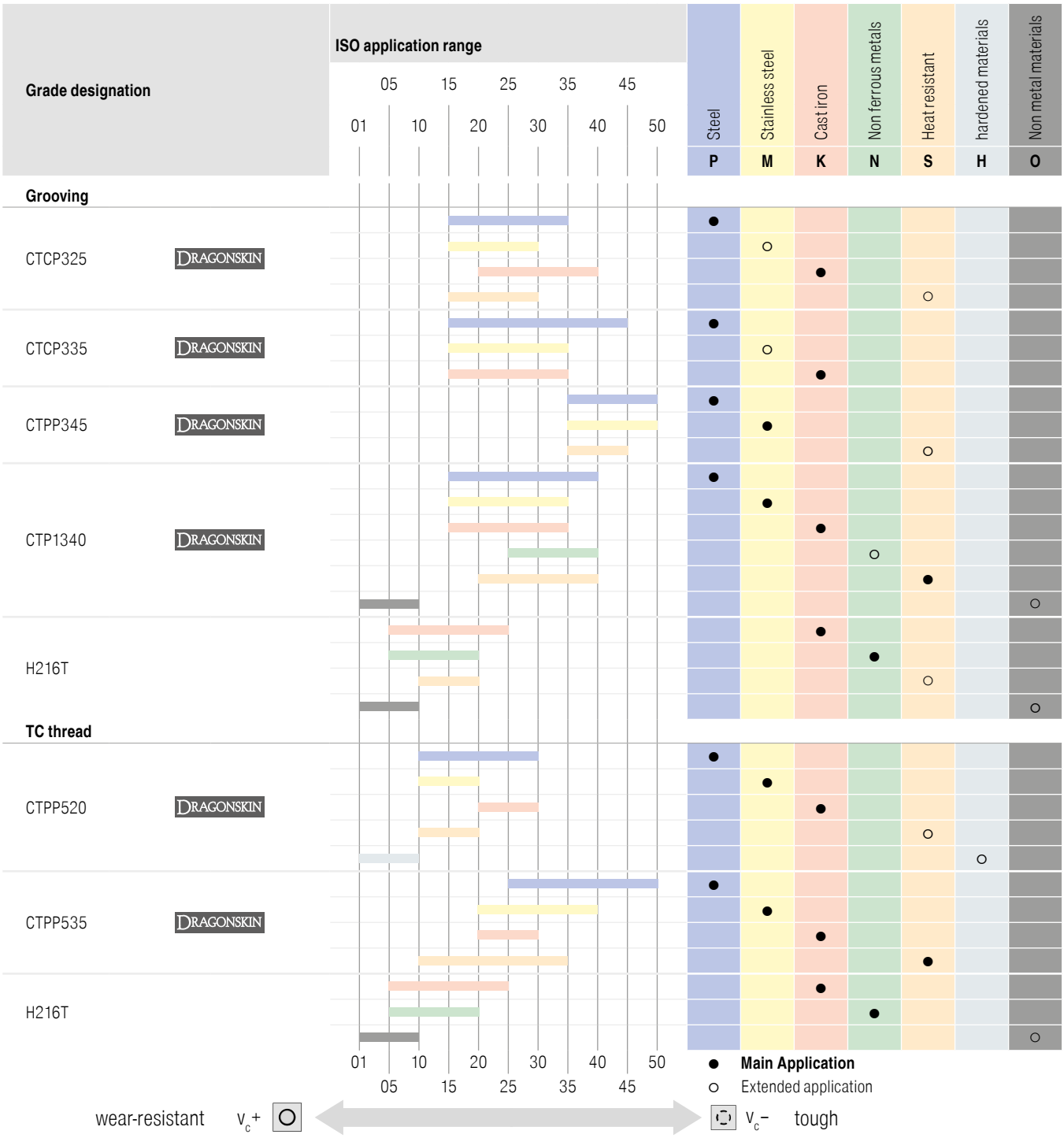
H216T

- Carbide, uncoated
- ISO | **K15** | **N15** | S15 | O5
- The uncoated carbide grade for machining aluminium and other non-ferrous metals
- Also highly suitable for HSC machining

CWX500

- Carbide, TiAlN-coated
- ISO | **K30**
- The universal carbide grade for almost all materials

Application



11





Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools 12

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

Table of contents

System overview	3
Toolfinder	2+3
Product programme	
UltraMini	4–34
MiniCut	35–53
UltraMini + MiniCut Hard Turning	8+36
SlotCut – Broaching	54–57
Technical Information	
Cutting Data	58–61
Broaching – Recommendations for Correct Use	62
Symbol explanation, coatings and thread types	63

WNT \ Performance

Premium quality tools for high performance.

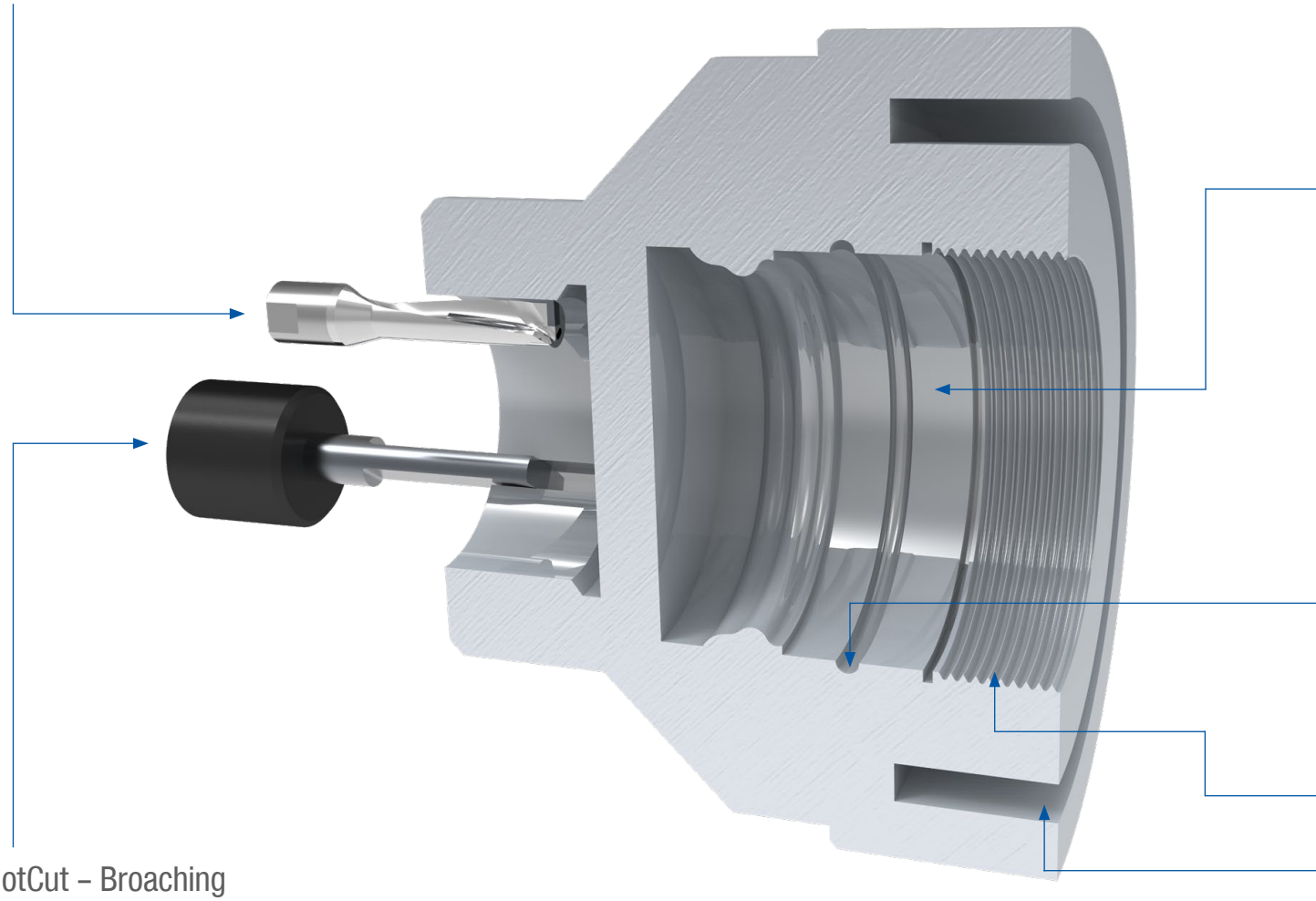
The premium quality tools from the **WNT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools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

Toolfinder

EcoCut Mini

From Ø 2 mm

Inserts and tool holders can be found in → **Chapter 10 – Multifunctional Tools – EcoCut and FreeTurn**



SlotCut – Broaching

Inserts + Holder DIN138 54–57

System overview

UltraMini



- from Ø 0.5 mm
- flexible system
- ground inserts
- high repeatability
- coolant supply to the cutting edge

MiniCut



- from Ø 7.8 mm
- stable three-rib interface
- easy handling
- coolant supply to the cutting edge
- precise cutting edge position

SlotCut



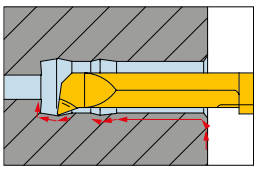
- broaching directly on the machine
- usable from Ø 6 mm
- low machine load
- variety of tolerance classes

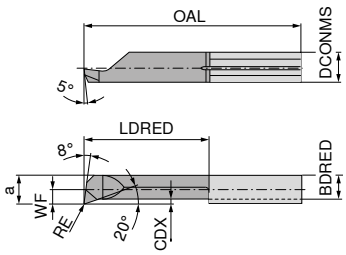
Hole diameter in mm		UltraMini										MiniCut					
			≥ 0,5	≥ 2	≥ 2,4	≥ 2,8	≥ 3	≥ 4	≥ 5	≥ 6	≥ 8	≥ 16		≥ 8	≥ 9	≥ 11	≥ 14	≥ 16
Internal turning and profiling			4–7	4–7	4–7	4–7		4–7	4–7	4–7				35	35	35	35	35
Internal turning and profiling – hard turning				8		8		8	8	8				36		36	36	36
High-feed turning				10			10	10	10	10								
Turning and profile turning – super alloys				9		9		9	9	9								
Internal turning						11		11	11					37	37	37	37	37
Back boring							12	12	12	12				38	38	38	38	
Turning and chamfering									13	13				38	38	38	38	
Pre-parting and chamfering								13	13	13				39	39	39	39	39
Groove turning				14–16			14–16	14–16	14–16	14–16				40+41	40+41	40+41	40+41	40+41
Internal Undercuts				17		17		17	17	17				42	42	42	42	42
Groove and profile turning								18	18	18				43	43	43	43	43
Internal thread turning					19–21			19–21	19–21	19–21				44–47	44–47	44–47	44–47	44–47
Axial grooving									22–27	22–27	22–27	22–27		48+49	48+49	48+49	48+49	48+49
suitable holder			30–34											50–53				
Sets			28+29											49				

12

UltraMini – Inserts for internal turning and profiling







Illustrations show right-hand versions

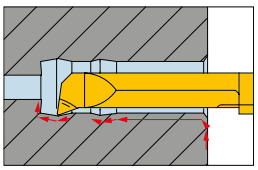
TiN	TiN	TiAlN	TiAlN
			
Left-hand	Right-hand	Left-hand	Right-hand
73 005 ...	**73 004 ...**	**73 005 ...**	**73 004 ...**

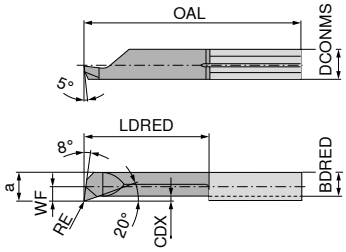
Designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	RE	Standard tool holder				
	mm	mm	mm	mm	mm	mm	mm	mm	mm					
R/L 050.05-2	4		0,5	0,4	20	2	0,03	0,32	0,02	645.00..-D	500	500		
R/L 050.06-2	4		0,6	0,5	20	2	0,05	0,40	0,04	645.00..-D	510	510		
R/L 050.06-3	4		0,6	0,5	20	3	0,05	0,40	0,04	645.00..-D	511	511		
R/L 050.08-4	4		0,8	0,7	20	4	0,05	0,60	0,04	645.00..-D			812	812
R/L 050.1-8	4		1,0	0,9	22	8	0,10	0,75	0,05	645.00..-D			813	813
R/L 050.15-5	4		1,5	1,3	19	5	0,10	1,15	0,05	645.00..-D	515	515		
R/L 050.15-10	4		1,5	1,3	24	10	0,10	1,15	0,05	645.00..-D	516	516		
R/L 050.15-12	4		1,5	1,3	26	12	0,10	1,15	0,05	645.00..-D			818	818
R/L 050.2-5	4		2,0	1,7	19	5	0,10	1,50	0,05	645.00..-D	520	520		
R/L 050.2-10	4		2,0	1,7	24	10	0,10	1,50	0,05	645.00..-D	521	521		
R/L 050.2-15	4		2,0	1,7	29	15	0,10	1,50	0,05	645.00..-D	522	522		
R/L 050.3-10	4	0,6	2,8	2,6	24	10	0,20	2,30	0,10	645.00..-D	531	531		
R/L 050.3-16	4	0,6	2,8	2,6	30	16	0,20	2,30	0,10	645.00..-D	530	530		
R/L 050.3-20	4	0,6	2,8	2,6	34	20	0,20	2,30	0,10	645.00..-D	532	532		
R/L 050.35-10	4	1,1	3,5	3,1	24	10	0,25	2,80	0,10	645.00..-D			835	835
R/L 050.35-16	4	1,1	3,5	3,1	30	16	0,25	2,80	0,10	645.00..-D			836	836
R/L 050.35-20	4	1,1	3,5	3,1	34	20	0,25	2,80	0,10	645.00..-D			837	837
R/L 050.35-24	4	1,1	3,5	3,1	38	24	0,25	2,80	0,10	645.00..-D			838	838
R/L 050.4-10	4	1,5	4,0	3,5	24	10	0,30	3,00	0,10	645.00..-D	541	541	841	841
R/L 050.4-16	4	1,5	4,0	3,5	30	16	0,30	3,00	0,10	645.00..-D	540	540	840	840
R/L 050.4-20	4	1,5	4,0	3,5	34	20	0,30	3,00	0,10	645.00..-D	542	542	842	842
R/L 050.4-24	4	1,5	4,0	3,5	38	24	0,30	3,00	0,10	645.00..-D	545	545	845	845
R/L 050.4-28	4	1,5	4,0	3,5	42	28	0,30	3,00	0,10	645.00..-D	546	546	846	846
R/L 050.5-10	5	1,9	5,0	4,4	25	10	0,50	3,80	0,15	645.00..-D	551	551	851	851
R/L 050.5-15	5	1,9	5,0	4,4	30	15	0,50	3,80	0,15	645.00..-D	552	552	852	852
R/L 050.5-20	5	1,9	5,0	4,4	35	20	0,50	3,80	0,15	645.00..-D	550	550	850	850
R/L 050.5-25	5	1,9	5,0	4,4	40	25	0,50	3,80	0,15	645.00..-D	553	553	853	853
R/L 050.5-30	5	1,9	5,0	4,4	45	30	0,50	3,80	0,15	645.00..-D	554	554	854	854
R/L 050.5-35	5	1,9	5,0	4,4	50	35	0,50	3,80	0,15	645.00..-D	556	556	856	856
R/L 050.5-40	5	1,9	5,0	4,4	55	40	0,50	3,80	0,15	645.00..-D			857	857
R/L 050.6-15	6	2,3	6,0	5,3	30	15	0,50	4,50	0,15	676.00..-D	561	561	861	861
R/L 050.6-22	6	2,3	6,0	5,3	37	22	0,50	4,50	0,15	676.00..-D	560	560	860	860
R/L 050.6-25	6	2,3	6,0	5,3	40	25	0,50	4,50	0,15	676.00..-D	562	562	862	862
R/L 050.6-30	6	2,3	6,0	5,3	45	30	0,50	4,50	0,15	676.00..-D	563	563	863	863
R/L 050.6-35	6	2,3	6,0	5,3	50	35	0,50	4,50	0,15	676.00..-D	564	564	864	864
R/L 050.6-42	6	2,3	6,0	5,3	57	42	0,50	4,50	0,15	676.00..-D	565	565	865	865
R/L 050.7-20	7	2,8	6,8	6,3	35	20	0,60	5,50	0,15	676.00..-D	572	572	872	872
R/L 050.7-25	7	2,8	6,8	6,3	40	25	0,60	5,50	0,15	676.00..-D	573	573	873	873
R/L 050.7-30	7	2,8	6,8	6,3	45	30	0,60	5,50	0,15	676.00..-D	574	574	874	874
R/L 050.7-35	7	2,8	7,0	6,3	50	35	0,60	5,50	0,15	676.00..-D	575	575	875	875
R/L 050.7-40	7	2,8	7,0	6,3	55	40	0,60	5,50	0,15	676.00..-D	576	576	876	876
R/L 050.7-45	7	2,8	7,0	6,3	60	45	0,60	5,50	0,15	676.00..-D	577	577	877	877
R/L 050.7-50	7	2,8	7,0	6,3	65	50	0,60	5,50	0,15	676.00..-D	578	578	878	878

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

→ v_c Page 59

UltraMini – Inserts for internal turning and profiling









Illustrations show right-hand versions

Designation	DCONMS h6 mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	RE mm	Standard tool holder	Left-hand 73 005 ...	Right-hand 73 004 ...
R/L 050.2-5	4		2,0	1,7	19	5	0,1	1,5	0,05	645.00..-D	020	020
R/L 050.2-10	4		2,0	1,7	24	10	0,1	1,5	0,05	645.00..-D	021	021
R/L 050.2-15	4		2,0	1,7	29	15	0,1	1,5	0,05	645.00..-D	022	022
R/L 050.3-10	4	0,6	2,8	2,6	24	10	0,2	2,3	0,10	645.00..-D	031	031
R/L 050.3-16	4	0,6	2,8	2,6	30	16	0,2	2,3	0,10	645.00..-D	030	030
R/L 050.3-20	4	0,6	2,8	2,6	34	20	0,2	2,3	0,10	645.00..-D	032	032
R/L 050.4-10	4	1,5	4,0	3,5	24	10	0,3	3,0	0,10	645.00..-D	041	041
R/L 050.4-16	4	1,5	4,0	3,5	30	16	0,3	3,0	0,10	645.00..-D	040	040
R/L 050.4-20	4	1,5	4,0	3,5	34	20	0,3	3,0	0,10	645.00..-D	042	042
R/L 050.5-10	5	1,9	5,0	4,4	25	10	0,5	3,8	0,15	645.00..-D	051	051
R/L 050.5-15	5	1,9	5,0	4,4	30	15	0,5	3,8	0,15	645.00..-D	052	052
R/L 050.5-20	5	1,9	5,0	4,4	35	20	0,5	3,8	0,15	645.00..-D	050	050
R/L 050.5-25	5	1,9	5,0	4,4	40	25	0,5	3,8	0,15	645.00..-D	053	053
R 050.5-30	5	1,9	5,0	4,4	45	30	0,5	3,8	0,05	645.00..-D		054
L 050.5-30	5	1,9	5,0	4,4	45	30	0,5	3,8	0,15	645.00..-D	054	
R/L 050.6-15	6	2,3	6,0	5,3	30	15	0,5	4,5	0,15	676.00..-D	061	061
R/L 050.6-22	6	2,3	6,0	5,3	37	22	0,5	4,5	0,15	676.00..-D	060	060
R/L 050.6-25	6	2,3	6,0	5,3	40	25	0,5	4,5	0,15	676.00..-D	062	062
R/L 050.6-30	6	2,3	6,0	5,3	45	30	0,5	4,5	0,15	676.00..-D	063	063
R/L 050.7-20	7	2,8	6,8	6,3	35	20	0,6	5,5	0,15	676.00..-D	072	072
R/L 050.7-25	7	2,8	6,8	6,3	40	25	0,6	5,5	0,15	676.00..-D	073	073
R/L 050.7-30	7	2,8	6,8	6,3	45	30	0,6	5,5	0,15	676.00..-D	074	074

P		
M		
K		
N	○	○
S		
H		
O	●	●

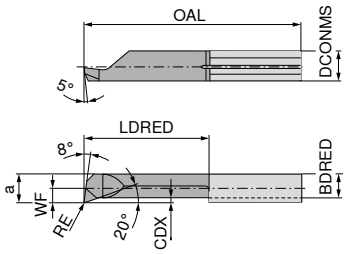
→ v_c Page 59

12

UltraMini – Inserts for internal turning and profiling

▲ with corner radius ≤ 0.05 mm





Illustrations show right-hand versions

TiAlN TiAlN TiAlN TiAlN



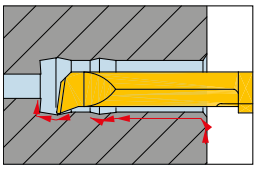
											Left-hand	Right-hand	Left-hand	Right-hand
											73 021 ...	**73 020 ...**	**73 023 ...**	**73 022 ...**
Designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	RE	Standard tool holder				
	mm	mm	mm	mm	mm	mm	mm	mm	mm					
R/L 053.3-10	4	0,6	2,8	2,6	24	10	0,2	2,3	0,03	645.00..-D	**310**	**310**		
R/L 053.3-16	4	0,6	2,8	2,6	30	16	0,2	2,3	0,03	645.00..-D	**316**	**316**		
R/L 053.3-20	4	0,6	2,8	2,6	34	20	0,2	2,3	0,03	645.00..-D	**320**	**320**		
R/L 053.4-10	4	1,5	4,0	3,5	24	10	0,3	3,0	0,03	645.00..-D	**410**	**410**		
R/L 053.4-16	4	1,5	4,0	3,5	30	16	0,3	3,0	0,03	645.00..-D	**416**	**416**		
R/L 053.4-20	4	1,5	4,0	3,5	34	20	0,3	3,0	0,03	645.00..-D	**420**	**420**		
R/L 053.4-24	4	1,5	4,0	3,5	38	24	0,3	3,0	0,03	645.00..-D	**424**	**424**		
R/L 053.4-28	4	1,5	4,0	3,5	42	28	0,3	3,0	0,03	645.00..-D	**428**	**428**		
R/L 055.2-10	4		2,0	1,7	24	10	0,1	1,5	0,05	645.00..-D			**210**	**210**
R/L 055.2-15	4		2,0	1,7	29	15	0,1	1,5	0,05	645.00..-D			**215**	**215**
R/L 055.2-5	4		2,0	1,7	19	5	0,1	1,5	0,05	645.00..-D			**205**	**205**
R/L 055.3-10	4	0,6	2,8	2,6	24	10	0,2	2,3	0,05	645.00..-D			**310**	**310**
R/L 055.3-16	4	0,6	2,8	2,6	30	16	0,2	2,3	0,05	645.00..-D			**316**	**316**
R/L 055.3-20	4	0,6	2,8	2,6	34	20	0,2	2,3	0,05	645.00..-D			**320**	**320**
R/L 055.4-10	4	1,5	4,0	3,5	24	10	0,3	3,0	0,05	645.00..-D			**410**	**410**
R/L 055.4-16	4	1,5	4,0	3,5	30	16	0,3	3,0	0,05	645.00..-D			**416**	**416**
R/L 055.4-20	4	1,5	4,0	3,5	34	20	0,3	3,0	0,05	645.00..-D			**420**	**420**
R/L 055.4-24	4	1,5	4,0	3,5	38	24	0,3	3,0	0,05	645.00..-D			**424**	**424**
R/L 055.4-28	4	1,5	4,0	3,5	42	28	0,3	3,0	0,05	645.00..-D			**428**	**428**
R/L 055.5-10	5	1,9	5,0	4,4	25	10	0,5	3,8	0,05	645.00..-D			**510**	**510**
R/L 055.5-15	5	1,9	5,0	4,4	30	15	0,5	3,8	0,05	645.00..-D			**515**	**515**
R/L 055.5-20	5	1,9	5,0	4,4	35	20	0,5	3,8	0,05	645.00..-D			**520**	**520**
R/L 055.5-25	5	1,9	5,0	4,4	40	25	0,5	3,8	0,05	645.00..-D			**525**	**525**
R/L 055.5-30	5	1,9	5,0	4,4	45	30	0,5	3,8	0,05	645.00..-D			**530**	**530**
R/L 055.5-35	5	1,9	5,0	4,4	50	35	0,5	3,8	0,05	645.00..-D			**535**	**535**
R/L 055.6-15	6	2,3	6,0	5,3	30	15	0,5	4,5	0,05	676.00..-D			**615**	**615**
R/L 055.6-22	6	2,3	6,0	5,3	37	22	0,5	4,5	0,05	676.00..-D			**622**	**622**
R/L 055.6-25	6	2,3	6,0	5,3	40	25	0,5	4,5	0,05	676.00..-D			**625**	**625**
R/L 055.6-30	6	2,3	6,0	5,3	45	30	0,5	4,5	0,05	676.00..-D			**630**	**630**
R/L 055.6-35	6	2,3	6,0	5,3	50	35	0,5	4,5	0,05	676.00..-D			**635**	**635**
R/L 055.6-42	6	2,3	6,0	5,3	57	42	0,5	4,5	0,05	676.00..-D			**642**	**642**

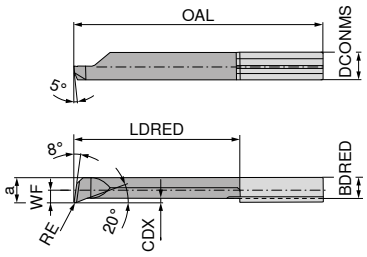
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	●	●	●	●
S	●	●	●	●
H	●	●	●	●
O	●	●	●	●

→ v_c Page 59

UltraMini – Inserts for internal turning and profiling

▲ with chip former





TiAlN



TiAlN



Illustrations show right-hand versions

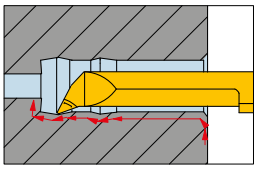
Designation	DCONMS $_{h6}$	WF	DMIN	a	OAL	LDRED	CDX	BDRED	RE	Standard tool holder	Left-hand	Right-hand
	mm	mm	mm	mm	mm	mm	mm	mm	mm		**73 017 ...**	**73 016 ...**
R/L 050.4-10C	4	1,5	4	3,5	24	10	0,3	3,0	0,2	645.00..-D	**410**	**410**
R/L 050.4-16C	4	1,5	4	3,5	30	16	0,3	3,0	0,2	645.00..-D	**416**	**416**
R/L 050.4-20C	4	1,5	4	3,5	34	20	0,3	3,0	0,2	645.00..-D	**420**	**420**
R/L 050.4-24C	4	1,5	4	3,5	38	24	0,3	3,0	0,2	645.00..-D	**424**	**424**
R/L 050.4-28C	4	1,5	4	3,5	42	28	0,3	3,0	0,2	645.00..-D	**428**	**428**
R/L 050.5-10C	5	1,9	5	4,4	25	10	0,5	3,8	0,2	645.00..-D	**510**	**510**
R/L 050.5-15C	5	1,9	5	4,4	30	15	0,5	3,8	0,2	645.00..-D	**515**	**515**
R/L 050.5-20C	5	1,9	5	4,4	35	20	0,5	3,8	0,2	645.00..-D	**520**	**520**
R/L 050.5-25C	5	1,9	5	4,4	40	25	0,5	3,8	0,2	645.00..-D	**525**	**525**
R/L 050.5-30C	5	1,9	5	4,4	45	30	0,5	3,8	0,2	645.00..-D	**530**	**530**
R/L 050.5-35C	5	1,9	5	4,4	50	35	0,5	3,8	0,2	645.00..-D	**535**	**535**
R/L 050.6-15C	6	2,3	6	5,3	30	15	0,5	4,5	0,2	676.00..-D	**615**	**615**
R/L 050.6-22C	6	2,3	6	5,3	37	22	0,5	4,5	0,2	676.00..-D	**622**	**622**
R/L 050.6-25C	6	2,3	6	5,3	40	25	0,5	4,5	0,2	676.00..-D	**625**	**625**
R/L 050.6-30C	6	2,3	6	5,3	45	30	0,5	4,5	0,2	676.00..-D	**630**	**630**
R/L 050.6-35C	6	2,3	6	5,3	50	35	0,5	4,5	0,2	676.00..-D	**635**	**635**
R/L 050.6-42C	6	2,3	6	5,3	57	42	0,5	4,5	0,2	676.00..-D	**642**	**642**
R/L 050.7-20C	7	2,8	7	6,3	35	20	0,6	5,5	0,2	676.00..-D	**720**	**720**
R/L 050.7-25C	7	2,8	7	6,3	40	25	0,6	5,5	0,2	676.00..-D	**725**	**725**
R/L 050.7-30C	7	2,8	7	6,3	45	30	0,6	5,5	0,2	676.00..-D	**730**	**730**
R/L 050.7-35C	7	2,8	7	6,3	50	35	0,6	5,5	0,2	676.00..-D	**735**	**735**
R/L 050.7-40C	7	2,8	7	6,3	55	40	0,6	5,5	0,2	676.00..-D	**740**	**740**
R/L 050.7-45C	7	2,8	7	6,3	60	45	0,6	5,5	0,2	676.00..-D	**745**	**745**
R/L 050.7-50C	7	2,8	7	6,3	65	50	0,6	5,5	0,2	676.00..-D	**750**	**750**
P											●	●
M											●	●
K											●	●
N											●	●
S											●	●
H											●	●
O											●	●

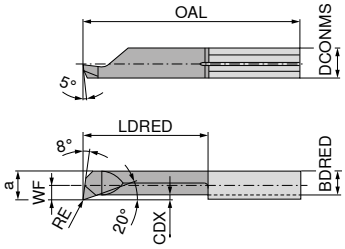
12

→ v_c Page 59

UltraMini – Inserts for internal turning and profiling – hard turning

▲ 46 to 65 HRC





Illustrations show right-hand versions

TiAlN+ TiAlN+





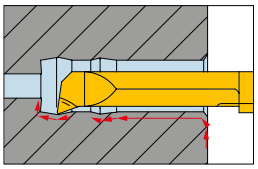
Left-hand Right-hand

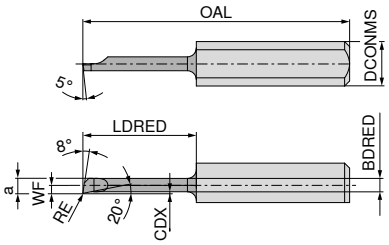
Designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	RE	Standard tool holder	73 025 ...		73 024 ...	
	mm	mm	mm	mm	mm	mm	mm	mm	mm					
R/L 050.2-5	4		2,0	1,7	19	5	0,1	1,5	0,05	645.00..-D	**920**		**920**	
R/L 050.2-10	4		2,0	1,7	24	10	0,1	1,5	0,05	645.00..-D	**921**		**921**	
R/L 050.2-15	4		2,0	1,7	29	15	0,1	1,5	0,05	645.00..-D	**922**		**922**	
R/L 050.3-10	4	0,6	2,8	2,6	24	10	0,2	2,3	0,10	645.00..-D	**931**		**931**	
R/L 050.3-16	4	0,6	2,8	2,6	30	16	0,2	2,3	0,10	645.00..-D	**930**		**930**	
R/L 050.3-20	4	0,6	2,8	2,6	34	20	0,2	2,3	0,10	645.00..-D	**932**		**932**	
R/L 050.4-10	4	1,5	4,0	3,5	24	10	0,3	3,0	0,10	645.00..-D	**941**		**941**	
R/L 050.4-16	4	1,5	4,0	3,5	30	16	0,3	3,0	0,10	645.00..-D	**940**		**940**	
R/L 050.4-20	4	1,5	4,0	3,5	34	20	0,3	3,0	0,10	645.00..-D	**942**		**942**	
R/L 050.4-24	4	1,5	4,0	3,5	38	24	0,3	3,0	0,10	645.00..-D	**945**		**945**	
R/L 050.4-28	4	1,5	4,0	3,5	42	28	0,3	3,0	0,10	645.00..-D	**946**		**946**	
R/L 050.5-10	5	1,9	5,0	4,4	25	10	0,5	3,8	0,15	645.00..-D	**951**		**951**	
R/L 050.5-15	5	1,9	5,0	4,4	30	15	0,5	3,8	0,15	645.00..-D	**952**		**952**	
R/L 050.5-20	5	1,9	5,0	4,4	35	20	0,5	3,8	0,15	645.00..-D	**950**		**950**	
R/L 050.5-25	5	1,9	5,0	4,4	40	25	0,5	3,8	0,15	645.00..-D	**953**		**953**	
R/L 050.5-30	5	1,9	5,0	4,4	45	30	0,5	3,8	0,15	645.00..-D	**954**		**954**	
R/L 050.5-35	5	1,9	5,0	4,4	50	35	0,5	3,8	0,15	645.00..-D	**956**		**956**	
R/L 050.6-15	6	2,3	6,0	5,3	30	15	0,5	4,5	0,15	676.00..-D	**961**		**961**	
R/L 050.6-22	6	2,3	6,0	5,3	37	22	0,5	4,5	0,15	676.00..-D	**960**		**960**	
R/L 050.6-25	6	2,3	6,0	5,3	40	25	0,5	4,5	0,15	676.00..-D	**962**		**962**	
R/L 050.6-30	6	2,3	6,0	5,3	45	30	0,5	4,5	0,15	676.00..-D	**963**		**963**	
R/L 050.6-35	6	2,3	6,0	5,3	50	35	0,5	4,5	0,15	676.00..-D	**964**		**964**	
R/L 050.6-42	6	2,3	6,0	5,3	57	42	0,5	4,5	0,15	676.00..-D	**965**		**965**	
R/L 050.7-20	7	2,8	6,8	6,3	35	20	0,6	5,5	0,15	676.00..-D	**972**		**972**	
R/L 050.7-25	7	2,8	6,8	6,3	40	25	0,6	5,5	0,15	676.00..-D	**973**		**973**	
R/L 050.7-30	7	2,8	6,8	6,3	45	30	0,6	5,5	0,15	676.00..-D	**974**		**974**	
R/L 050.7-35	7	2,8	6,8	6,3	50	35	0,6	5,5	0,15	676.00..-D	**975**		**975**	
R/L 050.7-40	7	2,8	6,8	6,3	55	40	0,6	5,5	0,15	676.00..-D	**976**		**976**	
R/L 050.7-45	7	2,8	6,8	6,3	60	45	0,6	5,5	0,15	676.00..-D	**977**		**977**	
R/L 050.7-50	7	2,8	6,8	6,3	65	50	0,6	5,5	0,15	676.00..-D	**978**		**978**	
P											o		o	
M											o		o	
K											o		o	
N											o		o	
S											o		o	
H											●		●	
O											o		o	

→ v_c Page 59

UltraMini – Inserts for internal turning and profiling

▲ Specially designed for super alloys





Illustrations show right-hand versions

DPX 57S DRAGONSKIN



Left-hand

DPX 57S DRAGONSKIN



Right-hand

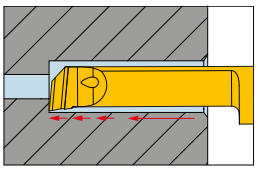
Designation	DCONMS $_{h6}$	WF	DMIN	a	OAL	LDRED	CDX	BDRED	RE	Standard tool holder	73 027 ...	73 026 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm			
R/L M050.05-2	4	0,20	0,5	0,40	20	2	0,02	0,02	0,02	645.00..-D	**052**	**052**
R/L M050.08-4	4	0,35	0,8	0,70	20	4	0,08	0,03	0,02	645.00..-D	**082**	**082**
R/L M050.1-5	4	0,40	1,0	0,90	20	5	0,05	0,05	0,02	645.00..-D	**102**	**102**
R/L M050.1-7	4	0,40	1,0	0,90	22	7	0,05	0,05	0,02	645.00..-D	**103**	**103**
R/L M050.15-5	4	0,60	1,5	1,15	19	5	0,08	0,08	0,02	645.00..-D	**151**	**151**
R/L M050.15-10	4	0,60	1,5	1,15	24	10	0,08	0,08	0,02	645.00..-D	**154**	**154**
R/L M050.2-5	4	0,80	2,0	1,70	19	5	0,08	0,08	0,02	645.00..-D	**201**	**201**
R/L M050.2-10	4	0,80	2,0	1,70	24	10	0,08	0,08	0,02	645.00..-D	**204**	**204**
R/L M050.25-5	4	0,20	2,5	2,20	19	5	0,10	0,10	0,02	645.00..-D	**251**	**251**
R/L M050.25-10	4	0,20	2,5	2,20	24	10	0,10	0,10	0,02	645.00..-D	**254**	**254**
R/L M050.3-10	4	0,60	3,0	2,60	24	10	0,15	0,15	0,02	645.00..-D	**304**	**304**
R/L M050.3-16	4	0,60	3,0	2,60	30	16	0,15	0,15	0,02	645.00..-D	**307**	**307**
R/L M050.35-10	4	1,10	3,5	3,10	24	10	0,17	0,17	0,02	645.00..-D	**350**	**350**
R/L M050.35-16	4	1,10	3,5	3,10	30	16	0,17	0,17	0,02	645.00..-D	**353**	**353**
R/L M050.35-20	4	1,10	3,5	3,10	34	20	0,17	0,17	0,02	645.00..-D	**354**	**354**
R/L M050.4-10	4	1,50	4,0	3,50	24	10	0,20	0,20	0,02	645.00..-D	**400**	**400**
R/L M050.4-16	4	1,50	4,0	3,50	30	16	0,20	0,20	0,02	645.00..-D	**403**	**403**
R/L M050.4-20	4	1,50	4,0	3,50	34	20	0,20	0,20	0,02	645.00..-D	**404**	**404**
R/L M050.4-24	4	1,50	4,0	3,50	38	24	0,20	0,20	0,02	645.00..-D	**406**	**406**
P											●	●
M											●	●
K											○	○
N											○	○
S											●	●
H											○	○
O											○	○

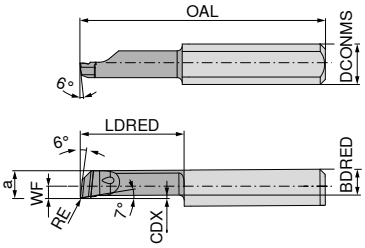
→ v_c Page 59

12

UltraMini – Inserts for internal turning

- with chip former
- High-feed internal turning





Illustrations show right-hand versions

DPX77S DRAGONSKIN



Left-hand

DPX77S DRAGONSKIN



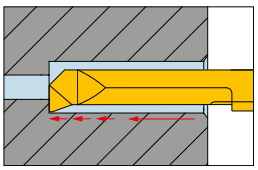
Right-hand

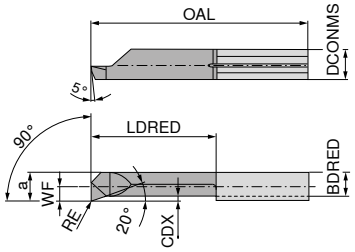
Designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	RE	Standard tool holder	73 001 ...	73 000 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm			
R/L X050.1-5	4		1,0	0,90	20	5	0,03	0,85	0,05	645.00..-D	121	121
R/L X050.15-7	4		1,5	1,35	22	7	0,05	1,25	0,10	645.00..-D	233	233
R/L X050.2-5	4		2,0	1,80	19	5	0,10	1,60	0,15	645.00..-D	245	245
R/L X050.2-10	4		2,0	1,80	24	10	0,10	1,60	0,05	645.00..-D	215	215
R/L X050.2-10	4		2,0	1,80	24	10	0,10	1,60	0,15	645.00..-D	241	241
R/L X050.3-10	4	0,7	3,0	2,70	24	10	0,15	2,55	0,05	645.00..-D	341	341
R/L X050.3-10	4	0,7	3,0	2,70	24	10	0,15	2,55	0,20	645.00..-D	347	347
R/L X050.3-16	4	0,7	3,0	2,70	30	16	0,15	2,55	0,05	645.00..-D	371	371
R/L X050.3-16	4	0,7	3,0	2,70	30	16	0,15	2,55	0,10	645.00..-D	373	373
R/L X050.3-16	4	0,7	3,0	2,70	30	16	0,15	2,55	0,20	645.00..-D	377	377
R/L X050.4-10	4	1,6	4,0	3,60	24	10	0,20	3,20	0,10	645.00..-D	403	403
R/L X050.4-10	4	1,6	4,0	3,60	24	10	0,20	3,20	0,20	645.00..-D	407	407
R/L X050.4-16	4	1,6	4,0	3,60	30	16	0,20	3,20	0,05	645.00..-D	431	431
R/L X050.4-16	4	1,6	4,0	3,60	30	16	0,20	3,20	0,10	645.00..-D	433	433
R/L X050.4-16	4	1,6	4,0	3,60	30	16	0,20	3,20	0,20	645.00..-D	437	437
R/L X050.4-24	4	1,6	4,0	3,60	38	24	0,20	3,20	0,10	645.00..-D	463	463
R/L X050.4-24	4	1,6	4,0	3,60	38	24	0,20	3,20	0,20	645.00..-D	467	467
R/L X050.5-15	5	2,1	5,0	4,60	30	15	0,30	4,05	0,05	645.00..-D	511	511
R/L X050.5-15	5	2,1	5,0	4,60	30	15	0,30	4,05	0,10	645.00..-D	513	513
R/L X050.5-15	5	2,1	5,0	4,60	30	15	0,30	4,05	0,20	645.00..-D	517	517
R/L X050.5-25	5	2,1	5,0	4,60	40	25	0,30	4,05	0,10	645.00..-D	543	543
R/L X050.5-25	5	2,1	5,0	4,60	40	25	0,30	4,05	0,20	645.00..-D	547	547
R/L X050.5-30	5	2,1	5,0	4,60	45	30	0,30	4,05	0,10	645.00..-D	553	553
R/L X050.5-30	5	2,1	5,0	4,60	45	30	0,30	4,05	0,20	645.00..-D	557	557
R/L X050.6-15	6	2,5	6,0	5,50	30	15	0,40	4,90	0,05	676.00..-D	611	611
R/L X050.6-15	6	2,5	6,0	5,50	30	15	0,40	4,90	0,10	676.00..-D	613	613
R/L X050.6-15	6	2,5	6,0	5,50	30	15	0,40	4,90	0,20	676.00..-D	617	617
R/L X050.6-22	6	2,5	6,0	5,50	37	22	0,40	4,90	0,20	676.00..-D	637	637
R/L X050.6-30	6	2,5	6,0	5,50	45	30	0,40	4,90	0,20	676.00..-D	657	657
R/L X050.6-35	6	2,5	6,0	5,50	50	35	0,40	4,90	0,20	676.00..-D	667	667
R/L X050.6-50	6	2,5	6,0	5,50	65	50	0,40	4,90	0,20	676.00..-D	697	697
R/L X050.7-25	7	3,0	7,0	6,50	40	25	0,50	5,90	0,20	676.00..-D	747	747
R/L X050.7-30	7	3,0	7,0	6,50	45	30	0,50	5,90	0,20	676.00..-D	757	757
P											●	●
M											●	●
K											●	●
N											○	○
S											○	○
H											○	○
O											○	○

→ v_c Page 60+61

UltraMini – Inserts for internal turning







TiN



TiN



Illustrations show right-hand versions

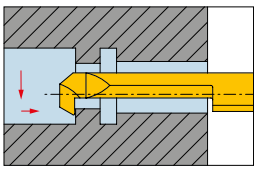
Designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	RE	Standard tool holder	Left-hand	Right-hand
	mm	mm	mm	mm	mm	mm	mm	mm	mm		73 015 ...	73 014 ...
R/L 090.3-10	4	0,6	2,8	2,6	24	10	0,2	2,3	0,2	645.00..-D	**541**	**541**
R/L 090.3-16	4	0,6	2,8	2,6	30	16	0,2	2,3	0,2	645.00..-D	**542**	**542**
R/L 090.4-10	4	1,5	4,0	3,5	24	10	0,3	3,0	0,2	645.00..-D	**545**	**545**
R/L 090.4-16	4	1,5	4,0	3,5	30	16	0,3	3,0	0,2	645.00..-D	**546**	**546**
R/L 090.5-10	5	1,9	5,0	4,4	25	10	0,5	3,8	0,2	645.00..-D	**550**	**550**
R/L 090.5-15	5	1,9	5,0	4,4	30	15	0,5	3,8	0,2	645.00..-D	**551**	**551**
R/L 090.5-20	5	1,9	5,0	4,4	35	20	0,5	3,8	0,2	645.00..-D	**552**	**552**
P											●	●
M											●	●
K											●	●
N											●	●
S											o	o
H											o	o
O											●	●

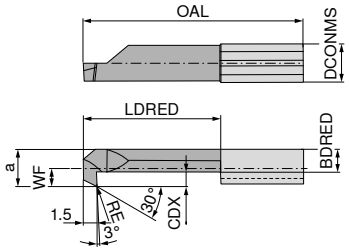
→ v_c Page 59

12

UltraMini – Inserts for back boring







Illustrations show right-hand versions

TiN



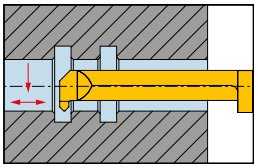
TiN

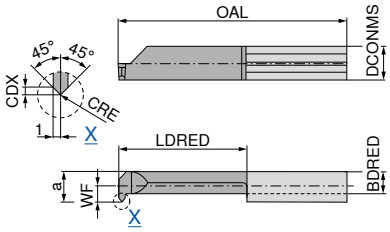


Designation	DCONMS $_{h6}$ mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	RE mm	Standard tool holder	Left-hand 73 013 ...	Right-hand 73 012 ...
R/L 080.0003-15	4	0,6	3	2,6	29	15	0,5	2,0	0,10	645.00..-D	**542**	**542**
R/L 080.0003-20	4	0,6	3	2,6	34	20	0,5	2,0	0,10	645.00..-D	**544**	**544**
R/L 080.0004-15	4	1,5	4	3,5	29	15	0,8	2,4	0,15	645.00..-D	**546**	**546**
R/L 080.0004-25	4	1,5	4	3,5	39	25	0,8	2,4	0,15	645.00..-D	**548**	**548**
R/L 080.0005-20	5	1,9	5	4,4	35	20	1,0	3,3	0,20	645.00..-D	**554**	**554**
R/L 080.0005-30	5	1,9	5	4,4	45	30	1,0	3,3	0,20	645.00..-D	**558**	**558**
R/L 080.0006-20	6	2,3	6	5,3	35	20	1,8	3,4	0,20	676.00..-D	**564**	**564**
R/L 080.0006-30	6	2,3	6	5,3	45	30	1,8	3,4	0,20	676.00..-D	**568**	**568**
R/L 080.0007-20	7	2,7	7	6,3	35	20	2,5	3,8	0,20	676.00..-D	**574**	**574**
R/L 080.0007-30	7	2,7	7	6,3	45	30	2,5	3,8	0,20	676.00..-D	**578**	**578**
P											●	●
M											●	●
K											●	●
N											●	●
S											o	o
H											o	o
O											●	●

→ v_c Page 59

UltraMini – Inserts for internal turning and chamfering





TiN



TiN

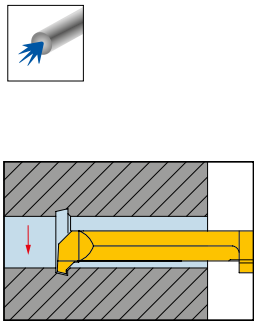


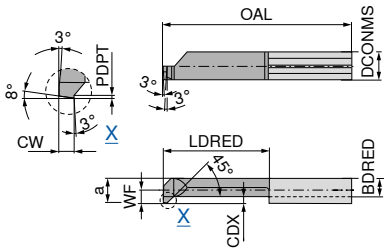
Illustrations show right-hand versions

Designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	CRE	Standard tool holder	Left-hand	Right-hand
	mm	mm	mm	mm	mm	mm	mm	mm	mm		**73 007 ...**	**73 006 ...**
R/L 060.5-15	5	1,9	5,0	4,4	30	15	0,7	3,3	0,2	645.00..-D	**551**	**551**
R/L 060.5-20	5	1,9	5,0	4,4	35	20	0,7	3,3	0,2	645.00..-D	**550**	**550**
R/L 060.7-20	7	2,7	6,8	6,3	35	20	0,7	3,8	0,2	676.00..-D	**570**	**570**
P											●	●
M											●	●
K											●	●
N											●	●
S											○	○
H											○	○
O											●	●

→ v_c Page 59

UltraMini – Inserts for internal chamfering for subsequent parting off





TiN



TiN



Illustrations show right-hand versions

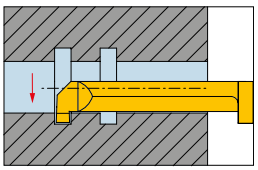
Designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	CW	PDPT	Standard tool holder	Left-hand	Right-hand
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		**73 009 ...**	**73 008 ...**
R/L 070.4-10	4	1,5	4	3,5	25	10	0,8	2,4	1	0,2	645.00..-D	**410**	**410**
R/L 070.4-16	4	1,5	4	3,5	30	16	0,8	2,4	1	0,2	645.00..-D	**416**	**416**
R/L 070.5-15	5	1,9	5	4,4	30	15	1,0	3,3	1	0,2	645.00..-D	**551**	**551**
R/L 070.5-20	5	1,9	5	4,4	35	20	1,0	3,3	1	0,2	645.00..-D	**550**	**550**
R/L 070.5-30	5	1,9	5	4,4	45	30	1,0	3,3	1	0,2	645.00..-D	**530**	**530**
R/L 070.6-30	6	2,3	6	5,3	45	30	1,0	4,2	1	0,2	676.00..-D	**630**	**630**
R/L 070.6-42	6	2,3	6	5,3	57	42	1,0	4,2	1	0,2	676.00..-D	**642**	**642**
P												●	●
M												●	●
K												●	●
N												●	●
S												○	○
H												○	○
O												●	●

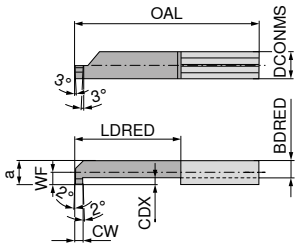
→ v_c Page 59

12

UltraMini – Inserts for Internal Grooving

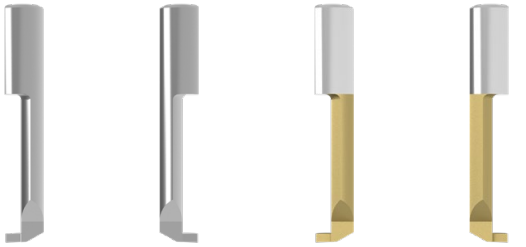






TiN

TiN

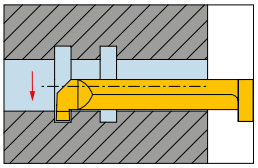


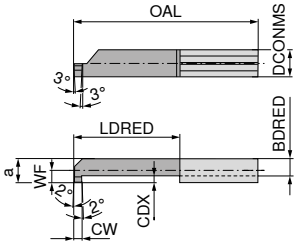
Illustrations show right-hand versions

											Left-hand	Right-hand	Left-hand	Right-hand
											73 003 ...	**73 002 ...**	**73 003 ...**	**73 002 ...**
Designation	DCONMS $_{h6}$	WF	DMIN	a	OAL	LDRED	CDX	BDRED	CW	Standard tool holder				
	mm	mm	mm	mm	mm	mm	mm	mm	mm					
R/L 004.0100-10	4	1,5	4,0	3,5	24	10	0,8	2,4	1,0	645.00..-D	040	040	540	540
R/L 004.0100-16	4	1,5	4,0	3,5	30	16	0,8	2,4	1,0	645.00..-D	041	041	541	541
R/L 004.0100-20	4	1,5	4,0	3,5	34	20	0,8	2,4	1,0	645.00..-D	042	042	542	542
R/L 005.0100-10	5	1,9	5,0	4,4	25	10	1,0	3,3	1,0	645.00..-D	150	150	650	650
R/L 005.0150-10	5	1,9	5,0	4,4	25	10	1,0	3,3	1,5	645.00..-D	154	154	654	654
R/L 005.0200-10	5	1,9	5,0	4,4	25	10	1,0	3,3	2,0	645.00..-D	158	158	658	658
R/L 005.0100-15	5	1,9	5,0	4,4	30	15	1,0	3,3	1,0	645.00..-D	151	151	651	651
R/L 005.0150-15	5	1,9	5,0	4,4	30	15	1,0	3,3	1,5	645.00..-D	155	155	655	655
R/L 005.0200-15	5	1,9	5,0	4,4	30	15	1,0	3,3	2,0	645.00..-D	159	159	659	659
R/L 005.0100-20	5	1,9	5,0	4,4	35	20	1,0	3,3	1,0	645.00..-D	051	051	551	551
R/L 005.0150-20	5	1,9	5,0	4,4	35	20	1,0	3,3	1,5	645.00..-D	052	052	552	552
R/L 005.0200-20	5	1,9	5,0	4,4	35	20	1,0	3,3	2,0	645.00..-D	053	053	553	553
R/L 005.0100-25	5	1,9	5,0	4,4	40	25	1,0	3,3	1,0	645.00..-D	152	152	652	652
R/L 005.0150-25	5	1,9	5,0	4,4	40	25	1,0	3,3	1,5	645.00..-D	156	156	656	656
R/L 005.0200-25	5	1,9	5,0	4,4	40	25	1,0	3,3	2,0	645.00..-D	250	250	750	750
R/L 005.0100-30	5	1,9	5,0	4,4	45	30	1,0	3,3	1,0	645.00..-D	153	153	653	653
R/L 005.0150-30	5	1,9	5,0	4,4	45	30	1,0	3,3	1,5	645.00..-D	157	157	657	657
R/L 005.0200-30	5	1,9	5,0	4,4	45	30	1,0	3,3	2,0	645.00..-D	251	251	751	751
R/L 005.0100-35	5	1,9	5,0	4,4	50	35	1,0	3,3	1,0	645.00..-D			680	680
R/L 006.0100-10	6	2,3	6,0	5,3	25	10	1,8	3,4	1,0	676.00..-D	160	160	660	660
R/L 006.0150-10	6	2,3	6,0	5,3	25	10	1,8	3,4	1,5	676.00..-D	164	164	664	664
R/L 006.0200-10	6	2,3	6,0	5,3	25	10	1,8	3,4	2,0	676.00..-D	168	168	668	668
R/L 006.0100-15	6	2,3	6,0	5,3	30	15	1,8	3,4	1,0	676.00..-D	161	161	661	661
R/L 006.0150-15	6	2,3	6,0	5,3	30	15	1,8	3,4	1,5	676.00..-D	165	165	665	665
R/L 006.0200-15	6	2,3	6,0	5,3	30	15	1,8	3,4	2,0	676.00..-D	169	169	669	669
R/L 006.0100-22	6	2,3	6,0	5,3	37	22	1,8	3,4	1,0	676.00..-D	061	061	561	561
R/L 006.0150-22	6	2,3	6,0	5,3	37	22	1,8	3,4	1,5	676.00..-D	062	062	562	562
R/L 006.0200-22	6	2,3	6,0	5,3	37	22	1,8	3,4	2,0	676.00..-D	063	063	563	563
R/L 006.0100-25	6	2,3	6,0	5,3	40	25	1,8	3,4	1,0	676.00..-D	162	162	662	662
R/L 006.0150-25	6	2,3	6,0	5,3	40	25	1,8	3,4	1,5	676.00..-D	166	166	666	666
R/L 006.0200-25	6	2,3	6,0	5,3	40	25	1,8	3,4	2,0	676.00..-D	260	260	760	760
R/L 006.0100-30	6	2,3	6,0	5,3	45	30	1,8	3,4	1,0	676.00..-D	163	163	663	663
R/L 006.0150-30	6	2,3	6,0	5,3	45	30	1,8	3,4	1,5	676.00..-D	167	167	667	667
R/L 006.0200-30	6	2,3	6,0	5,3	45	30	1,8	3,4	2,0	676.00..-D	261	261	761	761
R/L 006.0100-35	6	2,3	6,0	5,3	50	35	1,8	3,4	1,0	676.00..-D			682	682
R/L 006.0150-35	6	2,3	6,0	5,3	50	35	1,8	3,4	1,5	676.00..-D			684	684
R/L 006.0100-42	6	2,3	6,0	5,3	57	42	1,8	3,4	1,0	676.00..-D			685	685
R/L 007.0100-10	7	2,7	6,8	6,3	25	10	2,5	3,8	1,0	676.00..-D	070	070	570	570
R/L 007.0150-10	7	2,7	6,8	6,3	25	10	2,5	3,8	1,5	676.00..-D	075	075	575	575
R/L 007.0200-10	7	2,7	6,8	6,3	25	10	2,5	3,8	2,0	676.00..-D	170	170	670	670
R/L 007.0100-15	7	2,7	6,8	6,3	30	15	2,5	3,8	1,0	676.00..-D	071	071	571	571
R/L 007.0150-15	7	2,7	6,8	6,3	30	15	2,5	3,8	1,5	676.00..-D	076	076	576	576
R/L 007.0200-15	7	2,7	6,8	6,3	30	15	2,5	3,8	2,0	676.00..-D	171	171	671	671
R/L 007.0100-22	7	2,7	6,8	6,3	37	22	2,5	3,8	1,0	676.00..-D	072	072	572	572
R/L 007.0150-22	7	2,7	6,8	6,3	37	22	2,5	3,8	1,5	676.00..-D	077	077	577	577
R/L 007.0200-22	7	2,7	6,8	6,3	37	22	2,5	3,8	2,0	676.00..-D	172	172	672	672
R/L 007.0100-25	7	2,7	6,8	6,3	40	25	2,5	3,8	1,0	676.00..-D	073	073	573	573
R/L 007.0150-25	7	2,7	6,8	6,3	40	25	2,5	3,8	1,5	676.00..-D	078	078	578	578
R/L 007.0200-25	7	2,7	6,8	6,3	40	25	2,5	3,8	2,0	676.00..-D	173	173	673	673
R/L 007.0100-30	7	2,7	6,8	6,3	45	30	2,5	3,8	1,0	676.00..-D	074	074	574	574
R/L 007.0150-30	7	2,7	6,8	6,3	45	30	2,5	3,8	1,5	676.00..-D	079	079	579	579
R/L 007.0200-30	7	2,7	6,8	6,3	45	30	2,5	3,8	2,0	676.00..-D	174	174	674	674
R/L 007.0100-35	7	2,7	7,0	6,3	50	35	2,5	3,8	1,0	676.00..-D			688	688
R/L 007.0150-35	7	2,7	7,0	6,3	50	35	2,5	3,8	1,5	676.00..-D			690	690
R/L 007.0200-35	7	2,7	7,0	6,3	50	35	2,5	3,8	2,0	676.00..-D			692	692
R/L 007.0100-40	7	2,7	7,0	6,3	55	40	2,5	3,8	1,0	676.00..-D			700	700
R/L 007.0150-40	7	2,7	7,0	6,3	55	40	2,5	3,8	1,5	676.00..-D			702	702
R/L 007.0100-45	7	2,7	7,0	6,3	60	45	2,5	3,8	1,0	676.00..-D			712	712
R/L 007.0100-50	7	2,7	7,0	6,3	65	50	2,5	3,8	1,0	676.00..-D			714	714
P													●	●
M													●	●
K													●	●
N											○	○	●	●
S													○	○
H													○	○
O											●	●	●	●

→ v_c Page 59

UltraMini – Inserts for Internal Grooving





Illustrations show right-hand versions

TiAlN



TiAlN



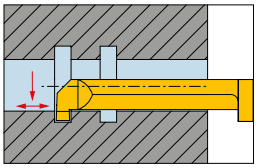
Designation	DCONMS $_{h6}$ mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	CW mm	Standard tool holder	Left-hand 73 003 ...	Right-hand 73 002 ...
R/L 002.0050-5	4		2	1,8	19	5	0,4	1,2	0,5	645.00..-D	**820**	**820**
R/L 002.0050-10	4		2	1,8	24	10	0,4	1,2	0,5	645.00..-D	**821**	**821**
R/L 002.0050-15	4		2	1,8	29	15	0,4	1,2	0,5	645.00..-D	**822**	**822**
R/L 003.0070-5	4	0,7	3	2,7	19	5	0,6	1,9	0,7	645.00..-D	**830**	**830**
R/L 003.0070-10	4	0,7	3	2,7	24	10	0,6	1,9	0,7	645.00..-D	**831**	**831**
R/L 003.0070-16	4	0,7	3	2,7	30	16	0,6	1,9	0,7	645.00..-D	**832**	**832**

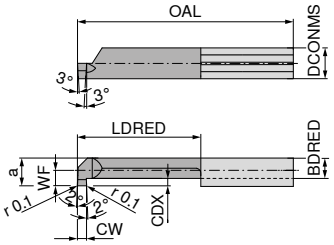
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

→ v_c Page 59

12

UltraMini – Inserts for Internal Grooving





Illustrations show right-hand versions

TiAlN



TiAlN

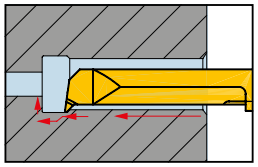


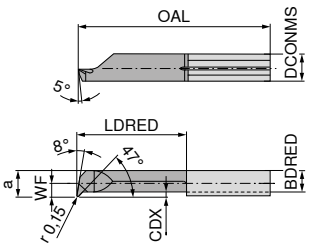
Designation	DCONMS $_{h6}$	WF	DMIN	a	OAL	LDRED	CDX	BDRED	CW	Standard tool holder	Left-hand	Right-hand
	mm	mm	mm	mm	mm	mm	mm	mm	mm		**73 203 ...**	**73 202 ...**
R/L 004M0100-10	4	1,5	4,0	3,5	24	10	0,8	2,4	1,0	645.00..-D	**800**	**800**
R/L 004M0100-16	4	1,5	4,0	3,5	30	16	0,8	2,4	1,0	645.00..-D	**802**	**802**
R/L 004M0100-20	4	1,5	4,0	3,5	34	20	0,8	2,4	1,0	645.00..-D	**804**	**804**
R/L 005M0100-10	5	1,9	5,0	4,4	25	10	1,0	3,3	1,0	645.00..-D	**806**	**806**
R/L 005M0150-10	5	1,9	5,0	4,4	25	10	1,0	3,3	1,5	645.00..-D	**816**	**816**
R/L 005M0200-10	5	1,9	5,0	4,4	25	10	1,0	3,3	2,0	645.00..-D	**826**	**826**
R/L 005M0100-15	5	1,9	5,0	4,4	30	15	1,0	3,3	1,0	645.00..-D	**808**	**808**
R/L 005M0150-15	5	1,9	5,0	4,4	30	15	1,0	3,3	1,5	645.00..-D	**818**	**818**
R/L 005M0200-15	5	1,9	5,0	4,4	30	15	1,0	3,3	2,0	645.00..-D	**828**	**828**
R/L 005M0100-20	5	1,9	5,0	4,4	35	20	1,0	3,3	1,0	645.00..-D	**810**	**810**
R/L 005M0150-20	5	1,9	5,0	4,4	35	20	1,0	3,3	1,5	645.00..-D	**820**	**820**
R/L 005M0200-20	5	1,9	5,0	4,4	35	20	1,0	3,3	2,0	645.00..-D	**830**	**830**
R/L 005M0100-25	5	1,9	5,0	4,4	40	25	1,0	3,3	1,0	645.00..-D	**812**	**812**
R/L 005M0150-25	5	1,9	5,0	4,4	40	25	1,0	3,3	1,5	645.00..-D	**822**	**822**
R/L 005M0200-25	5	1,9	5,0	4,4	40	25	1,0	3,3	2,0	645.00..-D	**832**	**832**
R/L 005M0100-30	5	1,9	5,0	4,4	45	30	1,0	3,3	1,0	645.00..-D	**814**	**814**
R/L 005M0150-30	5	1,9	5,0	4,4	45	30	1,0	3,3	1,5	645.00..-D	**824**	**824**
R/L 005M0200-30	5	1,9	5,0	4,4	45	30	1,0	3,3	2,0	645.00..-D	**834**	**834**
R/L 006M0100-10	6	2,3	6,0	5,3	25	10	1,8	3,4	1,0	676.00..-D	**836**	**836**
R/L 006M0150-10	6	2,3	6,0	5,3	25	10	1,8	3,4	1,5	676.00..-D	**846**	**846**
R/L 006M0200-10	6	2,3	6,0	5,3	25	10	1,8	3,4	2,0	676.00..-D	**856**	**856**
R/L 006M0100-15	6	2,3	6,0	5,3	30	15	1,8	3,4	1,0	676.00..-D	**838**	**838**
R/L 006M0150-15	6	2,3	6,0	5,3	30	15	1,8	3,4	1,5	676.00..-D	**848**	**848**
R/L 006M0200-15	6	2,3	6,0	5,3	30	15	1,8	3,4	2,0	676.00..-D	**858**	**858**
R/L 006M0100-20	6	2,3	6,0	5,3	35	22	1,8	3,4	1,0	676.00..-D	**840**	**840**
R/L 006M0150-20	6	2,3	6,0	5,3	37	22	1,8	3,4	1,5	676.00..-D	**850**	**850**
R/L 006M0200-20	6	2,3	6,0	5,3	37	22	1,8	3,4	2,0	676.00..-D	**860**	**860**
R/L 006M0100-25	6	2,3	6,0	5,3	40	25	1,8	3,4	1,0	676.00..-D	**842**	**842**
R/L 006M0150-25	6	2,3	6,0	5,3	40	25	1,8	3,4	1,5	676.00..-D	**852**	**852**
R/L 006M0200-25	6	2,3	6,0	5,3	40	25	1,8	3,4	2,0	676.00..-D	**862**	**862**
R/L 006M0100-30	6	2,3	6,0	5,3	45	30	1,8	3,4	1,0	676.00..-D	**844**	**844**
R/L 006M0150-30	6	2,3	6,0	5,3	45	30	1,8	3,4	1,5	676.00..-D	**854**	**854**
R/L 006M0200-30	6	2,3	6,0	5,3	45	30	1,8	3,4	2,0	676.00..-D	**864**	**864**
R/L 007M0100-10	7	2,7	6,8	6,3	25	10	2,5	3,7	1,0	676.00..-D	**866**	**866**
R/L 007M0150-10	7	2,7	6,8	6,3	25	10	2,5	3,7	1,5	676.00..-D	**876**	**876**
R/L 007M0200-10	7	2,7	6,8	6,3	25	10	2,5	3,7	2,0	676.00..-D	**886**	**886**
R/L 007M0100-15	7	2,7	6,8	6,3	30	15	2,5	3,7	1,0	676.00..-D	**868**	**868**
R/L 007M0150-15	7	2,7	6,8	6,3	30	15	2,5	3,7	1,5	676.00..-D	**878**	**878**
R/L 007M0200-15	7	2,7	6,8	6,3	30	15	2,5	3,7	2,0	676.00..-D	**888**	**888**
R/L 007M0100-22	7	2,7	6,8	6,3	37	22	2,5	3,7	1,0	676.00..-D	**870**	**870**
R/L 007M0150-22	7	2,7	6,8	6,3	37	22	2,5	3,7	1,5	676.00..-D	**880**	**880**
R/L 007M0200-22	7	2,7	6,8	6,3	37	22	2,5	3,7	2,0	676.00..-D	**890**	**890**
R/L 007M0100-25	7	2,7	6,8	6,3	40	25	2,5	3,7	1,0	676.00..-D	**872**	**872**
R/L 007M0150-25	7	2,7	6,8	6,3	40	25	2,5	3,7	1,5	676.00..-D	**882**	**882**
R/L 007M0200-25	7	2,7	6,8	6,3	40	25	2,5	3,7	2,0	676.00..-D	**892**	**892**
R/L 007M0100-30	7	2,7	6,8	6,3	45	30	2,5	3,7	1,0	676.00..-D	**874**	**874**
R/L 007M0150-30	7	2,7	6,8	6,3	45	30	2,5	3,7	1,5	676.00..-D	**884**	**884**
R/L 007M0200-30	7	2,7	6,8	6,3	45	30	2,5	3,7	2,0	676.00..-D	**894**	**894**
P											●	●
M											●	●
K											●	●
N											●	●
S											●	●
H											●	●
O											●	●

→ v_c Page 59

UltraMini – Inserts for internal undercuts







Illustrations show right-hand versions

	TiN	TiN	TiAlN	TiAlN
				
	Left-hand	Right-hand	Left-hand	Right-hand
	73 011 ...	**73 010 ...**	**73 011 ...**	**73 010 ...**

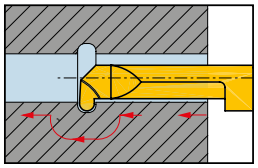
Designation	DCONMS $_{h6}$ mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	Standard tool holder				
R/L 047.2-10	4		2,0	1,7	24	10	0,4	1,2	645.00..-D			**221**	**221**
R/L 047.3-15	4	0,6	2,8	2,6	29	15	0,6	1,9	645.00..-D			**231**	**231**
R/L 047.4-10	4	1,5	4,0	3,5	24	10	0,6	2,8	645.00..-D			**241**	**241**
R/L 047.T4-20	4	1,5	4,0	3,5	34	20	0,6	2,8	645.00..-D			**242**	**242**
R/L 047.4-20	4	1,5	4,0	3,5	34	20	0,3	3,0	645.00..-D	**542**	**542**		
R/L 047.5-15	5	1,9	5,0	4,4	30	15	0,8	3,5	645.00..-D			**251**	**251**
R/L 047.T5-25	5	1,9	5,0	4,4	40	25	0,8	3,5	645.00..-D			**252**	**252**
R/L 047.5-25	5	1,9	5,0	4,4	40	25	0,5	3,8	645.00..-D	**552**	**552**		
R/L 047.T6-22	6	2,3	6,0	5,3	37	22	1,8	3,4	676.00..-D			**262**	**262**
R/L 047.T6-30	6	2,3	6,0	5,3	45	30	1,8	3,4	676.00..-D			**263**	**263**
R/L 047.6-30	6	2,3	6,0	5,3	45	30	0,5	4,5	676.00..-D	**562**	**562**		

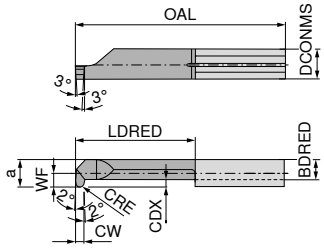
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	●	●	●	●
S	○	○	●	●
H	○	○	●	●
O	●	●	●	●

→ v_c Page 59

12

UltraMini – Inserts for internal grooving and turning





TiN



TiN



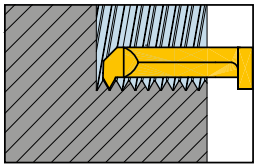
Illustrations show right-hand versions

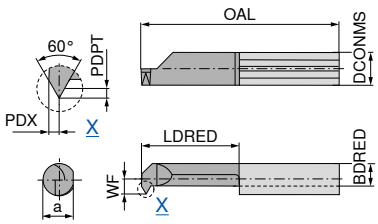
Designation	DCONMS $_{h6}$ mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	CW mm	CRE mm	Standard tool holder	Left-hand 73 019 ...	Right-hand 73 018 ...
R/L 006-0.75-25	6	2,3	6,0	5,3	40	25	1,8	3,4	1,5	0,75	676.00..-D	**564**	**564**
R/L 006-0.50-25	6	2,3	6,0	5,3	40	25	1,8	3,4	1,0	0,50	676.00..-D	**562**	**562**
R/L 006-1.00-25	6	2,3	6,0	5,3	40	25	1,8	3,4	2,0	1,00	676.00..-D	**566**	**566**
R/L 005-1.00-20	5	1,9	5,0	4,4	35	20	1,0	3,3	2,0	1,00	645.00..-D	**556**	**556**
R/L 007-0.50-30	7	2,7	6,8	6,3	45	30	2,5	3,8	1,0	0,50	676.00..-D	**572**	**572**
R/L 005-0.75-20	5	1,9	5,0	4,4	35	20	1,0	3,3	1,5	0,75	645.00..-D	**554**	**554**
R/L 007-0.75-30	7	2,7	6,8	6,3	45	30	2,5	3,8	1,5	0,75	676.00..-D	**574**	**574**
R/L 005-0.50-20	5	1,9	5,0	4,4	35	20	1,0	3,3	1,0	0,50	645.00..-D	**552**	**552**
R/L 007-1.00-30	7	2,7	6,8	6,3	45	30	2,5	3,8	2,0	1,00	676.00..-D	**576**	**576**
R/L 004-0.50-16	4	1,5	4,0	3,5	30	16	0,8	2,4	1,0	0,50	645.00..-D	**541**	**541**
P												●	●
M												●	●
K												●	●
N												●	●
S												o	o
H												o	o
O												●	●

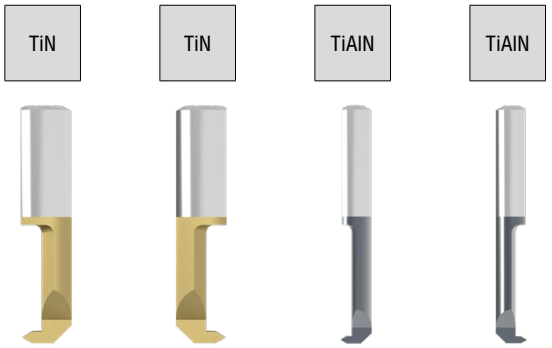
→ v_c Page 59

UltraMini – Inserts for internal threading (Partial profile)









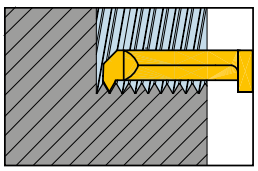
Illustrations show right-hand versions

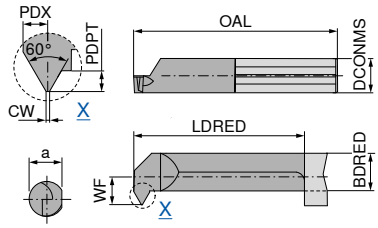
Designation	DCONMS h6	TP	WF	DMIN	a	OAL	LDRED	BDRED	PDPT	PDX	Standard tool holder	Left-hand 73 101 ...	Right-hand 73 100 ...	Left-hand 73 101 ...	Right-hand 73 100 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm					
R/L 003.0105-8	4	0,50	0,30	2,4	2,3	22	8	1,8	0,27	0,33	645.00..-D			551	551
R/L 004.0408-15	4	0,80	1,75	4,0	3,5	30	15	2,4	0,43	0,45	645.00..-D			552	552
R/L 005.0510-15	5	1,00	1,90	4,8	4,4	30	15	3,3	0,55	0,55	645.00..-D	545	545		
R/L 005.0510-20	5	1,00	1,90	4,8	4,4	35	20	3,3	0,55	0,55	645.00..-D	544	544		
R/L 006.0612-15	6	1,25	2,30	6,0	5,3	30	15	3,4	0,68	0,65	676.00..-D	547	547		
R/L 006.0612-22	6	1,25	2,30	6,0	5,3	37	22	3,4	0,68	0,65	676.00..-D	546	546		
R/L 006.0815-15	6	1,50	2,30	6,0	5,3	30	15	3,4	0,81	0,75	676.00..-D	549	549		
R/L 006.0815-22	6	1,50	2,30	6,0	5,3	37	22	3,4	0,81	0,75	676.00..-D	548	548		
R/L 007.0815-15	7	1,50	2,70	7,0	6,3	30	15	3,8	0,81	0,75	676.00..-D	550	550		
P												●	●	●	●
M												●	●	●	●
K												●	●	●	●
N												●	●	●	●
S												○	○	●	●
H												○	○	●	●
O												●	●	●	●

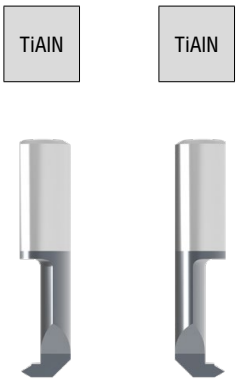
→ v_c Page 59

UltraMini – Inserts for Internal thread turning (Full profile)









Illustrations show right-hand versions

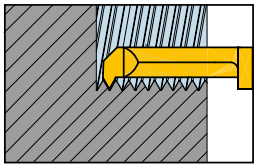
Designation	DCONMS h6	TP	WF	DMIN	a	OAL	LDRED	BDRED	PDPT	PDX	CW	Standard tool holder	Left-hand 73 209 ...	Right-hand 73 208 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm			
R/L 105.0408-15	5	0,80	1,9	4,8	4,4	30	15	3,3	0,43	0,50	0,10	645.00..-D	799	799
R/L 105.510-15	5	1,00	1,9	4,8	4,4	30	15	3,3	0,54	0,55	0,12	645.00..-D	800	800
R/L 106.612-15	6	1,25	2,3	6,0	5,3	30	15	3,4	0,67	0,65	0,15	676.00..-D	802	802
R/L 106.815-15	6	1,50	2,3	6,0	5,3	30	15	3,4	0,81	0,75	0,18	676.00..-D	804	804
R/L 106.815-15	7	1,50	2,7	7,0	6,3	30	15	3,8	0,81	0,75	0,18	676.00..-D	806	806
P													●	●
M													●	●
K													●	●
N													●	●
S													●	●
H													●	●
O													●	●

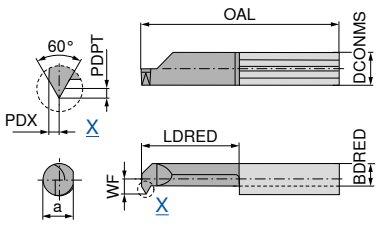
→ v_c Page 59

12

UltraMini – Inserts for internal thread turning (Partial profile)









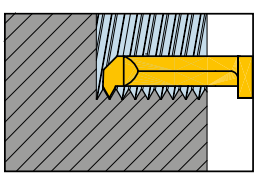
Illustrations show right-hand versions

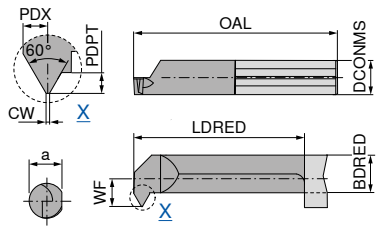
Designation	DCONMS h6 mm	TP mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	BDRED mm	PDPT mm	PDX mm	Standard tool holder	Left-hand 73 103 ...	Right-hand 73 102 ...	Left-hand 73 103 ...	Right-hand 73 102 ...
R/L 004.0105-10	4	0,50	1,0	3,2	3,0	24	10	2,3	0,27	0,44	645.00..-D			509	509
R/L 004.0205-15	4	0,50	1,5	4,0	3,5	30	15	2,4	0,27	0,35	645.00..-D	510	510		
R/L 005.0205-15	5	0,50	1,9	5,0	4,4	30	15	3,3	0,27	0,35	645.00..-D	539	539		
R/L 005.0205-20	5	0,50	1,9	5,0	4,4	35	20	3,3	0,27	0,35	645.00..-D	540	540		
R/L 005.0407-15	5	0,75	1,9	5,0	4,4	30	15	3,3	0,40	0,45	645.00..-D	541	541		
R/L 005.0407-20	5	0,75	1,9	5,0	4,4	35	20	3,3	0,40	0,45	645.00..-D	542	542		
R/L 006.0510-15	6	1,00	2,3	6,0	5,3	30	15	3,4	0,55	0,55	676.00..-D	543	543		
R/L 006.0510-22	6	1,00	2,3	6,0	5,3	37	22	3,4	0,55	0,55	676.00..-D	544	544		
P												●	●	●	●
M												●	●	●	●
K												●	●	●	●
N												●	●	●	●
S												○	○	●	●
H												○	○	●	●
O												●	●	●	●

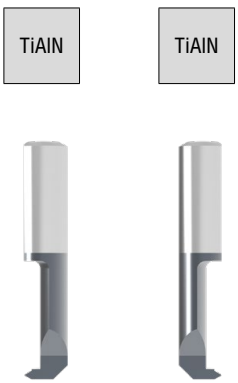
→ v_c Page 59

UltraMini – Inserts for Internal thread turning (Full profile)









Illustrations show right-hand versions

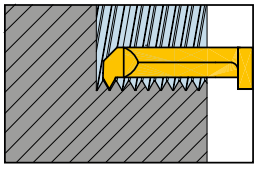
Designation	DCONMS h6 mm	TP mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	BDRED mm	PDPT mm	PDX mm	CW mm	Standard tool holder	Left-hand 73 207 ...	Right-hand 73 206 ...
R/L 104.0205-15	5	0,50	1,5	4	3,5	30	15	2,4	0,27	0,35	0,06	645.00..-D	800	800
R/L 105.0205-15	5	0,50	1,9	5	4,4	30	15	3,3	0,27	0,35	0,06	645.00..-D	802	802
R/L 105.0407-15	5	0,75	1,9	5	4,4	30	15	3,3	0,40	0,45	0,09	645.00..-D	804	804
R/L 106.0510-15	6	1,00	2,3	6	5,3	30	15	3,4	0,54	0,55	0,12	676.00..-D	806	806
P													●	●
M													●	●
K													●	●
N													●	●
S													●	●
H													●	●
O													●	●

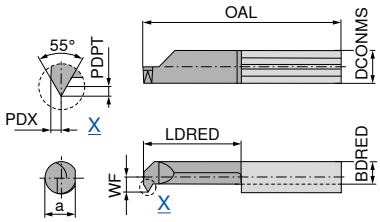
→ v_c Page 59

UltraMini – Inserts for internal thread turning (Partial profile)



TiN | TiN









Illustrations show right-hand versions

Designation	DCONMS h6 mm	TPI 1/"	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	BDRED mm	PDPT mm	PDX mm	Standard tool holder	Left-hand 73 105 ...	Right-hand 73 104 ...
R/L 005.5548-15	5	48 - 24	1,9	4,8	4,4	30	15	3,3	0,40	0,45	645.00..-D	552	552
R/L 006.5548-15	6	48 - 24	2,3	6,0	5,3	30	15	3,4	0,40	0,45	676.00..-D	562	562
R/L 006.5524-15	6	24 - 16	2,3	6,0	5,3	30	15	3,4	0,81	0,75	676.00..-D	563	563
R/L 007.5524-15	7	24 - 16	2,7	7,0	6,3	30	15	3,8	0,81	0,75	676.00..-D	572	572

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

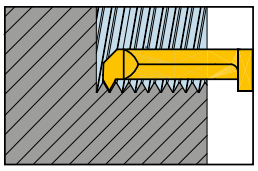
→ v_c Page 59

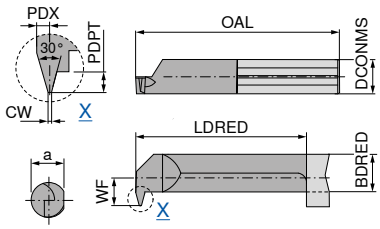
UltraMini – Inserts for internal thread turning (Partial profile)

▲ Trapezoidal thread DIN 103



TiAlN | TiAlN









Illustrations show right-hand versions

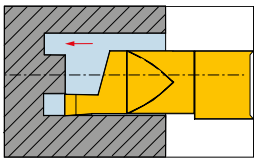
Designation	DCONMS h6 mm	TP mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	BDRED mm	PDPT mm	PDX mm	CW mm	Standard tool holder	Left-hand 73 211 ...	Right-hand 73 210 ...
R/L 007.1220-22	7	2	2,8	7	6,3	37	22	3,8	1,25	0,75	0,6	676.00..-D	222	222
R/L 007.1220-30	7	2	2,8	7	6,3	45	30	3,8	1,25	0,75	0,6	676.00..-D	230	230
R/L 007.1730-22	7	3	2,8	7	6,3	37	22	3,8	1,75	1,10	1,0	676.00..-D	322	322
R/L 007.1730-30	7	3	2,8	7	6,3	45	30	3,8	1,75	1,10	1,0	676.00..-D	330	330

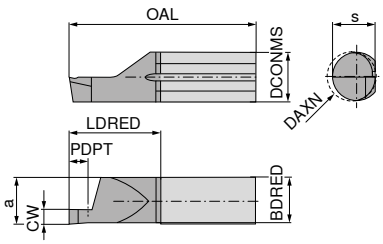
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

→ v_c Page 59

UltraMini – Inserts for axial grooving







Illustrations show right-hand versions

TiN	TiN	TiAlN	TiAlN
			

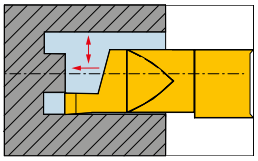
											Left-hand	Right-hand	Left-hand	Right-hand
											73 051 ...	**73 050 ...**	**73 053 ...**	**73 052 ...**
Designation	DCONMS $_{h6}$ mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	BDRED mm	CW mm	Standard tool holder				
R/L 010.1006-10	6	5,2	6	5,3	26	11	1,5	4,9	1,0	676.00..-D	**561**	**561**	**561**	**561**
R/L 010.1506-10	6	5,2	6	5,3	26	11	2,0	4,9	1,5	676.00..-D	**563**	**563**	**563**	**563**
R/L 010.1008-10	7	5,9	8	6,3	26	11	1,5	5,6	1,0	676.00..-D	**571**	**571**	**571**	**571**
R/L 010.1008-20	7	5,9	8	6,3	35	20	1,5	5,6	1,0	676.00..-D	**671**	**671**	**671**	**671**
R/L 010.1008-30	7	5,9	8	6,3	45	30	1,5	5,6	1,0	676.00..-D	**771**	**771**	**771**	**771**
R/L 010.1508-10	7	5,9	8	6,3	26	11	2,5	5,6	1,5	676.00..-D	**573**	**573**	**573**	**573**
R/L 010.1508-20	7	5,9	8	6,3	35	20	2,5	5,6	1,5	676.00..-D	**673**	**673**	**673**	**673**
R/L 010.1508-30	7	5,9	8	6,3	45	30	2,5	5,6	1,5	676.00..-D	**773**	**773**	**773**	**773**
R/L 010.2008-10	7	5,9	8	6,3	26	11	3,0	5,6	2,0	676.00..-D	**575**	**575**	**575**	**575**
R/L 010.2008-20	7	5,9	8	6,3	35	20	3,0	5,6	2,0	676.00..-D	**675**	**675**	**675**	**675**
R/L 010.2008-30	7	5,9	8	6,3	45	30	3,0	5,6	2,0	676.00..-D	**775**	**775**	**775**	**775**
R/L 010.2508-10	7	5,9	8	6,3	26	11	3,5	5,6	2,5	676.00..-D	**577**	**577**	**577**	**577**
R/L 010.2508-20	7	5,9	8	6,3	35	20	3,5	5,6	2,5	676.00..-D	**677**	**677**	**677**	**677**
R/L 010.2508-30	7	5,9	8	6,3	45	30	3,5	5,6	2,5	676.00..-D	**777**	**777**	**777**	**777**
R/L 010.3008-10	7	5,9	8	6,3	26	11	3,5	5,6	3,0	676.00..-D	**579**	**579**	**579**	**579**
R/L 010.3008-20	7	5,9	8	6,3	35	20	3,5	5,6	3,0	676.00..-D	**679**	**679**	**679**	**679**
R/L 010.3008-30	7	5,9	8	6,3	45	30	3,5	5,6	3,0	676.00..-D	**779**	**779**	**779**	**779**
P											●	●	●	●
M											●	●	●	●
K											●	●	●	●
N											●	●	●	●
S											○	○	●	●
H											○	○	●	●
O											●	●	●	●

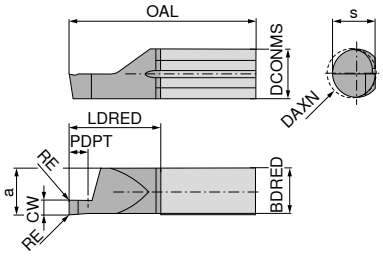
→ v_c Page 59

UltraMini – Inserts for axial grooving

▲ with corner radius







TiAlN



TiAlN



Illustrations show right-hand versions

Left-hand

Right-hand

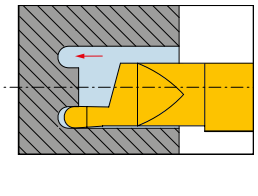
Designation	DCONMS h6	a	DAXN	s	OAL	LDRED	PDPT	BDRED	CW	RE	Standard tool holder	73 253 ...	73 252 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm			
R/L 510M1008-10	5	4,3	5	6,3	26	11	2	4,0	1,0	0,05	645.00..-D	510	510
R/L 510M1008-20	5	4,3	5	6,3	35	20	2	4,0	1,0	0,05	645.00..-D	610	610
R/L 510M1508-10	5	4,3	5	6,3	26	11	3	4,0	1,5	0,05	645.00..-D	515	515
R/L 510M1508-20	5	4,3	5	6,3	35	20	3	4,0	1,5	0,05	645.00..-D	615	615
R/L 510M2008-10	5	4,3	5	6,3	26	11	4	4,0	2,0	0,05	645.00..-D	520	520
R/L 510M2008-20	5	4,3	5	6,3	35	20	4	4,0	2,0	0,05	645.00..-D	620	620
R/L 010M1008-10	7	5,9	8	6,3	26	11	2	5,6	1,0	0,10	676.00..-D	800	800
R/L 010M1008-20	7	5,9	8	6,3	35	20	2	5,6	1,0	0,10	676.00..-D	810	810
R/L 010M1008-30	7	5,9	8	6,3	45	30	2	5,6	1,0	0,10	676.00..-D	820	820
R/L 010M1508-10	7	5,9	8	6,3	26	11	3	5,6	1,5	0,10	676.00..-D	802	802
R/L 010M1508-20	7	5,9	8	6,3	35	20	3	5,6	1,5	0,10	676.00..-D	812	812
R/L 010M1508-30	7	5,9	8	6,3	45	30	3	5,6	1,5	0,10	676.00..-D	822	822
R/L 010M2008-10	7	5,9	8	6,3	26	11	4	5,6	2,0	0,10	676.00..-D	804	804
R/L 010M2008-20	7	5,9	8	6,3	35	20	4	5,6	2,0	0,10	676.00..-D	814	814
R/L 010M2008-30	7	5,9	8	6,3	45	30	4	5,6	2,0	0,10	676.00..-D	824	824
R/L 010M2508-10	7	5,9	8	6,3	26	11	5	5,6	2,5	0,10	676.00..-D	806	806
R/L 010M2508-20	7	5,9	8	6,3	35	20	5	5,6	2,5	0,10	676.00..-D	816	816
R/L 010M2508-30	7	5,9	8	6,3	45	30	5	5,6	2,5	0,10	676.00..-D	826	826
R/L 010M3008-10	7	5,9	8	6,3	26	11	6	5,6	3,0	0,10	676.00..-D	808	808
R/L 010M3008-20	7	5,9	8	6,3	35	20	6	5,6	3,0	0,10	676.00..-D	818	818
R/L 010M3008-30	7	5,9	8	6,3	45	30	6	5,6	3,0	0,10	676.00..-D	828	828
P												●	●
M												●	●
K												●	●
N												●	●
S												●	●
H												●	●
O												●	●

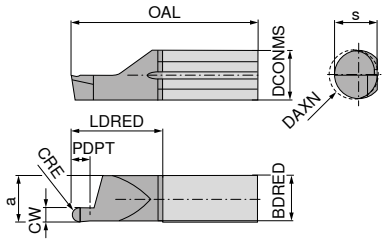
12

→ v_c Page 59

UltraMini – Inserts for axial grooving (Full radius)







Illustrations show right-hand versions

TiAlN



Left-hand

TiAlN



Right-hand

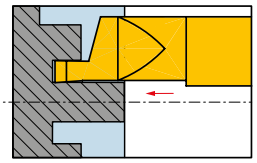
Designation	DCONMS h6 mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	BDRED mm	CW mm	CRE mm	Standard tool holder	73 059 ...	73 058 ...
R/L 610.1005-10	6	5,2	6	5,3	26	11	2	4,9	1,0	0,50	676.00..-D	**071**	**071**
R/L 610.1005-20	6	5,2	6	5,3	35	20	2	4,9	1,0	0,50	676.00..-D	**171**	**171**
R/L 610.1608-10	6	5,2	6	5,3	26	11	3	4,9	1,6	0,80	676.00..-D	**073**	**073**
R/L 610.1608-20	6	5,2	6	5,3	35	20	3	4,9	1,6	0,80	676.00..-D	**173**	**173**
R/L 610.2010-10	6	5,2	6	5,3	26	11	4	4,9	2,0	1,00	676.00..-D	**075**	**075**
R/L 610.2010-20	6	5,2	6	5,3	35	20	4	4,9	2,0	1,00	676.00..-D	**175**	**175**
R/L 610.2512-10	6	5,2	6	5,3	26	11	5	4,9	2,5	1,25	676.00..-D	**077**	**077**
R/L 610.2512-20	6	5,2	6	5,3	35	20	5	4,9	2,5	1,25	676.00..-D	**177**	**177**
R/L 610.3015-10	6	5,2	6	5,3	26	11	6	4,9	3,0	1,50	676.00..-D	**079**	**079**
R/L 610.3015-20	6	5,2	6	5,3	35	20	6	4,9	3,0	1,50	676.00..-D	**179**	**179**
R/L 010.1005-10	7	5,9	8	6,3	26	11	2	5,6	1,0	0,50	676.00..-D	**571**	**571**
R/L 010.1005-20	7	5,9	8	6,3	35	20	2	5,6	1,0	0,50	676.00..-D	**671**	**671**
R/L 010.1608-10	7	5,9	8	6,3	26	11	3	5,6	1,6	0,80	676.00..-D	**573**	**573**
R/L 010.1608-20	7	5,9	8	6,3	35	20	3	5,6	1,6	0,80	676.00..-D	**673**	**673**
R/L 010.2010-10	7	5,9	8	6,3	26	11	4	5,6	2,0	1,00	676.00..-D	**575**	**575**
R/L 010.2010-20	7	5,9	8	6,3	35	20	4	5,6	2,0	1,00	676.00..-D	**675**	**675**
R/L 010.2512-10	7	5,9	8	6,3	26	11	5	5,6	2,5	1,25	676.00..-D	**577**	**577**
R/L 010.2512-20	7	5,9	8	6,3	35	20	5	5,6	2,5	1,25	676.00..-D	**677**	**677**
R/L 010.3015-10	7	5,9	8	6,3	26	11	6	5,6	3,0	1,50	676.00..-D	**579**	**579**
R/L 010.3015-20	7	5,9	8	6,3	35	20	6	5,6	3,0	1,50	676.00..-D	**679**	**679**
P												●	●
M												●	●
K												●	●
N												●	●
S												●	●
H												●	●
O												●	●

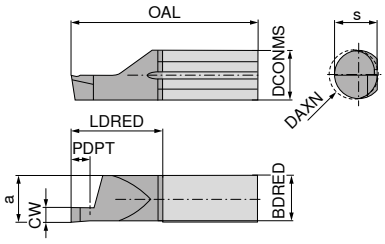
→ v_c Page 59

UltraMini – Inserts for axial grooving over a spigot



TiAlN TiAlN









Illustrations show right-hand versions

Left-hand Right-hand

73 061 ... **73 060 ...**

Designation	DCONMS h6 mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	BDRED mm	CW mm	Standard tool holder		
R/L 620.1006-20	6	5,2	6	5,3	35	20	2	4,9	1,0	676.00..-D	**561**	**561**
R/L 620.1506-20	6	5,2	6	5,3	35	20	3	4,9	1,5	676.00..-D	**563**	**563**
R/L 620.2006-20	6	5,2	6	5,3	35	20	4	4,9	2,0	676.00..-D	**565**	**565**
R/L 620.2506-20	6	5,2	6	5,3	35	20	5	4,9	2,5	676.00..-D	**567**	**567**
R/L 620.3006-20	6	5,2	6	5,3	35	20	6	4,9	3,0	676.00..-D	**569**	**569**

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

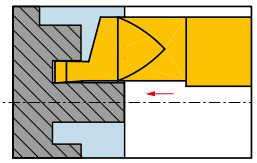
→ v_c Page 59

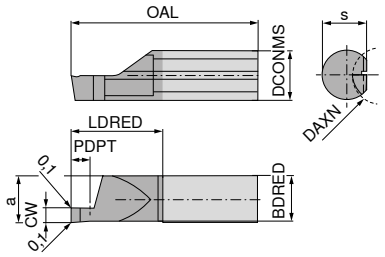
UltraMini – Inserts for axial grooving over a spigot

▲ with corner radius



TiAlN TiAlN









Illustrations show right-hand versions

Left-hand Right-hand

73 261 ... **73 260 ...**

Designation	DCONMS h6 mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	BDRED mm	CW mm	Standard tool holder		
R/L 620M1006-20	6	5,2	6	5,3	35	20	2	4,9	1,0	676.00..-D	**800**	**800**
R/L 620M1506-20	6	5,2	6	5,3	35	20	3	4,9	1,5	676.00..-D	**802**	**802**
R/L 620M2006-20	6	5,2	6	5,3	35	20	4	4,9	2,0	676.00..-D	**804**	**804**
R/L 620M2506-20	6	5,2	6	5,3	35	20	5	4,9	2,5	676.00..-D	**806**	**806**
R/L 620M3006-20	6	5,2	6	5,3	35	20	6	4,9	3,0	676.00..-D	**808**	**808**

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

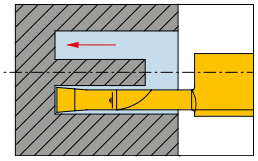
→ v_c Page 59

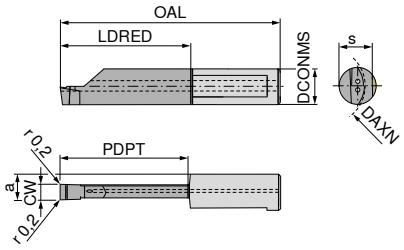
12

UltraMini – Inserts for axial grooving

- up to 70 bar
- dual cooling channel







TiAlN



TiAlN



Illustrations show right-hand versions

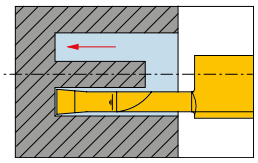
Designation	DCONMS $_{h6}$ mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	CW mm	Standard tool holder	Left-hand 73 263 ...	Right-hand 73 262 ...
R/L 012.0200-10	8	5,00	12	7,3	30	10	10	2,0	687.00..-D	**700**	**700**
R/L 012.0200-15	8	5,00	12	7,3	35	15	15	2,0	687.00..-D	**702**	**702**
R/L 012.0250-10	8	5,25	12	7,3	30	10	10	2,5	687.00..-D	**704**	**704**
R/L 012.0250-20	8	5,25	12	7,3	40	20	20	2,5	687.00..-D	**706**	**706**
R/L 016.0300-10	8	5,50	16	7,3	30	10	10	3,0	687.00..-D	**800**	**800**
R/L 016.0300-20	8	5,50	16	7,3	40	20	20	3,0	687.00..-D	**802**	**802**
R/L 020.0300-25	8	5,50	20	7,3	45	25	25	3,0	687.00..-D	**804**	**804**
R/L 020.0300-30	8	5,50	20	7,3	50	30	30	3,0	687.00..-D	**806**	**806**
R/L 020.0300-35	8	5,50	20	7,3	55	35	35	3,0	687.00..-D	**808**	**808**
R/L 020.0300-40	8	5,50	20	7,3	60	40	40	3,0	687.00..-D	**810**	**810**
R/L 016.0400-10	8	6,00	16	7,3	30	10	10	4,0	687.00..-D	**812**	**812**
R/L 016.0400-20	8	6,00	16	7,3	40	20	20	4,0	687.00..-D	**814**	**814**
R/L 020.0400-25	8	6,00	20	7,3	45	25	25	4,0	687.00..-D	**816**	**816**
R/L 020.0400-30	8	6,00	20	7,3	50	30	30	4,0	687.00..-D	**818**	**818**
R/L 020.0400-35	8	6,00	20	7,3	55	35	35	4,0	687.00..-D	**820**	**820**
R/L 020.0400-40	8	6,00	20	7,3	60	40	40	4,0	687.00..-D	**822**	**822**
R/L 020.0500.20	8	6,50	20	7,3	40	20	20	5,0	687.00..-D	**824**	**824**
R/L 020.0500.25	8	6,50	20	7,3	45	25	25	5,0	687.00..-D	**826**	**826**
R/L 020.0500.30	8	6,50	20	7,3	50	30	30	5,0	687.00..-D	**828**	**828**
R/L 020.0500.35	8	6,50	20	7,3	55	35	35	5,0	687.00..-D	**830**	**830**
R/L 020.0500.40	8	6,50	20	7,3	60	40	40	5,0	687.00..-D	**832**	**832**

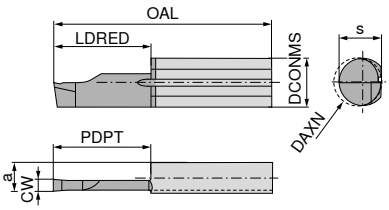
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

→ v_c Page 59

UltraMini – Inserts for axial grooving







TiN	TiN	TiAlN	TiAlN



Illustrations show right-hand versions

	Left-hand	Right-hand	Left-hand	Right-hand
	73 055 ...	**73 054 ...**	**73 057 ...**	**73 056 ...**

Designation	DCONMS h6 mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	CW mm	Standard tool holder				
R/L 015.2515-20	7	5,9	15	6,3	35	20	20	2,5	676.00..-D	**572**	**572**	**572**	**572**
R/L 015.3015-20	7	5,9	15	6,3	35	20	20	3,0	676.00..-D	**574**	**574**	**574**	**574**
R/L 015.3015-30	7	5,9	15	6,3	45	30	30	3,0	676.00..-D	**674**	**674**	**674**	**674**

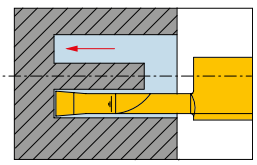
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	●	●	●	●
S	○	○	●	●
H	○	○	●	●
O	●	●	●	●

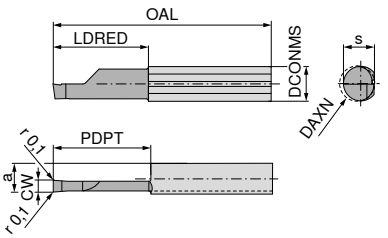
→ v_c Page 59

UltraMini – Inserts for axial grooving

▲ with corner radius







TiAlN	TiAlN



Illustrations show right-hand versions

	Left-hand	Right-hand
	73 257 ...	**73 256 ...**

Designation	DCONMS h6 mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	CW mm	Standard tool holder		
R/L 015M2515-20	7	5,9	8	6,3	35	20	20	2,5	676.00..-D	**800**	**800**
R/L 015M3015-20	7	5,9	8	6,3	35	20	20	3,0	676.00..-D	**802**	**802**
R/L 015M3015-30	7	5,9	8	6,3	45	30	30	3,0	676.00..-D	**804**	**804**

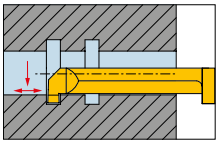
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

→ v_c Page 59

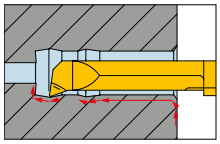
12

UltraMini – Set: Internal turning, grooving and chamfering, right hand

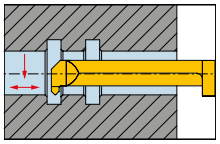
- extensive assortment of right-hand tools
- K10F – TiN



Grooving (E)



Profile turn (A)



Chamfers (F)

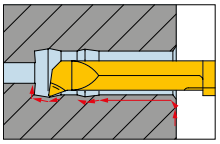


73 085 ...

Tool	Designation	Article no.	Bore Ø mm	Boring depth mm	Grooving depth mm	Groove width mm	Piece	fig.	
Inserts	**R 004.0100-16**	**73 002 541**	4	16	0,8	1,0	1	E	
Inserts	**R 005.0150-20**	**73 002 552**	5	20	1,0	1,5	1	E	
Inserts	**R 005.0200-20**	**73 002 553**	5	20	1,0	2,0	1	E	
Inserts	**R 006.0150-22**	**73 002 562**	6	22	1,8	1,5	1	E	
Inserts	**R 006.0200-22**	**73 002 563**	6	22	1,8	2,0	1	E	
Inserts	**R 050.3-16**	**73 004 530**	3	16			1	A	**999**
Inserts	**R 050.4-16**	**73 004 540**	4	16			1	A	
Inserts	**R 050.5-20**	**73 004 550**	5	20			1	A	
Inserts	**R 050.6-22**	**73 004 560**	6	22			1	A	
Inserts	**R 060.5-20**	**73 006 550**	5	20			1	F	
Tool holder	**645.0016-D**	**73 080 164**					1		
Tool holder	**676.0016-D**	**73 080 166**					1		
Tightening Key	**110.645**	**70 950 175**					1		

UltraMini – Set: Internal Turning

- extensive assortment of right-hand tools
- K10F – TiN





73 085 ...

Tool	Designation	Article no.	Bore Ø mm	Boring depth mm	Piece	
Inserts	R 050.3-16	73 004 530	3	16	1	
Inserts	R 050.4-16	73 004 540	4	16	1	
Inserts	R 050.5-20	73 004 550	5	20	1	**994**
Inserts	R 050.6-22	73 004 560	6	22	1	
Tool holder	645.0016-D	73 080 164			1	
Tool holder	676.0016-D	73 080 166			1	
Tightening Key	110.645	70 950 175			1	

UltraMini – Set: Holder

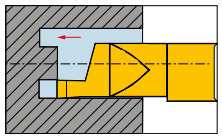


73 085 ...

Tool	Designation	Article no.	for cutting insert Ø mm	Piece	
Tool holder	**645.0016-D**	**73 080 164**	3 / 4 / 5	1	
Tool holder	**676.0016-D**	**73 080 166**	6 / 7	1	**990**
Tightening Key	**110.645**	**70 950 175**		1	

UltraMini – Set: Axial Grooving

- extensive assortment of right-hand tools
- K10F – TiN





73 085 ...

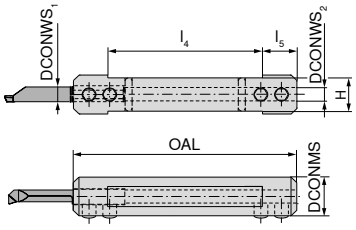
Tool	Designation	Article no.	Bore Ø mm	Boring depth mm	Grooving depth mm	Groove width mm	Piece	
Inserts	**R 010.1008-10**	**73 050 571**	8	10	1,5	1,0	1	
Inserts	**R 010.1508-10**	**73 050 573**	8	10	2,5	1,5	1	
Inserts	**R 010.2008-10**	**73 050 575**	8	10	3,0	2,0	1	**996**
Inserts	**R 010.2508-20**	**73 050 677**	8	20	3,5	2,5	1	
Inserts	**R 010.3008-20**	**73 050 679**	8	20	3,5	3,0	1	
Tool holder	**676.0016-D**	**73 080 166**					1	
Tightening Key	**110.645**	**70 950 175**					1	

UltraMini – Standard tool holder for cutting inserts

- ▲ double ended
- ▲ Machining diameter from Ø 0.5 mm

Scope of supply:

Tool holder with allen key





73 080 ...

Designation	$DCONWS_1$ mm	$DCONWS_2$ mm	DCONMS mm	OAL mm	l_4 mm	l_5 mm	H mm	
687.0020-D	7	8	20,00	90	70	10	18,0	**169**
645.001905-D	4	5	19,05	90	70	10	17,2	**170**
687.0016-D	7	8	16,00	75	55	10	14,0	**168**
645.0022-D	4	5	22,00	90	70	10	20,0	**171**
676.0020-D	6	7	20,00	90	70	10	18,0	**167**
645.00254-D	4	5	25,40	95	75	10	23,4	**172**
676.0016-D	6	7	16,00	75	55	10	14,0	**166**
676.001905-D	6	7	19,05	90	70	10	17,2	**173**
645.0020-D	4	5	20,00	90	70	10	18,0	**165**
676.0022-D	6	7	22,00	90	70	10	20,0	**174**
645.0016-D	4	5	16,00	75	55	10	14,0	**164**
676.00254-D	6	7	25,40	95	75	10	23,4	**175**
645.0012-D	4	5	12,00	75	55	10	10,3	**163**



Key I

70 950 ...



Clamping screw

73 082 ...

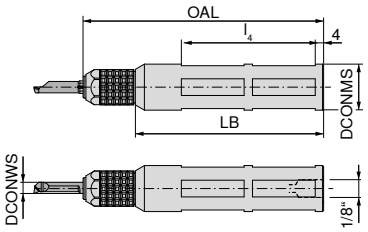
Spare parts for Article no.				
73 080 169	SW2,5	**175**	M6x6	**014**
73 080 170	SW2,5	**175**	M5x6	**001**
73 080 168	SW2,5	**175**	M6x6	**014**
73 080 171	SW2,5	**175**	M5x8	**008**
73 080 167	SW2,5	**175**	M5x8	**008**
73 080 172	SW2,5	**175**	M5x8	**008**
73 080 166	SW2,5	**175**	M5x6	**001**
73 080 173	SW2,5	**175**	M5x6	**001**
73 080 165	SW2,5	**175**	M5x8	**008**
73 080 174	SW2,5	**175**	M5x8	**008**
73 080 164	SW2,5	**175**	M5x6	**001**
73 080 175	SW2,5	**175**	M5x8	**008**
73 080 163	SW2,5	**175**	M5x4	**013**

UltraMini – Quick change tool holder for cutting inserts

Scope of supply:

Tool holder, lock nut and clamping wedge







Designation	DCONWS mm	DCONMS g6 mm	OAL mm	LB mm	l_4 mm	73 089 ...
UM600H.0012.4	4	12,00	115	90	64	124
UM600H.0016.4	4	16,00	115	90	64	164
UM600H.001905.4	4	19,05	115	90	64	194
UM600H.0020.4	4	20,00	115	90	64	204
UM600H.0022.4	4	22,00	115	90	64	224
UM600H.0025.4	4	25,00	115	90	64	254
UM600H.00254.4	4	25,40	115	90	64	264
UM600H.0028.4	4	28,00	115	90	64	284
UM600H.0012.5	5	12,00	115	90	64	125
UM600H.0016.5	5	16,00	115	90	64	165
UM600H.001905.5	5	19,05	115	90	64	195
UM600H.0020.5	5	20,00	115	90	64	205
UM600H.0022.5	5	22,00	115	90	64	225
UM600H.0025.5	5	25,00	115	90	64	255
UM600H.00254.5	5	25,40	115	90	64	265
UM600H.0028.5	5	28,00	115	90	64	285
UM600H.0012.6	6	12,00	115	90	64	126
UM600H.0016.6	6	16,00	115	90	64	166
UM600H.001905.6	6	19,05	115	90	64	196
UM600H.0020.6	6	20,00	115	90	64	206
UM600H.0022.6	6	22,00	115	90	64	226
UM600H.0025.6	6	25,00	115	90	64	256
UM600H.00254.6	6	25,40	115	90	64	266
UM600H.0028.6	6	28,00	115	90	64	286
UM600H.0012.7	7	12,00	115	90	64	127
UM600H.0016.7	7	16,00	115	90	64	167
UM600H.001905.7	7	19,05	115	90	64	197
UM600H.0020.7	7	20,00	115	90	64	207
UM600H.0022.7	7	22,00	115	90	64	227
UM600H.0025.7	7	25,00	115	90	64	257
UM600H.00254.7	7	25,40	115	90	64	267
UM600H.0028.7	7	28,00	115	90	64	287

12

Avoid pulling cuts. Ensure a suitable clamping force is used when using thro' coolant supply. Can be tightened using a key.



Lock nut UM600H



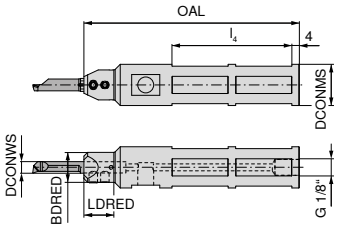
Clamping wedge UM600H

Spare parts DCONWS		73 950 ...	73 950 ...
4	M4	104	111
5	M5	105	111
6	M6	106	111
7	M7	107	111

UltraMini – Toolholder for inserts

▲ Tool holder suitable for high coolant pressures







Designation	DCONWS mm	BDRED mm	DCONMS $_{g6}$ mm	OAL mm	LDRED mm	l_4 mm	73 088 ...
UMST.0016.4	4	16	16,00	115	24	42	164
UMST.001905.4	4	16	19,05	115	24	42	194
UMST.0020.4	4	16	20,00	115	24	42	204
UMST.0022.4	4	16	22,00	115	24	42	224
UMST.00254.4	4	16	25,40	115	24	42	264
UMST.0028.4	4	16	28,00	115	24	42	284
UMST.0016.5	5	16	16,00	115	24	42	165
UMST.001905.5	5	16	19,05	115	24	42	195
UMST.0020.5	5	16	20,00	115	24	42	205
UMST.0022.5	5	16	22,00	115	24	42	225
UMST.00254.5	5	16	25,40	115	24	42	265
UMST.0028.5	5	16	28,00	115	24	42	285
UMST.0016.6	6	16	16,00	115	24	42	166
UMST.001905.6	6	16	19,05	115	24	42	196
UMST.0020.6	6	16	20,00	115	24	42	206
UMST.0022.6	6	16	22,00	115	24	42	226
UMST.00254.6	6	16	25,40	115	24	42	266
UMST.0028.6	6	16	28,00	115	24	42	286
UMST.0016.7	7	16	16,00	115	24	42	167
UMST.001905.7	7	16	19,05	115	24	42	197
UMST.0020.7	7	16	20,00	115	24	42	207
UMST.0022.7	7	16	22,00	115	24	42	227
UMST.00254.7	7	16	25,40	115	24	42	267
UMST.0028.7	7	16	28,00	115	24	42	287
UMST.0016.8	8	16	16,00	115	24	42	168
UMST.001905.8	8	16	19,05	115	24	42	198
UMST.0020.8	8	16	20,00	115	24	42	208
UMST.0022.8	8	16	22,00	115	24	42	228
UMST.00254.8	8	16	25,40	115	24	42	268
UMST.0028.8	8	16	28,00	115	24	42	288

up to 150 bar



Key D



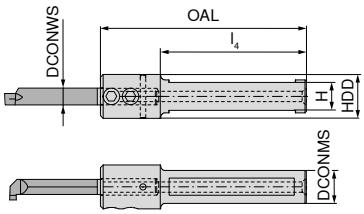
Clamping screw

Spare parts DCONWS	80 950 ...		73 950 ...	
4	T10	104	M5x0,5x6T10	050
5	T10	104	M5x0,5x6T10	050
6	T10	104	M5x0,5x6T10	050
7	T10	104	M5x0,5x6T10	050
8	T10	104	M5x0,5x6T10	050

UltraMini – Toolholder for inserts

▲ single ended

Scope of supply:
Tool holder with allen key





Designation	DCONWS mm	HDD mm	DCONMS mm	OAL mm	l_4 mm	H mm	73 081 ...
640.0012-D	4	16	12	75	53	10,2	**264**
650.0012-D	5	16	12	75	53	10,2	**265**
660.0012-D	6	16	12	75	53	10,2	**266**
670.0012-D	7	16	12	75	53	10,2	**267**
680.0012-D	8	16	12	75	53	10,2	**268**


Key I

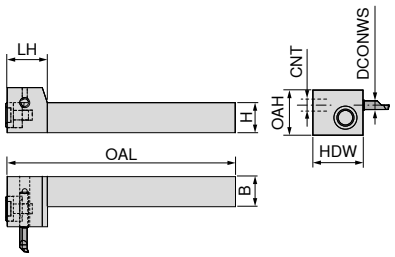

Clamping screw

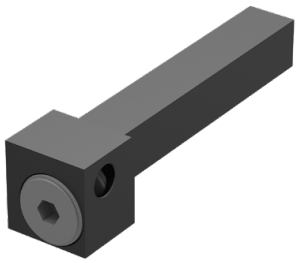
Spare parts DCONWS	70 950 ...		73 082 ...	
4	SW2,5	**175**	M5x0,5x6	**010**
5	SW2,5	**175**	M5x0,5x6	**010**
6	SW2,5	**175**	M5x0,5x6	**010**
7	SW2,5	**175**	M5x0,5x6	**010**
8	SW2,5	**175**	M5x0,5x6	**010**

UltraMini – Toolholder for inserts

Scope of supply:
Tool holder with allen key







	Left-hand	Right-hand
	73 083 ...	73 084 ...

Designation	DCONWS mm	OAL mm	LH mm	B mm	HDW mm	H mm	OAH mm	CNT				
R/L .IK.UHCM.1212.4	4	90	17	12	20	12	18	M5		**124**		**124**
R/L .IK.UHCM.1212.5	5	90	17	12	20	12	18	M5		**125**		**125**
R/L .IK.UHCM.1212.6	6	90	17	12	20	12	21	M5		**126**		**126**
R/L .IK.UHCM.1212.7	7	90	17	12	20	12	21	M5		**127**		**127**

Suitable coolant connections can be found in our sliding head tooling catalogue.



Clamping key - T

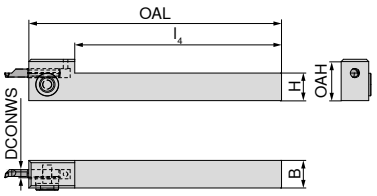


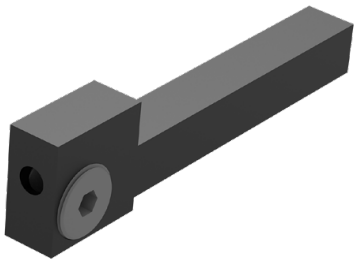
Clamping screw

		80 397 ...		73 082 ...	
Spare parts DCONWS					
4	SW5	**050**	UM 12	**011**	
5	SW5	**050**	UM 12	**011**	
6	SW5	**050**	UM 16	**012**	
7	SW5	**050**	UM 16	**012**	

UltraMini – Toolholder for inserts

Scope of supply:
Tool holder with allen key





	73 086 ...

Designation	DCONWS mm	OAL mm	l_4 mm	B mm	H mm	OAH mm		
UM.1010.4	4	100	75	10	10	20		**104**
UM.1010.5	5	100	75	10	10	20		**105**
UM.1212.4	4	100	75	12	12	22		**124**
UM.1212.5	5	100	75	12	12	22		**125**
UM.1212.6	6	100	75	12	12	22		**126**



Clamping key - T

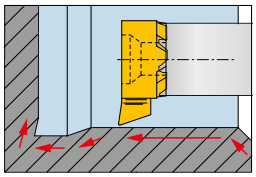


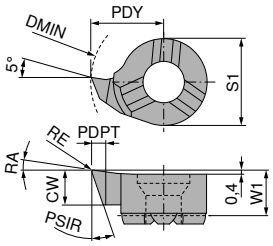
Clamping screw

		80 397 ...		73 082 ...	
Spare parts DCONWS					
4	SW5	**050**	UM 12	**011**	
5	SW5	**050**	UM 12	**011**	
6	SW5	**050**	UM 16	**012**	

MiniCut – Insert for turning and profiling

CWX500 CWX500







Illustrations show right-hand versions

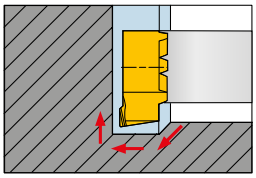
Size	Designation	DMIN mm	CW mm	W1 mm	PDY mm	S1 mm	RE mm	PDPT mm	PSIR °	RA °	Left-hand 73 324 ...	Right-hand 73 322 ...
08	8,00. R/L .3,30.18°	7,8	3,3	3,5	4,65	6,0	0,20	0,6	18	8	033	033
	8,00. R/L .3,50.18°	7,8	3,5	3,5	4,65	6,0	0,05	0,6	18	8	035	035
	8,00. R/L .3,50.20°	7,8	3,5	3,5	4,65	6,0	0,20	0,6	20	20	135	135
09	9,00. R/L .3,60.18°	9,0	3,6	3,6	5,50	6,2	0,20	0,8	18	8	136	136
	9,00. R/L .3,60.20°	9,0	3,6	3,6	5,50	6,2	0,20	0,8	20	20	236	236
11	9,80. R/L .3,90.18°	9,8	3,9	4,2	5,50	8,0	0,20	1,0	18	8	139	139
	11,00. R/L .3,90.18°	11,0	3,9	4,2	6,70	8,0	0,20	1,0	18	8	339	339
	11,00. R/L .4,20.20°	11,0	4,2	4,2	6,70	8,0	0,20	1,0	20	20	342	342
14	14,00. R/L .5,00.18°	13,8	5,0	5,1	8,70	9,0	0,20	1,5	18	8	550	550
	14,00. R/L .5,30.20°	14,0	5,3	5,3	8,70	9,0	0,20	1,5	20	20	553	553
16	15,50. R/L .5,00.18°	15,5	5,0	5,4	9,70	11,0	0,20	1,5	18	8	750	750
P											●	●
M											●	●
K											●	●
N											●	●
S											●	●
H											●	●
O											●	●

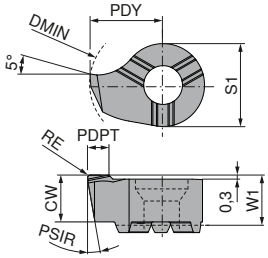
→ v_c Page 59

MiniCut – Insert for copy turning

▲ with chip breaker

CWX500 CWX500







Illustrations show right-hand versions

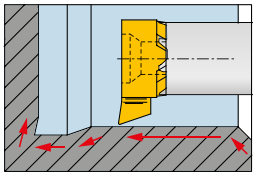
Size	Designation	DMIN mm	CW mm	W1 mm	PDY mm	S1 mm	RE mm	PDPT mm	PSIR °	Left-hand 73 388 ...	Right-hand 73 386 ...
08	8,00. R/L .3,40.10°	8	3,4	3,5	4,65	6,0	0,2	0,5	10	13400	13400
09	9,00. R/L .3,50.10°	9	3,5	3,6	5,50	6,2	0,2	0,5	10	136	136
11	11,00. R .4,10.10°	11	4,1	4,2	6,70	8,0	0,2	0,5	10	14100	14100
P										●	●
M										●	●
K										●	●
N										●	●
S										●	●
H										●	●
O										●	●

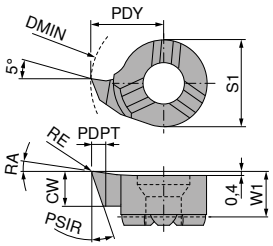
→ v_c Page 59

12

MiniCut – CBN insert for profiling – hard turning

▲ 56 to 65 HRC







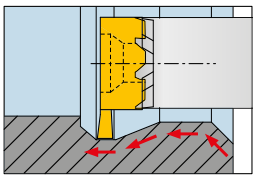
Illustrations show right-hand versions

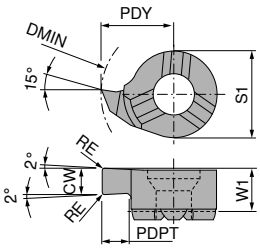
Size	Designation	DMIN mm	CW mm	W1 mm	PDY mm	S1 mm	RE mm	PDPT mm	PSIR °	RA °	Left-hand CBN 73 368 ...	Right-hand CBN 73 366 ...
08	8,00. R/L .3,30.18°	7,8	3,3	3,5	4,65	6	0,2	0,39	18	8	**033**	**033**
11	11,00. R/L .3,90.18°	11,0	3,9	4,2	6,70	8	0,2	0,55	18	8	**139**	**139**
14	14,00. R/L .5,00.18°	13,8	5,0	5,3	8,70	9	0,2	0,69	18	8	**550**	**550**
16	16,00. R/L .5,00.18°	15,5	5,0	5,4	9,70	11	0,2	0,77	18	8	**750**	**750**
P												
M												
K												
N												
S											○	○
H											●	●
O												

→ v_c Page 59

MiniCut – Internal turning insert

CWX500 CWX500







Illustrations show right-hand versions

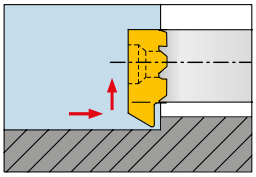
Size	Designation	DMIN mm	CW +0.05 mm	PDPT mm	W1 mm	PDY mm	S1 mm	RE mm	CDX mm	Left-hand 73 316 ...	Right-hand 73 314 ...
08	8,00. R/L .1,50.1,0	8	1,5	1,0	3,3	4,8	6,0	0,2	0,2	015	015
	8,00. R/L .2,00.1,0	8	2,0	1,0	3,3	4,8	6,0	0,2	0,2	020	020
09	9,00. R/L .1,50.2,0	9	1,5	2,0	3,6	5,5	6,2	0,2	0,2	115	115
	9,00. R/L .1,50.3,0	10	1,5	3,0	3,6	6,5	6,2	0,2	0,2	121	121
	9,00. R/L .2,00.2,0	9	2,0	2,0	3,6	5,5	6,2	0,2	0,2	120	120
	9,00. R/L .2,00.3,0	10	2,0	3,0	3,6	6,5	6,2	0,2	0,2	122	122
11	11,00. R/L .1,50.2,3	11	1,5	2,3	4,2	6,7	8,0	0,2	0,2	315	315
	11,00. R/L .2,00.2,3	11	2,0	2,3	4,2	6,7	8,0	0,2	0,2	320	320
14	14,00. R/L .1,50.4,0	14	1,5	4,0	5,3	9,0	9,0	0,2	0,2	515	515
	14,00. R/L .1,50,5,5	16	1,5	5,5	5,2	10,5	9,0	0,2	0,2	516	516
	14,00. R/L .1,50.6,5	17	1,5	6,5	5,2	11,5	9,0	0,2	0,2	517	517
	14,00. R/L .2,00.4,0	14	2,0	4,0	5,3	9,0	9,0	0,2	0,2	520	520
	14,00. R/L .2,00.5,5	16	2,0	5,5	5,2	10,5	9,0	0,2	0,2	521	521
	14,00. R/L .2,00.6,5	17	2,0	6,5	5,2	11,5	9,0	0,2	0,2	522	522
	14,00. R/L .2,50.5,5	16	2,5	5,5	5,2	10,5	9,0	0,2	0,2	525	525
	14,00. R/L .2,50.6,5	17	2,5	6,5	5,2	11,5	9,0	0,2	0,2	526	526
	14,00. R/L .3,00.5,5	16	3,0	5,5	5,2	10,5	9,0	0,2	0,2	530	530
	14,00. R/L .3,00.6,5	17	3,0	6,5	5,2	11,5	9,0	0,2	0,2	531	531
16	16,00. R/L .2,00.4,3	16	2,0	4,3	5,4	10,2	11,0	0,2	0,2	720	720
P										●	●
M										●	●
K										●	●
N										●	●
S										●	●
H										●	●
O										●	●

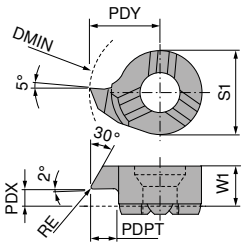
→ v_c Page 59

12

MiniCut – Back boring insert

CWX500 CWX500







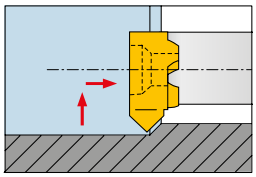
Illustrations show right-hand versions

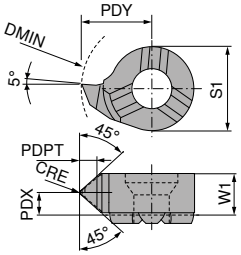
Size	Designation	DMIN mm	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	RE mm	CDX mm	Left-hand 73 332 ...	Right-hand 73 330 ...
08	8,00. R/L .30°.1,3	7,8	1,3	3,50	1,0	4,65	6,0	0,2	0,6	013	013
09	9,00. R/L .30°.1,7	9,0	1,7	3,55	1,2	5,50	6,2	0,2	0,8	117	117
	9,00. R/L .30°.2,3	10,0	2,3	3,55	1,2	6,50	6,2	0,2	0,8	123	123
11	11,00. R/L .30°.2,3	11,0	2,3	4,30	1,6	6,70	8,0	0,2	1,0	323	323
14	14,00. R/L .30°.3,5	13,8	3,5	5,40	2,4	8,70	9,0	0,2	1,5	535	535
P										●	●
M										●	●
K										●	●
N										●	●
S										●	●
H										●	●
O										●	●

→ v_c Page 59

MiniCut – Internal turning and chamfering insert

CWX500 CWX500





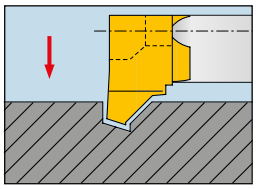


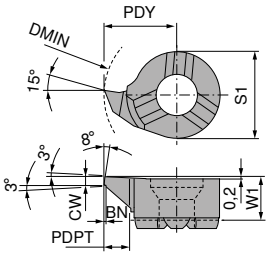
Illustrations show right-hand versions

Size	Designation	DMIN mm	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	CRE mm	CDX mm	Left-hand 73 336 ...	Right-hand 73 334 ...
08	8,00. R/L .45°.1,4	8	1,4	3,50	1,8	4,8	6,0	0,2	0,6	010	010
09	9,00. R/L .45°.1,3	9	1,3	3,55	1,8	5,5	6,2	0,2	0,8	110	110
11	11,00. R/L .45°.1,5	11	1,5	4,30	2,2	6,7	8,0	0,2	1,0	310	310
14	14,00. R/L .45°.1,5	14	1,5	5,40	2,8	9,0	9,0	0,2	1,2	510	510
P										●	●
M										●	●
K										●	●
N										●	●
S										●	●
H										●	●
O										●	●

→ v_c Page 59

MiniCut – Insert for pregrooving and chamfering





CWX500 CWX500



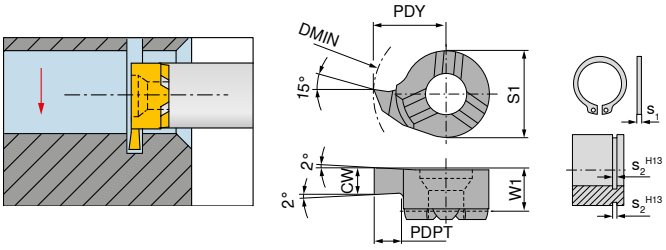
Illustrations show right-hand versions

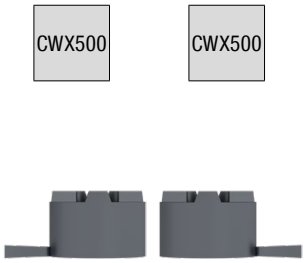
Size	Designation	DMIN mm	CW mm	PDPT mm	W1 mm	PDY mm	S1 mm	BN mm	Left-hand 73 340 ...	Right-hand 73 338 ...
08	8,00. R/L .1,00.45°	8	1	1,0	3,3	4,8	6,0	0,2	100	100
09	9,00. R/L .1,00.45°	9	1	1,5	3,6	5,5	6,2	0,2	215	215
11	11,00. R/L .1,00.45°	11	1	1,5	4,2	6,7	8,0	0,2	315	315
14	14,00. R/L .1,00.45°	14	1	1,5	5,3	9,0	9,0	0,2	515	515
16	16,00. R/L .1,00.45°	16	1	1,5	5,4	10,2	11,0	0,2	715	715
P									●	●
M									●	●
K									●	●
N									●	●
S									●	●
H									●	●
O									●	●

→ v_c Page 59

12

MiniCut – Grooving insert





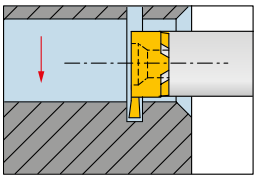
Illustrations show right-hand versions

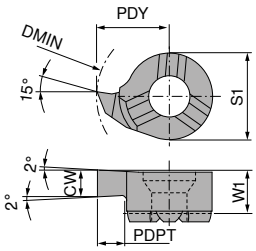
Size	Designation	DMIN mm	CW mm	PDPT mm	W1 mm	s_1 mm	$s_{2\ H13}$ mm	PDY mm	S1 mm	Left-hand 73 312 ...	Right-hand 73 310 ...
08	8,00. R/L .0,73.1,0	8	0,73	1,0	3,3	0,6	0,7	4,8	6,0	073	073
	8,00. R/L .0,83.1,0	8	0,83	1,0	3,3	0,7	0,8	4,8	6,0	083	083
	8,00. R/L .0,93.1,0	8	0,93	1,0	3,3	0,8	0,9	4,8	6,0	093	093
	8,00. R/L .1,00.1,0	8	1,00	1,0	3,3			4,8	6,0	110	110
	8,00. R/L .1,20.1,0	8	1,20	1,0	3,3	1,0	1,1	4,8	6,0	112	112
	8,00. R/L .1,40.1,0	8	1,40	1,0	3,3	1,2	1,3	4,8	6,0	114	114
	8,00. R/L .1,50.1,0	8	1,50	1,0	3,3			4,8	6,0	115	115
	8,00. R/L .1,70.1,0	8	1,70	1,0	3,3	1,5	1,6	4,8	6,0	117	117
	8,00. R/L .2,00.1,0	8	2,00	1,0	3,3			4,8	6,0	120	120
09	9,00. R/L .0,73.1,2	9	0,73	1,2	3,6	0,6	0,7	5,5	6,2	173	173
	9,00. R/L .0,83.1,3	9	0,83	1,3	3,6	0,7	0,8	5,5	6,2	183	183
	9,00. R/L .0,93.1,5	9	0,93	1,5	3,6	0,8	0,9	5,5	6,2	193	193
	9,00. R/L .1,00.1,8	9	1,00	1,8	3,6			5,5	6,2	210	210
	9,00. R/L .1,20.1,8	9	1,20	1,8	3,6	1,0	1,1	5,5	6,2	212	212
	9,00. R/L .1,40.1,8	9	1,40	1,8	3,6	1,2	1,3	5,5	6,2	214	214
	9,00. R/L .1,50.1,8	9	1,50	1,8	3,6			5,5	6,2	215	215
	9,00. R/L .1,70.1,8	9	1,70	1,8	3,6	1,5	1,6	5,5	6,2	217	217
	9,00. R/L .2,00.1,8	9	2,00	1,8	3,6			5,5	6,2	220	220
	9,00. R/L .2,50.1,8	9	2,50	1,8	3,6			5,5	6,2	225	225
	9,00. R/L .3,00.1,8	9	3,00	1,8	3,6			5,5	6,2	230	230
11	11,00. R/L .0,73.1,2	11	0,73	1,2	4,2	0,6	0,7	6,7	8,0	373	373
	11,00. R/L .0,83.1,3	11	0,83	1,3	4,2	0,7	0,8	6,7	8,0	383	383
	11,00. R .0,93.1,5	11	0,93	1,5	4,2	0,9	0,9	6,7	8,0		393
	11,00. L .0,93.1,5	11	0,93	1,5	4,2	0,8	0,9	6,7	8,0	393	
	11,00. R/L .1,00.2,3	11	1,00	2,3	4,2			6,7	8,0	310	310
	11,00. R/L .1,20.2,3	11	1,20	2,3	4,2	1,0	1,1	6,7	8,0	312	312
	11,00. R/L .1,40.2,3	11	1,40	2,3	4,2	1,2	1,3	6,7	8,0	314	314
	11,00. R/L .1,50.2,3	11	1,50	2,3	4,2			6,7	8,0	315	315
	11,00. R/L .1,70.2,3	11	1,70	2,3	4,2	1,5	1,6	6,7	8,0	317	317
	11,00. R/L .2,00.2,3	11	2,00	2,3	4,2			6,7	8,0	320	320
	11,00. R/L .2,50.2,3	11	2,50	2,3	4,2			6,7	8,0	325	325
	11,00. R/L .3,00.2,3	11	3,00	2,3	4,2			6,7	8,0	330	330
14	14,00. R/L .0,73.1,2	14	0,73	1,2	5,3	0,6	0,7	9,0	9,0	573	573
	14,00. R/L .0,83.1,3	14	0,83	1,3	5,3	0,7	0,8	9,0	9,0	583	583
	14,00. R/L .0,93.1,5	14	0,93	1,5	5,3	0,8	0,9	9,0	9,0	593	593
	14,00. R/L .1,20.4,0	14	1,20	4,0	5,3	1,0	1,1	9,0	9,0	512	512
	14,00. R/L .1,40.4,0	14	1,40	4,0	5,3	1,2	1,3	9,0	9,0	514	514
	14,00. R/L .1,50.4,0	14	1,50	4,0	5,3			9,0	9,0	515	515
	14,00. R/L .1,70.4,0	14	1,70	4,0	5,3	1,5	1,6	9,0	9,0	517	517
	14,00. R/L .2,00.4,0	14	2,00	4,0	5,3			9,0	9,0	520	520
	14,00. R/L .2,50.4,0	14	2,50	4,0	5,3			9,0	9,0	525	525
	14,00. R/L .3,00.4,0	14	3,00	4,0	5,3			9,0	9,0	530	530
16	16,00. R/L .0,73.1,2	16	0,73	1,2	5,4	0,6	0,7	10,2	11,0	773	773
	16,00. R/L .0,83.1,3	16	0,83	1,3	5,4	0,7	0,8	10,2	11,0	783	783
	16,00. R/L .0,93.1,5	16	0,93	1,5	5,4	0,8	0,9	10,2	11,0	793	793
	16,00. R/L .1,20.4,3	16	1,20	4,3	5,4	1,0	1,1	10,2	11,0	712	712
	16,00. R/L .1,40.4,3	16	1,40	4,3	5,4	1,2	1,3	10,2	11,0	714	714
	16,00. R/L .1,50.4,3	16	1,50	4,3	5,4			10,2	11,0	715	715
	16,00. R/L .1,70.4,3	16	1,70	4,3	5,4	1,5	1,6	10,2	11,0	717	717
	16,00. R/L .2,00.4,3	16	2,00	4,3	5,4			10,2	11,0	720	720
	16,00. R/L .2,50.4,3	16	2,50	4,3	5,4			10,2	11,0	725	725
	16,00. R/L .3,00.4,3	16	3,00	4,3	5,4			10,2	11,0	730	730
	16,00. R/L .3,50.4,3	16	3,50	4,3	5,4			10,2	11,0	735	735
	16,00. R/L .4,00.4,3	16	4,00	4,3	5,4			10,2	11,0	740	740
P										●	●
M										●	●
K										●	●
N										●	●
S										●	●
H										●	●
O										●	●

→ v_c Page 59

MiniCut – Grooving insert

CWX500 CWX500







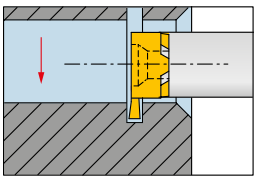
Illustrations show right-hand versions

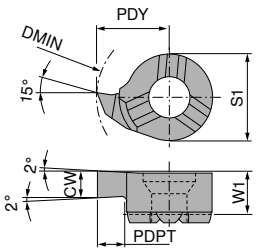
Size	Designation	DMIN mm	CW +0,03 mm	PDPT mm	W1 mm	PDY mm	S1 mm	Left-hand 73 372 ...	Right-hand 73 370 ...
14	14,00. R/L .1,50.5,5	16	1,5	5,5	5,2	10,5	9	715	715
	14,00. R/L .2,00.5,5	16	2,0	5,5	5,2	10,5	9	720	720
	14,00. R/L .2,50.5,5	16	2,5	5,5	5,2	10,5	9	725	725
	14,00. R/L .3,00.5,5	16	3,0	5,5	5,2	10,5	9	730	730
P								●	●
M								●	●
K								●	●
N								●	●
S								●	●
H								●	●
O								●	●

→ v_c Page 59

MiniCut – Grooving insert

CWX500 CWX500







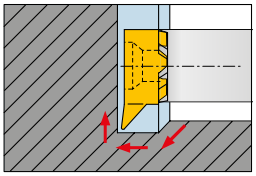
12

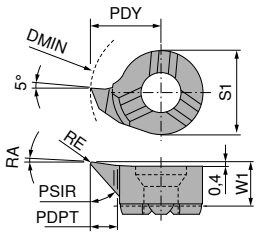
Illustrations show right-hand versions

Size	Designation	DMIN mm	CW +0,03 mm	PDPT mm	W1 mm	PDY mm	S1 mm	Left-hand 73 384 ...	Right-hand 73 382 ...
14	14,00. R/L .1,50.6,5	17	1,5	6,5	5,2	11,5	9	515	515
	14,00. R/L .2,00.6,5	17	2,0	6,5	5,2	11,5	9	520	520
	14,00. R/L .2,50.6,5	17	2,5	6,5	5,2	11,5	9	525	525
	14,00. R/L .3,00.6,5	17	3,0	6,5	5,2	11,5	9	530	530
P								●	●
M								●	●
K								●	●
N								●	●
S								●	●
H								●	●
O								●	●

→ v_c Page 59

MiniCut – Internal undercut insert





CWX500 CWX500



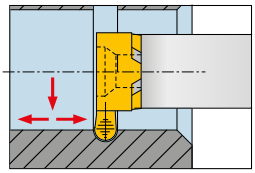
Illustrations show right-hand versions

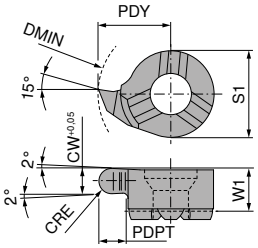
Size	Designation	DMIN mm	PDPT mm	W1 mm	PDY mm	S1 mm	RE mm	CDX mm	PSIR °	RA °	Left-hand 73 328 ...	Right-hand 73 326 ...
08	8,00. R/L .30°.1,0	7,8	1,0	3,5	4,65	6,0	0,2	0,4	30	3	010	010
	8,00. R/L .47°.1,2	7,8	1,2	3,5	4,65	6,0	0,2	0,4	47	3	012	012
09	9,00. R/L .47°.1,5	9,0	1,5	3,6	5,50	6,2	0,2	0,5	47	3	115	115
11	11,00. R/L .30°.2,3	11,0	2,3	4,2	6,70	8,0	0,2	0,6	30	3	423	423
	11,00. R/L .47°.2,3	11,0	2,3	4,2	6,70	8,0	0,2	0,6	47	3	323	323
14	13,70. R/L .47°.3,0	13,7	3,0	5,3	8,70	9,0	0,2	0,8	47	3	530	530
	13,70. R/L .30°.4,0	13,7	4,0	5,3	8,70	9,0	0,2	0,8	30	3	540	540
16	15,80. R/L .30°.4,3	15,8	4,3	5,4	10,20	11,0	0,2	1,0	30	3	744	744
P											●	●
M											●	●
K											●	●
N											●	●
S											●	●
H											●	●
O											●	●

→ v_c Page 59

MiniCut – Full radius grooving and turning insert

CWX500 CWX500







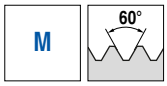
Illustrations show right-hand versions

Size	Designation	DMIN mm	CW mm	PDPT mm	W1 mm	PDY mm	S1 mm	CRE mm	Left-hand 73 320 ...	Right-hand 73 318 ...
08	8,00. R/L .0,80.1,0	8	0,8	1,0	3,3	4,8	6,0	0,4	008	008
	8,00. R/L .1,20.1,0	8	1,2	1,0	3,3	4,8	6,0	0,6	012	012
	8,00. R/L .1,80.1,0	8	1,8	1,0	3,3	4,8	6,0	0,9	018	018
	8,00. R/L .2,00.1,0	8	2,0	1,0	3,3	4,8	6,0	1,0	020	020
09	9,00. R/L .0,80.1,6	9	0,8	1,6	3,6	5,5	6,2	0,4	108	108
	9,00. R/L .1,20.1,6	9	1,2	1,6	3,6	5,5	6,2	0,6	112	112
	9,00. R/L .1,80.1,6	9	1,8	1,6	3,6	5,5	6,2	0,9	118	118
	9,00. R/L .2,00.1,6	9	2,0	1,6	3,6	5,5	6,2	1,0	120	120
11	11,00. R/L .0,80.2,3	11	0,8	2,3	4,2	6,7	8,0	0,4	308	308
	11,00. R/L .1,20.2,3	11	1,2	2,3	4,2	6,7	8,0	0,6	312	312
	11,00. R/L .1,60.2,3	11	1,6	2,3	4,2	6,7	8,0	0,8	316	316
	11,00. R/L .1,80.2,3	11	1,8	2,3	4,2	6,7	8,0	0,9	318	318
	11,00. R/L .2,00.2,3	11	2,0	2,3	4,2	6,7	8,0	1,0	320	320
	11,00. R/L .2,40.2,3	11	2,4	2,3	4,2	6,7	8,0	1,2	324	324
	11,00. R/L .3,00.2,3	11	3,0	2,3	4,2	6,7	8,0	1,5	330	330
14	14,00. R/L .0,80.4,0	14	0,8	4,0	5,3	9,0	9,0	0,4	508	508
	14,00. R/L .1,20.4,0	14	1,2	4,0	5,3	9,0	9,0	0,6	512	512
	14,00. R/L .1,80.4,0	14	1,8	4,0	5,3	9,0	9,0	0,9	518	518
	14,00. R/L .2,00.4,0	14	2,0	4,0	5,3	9,0	9,0	1,0	520	520
	14,00. R/L .2,20.4,0	14	2,2	4,0	5,3	9,0	9,0	1,1	522	522
	14,00. R/L .3,00.4,0	14	3,0	4,0	5,3	9,0	9,0	1,5	530	530
16	16,00. R/L .1,60.4,3	16	1,6	4,3	5,4	10,2	11,0	0,8	716	716
	16,00. R/L .1,80.4,3	16	1,8	4,3	5,4	10,2	11,0	0,9	718	718
	16,00. R/L .2,00.4,3	16	2,0	4,3	5,4	10,2	11,0	1,0	720	720
	16,00. R/L .2,20.4,3	16	2,2	4,3	5,4	10,2	11,0	1,1	722	722
	16,00. R/L .2,40.4,3	16	2,4	4,3	5,4	10,2	11,0	1,2	724	724
	16,00. R/L .3,00.4,3	16	3,0	4,3	5,4	10,2	11,0	1,5	730	730
	16,00. R/L .3,20.4,3	16	3,2	4,3	5,4	10,2	11,0	1,6	732	732
	16,00. R/L .4,00.4,3	16	4,0	4,3	5,4	10,2	11,0	2,0	740	740
P									●	●
M									●	●
K									●	●
N									●	●
S									●	●
H									●	●
O									●	●

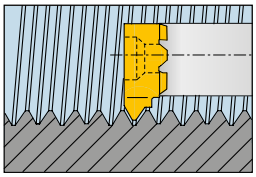
→ v_c Page 59

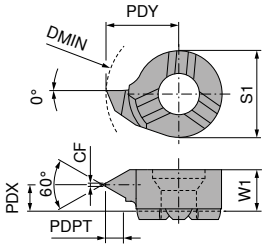
12

MiniCut – Threading insert (Partial profile)









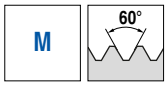


Illustrations show right-hand versions

Size	Designation	DMIN mm	TP mm	CF mm	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	Left-hand 73 344 ...	Right-hand 73 342 ...
08	8,00. R/L .0,5/0,75.60°	8	0,5 - 0,75	0,06	0,43	3,50	2,7	4,8	6,0	012	012
	8,00. R/L .1,0/1,25.60°	8	1,0 - 1,25	0,12	0,70	3,50	2,7	4,8	6,0	014	014
	8,00. R/L .1,5/1,75.60°	8	1,5 - 1,75	0,18	0,95	3,50	2,5	4,8	6,0	010	010
09	9,00. R/L .0,5/0,75.60°	9	0,5 - 0,75	0,06	0,27	3,55	3,2	5,5	6,2	112	112
	9,00. R/L .1,0/1,25.60°	9	1,0 - 1,25	0,12	0,54	3,55	3,0	5,5	6,2	114	114
	9,00. R/L .1,5/1,75.60°	9	1,5 - 1,75	0,18	0,81	3,55	2,8	5,5	6,2	116	116
	9,00. R/L .1,75/2,0.60°	9	1,75 - 2,0	0,20	0,95	3,55	2,6	5,5	6,2	118	118
	9,00. R/L .2,0/2,5.60°	9	2,0 - 2,5	0,25	1,08	3,55	2,5	5,5	6,2	120	120
	9,00. R/L .2,5/3,0.60°	9	2,5 - 3,0	0,31	1,35	3,55	2,1	5,5	6,2	122	122
	9,00. R/L .3,0/3,5.60°	9	3,0 - 3,5	0,37	1,62	3,55	1,9	5,5	6,2	124	124
11	11,00. R/L .0,5/0,75.60°	11	0,5 - 0,75	0,06	0,75	4,30	3,5	6,7	8,0	312	312
	11,00. R/L .1,0/1,25.60°	11	1,0 - 1,25	0,12	0,55	4,30	3,5	6,7	8,0	314	314
	11,00. R/L .1,5/1,75.60°	11	1,5 - 1,75	0,18	0,81	4,30	3,5	6,7	8,0	316	316
	11,00. R/L .2,0/2,5.60°	11	2,0 - 2,5	0,25	1,08	4,30	3,0	6,7	8,0	310	310
	11,00. R/L .2,5/3,0.60°	11	2,5 - 3,0	0,31	1,35	4,30	3,0	6,7	8,0	320	320
14	14,00. R/L .1,0/1,25.60°	14	1,0 - 1,25	0,12	0,55	5,40	4,7	9,0	9,0	512	512
	14,00. R/L .1,5/1,75.60°	14	1,5 - 1,75	0,18	0,81	5,40	4,5	9,0	9,0	514	514
	14,00. R/L .2,0/2,5.60°	14	2,0 - 2,5	0,25	1,08	5,40	4,2	9,0	9,0	510	510
	14,00. R/L .2,5/3,0.60°	14	2,5 - 3,0	0,31	1,35	5,40	4,7	9,0	9,0	520	520
16	16,00. R/L .1,0/1,25.60°	16	1,0 - 1,25	0,12	0,55	5,50	4,7	10,2	11,0	712	712
	16,00. R/L .1,5/1,75.60°	16	1,5 - 1,75	0,18	0,81	5,50	4,5	10,2	11,0	714	714
	16,00. R/L .2,0/2,5.60°	16	2,0 - 2,5	0,25	1,08	5,50	4,2	10,2	11,0	716	716
	16,00. R/L .2,5/3,0.60°	16	2,5 - 3,0	0,31	1,35	5,50	4,2	10,2	11,0	710	710
P										●	●
M										●	●
K										●	●
N										●	●
S										●	●
H										●	●
O										●	●

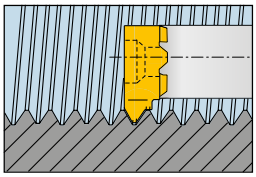
→ v_c Page 59

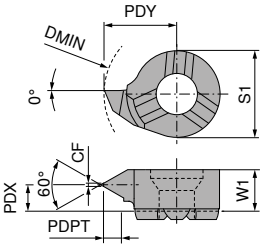
MiniCut – Threading insert (Full profile)













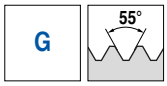
Illustrations show right-hand versions

Size	Designation	DMIN mm	TP mm	CF mm	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	Left-hand 73 348 ...	Right-hand 73 346 ...
09	9,00. R/L .0,5.60°	9	0,50	0,06	0,27	3,55	3,25	5,5	6,2	405	405
	9,00. R/L .1,0.60°	9	1,00	0,12	0,54	3,55	3,00	5,5	6,2	410	410
	9,00. R/L .1,5.60°	9	1,50	0,18	0,81	3,55	2,80	5,5	6,2	415	415
	9,00. R/L .1,75.60°	9	1,75	0,20	0,95	3,55	2,70	5,5	6,2	418	418
	9,00. R/L .2,0.60°	9	2,00	0,25	1,08	3,55	2,60	5,5	6,2	420	420
	9,00. R/L .2,5.60°	9	2,50	0,31	1,35	3,55	2,50	5,5	6,2	425	425
	9,00. R/L .3,0.60°	9	3,00	0,37	1,62	3,55	2,20	5,5	6,2	430	430
11	11,00. R/L .1,0.60°	11	1,00	0,12	0,54	4,30	3,50	6,7	8,0	314	314
	11,00. R/L .1,5.60°	11	1,50	0,18	0,81	4,30	3,50	6,7	8,0	316	316
	11,00. R/L .2,0.60°	11	2,00	0,25	1,08	4,30	3,20	6,7	8,0	310	310
	11,00. R/L .2,5.60°	11	2,50	0,31	1,35	4,30	3,00	6,7	8,0	320	320
	11,00. R/L .3,0.60°	11	3,00	0,37	1,62	4,30	2,90	6,7	8,0	330	330
14	14,00. R/L .0,5.60°	14	0,50	0,06	0,27	5,40	3,50	9,0	9,0	510	510
	14,00. R/L .1,0.60°	14	1,00	0,12	0,54	5,40	3,50	9,0	9,0	512	512
	14,00. R/L .1,5.60°	14	1,50	0,18	0,81	5,40	3,30	9,0	9,0	514	514
	14,00. R/L .2,0.60°	14	2,00	0,25	1,08	5,40	4,20	9,0	9,0	610	610
	14,00. R/L .2,5.60°	14	2,50	0,31	1,35	5,40	4,70	9,0	9,0	520	520
16	16,00. R/L .1,0.60°	16	1,00	0,12	0,54	5,50	4,70	10,2	11,0	712	712
	16,00. R/L .1,5.60°	16	1,50	0,18	0,81	5,50	4,50	10,2	11,0	714	714
	16,00. R/L .2,0.60°	16	2,00	0,25	1,08	5,50	4,20	10,2	11,0	716	716
	16,00. R/L .2,5.60°	16	2,50	0,31	1,35	5,50	4,20	10,2	11,0	710	710
	16,00. R/L .3,0.60°	16	3,00	0,37	1,62	5,50	4,00	10,2	11,0	720	720
	16,00. R/L .3,5.60°	16	3,50	0,43	1,89	5,50	3,80	10,2	11,0	730	730
	16,00. R/L .4,0.60°	16	4,00	0,50	2,16	5,50	3,60	10,2	11,0	740	740
P										●	●
M										●	●
K										●	●
N										●	●
S										●	●
H										●	●
O										●	●

→ v_c Page 59

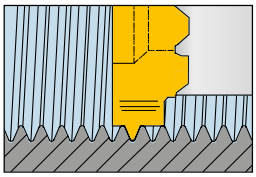
12

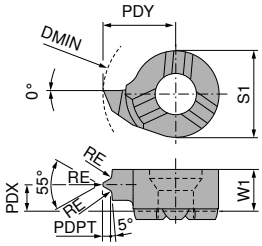
MiniCut – Threading insert (Full profile)













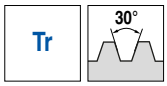
Illustrations show right-hand versions

Size	Designation	DMIN mm	TP mm	TPI 1/"	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	RE mm	Left-hand 73 352 ...	Right-hand 73 350 ...
11	11,00. R/L .1,814.55°	11	1,814	14	1,16	4,30	3,0	6,7	8	0,24	306	306
	11,00. R/L .1,337.55°	11	1,337	19	0,85	4,30	2,7	6,7	8	0,18	304	304
14	14,00. R/L .1,814.55°	14	1,814	14	1,16	5,35	3,6	9,0	9	0,24	506	506
	14,00. R/L .1,337.55°	14	1,337	19	0,85	5,35	3,8	9,0	9	0,18	504	504
16	16,00. R/L .2,309.55°	16	2,309	11	1,48	5,50	3,5	10,2	11	0,31	708	708
	16,00. R/L .1,814.55°	16	1,814	14	1,16	5,50	3,9	10,2	11	0,24	706	706
P											●	●
M											●	●
K											●	●
N											●	●
S											●	●
H											●	●
O											●	●

→ v_c Page 59

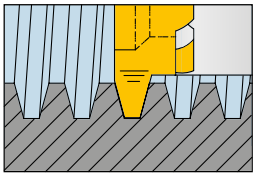
MiniCut – Threading insert (Partial profile)

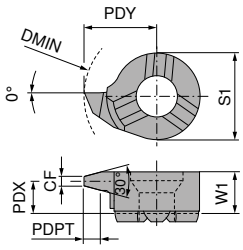
▲ Trapezoidal thread DIN 103













Illustrations show right-hand versions

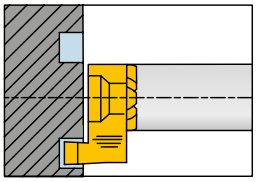
Size	Designation	DMIN mm	TP mm	CF mm	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	Left-hand 73 356 ...	Right-hand 73 354 ...
09	9,00. R/L .1,5.30°	9	1,5	0,47	0,90	3,55	3,00	5,5	6,2	415	415
	9,00. R/L .2,0.30°	9	2,0	0,60	1,25	3,55	2,85	5,5	6,2	420	420
	9,00. R/L .3,0.30°	9	3,0	0,96	1,75	3,55	2,25	5,5	6,2	430	430
	9,00. R/L .4,0.30°	10	4,0	1,33	2,25	3,55	2,25	5,5	6,2	440	440
11	11,00. R/L .1,5.30°	11	1,5	0,47	0,90	4,30	3,70	6,7	8,0	315	315
	11,00. R/L .2,0.30°	11	2,0	0,60	1,25	4,30	3,50	6,7	8,0	320	320
	11,00. R/L .3,0.30°	11	3,0	0,96	1,75	4,30	3,20	6,7	8,0	330	330
	11,00. R/L .4,0.30°	11	4,0	1,33	2,25	3,95	2,60	6,7	8,0	340	340
14	14,00. R/L .2,0.30°	14	2,0	0,60	1,25	5,30	4,30	9,0	9,0	520	520
	14,00. R/L .3,0.30°	14	3,0	0,96	1,75	5,30	4,00	9,0	9,0	530	530
	14,00. R/L .4,0.30°	14	4,0	1,33	2,25	5,30	3,60	9,0	9,0	540	540
	14,00. R/L .5,0.30°	14	5,0	1,69	2,75	5,30	3,30	9,0	9,0	550	550
16	16,00. R/L .2,0.30°	16	2,0	0,60	1,25	5,50	4,50	9,7	11,0	720	720
	16,00. R/L .3,0.30°	16	3,0	0,96	1,75	5,50	4,30	9,7	11,0	730	730
	16,00. R/L .4,0.30°	16	4,0	1,33	2,25	5,50	4,00	9,7	11,0	740	740
	16,00. R/L .5,0.30°	16	5,0	1,69	2,75	5,50	3,55	9,7	11,0	750	750
	16,00. R/L .6,0.30°	16	6,0	1,92	3,50	5,50	3,30	10,2	11,0	760	760
P										●	●
M										●	●
K										●	●
N										●	●
S										●	●
H										●	●
O										●	●

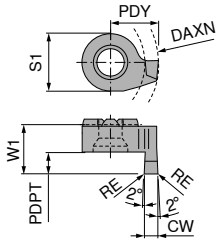
→ v_c Page 59

12

MiniCut – Axial grooving insert

CWX500 CWX500







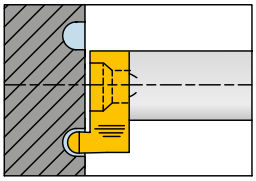
Illustrations show right-hand versions

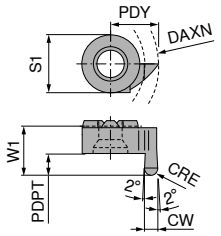
Size	Designation	DAXN mm	CW mm	PDPT mm	W1 mm	PDY mm	RE mm	S1 mm	Left-hand 73 364 ...	Right-hand 73 362 ...
14	14,00. R/L .1,0.1,5	14	1,0	1,5	8,3	9		9	510	510
	14,00. R/L .1,5.2,5	14	1,5	2,5	8,3	9	0,2	9	515	515
	14,00. R/L .2,0.3,0	14	2,0	3,0	8,3	9	0,2	9	520	520
	14,00. R/L .2,0.5,0	14	2,0	5,0	10,3	9	0,2	9	620	620
	14,00. R/L .2,5.3,0	14	2,5	3,0	8,3	9	0,2	9	525	525
	14,00. R/L .2,5.5,0	14	2,5	5,0	10,3	9	0,2	9	625	625
	14,00. R/L .3,0.3,0	14	3,0	3,0	8,3	9	0,2	9	530	530
	14,00. R/L .3,0.5,0	14	3,0	5,0	10,3	9	0,2	9	630	630
P									●	●
M									●	●
K									●	●
N									●	●
S									●	●
H									●	●
O									●	●

→ v_c Page 59

MiniCut – Full radius axial grooving insert

CWX500 CWX500





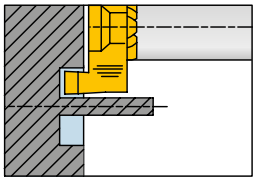


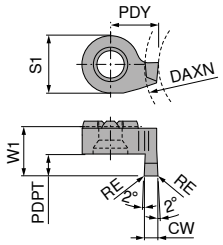
Illustrations show right-hand versions

Size	Designation	DAXN mm	CW mm	PDPT mm	W1 mm	PDY mm	CRE mm	S1 mm	Left-hand 73 376 ...	Right-hand 73 374 ...
14	14,00. R/L . 1,0.1,5	14	1,0	1,5	8,3	9	0,5	9	510	510
	14,00. R/L . 1,6.2,5	14	1,6	2,5	8,3	9	0,8	9	516	516
	14,00. R/L . 2,0.3,0	14	2,0	3,0	8,3	9	1,0	9	520	520
	14,00. R/L . 2,5.3,0	14	2,5	3,0	8,3	9	1,2	9	525	525
	14,00. R/L . 3,0.3,0	14	3,0	3,0	8,3	9	1,5	9	530	530
P									●	●
M									●	●
K									●	●
N									●	●
S									●	●
H									●	●
O									●	●

→ v_c Page 59

MiniCut – Axial grooving insert over a spigot





CWX500 CWX500



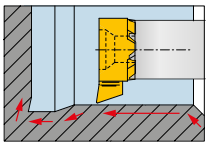
Illustrations show right-hand versions

Size	Designation	DAXN mm	CW mm	PDPT mm	W1 mm	PDY mm	RE mm	S1 mm	Left-hand 73 360 ...	Right-hand 73 358 ...
14	14/12. R/L .1,0.1,5	12	1,0	1,5	8,3	7,0		9	310	310
	14/12. R/L .1,5.2,5	12	1,5	2,5	8,3	7,5	0,2	9	315	315
	14/12. R/L .2,0.3,0	12	2,0	3,0	8,3	8,0	0,2	9	320	320
	14/12. R/L .2,0.5,0	12	2,0	5,0	10,3	8,0	0,2	9	420	420
	14/12. R/L .2,5.3,0	12	2,5	3,0	8,3	8,5	0,2	9	325	325
	14/12. R/L .2,5.5,0	12	2,5	5,0	10,3	8,5	0,2	9	425	425
	14/12. R/L .3,0.3,0	12	3,0	3,0	8,3	9,0	0,2	9	330	330
	14/12. R/L .3,0.5,0	12	3,0	5,0	10,3	9,0	0,2	9	430	430
P									●	●
M									●	●
K									●	●
N									●	●
S									●	●
H									●	●
O									●	●

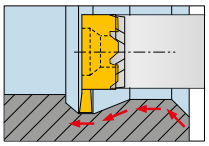
→ v_c Page 59

MiniCut – Set

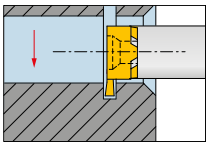
- Extensive range of size 9 inserts
- CWX500



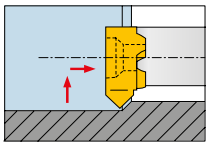
Profile turning (K)



Profile turn (A)



Grooving (E)



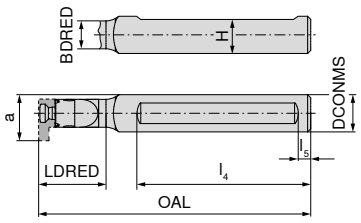
Chamfers (F)

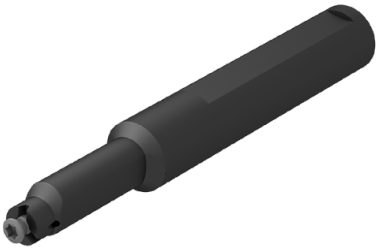


12

Size	Tool	Designation	Article no.	Bore Ø mm	Width mm	Grooving depth mm	Piece	fig.	73 528 ...
09	Grooving insert	9,00. R .1,00.1,8	73 310 210	9	1,00	1,8	1	E	125
	NC fine turning insert	9,00. R .2,00.2,0	73 314 120	9	2,0 +0,05	2,0	1	A	
	Profiling insert	9,00. R .3,60.10°	73 386 136	9	3,6		1	K	
	Profiling insert	9,00. R .3,60.20°	73 322 236	9	3,6		1	K	
	Chamfering insert	9,00. R .45°.1,3	73 334 110	9		1,3	1	F	
	Tool holder	9,00/16.N.25.1,0	73 522 125				1		
	Tightening Key		70 950 105				1		

MiniCut – Steel Tool holder





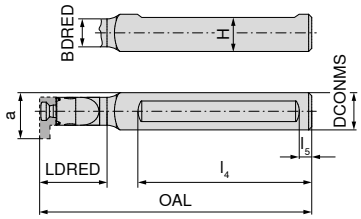
Size	Designation	a mm	DCONMS $_{f7}$ mm	OAL mm	l_4 mm	LDRED mm	BDRED mm	H mm	l_5 mm	73 522 ...
08	8,00/16.N.12.1,0	7,8	16	80	60	12	6,0	15,0	5	012
	8,00/16.N.22.1,0	7,8	16	90	60	22	6,0	15,0	5	122
09	9,00/16.N.14.1,8	8,6	16	95	60	14	7,4	15,0	5	014
	9,00/16.N.25.1,8	8,6	16	105	60	25	7,4	15,0	5	125
11	11,00/16.N.16.2,3	10,7	16	97	60	16	8,0	14,5	5	016
	11,00/16.N.29.2,3	10,7	16	110	60	29	8,0	14,5	5	129
14	14,00/16.N.18.4,0	13,8	16	100	60	18	11,0	14,5	5	018
	14,00/16.N.38.4,0	13,8	16	120	60	38	11,0	14,5	5	138
16	16,00/16.N.22.4,3	15,7	16	100	60	22	11,0	14,5	5	022
	16,00/16.N.42.4,3	15,7	16	120	60	42	11,0	14,5	5	142

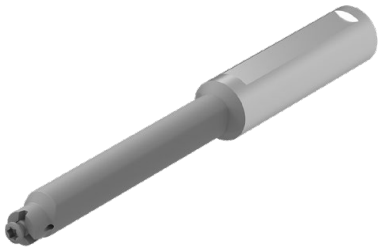

Key D


Clamping screw

Spare parts Size		80 950 ...		73 082 ...
08	T08	110	M2,6	002
09	T08	110	M2,6	002
11	T10	112	M3,5	003
14	T15	113	M4	004
16	T20	114	M5	005

MiniCut – Solid Carbide Tool holder – vibration damped





Size	Designation	a mm	DCONMS f7 mm	OAL mm	l_4 mm	LDRED mm	BDRED mm	H mm	l_5 mm	73 520 ...
08	8,00/12.N.21.1,0 HM	7,8	12	80	48	21	6,0	11,0	5	021
	8,00/12.N.30.1,0 HM	7,8	12	90	48	30	6,0	11,0	5	030
	8,00/12.N.42.1,0 HM	7,8	12	100	48	42	6,0	11,0	5	042
	8,00/12.N.50.1,0 HM	7,8	12	115	48	50	6,0	11,0	5	050
09	9,00/12.N.22.1,0 HM	8,6	12	90	60	22	7,4	11,0	5	222
	9,00/12.N.30.2,0 HM	8,6	12	98	60	30	7,4	11,0	5	230
	9,00/12.N.42.3,0 HM	8,6	12	110	60	42	7,4	11,0	5	242
	9,00/12.N.56.4,0 HM	8,6	12	122	60	56	7,4	11,0	5	256
11	11,00/12.N.29.2,3 HM	10,7	12	95	60	29	8,0	10,5	5	129
	11,00/12.N.42.2,3 HM	10,7	12	110	60	42	8,0	10,5	5	142
	11,00/12.N.56.2,3 HM	10,7	12	120	60	56	8,0	10,5	5	156
	11,00/12.N.64.2,3 HM	10,7	12	130	60	64	8,0	10,5	5	164
14	14,00/12.N.34.4,0 HM	13,8	12	100	60	34	11,0	10,5	5	234
	14,00/12.N.45.4,0 HM	13,8	12	110	60	45	11,0	10,5	5	245
	14,00/12.N.64.4,0 HM	13,8	12	130	60	64	11,0	10,5	5	264
	14,00/16.N.34.4,0 HM	13,8	16	100	60	34	11,0	14,5	5	334
	14,00/16.N.45.4,0 HM	13,8	16	110	60	45	11,0	14,5	5	345
	14,00/16.N.64.4,0 HM	13,8	16	130	60	64	11,0	14,5	5	364
	14,00/16.N.75.4,0 HM	13,8	16	145	60	75	11,0	14,5	5	375
16	16,00/12.N.40.4,3 HM	15,7	12	130	60	40	11,0	10,5	5	440
	16,00/12.N.56.4,3 HM	15,7	12	130	60	56	11,0	10,5	5	456
	16,00/12.N.80.4,3 HM	15,7	12	150	60	80	11,0	10,5	5	480
	16,00/16.N.40.4,3 HM	15,7	16	130	60	40	11,0	14,5	5	540
	16,00/16.N.56.4,3 HM	15,7	16	130	60	56	11,0	14,5	5	556
	16,00/16.N.80.4,3 HM	15,7	16	150	60	80	11,0	14,5	5	580

12



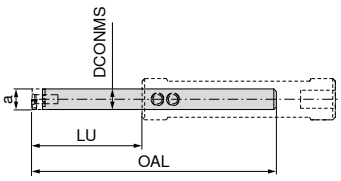
Key D

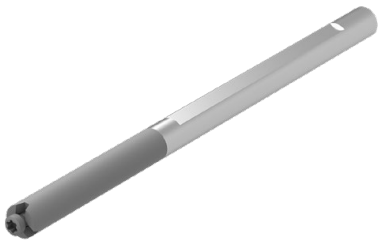


Clamping screw

Spare parts Size		80 950 ...		73 082 ...
08	T08	110	M2,6	002
09	T08	110	M2,6	002
11	T10	112	M3,5	003
14	T15	113	M4	004
16	T20	114	M5	005

MiniCut – HM – Flexoholder





Size	Designation	DCONMS mm	OAL mm	LU mm	a mm	73 525 ...
08	8,0/6.N16/2	6	65	18	8	818
	8,0/6.N40/4	6	103	40	8	840
11	11,0/8.N20/2	8	79	20	11	120 1)
	11,0/8.N50/4	8	129	50	11	150 1)

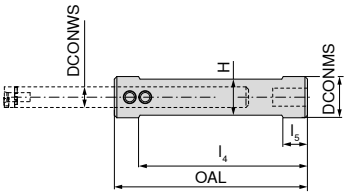
1) with thro' coolant


Key D


Clamping screw

Spare parts Size		80 950 ...		73 082 ...
08	T08	110	M2,6	002
11	T10	112	M3,5	003

MiniCut – Base holder for solid carbide Flexoholder





Size	Designation	DCONWS mm	DCONMS mm	H mm	OAL mm	l_4 mm	l_5 mm	73 526 ...
08	8/16.75	6	16	14	75	55	10	816
	8/20.90	6	20	18	90	70	10	820
11	11/16.75	8	16	14	75	55	10	116
	11/20.90	8	20	18	90	70	10	120

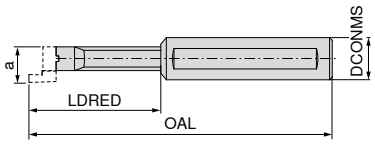

Key I

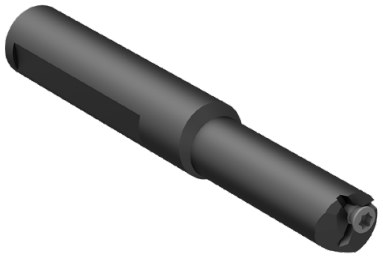

Clamping screw

Spare parts for Article no.		70 950 ...		73 082 ...
73 526 816	SW2,5	175	M5x0,5x6	010
73 526 820	SW2,5	175	M5x0,5x6	010
73 526 116	SW2,5	175	M5x0,5x4	009
73 526 120	SW2,5	175	M5x0,5x6	010

MiniCut – Steel holder

▲ for axial machining





Size	Designation	a	DCONMS	OAL	LDRED	Left-hand	Right-hand
		mm	mm	mm	mm	73 523 ...	73 524 ...
14	14,0/16. R/L .25.1,0	13,5	16	90	25	025	025
	14,0/16. R/L .45.1,0	13,5	16	110	45	145	145



Key D

80 950 ...



Clamping screw

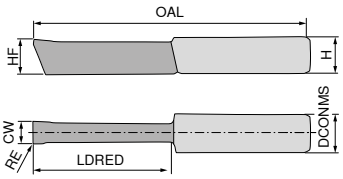
73 082 ...

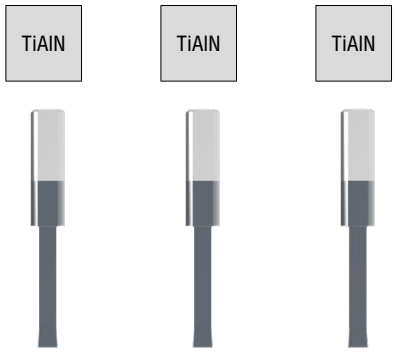
Spare parts Size				
14	T15	113	M4	004

12

SlotCut – Inserts – DIN 138

▲ b_1 = Groove width





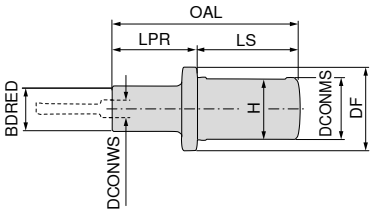
Designation	b_1 P 9/JS 9/C 11	CW	HF	RE	OAL	LDRED	DMIN	DCONMS h6	H	clamping holder	73 600 ...	73 601 ...	73 602 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm				
NPU.0198.01.1	2	1,98	5,5	0,10	38	12,5	6	7	6,3	NHU			**099**
NPU.0200.01.1	2	2,01	5,5	0,10	38	12,5	6	7	6,3	NHU		**099**	
NPU.0210.03.1	2	2,10	5,5	0,35	38	12,5	6	7	6,3	NHU	**098**		
NPU.0298.01.1	3	2,98	6,2	0,10	38	12,5	7	7	6,3	NHU			**100**
NPU.0300.01.1	3	3,01	6,2	0,10	38	12,5	7	7	6,3	NHU		**100**	
NPU.0310.03.1	3	3,10	6,2	0,35	38	12,5	7	7	6,3	NHU	**099**		
NPU.0310.05.1	3	3,10	6,2	0,50	38	12,5	7	7	6,3	NHU	**100**		
NPU.0398.01.1	4	3,98	6,2	0,10	40	15,0	7	7	6,3	NHU			**101**
NPU.0398.02.2	4	3,98	6,2	0,20	50	25,0	7	7	6,3	NHU			**102**
NPU.0400.01.1	4	4,01	6,2	0,10	40	15,0	7	7	6,3	NHU		**101**	
NPU.0400.02.1	4	4,01	6,2	0,20	40	15,0	7	7	6,3	NHU		**102**	
NPU.0400.02.2	4	4,01	6,2	0,20	50	25,0	7	7	6,3	NHU		**103**	
NPU.0410.05.1	4	4,10	6,2	0,50	40	15,0	7	7	6,3	NHU	**101**		
NPU.0410.05.2	4	4,10	6,2	0,50	50	25,0	7	7	6,3	NHU	**102**		
NPU.0498.02.2	5	4,98	5,8	0,20	50	25,0	7	7	6,3	NHU			**103**
NPU.0500.02.2	5	5,01	5,8	0,20	50	25,0	8	7	6,3	NHU		**104**	

Tolerance **C 11** for 73 600 ..., Tolerance **JS 9** for 73 601 ..., Tolerance **P 9** for 73 602 ...

SlotCut – Toolholder for broaching inserts

Scope of supply:

Tool holder with clamping screw, without insert





Designation	DCONWS	BDRED	DCONMS g6	DF	OAL	LS	LPR	H	Inserts	73 610 ...
	mm	mm	mm	mm	mm	mm	mm	mm		
NHU.25	7	18	25	33	73	40	33	23	NPU	**025**
NHU.32	7	20	32	40	73	40	33	30	NPU	**032**

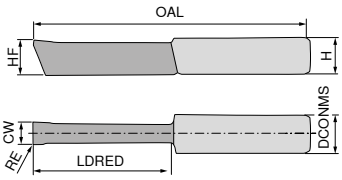

Key I

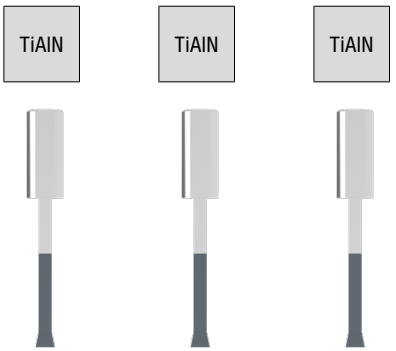

Clamping screw

Spare parts for Article no.		70 950 ...		73 082 ...
73 610 025	SW2,5	**175**	M5x6	**001**
73 610 032	SW2,5	**175**	M5x6	**001**

SlotCut – Inserts – DIN 138

▲ b_1 = Groove width



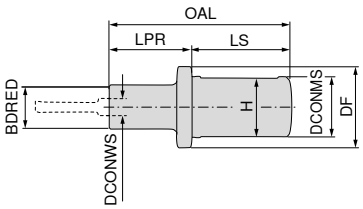


Designation	b_1 JS 9/P 9/C 11	CW	HF	RE	OAL	LDRED	DMIN	DCONMS h6	H	clamping holder	73 606 ...	73 607 ...	73 608 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm				
NP10.398.02.2	4	3,98	9	0,2	50	25	10	10	9,2	NH 10		101	
NP10.398.02.3	4	3,98	9	0,2	66	41	10	10	9,2	NH 10		102	
NP10.400.02.2	4	4,01	9	0,2	50	25	10	10	9,2	NH 10			101
NP10.400.02.3	4	4,01	9	0,2	66	41	10	10	9,2	NH 10			102
NP10.410.05.2	4	4,10	9	0,5	50	25	10	10	9,2	NH 10	101		
NP10.410.05.3	4	4,10	9	0,5	66	41	10	10	9,2	NH 10	102		
NP10.498.02.2	5	4,98	9	0,2	50	25	10	10	9,2	NH 10		103	
NP10.498.02.3	5	4,98	9	0,2	66	41	10	10	9,2	NH 10		104	
NP10.500.02.2	5	5,01	9	0,2	50	25	10	10	9,2	NH 10			103
NP10.500.02.3	5	5,01	9	0,2	66	41	10	10	9,2	NH 10			104
NP10.510.05.2	5	5,10	9	0,5	50	25	10	10	9,2	NH 10	103		
NP10.510.05.3	5	5,10	9	0,5	66	41	10	10	9,2	NH 10	104		

Tolerance **C 11** for 73 606 ..., Tolerance **P 9** for 73 607 ..., Tolerance **JS 9** for 73 608 ...

SlotCut – Toolholder for Cutting Inserts

Scope of supply:
Tool holder with clamping screw, without insert





12

Designation	DCONWS	BDRED	DCONMS g6	DF	OAL	LS	LPR	H	Inserts	73 612 ...
	mm	mm	mm	mm	mm	mm	mm	mm		
NH10.0025.1	10	20	25	33	73	40	33	23	NP10	**025**
NH10.0032.1	10	20	32	40	73	40	33	30	NP10	**032**

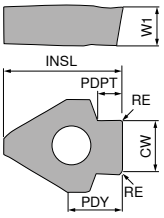

Key I

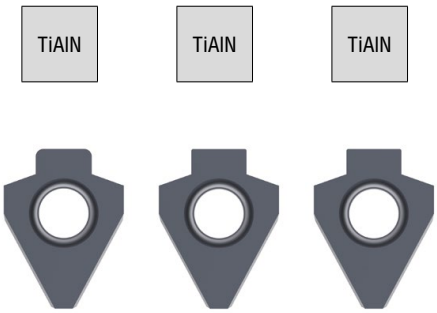

Grubscrew

Spare parts for Article no.		70 950 ...		70 950 ...
73 612 032	SW3	**176**	M6x5,5	**031**
73 612 025	SW3	**176**	M6x5,5	**031**

SlotCut – Inserts – DIN 138

▲ b_1 = Groove width





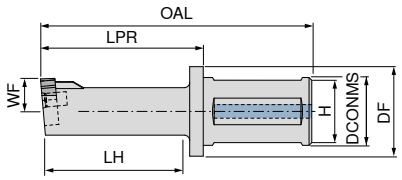
Designation	b_1 P 9/JS 9/C 11	CW	RE	PDY	INSL	PDPT	DMIN	W1	clamping holder	73 603 ...	73 604 ...	73 605 ...
	mm	mm	mm	mm	mm	mm	mm	mm				
NV15.0398.02	4	3,98	0,20	6,5	13,0	2,3	15	3,2	NHV 15			**110**
NV15.0401.02	4	4,01	0,20	6,5	13,0	2,3	15	3,2	NHV 15		**110**	
NV15.0410.050	4	4,10	0,50	6,5	13,0	2,2	15	3,2	NHV 15	**108**		
NV15.0498.02	5	4,98	0,20	6,5	13,0	2,8	15	3,2	NHV 15			**111**
NV15.0501.02	5	5,01	0,20	6,5	13,0	2,8	15	3,2	NHV 15		**111**	
NV15.0510.050	5	5,10	0,50	6,5	13,0	2,5	15	3,2	NHV 15	**109**		
NV15.0598.02	6	5,98	0,20	6,5	13,0	3,3	15	3,2	NHV 15			**112**
NV15.0601.02	6	6,01	0,20	6,5	13,0	3,3	15	3,2	NHV 15		**112**	
NV15.0612.085	6	6,12	0,85	6,5	13,0	2,6	15	3,2	NHV 15	**110**		
NPV.0498.02	5	4,98	0,20	8,0	17,3	2,7	22	5,3	NHV 22			**100**
NPV.0501.02	5	5,01	0,20	8,0	17,3	2,7	22	5,3	NHV 22		**100**	
NPV.0598.02	6	5,98	0,20	8,0	17,3	3,4	22	5,3	NHV 22			**101**
NPV.0601.02	6	6,01	0,20	8,0	17,3	3,4	22	5,3	NHV 22		**101**	
NPV.0612.085	6	6,12	0,85	8,0	17,3	2,6	22	5,3	NHV 22	**101**		
NPV.0713.085	7	7,13	0,85	8,0	17,3	3,3	22	5,3	NHV 22	**102**		
NPV.0798.02	8	7,98	0,20	8,0	17,3	4,1	22	5,3	NHV 22/30			**102**
NPV.0801.02	8	8,01	0,20	8,0	17,3	4,1	22	5,3	NHV 22/30		**102**	
NPV.0813.105	8	8,13	1,05	8,0	17,3	3,4	22	5,3	NHV 22/30	**103**		
NPV.0998.03	10	9,98	0,30	8,0	17,3	4,2	30	5,3	NHV 30			**103**
NPV.1001.03	10	10,01	0,30	8,0	17,3	4,2	30	5,3	NHV 30		**103**	
NPV.1013.105	10	10,13	1,05	10,9	20,2	4,2	40	5,3	NHV 38	**104**		
NPV.1197.03	12	11,97	0,30	10,9	20,2	5,7	40	5,3	NHV 38			**104**
NPV.1202.05	20	12,02	0,50	10,9	20,2	8,5	40	5,3	NHV 38		**105**	
NPV.1202.03	12	12,02	0,30	10,9	20,2	5,7	40	5,3	NHV 38		**104**	
NPV.1215.135	12	12,15	1,35	10,9	20,2	5,1	40	5,3	NHV 38	**105**		
NPV.1215.175	16	12,15	1,75	10,9	20,2	6,6	40	5,3	NHV 38	**106**		
NPV.1215.225	24	12,15	2,25	10,9	20,2	8,5	40	5,3	NHV 38	**107**		
NPV.1397.03	14	13,97	0,30	10,9	20,1	7,5	45	5,3	NHV 45			**106**
NPV.1402.03	14	14,02	0,30	10,9	20,1	7,5	45	5,3	NHV 45		**106**	
NPV.1597.03	16	15,97	0,30	10,9	20,1	7,5	45	5,3	NHV 45			**107**
NPV.1602.03	16	16,02	0,30	10,9	20,1	7,5	45	5,3	NHV 45		**107**	
NPV.1797.05	18	17,97	0,50	10,9	20,1	9,5	45	5,3	NHV 45			**108**
NPV.1802.05	18	18,02	0,50	10,9	20,1	9,5	45	5,3	NHV 45		**108**	
NPV.1997.05	20	19,97	0,50	10,9	20,1	10,0	45	5,3	NHV 45			**109**
NPV.2002.05	20	20,02	0,50	10,9	20,1	10,0	45	5,3	NHV 45		**109**	

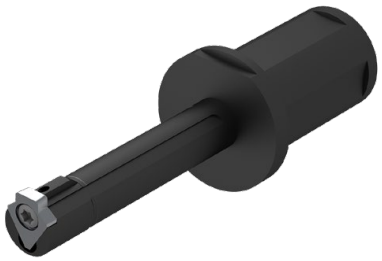
Tolerance **C 11** for 73 603 ..., Tolerance **JS 9** for 73 604 ..., Tolerance **P 9** for 73 605 ...

SlotCut – Toolholder for inserts

Scope of supply:
Tool holder with clamping screw, without insert





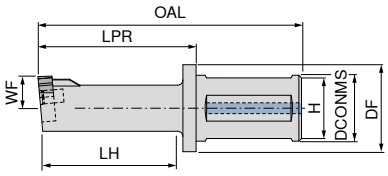


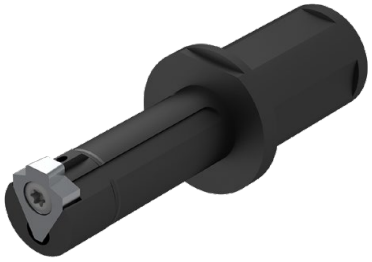
Designation	DCONMS g6	DMIN	DF	OAL	LH	LPR	H	WF	Inserts	73 613 ...
	mm	mm	mm	mm	mm	mm	mm	mm		
NHV.15.1	25	15	33	75	25	35	23	8,4	NV15	**025**
NHV.15.2	25	15	33	90	40	50	23	8,4	NV15	**125**
NHV.15.3	25	15	33	110	60	70	23	8,4	NV15	**225**

SlotCut – Toolholder for inserts

Scope of supply:
Tool holder with clamping screw, without insert







Designation	DCONMS g6	DMIN	DF	OAL	LH	LPR	H	WF	Inserts	73 611 ...
	mm	mm	mm	mm	mm	mm	mm	mm		
NHV.22	25	22	33	100	50	60	23	12,0	NPV	**025**
NHV.30	32	30	45	100	50	60	30	16,5	NPV	**032**
NHV.30	32	30	45	125	75	85	30	16,5	NPV	**532**
NHV.38	32	38	45	100	50	60	30	22,0	NPV	**132**
NHV.38	32	38	45	125	75	85	30	22,0	NPV	**632**
NHV.45	40	45	55	120	50	60	38	24,0	NPV	**040**
NHV.45	40	45	55	175	105	115	38	24,0	NPV	**140**
NHV.45	40	45	55	225	155	165	38	24,0	NPV	**240**


Key D


Clamping screw

Spare parts DCONMS g6		80 950 ...		73 082 ...
25	T20	**114**	M5x13	**007**
32	T20	**114**	M5x13	**007**
40	T20	**114**	M5x13	**007**

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²				
		O.3.1	Graphite						

*** Tensile strength**

Cutting data standard values

	UltraMini K10F uncoated	UltraMini K10F-TiN	UltraMini K10-TiAlN	UltraMini DPX 57S	MiniCut CWX500	UltraMini TiAlN+	MiniCut CBN
Index	v_c in m/min						
P.1.1		**90**	**110**	110	**160**	110	
P.1.2		**80**	**100**	100	**140**	100	
P.1.3		**60**	**80**	80	**140**	80	
P.1.4		**60**	**80**	80	**110**	80	
P.1.5		**60**	**60**	60	**100**	60	
P.2.1		**60**	**80**	80	**110**	80	
P.2.2		**60**	**60**	60	**100**	60	
P.2.3		**50**	**60**	60	**90**	60	
P.2.4		**50**	**60**	60	**80**	60	
P.3.1		**50**	**60**	60	**80**	60	
P.3.2		**30**	**50**	**50**	**70**	50	
P.3.3		**30**	**30**	**30**	**50**	30	
P.4.1		**60**	**70**	**70**	**100**	70	
P.4.2		**50**	**60**	**60**	**90**	60	
M.1.1		**60**	**80**	**80**	**80**	80	
M.2.1		**50**	**60**	**60**	**70**	60	
M.3.1		**40**	**50**	**50**	**60**	50	
K.1.1		**80**	**100**	100	**90**	100	
K.1.2		**60**	**70**	70	**100**	70	
K.2.1		**60**	**60**	60	**80**	60	
K.2.2		**50**	**60**	60	**70**	60	
K.3.1		**80**	**100**	100	**120**	100	
K.3.2		**70**	**80**	80	**100**	80	
N.1.1	100	**200**	**230**	230	**290**	230	
N.1.2	100	**180**	**220**	220	**280**	220	
N.2.1	90	**160**	**190**	190	**240**	190	
N.2.2	70	**140**	**170**	170	**200**	170	
N.2.3	50	**80**	**100**	100	**120**	100	
N.3.1	80	**140**	**170**	170	**210**	170	
N.3.2	70	**120**	**140**	140	**180**	140	
N.3.3	50	**100**	**120**	120	**130**	120	
N.4.1	50	**100**	**120**	120	**100**	120	
S.1.1		30	**50**	50	**50**	50	
S.1.2		30	**30**	30	**30**	30	30
S.2.1		30	**50**	50	**50**	50	50
S.2.2		30	**30**	30	**40**	30	30
S.2.3			**30**	30	**30**	30	30
S.3.1		30	**50**	**50**	**50**	50	
S.3.2		20	**30**	**30**	**40**	30	
S.3.3			**20**	20	**30**	20	20
H.1.1		30	**40**	40	**50**	**40**	**40**
H.1.2			30	30	40	**30**	**30**
H.1.3				20		**30**	**30**
H.1.4							
H.2.1							
H.3.1		20	**30**	30	**40**	**30**	**30**
O.1.1	**50**	**90**	**110**	110	**150**	110	
O.1.2	**50**	**100**	**120**	120	**150**	120	
O.2.1		**90**	**110**	110	**130**	110	
O.2.2		**60**	**80**	80	**100**	80	
O.3.1	50	**100**	**120**	120	**150**	120	

	UltraMini	MiniCut
	f in mm/rev.	
Internal turning and profiling	0,02–0,05	0,03–0,10
Internal turning and profiling – hard turning	0,02–0,06	0,03–0,10
Turning and profile turning – super alloys	0,02–0,08	
Internal turning	0,02–0,05	0,01–0,03
Back boring	0,02–0,04	0,03–0,10
Turning and chamfering	0,01–0,03	0,03–0,10
Pre-parting and chamfering	0,01–0,02	0,01–0,03
Groove turning	0,01–0,02	0,01–0,03
Internal Undercuts	0,01–0,03	0,03–0,08
Groove and profile turning	0,01–0,02	0,01–0,03
Axial grooving	0,02–0,05	0,02–0,05

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values – 73 000 ... / 73 001 ...

		Roughing										
	UltraMini DPX77S	Ø ≤ 2 mm Corner radius in mm			Ø 2,5–4 mm Corner radius in mm				Ø ≥ 5 mm Corner radius in mm			
Index		0,05	0,1	0,15	0,05	0,1	0,15	0,2 / 0,4	0,05	0,1	0,15	0,2 / 0,4
	v_c in m/min	f in mm/rev.			f in mm/rev.				f in mm/rev.			
P.1.1	110	0,026–0,076	0,029–0,082	0,031–0,088	0,053–0,151	0,058–0,165	0,062–0,176	0,064–0,184	0,099–0,284	0,108–0,309	0,116–0,33	0,121–0,345
P.1.2	100	0,026–0,076	0,029–0,082	0,031–0,088	0,053–0,151	0,058–0,165	0,062–0,176	0,064–0,184	0,099–0,284	0,108–0,309	0,116–0,33	0,121–0,345
P.1.3	80	0,026–0,076	0,029–0,082	0,031–0,088	0,053–0,151	0,058–0,165	0,062–0,176	0,064–0,184	0,099–0,284	0,108–0,309	0,116–0,33	0,121–0,345
P.1.4	80	0,023–0,065	0,025–0,071	0,026–0,076	0,046–0,13	0,05–0,142	0,053–0,151	0,055–0,158	0,085–0,244	0,093–0,266	0,099–0,284	0,104–0,297
P.1.5	60	0,024–0,068	0,026–0,074	0,028–0,079	0,048–0,136	0,052–0,148	0,055–0,158	0,058–0,166	0,089–0,255	0,097–0,278	0,104–0,297	0,109–0,311
P.2.1	80	0,024–0,068	0,026–0,074	0,028–0,079	0,048–0,136	0,052–0,148	0,055–0,158	0,058–0,166	0,089–0,255	0,097–0,278	0,104–0,297	0,109–0,311
P.2.2	60	0,021–0,06	0,023–0,066	0,025–0,07	0,042–0,121	0,046–0,132	0,049–0,141	0,052–0,147	0,079–0,227	0,087–0,247	0,092–0,264	0,097–0,276
P.2.3	60	0,019–0,054	0,021–0,059	0,022–0,063	0,038–0,109	0,042–0,119	0,044–0,127	0,046–0,132	0,071–0,204	0,078–0,222	0,083–0,238	0,087–0,248
P.2.4	60	0,018–0,051	0,02–0,056	0,021–0,06	0,036–0,103	0,039–0,112	0,042–0,12	0,044–0,125	0,067–0,193	0,074–0,21	0,079–0,224	0,082–0,235
P.3.1	60	0,021–0,06	0,023–0,066	0,025–0,07	0,042–0,121	0,046–0,132	0,049–0,141	0,052–0,147	0,079–0,227	0,087–0,247	0,092–0,264	0,097–0,276
P.3.2	50	0,02–0,057	0,022–0,063	0,023–0,067	0,04–0,115	0,044–0,125	0,047–0,134	0,049–0,14	0,075–0,215	0,082–0,235	0,088–0,251	0,092–0,262
P.3.3	30	0,016–0,045	0,017–0,049	0,018–0,053	0,032–0,091	0,035–0,099	0,037–0,106	0,039–0,11	0,06–0,17	0,065–0,185	0,069–0,198	0,072–0,207
P.4.1	70	0,022–0,064	0,024–0,069	0,026–0,074	0,044–0,127	0,048–0,138	0,052–0,148	0,054–0,155	0,083–0,238	0,091–0,26	0,097–0,277	0,101–0,29
P.4.2	60	0,021–0,06	0,023–0,066	0,025–0,07	0,042–0,121	0,046–0,132	0,049–0,141	0,052–0,147	0,079–0,227	0,087–0,247	0,092–0,264	0,097–0,276
M.1.1	80	0,015–0,042	0,016–0,046	0,017–0,049	0,03–0,085	0,032–0,092	0,034–0,099	0,036–0,103	0,056–0,159	0,061–0,173	0,065–0,185	0,068–0,193
M.2.1	60	0,013–0,038	0,014–0,041	0,015–0,044	0,026–0,076	0,029–0,082	0,031–0,088	0,032–0,092	0,05–0,142	0,054–0,155	0,058–0,165	0,06–0,173
M.3.1	50	0,014–0,039	0,015–0,043	0,016–0,046	0,028–0,079	0,03–0,086	0,032–0,092	0,033–0,096	0,052–0,147	0,056–0,161	0,06–0,172	0,063–0,179
K.1.1	100	0,026–0,076	0,029–0,082	0,031–0,088	0,053–0,151	0,058–0,165	0,062–0,176	0,064–0,184	0,099–0,284	0,108–0,309	0,116–0,33	0,121–0,345
K.1.2	70	0,024–0,068	0,026–0,074	0,028–0,079	0,048–0,136	0,052–0,148	0,055–0,158	0,058–0,166	0,089–0,255	0,097–0,278	0,104–0,297	0,109–0,311
K.2.1	60	0,024–0,068	0,026–0,074	0,028–0,079	0,048–0,136	0,052–0,148	0,055–0,158	0,058–0,166	0,089–0,255	0,097–0,278	0,104–0,297	0,109–0,311
K.2.2	60	0,021–0,059	0,022–0,064	0,024–0,069	0,041–0,118	0,045–0,129	0,048–0,137	0,05–0,144	0,077–0,221	0,084–0,241	0,09–0,257	0,094–0,269
K.3.1	100	0,025–0,073	0,028–0,079	0,03–0,084	0,051–0,145	0,055–0,158	0,059–0,169	0,062–0,177	0,095–0,272	0,104–0,297	0,111–0,317	0,116–0,331
K.3.2	80	0,021–0,06	0,023–0,066	0,025–0,07	0,042–0,121	0,046–0,132	0,049–0,141	0,052–0,147	0,079–0,227	0,087–0,247	0,092–0,264	0,097–0,276
N.1.1	230	0,032–0,091	0,035–0,099	0,037–0,106	0,064–0,181	0,069–0,198	0,074–0,211	0,077–0,221	0,119–0,34	0,13–0,371	0,139–0,396	0,145–0,414
N.1.2	220	0,031–0,089	0,034–0,097	0,036–0,104	0,062–0,178	0,068–0,194	0,073–0,208	0,076–0,217	0,117–0,335	0,128–0,365	0,136–0,389	0,142–0,407
N.2.1	190	0,03–0,085	0,032–0,092	0,034–0,099	0,059–0,169	0,065–0,185	0,069–0,197	0,072–0,206	0,111–0,318	0,121–0,346	0,129–0,37	0,135–0,386
N.2.2	170	0,029–0,083	0,032–0,091	0,034–0,097	0,058–0,166	0,063–0,181	0,068–0,194	0,071–0,202	0,109–0,312	0,119–0,34	0,127–0,363	0,133–0,38
N.2.3	100	0,029–0,082	0,031–0,089	0,033–0,095	0,057–0,163	0,062–0,178	0,067–0,19	0,07–0,199	0,107–0,306	0,117–0,334	0,125–0,356	0,13–0,373
N.3.1	170	0,03–0,085	0,032–0,092	0,034–0,099	0,059–0,169	0,065–0,185	0,069–0,197	0,072–0,206	0,111–0,318	0,121–0,346	0,129–0,37	0,135–0,386
N.3.2	140	0,028–0,08	0,031–0,087	0,033–0,093	0,056–0,16	0,061–0,175	0,065–0,187	0,068–0,195	0,105–0,301	0,115–0,328	0,122–0,35	0,128–0,366
N.3.3	120	0,027–0,077	0,029–0,084	0,031–0,09	0,054–0,154	0,059–0,168	0,063–0,18	0,066–0,188	0,101–0,289	0,11–0,315	0,118–0,337	0,123–0,352
N.4.1	120	0,027–0,077	0,029–0,084	0,031–0,09	0,054–0,154	0,059–0,168	0,063–0,18	0,066–0,188	0,101–0,289	0,11–0,315	0,118–0,337	0,123–0,352
S.1.1	50	0,024–0,068	0,026–0,074	0,028–0,079	0,048–0,136	0,052–0,148	0,055–0,158	0,058–0,166	0,089–0,255	0,097–0,278	0,104–0,297	0,109–0,311
S.1.2	30	0,019–0,053	0,02–0,058	0,022–0,062	0,037–0,106	0,04–0,115	0,043–0,123	0,045–0,129	0,069–0,198	0,076–0,216	0,081–0,231	0,085–0,242
S.2.1	50	0,018–0,051	0,02–0,056	0,021–0,06	0,036–0,103	0,039–0,112	0,042–0,12	0,044–0,125	0,067–0,193	0,074–0,21	0,079–0,224	0,082–0,235
S.2.2	30	0,014–0,039	0,015–0,043	0,016–0,046	0,028–0,079	0,03–0,086	0,032–0,092	0,033–0,096	0,052–0,147	0,056–0,161	0,06–0,172	0,063–0,179
S.2.3	30	0,015–0,042	0,016–0,046	0,017–0,049	0,03–0,085	0,032–0,092	0,034–0,099	0,036–0,103	0,056–0,159	0,061–0,173	0,065–0,185	0,068–0,193
S.3.1	50	0,024–0,068	0,026–0,074	0,028–0,079	0,048–0,136	0,052–0,148	0,055–0,158	0,058–0,166	0,089–0,255	0,097–0,278	0,104–0,297	0,109–0,311
S.3.2	30	0,019–0,054	0,021–0,059	0,022–0,063	0,038–0,109	0,042–0,119	0,044–0,127	0,046–0,132	0,071–0,204	0,078–0,222	0,083–0,238	0,087–0,248
S.3.3	20	0,013–0,038	0,014–0,041	0,015–0,044	0,026–0,076	0,029–0,082	0,031–0,088	0,032–0,092	0,05–0,142	0,054–0,155	0,058–0,165	0,06–0,173
H.1.1	40	0,013–0,038	0,014–0,041	0,015–0,044	0,026–0,076	0,029–0,082	0,031–0,088	0,032–0,092	0,05–0,142	0,054–0,155	0,058–0,165	0,06–0,173
H.1.2	30	0,011–0,03	0,012–0,033	0,012–0,035	0,021–0,06	0,023–0,066	0,025–0,07	0,026–0,074	0,036–0,102	0,039–0,111	0,042–0,119	0,043–0,124
H.1.3												
H.1.4												
H.2.1	30	0,014–0,041	0,016–0,044	0,017–0,048	0,029–0,082	0,031–0,089	0,033–0,095	0,035–0,099	0,054–0,153	0,058–0,167	0,062–0,178	0,065–0,186
H.3.1	30	0,013–0,036	0,014–0,04	0,015–0,042	0,025–0,073	0,028–0,079	0,03–0,084	0,031–0,088	0,048–0,136	0,052–0,148	0,055–0,158	0,058–0,166
O.1.1	110	0,031–0,089	0,034–0,097	0,036–0,104	0,062–0,178	0,068–0,194	0,073–0,208	0,076–0,217	0,117–0,335	0,128–0,365	0,136–0,389	0,142–0,407
O.1.2	120	0,028–0,079	0,03–0,086	0,032–0,092	0,055–0,157	0,06–0,171	0,064–0,183	0,067–0,191	0,103–0,295	0,112–0,321	0,12–0,343	0,126–0,359
O.2.1	110	0,017–0,05	0,019–0,054	0,02–0,058	0,035–0,1	0,038–0,109	0,041–0,116	0,043–0,121	0,065–0,187	0,071–0,204	0,076–0,218	0,08–0,228
O.2.2	80	0,017–0,048	0,018–0,053	0,02–0,056	0,034–0,097	0,037–0,105	0,039–0,113	0,041–0,118	0,064–0,181	0,069–0,198	0,074–0,211	0,077–0,221
O.3.1	120											

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

	Finishing												
	Ø ≤ 2 mm Corner radius in mm			Ø 2,5–4 mm Corner radius in mm					Ø ≥ 5 mm Corner radius in mm				
Index	0,05	0,1	0,15	0,05	0,1	0,15	0,2	0,4	0,05	0,1	0,15	0,2	0,4
	f in mm/rev.			f in mm/rev.					f in mm/rev.				
P.1.1	0,007–0,019	0,008–0,022	0,009–0,025	0,017–0,049	0,02–0,058	0,023–0,065	0,025–0,072	0,032–0,092	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
P.1.2	0,007–0,019	0,008–0,022	0,009–0,025	0,017–0,049	0,02–0,058	0,023–0,065	0,025–0,072	0,032–0,092	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
P.1.3	0,007–0,019	0,008–0,022	0,009–0,025	0,017–0,049	0,02–0,058	0,023–0,065	0,025–0,072	0,032–0,092	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
P.1.4	0,006–0,016	0,007–0,019	0,008–0,022	0,015–0,042	0,017–0,05	0,02–0,056	0,022–0,061	0,028–0,079	0,023–0,065	0,027–0,077	0,03–0,086	0,033–0,095	0,043–0,122
P.1.5	0,006–0,017	0,007–0,02	0,008–0,023	0,016–0,044	0,018–0,052	0,02–0,059	0,023–0,064	0,029–0,083	0,024–0,068	0,028–0,08	0,032–0,09	0,035–0,099	0,045–0,128
P.2.1	0,006–0,017	0,007–0,02	0,008–0,023	0,016–0,044	0,018–0,052	0,02–0,059	0,023–0,064	0,029–0,083	0,024–0,068	0,028–0,08	0,032–0,09	0,035–0,099	0,045–0,128
P.2.2	0,005–0,015	0,006–0,018	0,007–0,02	0,014–0,04	0,016–0,046	0,018–0,052	0,02–0,057	0,026–0,074	0,021–0,061	0,025–0,071	0,028–0,08	0,031–0,088	0,04–0,114
P.2.3	0,005–0,014	0,006–0,016	0,006–0,018	0,012–0,036	0,015–0,042	0,016–0,047	0,018–0,051	0,023–0,066	0,019–0,055	0,022–0,064	0,025–0,072	0,028–0,079	0,036–0,102
P.2.4	0,005–0,013	0,005–0,015	0,006–0,017	0,012–0,034	0,014–0,039	0,015–0,044	0,017–0,049	0,022–0,063	0,018–0,052	0,021–0,061	0,024–0,068	0,026–0,075	0,034–0,097
P.3.1	0,005–0,015	0,006–0,018	0,007–0,02	0,014–0,04	0,016–0,046	0,018–0,052	0,02–0,057	0,026–0,074	0,021–0,061	0,025–0,071	0,028–0,08	0,031–0,088	0,04–0,114
P.3.2	0,005–0,014	0,006–0,017	0,007–0,019	0,013–0,038	0,015–0,044	0,017–0,049	0,019–0,054	0,025–0,07	0,02–0,058	0,024–0,068	0,027–0,076	0,029–0,084	0,038–0,108
P.3.3	0,004–0,011	0,005–0,013	0,005–0,015	0,01–0,03	0,012–0,035	0,014–0,039	0,015–0,043	0,019–0,055	0,016–0,046	0,019–0,053	0,021–0,06	0,023–0,066	0,03–0,085
P.4.1	0,006–0,016	0,007–0,019	0,007–0,021	0,015–0,041	0,017–0,049	0,019–0,055	0,021–0,06	0,027–0,078	0,022–0,064	0,026–0,075	0,029–0,084	0,032–0,092	0,042–0,119
P.4.2	0,005–0,015	0,006–0,018	0,007–0,02	0,014–0,04	0,016–0,046	0,018–0,052	0,02–0,057	0,026–0,074	0,021–0,061	0,025–0,071	0,028–0,08	0,031–0,088	0,04–0,114
M.1.1	0,004–0,011	0,004–0,012	0,005–0,014	0,01–0,028	0,011–0,032	0,013–0,036	0,014–0,04	0,018–0,052	0,015–0,043	0,017–0,05	0,02–0,056	0,022–0,062	0,028–0,08
M.2.1	0,003–0,01	0,004–0,011	0,004–0,013	0,009–0,025	0,01–0,029	0,011–0,033	0,013–0,036	0,016–0,046	0,013–0,038	0,016–0,045	0,018–0,05	0,019–0,055	0,025–0,071
M.3.1	0,003–0,01	0,004–0,012	0,005–0,013	0,009–0,026	0,011–0,03	0,012–0,034	0,013–0,037	0,017–0,048	0,014–0,04	0,016–0,046	0,018–0,052	0,02–0,057	0,026–0,074
K.1.1	0,007–0,019	0,008–0,022	0,009–0,025	0,017–0,049	0,02–0,058	0,023–0,065	0,025–0,072	0,032–0,092	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
K.1.2	0,006–0,017	0,007–0,02	0,008–0,023	0,016–0,044	0,018–0,052	0,02–0,059	0,023–0,064	0,029–0,083	0,024–0,068	0,028–0,08	0,032–0,09	0,035–0,099	0,045–0,128
K.2.1	0,006–0,017	0,007–0,02	0,008–0,023	0,016–0,044	0,018–0,052	0,02–0,059	0,023–0,064	0,029–0,083	0,024–0,068	0,028–0,08	0,032–0,09	0,035–0,099	0,045–0,128
K.2.2	0,005–0,015	0,006–0,017	0,007–0,02	0,013–0,039	0,016–0,045	0,018–0,051	0,02–0,056	0,025–0,072	0,021–0,059	0,024–0,069	0,027–0,078	0,03–0,086	0,039–0,111
K.3.1	0,006–0,018	0,007–0,021	0,008–0,024	0,017–0,047	0,019–0,056	0,022–0,062	0,024–0,069	0,031–0,089	0,026–0,073	0,03–0,085	0,034–0,096	0,037–0,106	0,048–0,136
K.3.2	0,005–0,015	0,006–0,018	0,007–0,02	0,014–0,04	0,016–0,046	0,018–0,052	0,02–0,057	0,026–0,074	0,021–0,061	0,025–0,071	0,028–0,08	0,031–0,088	0,04–0,114
N.1.1	0,008–0,023	0,009–0,027	0,011–0,03	0,02–0,058	0,024–0,068	0,027–0,077	0,03–0,084	0,038–0,109	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.1.2	0,008–0,022	0,009–0,026	0,01–0,03	0,02–0,058	0,024–0,068	0,027–0,077	0,03–0,084	0,038–0,109	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.2.1	0,007–0,021	0,009–0,025	0,01–0,028	0,019–0,055	0,023–0,065	0,025–0,073	0,028–0,08	0,036–0,103	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.2.2	0,007–0,021	0,009–0,024	0,01–0,028	0,019–0,054	0,022–0,064	0,025–0,072	0,028–0,079	0,036–0,102	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.2.3	0,007–0,021	0,008–0,024	0,009–0,027	0,019–0,053	0,022–0,062	0,025–0,07	0,027–0,077	0,035–0,1	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.3.1	0,007–0,021	0,009–0,025	0,01–0,028	0,019–0,055	0,023–0,065	0,025–0,073	0,028–0,08	0,036–0,103	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.3.2	0,007–0,02	0,008–0,024	0,009–0,027	0,018–0,052	0,021–0,061	0,024–0,069	0,027–0,076	0,034–0,098	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.3.3	0,007–0,019	0,008–0,023	0,009–0,026	0,018–0,05	0,021–0,059	0,023–0,066	0,026–0,073	0,033–0,094	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.4.1	0,007–0,019	0,008–0,023	0,009–0,026	0,018–0,05	0,021–0,059	0,023–0,066	0,026–0,073	0,033–0,094	0,027–0,078	0,032–0,091	0,036–0,102	0,039–0,112	0,051–0,145
S.1.1	0,006–0,017	0,007–0,02	0,008–0,023	0,016–0,044	0,018–0,052	0,02–0,059	0,023–0,064	0,029–0,083	0,024–0,068	0,028–0,08	0,032–0,09	0,035–0,099	0,045–0,128
S.1.2	0,005–0,013	0,005–0,016	0,006–0,018	0,012–0,035	0,014–0,04	0,016–0,046	0,018–0,05	0,023–0,065	0,019–0,053	0,022–0,062	0,025–0,07	0,027–0,077	0,035–0,099
S.2.1	0,005–0,013	0,005–0,015	0,006–0,017	0,012–0,034	0,014–0,039	0,015–0,044	0,017–0,049	0,022–0,063	0,018–0,052	0,021–0,061	0,024–0,068	0,026–0,075	0,034–0,097
S.2.2	0,003–0,01	0,004–0,012	0,005–0,013	0,009–0,026	0,011–0,03	0,012–0,034	0,013–0,037	0,017–0,048	0,014–0,04	0,016–0,046	0,018–0,052	0,02–0,057	0,026–0,074
S.2.3	0,004–0,011	0,004–0,012	0,005–0,014	0,01–0,028	0,011–0,032	0,013–0,036	0,014–0,04	0,018–0,052	0,015–0,043	0,017–0,05	0,02–0,056	0,022–0,062	0,028–0,08
S.3.1	0,006–0,017	0,007–0,02	0,008–0,023	0,016–0,044	0,018–0,052	0,02–0,059	0,023–0,064	0,029–0,083	0,024–0,068	0,028–0,08	0,032–0,09	0,035–0,099	0,045–0,128
S.3.2	0,005–0,014	0,006–0,016	0,006–0,018	0,012–0,036	0,015–0,042	0,016–0,047	0,018–0,051	0,023–0,066	0,019–0,055	0,022–0,064	0,025–0,072	0,028–0,079	0,036–0,102
S.3.3	0,003–0,01	0,004–0,011	0,004–0,013	0,009–0,025	0,01–0,029	0,011–0,033	0,013–0,036	0,016–0,046	0,013–0,038	0,016–0,045	0,018–0,05	0,019–0,055	0,025–0,071
H.1.1	0,003–0,01	0,004–0,011	0,004–0,013	0,009–0,025	0,01–0,029	0,011–0,033	0,013–0,036	0,016–0,046	0,013–0,038	0,016–0,045	0,018–0,05	0,019–0,055	0,025–0,071
H.1.2	0,003–0,008	0,003–0,009	0,004–0,01	0,007–0,02	0,008–0,023	0,009–0,026	0,01–0,029	0,013–0,037	0,011–0,03	0,012–0,036	0,014–0,04	0,015–0,044	0,02–0,057
H.1.3													
H.1.4													
H.2.1	0,004–0,01	0,004–0,012	0,005–0,014	0,009–0,027	0,011–0,031	0,012–0,035	0,014–0,039	0,017–0,05	0,014–0,041	0,017–0,048	0,019–0,054	0,021–0,059	0,027–0,077
H.3.1	0,003–0,009	0,004–0,011	0,004–0,012	0,008–0,024	0,01–0,028	0,011–0,031	0,012–0,034	0,016–0,044	0,013–0,036	0,015–0,043	0,017–0,048	0,018–0,053	0,024–0,068
O.1.1	0,008–0,022	0,009–0,026	0,01–0,03	0,02–0,058	0,024–0,068	0,027–0,077	0,03–0,084	0,038–0,109	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
O.1.2	0,007–0,02	0,008–0,023	0,009–0,026	0,018–0,051	0,021–0,06	0,024–0,068	0,026–0,074	0,034–0,096	0,028–0,079	0,032–0,093	0,036–0,104	0,04–0,114	0,052–0,148
O.2.1	0,004–0,013	0,005–0,015	0,006–0,017	0,011–0,033	0,013–0,038	0,015–0,043	0,017–0,047	0,021–0,061	0,018–0,05	0,021–0,059	0,023–0,066	0,025–0,073	0,033–0,094
O.2.2	0,004–0,012	0,005–0,014	0,006–0,016	0,011–0,032	0,013–0,037	0,015–0,042	0,016–0,046	0,021–0,059	0,017–0,049	0,02–0,057	0,022–0,064	0,025–0,07	0,032–0,091
O.3.1													

12

Broaching – Recommendations for Correct Use

SlotCut

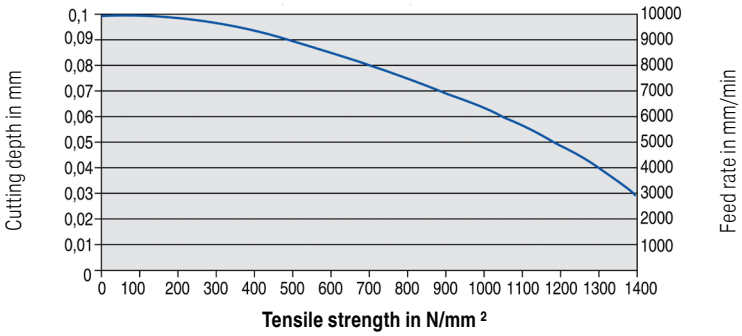
More and more often small and medium sized batch sizes are manufactured with precision grooves.

To directly machine such grooves in one set-up on one machine, it requires a special application of "Broaching" tools.

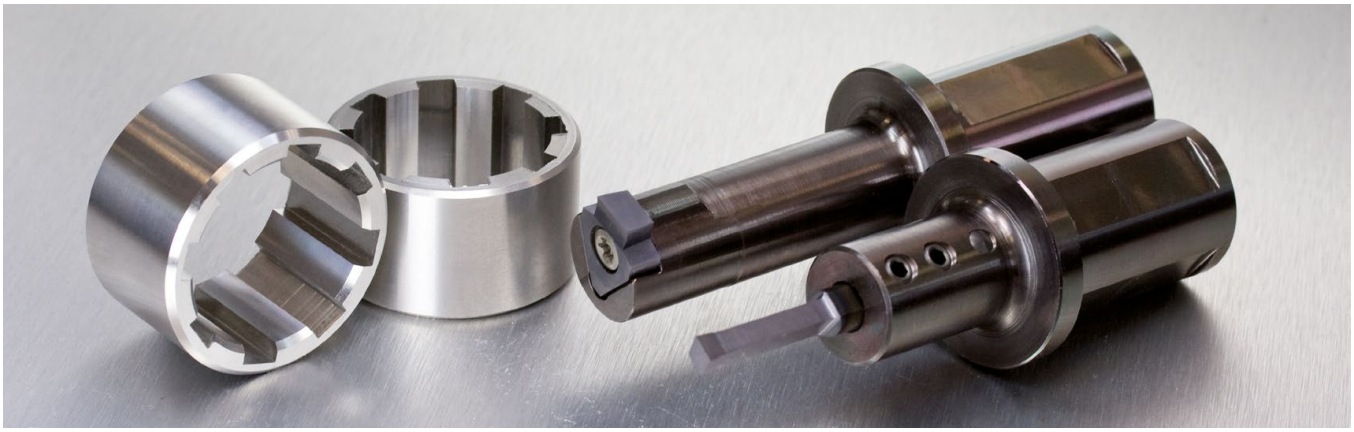
The SlotCut system can produce grooves with the most common groove tolerances.
To this end, there are four options. Two concepts are based on a
solid carbide solution, which gives great success with small
diameters.
For larger diameters, the concept with screw-on inserts is more suitable.

Broaching, on both lathes and machining centers is now
economical, and provides highly accurate results in the shortest
possible time.

Appoximate values when broaching



The data depends strongly on the conditions and represent only an appoximate value, factors such as machine stability, application and material may require adjustment of the data upward or downward.



Tips for the User

- Avoid interrupted cuts.
- Where possible, orientate the part so the groove is at the top, so the chips fall away!
- Ensure there is a relief at the end of the groove.
- Lift the tool out of the groove when retracting.
- Use coolant. This will increase tool life and surface quality.
- Adjustment of the tool is essential, therefore the tool diameter must be considered.



Symbol explanation

UltraMini

 Internal turning and profiling

 Back boring

 Internal Undercuts

 High-feed turning

 Turning and chamfering

 Groove and profile turning

 Turning and profile turning – super alloys

 Pre-parting and chamfering

 Internal thread turning

 Internal turning

 Groove turning

 Axial grooving

MiniCut

 Internal turning and profiling

 Pre-parting and chamfering

 Internal thread turning

 Internal turning

 Groove turning

 Axial grooving

 Back boring

 Internal Undercuts

 Turning and chamfering

 Groove and profile turning

Coatings

TiAlN+
- ▲ TiAlN multilayer coating
- ▲ Maximum application temperature: 1000°C

CWX500
- ▲ Carbide, TiAlN-coated
- ▲ The universal carbide grade for almost all materials

TiN
- ▲ TiN coating
- ▲ Maximum application temperature: 450°C

DXP77S
- ▲ TiAlN+X-coating
- ▲ Maximum application temperature: 900°C

TiAlN
- ▲ TiAlN multilayer coating
- ▲ Maximum application temperature: 900°C

DPX57S
- ▲ TiCrN coating
- ▲ Maximum application temperature: 900°C

Thread types

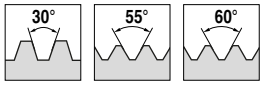
M Metric ISO standard thread

MF Metric ISO fine thread

G Whitworth thread

Tr Metric ISO trapezoidal fine thread

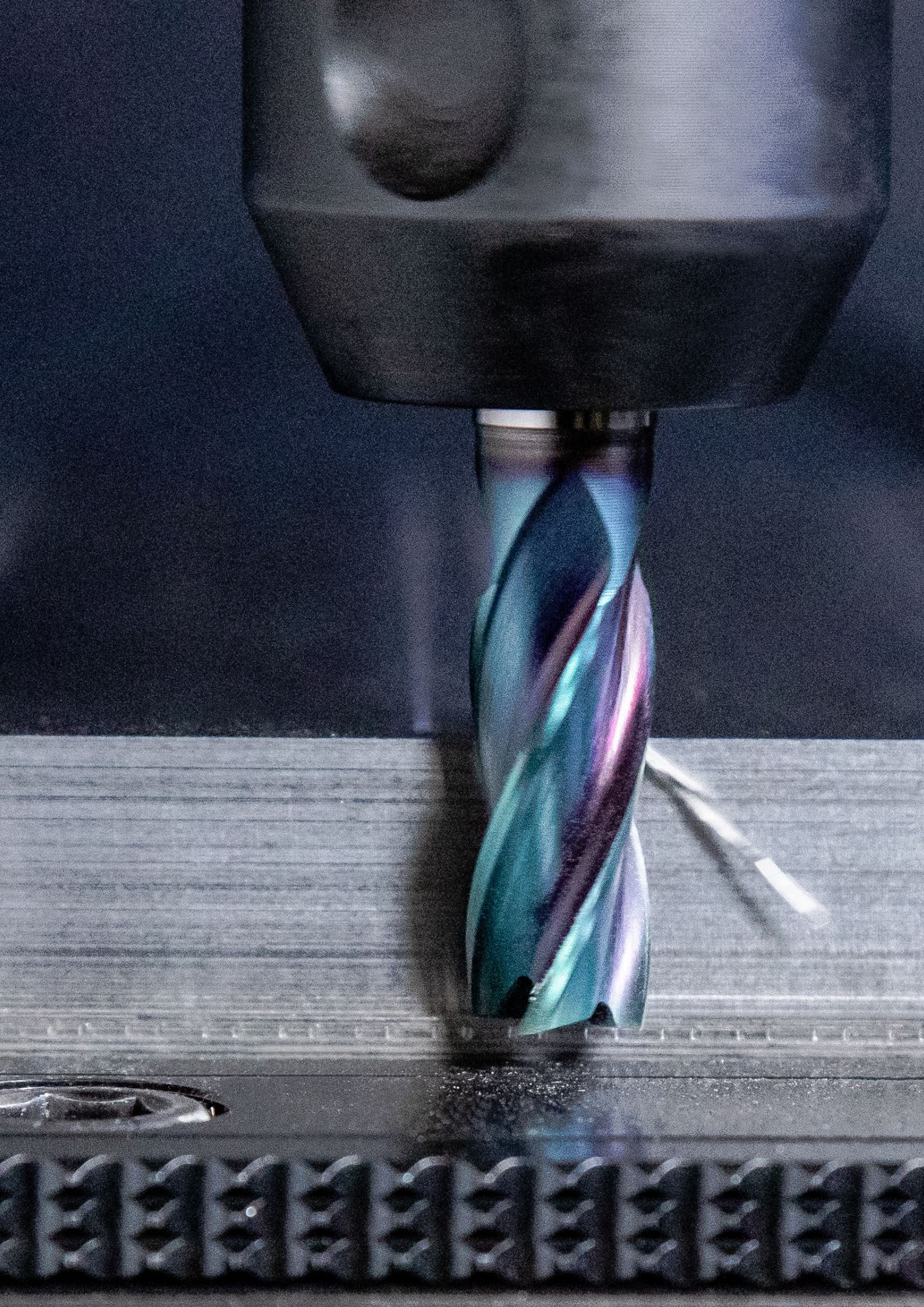
Thread flank angle



Cooling

 with thro‘ coolant

12





Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters 13

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

Table of contents

Symbol explanation	2
Toolfinder	3
List of contents	4+5
Product programme	6–38
Technical Information:	
Cutting Data	39–47
Formula for cutting data calculation	47
Version description	48
Coating	48

WNT \ Performance

Premium quality tools for high performance.

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

Symbol explanation

Shank



Shank type



Length:
extra short / short / medium / long / extra long



Cutting edge preparation



Sharp



Corner chamfer (CHW = chamfer width in mm)



Full Radius



Application



Machining example



The red arrows describe the possible feed directions



Number of flutes



Cutting geometry
λ_s = helix angle
γ_s = rake angle

● = **Main Application**

○ = Extended application

Toolfinder

softer — Material to machine — harder

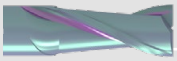
Finish milling

W


6+7


37

N


8–15


25

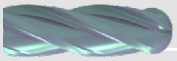

28+29


31


33+34


37

H

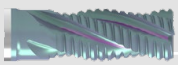

26


32

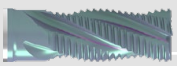

35+36

Rough and finish machining

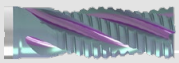
NTI


16

HS


18

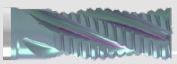
NF


17


30

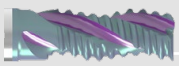

37

HF

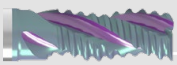

19

Rough machining

WR

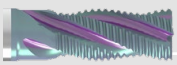

20

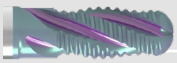
NR


21+22


38

HR

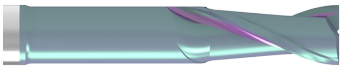
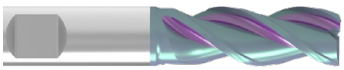
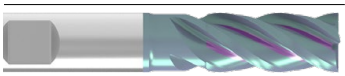
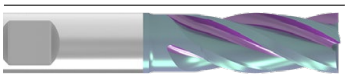
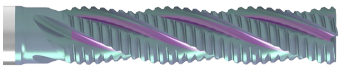
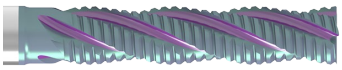
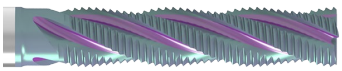
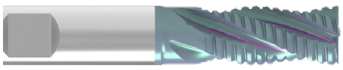
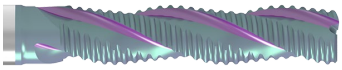
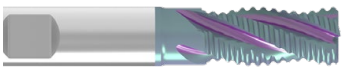
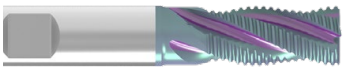
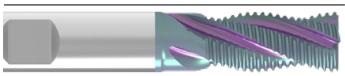

23+24


27


38

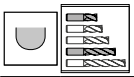
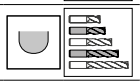
13

Overview HSS milling cutters

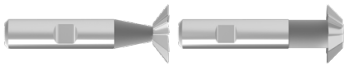
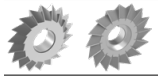
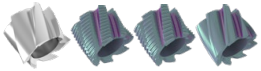
	Tool type	Number of flutes ZEFP	Diameter in mm Ø DC	Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant S	hardened materials H	Non metal materials O	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Material, e.g. PM = Powdersteel	coated ■	uncoated □	WNT \ Performance
Finishing cutter																			
	W	2	2–22				●			●	■					HSS-E		□	6
	W	3–4	2–40				●			●	■					HSS-E		□	7
	N	2	1–26	●	●	●	○	○		○	■					HSS-E	■	□	8+9
	N	3	1–10	●	●	●	○	●		○	■					HSS-E	■	□	10
	N	3	1,8–24,7	●	●	●	○	○		○	■					HSS-E	■	□	11+12
	N	4–5	4–25	○	●	○	●	●		●	■					HSS-E	■	□	13
	N	4–8	2–50	●	●	●	○	○		○	■					HSS-E	■	□	14+15
Rough and finish milling cutters																			
	NTI	4–6	6–40	●	●	○	○	●		○		■				PM	■		16
	NF	4–5	6–28	●	○	●	○	○		○	■					HSS-E	■		17
	HS	4–6	6–40	○		●		●		○		■				PM	■		18
	HF	4	6–25	●	○	●	○	○		○	■					PM	■		19
Rough milling cutters																			
	WR	3	6–32				●			●	■					HSS-E	■		20
	NR	3	6–25	●	○	●	○	○		○		■				HSS-E	■	□	21
	NR	4–6	6–40	●	○	●	○	○		○		■				HSS-E	■	□	22
	HR	4–6	6–32	●	●	●	○	○		○		■				PM	■		23
	HR	3–6	4–32	●	●	●	○	○		○		■				HSS-E	■	□	24

Overview HSS milling cutters

Ball nose end milling cutters

	Tool type	Number of flutes	Diameter in mm Ø DC	Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant S	hardened materials H	Non metal materials O	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Material, e.g. PM = Powdersteel	coated	uncoated	WNT \ Performance
	N	2	2–30	●	○	●	○	○		○						HSS-E	■	□	25
	H	4–5	6–25	●	○	●	○	○		○						HSS-E	■	□	26
	HR	4	6–20	●	○	●	○	○		○						HSS-E	■		27

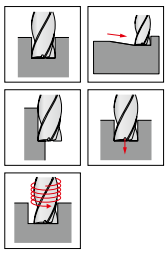
Form / Side and Face / Shell milling cutters

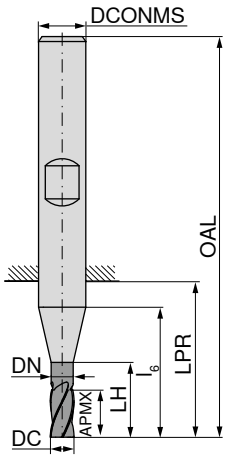
	N	6–10	11–60	●	○	●	○	○		○						HSS-E		□	28
	N	6–12	10,5–45,5	●	○	●	○	○		○						HSS-E		□	29
	NF	6–8	21–45	●	○	●	○	○		○						HSS-E		□	30
	N	4–6	6–16	●	○	●	○	○		○						HSS-E		□	31
	H	10	16–25	●	○	●	○	○		○						HSS-E		□	32
	N	14–28	40–125	●	○	●	○	○		○						HSS-E		□	33
		12–52	50–160	●	●	●	●	●		●						HSS-E		□	34–36
		6–12	40–100	●	●	●	●	○		●						HSS-E	■	□	37+38

13

Slot milling cutter HSS-E Co 8











DIN 844

B

50 144 ...

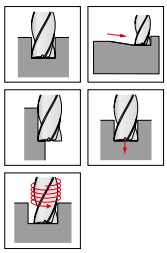
DC e8 mm	APMX mm	DN mm	LH mm	l6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
2,0	7		7	13	15	51	6	2	**020**
2,5	8		8	14	16	52	6	2	**025**
3,0	8		8	14	16	52	6	2	**030**
3,5	10		10	16	18	54	6	2	**035**
4,0	11		11	17	19	55	6	2	**040**
4,5	11		11	17	19	55	6	2	**045**
5,0	13		13	19	21	57	6	2	**050**
5,5	13		13	19	21	57	6	2	**055**
6,0	13		13	19	21	57	6	2	**060**
6,5	16	6,0	22	24	26	66	10	2	**065**
7,0	16	6,5	22	24	26	66	10	2	**070**
8,0	19	7,5	25	27	29	69	10	2	**080**
9,0	19	8,5	26	27	29	69	10	2	**090**
10,0	22	9,5	30	30	32	72	10	2	**100**
12,0	26	11,5	36	36	38	83	12	2	**120**
14,0	26	11,5	36	36	38	83	12	2	**140**
16,0	32	15,0	42	42	44	92	16	2	**160**
18,0	32	15,0	42	42	44	92	16	2	**180**
20,0	38	19,0	52	52	54	104	20	2	**200**
22,0	38	19,0	52	52	54	104	20	2	**220**

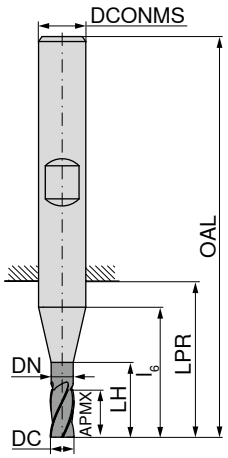
P	
M	
K	
N	●
S	
H	
O	●

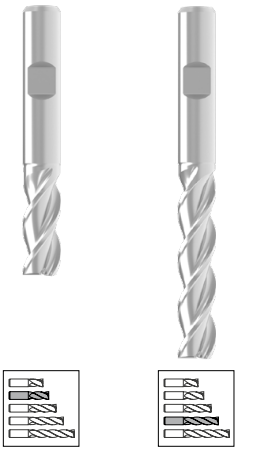
→ v_c/f_z Page 40–42

End milling cutter HSS-E Co 8





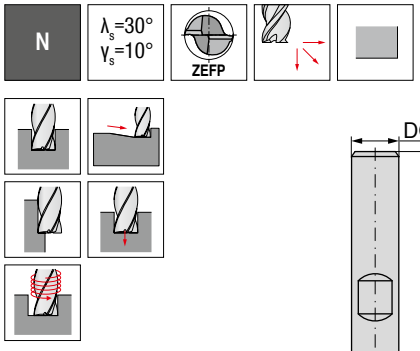


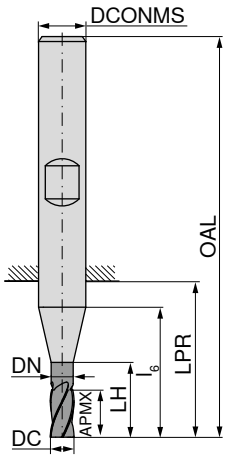


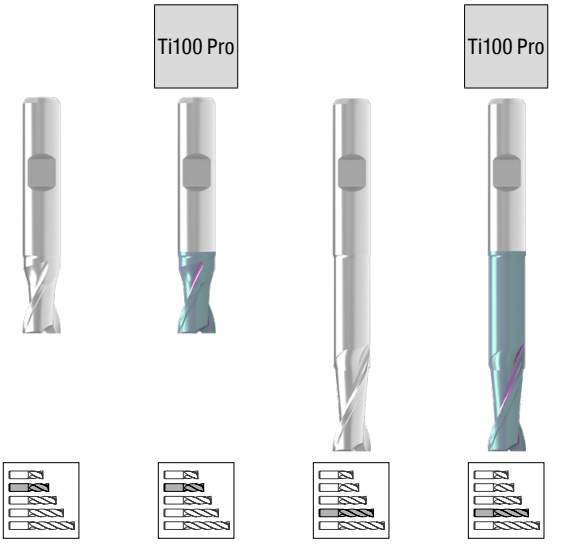
									DIN 69844	DIN 844
									B	B
									50 120 ...	50 121 ...
DC k10 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP		
2	7		7	13	15	51	6	3	020	
3	8		8	14	16	52	6	3	030	
3	12		12	18	20	56	6	3		030
4	11		11	17	19	55	6	3	040	
4	19		19	25	27	63	6	3		040
5	13		13	19	21	57	6	3	050	
5	24		24	30	32	68	6	3		050
6	13	5,5	19	19	21	57	6	3	060	
6	24	5,5	30	30	32	68	6	3		060
7	16	6,5	22	24	26	66	10	3	070	
7	30	6,5	36	38	40	80	10	3		070
8	19	7,5	25	27	29	69	10	3	080	
8	38	7,5	44	46	48	88	10	3		080
9	19	8,5	26	27	29	69	10	3	090	
9	38	8,5	45	46	48	88	10	3		090
10	22	9,5	30	30	32	72	10	3	100	
10	45	9,5	53	53	55	95	10	3		100
12	26	11,5	36	36	38	83	12	3	120	
12	53	11,5	63	63	65	110	12	3		120
14	26	11,5	36	36	38	83	12	3	140	
14	53	11,5	63	63	65	110	12	3		140
16	32	15,0	42	42	44	92	16	3	160	
16	63	15,0	73	73	75	123	16	3		160
18	32	15,0	42	42	44	92	16	3	180	
18	63	15,0	73	73	75	123	16	3		180
20	38	19,0	52	52	54	104	20	3	200	
20	75	19,0	89	89	91	141	20	3		200
22	38	19,0	52	52	54	104	20	3	220	
22	75	19,0	89	89	91	141	20	3		220
24	90	23,0	106	108	110	166	25	3		240
25	45	24,0	63	45	65	121	25	4	250	
25	90	24,0	108	108	110	166	25	4		250
28	90	24,0	108	108	110	166	25	4		280
30	90	24,0	108	108	110	166	25	4		300
32	106	31,0	123	123	126	186	32	4		320
36	106	31,0	123	123	126	186	32	4		360
40	125	38,0	142	142	147	217	40	4		400
P										
M										
K										
N									●	●
S										
H										
O									●	●

→ v_c/f_z Page 40–42

Slot milling cutter HSS-E Co 8







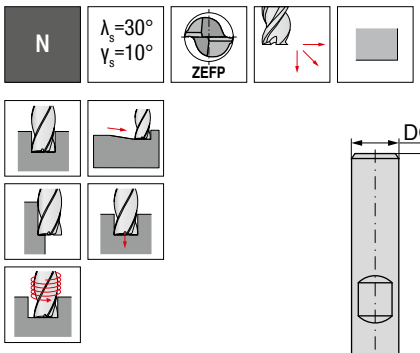
										DIN 327	DIN 327	Factory standard	Factory standard
										B	B	B	B
										50 100 ...	**54 025 ...**	**50 122 ...**	**54 020 ...**
DC mm	Tol.	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP				
1,00	h10	2,5		2,5	9	11	47	6	2	**010** [1]	**010** [1]		
1,50	h10	3,0		3,0	9	11	47	6	2	**015** [1]	**015** [1]		
1,80	h10	4,0		4,0	10	12	48	6	2	**018**	**018**		
2,00	e8	4,0		4,0	10	12	48	6	2	**020**	**020**		
2,50	e8	5,0		5,0	11	13	49	6	2	**025**	**025**		
2,80	h10	5,0		5,0	11	13	49	6	2	**028**	**028**		
3,00	e8	5,0		5,0	11	13	49	6	2	**030**	**030**		
3,00	e8	8,0		8,0	18	20	56	6	2			**030**	**030**
3,50	h10	6,0		6,0	12	14	50	6	2	**035**	**035**		
3,50	h10	10,0		10,0	21	23	59	6	2			**035**	**035**
3,80	h10	7,0		7,0	13	15	51	6	2	**038**	**038**		
4,00	e8	7,0		7,0	13	15	51	6	2	**040**	**040**		
4,00	e8	11,0		11,0	25	27	63	6	2			**040**	**040**
4,50	h10	7,0		7,0	13	15	51	6	2	**045**	**045**		
4,50	h10	11,0		11,0	25	27	63	6	2			**045**	**045**
4,80	h10	8,0		8,0	14	16	52	6	2	**048**	**048**		
5,00	e8	8,0		8,0	14	16	52	6	2	**050**	**050**		
5,00	e8	13,0		13,0	30	32	68	6	2			**050**	**050**
5,50	h10	8,0		8,0	14	16	52	6	2	**055**	**055**		
5,50	h10	13,0		13,0	30	32	68	6	2			**055**	**055**
5,75	h10	8,0		8,0	14	16	52	6	2	**057**	**057**		
6,00	e8	8,0	5,50	14,0	14	16	52	6	2	**060**	**060**		
6,00	e8	13,0	5,50	30,0	30	32	68	6	2			**060**	**060**
6,50	h10	10,0	6,00	16,0	18	20	60	10	2	**065**	**065**		
6,50	h10	16,0	6,35	36,0	38	40	80	10	2			**065**	**065**
6,75	h10	10,0	6,50	16,0	18	20	60	10	2	**067**	**067**		
7,00	e8	10,0	6,50	16,0	18	20	60	10	2	**070**	**070**		
7,00	e8	16,0	6,35	36,0	38	40	80	10	2			**070**	**070**
7,50	h10	10,0	7,00	16,0	18	20	60	10	2	**075**	**075**		
7,50	h10	16,0	7,35	36,0	38	40	80	10	2			**075**	**075**
7,75	h10	11,0	7,50	17,0	19	21	61	10	2	**077**	**077**		
8,00	e8	11,0	7,50	17,0	19	21	61	10	2	**080**	**080**		
8,00	e8	19,0	7,35	44,0	46	48	88	10	2			**080**	**080**
8,50	h10	11,0	8,00	18,0	19	21	61	10	2	**085**	**085**		
8,50	h10	19,0	8,35	45,0	46	48	88	10	2			**085**	**085**
8,70	h10	11,0	8,50	18,0	19	21	61	10	2	**087**	**087**		
9,00	h10	11,0	8,50	18,0	19	21	61	10	2	**090**	**090**		
9,00	h10	19,0	8,35	45,0	46	48	88	10	2			**090**	**090**
9,50	h10	11,0	9,00	18,0	19	21	61	10	2	**095**	**095**		
9,50	h10	19,0	9,35	45,0	46	48	88	10	2			**095**	**095**
9,70	h10	13,0	9,50	21,0	21	23	63	10	2	**097**	**097**		
10,00	e8	13,0	9,50	21,0	21	23	63	10	2	**100**	**100**		
10,00	e8	22,0	9,35	53,0	53	55	95	10	2			**100**	**100**
10,50	h10	13,0	10,00	21,0	23	25	70	12	2	**105**	**105**		
10,70	h10	13,0	10,50	21,0	23	25	70	12	2	**107**	**107**		
11,00	h10	13,0	10,50	21,0	23	25	70	12	2	**110**	**110**		
11,00	h10	22,0	10,50	53,0	55	57	102	12	2			**110**	**110**
P										●	●	●	●
M										○	●	○	●
K										●	●	●	●
N										○	○	○	○
S										○	○	○	○
H													
O										○	○	○	○

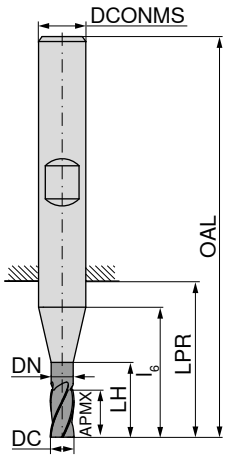
1) Factory standard

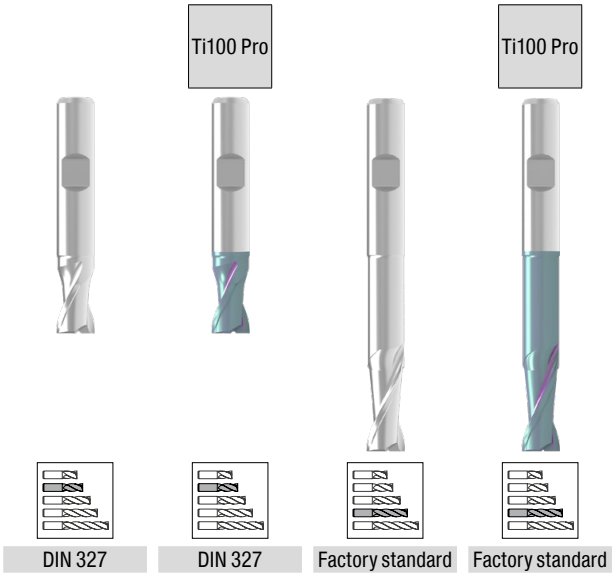
→ v_c/f_z Page 40–42

Continued on next page

Slot milling cutter HSS-E Co 8







	DIN 327	DIN 327	Factory standard	Factory standard
	B	B	B	B
	50 100 ...	**54 025 ...**	**50 122 ...**	**54 020 ...**

DC mm	Tol.	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP							
11,50	h10	13,0	11,00	21,0	23	25	70	12	2	**115**		**115**				
11,70	h10	16,0	11,50	26,0	26	28	73	12	2	**117**		**117**				
12,00	e8	16,0	11,50	26,0	26	28	73	12	2	**120**		**120**				
12,00	e8	26,0	11,50	63,0	63	65	110	12	2					**120**		**120**
12,70	h10	16,0	11,50	26,0	26	28	73	12	2	**127**		**127**				
13,00	h10	16,0	11,50	26,0	26	28	73	12	2	**130**		**130**				
13,00	h10	26,0	11,50	63,0	63	65	110	12	2					**130**		**130**
13,70	h10	16,0	11,50	26,0	26	28	73	12	2	**137**		**137**				
14,00	e8	16,0	11,50	26,0	26	28	73	12	2	**140**		**140**				
14,00	e8	26,0	11,50	63,0	63	65	110	12	2					**140**		**140**
14,70	h10	16,0	11,50	26,0	26	28	73	12	2	**147**						
15,00	h10	16,0	11,50	26,0	26	28	73	12	2	**150**		**150**				
15,00	h10	26,0	11,50	63,0	63	65	110	12	2					**150**		**150**
15,70	h10	19,0	15,00	29,0	29	31	79	16	2	**157**		**157**				
16,00	e8	19,0	15,00	29,0	29	31	79	16	2	**160**		**160**				
16,00	e8	32,0	15,00	73,0	73	75	123	16	2					**160**		**160**
16,70	h10	19,0	15,00	29,0	29	31	79	16	2	**167**						
17,00	h10	19,0	15,00	29,0	29	31	79	16	2	**170**		**170**				
17,00	h10	32,0	15,00	73,0	73	75	123	16	2					**170**		**170**
17,70	h10	19,0	15,00	29,0	29	31	79	16	2	**177**		**177**				
18,00	e8	19,0	15,00	29,0	29	31	79	16	2	**180**		**180**				
18,00	e8	32,0	15,00	73,0	73	75	123	16	2					**180**		**180**
19,00	h10	19,0	15,00	29,0	29	31	79	16	2	**190**		**190**				
19,00	h10	32,0	15,00	73,0	73	75	123	16	2					**190**		**190**
19,70	h10	22,0	19,00	36,0	36	38	88	20	2	**197**		**197**				
20,00	e8	22,0	19,00	36,0	36	38	88	20	2	**200**		**200**				
20,00	e8	38,0	19,00	89,0	89	91	141	20	2					**200**		**200**
21,70	h10	22,0	19,00	36,0	36	38	88	20	2	**217**		**217**				
22,00	e8	22,0	19,00	36,0	36	38	88	20	2	**220**		**220**				
22,00	e8	38,0	19,00	89,0	89	91	141	20	2					**220**		**220**
23,70	h10	26,0	23,00	42,0	44	46	102	25	2	**237**		**237**				
24,00	e8	26,0	23,00	42,0	44	46	102	25	2	**240**		**240**				
24,00	e8	45,0	23,00	106,0	108	110	166	25	2					**240**		**240**
24,70	h10	26,0	24,00	44,0	44	46	102	25	2	**247**		**247**				
25,00	e8	26,0	24,00	44,0	44	46	102	25	2	**250**		**250**				
25,00	e8	45,0	24,00	108,0	108	110	166	25	2					**250**		**250**
26,00	h10	26,0	24,00	44,0	44	46	102	25	2	**260**		**260**				

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

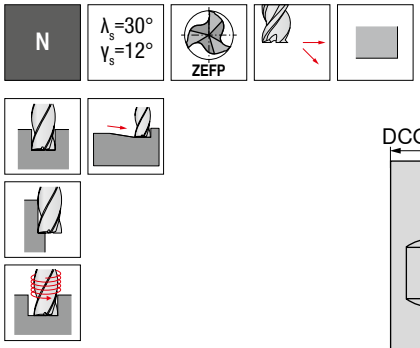
1) Factory standard

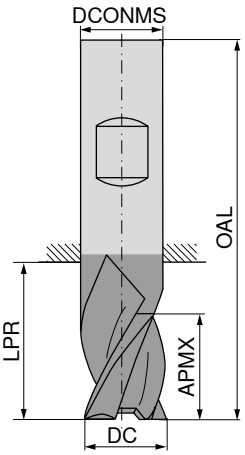
→ v_c/f_z Page 40–42

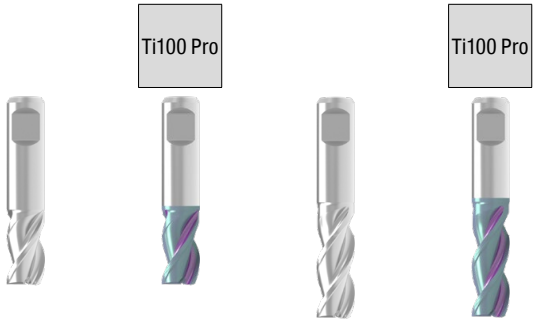
13

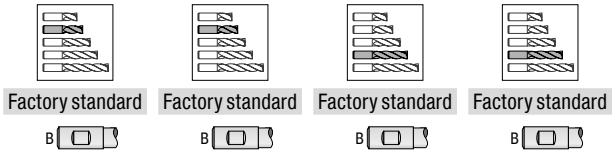
Throw-away milling cutter, HSS-E Co 8

▲ Shank similar to DIN 1835 B









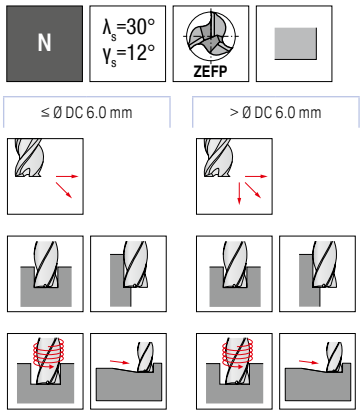
DC e8 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 092 ...	54 014 ...	50 093 ...	54 042 ...
1,00	2	8	34	6	3	010	010		
1,50	3	8	34	6	3	015	015		
1,50	4	10	35	6	3			015 1)	015 1)
1,80	3	8	34	6	3	018	018		
2,00	4	9	35	6	3	020	020		
2,00	7	12	38	6	3			020 1)	020
2,30	4	9	35	6	3	023	023		
2,50	5	10	36	6	3	025	025		
2,50	8	13	39	6	3			025 1)	025
2,80	5	10	36	6	3	028	028		
3,00	5	10	36	6	3	030	030		
3,00	8	13	39	6	3			030 1)	030
3,30	6	11	37	6	3	033	033		
3,50	6	11	37	6	3	035	035		
3,50	10	15	41	6	3			035 1)	035
3,80	7	12	38	6	3	038	038		
4,00	7	12	38	6	3	040	040		
4,00	11	16	42	6	3			040 1)	040
4,30	7	12	38	6	3	043	043		
4,50	7	12	38	6	3	045	045		
4,50	11	16	42	6	3			045 1)	045
4,80	8	13	39	6	3	048	048		
5,00	8	13	39	6	3	050	050		
5,00	13	18	44	6	3			050 1)	050
5,30	8	13	39	6	3	053	053		
5,50	8	13	39	6	3	055	055		
5,50	13	18	44	6	3			055 1)	055
5,75	8	13	39	6	3	057	057		
6,00	8	13	39	6	3	060	060		
6,00	13	18	44	6	3			060 1)	060
6,50	10	14	42	8	3	065	065		
6,50	16	20	48	8	3			065 1)	065
7,00	10	14	42	8	3	070	070		
7,00	16	20	48	8	3			070 1)	070
7,50	10	14	42	8	3	075	075		
7,50	16	20	48	8	3			075 1)	075
8,00	11	15	43	8	3	080	080		
8,00	19	23	51	8	3			080 1)	080
8,50	11	16	48	10	3	085	085		
8,50	19	24	56	10	3			085 1)	085
9,00	11	16	48	10	3	090	090		
9,00	19	24	56	10	3			090 1)	090
9,50	11	16	48	10	3	095	095		
9,50	19	24	56	10	3			095 1)	095
10,00	13	18	50	10	3	100	100		
10,00	22	27	59	10	3			100 1)	100
P						●	●	●	●
M						○	●	○	●
K						●	●	●	●
N						○	○	○	○
S						○	○	○	○
H									
O						○	○	○	○

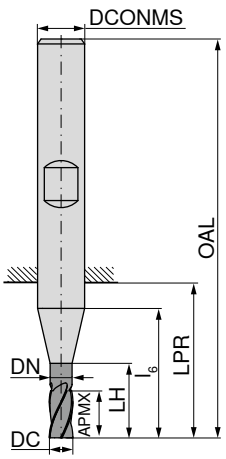
1) Shank tolerance -0,025 / -0,0323

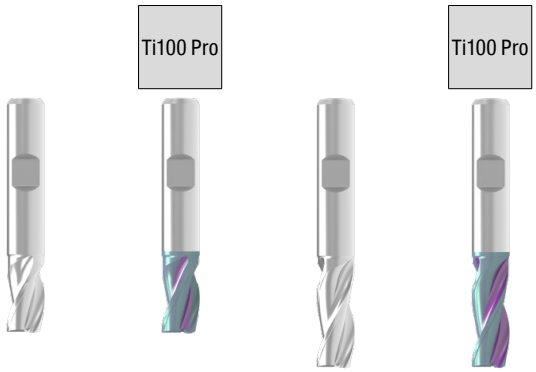
→ v_c/f_z Page 40–42

End milling cutter HSS-E Co 8

▲ ≤ Ø DC 6 mm, 3 cutting edges to centre







										DIN 327		DIN 327		DIN 844 K		DIN 844 K	
										B		B		B		B	
										50 105 ...		54 021 ...		50 106 ...		54 016 ...	
DC mm	Tol.	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP								
1,80	h10	4		4	10	12	48	6	3	018		018					
2,00	e8	4		4	10	12	48	6	3	020		020					
2,50	e8	5		5	11	13	49	6	3	025		025					
2,80	h10	5		5	11	13	49	6	3	028		028					
2,80	h10	8		8	18	20	56	6	3					028	1)	028	1)
3,00	e8	5		5	11	13	49	6	3	030		030					
3,00	e8	8		8	14	16	52	6	3					030		030	
3,50	h10	6		6	12	14	50	6	3	035		035					
3,50	h10	10		10	16	18	54	6	3					035		035	
3,80	h10	7		7	13	15	51	6	3	038		038					
3,80	h10	11		11	25	27	63	6	3					038	1)	038	1)
4,00	e8	7		7	13	15	51	6	3	040		040					
4,00	e8	11		11	17	19	55	6	3					040		040	
4,50	h10	7		7	13	15	51	6	3	045		045					
4,50	h10	11		11	17	19	55	6	3					045		045	
4,80	h10	8		8	14	16	52	6	3	048		048					
5,00	e8	8		8	14	16	52	6	3	050		050					
5,00	e8	13		13	19	21	57	6	3					050		050	
5,50	h10	8		8	14	16	52	6	3	055		055					
5,50	h10	13		13	19	21	57	6	3					055		055	
5,75	h10	8		8	14	16	52	6	3	057		057					
6,00	e8	8	5,5	14	14	16	52	6	3	060		060					
6,00	e8	13	5,5	19	19	21	57	6	3					060		060	
6,50	h10	10	6,0	16	18	20	60	10	3	065		065					
6,50	h10	16	6,0	22	24	26	66	10	3					065		065	
6,75	h10	10	6,5	16	18	20	60	10	3	067		067					
7,00	e8	10	6,5	16	18	20	60	10	3	070		070					
7,00	e8	16	6,5	22	24	26	66	10	3					070		070	
7,50	h10	10	7,0	16	18	20	60	10	3	075		075					
7,50	h10	16	7,0	22	24	26	66	10	3					075		075	
7,75	h10	11	7,5	17	19	21	61	10	3	077		077					
8,00	e8	11	7,5	17	19	21	61	10	3	080		080					
8,00	e8	19	7,5	25	27	29	69	10	3					080		080	
8,50	h10	11	8,0	18	19	21	61	10	3	085		085					
8,50	h10	19	8,0	26	27	29	69	10	3					085		085	
8,70	h10	11	8,5	18	19	21	61	10	3	087		087					
9,00	h10	11	8,5	18	19	21	61	10	3	090		090					
9,00	h10	19	8,5	26	27	29	69	10	3					090		090	
9,50	h10	11	9,0	18	19	21	61	10	3	095		095					
9,50	h10	19	9,0	26	27	29	69	10	3					095		095	
9,70	h10	13	9,5	21	21	23	63	10	3	097		097					
10,00	e8	13	9,5	21	21	23	63	10	3	100		100					
10,00	e8	22	9,5	30	30	32	72	10	3					100		100	
10,50	h10	13	10,0	21	23	25	70	12	3	105		105					
10,70	h10	13	10,5	21	23	25	70	12	3	107		107					
11,00	h10	13	10,5	21	23	25	70	12	3	110		110					

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

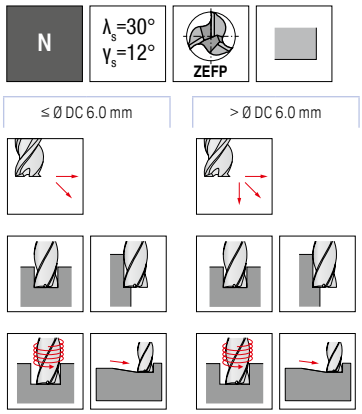
1) Factory standard

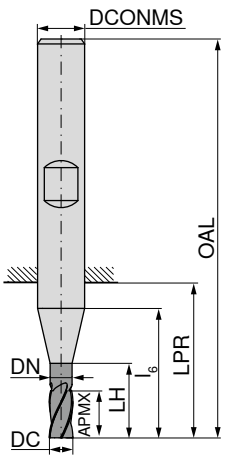
→ v_c/f_z Page 40–42

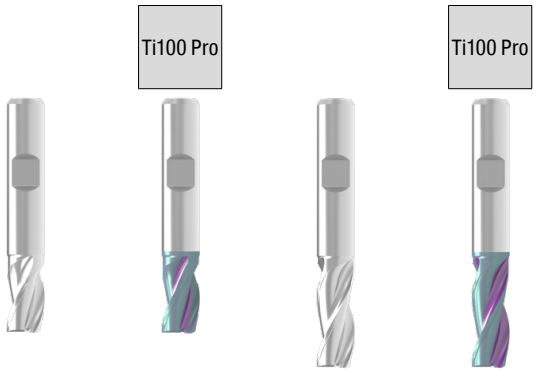
Continued on next page

End milling cutter HSS-E Co 8

▲ ≤ Ø DC 6 mm, 3 cutting edges to centre





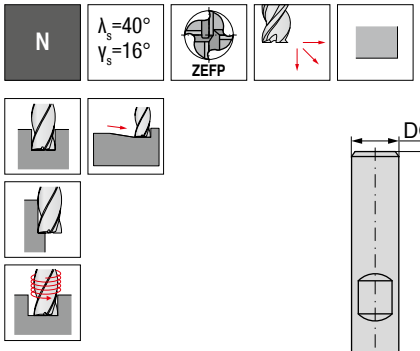


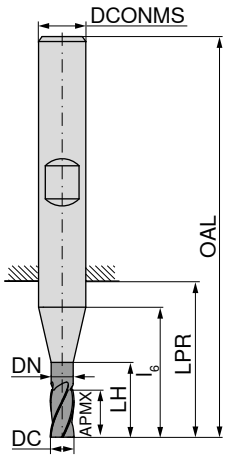
										DIN 327	DIN 327	DIN 844 K	DIN 844 K
										B	B	B	B
										50 105 ...	54 021 ...	50 106 ...	54 016 ...
DC mm	Tol.	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP				
11,00	h10	22	10,5	30	32	34	79	12	3			110	110
11,50	h10	13	11,0	21	23	25	70	12	3	115	115		
11,50	h10	22	11,0	30	32	34	79	12	3			115	115
11,70	h10	16	11,5	26	26	28	73	12	3	117	117		
12,00	e8	16	11,5	26	26	28	73	12	3	120	120		
12,00	e8	26	11,5	36	36	38	83	12	3			120	120
12,70	h10	16	11,5	26	26	28	73	12	3	127	127		
13,00	h10	16	11,5	26	26	28	73	12	3	130	130		
13,00	h10	26	11,5	36	36	38	83	12	3			130	130
13,70	h10	16	11,5	26	26	28	73	12	3	137	137		
14,00	e8	16	11,5	26	26	28	73	12	3	140	140		
14,00	e8	26	11,5	36	36	38	83	12	3			140	140
15,00	h10	16	11,5	26	26	28	73	12	3	150	150		
15,00	h10	26	11,5	36	36	38	83	12	3			150	150
15,50	h10	32	15,0	42	42	44	92	16	3			155	155
15,70	h10	19	15,0	29	29	31	79	16	3	157	157		
16,00	e8	19	15,0	29	29	31	79	16	3	160	160		
16,00	e8	32	15,0	42	42	44	92	16	3			160	160
17,00	h10	19	15,0	29	29	31	79	16	3	170	170		
17,00	h10	32	15,0	42	42	44	92	16	3			170	170
17,70	h10	19	15,0	29	29	31	79	16	3	177	177		
18,00	e8	19	15,0	29	29	31	79	16	3	180	180		
18,00	e8	32	15,0	42	42	44	92	16	3			180	180
19,00	h10	19	15,0	29	29	31	79	16	3	190	190		
19,00	h10	32	15,0	42	42	44	92	16	3			190	190
19,50	h10	38	19,0	52	52	54	104	20	3			195	195
19,70	h10	22	19,0	36	36	38	88	20	3	197	197		
20,00	e8	22	19,0	36	36	38	88	20	3	200	200		
20,00	e8	38	19,0	52	52	54	104	20	3			200	200
21,70	h10	22	19,0	36	36	38	88	20	3	217	217		
22,00	e8	22	19,0	36	36	38	88	20	3	220	220		
22,00	e8	38	19,0	52	52	54	104	20	3			220	220
23,70	h10	26	23,0	42	44	46	102	25	3	237	237		
24,00	e8	26	23,0	42	44	46	102	25	3	240	240		
24,70	h10	26	24,0	44	44	46	102	25	3	247	247		
P										●	●	●	●
M										○	●	○	●
K										●	●	●	●
N										○	○	○	○
S										○	○	○	○
H													
O										○	○	○	○

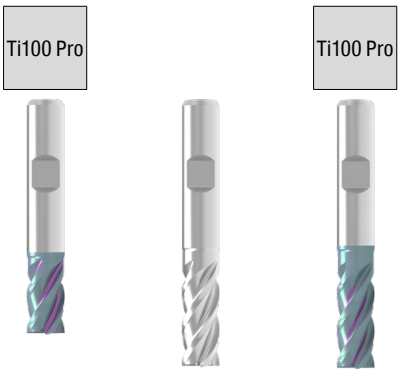
1) Factory standard

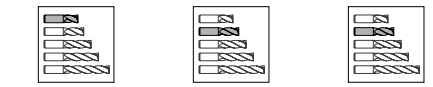
→ v_c/f_z Page 40–42

End milling cutter HSS-E Co 8









	Factory standard	DIN 844	DIN 844
	B	B	B
	54 017 ...	**50 124 ...**	**54 011 ...**

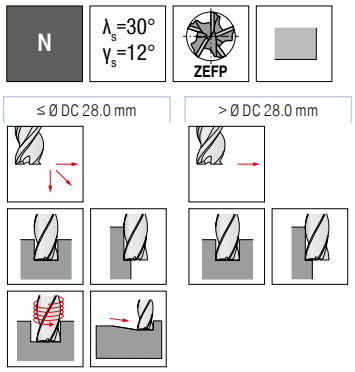
DC mm	Tol.	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP			
4	k10	11		11	17	19	55	6	4		**040**	**040**
5	k10	13		13	19	21	57	6	4		**050**	**050**
6	e8	8	5,5	14	14	16	52	6	4	**060**		
6	k10	13	5,5	19	19	21	57	6	4		**060**	**060**
8	e8	11	7,5	17	19	21	61	10	4	**080**		
8	k10	19	7,5	25	27	29	69	10	4		**080**	**080**
9	k10	19	8,5	26	27	29	69	10	4		**090**	**090**
10	e8	13	9,5	21	21	23	63	10	4	**100**		
10	k10	22	9,5	30	30	32	72	10	4		**100**	**100**
12	e8	16	11,5	26	26	28	73	12	4	**120**		
12	k10	26	11,5	36	36	38	83	12	4		**120**	**120**
14	e8	16	11,5	26	26	28	73	12	4	**140**		
14	k10	26	11,5	36	36	38	83	12	4		**140**	**140**
15	k10	26	11,5	36	36	38	83	12	4		**150**	
16	e8	19	15,0	29	29	31	79	16	4	**160**		
16	k10	32	15,0	42	42	44	92	16	4		**160**	**160**
17	k10	32	15,0	42	42	44	92	16	4		**170**	**170**
18	e8	19	15,0	29	29	31	79	16	4	**180**		
18	k10	32	15,0	42	42	44	92	16	4		**180**	**180**
20	e8	22	19,0	36	36	38	88	20	4	**200**		
20	k10	38	19,0	52	52	54	104	20	4		**200**	**200**
25	k10	45	24,0	63	63	65	121	25	5		**250**	**250**

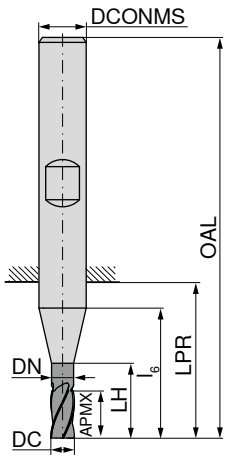
P	○	○	○
M	●	●	●
K	○	○	○
N	●	●	●
S	●	●	●
H			
O	●	●	●

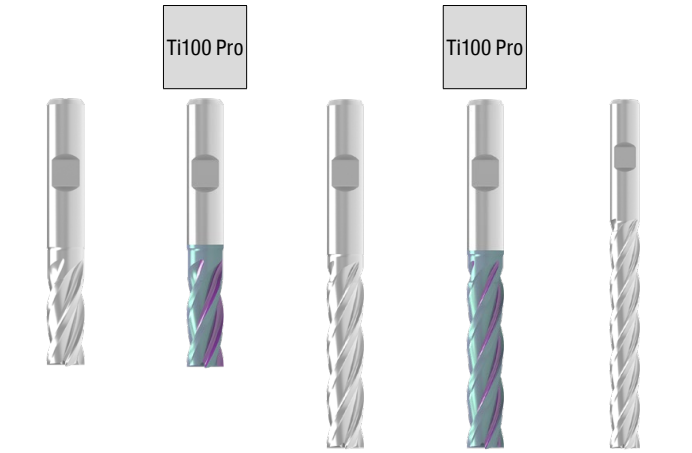
→ v_c/f_z Page 40–42

End milling cutter HSS-E Co 8

▲ > Ø 28,0 mm recessed centre









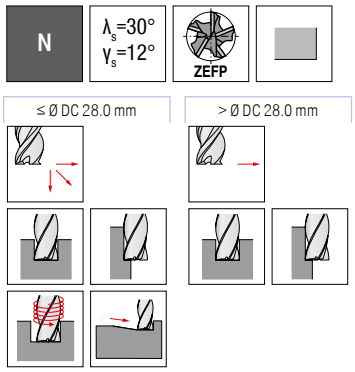
									DIN 69844	DIN 69844	DIN 844	DIN 844	Factory standard
									B	B	B	B	B
									50 110 ...	54 018 ...	50 111 ...	54 019 ...	50 104 ...
DC k10 mm	APMX mm	DN mm	LH mm	l6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP					
2,0	7		7	13	15	51	6	4	020	020			
2,5	8		8	14	16	52	6	4	025	025			
3,0	8		8	14	16	52	6	4	030	030			
3,0	12		12	18	20	56	6	4			030	030	
3,5	10		10	16	18	54	6	4	035	035			
4,0	11		11	17	19	55	6	4	040	040			
4,0	19		19	25	27	63	6	4			040	040	
4,5	11		11	17	19	55	6	4	045	045			
5,0	13		13	19	21	57	6	4	050	050			
5,0	24		24	30	32	68	6	4			050	050	
5,5	13		13	19	21	57	6	4	055	055			
6,0	13	5,5	19	19	21	57	6	4	060	060			
6,0	24	5,5	30	30	32	68	6	4			060	060	
6,0	56	5,5	62	62	64	100	6	4					060
6,5	16	6,0	22	24	26	66	10	4	065	065			
7,0	16	6,5	22	24	26	66	10	4	070	070			
7,0	30	6,5	36	38	40	80	10	4			070	070	
7,5	16	7,0	22	24	26	66	10	4	075	075			
8,0	19	7,5	25	27	29	69	10	4	080	080			
8,0	38	7,5	44	46	48	88	10	4			080	080	
8,0	70	7,5	73	73	75	115	10	4					080
8,5	19	8,0	26	27	29	69	10	4	085	085			
9,0	19	8,5	26	27	29	69	10	4	090	090			
9,0	38	8,5	45	46	48	88	10	4			090	090	
9,5	19	9,0	26	27	29	69	10	4	095	095			
10,0	22	9,5	30	30	32	72	10	4	100	100			
10,0	45	9,5	53	53	55	95	10	4			100	100	
10,0	75	9,5	79	79	81	121	10	4					100
10,5	22	10,0	30	32	34	79	12	4	105	105			
11,0	22	10,5	30	32	34	79	12	4	110	110			
11,0	45	10,5	53	55	57	102	12	4			110	110	
11,5	22	11,0	30	32	34	79	12	4	115	115			
12,0	26	11,5	36	36	38	83	12	4	120	120			
12,0	53	11,5	63	63	65	110	12	4			120	120	
12,0	85		85	85	85	130	12	4					120
13,0	26	11,5	36	36	38	83	12	4	130	130			
14,0	26	11,5	36	36	38	83	12	4	140	140			
14,0	53	11,5	63	63	65	110	12	4			140	140	
14,0	85		85	85	85	130	12	4					140
P									●	●	●	●	●
M									○	●	○	●	○
K									●	●	●	●	●
N									○	○	○	○	○
S									○	○	○	○	○
H													
O									○	○	○	○	○

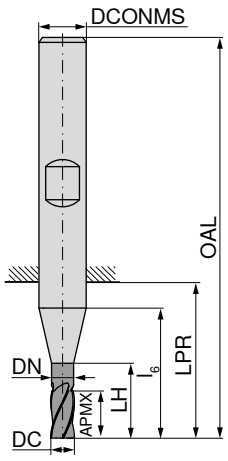
→ v_c/f_z Page 40–42

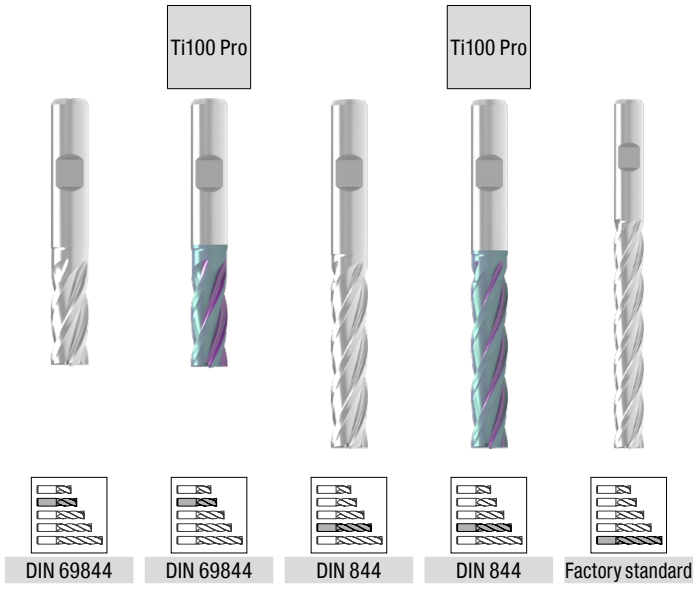
Continued on next page

End milling cutter HSS-E Co 8

▲ > Ø 28,0 mm recessed centre







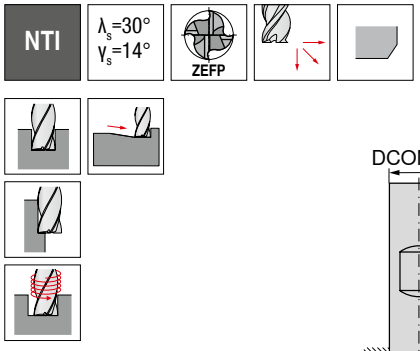
	DIN 69844	DIN 69844	DIN 844	DIN 844	Factory standard
	B	B	B	B	B
	50 110 ...	54 018 ...	50 111 ...	54 019 ...	50 104 ...

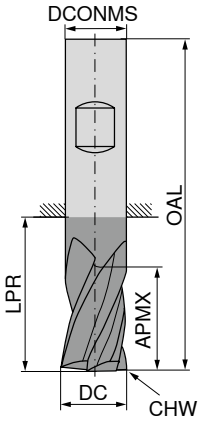
DC k10 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP									
15,0	26	11,5	36	36	38	83	12	4	150		150						
15,0	53	11,5	63	63	65	110	12	4					150		150		
16,0	32	15,0	42	42	44	92	16	4	160		160						
16,0	63	15,0	73	73	75	123	16	4					160		160		
16,0	90	15,0	95	95	97	145	16	4									160
18,0	32	15,0	42	42	44	92	16	4	180		180						
18,0	63	15,0	73	73	75	123	16	4					180		180		
18,0	100	15,0	110	110	112	160	16	5									180
20,0	38	19,0	52	52	54	104	20	4	200		200						
20,0	75	19,0	89	89	91	141	20	4					200		200		
20,0	110	19,0	128	128	130	180	20	5									200
22,0	38	19,0	52	52	54	104	20	5	220		220						
22,0	75	19,0	89	89	91	141	20	5					220		220		
22,0	110	19,0	128	128	130	180	20	5									220
24,0	45	23,0	61	63	65	121	25	5	240		240						
24,0	90	23,0	106	108	110	166	25	5					240		240		
25,0	45	24,0	63	63	65	121	25	5	250		250						
25,0	90	24,0	108	108	110	166	25	5					250		250		
25,0	125	24,0	142	142	144	200	25	6									250
28,0	45	24,0	63	63	65	121	25	5	280		280						
28,0	90	24,0	108	108	110	166	25	5					280		280		
28,0	140	24,0	147	147	149	205	25	6									280
30,0	45	24,0	63	63	65	121	25	5	300		300						
30,0	90	24,0	108	108	110	166	25	5					300		300		
32,0	53	31,0	70	70	73	133	32	6	320								
32,0	53	31,0	70	70	73	133	32	5			320						
32,0	106	31,0	123	123	126	186	32	6					320		320		
32,0	160	31,0	167	167	170	230	32	6									320
36,0	53	31,0	70	70	73	133	32	6	360		360						
40,0	63	38,0	80	80	85	155	40	6	400		400						
40,0	125	38,0	142	142	147	217	40	6					400		400		
40,0	180	31,0	197	197	200	260	32	8									400
45,0	125	38,0	142	142	147	217	40	8					450		450		
50,0	150	48,0	172	172	172	252	50	8					500		500		

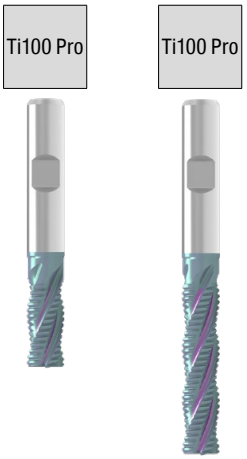
P	●	●	●	●	●
M	○	●	○	●	○
K	●	●	●	●	●
N	○	○	○	○	○
S	○	○	○	○	○
H					
O	○	○	○	○	○

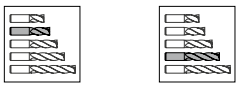
→ v_c/f_z Page 40–42

Powdersteel roughing finishing cutter





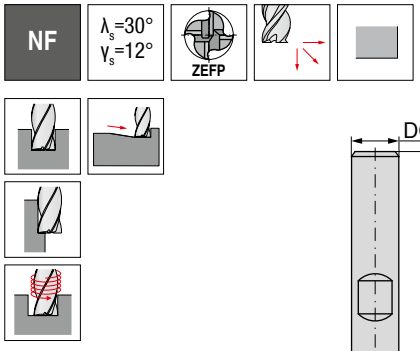


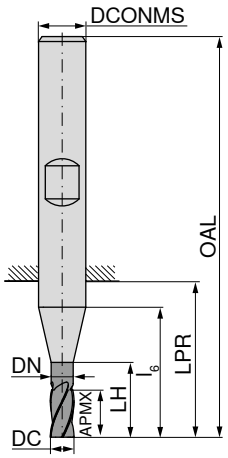


DC k12 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	DIN 69844 B	DIN 844 B
							54 007 ...	54 008 ...
6	13	21	57	6	0,3	4	060	
6	24	32	68	6	0,3	4		060
7	16	26	66	10	0,3	4	070	
8	19	29	69	10	0,3	4	080	
8	38	48	88	10	0,3	4		080
9	19	29	69	10	0,5	4	090	
10	22	32	72	10	0,5	4	100	
10	45	55	95	10	0,5	4		100
12	26	38	83	12	0,7	4	120	
12	53	65	110	12	0,7	4		120
14	26	38	83	12	0,8	4	140	
14	53	65	110	12	0,8	4		140
16	32	44	92	16	0,8	4	160	
16	63	75	123	16	0,8	4		160
18	32	44	92	16	0,8	4	180	
18	63	75	123	16	0,8	4		180
20	38	54	104	20	0,8	4	200	
20	75	91	141	20	0,8	4		200
25	45	65	121	25	1,0	5	250	
25	90	110	166	25	1,0	4		250
30	90	110	166	25	1,3	5		300
32	53	73	133	32	1,3	6	320	
32	106	126	186	32	1,3	5		320
40	63	85	155	40	1,3	6	400	
40	125	147	217	40	1,3	6		400
P							○	○
M							●	●
K							○	○
N							○	○
S							●	●
H								
O							○	○

→ v_c/f_z Page 40–42

Roughing-finishing milling cutter HSS-E Co 5













DIN 69844 | DIN 844



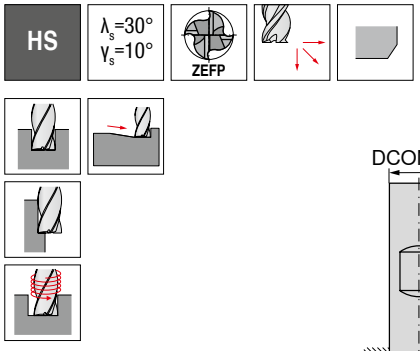


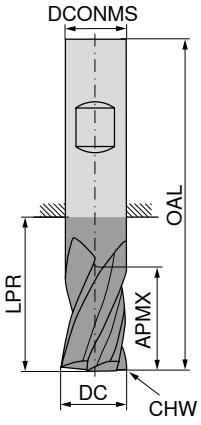
DC k12 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	54 028 ...	54 029 ...
6	13	5,5	19	19	21	57	6	4	060	
6	24	5,5	30	30	32	68	6	4		060
7	16	6,5	22	24	26	66	10	4	070	
8	19	7,5	25	27	29	69	10	4	080	
8	38	7,5	44	46	48	88	10	4		080
9	19	8,5	26	27	29	69	10	4	090	
10	22	9,5	30	30	32	72	10	4	100	
10	45	9,5	53	53	55	95	10	4		100
11	22	10,5	30	32	32	79	12	4	110	
11	45	10,5	53	55	57	102	12	4		110
12	26	11,5	36	36	38	83	12	4	120	
12	53	11,5	63	63	65	110	12	4		120
13	26	11,5	36	36	38	83	12	4	130	
14	26	11,5	36	36	38	83	12	4	140	
15	26	11,5	36	36	38	83	12	4	150	
15	53	11,5	63	63	65	110	12	4		150
16	32	15,0	42	42	44	92	16	4	160	
16	63	15,0	73	73	75	123	16	4		160
18	32	15,0	42	42	44	92	16	4	180	
20	38	19,0	52	52	54	104	20	4	200	
20	75	19,0	89	89	91	141	20	4		200
22	75	19,0	89	89	91	141	20	4		220
22	38	19,0	52	52	54	104	20	4	220	
25	90	24,0	108	108	110	166	25	4		250
25	45	24,0	63	63	65	121	25	4	250	
28	90	24,0	108	108	110	166	25	5		280
P									●	●
M									○	○
K									●	●
N									○	○
S									○	○
H										
O									○	○

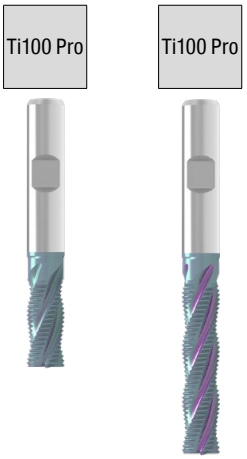
→ v_c/f_z Page 40–42

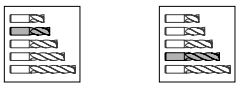
13

Powdersteel roughing finishing cutter









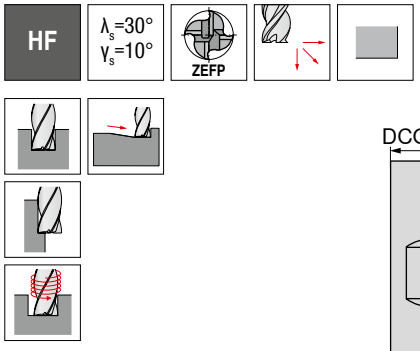
DC k12 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	DIN 69844 B	DIN 844 B
							54 009 ...	54 012 ...
6	13	21	57	6	0,45	4	060	
6	24	32	68	6	0,45	4		060
8	19	29	69	10	0,45	4	080	
8	38	48	88	10	0,45	4		080
10	22	32	72	10	0,45	4	100	
10	45	55	95	10	0,45	4		100
12	26	38	83	12	0,45	4	120	
12	53	65	110	12	0,45	4		120
14	26	38	83	12	0,45	4	140	
14	53	65	110	12	0,45	4		140
16	32	44	92	16	0,60	4	160	
16	63	75	123	16	0,60	4		160
18	32	44	92	16	0,60	4	180	
18	63	75	123	16	0,60	4		180
20	38	54	104	20	0,60	4	200	
20	75	91	141	20	0,60	4		200
22	38	54	104	20	0,60	5	220	
25	45	65	121	25	0,75	5	250	
25	90	110	166	25	0,75	5		250
28	45	65	121	25	0,75	5	280	
28	90	110	166	25	0,75	5		280
30	45	65	121	25	0,75	5	300	
30	90	110	166	25	0,75	5		300
32	53	73	133	32	0,75	6	320	
32	106	126	186	32	0,75	5		320
40	63	85	155	40	0,90	6	400	

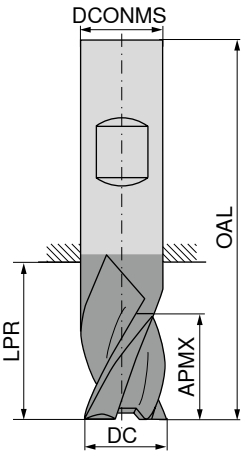
P	○	○
M		
K	●	●
N		
S	●	●
H		
O	○	○

→ v_c/f_z Page 40–42

Powdersteel roughing finishing cutter

HF | λ_s=30° γ_s=10° | ZEFP





Ti100 Pro





DIN 844



54 034 ...

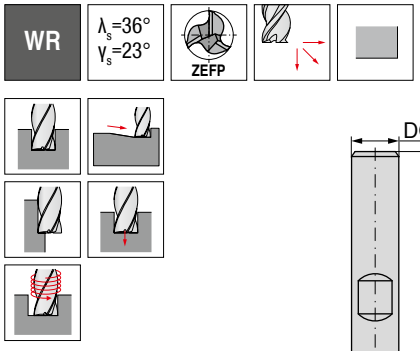
DC $_{k12}$ mm	APMX mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	
6	13	21	57	6	4	**060**
8	19	29	69	10	4	**080**
10	22	32	72	10	4	**100**
12	26	38	83	12	4	**120**
14	26	38	83	12	4	**140**
16	32	44	92	16	4	**160**
18	32	44	92	16	4	**180**
20	38	54	104	20	4	**200**
25	45	65	121	25	4	**250**

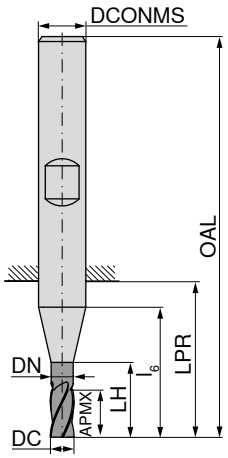
P	●
M	○
K	●
N	○
S	○
H	
O	○

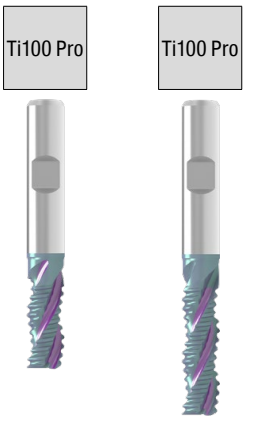
→ v_c/f_z Page 40–42

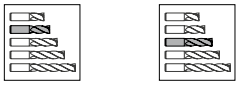
13

Rough milling cutter HSS-E Co 8









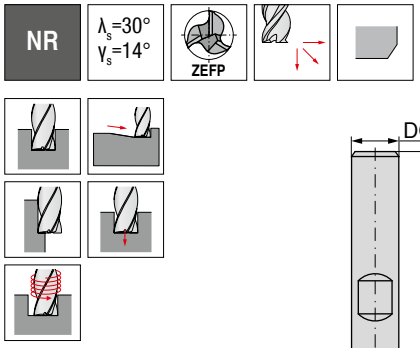
	DIN 844	Factory standard
	B	B
	54 013 ...	54 010 ...

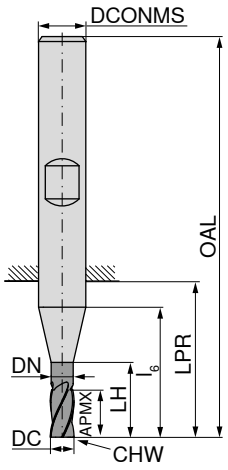
DC k12 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP		
6	13	5,5	19	19	21	57	6	3	**060**	
6	19	5,5	25	25	27	63	6	3		**060**
8	19	7,5	25	27	29	69	10	3	**080**	
8	28	7,5	34	36	38	78	10	3		**080**
10	22	9,5	30	30	32	72	10	3	**100**	
10	34	9,5	42	42	44	84	10	3		**100**
12	26	11,5	36	36	38	83	12	3	**120**	
12	40	11,5	50	50	52	97	12	3		**120**
16	32	15,0	42	42	44	92	16	3	**160**	
16	48	15,0	58	58	60	108	16	3		**160**
20	38	19,0	52	52	54	104	20	3	**200**	
20	56	19,0	70	70	72	122	20	3		**200**
25	45	24,0	63	63	65	121	25	3	**250**	
25	68	24,0	86	86	88	144	25	3		**250**
32	80	31,0	97	97	100	160	32	3		**320**

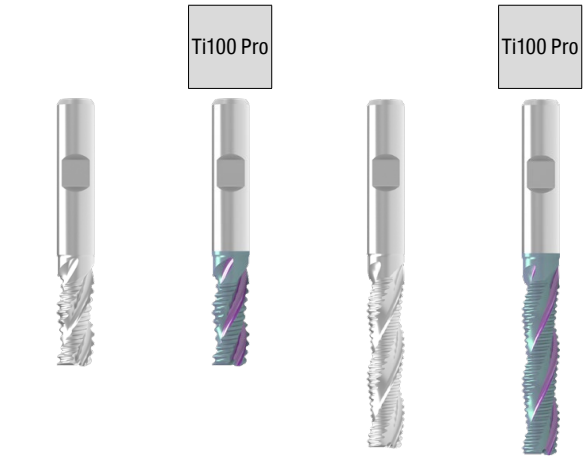
P		
M		
K		
N	●	●
S		
H		
O	●	●

→ v_c/f_z Page 40–42

Rough milling cutter HSS-E Co 8







	DIN 69844	DIN 69844	DIN 844	DIN 844
	B	B	B	B
	50 153 ...	**54 026 ...**	**50 157 ...**	**54 027 ...**

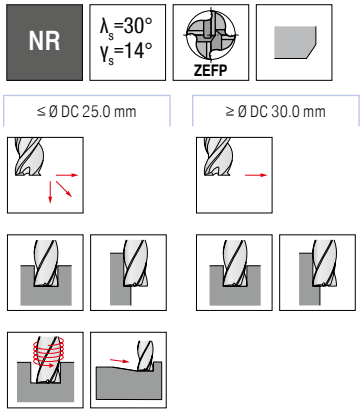
DC k12 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP				
6	13	5,5	19	19	21	57	6	0,5	3	**060**	**060**		
6	24	5,5	30	30	32	68	6	0,5	3			**060**	**060**
7	16	6,5	22	24	26	66	10	0,5	3	**070**	**070**		
8	19	7,5	25	27	29	69	10	0,7	3	**080**	**080**		
8	38	7,5	44	46	48	88	10	0,7	3			**080**	**080**
9	19	8,5	26	27	29	69	10	0,7	3	**090**	**090**		
9	38	8,5	45	46	48	88	10	0,7	3			**090**	**090**
10	22	9,5	30	30	32	72	10	0,7	3	**100**	**100**		
10	45	9,5	53	53	55	95	10	0,7	3			**100**	**100**
11	22	10,5	30	32	34	79	12	0,7	3	**110**	**110**		
11	45	10,5	53	55	55	102	12	0,7	3			**110**	**110**
12	26	11,5	36	36	38	83	12	0,7	3	**120**	**120**		
12	53	11,5	63	63	65	110	12	0,7	3			**120**	**120**
14	26	11,5	36	36	38	83	12	0,9	3	**140**	**140**		
14	53	11,5	63	63	65	110	12	0,9	3			**140**	**140**
15	26	11,5	36	36	38	83	12	0,9	3	**150**	**150**		
15	53	11,5	63	63	65	110	12	0,9	3			**150**	**150**
16	32	15,0	42	42	44	92	16	0,9	3	**160**	**160**		
16	63	15,0	73	73	75	123	16	0,9	3			**160**	**160**
18	32	15,0	42	42	44	92	16	0,9	3	**180**	**180**		
18	63	15,0	73	73	75	123	16	0,9	3			**180**	**180**
20	38	19,0	52	52	54	104	20	0,9	3	**200**	**200**		
20	75	19,0	89	89	91	141	20	0,9	3			**200**	**200**
25	45	24,0	63	63	65	121	25	0,9	3	**250**	**250**		
25	90	24,0	108	108	110	166	25	0,9	3			**250**	**250**
P										●	●	●	●
M										○	○	○	○
K										●	●	●	●
N										○	○	○	○
S										○	○	○	○
H													
O										○	○	○	○

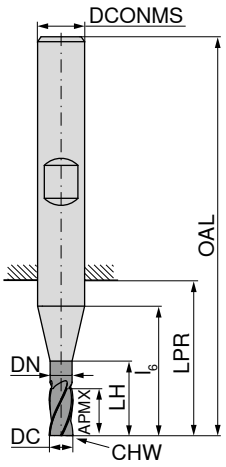
→ v_c/f_z Page 40–42

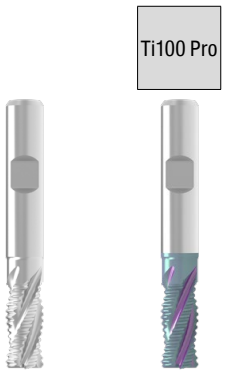
13

Rough milling cutter HSS-E Co 5

▲ > Ø 25,0 mm recessed centre











DIN 69844 | DIN 69844

B | B

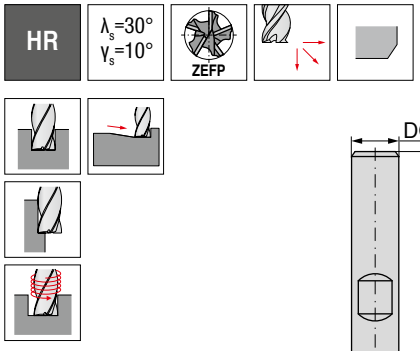
DC k12 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	50 125 ...	54 030 ...
6	13	5,5	19	19	21	57	6	0,5	4	**060**	**060**
7	16	6,5	22	24	26	66	10	0,5	4	**070**	**070**
8	19	7,5	25	27	29	69	10	0,7	4	**080**	**080**
9	19	8,5	26	27	29	69	10	0,7	4	**090**	**090**
10	22	9,5	30	30	32	72	10	0,7	4	**100**	**100**
11	22	10,5	30	32	32	79	12	0,7	4	**110**	**110**
12	26	11,5	36	36	38	83	12	0,7	4	**120**	**120**
13	26	11,5	36	36	38	83	12	0,7	4		**130**
14	26	11,5	36	36	38	83	12	0,9	4	**140**	**140**
15	26	11,5	36	36	38	83	12	0,9	4		**150**
16	32	15,0	42	42	44	92	16	0,9	4	**160**	**160**
18	32	15,0	42	42	44	92	16	0,9	4	**180**	**180**
20	38	19,0	52	52	54	104	20	0,9	4	**200**	**200**
22	38	19,0	52	52	54	104	20	0,9	4		**220**
24	45	23,0	61	63	65	121	25	0,9	4		**240**
25	45	24,0	63	63	65	121	25	0,9	4	**250**	**250**
30	45	24,0	63	63	65	121	25	1,1	5		**300**
32	53	31,0	70	70	73	133	32	1,1	6		**320**
40	63	38,0	80	80	85	155	40	1,1	6		**400**

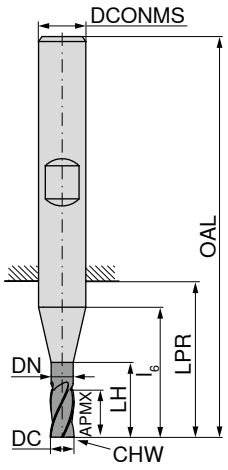
P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H		
O	○	○

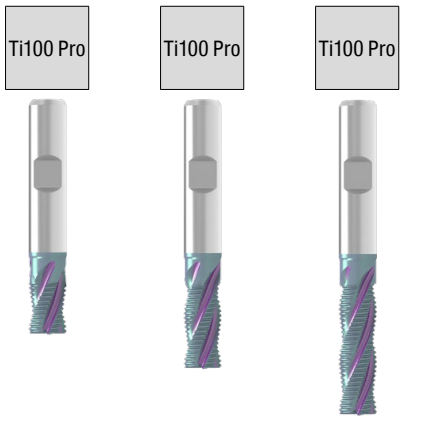
→ v_c/f_z Page 40–42

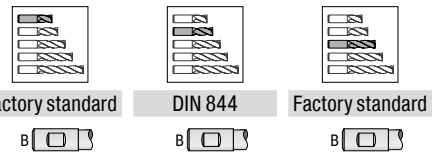
Powdersteel Fine rough milling cutter

HR | λ_s=30° γ_s=10° | ZEFP









	Factory standard	DIN 844	Factory standard
	B	B	B
	54 031 ...	**54 032 ...**	**54 033 ...**

DC $_{k12}$ mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	CHW mm	ZEFP			
6	8	5,5	14	14	16	52	6	0,35	4	060		
6	13	5,5	19	19	21	57	6	0,35	4		060	
8	11	7,5	17	19	21	61	10	0,45	4	080		
8	19	7,5	25	27	29	69	10	0,45	4		080	
8	28	7,5	34	36	38	78	10	0,45	4			080
10	13	9,5	21	21	23	63	10	0,45	4	100		
10	22	9,5	30	30	32	72	10	0,45	4		100	
10	34	9,5	42	42	44	84	10	0,45	4			100
12	16	11,5	26	26	28	73	12	0,60	4	120		
12	26	11,5	36	36	38	83	12	0,60	4		120	
12	40	11,5	50	50	52	97	12	0,60	4			120
14	16	11,5	26	26	28	73	12	0,60	4	140		
14	26	11,5	36	36	38	83	12	0,60	4		140	
14	40	11,5	50	50	52	97	12	0,60	4			140
16	19	15,0	29	29	31	79	16	0,70	4	160		
16	32	15,0	42	42	44	92	16	0,70	4		160	
16	48	15,0	58	58	60	108	16	0,70	4			160
18	19	15,0	29	29	31	79	16	0,70	4	180		
18	32	15,0	42	42	44	92	16	0,70	4		180	
18	48	15,0	58	58	60	108	16	0,70	4			180
20	22	19,0	36	36	38	88	20	0,70	4	200		
20	38	19,0	52	52	54	104	20	0,70	4		200	
20	56	19,0	70	70	72	122	20	0,70	4			200
22	22	19,0	36	36	38	88	20	0,70	4	220		
22	38	19,0	52	52	54	104	20	0,70	4		220	
22	56	19,0	70	70	72	122	20	0,70	4			220
25	26	24,0	44	44	46	102	25	0,70	4	250		
25	45	24,0	63	63	65	121	25	0,70	4		250	
25	68	24,0	86	86	88	144	25	0,70	4			250
28	26	24,0	44	44	46	102	25	0,90	5	280		
30	45	24,0	63	63	65	121	25	0,90	5		300	
32	32	31,0	49	49	52	112	32	0,90	6	320		
32	53	31,0	70	70	73	133	32	0,90	6		320	

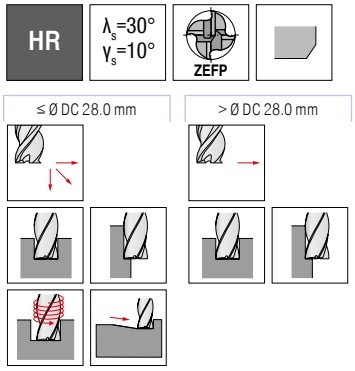
P	●	●	●
M	●	●	●
K	●	●	●
N	○	○	○
S	○	○	○
H			
O	○	○	○

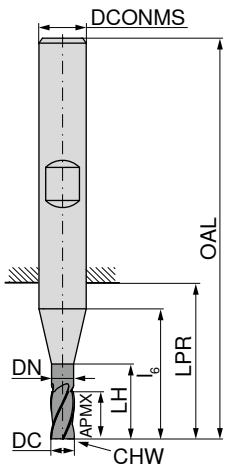
→ v_c/f_z Page 40–42

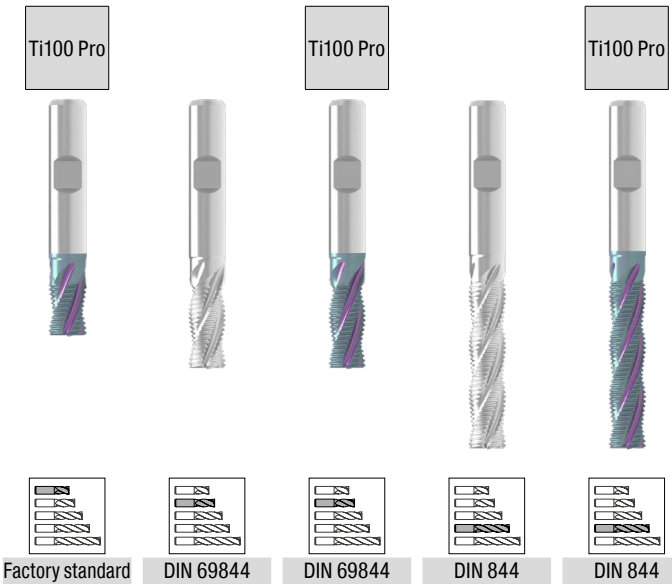
13

Fine profile milling cutter HSS-E Co 8

▲ > Ø 28,0 mm recessed centre







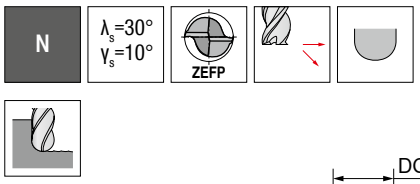
	Factory standard	DIN 69844	DIN 69844	DIN 844	DIN 844
B	◻	◻	◻	◻	◻
	54 022 ...	**50 140 ...**	**54 023 ...**	**50 141 ...**	**54 024 ...**

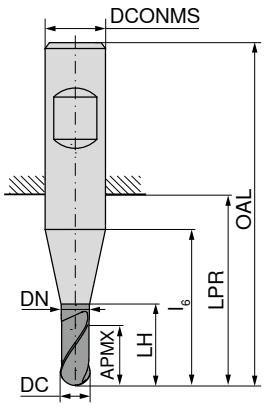
DC k12 mm	APMX mm	DN mm	LH mm	l6 mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP					
4	11		11	17	19	55	6	0,35	3		**040**		**040**		
5	13		13	19	21	57	6	0,35	3		**050**		**050**		
6	8	5,5	14	14	16	52	6	0,35	4	**060**					
6	13	5,5	19	19	21	57	6	0,35	4		**060**		**060**		
6	24	5,5	30	30	32	68	6	0,35	4					**060**	**060**
8	11	7,5	17	19	21	61	10	0,45	4	**080**					
8	19	7,5	25	27	29	69	10	0,45	4		**080**		**080**		
8	38	7,5	44	46	48	88	10	0,45	4					**080**	**080**
10	13	9,5	21	21	23	63	10	0,45	4	**100**					
10	22	9,5	30	30	32	72	10	0,45	4		**100**		**100**		
10	45	9,5	53	53	55	95	10	0,45	4					**100**	**100**
12	16	11,5	26	26	28	73	12	0,60	4	**120**					
12	26	11,5	36	36	38	83	12	0,60	4		**120**		**120**		
12	53	11,5	63	63	65	110	12	0,60	4					**120**	**120**
14	16	11,5	26	26	28	73	12	0,60	4	**140**					
14	26	11,5	36	36	38	83	12	0,60	4		**140**		**140**		
14	53	11,5	63	63	65	110	12	0,60	4					**140**	**140**
16	19	15,0	29	29	31	79	16	0,70	4	**160**					
16	32	15,0	42	42	44	92	16	0,70	4		**160**		**160**		
16	63	15,0	73	73	75	123	16	0,70	4					**160**	**160**
18	19	15,0	29	29	31	79	16	0,70	4	**180**					
18	32	15,0	42	42	44	92	16	0,70	4		**180**		**180**		
18	63	15,0	73	73	75	123	16	0,70	4					**180**	**180**
20	22	19,0	36	36	38	88	20	0,70	4	**200**					
20	38	19,0	52	52	54	104	20	0,70	4		**200**		**200**		
20	75	19,0	89	89	91	141	20	0,70	4					**200**	**200**
22	38	19,0	52	52	54	114	20	0,70	4		**220**		**220**		
22	75	19,0	89	89	91	141	20	0,70	4					**220**	**220**
25	45	24,0	63	63	65	121	25	0,70	4		**250**		**250**		
25	90	24,0	108	108	110	166	25	0,70	4						**250**
28	45	24,0	63	63	65	121	25	0,90	5				**280**		
28	90	24,0	108	108	110	166	25	0,90	5						**280**
30	45	24,0	63	63	65	121	25	0,90	5				**300**		
30	90	24,0	108	108	110	166	25	0,90	5						**300**
32	53	31,0	70	70	73	133	32	0,90	6				**320**		
32	106	31,0	123	123	126	186	32	0,90	6						**320**

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

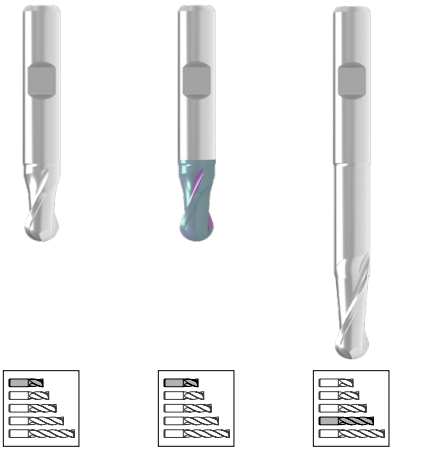
→ v_c/f_z Page 40–42

Ball nosed end milling cutter HSS-E Co 8









	Factory standard	Factory standard	Factory standard
	B	B	B
DC h10 mm	50 320 ...	54 041 ...	50 321 ...
2	020	020	
3	030	030	
3			030
4	040	040	
4			040
5	050	050	
5			050
6	060	060	
6			060
7	070	070	
7			070
8	080	080	
8			080
9	090	090	
9			090
10	100	100	
10			100
11	110		
11			110
12	120	120	
12			120
13	130	130	
14	140	140	
14			140
15	150	150	
15			150
16	160	160	
16			160
18	180	180	
18			180
20	201	201	
22	220		
24	240	240	
24			240
25	250		
25			250
26	260		
28	280		
30	300		
30			300

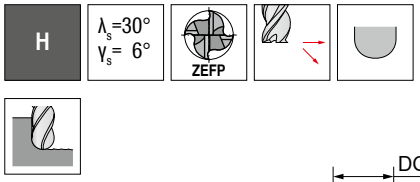
DC h10 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP
2	4		4	10	12	48	6	2
3	5		5	11	13	49	6	2
3	8		8	18	20	56	6	2
4	7		7	13	15	51	6	2
4	11		11	25	27	63	6	2
5	8		8	14	16	52	6	2
5	13		13	30	32	68	6	2
6	8	5,50	14	14	16	52	6	2
6	13	5,50	30	30	32	68	6	2
7	10	6,50	16	18	20	60	10	2
7	16	6,35	36	38	40	80	10	2
8	11	7,50	17	19	21	61	10	2
8	19	7,35	44	46	48	88	10	2
9	11	8,50	18	19	21	61	10	2
9	19	8,35	45	46	48	88	10	2
10	13	9,50	21	21	23	63	10	2
10	22	9,35	53	53	55	95	10	2
11	13	10,50	21	23	25	70	12	2
11	22	10,50	53	55	57	102	12	2
12	16	11,50	26	26	28	73	12	2
12	26	11,50	63	63	65	110	12	2
13	16	11,50	26	26	28	73	12	2
14	16	11,50	26	26	28	73	12	2
14	26	11,50	63	63	65	110	12	2
15	16	11,50	26	26	28	73	12	2
15	26	11,50	63	63	65	110	12	2
16	19	15,50	29	29	31	79	16	2
16	32	15,00	73	73	75	123	16	2
18	19	15,50	29	29	31	79	16	2
18	32	15,00	73	73	75	123	16	2
20	22	19,00	36	36	38	88	20	2
22	22	19,00	36	36	38	88	20	2
24	26	23,00	42	44	46	102	25	2
24	45	23,00	106	108	110	166	25	2
25	26	24,00	44	44	46	102	25	2
25	45	24,00	108	108	110	166	25	2
26	26	24,00	44	44	46	102	25	2
28	26	24,00	44	44	46	102	25	2
30	26	24,00	44	44	46	102	25	2
30	45	24,00	108	108	110	166	25	2

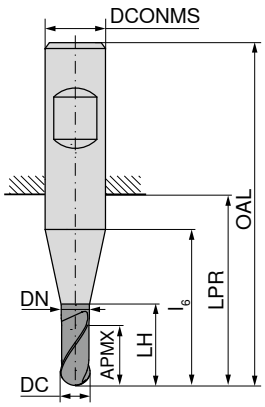
P	●	●	●
M	○	○	○
K	●	●	●
N	○	○	○
S	○	○	○
H			
O	○	○	○

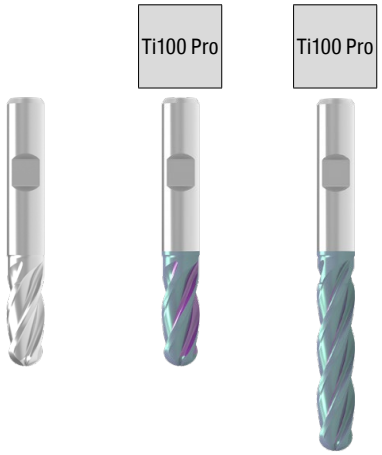
→ v_c/f_z Page 40–42

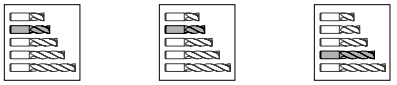
13

Ball nosed cutter HSS-E Co 8









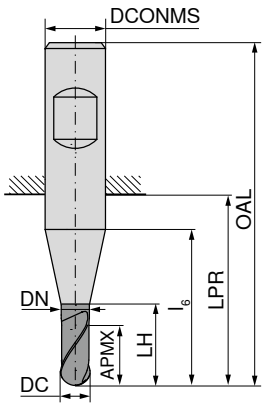
DC k12 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	DIN 1889 B	DIN 1889 B	DIN 1889 B
									50 308 ...	54 038 ...	54 039 ...
6	13	5,5	19	19	21	57	6	4	060	060	
6	24	5,5	30	30	32	68	6	4			060 [1]
8	19	7,5	25	27	29	69	10	4	080	080	
8	38	7,5	44	46	48	88	10	4			080 [1]
10	22	9,5	30	30	32	72	10	4	100	100	
10	45	9,5	53	53	55	95	10	4			100
12	26	11,5	36	36	38	83	12	4	120	120	
12	53	11,5	63	63	65	110	12	4			120
16	32	15,0	42	42	44	92	16	4	160	160	
16	63	15,0	73	73	75	123	16	4			160
20	38	19,0	52	52	54	104	20	4		200	
20	75	19,0	89	89	91	141	20	4			200
25	45	24,0	63	63	65	121	25	5		250	
P									●	●	●
M									○	○	○
K									●	●	●
N									○	○	○
S									○	○	○
H											
O									○	○	○

1) Factory standard

→ v_c/f_z Page 40–42

Ball nosed fine rough milling cutter HSS-E Co 8

HR | λ_s=30° γ_s=10° | ZEFP



Ti100 Pro



DIN 1889 B

54 040 ...

DC js14 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
6	13	5,5	19	19	21	57	6	4	**060**
8	19	7,5	25	27	29	69	10	4	**080**
10	22	9,5	30	30	32	72	10	4	**100**
12	26	11,5	36	36	38	83	12	4	**120**
16	32	15,0	42	42	44	92	16	4	**160**
20	38	19,0	52	52	54	104	20	4	**200**

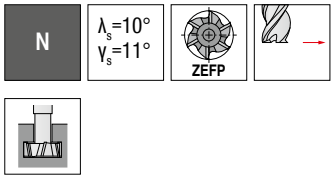
P	●
M	○
K	●
N	○
S	○
H	
O	○

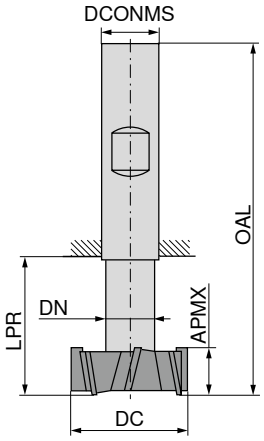
→ v_c/f_z Page 40–42

13

T-slot milling cutter HSS-E Co 5, cross pitched

▲ For slots according to DIN 650







DIN 851 A

B 

50 240 ...

DC d11 mm	APMX d11 mm	DN h12 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
11,0	4	4	13,5	53,5	10	6	**110**
12,5	6	5	17,0	57,0	10	6	**125**
16,0	8	7	22,0	62,0	10	6	**160**
18,0	8	8	25,0	70,0	12	6	**180**
19,0	9	8	26,0	71,0	12	6	**190** 1)
21,0	9	10	29,0	74,0	12	6	**210**
22,0	10	10	30,0	75,0	12	6	**220** 1)
25,0	11	12	34,0	82,0	16	8	**250**
28,0	12	13	37,0	85,0	16	8	**280** 1)
32,0	14	15	42,0	90,0	16	8	**320**
36,0	16	17	47,0	103,0	25	8	**360** 1)
40,0	18	19	52,0	108,0	25	10	**400**
45,0	20	21	57,0	113,0	25	10	**450** 1)
50,0	22	25	64,0	124,0	32	10	**500**
60,0	28	30	79,0	139,0	32	10	**600**

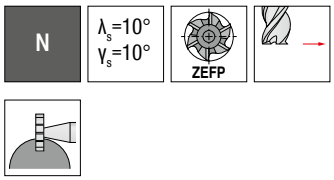
P	●
M	○
K	●
N	○
S	○
H	
O	○

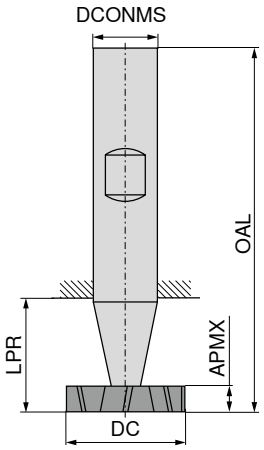
1) Factory standard

→ v_c/f_z Page 43

Slot milling cutter HSS-E Co 5, cross-pitched

▲ For slots according to DIN 6888
▲ CDX = $a_{p\,max.}$







DIN 850
B

50 234 ...

DC h12 mm	APMX e8 mm	LPR mm	OAL mm	DCONMS h6 mm	CDX mm	ZEFP	
10,5	2,0	14	50	6	3,25	6	**100**
10,5	2,5	14	50	6	3,15	6	**101**
10,5	3,0	14	50	6	3,15	6	**102**
13,5	2,0	16	56	10	4,45	6	**130** 1)
13,5	3,0	16	56	10	4,45	6	**132**
13,5	4,0	16	56	10	4,45	6	**133**
16,5	3,0	16	56	10	5,95	6	**161**
16,5	4,0	16	56	10	5,95	6	**162**
16,5	5,0	16	56	10	5,75	6	**163**
19,5	3,0	23	63	10	6,95	8	**190** 1)
19,5	4,0	23	63	10	6,95	8	**191**
19,5	5,0	23	63	10	6,75	8	**192**
22,5	4,0	23	63	10	8,25	8	**220** 1)
22,5	5,0	23	63	10	8,25	8	**221**
22,5	6,0	23	63	10	8,00	8	**222**
25,5	5,0	23	63	10	9,00	10	**250** 1)
25,5	6,0	23	63	10	9,00	10	**251**
28,5	6,0	23	63	10	10,00	10	**281**
28,5	8,0	23	63	10	10,00	10	**283**
32,5	6,0	26	71	12	12,00	10	**321** 1)
32,5	8,0	26	71	12	12,00	10	**322**
38,5	8,0	26	71	12	13,35	10	**381** 1)
45,5	10,0	26	71	12	16,85	12	**450**

P	●
M	○
K	●
N	○
S	○
H	
O	○

1) Factory standard

→ v_c/f_z Page 43

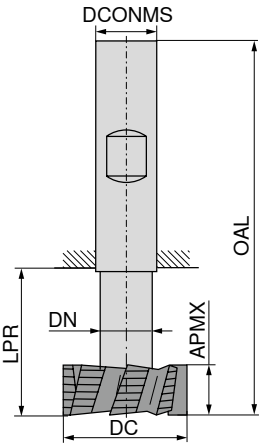
13

T-slot milling cutter HSS-E Co 5

▲ For slots according to DIN 650

NF | λ_s=20° γ_s=11° | ZEFP







DIN 851 A

B 

50 241 ...

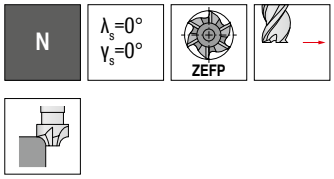
DC $_{d11}$ mm	APMX mm	DN $_{h12}$ mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	
21	9	10	29	74	12	6	**210**
22	10	10	30	75	12	6	**220** 1)
25	11	12	34	82	16	6	**250**
28	12	13	37	85	16	6	**280** 1)
32	14	15	42	90	16	6	**320**
36	16	17	47	103	25	6	**360** 1)
40	18	19	52	108	25	8	**400**
45	20	21	57	113	25	8	**450** 1)

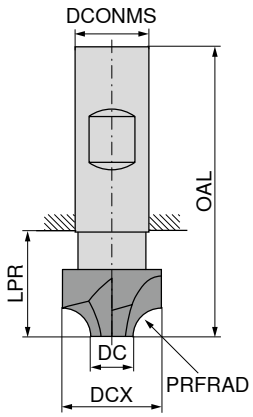
P	●
M	○
K	●
N	○
S	○
H	
O	○

1) Factory standard

→ v_c/f_z Page 43

Quarter-round profile milling cutter HSS-E Co 5, concave







DIN 6518

B

50 248 ...

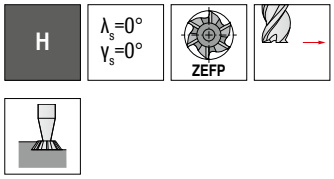
PRFRAD h11 mm	DCX mm	DC mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
1,0	8	6	20	60	10	4	**010**
1,5	9	6	20	60	10	4	**015**
2,0	10	6	20	60	10	4	**020**
2,5	11	6	20	60	10	4	**025**
3,0	12	6	15	60	12	4	**030**
4,0	14	6	15	60	12	4	**040**
5,0	16	6	15	60	12	4	**050**
6,0	20	8	19	67	16	4	**060**
8,0	24	8	23	71	16	4	**080**
9,0	26	8	29	85	25	4	**090**
10,0	28	8	29	85	25	4	**100**
12,0	34	10	34	90	25	4	**120**
15,0	46	16	44	100	25	6	**150**
16,0	48	16	44	100	25	6	**160**

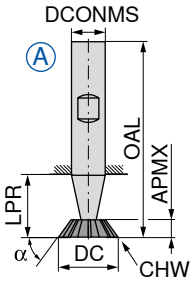
P	●
M	○
K	●
N	○
S	○
H	
O	○

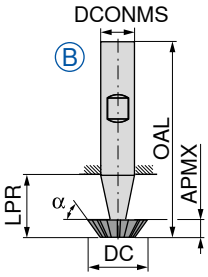
→ v_c/f_z Page 43

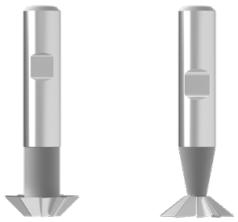
13

Single angle miling cutters HSS-E Co 5









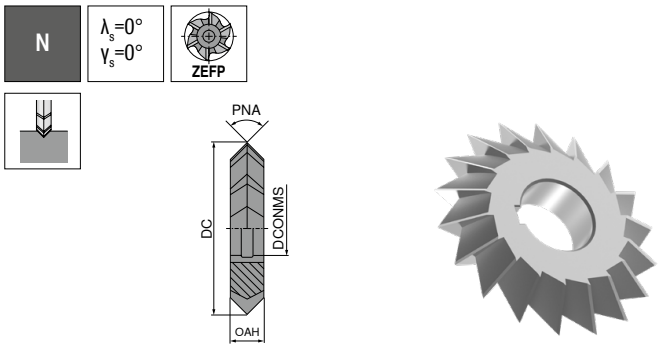
α°	DC mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	Fig.	DIN 1833 B 50 246 ...	DIN 1833 B 50 245 ...
45	16	4,0	15	60	12	0,3	10	A		016
	16	4,0	15	60	12		10	B	016	
	20	5,0	18	63	12	0,3	10	A		020
	20	5,0	18	63	12		10	B	020	
	25	6,3	22	67	12	0,3	10	A		025
	25	6,3	22	67	12		10	B	025	
60	16	6,3	15	60	12	0,3	10	A		116
	16	6,3	15	60	12		10	B	116	
	20	8,0	18	63	12	0,3	10	A		120
	20	8,0	18	63	12		10	B	120	
	25	10,0	22	67	12	0,3	10	A		125
	25	10,0	22	67	12		10	B	125	
70	16	7,0	15	60	12	0,3	10	A		216 1)
	20	9,0	18	63	12	0,3	10	A		220 1)
	25	11,0	19	67	16	0,3	10	A		225 1)
P									●	●
M									○	○
K									●	●
N									○	○
S									○	○
H										
O									○	○

1) Factory standard

→ v_c/f_z Page 44

Double angle milling cutter HSS

▲ with keyway to DIN 138



DIN 847

50 360 ...

PNA °	DC mm	OAH mm	DCONMS mm	ZEFP	
45	50	8	16	22	**045**
	63	10	22	24	**145**
	80	12	27	26	**245**
	100	18	32	28	**345**
60	50	10	16	18	**060**
	63	14	22	20	**160**
	80	18	27	22	**260**
	100	25	32	24	**360**
90	50	14	16	16	**090**
	63	20	22	18	**190**
	80	22	27	20	**290**
	100	32	32	24	**390**
120	50	14	16	16	**120** [1]
	63	20	22	16	**121** [1]

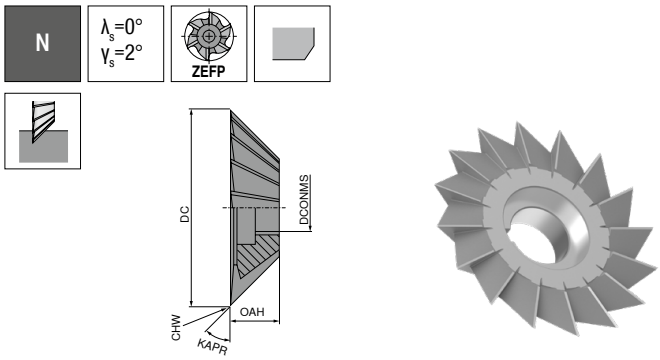
P	●
M	○
K	●
N	○
S	○
H	
O	○

1) Factory standard

→ v_c/f_z Page 44

Shell type single angle milling cutter HSS

▲ with keyway to DIN 138



DIN 842 A

50 362 ...

KAPR °	DC mm	OAH mm	DCONMS mm	CHW mm	ZEFP	
45	40	10	10	0,3	14	**045**
	50	13	13	0,3	16	**145**
	63	18	16	0,3	18	**245**
	80	22	22	0,3	20	**345**
	100	28	27	0,3	22	**445**
50	50	16	13	0,3	16	**150**
60	40	13	10	0,3	14	**060**
	50	16	13	0,3	16	**160**
	63	20	16	0,3	18	**260**
	80	25	22	0,3	20	**360**
	100	32	27	0,3	22	**460**
	125	40	32	0,3	28	**560**

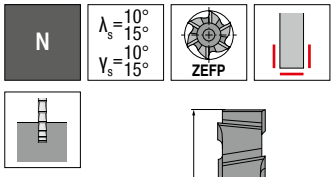
P	●
M	○
K	●
N	○
S	○
H	
O	○

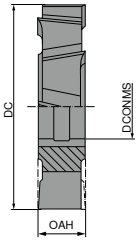
→ v_c/f_z Page 44

13

Side and face milling cutter HSS-E Co 5

▲ Coarse cross-pitched
▲ with keyway to DIN 138







DIN 885 A

50 348 ...

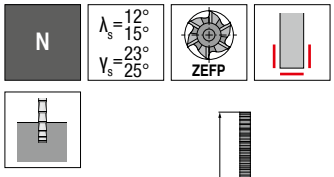
DC js16 mm	OAH k11 mm	DCONMS H7 mm	ZEFP	
50	4	16	12	100
50	5	16	12	102
50	6	16	12	104
50	8	16	12	106
50	10	16	12	108
63	4	22	12	200
63	5	22	12	202
63	6	22	12	204
63	8	22	12	206
63	10	22	12	208
63	12	22	12	210
63	14	22	12	212
80	5	27	14	300
80	6	27	14	302
80	8	27	14	304
80	10	27	14	306
80	12	27	14	308
80	14	27	14	310
80	16	27	14	312
80	18	27	14	314
80	20	27	14	316
100	6	32	14	400
100	8	32	14	402
100	10	32	14	404
100	12	32	14	406
100	14	32	14	408
100	16	32	14	410
100	18	32	14	412
100	20	32	14	414
100	25	32	14	418
125	8	32	16	500
125	10	32	16	502
125	12	32	16	504
125	14	32	16	506
125	16	32	16	508
125	18	32	16	510
125	20	32	16	512
125	25	32	16	516
160	10	40	18	600
160	12	40	18	602
160	14	40	18	604
160	16	40	18	606
160	18	40	18	608
160	20	40	18	610
160	25	40	18	614
160	32	40	18	618

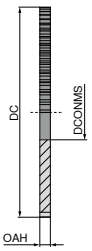
P	○
M	●
K	●
N	●
S	○
H	
O	●

→ v_c/f_z Page 45

Narrow side and face milling cutter HSS-E Co 5

▲ Coarse cross-pitched
▲ with keyway to DIN 138







Factory standard

50 342 ...

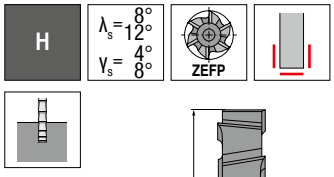
DC js16 mm	OAH k11 mm	DCONMS H7 mm	ZEFP	
63	1,6	22	16	200
63	2,0	22	16	202
63	2,5	22	16	204
63	3,0	22	16	206
80	1,6	27	20	300
80	2,0	27	20	302
80	2,5	27	20	304
80	3,0	27	20	306
80	4,0	27	20	310
100	1,6	32	24	400
100	2,0	32	24	402
100	2,5	32	24	404
100	3,0	32	24	406
100	4,0	32	24	410
100	5,0	32	24	414
125	1,6	32	26	500
125	2,0	32	26	502
125	2,5	32	26	504
125	3,0	32	26	506
125	4,0	32	26	510
125	5,0	32	26	514
125	6,0	32	26	516
160	2,0	40	30	600
160	2,5	40	30	602
160	3,0	40	30	604
160	4,0	40	30	606
160	5,0	40	30	608
160	6,0	40	30	610
160	8,0	40	22	612

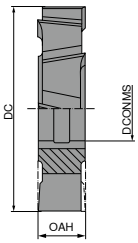
P	○
M	●
K	
N	●
S	○
H	
O	●

→ v_c/f_z Page 45

Side and face milling cutter HSS-E Co 5

▲ Fine cross-pitched version
▲ with keyway to DIN 138







DIN 885 A

50 349 ...

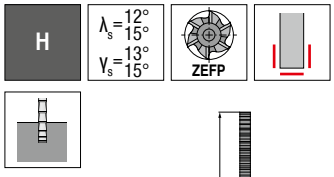
DC js16 mm	OAH k11 mm	DCONMS H7 mm	ZEFP	
50	4	16	16	100
50	5	16	16	102
50	6	16	16	104
50	8	16	16	106
50	10	16	16	108
63	4	22	18	200
63	5	22	18	202
63	6	22	18	204
63	8	22	18	206
63	10	22	18	208
63	12	22	18	210
63	14	22	18	212
80	5	27	20	300
80	6	27	20	302
80	8	27	20	304
80	10	27	18	306
80	12	27	18	308
80	14	27	18	310
80	16	27	18	312
80	18	27	18	314
80	20	27	18	316
100	6	32	22	400
100	8	32	22	402
100	10	32	20	404
100	12	32	20	406
100	14	32	20	408
100	16	32	20	410
100	18	32	20	412
100	20	32	20	414
100	25	32	20	418
125	8	32	24	500
125	10	32	22	502
125	12	32	22	504
125	14	32	22	506
125	16	32	22	508
125	18	32	22	510
125	20	32	22	512
125	25	32	22	516
160	10	40	26	600
160	12	40	26	602
160	14	40	26	604
160	16	40	26	606
160	18	40	26	608
160	20	40	26	610
160	25	40	26	614
160	32	40	26	618

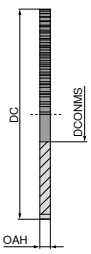
P	●
M	○
K	●
N	●
S	○
H	
O	●

→ v_c/f_z Page 45

Narrow side and face milling cutter HSS-E Co 5

▲ Fine cross-pitched version
▲ with keyway to DIN 138







DIN 1834 A

50 340 ...

DC js16 mm	OAH k11 mm	DCONMS H7 mm	ZEFP	
63	1,6	22	28	200
63	2,0	22	28	202
63	2,5	22	28	204
63	3,0	22	28	206
80	1,6	27	32	300
80	2,0	27	32	302
80	2,5	27	32	304
80	3,0	27	32	306
80	4,0	27	32	310
100	1,6	32	36	400
100	2,0	32	36	402
100	2,5	32	36	404
100	3,0	32	36	406
100	4,0	32	36	410
100	5,0	32	36	414
125	1,6	32	40	500
125	2,0	32	40	502
125	2,5	32	40	504
125	3,0	32	40	506
125	4,0	32	40	510
125	5,0	32	40	514
125	6,0	32	40	516
160	2,0	40	48	600
160	2,5	40	48	602
160	3,0	40	48	604
160	4,0	40	48	606
160	5,0	40	48	608
160	6,0	40	48	610
160	8,0	40	36	612

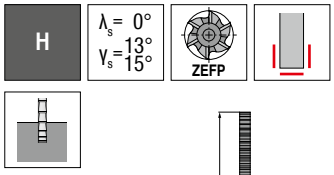
P	●
M	
K	●
N	●
S	●
H	
O	●

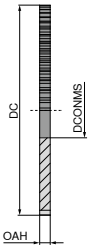
→ v_c/f_z Page 45

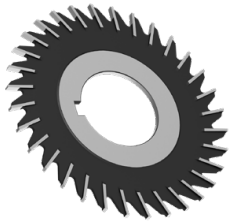
13

Narrow side and face milling cutter HSS-E Co 5

- straight cut
- with keyway to DIN 138







DIN 1834 B

50 341 ...

DC js16 mm	OAH k11 mm	DCONMS H7 mm	ZEFP	
63	1,6	22	32	**200**
63	2,0	22	32	**202**
63	2,5	22	32	**204**
63	3,0	22	32	**206**
80	1,6	27	36	**300**
80	2,0	27	36	**302**
80	2,5	27	36	**304**
80	3,0	27	36	**306**
80	4,0	27	36	**310**
100	1,6	32	40	**400**
100	2,0	32	40	**402**
100	2,5	32	40	**404**
100	3,0	32	40	**406**
100	4,0	32	40	**410**
100	5,0	32	40	**414**
125	1,6	32	44	**500**
125	2,0	32	44	**502**
125	2,5	32	44	**504**
125	3,0	32	44	**506**
125	4,0	32	44	**510**
125	5,0	32	44	**514**
125	6,0	32	44	**516**
160	2,0	40	52	**600**
160	2,5	40	52	**602**
160	3,0	40	52	**604**
160	4,0	40	52	**606**
160	5,0	40	52	**608**
160	6,0	40	52	**610**
160	8,0	40	40	**612**

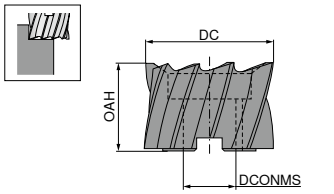
P	●
M	○
K	●
N	●
S	○
H	
O	●

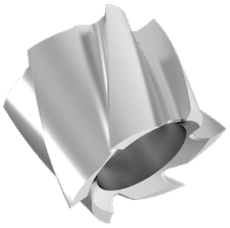
→ v_c/f_z Page 45

Face milling cutters HSS-E Co 5

▲ with keyway to DIN 138

W | λ_s=30° γ_s=24° | ZEFP





DIN 1880

50 255 ...

DC $_{k10}$ mm	OAH mm	DCONMS mm	ZEFP	
40	32	16	6	**040**
50	36	22	6	**050**
63	40	27	6	**063**
80	45	27	6	**080**
100	50	32	6	**100**

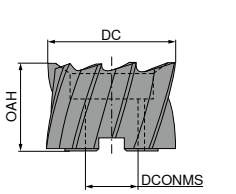
P	
M	
K	
N	●
S	
H	
O	●

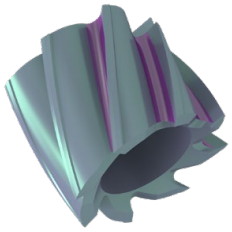
→ v_c/f_z Page 46+47

Face milling cutters HSS-E Co 5

▲ with keyway to DIN 138

N | λ_s=25° γ_s=10° | ZEFP | Ti100 Pro





DIN 1880

54 035 ...

DC $_{k10}$ mm	OAH mm	DCONMS mm	ZEFP	
40	32	16	8	**040**
50	36	22	8	**050**
63	40	27	8	**063**
80	45	27	10	**080**
100	50	32	12	**100**

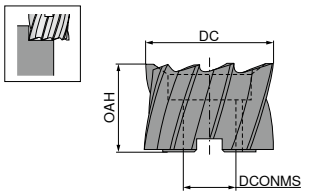
P	●
M	●
K	●
N	●
S	○
H	
O	●

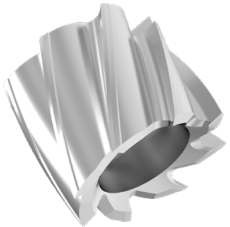
→ v_c/f_z Page 46+47

Face milling cutters HSS-E Co 5

▲ with keyway to DIN 138

N | λ_s=25° γ_s=10° | ZEFP





DIN 1880

50 250 ...

DC $_{k10}$ mm	OAH mm	DCONMS mm	ZEFP	
40	32	16	8	**040**
50	36	22	8	**050**
63	40	27	8	**063**
80	45	27	10	**080**
100	50	32	12	**100**

P	●
M	●
K	●
N	●
S	○
H	
O	●

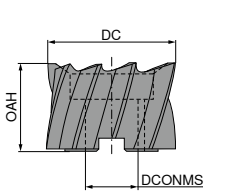
→ v_c/f_z Page 46+47

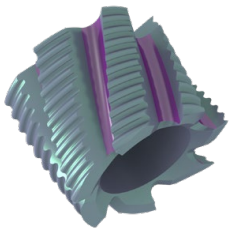
Roughing-finishing face milling cutters HSS-Co 5

▲ with keyway to DIN 138

▲ Manufacturing tolerance lies on the plus range of the tolerance js14

NF | λ_s=25° γ_s=12° | ZEFP | Ti100 Pro





DIN 1880

54 036 ...

DC $_{js14}$ mm	OAH mm	DCONMS mm	ZEFP	
40	32	16	7	**040**
50	36	22	8	**050**
63	40	27	8	**063**
80	45	27	10	**080**
100	50	32	12	**100**

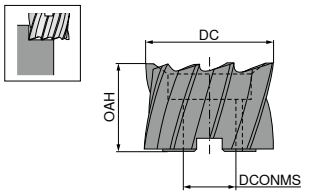
P	●
M	●
K	●
N	●
S	○
H	
O	●

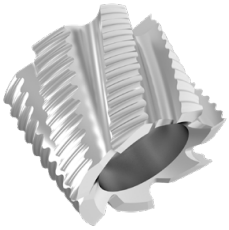
→ v_c/f_z Page 46+47

Roughing face milling cutters HSS-E Co 5

▲ with keyway to DIN 138
▲ Manufacturing tolerance lies on the plus range of the tolerance js14

NR | λ_s=25° γ_s=14° | ZEFP





DIN 1880

50 260 ...

DC js14 mm	OAH mm	DCONMS mm	ZEFP	
40	32	16	7	**040**
50	36	22	8	**050**
63	40	27	8	**063**
80	45	27	10	**080**
100	50	32	12	**100**

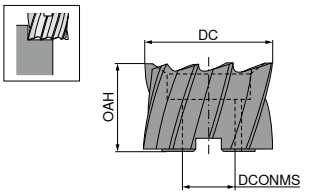
P	●
M	●
K	●
N	●
S	○
H	
O	●

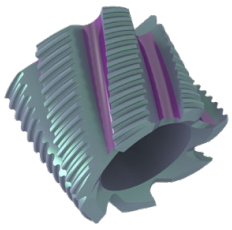
→ v_c/f_z Page 46+47

Roughing-finishing face milling cutters HSS-E Co 8

▲ with keyway to DIN 138
▲ Manufacturing tolerance lies on the plus range of the tolerance js14

HR | λ_s=25° γ_s=10° | ZEFP | Ti100 Pro





DIN 1880

54 037 ...

DC js14 mm	OAH mm	DCONMS mm	ZEFP	
40	32	16	7	**040**
50	36	22	8	**050**
63	40	27	8	**063**
80	45	27	10	**080**
100	50	32	12	**100**

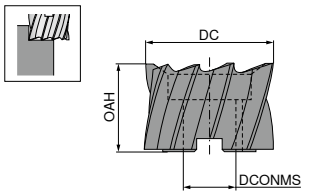
P	●
M	●
K	●
N	●
S	○
H	
O	●

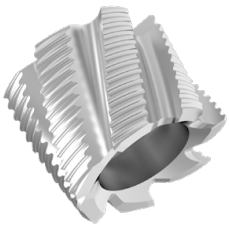
→ v_c/f_z Page 46+47

Roughing-finishing face milling cutters HSS-E Co 8

▲ with keyway to DIN 138
▲ Manufacturing tolerance lies on the plus range of the tolerance js14

HR | λ_s=25° γ_s=10° | ZEFP





DIN 1880

50 297 ...

DC js14 mm	OAH mm	DCONMS mm	ZEFP	
40	32	16	7	**040**
50	36	22	8	**050**
63	40	27	8	**063**
80	45	27	10	**080**
100	50	32	12	**100**

P	●
M	●
K	●
N	●
S	○
H	
O	●

→ v_c/f_z Page 46+47

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²				
		O.3.1	Graphite						

*** Tensile strength**

13

Cutting data – slot and end milling cutters

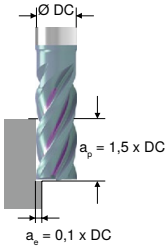
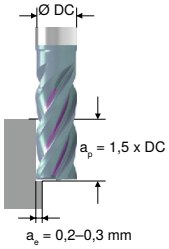
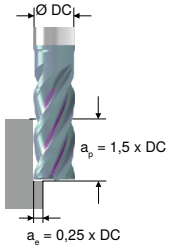
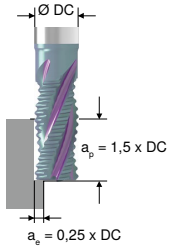
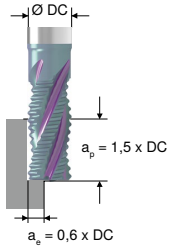
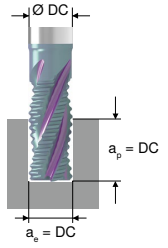
		uncoated	Ti100 Pro	Powder steel	● 1st choice		
					○ suitable		
				Ti100 Pro	Emulsion	Compressed air	MMS
Index	Kf f_z	v_c in m/min					
P.1.1	1,2	20	45	50	●		
P.1.2	1,2	20	45	50	●		
P.1.3	1,2	20	45	50	●		
P.1.4	1,0	15	30	35	●		
P.1.5	1,0	15	30	35	●		
P.2.1	1,2	20	40	45	●		
P.2.2	1,0	15	40	45	●		
P.2.3	0,8	15	30	35	●		
P.2.4	0,8	15	30	35	●		
P.3.1	1,0	15	30	35	●		
P.3.2	0,8	12	25	30	●		
P.3.3	0,8	10	20	25	●		
P.4.1	1,0	10	20	25	●		
P.4.2	1,0	10	20	25	●		
M.1.1	1,0	10	20	25	●		
M.2.1	0,9	7	15	20	●		
M.3.1	1,0	5	10	15	●		
K.1.1	1,0	18	35	40	●		
K.1.2	1,0	18	25	30	●		
K.2.1	1,0	15	30	35	●		
K.2.2	1,0	15	30	35	●		
K.3.1	1,0	15	35	40	●		
K.3.2	0,8	12	25	30	●		
N.1.1	1,9	150	240	260	●		
N.1.2	1,9	100	130	150	●		
N.2.1	1,8		100	140	●		
N.2.2	1,7		60	80	●		
N.2.3							
N.3.1	1,1		100	130	●		
N.3.2	1,2	30	60	80	●		
N.3.3	1,2	30	60	80	●		
N.4.1	1,8	90	140	160		●	
S.1.1							
S.1.2							
S.2.1							
S.2.2							
S.2.3							
S.3.1	1,0	10	15	25	●		
S.3.2	1,1	10	15	25	●		
S.3.3							
H.1.1							
H.1.2							
H.1.3							
H.1.4							
H.2.1							
H.3.1							
O.1.1	2,0	30	50	70	●		
O.1.2	2,0	20	25	40	●		
O.2.1							
O.2.2							
O.3.1	1,0		30	40	o		

For full slot milling reduce the cutting speed (Vc), indicated in this table by approx. 15 - 20%!

Kf f_z = Correction factor for feed per tooth

Feed per tooth for HSS end mills

Appoximate values (in mm) for the feed per tooth (f_z)

	Peripheral milling										Full slot milling	
												
	f_z in mm		f_z in mm		f_z in mm		f_z in mm		f_z in mm		f_z in mm	
Ø DC mm	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated
2	0,008	0,009	0,008	0,009	0,008	0,009						
3	0,011	0,012	0,010	0,012	0,009	0,010						
4	0,017	0,018	0,014	0,015	0,013	0,014	0,015	0,016	0,013	0,014	0,011	0,012
5	0,024	0,026	0,018	0,020	0,014	0,015	0,019	0,021	0,016	0,018	0,014	0,016
6	0,032	0,035	0,022	0,024	0,015	0,017	0,024	0,027	0,020	0,022	0,018	0,019
8	0,047	0,051	0,029	0,032	0,020	0,022	0,032	0,036	0,027	0,030	0,024	0,026
10	0,065	0,072	0,037	0,041	0,026	0,028	0,042	0,047	0,035	0,039	0,031	0,034
12	0,084	0,091	0,044	0,049	0,031	0,034	0,051	0,057	0,043	0,047	0,037	0,041
14	0,100	0,106	0,054	0,059	0,037	0,041	0,063	0,069	0,053	0,058	0,045	0,050
16	0,111	0,121	0,061	0,067	0,042	0,046	0,072	0,079	0,060	0,066	0,052	0,057
18	0,126	0,136	0,070	0,077	0,048	0,053	0,084	0,093	0,071	0,078	0,061	0,067
20	0,141	0,151	0,076	0,083	0,052	0,057	0,092	0,101	0,077	0,084	0,066	0,073
22	0,160	0,166	0,085	0,094	0,059	0,065	0,104	0,114	0,087	0,096	0,075	0,082
25	0,170	0,188	0,095	0,104	0,065	0,072	0,117	0,129	0,098	0,108	0,084	0,093
28	0,196	0,210	0,109	0,120	0,075	0,083	0,136	0,150	0,114	0,125	0,098	0,108
32	0,212	0,240	0,124	0,137	0,086	0,094	0,157	0,173	0,131	0,145	0,113	0,125
36	0,224	0,240	0,144	0,159	0,099	0,109	0,170	0,194	0,142	0,162	0,126	0,140
40	0,240	0,240	0,157	0,173	0,108	0,119	0,184	0,202	0,154	0,169	0,132	0,146
45	0,240	0,240	0,157	0,173	0,108	0,119	0,200	0,220	0,170	0,180	0,140	0,160
50	0,240	0,240	0,157	0,173	0,108	0,119	0,200	0,220	0,170	0,180	0,140	0,160

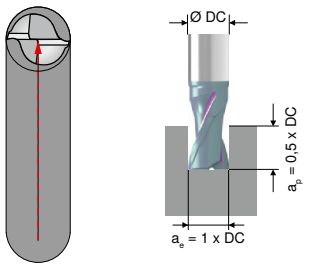
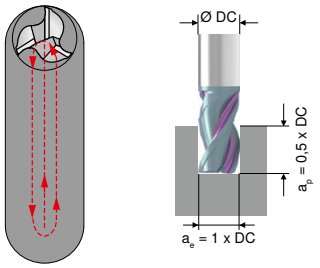
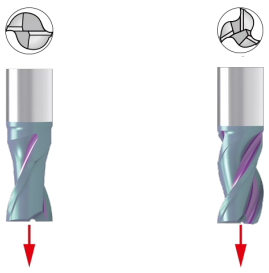
Attention:
In the case of uncoated milling cutters climb milling is preferred to conventional milling. When using coated milling cutters climb milling is necessary in order to achieve optimum results.

Feed rate correction:
Please multiply the f_z value in the table above with the corresponding **correction factor Kf f_z** from the table on → **page 40**.

In general the following is valid:
f_z (milling) = f_z x Kf f_z
f_z (drilling) = f_z (milling) ÷ no. of teeth

Feed per tooth when milling parallel key slots with HSS slot drills

Appoximate values (in mm) for the feed per tooth (f_z)

	Full slot milling (in one cut)		Profile slot milling (internal profile milling)				Circular ramping			
										
			Roughing cut		Finishing cut					
	f_z in mm		f_z in mm				f_z in mm			
Ø DC mm	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated
2	0,005	0,006	0,005	0,006	0,008	0,009	0,003	0,003	0,002	0,002
3	0,009	0,010	0,009	0,010	0,015	0,016	0,004	0,005	0,003	0,003
4	0,012	0,013	0,012	0,013	0,022	0,024	0,006	0,007	0,004	0,004
5	0,016	0,017	0,016	0,017	0,030	0,033	0,008	0,009	0,005	0,006
6	0,020	0,022	0,020	0,022	0,039	0,043	0,010	0,011	0,007	0,007
8	0,026	0,029	0,026	0,029	0,055	0,061	0,013	0,014	0,009	0,010
10	0,034	0,037	0,034	0,037	0,075	0,082	0,017	0,019	0,011	0,012
12	0,040	0,044	0,040	0,044	0,093	0,101	0,020	0,022	0,013	0,015
14	0,049	0,054	0,049	0,054	0,117	0,118	0,024	0,027	0,016	0,018
16	0,056	0,062	0,056	0,062	0,135	0,135	0,028	0,031	0,019	0,021
18	0,065	0,072	0,065	0,072	0,151	0,151	0,033	0,036	0,022	0,024
20	0,071	0,078	0,071	0,078	0,167	0,167	0,035	0,039	0,024	0,026
22	0,080	0,088	0,080	0,088	0,184	0,184	0,040	0,044	0,027	0,029
25	0,089	0,098	0,089	0,098	0,208	0,208	0,044	0,049	0,030	0,033
28	0,103	0,113	0,103	0,113	0,233	0,233	0,051	0,056	0,034	0,037
32	0,118	0,130	0,118	0,130	0,260	0,260	0,060	0,065	0,040	0,043
36	0,130	0,143	0,130	0,143	0,260	0,260	0,060	0,065	0,040	0,043
40	0,130	0,143	0,130	0,143	0,260	0,260	0,060	0,065	0,040	0,043
45	0,130	0,143	0,130	0,143	0,260	0,260	0,060	0,065	0,040	0,043
50	0,130	0,143	0,130	0,143	0,260	0,260	0,060	0,065	0,040	0,043

Attention:
In the case of uncoated milling cutters climb milling is preferred to conventional milling. When using coated milling cutters climb milling is necessary in order to achieve optimum results.

Feed rate correction:
Please multiply the f_z value in the table above with the corresponding **correction factor Kf f_z** from the table on → **page 40.**

In general the following is valid:
f_z (milling) = f_z x Kf f_z
f_z (drilling) = f_z (milling) ÷ no. of teeth

Cutting data standard values – Form cutters

		50 241 ...			50 240 ...					50 234 ...				50 248 ...				● 1st choice ○ suitable		
		Ø DC = 21–25 mm	Ø DC = 28–36 mm	Ø DC = 40–45 mm	Ø DC = 11–16 mm	Ø DC = 18–22 mm	Ø DC = 25–32 mm	Ø DC = 36–45 mm	Ø DC = 50–60 mm	Ø DC = 10–17 mm	Ø DC = 19–26 mm	Ø DC = 28–33 mm	Ø DC = 33–46 mm	Ø DC = 8–11 mm	Ø DC = 12–24 mm	Ø DC = 26–34 mm	Ø DC = 46–48 mm	Emulsion	Compressed air	MMS
Index	v_c m/min	f_z mm			f_z mm					v_c m/min	f_z mm			f_z mm						
P.1.1	28	0,07	0,1	0,12	0,015	0,03	0,03	0,03	0,04	28	0,02	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
P.1.2	28	0,07	0,1	0,12	0,015	0,03	0,03	0,03	0,04	28	0,02	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
P.1.3	28	0,07	0,1	0,12	0,015	0,03	0,03	0,03	0,04	28	0,02	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
P.1.4	22	0,06	0,08	0,1	0,015	0,03	0,03	0,03	0,04	22	0,02	0,03	0,035	0,045	0,025	0,055	0,08	0,1	●		
P.1.5	22	0,06	0,08	0,1	0,015	0,03	0,03	0,03	0,04	22	0,02	0,03	0,035	0,045	0,025	0,055	0,08	0,1	●		
P.2.1	22	0,06	0,08	0,1	0,015	0,03	0,03	0,03	0,04	22	0,02	0,03	0,035	0,045	0,025	0,055	0,08	0,1	●		
P.2.2	28	0,07	0,1	0,12	0,015	0,03	0,03	0,03	0,04	28	0,02	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
P.2.3	20	0,06	0,08	0,1	0,015	0,03	0,03	0,03	0,04	20	0,02	0,03	0,035	0,045	0,025	0,055	0,08	0,1	●		
P.2.4	20	0,06	0,08	0,1	0,015	0,03	0,03	0,03	0,04	20	0,02	0,03	0,035	0,045	0,025	0,055	0,08	0,1	●		
P.3.1																				
P.3.2																				
P.3.3																				
P.4.1	10	0,06	0,08	0,1	0,01	0,025	0,025	0,025	0,03	10	0,02	0,025	0,03	0,04	0,02	0,045	0,08	0,09	●		
P.4.2	10	0,06	0,08	0,1	0,01	0,025	0,025	0,025	0,03	10	0,02	0,025	0,03	0,04	0,02	0,045	0,08	0,09	●		
M.1.1	10	0,06	0,08	0,1	0,01	0,025	0,025	0,025	0,03	10	0,02	0,025	0,03	0,04	0,02	0,045	0,08	0,09	●		
M.2.1																				
M.3.1																				
K.1.1	28	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	24	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
K.1.2																				
K.2.1	22	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	22	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
K.2.2	20	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	20	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
K.3.1	15	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	15	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
K.3.2	15	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	15	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
N.1.1	100	0,1	0,12	0,15	0,02	0,045	0,045	0,045	0,055	90	0,03	0,04	0,06	0,07	0,035	0,07	0,14	0,15	●		
N.1.2	100	0,1	0,12	0,15	0,02	0,045	0,045	0,045	0,055	90	0,03	0,04	0,06	0,07	0,035	0,07	0,14	0,15	●		
N.2.1	80	0,09	0,11	0,13	0,015	0,04	0,035	0,04	0,045	80	0,03	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●		
N.2.2	60	0,09	0,11	0,13	0,015	0,04	0,035	0,04	0,045	60	0,03	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●		
N.2.3																				
N.3.1	25	0,08	0,1	0,12	0,015	0,04	0,035	0,03	0,035	25	0,02	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●		
N.3.2	25	0,08	0,1	0,12	0,015	0,04	0,035	0,03		25	0,02	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●		
N.3.3	25	0,08	0,1	0,12	0,015	0,04	0,035	0,03		25	0,02	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●		
N.4.1	70	0,1	0,12	0,15	0,018	0,04	0,03	0,035	0,045	70	0,03	0,035	0,05	0,06	0,025	0,06	0,1	0,12	●		
S.1.1																				
S.1.2																				
S.2.1																				
S.2.2																				
S.2.3																				
S.3.1	20	0,06	0,08	0,1	0,012	0,025	0,025	0,025	0,035	20	0,015	0,025	0,035	0,045	0,02	0,05	0,07	0,09	●		
S.3.2																				
S.3.3																				
H.1.1																				
H.1.2																				
H.1.3																				
H.1.4																				
H.2.1																				
H.3.1																				
O.1.1	65	0,12	0,15	0,18		0,06	0,055	0,055	0,07	65	0,04	0,05	0,07	0,09	0,045	0,1	0,18	0,18	●		
O.1.2	80	0,12	0,15	0,18		0,06	0,055	0,055	0,07	80	0,04	0,05	0,07	0,09	0,045	0,1	0,18	0,18	●		
O.2.1																				
O.2.2																				
O.3.1																				

The cutting data depends largely on the external conditions, e.g. stability of the tools and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

13

Cutting data standard values – Form cutters

		50 245 ... / 50 246 ...			50 360 ...					50 362 ...				● 1st choice ○ suitable		
		Ø DC = 16 mm a_e = 3,2	Ø DC = 20 mm a_e = 4	Ø DC = 25 mm a_e = 5	Ø DC = 50 mm a_e = 5	Ø DC = 63 mm a_e = 6,3	Ø DC = 80 mm a_e = 8	Ø DC = 100 mm a_e = 10	Ø DC = 40–50 mm	Ø DC = 63 mm	Ø DC = 80 mm	Ø DC = 100 mm				
Index	v_c m/min	f_z mm			v_c m/min	f_z mm				f_z mm				Emulsion	Compressed air	MMS
P.1.1	28	0,01	0,015	0,018	22	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
P.1.2	28	0,01	0,015	0,018	22	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
P.1.3	28	0,01	0,015	0,018	22	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
P.1.4	22	0,01	0,015	0,018	20	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
P.1.5	22	0,01	0,015	0,018	20	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
P.2.1	22	0,01	0,015	0,018	20	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
P.2.2	28	0,01	0,015	0,018	22	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
P.2.3	20	0,01	0,015	0,018	20	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
P.2.4	20	0,01	0,015	0,018	20	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
P.3.1																
P.3.2																
P.3.3																
P.4.1	10	0,007	0,01	0,012	10	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
P.4.2	10	0,007	0,01	0,012	10	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
M.1.1	10	0,007	0,01	0,012	10	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
M.2.1																
M.3.1																
K.1.1	24	0,01	0,012	0,015	19	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
K.1.2					12	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
K.2.1	22	0,01	0,012	0,015	15	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
K.2.2	20	0,01	0,012	0,015	12	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
K.3.1	15	0,01	0,012	0,015	16	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
K.3.2	15	0,01	0,012	0,015	13	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
N.1.1	90	0,01	0,015	0,02										●		
N.1.2	90	0,01	0,015	0,02	70	0,012	0,015	0,02	0,024	0,008	0,012	0,014	0,018	●		
N.2.1	80	0,01	0,015	0,02	60	0,012	0,015	0,02	0,024	0,008	0,012	0,014	0,018	●		
N.2.2	60	0,01	0,015	0,02	60	0,012	0,015	0,02	0,024	0,008	0,012	0,014	0,018	●		
N.2.3																
N.3.1	25	0,01	0,015	0,02	20	0,01	0,012	0,015	0,018	0,005	0,008	0,01	0,012	●		
N.3.2	25	0,01	0,015	0,02	20	0,01	0,012	0,015	0,018	0,005	0,008	0,01	0,012	●		
N.3.3	25	0,01	0,015	0,02	20	0,01	0,012	0,015	0,018	0,005	0,008	0,01	0,012	●		
N.4.1	70	0,01	0,015	0,0175	45	0,01	0,012	0,015	0,018	0,005	0,008	0,01	0,01	●		
S.1.1																
S.1.2																
S.2.1																
S.2.2																
S.2.3																
S.3.1	20	0,008	0,01	0,015	20	0,008	0,01	0,012	0,016	0,005	0,007	0,009	0,012	●		
S.3.2																
S.3.3																
H.1.1																
H.1.2																
H.1.3																
H.1.4																
H.2.1																
H.3.1																
O.1.1	65	0,018	0,02	0,025	60	0,015	0,02	0,025	0,03	0,008	0,012	0,018	0,022	●		
O.1.2	80	0,018	0,02	0,025	65	0,015	0,02	0,025	0,03	0,008	0,012	0,018	0,022	●		
O.2.1																
O.2.2																
O.3.1																

The cutting data depends largely on the external conditions, e.g. stability of the tools and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting data – side and face cutters

		50 340 ... / 50 341 ... / 50 342 ... / 50 348 ... / 50 349 ...						● 1st choice ○ suitable		
		Ø DC = 50 mm	Ø DC = 63 mm	Ø DC = 80 mm	Ø DC = 100 mm	Ø DC = 125 mm	Ø DC = 160 mm			
Index	v_c in m/min	f_z mm						Emulsion	Compressed air	MMS
P.1.1	30	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,095–0,11	0,1–0,12	●		
P.1.2	20	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,095–0,11	0,1–0,12	●		
P.1.3	20	0,05–0,07	0,06–0,08	0,07–0,09	0,08–0,10	0,095–0,12	0,1–0,13	●		
P.1.4	15	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
P.1.5	15	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
P.2.1	20	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
P.2.2	20	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
P.2.3	10	0,03–0,04	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	●		
P.2.4	10	0,03–0,04	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	●		
P.3.1	15	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
P.3.2	10	0,03–0,04	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	●		
P.3.3	10	0,03–0,04	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	●		
P.4.1	10	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
P.4.2	10	0,04–0,06	0,05–0,07	0,06–0,08	0,07–0,09	0,08–0,10	0,09–0,2	●		
M.1.1	10	0,03–0,04	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	●		
M.2.1	10	0,03–0,04	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	●		
M.3.1	8	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
K.1.1	20	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
K.1.2	18	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
K.2.1	18	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
K.2.2	15	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
K.3.1	18	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
K.3.2	18	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
N.1.1	150	0,06–0,075	0,075–0,09	0,009–0,1	0,01–0,12	0,12–0,135	0,135–0,15	●		
N.1.2	100	0,06–0,075	0,075–0,09	0,009–0,1	0,01–0,12	0,12–0,135	0,135–0,15	●		
N.2.1	80	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,095–0,11	0,1–0,12	●		
N.2.2	40	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,095–0,11	0,1–0,12	●		
N.2.3										
N.3.1	80	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
N.3.2	30	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,095–0,11	0,1–0,12	●		
N.3.3	30	0,05–0,07	0,06–0,08	0,07–0,09	0,08–0,10	0,095–0,12	0,1–0,13	●		
N.4.1	90	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,095–0,11	0,1–0,12		●	
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1	10	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
S.3.2	10	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1	30	0,08–0,1	0,1–0,12	0,12–0,14	0,14–0,16	0,16–0,18	0,18–0,2	●		
O.1.2	20	0,08–0,1	0,1–0,12	0,12–0,14	0,14–0,16	0,16–0,18	0,18–0,2	●		
O.2.1										
O.2.2										
O.3.1										

Feed correction factor (Kf f_z) for side and face cutters in relation to the cutting depth (a_e)

a_e	Kf f_z
0,05 x DC	1,4
0,1 x DC	1,0
0,15 x DC	0,8
0,2 x DC	0,7
0,25 x DC	0,6

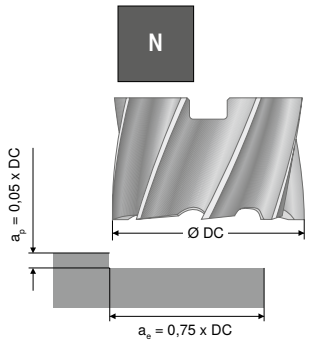
The indicated feed rates apply to straight pitched cutters with a cutting depth of 0.1 x DC! With cross-pitched cutters the feed rate is to be reduced by 50 %!

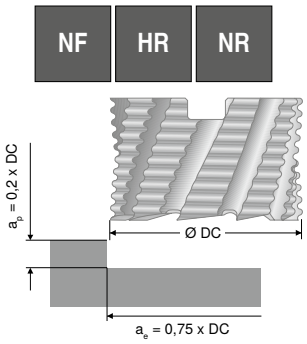
Cutting data – face mills

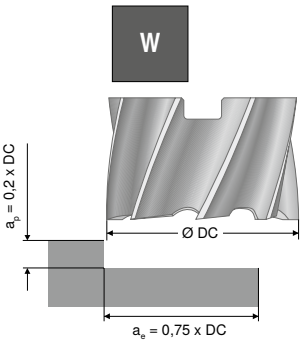
		50 250 ... / 50 255 ... / 50 260 ... / 50 297 ...	54 035 ... / 54 036 ... / 54 037 ...	● 1st choice		
				○ suitable		
		uncoated	Ti100 Pro	Emulsion	Compressed air	MMS
Index	Kf f_z	v_c in m/min				
P.1.1	**1,2**	**25**	**45**	●		
P.1.2	**1,2**	**20**	**40**	●		
P.1.3	**1,2**	**20**	**40**	●		
P.1.4	**1,0**	**15**	**30**	●		
P.1.5	**1,0**	**15**	**30**	●		
P.2.1	**1,2**	**20**	**40**	●		
P.2.2	**1,0**	**20**	**40**	●		
P.2.3	**0,8**	**10**	**20**	●		
P.2.4	**0,8**	**10**	**20**	●		
P.3.1	**1,0**	**15**	**30**	●		
P.3.2	**0,8**	**10**	**20**	●		
P.3.3	**0,8**	**10**	**20**	●		
P.4.1	**1,0**	**10**	**15**	●		
P.4.2	**1,0**	**10**	**15**	●		
M.1.1	**1,0**	**10**	**15**	●		
M.2.1	**0,9**	**7**	**15**	●		
M.3.1	**1,0**	**5**	**10**	●		
K.1.1	**1,0**	**20**	**30**	●		
K.1.2	**1,0**	**18**	**30**	●		
K.2.1	**1,0**	**18**	**30**	●		
K.2.2	**1,0**	**15**	**25**	●		
K.3.1	**1,0**	**18**	**30**	●		
K.3.2	**1,0**	**18**	**30**	●		
N.1.1	**1,5**	**150**				
N.1.2	**1,5**	**100**				
N.2.1	**1,3**	**80**				
N.2.2	**1,3**	**40**				
N.2.3						
N.3.1	**1,1**	**80**	**110**	●		
N.3.2	**1,2**	**30**	**60**	●		
N.3.3	**1,2**	**30**	**60**	●		
N.4.1	**1,3**	**90**	**120**		●	
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1	1,0	10	15	●		
S.3.2	1,1	10	15	●		
S.3.3	0,8		10	●		
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1	**2,0**	**30**	**50**	●		
O.1.2	**2,0**	**20**	**25**	●		
O.2.1						
O.2.2						
O.3.1						

Feed per tooth for HSS face mills

Appoximate values (in mm) for the feed per tooth (f_z)







	f_z in mm		f_z in mm		f_z in mm
Ø DC mm	uncoated	Ti100 Pro	uncoated	Ti100 Pro	uncoated
40	0,049	0,054	0,064	0,070	0,060
50	0,055	0,060	0,071	0,078	0,066
63	0,061	0,067	0,079	0,087	0,074
80	0,065	0,071	0,084	0,092	0,078
100	0,059	0,065	0,076	0,084	0,071

Feed rate correction:
Please multiply the f_z value in the table above with the corresponding **correction factor Kf f_z** from the table on → **page 46**.

In general the following is valid:
f_z (milling) = f_z x Kf f_z
f_z (drilling) = f_z (milling) ÷ no. of teeth

Formula for cutting data calculation

Designation	Abbreviation	Unit	Formula
Number of revolutions	n	min^{-1}	$n = \frac{v_c \times 1000}{DC \times \pi}$
Cutting speed	v_c	m/min	$v_c = \frac{DC \times \pi \times n}{1000}$
Feed per tooth	f_z	mm	$f_z = \frac{v_f}{ZEFP \times n}$ $f_z = h_m \times \sqrt{\frac{DC}{a_e}}$
Feed per revolution	f	mm	$f = f_z \times ZEFP$
Feed rate	v_f	mm/min.	$v_f = f_z \times ZEFP \times n$
Average chip thickness	h_m	mm	$h_m = f_z \times \sqrt{\frac{a_e}{DC}}$

ZEFP = Number of flutes
a_e = cutting width (for side milling cutter cutting depth)
DC = Cutting diameter

13

Version description

H	For high-strength steels and tempered materials
HF	For high-strength steels and tempered materials – with roughing-finishing profile
HR	For high-strength steels and tempered materials – with roughing profile
HS	For high-strength steels and tempered materials – with fine chip breaker especially for cast and nickel alloys
N	For machining steel and cast materials, as well as stainless steels
NF	For machining steel and cast materials, as well as stainless steels – with roughing-finishing profile
NR	For machining steel and cast materials, as well as stainless steels – with roughing profile
NTI	For machining steel and cast materials, as well as stainless steels – with medium chip breaker
W	For soft materials and non-ferrous metals (aluminium, copper, brass)
WF	For soft materials and non-ferrous metals (aluminium, copper, brass) – with roughing-finishing profile
WR	For soft materials and non-ferrous metals (aluminium, copper, brass) – with roughing profile

Coating

Ti100 Pro

- Ti multilayer coating
- HV0.05 = 3500
- Coefficient of friction (against steel) = 0.7
- Maximum application temperature: 900°C



New products for machining technicians

NEW

MonsterMill – NCR

NCR



→ Page 32–37

Masters one of the most challenging areas of machining – nickel-based alloys

---

NEW

MonsterMill – PCR – plunge milling cutter with chip breaker

PCR



→ Page 47

NEW

CircularLine – UNI – 5xDC

CCR UNI

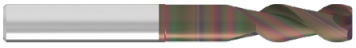


→ Page 59+60

NEW

AluLine – program update

W



→ Page 67–104

NEW

PCD end mill

W



→ Page 107–119

End mill with PCD indexable insert for machining non-ferrous metals and plastics

---

NEW

SilverLine – program update

N



→ Page 120–135

NEW

S-Cut – rough milling cutters

SC NR



→ Page 144

NEW

3D Finish

N



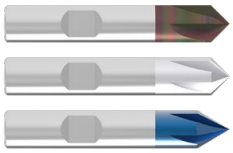
→ Page 145–149

Circle segment milling cutter for efficient 3D finish machining

---

NEW

AluLine/SilverLine/BlueLine – deburring cutters



→ Page 105+106

→ Page 136+137

→ Page 176

NEW

MultiLock

N



→ Page 181–187

The exchangeable head system for advanced performance

NEW

Mini cutter – program update

N



→ Page 222+223

NEW

HPC rough milling cutters

HPC NR



→ Page 247

NEW

Type N – program update

N



→ Page 209–263

NEW

T-slot cutters

N



→ Page 299



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drills

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters 14

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

Table of contents

Symbol explanation 2
Toolfinder for High Performance Milling Cutters 3–7
List of contents 8–16
Product programme 17–316
Technical Information
Selection guide for cutters for plastic, fiberglass, carbon fibre 305
Cutting Data 317–465
Approximate feed rates 466
Trochoidal Milling 467
General references 468–475
Version description 476
Coatings 477

WNT \ Performance

Premium quality tools for high performance.

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

WNT \ Standard

Quality tools for standard applications.

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

Symbol explanation

Shank





Shank type


Length: extra short / short / medium / long / extra long


Axial thro' coolant


Radial thro' coolant



Cutting edge preparation


Sharp


Corner chamfer (CHW = chamfer width in mm)


Corner radius


Full Radius



Application



High volume machining



High-feed milling



Hard materials


Machining example


The red arrows describe the possible feed directions



Number of flutes



Cutting geometry
λ_s = Helix Angle
γ_s = Rake Angle



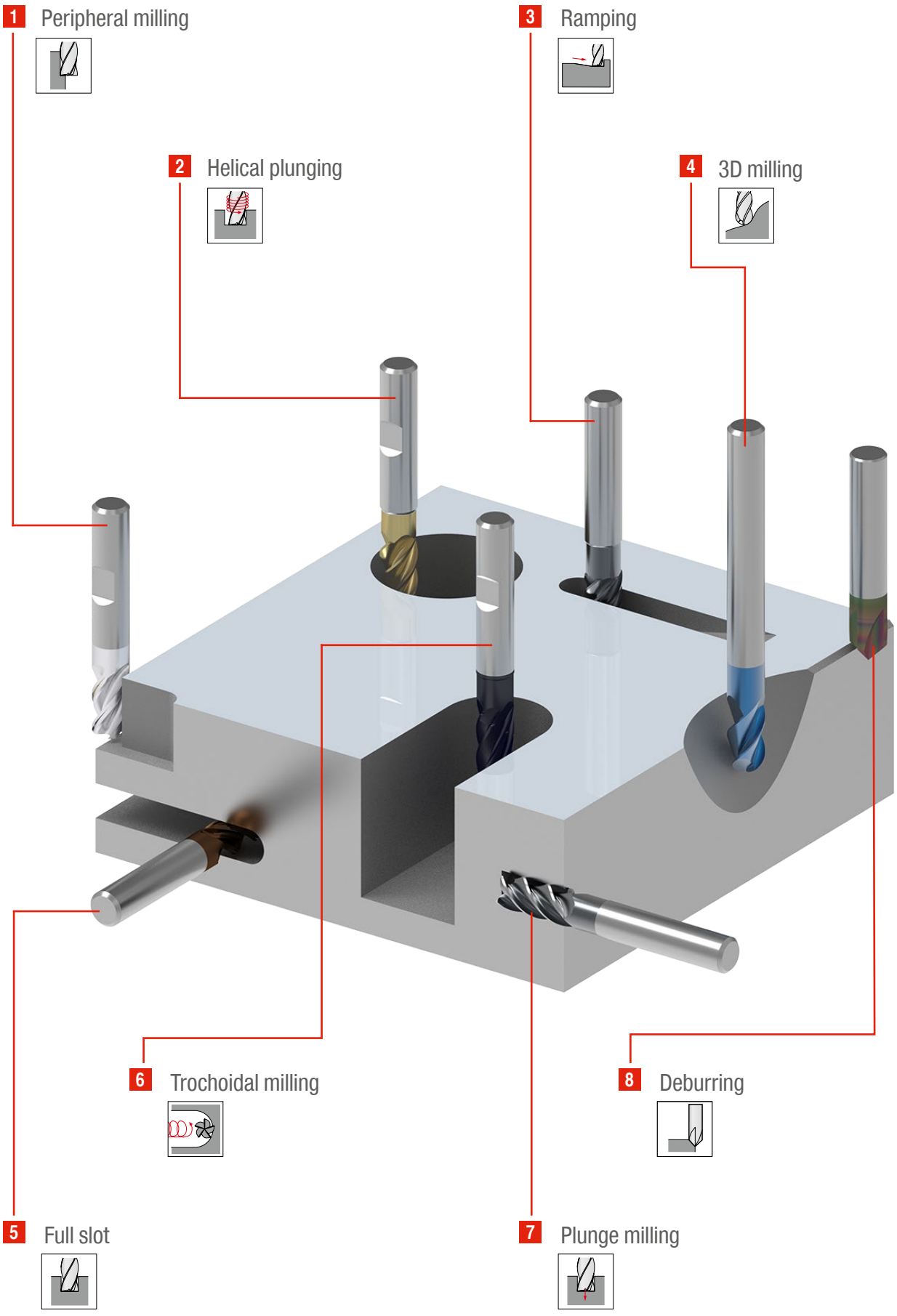
Variable helix angle


Trochoidal milling

● = **Main Application**

○ = Extended application

Toolfinder for High Performance Milling Cutters



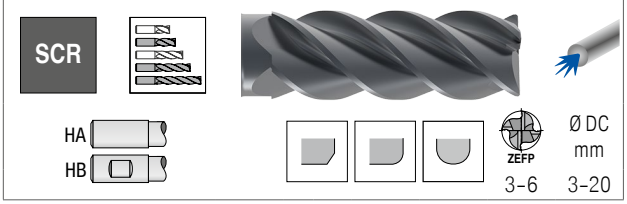
Toolfinder for high-performance milling cutters – MonsterMill

	1 Peripheral milling	2 Helical plunging	3 Ramping	4 3D milling
Steel	MonsterMill – SCR MonsterMill – PCR	MonsterMill – PCR MonsterMill – SCR MonsterMill – MCR	MonsterMill – PCR MonsterMill – SCR MonsterMill – MCR	MonsterMill – SCR
Stainless steel	MonsterMill – ICR	MonsterMill – ICR	MonsterMill – ICR	MonsterMill – TCR
Cast iron	MonsterMill – SCR MonsterMill – PCR	MonsterMill – PCR MonsterMill – SCR MonsterMill – MCR	MonsterMill – PCR MonsterMill – SCR MonsterMill – MCR	MonsterMill – SCR
Non ferrous metals	MonsterMill – PCR	MonsterMill – PCR	MonsterMill – PCR	
Heat resistant alloys	MonsterMill – NCR MonsterMill – TCR MonsterMill – ICR	MonsterMill – NCR MonsterMill – TCR MonsterMill – ICR	MonsterMill – NCR MonsterMill – TCR MonsterMill – ICR	MonsterMill – TCR
Hardened steel < 55 HRC				
Hardened steel > 55 HRC	MonsterMill – HCR			MonsterMill – HCR
Non metal materials				

MonsterMill – SCR

→ Page 17–24

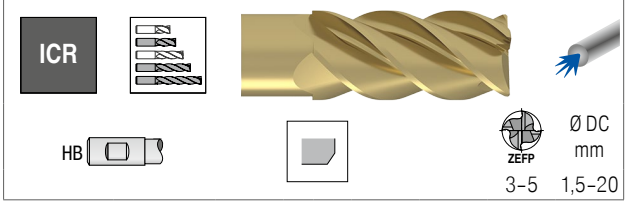
The specialist for machining steel and cast iron



MonsterMill – ICR

→ Page 25+26

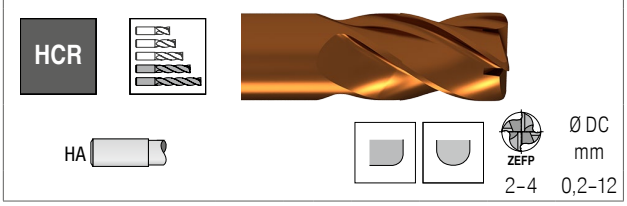
The specialist for machining stainless steel



MonsterMill – HCR

→ Page 38–44

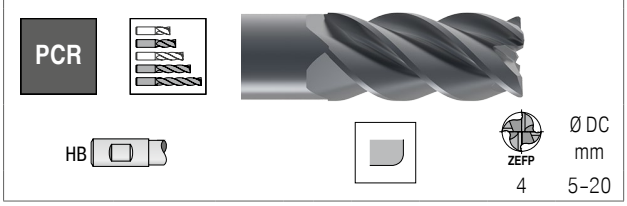
The specialist for finish machining tempered steel up to 70 HRC



MonsterMill – PCR

→ Page 45–49

The specialist for ramping, plunging and helical milling



5 Full slot	6 Trochoidal milling	7 Plunge milling	8 Deburring
MonsterMill – SCR MonsterMill – PCR	MonsterMill – PCR	MonsterMill – PCR	
MonsterMill – ICR			
MonsterMill – SCR MonsterMill – PCR	MonsterMill – PCR	MonsterMill – PCR	
MonsterMill – PCR	MonsterMill – PCR	MonsterMill – PCR	
MonsterMill – NCR MonsterMill – TCR MonsterMill – ICR			

MonsterMill – TCR

→ Page 27–31

The specialist for machining titanium and titanium alloys

TCR



HB

ZEFP

Ø DC mm
2–5
2–20

MonsterMill – NCR

→ Page 32–37

The specialist for machining nickel-based alloys

NCR



HB

ZEFP

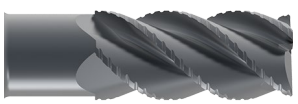
Ø DC mm
4–5
4–20

MonsterMill – MCR

→ Page 50

The specialist for rough machining steel and cast iron

MCR



HB

ZEFP

Ø DC mm
3–4
1–20

14

Toolfinder for high-performance milling cutters

	1 Peripheral milling	2 Helical plunging	3 Ramping	4 3D milling
Steel	SilverLine S-Cut Micro-milling tools MultiLock / MultiChange	MultiLock / MultiChange		3D Finish SilverLine Micro-milling tools MultiLock / MultiChange
Stainless steel	SilverLine S-Cut Micro-milling tools			3D Finish SilverLine Micro-milling tools
Cast iron	SilverLine S-Cut Micro-milling tools MultiLock / MultiChange	MultiLock / MultiChange	MultiLock / MultiChange	3D Finish SilverLine Micro-milling tools MultiLock / MultiChange
Non ferrous metals	AluLine PCD milling tools Micro-milling tools MultiChange	AluLine PCD milling tools MultiChange	AluLine PCD milling tools MultiChange	3D Finish AluLine PCD milling tools Micro-milling tools MultiChange
Heat resistant alloys	Micro-milling tools MultiLock	MultiLock	MultiLock	3D Finish Micro-milling tools MultiLock
Hardened steel < 55 HRC	BlueLine Micro-milling tools	BlueLine	BlueLine	BlueLine Micro-milling tools
Hardened steel > 55 HRC				
Non metal materials	PCD milling tools Micro-milling tools	PCD milling tools	PCD milling tools	3D Finish PCD milling tools Micro-milling tools

CircularLine
→ Page 51–66

The specialist for trochoidal machining

CCR



HB

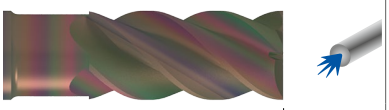
ZEFP: 4–6

Ø DC mm: 6–20

AluLine
→ Page 67–106

The specialist for machining non-ferrous metals

W / WF / WR



HA
HB

ZEFP: 2–6

Ø DC mm: 2–25

S-Cut
→ Page 138–144

The all-rounder with soft cut and low power consumption

SC UNI



HB

ZEFP: 4–5

Ø DC mm: 3–25

3D Finish
→ Page 145–149

The specialist for 3D finish machining

N



HA

ZEFP: 2–4

Ø DC mm: 4–16

MultiLock
→ Page 181–187

The sustainable exchangeable head system

N



A
B

ZEFP: 4–6

Ø DC mm: 12–25

MultiChange
→ Page 188–193

The exchangeable head system for the highest demands and a wide range of applications

PCR | W | N



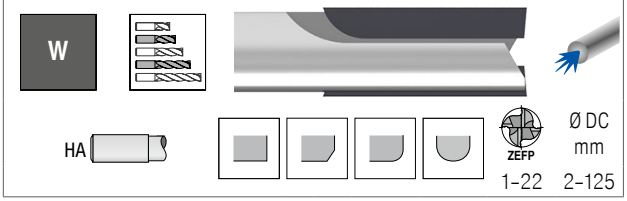
ZEFP: 3–6

Ø DC mm: 8–20

5 Full slot	6 Trochoidal milling	7 Plunge milling	8 Deburring
S-Cut SilverLine Micro-milling tools MultiLock / MultiChange	CircularLine		SilverLine MultiLock MultiChange
S-Cut SilverLine Micro-milling tools	CircularLine		SilverLine
S-Cut SilverLine Micro-milling tools MultiLock / MultiChange	CircularLine		SilverLine MultiLock MultiChange
AluLine PCD milling tools Micro-milling tools MultiChange	CircularLine	PCD milling tools	AluLine MultiChange
Micro-milling tools MultiLock	CircularLine		SilverLine
BlueLine Micro-milling tools	CircularLine		BlueLine
	CircularLine		BlueLine
PCD milling tools Micro-milling tools		PCD milling tools	AluLine

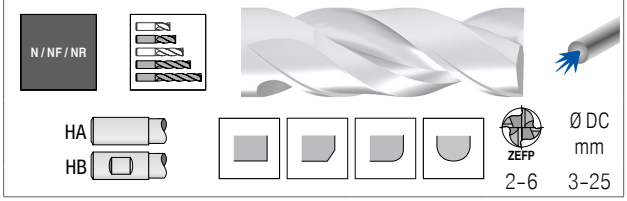
PCD milling tools
→ Page 107–119

The tool with the highest cutting parameters and longest service lives for machining non-ferrous metals and plastics



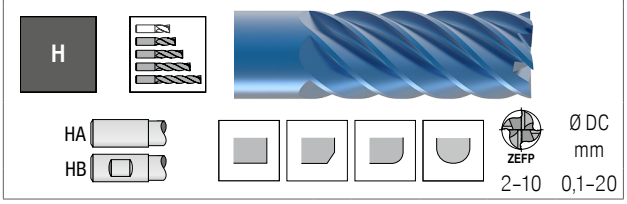
SilverLine
→ Page 120–137

The all-rounder for universal application



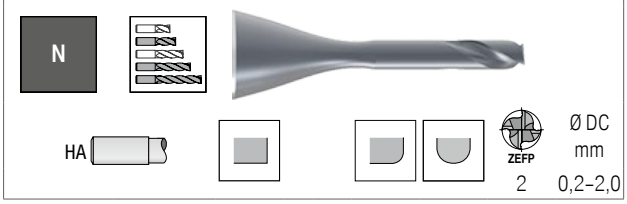
BlueLine
→ Page 150–176

The all-rounder for machining tempered steel up to 65 HRC

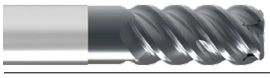
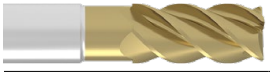
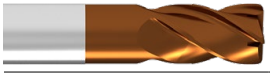
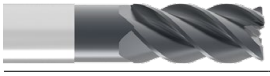
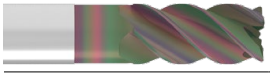
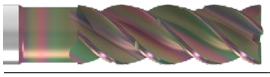
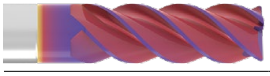


Micro-milling tools
→ Page 177–180

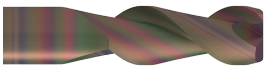
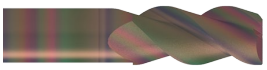
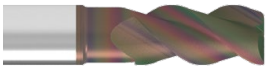
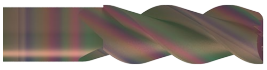
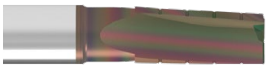
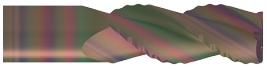
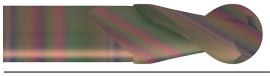
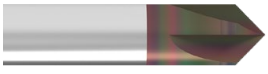
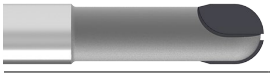
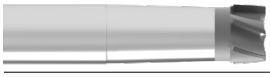
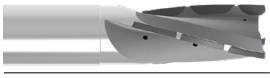
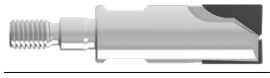
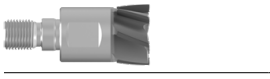
The universal milling cutter for micro-cutting



Overview High Performance Milling Cutters

	Tool type	Number of flutes ZEFP	Diameter in mm Ø DC	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	Hardened materials	Non metal materials	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated	uncoated	WNT \ Performance
MonsterMill																				
	SCR	4–6	3–20	●	○	●	○	○	○	○		■	■		■	HPC		■		17–22
	SCR	3–4	3–16	●	○	●	○	○	○	○				■	■	HPC		■		23
	SCR	4	3–16	●		●	○		○				■		■	HPC HFC	■	■		24
	ICR	3–5	1,5–20	○	●	○	○	●	○	○		■			■	HPC	■	■		25+26
	TCR	4–5	4–20	○	○			●					■		■	HPC		■	□	27–29
	TCR	4	2–16	○	○			●						■	■			■	□	30
	TCR	2–5	2–16	○	○			●					■		■	HPC HFC		■	□	31
	NCR	4–5	4–20		○			●					■		■	HPC		■		32–37
	HCR	2–4	0,2–12	○					●				■		■			■		38–41
	HCR	2–4	0,2–12	○					●					■	■			■		42–44
	PCR UNI	4	5–20	●	○	●							■		■	HPC		■		45–47
	PCR ALU	4	5–20				●						■		■	HPC		■		48+49
	MCR	3–4	1–20	●	○	●	○	○	○			■			■	HPC		■		50
CircularLine																				
	CCR UNI	5–6	6–20	●	○	●		○				■	■		■	HPC		■		51–60
	CCR AL	4	6–20				●					■	■		■			■		61–64
	CCR Ti	5	6–20	○	○			●					■		■	HPC		■	□	65
	CCR H	6	6–20						●				■		■			■		66

Overview High Performance Milling Cutters

	Tool type	Number of flutes ZEFP	Diameter in mm Ø DC	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	Hardened materials	Non metal materials	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated	uncoated	WNT \ Performance
AluLine																				
	W	2	2–20	HA			●		HB		■	■			■			■	□	67–72
	W	3	2–20	HA			●		HB		■	■			■			■	□	73–81
	W	3	2–20	HA			●		HB			■	■		■	HPC		■	□	82–88
	W	3	6–20	HA			●		HB				■		■		■	■	□	89–91
	W	4	2–25	HA			●		HB		■	■			■			■	□	92–97
	WF	3	3–20	HA			●		HB				■		■			■		98
	WR	3	6–20	HA			●		HB			■			■	HPC	■	■		99+100
	W	6	6–20	HA			●				■				■	HPC		■		101
	W	2	3–20	HA			●		HB	○				■	■			■	□	102–104
	W	4	4–16	HA			●		HB	●								■	□	105+106
PCD milling tools																				
	W	1–4	2–20	HA			●			●	■	■			■				□	107–109
	W	1–2	2–20	HA			●			●				■	■				□	110
	W	1–2	2–20	HA			●			●			■		■				□	111+112
	W	4–10	10–32	HA			●			●		■			■	HPC	■		□	113
	W	3	16–25	HA			●			●		■			■		■		□	114
	W	2–3	10–25				●			●			■				■		□	115
	W	2–6	10–32				●			●		■					■		□	116
	W	4–10	10–32				●			●		■				HPC	■		□	117
	W	2–3	10–16				●			●				■			■		□	118
	W	10–22	40–125				●			●							■		□	119

14

Overview High Performance Milling Cutters

SilverLine

	Tool type	Number of flutes	Diameter in mm Ø DC	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	Hardened materials	Non metal materials	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated	uncoated	WNT \ Performance
	N	2	3–20	●	●	●	○	●				■			■	HPC		■		120
	N	3	3–20	●	●	●	○	●			■	■	■		■	HPC		■		121–123
	N	4	3–20	●	●	●	○	●				■			■	HPC		■		124–126
	N	4	6–20	●	●	●	○	●				■			■	HPC		■		127
	N	4	3–20	●	●	●	○	●					■		■	HPC		■		128+129
	NF	4	3–20	●	●	●	○	●				■			■	HPC		■		130
	NR	4	3–20	●	●	●	○	●				■			■	HPC		■		131
	N	6	6–25	●	●	○	○	●			■				■			■		132
	N	2	3–20	●		●	○		○					■	■			■		133
	N	4	4–20	●	○	●	○							■	■			■		134
	N	4	6–20	●	○	●	○		○				■		■	HPC HFC		■		135
	N	5	4–16	●	●	●		●							■			■	□	136+137

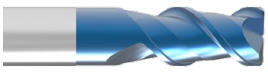
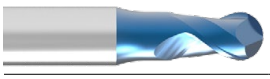
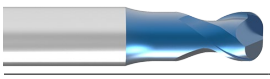
S-Cut

	SC UNI	4	3–25	●	●	●	○	○	○		■	■	■		■	HPC		■		138–142
	SC UNI	5	6–20	●	●	●		○				■			■	HPC		■		143
	SC NR	4	3–20	●	●	●		○				■			■	HPC		■		144

3D Finish

	N	4	10	●	●	●	●	●	○	●					■			■		145
	N	3–4	6–16	●	●	●	●	●	○	●					■			■		146
	N	3	6–16	●	●	●	●	●	○	●					■			■		147
	N	2	10	●	●	●	●	●	○	●					■			■		148
	N	3	4–12	●	●	●	●	●							■			■		149

Overview High Performance Milling Cutters

	Tool type	Number of flutes ZEFP	Diameter in mm Ø DC	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	Hardened materials	Non metal materials	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated	uncoated	WNT \ Performance
BlueLine																				
	H	2	0,2–3	● HA					●		■							■		150–152
	H	2	0,2–3	● HA					●					■				■		153–155
	H	2	0,4–3	● HA					●				■					■		156–159
	H	2	0,5–20	● HA					●			■						■		160
	H	4–6	1–20	● HA					● HB				■					■		161–163
	H	4–10	2–20	● HA					● HB		■		■					■		164+165
	H	2	0,1–20	○ HA					● HB					■				■		166–170
	H	3	3–12	● HA					●					■				■		171
	H	4	2–20	○ HA					● HB					■				■		172
	H	2	0,5–16	○ HA					● HB				■					■		173–175
	H	5–8	4–16	● HA					● HB									■		176
Micro-milling tools																				
	N	2	0,2–2	● HA	●	●	●	●	●	●	■							■		177
	N	2	0,2–2	● HA	●	●	●	●	●	●				■				■		178+179
	N	2	0,5–2	● HA	●	●	●	●	●	●			■					■		180

14

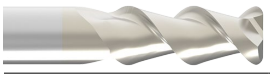
Overview High Performance Milling Cutters

	Tool type	Number of flutes ZEFP	Diameter in mm Ø DC	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	Hardened materials	Non metal materials	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated ■	uncoated □	WNT \ Performance
MultiLock – exchangeable head system																				
	N	4	12–25	●	○	●	○	●						■				■		181
	N	4–6	12–25	●	○	●	○	●					■				■	■		182
	N	5–6	12–25	●	○	●		●					■			HFC	■	■		183
	N	4	12–16	●	○	●	○											■		184
MultiLock – Adapters and holders																				
				A						B										185–187
MultiChange – exchangeable head system																				
	PCR	4	9,7–20	●	○	●	●						■			HPC		■		189
	W	3	10–20				●						■					■		189
	N	3–4	8–20	●		●						■				HPC		■		190
	N	4–6	8–20	●	○	●	●					■						■		190
	N	6	8–20	●	○	●	●				■							■		191
	N	4	10–20	●	○	●	●			○				■				■		191
	N	4	8–20	●	○	●	●			○			■					■		191
	N	6	8–20	●	○	●							■			HFC	■	■		192
	N	4	8–20	●	○	●	●											■		192
	N	4–6	10–20	●	○	●	●											■		193

End Mills Overview

Tool type	Number of flutes	Diameter in mm	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	Hardened materials	Non metal materials	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated	uncoated	WNT \ Standard
	ZEFP	Ø DC																	

End Mills with Finishing Geometry

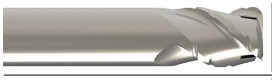
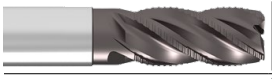
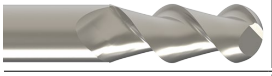
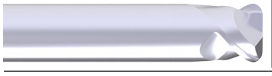
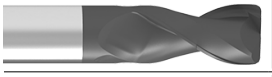
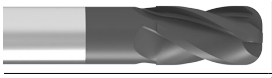
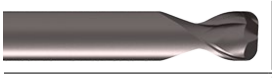
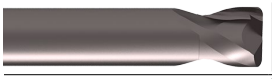
	W	2	0,2–6,0	HA		194+195
	W	2	2,7–25	HA HB	HPC	196–202
	W	3	3–25	HA HB	HPC	203–205
	W	4	6–20	HA HB	HPC	206+207
	W	5–7	6–20	HA	HPC	208
	N	2	0,2–20	HA HB		209–216
	N	3	3–20	HB		217
	N	3	0,5–20	HA HB		218–223
	N	4	1,5–25	HA HB	HPC	224–227
	N	4	2–12	HA	HPC	228
	N	4	3–20	HA HB		229
	N	4	3–20	HB	HPC	230–234
	N	6–8	4–32	HA HB		235–237
	N	5–13	4–25	HA		238
	N	8–16	6–20	HA		239
	H	4	4–20	HB		240+241
	H	6–8	4–32	HA HB		242+243

End Mills with Roughing and Finishing Geometry

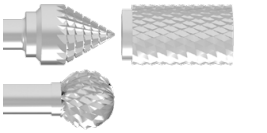
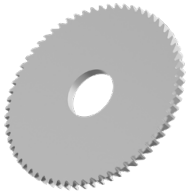
	WF	4	5–20	HB		244
	NTR	3–4	6–20	HB		245

14

Overview of end milling, ball-nosed and torus cutters

Tool type	Number of flutes	Diameter in mm	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	Hardened materials	Non metal materials	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated	uncoated	WNT \ Standard
	ZEFP	Ø DC																	
End Mills with Roughing Geometry																			
	WR	3	3–20				●									HPC		■		246
	NR	4–6	3–25	●	●	●	○	●		○		●				HPC		■		247–250
	HR	4–5	6–25	●	●	●						●						■		251–253
Ball Nosed End Mills with Finishing Geometry																			
	W	2	0,5–12				●	○		●			●						□	254
	W	2	0,2–6				●						●					■		255+256
	W	2	3–20				●						●			HPC		■	□	257
	W	2	0,5–12				●			●			●					■		258+259
	N	2	0,1–20	●	○	●	○	○	○	○			●					■	□	260–265
	N	2	1–12	●	○	●	○	○	○	○			●					■		266
	N	2	3–20	●	●	○	○	●					●			HPC		■		267
	N	4	3–20	●	●	●	●	●	○	●			●			HPC		■	□	268–270
	H	2	0,2–20	●	○	●	○	○	○	○			●					■		271–273
Ball Nosed End Mills with Roughing Geometry																			
	NR	4	6–20	●	○	●	○	○		○			●					■		274
Torus Milling Cutters with Finishing Geometry																			
	W	2	0,2–12				●					●						■		275–278
	W	2	2–12				●			●		●						■		279
	W	4	4–12				●			●		●						■		280+281
	N	2	0,5–16	●	○	●	○	○	○	○		●						■		282
	H	2	0,2–12	●	○	●	○	○	○	○		●						■		283–286
	H	4–8	3–16	●		○			●			●						■		287

Overview Special Milling Cutters

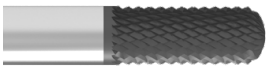
	Tool type	Number of flutes	Diameter in mm	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	Hardened materials	Non metal materials	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated	uncoated	WNT \ Performance	WNT \ Standard
		ZEFP	Ø DC															■	□		
Intermediate Size Torus End Mills																					
	H	4	7–17	●	●	○	●	●		●			■		■			■			288
				HA																	
High Feed Cutter																					
	N	4	6–16	●	○	○	○	○	●				■		■	HFC		■			289+290
				HA																	
Form / Chamfering and Die Sinking / Deburring Cutters																					
	W	1	3–6	○	○	○	●	○		●									□		291
				HA																	
	N	4	4–12	●	○	●	○	○	○	●								■	□		292
								HB													
	N	4	4–12	●	○	●	○	○	○	●								■	□		293
								HB													
	N	4	3–12	●	○	●	○	○	○	●								■	□		294
				HA																	
	N	4	6–10	●	○	●	○	○	○	●								■			295
				HA																	
	N	4–6	2–16	●	○	●	○	○	○	●								■			296–298
				HA					HB												
	N	6–10	11–40	●	○	●												■			299
									HB												
			3–16																□		300+301
Circular saw blades																					
		24–160	15–63	●	●	●	●	●		●									□		302+303
		24–160	80–200	●	●	●	●	●		●									□		
Cylindrical shank adapter for circular saw blades																					
																					304

This article can be found in our online shop at cuttingtools.ceratizit.com

14

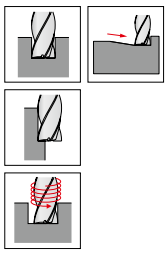
Overview Special Milling Cutters

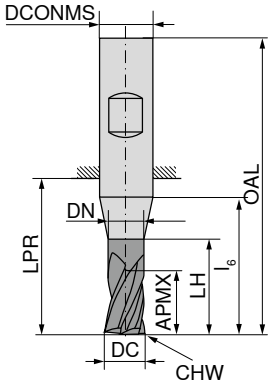
Plastics-GFK-CFK-Cutters

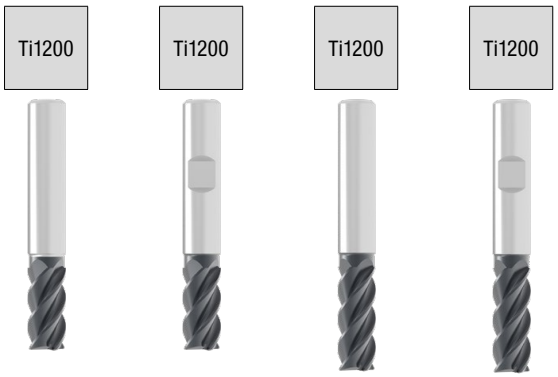
	Tool type	Number of flutes ZEFP	Diameter in mm Ø DC	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	Hardened materials	Non metal materials	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated ■	uncoated □	WNT \ Standard
	W		2–20	HA						●									□	306
	W		2–20	HA						●									□	307
	W		2–20	HA						●								■		308
	W		5–16	HA						●								■		309
	W		6–44	HA						●								■		310
	W	2	2–12	HA			●			●								■		311
	W	1	1,5–20	HA			●			●									□	312
	W	1	1,5–12	HA			●			●								■		313
	W	2	2–12	HA			●			●								■		314
	W	3	3–20	HA			●			●								■		315
	N	2	2–12	●	○	●	○	○		●									□	316
				HA																

MonsterMill – End milling cutter











										DIN 6527 HA	DIN 6527 HB	DIN 6527 HA	DIN 6527 HB
DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	52 600 ...	52 601 ...	52 602 ...	52 603 ...
3,0	5	2,9	9	14	14	50	6	0,07	4	030	030		
3,0	8	2,9	14	20	22	58	6	0,07	4			030	030
3,5	5	3,4	9	14	14	50	6	0,07	4	035	035		
3,5	8	3,4	14	20	22	58	6	0,07	4			035	035
4,0	8	3,8	12	18	18	54	6	0,07	4	040	040		
4,0	11	3,8	18	20	22	58	6	0,07	4			040	040
4,5	9	4,3	12	18	18	54	6	0,07	4	045	045		
4,5	13	4,3	18	20	22	58	6	0,07	4			045	045
5,0	9	4,8	16	18	18	54	6	0,07	4	050	050		
5,0	13	4,8	19	20	22	58	6	0,07	4			050	050
5,5	9	5,3	16	18	18	54	6	0,07	4	055	055		
5,5	13	5,3	19	20	22	58	6	0,07	4			055	055
6,0	10	5,8		16	18	54	6	0,07	4	060	060		
6,0	13	5,8		20	22	58	6	0,07	4			060	060
6,5	12	6,3	18	20	23	59	8	0,07	4	065	065		
6,5	19	6,3	23	25	28	64	8	0,07	4			065	065
7,0	12	6,8	18	20	23	59	8	0,07	4	070	070		
7,0	19	6,8	23	25	28	64	8	0,07	4			070	070
7,5	12	7,3	18	20	23	59	8	0,12	4	075	075		
7,5	19	7,3	23	25	28	64	8	0,12	4			075	075
8,0	12	7,7		20	23	59	8	0,12	4	080	080		
8,0	19	7,7		25	28	64	8	0,12	4			080	080
8,5	15	8,2	22	24	27	67	10	0,20	4	085	085		
8,5	22	8,2	28	30	33	73	10	0,20	4			085	085
9,0	15	8,7	22	24	27	67	10	0,20	4	090	090		
9,0	22	8,7	28	30	33	73	10	0,20	4			090	090
9,5	15	9,2	22	24	27	67	10	0,20	4	095	095		
9,5	22	9,2	28	30	33	73	10	0,20	4			095	095
10,0	15	9,5		24	27	67	10	0,20	4	100	100		
10,0	22	9,5		30	33	73	10	0,20	4			100	100
11,0	18	10,5	24	26	28	73	12	0,20	4	110	110		
11,0	26	10,5	32	35	39	84	12	0,20	4			110	110
11,5	18	11,0	24	26	28	73	12	0,20	4	115	115		
11,5	26	11,0	32	35	39	84	12	0,20	4			115	115
12,0	18	11,5		26	28	73	12	0,20	4	120	120		
12,0	26	11,5		35	39	84	12	0,20	4			120	120
14,0	21	13,5		28	30	75	14	0,20	4	140	140		
14,0	26	13,5		35	39	84	14	0,20	4			140	140
15,0	24	14,5	30	32	35	83	16	0,20	4	150	150		
15,0	32	14,5	38	40	45	93	16	0,20	4			150	150
15,5	24	15,0	30	32	35	83	16	0,20	4	155	155		
P										●	●	●	●
M										○	○	○	○
K										●	●	●	●
N										○	○	○	○
S										○	○	○	○
H										○	○	○	○
O										○	○	○	○

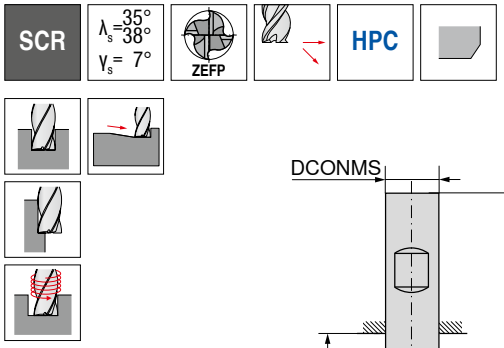
1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

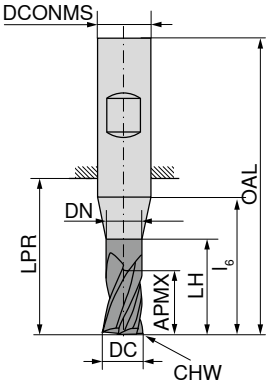
→ v_c/f_z Page 318+319

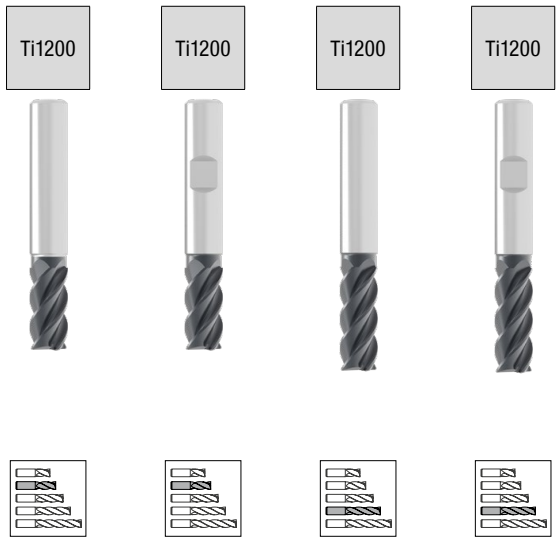
14

Continued on next page

MonsterMill – End milling cutter







										DIN 6527 HA	DIN 6527 HB	DIN 6527 HA	DIN 6527 HB
										52 600 ...	52 601 ...	52 602 ...	52 603 ...
DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP				
15,5	32	15,0	38	40	45	93	16	0,20	4			155	155
16,0	24	15,5		32	35	83	16	0,20	4	160	160		
16,0	24	15,5		32	35	83	16	0,20	5	161 1)	161 1)		
16,0	32	15,5		40	45	93	16	0,20	5			161 1)	161 1)
16,0	32	15,5		40	45	93	16	0,20	4			160	160
17,0	27	16,5	32	34	37	85	18	0,20	4	170	170		
17,0	32	16,5	48	50	52	100	18	0,20	4			170	170
18,0	27	17,5		34	37	85	18	0,20	4	180	180		
18,0	27	17,5		34	37	85	18	0,20	5	181 1)	181 1)		
18,0	32	17,5		50	52	100	18	0,20	5			181 1)	181 1)
18,0	32	17,5		50	52	100	18	0,20	4			180	180
19,0	30	18,5	38	40	43	93	20	0,30	4	190	190		
19,0	38	18,5	48	50	54	104	20	0,30	4			190	190
19,5	30	19,0	38	40	43	93	20	0,30	4	195	195		
19,5	38	19,0	48	50	54	104	20	0,30	4			195	195
20,0	30	19,5		40	43	93	20	0,30	4	200	200		
20,0	30	19,5		40	43	93	20	0,30	5	201 1)	201 1)		
20,0	38	19,5		50	54	104	20	0,30	5			201 1)	201 1)
20,0	38	19,5		50	54	104	20	0,30	4			200	200

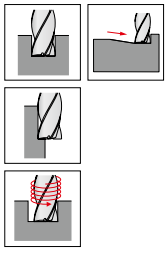
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H	○	○	○	○
O	○	○	○	○

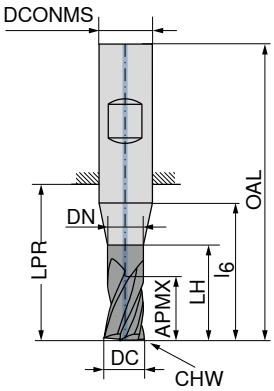
1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

→ v_c/f_z Page 318+319

MonsterMill – End milling cutter

SCR | λ_s=35° γ_s= 7° | ZEFP | HPC





Ti1200



DIN 6527

HB

52 606 ...

DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	
3	8	2,9	14	20	22	58	6	0,07	4	**030**
4	11	3,8	18	20	22	58	6	0,07	4	**040**
5	13	4,8	19	20	22	58	6	0,07	4	**050**
6	13	5,8		20	22	58	6	0,07	4	**060**
8	19	7,7		25	28	64	8	0,12	4	**080**
10	22	9,5		30	33	73	10	0,20	4	**100**
12	26	11,5		35	39	84	12	0,20	4	**120**
14	26	13,5		35	39	84	14	0,20	4	**140**
16	32	15,5		40	45	93	16	0,20	4	**160**
18	32	17,5		50	52	100	18	0,20	4	**180**
20	38	19,5		50	54	104	20	0,30	4	**200**

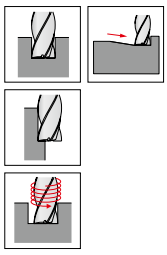
P	●
M	○
K	●
N	○
S	○
H	○
O	○

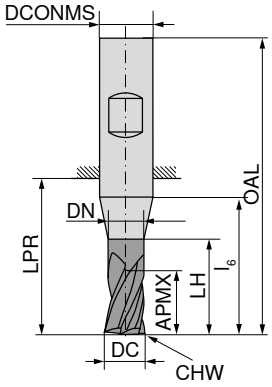
→ v_c/f_z Page 318+319

14

MonsterMill – End milling cutter

SCR | λ_s=35° γ_s= 7° | ZEFP | HPC













Factory standard | Factory standard

HB | HB

DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	52 604 ...	52 605 ...
3	5	2,9	14	20	22	58	6	0,07	4	**030**	
3	5	2,9	19	23	26	62	6	0,07	4		**030**
4	8	3,8	18	20	22	58	6	0,07	4	**040**	
4	8	3,8	23	25	26	62	6	0,07	4		**040**
5	9	4,8	19	20	22	58	6	0,07	4	**050**	
5	9	4,8	24	25	26	62	6	0,07	4		**050**
6	10	5,8		20	22	58	6	0,07	4	**060**	
6	10	5,8		25	26	62	6	0,07	4		**060**
8	12	7,7		25	28	64	8	0,12	4	**080**	
8	12	7,7		30	32	68	8	0,12	4		**080**
10	15	9,5		30	33	73	10	0,20	4	**100**	
10	15	9,5		35	40	80	10	0,20	4		**100**
12	18	11,5		35	39	84	12	0,20	4	**120**	
12	18	11,5		45	48	93	12	0,20	4		**120**
14	21	13,5		35	39	84	14	0,20	4	**140**	
14	21	13,5		50	54	99	14	0,20	4		**140**
16	24	15,5		40	45	93	16	0,20	4	**160**	
16	24	15,5		40	45	93	16	0,20	5	**161** [1]	
16	24	15,5		55	60	108	16	0,20	4		**160**
16	24	15,5		55	60	108	16	0,20	5		**161** [1]
18	27	17,5		50	52	100	18	0,20	4	**180**	
18	27	17,5		50	52	100	18	0,20	5	**181** [1]	
18	27	17,5		60	66	114	18	0,20	4		**180**
18	27	17,5		60	66	114	18	0,20	5		**181** [1]
20	30	19,5		50	54	104	20	0,30	4	**200**	
20	30	19,5		50	54	104	20	0,30	5	**201** [1]	
20	30	19,5		70	76	126	20	0,30	4		**200**
20	30	19,5		70	76	126	20	0,30	5		**201** [1]

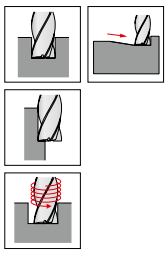
P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H	○	○
O	○	○

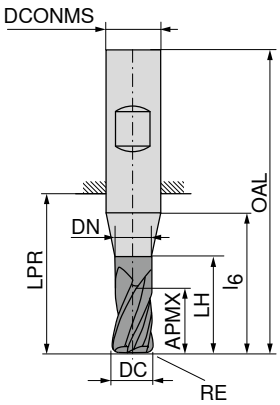
1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

→ v_c/f_z Page 318–321

MonsterMill – End milling cutter with corner radius

SCR | λ_s=35° 38° γ_s= 7° | ZEFP | HPC | Ti1200









Factory standard

HB

52 607 ...

DC $_{f8}$ mm	RE $_{\pm 0,01}$ mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h5}$ mm	ZEFP	
3	0,10	8	2,9	14	20	22	58	6	4	**030**
3	0,30	8	2,9	14	20	22	58	6	4	**031**
3	0,50	8	2,9	14	20	22	58	6	4	**032**
4	0,10	11	3,8	18	20	22	58	6	4	**040**
4	0,40	11	3,8	18	20	22	58	6	4	**041**
4	0,50	11	3,8	18	20	22	58	6	4	**042**
5	0,10	13	4,8	19	20	22	58	6	4	**050**
5	0,50	13	4,8	19	20	22	58	6	4	**051**
5	1,00	13	4,8	19	20	22	58	6	4	**052**
6	0,10	13	5,8		20	22	58	6	4	**060**
6	0,50	13	5,8		20	22	58	6	4	**061**
6	1,00	13	5,8		20	22	58	6	4	**062**
8	0,15	19	7,7		25	28	64	8	4	**080**
8	0,50	19	7,7		25	28	64	8	4	**081**
8	1,00	19	7,7		25	28	64	8	4	**082**
8	2,00	19	7,7		25	28	64	8	4	**083**
10	0,15	22	9,5		30	33	73	10	4	**100**
10	0,50	22	9,5		30	33	73	10	4	**101**
10	1,00	22	9,5		30	33	73	10	4	**102**
10	1,50	22	9,5		30	33	73	10	4	**103**
10	2,00	22	9,5		30	33	73	10	4	**104**
12	0,20	26	11,5		35	39	84	12	4	**120**
12	0,50	26	11,5		35	39	84	12	4	**121**
12	1,00	26	11,5		35	39	84	12	4	**122**
12	1,50	26	11,5		35	39	84	12	4	**123**
12	2,00	26	11,5		35	39	84	12	4	**124**
14	1,00	26	13,5		35	39	84	14	4	**140**
16	0,30	32	15,5		40	45	93	16	4	**160**
16	0,50	32	15,5		40	45	93	16	4	**161**
16	1,00	32	15,5		40	45	93	16	4	**162**
16	2,00	32	15,5		40	45	93	16	4	**163**
16	4,00	32	15,5		40	45	93	16	4	**164**
20	0,30	38	19,5		50	54	104	20	4	**200**
20	0,50	38	19,5		50	54	104	20	4	**201**
20	1,00	38	19,5		50	54	104	20	4	**202**
20	2,00	38	19,5		50	54	104	20	4	**203**

P	●
M	○
K	●
N	○
S	○
H	○
O	○

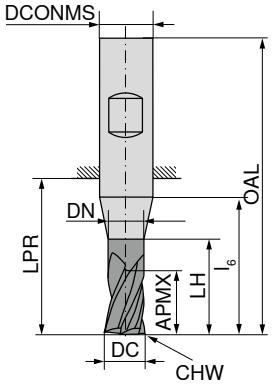
→ v_c/f_z Page 318+319

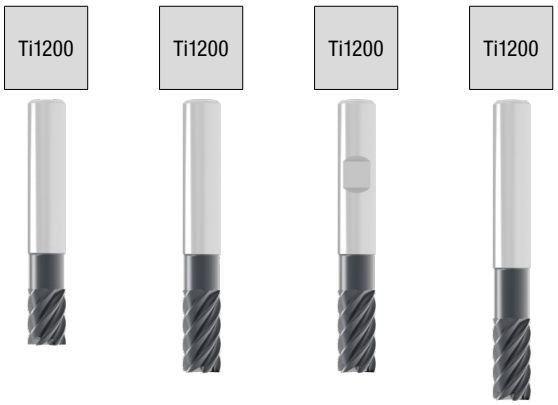
14

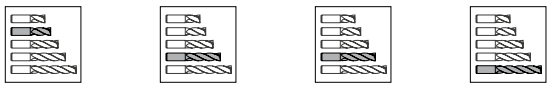
MonsterMill – End milling cutter

SCR | λ_s=35° γ_s= 7° | ZEFP | HPC









										DIN 6527 HA	DIN 6527 HA	DIN 6527 HB	Factory standard HA
DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	52 608 ...	52 608 ...	52 608 ...	52 608 ...
5	9	4,8	16	18	18	54	6	0,12	6	050			
5	13	4,8	19	20	22	58	6	0,12	6		051		
5	13	4,8	24	25	26	62	6	0,12	6				052
6	10	5,8		16	18	54	6	0,12	6	060			
6	13	5,8		20	22	58	6	0,12	6		061		
6	13	5,8		25	26	62	6	0,12	6				062
8	12	7,7		20	23	59	8	0,12	6	080			
8	19	7,7		25	28	64	8	0,12	6		081		
8	19	7,7		30	32	68	8	0,12	6				082
10	15	9,5		24	27	67	10	0,20	6	100			
10	22	9,5		30	33	73	10	0,20	6		101	103	
10	22	9,5		35	40	80	10	0,20	6				102
12	18	11,5		26	28	73	12	0,20	6	120			
12	26	11,5		35	39	84	12	0,20	6		121	123	
12	26	11,5		45	48	93	12	0,20	6				122
16	24	15,5		32	35	83	16	0,20	6	160			
16	32	15,5		40	45	93	16	0,20	6		161	163	
16	32	15,5		55	60	108	16	0,20	6				162
20	30	19,5		40	43	93	20	0,30	6	200			
20	38	19,5		50	54	104	20	0,30	6		201	203	
20	38	19,5		70	76	126	20	0,30	6				202
P										●	●	●	●
M										○	○	○	○
K										●	●	●	●
N										○	○	○	○
S										○	○	○	○
H										○	○	○	○
O										○	○	○	○

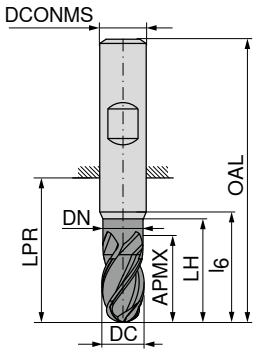
→ v_c/f_z Page 318–321

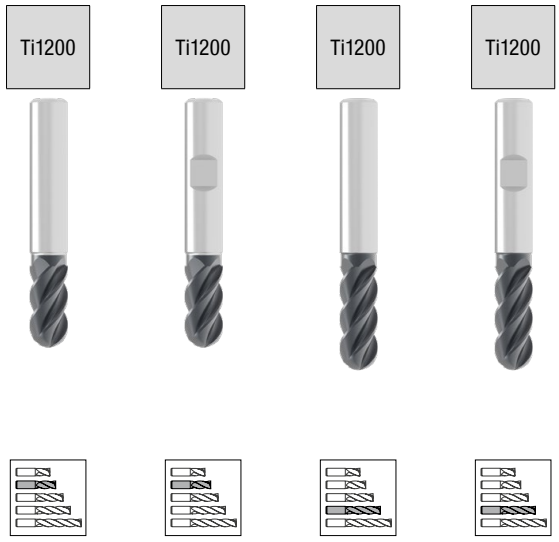
MonsterMill – Ball Nosed Cutter

▲ Radius accuracy: - 0,015 mm for Ø ≤ 6,0 mm / - 0,02 mm for Ø > 6,0 mm

SCR | λ_s=35° 38° γ_s= 7° | ZEFP | HPC







									DIN 6527	DIN 6527	DIN 6527	DIN 6527
									HA	HB	HA	HB
									52 611 ...	52 611 ...	52 612 ...	52 612 ...
DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP				
3	5	2,9	9	14	14	50	6	3	030			
3	8	2,9	14	20	22	58	6	3			030	
4	11	3,8	18	20	22	58	6	3			040	
4	8	3,8	12	18	18	54	6	3	040			
5	13	4,8	19	20	22	58	6	3			050	
5	9	4,8	16	18	18	54	6	3	050			
6	10	5,8		16	18	54	6	4	060	061		
6	13	5,8		20	22	58	6	4			060	061
8	19	7,7		25	28	64	8	4			080	081
8	12	7,7		20	23	59	8	4	080	081		
10	22	9,5		30	33	73	10	4			100	101
10	15	9,5		24	27	67	10	4	100	101		
12	26	11,5		35	39	84	12	4			120	121
12	18	11,5		26	28	73	12	4	120	121		
16	32	15,5		40	45	93	16	4			160	161
16	24	15,5		32	35	83	16	4	160	161		

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

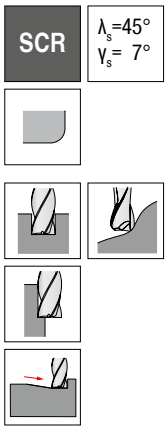
→ v_c/f_z Page 318+319

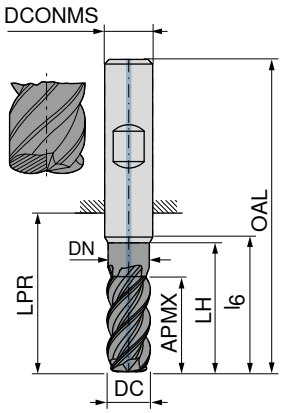
14

MonsterMill – Torus Face Milling Cutter

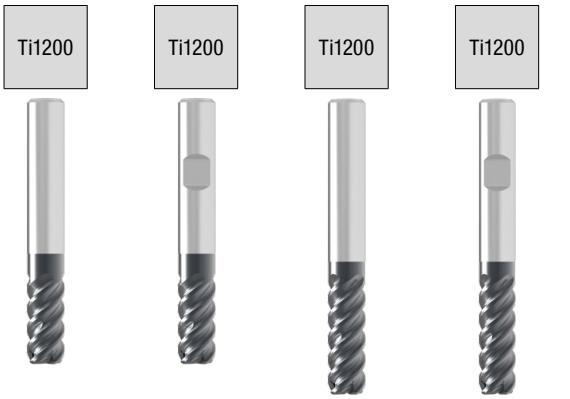
▲ r_{3D} = programmed corner radius

SCR | λ_s=45° γ_s= 7° | ZEFP | HFC | HPC | ≤ 60 HRC





LPR with Shank DIN 6535 HB



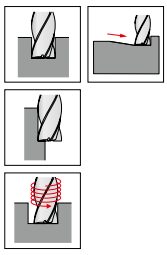


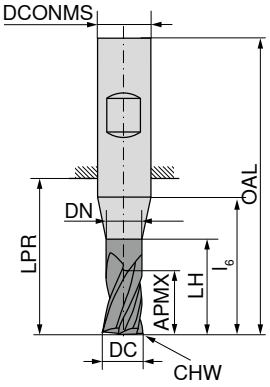
											DIN 6527	DIN 6527	DIN 6527	DIN 6527
											HA	HB	HA	HB
											52 609 ...	52 609 ...	52 610 ...	52 610 ...
DC $^{-0.04}$ mm	r_{3D} mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	l_6 mm	DCONMS $_{h5}$ mm	$T_{max.}$ mm	ZEFP				
3	0,4	3	2,9	14,00	21	57	20	6	0,10	4	030	031		
4	0,5	4	3,8	18,00	21	57	20	6	0,15	4	040	041		
5	0,6	5	4,8	18,00	21	57	20	6	0,20	4	050	051		
6	0,8	13	5,8	19,90	21	57	20	6	0,20	4	060	061		
8	1,0	19	7,7	24,85	27	63	25	8	0,30	4	080	081		
8	1,0	19	7,7	29,85	32	68	30	8	0,30	4			080	081
10	1,2	22	9,5	29,75	32	72	30	10	0,40	4	100	101		
10	1,2	22	9,5	34,75	40	80	35	10	0,40	4			100	101
12	1,6	26	11,5	34,75	38	83	35	12	0,40	4	120	121		
12	1,6	26	11,5	44,75	47	93	45	12	0,40	4			120	121
16	2,2	32	15,5	39,75	44	92	40	16	0,50	4	160	161		
16	2,2	32	15,5	54,75	60	108	55	16	0,50	4			160	161
P											●	●	●	●
M														
K											●	●	●	●
N														
S														
H											○	○	○	○
O														

→ v_c/f_z Page 322–325

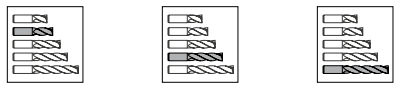
MonsterMill – End milling cutter







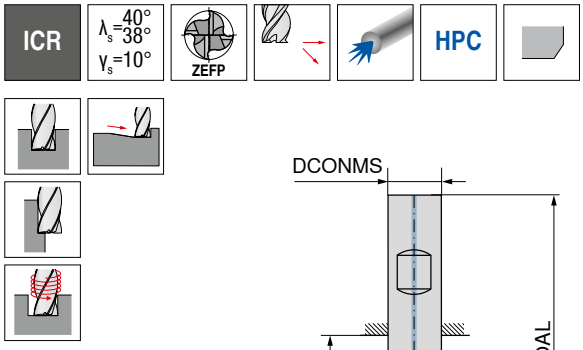


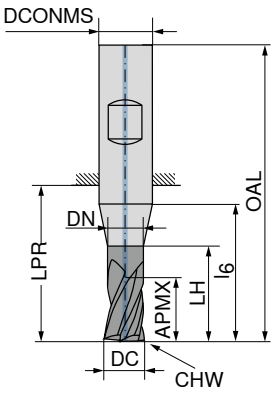


| | | |

MonsterMill – End milling cutter

▲ with axial through coolant











DIN 6527

HB 

52 786 ...

DC e8 mm	APMX mm	DN mm	LH mm	l6 mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	
3	8	2,9	14	18	21	57	6	0,07	3	**034**
4	11	3,8	18	20	21	57	6	0,07	3	**044**
5	13	4,8	19	20	21	57	6	0,12	3	**054**
6	13	5,8	20		21	57	6	0,12	4	**064**
8	19	7,7	25		27	63	8	0,12	4	**084**
10	22	9,5	30		32	72	10	0,20	4	**104**
12	26	11,5	35		38	83	12	0,20	4	**124**
14	26	13,5	35		38	83	14	0,20	4	**144**
16	32	15,5	40		44	92	16	0,20	4	**163**
16	32	15,5	40		44	92	16	0,20	5	**164** 1)
18	32	17,5	40		44	92	18	0,20	4	**183**
18	32	17,5	40		44	92	18	0,20	5	**184** 1)
20	38	19,5	50		54	104	20	0,30	4	**203**
20	38	19,5	50		54	104	20	0,30	5	**204** 1)

P	○
M	●
K	○
N	○
S	●
H	○
O	○

1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

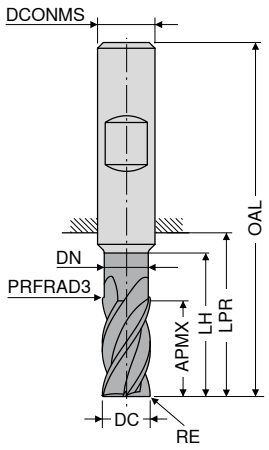
→ v_c/f_z Page 326–329

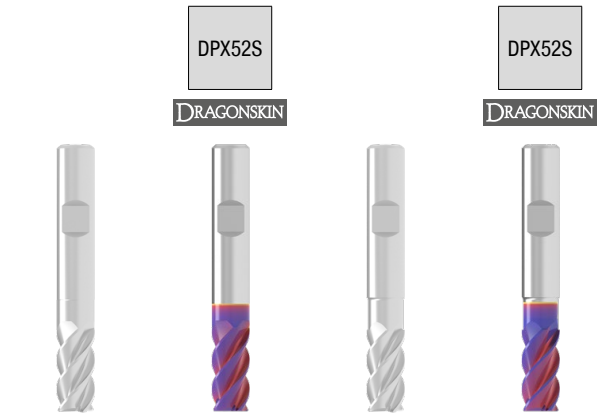
MonsterMill – End milling cutter with corner radius

▲ PRFRAD3 = 1 mm

TCR | λ_s=40° γ_s=10° | ZEFP | HPC







	Factory standard	Factory standard	Factory standard	Factory standard
	HB	HB	HB	HB
	52 503 ...	**52 504 ...**	**52 505 ...**	**52 506 ...**

DC $_{e8}$ mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h5}$ mm	ZEFP				
4	0,1	11		14	21	57	6	4	**04000**	**04000**		
4	0,1	11	3,8	17	21	57	6	5			**04000**[1)]	**04000**[1)]
5	0,1	13		16	21	57	6	4	**05000**	**05000**		
5	0,1	13	4,8	19	21	57	6	5			**05000**[1)]	**05000**[1)]
6	0,1	13			21	57	6	4	**06000**	**06000**		
6	0,1	13	5,8	19	21	57	6	5			**06000**[1)]	**06000**[1)]
8	0,2	21			27	63	8	4	**08000**	**08000**		
8	0,2	21	7,7	25	27	63	8	5			**08000**[1)]	**08000**[1)]
10	0,2	22			32	72	10	4	**10000**	**10000**		
10	0,2	22	9,7	30	32	72	10	5			**10000**[1)]	**10000**[1)]
12	0,2	26			38	83	12	4	**12000**	**12000**		
12	0,2	26	11,6	36	38	83	12	5			**12000**[1)]	**12000**[1)]
16	0,3	36			44	92	16	4	**16000**	**16000**		
16	0,3	36	15,5	42	44	92	16	5			**16000**[1)]	**16000**[1)]
20	0,3	41			54	104	20	4	**20000**	**20000**		
20	0,3	41	19,5	52	54	104	20	5			**20000**[1)]	**20000**[1)]

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

1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

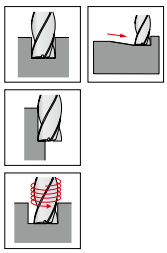
→ v_c/f_z Page 332+333

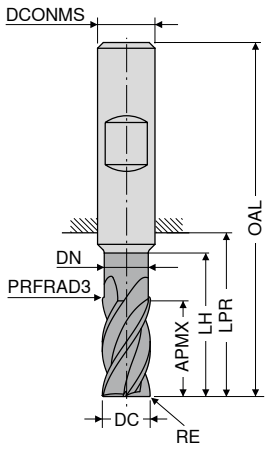
14

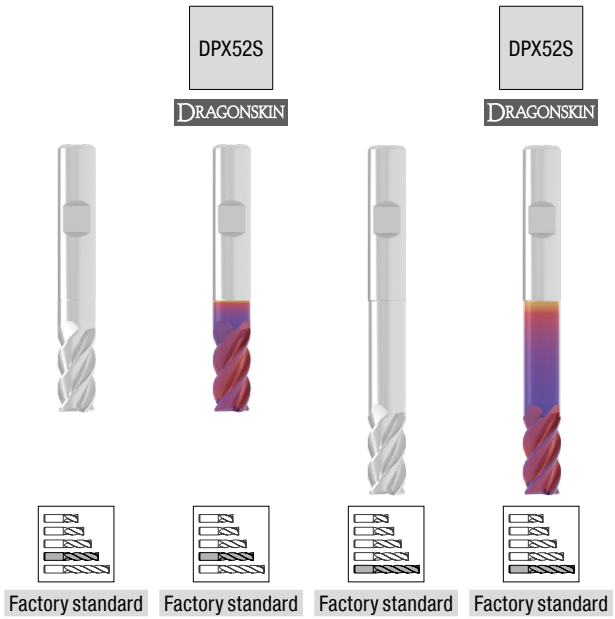
MonsterMill – End milling cutter with corner radius

▲ PRFRAD3 = 1 mm

TCR | λ_s=40° γ_s=10° | ZEFP | HPC







									Factory standard	Factory standard	Factory standard	Factory standard
									HB	HB	HB	HB
									52 507 ...	**52 508 ...**	**52 507 ...**	**52 508 ...**
DC $_{e8}$ **mm**	**RE** mm	**APMX** mm	**DN** mm	**LH** mm	**LPR** mm	**OAL** mm	**DCONMS** $_{h5}$ mm	**ZEFP**				
4	0,4	8,5	3,8	20	26	62	6	4			**04104**	**04104**
4	0,5	8,5	3,8	20	26	62	6	4			**04105**	**04105**
4	0,8	8,5	3,8	20	26	62	6	4			**04108**	**04108**
4	0,2	11,0		14	21	57	6	4	**04002**	**04002**		
4	0,4	11,0		14	21	57	6	4	**04004**	**04004**		
4	0,5	11,0		14	21	57	6	4	**04005**	**04005**		
5	0,5	10,5	4,8	25	34	70	6	4			**05105**	**05105**
5	0,8	10,5	4,8	25	34	70	6	4			**05108**	**05108**
5	0,5	13,0		16	21	57	6	4	**05005**	**05005**		
5	1,0	13,0		16	21	57	6	4	**05010**	**05010**		
6	0,4	13,0			21	57	6	4	**06004**	**06004**		
6	0,5	13,0			21	57	6	4	**06005**	**06005**		
6	0,6	13,0			21	57	6	4	**06006**	**06006**		
6	0,6	13,0	5,8	30	34	70	6	4			**06106**	**06106**
6	0,8	13,0			21	57	6	4	**06008**	**06008**		
6	0,8	13,0	5,8	30	34	70	6	4			**06108**	**06108**
6	1,0	13,0	5,8	30	34	70	6	4			**06110**	**06110**
6	1,0	13,0			21	57	6	4	**06010**	**06010**		
6	1,5	13,0			21	57	6	4	**06015**	**06015**		
8	0,8	17,0	7,7	40	44	80	8	4			**08108**	**08108**
8	1,0	17,0	7,7	40	44	80	8	4			**08110**	**08110**
8	1,5	17,0	7,7	40	44	80	8	4			**08115**	**08115**
8	2,0	17,0	7,7	40	44	80	8	4			**08120**	**08120**
8	0,5	21,0			27	63	8	4	**08005**	**08005**		
8	0,8	21,0			27	63	8	4	**08008**	**08008**		
8	1,0	21,0			27	63	8	4	**08010**	**08010**		
8	1,2	21,0			27	63	8	4	**08012**	**08012**		
8	1,5	21,0			27	63	8	4	**08015**	**08015**		
8	2,0	21,0			27	63	8	4	**08020**	**08020**		
10	0,5	21,0	9,7	50	54	94	10	4			**10105**	**10105**
10	1,0	21,0	9,7	50	54	94	10	4			**10110**	**10110**
10	1,5	21,0	9,7	50	54	94	10	4			**10115**	**10115**
10	2,0	21,0	9,7	50	54	94	10	4			**10120**	**10120**
10	0,5	22,0			32	72	10	4	**10005**	**10005**		
10	1,0	22,0			32	72	10	4	**10010**	**10010**		
10	1,2	22,0			32	72	10	4	**10012**	**10012**		
10	1,5	22,0			32	72	10	4	**10015**	**10015**		
10	1,6	22,0			32	72	10	4	**10016**	**10016**		
10	2,0	22,0			32	72	10	4	**10020**	**10020**		
12	0,5	25,0	11,6	60	65	110	12	4			**12105**	**12105**
12	1,0	25,0	11,6	60	65	110	12	4			**12110**	**12110**
12	1,5	25,0	11,6	60	65	110	12	4			**12115**	**12115**

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

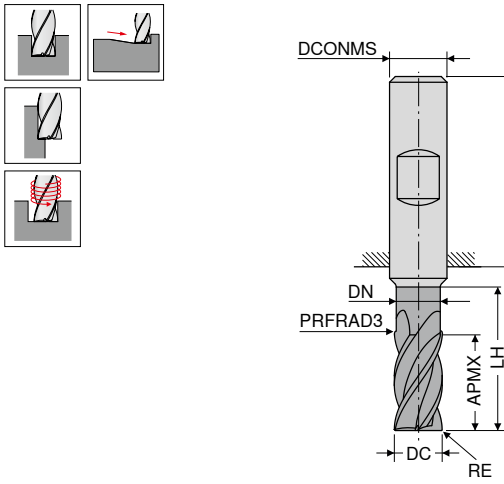
→ v_c/f_z Page 332+333

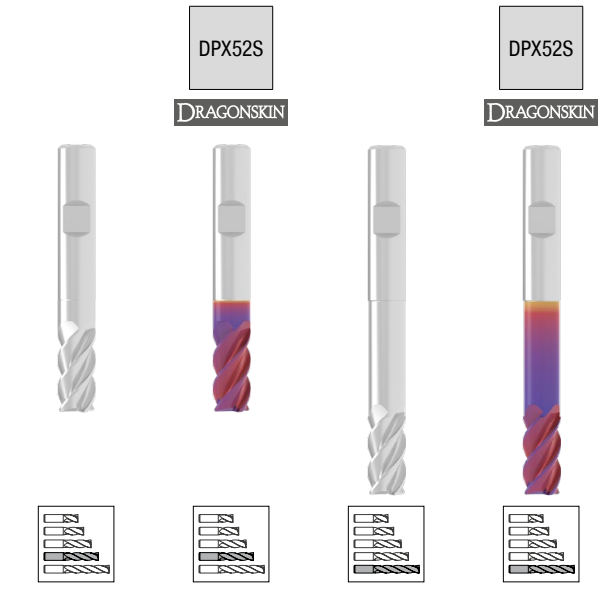
Continued on next page

MonsterMill – End milling cutter with corner radius

▲ PRFRAD3 = 1 mm

TCR | λ_s=40° γ_s=10° | ZEFP | HPC





									Factory standard	Factory standard	Factory standard	Factory standard
									HB	HB	HB	HB
									52 507 ...	52 508 ...	52 507 ...	52 508 ...
DC $_{e8}$ mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h5}$ mm	ZEFP				
12	2,0	25,0	11,6	60	65	110	12	4			12120	12120
12	3,0	25,0	11,6	60	65	110	12	4			12130	12130
12	4,0	25,0	11,6	60	65	110	12	4			12140	12140
12	0,5	26,0			38	83	12	4	12005	12005		
12	1,0	26,0			38	83	12	4	12010	12010		
12	1,2	26,0			38	83	12	4	12012	12012		
12	1,5	26,0			38	83	12	4	12015	12015		
12	1,6	26,0			38	83	12	4	12016	12016		
12	2,0	26,0			38	83	12	4	12020	12020		
12	2,5	26,0			38	83	12	4	12025	12025		
12	3,0	26,0			38	83	12	4	12030	12030		
14	1,0	29,0	13,6	70	75	120	14	4			14110	14110
14	2,0	29,0	13,6	70	75	120	14	4			14120	14120
14	3,0	29,0	13,6	70	75	120	14	4			14130	14130
14	4,0	29,0	13,6	70	75	120	14	4			14140	14140
16	1,0	33,0	15,5	80	84	132	16	4			16110	16110
16	2,0	33,0	15,5	80	84	132	16	4			16120	16120
16	3,0	33,0	15,5	80	84	132	16	4			16130	16130
16	4,0	33,0	15,5	80	84	132	16	4			16140	16140
16	1,0	36,0			44	92	16	4	16010	16010		
16	1,6	36,0			44	92	16	4	16016	16016		
16	2,0	36,0			44	92	16	4	16020	16020		
16	2,5	36,0			44	92	16	4	16025	16025		
16	3,0	36,0			44	92	16	4	16030	16030		
16	3,2	36,0			44	92	16	4	16032	16032		
16	4,0	36,0			44	92	16	4	16040	16040		
18	1,0	38,0	17,5	90	94	142	18	4			18110	18110
18	2,0	38,0	17,5	90	94	142	18	4			18120	18120
18	3,0	38,0	17,5	90	94	142	18	4			18130	18130
18	4,0	38,0	17,5	90	94	142	18	4			18140	18140
20	2,0	41,0			54	104	20	4	20020	20020		
20	3,0	41,0			54	104	20	4	20030	20030		
20	4,0	41,0			54	104	20	4	20040	20040		
20	5,0	41,0			54	104	20	4	20050	20050		
20	6,3	41,0			54	104	20	4	20063	20063		
20	1,0	42,0	19,5	100	104	154	20	4			20110	20110
20	2,0	42,0	19,5	100	104	154	20	4			20120	20120
20	3,0	42,0	19,5	100	104	154	20	4			20130	20130
20	4,0	42,0	19,5	100	104	154	20	4			20140	20140
P									○	○	○	○
M									○	○	○	○
K												
N												
S									●	●	●	●
H												
O												

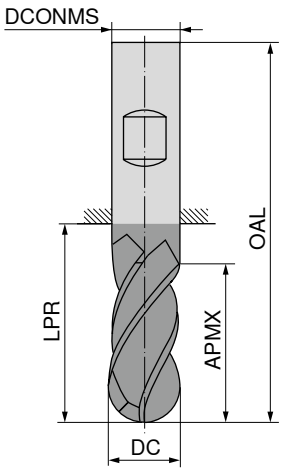
→ v_c/f_z Page 332+333

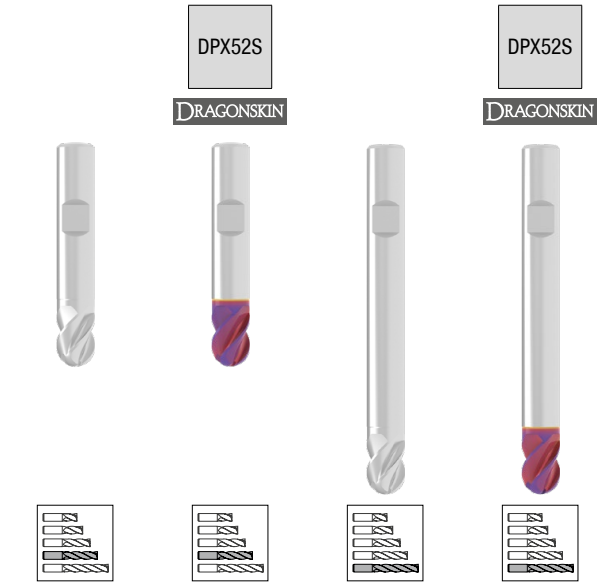
14

MonsterMill – Ball Nosed Cutter









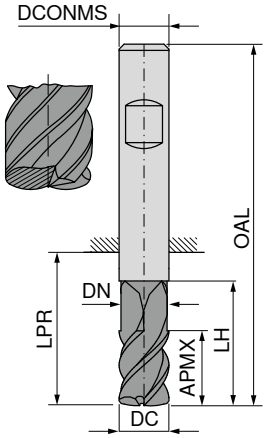
DC e8 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	Factory standard HB 52 513 ...	Factory standard HB 52 514 ...	Factory standard HB 52 513 ...	Factory standard HB 52 514 ...
2	4	18	54	6	4	**02000**	**02000**		
2	4	44	80	6	4			**02100**	**02100**
3	5	18	54	6	4	**03000**	**03000**		
3	5	44	80	6	4			**03100**	**03100**
4	8	18	54	6	4	**04000**	**04000**		
4	8	44	80	6	4			**04100**	**04100**
5	9	18	54	6	4	**05000**	**05000**		
5	9	44	80	6	4			**05100**	**05100**
6	10	18	54	6	4	**06000**	**06000**		
6	10	44	80	6	4			**06100**	**06100**
8	12	22	58	8	4	**08000**	**08000**		
8	12	64	100	8	4			**08100**	**08100**
10	14	26	66	10	4	**10000**	**10000**		
10	14	60	100	10	4			**10100**	**10100**
12	16	28	73	12	4	**12000**	**12000**		
12	16	55	100	12	4			**12100**	**12100**
16	20	34	82	16	4	**16000**	**16000**		
16	20	52	100	16	4			**16100**	**16100**
P						○	○	○	○
M						○	○	○	○
K									
N									
S						●	●	●	●
H									
O									

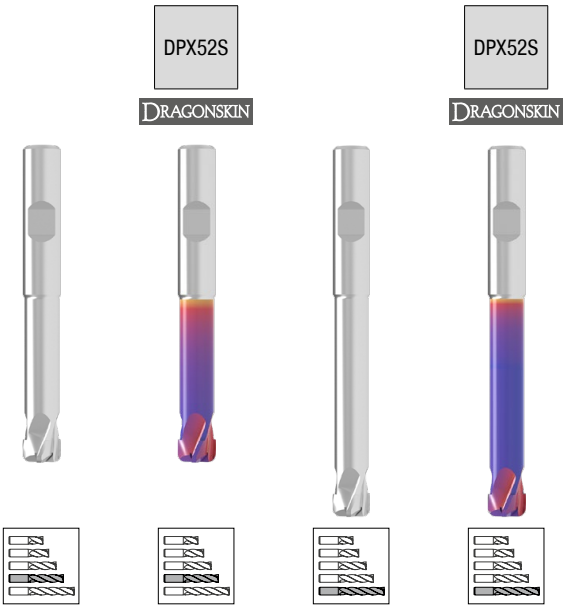
→ v_c/f_z Page 334+335

MonsterMill – Torus Face Milling Cutter

▲ r_{3D} = programmed corner radius
▲ APMX does not correspond to the maximum cutting depth

TCR | λ_s=15° γ_s=10° | ZEFP | HFC | HPC





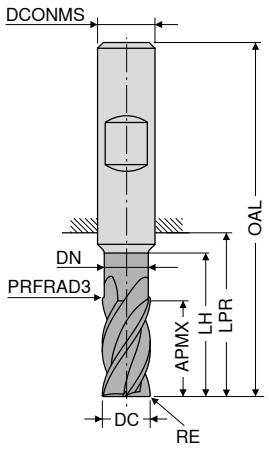
DC e8 mm	r_{3D} mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	DIN 6527 HB 52 511 ...	DIN 6527 HB 52 512 ...	DIN 6527 HB 52 511 ...	DIN 6527 HB 52 512 ...
2	0,3	1,5	1,7	13	18	54	6	2	02000	02000		
2	0,3	1,5	1,7	18	39	75	6	2			02100	02100
3	0,3	1,5	2,7	15	18	54	6	2	03000	03000		
3	0,3	1,5	2,7	20	39	75	6	2			03100	03100
4	0,5	2,5	3,6	16	22	58	6	2	04000	04000		
4	0,5	2,5	3,6	24	49	85	6	2			04100	04100
5	0,5	3,5	4,6	18	29	65	6	4	05000	05000		
5	0,5	3,5	4,6	28	64	100	6	4			05100	05100
6	1,0	3,5	5,2	20	29	65	6	4	06000	06000		
6	1,0	3,5	5,2	28	64	100	6	4			06100	06100
8	1,5	4,8	7,0	24	34	70	8	5	08000	08000		
8	1,5	4,8	7,0	40	64	100	8	5			08100	08100
10	2,0	5,8	9,0	26	45	85	10	5	10000	10000		
10	2,0	5,8	9,0	48	60	100	10	5			10100	10100
12	2,0	6,8	11,0	30	48	93	12	5	12000	12000		
12	2,0	6,8	11,0	56	75	120	12	5			12100	12100
16	2,5	8,8	14,5	35	52	100	16	5	16000	16000		
16	2,5	8,8	14,5	65	102	150	16	5			16100	16100
P									○	○	○	○
M									○	○	○	○
K												
N												
S									●	●	●	●
H												
O												

→ v_c/f_z Page 334

MonsterMill – End milling cutter with corner radius

▲ PRFRAD3 = 1 mm

NCR | λ_s=35° 38° γ_s= 7° | ZEFP | HPC



NEW

DPA52S

DRAGONSKIN



Factory standard

HB

53 030 ...

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	
4	0,1	11	3,8	17	21	57	6	4	04201
4	0,2	11	3,8	17	21	57	6	4	04202
4	0,4	11	3,8	17	21	57	6	4	04204
4	0,5	11	3,8	17	21	57	6	4	04205
5	0,1	13	4,8	19	21	57	6	4	05201
5	0,5	13	4,8	19	21	57	6	4	05205
5	1,0	13	4,8	19	21	57	6	4	05210
6	0,1	13	5,8	19	21	57	6	4	06201
6	0,4	13	5,8	19	21	57	6	4	06204
6	0,5	13	5,8	19	21	57	6	4	06205
6	0,6	13	5,8	19	21	57	6	4	06206
6	0,8	13	5,8	19	21	57	6	4	06208
6	1,0	13	5,8	19	21	57	6	4	06210
6	1,5	13	5,8	19	21	57	6	4	06215
8	0,2	19	7,7	25	27	63	8	4	08202
8	0,5	21	7,7	25	27	63	8	4	08205
8	0,8	21	7,7	25	27	63	8	4	08208
8	1,0	21	7,7	25	27	63	8	4	08210
8	1,2	21	7,7	25	27	63	8	4	08212
8	1,5	21	7,7	25	27	63	8	4	08215
8	2,0	21	7,7	25	27	63	8	4	08220
10	0,2	22	9,7	30	32	72	10	4	10202
10	0,5	22	9,7	30	32	72	10	4	10205
10	1,0	22	9,7	30	32	72	10	4	10210
10	1,2	22	9,7	30	32	72	10	4	10212
10	1,5	22	9,7	30	32	72	10	4	10215
10	1,6	22	9,7	30	32	72	10	4	10216
10	2,0	22	9,7	30	32	72	10	4	10220
12	0,2	26	11,6	36	38	83	12	4	12202
12	0,5	26	11,6	36	38	83	12	4	12205
12	1,0	26	11,6	36	38	83	12	4	12210
12	1,2	26	11,6	36	38	83	12	4	12212
12	1,5	26	11,6	36	38	83	12	4	12215
12	1,6	26	11,6	36	38	83	12	4	12216
12	2,0	26	11,6	36	38	83	12	4	12220
12	2,5	26	11,6	36	38	83	12	4	12225
12	3,0	26	11,6	36	38	83	12	4	12230

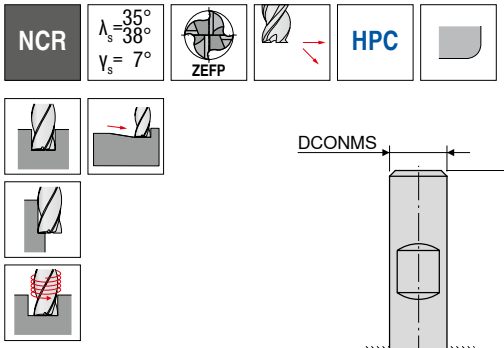
P	
M	○
K	
N	
S	●
H	
O	

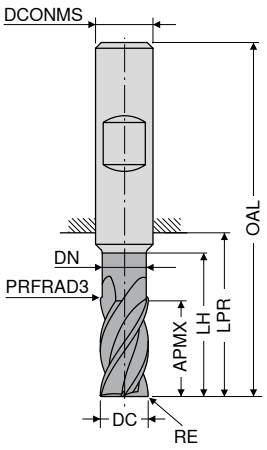
→ v_c/f_z Page 336+337

Continued on next page

MonsterMill – End milling cutter with corner radius

▲ PRFRAD3 = 1 mm





NEW

DPA52S

DRAGONSKIN





Factory standard

HB

53 030 ...

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	
16	0,3	36	15,5	42	44	92	16	4	**16203**
16	1,0	36	15,5	42	44	92	16	4	**16210**
16	1,6	36	15,5	42	44	92	16	4	**16216**
16	2,0	36	15,5	42	44	92	16	4	**16220**
16	2,5	36	15,5	42	44	92	16	4	**16225**
16	3,0	36	15,5	42	44	92	16	4	**16230**
16	3,2	36	15,5	42	44	92	16	4	**16232**
16	4,0	36	15,5	42	44	92	16	4	**16240**
20	0,3	41	19,5	52	54	104	20	4	**20203**
20	1,0	41	19,5	52	54	104	20	4	**20210**
20	2,0	41	19,5	52	54	104	20	4	**20220**
20	3,0	41	19,5	52	54	104	20	4	**20230**
20	4,0	41	19,5	52	54	104	20	4	**20240**
20	5,0	41	19,5	52	54	104	20	4	**20250**
20	6,3	41	19,5	52	54	104	20	4	**20263**

P	
M	○
K	
N	
S	●
H	
O	

→ v_c/f_z Page 336+337

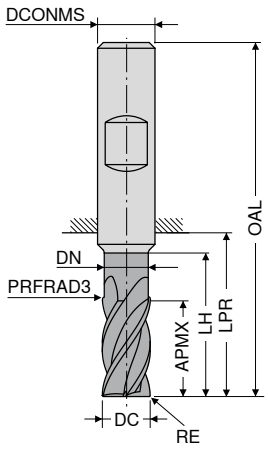
14

MonsterMill – End milling cutter with corner radius

▲ PRFRAD3 = 1 mm

NCR | λ_s=35° 38° γ_s= 7° | ZEFP | HPC





NEW

DPA52S

DRAGONSKIN





Factory standard

HB

53 030 ...

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	
4	0,1	8,5	3,8	20	26	62	6	4	04401
4	0,2	8,5	3,8	20	26	62	6	4	04402
4	0,4	8,5	3,8	20	26	62	6	4	04404
4	0,5	8,5	3,8	20	26	62	6	4	04405
5	0,1	10,5	4,8	25	34	70	6	4	05401
5	0,5	10,5	4,8	25	34	70	6	4	05405
5	1,0	10,5	4,8	25	34	70	6	4	05410
6	0,1	13,0	5,8	30	34	70	6	4	06401
6	0,4	13,0	5,8	30	34	70	6	4	06404
6	0,5	13,0	5,8	30	34	70	6	4	06405
6	0,6	13,0	5,8	30	34	70	6	4	06406
6	0,8	13,0	5,8	30	34	70	6	4	06408
6	1,0	13,0	5,8	30	34	70	6	4	06410
6	1,5	13,0	5,8	30	34	70	6	4	06415
8	0,2	17,0	7,7	40	44	80	8	4	08402
8	0,5	17,0	7,7	40	44	80	8	4	08405
8	0,8	17,0	7,7	40	44	80	8	4	08408
8	1,0	17,0	7,7	40	44	80	8	4	08410
8	1,2	17,0	7,7	40	44	80	8	4	08412
8	1,5	17,0	7,7	40	44	80	8	4	08415
8	2,0	17,0	7,7	40	44	80	8	4	08420
10	0,2	21,0	9,7	50	54	94	10	4	10402
10	0,5	21,0	9,7	50	54	94	10	4	10405
10	1,0	21,0	9,7	50	54	94	10	4	10410
10	1,2	21,0	9,7	50	54	94	10	4	10412
10	1,5	21,0	9,7	50	54	94	10	4	10415
10	1,6	21,0	9,7	50	54	94	10	4	10416
10	2,0	21,0	9,7	50	54	94	10	4	10420
12	0,2	25,0	11,6	60	65	110	12	4	12402
12	0,5	25,0	11,6	60	65	110	12	4	12405
12	1,0	25,0	11,6	60	65	110	12	4	12410
12	1,2	25,0	11,6	60	65	110	12	4	12412
12	1,5	25,0	11,6	60	65	110	12	4	12415
12	1,6	25,0	11,6	60	65	110	12	4	12416
12	2,0	25,0	11,6	60	65	110	12	4	12420
12	2,5	25,0	11,6	60	65	110	12	4	12425
12	3,0	25,0	11,6	60	65	110	12	4	12430

P	
M	○
K	
N	
S	●
H	
O	

→ v_c/f_z Page 336+337

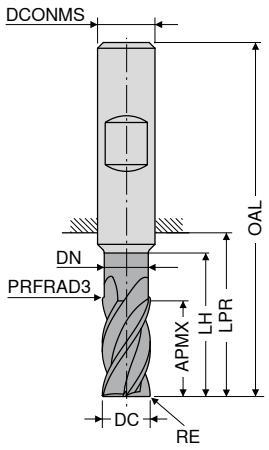
Continued on next page

MonsterMill – End milling cutter with corner radius

▲ PRFRAD3 = 1 mm

NCR | λ_s=35° 38° γ_s= 7° | ZEFP | HPC





NEW

DPA52S

DRAGONSKIN





Factory standard

HB 

53 030 ...

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	
16	0,3	33,0	15,5	80	84	132	16	4	**16403**
16	1,0	33,0	15,5	80	84	132	16	4	**16410**
16	1,6	33,0	15,5	80	84	132	16	4	**16416**
16	2,0	33,0	15,5	80	84	132	16	4	**16420**
16	2,5	33,0	15,5	80	84	132	16	4	**16425**
16	3,0	33,0	15,5	80	84	132	16	4	**16430**
16	3,2	33,0	15,5	80	84	132	16	4	**16432**
16	4,0	33,0	15,5	80	84	132	16	4	**16440**
20	0,3	42,0	19,5	100	104	154	20	4	**20403**
20	1,0	42,0	19,5	100	104	154	20	4	**20410**
20	2,0	42,0	19,5	100	104	154	20	4	**20420**
20	3,0	42,0	19,5	100	104	154	20	4	**20430**
20	4,0	42,0	19,5	100	104	154	20	4	**20440**
20	5,0	42,0	19,5	100	104	154	20	4	**20450**
20	6,3	42,0	19,5	100	104	154	20	4	**20463**

P	
M	○
K	
N	
S	●
H	
O	

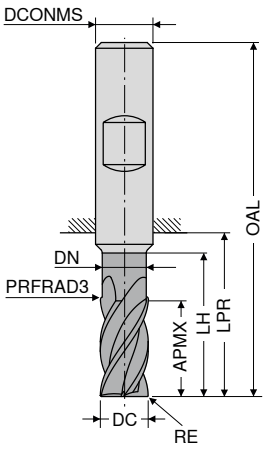
→ v_c/f_z Page 336+337

MonsterMill – End milling cutter with corner radius

▲ PRFRAD3 = 1 mm

NCR | λ_s=35° 38° γ_s= 7° | ZEFP | HPC





NEW

DPA52S

DRAGONSKIN





Factory standard

HB

53 031 ...

DC $_{f8}$ mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h5}$ mm	ZEFP	
6	0,1	13	5,8	19	21	57	6	5	**06201**
6	0,4	13	5,8	19	21	57	6	5	**06204**
6	0,5	13	5,8	19	21	57	6	5	**06205**
6	0,6	13	5,8	19	21	57	6	5	**06206**
6	0,8	13	5,8	19	21	57	6	5	**06208**
6	1,0	13	5,8	19	21	57	6	5	**06210**
6	1,5	13	5,8	19	21	57	6	5	**06215**
8	0,2	19	7,7	25	27	63	8	5	**08202**
8	0,5	21	7,7	25	27	63	8	5	**08205**
8	0,8	21	7,7	25	27	63	8	5	**08208**
8	1,0	21	7,7	25	27	63	8	5	**08210**
8	1,2	21	7,7	25	27	63	8	5	**08212**
8	1,5	21	7,7	25	27	63	8	5	**08215**
8	2,0	21	7,7	25	27	63	8	5	**08220**
10	0,2	22	9,7	30	32	72	10	5	**10202**
10	0,5	22	9,7	30	32	72	10	5	**10205**
10	1,0	22	9,7	30	32	72	10	5	**10210**
10	1,2	22	9,7	30	32	72	10	5	**10212**
10	1,5	22	9,7	30	32	72	10	5	**10215**
10	1,6	22	9,7	30	32	72	10	5	**10216**
10	2,0	22	9,7	30	27	72	10	5	**10220**
12	0,2	26	11,6	36	38	83	12	5	**12202**
12	0,5	26	11,6	36	38	83	12	5	**12205**
12	1,0	26	11,6	36	38	83	12	5	**12210**
12	1,2	26	11,6	36	38	83	12	5	**12212**
12	1,5	26	11,6	36	38	83	12	5	**12215**
12	1,6	26	11,6	36	38	83	12	5	**12216**
12	2,0	26	11,6	36	38	83	12	5	**12220**
12	2,5	26	11,6	36	38	83	12	5	**12225**
12	3,0	26	11,6	36	38	83	12	5	**12230**
16	0,3	36	15,5	42	44	92	16	5	**16203**
16	1,0	36	15,5	42	44	92	16	5	**16210**
16	1,6	36	15,5	42	44	92	16	5	**16216**
16	2,0	36	15,5	42	44	92	16	5	**16220**
16	2,5	36	15,5	42	44	92	16	5	**16225**
16	3,0	36	15,5	42	44	92	16	5	**16230**
16	3,2	36	15,5	42	44	92	16	5	**16232**

P	
M	○
K	
N	
S	●
H	
O	

→ v_c/f_z Page 338

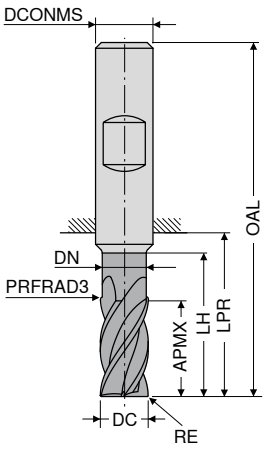
Continued on next page

MonsterMill – End milling cutter with corner radius

▲ PRFRAD3 = 1 mm

NCR | λ_s=35° 38° γ_s= 7° | ZEFP | HPC





NEW

DPA52S

DRAGONSKIN





Factory standard

HB 

53 031 ...

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	
16	4,0	36	15,5	42	44	92	16	5	**16240**
20	0,3	41	19,5	52	54	104	20	5	**20203**
20	2,0	41	19,5	52	54	104	20	5	**20220**
20	3,0	41	19,5	52	54	104	20	5	**20230**
20	4,0	41	19,5	52	54	104	20	5	**20240**
20	5,0	41	19,5	52	54	104	20	5	**20250**
20	6,3	41	19,5	52	54	104	20	5	**20263**

P	
M	o
K	
N	
S	●
H	
O	

→ v_c/f_z Page 338

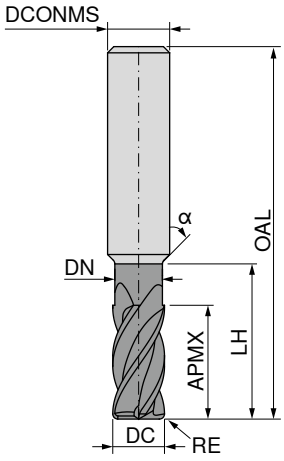
14

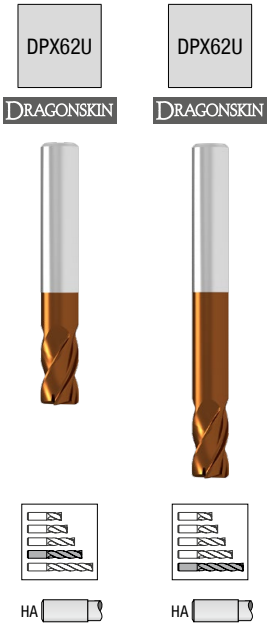
MonsterMill – Finish milling cutter with corner radius

- Radius accuracy ± 0.005 mm
- T_x = maximum depth of cut
- DC Tolerance
  up to Ø 6 mm: 0 / -0.01 mm
  from Ø 6 mm: 0 / -0.02 mm

HCR | λ_s=30° γ_s=–3° | ZEFP | 54–70 HRC







DC mm	RE mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS $_{h5}$ mm	T_x	ZEFP	53 603 ...	53 604 ...
0,2	0,05	0,5		0,5	30	48	4	2,5 x DC	2	**30205**	
0,2	0,05	0,5	0,18	1,0	30	48	4	5 x DC	2	**40205**	
0,3	0,05	0,6	0,27	1,0	30	48	4	3,3 x DC	2	**30305**	
0,3	0,05	0,6	0,27	2,0	30	48	4	6,7 x DC	2	**40305**	
0,4	0,05	0,7	0,35	1,0	30	48	4	2,5 x DC	2	**30405**	
0,4	0,05	0,7	0,35	2,0	30	48	4	5 x DC	2	**40405**	
0,4	0,05	0,7	0,35	3,0	30	48	4	7,5 x DC	2	**50405**	
0,5	0,05	0,7	0,45	1,0	30	48	4	2 x DC	2	**30505**	
0,5	0,05	0,7	0,45	2,0	30	48	4	4 x DC	2	**40505**	
0,5	0,05	0,7	0,45	2,5	30	48	4	5 x DC	2	**50505**	
0,5	0,05	0,7	0,45	3,0	30	48	4	6 x DC	2	**60505**	
0,5	0,05	0,7	0,45	4,0	30	48	4	8 x DC	2	**70505**	
0,6	0,05	0,8	0,55	2,0	30	48	4	3,3 x DC	2	**30605**	
0,6	0,05	0,8	0,55	3,0	30	48	4	5 x DC	2	**40605**	
0,6	0,05	0,8	0,55	4,5	30	48	4	7,5 x DC	2	**50605**	
0,6	0,05	0,8	0,55	6,0	30	48	4	10 x DC	2		**30605**
0,8	0,05	1,0	0,75	2,0	30	48	4	2,5 x DC	2	**30805**	
0,8	0,05	1,0	0,75	4,0	30	48	4	5 x DC	2	**40805**	
0,8	0,05	1,0	0,75	6,0	30	48	4	7,5 x DC	2	**50805**	
0,8	0,05	1,0	0,75	8,0	30	48	4	10 x DC	2		**30805**
0,8	0,05	1,0	0,75	10,0	30	48	4	12,5 x DC	2		**40805**
1,0	0,10	1,5	0,95	2,0	30	48	4	2 x DC	4	**31001**	
1,0	0,10	1,5	0,95	4,0	30	48	4	4 x DC	4	**41001**	
1,0	0,10	1,5	0,95	6,0	30	48	4	6 x DC	4	**51001**	
1,0	0,10	1,5	0,95	8,0	30	48	4	8 x DC	4	**61001**	
1,0	0,10	1,5	0,95	10,0	30	48	4	10 x DC	4		**31001**
1,0	0,10	1,5	0,95	14,0	30	48	4	14 x DC	4		**41001**
1,5	0,10	2,0	1,45	4,0	30	48	4	2,7 x DC	4	**31501**	
1,5	0,10	2,0	1,45	6,0	30	48	4	4 x DC	4	**41501**	
1,5	0,10	2,0	1,45	10,0	30	48	4	6,7 x DC	4	**51501**	
1,5	0,10	2,0	1,45	12,0	30	48	4	8 x DC	4	**61501**	
1,5	0,10	2,0	1,45	15,0	30	60	4	10 x DC	4		**31501**
1,5	0,10	2,0	1,45	20,0	30	60	4	13,3 x DC	4		**41501**
2,0	0,20	2,5	1,90	4,0	30	48	4	2 x DC	4	**32002**	
2,0	0,20	2,5	1,90	6,0	30	48	4	3 x DC	4	**42002**	

P	○	○
M		
K		
N		
S		
H	●	●
O		

→ v_c/f_z Page 340–345

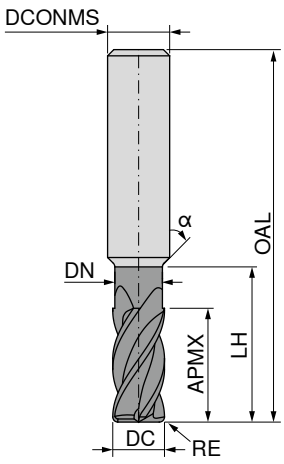
Continued on next page

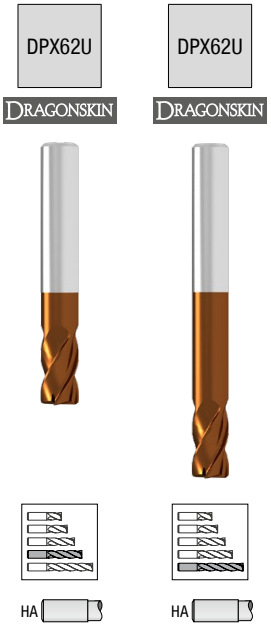
MonsterMill – Finish milling cutter with corner radius

- Radius accuracy ± 0.005 mm
- T_x = maximum depth of cut
- DC Tolerance
  up to Ø 6 mm: 0 / -0.01 mm
  from Ø 6 mm: 0 / -0.02 mm

HCR | λ_s=30° γ_s=–3° | ZEFP | 54–70 HRC







DC mm	RE mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS $_{h5}$ mm	T_x	ZEFP	53 603 ...	53 604 ...
2,0	0,20	2,5	1,90	8,0	30	48	4	4 x DC	4	**52002**	
2,0	0,20	2,5	1,90	10,0	30	48	4	5 x DC	4	**62002**	
2,0	0,20	2,5	1,90	12,0	30	48	4	6 x DC	4	**72002**	
2,0	0,20	2,5	1,90	16,0	30	60	4	8 x DC	4	**82002**	
2,0	0,20	2,5	1,90	20,0	30	60	4	10 x DC	4		**32002**
2,0	0,20	2,5	1,90	25,0	30	60	4	12,5 x DC	4		**42002**
3,0	0,20	3,5	2,90	8,0	30	60	6	2,7 x DC	4	**33002**	
3,0	0,20	3,5	2,90	12,0	30	60	6	4 x DC	4	**43002**	
3,0	0,20	3,5	2,90	16,0	30	60	6	5,3 x DC	4	**53002**	
3,0	0,20	3,5	2,90	20,0	30	70	6	6,7 x DC	4	**63002**	
3,0	0,20	3,5	2,90	24,0	30	70	6	8 x DC	4	**73002**	
4,0	0,20	4,5	3,90	8,0	30	60	6	2 x DC	4	**34002**	
4,0	0,20	4,5	3,90	12,0	30	60	6	3 x DC	4	**44002**	
4,0	0,20	4,5	3,90	16,0	30	60	6	4 x DC	4	**54002**	
4,0	0,20	4,5	3,90	20,0	30	70	6	5 x DC	4	**64002**	
4,0	0,20	4,5	3,90	24,0	30	70	6	6 x DC	4	**74002**	
4,0	0,20	4,5	3,90	28,0	30	70	6	7 x DC	4	**84002**	
4,0	0,50	4,5	3,90	8,0	30	60	6	2 x DC	4	**34005**	
4,0	0,50	4,5	3,90	12,0	30	60	6	3 x DC	4	**44005**	
4,0	0,50	4,5	3,90	16,0	30	60	6	4 x DC	4	**54005**	
4,0	0,50	4,5	3,90	20,0	30	70	6	5 x DC	4	**64005**	
4,0	0,50	4,5	3,90	24,0	30	70	6	6 x DC	4	**74005**	
4,0	0,50	4,5	3,90	28,0	30	70	6	7 x DC	4	**84005**	
4,0	1,00	4,5	3,90	8,0	30	60	6	2 x DC	4	**34010**	
4,0	1,00	4,5	3,90	12,0	30	60	6	3 x DC	4	**44010**	
4,0	1,00	4,5	3,90	16,0	30	60	6	4 x DC	4	**54010**	
4,0	1,00	4,5	3,90	20,0	30	70	6	5 x DC	4	**64010**	
4,0	1,00	4,5	3,90	24,0	30	70	6	6 x DC	4	**74010**	
4,0	1,00	4,5	3,90	28,0	30	70	6	7 x DC	4	**84010**	
6,0	0,20	6,5	5,90	12,0		60	6	2 x DC	4	**36002**	
6,0	0,20	6,5	5,90	16,0		60	6	2,7 x DC	4	**46002**	
6,0	0,20	6,5	5,90	20,0		60	6	3,3 x DC	4	**56002**	
6,0	0,50	6,5	5,90	12,0		60	6	2 x DC	4	**36005**	
6,0	0,50	6,5	5,90	16,0		60	6	2,7 x DC	4	**46005**	
6,0	0,50	6,5	5,90	20,0		60	6	3,3 x DC	4	**56005**	

P	○	○
M		
K		
N		
S		
H	●	●
O		

→ v_c/f_z Page 340–345

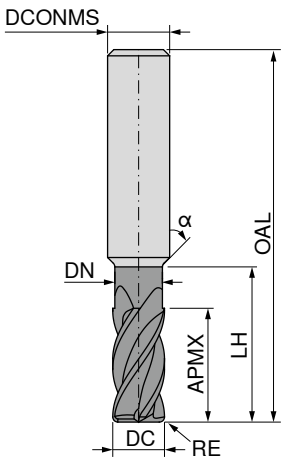
Continued on next page

MonsterMill – Finish milling cutter with corner radius

- Radius accuracy ± 0.005 mm
- T_x = maximum depth of cut
- DC Tolerance
  up to Ø 6 mm: 0 / -0.01 mm
  from Ø 6 mm: 0 / -0.02 mm

HCR | λ_s=30° γ_s=–3° | ZEFP | 54–70 HRC



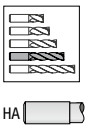


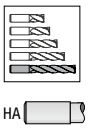












DC mm	RE mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS $_{h5}$ mm	T_x	ZEFP	53 603 ...	53 604 ...
6,0	1,00	6,5	5,90	12,0		60	6	2 x DC	4	**36010**	
6,0	1,00	6,5	5,90	16,0		60	6	2,7 x DC	4	**46010**	
6,0	1,00	6,5	5,90	20,0		60	6	3,3 x DC	4	**56010**	
8,0	0,50	8,5	7,90	16,0		60	8	2 x DC	4	**38005**	
8,0	0,50	8,5	7,90	40,0		80	8	5 x DC	4	**48005**	
8,0	1,00	8,5	7,90	16,0		60	8	2 x DC	4	**38010**	
8,0	1,00	8,5	7,90	40,0		80	8	5 x DC	4	**48010**	
10,0	0,50	10,5	9,90	20,0		70	10	2 x DC	4	**10005**	
10,0	0,50	10,5	9,90	40,0		90	10	4 x DC	4	**10105**	
10,0	1,00	10,5	9,90	20,0		70	10	2 x DC	4	**10010**	
10,0	1,00	10,5	9,90	40,0		90	10	4 x DC	4	**10110**	
12,0	1,00	12,5	11,90	24,0		70	12	2 x DC	4	**12010**	
12,0	1,00	12,5	11,90	40,0		90	12	3,3 x DC	4	**12110**	
P										○	○
M											
K											
N											
S											
H										●	●
O											

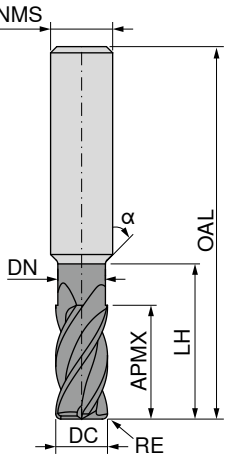
→ v_c/f_z Page 340–345

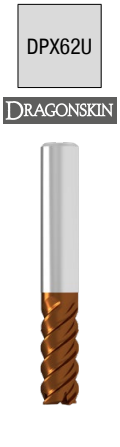
MonsterMill – Finish milling cutter with corner radius

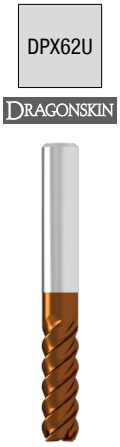
- Radius accuracy ± 0.005 mm
- T_x = maximum depth of cut
- DC Tolerance
  up to Ø 6 mm: 0/-0.01 mm
  from Ø 6 mm: 0/ -0.02 mm

HCR | λ_s = 50° γ_s = -15° | ZEFP | 54–70 HRC













Factory standard
HA

Factory standard
HA

DC mm	RE mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS $_{h5}$ mm	T_x	ZEFP	53 605 ...	53 606 ...
1	0,03	2			30	48	4	2 x DC	4	410	
1	0,03	3	0,95	4	30	48	4	3 x DC	4		410
2	0,03	6	1,90	8	30	48	4	3 x DC	4		420
2	0,03	4			30	48	4	2 x DC	4	420	
3	0,03	6			30	60	6	2 x DC	4	030	
3	0,03	9	2,90	12	30	60	6	3 x DC	4		030
4	0,05	8			30	60	6	2 x DC	4	040	
4	0,05	12	3,90	16	30	60	6	3 x DC	4		040
6	0,05	12				60	6	2 x DC	4	060	
6	0,05	18	5,90	24		60	6	3 x DC	4		060
8	0,05	16				60	8	2 x DC	4	080	
8	0,05	24	7,90	32		70	8	3 x DC	4		080
10	0,05	20				70	10	2 x DC	4	100	
10	0,05	30	9,90	40		80	10	3 x DC	4		100
12	0,05	24				70	12	2 x DC	4	120	
12	0,05	36	11,90	44		90	12	3 x DC	4		120
P										○	○
M											
K											
N											
S											
H										●	●
O											

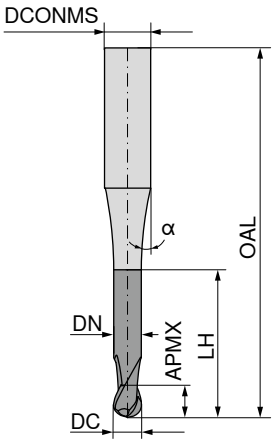
→ v_c/f_z Page 339

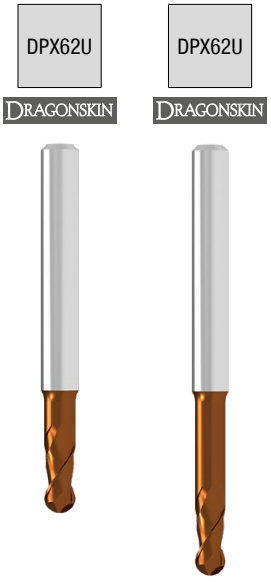
14

MonsterMill – Ball Nosed Cutter

- Radius accuracy: ± 0.005 mm
- T_x = maximum depth of cut
- DC Tolerance
  up to Ø 6 mm: 0 / -0.01 mm
  from Ø 6 mm: 0 / -0.02 mm

HCR | λ_s=30° γ_s=–3° | ZEFP | 54–70 HRC





Factory standard | Factory standard

HA | HA

DC mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS $_{h5}$ mm	T_x	ZEFP	53 600 ...	53 601 ...
0,2	0,5		0,5	15	48	4	2,5 x DC	2	**302**	
0,2	0,5	0,18	1,0	15	48	4	5 x DC	2	**402**	
0,3	0,5	0,27	1,0	15	48	4	3,3 x DC	2	**303**	
0,3	0,5	0,27	2,0	15	48	4	6,7 x DC	2	**403**	
0,4	0,5	0,35	1,0	15	48	4	2,5 x DC	2	**304**	
0,4	0,5	0,35	2,0	15	48	4	5 x DC	2	**404**	
0,4	0,5	0,35	3,0	15	48	4	7,5 x DC	2	**504**	
0,5	0,5	0,45	1,0	15	48	4	2 x DC	2	**305**	
0,5	0,5	0,45	2,0	15	48	4	4 x DC	2	**405**	
0,5	0,5	0,45	2,5	15	48	4	5 x DC	2	**505**	
0,5	0,5	0,45	3,0	15	48	4	6 x DC	2	**605**	
0,5	0,5	0,45	4,0	15	48	4	8 x DC	2	**705**	
0,6	0,6	0,55	2,0	15	48	4	3,3 x DC	2	**306**	
0,6	0,6	0,55	3,0	15	48	4	5 x DC	2	**406**	
0,6	0,6	0,55	4,5	15	48	4	7,5 x DC	2	**506**	
0,6	0,6	0,55	6,0	15	48	4	10 x DC	2		**306**
0,8	1,0	0,75	2,0	15	48	4	2,5 x DC	2	**308**	
0,8	1,0	0,75	4,0	15	48	4	5 x DC	2	**408**	
0,8	1,0	0,75	6,0	15	48	4	7,5 x DC	2	**508**	
0,8	1,0	0,75	8,0	15	48	4	10 x DC	2		**308**
0,8	1,0	0,75	10,0	15	48	4	12,5 x DC	2		**408**
1,0	1,5	0,95	2,0	15	48	4	2 x DC	2	**310**	
1,0	1,5	0,95	4,0	15	48	4	4 x DC	2	**410**	
1,0	1,5	0,95	6,0	15	48	4	6 x DC	2	**510**	
1,0	1,5	0,95	8,0	15	48	4	8 x DC	2	**610**	
1,0	1,5	0,95	10,0	15	48	4	10 x DC	2		**310**
1,0	1,5	0,95	14,0	15	48	4	14 x DC	2		**410**
1,5	1,5	1,45	4,0	15	48	4	2,7 x DC	2	**315**	
1,5	1,5	1,45	6,0	15	48	4	4 x DC	2	**415**	
1,5	1,5	1,45	8,0	15	48	4	5,3 x DC	2	**515**	
1,5	1,5	1,45	10,0	15	48	4	6,7 x DC	2	**615**	
1,5	1,5	1,45	15,0	15	60	4	10 x DC	2		**315**
1,5	1,5	1,45	20,0	15	60	4	13,3 x DC	2		**415**
2,0	2,5	1,90	4,0	15	48	4	2 x DC	2	**320**	

P	○	○
M		
K		
N		
S		
H	●	●
O		

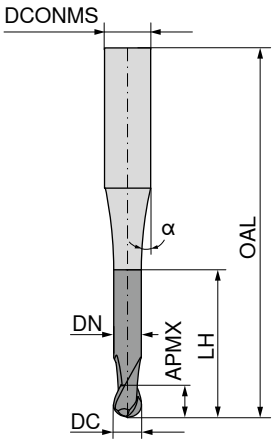
→ v_c/f_z Page 346+347

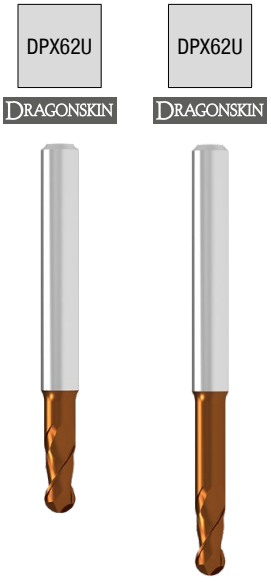
Continued on next page

MonsterMill – Ball Nosed Cutter

- Radius accuracy: ± 0.005 mm
- T_x = maximum depth of cut
- DC Tolerance
  up to Ø 6 mm: 0 / -0.01 mm
  from Ø 6 mm: 0 / -0.02 mm

HCR | λ_s=30° γ_s=–3° | ZEFP | 54–70 HRC





Factory standard | Factory standard

HA | HA

DC mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS $_{h5}$ mm	T_x	ZEFP	53 600 ...	53 601 ...
2,0	2,5	1,90	6,0	15	48	4	3 x DC	2	**420**	
2,0	2,5	1,90	8,0	15	48	4	4 x DC	2	**520**	
2,0	2,5	1,90	10,0	15	48	4	5 x DC	2	**620**	
2,0	2,5	1,90	12,0	15	48	4	6 x DC	2	**720**	
2,0	2,5	1,90	16,0	15	60	4	8 x DC	2	**820**	
2,0	2,5	1,90	20,0	15	60	4	10 x DC	2		**320**
2,0	2,5	1,90	25,0	15	60	4	12,5 x DC	2		**420**
3,0	3,5	2,90	8,0	15	60	6	2,7 x DC	2	**330**	
3,0	3,5	2,90	12,0	15	60	6	4 x DC	2	**430**	
3,0	3,5	2,90	16,0	15	60	6	5,3 x DC	2	**530**	
3,0	3,5	2,90	20,0	15	70	6	6,7 x DC	2	**630**	
3,0	3,5	2,90	24,0	15	70	6	8 x DC	2	**730**	
4,0	4,5	3,90	8,0	15	60	6	2 x DC	2	**340**	
4,0	4,5	3,90	12,0	15	60	6	3 x DC	2	**440**	
4,0	4,5	3,90	16,0	15	60	6	4 x DC	2	**540**	
4,0	4,5	3,90	20,0	15	70	6	5 x DC	2	**640**	
4,0	4,5	3,90	24,0	15	70	6	6 x DC	2	**740**	
4,0	4,5	3,90	28,0	15	70	6	7 x DC	2	**840**	
6,0	6,5	5,90	12,0		60	6	2 x DC	2	**360**	
6,0	6,5	5,90	16,0		60	6	2,7 x DC	2	**460**	
6,0	6,5	5,90	20,0		60	6	3,3 x DC	2	**560**	
8,0	8,5	7,90	16,0		60	8	2 x DC	2	**380**	
8,0	8,5	7,90	40,0		80	8	5 x DC	2	**480**	
10,0	10,5	9,90	20,0	15	70	10	2 x DC	2	**100**	
10,0	10,5	9,90	40,0		90	10	4 x DC	2	**101**	
12,0	12,5	11,90	24,0		75	12	2 x DC	2	**120**	
12,0	12,5	11,90	40,0		90	12	3,3 x DC	2	**121**	

P	○	○
M		
K		
N		
S		
H	●	●
O		

→ v_c/f_z Page 346+347

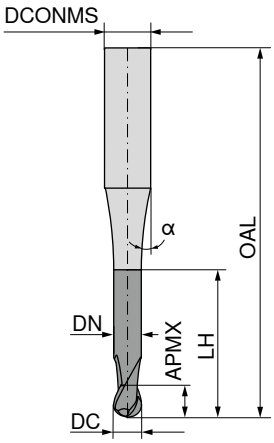
14

MonsterMill – Ball Nosed Cutter

- Radius accuracy: ± 0.005 mm
- T_x = maximum depth of cut
- DC Tolerance
  up to Ø 6 mm: 0 / -0.01 mm
  from Ø 6 mm: 0 / -0.02 mm

HCR | λ_s=30° γ_s=–3° | ZEFP | 54–70 HRC





DPX62U

DRAGONSKIN





Factory standard

HA

53 602 ...

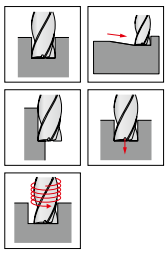
DC mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS $_{h5}$ mm	T_x	ZEFP	
3	3,5	2,9	8	15	60	6	2,7 x DC	4	**330**
3	3,5	2,9	12	15	60	6	4 x DC	4	**430**
3	3,5	2,9	16	15	60	6	5,3 x DC	4	**530**
3	3,5	2,9	20	15	70	6	6,7 x DC	4	**630**
3	3,5	2,9	24	15	70	6	8 x DC	4	**730**
4	4,5	3,9	8	15	60	6	2 x DC	4	**340**
4	4,5	3,9	12	15	60	6	3 x DC	4	**440**
4	4,5	3,9	16	15	60	6	4 x DC	4	**540**
4	4,5	3,9	20	15	70	6	5 x DC	4	**640**
4	4,5	3,9	24	15	70	6	6 x DC	4	**740**
4	4,5	3,9	28	15	70	6	7 x DC	4	**840**
6	6,5	5,9	12		60	6	2 x DC	4	**360**
6	6,5	5,9	16		60	6	2,7 x DC	4	**460**
6	6,5	5,9	20		60	6	3,3 x DC	4	**560**
8	8,5	7,9	16		60	8	2 x DC	4	**380**
8	8,5	7,9	40		80	8	5 x DC	4	**480**
10	10,5	9,9	20		70	10	2 x DC	4	**100**
10	10,5	9,9	40		90	10	4 x DC	4	**101**
12	12,5	11,9	24		75	12	2 x DC	4	**120**
12	12,5	11,9	40		90	12	3,3 x DC	4	**121**

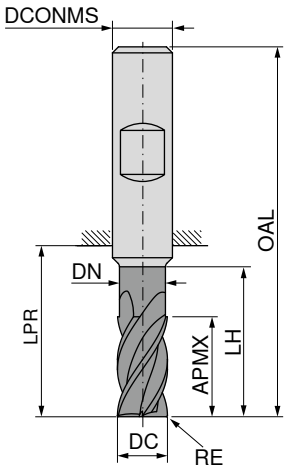
P	○
M	
K	
N	
S	
H	●
O	

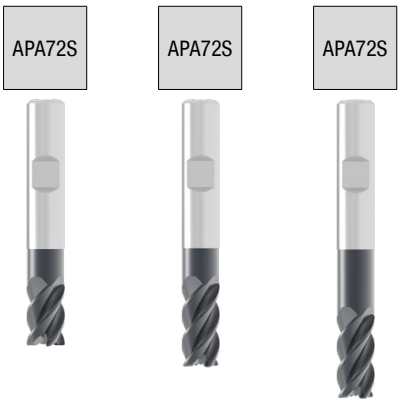
→ v_c/f_z Page 348

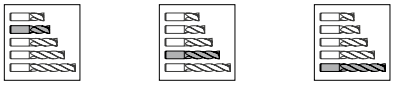
MonsterMill – Plunge milling cutter with corner radius

PCR UNI | λ_s=36° 38° γ_s= 8° | ZEFP | HPC









DIN 6527 | DIN 6527 | DIN 6527

HB | HB | HB

DC f8 mm	RE ±0,03 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 613 ...	52 614 ...	52 615 ...
5,0	0,20	9			18	54	6	4	05000		
5,0	0,20	13	4,8	19	21	57	6	4		05000	
5,0	0,20	13	4,8	24	26	62	6	4			05000
5,7	0,20	10			18	54	6	4	057		
5,7	0,20	13	5,5	19	21	57	6	4		057	
5,7	0,20	13	5,5	24	26	62	6	4			057
6,0	0,20	10			18	54	6	4	060		
6,0	0,20	13	5,8	19	21	57	6	4		060	
6,0	0,20	13	5,8	24	26	62	6	4			060
6,7	0,20	11			22	58	8	4	067		
6,7	0,20	16	6,5	25	27	63	8	4		067	
6,7	0,20	16	6,4	30	32	68	8	4			067
7,0	0,20	11			22	58	8	4	070		
7,0	0,20	16	6,8	25	27	63	8	4		070	
7,0	0,20	16	6,7	30	32	68	8	4			070
7,7	0,20	12			22	58	8	4	077		
7,7	0,20	19	7,5	25	27	63	8	4		077	
7,7	0,20	21	7,4	30	32	68	8	4			077
8,0	0,20	12			22	58	8	4	080		
8,0	0,20	19	7,8	25	27	63	8	4		080	
8,0	0,20	21	7,7	30	32	68	8	4			080
8,7	0,32	13			26	66	10	4	087		
8,7	0,32	19	8,5	30	32	72	10	4		087	
8,7	0,32	22	8,4	38	40	80	10	4			087
9,0	0,32	13			26	66	10	4	090		
9,0	0,32	19	8,8	30	32	72	10	4		090	
9,0	0,32	22	8,7	38	40	80	10	4			090
9,7	0,32	14			26	66	10	4	097		
9,7	0,32	22	9,5	30	32	72	10	4		097	
9,7	0,32	22	9,4	38	40	80	10	4			097
10,0	0,32	14			26	66	10	4	100		
10,0	0,32	22	9,8	30	32	72	10	4		100	
10,0	0,32	22	9,7	38	40	80	10	4			100
11,7	0,32	16			28	73	12	4	117		
11,7	0,32	26	11,5	36	38	83	12	4		117	
11,7	0,32	26	11,3	46	48	93	12	4			117
12,0	0,32	16			28	73	12	4	120		
12,0	0,32	26	11,8	36	38	83	12	4		120	
12,0	0,32	26	11,6	46	48	93	12	4			120
13,7	0,32	18			30	75	14	4	137		
P									●	●	●
M									○	○	○
K									●	●	●
N											
S											
H											
O											

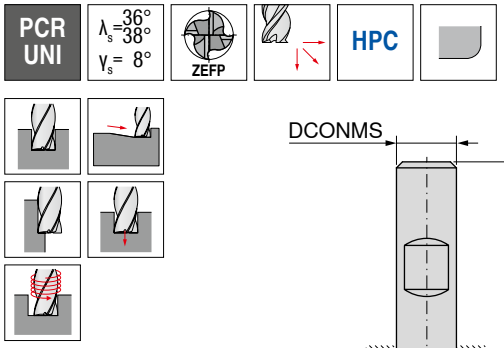
→ v_c/f_z Page 368–371

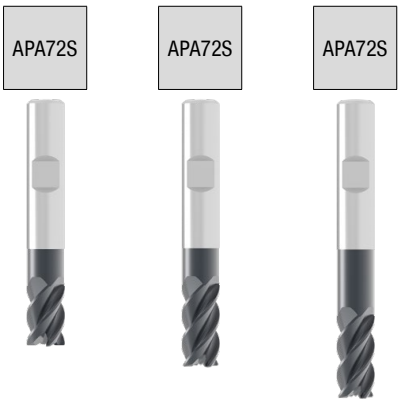
14

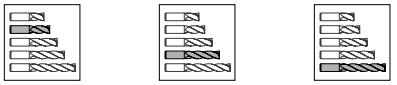
Continued on next page

MonsterMill – Plunge milling cutter with corner radius

PCR UNI | λ_s=36° 38° γ_s= 8° | ZEFP | HPC







DIN 6527 | DIN 6527 | DIN 6527

HB | HB | HB

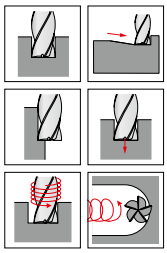
DC f8 mm	RE ±0,03 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 613 ...	52 614 ...	52 615 ...
13,7	0,32	26	13,5	36	38	83	14	4		137	
13,7	0,32	26	13,3	52	54	99	14	4			137
14,0	0,32	18			30	75	14	4	140		
14,0	0,32	26	13,8	36	38	83	14	4		140	
14,0	0,32	26	13,6	52	54	99	14	4			140
15,5	0,32	22			34	82	16	4	155		
15,5	0,32	32	15,3	42	44	92	16	4		155	
15,5	0,32	36	15,0	58	60	108	16	4			155
16,0	0,32	22			34	82	16	4	160		
16,0	0,32	32	15,8	42	44	92	16	4		160	
16,0	0,32	36	15,5	58	60	108	16	4			160
17,5	0,32	24			36	84	18	4	175		
17,5	0,32	32	17,3	42	44	92	18	4		175	
17,5	0,32	36	17,0	67	69	117	18	4			175
18,0	0,32	24			36	84	18	4	180		
18,0	0,32	32	17,8	42	44	92	18	4		180	
18,0	0,32	36	17,5	67	69	117	18	4			180
19,5	0,50	26			42	92	20	4	195		
19,5	0,50	38	19,3	52	54	104	20	4		195	
19,5	0,50	41	19,0	74	76	126	20	4			195
20,0	0,50	26			42	92	20	4	200		
20,0	0,50	38	19,8	52	54	104	20	4		200	
20,0	0,50	41	19,5	74	76	126	20	4			200
P									●	●	●
M									○	○	○
K									●	●	●
N											
S											
H											
O											

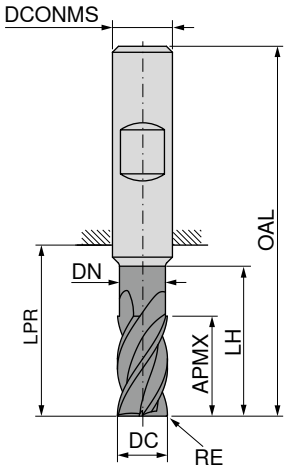
→ v_c/f_z Page 368-371

MonsterMill – Plunge milling cutter with corner radius

- suitable for trochoidal milling
- Chip breaker 0.9 x DC
- Cutting depth: 3 x DC

PCR UNI | λ_s=36° γ_s=10° | ZEFP | HPC





NEW

APA72S





DIN 6527

HB 

52 619 ...

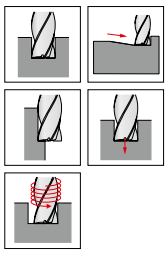
DC f8 mm	RE ±0,03 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
5	0,20	17	4,8	24	26	62	6	4	**05202**
6	0,20	17	5,8	25	26	62	6	4	**06202**
8	0,20	24	7,7	30	32	68	8	4	**08202**
10	0,32	30	9,7	35	40	80	10	4	**10203**
12	0,32	36	11,6	45	48	93	12	4	**12203**
14	0,32	42	13,6	50	54	99	14	4	**14203**
16	0,32	48	15,5	56	60	108	16	4	**16203**
18	0,32	54	17,5	67	69	117	18	4	**18203**
20	0,50	60	19,5	70	76	126	20	4	**20205**

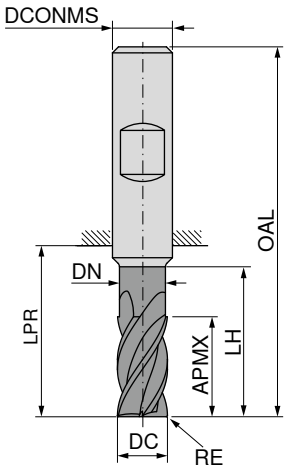
P	●
M	○
K	●
N	
S	
H	
O	

→ v_c/f_z Page 368–371

MonsterMill – Plunge milling cutter with corner radius

PCR ALU | λ_s=36° γ_s=13° | ZEFP | HPC










DIN 6527 | HB

DIN 6527 | HB

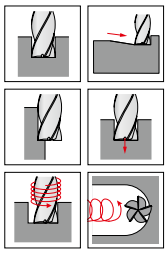
DC f8 mm	RE ±0,03 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 616 ...	52 617 ...
5,0	0,20	13	4,8	19	21	57	6	4	050	
5,0	0,20	13	4,8	24	26	62	6	4		050
5,7	0,20	13	5,5	19	21	57	6	4	057	
5,7	0,20	13	5,5	24	26	62	6	4		057
6,0	0,20	13	5,8	19	21	57	6	4	060	
6,0	0,20	13	5,8	24	26	62	6	4		060
6,7	0,20	16	6,5	25	27	63	8	4	067	
6,7	0,20	16	6,4	30	32	68	8	4		067
7,0	0,20	16	6,8	25	27	63	8	4	070	
7,0	0,20	16	6,7	30	32	68	8	4		070
7,7	0,20	19	7,5	25	27	63	8	4	077	
7,7	0,20	21	7,4	30	32	68	8	4		077
8,0	0,20	19	7,8	25	27	63	8	4	080	
8,0	0,20	21	7,7	30	32	68	8	4		080
8,7	0,32	19	8,5	30	32	72	10	4	087	
8,7	0,32	22	8,4	38	40	80	10	4		087
9,0	0,32	19	8,8	30	32	72	10	4	090	
9,0	0,32	22	8,7	38	40	80	10	4		090
9,7	0,32	22	9,5	30	32	72	10	4	097	
9,7	0,32	22	9,4	38	40	80	10	4		097
10,0	0,32	22	9,8	30	32	72	10	4	100	
10,0	0,32	22	9,7	38	40	80	10	4		100
11,7	0,32	26	11,5	36	38	83	12	4	117	
11,7	0,32	26	11,3	46	48	93	12	4		117
12,0	0,32	26	11,8	36	38	83	12	4	120	
12,0	0,32	26	11,6	46	48	93	12	4		120
13,7	0,32	26	13,5	36	38	83	14	4	137	
13,7	0,32	26	13,3	52	54	99	14	4		137
14,0	0,32	26	13,8	36	38	83	14	4	140	
14,0	0,32	26	13,6	52	54	99	14	4		140
15,5	0,32	32	15,3	42	44	92	16	4	155	
15,5	0,32	36	15,0	58	60	108	16	4		155
16,0	0,32	32	15,8	42	44	92	16	4	160	
16,0	0,32	36	15,5	58	60	108	16	4		160
17,5	0,32	32	17,3	42	44	92	18	4	175	
17,5	0,32	36	17,0	67	69	117	18	4		175
18,0	0,32	32	17,8	42	44	92	18	4	180	
18,0	0,32	36	17,5	67	69	117	18	4		180
19,5	0,50	38	19,3	52	54	104	20	4	195	
19,5	0,50	41	19,0	74	76	126	20	4		195
20,0	0,50	38	19,8	52	54	104	20	4	200	
20,0	0,50	41	19,5	74	76	126	20	4		200
P										
M										
K										
N									●	●
S										
H										
O										

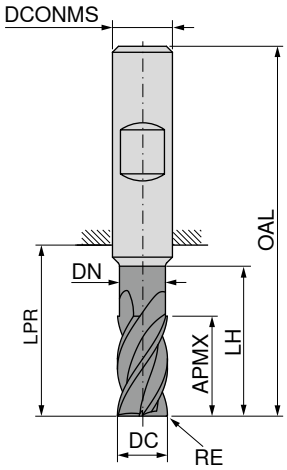
→ v_c/f_z Page 372+373

MonsterMill – Plunge milling cutter with corner radius

- suitable for trochoidal milling
- Chip breaker 0.9 x DC
- Cutting depth: 3 x DC

PCR ALU | λ_s=36° γ_s=13° | ZEFP | HPC





NEW

DLC

DRAGONSKIN





DIN 6527

HB 

52 618 ...

DC $_{f8}$ mm	RE $_{\pm 0,03}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	
5	0,20	17	4,8	24	26	62	6	4	**05202**
6	0,20	18	5,8	25	26	62	6	4	**06202**
8	0,20	24	7,7	30	32	68	8	4	**08202**
10	0,32	30	9,7	35	40	80	10	4	**10203**
12	0,32	36	11,6	45	48	93	12	4	**12203**
14	0,32	42	13,6	50	54	99	14	4	**14203**
16	0,32	48	15,5	56	60	108	16	4	**16203**
18	0,32	54	17,5	67	69	117	18	4	**18203**
20	0,50	60	19,5	70	76	126	20	4	**20205**

P	
M	
K	
N	●
S	
H	
O	

→ v_c/f_z Page 372–375

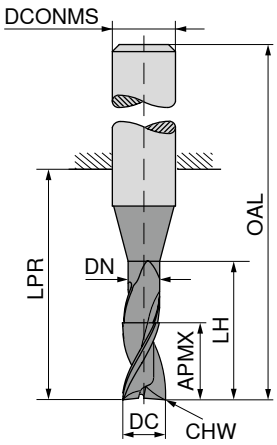
14

MonsterMill – Rough milling cutter

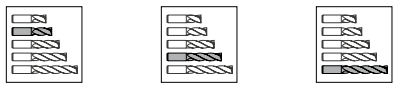
▲ Cutting edges with irregular pitch

MCR | λ_s=45° γ_s=15° | ZEFP | HPC









Factory standard | Factory standard | Factory standard

HB | HB | HB

DC $_{h11}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	CHW mm	ZEFP	52 752 ...	52 752 ...	52 752 ...
1	1,5	0,9	3	10	38	3	0,09	3	010 [1]		
2	3,0	1,9	8	21	57	6	0,17	3	020		
3	5,0	2,9	14	21	57	6	0,17	3	030		
3	8,0	2,9	14	21	57	6	0,17	3		031	
3	5,0	2,9	19	26	62	6	0,17	3			032
4	8,0	3,8	18	21	57	6	0,17	3	040		
4	11,0	3,8	18	21	57	6	0,17	3		041	
4	8,0	3,8	23	26	62	6	0,17	3			042
5	9,0	4,8	19	21	57	6	0,17	3	050		
5	13,0	4,8	19	21	57	6	0,17	3		051	
5	9,0	4,8	24	26	62	6	0,17	3			052
6	10,0	5,8	20	21	57	6	0,17	4	060		
6	13,0	5,8	20	21	57	6	0,17	4		061	
6	10,0	5,8	25	26	62	6	0,17	4			062
8	12,0	7,7	25	27	63	8	0,28	4	080		
8	19,0	7,7	25	27	63	8	0,28	4		081	
8	12,0	7,7	30	32	68	8	0,28	4			082
10	15,0	9,5	30	32	72	10	0,28	4	100		
10	22,0	9,5	30	32	72	10	0,28	4		101	
10	15,0	9,5	35	40	80	10	0,28	4			102
12	18,0	11,5	35	38	83	12	0,28	4	120		
12	26,0	11,5	35	38	83	12	0,28	4		121	
12	18,0	11,5	45	48	93	12	0,28	4			122
14	21,0	13,5	35	38	83	14	0,28	4	140		
14	26,0	13,5	35	38	83	14	0,28	4		141	
14	21,0	13,5	50	54	99	14	0,28	4			142
16	24,0	15,5	40	44	92	16	0,43	4	160		
16	32,0	15,5	40	44	92	16	0,43	4		161	
16	24,0	15,5	55	60	108	16	0,43	4			162
20	30,0	19,5	50	54	104	20	0,43	4	200		
20	38,0	19,5	50	54	104	20	0,43	4		201	
20	30,0	19,5	70	76	126	20	0,43	4			202
P									●	●	●
M									○	○	○
K									●	●	●
N									○	○	○
S									○	○	○
H									○	○	○
O											

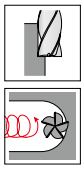
1) DIN 6535 HA Shank

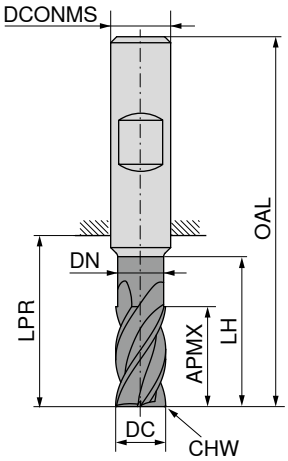
→ v_c/f_z Page 376–379

CircularLine – End milling cutter

- Chip breaker 0.9 x DC
- 53 585 ... Cutting depth: 2 x DC
- 53 587 ... Cutting depth: 3 x DC

CCR UNI | λ_s=30° γ_s= 8° | ZEFP | HPC







Factory standard | Factory standard

HB | HB

DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	53 585 ...	53 587 ...
6	13	5,8	19	21	57	6	0,2	6	060	
6	19	5,8	25	27	63	6	0,2	6		060
8	21	7,7	25	27	63	8	0,2	6	080	
8	25	7,7	33	35	71	8	0,2	6		080
10	22	9,7	30	32	72	10	0,2	6	100	
10	31	9,7	41	43	83	10	0,2	6		100
12	26	11,6	36	38	83	12	0,2	6	120	
12	37	11,6	47	49	94	12	0,2	6		120
14	26	13,6	36	38	83	14	0,2	6	14000	
14	43	13,6	55	59	104	14	0,2	6		14000
16	36	15,5	42	44	92	16	0,2	6	160	
16	49	15,5	61	63	111	16	0,2	6		160
18	36	17,5	42	44	92	18	0,2	6	18000	
18	55	17,5	69	73	121	18	0,2	6		18000
20	41	19,5	52	54	104	20	0,2	6	200	
20	61	19,5	75	77	127	20	0,2	6		200
P									●	●
M									○	○
K									●	●
N										
S									○	○
H										
O										

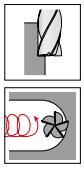
→ v_c/f_z Page 380+381

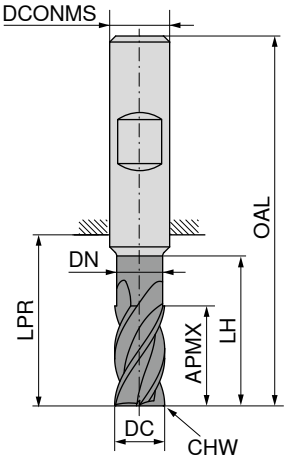
14

CircularLine – End milling cutter

- Chip breaker 0,9 x DC
- Cutting depth: 4 x DC

CCR UNI | λ_s=35° 36° γ_s= 8° | ZEFP | HPC





DPX72S

DRAGONSKIN





Factory standard

HB 

53 589 ...

DC $_{e8}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	CHW mm	ZEFP	
6	25	5,8	29	31	67	6	0,2	5	**060**
8	33	7,7	38	40	76	8	0,2	5	**080**
10	41	9,7	47	49	89	10	0,2	5	**100**
12	49	11,6	55	57	102	12	0,2	5	**120**
14	57	13,6	64	68	113	14	0,2	5	**14000**
16	65	15,5	73	75	123	16	0,2	5	**160**
18	73	17,5	82	86	134	18	0,2	5	**18000**
20	82	19,5	91	93	143	20	0,2	5	**200**

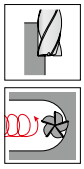
P	●
M	○
K	●
N	
S	○
H	
O	

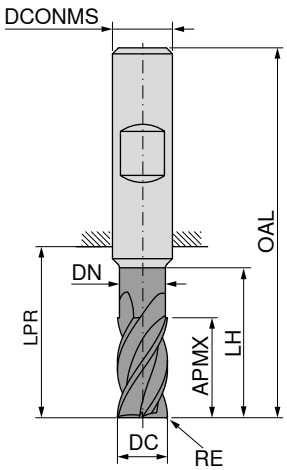
→ v_c/f_z Page 382+383

CircularLine – End milling cutter

- ▲ Chip breaker 0.9 x DC
- ▲ Cutting depth: 2 x DC

CCR UNI | λ_s=30° γ_s= 8° | ZEFP | HPC





DPX72S

DRAGONSKIN





Factory standard

HB

53 586 ...

DC $_{e8}$ mm	RE $_{\pm 0,05}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	
6	0,2	13	5,8	19	21	57	6	6	**06002**
6	1,0	13	5,8	19	21	57	6	6	**06010**
6	1,5	13	5,8	19	21	57	6	6	**06015**
8	0,2	21	7,7	25	27	63	8	6	**08002**
8	1,0	21	7,7	25	27	63	8	6	**08010**
8	1,5	21	7,7	25	27	63	8	6	**08015**
8	2,0	21	7,7	25	27	63	8	6	**08020**
10	0,2	22	9,7	30	32	72	10	6	**10002**
10	1,0	22	9,7	30	32	72	10	6	**10010**
10	1,5	22	9,7	30	32	72	10	6	**10015**
10	1,6	22	9,7	30	32	72	10	6	**10016**
10	2,0	22	9,7	30	32	72	10	6	**10020**
12	0,2	26	11,6	36	38	83	12	6	**12002**
12	1,0	26	11,6	36	38	83	12	6	**12010**
12	1,5	26	11,6	36	38	83	12	6	**12015**
12	1,6	26	11,6	36	38	83	12	6	**12016**
12	2,0	26	11,6	36	38	83	12	6	**12020**
12	3,0	26	11,6	36	38	83	12	6	**12030**
14	0,2	30	13,6	36	38	83	14	6	**14002**
14	1,0	30	13,6	36	38	83	14	6	**14010**
14	1,5	30	13,6	36	38	83	14	6	**14015**
14	1,6	30	13,6	36	38	83	14	6	**14016**
14	2,0	30	13,6	36	38	83	14	6	**14020**
14	3,0	30	13,6	36	38	83	14	6	**14030**
16	0,2	36	15,5	42	44	92	16	6	**16002**
16	1,0	36	15,5	42	44	92	16	6	**16010**
16	1,5	36	15,5	42	44	92	16	6	**16015**
16	1,6	36	15,5	42	44	92	16	6	**16016**
16	2,0	36	15,5	42	44	92	16	6	**16020**
16	3,0	36	15,5	42	44	92	16	6	**16030**
16	4,0	36	15,5	42	44	92	16	6	**16040**
18	0,2	38	17,5	42	44	92	18	6	**18002**
18	1,0	38	17,5	42	44	92	18	6	**18010**
18	1,5	38	17,5	42	44	92	18	6	**18015**
18	1,6	38	17,5	42	44	92	18	6	**18016**
18	2,0	38	17,5	42	44	92	18	6	**18020**
18	3,0	38	17,5	42	44	92	18	6	**18030**

P	●
M	○
K	●
N	
S	○
H	
O	

→ v_c/f_z Page 380+381

14

Continued on next page

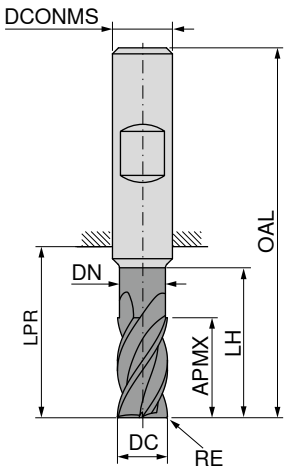
CircularLine – End milling cutter

- Chip breaker 0.9 x DC
- Cutting depth: 2 x DC

CCR UNI | λ_s=30° γ_s= 8° | ZEFP | HPC







DPX72S

DRAGONSKIN





Factory standard

HB 

53 586 ...

DC $_{e8}$ mm	RE $_{\pm 0,05}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	
18	4,0	38	17,5	42	44	92	18	6	**18040**
20	0,2	41	19,5	52	54	104	20	6	**20002**
20	1,0	41	19,5	52	54	104	20	6	**20010**
20	1,5	41	19,5	52	54	104	20	6	**20015**
20	1,6	41	19,5	52	54	104	20	6	**20016**
20	2,0	41	19,5	52	54	104	20	6	**20020**
20	3,0	41	19,5	52	54	104	20	6	**20030**
20	4,0	41	19,5	52	54	104	20	6	**20040**

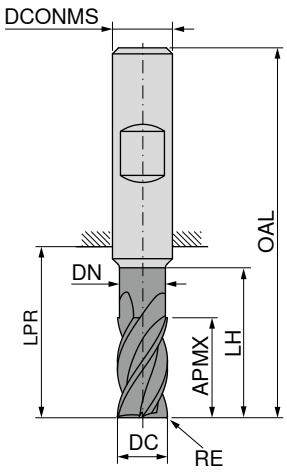
P	●
M	○
K	●
N	
S	○
H	
O	

→ v_c/f_z Page 380+381

CircularLine – End milling cutter

- Chip breaker 0.9 x DC
- Cutting depth: 3 x DC

CCR UNI | λ_s=30° γ_s= 8° | ZEFP | HPC



NEW

DPX72S

DRAGONSKIN



Factory standard

HB

53 642 ...

DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
6	0,2	19	5,8	25	27	63	6	6	**06202**
6	1,0	19	5,8	25	27	63	6	6	**06210**
6	1,5	19	5,8	25	27	63	6	6	**06215**
8	0,2	25	7,7	33	35	71	8	6	**08202**
8	1,0	25	7,7	33	35	71	8	6	**08210**
8	1,5	25	7,7	33	35	71	8	6	**08215**
8	2,0	25	7,7	33	35	71	8	6	**08220**
10	0,2	31	9,7	41	43	83	10	6	**10202**
10	1,0	31	9,7	41	43	83	10	6	**10210**
10	1,5	31	9,7	41	43	83	10	6	**10215**
10	1,6	31	9,7	41	43	83	10	6	**10216**
10	2,0	31	9,7	41	43	83	10	6	**10220**
12	0,2	37	11,6	47	49	94	12	6	**12202**
12	1,0	37	11,6	47	49	94	12	6	**12210**
12	1,5	37	11,6	47	49	94	12	6	**12215**
12	1,6	37	11,6	47	49	94	12	6	**12216**
12	2,0	37	11,6	47	49	94	12	6	**12220**
12	3,0	37	11,6	47	49	94	12	6	**12230**
14	0,2	43	13,6	55	59	104	14	6	**14202**
14	1,0	43	13,6	55	59	104	14	6	**14210**
14	1,5	43	13,6	55	59	104	14	6	**14215**
14	1,6	43	13,6	55	59	104	14	6	**14216**
14	2,0	43	13,6	55	59	104	14	6	**14220**
14	3,0	43	13,6	55	59	104	14	6	**14230**
16	0,2	49	15,5	61	63	111	16	6	**16202**
16	1,0	49	15,5	61	63	111	16	6	**16210**
16	1,5	49	15,5	61	63	111	16	6	**16215**
16	1,6	49	15,5	61	63	111	16	6	**16216**
16	2,0	49	15,5	61	63	111	16	6	**16220**
16	3,0	49	15,5	61	63	111	16	6	**16230**
16	4,0	49	15,5	61	63	111	16	6	**16240**
18	0,2	55	17,5	69	73	121	18	6	**18202**
18	1,0	55	17,5	69	73	121	18	6	**18210**
18	1,5	55	17,5	69	73	121	18	6	**18215**
18	1,6	55	17,5	69	73	121	18	6	**18216**
18	2,0	55	17,5	69	73	121	18	6	**18220**

P	●
M	○
K	●
N	
S	○
H	
O	

→ v_c/f_z Page 380+381

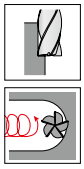
14

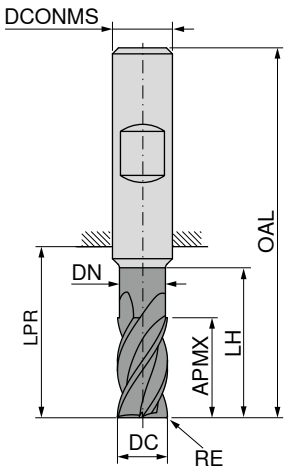
Continued on next page

CircularLine – End milling cutter

- ▲ Chip breaker 0.9 x DC
- ▲ Cutting depth: 3 x DC

CCR UNI | λ_s=30° γ_s= 8° | ZEFP | HPC





NEW

DPX72S

DRAGONSKIN





Factory standard

HB 

53 642 ...

DC $_{e8}$ mm	RE $_{\pm 0,05}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	
18	3,0	55	17,5	69	73	121	18	6	**18230**
18	4,0	55	17,5	69	73	121	18	6	**18240**
20	0,2	61	19,5	75	77	127	20	6	**20202**
20	1,0	61	19,5	75	77	127	20	6	**20210**
20	1,5	61	19,5	75	77	127	20	6	**20215**
20	1,6	61	19,5	75	77	127	20	6	**20216**
20	2,0	61	19,5	75	77	127	20	6	**20220**
20	3,0	61	19,5	75	77	127	20	6	**20230**
20	4,0	61	19,5	75	77	127	20	6	**20240**

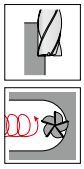
P	●
M	○
K	●
N	
S	○
H	
O	

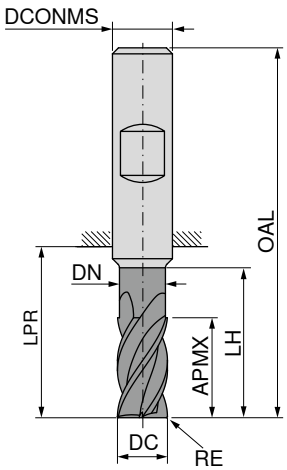
→ v_c/f_z Page 380+381

CircularLine – End milling cutter

- ▲ Chip breaker 0.9 x DC
- ▲ Cutting depth: 4 x DC

CCR UNI | λ_s=35° 36° γ_s= 9° | ZEFP | HPC





DPX72S

DRAGONSKIN





Factory standard

HB

53 593 ...

DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
6	0,2	25	5,8	29	31	67	6	5	**06002**
6	1,0	25	5,8	29	31	67	6	5	**06010**
6	1,5	25	5,8	29	31	67	6	5	**06015**
8	0,2	33	7,7	38	40	76	8	5	**08002**
8	1,0	33	7,7	38	40	76	8	5	**08010**
8	1,5	33	7,7	38	40	76	8	5	**08015**
8	2,0	33	7,7	38	40	76	8	5	**08020**
10	0,2	41	9,7	47	49	89	10	5	**10002**
10	1,0	41	9,7	47	49	89	10	5	**10010**
10	1,5	41	9,7	47	49	89	10	5	**10015**
10	1,6	41	9,7	47	49	89	10	5	**10016**
10	2,0	41	9,7	47	49	89	10	5	**10020**
12	0,2	49	11,6	55	57	102	12	5	**12002**
12	1,0	49	11,6	55	57	102	12	5	**12010**
12	1,5	49	11,6	55	57	102	12	5	**12015**
12	1,6	49	11,6	55	57	102	12	5	**12016**
12	2,0	49	11,6	55	57	102	12	5	**12020**
12	3,0	49	11,6	55	57	102	12	5	**12030**
14	0,2	57	13,6	64	68	113	14	5	**14002**
14	1,0	57	13,6	64	68	113	14	5	**14010**
14	1,5	57	13,6	64	68	113	14	5	**14015**
14	1,6	57	13,6	64	68	113	14	5	**14016**
14	2,0	57	13,6	64	68	113	14	5	**14020**
14	3,0	57	13,6	64	68	113	14	5	**14030**
16	0,2	65	15,5	73	75	123	16	5	**16002**
16	1,0	65	15,5	73	75	123	16	5	**16010**
16	1,5	65	15,5	73	75	123	16	5	**16015**
16	1,6	65	15,5	73	75	123	16	5	**16016**
16	2,0	65	15,5	73	75	123	16	5	**16020**
16	3,0	65	15,5	73	75	123	16	5	**16030**
16	4,0	65	15,5	73	75	123	16	5	**16040**
18	0,2	73	17,5	82	86	134	18	5	**18002**
18	1,0	73	17,5	82	86	134	18	5	**18010**
18	1,5	73	17,5	82	86	134	18	5	**18015**
18	1,6	73	17,5	82	86	134	18	5	**18016**
18	2,0	73	17,5	82	86	134	18	5	**18020**
18	3,0	73	17,5	82	86	134	18	5	**18030**

P	●
M	○
K	●
N	
S	○
H	
O	

→ v_c/f_z Page 382+383

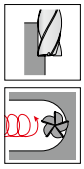
14

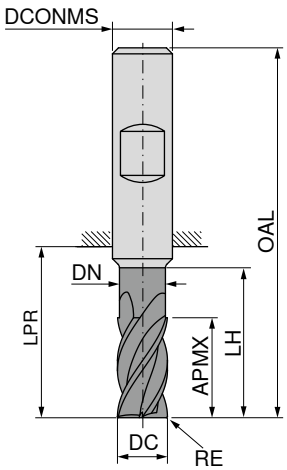
Continued on next page

CircularLine – End milling cutter

- Chip breaker 0.9 x DC
- Cutting depth: 4 x DC

CCR UNI | λ_s=35° 36° γ_s= 9° | ZEFP | HPC





DPX72S

DRAGONSKIN





Factory standard

HB 

53 593 ...

DC $_{e8}$ mm	RE $_{\pm 0,05}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	
18	4,0	73	17,5	82	86	134	18	5	**18040**
20	0,2	82	19,5	91	93	143	20	5	**20002**
20	1,0	82	19,5	91	93	143	20	5	**20010**
20	1,5	82	19,5	91	93	143	20	5	**20015**
20	1,6	82	19,5	91	93	143	20	5	**20016**
20	2,0	82	19,5	91	93	143	20	5	**20020**
20	3,0	82	19,5	91	93	143	20	5	**20030**
20	4,0	82	19,5	91	93	143	20	5	**20040**

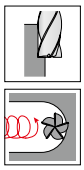
P	●
M	○
K	●
N	
S	○
H	
O	

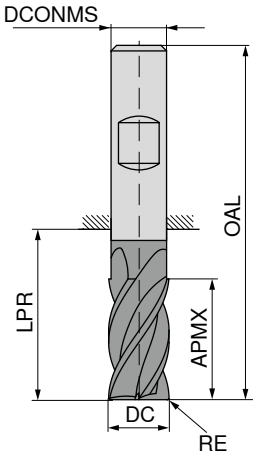
→ v_c/f_z Page 382+383

CircularLine – End milling cutter

- Chip breaker 0.9 x DC
- Cutting depth: 5 x DC

CCR UNI | λ_s=35° 36° γ_s= 9° | ZEFP | HPC





NEW

DPX72S

DRAGONSKIN





Factory standard

HB

53 593 ...

DC $_{e8}$ mm	RE $_{\pm 0,05}$ mm	APMX mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	
6,0	0,2	31	39	75	6	5	**06402**
6,0	1,0	31	39	75	6	5	**06410**
6,0	1,5	31	39	75	6	5	**06415**
8,0	0,2	41	49	85	8	5	**08402**
8,0	1,0	41	49	85	8	5	**08410**
8,0	1,5	41	49	85	8	5	**08415**
8,0	2,0	41	49	85	8	5	**08420**
10,0	0,2	51	60	100	10	5	**10402**
10,0	1,0	51	60	100	10	5	**10410**
10,0	1,5	51	60	100	10	5	**10415**
10,0	1,6	51	60	100	10	5	**10416**
10,0	2,0	51	60	100	10	5	**10420**
12,0	0,2	61	70	115	12	5	**12402**
12,0	1,0	61	70	115	12	5	**12410**
12,0	1,5	61	70	115	12	5	**12415**
12,0	1,6	61	70	115	12	5	**12416**
12,0	2,0	61	70	115	12	5	**12420**
12,0	3,0	61	70	115	12	5	**12430**
14,0	0,2	71	81	126	14	5	**14402**
14,0	1,0	71	81	126	14	5	**14410**
14,0	1,5	71	81	126	14	5	**14415**
14,0	1,6	71	81	126	14	5	**14416**
14,0	2,0	71	81	126	14	5	**14420**
14,0	3,0	71	81	126	14	5	**14430**
16,0	0,2	81	92	140	16	5	**16402**
16,0	1,0	81	92	140	16	5	**16410**
16,0	1,5	81	92	140	16	5	**16415**
16,0	1,6	81	92	140	16	5	**16416**
16,0	2,0	81	92	140	16	5	**16420**
16,0	3,0	81	92	140	16	5	**16430**
16,0	4,0	81	92	140	16	5	**16440**
18,0	0,2	91	102	150	18	5	**18402**
18,0	1,0	91	102	150	18	5	**18410**
18,0	1,5	91	102	150	18	5	**18415**
18,0	1,6	91	102	150	18	5	**18416**

P	●
M	○
K	●
N	
S	○
H	
O	

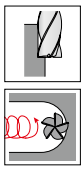
→ v_c/f_z Page 384+385

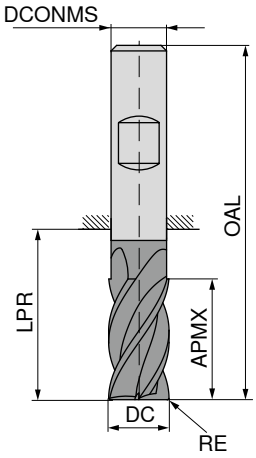
Continued on next page

CircularLine – End milling cutter

- Chip breaker 0.9 x DC
- Cutting depth: 5 x DC

CCR UNI | λ_s=35° 36° γ_s= 9° | ZEFP | HPC





NEW

DPX72S

DRAGONSKIN





Factory standard

HB

53 593 ...

DC e8 mm	RE ±0,05 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
18,0	2,0	91	102	150	18	5	**18420**
18,0	3,0	91	102	150	18	5	**18430**
18,0	4,0	91	102	150	18	5	**18440**
20,0	0,2	102	113	163	20	5	**20402**
20,0	1,0	102	113	163	20	5	**20410**
20,0	1,5	102	113	163	20	5	**20415**
20,0	1,6	102	113	163	20	5	**20416**
20,0	2,0	102	113	163	20	5	**20420**
20,0	3,0	102	113	163	20	5	**20430**
20,0	4,0	102	113	163	20	5	**20440**

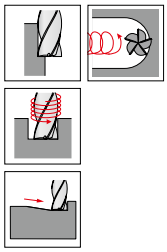
P	●
M	○
K	●
N	
S	○
H	
O	

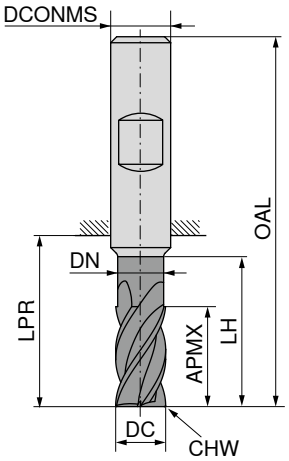
→ v_c/f_z Page 384+385

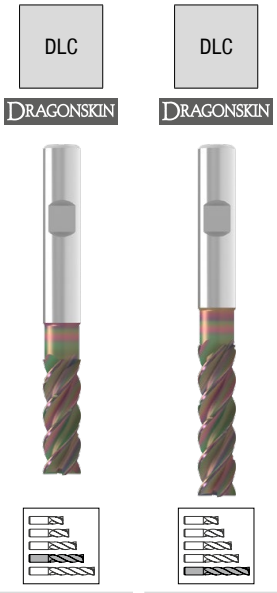
CircularLine – End milling cutter

- Chip breaker 1.8 x DC
- 53 590 ... Cutting depth: 3 x DC
- 53 591 ... Cutting depth: 4 x DC









Factory standard | Factory standard

HB | HB

DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	53 590 ...	53 591 ...
6	19	5,8	24	30	66	6	0,2	4	**060**	
6	25	5,8	30	35	71	6	0,2	4		**060**
8	25	7,7	32	37	73	8	0,2	4	**080**	
8	33	7,7	40	44	80	8	0,2	4		**080**
10	31	9,7	40	49	89	10	0,2	4	**100**	
10	41	9,7	50	55	95	10	0,2	4		**100**
12	37	11,6	48	56	101	12	0,2	4	**120**	
12	49	11,6	60	64	109	12	0,2	4		**120**
14	43	13,0	56	60	105	14	0,2	4	**14000**	
14	57	13,0	70	74	119	14	0,2	4		**14000**
16	49	15,5	64	72	120	16	0,2	4	**160**	
16	65	15,5	80	84	132	16	0,2	4		**160**
18	56	17,0	72	76	124	18	0,2	4	**18000**	
18	74	17,0	90	94	142	18	0,2	4		**18000**
20	62	19,5	80	84	134	20	0,2	4	**200**	
20	82	19,5	100	104	154	20	0,2	4		**200**

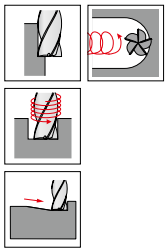
P		
M		
K		
N	●	●
S		
H		
O		

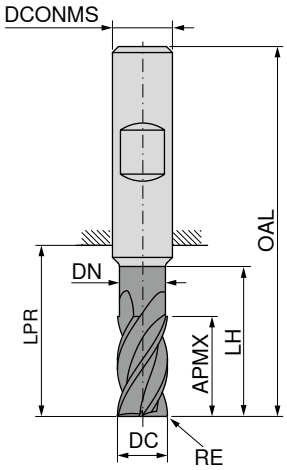
→ v_c/f_z Page 386

CircularLine – End milling cutter

- ▲ Chip breaker 1.8 x DC
- ▲ 53 594 ... Cutting depth: 3 x DC
- ▲ 53 595 ... Cutting depth: 4 x DC









DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 594 ...	53 595 ...
6	0,2	19	5,8	24	30	66	6	4	06002	
6	1,0	19	5,8	24	30	66	6	4	06010	
6	1,5	19	5,8	24	30	66	6	4	06015	
6	0,2	25	5,8	30	35	71	6	4		06002
6	1,0	25	5,8	30	35	71	6	4		06010
6	1,5	25	5,8	30	35	71	6	4		06015
8	0,2	25	7,7	32	37	73	8	4	08002	
8	1,0	25	7,7	32	37	73	8	4	08010	
8	1,5	25	7,7	32	37	73	8	4	08015	
8	2,0	25	7,7	32	37	73	8	4	08020	
8	0,2	33	7,7	40	44	80	8	4		08002
8	1,0	33	7,7	40	44	80	8	4		08010
8	1,5	33	7,7	40	44	80	8	4		08015
8	2,0	33	7,7	40	44	80	8	4		08020
10	0,2	31	9,7	40	49	89	10	4	10002	
10	1,0	31	9,7	40	49	89	10	4	10010	
10	1,5	31	9,7	40	49	89	10	4	10015	
10	1,6	31	9,7	40	49	89	10	4	10016	
10	2,0	31	9,7	40	49	89	10	4	10020	
10	0,2	41	9,7	50	55	95	10	4		10002
10	1,0	41	9,7	50	55	95	10	4		10010
10	1,5	41	9,7	50	55	95	10	4		10015
10	1,6	41	9,7	50	55	95	10	4		10016
10	2,0	41	9,7	50	55	95	10	4		10020
12	0,2	37	11,6	48	56	101	12	4	12002	
12	1,0	37	11,6	48	56	101	12	4	12010	
12	1,5	37	11,6	48	56	101	12	4	12015	
12	1,6	37	11,6	48	56	101	12	4	12016	
12	2,0	37	11,6	48	56	101	12	4	12020	
12	3,0	37	11,6	48	56	101	12	4	12030	
12	0,2	49	11,6	60	64	109	12	4		12002
12	1,0	49	11,6	60	64	109	12	4		12010
12	1,5	49	11,6	60	64	109	12	4		12015
12	1,6	49	11,6	60	64	109	12	4		12016
12	2,0	49	11,6	60	64	109	12	4		12020
12	3,0	49	11,6	60	64	109	12	4		12030

P		
M		
K		
N	●	●
S		
H		
O		

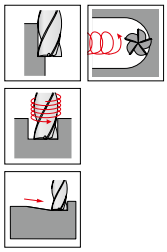
→ v_c/f_z Page 386

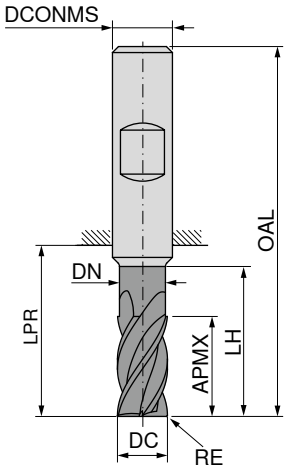
Continued on next page

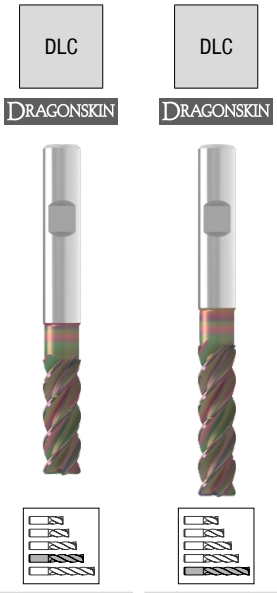
CircularLine – End milling cutter

- ▲ Chip breaker 1.8 x DC
- ▲ 53 594 ... Cutting depth: 3 x DC
- ▲ 53 595 ... Cutting depth: 4 x DC









Factory standard — HB

Factory standard — HB

DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 594 ...	53 595 ...
14	0,2	43	13,0	56	60	105	14	4	14002	
14	1,0	43	13,0	56	60	105	14	4	14010	
14	1,5	43	13,0	56	60	105	14	4	14015	
14	1,6	43	13,0	56	60	105	14	4	14016	
14	2,0	43	13,0	56	60	105	14	4	14020	
14	3,0	43	13,0	56	60	105	14	4	14030	
14	0,2	57	13,0	70	74	119	14	4		14002
14	1,0	57	13,0	70	74	119	14	4		14010
14	1,5	57	13,0	70	74	119	14	4		14015
14	1,6	57	13,0	70	74	119	14	4		14016
14	2,0	57	13,0	70	74	119	14	4		14020
14	3,0	57	13,0	70	74	119	14	4		14030
16	0,2	49	15,5	64	72	120	16	4	16002	
16	1,0	49	15,5	64	72	120	16	4	16010	
16	1,5	49	15,5	64	72	120	16	4	16015	
16	1,6	49	15,5	64	72	120	16	4	16016	
16	2,0	49	15,5	64	72	120	16	4	16020	
16	3,0	49	15,5	64	72	120	16	4	16030	
16	4,0	49	15,5	64	72	120	16	4	16040	
16	0,2	65	15,5	80	84	132	16	4		16002
16	1,0	65	15,5	80	84	132	16	4		16010
16	1,5	65	15,5	80	84	132	16	4		16015
16	1,6	65	15,5	80	84	132	16	4		16016
16	2,0	65	15,5	80	84	132	16	4		16020
16	3,0	65	15,5	80	84	132	16	4		16030
16	4,0	65	15,5	80	84	132	16	4		16040
18	0,2	56	17,0	72	76	124	18	4	18002	
18	1,0	56	17,0	72	76	124	18	4	18010	
18	1,5	56	17,0	72	76	124	18	4	18015	
18	1,6	56	17,0	72	76	124	18	4	18016	
18	2,0	56	17,0	72	76	124	18	4	18020	
18	3,0	56	17,0	72	76	124	18	4	18030	
18	4,0	56	17,0	72	76	124	18	4	18040	
18	0,2	74	17,0	90	94	142	18	4		18002
18	1,0	74	17,0	90	94	142	18	4		18010
18	1,5	74	17,0	90	94	142	18	4		18015

	53 594 ...	53 595 ...
P		
M		
K		
N	●	●
S		
H		
O		

→ v_c/f_z Page 386

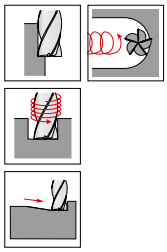
14

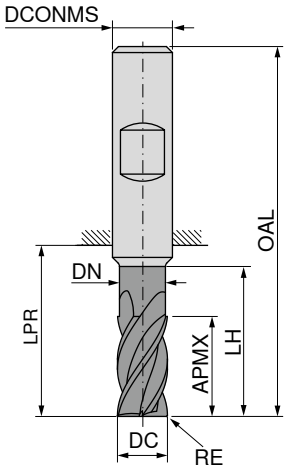
Continued on next page

CircularLine – End milling cutter

- Chip breaker 1.8 x DC
- 53 594 ... Cutting depth: 3 x DC
- 53 595 ... Cutting depth: 4 x DC









DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 594 ...	53 595 ...
18	1,6	74	17,0	90	94	142	18	4		**18016**
18	2,0	74	17,0	90	94	142	18	4		**18020**
18	3,0	74	17,0	90	94	142	18	4		**18030**
18	4,0	74	17,0	90	94	142	18	4		**18040**
20	0,2	62	19,5	80	84	134	20	4	**20002**	
20	1,0	62	19,5	80	84	134	20	4	**20010**	
20	1,5	62	19,5	80	84	134	20	4	**20015**	
20	1,6	62	19,5	80	84	134	20	4	**20016**	
20	2,0	62	19,5	80	84	134	20	4	**20020**	
20	3,0	62	19,5	80	84	134	20	4	**20030**	
20	4,0	62	19,5	80	84	134	20	4	**20040**	
20	0,2	82	19,5	100	104	154	20	4		**20002**
20	1,0	82	19,5	100	104	154	20	4		**20010**
20	1,5	82	19,5	100	104	154	20	4		**20015**
20	1,6	82	19,5	100	104	154	20	4		**20016**
20	2,0	82	19,5	100	104	154	20	4		**20020**
20	3,0	82	19,5	100	104	154	20	4		**20030**
20	4,0	82	19,5	100	104	154	20	4		**20040**

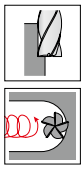
P		
M		
K		
N	●	●
S		
H		
O		

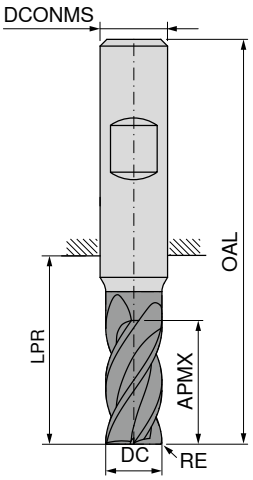
→ v_c/f_z Page 386

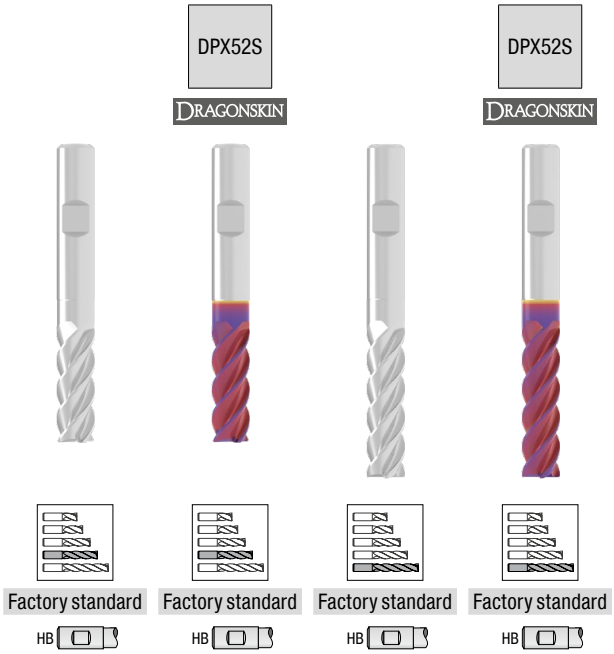
CircularLine – End milling cutter with corner radius

- ▲ Chip breaker 0.9 x DC
- ▲ 52 509 ... / 52 510 ... Long cutting depth version: 3 x DC
- ▲ 52 509 ... / 52 510 ... Extra-long cutting depth version: 4 x DC

CCR Ti | λ_s=40° γ_s=10° | ZEFP | HPC







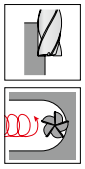
DC e8 mm	RE ±0,01 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	Factory standard HB 52 509 ...	Factory standard HB 52 510 ...	Factory standard HB 52 509 ...	Factory standard HB 52 510 ...
6	0,1	18	29	65	6	5	**06000**	**06000**		
6	0,1	24	31	67	6	5			**06100**	**06100**
8	0,2	24	34	70	8	5	**08000**	**08000**		
8	0,2	32	44	80	8	5			**08100**	**08100**
10	0,2	30	40	80	10	5	**10000**	**10000**		
10	0,2	40	50	90	10	5			**10100**	**10100**
12	0,2	36	50	95	12	5	**12000**	**12000**		
12	0,2	48	55	100	12	5			**12100**	**12100**
16	0,2	48	62	110	16	5	**16000**	**16000**		
16	0,3	64	72	120	16	5			**16100**	**16100**
20	0,3	60	75	125	20	5	**20000**	**20000**		
20	0,3	80	90	140	20	5			**20100**	**20100**
P							○	○	○	○
M							○	○	○	○
K										
N										
S							●	●	●	●
H										
O										

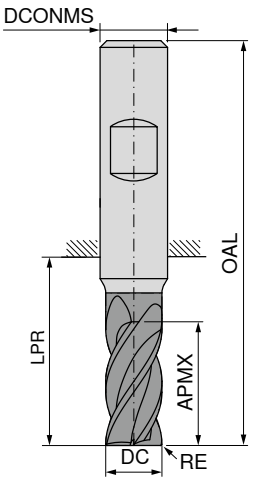
→ v_c/f_z Page 388+389

CircularLine – End milling cutter with corner radius

- Chip breaker 0.9 x DC
- Cutting depth: 3 x DC

CCR H | λ_s= 60° γ_s= -6° | ZEFP | 45–70 HRC





DPX62S

DRAGONSKIN





Factory standard

HB

53 596 ...

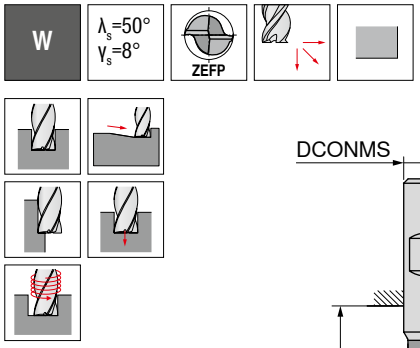
DC e8 mm	RE ±0,03 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
6	0,2	19	24	60	6	6	**06002**
6	1,0	19	24	60	6	6	**06010**
8	0,2	25	31	67	8	6	**08002**
8	1,0	25	31	67	8	6	**08010**
10	0,2	31	37	77	10	6	**10002**
10	1,0	31	37	77	10	6	**10010**
10	1,5	31	37	77	10	6	**10015**
12	0,2	37	43	88	12	6	**12002**
12	1,0	37	43	88	12	6	**12010**
12	1,5	37	43	88	12	6	**12015**
12	2,0	37	43	88	12	6	**12020**
12	3,0	37	43	88	12	6	**12030**
16	0,2	49	56	104	16	6	**16002**
16	1,0	49	56	104	16	6	**16010**
16	1,5	49	56	104	16	6	**16015**
16	2,0	49	56	104	16	6	**16020**
16	3,0	49	56	104	16	6	**16030**
20	0,2	61	68	118	20	6	**20002**
20	1,0	61	68	118	20	6	**20010**
20	1,5	61	68	118	20	6	**20015**
20	2,0	61	68	118	20	6	**20020**
20	3,0	61	68	118	20	6	**20030**

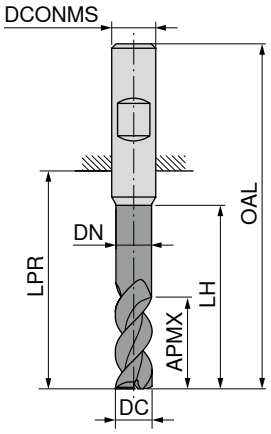
P	
M	
K	
N	
S	
H	●
O	

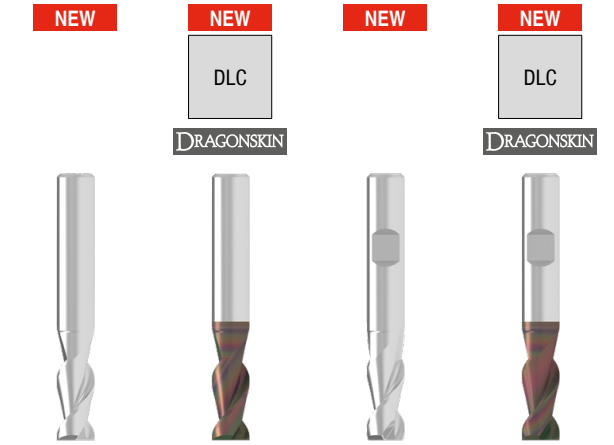
→ v_c/f_z Page 387

AluLine – End milling cutter

▲ With polished chip flutes









	Factory standard	Factory standard	Factory standard	Factory standard
	HA	HA	HB	HB
	53 623 ...	53 625 ...	53 624 ...	53 626 ...

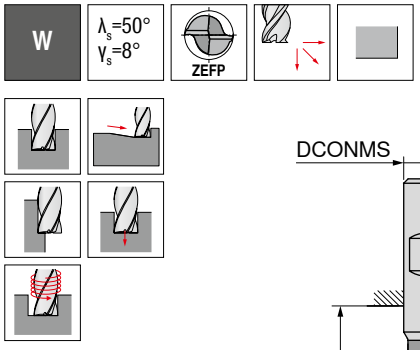
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP				
5,0	10,5	4,8	15	22	58	6	2	05100	05100	05100	05100
5,5	13,0	5,3	18	22	58	6	2	05600	05600	05600	05600
6,0	13,0	5,8	18	22	58	6	2	06100	06100	06100	06100
6,5	17,0	6,2	24	28	64	8	2	06600	06600	06600	06600
7,0	17,0	6,7	24	28	64	8	2	07100	07100	07100	07100
7,5	17,0	7,2	24	28	64	8	2	07600	07600	07600	07600
8,0	17,0	7,7	24	28	64	8	2	08100	08100	08100	08100
8,5	21,0	8,2	30	34	74	10	2	08600	08600	08600	08600
9,0	21,0	8,7	30	34	74	10	2	09100	09100	09100	09100
9,5	21,0	9,2	30	34	74	10	2	09600	09600	09600	09600
10,0	21,0	9,7	30	34	74	10	2	10100	10100	10100	10100
10,5	25,0	10,1	36	40	85	12	2	10600	10600	10600	10600
11,0	25,0	10,6	36	40	85	12	2	11100	11100	11100	11100
11,5	25,0	11,1	36	40	85	12	2	11600	11600	11600	11600
12,0	25,0	11,6	36	40	85	12	2	12100	12100	12100	12100
12,5	29,0	12,1	42	46	91	14	2			12600	12600
13,0	29,0	12,6	42	46	91	14	2			13100	13100
13,5	29,0	13,1	42	46	91	14	2			13600	13600
14,0	29,0	13,6	42	46	91	14	2			14100	14100
14,5	33,0	14,0	48	52	100	16	2			14600	14600
15,0	33,0	14,5	48	52	100	16	2			15100	15100
15,5	33,0	15,0	48	52	100	16	2			15600	15600
16,0	33,0	15,5	48	52	100	16	2			16100	16100
16,5	38,0	16,0	54	58	106	18	2			16600	16600
17,0	38,0	16,5	54	58	106	18	2			17100	17100
17,5	38,0	17,0	54	58	106	18	2			17600	17600
18,0	38,0	17,5	54	58	106	18	2			18100	18100
18,5	42,0	18,0	60	64	114	20	2			18600	18600
19,0	42,0	18,5	60	64	114	20	2			19100	19100
19,5	42,0	19,0	60	64	114	20	2			19600	19600
20,0	42,0	19,5	60	64	114	20	2			20100	20100

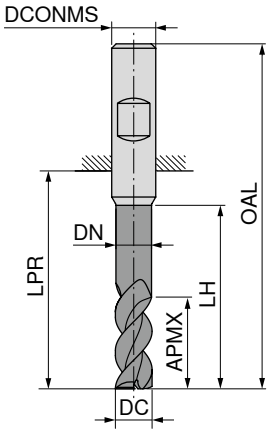
P				
M				
K				
N	●	●	●	●
S				
H				
O				

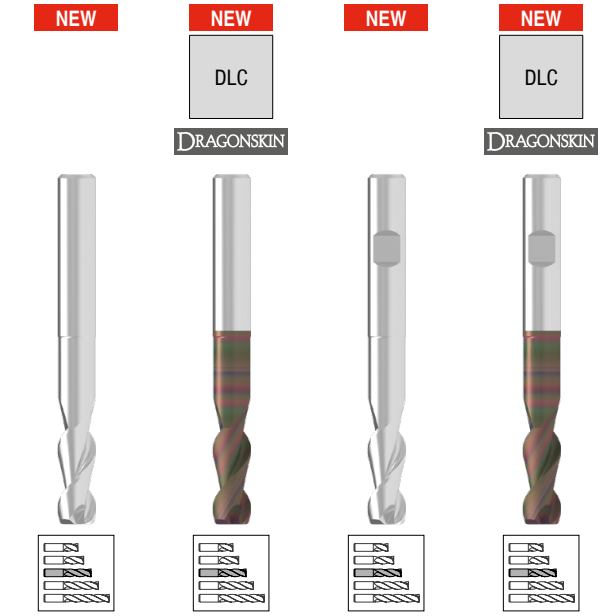
→ v_c/f_z Page 390+391

AluLine – End milling cutter

▲ With polished chip flutes





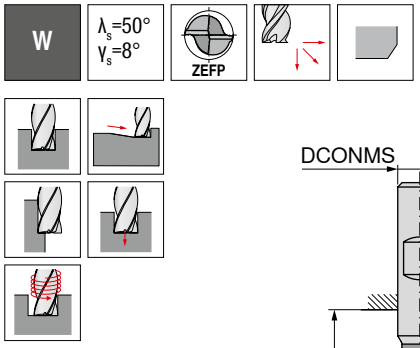


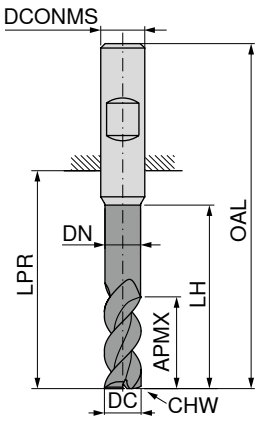
								Factory standard		Factory standard		Factory standard		Factory standard	
								HA		HA		HB		HB	
								53 633 ...		53 635 ...		53 634 ...		53 636 ...	
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP								
2,0	5,5	1,8	10,0	19	55	6	2		02300		02300		02300		02300
2,5	6,5	2,3	12,5	22	58	6	2		02800		02800		02800		02800
3,0	8,0	2,8	15,0	22	58	6	2		03300		03300		03300		03300
3,5	10,5	3,3	20,0	26	62	6	2		03800		03800		03800		03800
4,0	10,5	3,8	20,0	26	62	6	2		04300		04300		04300		04300
4,5	13,0	4,3	25,0	34	70	6	2		04800		04800		04800		04800
5,0	13,0	4,8	25,0	34	70	6	2		05300		05300		05300		05300
5,5	16,0	5,3	30,0	34	70	6	2		05800		05800		05800		05800
6,0	16,0	5,8	30,0	34	70	6	2		06300		06300		06300		06300
6,5	21,0	6,2	40,0	44	80	8	2		06800		06800		06800		06800
7,0	21,0	6,7	40,0	44	80	8	2		07300		07300		07300		07300
7,5	21,0	7,2	40,0	44	80	8	2		07800		07800		07800		07800
8,0	21,0	7,7	40,0	44	80	8	2		08300		08300		08300		08300
8,5	26,0	8,2	50,0	54	94	10	2		08800		08800		08800		08800
9,0	26,0	8,7	50,0	54	94	10	2		09300		09300		09300		09300
9,5	26,0	9,2	50,0	54	94	10	2		09800		09800		09800		09800
10,0	26,0	9,7	50,0	54	94	10	2		10300		10300		10300		10300
10,5	31,0	10,1	60,0	64	109	12	2		10800		10800		10800		10800
11,0	31,0	10,6	60,0	64	109	12	2		11300		11300		11300		11300
11,5	31,0	11,1	60,0	64	109	12	2		11800		11800		11800		11800
12,0	31,0	11,6	60,0	64	109	12	2		12300		12300		12300		12300
12,5	36,0	12,1	70,0	74	119	14	2						12800		12800
13,0	36,0	12,6	70,0	74	119	14	2						13300		13300
13,5	36,0	13,1	70,0	74	119	14	2						13800		13800
14,0	36,0	13,6	70,0	74	119	14	2						14300		14300
14,5	41,0	14,0	80,0	84	132	16	2						14800		14800
15,0	41,0	14,5	80,0	84	132	16	2						15300		15300
15,5	41,0	15,0	80,0	84	132	16	2						15800		15800
16,0	41,0	15,5	80,0	84	132	16	2						16300		16300
16,5	47,0	16,0	90,0	94	142	18	2						16800		16800
17,0	47,0	16,5	90,0	94	142	18	2						17300		17300
17,5	47,0	17,0	90,0	94	142	18	2						17800		17800
18,0	47,0	17,5	90,0	94	142	18	2						18300		18300
18,5	52,0	18,0	100,0	104	154	20	2						18800		18800
19,0	52,0	18,5	100,0	104	154	20	2						19300		19300
19,5	52,0	19,0	100,0	104	154	20	2						19800		19800
20,0	52,0	19,5	100,0	104	154	20	2						20300		20300
P															
M															
K															
N									●		●		●		●
S															
H															
O															

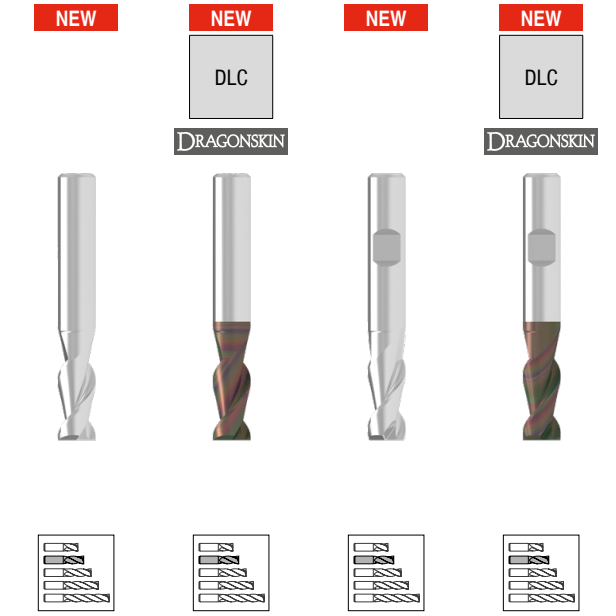
→ v_c/f_z Page 390+391

AluLine – End milling cutter

▲ With polished chip flutes







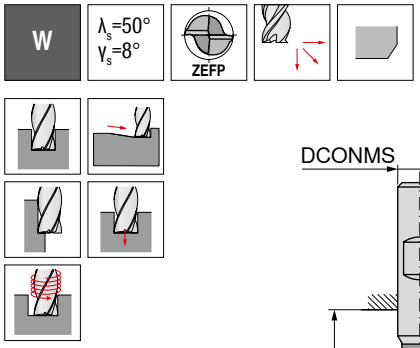
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	Factory standard HA 53 619 ...	Factory standard HA 53 621 ...	Factory standard HB 53 620 ...	Factory standard HB 53 622 ...
5,0	10,5	4,8	15	22	58	6	0,1	2	**05100**	**05100**	**05100**	**05100**
5,5	13,0	5,3	18	22	58	6	0,1	2	**05600**	**05600**	**05600**	**05600**
6,0	13,0	5,8	18	22	58	6	0,1	2	**06100**	**06100**	**06100**	**06100**
6,5	17,0	6,2	24	28	64	8	0,1	2	**06600**	**06600**	**06600**	**06600**
7,0	17,0	6,7	24	28	64	8	0,1	2	**07100**	**07100**	**07100**	**07100**
7,5	17,0	7,2	24	28	64	8	0,1	2	**07600**	**07600**	**07600**	**07600**
8,0	17,0	7,7	24	28	64	8	0,1	2	**08100**	**08100**	**08100**	**08100**
8,5	21,0	8,2	30	34	74	10	0,1	2	**08600**	**08600**	**08600**	**08600**
9,0	21,0	8,7	30	34	74	10	0,1	2	**09100**	**09100**	**09100**	**09100**
9,5	21,0	9,2	30	34	74	10	0,1	2	**09600**	**09600**	**09600**	**09600**
10,0	21,0	9,7	30	34	74	10	0,1	2	**10100**	**10100**	**10100**	**10100**
10,5	25,0	10,1	36	40	85	12	0,1	2	**10600**	**10600**	**10600**	**10600**
11,0	25,0	10,6	36	40	85	12	0,1	2	**11100**	**11100**	**11100**	**11100**
11,5	25,0	11,1	36	40	85	12	0,1	2	**11600**	**11600**	**11600**	**11600**
12,0	25,0	11,6	36	40	85	12	0,1	2	**12100**	**12100**	**12100**	**12100**
12,5	29,0	12,1	42	46	91	14	0,1	2			**12600**	**12600**
13,0	29,0	12,6	42	46	91	14	0,1	2			**13100**	**13100**
13,5	29,0	13,1	42	46	91	14	0,1	2			**13600**	**13600**
14,0	29,0	13,6	42	46	91	14	0,1	2			**14100**	**14100**
14,5	33,0	14,0	48	52	100	16	0,1	2			**14600**	**14600**
15,0	33,0	14,5	48	52	100	16	0,1	2			**15100**	**15100**
15,5	33,0	15,0	48	52	100	16	0,1	2			**15600**	**15600**
16,0	33,0	15,5	48	52	100	16	0,1	2			**16100**	**16100**
16,5	38,0	16,0	54	58	106	18	0,1	2			**16600**	**16600**
17,0	38,0	16,5	54	58	106	18	0,1	2			**17100**	**17100**
17,5	38,0	17,0	54	58	106	18	0,1	2			**17600**	**17600**
18,0	38,0	17,5	54	58	106	18	0,1	2			**18100**	**18100**
18,5	42,0	18,0	60	64	114	20	0,1	2			**18600**	**18600**
19,0	42,0	18,5	60	64	114	20	0,1	2			**19100**	**19100**
19,5	42,0	19,0	60	64	114	20	0,1	2			**19600**	**19600**
20,0	42,0	19,5	60	64	114	20	0,1	2			**20100**	**20100**
P												
M												
K												
N									●	●	●	●
S												
H												
O												

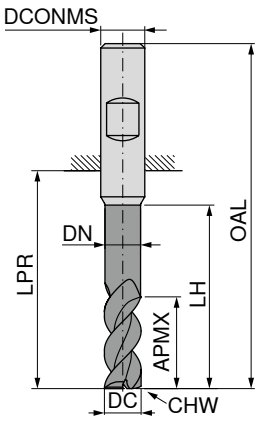
→ v_c/f_z Page 390+391

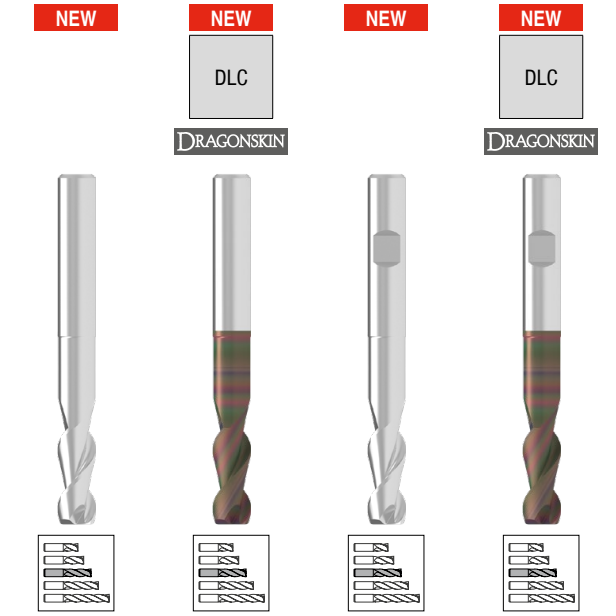
14

AluLine – End milling cutter

▲ With polished chip flutes



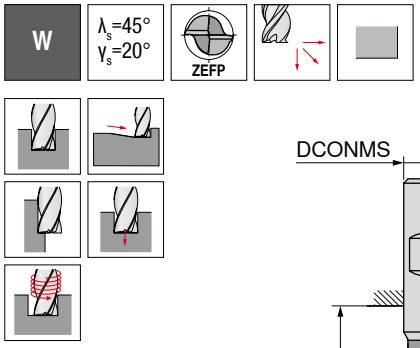


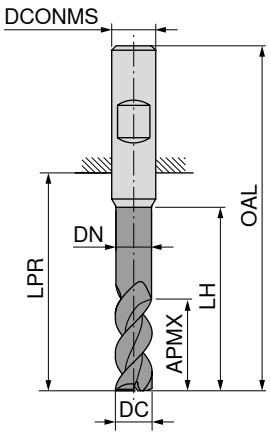


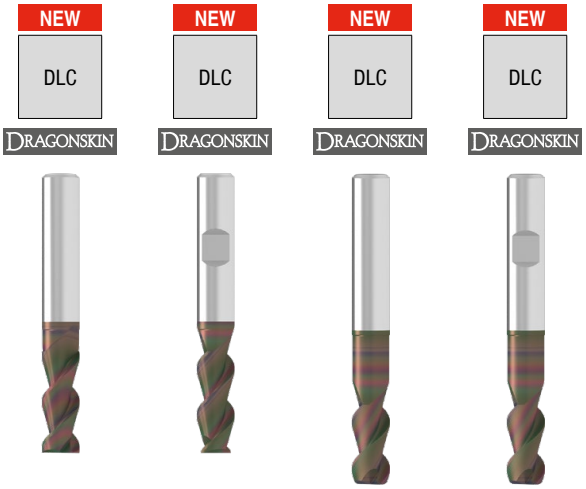
									Factory standard	Factory standard	Factory standard	Factory standard
									HA	HA	HB	HB
									53 629 ...	53 631 ...	53 630 ...	53 632 ...
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP				
2,0	5,5	1,8	10,0	19	55	6	0,05	2	02300	02300	02300	02300
2,5	6,5	2,3	12,5	22	58	6	0,05	2	02800	02800	02800	02800
3,0	8,0	2,8	15,0	22	58	6	0,10	2	03300	03300	03300	03300
3,5	10,5	3,3	20,0	26	62	6	0,10	2	03800	03800	03800	03800
4,0	10,5	3,8	20,0	26	62	6	0,10	2	04300	04300	04300	04300
4,5	13,0	4,3	25,0	34	70	6	0,10	2	04800	04800	04800	04800
5,0	13,0	4,8	25,0	34	70	6	0,10	2	05300	05300	05300	05300
5,5	16,0	5,3	30,0	34	70	6	0,10	2	05800	05800	05800	05800
6,0	16,0	5,8	30,0	34	70	6	0,10	2	06300	06300	06300	06300
6,5	21,0	6,2	40,0	44	80	8	0,10	2	06800	06800	06800	06800
7,0	21,0	6,7	40,0	44	80	8	0,10	2	07300	07300	07300	07300
7,5	21,0	7,2	40,0	44	80	8	0,10	2	07800	07800	07800	07800
8,0	21,0	7,7	40,0	44	80	8	0,10	2	08300	08300	08300	08300
8,5	26,0	8,2	50,0	54	94	10	0,10	2	08800	08800	08800	08800
9,0	26,0	8,7	50,0	54	94	10	0,10	2	09300	09300	09300	09300
9,5	26,0	9,2	50,0	54	94	10	0,10	2	09800	09800	09800	09800
10,0	26,0	9,7	50,0	54	94	10	0,10	2	10300	10300	10300	10300
10,5	31,0	10,1	60,0	64	109	12	0,10	2	10800	10800	10800	10800
11,0	31,0	10,6	60,0	64	109	12	0,10	2	11300	11300	11300	11300
11,5	31,0	11,1	60,0	64	109	12	0,10	2	11800	11800	11800	11800
12,0	31,0	11,6	60,0	64	109	12	0,10	2	12300	12300	12300	12300
12,5	36,0	12,1	70,0	74	119	14	0,10	2			12800	12800
13,0	36,0	12,6	70,0	74	119	14	0,10	2			13300	13300
13,5	36,0	13,1	70,0	74	119	14	0,10	2			13800	13800
14,0	36,0	13,6	70,0	74	119	14	0,10	2			14300	14300
14,5	41,0	14,0	80,0	84	132	16	0,10	2			14800	14800
15,0	41,0	14,5	80,0	84	132	16	0,10	2			15300	15300
15,5	41,0	15,0	80,0	84	132	16	0,10	2			15800	15800
16,0	41,0	15,5	80,0	84	132	16	0,10	2			16300	16300
16,5	47,0	16,0	90,0	94	142	18	0,10	2			16800	16800
17,0	47,0	16,5	90,0	94	142	18	0,10	2			17300	17300
17,5	47,0	17,0	90,0	94	142	18	0,10	2			17800	17800
18,0	47,0	17,5	90,0	94	142	18	0,10	2			18300	18300
18,5	52,0	18,0	100,0	104	154	20	0,10	2			18800	18800
19,0	52,0	18,5	100,0	104	154	20	0,10	2			19300	19300
19,5	52,0	19,0	100,0	104	154	20	0,10	2			19800	19800
20,0	52,0	19,5	100,0	104	154	20	0,10	2			20300	20300
P												
M												
K												
N									●	●	●	●
S												
H												
O												

→ v_c/f_z Page 390+391

AluLine – End milling cutter









Factory standard

HA / HB

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 627 ...	53 628 ...	53 637 ...	53 638 ...
2,0	5,5	1,8	10,0	19	55	6	2			02300	02300
2,5	6,5	2,3	12,5	22	58	6	2			02800	02800
3,0	8,0	2,8	15,0	22	58	6	2			03300	03300
3,5	10,5	3,3	20,0	26	62	6	2			03800	03800
4,0	10,5	3,8	20,0	26	62	6	2			04300	04300
4,5	13,0	4,3	25,0	34	70	6	2			04800	04800
5,0	10,5	4,8	15,0	22	58	6	2	05100	05100		
5,0	13,0	4,8	25,0	34	70	6	2			05300	05300
5,5	13,0	5,3	18,0	22	58	6	2	05600	05600		
5,5	16,0	5,3	30,0	34	70	6	2			05800	05800
6,0	13,0	5,8	18,0	22	58	6	2	06100	06100		
6,0	16,0	5,8	30,0	34	70	6	2			06300	06300
6,5	17,0	6,2	24,0	28	64	8	2	06600	06600		
6,5	21,0	6,2	40,0	44	80	8	2			06800	06800
7,0	17,0	6,7	24,0	28	64	8	2	07100	07100		
7,0	21,0	6,7	40,0	44	80	8	2			07300	07300
7,5	17,0	7,2	24,0	28	64	8	2	07600			
7,5	17,0	7,2	24,0	49	85	8	2		07600		
7,5	21,0	7,2	40,0	44	80	8	2			07800	07800
8,0	17,0	7,7	24,0	28	64	8	2	08100			
8,0	17,0	7,7	24,0	49	85	8	2		08100		
8,0	21,0	7,7	40,0	44	80	8	2			08300	08300
8,5	21,0	8,2	30,0	34	74	10	2	08600	08600		
8,5	26,0	8,2	50,0	54	94	10	2			08800	08800
9,0	21,0	8,7	30,0	34	74	10	2	09100	09100		
9,0	26,0	8,7	50,0	54	94	10	2			09300	09300
9,5	21,0	9,2	30,0	34	74	10	2	09600	09600		
9,5	26,0	9,2	50,0	54	94	10	2			09800	09800
10,0	21,0	9,7	30,0	34	74	10	2	10100	10100		
10,0	26,0	9,7	50,0	54	94	10	2			10300	10300
10,5	25,0	10,1	36,0	40	85	12	2	10600	10600		
10,5	31,0	10,1	60,0	64	109	12	2			10800	10800
11,0	25,0	10,6	36,0	40	85	12	2	11100	11100		
11,0	31,0	10,6	60,0	64	109	12	2			11300	11300
11,5	25,0	11,1	36,0	40	85	12	2	11600	11600		
11,5	31,0	11,1	60,0	64	109	12	2			11800	11800
12,0	25,0	11,6	36,0	40	85	12	2	12100	12100		
12,0	31,0	11,6	60,0	64	109	12	2			12300	12300

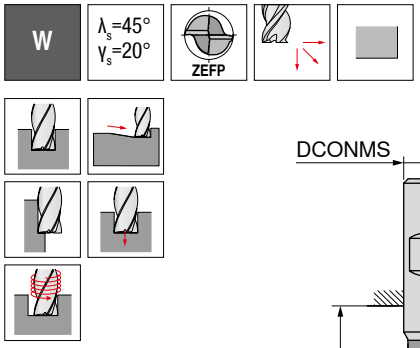
P				
M				
K				
N	●	●	●	●
S				
H				
O				

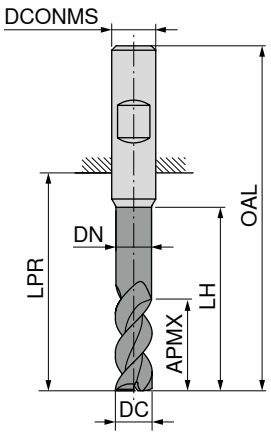
→ v_c/f_z Page 390+391

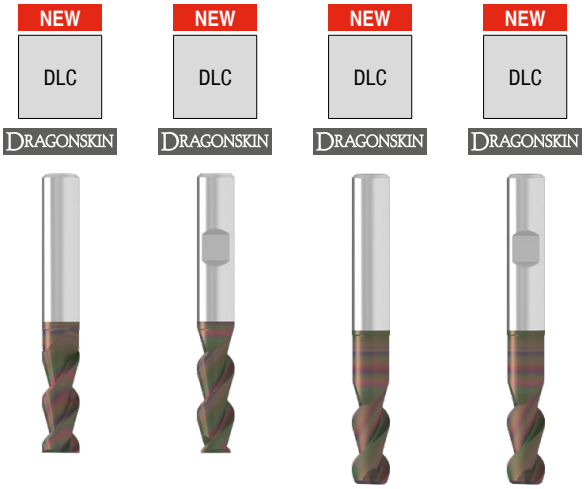
14

Continued on next page

AluLine – End milling cutter







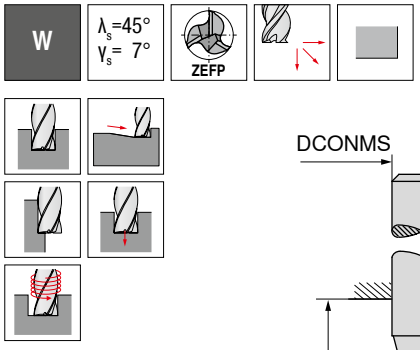


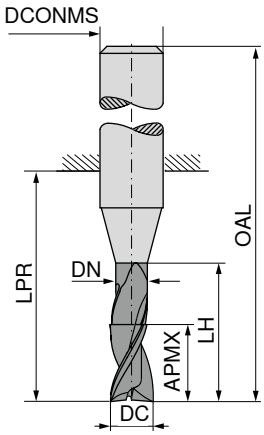
								Factory standard		Factory standard		Factory standard		Factory standard	
								HA		HB		HA		HB	
								53 627 ...		53 628 ...		53 637 ...		53 638 ...	
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP								
12,5	29,0	12,1	42,0	46	91	14	2			12600					
12,5	36,0	12,1	70,0	74	119	14	2							12800	
13,0	29,0	12,6	42,0	46	91	14	2			13100					
13,0	36,0	12,6	70,0	74	119	14	2							13300	
13,5	29,0	13,1	42,0	46	91	14	2			13600					
13,5	36,0	13,1	70,0	74	119	14	2							13800	
14,0	29,0	13,6	42,0	46	91	14	2			14100					
14,0	36,0	13,6	70,0	74	119	14	2							14300	
14,5	33,0	14,0	48,0	52	100	16	2			14600					
14,5	41,0	14,0	80,0	84	132	16	2							14800	
15,0	33,0	14,5	48,0	52	100	16	2			15100					
15,0	41,0	14,5	80,0	84	132	16	2							15300	
15,5	33,0	15,0	48,0	52	100	16	2			15600					
15,5	41,0	15,0	80,0	84	132	16	2							15800	
16,0	33,0	15,5	48,0	52	100	16	2			16100					
16,0	41,0	15,5	80,0	84	132	16	2							16300	
16,5	38,0	16,0	54,0	58	106	18	2			16600					
16,5	47,0	16,0	90,0	94	142	18	2							16800	
17,0	38,0	16,5	54,0	58	106	18	2			17100					
17,0	47,0	16,5	90,0	94	142	18	2							17300	
17,5	38,0	17,0	54,0	58	106	18	2			17600					
17,5	47,0	17,0	90,0	94	142	18	2							17800	
18,0	38,0	17,5	54,0	58	106	18	2			18100					
18,0	47,0	17,5	90,0	94	142	18	2							18300	
18,5	42,0	18,0	60,0	64	114	20	2			18600					
18,5	52,0	18,0	100,0	104	154	20	2							18800	
19,0	42,0	18,5	60,0	64	114	20	2			19100					
19,0	52,0	18,5	100,0	104	154	20	2							19300	
19,5	42,0	19,0	60,0	64	114	20	2			19600					
19,5	52,0	19,0	100,0	104	154	20	2							19800	
20,0	42,0	19,5	60,0	64	114	20	2			20100					
20,0	52,0	19,5	100,0	104	154	20	2							20300	
P															
M															
K															
N								•		•		•		•	
S															
H															
O															

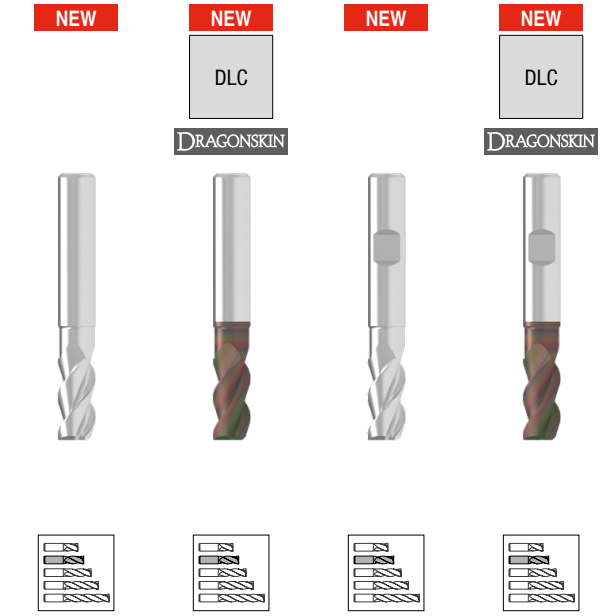
→ v_c/f_z Page 390+391

AluLine – End milling cutter

▲ With polished chip flutes







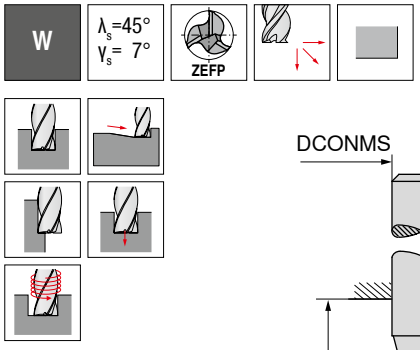
								Factory standard	Factory standard	Factory standard	Factory standard
								HA	HA	HB	HB
								53 615 ...	53 617 ...	53 616 ...	53 618 ...
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP				
2,0	4,5	1,8	6,0	14	50	6	3	02100	02100	02100	02100
2,5	5,5	2,3	7,5	19	55	6	3	02600	02600	02600	02600
3,0	6,5	2,8	9,0	19	55	6	3	03100	03100	03100	03100
3,5	8,5	3,3	12,0	19	55	6	3	03600	03600	03600	03600
4,0	8,5	3,8	12,0	19	55	6	3	04100	04100	04100	04100
4,5	10,5	4,3	15,0	22	58	6	3	04600	04600	04600	04600
5,0	10,5	4,8	15,0	22	58	6	3	05100	05100	05100	05100
5,5	13,0	5,3	18,0	22	58	6	3	05600	05600	05600	05600
6,0	13,0	5,8	18,0	22	58	6	3	06100	06100	06100	06100
6,5	17,0	6,2	24,0	28	64	8	3	06600	06600	06600	06600
7,0	17,0	6,7	24,0	28	64	8	3	07100	07100	07100	07100
7,5	17,0	7,2	24,0	28	64	8	3	07600	07600	07600	07600
8,0	17,0	7,7	24,0	28	64	8	3	08100	08100	08100	08100
8,5	21,0	8,2	30,0	34	74	10	3	08600	08600	08600	08600
9,0	21,0	8,7	30,0	34	74	10	3	09100	09100	09100	09100
9,5	21,0	9,2	30,0	34	74	10	3	09600	09600	09600	09600
10,0	21,0	9,7	30,0	34	74	10	3	10100	10100	10100	10100
10,5	25,0	10,1	36,0	40	85	12	3	10600	10600	10600	10600
11,0	25,0	10,6	36,0	40	85	12	3	11100	11100	11100	11100
11,5	25,0	11,1	36,0	40	85	12	3	11600	11600	11600	11600
12,0	25,0	11,6	36,0	40	85	12	3	12100	12100	12100	12100
12,5	29,0	12,1	42,0	46	91	14	3			12600	12600
13,0	29,0	12,6	42,0	46	91	14	3			13100	13100
13,5	29,0	13,1	42,0	46	91	14	3			13600	13600
14,0	29,0	13,6	42,0	46	91	14	3			14100	14100
14,5	33,0	14,0	48,0	52	100	16	3			14600	14600
15,0	33,0	14,5	48,0	52	100	16	3			15100	15100
15,5	33,0	15,0	48,0	52	100	16	3			15600	15600
16,0	33,0	15,5	48,0	52	100	16	3			16100	16100
16,5	38,0	16,0	54,0	58	106	18	3			16600	16600
17,0	38,0	16,5	54,0	58	106	18	3			17100	17100
17,5	38,0	17,0	54,0	58	106	18	3			17600	17600
18,0	38,0	17,5	54,0	58	106	18	3			18100	18100
18,5	42,0	18,0	60,0	64	114	20	3			18600	18600
19,0	42,0	18,5	60,0	64	114	20	3			19100	19100
19,5	42,0	19,0	60,0	64	114	20	3			19600	19600
20,0	42,0	19,5	60,0	64	114	20	3			20100	20100
P											
M											
K											
N								●	●	●	●
S											
H											
O											

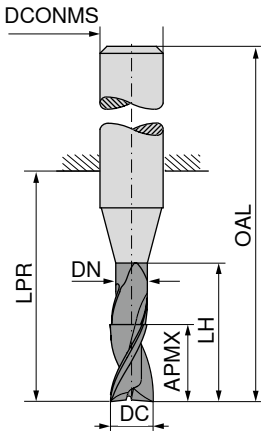
→ v_c/f_z Page 390+391

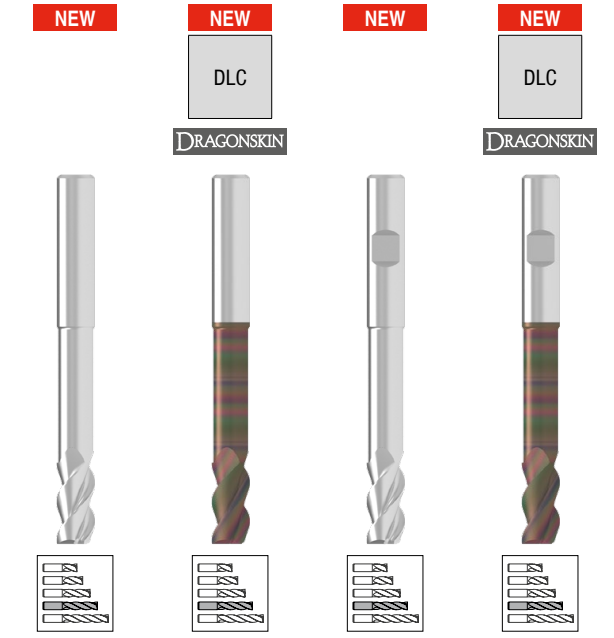
14

AluLine – End milling cutter

▲ With polished chip flutes





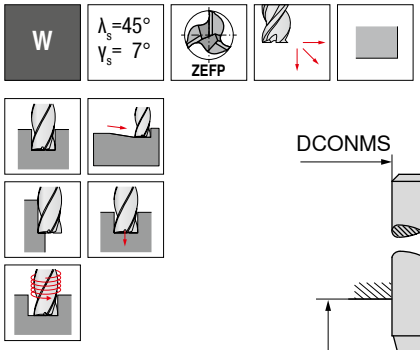


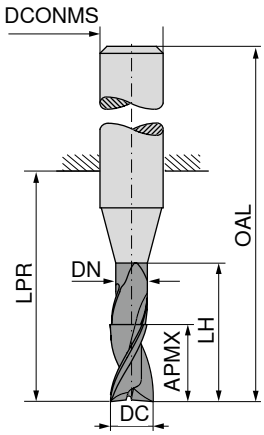
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	Factory standard HA 53 615 ...	Factory standard HA 53 617 ...	Factory standard HB 53 616 ...	Factory standard HB 53 618 ...
2,0	5,5	1,8	10,0	19	55	6	3	02200	02200	02200	02200
2,5	6,5	2,3	12,5	22	58	6	3	02700	02700	02700	02700
3,0	8,0	2,8	15,0	22	58	6	3	03200	03200	03200	03200
3,5	10,5	3,3	20,0	26	62	6	3	03700	03700	03700	03700
4,0	10,5	3,8	20,0	26	62	6	3	04200	04200	04200	04200
4,5	13,0	4,3	25,0	34	70	6	3	04700	04700	04700	04700
5,0	13,0	4,8	25,0	34	70	6	3	05200	05200	05200	05200
5,5	16,0	5,3	30,0	34	70	6	3	05700	05700	05700	05700
6,0	16,0	5,8	30,0	34	70	6	3	06200	06200	06200	06200
6,5	21,0	6,2	40,0	44	80	8	3	06700	06700	06700	06700
7,0	21,0	6,7	40,0	44	80	8	3	07200	07200	07200	07200
7,5	21,0	7,2	40,0	44	80	8	3	07700	07700	07700	07700
8,0	21,0	7,7	40,0	44	80	8	3	08200	08200	08200	08200
8,5	26,0	8,2	50,0	54	94	10	3	08700	08700	08700	08700
9,0	26,0	8,7	50,0	54	94	10	3	09200	09200	09200	09200
9,5	26,0	9,2	50,0	54	94	10	3	09700	09700	09700	09700
10,0	26,0	9,7	50,0	54	94	10	3	10200	10200	10200	10200
10,5	31,0	10,1	60,0	64	109	12	3	10700	10700	10700	10700
11,0	31,0	10,6	60,0	64	109	12	3	11200	11200	11200	11200
11,5	31,0	11,1	60,0	64	109	12	3	11700	11700	11700	11700
12,0	31,0	11,6	60,0	64	109	12	3	12200	12200	12200	12200
12,5	36,0	12,1	70,0	74	119	14	3			12700	12700
13,0	36,0	12,6	70,0	74	119	14	3			13200	13200
13,5	36,0	13,1	70,0	74	119	14	3			13700	13700
14,0	36,0	13,6	70,0	74	119	14	3			14200	14200
14,5	41,0	14,0	80,0	84	132	16	3			14700	14700
15,0	41,0	14,5	80,0	84	132	16	3			15200	15200
15,5	41,0	15,0	80,0	84	132	16	3			15700	15700
16,0	41,0	15,5	80,0	84	132	16	3			16200	16200
16,5	47,0	16,0	90,0	94	142	18	3			16700	16700
17,0	47,0	16,5	90,0	94	142	18	3			17200	17200
17,5	47,0	17,0	90,0	94	142	18	3			17700	17700
18,0	47,0	17,5	90,0	94	142	18	3			18200	18200
18,5	52,0	18,0	100,0	104	154	20	3			18700	18700
19,0	52,0	18,5	100,0	104	154	20	3			19200	19200
19,5	52,0	19,0	100,0	104	154	20	3			19700	19700
20,0	52,0	19,5	100,0	104	154	20	3			20200	20200
P											
M											
K											
N								●	●	●	●
S											
H											
O											

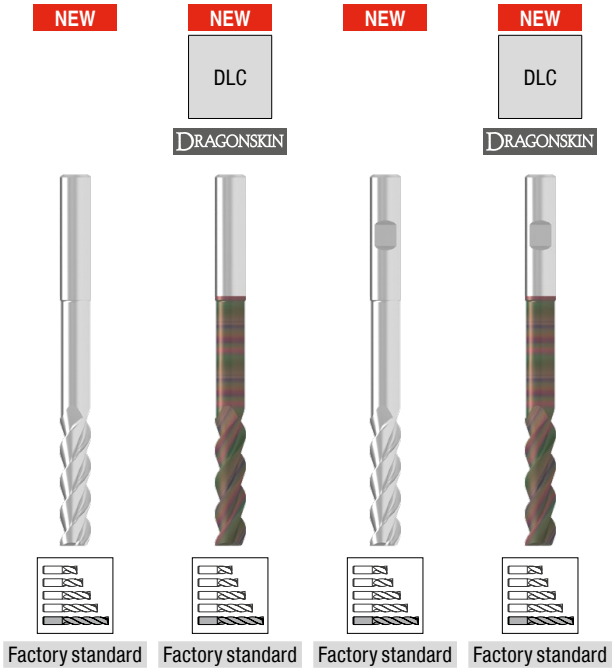
→ v_c/f_z Page 390+391

AluLine – End milling cutter

▲ With polished chip flutes







								Factory standard	Factory standard	Factory standard	Factory standard
								HA	HA	HB	HB
								53 615 ...	53 617 ...	53 616 ...	53 618 ...
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP				
2,0	8,5	1,8	16	26	62	6	3	02400	02400	02400	02400
2,5	10,5	2,3	20	31	67	6	3	02900	02900	02900	02900
3,0	12,5	2,8	24	31	67	6	3	03400	03400	03400	03400
3,5	16,5	3,3	32	38	74	6	3	03900	03900	03900	03900
4,0	16,5	3,8	32	38	74	6	3	04400	04400	04400	04400
4,5	20,5	4,3	40	52	88	6	3	04900	04900	04900	04900
5,0	20,5	4,8	40	52	88	6	3	05400	05400	05400	05400
5,5	25,0	5,3	48	52	88	6	3	05900	05900	05900	05900
6,0	25,0	5,8	48	52	88	6	3	06400	06400	06400	06400
6,5	33,0	6,2	64	68	104	8	3	06900	06900	06900	06900
7,0	33,0	6,7	64	68	104	8	3	07400	07400	07400	07400
7,5	33,0	7,2	64	68	104	8	3	07900	07900	07900	07900
8,0	33,0	7,7	64	68	104	8	3	08400	08400	08400	08400
8,5	41,0	8,2	80	84	124	10	3	08900	08900	08900	08900
9,0	41,0	8,7	80	84	124	10	3	09400	09400	09400	09400
9,5	41,0	9,2	80	84	124	10	3	09900	09900	09900	09900
10,0	41,0	9,7	80	84	124	10	3	10400	10400	10400	10400
10,5	49,0	10,1	96	100	145	12	3	10900	10900	10900	10900
11,0	49,0	10,6	96	100	145	12	3	11400	11400	11400	11400
11,5	49,0	11,1	96	100	145	12	3	11900	11900	11900	11900
12,0	49,0	11,6	96	100	145	12	3	12400	12400	12400	12400
12,5	57,0	12,1	112	116	161	14	3			12900	12900
13,0	57,0	12,6	112	116	161	14	3			13400	13400
13,5	57,0	13,1	112	116	161	14	3			13900	13900
14,0	57,0	13,6	112	116	161	14	3			14400	14400
14,5	65,0	14,0	128	132	180	16	3			14900	14900
15,0	65,0	14,5	128	132	180	16	3			15400	15400
15,5	65,0	15,0	128	132	180	16	3			15900	15900
16,0	65,0	15,5	128	132	180	16	3			16400	16400
16,5	74,0	16,0	144	148	196	18	3			16900	16900
17,0	74,0	16,5	144	148	196	18	3			17400	17400

P				
M				
K				
N	●	●	●	●
S				
H				
O				

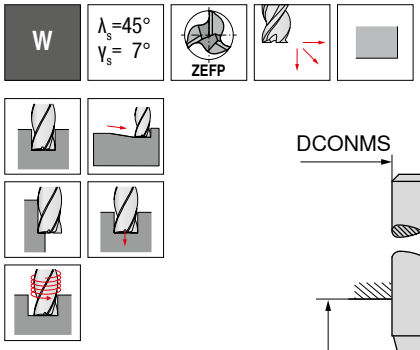
→ v_c/f_z Page 390+391

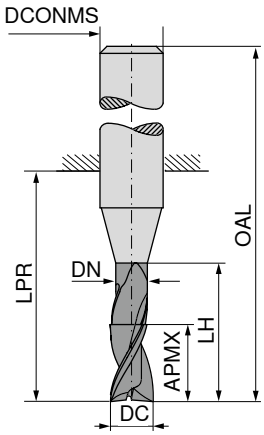
14

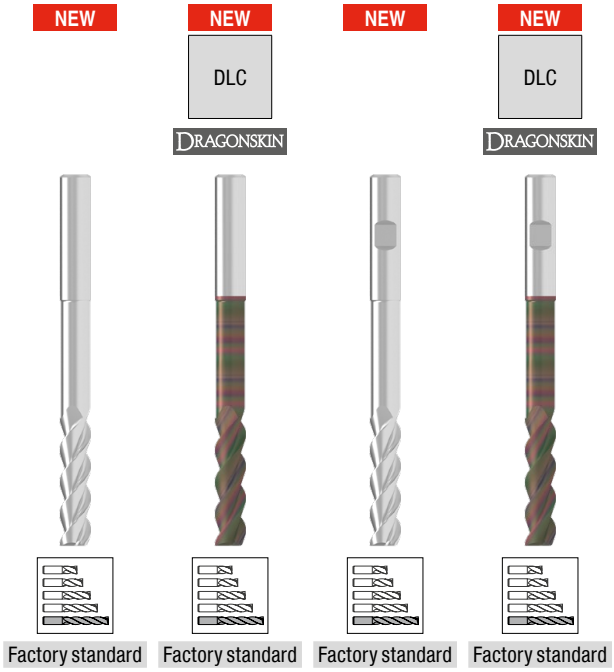
Continued on next page

AluLine – End milling cutter

▲ With polished chip flutes







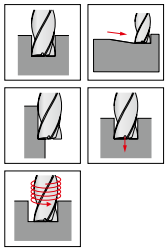
								Factory standard	Factory standard	Factory standard	Factory standard
								HA	HA	HB	HB
								53 615 ...	**53 617 ...**	**53 616 ...**	**53 618 ...**
DC $_{h6}$ **mm**	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP				
17,5	74,0	17,0	144	148	196	18	3			**17900**	**17900**
18,0	74,0	17,5	144	148	196	18	3			**18400**	**18400**
18,5	82,0	18,0	160	164	214	20	3			**18900**	**18900**
19,0	82,0	18,5	160	164	214	20	3			**19400**	**19400**
19,5	82,0	19,0	160	164	214	20	3			**19900**	**19900**
20,0	82,0	19,5	160	164	214	20	3			**20400**	**20400**
P											
M											
K											
N								●	●	●	●
S											
H											
O											

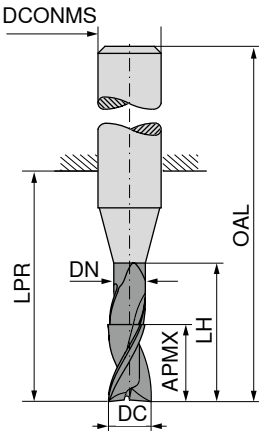
→ v_c/f_z Page 390+391

AluLine – End milling cutter

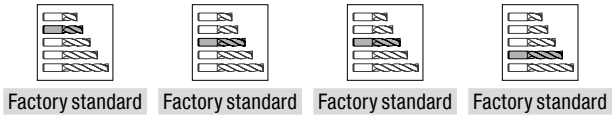
▲ With polished chip flutes







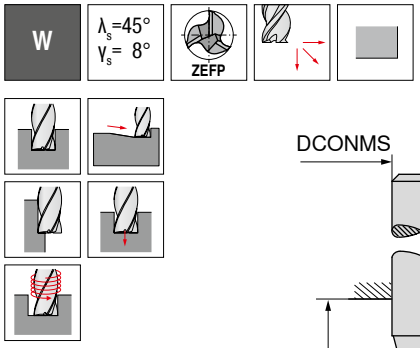


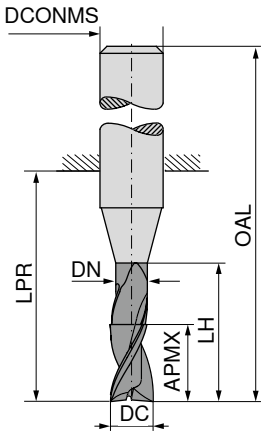


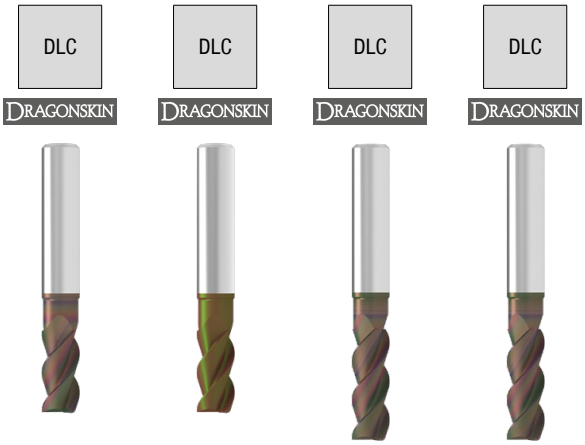
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	53 517 ...	53 518 ...	53 519 ...	53 520 ...
3	8	2,7	13	21	57	6	3				**030**
4	11	3,7	17	21	57	6	3				**040**
5	13	4,7	19	21	57	6	3			**050**	
6	13	5,7	19	21	57	6	3			**060**	
6	18	5,7	24	26	62	6	3				**060**
8	21	7,4	25	27	63	8	3		**080**		
8	24	7,4	30	32	68	8	3			**080**	
10	22	9,2	30	32	72	10	3		**100**		
10	30	9,2	38	40	80	10	3			**100**	
12	26	11,0	36	38	83	12	3		**120**		
12	36	11,0	46	48	93	12	3			**120**	
14	26	13,0	36	38	83	14	3	**140**			
16	36	15,0	42	44	92	16	3	**160**			
16	48	15,0	58	60	108	16	3			**160**	
18	36	17,0	42	44	92	18	3	**180**			
20	41	19,0	52	54	104	20	3	**200**			
20	60	19,0	74	76	126	20	3			**200**	
P											
M											
K											
N								●	●	●	●
S											
H											
O											

→ v_c/f_z Page 390+391

AluLine – End milling cutter









	Factory standard	Factory standard	Factory standard	Factory standard
	HA	HA	HA	HA
	53 521 ...	**53 522 ...**	**53 523 ...**	**53 524 ...**

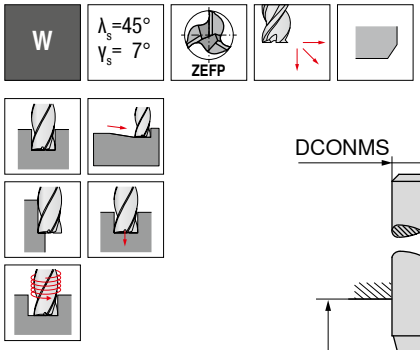
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP				
3	8	2,7	13	21	57	6	3				**030**
4	11	3,7	17	21	57	6	3				**040**
5	13	4,7	19	21	57	6	3			**050**	
6	13	5,7	19	21	57	6	3			**060**	
6	18	5,7	24	26	62	6	3				**060**
8	21	7,4	25	27	63	8	3		**080**		
8	24	7,4	30	32	68	8	3			**080**	
10	22	9,2	30	32	72	10	3		**100**		
10	30	9,2	38	40	80	10	3			**100**	
12	26	11,0	36	38	83	12	3		**120**		
12	36	11,0	46	48	93	12	3			**120**	
14	26	13,0	36	38	83	14	3	**140**			
16	36	15,0	42	44	92	16	3	**160**			
18	36	17,0	42	44	92	18	3	**180**			
20	41	19,0	52	54	104	20	3	**200**			

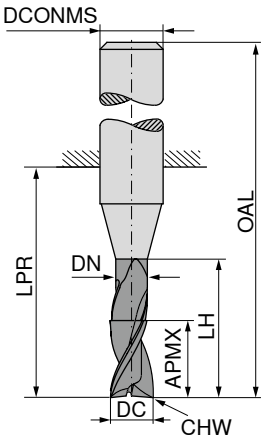
P				
M				
K				
N	●	●	●	●
S				
H				
O				

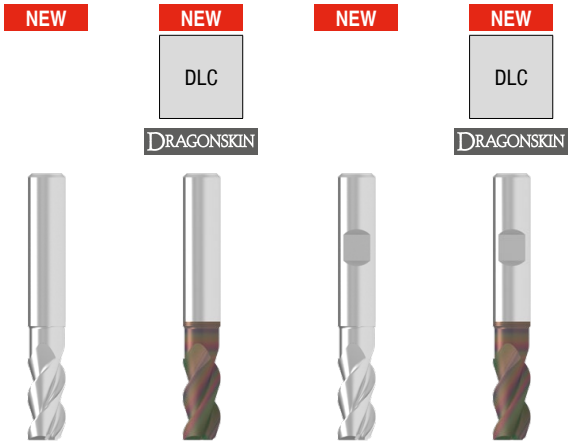
→ v_c/f_z Page 390+391

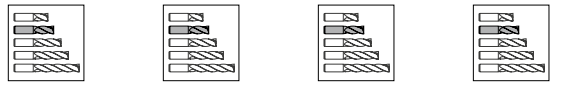
AluLine – End milling cutter

▲ With polished chip flutes









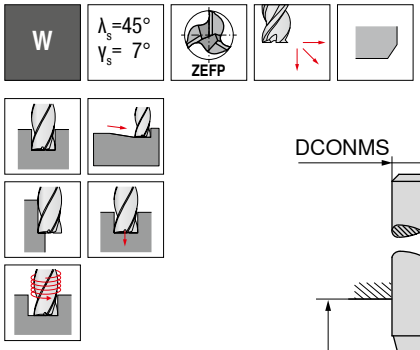
									Factory standard	Factory standard	Factory standard	Factory standard
									HA	HA	HB	HB
									53 611 ...	53 613 ...	53 612 ...	53 614 ...
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP				
2,0	4,5	1,8	6,0	14	50	6	0,05	3	02100	02100	02100	02100
2,5	5,5	2,3	7,5	19	55	6	0,05	3	02600	02600	02600	02600
3,0	6,5	2,8	9,0	19	55	6	0,10	3	03100	03100	03100	03100
3,5	8,5	3,3	12,0	19	55	6	0,10	3	03600	03600	03600	03600
4,0	8,5	3,8	12,0	19	55	6	0,10	3	04100	04100	04100	04100
4,5	10,5	4,3	15,0	22	58	6	0,10	3	04600	04600	04600	04600
5,0	10,5	4,8	15,0	22	58	6	0,10	3	05100	05100	05100	05100
5,5	13,0	5,3	18,0	22	58	6	0,10	3	05600	05600	05600	05600
6,0	13,0	5,8	18,0	22	58	6	0,20	3	06100	06100	06100	06100
6,5	17,0	6,2	24,0	28	64	8	0,20	3	06600	06600	06600	06600
7,0	17,0	6,7	24,0	28	64	8	0,20	3	07100	07100	07100	07100
7,5	17,0	7,2	24,0	28	64	8	0,20	3	07600	07600	07600	07600
8,0	17,0	7,7	24,0	28	64	8	0,20	3	08100	08100	08100	08100
8,5	21,0	8,2	30,0	34	74	10	0,20	3	08600	08600	08600	08600
9,0	21,0	8,7	30,0	34	74	10	0,20	3	09100	09100	09100	09100
9,5	21,0	9,2	30,0	34	74	10	0,20	3	09600	09600	09600	09600
10,0	21,0	9,7	30,0	34	74	10	0,20	3	10100	10100	10100	10100
10,5	25,0	10,1	36,0	40	85	12	0,20	3	10600	10600	10600	10600
11,0	25,0	10,6	36,0	40	85	12	0,20	3	11100	11100	11100	11100
11,5	25,0	11,1	36,0	40	85	12	0,20	3	11600	11600	11600	11600
12,0	25,0	11,6	36,0	40	85	12	0,20	3	12100	12100	12100	12100
12,5	29,0	12,1	42,0	46	91	14	0,20	3			12600	12600
13,0	29,0	12,6	42,0	46	91	14	0,20	3			13100	13100
13,5	29,0	13,1	42,0	46	91	14	0,20	3			13600	13600
14,0	29,0	13,6	42,0	46	91	14	0,20	3			14100	14100
14,5	33,0	14,0	48,0	52	100	16	0,20	3			14600	14600
15,0	33,0	14,5	48,0	52	100	16	0,20	3			15100	15100
15,5	33,0	15,0	48,0	52	100	16	0,20	3			15600	15600
16,0	33,0	15,5	48,0	52	100	16	0,20	3			16100	16100
16,5	38,0	16,0	54,0	58	106	18	0,20	3			16600	16600
17,0	38,0	16,5	54,0	58	106	18	0,20	3			17100	17100
17,5	38,0	17,0	54,0	58	106	18	0,20	3			17600	17600
18,0	38,0	17,5	54,0	58	106	18	0,20	3			18100	18100
18,5	42,0	18,0	60,0	64	114	20	0,20	3			18600	18600
19,0	42,0	18,5	60,0	64	114	20	0,20	3			19100	19100
19,5	42,0	19,0	60,0	64	114	20	0,20	3			19600	19600
20,0	42,0	19,5	60,0	64	114	20	0,20	3			20100	20100
P												
M												
K												
N									•	•	•	•
S												
H												
O												

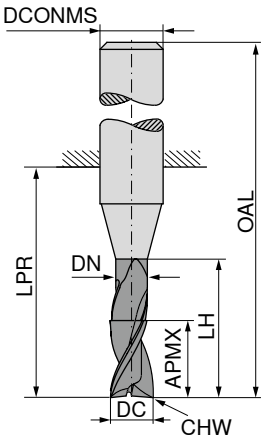
→ v_c/f_z Page 390+391

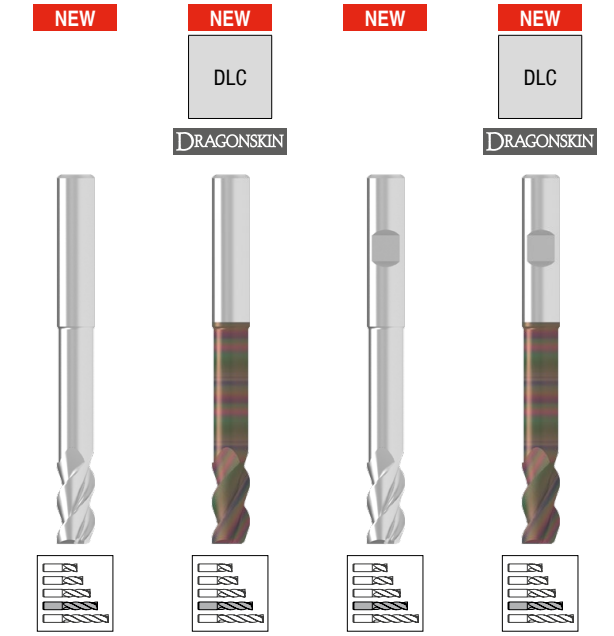
14

AluLine – End milling cutter

▲ With polished chip flutes





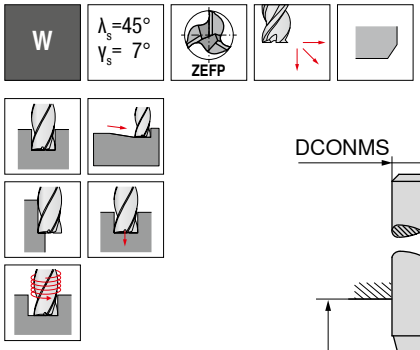


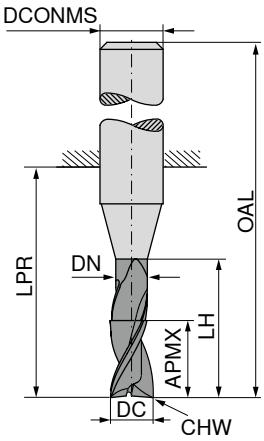
									Factory standard	Factory standard	Factory standard	Factory standard
									HA	HA	HB	HB
									53 611 ...	53 613 ...	53 612 ...	53 614 ...
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP				
2,0	5,5	1,8	10,0	19	55	6	0,05	3	02200	02200	02200	02200
2,5	6,5	2,3	12,5	22	58	6	0,05	3	02700	02700	02700	02700
3,0	8,0	2,8	15,0	22	58	6	0,10	3	03200	03200	03200	03200
3,5	10,5	3,3	20,0	26	62	6	0,10	3	03700	03700	03700	03700
4,0	10,5	3,8	20,0	26	62	6	0,10	3	04200	04200	04200	04200
4,5	13,0	4,3	25,0	34	70	6	0,10	3	04700	04700	04700	04700
5,0	13,0	4,8	25,0	34	70	6	0,10	3	05200	05200	05200	05200
5,5	16,0	5,3	30,0	34	70	6	0,10	3	05700	05700	05700	05700
6,0	16,0	5,8	30,0	34	70	6	0,20	3	06200	06200	06200	06200
6,5	21,0	6,2	40,0	44	80	8	0,20	3	06700	06700	06700	06700
7,0	21,0	6,7	40,0	44	80	8	0,20	3	07200	07200	07200	07200
7,5	21,0	7,2	40,0	44	80	8	0,20	3	07700	07700	07700	07700
8,0	21,0	7,7	40,0	44	80	8	0,20	3	08200	08200	08200	08200
8,5	26,0	8,2	50,0	54	94	10	0,20	3	08700	08700	08700	08700
9,0	26,0	8,7	50,0	54	94	10	0,20	3	09200	09200	09200	09200
9,5	26,0	9,2	50,0	54	94	10	0,20	3	09700	09700	09700	09700
10,0	26,0	9,7	50,0	54	94	10	0,20	3	10200	10200	10200	10200
10,5	31,0	10,1	60,0	64	109	12	0,20	3	10700	10700	10700	10700
11,0	31,0	10,6	60,0	64	109	12	0,20	3	11200	11200	11200	11200
11,5	31,0	11,1	60,0	64	109	12	0,20	3	11700	11700	11700	11700
12,0	31,0	11,6	60,0	64	109	12	0,20	3	12200	12200	12200	12200
12,5	36,0	12,1	70,0	74	119	14	0,20	3			12700	12700
13,0	36,0	12,6	70,0	74	119	14	0,20	3			13200	13200
13,5	36,0	13,1	70,0	74	119	14	0,20	3			13700	13700
14,0	36,0	13,6	70,0	74	119	14	0,20	3			14200	14200
14,5	41,0	14,0	80,0	84	132	16	0,20	3			14700	14700
15,0	41,0	14,5	80,0	84	132	16	0,20	3			15200	15200
15,5	41,0	15,0	80,0	84	132	16	0,20	3			15700	15700
16,0	41,0	15,5	80,0	84	132	16	0,20	3			16200	16200
16,5	47,0	16,0	90,0	94	142	18	0,20	3			16700	16700
17,0	47,0	16,5	90,0	94	142	18	0,20	3			17200	17200
17,5	47,0	17,0	90,0	94	142	18	0,20	3			17700	17700
18,0	47,0	17,5	90,0	94	142	18	0,20	3			18200	18200
18,5	52,0	18,0	100,0	104	154	20	0,20	3			18700	18700
19,0	52,0	18,5	100,0	104	154	20	0,20	3			19200	19200
19,5	52,0	19,0	100,0	104	154	20	0,20	3			19700	19700
20,0	52,0	19,5	100,0	104	154	20	0,20	3			20200	20200
P												
M												
K												
N									●	●	●	●
S												
H												
O												

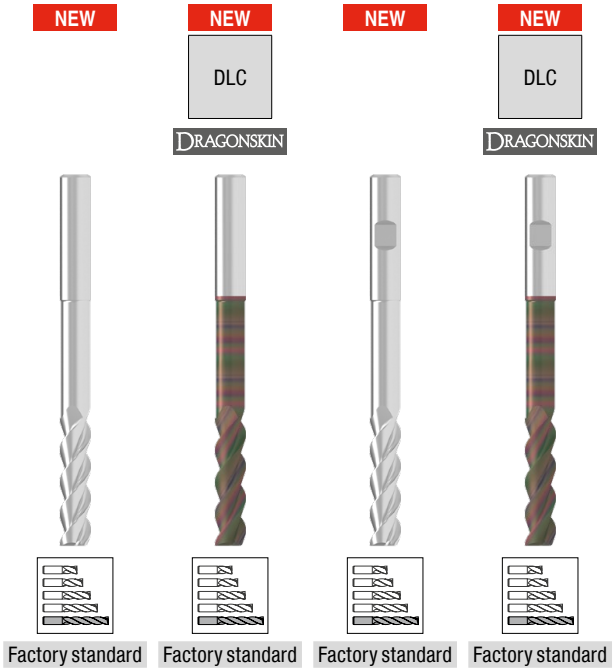
→ v_c/f_z Page 390+391

AluLine – End milling cutter

▲ With polished chip flutes







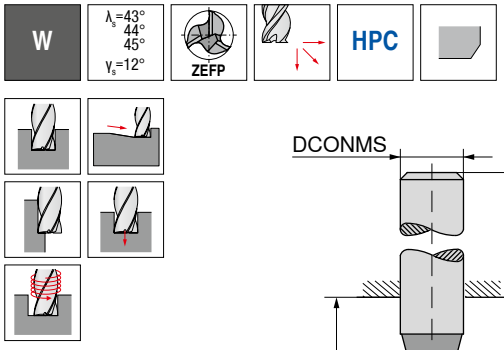
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	Factory standard HA 53 611 ...	Factory standard HA 53 613 ...	Factory standard HB 53 612 ...	Factory standard HB 53 614 ...
2,0	8,5	1,8	16	26	62	6	0,05	3	**02400**	**02400**	**02400**	**02400**
2,5	10,5	2,3	20	31	67	6	0,05	3	**02900**	**02900**	**02900**	**02900**
3,0	12,5	2,8	24	31	67	6	0,10	3	**03400**	**03400**	**03400**	**03400**
3,5	16,5	3,3	32	38	74	6	0,10	3	**03900**	**03900**	**03900**	**03900**
4,0	16,5	3,8	32	38	74	6	0,10	3	**04400**	**04400**	**04400**	**04400**
4,5	20,5	4,3	40	52	88	6	0,10	3	**04900**	**04900**	**04900**	**04900**
5,0	20,5	4,8	40	52	88	6	0,10	3	**05400**	**05400**	**05400**	**05400**
5,5	25,0	5,3	48	52	88	6	0,10	3	**05900**	**05900**	**05900**	**05900**
6,0	25,0	5,8	48	52	88	6	0,20	3	**06400**	**06400**	**06400**	**06400**
6,5	33,0	6,2	64	68	104	8	0,20	3	**06900**	**06900**	**06900**	**06900**
7,0	33,0	6,7	64	68	104	8	0,20	3	**07400**	**07400**	**07400**	**07400**
7,5	33,0	7,2	64	68	104	8	0,20	3	**07900**	**07900**	**07900**	**07900**
8,0	33,0	7,7	64	68	104	8	0,20	3	**08400**	**08400**	**08400**	**08400**
8,5	41,0	8,2	80	84	124	10	0,20	3	**08900**	**08900**	**08900**	**08900**
9,0	41,0	8,7	80	84	124	10	0,20	3	**09400**	**09400**	**09400**	**09400**
9,5	41,0	9,2	80	84	124	10	0,20	3	**09900**	**09900**	**09900**	**09900**
10,0	41,0	9,7	80	84	124	10	0,20	3	**10400**	**10400**	**10400**	**10400**
10,5	49,0	10,1	96	100	145	12	0,20	3	**10900**	**10900**	**10900**	**10900**
11,0	49,0	10,6	96	100	145	12	0,20	3	**11400**	**11400**	**11400**	**11400**
11,5	49,0	11,1	96	100	145	12	0,20	3	**11900**	**11900**	**11900**	**11900**
12,0	49,0	11,6	96	100	145	12	0,20	3	**12400**	**12400**	**12400**	**12400**
12,5	57,0	12,1	112	116	161	14	0,20	3			**12900**	**12900**
13,0	57,0	12,6	112	116	161	14	0,20	3			**13400**	**13400**
13,5	57,0	13,1	112	116	161	14	0,20	3			**13900**	**13900**
14,0	57,0	13,6	112	116	161	14	0,20	3			**14400**	**14400**
14,5	65,0	14,0	128	132	180	16	0,20	3			**14900**	**14900**
15,0	65,0	14,5	128	132	180	16	0,20	3			**15400**	**15400**
15,5	65,0	15,0	128	132	180	16	0,20	3			**15900**	**15900**
16,0	65,0	15,5	128	132	180	16	0,20	3			**16400**	**16400**
16,5	74,0	16,0	144	148	196	18	0,20	3			**16900**	**16900**
17,0	74,0	16,5	144	148	196	18	0,20	3			**17400**	**17400**
17,5	74,0	17,0	144	148	196	18	0,20	3			**17900**	**17900**
18,0	74,0	17,5	144	148	196	18	0,20	3			**18400**	**18400**
18,5	82,0	18,0	160	164	214	20	0,20	3			**18900**	**18900**
19,0	82,0	18,5	160	164	214	20	0,20	3			**19400**	**19400**
19,5	82,0	19,0	160	164	214	20	0,20	3			**19900**	**19900**
20,0	82,0	19,5	160	164	214	20	0,20	3			**20400**	**20400**
P												
M												
K												
N									●	●	●	●
S												
H												
O												

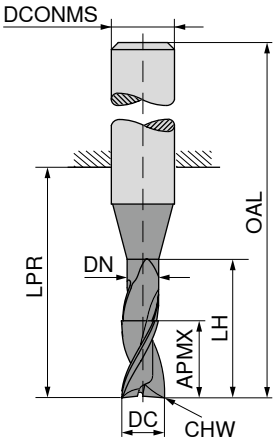
→ v_c/f_z Page 390+391

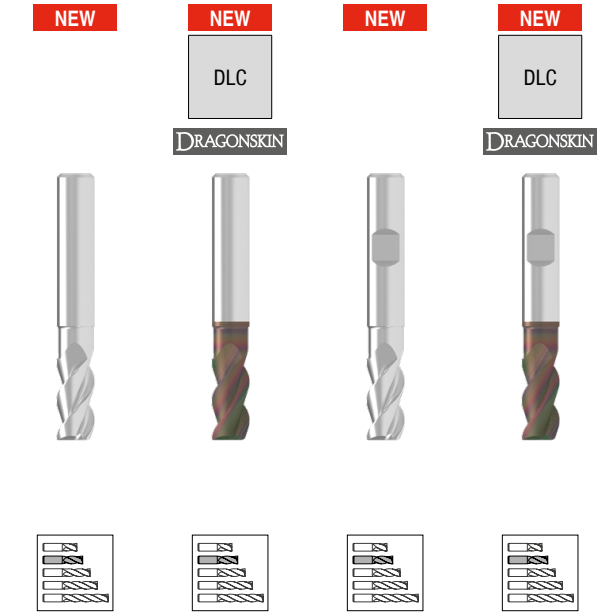
14

AluLine – End milling cutter

▲ With graduated flute depth





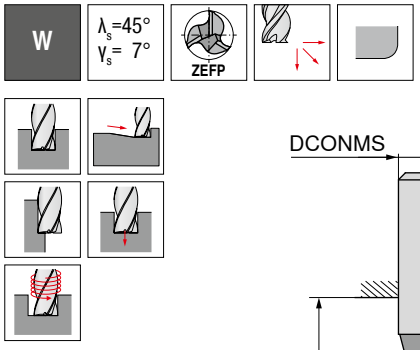


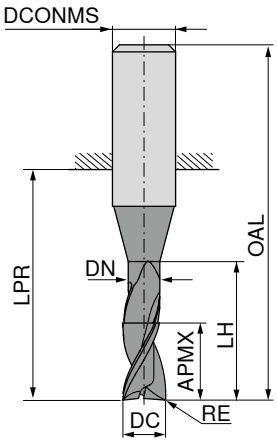
									Factory standard	Factory standard	Factory standard	Factory standard
									HA	HA	HB	HB
									53 584 ...	53 598 ...	53 597 ...	53 599 ...
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP				
3,0	8	2,7	12	21	57	6	0,1	3	03000	03000	03000	03000
3,5	8	3,2	12	21	57	6	0,1	3	03600	03600	03600	03600
4,0	11	3,7	18	21	57	6	0,1	3	04000	04000	04000	04000
4,5	11	4,2	18	21	57	6	0,1	3	04600	04600	04600	04600
5,0	13	4,7	18	21	57	6	0,1	3	05000	05000	05000	05000
5,5	13	5,2	18	21	57	6	0,1	3	05600	05600	05600	05600
6,0	13	5,7	18	21	57	6	0,2	3	06000	06000	06000	06000
6,5	21	6,1	25	27	63	8	0,2	3	06600	06600	06600	06600
7,0	21	6,6	25	27	63	8	0,2	3	07000	07000	07000	07000
7,5	21	7,1	25	27	63	8	0,2	3	07600	07600	07600	07600
8,0	21	7,4	25	27	63	8	0,2	3	08000	08000	08000	08000
8,5	22	7,9	30	33	73	10	0,2	3	08600	08600	08600	08600
9,0	22	8,4	30	33	73	10	0,2	3	09000	09000	09000	09000
9,5	22	8,9	30	33	73	10	0,2	3	09600	09600	09600	09600
10,0	22	9,2	30	33	73	10	0,2	3	10000	10000	10000	10000
10,5	26	9,7	36	38	83	12	0,2	3	10600	10600	10600	10600
11,0	26	10,0	36	38	83	12	0,2	3	11000	11000	11000	11000
11,5	26	10,5	36	38	83	12	0,2	3	11600	11600	11600	11600
12,0	26	11,0	36	38	83	12	0,2	3	12000	12000	12000	12000
12,5	26	11,5	36	38	83	14	0,2	3			12600	12600
13,0	26	12,0	36	38	83	14	0,2	3			13000	13000
13,5	26	12,5	36	38	83	14	0,2	3			13600	13600
14,0	26	13,0	36	38	83	14	0,2	3			14000	14000
14,5	36	13,5	42	44	92	16	0,2	3			14600	14600
15,0	36	14,0	42	44	92	16	0,2	3			15000	15000
15,5	36	14,5	42	44	92	16	0,2	3			15600	15600
16,0	36	15,0	42	44	92	16	0,2	3			16000	16000
16,5	36	15,5	42	44	92	18	0,2	3			16600	16600
17,0	36	16,0	42	44	92	18	0,2	3			17000	17000
17,5	36	16,5	42	44	92	18	0,2	3			17600	17600
18,0	36	17,0	42	44	92	18	0,2	3			18000	18000
18,5	41	17,5	52	54	104	20	0,2	3			18600	18600
19,0	41	18,0	52	54	104	20	0,2	3			19000	19000
19,5	41	18,5	52	54	104	20	0,2	3			19600	19600
20,0	41	19,0	52	54	104	20	0,2	3			20000	20000
P												
M												
K												
N									●	●	●	●
S												
H												
O												

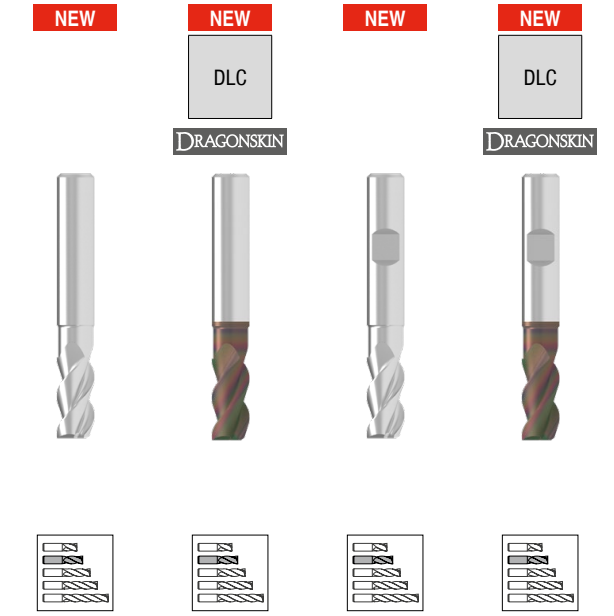
→ v_c/f_z Page 390+391

AluLine – End milling cutter with corner radius

▲ With polished chip flutes







									Factory standard	Factory standard	Factory standard	Factory standard
									HA	HA	HB	HB
									53 708 ...	**53 710 ...**	**53 709 ...**	**53 711 ...**
DC h6 **mm**	**RE** ±0,05 **mm**	**APMX mm**	**DN mm**	**LH mm**	**LPR mm**	**OAL mm**	**DCONMS** h6 **mm**	**ZEFP**				
2	0,3	4,5	1,8	6	14	50	6	3	**02103**	**02103**	**02103**	**02103**
2	0,5	4,5	1,8	6	14	50	6	3	**02105**	**02105**	**02105**	**02105**
3	0,3	6,5	2,7	9	19	55	6	3	**03103**	**03103**	**03103**	**03103**
3	0,5	6,5	2,7	9	19	55	6	3	**03105**	**03105**	**03105**	**03105**
3	1,0	6,5	2,7	9	19	55	6	3	**03110**	**03110**	**03110**	**03110**
4	0,3	8,5	3,7	12	19	55	6	3	**04103**	**04103**	**04103**	**04103**
4	0,5	8,5	3,7	12	19	55	6	3	**04105**	**04105**	**04105**	**04105**
4	1,0	8,5	3,7	12	19	55	6	3	**04110**	**04110**	**04110**	**04110**
5	0,3	10,5	4,7	15	22	58	6	3	**05103**	**05103**	**05103**	**05103**
5	0,5	10,5	4,7	15	22	58	6	3	**05105**	**05105**	**05105**	**05105**
5	1,0	10,5	4,7	15	22	58	6	3	**05110**	**05110**	**05110**	**05110**
6	0,3	13,0	5,7	18	22	58	6	3	**06103**	**06103**	**06103**	**06103**
6	0,5	13,0	5,7	18	22	58	6	3	**06105**	**06105**	**06105**	**06105**
6	1,0	13,0	5,7	18	22	58	6	3	**06110**	**06110**	**06110**	**06110**
6	1,5	13,0	5,7	18	22	58	6	3	**06115**	**06115**	**06115**	**06115**
8	0,3	17,0	7,4	24	28	64	8	3	**08103**	**08103**	**08103**	**08103**
8	0,5	17,0	7,4	24	28	64	8	3	**08105**	**08105**	**08105**	**08105**
8	1,0	17,0	7,4	24	28	64	8	3	**08110**	**08110**	**08110**	**08110**
8	1,5	17,0	7,4	24	28	64	8	3	**08115**	**08115**	**08115**	**08115**
8	2,0	17,0	7,4	24	28	64	8	3	**08120**	**08120**	**08120**	**08120**
10	0,3	21,0	9,2	30	34	74	10	3	**10103**	**10103**	**10103**	**10103**
10	0,5	21,0	9,2	30	34	74	10	3	**10105**	**10105**	**10105**	**10105**
10	1,0	21,0	9,2	30	34	74	10	3	**10110**	**10110**	**10110**	**10110**
10	1,5	21,0	9,2	30	34	74	10	3	**10115**	**10115**	**10115**	**10115**
10	2,0	21,0	9,2	30	34	74	10	3	**10120**	**10120**	**10120**	**10120**
10	3,0	21,0	9,2	30	34	74	10	3	**10130**	**10130**	**10130**	**10130**
12	0,3	25,0	11,0	36	40	85	12	3	**12103**	**12103**	**12103**	**12103**
12	0,5	25,0	11,0	36	40	85	12	3	**12105**	**12105**	**12105**	**12105**
12	1,0	25,0	11,0	36	40	85	12	3	**12110**	**12110**	**12110**	**12110**
12	1,5	25,0	11,0	36	40	85	12	3	**12115**	**12115**	**12115**	**12115**
12	2,0	25,0	11,0	36	40	85	12	3	**12120**	**12120**	**12120**	**12120**
12	3,0	25,0	11,0	36	40	85	12	3	**12130**	**12130**	**12130**	**12130**
12	4,0	25,0	11,0	36	40	85	12	3	**12140**	**12140**	**12140**	**12140**
16	0,3	33,0	15,0	48	52	100	16	3			**16103**	**16103**
16	0,5	33,0	15,0	48	52	100	16	3			**16105**	**16105**
16	1,0	33,0	15,0	48	52	100	16	3			**16110**	**16110**
16	1,5	33,0	15,0	48	52	100	16	3			**16115**	**16115**
P												
M												
K												
N									●	●	●	●
S												
H												
O												

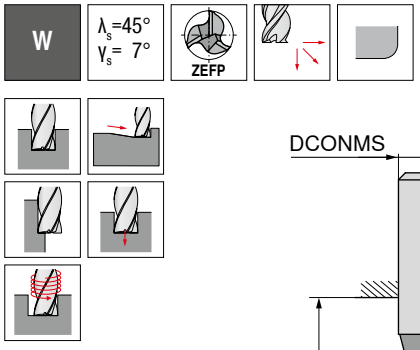
→ v_c/f_z Page 390+391

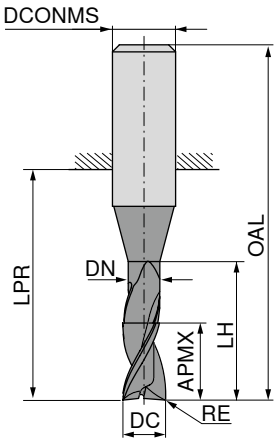
14

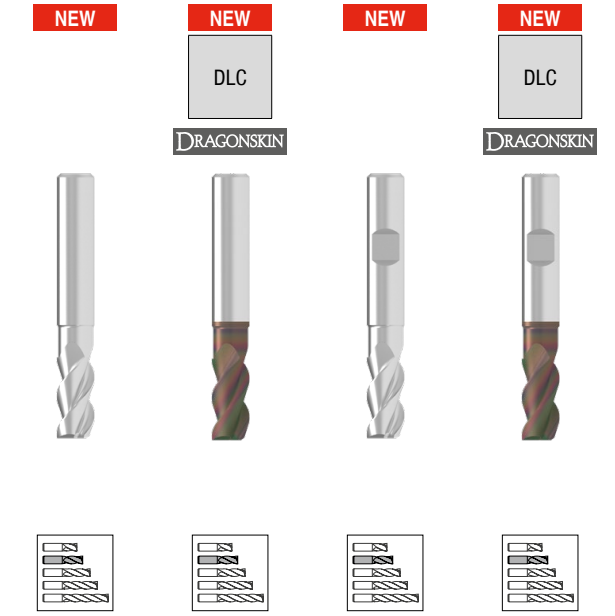
Continued on next page

AluLine – End milling cutter with corner radius

▲ With polished chip flutes





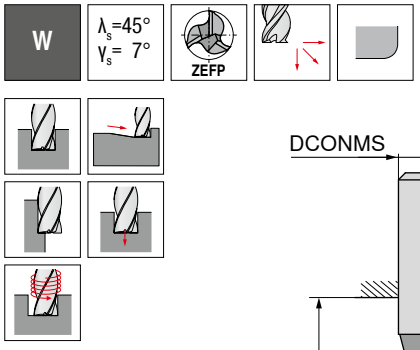


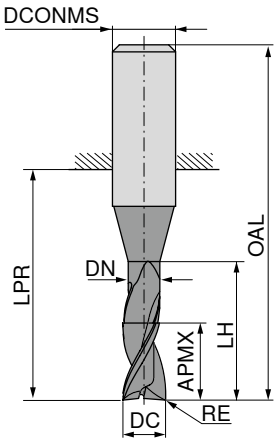
									Factory standard	Factory standard	Factory standard	Factory standard
									HA	HA	HB	HB
									53 708 ...	**53 710 ...**	**53 709 ...**	**53 711 ...**
DC h6 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP				
16	2,0	33,0	15,0	48	52	100	16	3			**16120**	**16120**
16	3,0	33,0	15,0	48	52	100	16	3			**16130**	**16130**
16	4,0	33,0	15,0	48	52	100	16	3			**16140**	**16140**
20	0,5	42,0	19,0	60	64	114	20	3			**20105**	**20105**
20	1,0	42,0	19,0	60	64	114	20	3			**20110**	**20110**
20	1,5	42,0	19,0	60	64	114	20	3			**20115**	**20115**
20	2,0	42,0	19,0	60	64	114	20	3			**20120**	**20120**
20	3,0	42,0	19,0	60	64	114	20	3			**20130**	**20130**
20	4,0	42,0	19,0	60	64	114	20	3			**20140**	**20140**
P												
M												
K												
N									●	●	●	●
S												
H												
O												

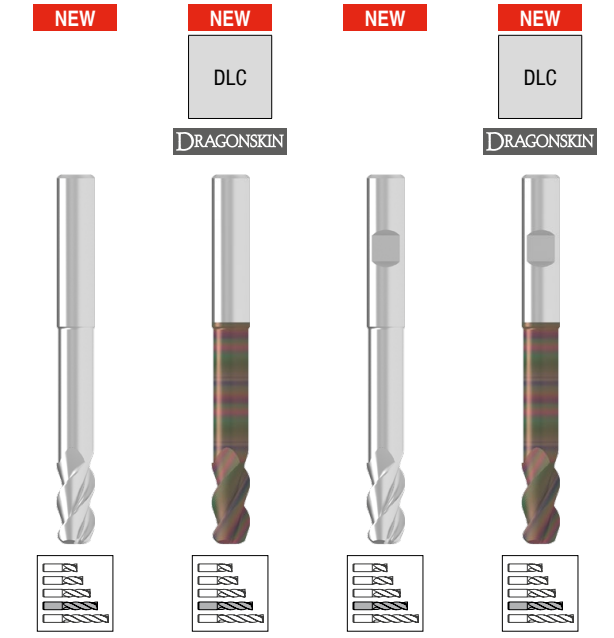
→ v_c/f_z Page 390+391

AluLine – End milling cutter with corner radius

▲ With polished chip flutes







									Factory standard	Factory standard	Factory standard	Factory standard
									HA	HA	HB	HB
									53 708 ...	53 710 ...	53 709 ...	53 711 ...
DC h6 **mm**	**RE** ±0,05 mm	**APMX** mm	**DN** mm	**LH** mm	**LPR** mm	**OAL** mm	**DCONMS** h6 mm	**ZEFP**				
2	0,3	5,5	1,8	10	19	55	6	3	**02203**	**02203**	**02203**	**02203**
2	0,5	5,5	1,8	10	19	55	6	3	**02205**	**02205**	**02205**	**02205**
3	0,3	8,0	2,7	15	22	58	6	3	**03203**	**03203**	**03203**	**03203**
3	0,5	8,0	2,7	15	22	58	6	3	**03205**	**03205**	**03205**	**03205**
3	1,0	8,0	2,7	15	22	58	6	3	**03210**	**03210**	**03210**	**03210**
4	0,3	10,5	3,7	20	26	62	6	3	**04203**	**04203**	**04203**	**04203**
4	0,5	10,5	3,7	20	26	62	6	3	**04205**	**04205**	**04205**	**04205**
4	1,0	10,5	3,7	20	26	62	6	3	**04210**	**04210**	**04210**	**04210**
5	0,3	13,0	4,7	25	34	70	6	3	**05203**	**05203**	**05203**	**05203**
5	0,5	13,0	4,7	25	34	70	6	3	**05205**	**05205**	**05205**	**05205**
5	1,0	13,0	4,7	25	34	70	6	3	**05210**	**05210**	**05210**	**05210**
6	0,3	16,0	5,7	30	34	70	6	3	**06203**	**06203**	**06203**	**06203**
6	0,5	16,0	5,7	30	34	70	6	3	**06205**	**06205**	**06205**	**06205**
6	1,0	16,0	5,7	30	34	70	6	3	**06210**	**06210**	**06210**	**06210**
6	1,5	16,0	5,7	30	34	70	6	3	**06215**	**06215**	**06215**	**06215**
8	0,3	21,0	7,4	40	44	80	8	3	**08203**	**08203**	**08203**	**08203**
8	0,5	21,0	7,4	40	44	80	8	3	**08205**	**08205**	**08205**	**08205**
8	1,0	21,0	7,4	40	44	80	8	3	**08210**	**08210**	**08210**	**08210**
8	1,5	21,0	7,4	40	44	80	8	3	**08215**	**08215**	**08215**	**08215**
8	2,0	21,0	7,4	40	44	80	8	3	**08220**	**08220**	**08220**	**08220**
10	0,3	26,0	9,2	50	54	94	10	3	**10203**	**10203**	**10203**	**10203**
10	0,5	26,0	9,2	50	54	94	10	3	**10205**	**10205**	**10205**	**10205**
10	1,0	26,0	9,2	50	54	94	10	3	**10210**	**10210**	**10210**	**10210**
10	1,5	26,0	9,2	50	54	94	10	3	**10215**	**10215**	**10215**	**10215**
10	2,0	26,0	9,2	50	54	94	10	3	**10220**	**10220**	**10220**	**10220**
10	3,0	26,0	9,2	50	54	94	10	3	**10230**	**10230**	**10230**	**10230**
12	0,3	31,0	11,0	60	64	109	12	3	**12203**	**12203**	**12203**	**12203**
12	0,5	31,0	11,0	60	64	109	12	3	**12205**	**12205**	**12205**	**12205**
12	1,0	31,0	11,0	60	64	109	12	3	**12210**	**12210**	**12210**	**12210**
12	1,5	31,0	11,0	60	64	109	12	3	**12215**	**12215**	**12215**	**12215**
12	2,0	31,0	11,0	60	64	109	12	3	**12220**	**12220**	**12220**	**12220**
12	3,0	31,0	11,0	60	64	109	12	3	**12230**	**12230**	**12230**	**12230**
12	4,0	31,0	11,0	60	64	109	12	3	**12240**	**12240**	**12240**	**12240**
16	0,3	41,0	15,0	80	84	132	16	3			**16203**	**16203**
16	0,5	41,0	15,0	80	84	132	16	3			**16205**	**16205**
16	1,0	41,0	15,0	80	84	132	16	3			**16210**	**16210**

P				
M				
K				
N	●	●	●	●
S				
H				
O				

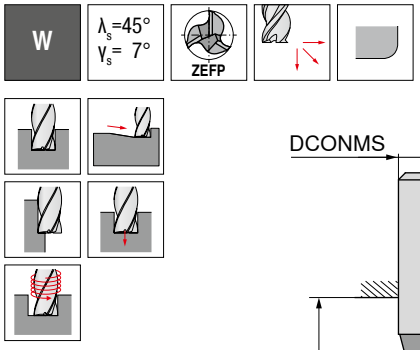
→ v_c/f_z Page 390+391

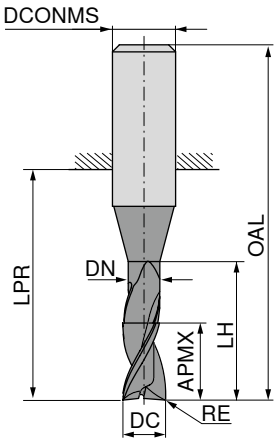
14

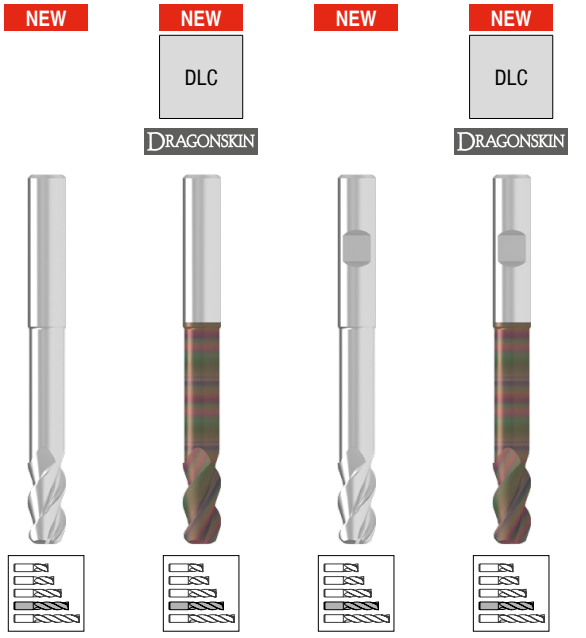
Continued on next page

AluLine – End milling cutter with corner radius

▲ With polished chip flutes





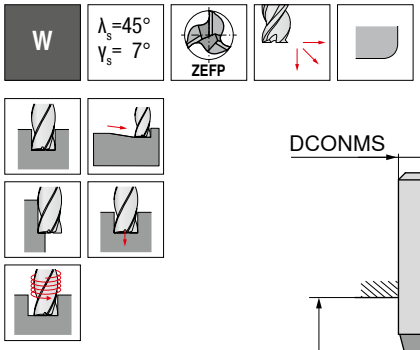


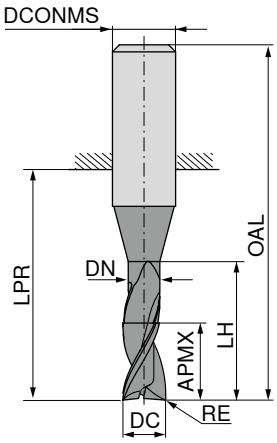
									Factory standard	Factory standard	Factory standard	Factory standard
									HA	HA	HB	HB
									53 708 ...	**53 710 ...**	**53 709 ...**	**53 711 ...**
DC $_{h6}$ **mm**	**RE** $_{\pm 0,05}$ mm	**APMX** mm	**DN** mm	**LH** mm	**LPR** mm	**OAL** mm	**DCONMS** $_{h6}$ mm	**ZEFP**				
16	1,5	41,0	15,0	80	84	132	16	3			**16215**	**16215**
16	2,0	41,0	15,0	80	84	132	16	3			**16220**	**16220**
16	3,0	41,0	15,0	80	84	132	16	3			**16230**	**16230**
16	4,0	41,0	15,0	80	84	132	16	3			**16240**	**16240**
20	0,5	52,0	19,0	100	104	154	20	3			**20205**	**20205**
20	1,0	52,0	19,0	100	104	154	20	3			**20210**	**20210**
20	1,5	52,0	19,0	100	104	154	20	3			**20215**	**20215**
20	2,0	52,0	19,0	100	104	154	20	3			**20220**	**20220**
20	3,0	52,0	19,0	100	104	154	20	3			**20230**	**20230**
20	4,0	52,0	19,0	100	104	154	20	3			**20240**	**20240**
P												
M												
K												
N									●	●	●	●
S												
H												
O												

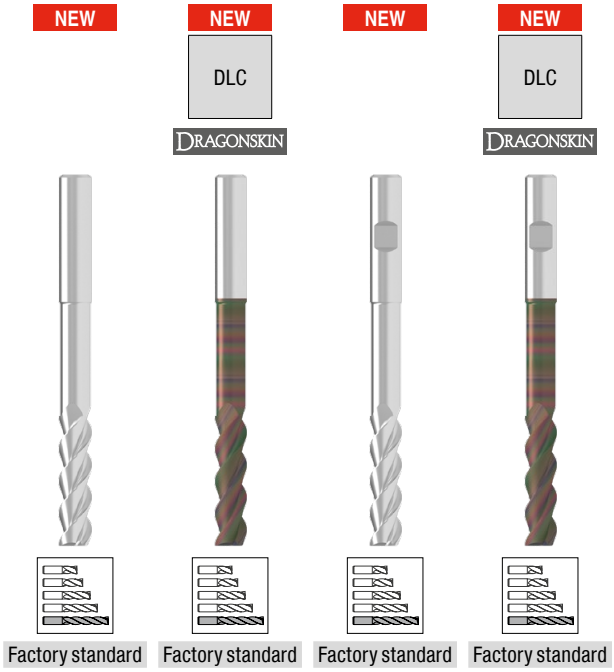
→ v_c/f_z Page 390+391

AluLine – End milling cutter with corner radius

▲ With polished chip flutes







									Factory standard	Factory standard	Factory standard	Factory standard
									HA	HA	HB	HB
									53 708 ...	53 710 ...	53 709 ...	53 711 ...
DC h6 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP				
2	0,3	8,5	1,8	16	26	62	6	3	02403	02403	02403	02403
2	0,5	8,5	1,8	16	26	62	6	3	02405	02405	02405	02405
3	0,3	12,5	2,7	24	31	67	6	3	03403	03403	03403	03403
3	0,5	12,5	2,7	24	31	67	6	3	03405	03405	03405	03405
3	1,0	12,5	2,7	24	31	67	6	3	03410	03410	03410	03410
4	0,3	16,5	3,7	32	38	74	6	3	04403	04403	04403	04403
4	0,5	16,5	3,7	32	38	74	6	3	04405	04405	04405	04405
4	1,0	16,5	3,7	32	38	74	6	3	04410	04410	04410	04410
5	0,3	20,5	4,7	40	52	88	6	3	05403	05403	05403	05403
5	0,5	20,5	4,7	40	52	88	6	3	05405	05405	05405	05405
5	1,0	20,5	4,7	40	52	88	6	3	05410	05410	05410	05410
6	0,3	25,0	5,7	48	52	88	6	3	06403	06403	06403	06403
6	0,5	25,0	5,7	48	52	88	6	3	06405	06405	06405	06405
6	1,0	25,0	5,7	48	52	88	6	3	06410	06410	06410	06410
6	1,5	25,0	5,7	48	52	88	6	3	06415	06415	06415	06415
8	0,3	33,0	7,4	64	68	104	8	3	08403	08403	08403	08403
8	0,5	33,0	7,4	64	68	104	8	3	08405	08405	08405	08405
8	1,0	33,0	7,4	64	68	104	8	3	08410	08410	08410	08410
8	1,5	33,0	7,4	64	68	104	8	3	08415	08415	08415	08415
8	2,0	33,0	7,4	64	68	104	8	3	08420	08420	08420	08420
10	0,3	41,0	9,2	80	84	124	10	3	10403	10403	10403	10403
10	0,5	41,0	9,2	80	84	124	10	3	10405	10405	10405	10405
10	1,0	41,0	9,2	80	84	124	10	3	10410	10410	10410	10410
10	1,5	41,0	9,2	80	84	124	10	3	10415	10415	10415	10415
10	2,0	41,0	9,2	80	84	124	10	3	10420	10420	10420	10420
10	3,0	41,0	9,2	80	84	124	10	3	10430	10430	10430	10430
12	0,3	49,0	11,0	96	100	145	12	3	12403	12403	12403	12403
12	0,5	49,0	11,0	96	100	145	12	3	12405	12405	12405	12405
12	1,0	49,0	11,0	96	100	145	12	3	12410	12410	12410	12410
12	1,5	49,0	11,0	96	100	145	12	3	12415	12415	12415	12415
12	2,0	49,0	11,0	96	100	145	12	3	12420	12420	12420	12420
12	3,0	49,0	11,0	96	100	145	12	3	12430	12430	12430	12430
12	4,0	49,0	11,0	96	100	145	12	3	12440	12440	12440	12440
16	0,3	65,0	15,0	128	132	180	16	3			16403	16403
16	0,5	65,0	15,0	128	132	180	16	3			16405	16405
16	1,0	65,0	15,0	128	132	180	16	3			16410	16410

P				
M				
K				
N	●	●	●	●
S				
H				
O				

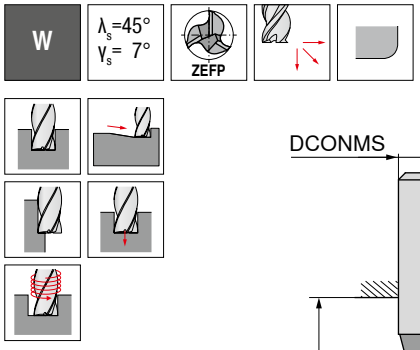
→ v_c/f_z Page 390+391

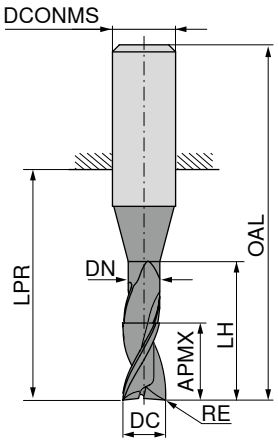
14

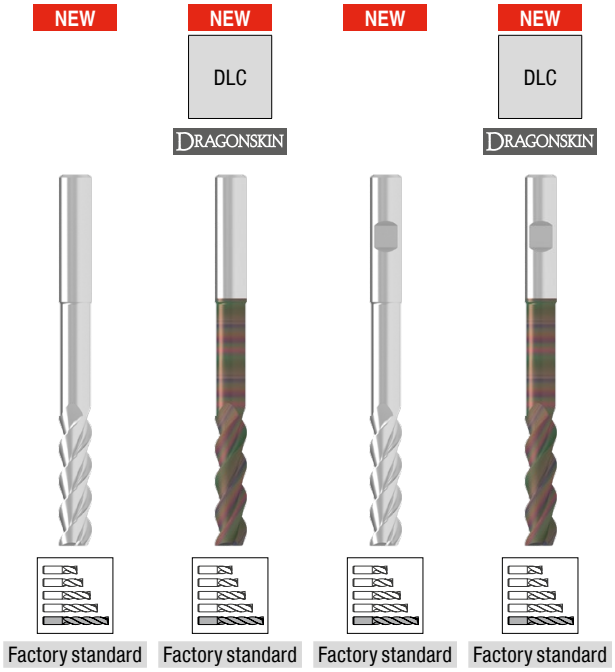
Continued on next page

AluLine – End milling cutter with corner radius

▲ With polished chip flutes





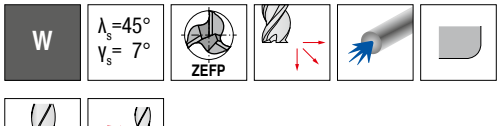


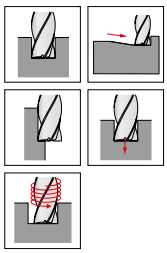
									Factory standard	Factory standard	Factory standard	Factory standard
									HA	HA	HB	HB
									53 708 ...	**53 710 ...**	**53 709 ...**	**53 711 ...**
DC h6 **mm**	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP				
16	1,5	65,0	15,0	128	132	180	16	3			**16415**	**16415**
16	2,0	65,0	15,0	128	132	180	16	3			**16420**	**16420**
16	3,0	65,0	15,0	128	132	180	16	3			**16430**	**16430**
16	4,0	65,0	15,0	128	132	180	16	3			**16440**	**16440**
20	0,5	82,0	19,0	160	164	214	20	3			**20405**	**20405**
20	1,0	82,0	19,0	160	164	214	20	3			**20410**	**20410**
20	1,5	82,0	19,0	160	164	214	20	3			**20415**	**20415**
20	2,0	82,0	19,0	160	164	214	20	3			**20420**	**20420**
20	3,0	82,0	19,0	160	164	214	20	3			**20430**	**20430**
20	4,0	82,0	19,0	160	164	214	20	3			**20440**	**20440**
P												
M												
K												
N									●	●	●	●
S												
H												
O												

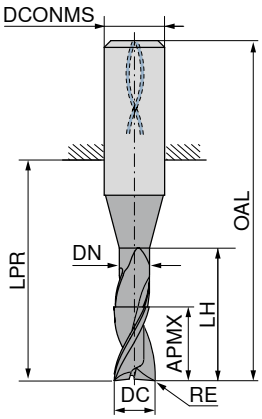
→ v_c/f_z Page 390+391

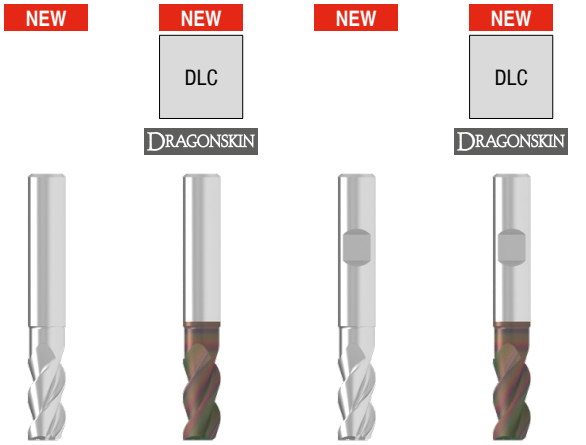
AluLine – End milling cutter with corner radius

▲ With polished chip flutes











									Factory standard	Factory standard	Factory standard	Factory standard
									HA	HA	HB	HB
									53 712 ...	**53 714 ...**	**53 713 ...**	**53 715 ...**
DC h6 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP				
6	0,3	13	5,7	18	22	58	6	3	**06103**	**06103**	**06103**	**06103**
6	0,5	13	5,7	18	22	58	6	3	**06105**	**06105**	**06105**	**06105**
6	1,0	13	5,7	18	22	58	6	3	**06110**	**06110**	**06110**	**06110**
6	1,5	13	5,7	18	22	58	6	3	**06115**	**06115**	**06115**	**06115**
8	0,3	17	7,4	24	28	64	8	3	**08103**	**08103**	**08103**	**08103**
8	0,5	17	7,4	24	28	64	8	3	**08105**	**08105**	**08105**	**08105**
8	1,0	17	7,4	24	28	64	8	3	**08110**	**08110**	**08110**	**08110**
8	1,5	17	7,4	24	28	64	8	3	**08115**	**08115**	**08115**	**08115**
8	2,0	17	7,4	24	28	64	8	3	**08120**	**08120**	**08120**	**08120**
10	0,3	21	9,2	30	34	74	10	3	**10103**	**10103**	**10103**	**10103**
10	0,5	21	9,2	30	34	74	10	3	**10105**	**10105**	**10105**	**10105**
10	1,0	21	9,2	30	34	74	10	3	**10110**	**10110**	**10110**	**10110**
10	1,5	21	9,2	30	34	74	10	3	**10115**	**10115**	**10115**	**10115**
10	2,0	21	9,2	30	34	74	10	3	**10120**	**10120**	**10120**	**10120**
10	3,0	21	9,2	30	34	74	10	3	**10130**	**10130**	**10130**	**10130**
12	0,3	25	11,0	36	40	85	12	3	**12103**	**12103**	**12103**	**12103**
12	0,5	25	11,0	36	40	85	12	3	**12105**	**12105**	**12105**	**12105**
12	1,0	25	11,0	36	40	85	12	3	**12110**	**12110**	**12110**	**12110**
12	1,5	25	11,0	36	40	85	12	3	**12115**	**12115**	**12115**	**12115**
12	2,0	25	11,0	36	40	85	12	3	**12120**	**12120**	**12120**	**12120**
12	3,0	25	11,0	36	40	85	12	3	**12130**	**12130**	**12130**	**12130**
12	4,0	25	11,0	36	40	85	12	3	**12140**	**12140**	**12140**	**12140**
16	0,3	33	15,0	48	52	100	16	3			**16103**	**16103**
16	0,5	33	15,0	48	52	100	16	3			**16105**	**16105**
16	1,0	33	15,0	48	52	100	16	3			**16110**	**16110**
16	1,5	33	15,0	48	52	100	16	3			**16115**	**16115**
16	2,0	33	15,0	48	52	100	16	3			**16120**	**16120**
16	3,0	33	15,0	48	52	100	16	3			**16130**	**16130**
16	4,0	33	15,0	48	52	100	16	3			**16140**	**16140**
20	0,5	42	19,0	60	64	114	20	3			**20105**	**20105**
20	1,0	42	19,0	60	64	114	20	3			**20110**	**20110**
20	1,5	42	19,0	60	64	114	20	3			**20115**	**20115**
20	2,0	42	19,0	60	64	114	20	3			**20120**	**20120**
20	3,0	42	19,0	60	64	114	20	3			**20130**	**20130**
20	4,0	42	19,0	60	64	114	20	3			**20140**	**20140**
P												
M												
K												
N									●	●	●	●
S												
H												
O												

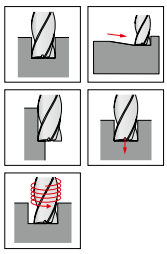
→ v_c/f_z Page 390+391

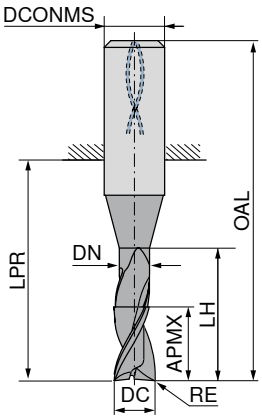
14

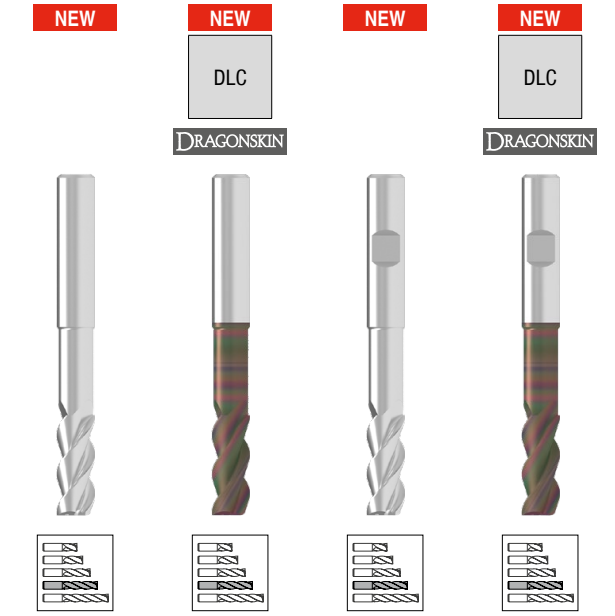
AluLine – End milling cutter with corner radius

▲ With polished chip flutes









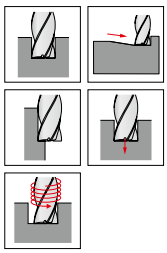
									Factory standard	Factory standard	Factory standard	Factory standard
									HA	HA	HB	HB
									53 712 ...	**53 714 ...**	**53 713 ...**	**53 715 ...**
DC h6 **mm**	RE ±0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP				
6	0,3	16	5,7	30	34	70	6	3	**06203**	**06203**	**06203**	**06203**
6	0,5	16	5,7	30	34	70	6	3	**06205**	**06205**	**06205**	**06205**
6	1,0	16	5,7	30	34	70	6	3	**06210**	**06210**	**06210**	**06210**
6	1,5	16	5,7	30	34	70	6	3	**06215**	**06215**	**06215**	**06215**
8	0,3	21	7,4	40	44	80	8	3	**08203**	**08203**	**08203**	**08203**
8	0,5	21	7,4	40	44	80	8	3	**08205**	**08205**	**08205**	**08205**
8	1,0	21	7,4	40	44	80	8	3	**08210**	**08210**	**08210**	**08210**
8	1,5	21	7,4	40	44	80	8	3	**08215**	**08215**	**08215**	**08215**
8	2,0	21	7,4	40	44	80	8	3	**08220**	**08220**	**08220**	**08220**
10	0,3	26	9,2	50	54	94	10	3	**10203**	**10203**	**10203**	**10203**
10	0,5	26	9,2	50	54	94	10	3	**10205**	**10205**	**10205**	**10205**
10	1,0	26	9,2	50	54	94	10	3	**10210**	**10210**	**10210**	**10210**
10	1,5	26	9,2	50	54	94	10	3	**10215**	**10215**	**10215**	**10215**
10	2,0	26	9,2	50	54	94	10	3	**10220**	**10220**	**10220**	**10220**
10	3,0	26	9,2	50	54	94	10	3	**10230**	**10230**	**10230**	**10230**
12	0,3	31	11,0	60	64	109	12	3	**12203**	**12203**	**12203**	**12203**
12	0,5	31	11,0	60	64	109	12	3	**12205**	**12205**	**12205**	**12205**
12	1,0	31	11,0	60	64	109	12	3	**12210**	**12210**	**12210**	**12210**
12	1,5	31	11,0	60	64	109	12	3	**12215**	**12215**	**12215**	**12215**
12	2,0	31	11,0	60	64	109	12	3	**12220**	**12220**	**12220**	**12220**
12	3,0	31	11,0	60	64	109	12	3	**12230**	**12230**	**12230**	**12230**
12	4,0	31	11,0	60	64	109	12	3	**12240**	**12240**	**12240**	**12240**
16	0,3	41	15,0	80	84	132	16	3			**16203**	**16203**
16	0,5	41	15,0	80	84	132	16	3			**16205**	**16205**
16	1,0	41	15,0	80	84	132	16	3			**16210**	**16210**
16	1,5	41	15,0	80	84	132	16	3			**16215**	**16215**
16	2,0	41	15,0	80	84	132	16	3			**16220**	**16220**
16	3,0	41	15,0	80	84	132	16	3			**16230**	**16230**
16	4,0	41	15,0	80	84	132	16	3			**16240**	**16240**
20	0,5	52	19,0	100	104	154	20	3			**20205**	**20205**
20	1,0	52	19,0	100	104	154	20	3			**20210**	**20210**
20	1,5	52	19,0	100	104	154	20	3			**20215**	**20215**
20	2,0	52	19,0	100	104	154	20	3			**20220**	**20220**
20	3,0	52	19,0	100	104	154	20	3			**20230**	**20230**
20	4,0	52	19,0	100	104	154	20	3			**20240**	**20240**
P												
M												
K												
N									●	●	●	●
S												
H												
O												

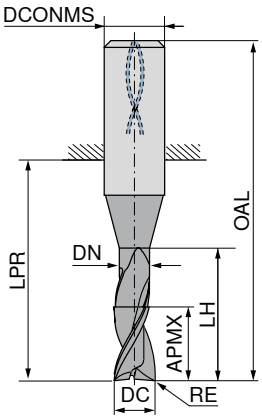
→ v_c/f_z Page 390+391

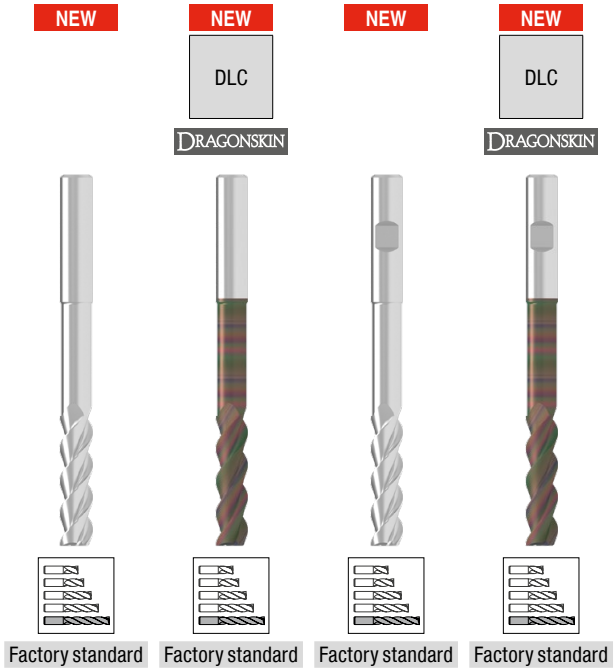
AluLine – End milling cutter with corner radius

▲ With polished chip flutes









									Factory standard	Factory standard	Factory standard	Factory standard
									HA	HA	HB	HB
									53 712 ...	53 714 ...	53 713 ...	53 715 ...
DC h6 **mm**	**RE** ±0,01 mm	**APMX** mm	**DN** mm	**LH** mm	**LPR** mm	**OAL** mm	**DCONMS** h5 mm	**ZEFP**				
6	0,3	25	5,7	48	52	88	6	3	**06403**	**06403**	**06403**	**06403**
6	0,5	25	5,7	48	52	88	6	3	**06405**	**06405**	**06405**	**06405**
6	1,0	25	5,7	48	52	88	6	3	**06410**	**06410**	**06410**	**06410**
6	1,5	25	5,7	48	52	88	6	3	**06415**	**06415**	**06415**	**06415**
8	0,3	33	7,4	64	68	104	8	3	**08403**	**08403**	**08403**	**08403**
8	0,5	33	7,4	64	68	104	8	3	**08405**	**08405**	**08405**	**08405**
8	1,0	33	7,4	64	68	104	8	3	**08410**	**08410**	**08410**	**08410**
8	1,5	33	7,4	64	68	104	8	3	**08415**	**08415**	**08415**	**08415**
8	2,0	33	7,4	64	68	104	8	3	**08420**	**08420**	**08420**	**08420**
10	0,3	41	9,2	80	84	124	10	3	**10403**	**10403**	**10403**	**10403**
10	0,5	41	9,2	80	84	124	10	3	**10405**	**10405**	**10405**	**10405**
10	1,0	41	9,2	80	84	124	10	3	**10410**	**10410**	**10410**	**10410**
10	1,5	41	9,2	80	84	124	10	3	**10415**	**10415**	**10415**	**10415**
10	2,0	41	9,2	80	84	124	10	3	**10420**	**10420**	**10420**	**10420**
10	3,0	41	9,2	80	84	124	10	3	**10430**	**10430**	**10430**	**10430**
12	0,3	49	11,0	96	100	145	12	3	**12403**	**12403**	**12403**	**12403**
12	0,5	49	11,0	96	100	145	12	3	**12405**	**12405**	**12405**	**12405**
12	1,0	49	11,0	96	100	145	12	3	**12410**	**12410**	**12410**	**12410**
12	1,5	49	11,0	96	100	145	12	3	**12415**	**12415**	**12415**	**12415**
12	2,0	49	11,0	96	100	145	12	3	**12420**	**12420**	**12420**	**12420**
12	3,0	49	11,0	96	100	145	12	3	**12430**	**12430**	**12430**	**12430**
12	4,0	49	11,0	96	100	145	12	3	**12440**	**12440**	**12440**	**12440**
16	0,3	65	15,0	128	132	180	16	3			**16403**	**16403**
16	0,5	65	15,0	128	132	180	16	3			**16405**	**16405**
16	1,0	65	15,0	128	132	180	16	3			**16410**	**16410**
16	1,5	65	15,0	128	132	180	16	3			**16415**	**16415**
16	2,0	65	15,0	128	132	180	16	3			**16420**	**16420**
16	3,0	65	15,0	128	132	180	16	3			**16430**	**16430**
16	4,0	65	15,0	128	132	180	16	3			**16440**	**16440**
20	0,5	82	19,0	160	164	214	20	3			**20405**	**20405**
20	1,0	82	19,0	160	164	214	20	3			**20410**	**20410**
20	1,5	82	19,0	160	164	214	20	3			**20415**	**20415**
20	2,0	82	19,0	160	164	214	20	3			**20420**	**20420**
20	3,0	82	19,0	160	164	214	20	3			**20430**	**20430**
20	4,0	82	19,0	160	164	214	20	3			**20440**	**20440**

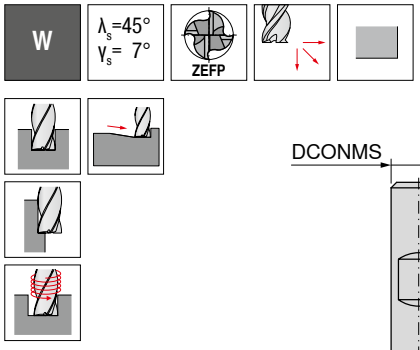
P				
M				
K				
N	●	●	●	●
S				
H				
O				

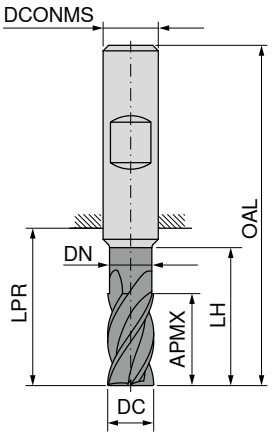
→ v_c/f_z Page 390+391

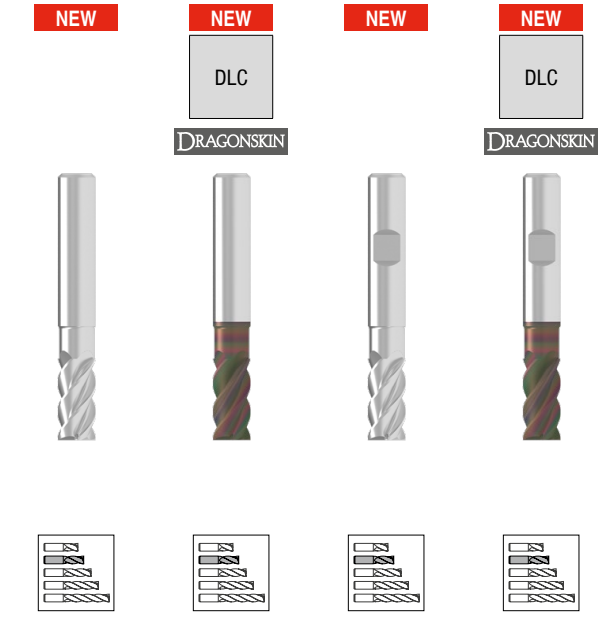
14

AluLine – End milling cutter

▲ With polished chip flutes







	Factory standard	Factory standard	Factory standard	Factory standard
	HA	HA	HB	HB
DC h6 mm	53 704 ...	53 706 ...	53 705 ...	53 707 ...
5	05100	05100	05100	05100
6	06100	06100	06100	06100
8	08100	08100	08100	08100
10	10100	10100	10100	10100
12	12100	12100	12100	12100
14			14100	14100
16			16100	16100
18			18100	18100
20			20100	20100

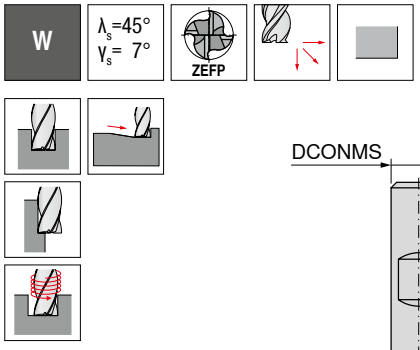
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP
5	10,5	4,8	15	22	58	6	4
6	13,0	5,8	18	22	58	6	4
8	17,0	7,7	24	28	64	8	4
10	21,0	9,7	30	34	74	10	4
12	25,0	11,6	36	40	85	12	4
14	29,0	13,6	42	46	91	14	4
16	33,0	15,5	48	52	100	16	4
18	38,0	17,5	54	58	106	18	4
20	42,0	19,5	60	64	114	20	4

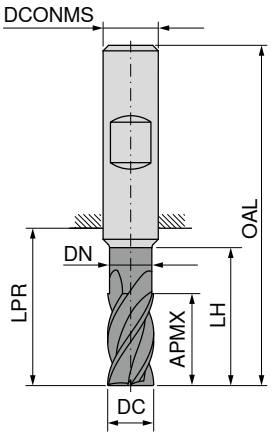
P				
M				
K				
N	●	●	●	●
S				
H				
O				

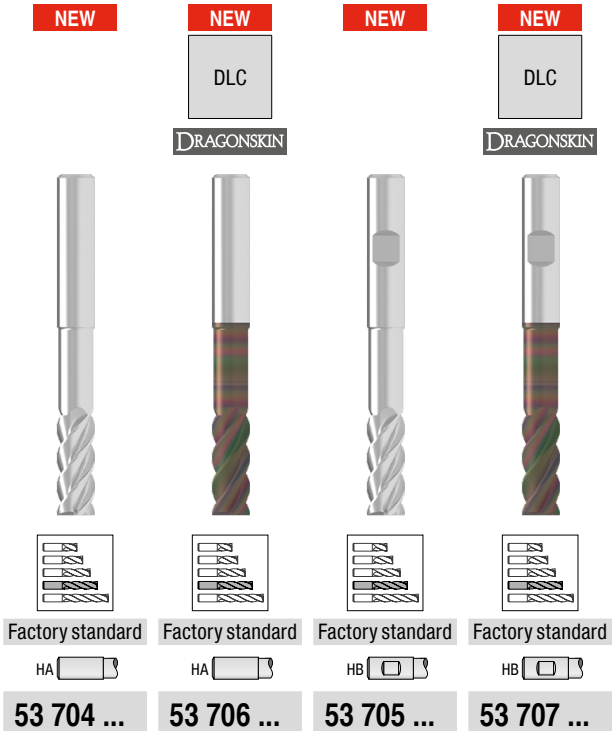
→ v_c/f_z Page 390+391

AluLine – End milling cutter

▲ With polished chip flutes







DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	Factory standard HA 53 704 ...	Factory standard HA 53 706 ...	Factory standard HB 53 705 ...	Factory standard HB 53 707 ...
2	5,5	1,8	10	19	55	6	4	**02200**	**02200**	**02200**	**02200**
3	8,0	2,8	15	22	58	6	4	**03200**	**03200**	**03200**	**03200**
4	10,5	3,8	20	26	62	6	4	**04200**	**04200**	**04200**	**04200**
5	13,0	4,8	25	34	70	6	4	**05200**	**05200**	**05200**	**05200**
6	16,0	5,8	30	34	70	6	4	**06200**	**06200**	**06200**	**06200**
8	21,0	7,7	40	44	80	8	4	**08200**	**08200**	**08200**	**08200**
10	26,0	9,7	50	54	94	10	4	**10200**	**10200**	**10200**	**10200**
12	31,0	11,6	60	64	109	12	4	**12200**	**12200**	**12200**	**12200**
14	36,0	13,6	70	74	119	14	4			**14200**	**14200**
16	41,0	15,5	80	84	132	16	4			**16200**	**16200**
18	47,0	17,5	90	94	142	18	4			**18200**	**18200**
20	52,0	19,5	100	104	154	20	4			**20200**	**20200**

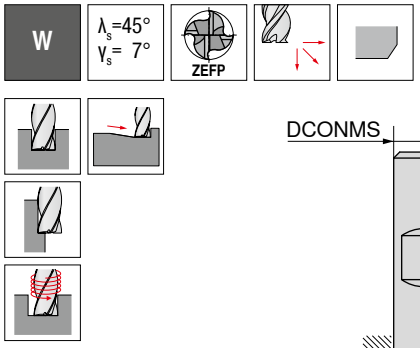
P				
M				
K				
N	●	●	●	●
S				
H				
O				

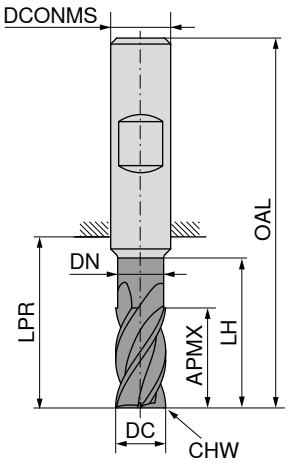
→ v_c/f_z Page 390+391

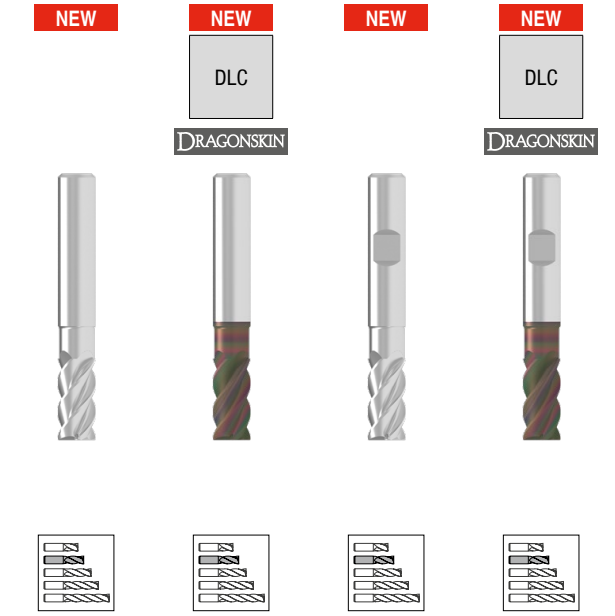
14

AluLine – End milling cutter

▲ With polished chip flutes







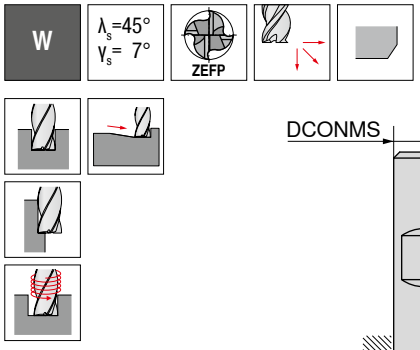
							Factory standard	Factory standard
							HA	HA
							53 700 ...	53 702 ...
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP
5	10,5	4,8	15	22	58	6	0,1	4
6	13,0	5,8	18	22	58	6	0,2	4
8	17,0	7,7	24	28	64	8	0,2	4
10	21,0	9,7	30	34	74	10	0,2	4
12	25,0	11,6	36	40	85	12	0,2	4
14	29,0	13,6	42	46	91	14	0,2	4
16	33,0	15,5	48	52	100	16	0,2	4
18	38,0	17,5	54	58	106	18	0,2	4
20	42,0	19,5	60	64	114	20	0,2	4
							05100	05100
							06100	06100
							08100	08100
							10100	10100
							12100	12100
P								
M								
K								
N							●	●
S								
H								
O								

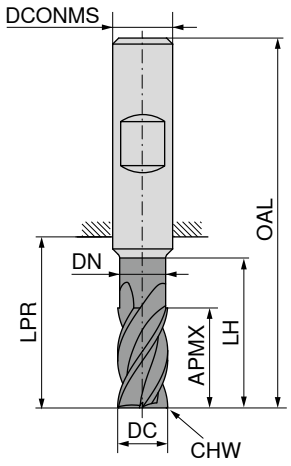
Factory standard	Factory standard
HB	HB
53 701 ...	53 703 ...
05100	05100
06100	06100
08100	08100
10100	10100
12100	12100
14100	14100
16100	16100
18100	18100
20100	20100
●	●

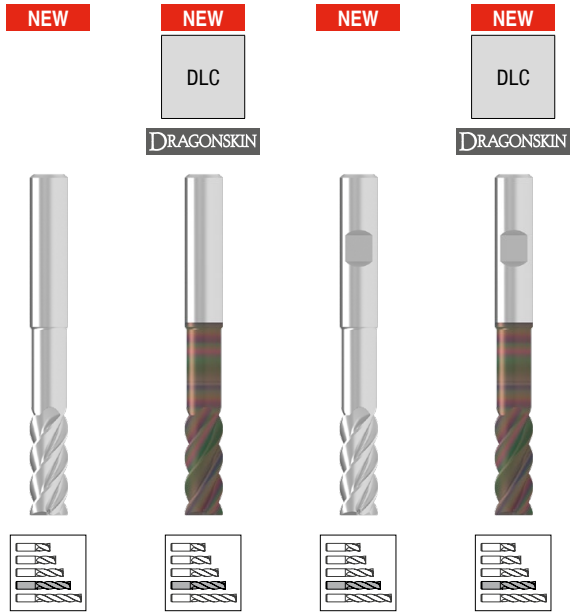
→ v_c/f_z Page 390+391

AluLine – End milling cutter

▲ With polished chip flutes







									Factory standard	Factory standard	Factory standard	Factory standard
									HA	HA	HB	HB
									53 700 ...	53 702 ...	53 701 ...	53 703 ...
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP				
2	5,5	1,8	10	19	55	6	0,05	4	02200	02200	02200	02200
3	8,0	2,8	15	22	58	6	0,10	4	03200	03200	03200	03200
4	10,5	3,8	20	26	62	6	0,10	4	04200	04200	04200	04200
5	13,0	4,8	25	34	70	6	0,10	4	05200	05200	05200	05200
6	16,0	5,8	30	34	70	6	0,20	4	06200	06200	06200	06200
8	21,0	7,7	40	44	80	8	0,20	4	08200	08200	08200	08200
10	26,0	9,7	50	54	94	10	0,20	4	10200	10200	10200	10200
12	31,0	11,6	60	64	109	12	0,20	4	12200	12200	12200	12200
14	36,0	13,6	70	74	119	14	0,20	4			14200	14200
16	41,0	15,5	80	84	132	16	0,20	4			16200	16200
18	47,0	17,5	90	94	142	18	0,20	4			18200	18200
20	52,0	19,5	100	104	154	20	0,20	4			20200	20200

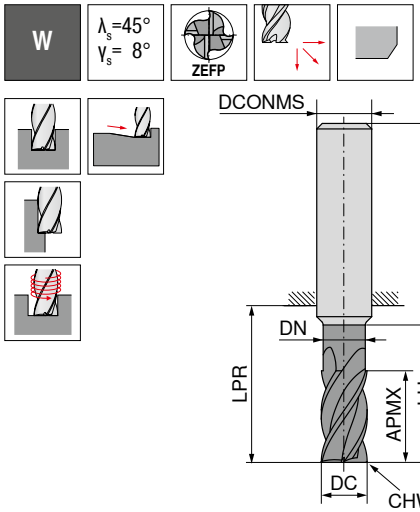
P				
M				
K				
N	●	●	●	●
S				
H				
O				

→ v_c/f_z Page 390+391

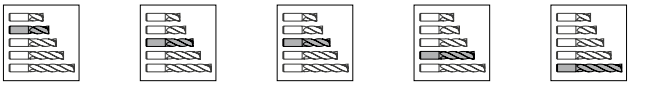
14

AluLine – End milling cutter

▲ With polished chip flutes







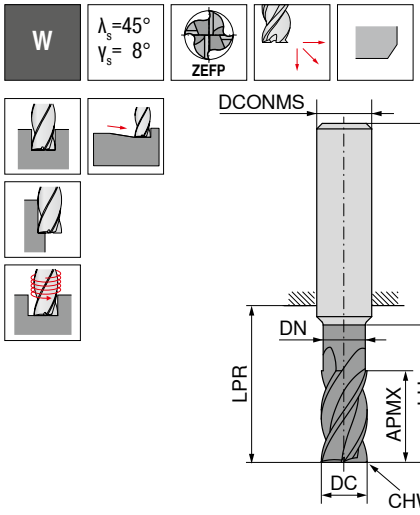
Factory standard | Factory standard | Factory standard | Factory standard | Factory standard

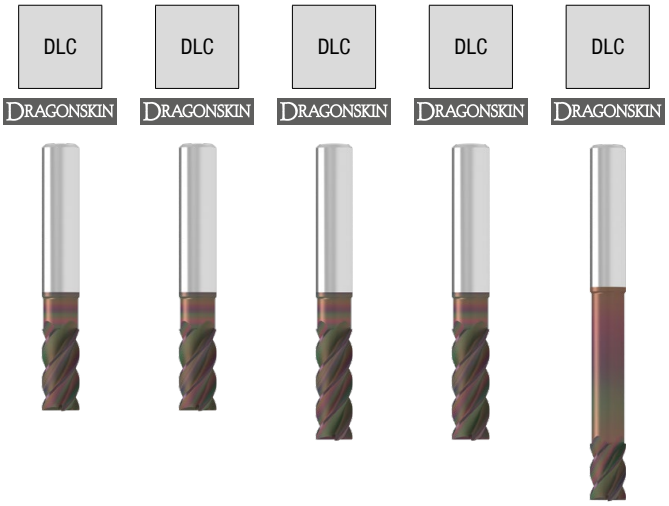
HA | HA | HA | HA | HA

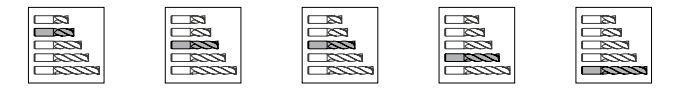
DC h10 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	53 560 ...	53 561 ...	53 562 ...	53 563 ...	53 564 ...
3,0	8	2,7	13	21	57	6	0,1	4				**030**	
3,5	11	3,2	17	21	57	6	0,1	4				**035**	
4,0	11	3,7	17	21	57	6	0,1	4				**040**	
4,5	13	4,2	19	21	57	6	0,1	4				**045**	
5,0	13	4,7	19	21	57	6	0,1	4			**050**		
5,5	13	5,2	19	21	57	6	0,1	4			**055**		
6,0	10	5,7	42	44	80	6	0,2	4					**060**
6,0	13	5,7	19	21	57	6	0,2	4			**060**		
6,0	18	5,7	24	26	62	6	0,2	4				**060**	
6,5	21	6,1	25	27	63	8	0,2	4			**065**		
8,0	13	7,4	62	64	100	8	0,2	4					**080**
8,0	21	7,4	25	27	63	8	0,2	4		**080**			
8,0	24	7,4	30	32	68	8	0,2	4			**080**		
8,5	22	7,9	30	32	72	10	0,2	4			**085**		
10,0	16	9,2	58	60	100	10	0,2	4				**100**	
10,0	22	9,2	30	32	72	10	0,2	4		**100**			
10,0	30	9,2	38	40	80	10	0,2	4			**100**		
12,0	19	11,0	73	75	120	12	0,2	4					**120**
12,0	26	11,0	36	38	83	12	0,2	4		**120**			
12,0	36	11,0	46	48	93	12	0,2	4			**120**		
14,0	26	13,0	36	38	83	14	0,2	4	**140**				
16,0	25	15,0	100	102	150	16	0,2	4					**160**
16,0	36	15,0	42	44	92	16	0,2	4	**160**				
16,0	48	15,0	58	60	108	16	0,2	4			**160**		
18,0	36	17,0	42	44	92	18	0,2	4	**180**				
20,0	32	19,0	98	100	150	20	0,2	4				**200**	
20,0	41	19,0	52	54	104	20	0,2	4	**200**				
20,0	60	19,0	74	76	126	20	0,2	4			**200**		
25,0	52	24,0	62	65	121	25	0,3	4	**250**				
P													
M													
K													
N									●	●	●	●	●
S													
H													
O													

→ v_c/f_z Page 390+391

AluLine – End milling cutter





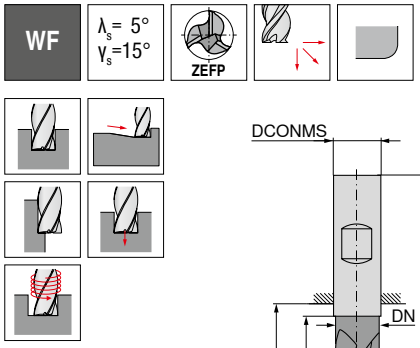


									53 565 ...	53 566 ...	53 567 ...	53 568 ...	53 569 ...
DC h10 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP					
3,0	8	2,7	13	21	57	6	0,1	4				030	
3,5	11	3,2	17	21	57	6	0,1	4				035	
4,0	11	3,7	17	21	57	6	0,1	4				040	
4,5	13	4,2	19	21	57	6	0,1	4				045	
5,0	13	4,7	19	21	57	6	0,1	4			050		
5,5	13	5,2	19	21	57	6	0,1	4			055		
6,0	10	5,7	42	44	80	6	0,2	4					060
6,0	13	5,7	19	21	57	6	0,2	4			060		
6,0	18	5,7	24	26	62	6	0,2	4				060	
6,5	21	6,1	25	27	63	8	0,2	4			065		
8,0	13	7,4	62	64	100	8	0,2	4					080
8,0	21	7,4	25	27	63	8	0,2	4		080			
8,0	24	7,2	30	32	68	8	0,2	4			080		
8,5	22	7,9	30	32	72	10	0,2	4			085		
10,0	16	9,2	58	60	100	10	0,2	4				100	
10,0	22	9,2	30	32	72	10	0,2	4		100			
10,0	30	9,2	38	40	80	10	0,2	4			100		
12,0	19	11,0	73	75	120	12	0,2	4					120
12,0	26	11,0	36	38	83	12	0,2	4		120			
12,0	36	11,0	46	48	93	12	0,2	4			120		
14,0	26	13,0	36	38	83	14	0,2	4	140				
16,0	25	15,0	100	102	150	16	0,2	4					160
16,0	36	15,0	42	44	92	16	0,2	4	160				
16,0	48	15,0	58	60	108	16	0,2	4			160		
18,0	36	17,0	42	44	92	18	0,2	4	180				
20,0	32	19,0	98	100	150	20	0,2	4				200	
20,0	41	19,0	52	54	104	20	0,2	4	200				
20,0	60	19,0	74	76	126	20	0,2	4			200		
25,0	52	24,0	62	65	121	25	0,3	4	250				
P													
M													
K													
N									●	●	●	●	●
S													
H													
O													

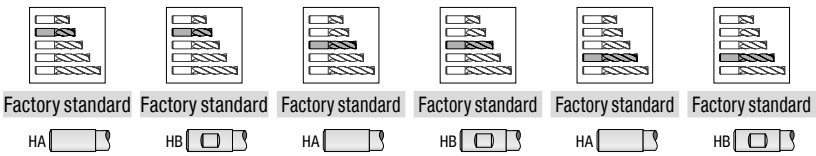
→ v_c/f_z Page 390+391

14

AluLine – Roughing-Finishing Cutter





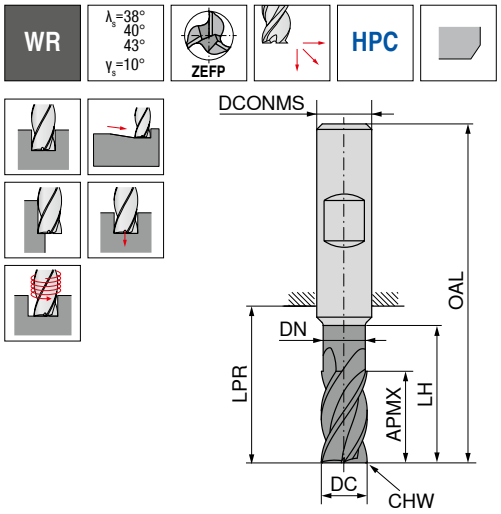


DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 582 ... HA	53 583 ... HB	53 582 ... HA	53 583 ... HB	53 582 ... HA	53 583 ... HB
3	0,10	5	2,7	18	44	80	6	3			03301	03301		
4	0,10	7	3,7	24	44	80	6	3			04301	04301		
5	0,15	8	4,7	16	18	54	6	3	05101	05101				
5	0,15	8	4,7	30	44	80	6	3			05301	05301		
5	0,15	13	4,7	18	21	57	6	3					05201	05201
6	0,20	10	5,7	17	18	54	6	3	06102	06102				
6	0,20	10	5,7	42	44	80	6	3			06302	06302		
6	0,20	13	5,7	18	21	57	6	3					06202	06202
8	0,25	13	7,4	20	22	58	8	3	08103	08103				
8	0,25	13	7,4	62	64	100	8	3			08303	08303		
8	0,25	21	7,4	25	27	63	8	3					08203	08203
10	0,30	16	9,2	24	26	66	10	3	10103	10103				
10	0,30	16	9,2	58	60	100	10	3			10303	10303		
10	0,30	22	9,2	30	32	72	10	3					10203	10203
12	0,35	19	11,0	26	28	73	12	3	12104	12104				
12	0,35	19	11,0	73	75	120	12	3			12304	12304		
12	0,35	26	11,0	36	38	83	12	3					12204	12204
16	0,50	25	15,0	32	34	82	16	3		16105				
16	0,50	25	15,0	100	102	150	16	3				16305		
16	0,50	36	15,0	42	44	92	16	3						16205
20	0,60	32	19,0	40	42	92	20	3		20106				
20	0,60	32	19,0	100	100	150	20	3				20306		
20	0,60	41	19,0	52	54	104	20	3						20206
P														
M														
K														
N									●	●	●	●	●	●
S														
H														
O														

→ v_c/f_z Page 392

AluLine – Rough milling cutter

▲ With polished chip flutes







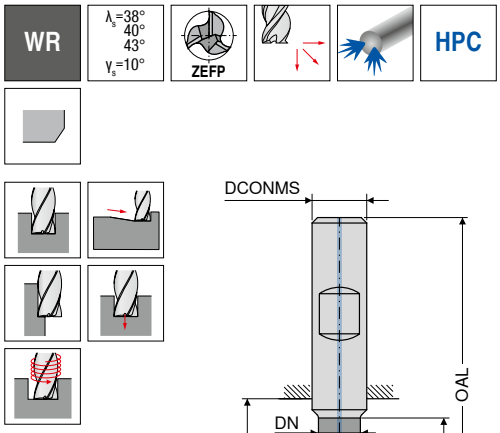
DC d11 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	53 578 ...	53 579 ...	53 578 ...	53 579 ...	53 578 ...	53 579 ...
6	13	5,8	18	22	58	6	0,4	3	**06100**	**06100**				
6	13	5,8	48	52	88	6	0,4	3					**06400**	**06400**
6	16	5,8	30	34	70	6	0,4	3			**06200**	**06200**		
8	17	7,7	24	28	64	8	0,4	3	**08100**	**08100**				
8	17	7,7	65	68	104	8	0,4	3					**08400**	**08400**
8	21	7,7	40	44	80	8	0,4	3			**08200**	**08200**		
10	21	9,7	30	34	74	10	0,4	3	**10100**	**10100**				
10	21	9,7	80	84	124	10	0,4	3					**10400**	**10400**
10	26	9,7	50	54	94	10	0,4	3			**10200**	**10200**		
12	25	11,6	36	40	85	12	0,4	3	**12100**	**12100**				
12	25	11,6	96	100	145	12	0,4	3					**12400**	**12400**
12	31	11,6	60	64	109	12	0,4	3			**12200**	**12200**		
16	33	15,5	48	52	100	16	0,4	3		**16100**				
16	33	15,5	128	132	180	16	0,4	3						**16400**
16	41	15,5	80	84	132	16	0,4	3				**16200**		
20	42	19,5	60	64	114	20	0,4	3		**20100**				
20	42	19,5	160	164	214	20	0,4	3						**20400**
20	52	19,5	100	104	154	20	0,4	3				**20200**		
P														
M														
K														
N									●	●	●	●	●	●
S														
H														
O														

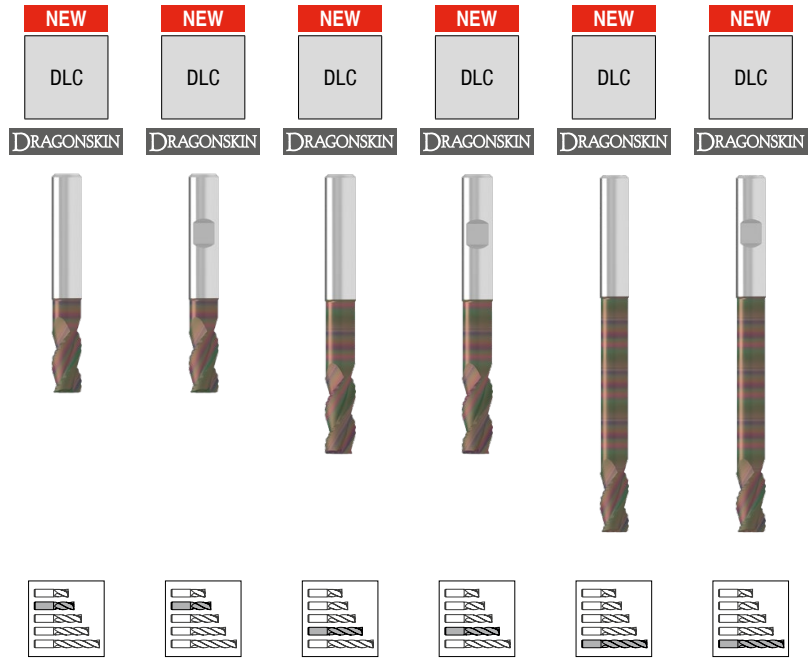
→ v_c/f_z Page 390+391

AluLine – Rough milling cutter

▲ With polished chip flutes

WR | λ_s=38° 40° 43° γ_s=10° | ZEFP | HPC





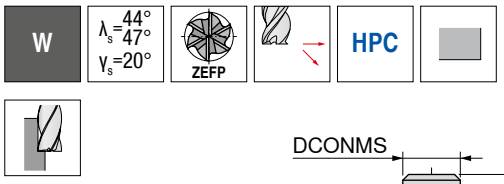
DC d11 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	53 580 ...	53 581 ...	53 580 ...	53 581 ...	53 580 ...	53 581 ...
6	13	5,8	18	22	58	6	0,4	3	06100	06100				
6	13	5,8	48	52	88	6	0,4	3					06400	06400
6	16	5,8	30	34	70	6	0,4	3			06200	06200		
8	17	7,7	24	28	64	8	0,4	3	08100	08100				
8	17	7,7	64	68	104	8	0,4	3					08400	08400
8	21	7,7	40	44	80	8	0,4	3			08200	08200		
10	21	9,7	30	34	74	10	0,4	3	10100	10100				
10	21	9,7	80	84	124	10	0,4	3					10400	10400
10	26	9,7	50	54	94	10	0,4	3			10200	10200		
12	25	11,6	36	40	85	12	0,4	3	12100	12100				
12	25	11,6	96	100	145	12	0,4	3					12400	12400
12	31	11,6	60	64	109	12	0,4	3			12200	12200		
16	33	15,5	48	52	100	16	0,4	3		16100				
16	33	15,5	128	132	180	16	0,4	3						16400
16	41	15,5	80	84	132	16	0,4	3				16200		
20	42	19,5	60	64	114	20	0,4	3		20100				
20	42	19,5	160	164	214	20	0,4	3						20400
20	52	19,5	100	104	154	20	0,4	3				20200		

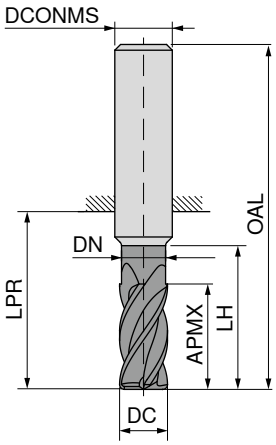
P						
M						
K						
N	●	●	●	●	●	●
S						
H						
O						

→ v_c/f_z Page 390+391

AluLine – High Accuracy Finish Milling Cutter

- ▲ max. taper of 0.003 mm for high precision and parallelism of vertical walls
- ▲ Tool with cutting edge correction



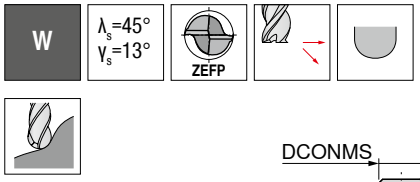


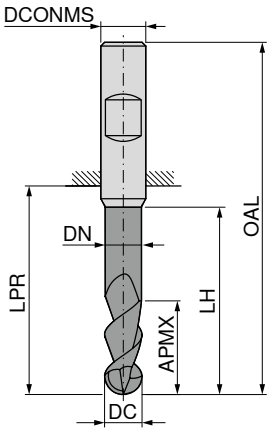


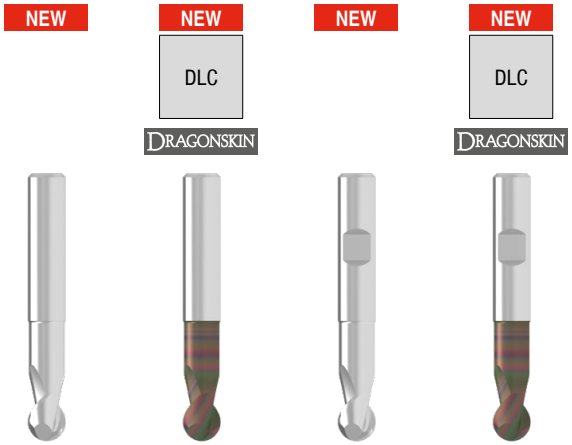
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	Factory standard HA 53 639 ...	Factory standard HA 53 639 ...	Factory standard HA 53 639 ...
6	16	5,7	20	22	58	6	6	**06100**		
6	16	5,7	42	44	80	6	6			**06400**
8	19	7,4	26	28	64	8	6	**08100**		
8	19	7,4	62	64	100	8	6			**08400**
10	25	9,2	32	34	74	10	6	**10100**		
10	25	9,2	58	60	100	10	6			**10400**
12	30	11,0	37	39	84	12	6	**12100**		
12	30	11,0	73	75	120	12	6			**12400**
12	45			75	120	12	6		**12200**	
16	40	15,0	44	45	93	16	6	**16100**		
16	40	15,0	100	102	150	16	6			**16400**
16	65			102	150	16	6		**16200**	
20	50	19,0	53	54	104	20	6	**20100**		
20	50	19,0	98	100	150	20	6			**20400**
20	75			100	150	20	6		**20200**	
P										
M										
K										
N								●	●	●
S										
H										
O										

→ v_c/f_z Page 392+393

AluLine – Ball Nosed Cutter









Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HB | HB

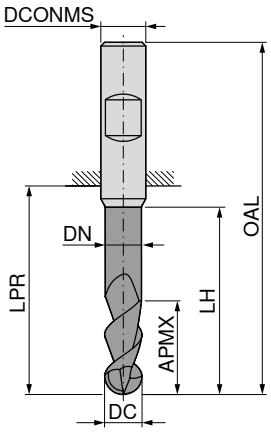
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 607 ...	53 608 ...	53 609 ...	53 610 ...
3	6	2,7	16	22	50	3	2	**03100**	**03100**		
4	7	3,7	17	26	54	4	2	**04100**	**04100**		
5	8	4,6	18	26	54	5	2	**05100**	**05100**		
6	10	5,5	21	26	62	6	2	**06100**	**06100**	**06100**	**06100**
8	12	7,5	27	31	67	8	2	**08100**	**08100**	**08100**	**08100**
10	13	9,4	32	34	74	10	2	**10100**	**10100**	**10100**	**10100**
12	16	11,4	38	48	93	12	2	**12100**	**12100**	**12100**	**12100**
14	16	13,2	38	55	100	14	2	**14100**	**14100**	**14100**	**14100**
16	20	15,0	44	52	100	16	2	**16100**	**16100**	**16100**	**16100**
20	25	19,0	50	54	104	20	2	**20100**	**20100**	**20100**	**20100**

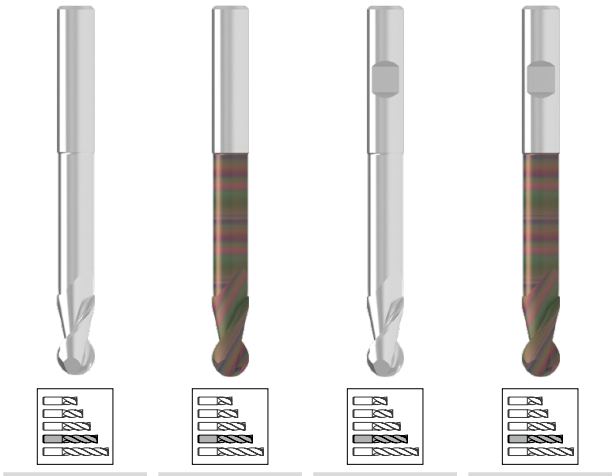
P				
M				
K				
N	●	●	●	●
S				
H				
O	○	○	○	○

→ v_c/f_z Page 392+393

AluLine – Ball Nosed Cutter

W | λ_s=45° γ_s=13° | ZEFP





Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HB | HB

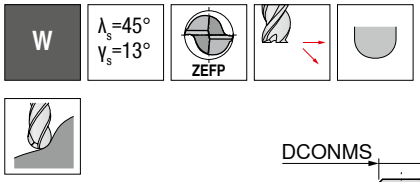
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 607 ...	53 608 ...	53 609 ...	53 610 ...
3	10	2,7	32	47	75	3	2	**03200**	**03200**		
4	13	3,7	36	47	75	4	2	**04200**	**04200**		
5	15	4,6	40	47	75	5	2	**05200**	**05200**		
6	16	5,5	44	64	100	6	2	**06200**	**06200**	**06200**	**06200**
8	22	7,5	54	64	100	8	2	**08200**	**08200**	**08200**	**08200**
10	25	9,4	60	61	101	10	2	**10200**	**10200**	**10200**	**10200**
12	26	11,4	60	63	108	12	2	**12200**	**12200**	**12200**	**12200**
14	26	13,2	60	65	110	14	2	**14200**	**14200**	**14200**	**14200**
16	30	15,0	92	102	150	16	2	**16200**	**16200**	**16200**	**16200**
20	40	19,0	92	100	150	20	2	**20200**	**20200**	**20200**	**20200**

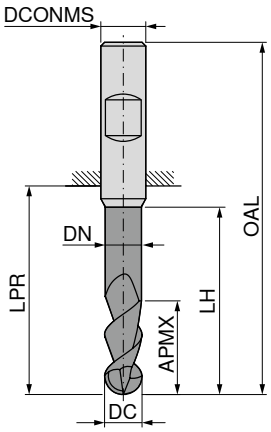
P				
M				
K				
N	●	●	●	●
S				
H				
O	○	○	○	○

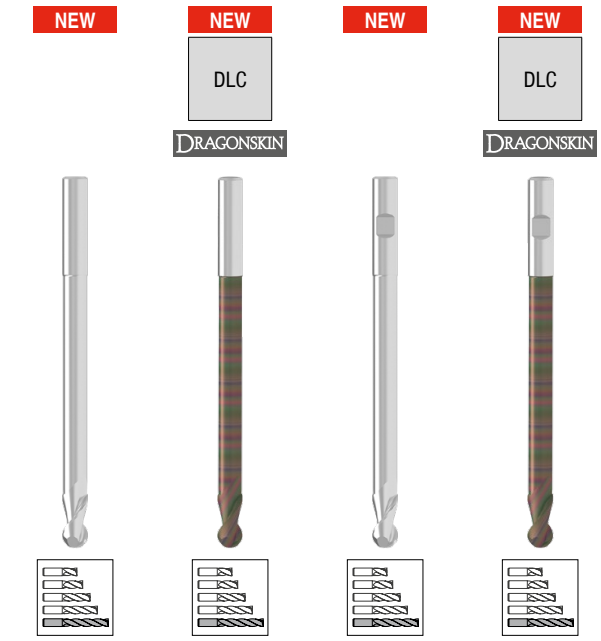
→ v_c/f_z Page 392+393

14

AluLine – Ball Nosed Cutter









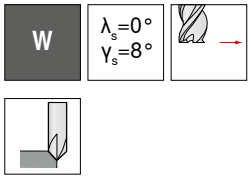
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 607 ...	53 608 ...	53 609 ...	53 610 ...
3	10	2,7	82	97	125	3	2	**03400**	**03400**		
4	13	3,7	86	97	125	4	2	**04400**	**04400**		
6	16	5,5	94	114	150	6	2	**06400**	**06400**	**06400**	**06400**
8	22	7,5	104	114	150	8	2	**08400**	**08400**	**08400**	**08400**
10	25	9,4	110	111	151	10	2	**10400**	**10400**	**10400**	**10400**
12	26	11,4	105	106	151	12	2	**12400**	**12400**	**12400**	**12400**
16	30	15,0	192	202	250	16	2	**16400**	**16400**	**16400**	**16400**
P											
M											
K											
N								●	●	●	●
S											
H											
O								○	○	○	○

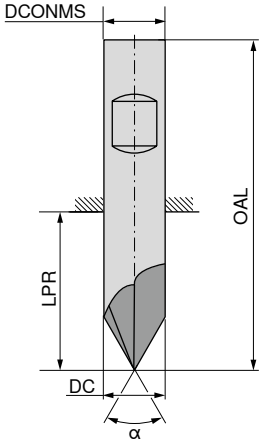
→ v_c/f_z Page 392+393

AluLine – NC deburring cutter

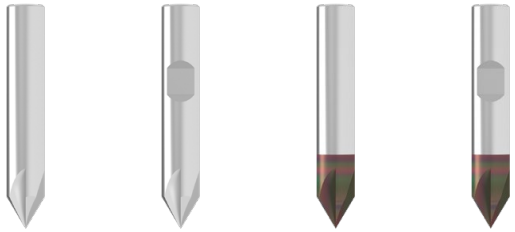
W

λ_s=0°
γ_s=8°





NEW | NEW | NEW DLC DRAGONSKIN | NEW DLC DRAGONSKIN



α = 60° Factory standard | α = 60° Factory standard | α = 60° Factory standard | α = 60° Factory standard

HA | HB | HA | HB

53 666 ... | **53 667 ...** | **53 662 ...** | **53 663 ...**

DC mm	OAL mm	LPR mm	DCONMS mm	ZEFP	53 666 ...	53 667 ...	53 662 ...	53 663 ...
4	50	22	4	4	**04000**		**04000**	
6	55	19	6	4	**06000**	**06000**	**06000**	**06000**
8	58	22	8	4	**08000**	**08000**	**08000**	**08000**
10	60	20	10	4	**10000**	**10000**	**10000**	**10000**
12	70	25	12	4	**12000**	**12000**	**12000**	**12000**
16	80	32	16	4	**16000**	**16000**	**16000**	**16000**

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

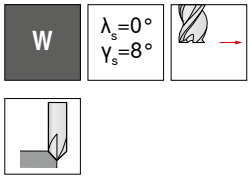
→ v_c/f_z Page 394

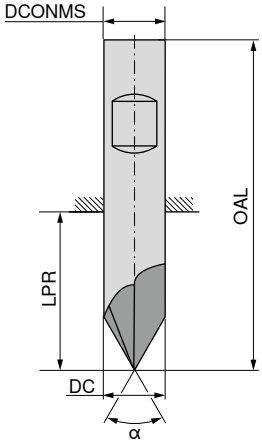
14

AluLine – NC deburring cutter

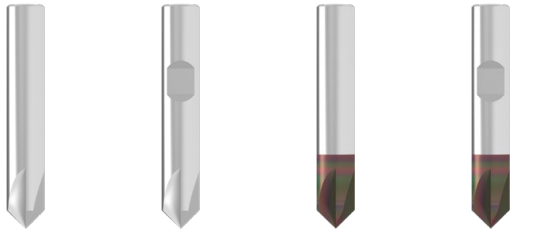
W

λ_s=0°
γ_s=8°





NEW | NEW | NEW DLC DRAGONSKIN | NEW DLC DRAGONSKIN



α = 90° Factory standard HA | α = 90° Factory standard HB | α = 90° Factory standard HA | α = 90° Factory standard HB

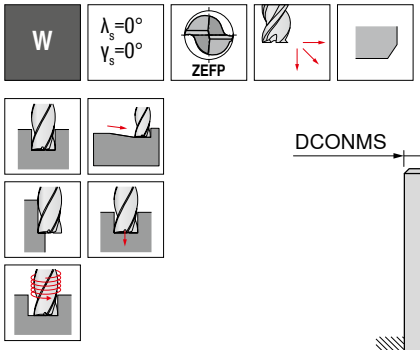
DC mm	OAL mm	LPR mm	DCONMS mm	ZEFP	53 664 ...	53 665 ...	53 660 ...	53 661 ...
4	50	22	4	4	**04000**		**04000**	
6	55	19	6	4	**06000**	**06000**	**06000**	**06000**
8	58	22	8	4	**08000**	**08000**	**08000**	**08000**
10	60	20	10	4	**10000**	**10000**	**10000**	**10000**
12	70	25	12	4	**12000**	**12000**	**12000**	**12000**
16	80	32	16	4	**16000**	**16000**	**16000**	**16000**

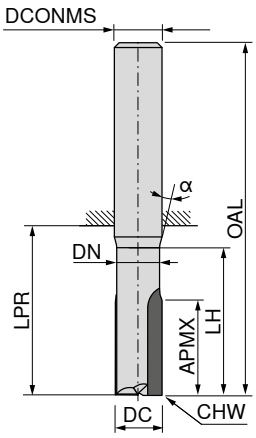
P				
M				
K				
N	●	●	●	●
S				
H				
O	●	●	●	●

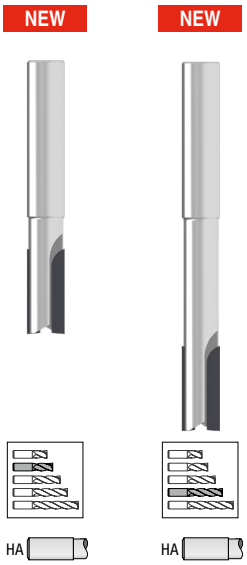
→ v_c/f_z Page 394

PCD end mill

▲ Transition angle α = 45°





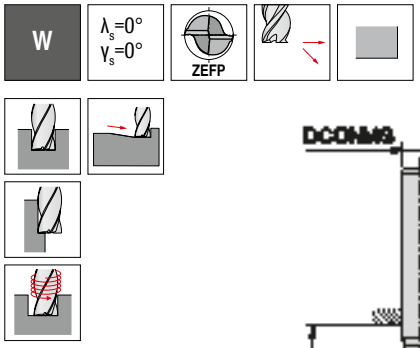


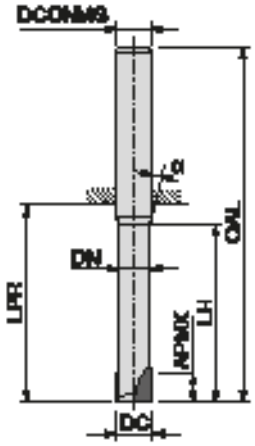
DC h7 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	50 010 ...	50 010 ...
3	6	2,8	11	21	57	6	0,1	2	**03100**	
3	6	2,8	22	64	100	6	0,1	2		**03300**
4	8	3,5	13	21	57	6	0,1	2	**04100**	
4	8	3,5	26	64	100	6	0,1	2		**04300**
5	10	4,4	15	21	57	6	0,1	2	**05100**	
5	10	4,4	30	64	100	6	0,1	2		**05300**
6	12	5,4	19	21	57	6	0,1	2	**06100**	
6	12	5,4	38	64	100	6	0,1	2		**06300**
8	16	7,2	26	28	64	8	0,1	2	**08100**	
8	16	7,2	52	64	100	8	0,1	2		**08300**
10	20	9,0	31	34	74	10	0,1	2	**10100**	
10	20	9,0	60	60	100	10	0,1	2		**10300**
P										
M										
K										
N									●	●
S										
H										
O									●	●

→ v_c/f_z Page 408+409

PCD end mill

▲ Transition angle α = 15°





NEW







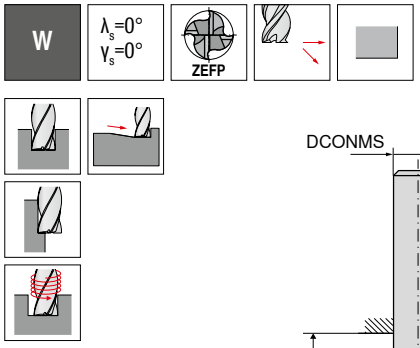
50 011 ...

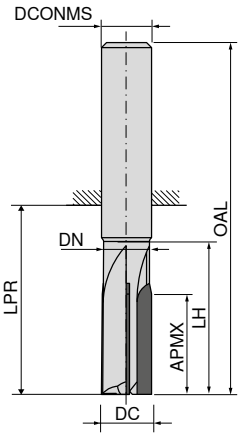
DC h7 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
2	2,0	1,7	6	39	75	6	1	**02100**
2	2,0	1,7	10	39	75	6	1	**02300**
2	2,0	1,7	14	39	75	6	1	**02200**
3	2,5	2,5	9	39	75	6	2	**03100**
3	2,5	2,5	15	39	75	6	2	**03300**
3	2,5	2,5	21	39	75	6	2	**03200**
4	2,5	3,5	12	39	75	6	2	**04100**
4	2,5	3,5	20	39	75	6	2	**04300**
4	2,5	3,5	28	39	75	6	2	**04200**
5	3,0	4,4	15	39	75	6	2	**05100**
5	3,0	4,4	25	39	75	6	2	**05300**
5	3,0	4,4	35	39	75	6	2	**05200**
6	6,0	5,4	18	64	100	6	2	**06100**
6	6,0	5,4	30	64	100	6	2	**06300**
6	6,0	5,4	42	64	100	6	2	**06200**
8	7,0	7,2	24	64	100	8	2	**08100**
8	7,0	7,2	40	64	100	8	2	**08300**
10	8,0	9,0	30	60	100	10	2	**10100**
10	8,0	9,0	50	60	100	10	2	**10300**
12	9,0	11,0	36	60	105	12	2	**12100**
12	9,0	11,0	58	60	105	12	2	**12300**

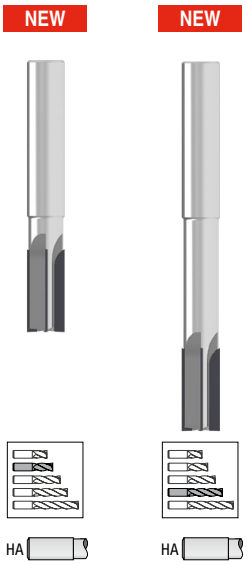
P	
M	
K	
N	●
S	
H	
O	●

→ v_c/f_z Page 408+409

PCD end mill







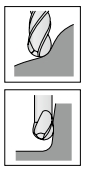
DC h7 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 013 ...	50 013 ...
6	12	5,4	19,0	21	57	6	4	06100	
6	12	5,4	38,0	64	100	6	4		06200
8	16	7,2	26,0	28	64	8	4	08100	
8	16	7,2	52,0	64	100	8	4		08200
10	20	9,0	31,0	34	74	10	4	10100	
10	20	9,0	62,0	60	100	10	4		10200
12	24	11,0	36,5	39	84	12	4	12100	
12	24	11,0	73,0	70	115	12	4		12200
16	32	15,0	44,0	45	93	16	4	16100	
16	32	15,0	88,0	82	130	16	4		16200
20	38	19,0	52,5	54	104	20	4	20100	
20	38	19,0	105,0	110	160	20	4		20200
P									
M									
K									
N								●	●
S									
H									
O								●	●

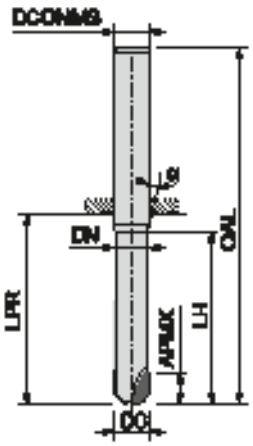
→ v_c/f_z Page 408+409

PCD radius cutter

▲ Transition angle α = 15°







NEW





HA

50 014 ...

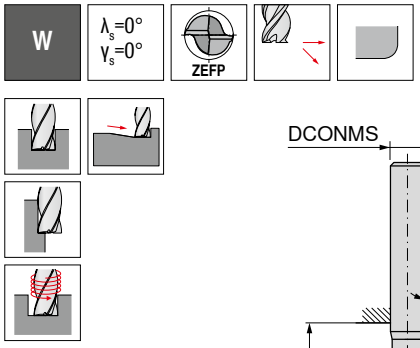
DC h7 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
2	2,0	1,7	6	39	75	6	1	**02100**
2	2,0	1,7	10	39	75	6	1	**02200**
2	2,0	1,7	14	39	75	6	1	**02300**
2	2,0	1,7	35	39	75	6	1	**02400**
3	2,5	2,5	9	39	75	6	2	**03100**
3	2,5	2,5	15	39	75	6	2	**03200**
3	2,5	2,5	21	39	75	6	2	**03300**
3	2,5	2,5	35	39	75	6	2	**03400**
4	2,5	3,5	12	39	75	6	2	**04100**
4	2,5	3,5	20	39	75	6	2	**04200**
4	2,5	3,5	28	39	75	6	2	**04300**
4	2,5	3,5	35	39	75	6	2	**04400**
5	3,0	4,4	15	39	75	6	2	**05100**
5	3,0	4,4	25	39	75	6	2	**05200**
5	3,0	4,4	35	39	75	6	2	**05400**
6	6,0	5,4	18	64	100	6	2	**06100**
6	6,0	5,4	30	64	100	6	2	**06200**
6	6,0	5,4	40	64	100	8	2	**06300**
6	6,0	5,4	42	64	100	6	2	**06400**
8	7,0	7,2	24	64	100	8	2	**08100**
8	7,0	7,2	40	64	100	8	2	**08300**
8	7,0	7,2	40	60	100	10	2	**08900**
10	8,0	9,0	30	60	100	10	2	**10100**
10	8,0	9,0	40	55	100	12	2	**10200**
10	8,0	9,0	50	60	100	10	2	**10300**
12	9,0	11,0	36	60	105	12	2	**12100**
12	9,0	11,0	40	55	100	16	2	**12200**
12	9,0	11,0	58	60	105	12	2	**12400**
16	11,0	15,0	45	82	130	16	2	**16200**
16	11,0	15,0	50	82	130	16	2	**16300**
20	13,0	19,0	60	110	160	20	2	**20400**

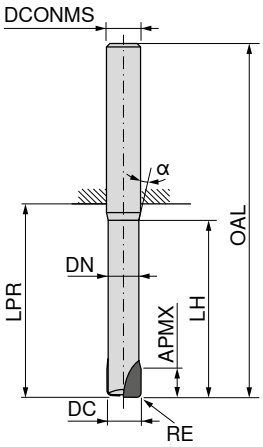
P	
M	
K	
N	●
S	
H	
O	●

→ v_c/f_z Page 408+409

PCD torus cutter

▲ Transition angle α = 15°





NEW





HA

50 012 ...

DC h7 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
2	0,3	2,0	1,7	6	39	75	6	1	**02103**
2	0,3	2,0	1,7	10	39	75	6	1	**02203**
2	0,3	2,0	1,7	14	39	75	6	1	**02303**
2	0,3	2,0	1,7	35	39	75	6	1	**02403**
3	0,3	2,5	2,5	9	39	75	6	2	**03103**
3	0,3	2,5	2,5	15	39	75	6	2	**03203**
3	0,3	2,5	2,5	21	39	75	6	2	**03303**
3	0,3	2,5	2,5	35	39	75	6	2	**03403**
4	0,3	2,5	3,5	12	39	75	6	2	**04103**
4	0,3	2,5	3,5	20	39	75	6	2	**04203**
4	0,3	2,5	3,5	28	39	75	6	2	**04303**
4	0,3	2,5	3,5	35	39	75	6	2	**04403**
5	0,3	3,0	4,4	15	39	75	6	2	**05103**
5	0,3	3,0	4,4	25	39	75	6	2	**05203**
5	0,3	3,0	4,4	35	39	75	6	2	**05303**
6	0,3	6,0	5,4	18	64	100	6	2	**06103**
6	0,3	6,0	5,4	30	64	100	6	2	**06203**
6	0,3	6,0	5,4	42	64	100	6	2	**06403**
6	0,5	6,0	5,4	18	64	100	6	2	**06105**
6	0,5	6,0	5,4	30	64	100	6	2	**06205**
6	0,5	6,0	5,4	42	64	100	6	2	**06405**
6	1,0	6,0	5,4	18	64	100	6	2	**06110**
6	1,0	6,0	5,4	40	64	100	8	2	**06310**
6	1,0	6,0	5,4	42	64	100	6	2	**06410**
8	0,3	7,0	7,2	24	64	100	8	2	**08103**
8	0,3	7,0	7,2	40	64	100	8	2	**08203**
8	0,5	7,0	7,2	24	64	100	8	2	**08105**
8	0,5	7,0	7,2	40	64	100	8	2	**08205**
8	1,0	7,0	7,2	24	64	100	8	2	**08110**
8	1,0	7,0	7,2	40	64	100	8	2	**08210**
8	2,0	7,0	7,2	24	64	100	8	2	**08120**
8	2,0	7,0	7,2	40	60	100	10	2	**08920**
8	2,0	7,0	7,2	40	64	100	8	2	**08220**
10	0,5	8,0	9,0	30	60	100	10	2	**10105**
10	0,5	8,0	9,0	50	60	100	10	2	**10305**
10	1,0	8,0	9,0	30	60	100	10	2	**10110**
10	1,0	8,0	9,0	50	60	100	10	2	**10310**
10	1,5	8,0	9,0	30	60	100	10	2	**10115**
10	1,5	8,0	9,0	50	60	100	10	2	**10315**
10	2,0	8,0	9,0	30	60	100	10	2	**10120**

P	
M	
K	
N	●
S	
H	
O	●

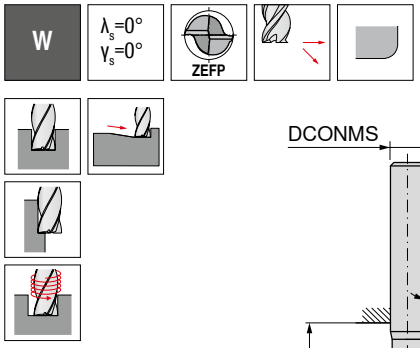
→ v_c/f_z Page 408+409

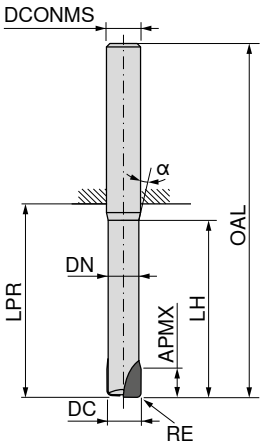
14

Continued on next page

PCD torus cutter

▲ Transition angle α = 15°





NEW





HA

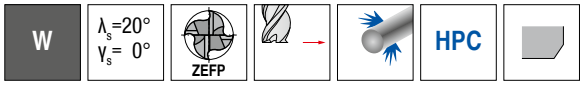
50 012 ...

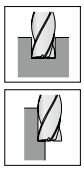
DC h7 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
10	2,0	8,0	9,0	50	60	100	10	2	**10320**
10	3,0	8,0	9,0	30	60	100	10	2	**10130**
10	3,0	8,0	9,0	40	55	100	12	2	**10230**
10	3,0	8,0	9,0	50	60	100	10	2	**10330**
12	0,5	9,0	11,0	36	60	105	12	2	**12105**
12	0,5	9,0	11,0	58	60	105	12	2	**12305**
12	1,0	9,0	11,0	36	60	105	12	2	**12110**
12	1,0	9,0	11,0	58	60	105	12	2	**12310**
12	1,5	9,0	11,0	36	60	105	12	2	**12115**
12	1,5	9,0	11,0	58	60	105	12	2	**12315**
12	4,0	9,0	11,0	40	52	100	16	2	**12240**
16	3,0	11,0	15,0	45	82	130	16	2	**16130**
16	5,0	11,0	15,0	50	82	130	16	2	**16250**
20	6,0	13,0	19,0	60	140	160	20	2	**20260**

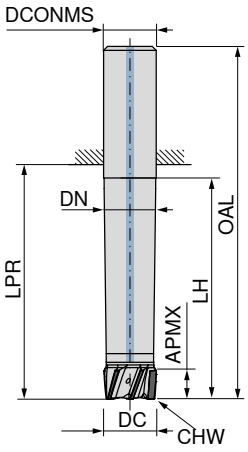
P	
M	
K	
N	●
S	
H	
O	●

→ v_c/f_z Page 408+409

PCD end mill







NEW







50 015 ...

DC mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS mm	CHW mm	ZEFP	KOMET no.	
10	5	9,6	25,0	27	67	10	0,2	4	DS38320001001000	**10200**
12	5	11,6	30,0	33	78	12	0,2	4	38320001001200	**12200**
16	10	15,6	40,0	43	91	16	0,2	5	38320001001600	**16200**
20	10	19,6	50,0	54	104	20	0,2	6	38320001002000	**20200**
25	10	24,6	62,5	68	124	25	0,2	8	38320001002500	**25200**
32	10	31,6	80,0	87	147	32	0,2	10	38320001003200	**32200**

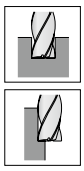
P	
M	
K	
N	●
S	
H	
O	●

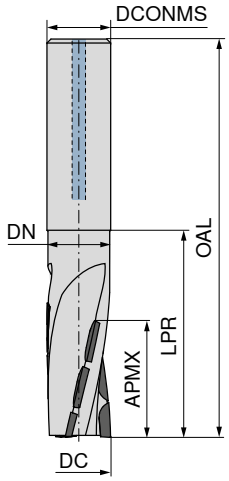
→ v_c/f_z Page 408+409

14

PCD face and shoulder mill

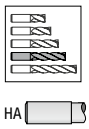






NEW





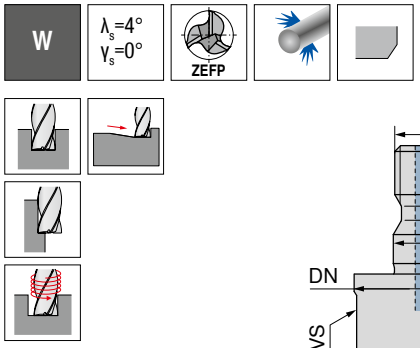
50 020 ...

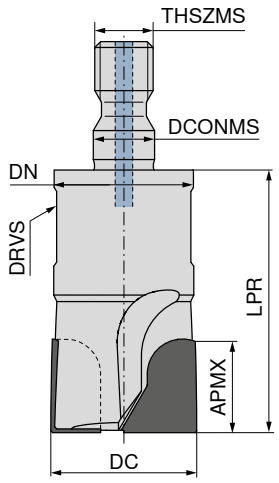
DC h7 mm	APMX mm	DN mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	KOMET no.	
16	30	15,5	45	93	16	3	38170099001600	**01600**
20	30	19,5	50	100	20	3	38170099002000	**02000**
25	30	24,5	54	110	25	3	38170099002500	**02500**

P	
M	
K	
N	●
S	
H	
O	●

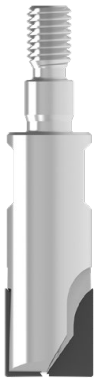
→ v_c/f_z Page 408+409

PCD drilling slot screw-in cutter





NEW



50 016 ...

DC mm	APMX mm	DN mm	LPR mm	DCONMS mm	CHW mm	DRVS mm	ZEFP	THSZMS	KOMET no.	
10	10	9,6	28	5,5	0,2	8	2	M5	37340099001000	**01000**
12	12	9,6	28	5,5	0,2	8	2	M5	37340099001200	**01200**
16	16	13,8	32	8,5	0,2	13	3	M8	37340099001600	**01600**
20	20	18,0	45	10,5	0,2	16	3	M10	37340099002000	**02000**
25	20	21,0	45	12,6	0,2	18	3	M12	37340099002500	**02500**

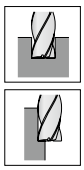
P	
M	
K	
N	●
S	
H	
O	●

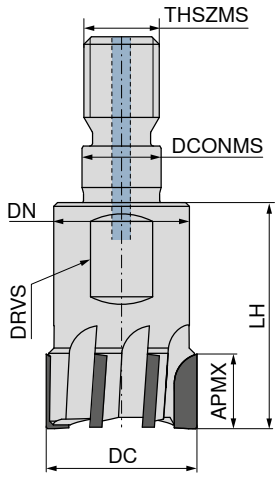
→ v_c/f_z Page 408+409

14

PCD face screw-in cutter







NEW



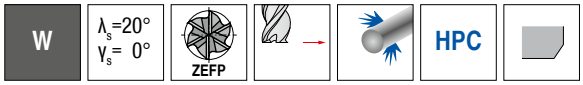
50 018 ...

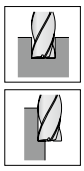
DC mm	APMX mm	DN mm	LPR mm	DCONMS mm	CHW mm	DRVS mm	ZEFP	THSZMS	KOMET no.	
10	5	9,6	22	5,5	0,2	8	2	M5	37341099001000	**01000**
12	5	9,6	28	5,5	0,2	8	2	M5	37341099001200	**01200**
16	10	13,8	28	8,5	0,2	13	3	M8	37341099001600	**01600**
20	10	18,0	30	10,5	0,2	16	4	M10	37341099002000	**02000**
25	10	21,0	35	12,5	0,2	21	5	M12	37341099002500	**02500**
32	10	29,0	35	17,0	0,2	27	6	M16	37341099003200	**03200**

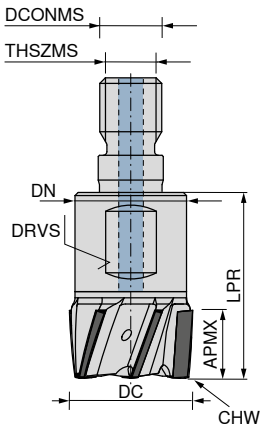
P	
M	
K	
N	●
S	
H	
O	●

→ v_c/f_z Page 408+409

PCD screw-in cutter







NEW



50 015 ...

DC mm	APMX mm	DN mm	LPR mm	DCONMS mm	CHW mm	DRVS mm	ZEFP	THSZMS	KOMET no.	
10	5	9,6	22	5,5	0,2	8	4	M5	37310001001000	**10100**
12	5	11,5	22	6,5	0,2	8	4	M6	37310099001200	**12100**
16	10	13,8	28	8,5	0,2	13	5	M8	37310001001600	**16100**
20	10	18,0	30	10,5	0,2	16	6	M10	DS37310001002000	**20100**
25	10	21,0	35	12,5	0,2	18	8	M12	37310001002500	**25100**
32	10	29,0	35	17,0	0,2	27	10	M16	DS37310001003200	**32100**

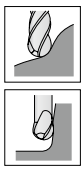
P	
M	
K	
N	●
S	
H	
O	●

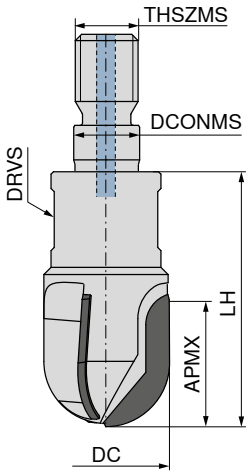
→ v_c/f_z Page 408+409

14

PCD radius screw-in cutter







NEW



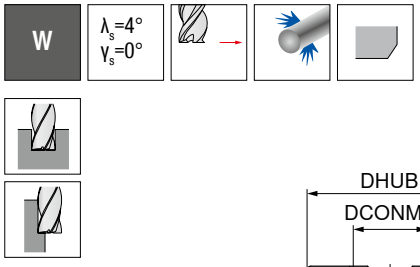
50 017 ...

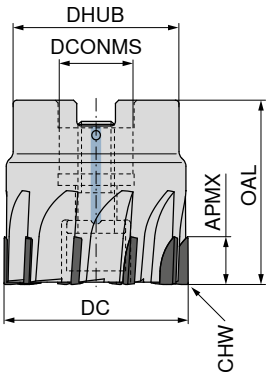
DC mm	APMX mm	DN mm	LPR mm	DCONMS mm	DRVS mm	ZEFP	THSZMS	KOMET no.	
10	10	9,6	28	5,5	8	2	M5	37340098001000	**01000**
12	12	9,6	28	5,5	8	2	M5	37340098001200	**01200**
16	16	13,8	32	8,5	13	3	M8	37340098001600	**01600**

P	
M	
K	
N	●
S	
H	
O	●

→ v_c/f_z Page 408+409

PCD face mill





NEW



50 019 ...

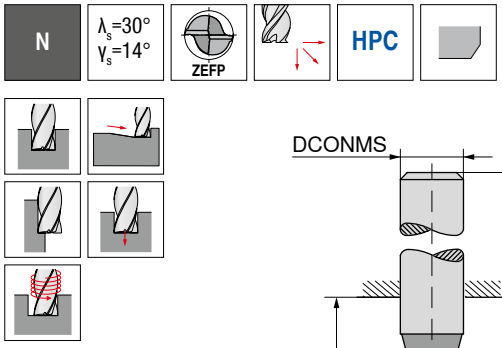
DC mm	OAL mm	DHUB mm	APMX mm	DCONMS H6 mm	CHW mm	ZNF	KOMET no.	
40	40	36	10	16	0,2	10	37155099004000	**04000**
50	40	41	10	22	0,2	12	37155099005000	**05000**
63	40	48	10	22	0,2	14	37155099006300	**06300**
80	50	60	10	27	0,2	16	37155099008000	**08000**
100	50	78	10	32	0,2	18	37155099010000	**10000**
125	63	100	10	40	0,2	22	37155099012500	**12500**

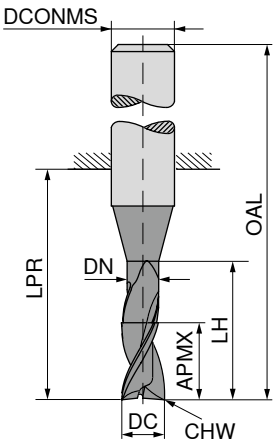
P	
M	
K	
N	●
S	
H	
O	●

→ v_c/f_z Page 408+409

14

SilverLine – End milling cutter





NEW

DPB72S

DRAGONSKIN





≈DIN 6527

HB

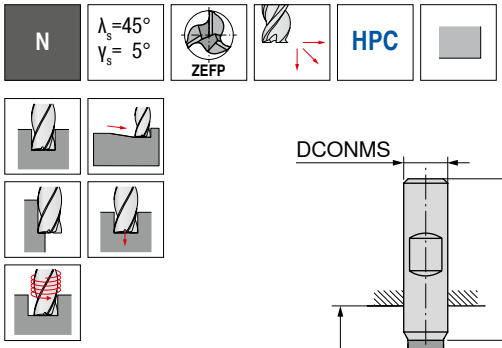
50 958 ...

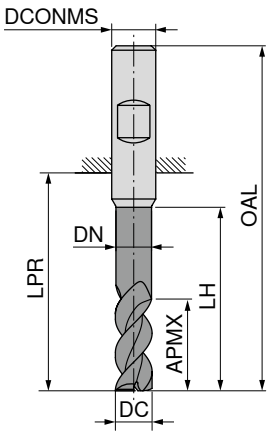
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	
3,0	8	2,8	15	21	57	6	0,1	2	**03200**
3,5	11	3,3	15	21	57	6	0,1	2	**03700**
4,0	11	3,8	15	21	57	6	0,1	2	**04200**
4,5	13	4,3	21	21	57	6	0,1	2	**04700**
5,0	13	4,8	21	21	57	6	0,1	2	**05200**
5,5	13	5,3	21	21	57	6	0,1	2	**05700**
6,0	13	5,8	21	21	57	6	0,1	2	**06200**
7,0	16	6,8	27	27	63	8	0,1	2	**07200**
8,0	19	7,8	27	27	63	8	0,1	2	**08200**
9,0	19	8,8	32	32	72	10	0,1	2	**09200**
10,0	22	9,8	32	32	72	10	0,1	2	**10200**
11,0	26	10,8	38	38	83	12	0,1	2	**11200**
12,0	26	11,8	38	38	83	12	0,1	2	**12200**
14,0	26	13,8	38	38	83	14	0,1	2	**14200**
15,0	32	14,7	44	44	92	16	0,1	2	**15200**
16,0	32	15,7	44	44	92	16	0,1	2	**16200**
17,0	32	16,7	44	44	92	18	0,1	2	**17200**
18,0	32	17,7	44	44	92	18	0,1	2	**18200**
19,0	38	18,7	54	54	104	20	0,1	2	**19200**
20,0	38	19,7	54	54	104	20	0,1	2	**20200**

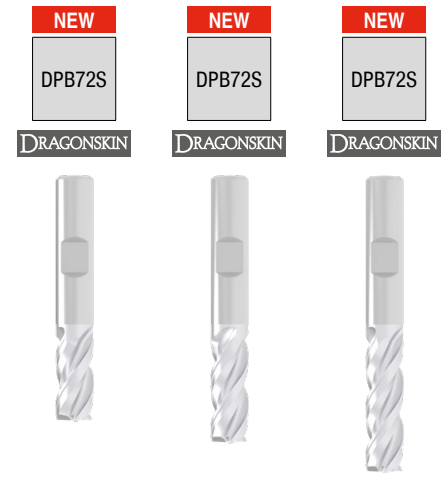
P	●
M	●
K	●
N	○
S	●
H	
O	

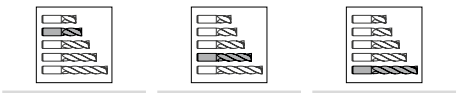
→ v_c/f_z Page 350+351

SilverLine – End milling cutter









HB HB HB

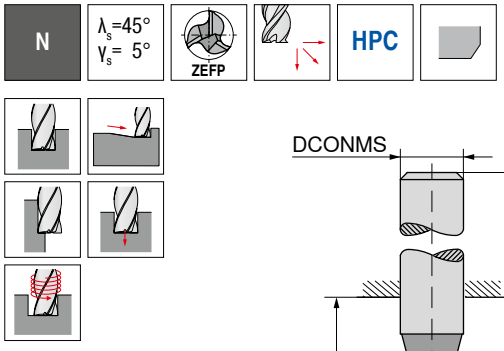
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 992 ...	50 992 ...	50 992 ...
3,0	8	2,9	15	21	57	6	3		03200	
3,5	11	3,4	16	21	57	6	3		03700	
4,0	8	3,9	15	18	54	6	3	04100		
4,0	11	3,9	16	21	57	6	3		04200	
4,0	16			26	62	6	3			04400
4,5	13	4,4	19	21	57	6	3		04700	
5,0	9	4,9	16	18	54	6	3	05100		
5,0	13	4,9	19	21	57	6	3		05200	
5,0	17			26	62	6	3			05400
5,5	13	5,4	19	21	57	6	3		05700	
6,0	10	5,9	17	18	54	6	3	06100		
6,0	13	5,9	19	21	57	6	3		06200	
6,0	18			26	62	6	3			06400
6,5	19	6,3	25	27	63	8	3		06700	
7,0	19	6,8	25	27	63	8	3		07200	
7,5	19	7,3	25	27	63	8	3		07700	
8,0	12		20	22	58	8	3	08100		
8,0	19	7,8	25	27	63	8	3		08200	
8,0	24			32	68	8	3			08400
8,5	22	8,2	30	32	72	10	3		08700	
9,0	22	8,7	30	32	72	10	3		09200	
9,5	22	9,2	30	32	72	10	3		09700	
10,0	14	9,7	24	26	66	10	3	10100		
10,0	22	9,7	30	32	72	10	3		10200	
10,0	30			40	80	10	3			10400
12,0	16	11,7	26	28	73	12	3	12100		
12,0	26	11,7	36	38	83	12	3		12200	
12,0	36			48	93	12	3			12400
14,0	18	13,7	28	30	75	14	3	14100		
14,0	26	13,7	36	38	83	14	3		14200	
14,0	42			54	99	14	3			14400
16,0	22	15,5	32	34	82	16	3	16100		
16,0	32	15,5	42	44	92	16	3		16200	
16,0	48			60	108	16	3			16400
18,0	24	17,5	34	36	84	18	3	18100		
18,0	32	17,5	42	44	92	18	3		18200	
18,0	54			66	114	18	3			18400
20,0	26	19,5	40	42	92	20	3	20100		
20,0	38	19,5	52	54	104	20	3		20200	
20,0	60			76	126	20	3			20400

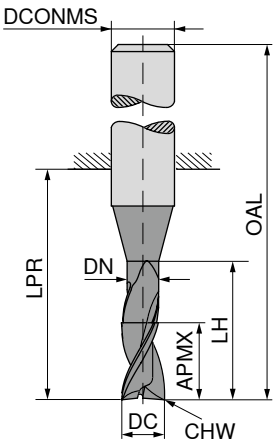
P	●	●	●
M	●	●	●
K	●	●	●
N	○	○	○
S	●	●	●
H			
O			

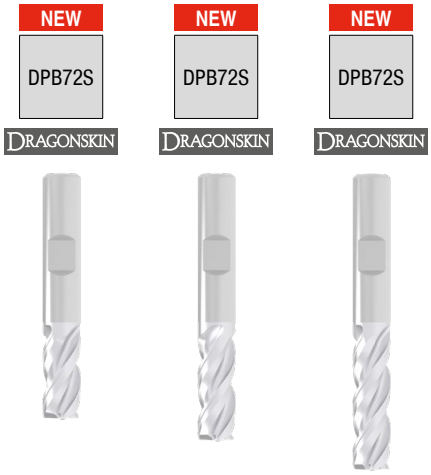
→ v_c/f_z Page 352+353

14

SilverLine – End milling cutter



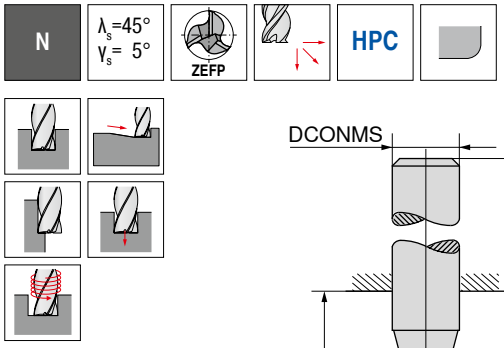


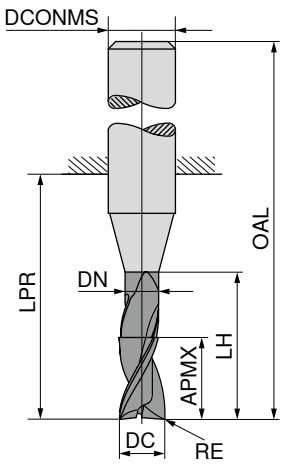


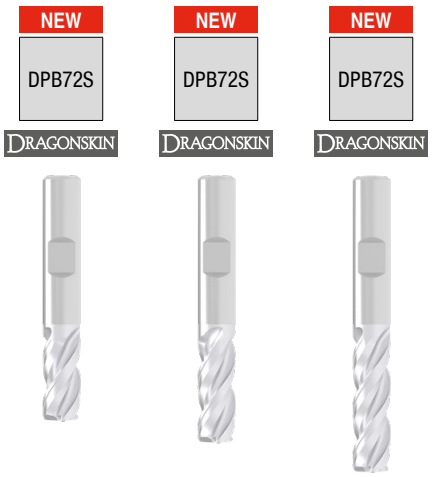
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	≈DIN 6527 HB 50 966 ...	≈DIN 6527 HB 50 966 ...	≈DIN 6527 HB 50 966 ...
3,0	8	2,9	15	21	57	6	0,1	3		03200	
3,5	11	3,4	16	21	57	6	0,1	3		03700	
4,0	8	3,9	15	18	54	6	0,1	3	04100		
4,0	11	3,9	16	21	57	6	0,1	3		04200	
4,0	16			26	62	6	0,1	3			04400
4,5	13	4,4	19	21	57	6	0,1	3		04700	
5,0	9	4,9	16	18	54	6	0,1	3	05100		
5,0	13	4,9	19	21	57	6	0,1	3		05200	
5,0	17			26	62	6	0,1	3			05400
5,5	13	5,4	19	21	57	6	0,1	3		05700	
6,0	10	5,9	17	18	54	6	0,2	3	06100		
6,0	13	5,9	19	21	57	6	0,2	3		06200	
6,0	18			26	62	6	0,2	3			06400
6,5	19	6,3	25	27	63	8	0,2	3		06700	
7,0	19	6,8	25	27	63	8	0,2	3		07200	
7,5	19	7,3	25	27	63	8	0,2	3		07700	
8,0	12	7,8	20	22	58	8	0,2	3	08100		
8,0	19	7,8	25	27	63	8	0,2	3		08200	
8,0	24			32	68	8	0,2	3			08400
8,5	22	8,2	30	32	72	10	0,2	3		08700	
9,0	22	8,7	30	32	72	10	0,2	3		09200	
9,5	22	9,2	30	32	72	10	0,2	3		09700	
10,0	14	9,7	24	26	66	10	0,2	3	10100		
10,0	22	9,7	30	32	72	10	0,2	3		10200	
10,0	30			40	80	10	0,2	3			10400
12,0	16	11,7	26	28	73	12	0,2	3	12100		
12,0	26	11,7	36	38	83	12	0,2	3		12200	
12,0	36			48	93	12	0,2	3			12400
14,0	18	13,7	28	30	75	14	0,2	3	14100		
14,0	26	13,7	36	38	83	14	0,2	3		14200	
14,0	42			54	99	14	0,2	3			14400
16,0	22	15,5	32	34	82	16	0,2	3	16100		
16,0	32	15,5	42	44	92	16	0,2	3		16200	
16,0	48			60	108	16	0,2	3			16400
18,0	24	17,5	34	36	84	18	0,2	3	18100		
18,0	32	17,5	42	44	92	18	0,2	3		18200	
18,0	54			66	114	18	0,2	3			18400
20,0	26	19,5	40	42	92	20	0,2	3	20100		
20,0	38	19,5	52	54	104	20	0,2	3		20200	
20,0	60			76	126	20	0,2	3			20400
P									●	●	●
M									●	●	●
K									●	●	●
N									○	○	○
S									●	●	●
H											
O											

→ v_c/f_z Page 352+353

SilverLine – End milling cutter with corner radius





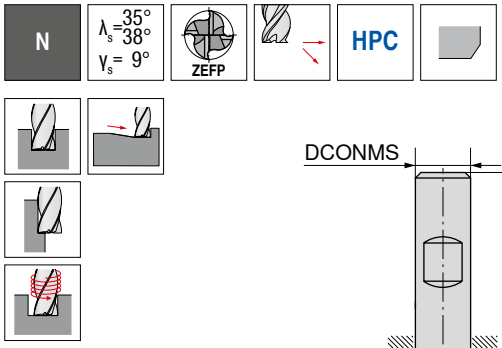


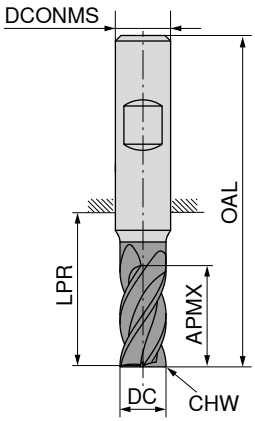
DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	≈DIN 6527 HB 50 967 ...	≈DIN 6527 HB 50 967 ...	≈DIN 6527 HB 50 967 ...
4,0	0,5	8	3,9	15	18	54	6	3	**04105**		
4,0	0,5	11	3,9	16	21	57	6	3		**04205**	
4,0	0,5	16			26	62	6	3			**04405**
5,0	0,5	9	4,9	16	18	54	6	3	**05105**		
5,0	0,5	13	4,9	19	21	57	6	3		**05205**	
5,0	0,5	17			26	62	6	3			**05405**
6,0	0,5	10	5,9	17	18	54	6	3	**06105**		
6,0	0,5	13	5,9	19	21	57	6	3		**06205**	
6,0	0,5	18			26	62	6	3			**06405**
8,0	1,0	12	7,8	20	22	58	8	3	**08110**		
8,0	1,0	19	7,8	25	27	63	8	3		**08210**	
8,0	1,0	24			32	68	8	3			**08410**
10,0	1,0	14	9,7	24	26	66	10	3	**10110**		
10,0	1,0	22	9,7	30	32	72	10	3		**10210**	
10,0	1,0	30			40	80	10	3			**10410**
12,0	1,5	16	11,7	26	28	73	12	3	**12115**		
12,0	1,5	26	11,7	36	38	83	12	3		**12215**	
12,0	1,5	36			48	93	12	3			**12415**
16,0	2,0	22	15,5	32	34	82	16	3	**16120**		
16,0	2,0	32	15,5	42	44	92	16	3		**16220**	
16,0	2,0	48			60	108	16	3			**16420**
20,0	2,0	26	19,5	40	42	92	20	3	**20120**		
20,0	2,0	38	19,5	52	54	104	20	3		**20220**	
20,0	2,0	60			76	126	20	3			**20420**

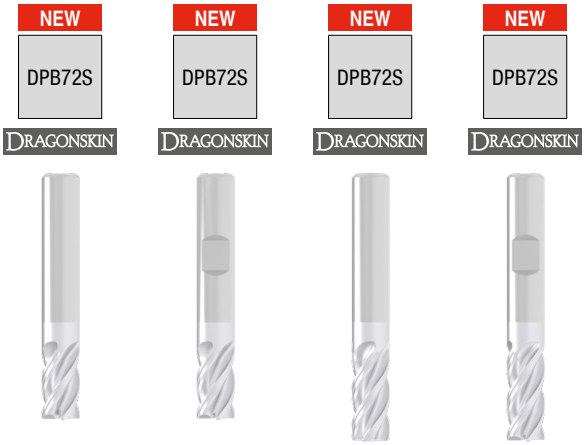
P	●	●	●
M	●	●	●
K	●	●	●
N	○	○	○
S	●	●	●
H			
O			

→ v_c/f_z Page 352+353

SilverLine – End milling cutter





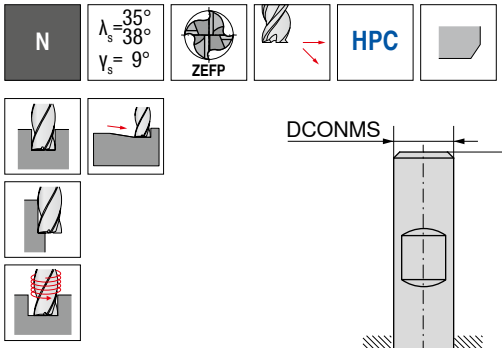


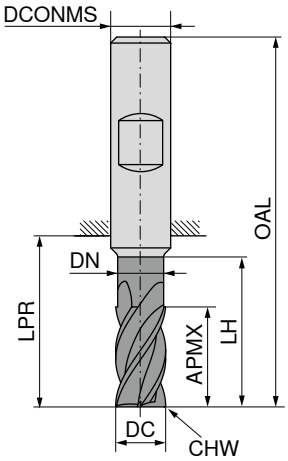


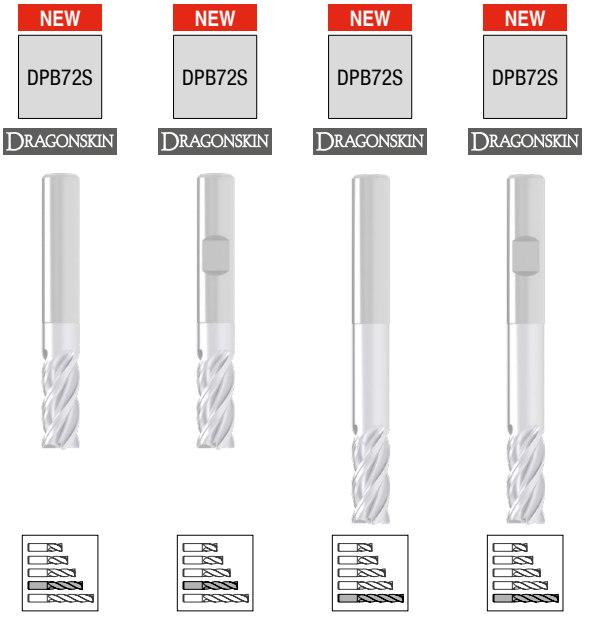
							≈DIN 6527 HA	≈DIN 6527 HB	≈DIN 6527 HA	≈DIN 6527 HB
DC f8 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	50 972 ...	50 973 ...	50 972 ...	50 973 ...
3,0	5	14	50	6	0,1	4	03100	03100		
3,0	8	21	57	6	0,1	4			03200	03200
3,5	8	18	54	6	0,1	4	03600	03600		
3,5	11	21	57	6	0,1	4			03700	03700
4,0	8	18	54	6	0,1	4	04100	04100		
4,0	11	21	57	6	0,1	4			04200	04200
4,5	9	18	54	6	0,1	4	04600	04600		
4,5	13	21	57	6	0,1	4			04700	04700
5,0	9	18	54	6	0,1	4	05100	05100		
5,0	13	21	57	6	0,1	4			05200	05200
5,5	10	18	54	6	0,1	4	05600	05600		
5,5	13	21	57	6	0,1	4			05700	05700
6,0	10	18	54	6	0,1	4	06100	06100		
6,0	13	21	57	6	0,1	4			06200	06200
7,0	12	22	58	8	0,2	4	07100	07100		
7,0	21	27	63	8	0,2	4			07200	07200
8,0	12	22	58	8	0,2	4	08100	08100		
8,0	21	27	63	8	0,2	4			08200	08200
9,0	14	26	66	10	0,2	4	09100	09100		
9,0	22	32	72	10	0,2	4			09200	09200
10,0	14	26	66	10	0,2	4	10100	10100		
10,0	22	32	72	10	0,2	4			10200	10200
11,0	16	28	73	12	0,3	4	11100	11100		
11,0	26	38	83	12	0,3	4			11200	11200
12,0	16	28	73	12	0,3	4	12100	12100		
12,0	26	38	83	12	0,3	4			12200	12200
14,0	16	28	73	14	0,3	4	14100	14100		
14,0	26	38	83	14	0,3	4			14200	14200
15,0	22	34	82	16	0,3	4	15100	15100		
15,0	36	44	92	16	0,3	4			15200	15200
16,0	22	34	82	16	0,3	4	16100	16100		
16,0	36	44	92	16	0,3	4			16200	16200
17,0	22	34	82	18	0,3	4	17100	17100		
17,0	36	44	92	18	0,3	4			17200	17200
18,0	22	34	82	18	0,3	4	18100	18100		
18,0	36	44	92	18	0,3	4			18200	18200
19,0	26	42	92	20	0,3	4	19100	19100		
19,0	41	54	104	20	0,3	4			19200	19200
20,0	26	42	92	20	0,3	4	20100	20100		
20,0	41	54	104	20	0,3	4			20200	20200
P							●	●	●	●
M							●	●	●	●
K							●	●	●	●
N							○	○	○	○
S							●	●	●	●
H										
O										

→ v_c/f_z Page 358+359

SilverLine – End milling cutter





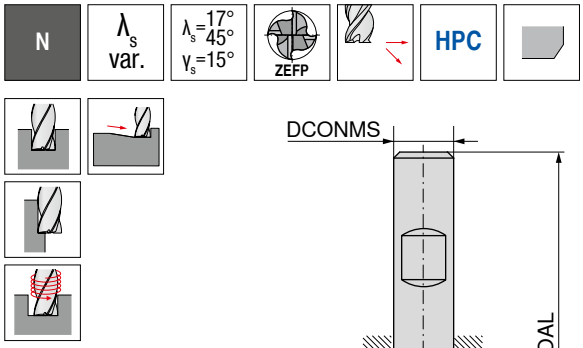


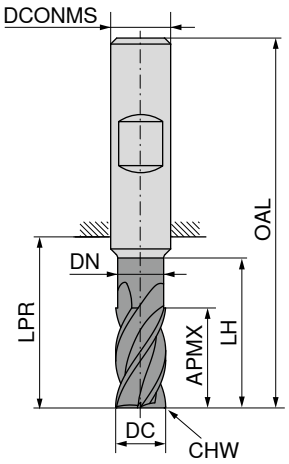
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	50 974 ...	50 975 ...	50 974 ...	50 975 ...
3,0	6,5	2,8	9	19	55	6	0,1	4	**03200**	**03200**		
3,0	6,5	2,8	15	22	58	6	0,1	4			**03400**	**03400**
4,0	8,5	3,8	12	19	55	6	0,1	4	**04200**	**04200**		
4,0	8,5	3,8	20	26	62	6	0,1	4			**04400**	**04400**
5,0	10,5	4,8	15	22	58	6	0,1	4	**05200**	**05200**		
5,0	10,5	4,8	25	34	70	6	0,1	4			**05400**	**05400**
6,0	13,0	5,8	18	22	58	6	0,1	4	**06200**	**06200**		
6,0	13,0	5,8	30	34	70	6	0,1	4			**06400**	**06400**
8,0	17,0	7,7	24	28	64	8	0,2	4	**08200**	**08200**		
8,0	17,0	7,7	40	44	80	8	0,2	4			**08400**	**08400**
10,0	21,0	9,7	30	34	74	10	0,2	4	**10200**	**10200**		
10,0	21,0	9,7	50	54	94	10	0,2	4			**10400**	**10400**
12,0	25,0	11,6	36	40	85	12	0,3	4	**12200**	**12200**		
12,0	25,0	11,6	60	64	109	12	0,3	4			**12400**	**12400**
14,0	29,0	13,6	42	46	91	14	0,3	4	**14200**	**14200**		
14,0	29,0	13,6	70	74	119	14	0,3	4			**14400**	**14400**
16,0	33,0	15,5	48	52	100	16	0,3	4	**16200**	**16200**		
16,0	33,0	15,5	80	84	132	16	0,3	4			**16400**	**16400**
18,0	38,0	17,5	54	58	106	18	0,3	4	**18200**	**18200**		
18,0	38,0	17,5	90	94	142	18	0,3	4			**18400**	**18400**
20,0	42,0	19,5	60	64	114	20	0,3	4	**20200**	**20200**		
20,0	42,0	19,5	100	104	154	20	0,3	4			**20400**	**20400**
P									●	●	●	●
M									●	●	●	●
K									●	●	●	●
N									○	○	○	○
S									●	●	●	●
H												
O												

→ v_c/f_z Page 358–357

SilverLine – End milling cutter

▲ Especially for high-volume milling





NEW DPB72S DRAGONSKIN



NEW DPB72S DRAGONSKIN





DIN 6527

HA



50 976 ...



DIN 6527

HB



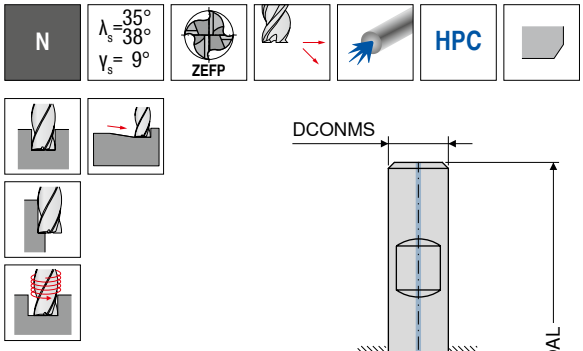
50 977 ...

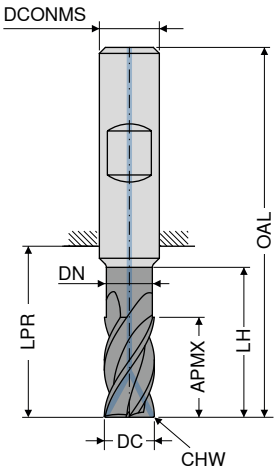
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP		
3,0	8	2,8	13	21	57	6	0,1	4	**03200**	**03200**
4,0	11	3,8	17	21	57	6	0,1	4	**04200**	**04200**
5,0	13	4,8	19	21	57	6	0,1	4	**05200**	**05200**
6,0	13	5,8	19	21	57	6	0,1	4	**06200**	**06200**
8,0	21	7,7	25	27	63	8	0,2	4	**08200**	**08200**
10,0	22	9,7	30	32	72	10	0,2	4	**10200**	**10200**
12,0	26	11,6	36	38	83	12	0,3	4	**12200**	**12200**
14,0	26	13,6	36	38	83	14	0,3	4	**14200**	**14200**
16,0	36	15,5	42	44	92	16	0,3	4	**16200**	**16200**
18,0	36	17,5	42	44	92	18	0,3	4	**18200**	**18200**
20,0	41	19,5	52	54	104	20	0,3	4	**20200**	**20200**

P	●	●
M	●	●
K	●	●
N	○	○
S		
H		
O		

→ v_c/f_z Page 354+355

SilverLine – End milling cutter





NEW

DPB72S

DRAGONSKIN





DIN 6527

HB 

50 978 ...

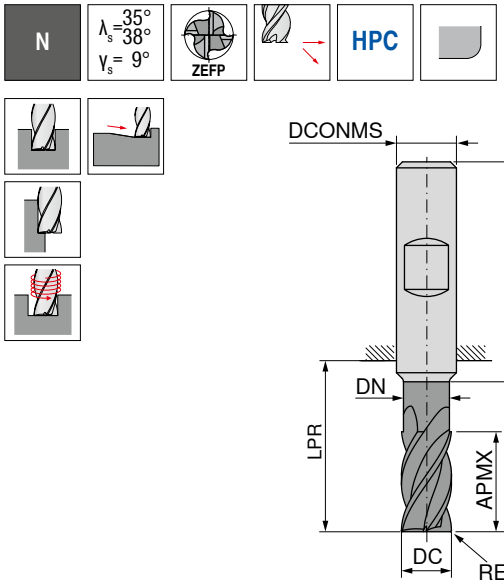
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	
6,0	13	5,8	19	21	57	6	0,1	4	**06200**
8,0	21	7,7	25	27	63	8	0,2	4	**08200**
10,0	22	9,7	30	32	72	10	0,2	4	**10200**
12,0	26	11,6	36	38	83	12	0,3	4	**12200**
14,0	26	13,6	36	38	83	14	0,3	4	**14200**
16,0	36	15,5	42	44	92	16	0,3	4	**16200**
18,0	36	17,5	42	44	92	18	0,3	4	**18200**
20,0	41	19,5	52	54	104	20	0,3	4	**20200**

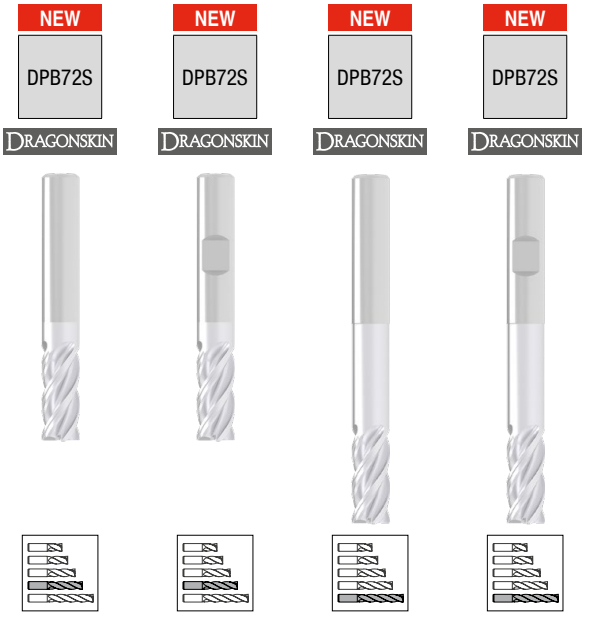
P	●
M	●
K	●
N	○
S	●
H	
O	

→ v_c/f_z Page 358+359

14

SilverLine – End milling cutter with corner radius





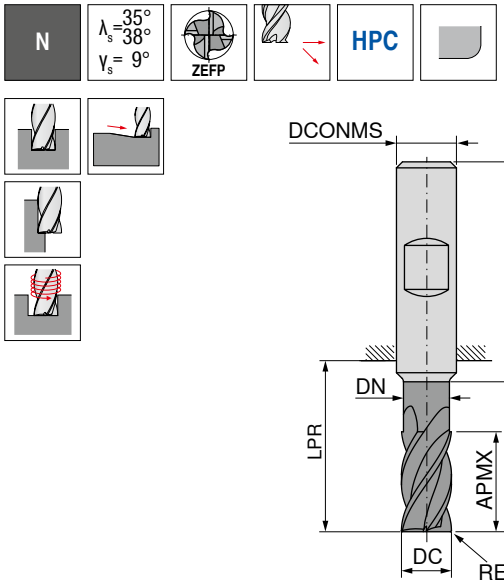
HA HB HA HB

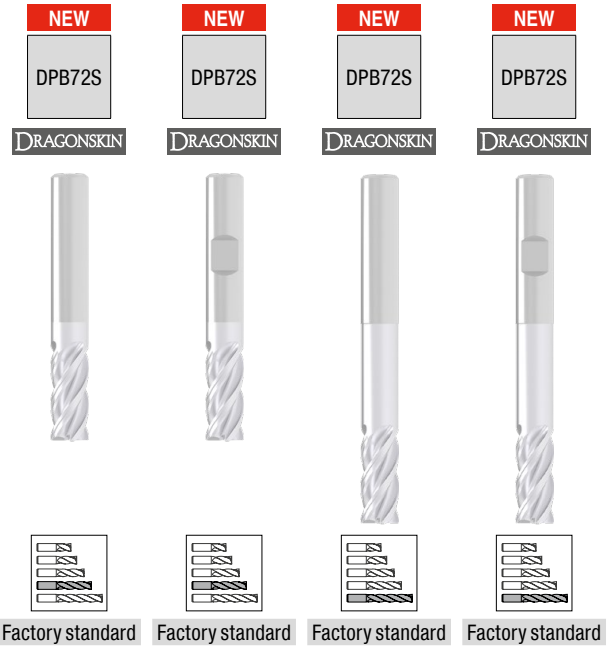
DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 970 ...	50 971 ...	50 970 ...	50 971 ...
3,0	0,10	8,0	2,8	13	21	57	6	4	03201	03201		
3,0	0,40	8,0	2,8	13	21	57	6	4	03204	03204		
3,0	0,50	8,0	2,8	13	21	57	6	4	03205	03205		
3,0	1,00	8,0	2,8	13	21	57	6	4	03210	03210		
3,0	0,30	6,5	2,8	15	22	58	6	4			03403	03403
3,0	0,50	6,5	2,8	15	22	58	6	4			03405	03405
3,0	0,80	6,5	2,8	15	22	58	6	4			03408	03408
4,0	0,10	11,0	3,8	17	21	57	6	4	04201	04201		
4,0	0,40	11,0	3,8	17	21	57	6	4	04204	04204		
4,0	0,50	11,0	3,8	17	21	57	6	4	04205	04205		
4,0	1,00	11,0	3,8	17	21	57	6	4	04210	04210		
4,0	0,40	8,5	3,8	20	26	62	6	4			04404	04404
4,0	0,50	8,5	3,8	20	26	62	6	4			04405	04405
4,0	0,80	8,5	3,8	20	26	62	6	4			04408	04408
5,0	0,10	13,0	4,8	19	21	57	6	4	05201	05201		
5,0	0,50	13,0	4,8	19	21	57	6	4	05205	05205		
5,0	1,00	13,0	4,8	19	21	57	6	4	05210	05210		
5,0	0,50	10,5	4,8	25	34	70	6	4			05405	05405
5,0	0,80	10,5	4,8	25	34	70	6	4			05408	05408
6,0	0,10	13,0	5,8	19	21	57	6	4	06201	06201		
6,0	0,50	13,0	5,8	19	21	57	6	4	06205	06205		
6,0	1,00	13,0	5,8	19	21	57	6	4	06210	06210		
6,0	1,50	13,0	5,8	19	21	57	6	4	06215	06215		
6,0	0,60	13,0	5,8	30	34	70	6	4			06406	06406
6,0	0,80	13,0	5,8	30	34	70	6	4			06408	06408
6,0	1,00	13,0	5,8	30	34	70	6	4			06410	06410
8,0	0,15	21,0	7,7	25	27	63	8	4	08202	08202		
8,0	0,50	21,0	7,7	25	27	63	8	4	08205	08205		
8,0	1,00	21,0	7,7	25	27	63	8	4	08210	08210		
8,0	1,50	21,0	7,7	25	27	63	8	4	08215	08215		
8,0	2,00	21,0	7,7	25	27	63	8	4	08220	08220		
8,0	0,80	17,0	7,7	40	44	80	8	4			08408	08408
8,0	1,00	17,0	7,7	40	44	80	8	4			08410	08410
8,0	1,50	17,0	7,7	40	44	80	8	4			08415	08415
8,0	2,00	17,0	7,7	40	44	80	8	4			08420	08420
10,0	0,15	22,0	9,7	30	32	72	10	4	10202	10202		
10,0	0,50	22,0	9,7	30	32	72	10	4	10205	10205		
10,0	1,00	22,0	9,7	30	32	72	10	4	10210	10210		
10,0	1,50	22,0	9,7	30	32	72	10	4	10215	10215		
10,0	2,00	22,0	9,7	30	32	72	10	4	10220	10220		
10,0	0,50	21,0	9,7	50	54	94	10	4			10405	10405
10,0	1,00	21,0	9,7	50	54	94	10	4			10410	10410
10,0	1,50	21,0	9,7	50	54	94	10	4			10415	10415
10,0	2,00	21,0	9,7	50	54	94	10	4			10420	10420
12,0	0,20	26,0	11,6	36	38	83	12	4	12202	12202		
12,0	0,50	26,0	11,6	36	38	83	12	4	12205	12205		
12,0	1,00	26,0	11,6	36	38	83	12	4	12210	12210		
P									●	●	●	●
M									●	●	●	●
K									●	●	●	●
N									○	○	○	○
S									●	●	●	●
H												
O												

→ v_c/f_z Page 358–357

Continued on next page

SilverLine – End milling cutter with corner radius





DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 970 ...		50 971 ...		50 970 ...		50 971 ...	
12,0	1,50	26,0	11,6	36	38	83	12	4	12215		12215					
12,0	2,00	26,0	11,6	36	38	83	12	4	12220		12220					
12,0	3,00	26,0	11,6	36	38	83	12	4	12230		12230					
12,0	4,00	26,0	11,6	36	38	83	12	4	12240		12240					
12,0	0,50	25,0	11,6	60	64	109	12	4					12405		12405	
12,0	1,00	25,0	11,6	60	64	109	12	4					12410		12410	
12,0	1,50	25,0	11,6	60	64	109	12	4					12415		12415	
12,0	2,00	25,0	11,6	60	64	109	12	4					12420		12420	
12,0	3,00	25,0	11,6	60	64	109	12	4					12430		12430	
12,0	4,00	25,0	11,6	60	64	109	12	4					12440		12440	
14,0	0,30	26,0	13,6	36	38	83	14	4	14203		14203					
14,0	1,00	26,0	13,6	36	38	83	14	4	14210		14210					
14,0	2,00	26,0	13,6	36	38	83	14	4	14220		14220					
14,0	3,00	26,0	13,6	36	38	83	14	4	14230		14230					
14,0	4,00	26,0	13,6	36	38	83	14	4	14240		14240					
14,0	1,00	29,0	13,6	70	74	119	14	4					14410		14410	
14,0	2,00	29,0	13,6	70	74	119	14	4					14420		14420	
14,0	3,00	29,0	13,6	70	74	119	14	4					14430		14430	
14,0	4,00	29,0	13,6	70	74	119	14	4					14440		14440	
16,0	0,30	36,0	15,5	42	44	92	16	4	16203		16203					
16,0	1,00	36,0	15,5	42	44	92	16	4	16210		16210					
16,0	2,00	36,0	15,5	42	44	92	16	4	16220		16220					
16,0	3,00	36,0	15,5	42	44	92	16	4	16230		16230					
16,0	4,00	36,0	15,5	42	44	92	16	4	16240		16240					
16,0	1,00	33,0	15,5	80	84	132	16	4					16410		16410	
16,0	2,00	33,0	15,5	80	84	132	16	4					16420		16420	
16,0	3,00	33,0	15,5	80	84	132	16	4					16430		16430	
16,0	4,00	33,0	15,5	80	84	132	16	4					16440		16440	
18,0	1,00	36,0	17,5	42	44	92	18	4	18210		18210					
18,0	2,00	36,0	17,5	42	44	92	18	4	18220		18220					
18,0	3,00	36,0	17,5	42	44	92	18	4	18230		18230					
18,0	4,00	36,0	17,5	42	44	92	18	4	18240		18240					
18,0	1,00	38,0	17,5	90	94	142	18	4					18410		18410	
18,0	2,00	38,0	17,5	90	94	142	18	4					18420		18420	
18,0	3,00	38,0	17,5	90	94	142	18	4					18430		18430	
18,0	4,00	38,0	17,5	90	94	142	18	4					18440		18440	
20,0	0,30	41,0	19,5	52	54	104	20	4	20203		20203					
20,0	1,00	41,0	19,5	52	54	104	20	4	20210		20210					
20,0	2,00	41,0	19,5	52	54	104	20	4	20220		20220					
20,0	3,00	41,0	19,5	52	54	104	20	4	20230		20230					
20,0	4,00	41,0	19,5	52	54	104	20	4	20240		20240					
20,0	1,00	42,0	19,5	100	104	154	20	4					20410		20410	
20,0	2,00	42,0	19,5	100	104	154	20	4					20420		20420	
20,0	3,00	42,0	19,5	100	104	154	20	4					20430		20430	
20,0	4,00	42,0	19,5	100	104	154	20	4					20440		20440	

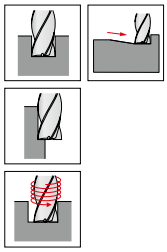
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	○	○	○	○
S	●	●	●	●
H				
O				

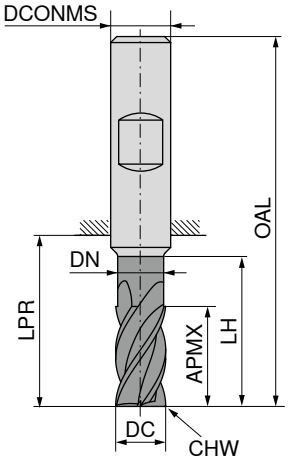
→ v_c/f_z Page 358–357

SilverLine – Roughing-Finishing Cutter

▲ With rough-finishing profile







NEW

DPB72S

DRAGONSKIN





DIN 6527

HB

50 969 ...

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	
3,0	8	2,8	13	21	57	6	0,1	4	**03200**
3,5	11	3,3	17	21	57	6	0,1	4	**03700**
4,0	11	3,8	17	21	57	6	0,1	4	**04200**
4,5	13	4,3	19	21	57	6	0,1	4	**04700**
5,0	13	4,8	19	21	57	6	0,1	4	**05200**
5,5	13	5,3	19	21	57	6	0,1	4	**05700**
6,0	13	5,8	19	21	57	6	0,1	4	**06200**
7,0	21	6,7	25	27	63	8	0,2	4	**07200**
8,0	21	7,7	25	27	63	8	0,2	4	**08200**
9,0	22	8,7	30	32	72	10	0,2	4	**09200**
10,0	22	9,7	30	32	72	10	0,2	4	**10200**
11,0	26	10,6	36	38	83	12	0,3	4	**11200**
12,0	26	11,6	36	38	83	12	0,3	4	**12200**
14,0	26	13,6	36	38	83	14	0,3	4	**14200**
15,0	36	14,5	42	44	92	16	0,3	4	**15200**
16,0	36	15,5	42	44	92	16	0,3	4	**16200**
17,0	36	16,5	42	44	92	18	0,3	4	**17200**
18,0	36	17,5	42	44	92	18	0,3	4	**18200**
19,0	41	18,5	52	54	104	20	0,3	4	**19200**
20,0	41	19,5	52	54	104	20	0,3	4	**20200**

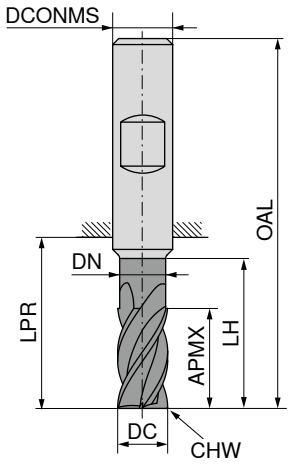
P	●
M	●
K	●
N	○
S	●
H	
O	

→ v_c/f_z Page 358+359

SilverLine – Rough milling cutter

▲ With roughing profile

NR | λ_s=35° γ_s= 9° | ZEFP | HPC



NEW

DPB72S

DRAGONSKIN



DIN 6527

HB

50 979 ...

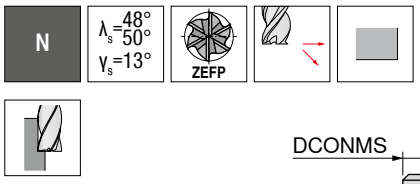
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	
3,0	8	2,8	13	21	57	6	0,1	4	**03200**
3,5	11	3,3	17	21	57	6	0,1	4	**03700**
4,0	11	3,8	17	21	57	6	0,1	4	**04200**
4,5	13	4,3	19	21	57	6	0,1	4	**04700**
5,0	13	4,8	19	21	57	6	0,1	4	**05200**
5,5	13	5,3	19	21	57	6	0,1	4	**05700**
6,0	13	5,8	19	21	57	6	0,1	4	**06200**
7,0	21	6,7	25	27	63	8	0,2	4	**07200**
8,0	21	7,7	25	27	63	8	0,2	4	**08200**
9,0	22	8,7	30	32	72	10	0,2	4	**09200**
10,0	22	9,7	30	32	72	10	0,2	4	**10200**
11,0	26	10,6	36	38	83	12	0,3	4	**11200**
12,0	26	11,6	36	38	83	12	0,3	4	**12200**
14,0	26	13,6	36	38	83	14	0,3	4	**14200**
15,0	36	14,5	42	44	92	16	0,3	4	**15200**
16,0	36	15,5	42	44	92	16	0,3	4	**16200**
17,0	36	16,5	42	44	92	18	0,3	4	**17200**
18,0	36	17,5	42	44	92	18	0,3	4	**18200**
19,0	41	18,5	52	54	104	20	0,3	4	**19200**
20,0	41	19,5	52	54	104	20	0,3	4	**20200**

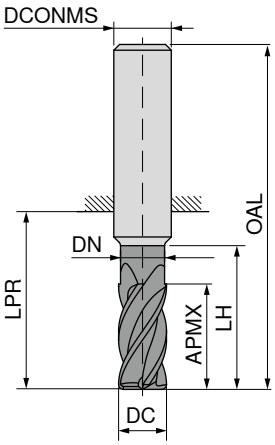
P	●
M	●
K	●
N	○
S	●
H	
O	

→ v_c/f_z Page 358+359

SilverLine – High Accuracy Finish Milling Cutter

- ▲ max. taper of 0.005 mm for high precision and parallelism of vertical walls
- ▲ Tool with cutting edge correction





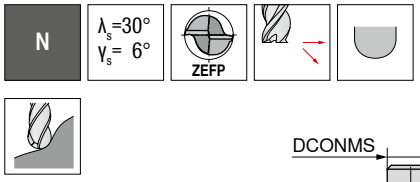


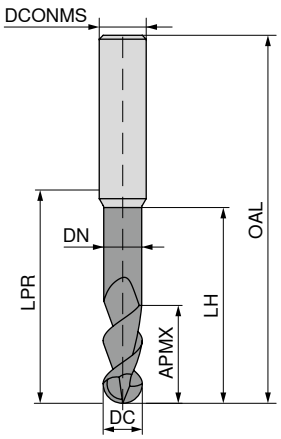
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	≈DIN 6527 HA 50 991 ...	Factory standard HA 50 991 ...
6,0	10	5,8	18	22	58	6	6	**06200**	
6,0	13	5,6	19	21	57	6	6	**06700**	
6,0	13	5,8	27	31	67	6	6		**06400**
6,0	13	5,8	36	40	76	6	6		**06900**
6,0	15	5,6	42	44	80	6	6		**90000**
8,0	13	7,7	24	28	64	8	6	**08200**	
8,0	17	7,7	36	40	76	8	6		**08400**
8,0	17	7,7	48	53	89	8	6		**08900**
8,0	19	7,6	25	27	63	8	6	**08700**	
8,0	20	7,6	62	64	100	8	6		**90100**
10,0	16	9,7	30	34	74	10	6	**10200**	
10,0	21	9,7	45	49	89	10	6		**10400**
10,0	21	9,7	60	64	104	10	6		**90200**
10,0	22	9,6	30	32	72	10	6	**10700**	
10,0	25	9,6	58	60	100	10	6		**10900**
12,0	19	11,6	36	40	85	12	6	**12200**	
12,0	25	11,6	54	58	103	12	6		**12400**
12,0	25	11,6	72	76	121	12	6		**90300**
12,0	26	11,5	36	38	83	12	6	**12700**	
12,0	30	11,5	73	75	120	12	6		**12900**
16,0	25	15,5	48	52	100	16	6	**16200**	
16,0	32	15,0	42	44	92	16	6	**16700**	
16,0	33	15,5	72	76	124	16	6		**16400**
16,0	33	15,5	96	100	148	16	6		**16900**
16,0	40	15,0	100	102	150	16	6		**90400**
20,0	32	19,5	60	64	114	20	6	**20200**	
20,0	38	19,0	52	54	104	20	6	**20700**	
20,0	42	19,5	90	94	144	20	6		**20400**
20,0	42	19,5	120	124	174	20	6		**90500**
20,0	50	19,0	98	100	150	20	6		**20900**
25,0	40	24,5	75	80	136	25	6	**25200**	
25,0	52	24,5	113	118	174	25	6		**25400**
25,0	52	24,5	150	154	210	25	6		**25900**

P	●	●
M	●	●
K	○	○
N	○	○
S	●	●
H		
O		

→ v_c/f_z Page 362

SilverLine – Ball Nosed Cutter









Factory standard | Factory standard

HA | HA

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 963 ...		50 963 ...	
3,0	4	2,8	10,0	14	50	6	2	03115			
3,0	7	3,0	8,8	24	60	6	2				03415
4,0	8	3,8	12,0	18	54	6	2	04120			
4,0	10	4,0	12,5	39	75	6	2				04420
5,0	9	4,8	16,0	18	54	6	2	05125			
5,0	12	5,0	15,0	39	75	6	2				05425
6,0	10	5,7	16,0	18	54	6	2	06130			
6,0	12	6,0	15,0	64	100	6	2				06430
7,0	11	6,6	20,0	22	58	8	2	07135			
8,0	12	7,6	20,0	22	58	8	2	08140			
8,0	14	8,0	17,5	64	100	8	2				08440
10,0	14	9,6	24,0	26	66	10	2	10150			
10,0	18	10,0	22,5	60	100	10	2				10450
12,0	16	11,5	26,0	28	73	12	2	12160			
12,0	22	12,0	27,5	55	100	12	2				12460
14,0	18	13,3	28,0	30	75	14	2	14170			
14,0	26	14,0	32,5	75	120	14	2				14470
16,0	22	15,2	32,0	34	82	16	2	16180			
16,0	30	16,0	37,5	102	150	16	2				16480
18,0	24	17,1	34,0	36	84	18	2	18190			
20,0	26	19,0	40,0	42	92	20	2	20110			
20,0	38	20,0	47,5	100	150	20	2				20410

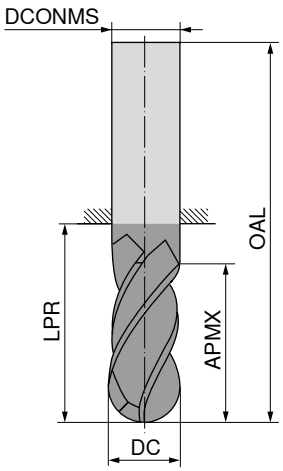
P	●	●
M		
K	●	●
N	○	○
S		
H	○	○
O		

→ v_c/f_z Page 360+361

SilverLine – Ball Nosed Cutter







NEW

DPB72S

DRAGONSKIN





Factory standard

HA 

50 990 ...

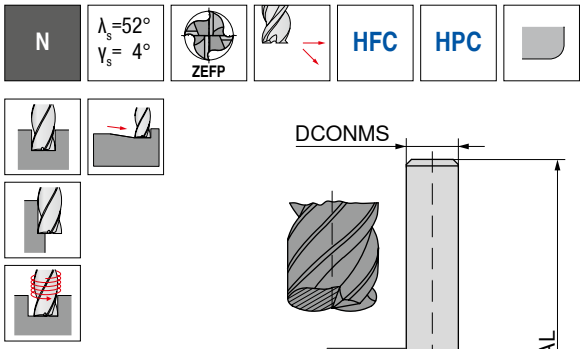
DC f8 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
4,0	11	21	57	6	4	**04220**
5,0	13	21	57	6	4	**05225**
6,0	13	21	57	6	4	**06230**
8,0	19	36	72	8	4	**08280**
10,0	22	32	72	10	4	**10250**
12,0	26	38	83	12	4	**12260**
16,0	32	44	92	16	4	**16280**
20,0	38	54	104	20	4	**20210**

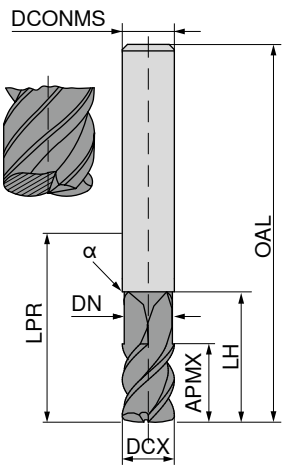
P	●
M	○
K	●
N	○
S	
H	
O	

→ v_c/f_z Page 363–365

SilverLine – Torus Face Milling Cutter

▲ APMX does not correspond to the maximum cutting depth
▲ r_{3D} = corner radius to be programmed







DCX f8 mm	r_{3D} mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	α°	DCONMS h6 mm	ZEFP	Factory standard HA 50 989 ...	Factory standard HA 50 989 ...
6,00	1,12	6	5,5	21	21	57	45	6	4	**06110**	
6,00	1,12	6	5,5	64	64	100	45	6	4		**06410**
8,00	1,23	8	7,4	27	27	63	45	8	4	**08110**	
8,00	1,23	8	7,4	64	64	100	45	8	4		**08410**
10,00	1,17	10	9,2	32	32	72	45	10	4	**10115**	
10,00	1,17	10	9,2	60	60	100	45	10	4		**10415**
12,00	1,86	12	11,0	32	38	83	45	12	4	**12115**	
12,00	1,86	12	11,0	65	65	110	45	12	4		**12415**
16,00	2,47	16	15,0	38	44	92	45	16	4	**16120**	
16,00	2,47	16	15,0	65	102	150	45	16	4		**16420**
20,00	2,61	20	18,5	40	42	92	45	20	4	**20120**	
20,00	2,61	20	18,5	65	100	150	45	20	4		**20420**
P										●	●
M										○	○
K										●	●
N										○	○
S											
H										○	○
O											

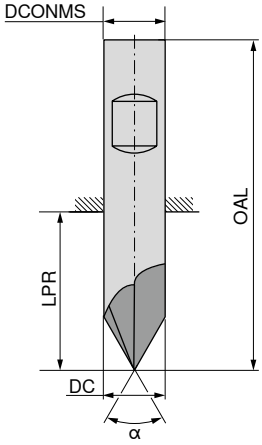
→ v_c/f_z Page 366+367

14

SilverLine – NC deburring cutter

N

λ_s=0°
γ_s=5°



NEW | NEW | NEW DPB72S DRAGONSKIN | NEW DPB72S DRAGONSKIN



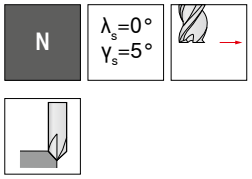
					α = 60° Factory standard HA	α = 60° Factory standard HB	α = 60° Factory standard HA	α = 60° Factory standard HB
					50 566 ...	50 567 ...	50 562 ...	50 563 ...
DC mm	OAL mm	LPR mm	DCONMS mm	ZEFP				
4	50	22	4	5	04000		04000	
6	55	19	6	5	06000	06000	06000	06000
8	58	22	8	5	08000	08000	08000	08000
10	60	20	10	5	10000	10000	10000	10000
12	70	25	12	5	12000	12000	12000	12000
16	80	32	16	5	16000	16000	16000	16000
P					●	●	●	●
M					●	●	●	●
K					●	●	●	●
N								
S					●	●	●	●
H								
O								

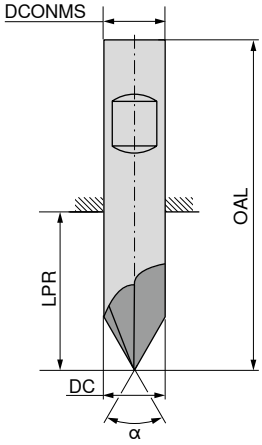
→ v_c/f_z Page 349

SilverLine – NC deburring cutter

N

λ_s=0°
γ_s=5°





NEW | NEW | NEW DPB72S DRAGONSKIN | NEW DPB72S DRAGONSKIN



α = 90° Factory standard HA — **50 564 ...**
α = 90° Factory standard HB — **50 565 ...**
α = 90° Factory standard HA — **50 560 ...**
α = 90° Factory standard HB — **50 561 ...**

DC mm	OAL mm	LPR mm	DCONMS mm	ZEFP	50 564 ...	50 565 ...	50 560 ...	50 561 ...
4	50	22	4	5	**04000**		**04000**	
6	55	19	6	5	**06000**	**06000**	**06000**	**06000**
8	58	22	8	5	**08000**	**08000**	**08000**	**08000**
10	60	20	10	5	**10000**	**10000**	**10000**	**10000**
12	70	25	12	5	**12000**	**12000**	**12000**	**12000**
16	80	32	16	5	**16000**	**16000**	**16000**	**16000**

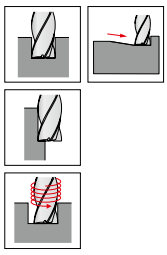
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N				
S	●	●	●	●
H				
O				

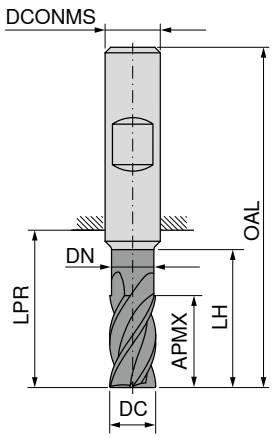
→ v_c/f_z Page 349

14

S-Cut – End milling cutter

SC UNI | λ_s var. | λ_s=28° 36° γ_s=10° | ZEFP | HPC





APX72S





≈DIN 6527

HB 

52 225 ...

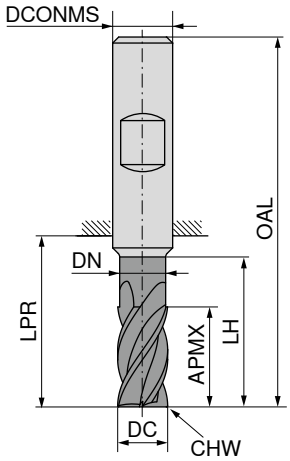
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
3	8	2,8	15,0	21	57	6	4	**030**
4	11	3,8	16,5	21	57	6	4	**040**
5	13	4,8	18,5	21	57	6	4	**050**
6	13	5,5	21,0	21	57	6	4	**060**
7	19	6,5	27,0	27	63	8	4	**070**
8	19	7,5	27,0	27	63	8	4	**080**
9	22	8,5	32,0	32	72	10	4	**090**
10	22	9,5	32,0	32	72	10	4	**100**
11	26	10,5	38,0	38	83	12	4	**110**
12	26	11,5	38,0	38	83	12	4	**120**
13	26	12,5	42,0	38	83	14	4	**130**
14	26	13,5	42,0	38	83	14	4	**140**
16	36	15,5	48,0	44	92	16	4	**160**
18	36	17,5	54,0	52	100	18	4	**180**
20	38	19,5	54,0	54	104	20	4	**200**
25	42	24,0	65,0	65	121	25	4	**250**

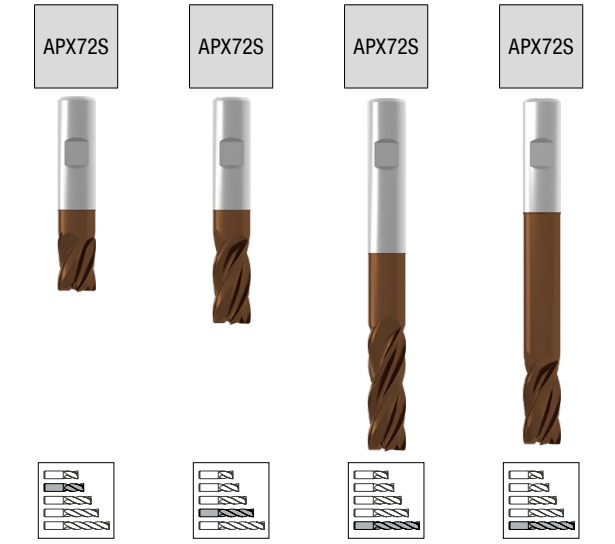
P	●
M	●
K	●
N	○
S	○
H	○
O	

→ v_c/f_z Page 410+411

S-Cut – End milling cutter

SC UNI | λ_s var. | λ_s=28° 36° γ_s=10° | ZEFP | HPC





≈DIN 6527 | HB

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 223 ...	52 224 ...	52 226 ...	52 227 ...
3	6	2,8	12,0	18	54	6	0,10	4	030			
3	8	2,8	15,0	21	57	6	0,10	4		030		
4	8	3,8	13,5	18	54	6	0,13	4	040			
4	11	3,8	16,5	21	57	6	0,13	4		040		
5	9	4,8	15,5	18	54	6	0,18	4	050			
5	13	4,8	18,5	21	57	6	0,18	4		050		
5	22	4,8	24,5	27	63	6	0,18	4			050	
6	10	5,5	18,0	18	54	6	0,20	4	060			
6	13	5,5	21,0	21	57	6	0,20	4		060		
6	13	5,5	42,0	44	80	6	0,20	4				060
6	22	5,5	27,0	27	63	6	0,20	4			060	
7	12	6,5	22,0	22	58	8	0,20	4	070			
7	19	6,5	27,0	27	63	8	0,20	4		070		
8	12	7,5	22,0	22	58	8	0,20	4	080			
8	19	7,5	27,0	27	63	8	0,20	4		080		
8	21	7,5	62,0	64	100	8	0,20	4				080
8	28	7,5	36,0	44	80	8	0,20	4			080	
9	14	8,5	26,0	26	66	10	0,30	4	090			
9	22	8,5	32,0	32	72	10	0,20	4		090		
10	14	9,5	26,0	26	66	10	0,30	4	100			
10	22	9,5	32,0	32	72	10	0,30	4		100		
10	22	9,5	58,0	60	100	10	0,30	4				100
10	33	9,5	54,0	60	100	10	0,30	4			100	
11	16	10,5	28,0	28	73	12	0,30	4	110			
11	26	10,5	38,0	38	83	12	0,30	4		110		
12	16	11,5	28,0	28	73	12	0,30	4	120			
12	26	11,5	38,0	38	83	12	0,30	4		120		
12	26	11,5	73,0	75	120	12	0,30	4				120
12	42	11,5	54,0	55	100	12	0,30	4			120	
13	18	12,5	30,0	30	75	14	0,30	4	130			
13	26	12,5	38,0	38	83	14	0,30	4		130		
14	18	13,5	30,0	30	75	14	0,30	4	140			
14	26	13,5	38,0	38	83	14	0,30	4		140		
14	48	13,5	54,0	55	100	14	0,30	4			140	
16	22	15,5	34,0	34	82	16	0,40	4	160			
16	36	15,5	44,0	44	92	16	0,40	4		160		
16	36	15,5	100,0	102	150	16	0,40	4				160
16	53	15,5	84,0	102	150	16	0,40	4			160	
18	24	17,5	34,0	36	84	18	0,40	4	180			
18	36	17,5	52,0	52	100	18	0,40	4		180		
20	26	19,5	42,0	42	92	20	0,50	4	200			
20	38	19,5	54,0	54	104	20	0,50	4		200		
20	38	19,5	100,0	100	150	20	0,50	4				200
20	68	19,5	84,0	100	150	20	0,50	4			200	
25	32	24,0	46,0	49	105	25	0,50	4	250			
25	42	24,0	65,0	65	121	25	0,50	4		250		
25	68	24,0	84,0	94	150	25	0,50	4			250	

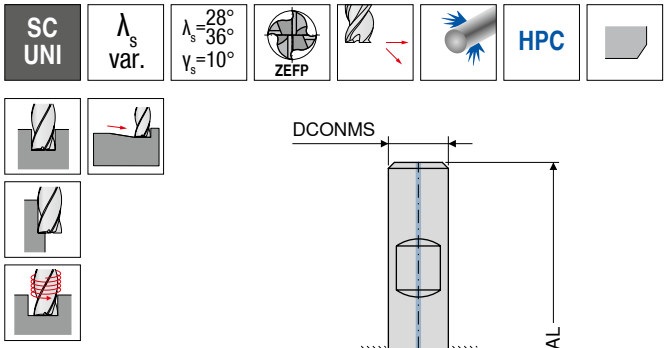
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H	○	○	○	○
O				

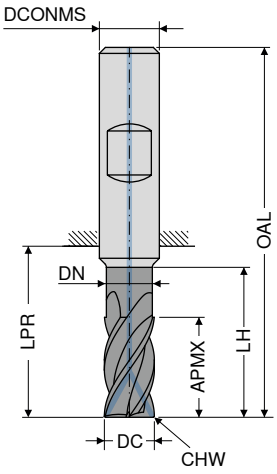
→ v_c/f_z Page 410–413

14

S-Cut – End milling cutter

SC UNI | λ_s var. | λ_s=28° 36° γ_s=10° | ZEFP | HPC





APX72S





≈DIN 6527

HB

52 229 ...

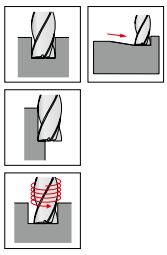
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	
6	13	5,5	21	21	57	6	0,2	4	**060**
8	19	7,5	27	27	63	8	0,2	4	**080**
10	22	9,5	32	32	72	10	0,3	4	**100**
12	26	11,5	38	38	83	12	0,3	4	**120**
14	26	13,5	42	42	83	14	0,3	4	**140**
16	36	15,5	46	46	92	16	0,4	4	**160**
20	38	19,5	54	54	104	20	0,5	4	**200**
25	42	24,0	65	65	121	25	0,5	4	**250**

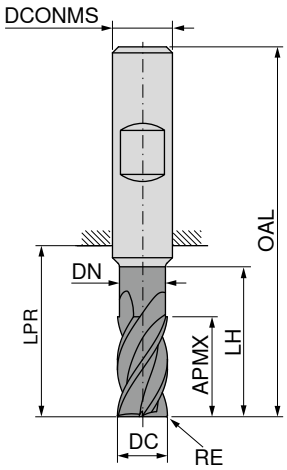
P	●
M	●
K	●
N	○
S	○
H	○
O	

→ v_c/f_z Page 410+411

S-Cut – End milling cutter with corner radius

SC UNI | λ_s var. | λ_s=28° 36° γ_s=10° | ZEFP | HPC





APX72S





≈DIN 6527

HB 

52 228 ...

DC $_{f8}$ mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	
3	0,25	8	2,8	15,0	21	57	6	4	03003
3	0,50	8	2,8	15,0	21	57	6	4	03005
3	1,00	8	2,8	15,0	21	57	6	4	03010
4	0,25	11	3,8	16,5	21	57	6	4	04003
4	0,50	11	3,8	16,5	21	57	6	4	04005
4	1,00	11	3,8	16,5	21	57	6	4	04010
5	0,50	13	4,8	18,5	21	57	6	4	05005
5	1,00	13	4,8	18,5	21	57	6	4	05010
5	1,50	13	4,8	18,5	21	57	6	4	05015
6	0,50	13	5,5	21,0	21	57	6	4	06005
6	0,80	13	5,5	21,0	21	57	6	4	06008
6	1,00	13	5,5	21,0	21	57	6	4	06010
6	1,50	13	5,5	21,0	21	57	6	4	06015
6	2,00	13	5,5	21,0	21	57	6	4	06020
8	0,50	19	7,5	27,0	27	63	8	4	08005
8	0,80	19	7,5	27,0	27	63	8	4	08008
8	1,00	19	7,5	27,0	27	63	8	4	08010
8	1,50	19	7,5	27,0	27	63	8	4	08015
8	2,00	19	7,5	27,0	27	63	8	4	08020
10	0,50	22	9,5	32,0	32	72	10	4	10005
10	1,00	22	9,5	32,0	32	72	10	4	10010
10	1,50	22	9,5	32,0	32	72	10	4	10015
10	1,60	22	9,5	32,0	32	72	10	4	10016
10	2,00	22	9,5	32,0	32	72	10	4	10020
12	0,50	26	11,5	38,0	38	83	12	4	12005
12	1,00	26	11,5	38,0	38	83	12	4	12010
12	1,50	26	11,5	38,0	38	83	12	4	12015
12	1,60	26	11,5	38,0	38	83	12	4	12016
12	2,00	26	11,5	38,0	38	83	12	4	12020
12	3,00	26	11,5	38,0	38	83	12	4	12030
14	1,00	26	13,5	38,0	38	83	14	4	14010
14	2,00	26	13,5	38,0	38	83	14	4	14020
16	1,00	36	15,5	44,0	44	92	16	4	16010
16	1,50	36	15,5	44,0	44	92	16	4	16015
16	1,60	36	15,5	44,0	44	92	16	4	16016
16	2,00	36	15,5	44,0	44	92	16	4	16020
16	2,50	36	15,5	44,0	44	92	16	4	16025
16	3,00	36	15,5	44,0	44	92	16	4	16030
16	3,20	36	15,5	44,0	44	92	16	4	16032
18	1,50	36	17,5	44,0	44	92	18	4	18015
18	2,50	36	17,5	44,0	44	92	18	4	18025

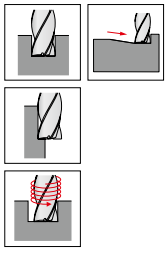
P	●
M	●
K	●
N	○
S	○
H	○
O	

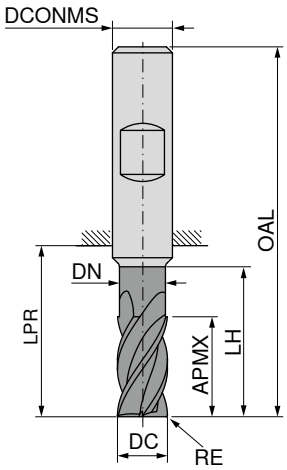
→ v_c/f_z Page 410+411

Continued on next page

S-Cut – End milling cutter with corner radius

SC UNI | λ_s var. | λ_s=28° 36° γ_s=10° | ZEFP | HPC





APX72S





≈DIN 6527

HB

52 228 ...

DC $_{f8}$ mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	
20	1,00	38	19,5	54,0	54	104	20	4	**20010**
20	1,50	38	19,5	54,0	54	104	20	4	**20015**
20	2,00	38	19,5	54,0	54	104	20	4	**20020**
20	2,50	38	19,5	54,0	54	104	20	4	**20025**
20	3,00	38	19,5	54,0	54	104	20	4	**20030**
20	4,00	38	19,5	54,0	54	104	20	4	**20040**
25	1,00	42	24,0	65,0	65	121	25	4	**25010**
25	1,50	42	24,0	65,0	65	121	25	4	**25015**
25	2,00	42	24,0	65,0	65	121	25	4	**25020**
25	2,50	42	24,0	65,0	65	121	25	4	**25025**
25	3,00	42	24,0	65,0	65	121	25	4	**25030**
25	4,00	42	24,0	65,0	65	121	25	4	**25040**
25	5,00	42	24,0	65,0	65	121	25	4	**25050**

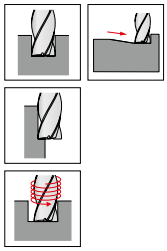
P	●
M	●
K	●
N	○
S	○
H	○
O	

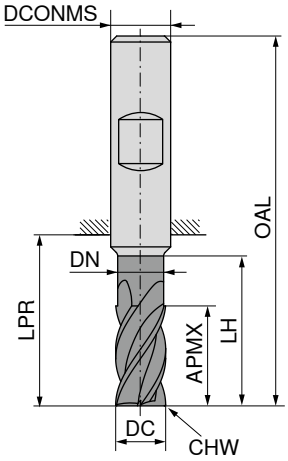
→ v_c/f_z Page 410+411

S-Cut – End milling cutter

- Suitable for trochoidal milling
- With chip breaker

SC UNI | λ_s var. | λ_s=28° 36° γ_s=10° | ZEFP | HPC





APX72S





≈DIN 6527

HB 

52 230 ...

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	
6	18	5,5	25	26	62	6	0,12	5	**060**
8	24	7,5	30	32	68	8	0,16	5	**080**
10	30	9,5	35	40	80	10	0,20	5	**100**
12	36	11,5	45	48	93	12	0,24	5	**120**
16	48	15,5	55	60	108	16	0,32	5	**160**
20	60	19,5	70	76	126	20	0,40	5	**200**

P	●
M	●
K	●
N	
S	○
H	
O	

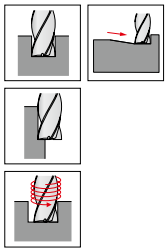
→ v_c/f_z Page 414+415

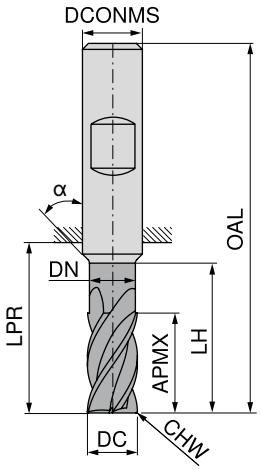
14

S-Cut – Rough milling cutter

▲ With roughing profile

SC NR | λ_s var. | λ_s=28°-36° γ_s=10° | ZEFP | HPC





NEW APX72S



NEW APX72S



NEW APX72S





≈DIN 6527 HB



≈DIN 6527 HB



≈DIN 6527 HB

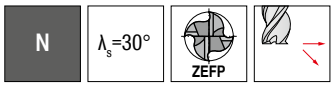
DC h11 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	α°	ZEFP	52 205 ...	52 205 ...	52 205 ...
3	6	2,8	12,0	18	54	6	0,18	15	4	03100		
3	8	2,8	14,0	21	57	6	0,18	15	4		03200	
3	8	2,8	19,0	26	62	6	0,18	15	4			03400
4	8	3,8	13,5	18	54	6	0,20	15	4	04100		
4	11	3,8	18,0	21	57	6	0,20	15	4		04200	
4	11	3,8	23,0	26	62	6	0,20	15	4			04400
5	9	4,8	15,5	18	54	6	0,25	15	4	05100		
5	13	4,8	19,0	21	57	6	0,25	15	4		05200	
5	13	4,8	24,0	26	62	6	0,25	15	4			05400
6	10	5,5	18,0	18	54	6	0,25		4	06100		
6	13	5,5	20,0	21	57	6	0,25		4		06200	
6	13	5,5	25,0	26	62	6	0,25		4			06400
8	12	7,5	22,0	22	58	8	0,30		4	08100		
8	19	7,5	25,0	27	63	8	0,30		4		08200	
8	19	7,5	30,0	32	68	8	0,30		4			08400
10	14	9,5	26,0	26	66	10	0,30		4	10100		
10	22	9,5	30,0	32	72	10	0,30		4		10200	
10	22	9,5	35,0	40	80	10	0,30		4			10400
12	16	11,5	28,0	28	73	12	0,45		4	12100		
12	26	11,5	35,0	38	83	12	0,45		4		12200	
12	26	11,5	45,0	48	93	12	0,45		4			12400
14	18	13,5	30,0	30	75	14	0,50		4	14100		
14	26	13,5	35,0	38	83	14	0,50		4		14200	
14	26	13,5	50,0	54	99	14	0,50		4			14400
16	22	15,5	34,0	34	82	16	0,60		4	16100		
16	32	15,5	40,0	44	92	16	0,60		4		16200	
16	32	15,5	55,0	60	108	16	0,60		4			16400
20	26	19,5	42,0	42	92	20	0,60		4	20100		
20	38	19,5	50,0	54	104	20	0,60		4		20200	
20	38	19,5	70,0	76	126	20	0,60		4			20400

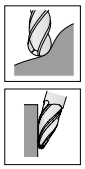
P	●	●	●
M	●	●	●
K	●	●	●
N	○	○	○
S	○	○	○
H	○	○	○
O			

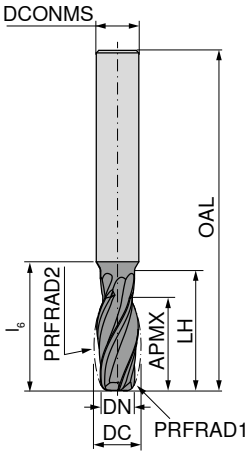
→ v_c/f_z Page 410–413

3D Finish – Barrel shape

▲ Geometrical tolerance ± 0.01 mm







NEW

APB72S





DIN 6527

HA

52 739 ...

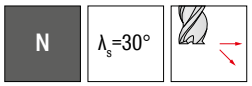
DC mm	DCONMS h6 mm	DN mm	PRFRAD1 mm	PRFRAD2 mm	LH mm	APMX mm	l_6 mm	OAL mm	ZEFP	100
10	10	8	2	50	28	21	30	80	4	
P										●
M										●
K										●
N										●
S										●
H										○
O										●

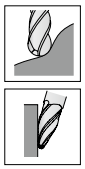
→ v_c/f_z Page 416

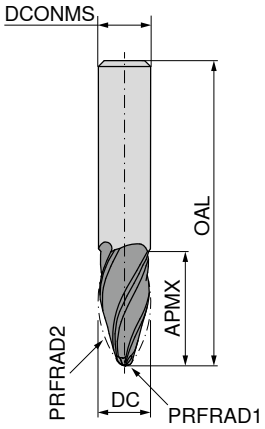
14

3D Finish – Oval shape

▲ Geometrical tolerance ± 0.01 mm







NEW

APB72S





DIN 6527

HA

52 745 ...

DC mm	DCONMS h6 mm	PRFRAD1 mm	PRFRAD2 mm	APMX mm	OAL mm	ZEFP	
6	6	1	95	22	62	3	**060**
8	8	1	90	25	68	3	**080**
10	10	2	85	26	72	4	**100**
12	12	2	80	28	83	4	**120**
16	16	3	75	31	92	4	**160**

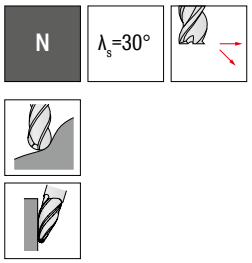
P	●
M	●
K	●
N	●
S	●
H	○
O	●

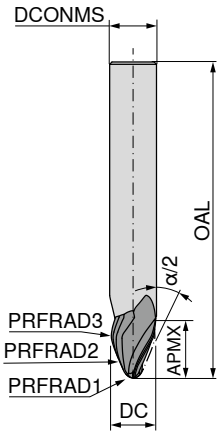
→ v_c/f_z Page 417

3D Finish – Taper shape

▲ Geometrical tolerance ± 0.01 mm

N | λ_s=30°





NEW

APB72S





DIN 6527

HA

52 753 ...

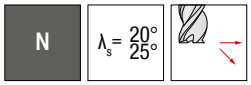
DC mm	DCONMS h6 mm	PRFRAD1 mm	PRFRAD2 mm	PRFRAD3 mm	α°/2	APMX mm	OAL mm	ZEFP	
6	6	1,0	250	3	17,5	9,5	62	3	**060**
8	8	1,5	250	4	20	10,5	68	3	**080**
10	10	2,0	250	5	20	12,5	80	3	**100**
12	12	1,0	200	1	42,5	8,0	93	3	**120**
12	12	3,0	250	6	20	13,5	93	3	**121**
16	16	2,0	1000	5	12,5	31,0	108	3	**160**
16	16	4,0	500	8	20	18,5	108	3	**161**
16	16	4,0	1000	5	12,5	24,0	108	3	**162**
16	16	4,0	1500	8	20	18,5	108	3	**163**

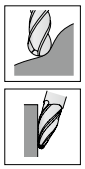
P	●
M	●
K	●
N	●
S	●
H	○
O	●

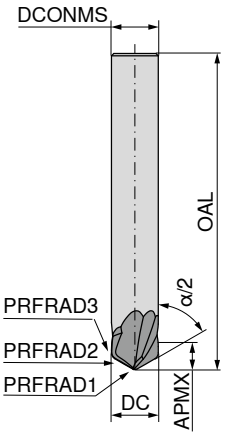
→ v_c/f_z Page 418

3D Finish – Taper shape

▲ Geometrical tolerance ± 0.01 mm







NEW

APB72S





DIN 6527

HA

52 755 ...

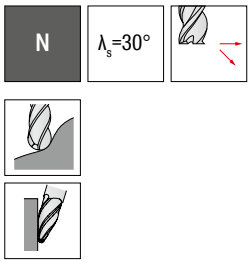
DC mm	DCONMS h6 mm	PRFRAD1 mm	PRFRAD2 mm	PRFRAD3 mm	α°/2	APMX mm	OAL mm	ZEFP	
10	10	1	200	1,5	60	6	80	2	**100**
10	10	1	200	2,0	70	6	80	2	**101**

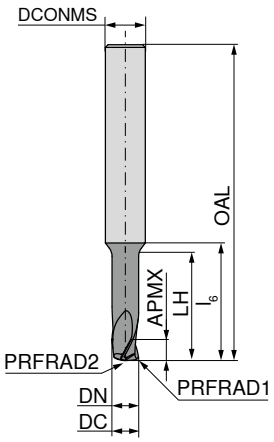
P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c/f_z Page 418

3D Finish – Lens shape

▲ Geometrical tolerance ± 0.01 mm





NEW

APB72S





DIN 6527

HA

52 756 ...

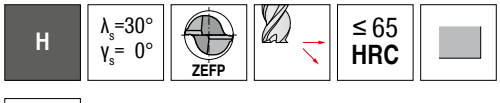
DC mm	DCONMS h6 mm	DN mm	PRFRAD1 mm	PRFRAD2 mm	LH mm	APMX mm	l6 mm	OAL mm	ZEFP	
4	6	4	0,25	6	18	4	20	62	3	**040**
6	6		0,50	10		6		62	3	**060**
8	8		0,75	15		8		68	3	**080**
10	10		1,00	20		10		80	3	**100**
12	12		1,25	25		12		93	3	**120**

P	●
M	●
K	●
N	●
S	●
H	
O	

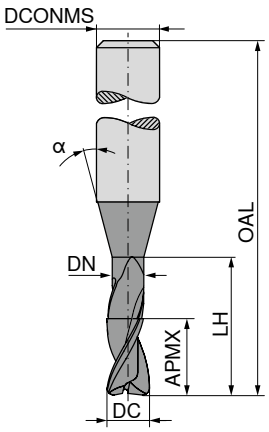
→ v_c/f_z Page 419

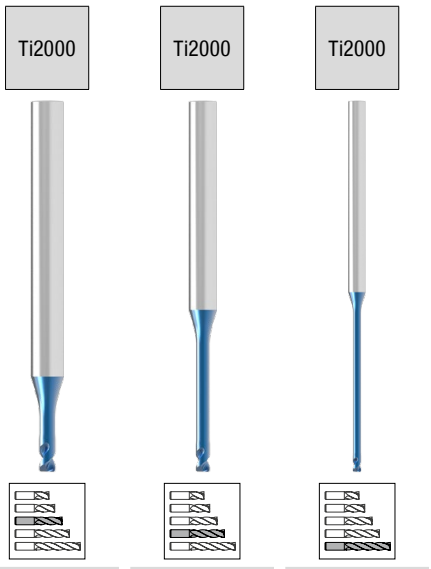
BlueLine – Micro-end milling cutter

▲ T_x = maximum engagement depth









Factory standard | Factory standard | Factory standard

HA | HA | HA

DC -0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_x	ZEFP	52 345 ...	52 346 ...	52 347 ...
0,2	0,3	0,18	0,5	45	16	4	2,5 x DC	2	**302**		
0,2	0,3	0,18	1,0	45	16	4	5 x DC	2	**402**		
0,2	0,3	0,18	1,5	45	16	4	7,5 x DC	2	**502**		
0,3	0,4	0,28	1,0	45	16	4	3,3 x DC	2	**303**		
0,3	0,4	0,28	2,0	45	16	4	6,6 x DC	2	**403**		
0,3	0,4	0,28	3,0	45	16	4	10 x DC	2		**303**	
0,3	0,4	0,28	6,0	45	16	4	20 x DC	2		**403**	
0,3	0,4	0,28	9,0	45	16	4	30 x DC	2			**303**
0,4	0,6	0,38	2,0	45	16	4	5 x DC	2	**304**		
0,4	0,6	0,38	3,0	45	16	4	7,5 x DC	2	**404**		
0,4	0,6	0,38	4,0	45	16	4	10 x DC	2		**304**	
0,4	0,6	0,38	5,0	45	16	4	12,5 x DC	2		**404**	
0,4	0,6	0,38	8,0	45	16	4	20 x DC	2			**304**
0,4	0,6	0,38	12,0	45	16	4	30 x DC	2			**404**
0,5	0,7	0,48	2,0	45	16	4	4 x DC	2	**305**		
0,5	0,7	0,48	4,0	45	16	4	8 x DC	2	**405**		
0,5	0,7	0,48	6,0	45	16	4	12 x DC	2		**305**	
0,5	0,7	0,48	8,0	45	16	4	16 x DC	2		**405**	
0,5	0,7	0,48	10,0	50	16	4	20 x DC	2			**305**
0,5	0,7	0,48	15,0	50	16	4	30 x DC	2			**405**
0,6	0,9	0,58	2,0	45	16	4	3,3 x DC	2	**306**		
0,6	0,9	0,58	4,0	45	16	4	6,6 x DC	2	**406**		
0,6	0,9	0,58	6,0	45	16	4	10 x DC	2		**306**	
0,6	0,9	0,58	8,0	45	16	4	13,3 x DC	2		**406**	
0,6	0,9	0,58	10,0	45	16	4	16,6 x DC	2		**506**	
0,6	0,9	0,58	12,0	50	16	4	20 x DC	2			**306**
0,6	0,9	0,58	18,0	50	16	4	30 x DC	2			**406**
0,7	1,0	0,68	2,0	45	16	4	2,8 x DC	2	**307**		
0,7	1,0	0,68	4,0	45	16	4	5,7 x DC	2	**407**		
0,7	1,0	0,68	6,0	45	16	4	8,5 x DC	2	**507**		
0,7	1,0	0,68	8,0	45	16	4	11,4 x DC	2		**307**	
0,7	1,0	0,68	10,0	50	16	4	14,2 x DC	2		**407**	
0,8	1,2	0,78	4,0	45	16	4	5 x DC	2	**308**		
0,8	1,2	0,78	6,0	45	16	4	7,5 x DC	2	**408**		
0,8	1,2	0,78	8,0	45	16	4	10 x DC	2		**308**	
0,8	1,2	0,78	10,0	50	16	4	12,5 x DC	2		**408**	
0,8	1,2	0,78	12,0	50	16	4	15 x DC	2		**508**	
0,8	1,2	0,78	16,0	50	16	4	20 x DC	2			**308**
0,8	1,2	0,78	24,0	60	16	4	30 x DC	2			**408**
0,9	1,3	0,88	4,0	45	16	4	4,4 x DC	2	**309**		
0,9	1,3	0,88	6,0	45	16	4	6,6 x DC	2	**409**		
0,9	1,3	0,88	8,0	45	16	4	8,8 x DC	2	**509**		
0,9	1,3	0,88	10,0	45	16	4	11 x DC	2		**309**	
0,9	1,3	0,88	15,0	50	16	4	16,6 x DC	2		**409**	
1,0	1,5	0,95	4,0	45	16	4	4 x DC	2	**310**		
1,0	1,5	0,95	6,0	45	16	4	6 x DC	2	**410**		

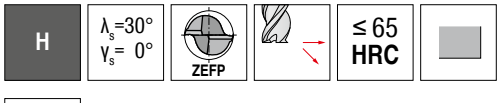
P	●	●	●
M			
K			
N			
S			
H	●	●	●
O			

→ v_c/f_z Page 396+397

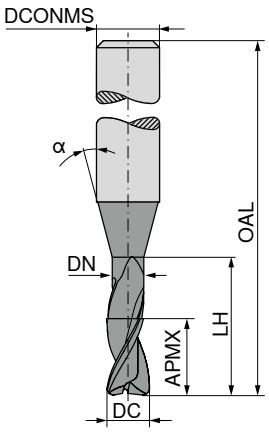
Continued on next page

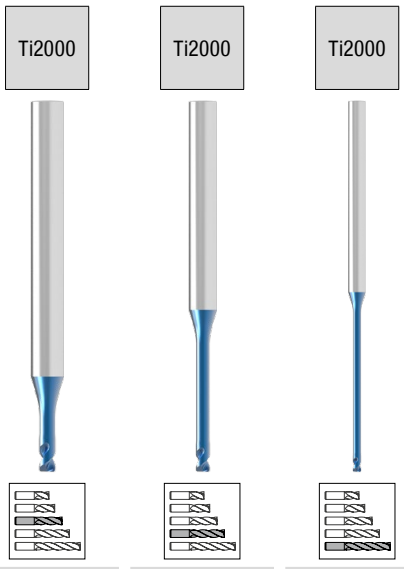
BlueLine – Micro-end milling cutter

▲ T_x = maximum engagement depth









Factory standard | Factory standard | Factory standard

HA | HA | HA

DC -0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_x	ZEFP	52 345 ...	52 346 ...	52 347 ...
1,0	1,5	0,95	8,0	45	16	4	8 x DC	2	**510**		
1,0	1,5	0,95	10,0	45	16	4	10 x DC	2		**310**	
1,0	1,5	0,95	12,0	45	16	4	12 x DC	2		**410**	
1,0	1,5	0,95	14,0	45	16	4	14 x DC	2		**510**	
1,0	1,5	0,95	16,0	50	16	4	16 x DC	2		**610**	
1,0	1,5	0,95	20,0	54	16	4	20 x DC	2			**310**
1,0	1,5	0,95	25,0	70	16	4	25 x DC	2			**410**
1,0	1,5	0,95	30,0	70	16	4	30 x DC	2			**510**
1,2	1,8	1,14	6,0	45	16	4	5 x DC	2	**312**		
1,2	1,8	1,14	8,0	45	16	4	6,6 x DC	2	**412**		
1,2	1,8	1,14	10,0	45	16	4	8,3 x DC	2	**512**		
1,2	1,8	1,14	12,0	45	16	4	10 x DC	2		**312**	
1,2	1,8	1,14	16,0	50	16	4	13,3 x DC	2		**412**	
1,2	1,8	1,14	20,0	60	16	4	16,6 x DC	2		**512**	
1,4	2,1	1,34	6,0	45	16	4	4,2 x DC	2	**314**		
1,4	2,1	1,34	8,0	45	16	4	5,7 x DC	2	**414**		
1,4	2,1	1,34	10,0	45	16	4	7,1 x DC	2	**514**		
1,4	2,1	1,34	12,0	45	16	4	8,5 x DC	2	**614**		
1,4	2,1	1,34	14,0	45	16	4	10 x DC	2		**314**	
1,4	2,1	1,34	16,0	50	16	4	11,4 x DC	2		**414**	
1,4	2,1	1,34	22,0	54	16	4	15,7 x DC	2		**514**	
1,5	2,3	1,44	6,0	45	16	4	4 x DC	2	**315**		
1,5	2,3	1,44	8,0	45	16	4	5,3 x DC	2	**415**		
1,5	2,3	1,44	10,0	45	16	4	6,6 x DC	2	**515**		
1,5	2,3	1,44	12,0	45	16	4	8 x DC	2	**615**		
1,5	2,3	1,44	14,0	50	16	4	9,3 x DC	2	**715**		
1,5	2,3	1,44	16,0	50	16	4	10,6 x DC	2		**315**	
1,5	2,3	1,44	18,0	54	16	4	12 x DC	2		**415**	
1,5	2,3	1,44	20,0	54	16	4	13,3 x DC	2		**515**	
1,5	2,3	1,44	25,0	70	16	4	16,6 x DC	2		**615**	
1,5	2,3	1,44	30,0	70	16	4	20 x DC	2		**715**	
1,5	2,3	1,44	35,0	70	16	4	23,3 x DC	2			**315**
1,5	2,3	1,44	40,0	80	16	4	26,6 x DC	2			**415**
1,5	2,3	1,44	45,0	80	16	4	30 x DC	2			**515**
1,6	2,4	1,51	6,0	45	16	4	3,7 x DC	2	**316**		
1,6	2,4	1,51	8,0	45	16	4	5 x DC	2	**416**		
1,6	2,4	1,51	10,0	45	16	4	6,2 x DC	2	**516**		
1,6	2,4	1,51	12,0	45	16	4	7,5 x DC	2	**616**		
1,6	2,4	1,51	14,0	50	16	4	8,75 x DC	2	**716**		
1,6	2,4	1,51	16,0	50	16	4	10 x DC	2		**316**	
1,6	2,4	1,51	18,0	54	16	4	11,25 x DC	2		**416**	
1,6	2,4	1,51	20,0	54	16	4	12,5 x DC	2		**516**	
1,6	2,4	1,51	26,0	60	16	4	16,2 x DC	2		**616**	
1,8	2,7	1,71	6,0	45	16	4	3,3 x DC	2	**318**		
1,8	2,7	1,71	8,0	45	16	4	4,4 x DC	2	**418**		
1,8	2,7	1,71	10,0	45	16	4	5,5 x DC	2	**518**		

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

→ v_c/f_z Page 396+397

14

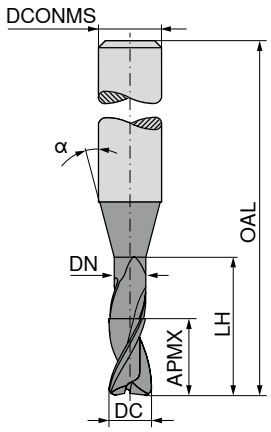
Continued on next page

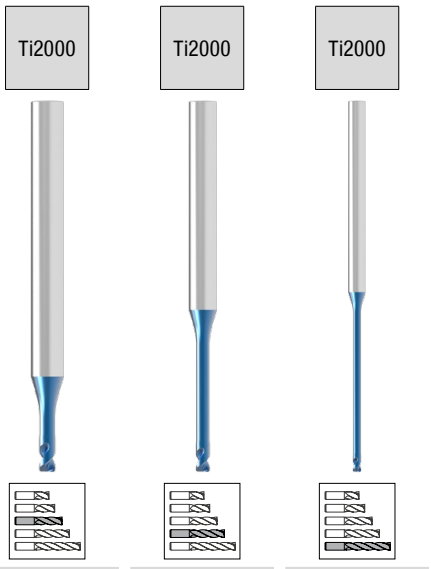
BlueLine – Micro-end milling cutter

▲ T_x = maximum engagement depth

H | λ_s=30° γ_s= 0° | ZEFP | ≤ 65 HRC







Factory standard | Factory standard | Factory standard

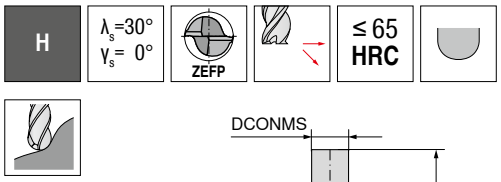
HA | HA | HA

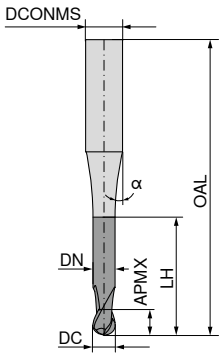
DC $_{-0,01}$ mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS $_{h5}$ mm	T_x	ZEFP	52 345 ...	52 346 ...	52 347 ...
1,8	2,7	1,71	12,0	45	16	4	6,6 x DC	2	**618**		
1,8	2,7	1,71	14,0	50	16	4	7,7 x DC	2	**718**		
1,8	2,7	1,71	16,0	50	16	4	8,8 x DC	2	**818**		
1,8	2,7	1,71	18,0	54	16	4	10 x DC	2		**318**	
1,8	2,7	1,71	20,0	54	16	4	11 x DC	2		**418**	
1,8	2,7	1,71	25,0	60	16	4	13,8 x DC	2		**518**	
2,0	3,0	1,91	6,0	45	16	4	3 x DC	2	**320**		
2,0	3,0	1,91	8,0	45	16	4	4 x DC	2	**420**		
2,0	3,0	1,91	10,0	45	16	4	5 x DC	2	**520**		
2,0	3,0	1,91	12,0	45	16	4	6 x DC	2	**620**		
2,0	3,0	1,91	14,0	50	16	4	7 x DC	2	**720**		
2,0	3,0	1,91	16,0	50	16	4	8 x DC	2	**820**		
2,0	3,0	1,91	18,0	54	16	4	9 x DC	2	**920**		
2,0	3,0	1,91	20,0	54	16	4	10 x DC	2		**320**	
2,0	3,0	1,91	25,0	60	16	4	12,5 x DC	2		**420**	
2,0	3,0	1,91	30,0	70	16	4	15 x DC	2		**520**	
2,0	3,0	1,91	35,0	80	16	4	17,5 x DC	2		**620**	
2,0	3,0	1,91	40,0	90	16	4	20 x DC	2			**320**
2,0	3,0	1,91	50,0	100	16	4	25 x DC	2			**420**
2,0	3,0	1,91	60,0	110	16	4	30 x DC	2			**520**
2,5	3,7	2,41	8,0	45	16	4	3,2 x DC	2	**325**		
2,5	3,7	2,41	10,0	45	16	4	4 x DC	2	**425**		
2,5	3,7	2,41	12,0	45	16	4	4,8 x DC	2	**525**		
2,5	3,7	2,41	14,0	50	16	4	5,6 x DC	2	**625**		
2,5	3,7	2,41	16,0	50	16	4	6,4 x DC	2	**725**		
2,5	3,7	2,41	18,0	54	16	4	7,2 x DC	2	**825**		
2,5	3,7	2,41	20,0	54	16	4	8 x DC	2	**925**		
2,5	3,7	2,41	25,0	60	16	4	10 x DC	2		**325**	
2,5	3,7	2,41	30,0	70	16	4	12 x DC	2		**425**	
2,5	3,7	2,41	40,0	90	16	4	16 x DC	2		**525**	
2,5	3,7	2,41	50,0	100	16	4	20 x DC	2			**325**
3,0	4,5	2,92	8,0	45	16	4	2,6 x DC	2	**330**		
3,0	4,5	2,92	12,0	45	16	4	4 x DC	2	**430**		
3,0	4,5	2,92	16,0	50	16	4	5,3 x DC	2	**530**		
3,0	4,5	2,92	20,0	54	16	4	6,6 x DC	2	**630**		
P									●	●	●
M											
K											
N											
S											
H									●	●	●
O											

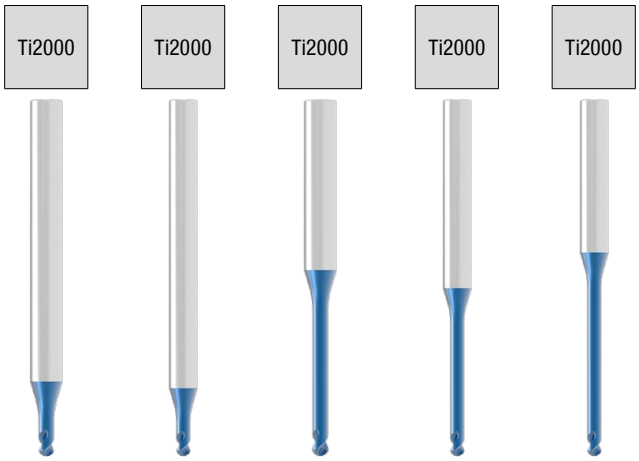
→ v_c/f_z Page 396+397

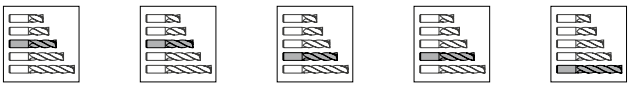
BlueLine – Micro-ball nosed cutter

▲ T_x = maximum engagement depth









Factory standard | Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HA | HA | HA

DC $_{-0,01}$ mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS $_{h5}$ mm	T_x	ZEFP	52 356 ...	52 358 ...	52 357 ...	52 359 ...	52 360 ...
0,2	0,16	0,17	0,30	45	16	4	1,5 x DC	2	**302**				
0,2	0,16	0,17	0,50	45	16	4	2,5 x DC	2	**402**				
0,2	0,16	0,17	0,75	45	16	4	3,75 x DC	2	**502**				
0,2	0,16	0,17	1,00	45	16	4	5 x DC	2	**602**				
0,2	0,16	0,17	1,25	45	16	4	6,2 x DC	2	**702**				
0,2	0,16	0,17	1,50	45	16	4	7,5 x DC	2	**802**				
0,2	0,16	0,17	1,75	45	16	4	8,7 x DC	2	**902**				
0,2	0,16	0,17	2,00	45	16	4	10 x DC	2			**302**		
0,2	0,16	0,17	2,50	45	16	4	12,5 x DC	2			**402**		
0,2	0,16	0,17	3,00	45	16	4	15 x DC	2			**502**		
0,3	0,24	0,27	0,50	45	16	4	1,6 x DC	2	**303**				
0,3	0,24	0,27	0,75	45	16	4	2,5 x DC	2	**403**				
0,3	0,24	0,27	1,00	45	16	4	3,3 x DC	2	**503**				
0,3	0,24	0,27	1,25	45	16	4	4,1 x DC	2	**603**				
0,3	0,24	0,27	1,50	45	16	4	5 x DC	2	**703**				
0,3	0,24	0,27	1,75	50	16	4	5,8 x DC	2		**303**			
0,3	0,24	0,27	2,00	50	16	4	6,6 x DC	2		**403**			
0,3	0,24	0,27	2,25	50	16	4	7,5 x DC	2		**503**			
0,3	0,24	0,27	2,50	50	16	4	8,3 x DC	2		**603**			
0,3	0,24	0,27	2,75	50	16	4	9,1 x DC	2		**703**			
0,3	0,24	0,27	3,00	50	16	4	10 x DC	2				**303**	
0,3	0,24	0,27	3,50	50	16	4	11,6 x DC	2				**403**	
0,3	0,24	0,27	4,00	50	16	4	13,3 x DC	2				**503**	
0,3	0,24	0,27	4,50	50	16	4	15 x DC	2				**603**	
0,4	0,32	0,34	0,50	45	16	4	1,2 x DC	2	**304**				
0,4	0,32	0,34	1,00	45	16	4	2,5 x DC	2	**404**				
0,4	0,32	0,34	1,50	45	16	4	3,75 x DC	2	**504**				
0,4	0,32	0,34	2,00	45	16	4	5 x DC	2	**604**				
0,4	0,32	0,34	2,50	45	16	4	6,2 x DC	2	**704**				
0,4	0,32	0,34	3,00	45	16	4	7,5 x DC	2	**804**				
0,4	0,32	0,34	3,50	45	16	4	8,7 x DC	2	**904**				
0,4	0,32	0,34	4,00	45	16	4	10 x DC	2			**304**		
0,4	0,32	0,34	4,50	45	16	4	11,2 x DC	2			**404**		
0,4	0,32	0,34	5,00	45	16	4	12,5 x DC	2			**504**		
0,4	0,32	0,34	5,50	45	16	4	13,7 x DC	2			**604**		
0,4	0,32	0,34	6,00	45	16	4	15 x DC	2			**704**		
0,5	0,40	0,47	1,50	45	16	4	3 x DC	2	**305**				
0,5	0,40	0,47	2,00	45	16	4	4 x DC	2	**405**				
0,5	0,40	0,47	2,50	45	16	4	5 x DC	2	**505**				
0,5	0,40	0,47	3,00	45	16	4	6 x DC	2	**605**				
0,5	0,40	0,47	3,50	45	16	4	7 x DC	2	**705**				
0,5	0,40	0,47	4,00	45	16	4	8 x DC	2	**805**				

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

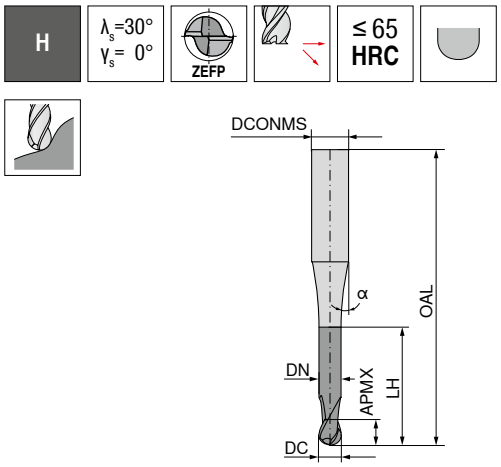
→ v_c/f_z Page 398+399

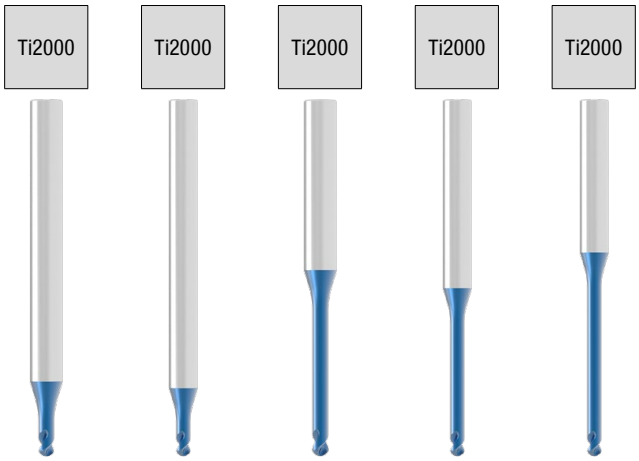
14

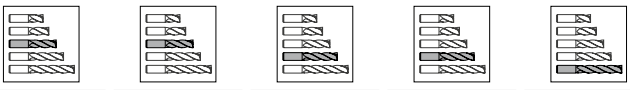
Continued on next page

BlueLine – Micro-ball nosed cutter

▲ T_x = maximum engagement depth







Factory standard	Factory standard	Factory standard	Factory standard	Factory standard
HA	HA	HA	HA	HA
52 356 ...	**52 358 ...**	**52 357 ...**	**52 359 ...**	**52 360 ...**

DC $_{-0,01}$ mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS $_{h5}$ mm	T_x	ZEFP										
0,5	0,40	0,47	4,50	45	16	4	9 x DC	2	**905**									
0,5	0,40	0,47	5,00	45	16	4	10 x DC	2					**305**					
0,5	0,40	0,47	5,50	45	16	4	11 x DC	2					**405**					
0,5	0,40	0,47	6,00	45	16	4	12 x DC	2					**505**					
0,5	0,40	0,47	7,00	45	16	4	14 x DC	2					**605**					
0,5	0,40	0,47	8,00	45	16	4	16 x DC	2					**705**					
0,5	0,40	0,47	9,00	45	16	4	18 x DC	2					**805**					
0,5	0,40	0,47	10,00	50	16	4	20 x DC	2									**305**	
0,6	0,40	0,57	12,00	50	16	4	20 x DC	2									**306**	
0,6	0,48	0,57	1,00	45	16	4	1,6 x DC	2	**306**									
0,6	0,48	0,57	2,00	45	16	4	3,3 x DC	2	**406**									
0,6	0,48	0,57	3,00	45	16	4	5 x DC	2	**506**									
0,6	0,48	0,57	4,00	45	16	4	6,6 x DC	2	**606**									
0,6	0,48	0,57	5,00	45	16	4	8,3 x DC	2	**706**									
0,6	0,48	0,57	6,00	45	16	4	10 x DC	2					**306**					
0,6	0,48	0,57	8,00	45	16	4	13,3 x DC	2					**406**					
0,6	0,48	0,57	10,00	50	16	4	16,6 x DC	2							**306**			
0,8	0,64	0,77	2,00	45	16	4	2,5 x DC	2	**308**									
0,8	0,64	0,77	3,00	45	16	4	3,75 x DC	2	**408**									
0,8	0,64	0,77	4,00	45	16	4	5 x DC	2	**508**									
0,8	0,64	0,77	5,00	45	16	4	6,2 x DC	2	**608**									
0,8	0,64	0,77	6,00	45	16	4	7,5 x DC	2	**708**									
0,8	0,64	0,77	7,00	45	16	4	8,7 x DC	2	**808**									
0,8	0,64	0,77	8,00	45	16	4	10 x DC	2					**308**					
0,8	0,64	0,77	9,00	45	16	4	11,2 x DC	2					**408**					
0,8	0,64	0,77	10,00	50	16	4	12,5 x DC	2							**308**			
1,0	0,80	0,96	3,00	45	16	4	3 x DC	2	**310**									
1,0	0,80	0,96	4,00	45	16	4	4 x DC	2	**410**									
1,0	0,80	0,96	5,00	45	16	4	5 x DC	2	**510**									
1,0	0,80	0,96	6,00	45	16	4	6 x DC	2	**610**									
1,0	0,80	0,96	7,00	45	16	4	7 x DC	2	**710**									
1,0	0,80	0,96	8,00	45	16	4	8 x DC	2	**810**									
1,0	0,80	0,96	9,00	45	16	4	9 x DC	2	**910**									
1,0	0,80	0,96	10,00	45	16	4	10 x DC	2					**310**					
1,0	0,80	0,96	12,00	45	16	4	12 x DC	2					**410**					
1,0	0,80	0,96	14,00	50	16	4	14 x DC	2							**310**			
1,0	0,80	0,96	16,00	50	16	4	16 x DC	2							**410**			
1,2	0,96	1,16	6,00	45	16	4	5 x DC	2	**312**									
1,2	0,96	1,16	8,00	45	16	4	6,6 x DC	2	**412**									
1,2	0,96	1,16	10,00	45	16	4	8,3 x DC	2	**512**									
1,2	0,96	1,16	12,00	45	16	4	10 x DC	2					**312**					
1,2	0,96	1,16	14,00	50	16	4	11,6 x DC	2							**312**			

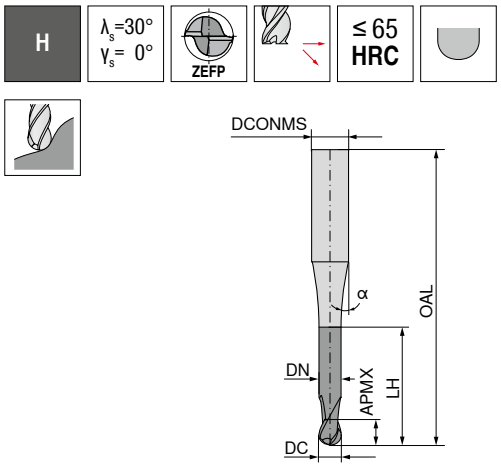
P									●		●		●		●		●	
M																		
K																		
N																		
S																		
H									●		●		●		●		●	
O																		

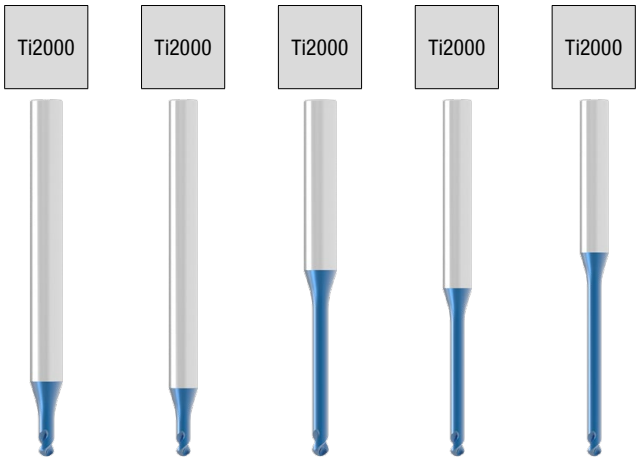
→ v_c/f_z Page 398+399

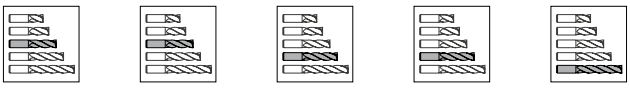
Continued on next page

BlueLine – Micro-ball nosed cutter

▲ T_x = maximum engagement depth







Factory standard | Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HA | HA | HA

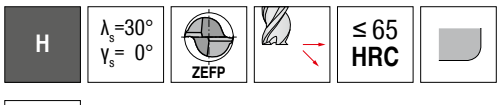
DC -0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_x	ZEFP	52 356 ...	52 358 ...	52 357 ...	52 359 ...	52 360 ...
1,2	0,96	1,16	16,00	50	16	4	13,3 x DC	2				**412**	
1,4	1,12	1,34	8,00	45	16	4	5,7 x DC	2	**314**				
1,4	1,12	1,34	12,00	45	16	4	8,5 x DC	2	**414**				
1,4	1,12	1,34	16,00	50	16	4	11,4 x DC	2				**314**	
1,5	1,20	1,44	3,00	45	16	4	2 x DC	2	**315**				
1,5	1,20	1,44	4,00	45	16	4	2,6 x DC	2	**415**				
1,5	1,20	1,44	6,00	45	16	4	4 x DC	2	**515**				
1,5	1,20	1,44	8,00	45	16	4	5,3 x DC	2	**615**				
1,5	1,20	1,44	10,00	45	16	4	6,6 x DC	2	**715**				
1,5	1,20	1,44	12,00	45	16	4	8 x DC	2	**815**				
1,5	1,20	1,44	14,00	50	16	4	9,3 x DC	2		**315**			
1,5	1,20	1,44	16,00	50	16	4	10,6 x DC	2				**315**	
1,6	1,28	1,54	8,00	45	16	4	5 x DC	2	**316**				
1,6	1,28	1,54	12,00	45	16	4	7,5 x DC	2	**416**				
1,6	1,28	1,54	16,00	50	16	4	10 x DC	2				**316**	
1,8	1,44	1,74	8,00	45	16	4	4,4 x DC	2	**318**				
1,8	1,44	1,74	12,00	45	16	4	6,6 x DC	2	**418**				
1,8	1,44	1,74	16,00	50	16	4	8,8 x DC	2		**318**			
2,0	1,60	1,94	3,00	45	16	4	1,5 x DC	2	**320**				
2,0	1,60	1,94	4,00	45	16	4	2 x DC	2	**420**				
2,0	1,60	1,94	6,00	45	16	4	3 x DC	2	**520**				
2,0	1,60	1,94	8,00	45	16	4	4 x DC	2	**620**				
2,0	1,60	1,94	10,00	45	16	4	5 x DC	2	**720**				
2,0	1,60	1,94	12,00	45	16	4	6 x DC	2	**820**				
2,0	1,60	1,94	14,00	50	16	4	7 x DC	2		**320**			
2,0	1,60	1,94	16,00	50	16	4	8 x DC	2		**420**			
2,5	2,00	2,41	10,00	45	16	4	4 x DC	2	**325**				
2,5	2,00	2,41	15,00	50	16	4	6 x DC	2		**325**			
3,0	3,50	2,92	8,00	45	16	4	2,6 x DC	2	**330**				
3,0	3,50	2,92	10,00	45	16	4	3,3 x DC	2	**430**				
3,0	3,50	2,92	12,00	45	16	4	4 x DC	2	**530**				
3,0	3,50	2,92	16,00	45	16	4	5,3 x DC	2	**630**				
3,0	3,50	2,92	16,00	50	16	4	5,3 x DC	2		**330**			
P									●	●	●	●	●
M													
K													
N													
S													
H									●	●	●	●	●
O													

→ v_c/f_z Page 398+399

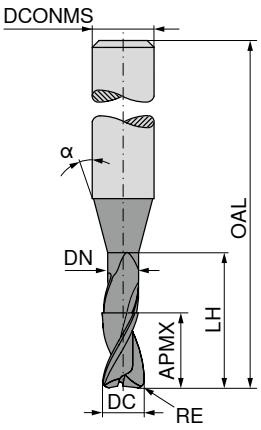
14

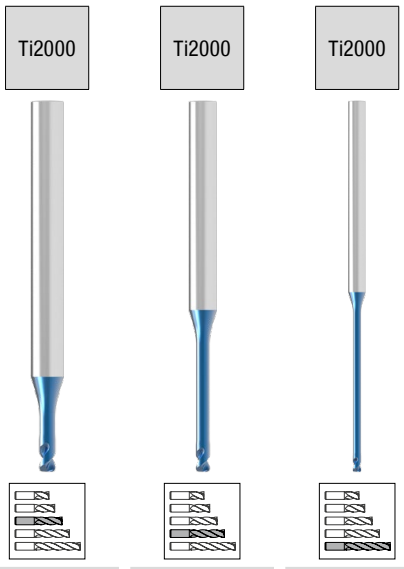
BlueLine – Micro-torus cutter

▲ T_x = maximum engagement depth









Factory standard | Factory standard | Factory standard

HA | HA | HA

DC -0,012 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_x	ZEFP	52 349 ...	52 350 ...	52 351 ...
0,4	0,1	0,4	0,38	1,0	50	16	4	2,5 x DC	2	**30401**		
0,4	0,1	0,4	0,38	1,5	50	16	4	3,75 x DC	2	**40401**		
0,4	0,1	0,4	0,38	2,0	50	16	4	5 x DC	2	**50401**		
0,4	0,1	0,4	0,38	3,0	50	16	4	7,5 x DC	2	**60401**		
0,4	0,1	0,4	0,38	4,0	50	16	4	10 x DC	2		**30401**	
0,5	0,1	0,5	0,48	1,0	50	16	4	2 x DC	2	**30501**		
0,5	0,1	0,5	0,48	2,0	50	16	4	4 x DC	2	**40501**		
0,5	0,1	0,5	0,48	3,0	50	16	4	6 x DC	2	**50501**		
0,5	0,1	0,5	0,48	4,0	50	16	4	8 x DC	2	**60501**		
0,5	0,1	0,5	0,48	5,0	50	16	4	10 x DC	2		**30501**	
0,5	0,1	0,5	0,48	6,0	50	16	4	12 x DC	2		**40501**	
0,6	0,1	0,6	0,58	2,0	50	16	4	3,3 x DC	2	**30601**		
0,6	0,1	0,6	0,58	3,0	50	16	4	5 x DC	2	**40601**		
0,6	0,1	0,6	0,58	4,0	50	16	4	6,6 x DC	2	**50601**		
0,6	0,1	0,6	0,58	6,0	50	16	4	10 x DC	2		**30601**	
0,6	0,1	0,6	0,58	8,0	50	16	4	13,3 x DC	2		**40601**	
0,7	0,1	0,7	0,68	4,0	50	16	4	5,7 x DC	2	**30701**		
0,7	0,1	0,7	0,68	6,0	50	16	4	8,5 x DC	2	**40701**		
0,8	0,1	0,8	0,78	4,0	50	16	4	5 x DC	2	**30801**		
0,8	0,1	0,8	0,78	6,0	50	16	4	7,5 x DC	2	**40801**		
0,8	0,2	0,8	0,78	4,0	50	16	4	5 x DC	2	**30802**		
0,8	0,2	0,8	0,78	6,0	50	16	4	7,5 x DC	2	**40802**		
1,0	0,1	1,0	0,95	2,0	50	16	4	2 x DC	2	**31001**		
1,0	0,1	1,0	0,95	4,0	50	16	4	4 x DC	2	**41001**		
1,0	0,1	1,0	0,95	6,0	50	16	4	6 x DC	2	**51001**		
1,0	0,1	1,0	0,95	8,0	50	16	4	8 x DC	2	**61001**		
1,0	0,1	1,0	0,95	10,0	50	16	4	10 x DC	2		**31001**	
1,0	0,1	1,0	0,95	12,0	54	16	4	12 x DC	2		**41001**	
1,0	0,1	1,0	0,95	16,0	60	16	4	16 x DC	2		**51001**	
1,0	0,1	1,0	0,95	20,0	60	16	4	20 x DC	2			**31001**
1,0	0,2	1,0	0,95	2,0	50	16	4	2 x DC	2	**31002**		
1,0	0,2	1,0	0,95	4,0	50	16	4	4 x DC	2	**41002**		
1,0	0,2	1,0	0,95	6,0	50	16	4	6 x DC	2	**51002**		
1,0	0,2	1,0	0,95	8,0	50	16	4	8 x DC	2	**61002**		
1,0	0,2	1,0	0,95	10,0	50	16	4	10 x DC	2		**31002**	
1,0	0,2	1,0	0,95	12,0	54	16	4	12 x DC	2		**41002**	
1,0	0,2	1,0	0,95	16,0	60	16	4	16 x DC	2		**51002**	
1,0	0,2	1,0	0,95	20,0	60	16	4	20 x DC	2			**31002**
1,0	0,3	1,0	0,95	2,0	50	16	4	2 x DC	2	**31003**		
1,0	0,3	1,0	0,95	4,0	50	16	4	4 x DC	2	**41003**		
1,0	0,3	1,0	0,95	6,0	50	16	4	6 x DC	2	**51003**		
1,0	0,3	1,0	0,95	8,0	50	16	4	8 x DC	2	**61003**		
1,0	0,3	1,0	0,95	10,0	50	16	4	10 x DC	2		**31003**	
1,0	0,3	1,0	0,95	12,0	54	16	4	12 x DC	2		**41003**	
1,0	0,3	1,0	0,95	16,0	60	16	4	16 x DC	2		**51003**	
1,0	0,3	1,0	0,95	20,0	60	16	4	20 x DC	2			**31003**

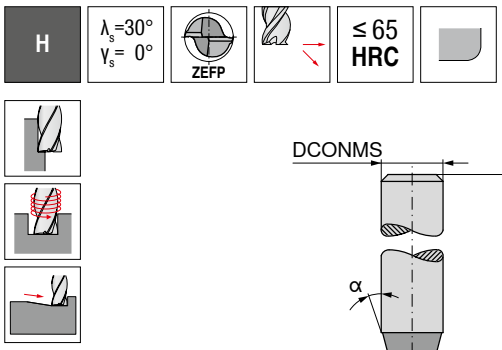
P	●	●	●
M			
K			
N			
S			
H	●	●	●
O			

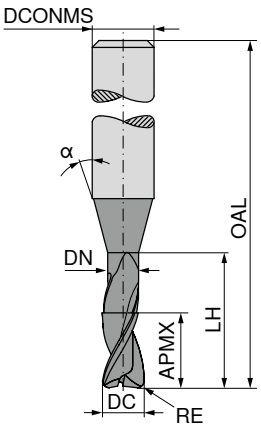
→ v_c/f_z Page 396+397

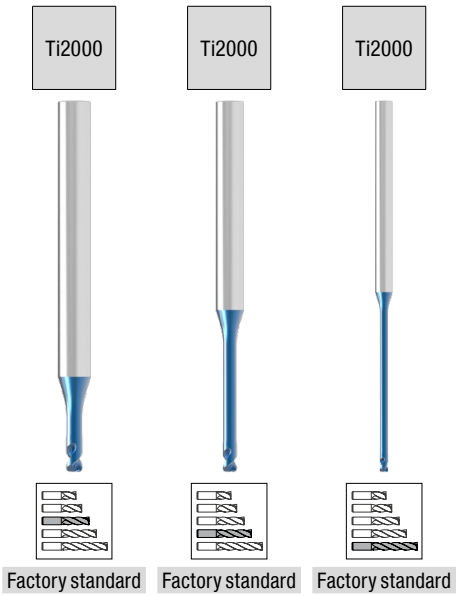
Continued on next page

BlueLine – Micro-torus cutter

▲ T_x = maximum engagement depth







Factory standard | Factory standard | Factory standard

HA | HA | HA

DC -0,012 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_x	ZEFP	52 349 ...	52 350 ...	52 351 ...
1,2	0,2	1,2	1,14	6,0	50	16	4	5 x DC	2	**31202**		
1,2	0,2	1,2	1,14	12,0	54	16	4	10 x DC	2		**31202**	
1,2	0,2	1,2	1,14	20,0	60	16	4	16,6 x DC	2		**41202**	
1,2	0,3	1,2	1,14	6,0	50	16	4	5 x DC	2	**31203**		
1,2	0,3	1,2	1,14	12,0	54	16	4	10 x DC	2		**31203**	
1,2	0,3	1,2	1,14	20,0	60	16	4	16,6 x DC	2		**41203**	
1,5	0,2	1,5	1,44	4,0	50	16	4	2,6 x DC	2	**31502**		
1,5	0,2	1,5	1,44	6,0	50	16	4	4 x DC	2	**41502**		
1,5	0,2	1,5	1,44	8,0	50	16	4	5,3 x DC	2	**51502**		
1,5	0,2	1,5	1,44	10,0	50	16	4	6,6 x DC	2	**61502**		
1,5	0,2	1,5	1,44	12,0	54	16	4	8 x DC	2	**71502**		
1,5	0,2	1,5	1,44	16,0	54	16	4	10,6 x DC	2		**31502**	
1,5	0,2	1,5	1,44	20,0	60	16	4	13,3 x DC	2		**41502**	
1,5	0,3	1,5	1,44	4,0	50	16	4	2,6 x DC	2	**31503**		
1,5	0,3	1,5	1,44	6,0	50	16	4	4 x DC	2	**41503**		
1,5	0,3	1,5	1,44	8,0	50	16	4	5,3 x DC	2	**51503**		
1,5	0,3	1,5	1,44	10,0	50	16	4	6,6 x DC	2	**61503**		
1,5	0,3	1,5	1,44	12,0	54	16	4	8 x DC	2	**71503**		
1,5	0,3	1,5	1,44	16,0	54	16	4	10,6 x DC	2		**31503**	
1,5	0,3	1,5	1,44	20,0	60	16	4	13,3 x DC	2		**41503**	
1,5	0,5	1,5	1,44	4,0	50	16	4	2,6 x DC	2	**31505**		
1,5	0,5	1,5	1,44	6,0	50	16	4	4 x DC	2	**41505**		
1,5	0,5	1,5	1,44	8,0	50	16	4	5,3 x DC	2	**51505**		
1,5	0,5	1,5	1,44	10,0	50	16	4	6,6 x DC	2	**61505**		
1,5	0,5	1,5	1,44	12,0	54	16	4	8 x DC	2	**71505**		
1,5	0,5	1,5	1,44	16,0	54	16	4	10,6 x DC	2		**31505**	
1,5	0,5	1,5	1,44	20,0	60	16	4	13,3 x DC	2		**41505**	
2,0	0,1	2,0	1,91	4,0	50	16	4	2 x DC	2	**32001**		
2,0	0,1	2,0	1,91	6,0	50	16	4	3 x DC	2	**42001**		
2,0	0,1	2,0	1,91	8,0	50	16	4	4 x DC	2	**52001**		
2,0	0,1	2,0	1,91	10,0	50	16	4	5 x DC	2	**62001**		
2,0	0,1	2,0	1,91	12,0	54	16	4	6 x DC	2	**72001**		
2,0	0,1	2,0	1,91	16,0	54	16	4	8 x DC	2	**82001**		
2,0	0,1	2,0	1,91	20,0	60	16	4	10 x DC	2		**32001**	
2,0	0,1	2,0	1,91	26,0	70	16	4	13 x DC	2		**42001**	
2,0	0,2	2,0	1,91	4,0	50	16	4	2 x DC	2	**32002**		
2,0	0,2	2,0	1,91	6,0	50	16	4	3 x DC	2	**42002**		
2,0	0,2	2,0	1,91	8,0	50	16	4	4 x DC	2	**52002**		
2,0	0,2	2,0	1,91	10,0	50	16	4	5 x DC	2	**62002**		
2,0	0,2	2,0	1,91	12,0	54	16	4	6 x DC	2	**72002**		
2,0	0,2	2,0	1,91	16,0	54	16	4	8 x DC	2	**82002**		
2,0	0,2	2,0	1,91	20,0	60	16	4	10 x DC	2		**32002**	
2,0	0,2	2,0	1,91	26,0	70	16	4	13 x DC	2		**42002**	
2,0	0,3	2,0	1,91	4,0	50	16	4	2 x DC	2	**32003**		
2,0	0,3	2,0	1,91	6,0	50	16	4	3 x DC	2	**42003**		
2,0	0,3	2,0	1,91	8,0	50	16	4	4 x DC	2	**52003**		

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

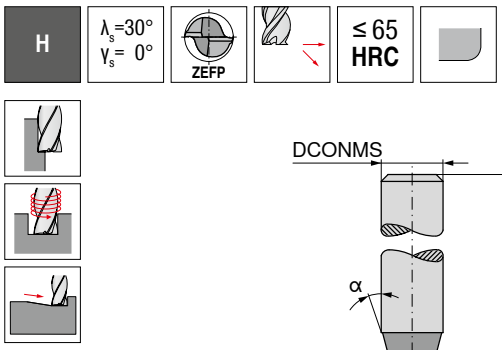
→ v_c/f_z Page 396+397

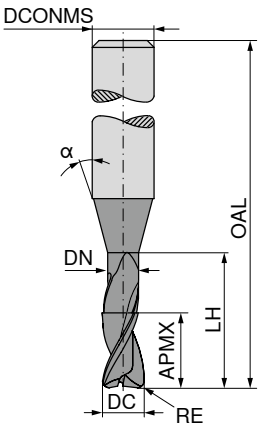
14

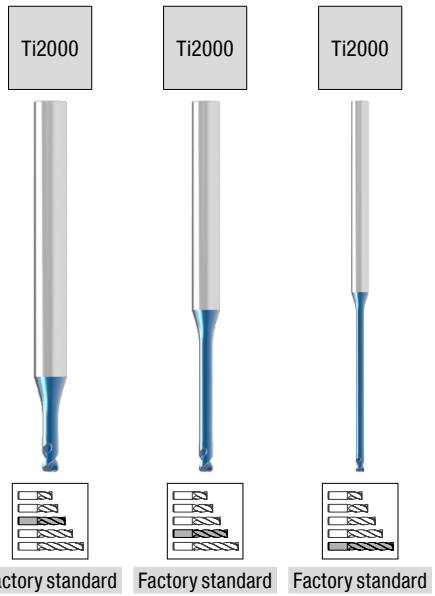
Continued on next page

BlueLine – Micro-torus cutter

▲ T_x = maximum engagement depth





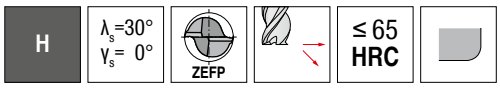


DC -0,012 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_x	ZEFP	Factory standard HA 52 349 ...	Factory standard HA 52 350 ...	Factory standard HA 52 351 ...
2,0	0,3	2,0	1,91	10,0	50	16	4	5 x DC	2	**62003**		
2,0	0,3	2,0	1,91	12,0	54	16	4	6 x DC	2	**72003**		
2,0	0,3	2,0	1,91	16,0	54	16	4	8 x DC	2	**82003**		
2,0	0,3	2,0	1,91	20,0	60	16	4	10 x DC	2		**32003**	
2,0	0,3	2,0	1,91	26,0	70	16	4	13 x DC	2		**42003**	
2,0	0,5	2,0	1,91	4,0	50	16	4	2 x DC	2	**32005**		
2,0	0,5	2,0	1,91	6,0	50	16	4	3 x DC	2	**42005**		
2,0	0,5	2,0	1,91	8,0	50	16	4	4 x DC	2	**52005**		
2,0	0,5	2,0	1,91	10,0	50	16	4	5 x DC	2	**62005**		
2,0	0,5	2,0	1,91	12,0	54	16	4	6 x DC	2	**72005**		
2,0	0,5	2,0	1,91	16,0	54	16	4	8 x DC	2	**82005**		
2,0	0,5	2,0	1,91	20,0	60	16	4	10 x DC	2		**32005**	
2,0	0,5	2,0	1,91	26,0	70	16	4	13 x DC	2		**42005**	
2,5	0,3	2,5	2,41	10,0	50	16	4	4 x DC	2	**32503**		
2,5	0,3	2,5	2,41	12,0	60	16	4	4,8 x DC	2	**42503**		
2,5	0,3	2,5	2,41	30,0	70	16	4	12 x DC	2		**32503**	
2,5	0,5	2,5	2,41	10,0	50	16	4	4 x DC	2	**32505**		
2,5	0,5	2,5	2,41	12,0	60	16	4	4,8 x DC	2	**42505**		
2,5	0,5	2,5	2,41	30,0	70	16	4	12 x DC	2		**32505**	
3,0	0,3	3,0	2,92	10,0	50	16	4	3,3 x DC	2	**33003**		
3,0	0,3	3,0	2,92	12,0	50	16	4	4 x DC	2	**43003**		
3,0	0,3	3,0	2,92	30,0	70	16	4	10 x DC	2		**33003**	
3,0	0,5	3,0	2,92	10,0	50	16	4	3,3 x DC	2	**33005**		
3,0	0,5	3,0	2,92	12,0	50	16	4	4 x DC	2	**43005**		
3,0	0,5	3,0	2,92	30,0	70	16	4	10 x DC	2		**33005**	
P										●	●	●
M												
K												
N												
S												
H										●	●	●
O												

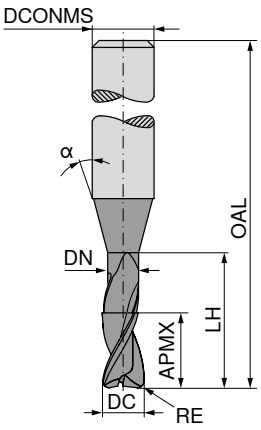
→ v_c/f_z Page 396+397

BlueLine – Micro-torus cutter

▲ T_x = maximum engagement depth













Factory standard

HA 

52 362 ...

DC -0,008 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_x	ZEFP	
0,6	0,1	0,6	0,58	2	50	16	4	3,3 x DC	2	**30601**
0,6	0,1	0,6	0,58	3	50	16	4	5 x DC	2	**40601**
0,6	0,1	0,6	0,58	4	50	16	4	6,6 x DC	2	**50601**
1,0	0,1	1,0	0,95	2	50	16	4	2 x DC	2	**31001**
1,0	0,1	1,0	0,95	4	50	16	4	4 x DC	2	**41001**
1,0	0,1	1,0	0,95	6	50	16	4	6 x DC	2	**51001**
1,0	0,2	1,0	0,95	2	50	16	4	2 x DC	2	**31002**
1,0	0,2	1,0	0,95	4	50	16	4	4 x DC	2	**41002**
1,0	0,2	1,0	0,95	6	50	16	4	6 x DC	2	**51002**
1,0	0,3	1,0	0,95	2	50	16	4	2 x DC	2	**31003**
1,0	0,3	1,0	0,95	4	50	16	4	4 x DC	2	**41003**
1,0	0,3	1,0	0,95	6	50	16	4	6 x DC	2	**51003**
2,0	0,1	2,0	1,91	4	50	16	4	2 x DC	2	**32001**
2,0	0,1	2,0	1,91	6	50	16	4	3 x DC	2	**42001**
2,0	0,1	2,0	1,91	8	50	16	4	4 x DC	2	**52001**
2,0	0,1	2,0	1,91	10	50	16	4	5 x DC	2	**62001**
2,0	0,1	2,0	1,91	12	54	16	4	6 x DC	2	**72001**
2,0	0,2	2,0	1,91	4	50	16	4	2 x DC	2	**32002**
2,0	0,2	2,0	1,91	6	50	16	4	3 x DC	2	**42002**
2,0	0,2	2,0	1,91	8	50	16	4	4 x DC	2	**52002**
2,0	0,2	2,0	1,91	10	50	16	4	5 x DC	2	**62002**
2,0	0,2	2,0	1,91	12	54	16	4	6 x DC	2	**72002**
2,0	0,3	2,0	1,91	4	50	16	4	2 x DC	2	**32003**
2,0	0,3	2,0	1,91	6	50	16	4	3 x DC	2	**42003**
2,0	0,3	2,0	1,91	8	50	16	4	4 x DC	2	**52003**
2,0	0,3	2,0	1,91	10	50	16	4	5 x DC	2	**62003**
2,0	0,3	2,0	1,91	12	54	16	4	6 x DC	2	**72003**
2,0	0,5	2,0	1,91	4	50	16	4	2 x DC	2	**32005**
2,0	0,5	2,0	1,91	6	50	16	4	3 x DC	2	**42005**
2,0	0,5	2,0	1,91	8	50	16	4	4 x DC	2	**52005**
2,0	0,5	2,0	1,91	10	50	16	4	5 x DC	2	**62005**
2,0	0,5	2,0	1,91	12	54	16	4	6 x DC	2	**72005**

P	●
M	
K	
N	
S	
H	●
O	

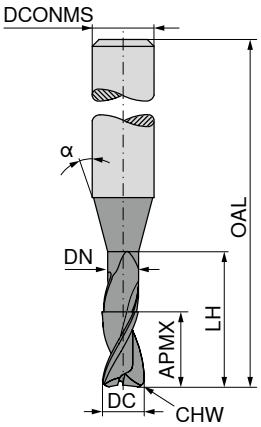
→ v_c/f_z Page 396+397

14

BlueLine – End milling cutter













Factory standard

HA 

52 344 ...

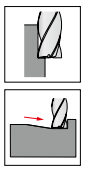
DC e8 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	CHW mm	ZEFP	
0,5	1,5			58	12	6	0,02	2	**905**
1,0	3,0			58	12	6	0,02	2	**010**
1,5	4,0			58	12	6	0,03	2	**015**
2,0	5,0	1,8	12	58	20	6	0,03	2	**020**
2,5	6,0	2,3	13	58	20	6	0,04	2	**025**
3,0	8,0	2,8	15	58	20	6	0,04	2	**030**
3,5	8,0	3,3	15	58	20	6	0,05	2	**035**
4,0	11,0	3,8	15	58	20	6	0,05	2	**040**
5,0	13,0	4,8	21	58	20	6	0,06	2	**050**
6,0	16,0	5,8	24	58		6	0,07	2	**060**
8,0	19,0	7,8	27	64		8	0,08	2	**080**
10,0	22,0	9,8	32	73		10	0,10	2	**100**
12,0	26,0	11,8	38	84		12	0,13	2	**120**
16,0	32,0	15,7	44	93		16	0,18	2	**160**
20,0	38,0	19,7	54	104		20	0,20	2	**200**

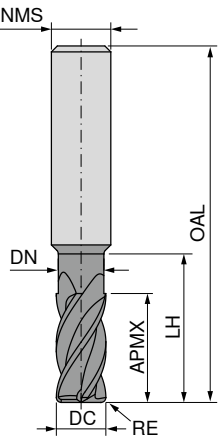
P	●
M	
K	
N	
S	
H	●
O	

→ v_c/f_z Page 400+401

BlueLine – End milling cutter with corner radius















Factory standard | Factory standard

HA | HA

DC e8 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h5 mm	ZEFP	52 353 ...	52 354 ...
1	0,10	1,5	0,85	10	50	3	4	31001	
1	0,10	1,5	0,85	20	75	3	4		31001
1	0,20	1,5	0,85	10	50	3	4	31002	
1	0,20	1,5	0,85	20	75	3	4		31002
2	0,20	2,5	1,80	12	50	3	4	32002	
2	0,20	2,5	1,80	25	75	3	4		32002
2	0,30	2,5	1,80	12	50	3	4	32003	
2	0,30	2,5	1,80	25	75	3	4		32003
2	0,50	2,5	1,80	12	50	3	4	32005	
2	0,50	2,5	1,80	25	75	3	4		32005
3	0,25	4,0	2,70	14	50	3	4	33002	
3	0,25	4,0	2,70	32	75	3	4		33002
3	0,30	4,0	2,70	14	50	3	4	33003	
3	0,30	4,0	2,70	32	75	3	4		33003
3	0,50	4,0	2,70	14	50	3	4	33005	
3	0,50	4,0	2,70	32	75	3	4		33005
3	1,00	4,0	2,70	14	50	3	4	33010	
3	1,00	4,0	2,70	32	75	3	4		33010
4	0,20	5,0	3,70	16	50	4	4	44002	
4	0,20	5,0	3,70	36	75	4	4		44002
4	0,25	5,0	3,70	16	50	4	4	44003	
4	0,25	5,0	3,70	36	75	4	4		44003
4	0,40	5,0	3,70	16	50	4	4	44004	
4	0,40	5,0	3,70	36	75	4	4		44004
4	0,50	5,0	3,70	16	50	4	4	44005	
4	0,50	5,0	3,70	36	75	4	4		44005
4	1,00	5,0	3,70	16	50	4	4	44010	
4	1,00	5,0	3,70	36	75	4	4		44010
5	0,25	6,0	4,60	18	54	5	4	55002	
5	0,25	6,0	4,60	40	75	5	4		55002
5	0,50	6,0	4,60	18	54	5	4	55005	
5	0,50	6,0	4,60	40	75	5	4		55005
5	1,00	6,0	4,60	18	54	5	4	55010	
5	1,00	6,0	4,60	40	75	5	4		55010
6	0,25	7,0	5,50	21	58	6	4	06002	
6	0,25	7,0	5,50	44	80	6	4		06002
6	0,50	7,0	5,50	21	58	6	4	06005	
6	0,50	7,0	5,50	44	80	6	4		06005
6	0,80	7,0	5,50	21	58	6	4	06008	
6	1,00	7,0	5,50	21	58	6	4	06010	
6	1,00	7,0	5,50	44	80	6	4		06010
6	1,50	7,0	5,50	21	58	6	4	06015	
6	1,50	7,0	5,50	44	80	6	4		06015
6	2,00	7,0	5,50	21	58	6	4	06020	
8	0,25	9,0	7,40	27	64	8	4	08002	

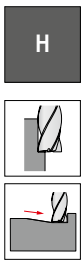
P	●	●
M		
K		
N		
S		
H	●	●
O		

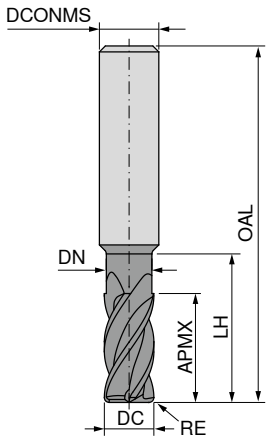
→ v_c/f_z Page 402+403

Continued on next page

BlueLine – End milling cutter with corner radius

H | λ_s=30° γ_s= 0° | ZEFP | ≤ 65 HRC













	Factory standard	Factory standard
	HA	HA
	52 353 ...	**52 354 ...**

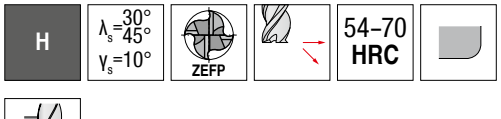
DC $_{e8}$ mm	RE $_{\pm 0,005}$ mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS $_{h5}$ mm	ZEFP		
8	0,25	9,0	7,40	54	100	8	4		08002
8	0,50	9,0	7,40	27	64	8	4	08005	
8	0,50	9,0	7,40	54	100	8	4		08005
8	0,80	9,0	7,40	27	64	8	4	08008	
8	0,80	9,0	7,40	54	100	8	4		08008
8	1,00	9,0	7,40	27	64	8	4	08010	
8	1,00	9,0	7,40	54	100	8	4		08010
8	1,50	9,0	7,40	27	64	8	4	08015	
8	1,50	9,0	7,40	54	100	8	4		08015
8	2,00	9,0	7,40	27	64	8	4	08020	
8	2,00	9,0	7,40	54	100	8	4		08020
8	2,50	9,0	7,40	27	64	8	4	08025	
8	3,00	9,0	7,40	27	64	8	4	08030	
8	3,00	9,0	7,40	54	100	8	4		08030
10	0,25	11,0	9,20	32	73	10	4	10002	
10	0,25	11,0	9,20	60	100	10	4		10002
10	0,50	11,0	9,20	32	73	10	4	10005	
10	0,50	11,0	9,20	60	100	10	4		10005
10	0,80	11,0	9,20	32	73	10	4	10008	
10	0,80	11,0	9,20	60	100	10	4		10008
10	1,00	11,0	9,20	32	73	10	4	10010	
10	1,00	11,0	9,20	60	100	10	4		10010
10	1,50	11,0	9,20	32	73	10	4	10015	
10	1,50	11,0	9,20	60	100	10	4		10015
10	2,00	11,0	9,20	32	73	10	4	10020	
10	2,00	11,0	9,20	60	100	10	4		10020
10	3,00	11,0	9,20	32	73	10	4	10030	
10	3,00	11,0	9,20	60	100	10	4		10030
10	3,50	11,0	9,20	32	73	10	4	10035	
12	0,50	12,0	11,00	38	84	12	4	12005	
12	0,50	12,0	11,00	75	120	12	4		12005
12	1,00	12,0	11,00	38	84	12	4	12010	
12	1,00	12,0	11,00	75	120	12	4		12010
12	1,50	12,0	11,00	38	84	12	4	12015	
12	1,50	12,0	11,00	75	120	12	4		12015
12	2,00	12,0	11,00	38	84	12	4	12020	
12	2,00	12,0	11,00	75	120	12	4		12020
12	3,00	12,0	11,00	38	84	12	4	12030	
12	3,00	12,0	11,00	75	120	12	4		12030
16	2,00	16,0	15,00	44	93	16	4	16020	
16	2,00	16,0	15,00	92	150	16	4		16020
16	3,00	16,0	15,00	44	93	16	4	16030	
16	3,00	16,0	15,00	92	150	16	4		16030

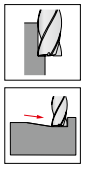
P	●	●
M		
K		
N		
S		
H	●	●
O		

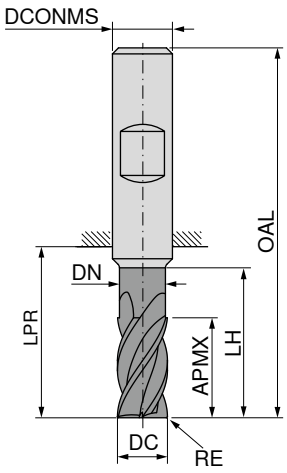
→ v_c/f_z Page 402+403

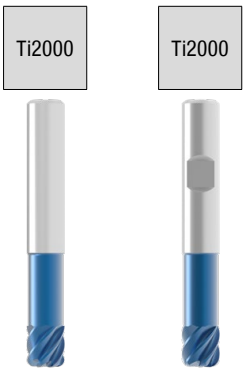
BlueLine – End milling cutter with corner radius

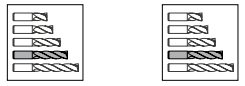
▲ With decreasing helix angle for reduced machining noise & vibration











Factory standard | Factory standard

HA | HB

DC e8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 140 ...	52 141 ...
3	0,3	4	2,7	14	22	50	3	4	031	
3	0,5	4	2,7	14	22	50	3	4	033	
3	1,0	4	2,7	14	22	50	3	4	034	
4	0,4	5	3,7	16	22	50	4	4	042	
4	0,5	5	3,7	16	22	50	4	4	043	
4	1,0	5	3,7	16	22	50	4	4	044	
5	0,5	6	4,6	18	26	54	5	4	053	
5	1,0	6	4,6	18	26	54	5	4	054	
6	0,5	7	5,5	21	21	57	6	6	063	063
6	1,0	7	5,5	21	21	57	6	6	064	064
6	1,5	7	5,5	21	21	57	6	6	065	065
8	0,5	9	7,4	27	27	63	8	6	083	083
8	1,0	9	7,4	27	27	63	8	6	084	084
8	1,5	9	7,4	27	27	63	8	6	085	085
8	2,0	9	7,4	27	27	63	8	6	086	086
10	0,5	11	9,2	32	32	72	10	6	103	103
10	1,0	11	9,2	32	32	72	10	6	104	104
10	1,5	11	9,2	32	32	72	10	6	105	105
10	2,0	11	9,2	32	32	72	10	6	106	106
12	0,5	12	11,0	38	38	83	12	6	123	123
12	1,0	12	11,0	38	38	83	12	6	124	124
12	1,5	12	11,0	38	38	83	12	6	125	125
12	2,0	12	11,0	38	38	83	12	6	126	126
16	1,0	16	15,0	44	45	93	16	6	161	161
16	2,0	16	15,0	44	45	93	16	6	163	163
20	1,0	20	18,5	50	54	104	20	6	201	201
20	2,5	20	18,5	50	54	104	20	6	204	204
P									○	○
M										
K										
N										
S										
H									●	●
O										

→ v_c/f_z Page 400+401

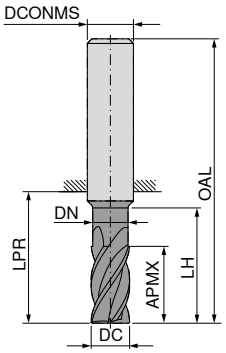
14

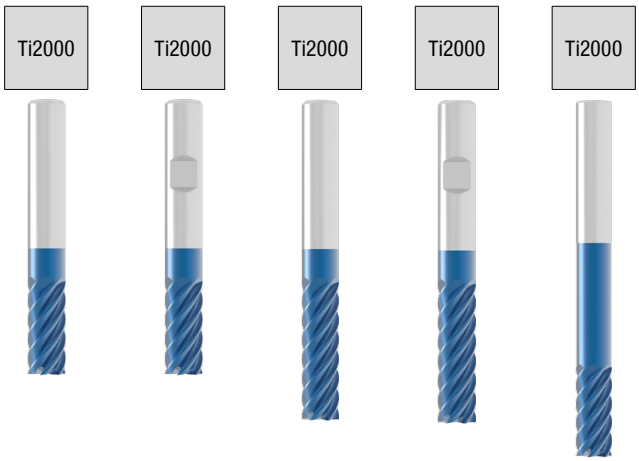
BlueLine – Finish milling cutter

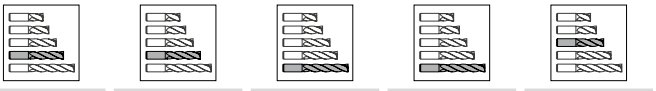
▲ With decreasing helix angle for reduced machining noise & vibration

H | λ_s=30° γ_s= 0° | ZEFP | 54–70 HRC









Factory standard | Factory standard | Factory standard | Factory standard | Factory standard

HA | HB | HA | HB | HA

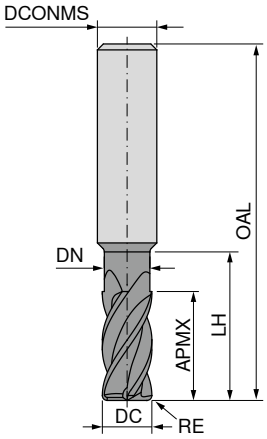
DC e8 mm	APMX mm	LPR mm	DN mm	LH mm	OAL mm	DCONMS h6 mm	ZEFP	52 133 ...		52 134 ...		52 135 ...		52 136 ...		52 348 ...	
2	8	22			58	6	4	020		020							
3	12	22			58	6	4	030		030							
4	13	22			58	6	4	040		040							
5	15	22			58	6	6	050		050							
6	16	22			58	6	6	060		060							
6	16	44	5,8	40	80	6	6										060
6	21	29			65	6	6					060		060			
8	19	64	7,7	50	100	8	6										080
8	22	34			70	8	6	080		080							
8	28	39			75	8	6					080		080			
10	25	33			73	10	6	100		100							
10	25	60	9,7	60	100	10	6										100
10	35	45			85	10	6					100		100			
12	28	39			84	12	6	120		120							
12	30	75	11,6	60	120	12	6										120
12	45	55			100	12	6					120		120			
14	30	39			84	14	6	140		140							
14	45	55			100	14	6					140		140			
16	35	45			93	16	8	160		160							
16	40	102	15,6	100	150	16	8										160
16	50	62			110	16	8					160		160			
16	65	77			125	16	8					161		161			
18	35	45			93	18	10	180		180							
18	54	66			114	18	10					180		180			
20	40	54			104	20	10	200		200							
20	50	100	19,6	100	150	20	10										200
20	55	76			126	20	10					200		200			
20	70	85			135	20	10					201		201			

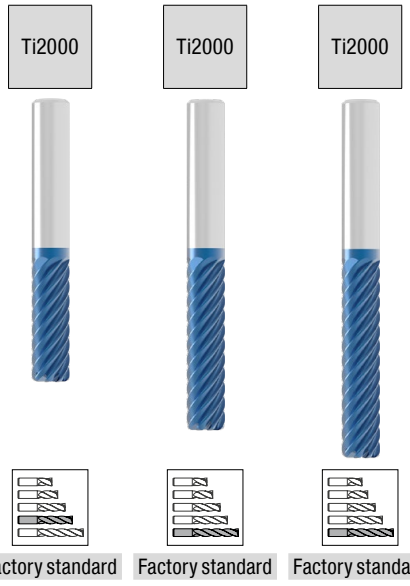
P	○	○	○	○	●
M					
K					
N					
S					
H	●	●	●	●	●
O					

→ v_c/f_z Page 400–402

BlueLine – Finish milling cutter with corner radius

H | λ_s=30°–45° γ_s= 0° | ZEFP | 54–70 HRC





Factory standard | Factory standard | Factory standard

HA | HA | HA

DC $_{e8}$ mm	RE $_{+/-0,005}$ mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	52 324 ...	52 325 ...	52 326 ...
5	0,5	15	4,8	19	58	6	6	052		
5	1,0	15	4,8	19	58	6	6	053		
6	0,5	16	5,8	20	58	6	6	062		
6	0,5	21	5,8	29	65	6	6		062	
6	1,0	16	5,8	20	58	6	6	063		
6	1,0	21	5,8	29	65	6	6		063	
8	0,5	22	7,8	26	70	8	6	082		
8	0,5	28	7,8	39	75	8	6		082	
8	1,0	22	7,8	26	70	8	6	083		
8	1,0	28	7,8	39	75	8	6		083	
10	0,5	25	9,8	31	73	10	6	102		
10	0,5	35	9,8	45	85	10	6		102	
10	1,0	25	9,8	31	73	10	6	103		
10	1,0	35	9,8	45	85	10	6		103	
10	1,5	25	9,8	31	73	10	6	104		
10	1,5	35	9,8	45	85	10	6		104	
12	0,5	28	11,8	37	84	12	6	122		
12	0,5	45	11,8	55	100	12	6		122	
12	1,0	28	11,8	37	84	12	6	123		
12	1,0	45	11,8	55	100	12	6		123	
12	1,5	28	11,8	37	84	12	6	124		
12	1,5	45	11,8	55	100	12	6		124	
14	1,0	30	13,8	37	84	14	6	143		
14	1,0	45	13,8	55	100	14	6		143	
16	1,0	35	15,8	43	93	16	8	163		
16	1,0	50	15,8	62	110	16	8		163	
16	1,0	65	15,8	77	125	16	8			163
16	2,0	35	15,8	43	93	16	8	165		
16	2,0	50	15,8	62	110	16	8		165	
16	2,0	65	15,8	77	125	16	8			165
18	1,0	35	17,8	43	93	18	10	183		
18	1,0	54	17,8	66	114	18	10		183	
20	1,0	40	19,8	52	104	20	10	203		
20	1,0	55	19,8	76	126	20	10		203	
20	1,0	70	19,8	85	135	20	10			203
20	2,0	40	19,8	52	104	20	10	205		
20	2,0	55	19,8	76	126	20	10		205	
20	2,0	70	19,8	85	135	20	10			205
P								○	○	○
M										
K										
N										
S										
H								●	●	●
O										

→ v_c/f_z Page 400+401

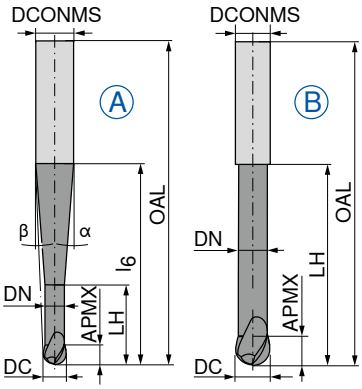
14

BlueLine – Ball Nosed Cutter

▲ Radius accuracy: ± 0,005 mm

H | λ_s=30° γ_s= 0° | ZEFP | 54–70 HRC | Ti2000









Factory standard

HA

52 302 ...

DC mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS $_{h5}$ mm	ZEFP	Fig.	
1,0	1,00	0,95	10	16,5	57	15	9	6	2	A	**010**
1,5	1,25	1,40	12	18,0	57	15	7,5	6	2	A	**015**
2,0	1,50	1,90	16	20,0	57	15	6	6	2	A	**020**
3,0	2,00	2,90	20	34,5	80	15	2,5	6	2	A	**030**
4,0	2,50	3,90	22	35,0	80	15	2	6	2	A	**040**
5,0	3,00	4,90	25	35,0	80	15	1	6	2	A	**050**
6,0	3,50	5,90	29		80	15		6	2	B	**060**

P	○
M	
K	
N	
S	
H	●
O	

→ v_c/f_z Page 404+405

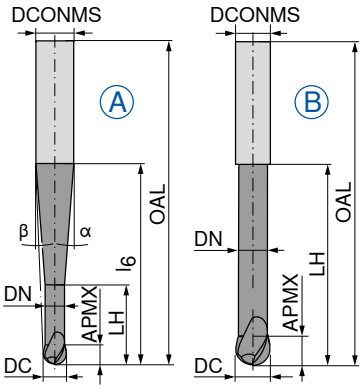
BlueLine – Ball Nosed Cutter

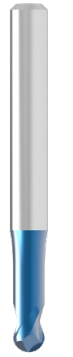
▲ Radius accuracy: ± 0.005 mm for Ø ≤ 6.0 mm / ± 0.01 mm for Ø > 6,0 mm
▲ for Ø ≤ 5.0 mm, angle tolerance α and β: ± 0.5 °

H | λ_s=30° γ_s= 0° | ZEFP | 54–70 HRC

Ti2000









Factory standard

HA

52 303 ...

DC mm	Tol.	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS $_{h5}$ mm	ZEFP	Fig.	
0,5	±0,01	1,0	0,45	2,0	20	57	10	8,5	6	2	A	**005**
1,0	±0,01	2,0	0,95	4,0	20	57	10	8	6	2	A	**010**
1,5	±0,01	2,5	1,40	7,5	20	57	12,5	7	6	2	A	**015**
2,0	±0,01	3,0	1,80	8,0	20	57	12	6,5	6	2	A	**020**
3,0	±0,01	3,5	2,80	10,0	20	57	11,5	5	6	2	A	**030**
4,0	±0,01	4,0	3,80	12,0	20	57	11	3,5	6	2	A	**040**
5,0	±0,01	5,0	4,70	14,0	20	57	10	2	6	2	A	**050**
6,0	±0,01	6,0	5,60	20,0		57			6	2	B	**060**
8,0	±0,02	7,0	7,60	25,0		63			8	2	B	**080**
10,0	±0,02	8,0	9,60	30,0		72			10	2	B	**100**
12,0	±0,02	10,0	11,50	35,0		83			12	2	B	**120**
12,0	±0,02	10,0	11,50	35,0	40	92	35	3,5	16	2	A	**121**
16,0	±0,02	12,0	15,50	40,0		92			16	2	B	**160**

P	○
M	
K	
N	
S	
H	●
O	

→ v_c/f_z Page 404+405

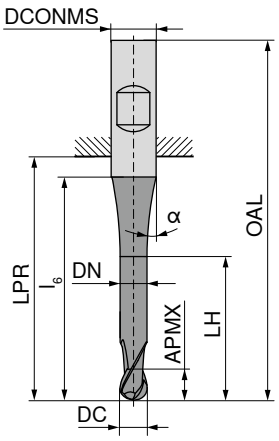
14

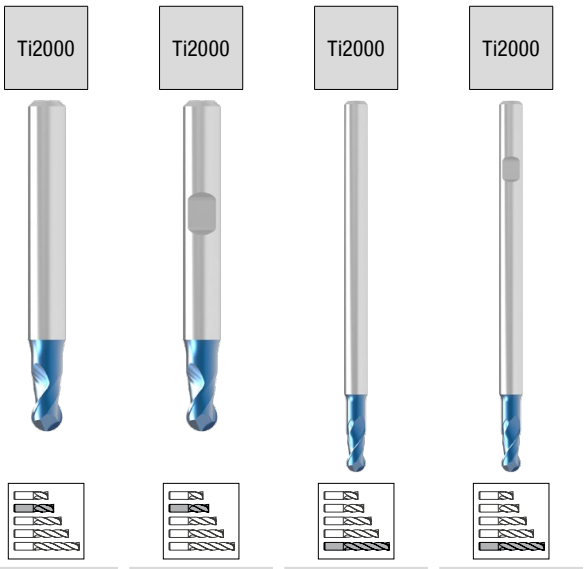
BlueLine – Ball Nosed Cutter

▲ Radius accuracy: ± 0,005 mm

H | λ_s=30° γ_s= 0° | ZEFP | 54–70 HRC







Factory standard | Factory standard | Factory standard | Factory standard

HA | HB | HA | HB

DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	α° ±0,5	ZEFP	52 256 ...	52 257 ...	52 258 ...	52 259 ...
0,10	0,2			11	10	38	3	8	2	910			
0,15	0,3			12	10	38	3	7,5	2	915			
0,20	0,4			12	10	38	3	7	2	920			
0,25	0,5	0,20	0,8	12	10	38	3	7	2	925			
0,30	1,0	0,25	1,3	12	10	38	3	7	2	930			
0,35	1,0	0,30	1,3	12	10	38	3	7	2	935			
0,40	1,0	0,35	1,3	12	10	38	3	7	2	940			
0,50	1,5	0,40	2,0	12	10	38	3	7,5	2	950			
0,50	1,5	0,40	2,0	17	18	54	6	10,5	2	005	005		
0,50	1,5	0,40	2,0	13	47	75	3	7	2			950	
0,50	1,5	0,40	2,0	17	44	80	6	10,5	2			005	005
0,60	1,5	0,50	2,0	12	10	38	3	7	2	960			
0,70	2,0	0,60	2,5	12	10	38	3	7,5	2	970			
0,80	2,0	0,70	2,5	13	10	38	3	7,5	2	980			
0,90	2,5	0,80	3,5	13	10	38	3	7	2	990			
1,00	2,0	0,90	3,0	13	22	50	3	6	2	011			
1,00	2,0	0,90	3,0	18	18	54	6	9,5	2	106	010		
1,00	3,0	0,90	4,0	14	47	75	3	6	2			011	
1,00	3,0	0,90	4,0	19	44	80	6	9,5	2			010	010
1,10	3,0	1,00	4,0	13	22	50	3	7	2	911			
1,20	3,0	1,10	4,0	13	22	50	3	7	2	012			
1,40	3,0	1,30	4,0	14	22	50	3	5	2	014			
1,50	3,0	1,40	4,0	13	22	50	3	5,5	2	016			
1,50	3,0	1,40	4,0	18	18	54	6	9	2	156	015		
1,50	4,0	1,40	6,0	13	47	75	3	7	2			016	
1,50	4,0	1,40	6,0	19	44	80	6	10	2			015	015
1,60	4,0	1,50	5,0	13	22	50	3	5	2	916			
1,80	4,0	1,70	5,0	13	22	50	3	5	2	018			
2,00	4,0	1,90	5,5	12	22	50	3	5	2	021			
2,00	4,0	1,90	5,5	18	18	54	6	9	2	206	020		
2,00	6,0	1,90	8,0	12	47	75	3	8	2			021	
2,00	6,0	1,90	8,0	20	44	80	6	11	2			020	020
2,50	5,0	2,30	6,5	10	22	50	3	7	2	025			
2,50	5,0	2,30	6,5	17	18	54	6	10	2	026	026		
2,50	8,0	2,30	10,0	14	47	75	3	5,5	2			026	
2,50	8,0	2,30	10,0	20	44	80	6	10	2			025	025
3,00	6,0	2,80	8,0		22	50	3		2	031			
3,00	6,0	2,80	8,0	18	18	54	6	9	2	306	030		
3,00	10,0	2,80	13,0		47	75	3		2			031	

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

→ v_c/f_z Page 404+405

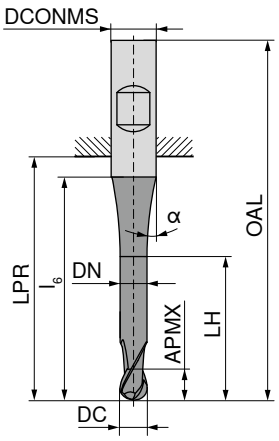
Continued on next page

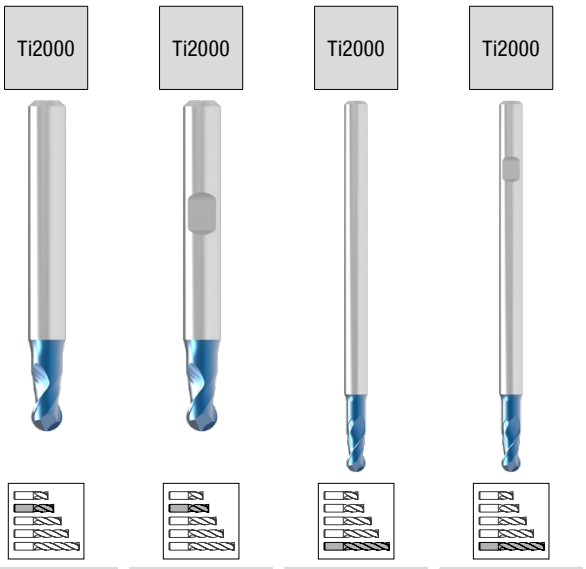
BlueLine – Ball Nosed Cutter

▲ Radius accuracy: ± 0,005 mm

H | λ_s=30° γ_s= 0° | ZEFP | 54–70 HRC







Factory standard | Factory standard | Factory standard | Factory standard

HA | HB | HA | HB

DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	α° ±0,5	ZEFP	52 256 ...		52 257 ...		52 258 ...		52 259 ...	
3,00	10,0	2,80	15,0	23	44	80	6	11	2						030		030
4,00	7,0	3,80	10,0	18	18	54	6	11	2		406		040				
4,00	7,0	3,80	10,0		26	54	4		2		041						
4,00	13,0	3,80	20,0		47	75	4		2						041		
4,00	13,0	3,80	18,0	23	44	80	6	12,5	2						040		040
5,00	8,0	4,80	11,0	15	18	54	6	8	2		506		050				
5,00	8,0	4,80	11,0		26	54	5		2		051						
5,00	14,0	4,80	19,0		47	75	5		2						051		
5,00	14,0	4,80	19,0	21	64	100	6	13	2						050		050
6,00	10,0	5,80	15,0		18	54	6		2		061		060				
6,00	16,0	5,80	25,0		64	100	6		2						060		060
8,00	12,0	7,80	17,0		23	59	8		2		081		080				
8,00	22,0	7,80	35,0		64	100	8		2						080		080
10,00	13,0	9,80	18,0		27	67	10		2		101		100				
10,00	25,0	9,80	40,0		60	100	10		2						100		100
12,00	16,0	11,90	21,0		28	73	12		2		121		120				
12,00	26,0	11,80	40,0		55	100	12		2						120		120
14,00	16,0	13,80	21,0		30	75	14		2		141		140				
14,00	26,0	13,80	40,0		55	100	14		2						140		140
16,00	20,0	15,80	25,0		35	83	16		2		161		160				
16,00	30,0	15,80	50,0		102	150	16		2						160		160
20,00	25,0	19,80	30,0		43	93	20		2		201		200				
20,00	40,0	19,80	60,0		100	150	20		2						200		200
P											○		○		○		○
M																	
K																	
N																	
S																	
H											●		●		●		●
O																	

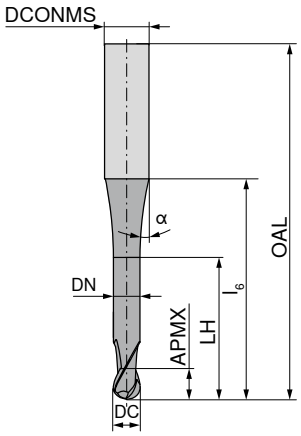
→ v_c/f_z Page 404+405

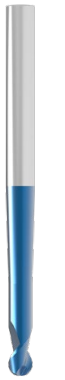
BlueLine – Ball Nosed Cutter

- Radius accuracy: ± 0,005 mm
- for Ø ≤ 5.0 mm, angle tolerance α and β: ± 0.5 °

H | λ_s=30° γ_s= 0° | ZEFP | ≤ 65 HRC

Ti2000





Factory standard

HA

52 352 ...

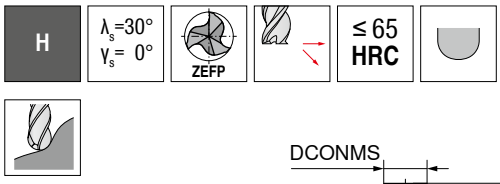
DC $_{f8}$ mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	DCONMS $_{h6}$ mm	ZEFP	
0,6	0,8	0,55	1,4	27	75	1,5	3	2	**906**
0,8	1,0	0,75	1,6	27	75	1,5	3	2	**908**
1,0	1,2	0,95	2,0	27	75	1,5	3	2	**310**
1,2	1,4	1,15	2,4	27	75	1,5	3	2	**312**
1,5	1,8	1,45	3,0	27	75	1,5	3	2	**315**
2,0	2,4	1,95	4,0	27	75	1,5	3	2	**320**
3,0	4,0	2,80	12,0	40	80	1,5	6	2	**030**
4,0	5,0	3,80	16,0	40	80	1,5	6	2	**040**
5,0	6,0	4,80	20,0	40	80	1,5	6	2	**050**
6,0	6,0	5,80	25,0	50	100	1,5	8	2	**060**
8,0	7,0	7,80	32,0	60	120	1,5	10	2	**080**
10,0	9,0	9,80	40,0	80	160	1,5	12	2	**100**
12,0	11,0	11,80	50,0	100	200	1,5	16	2	**120**

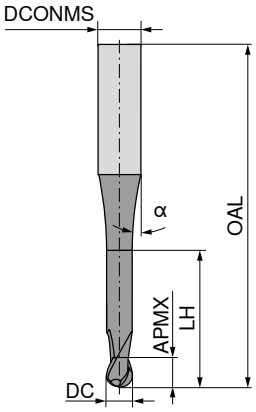
P	●
M	
K	
N	
S	
H	●
O	

→ v_c/f_z Page 404

BlueLine – Ball Nosed Cutter

▲ Radius accuracy: ± 0,005 mm











Factory standard



52 355 ...

DC f8 mm	APMX mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	
3	8	11	65	12	6	3	**030**
4	8	11	75	12	6	3	**040**
5	10	13	75	12	6	3	**050**
6	12		100		6	3	**060**
8	14		100		8	3	**080**
10	18		100		10	3	**100**
12	22		120		12	3	**120**

P	●
M	
K	
N	
S	
H	●
O	

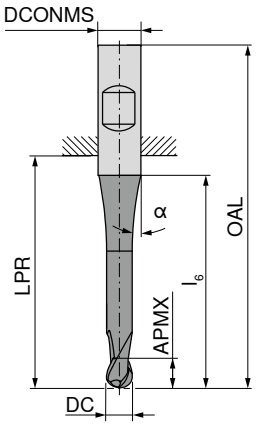
→ v_c/f_z Page 404

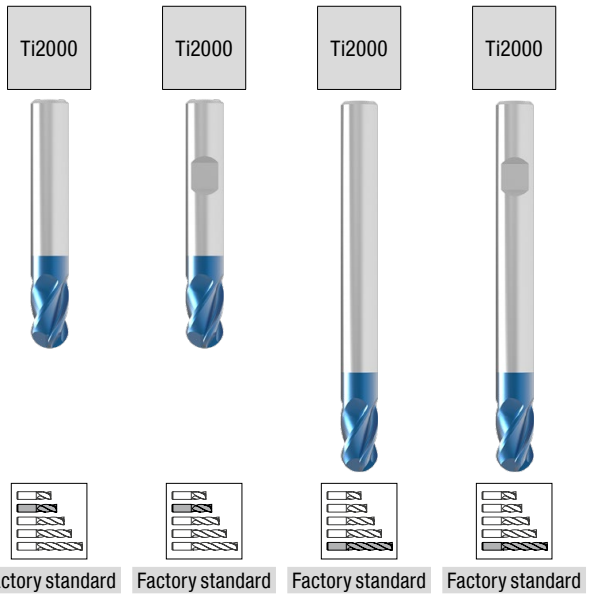
BlueLine – Ball Nosed Cutter

▲ Radius accuracy: ± 0,005 mm

H | λ_s=30° γ_s= 0° | ZEFP | 54–70 HRC







Factory standard | Factory standard | Factory standard | Factory standard

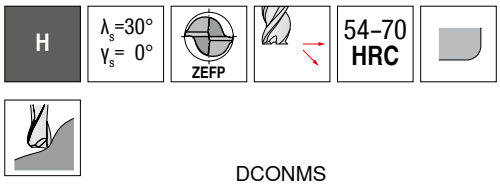
HA | HB | HA | HB

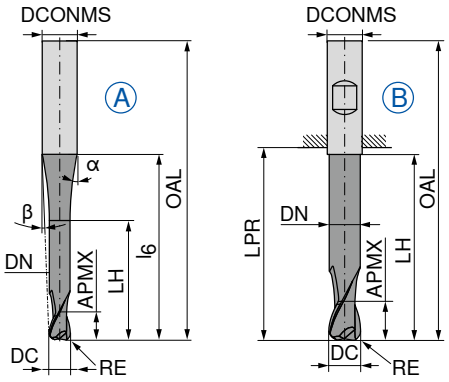
DC f8 mm	APMX mm	l_6 mm	LPR mm	OAL mm	α° ±1	DCONMS h6 mm	ZEFP	52 404 ...	52 405 ...	52 404 ...	52 405 ...
2,0	4	10,0	22	50	8	3	4	020			
2,0	4	16,0	18	54	12	6	4	021	021		
2,0	4	10,0	47	75	8	3	4			022	
2,0	4	16,0	44	80	12	6	4			023	023
2,5	5	16,0	18	54	12	6	4	025	025		
2,5	5	16,0	44	80	12	6	4			026	026
3,0	5		22	50		3	4	030			
3,0	5	14,0	18	54	12	6	4	031	031		
3,0	5		47	75		3	4			032	
3,0	5	14,0	44	80	12	6	4			033	033
4,0	8	15,0	18	54	12	6	4	041	041		
4,0	8		26	54		4	4	040			
4,0	8		47	75		4	4			042	
4,0	8	15,0	44	80	12	6	4			043	043
5,0	9	13,5	18	54	12	6	4	051	051		
5,0	9		26	54		5	4	050			
5,0	9		47	75		5	4			052	
5,0	9	13,5	64	100	12	6	4			053	053
6,0	10		18	54		6	4	060	060		
6,0	10		64	100		6	4			062	062
7,0	12	15,0	23	59	12	8	4	070	070		
8,0	12		23	59		8	4	080	080		
8,0	12		64	100		8	4			082	082
9,0	14	17,0	27	67	12	10	4	090	090		
10,0	14	16,0	27	67		10	4	100	100		
10,0	14		60	100		10	4			102	102
12,0	16		29	74		12	4	120	120		
12,0	16		55	100		12	4			122	122
14,0	18		30	75		14	4	140	140		
14,0	18	20,0	55	100		14	4			142	142
16,0	22	24,0	35	83		16	4	160	160		
16,0	22	24,0	102	150		16	4			162	162
20,0	26	28,0	43	93		20	4	200	200		
20,0	26	28,0	100	150		20	4			202	202
P								○	○	○	○
M											
K											
N											
S											
H								●	●	●	●
O											

→ v_c/f_z Page 404+405

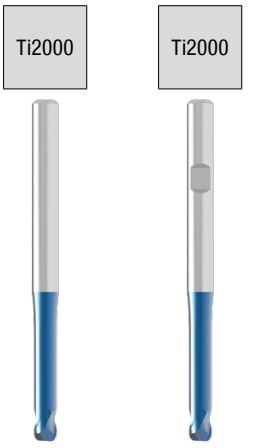
BlueLine – Torus Cutter

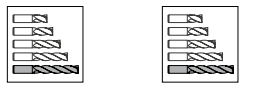
- Radius accuracy: ± 0,005 mm for Ø ≤ 6,0 mm / ± 0,01 mm for Ø > 6,0 mm
- or Ø ≤ 5.0 mm, angle tolerance α and β: ± 0.5 °





LPR with Shank DIN 6535 HB





Factory standard | Factory standard

HA | HB

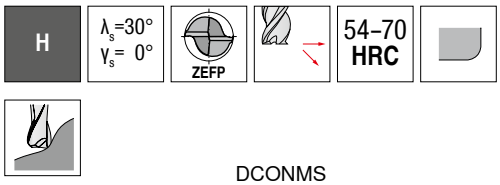
DC ±0,01 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	l_6 mm	OAL mm	α° ±0,5	β°	DCONMS h5 mm	ZEFP	Fig.	52 305 ...	52 305 ...
1,0	0,2	1,00	0,95	10	21	16,5	57	23	9	6	2	A	**010**	
1,5	0,3	1,25	1,40	12	21	18,0	57	21	7,5	6	2	A	**015**	
2,0	0,4	1,50	1,90	16	21	20,0	57	25	6	6	2	A	**020**	
3,0	0,5	2,00	2,90	20	44	34,5	80	6	2,5	6	2	A	**030**	
4,0	0,6	2,50	3,90	22	44	35,0	80	4,5	2	6	2	A	**040**	
5,0	0,8	3,00	4,90	25	44	35,0	80	3,5	1	6	2	A	**050**	
6,0	1,0	3,50	5,90	29	44		80			6	2	B		**060**
P													○	○
M														
K														
N														
S														
H													●	●
O														

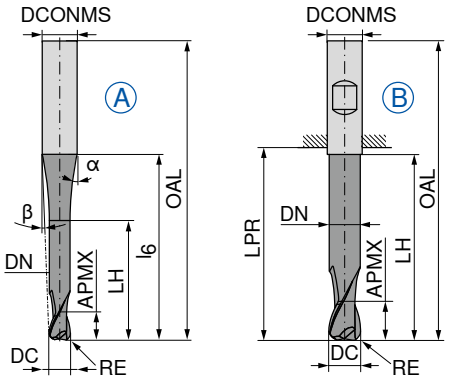
→ v_c/f_z Page 406+407

14

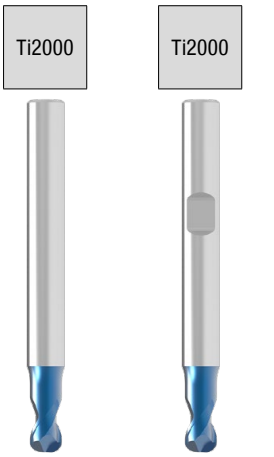
BlueLine – Torus Cutter

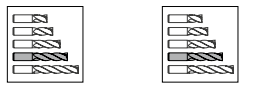
▲ Radius accuracy: ± 0,005 mm for Ø ≤ 6,0 mm / ± 0,01 mm for Ø > 6,0 mm
▲ or Ø ≤ 5.0 mm, angle tolerance α and β: ± 0.5 °





LPR with Shank DIN 6535 HB





Factory standard | Factory standard

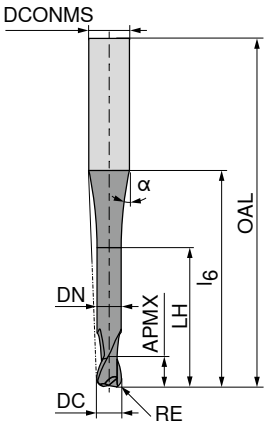
HA | HB

DC mm	Tol.	RE mm	APMX mm	DN mm	LH mm	LPR mm	l_6 mm	OAL mm	α°	β°	DCONMS $_{h5}$ mm	ZEFP	Fig.	52 304 ...	52 304 ...
0,5	±0,01	0,10	1,0	0,45	2,0	21	20	57	10	8,5	6	2	A	**005**	
1,0	±0,01	0,25	2,0	0,95	4,0	21	20	57	10	8	6	2	A	**010**	
1,5	±0,01	0,30	2,5	1,40	7,5	21	20	57	12,5	7	6	2	A	**015**	
2,0	±0,01	0,50	3,0	1,80	8,0	21	20	57	12	6,5	6	2	A	**020**	
3,0	±0,01	0,50	3,5	2,80	10,0	21	20	57	11,5	5	6	2	A	**030**	
4,0	±0,01	1,00	4,0	3,80	12,0	21	20	57	11	3,5	6	2	A	**040**	
5,0	±0,01	1,50	5,0	4,70	14,0	21	20	57	10	2	6	2	A	**050**	
6,0	±0,01	2,00	6,0	5,60	20,0	21		57			6	2	B		**060**
8,0	±0,02	2,00	7,0	7,60	25,0	27		63			8	2	B		**080**
10,0	±0,02	3,00	8,0	9,60	30,0	32		72			10	2	B		**100**
12,0	±0,02	4,00	10,0	11,50	35,0	38		83			12	2	B		**120**
12,0	±0,02	4,00	10,0	11,50	35,0	44	40	92	37	3,5	16	2	A	**121**	
16,0	±0,02	5,00	12,0	15,50	40,0	44		92			16	2	B		**160**
P														○	○
M															
K															
N															
S															
H														●	●
O															

→ v_c/f_z Page 406+407

BlueLine – Torus Cutter

H | λ_s=30° γ_s= 0° | ZEFP | ≤ 65 HRC



Ti2000



Factory standard

HA

52 361 ...

DC $_{e8}$ mm	RE $_{\pm 0,01}$ mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	DCONMS $_{h5}$ mm	ZEFP	
0,8	0,08	1,0	0,75	1,6	27	75	1,5	3	2	**90801**
1,0	0,10	1,2	0,95	2,0	27	75	1,5	3	2	**31001**
1,0	0,25	2,0	0,85	4,0	40	80	1,5	6	2	**01002**
1,2	0,12	1,4	1,15	2,4	27	75	1,5	3	2	**31201**
1,5	0,15	1,8	1,45	3,0	27	75	1,5	3	2	**31501**
2,0	0,20	2,4	1,95	4,0	27	75	1,5	3	2	**32002**
2,0	0,50	2,0	1,80	8,0	40	80	1,5	6	2	**02005**
3,0	0,30	3,6	2,95	6,0	27	75	1,5	4	2	**43003**
3,0	0,50	2,0	2,80	12,0	40	80	1,5	6	2	**03005**
3,0	1,00	2,0	2,80	12,0	40	80	1,5	6	2	**03010**
4,0	1,00	3,0	3,80	16,0	40	80	1,5	6	2	**04010**
6,0	1,00	4,0	5,80	25,0	50	100	1,5	8	2	**06010**
6,0	2,00	4,0	5,80	25,0	50	100	1,5	8	2	**06020**
8,0	1,00	4,0	7,80	32,0	60	120	1,5	10	2	**08010**
8,0	2,00	4,0	7,80	32,0	60	120	1,5	10	2	**08020**
10,0	1,50	6,0	9,80	40,0	80	160	1,5	12	2	**10015**
12,0	1,50	8,0	11,80	50,0	100	200	1,5	16	2	**12015**

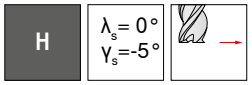
P	○
M	
K	
N	
S	
H	●
O	

→ v_c/f_z Page 406+407

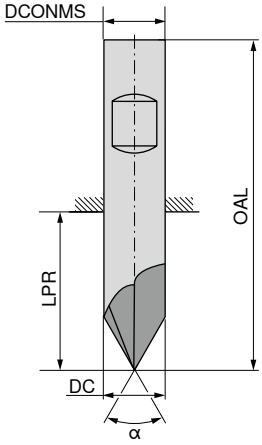
BlueLine – NC deburring cutter

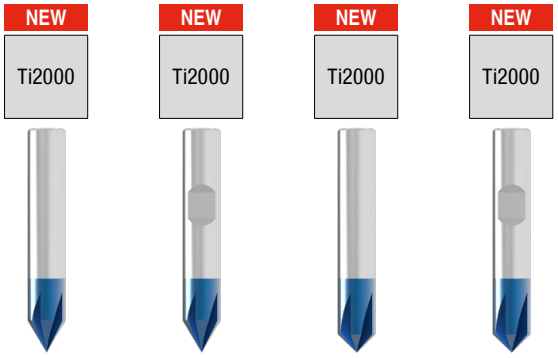
H

$\lambda_s = 0°$
$\gamma_s = -5°$









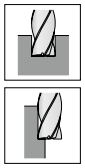
DC mm	OAL mm	LPR mm	DCONMS mm	ZEFP	α = 60° Factory standard HA 52 562 ...	α = 60° Factory standard HB 52 563 ...	α = 90° Factory standard HA 52 560 ...	α = 90° Factory standard HB 52 561 ...
4	50	22	4	5	**04000**		**04000**	
6	57	21	6	6	**06000**	**06000**	**06000**	**06000**
8	63	27	8	6	**08000**	**08000**	**08000**	**08000**
10	72	32	10	6	**10000**	**10000**	**10000**	**10000**
12	83	38	12	6	**12000**	**12000**	**12000**	**12000**
16	92	44	16	8	**16000**	**16000**	**16000**	**16000**
P					●	●	●	●
M								
K								
N								
S								
H					●	●	●	●
O								

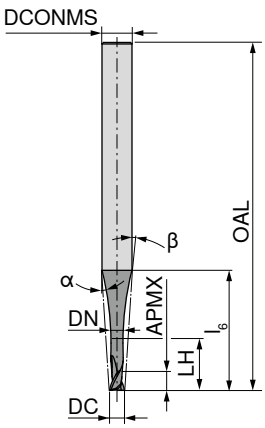
→ v_c/f_z Page 395

Micro-end milling cutter

▲ T_x = maximum engagement depth

N | λ_s=30° γ_s=11° | ZEFP | ≤ 62 HRC





DPA72S DRAGONSKIN





Factory standard

HA

52 802 ...

DPA72S DRAGONSKIN





Factory standard

HA

52 802 ...

DC mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS $_{h5}$ mm	T_x	ZEFP		
0,2	0,12	0,16	0,44	5,7	38	15	14	3	2,2 x DC	2	**021**	
0,2	0,20	0,16	1,00	6,4	38	15	13	3	5 x DC	2	**023**	
0,2	0,20	0,16	2,00	9,2	38	15	9	3	10 x DC	2	**025**	
0,2	0,20	0,16	0,44	5,7	43	15	14	3	2,2 x DC	2		**022**
0,2	0,20	0,16	1,00	6,4	43	15	13	3	5 x DC	2		**024**
0,2	0,20	0,16	2,00	9,2	43	15	9	3	10 x DC	2		**026**
0,5	0,30	0,40	1,10	5,8	38	15	13	3	2,2 x DC	2	**051**	
0,5	0,50	0,40	2,50	7,8	38	15	10	3	5 x DC	2	**053**	
0,5	0,50	0,40	5,00	10,7	38	13	7	3	10 x DC	2	**055**	
0,5	0,50	0,40	1,10	5,8	43	15	13	3	2,2 x DC	2		**052**
0,5	0,50	0,40	2,50	7,8	43	15	10	3	5 x DC	2		**054**
0,5	0,50	0,40	5,00	14,5	43	13	5	3	10 x DC	2		**056**
0,8	0,48	0,64	1,76	5,9	38	15	11	3	2,2 x DC	2	**081**	
0,8	0,80	0,64	4,00	9,0	38	15	7	3	5 x DC	2	**083**	
0,8	0,80	0,64	8,00	13,5	38	12	5	3	10 x DC	2	**085**	
0,8	0,80	0,64	1,76	5,9	43	15	11	3	2,2 x DC	2		**082**
0,8	0,80	0,64	4,00	9,0	43	15	7	3	5 x DC	2		**084**
0,8	0,80	0,64	8,00	15,5	43	9,8	5	3	10 x DC	2		**086**
1,0	0,60	0,80	2,20	5,9	38	15	10	3	2,2 x DC	2	**101**	
1,0	1,00	0,80	2,20	5,9	43	15	10	3	2,2 x DC	2		**102**
1,0	1,00	0,80	5,00	9,7	43	15	6	3	5 x DC	2	**103**	
1,0	1,00	0,80	10,00	15,3	43	11	4	3	10 x DC	2	**105**	
1,0	1,00	0,80	5,00	9,7	50	15	6	3	5 x DC	2		**104**
1,0	1,00	0,80	10,00	20,6	50	8,5	3	3	10 x DC	2		**106**
1,5	0,90	1,20	3,30	6,1	38	15	8	3	2,2 x DC	2	**151**	
1,5	1,50	1,20	3,30	6,1	43	15	8	3	2,2 x DC	2		**152**
1,5	1,50	1,20	7,50	11,8	43	14	4	3	5 x DC	2	**153**	
1,5	1,50	1,20	15,00	18,1	43	14,6	3	3	10 x DC	2	**155**	
1,5	1,50	1,20	7,50	11,8	50	14	4	3	5 x DC	2		**154**
1,5	1,50	1,20	15,00	22,0	50	6,2	2	3	10 x DC	2		**156**
1,8	1,08	1,44	3,96	6,2	38	15	6	3	2,2 x DC	2	**181**	
1,8	1,80	1,44	3,96	6,2	43	15	6	3	2,2 x DC	2		**182**
1,8	1,80	1,44	9,00	12,9	43	12	3	3	5 x DC	2	**183**	
1,8	1,80	1,44	18,00	20,0	43	19,8	2	3	10 x DC	2	**185**	
1,8	1,80	1,44	9,00	12,9	50	12	3	3	5 x DC	2		**184**
1,8	1,80	1,44	18,00	22,0	50	5,3	2	3	10 x DC	2		**186**
2,0	1,20	1,60	4,40	11,9	50	15	10	6	2,2 x DC	2	**201**	
2,0	2,00	1,60	10,00	19,7	50	15	6	6	5 x DC	2	**203**	
2,0	2,00	1,60	20,00	25,0	50	22,1	5	6	10 x DC	2	**205**	
2,0	2,00	1,60	4,40	11,9	57	15	10	6	2,2 x DC	2		**202**
2,0	2,00	1,60	10,00	19,7	57	15	6	6	5 x DC	2		**204**
2,0	2,00	1,60	20,00	29,0	57	7,8	4	6	10 x DC	2		**206**

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

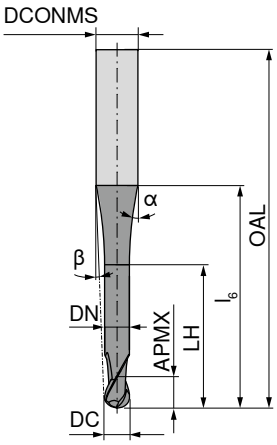
→ v_c/f_z Page 420–427

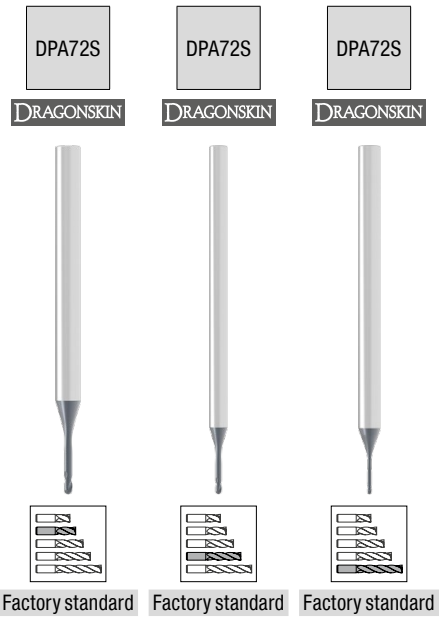
14

Micro-ball nosed cutter

▲ T_x = maximum engagement depth

N | λ_s=30° γ_s= 6° | ZEFP | ≤ 62 HRC





Factory standard | Factory standard | Factory standard

HA | HA | HA

DC ±0,01 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	T_x	ZEFP	52 804 ...	52 804 ...	52 804 ...
0,2	0,12	0,16	0,44	5,7	38	15	14	3	2,2 x DC	2	**021**		
0,2	0,20	0,16	1,00	6,4	38	15	13	3	5 x DC	2	**024**		
0,2	0,20	0,16	2,00	9,2	38	15	9	3	10 x DC	2	**027**		
0,2	0,12	0,16	0,44	5,7	50	15	14	3	2,2 x DC	2		**022**	
0,2	0,20	0,16	1,00	6,4	50	15	13	3	5 x DC	2		**025**	
0,2	0,20	0,16	2,00	9,2	50	15	9	3	10 x DC	2		**028**	
0,2	0,12	0,16	0,44	11,3	80	15	15	6	2,2 x DC	2			**023**
0,2	0,20	0,16	1,00	12,0	80	15	14	6	5 x DC	2			**026**
0,2	0,20	0,16	2,00	14,8	80	15	12	6	10 x DC	2			**029**
0,5	0,30	0,40	1,10	5,8	38	15	13	3	2,2 x DC	2	**051**		
0,5	0,50	0,40	2,50	7,8	38	15	10	3	5 x DC	2	**054**		
0,5	0,50	0,40	5,00	10,7	38	13	7	3	10 x DC	2	**057**		
0,5	0,30	0,40	1,10	5,8	50	15	13	3	2,2 x DC	2		**052**	
0,5	0,50	0,40	2,50	7,8	50	15	10	3	5 x DC	2		**055**	
0,5	0,50	0,40	5,00	14,5	50	13	5	3	10 x DC	2		**058**	
0,5	0,30	0,40	1,10	11,4	80	15	14	6	2,2 x DC	2			**053**
0,5	0,50	0,40	2,50	13,4	80	15	12	6	5 x DC	2			**056**
0,5	0,50	0,40	5,00	20,2	80	15	8	6	10 x DC	2			**059**
0,8	0,48	0,64	1,76	5,9	38	15	11	3	2,2 x DC	2	**081**		
0,8	0,80	0,64	4,00	9,0	38	15	7	3	5 x DC	2	**084**		
0,8	0,80	0,64	8,00	10,5	38	8,2	6	3	10 x DC	2	**087**		
0,8	0,48	0,64	1,76	5,9	50	15	11	3	2,2 x DC	2		**082**	
0,8	0,80	0,64	4,00	9,0	50	15	7	3	5 x DC	2		**085**	
0,8	0,80	0,64	8,00	18,7	50	9,8	4	3	10 x DC	2		**088**	
0,8	0,48	0,64	1,76	11,5	80	15	13	6	2,2 x DC	2			**083**
0,8	0,80	0,64	4,00	14,6	80	15	11	6	5 x DC	2			**086**
0,8	0,80	0,64	8,00	25,9	80	14,8	6	6	10 x DC	2			**089**
1,0	0,60	0,80	2,20	7,8	43	15	11	4	2,2 x DC	2	**101**		
1,0	1,00	0,80	5,00	11,6	43	15	8	4	5 x DC	2	**104**		
1,0	1,00	0,80	10,00	18,3	43	8	5	4	10 x DC	2	**107**		
1,0	0,60	0,80	2,20	7,8	60	15	11	4	2,2 x DC	2		**102**	
1,0	1,00	0,80	5,00	11,6	60	15	8	4	5 x DC	2		**105**	
1,0	1,00	0,80	10,00	23,7	60	10,2	4	4	10 x DC	2		**108**	
1,0	0,60	0,80	2,20	11,5	80	15	13	6	2,2 x DC	2			**103**
1,0	1,00	0,80	5,00	15,3	80	15	10	6	5 x DC	2			**106**
1,0	1,00	0,80	10,00	28,7	80	13	5	6	10 x DC	2			**109**
1,2	0,72	0,96	2,64	7,9	43	15	11	4	2,2 x DC	2	**121**		
1,2	1,20	0,96	6,00	12,4	43	15	7	4	5 x DC	2	**124**		
1,2	1,20	0,96	12,00	18,2	43	9,3	5	4	10 x DC	2	**127**		
1,2	0,72	0,96	2,64	7,9	60	15	11	4	2,2 x DC	2		**122**	
1,2	1,20	0,96	6,00	12,4	60	15	7	4	5 x DC	2		**125**	
1,2	1,20	0,96	12,00	26,1	60	9,1	4	4	10 x DC	2		**128**	
1,2	0,72	0,96	2,64	11,6	80	15	12	6	2,2 x DC	2			**123**
1,2	1,20	0,96	6,00	16,2	80	15	9	6	5 x DC	2			**126**
1,2	1,20	0,96	12,00	31,8	80	11,7	5	6	10 x DC	2			**129**

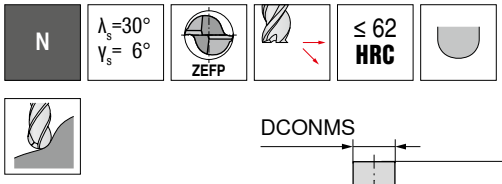
P	●	●	●
M	●	●	●
K	●	●	●
N	●	●	●
S	●	●	●
H	○	○	○
O	○	○	○

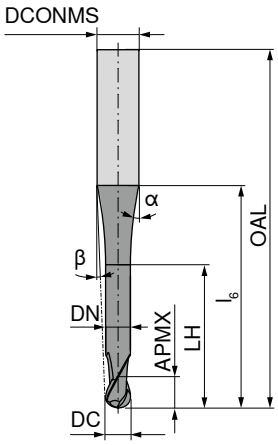
→ v_c/f_z Page 420–427

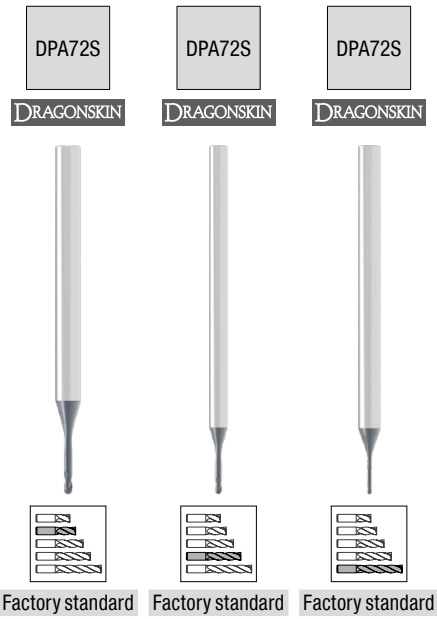
Continued on next page

Micro-ball nosed cutter

▲ T_x = maximum engagement depth







Factory standard | Factory standard | Factory standard

HA | HA | HA

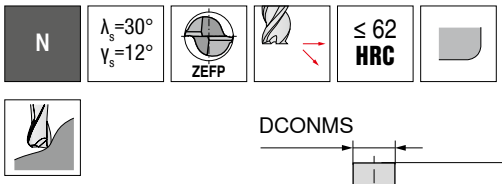
DC ±0,01 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	T_x	ZEFP	52 804 ...	52 804 ...	52 804 ...
1,5	0,90	1,20	3,30	8,0	43	15	9	4	2,2 x DC	2	**151**		
1,5	1,50	1,20	7,50	13,7	43	15	6	4	5 x DC	2	**154**		
1,5	1,50	1,20	15,00	18,1	43	13,5	4	4	10 x DC	2	**157**		
1,5	0,90	1,20	3,30	8,0	60	15	9	4	2,2 x DC	2		**152**	
1,5	1,50	1,20	7,50	13,7	60	15	6	4	5 x DC	2		**155**	
1,5	1,50	1,20	15,00	28,0	60	7,8	3	4	10 x DC	2		**158**	
1,5	0,90	1,20	3,30	11,7	80	15	11	6	2,2 x DC	2			**153**
1,5	1,50	1,20	7,50	17,4	80	15	8	6	5 x DC	2			**156**
1,5	1,50	1,20	15,00	35,8	80	10,2	4	6	10 x DC	2			**159**
1,8	1,08	1,44	3,96	8,1	43	15	8	4	2,2 x DC	2	**181**		
1,8	1,80	1,44	9,00	15,0	43	15	5	4	5 x DC	2	**184**		
1,8	1,80	1,44	18,00	19,5	43	31,1	4	4	10 x DC	2	**187**		
1,8	1,08	1,44	3,96	8,1	60	15	8	4	2,2 x DC	2		**182**	
1,8	1,80	1,44	9,00	15,0	60	15	5	4	5 x DC	2		**185**	
1,8	1,80	1,44	18,00	31,9	60	6,8	2	4	10 x DC	2		**188**	
1,8	1,08	1,44	3,96	11,8	80	15	11	6	2,2 x DC	2			**183**
1,8	1,80	1,44	9,00	18,7	80	15	7	6	5 x DC	2			**186**
1,8	1,80	1,44	18,00	39,3	80	9,1	4	6	10 x DC	2			**189**
2,0	1,20	1,60	4,40	11,9	57	15	10	6	2,2 x DC	2	**201**		
2,0	2,00	1,60	10,00	19,7	57	15	6	6	5 x DC	2	**204**		
2,0	2,00	1,60	20,00	32,0	57	9,5	4	6	10 x DC	2	**207**		
2,0	1,20	1,60	4,40	11,9	70	15	10	6	2,2 x DC	2		**202**	
2,0	2,00	1,60	10,00	19,7	70	15	6	6	5 x DC	2		**205**	
2,0	2,00	1,60	20,00	41,4	70	8,5	3	6	10 x DC	2		**208**	
2,0	1,20	1,60	4,40	11,9	80	15	10	6	2,2 x DC	2			**203**
2,0	2,00	1,60	10,00	19,7	80	15	6	6	5 x DC	2			**206**
2,0	2,00	1,60	20,00	41,4	80	8,5	3	6	10 x DC	2			**209**

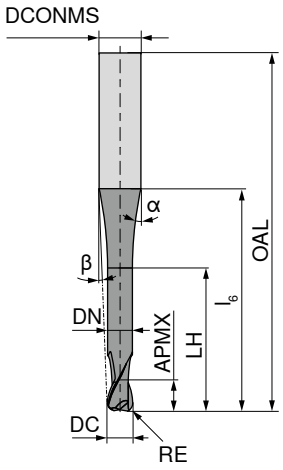
P	●	●	●
M	●	●	●
K	●	●	●
N	●	●	●
S	●	●	●
H	○	○	○
O	○	○	○

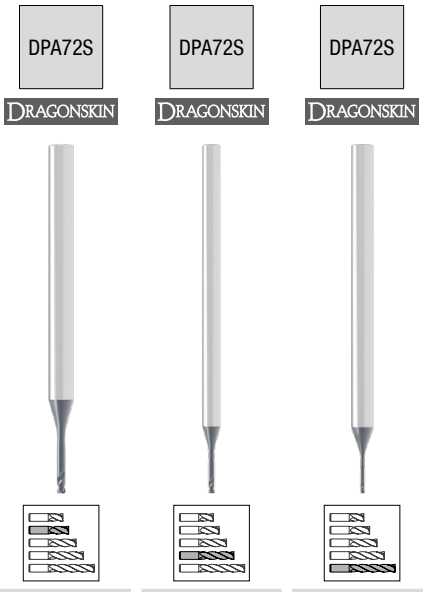
→ v_c/f_z Page 420–427

Micro-torus cutter

▲ T_x = maximum engagement depth







Factory standard | Factory standard | Factory standard

HA | HA | HA

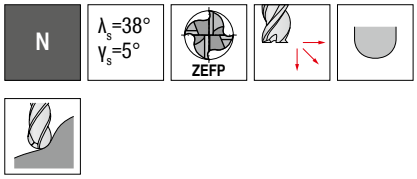
DC ±0,01 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	T_x	ZEFP	52 806 ...	52 806 ...	52 806 ...
0,5	0,1	0,3	0,4	1,1	5,8	38	15	13	3	2,2 x DC	2	**051**		
0,5	0,1	0,5	0,4	2,5	7,8	38	15	10	3	5 x DC	2	**054**		
0,5	0,1	0,5	0,4	5,0	10,7	38	13	7	3	10 x DC	2	**057**		
0,5	0,1	0,3	0,4	1,1	5,8	50	15	13	3	2,2 x DC	2		**052**	
0,5	0,1	0,5	0,4	2,5	7,8	50	15	10	3	5 x DC	2		**055**	
0,5	0,1	0,5	0,4	5,0	14,5	50	13	5	3	10 x DC	2		**058**	
0,5	0,1	0,3	0,4	1,1	11,4	80	15	14	6	2,2 x DC	2			**053**
0,5	0,1	0,5	0,4	2,5	13,4	80	15	12	6	5 x DC	2			**056**
0,5	0,1	0,5	0,4	5,0	20,2	80	15	8	6	10 x DC	2			**059**
1,0	0,2	0,6	0,8	2,2	7,8	43	15	11	4	2,2 x DC	2	**101**		
1,0	0,2	1,0	0,8	5,0	11,6	43	15	8	4	5 x DC	2	**104**		
1,0	0,2	1,0	0,8	10,0	18,3	43	8	5	4	10 x DC	2	**107**		
1,0	0,2	0,6	0,8	2,2	7,8	60	15	11	4	2,2 x DC	2		**102**	
1,0	0,2	1,0	0,8	5,0	11,6	60	15	8	4	5 x DC	2		**105**	
1,0	0,2	1,0	0,8	10,0	23,7	60	10,2	4	4	10 x DC	2		**108**	
1,0	0,2	0,6	0,8	2,2	11,5	80	15	13	6	2,2 x DC	2			**103**
1,0	0,2	1,0	0,8	5,0	15,3	80	15	10	6	5 x DC	2			**106**
1,0	0,2	1,0	0,8	10,0	28,7	80	13	5	6	10 x DC	2			**109**
1,5	0,3	0,9	1,2	3,3	8,0	43	15	9	4	2,2 x DC	2	**151**		
1,5	0,3	1,5	1,2	7,5	13,7	43	15	6	4	5 x DC	2	**154**		
1,5	0,3	1,5	1,2	15,0	18,1	43	13,5	4	4	10 x DC	2	**157**		
1,5	0,3	0,9	1,2	3,3	8,0	60	15	9	4	2,2 x DC	2		**152**	
1,5	0,3	1,5	1,2	7,5	13,7	60	15	6	4	5 x DC	2		**155**	
1,5	0,3	1,5	1,2	15,0	29,2	60	7,8	3	4	10 x DC	2		**158**	
1,5	0,3	0,9	1,2	3,3	11,7	80	15	11	6	2,2 x DC	2			**153**
1,5	0,3	1,5	1,2	7,5	17,4	80	15	8	6	5 x DC	2			**156**
1,5	0,3	1,5	1,2	15,0	35,8	80	10,2	4	6	10 x DC	2			**159**
2,0	0,5	1,2	1,6	4,4	11,9	57	15	10	6	2,2 x DC	2	**201**		
2,0	0,5	2,0	1,6	10,0	19,7	57	15	6	6	5 x DC	2	**204**		
2,0	0,5	2,0	1,6	20,0	32,0	57	9,5	4	6	10 x DC	2	**207**		
2,0	0,5	1,2	1,6	4,4	11,9	70	15	10	6	2,2 x DC	2		**202**	
2,0	0,5	2,0	1,6	10,0	19,7	70	15	6	6	5 x DC	2		**205**	
2,0	0,5	2,0	1,6	20,0	41,4	70	8,5	3	6	10 x DC	2		**208**	
2,0	0,5	1,2	1,6	4,4	11,9	80	15	10	6	2,2 x DC	2			**203**
2,0	0,5	2,0	1,6	10,0	19,7	80	15	6	6	5 x DC	2			**206**
2,0	0,5	2,0	1,6	20,0	41,4	80	8,5	3	6	10 x DC	2			**209**

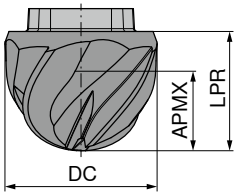
P	●	●	●
M	●	●	●
K	●	●	●
N	●	●	●
S	●	●	●
H	○	○	○
O	○	○	○

→ v_c/f_z Page 420–427

MultiLock – Ball Nosed Cutter

▲ KLG = Coupling Size







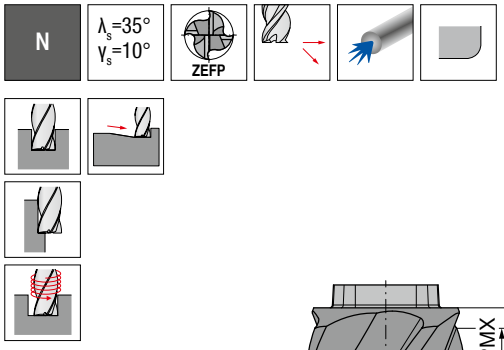
					Factory standard	Factory standard
					53 803 ...	**53 804 ...**
DC mm	KLG	APMX mm	LPR mm	ZEFP		
12	EL12	7,0	9	4	**01200**	**01200**
16	EL16	9,5	12	4	**01600**	**01600**
20	EL20	12,0	15	4	**02000**	**02000**
25	EL25	16,0	19	4	**02500**	**02500**
P						●
M						○
K						●
N						○
S					●	
H						
O						

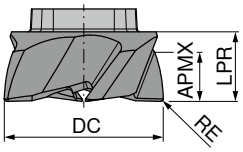
→ v_c/f_z Page 428

14

MultiLock – Torus Cutter

▲ KLG = Coupling Size





NEW CTC5240 DRAGONSKIN



NEW CTPX225 DRAGONSKIN

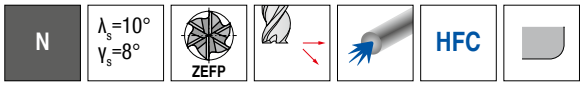


DC mm	RE mm	KLG	APMX mm	LPR mm	ZEFP	Factory standard 53 805 ...	Factory standard 53 806 ...
12	0,2	EL12	3,0	5	4	**01205**	**01205**
16	0,3	EL16	4,5	7	4	**01607**	**01607**
20	0,3	EL20	6,0	8	5	**02008**	**02008**
25	0,5	EL25	8,0	10	6	**02510**	**02510**
P							●
M							○
K							●
N							○
S						●	
H							
O							

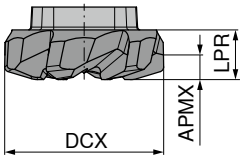
→ v_c/f_z Page 429

MultiLock – High Feed Cutter

▲ KLG = Coupling Size
▲ r_{3D} = corner radius to be programmed







NEW
CTC5240
DRAGONSKIN



NEW
CTPX225
DRAGONSKIN



DCX mm	KLG	r_{3D} mm	APMX mm	LPR mm	ZEFP	Factory standard 53 801 ...	Factory standard 53 802 ...
12	EL12	0,7	3,18	4	5	**01202**	**01202**
16	EL16	1,2	3,73	5	6	**01605**	**01605**
20	EL20	1,2	4,31	6	6	**02005**	**02005**
25	EL25	1,2	5,32	7	6	**02505**	**02505**

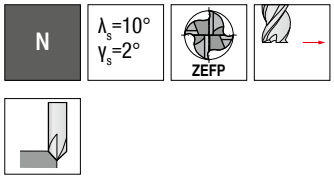
P		●
M		○
K		●
N		
S	●	
H		
O		

→ v_c/f_z Page 430

14

MultiLock – Deburring Cutter

▲ KLG = Coupling Size

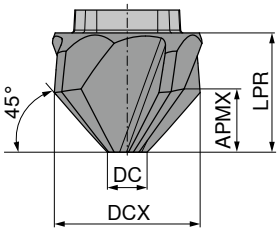


NEW

CTPX225

DRAGONSKIN





Factory standard

53 800 ...

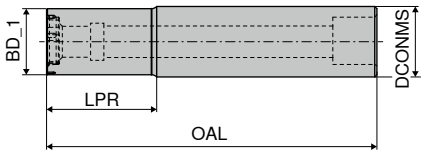
DCX mm	KLG	APMX mm	DC mm	LPR mm	ZEFP	
12	EL12	4	4	8	4	**01200**
16	EL16	6	4	12	4	**01600**

P	●
M	○
K	●
N	○
S	
H	
O	

→ v_c/f_z Page 431

MultiLock – Holders

▲ KLG = Coupling Size





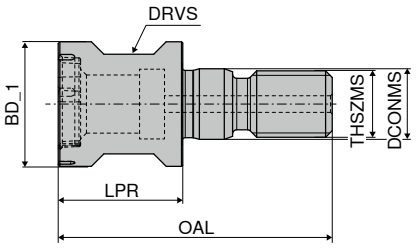
					NEW	NEW
					A	B
					84 050 ...	**84 051 ...**
KLG	BD_1 mm	DCONMS mm	OAL mm	LPR mm		
EL12	11	12	66	20	**01200**	**01200**
EL16	15	16	75	25	**01600**	**01600**
EL20	19	20	77	25	**02000**	**02000**
EL25	24	25	87	30	**02500**	**02500**

	 Cylindrical screw	TORX® blade	 Key D	 Molykote	 Clamping screw	 Threaded bush	 Torque screwdriver	Bit
	70 950 ...	**80 950 ...**	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**	**80 398 ...**
Spare parts for Article no.								
84 051 01200 / 84 050 01200	**42000**	**054**	**120**	**303**	**41900**	**42100**	**193**	**03500**
84 051 01600 / 84 050 01600	**42300**	**055**	**121**	**303**	**42200**	**42400**	**193**	**04500**
84 051 02000 / 84 050 02000	**42300**	**055**	**121**	**303**	**42200**	**42400**	**193**	**04500**
84 051 02500 / 84 050 02500	**42600**	**055**	**121**	**303**	**42500**	**42700**	**193**	**06000**

14

MultiLock – Screw-in adapter, type A

- KLG = Coupling size
- For high-feed and torus cutters





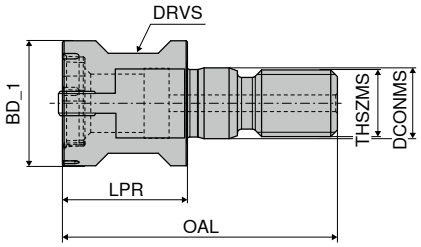
NEW

KLG	BD_1 mm	THSZMS	OAL mm	LPR mm	DCONMS mm	DRVS mm	84 052 ...
EL12	11	M6	28	13	6,5	9	**01200**
EL16	15	M8	33	14	8,5	12	**01600**
EL20	19	M10	37	18	10,5	15	**02000**
EL25	24	M12	42	20	12,5	17	**02500**

Spare parts for Article no.	TORX® blade 80 950 ...	 Key D 80 950 ...	 Molykote 70 950 ...	 Clamping screw 70 950 ...	 Threaded bush 70 950 ...	 Torque screwdriver 80 950 ...	Bit 80 398 ...
84 052 01200	**054**	**120**	**303**	**41900**	**42100**	**193**	**03500**
84 052 01600	**055**	**121**	**303**	**42200**	**42400**	**193**	**04500**
84 052 02000	**055**	**121**	**303**	**42200**	**42400**	**193**	**04500**
84 052 02500	**055**	**121**	**303**	**42500**	**42700**	**193**	**06000**

MultiLock – Screw-in adapter, type B

- KLG = Coupling size
- For radius milling and deburring cutters





NEW

KLG	BD_1 mm	THSZMS	OAL mm	LPR mm	DCONMS mm	DRVS mm	84 053 ...
EL12	11	M6	28	13	6,5	9	**01200**
EL16	15	M8	33	14	8,5	12	**01600**
EL20	20	M10	37	18	10,5	15	**02000**
EL25	25	M12	42	20	12,5	17	**02500**

Spare parts for Article no.	TORX® blade 80 950 ...	 Clamping screw 84 950 ...	 Key D 80 950 ...	 Molykote 70 950 ...	 Torque screwdriver 80 950 ...	 Mounting bush 84 950 ...
84 053 01200	**054**	**18600**	**120**	**303**	**193**	**18000**
84 053 01600	**055**	**18800**	**121**	**303**	**193**	**18100**
84 053 02000	**055**	**18700**	**121**	**303**	**193**	**18200**
84 053 02500	**055**	**18900**	**121**	**303**	**193**	**18300**

MultiChange – Programme Overview

The highly stable "MultiChange" exchangeable head system enables an extremely fast tool change. Designed to be durable and for a very high radial run-out accuracy, this exchangeable head system is probably the most stable and precise exchangeable head system on the market. The following chapters contain suitable exchangeable heads for almost every application.

Solid carbide drilling



▲ Solid Carbide NC Spot Drill
◁ 90°, 120°, 142° / Ø 8, 10, 12, 16, 20 mm / ZEFP* 2

→ **Chapter 2, Solid carbide drilling**

*ZEFP = Number of teeth

Reaming and Countersinking





▲ Through hole reamers
Ø 8–30.2 mm incl. special diameters / ZEFP 4-6

▲ Blind hold reamers
Ø 12.2–30.2 mm incl. special diameters / ZEFP 6

→ **Chapter 4, Reaming and countersinking**

*ZEFP = Number of teeth

Tool holder



▲ Steel Holder Extra Short
Cylindrical / Tapered 87°
Length 60–90 mm
for SZID 8, 10, 12, 16, 20 mm



▲ Short Holder Steel / Solid Carbide
cylindrical
Length 85–120 mm
for SZID 8, 10, 12, 16, 20 mm



▲ Holder Steel / Solid Carbide, Short
87° taper
Length 85–120 mm
for SZID 8, 10, 12, 16, 20 mm



▲ Solid Carbide Holder Medium
Cylindrical / Tapered 87°
Length 110–150 mm
for SZID 8, 10, 12, 16, 20 mm



▲ Holder Steel/Solid Carbide, Long
cylindrical
Length 150–200 mm
for SZID 8, 10, 12, 16, 20 mm



▲ Holder Steel/Solid Carbide, Long
87° taper
Length 150–200 mm
for SZID 8, 10, 12, 16, 20 mm

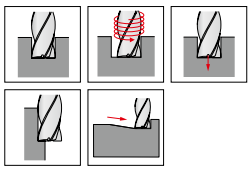


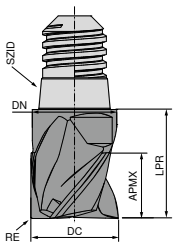
▲ Steel / Solid Carbide Holder Extra Long
cylindrical
Length 200–250 mm
For Ø 16 and 20 mm

→ **Chapter 16 Adapters and accessories**

MultiChange – End Mill

PCR UNI | λ_s=36° γ_s=10° | ZEFP | HPC | APA72S







Factory standard **52 871 ...**

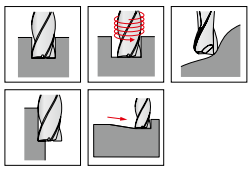
DC mm	RE mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	ZEFP	
9,7	0,32	08	7,5	9,8	13	4	**09700**
10,0	0,32	08	7,5	9,8	13	4	**10000**
11,7	0,32	10	9,0	11,8	16	4	**11700**
12,0	0,32	10	9,0	11,8	16	4	**12000**
15,7	0,32	12	12,0	15,8	20	4	**15700**
16,0	0,32	12	12,0	15,8	20	4	**16000**
19,7	0,50	16	15,0	19,8	25	4	**19700**
20,0	0,50	16	15,0	19,8	25	4	**20000**

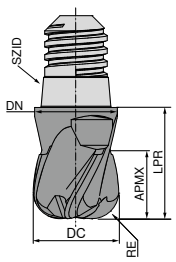
P	●
M	○
K	●
N	
S	
H	
O	

→ v_c/f_z Page 432+433

MultiChange – Torus Cutter

W | λ_s=43° γ_s=24° | ZEFP | DLC | DRAGONSKIN







Factory standard **52 870 ...**

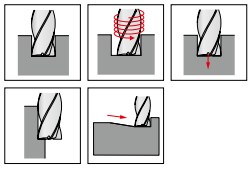
DC mm	RE mm	SZID	APMX mm	DN mm	LPR mm	ZEFP	
10	0,5	08	7,5	9,8	13	3	**10005**
10	1,0	08	7,5	9,8	13	3	**10010**
12	0,5	10	9,0	11,8	16	3	**12005**
12	1,0	10	9,0	11,8	16	3	**12010**
12	2,0	10	9,0	11,8	16	3	**12020**
16	2,0	12	12,0	15,8	20	3	**16020**
16	4,0	12	12,0	15,8	20	3	**16040**
20	2,0	16	15,0	19,8	25	3	**20020**
20	3,0	16	15,0	19,8	25	3	**20030**
20	4,0	16	15,0	19,8	25	3	**20040**

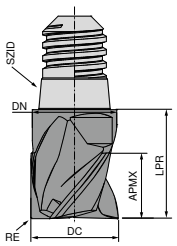
P	
M	
K	
N	●
S	
H	
O	

→ v_c/f_z Page 440

MultiChange – End Mill

PCR ALU | λ_s=41° γ_s=15° | ZEFP | HPC | DLC | DRAGONSKIN







Factory standard **52 872 ...**

DC mm	RE mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	ZEFP	
9,7	0,32	08	7,5	9,8	13	4	**09700**
10,0	0,32	08	7,5	9,8	13	4	**10000**
11,7	0,32	10	9,0	11,8	16	4	**11700**
12,0	0,32	10	9,0	11,8	16	4	**12000**
15,7	0,32	12	12,0	15,8	20	4	**15700**
16,0	0,32	12	12,0	15,8	20	4	**16000**
19,7	0,50	16	15,0	19,8	25	4	**19700**
20,0	0,50	16	15,0	19,8	25	4	**20000**

P	
M	
K	
N	●
S	
H	
O	

→ v_c/f_z Page 432+433

Assembly instructions

- ▲ SZID = Coupling Size
- ▲ SW = Across Flats Size
- ▲ M = Torque moment

SZID	SW mm	M Nm
06	6	5
08	8	12,5
10	10	15
12	13	20
16	16	25

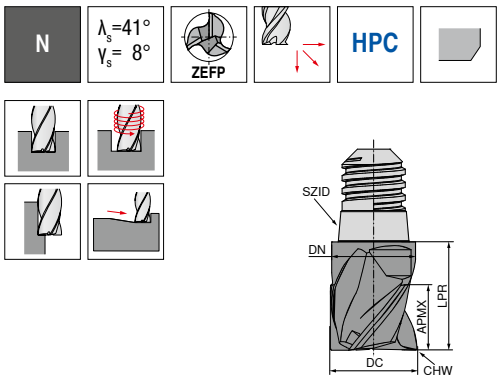
- ▲ A torque wrench should be used when mounting coupling sizes 06 and 08. It is recommended to use one for all sizes
- ▲ In unstable applications, the cutting data should be reduced.

Holders and accessories can be found in → **chapter 16, adapters and accessories in the clamping technology catalogue.**

Application Tips

APMX does not correspond to the maximum cutting depth

MultiChange – End Mill



Factory standard

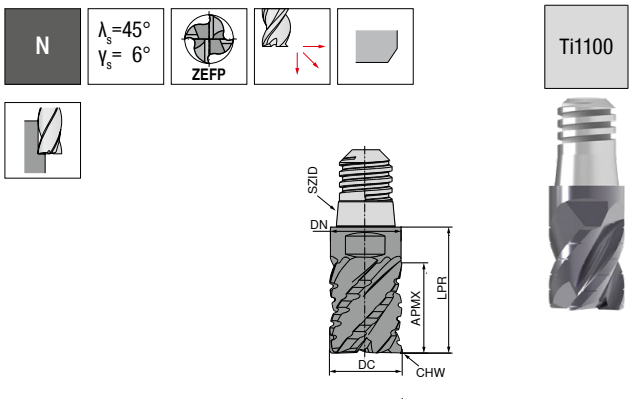
52 861 ...

DC mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	CHW mm	ZEFP	
8	06	6,0	7,8	11	0,16	3	**080**
10	08	7,5	9,8	13	0,20	3	**100**
12	10	9,0	11,8	16	0,24	3	**120**
16	12	12,0	15,8	20	0,32	3	**160**
20	16	15,0	19,8	25	0,40	3	**200**

P	●
M	
K	●
N	
S	
H	
O	

→ v_c/f_z Page 434

MultiChange – Roughing-Finishing Cutter



Factory standard

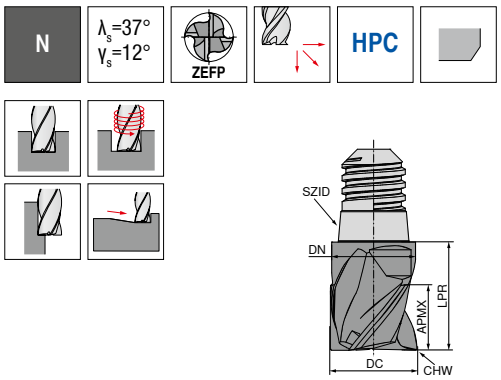
52 862 ...

DC mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	CHW mm	ZEFP	
8	06	10,0	7,8	15	0,16	4	**080**
10	08	12,5	9,8	18	0,20	4	**100**
12	10	15,0	11,8	22	0,24	4	**120**
16	12	20,0	15,8	28	0,32	5	**160**
20	16	25,0	19,8	35	0,40	6	**200**

P	●
M	○
K	●
N	●
S	
H	
O	

→ v_c/f_z Page 435

MultiChange – End Mill



Factory standard

52 860 ...

DC mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	CHW mm	ZEFP	
8	06	6,0	7,8	11	0,16	4	**080**
10	08	7,5	9,8	13	0,20	4	**100**
12	10	9,0	11,8	16	0,24	4	**120**
16	12	12,0	15,8	20	0,32	4	**160**
20	16	15,0	19,8	25	0,40	4	**200**

P	●
M	
K	●
N	
S	
H	
O	

→ v_c/f_z Page 434

Assembly instructions

- ▲ SZID = Coupling Size
- ▲ SW = Across Flats Size
- ▲ M = Torque moment

SZID	SW mm	M Nm
06	6	5
08	8	12,5
10	10	15
12	13	20
16	16	25

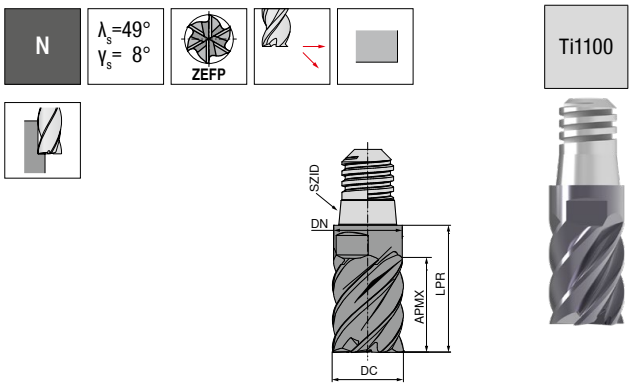
- ▲ A torque wrench should be used when mounting coupling sizes 06 and 08. It is recommended to use one for all sizes
- ▲ In unstable applications, the cutting data should be reduced.

Holders and accessories can be found in → **chapter 16, adapters and accessories in the clamping technology catalogue.**

Application Tips

APMX does not correspond to the maximum cutting depth

MultiChange – Finish milling cutter



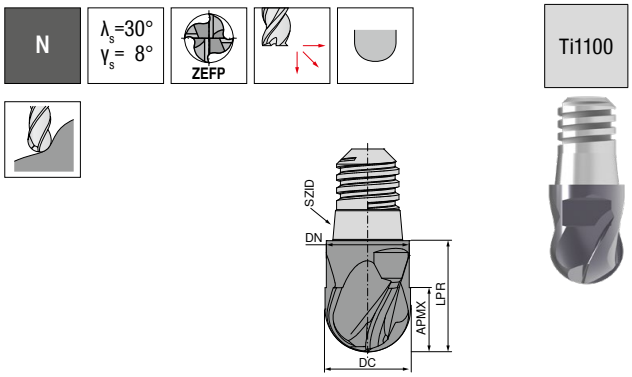
Factory standard **52 863 ...**

DC mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	ZEFP	
8	06	10,0	7,8	15	6	**080**
10	08	12,5	9,8	18	6	**100**
12	10	15,0	11,8	22	6	**120**
16	12	20,0	15,8	28	6	**160**
20	16	25,0	19,8	35	6	**200**

P	●
M	○
K	●
N	
S	
H	
O	

→ v_c/f_z Page 437

MultiChange – Ball Nosed Cutter



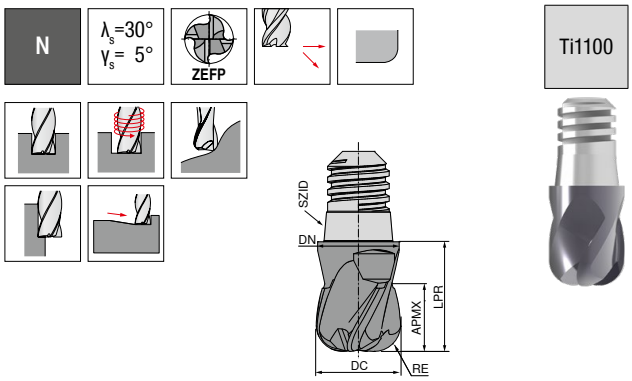
Factory standard **52 866 ...**

DC mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	ZEFP	
10	08	7,5	9,8	13	4	**100**
12	10	9,0	11,8	16	4	**120**
16	12	12,0	15,8	20	4	**160**
20	16	15,0	19,8	25	4	**200**

P	●
M	○
K	●
N	●
S	
H	
O	○

→ v_c/f_z Page 438+439

MultiChange – Torus Cutter



Factory standard **52 865 ...**

DC mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	RE mm	ZEFP	
8	06	6,0	7,8	11	1,0	4	**081**
8	06	6,0	7,8	11	2,0	4	**082**
10	08	7,5	9,8	13	1,5	4	**101**
10	08	7,5	9,8	13	3,0	4	**103**
12	10	9,0	11,8	16	1,5	4	**121**
12	10	9,0	11,8	16	4,0	4	**124**
16	12	12,0	15,8	20	2,0	4	**162**
16	12	12,0	15,8	20	5,0	4	**165**
20	16	15,0	19,8	25	2,0	4	**202**
20	16	15,0	19,8	25	6,0	4	**206**

P	●
M	○
K	●
N	●
S	
H	
O	○

→ v_c/f_z Page 438+439

Assembly instructions

- ▲ SZID = Coupling Size
- ▲ SW = Across Flats Size
- ▲ M = Torque moment

SZID	SW mm	M Nm
06	6	5
08	8	12,5
10	10	15
12	13	20
16	16	25

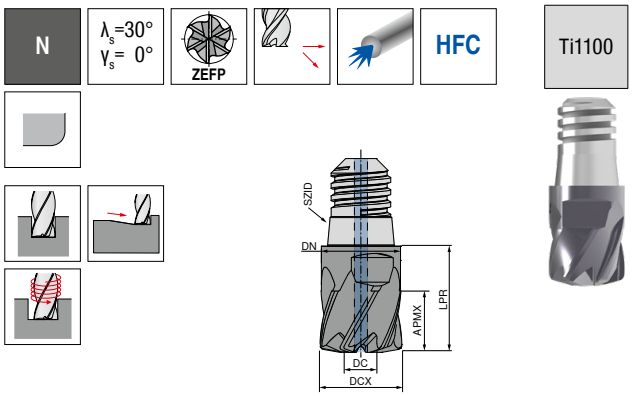
- ▲ A torque wrench should be used when mounting coupling sizes 06 and 08. It is recommended to use one for all sizes
- ▲ In unstable applications, the cutting data should be reduced.

Holders and accessories can be found in → **chapter 16, adapters and accessories in the clamping technology catalogue.**

Application Tips

APMX does not correspond to the maximum cutting depth

MultiChange – High Feed Cutter



Factory standard

52 864 ...

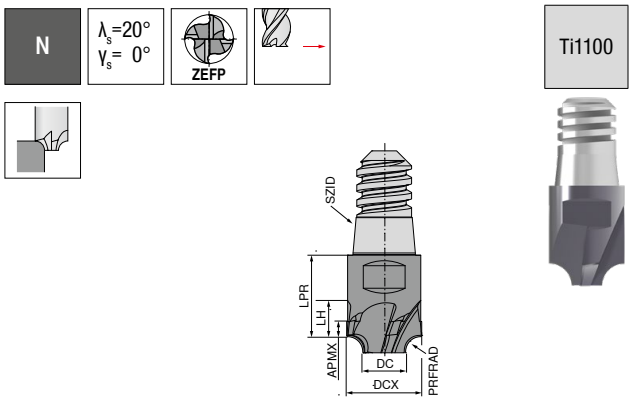
DCX mm	SZID	r_{3D} mm	APMX mm	LPR ±0,02 mm	ZEFP	
8	06	0,7	6,0	11	6	**080**
10	08	0,9	7,5	13	6	**100**
12	10	1,0	9,0	16	6	**120**
16	12	1,4	12,0	20	6	**160**
20	16	1,7	15,0	25	6	**200**

P	●
M	○
K	●
N	
S	
H	
O	

→ v_c/f_z Page 436

- ▲ r_{3D} = corner radius to be programmed
- ▲ Ø DCX tapered by 0.2 mm, resulting in Ø DN
- ▲ Ø DCX halved, resulting in Ø DC

MultiChange – Quarter-round milling cutter



Factory standard

52 869 ...

DCX mm	SZID	PRFRAD ±0,03 mm	APMX mm	DC mm	LPR ±0,02 mm	LH mm	ZEFP	
8	06	0,5	2,0	6,63	11	4,5	4	**080**
8	06	1,0	3,0	5,69	11	5,0	4	**081**
10	08	1,5	4,0	6,63	13	6,5	4	**100**
10	08	2,0	4,5	5,69	13	7,0	4	**101**
12	10	2,5	5,5	6,65	16	8,5	4	**120**
12	10	3,0	6,0	5,70	16	9,0	4	**121**
12	10	3,5	6,5	4,76	16	9,5	4	**122**
16	12	4,0	8,0	7,60	20	12,0	4	**160**
16	12	4,5	8,5	6,68	20	12,5	4	**161**
16	12	5,0	9,0	5,74	20	13,0	4	**162**
20	16	5,0	10,0	9,53	25	15,0	4	**200**
20	16	6,0	11,0	7,64	25	16,0	4	**201**

P	●
M	○
K	●
N	●
S	
H	
O	

→ v_c/f_z Page 441

Assembly instructions

- ▲ SZID = Coupling Size
- ▲ SW = Across Flats Size
- ▲ M = Torque moment

SZID	SW mm	M Nm
06	6	5
08	8	12,5
10	10	15
12	13	20
16	16	25

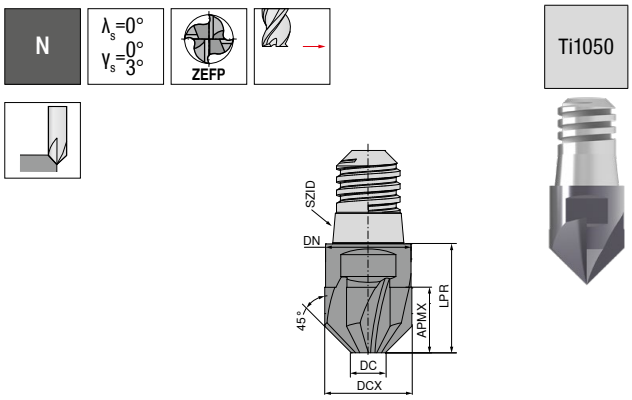
- ▲ A torque wrench should be used when mounting coupling sizes 06 and 08. It is recommended to use one for all sizes
- ▲ In unstable applications, the cutting data should be reduced.

Holders and accessories can be found in → **chapter 16, adapters and accessories in the clamping technology catalogue.**

Application Tips

APMX does not correspond to the maximum cutting depth

MultiChange – Deburring Cutter



Factory standard

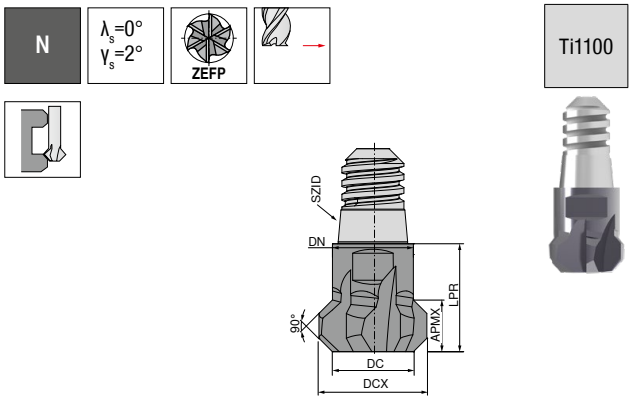
52 867 ...

DCX mm	SZID	APMX mm	DC mm	DN mm	LPR ±0,02 mm	ZEFP	
10	08	7,5	0,02	9,8	13	4	**100**
12	10	9,0	0,02	11,8	16	4	**120**
16	12	12,0	6,40	15,8	20	6	**160**
20	16	15,0	8,00	19,8	25	6	**200**

P	●
M	○
K	●
N	●
S	
H	
O	

→ v_c/f_z Page 442

MultiChange – Deburring Cutter



Factory standard

52 868 ...

DCX mm	SZID	APMX mm	DC mm	DN mm	LPR ±0,02 mm	ZEFP	
10	06	4,8	7,5	8	11	6	**100**
12	08	5,5	9,0	10	13	6	**120**
16	10	8,0	12,0	12	16	6	**160**
20	12	9,5	15,0	16	20	6	**200**

P	●
M	○
K	●
N	●
S	
H	
O	

→ v_c/f_z Page 442

Assembly instructions

- SZID = Coupling Size
- SW = Across Flats Size
- M = Torque moment

SZID	SW mm	M Nm
06	6	5
08	8	12,5
10	10	15
12	13	20
16	16	25

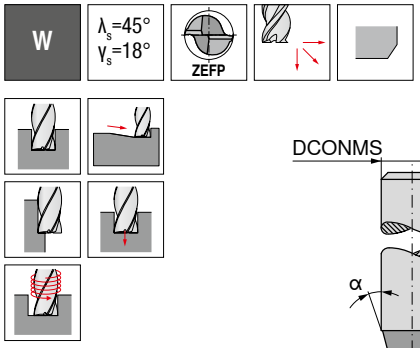
- A torque wrench should be used when mounting coupling sizes 06 and 08. It is recommended to use one for all sizes
- In unstable applications, the cutting data should be reduced.

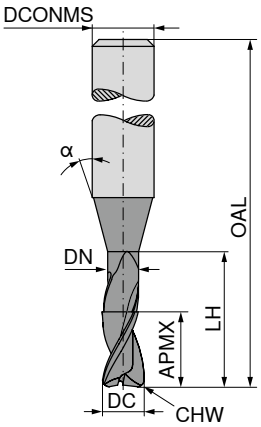
Holders and accessories can be found in → **chapter 16, adapters and accessories in the clamping technology catalogue.**

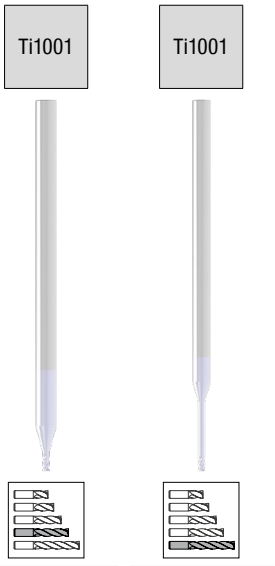
Application Tips

APMX does not correspond to the maximum cutting depth

End milling cutter







Factory standard | Factory standard

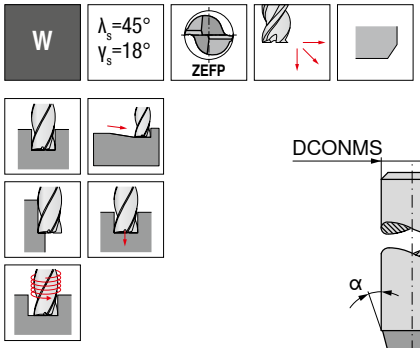
HA | HA

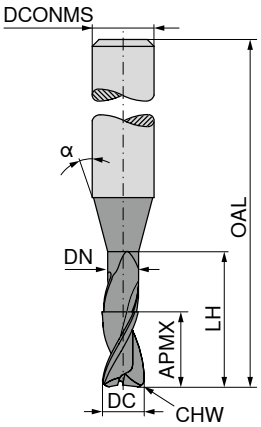
DC f8 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	CHW mm	ZEFP	50 900 ...	50 900 ...
0,2	0,2	0,18	0,6	55	15	3	0,02	2	**021**	
0,2	0,2	0,18	1,0	55	15	3	0,02	2	**022**	
0,2	0,2	0,18	1,6	55	15	3	0,02	2	**023**	
0,2	0,2	0,18	2,0	55	15	3	0,02	2	**024**	
0,3	0,3	0,28	0,9	55	15	3	0,03	2	**031**	
0,3	0,3	0,28	1,5	55	15	3	0,03	2	**032**	
0,3	0,3	0,28	2,4	55	15	3	0,03	2	**033**	
0,3	0,3	0,28	3,0	55	15	3	0,03	2	**034**	
0,4	0,4	0,37	1,2	55	15	3	0,04	2	**041**	
0,4	0,4	0,37	2,0	55	15	3	0,04	2	**042**	
0,4	0,4	0,37	3,2	55	15	3	0,04	2	**043**	
0,4	0,4	0,37	4,0	55	15	3	0,04	2	**044**	
0,5	0,5	0,45	1,5	55	15	3	0,05	2	**051**	
0,5	0,5	0,45	2,5	55	15	3	0,05	2	**052**	
0,5	0,5	0,45	4,0	55	15	3	0,05	2	**053**	
0,5	0,5	0,45	5,0	55	15	3	0,05	2	**054**	
0,6	0,6	0,58	2,0	55	15	3	0,06	2	**061**	
0,6	0,6	0,58	3,0	55	15	3	0,06	2	**062**	
0,6	0,6	0,58	5,0	65	15	3	0,06	2		**063**
0,6	0,6	0,58	6,0	65	15	3	0,06	2		**064**
0,8	0,8	0,77	2,5	55	15	3	0,08	2	**081**	
0,8	0,8	0,77	4,0	55	15	3	0,08	2	**082**	
0,8	0,8	0,77	6,5	65	15	3	0,08	2		**083**
0,8	0,8	0,77	8,0	65	15	3	0,08	2		**084**
1,0	1,0	0,95	3,0	55	15	3	0,10	2	**101**	
1,0	1,0	0,95	5,0	55	15	3	0,10	2	**102**	
1,0	1,0	0,95	8,0	65	15	3	0,10	2		**103**
1,0	1,0	0,95	10,0	65	15	3	0,10	2		**104**
1,0	1,0	0,95	12,0	65	15	3	0,10	2		**105**
1,2	1,2	1,15	3,0	55	15	3	0,12	2	**121**	
1,2	1,2	1,15	6,0	55	15	3	0,12	2	**122**	
1,2	1,2	1,15	10,0	65	15	3	0,12	2		**123**
1,2	1,2	1,15	12,0	65	15	3	0,12	2		**124**
1,3	1,3	1,25	4,0	55	15	3	0,12	2	**131**	
1,3	1,3	1,25	7,0	55	15	3	0,12	2	**132**	
1,3	1,3	1,25	11,0	65	15	3	0,12	2		**133**
1,3	1,3	1,25	13,0	65	15	3	0,12	2		**134**
1,5	1,5	1,44	5,0	55	15	3	0,12	2	**151**	
1,5	1,5	1,44	7,5	55	15	3	0,12	2	**152**	
1,5	1,5	1,44	12,0	65	15	3	0,12	2		**153**
P										
M										
K										
N									●	●
S										
H										
O										

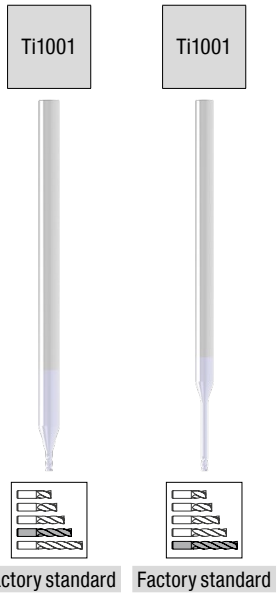
→ v_c/f_z Page 460–465

Continued on next page

End milling cutter







Factory standard | Factory standard

HA | HA

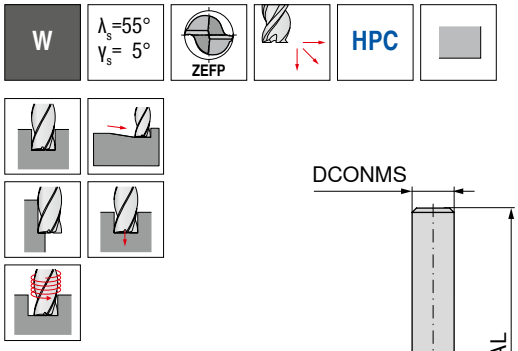
DC f8 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	CHW mm	ZEFP	50 900 ...	50 900 ...
1,5	1,5	1,44	15,0	65	15	3	0,12	2		**154**
1,6	1,6	1,52	5,0	55	15	3	0,12	2	**161**	
1,6	1,6	1,52	8,0	55	15	3	0,12	2	**162**	
1,6	1,6	1,52	13,0	65	15	3	0,12	2		**163**
1,6	1,6	1,52	16,0	65	15	3	0,12	2		**164**
1,8	1,8	1,72	5,5	55	15	3	0,12	2	**181**	
1,8	1,8	1,72	9,0	55	15	3	0,12	2	**182**	
1,8	1,8	1,72	14,5	65	15	3	0,12	2		**183**
1,8	1,8	1,72	18,0	65	15	3	0,12	2		**184**
2,0	2,0	1,92	6,0	55	15	3	0,13	2	**201**	
2,0	2,0	1,92	10,0	55	15	3	0,13	2	**202**	
2,0	2,0	1,92	14,0	55	15	3	0,13	2	**203**	
2,0	2,0	1,92	16,0	65	15	3	0,13	2		**204**
2,0	2,0	1,92	20,0	65	15	3	0,13	2		**205**
2,3	2,3	2,22	7,0	55	15	3	0,13	2	**231**	
2,3	2,3	2,22	11,5	55	15	3	0,13	2	**232**	
2,3	2,3	2,22	18,5	65	15	3	0,13	2		**233**
2,3	2,3	2,22	20,0	65	15	3	0,13	2		**234**
2,3	2,3	2,22	23,0	65	15	3	0,13	2		**235**
3,0	3,0	2,90	9,0	65	15	6	0,15	2	**301**	
3,0	3,0	2,90	15,0	65	15	6	0,15	2	**302**	
3,0	3,0	2,90	24,0	100	15	6	0,15	2		**303**
3,0	3,0	2,90	30,0	100	15	6	0,15	2		**304**
4,0	4,0	3,90	12,0	65	15	6	0,15	2	**401**	
4,0	4,0	3,90	20,0	65	15	6	0,15	2	**402**	
4,0	4,0	3,90	32,0	100	15	6	0,15	2		**403**
4,0	4,0	3,90	40,0	100	15	6	0,15	2		**404**
5,0	5,0	4,90	15,0	65	15	6	0,15	2	**501**	
5,0	5,0	4,90	25,0	65	15	6	0,15	2	**502**	
5,0	5,0	4,90	40,0	100	15	6	0,15	2		**503**
5,0	5,0	4,90	50,0	100	15	6	0,15	2		**504**
6,0	6,0	5,90	18,0	65	15	6	0,15	2	**601**	
6,0	6,0	5,90	30,0	100	15	6	0,15	2		**602**
6,0	6,0	5,90	48,0	100	15	6	0,15	2		**603**
6,0	6,0	5,90	60,0	100	15	6	0,15	2		**604**

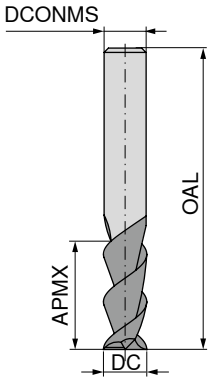
P		
M		
K		
N	●	●
S		
H		
O		

→ v_c/f_z Page 460–465

14

End milling cutter









≈DIN 6527

HA

50 960 ...

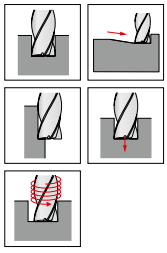
DC h6 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	
3	12	50	3	2	**030**
4	15	50	4	2	**040**
5	20	50	5	2	**050**
6	20	57	6	2	**060**
8	20	63	8	2	**080**
10	25	73	10	2	**100**
12	25	83	12	2	**120**
14	30	83	14	2	**140**
16	30	92	16	2	**160**
20	38	104	20	2	**200**

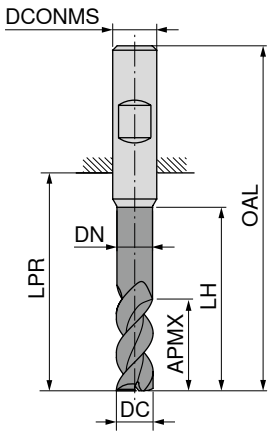
P	
M	
K	
N	●
S	
H	
O	

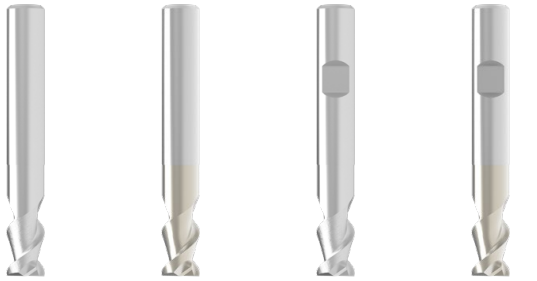
→ v_c/f_z Page 448+449

End milling cutter

W | λ_s=55° γ_s= 7° | ZEFP | HPC









	Factory standard	Factory standard	Factory standard	Factory standard
	HA	HA	HB	HB
	54 590 ...	54 592 ...	54 591 ...	54 593 ...

DC $_{h6}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h5}$ mm	ZEFP							
2,7	5,0	2,5	12	19	55	6	2	027		027		027		027	
3,0	3,5	2,8	12	19	55	6	2	033		033					
3,0	5,0	2,8	12	19	55	6	2	031		031		031		031	
3,7	6,5	3,5	12	19	55	6	2	037		037		037		037	
4,0	4,5	3,8	12	19	55	6	2	043		043					
4,0	6,5	3,8	12	19	55	6	2	041		041		041		041	
4,7	8,0	4,5	15	22	58	6	2	047		047		047		047	
5,0	5,5	4,8	15	22	58	6	2	053		053					
5,0	8,0	4,8	15	22	58	6	2	051		051		051		051	
5,7	10,0	5,5	18	22	58	6	2	057		057		057		057	
6,0	7,0	5,8	18	22	58	6	2	063		063					
6,0	10,0	5,8	18	22	58	6	2	061		061		061		061	
6,7	13,0	6,4	24	28	64	8	2	067		067		067		067	
7,0	13,0	6,7	24	28	64	8	2	071		071		071		071	
7,7	13,0	7,4	24	28	64	8	2	077		077		077		077	
8,0	9,0	7,7	24	28	64	8	2	083		083					
8,0	13,0	7,7	24	28	64	8	2	081		081		081		081	
8,7	16,0	8,4	30	34	74	10	2	087		087		087		087	
9,0	16,0	8,7	30	34	74	10	2	091		091		091		091	
9,7	16,0	9,4	30	34	74	10	2	097		097		097		097	
10,0	11,0	9,7	30	34	74	10	2	103		103					
10,0	16,0	9,7	30	34	74	10	2	101		101		101		101	
10,7	19,0	10,3	36	40	85	12	2	107		107		107		107	
11,0	19,0	10,6	36	40	85	12	2	111		111		111		111	
11,7	19,0	11,3	36	40	85	12	2	117		117		117		117	
12,0	13,0	11,6	36	40	85	12	2	123		123					
12,0	19,0	11,6	36	40	85	12	2	121		121		121		121	
13,0	22,0	12,6	42	46	91	14	2	131		131		131		131	
13,7	22,0	13,3	42	46	91	14	2	137		137		137		137	
14,0	15,0	13,6	42	46	91	14	2	143		143					
14,0	22,0	13,6	42	46	91	14	2	141		141		141		141	
15,0	25,0	14,5	48	52	100	16	2	151		151		151		151	
15,7	25,0	15,2	48	52	100	16	2	157		157		157		157	
16,0	17,0	15,5	48	52	100	16	2	163		163					
16,0	25,0	15,5	48	52	100	16	2	161		161		161		161	
18,0	20,0	17,5	54	58	106	18	2	183		183					
18,0	29,0	17,5	54	58	106	18	2	181		181		181		181	
19,7	32,0	19,2	60	64	114	20	2	197		197		197		197	
20,0	22,0	19,5	60	64	114	20	2	203		203					
20,0	32,0	19,5	60	64	114	20	2	201		201		201		201	
24,7	40,0	24,2	75	80	136	25	2	247		247		247		247	
25,0	27,0	24,5	75	80	136	25	2	253		253					
25,0	40,0	24,5	75	80	136	25	2	251		251		251		251	

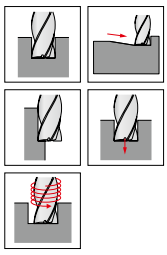
P				
M				
K				
N	●	●	●	●
S				
H				
O				

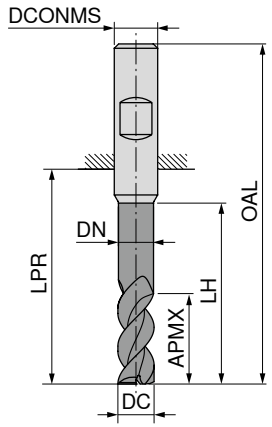
→ v_c/f_z Page 448+449

14

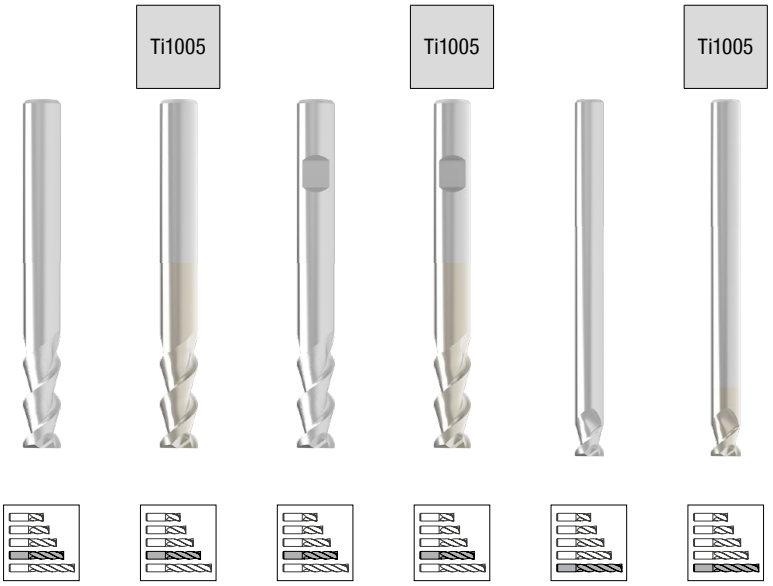
End milling cutter

W | λ_s=55° γ_s= 7° | ZEFP | HPC





LPR with Shank DIN 6535 HB



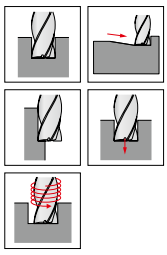
								Factory standard	Factory standard	Factory standard	Factory standard	Factory standard	Factory standard
								HA	HA	HB	HB	HA	HA
								54 590 ...	54 592 ...	54 591 ...	54 593 ...	54 590 ...	54 592 ...
DC $_{h6}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h5}$ mm	ZEFP						
2,7	8,0	2,5	15	22	58	6	2	028	028	028	028		
3,0	3,5	2,8	15	22	58	6	2	034	034				
3,0	8,0	2,8	15	22	58	6	2	032	032	032	032		
3,0	3,5	2,8	24	31	67	6	2					035	035
3,7	10,5	3,5	20	26	62	6	2	038	038	038	038		
4,0	4,5	3,8	20	26	62	6	2	044	044				
4,0	10,5	3,8	20	26	62	6	2	042	042	042	042		
4,0	4,5	3,8	32	38	74	6	2					045	045
4,7	13,0	4,5	25	34	70	6	2	048	048	048	048		
5,0	5,5	4,8	25	34	70	6	2	054	054				
5,0	13,0	4,8	25	34	70	6	2	052	052	052	052		
5,0	5,5	4,8	40	52	88	6	2					055	055
5,7	16,0	5,5	30	34	70	6	2	058	058	058	058		
6,0	7,0	5,8	30	34	70	6	2	064	064				
6,0	16,0	5,8	30	34	70	6	2	062	062	062	062		
6,0	7,0	5,8	48	52	88	6	2					065	065
6,7	21,0	6,4	40	44	80	8	2	068	068	068	068		
7,0	21,0	6,7	40	44	80	8	2	072	072	072	072		
7,7	21,0	7,4	40	44	80	8	2	078	078	078	078		
8,0	9,0	7,7	40	44	80	8	2	084	084				
8,0	21,0	7,7	40	44	80	8	2	082	082	082	082		
8,0	9,0	7,7	64	68	104	8	2					085	085
8,7	26,0	8,4	50	54	94	10	2	088	088	088	088		
9,0	26,0	8,7	50	54	94	10	2	092	092	092	092		
9,7	26,0	9,4	50	54	94	10	2	098	098	098	098		
10,0	11,0	9,7	50	54	94	10	2	104	104				
10,0	26,0	9,7	50	54	94	10	2	102	102	102	102		
10,0	11,0	9,7	80	84	124	10	2					105	105
10,7	31,0	10,3	60	64	109	12	2	108	108	108	108		
11,0	31,0	10,6	60	64	109	12	2	112	112	112	112		
11,7	31,0	11,3	60	64	109	12	2	118	118	118	118		
12,0	13,0	11,6	60	64	109	12	2	124	124				
12,0	31,0	11,6	60	64	109	12	2	122	122	122	122		
12,0	13,0	11,6	96	100	145	12	2					125	125
13,0	36,0	12,6	70	74	119	14	2	132	132	132	132		
13,7	36,0	13,3	70	74	119	14	2	138	138	138	138		
14,0	15,0	13,6	70	74	119	14	2	144	144				
14,0	36,0	13,6	70	74	119	14	2	142	142	142	142		
14,0	15,0	13,6	112	116	161	14	2					145	145
15,0	41,0	14,5	80	84	132	16	2	152	152	152	152		
P													
M													
K													
N								●	●	●	●	●	●
S													
H													
O													

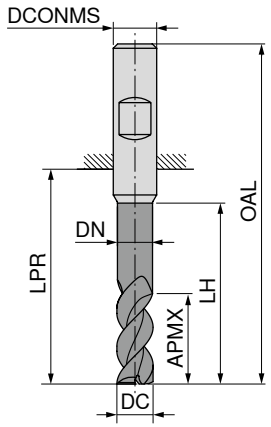
→ v_c/f_z Page 448+449

Continued on next page

End milling cutter

W | λ_s=55° γ_s= 7° | ZEFP | HPC





LPR with Shank DIN 6535 HB



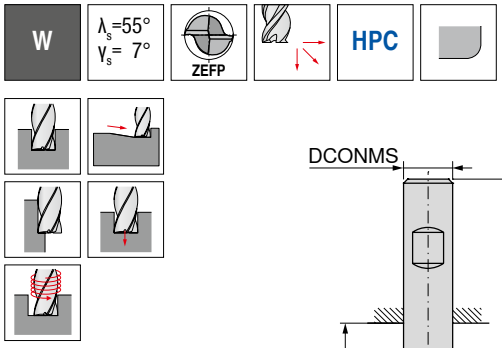


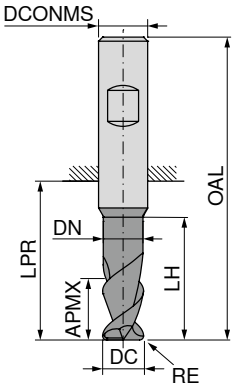
								Factory standard		Factory standard		Factory standard		Factory standard		Factory standard	
								HA		HA		HB		HB		HA		HA	
								54 590 ...		54 592 ...		54 591 ...		54 593 ...		54 590 ...		54 592 ...	
DC $_{h6}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h5}$ mm	ZEFP												
15,7	41,0	15,2	80	84	132	16	2		**158**		**158**		**158**		**158**				
16,0	17,0	15,5	80	84	132	16	2		**164**		**164**								
16,0	41,0	15,5	80	84	132	16	2		**162**		**162**		**162**		**162**				
16,0	17,0	15,5	128	132	180	16	2										**165**		**165**
18,0	20,0	17,5	90	94	142	18	2		**184**		**184**								
18,0	47,0	17,5	90	94	142	18	2		**182**		**182**		**182**		**182**				
18,0	20,0	17,5	144	148	196	18	2										**185**		**185**
19,7	52,0	19,2	100	104	154	20	2		**198**		**198**		**198**		**198**				
20,0	22,0	19,5	100	104	154	20	2		**204**		**204**								
20,0	52,0	19,5	100	104	154	20	2		**202**		**202**		**202**		**202**				
20,0	22,0	19,5	160	164	214	20	2										**205**		**205**
24,7	65,0	24,2	125	130	186	25	2		**248**		**248**		**248**		**248**				
25,0	27,0	24,5	125	130	186	25	2		**254**		**254**								
25,0	65,0	24,5	125	130	186	25	2		**252**		**252**		**252**		**252**				
25,0	27,0	24,5	200	204	260	25	2										**255**		**255**
P																			
M																			
K																			
N									●		●		●		●		●		●
S																			
H																			
O																			

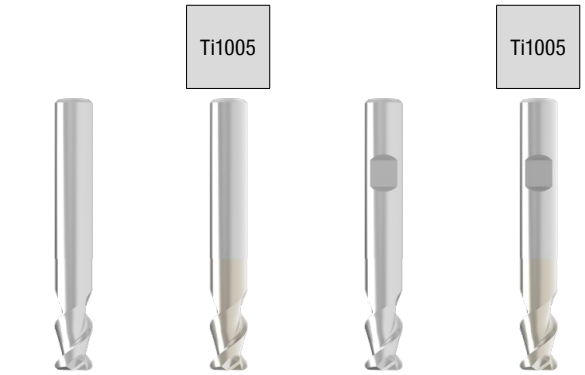
→ v_c/f_z Page 448+449

14

End milling cutter with corner radius





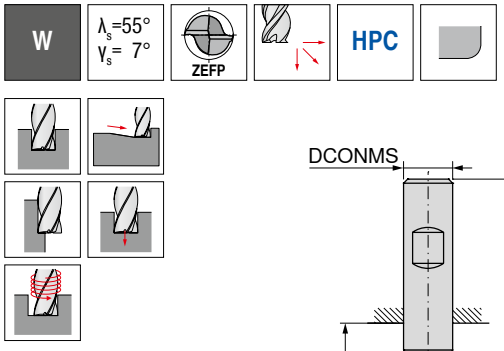


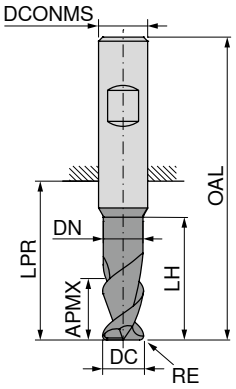


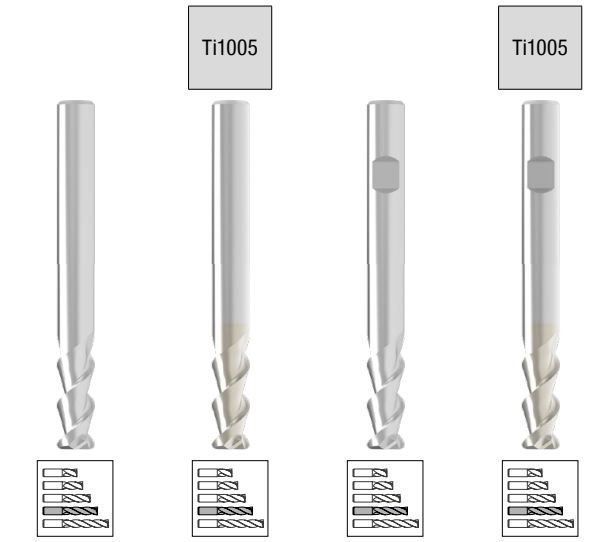
									Factory standard	Factory standard	Factory standard	Factory standard
									HA	HA	HB	HB
									54 594 ...	54 596 ...	54 595 ...	54 597 ...
DC h6 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP				
3	0,2	5,0	2,8	12	19	55	6	2	031	031	031	031
3	0,3	5,0	2,8	12	19	55	6	2	033	033	033	033
3	0,5	5,0	2,8	12	19	55	6	2	035	035	035	035
4	0,3	6,5	3,8	12	19	55	6	2	041	041	041	041
4	0,5	6,5	3,8	12	19	55	6	2	043	043	043	043
4	1,0	6,5	3,8	12	19	55	6	2	045	045	045	045
5	0,3	8,0	4,8	15	22	58	6	2	051	051	051	051
5	0,5	8,0	4,8	15	22	58	6	2	053	053	053	053
5	1,0	8,0	4,8	15	22	58	6	2	055	055	055	055
6	0,3	10,0	5,8	18	22	58	6	2	061	061	061	061
6	0,5	10,0	5,8	18	22	58	6	2	063	063	063	063
6	1,0	10,0	5,8	18	22	58	6	2	065	065	065	065
8	0,3	13,0	7,7	24	28	64	8	2	081	081	081	081
8	0,5	13,0	7,7	24	28	64	8	2	083	083	083	083
8	1,0	13,0	7,7	24	28	64	8	2	085	085	085	085
10	0,3	16,0	9,7	30	34	74	10	2	101	101	101	101
10	1,0	16,0	9,7	30	34	74	10	2	103	103	103	103
10	1,5	16,0	9,7	30	34	74	10	2	105	105	105	105
12	1,0	19,0	11,6	36	40	85	12	2	121	121	121	121
12	1,5	19,0	11,6	36	40	85	12	2	123	123	123	123
12	2,0	19,0	11,6	36	40	85	12	2	125	125	125	125
16	2,0	25,0	15,5	48	52	100	16	2	161	161	161	161
16	2,5	25,0	15,5	48	52	100	16	2	163	163	163	163
16	3,0	25,0	15,5	48	52	100	16	2	165	165	165	165
20	2,0	32,0	19,5	60	64	114	20	2	201	201	201	201
20	2,5	32,0	19,5	60	64	114	20	2	203	203	203	203
20	3,0	32,0	19,5	60	64	114	20	2	205	205	205	205
20	4,0	32,0	19,5	60	64	114	20	2	206	206	206	206
25	2,0	40,0	24,5	75	80	136	25	2	251	251	251	251
25	4,0	40,0	24,5	75	80	136	25	2	253	253	253	253
P												
M												
K												
N									●	●	●	●
S												
H												
O												

→ v_c/f_z Page 448+449

End milling cutter with corner radius





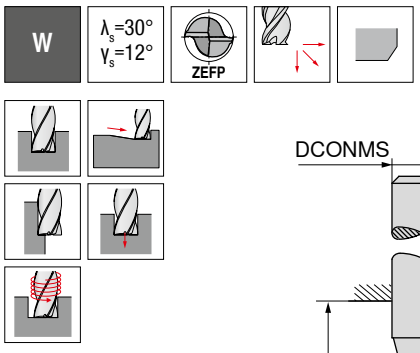


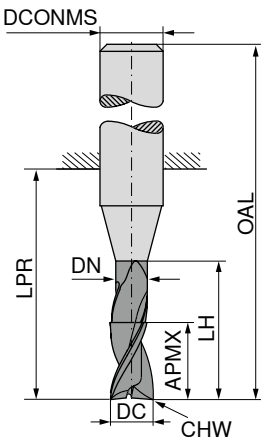
DC h6 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	Factory standard HA 54 594 ...	Factory standard HA 54 596 ...	Factory standard HB 54 595 ...	Factory standard HB 54 597 ...
3	0,2	8,0	2,8	15	22	58	6	2	032	032	032	032
3	0,3	8,0	2,8	15	22	58	6	2	034	034	034	034
3	0,5	8,0	2,8	15	22	58	6	2	036	036	036	036
4	0,3	10,5	3,8	20	26	62	6	2	042	042	042	042
4	0,5	10,5	3,8	20	26	62	6	2	044	044	044	044
4	1,0	10,5	3,8	20	26	62	6	2	046	046	046	046
5	0,3	13,0	4,8	25	34	70	6	2	052	052	052	052
5	0,5	13,0	4,8	25	34	70	6	2	054	054	054	054
5	1,0	13,0	4,8	25	34	70	6	2	056	056	056	056
6	0,3	16,0	5,8	30	34	70	6	2	062	062	062	062
6	0,5	16,0	5,8	30	34	70	6	2	064	064	064	064
6	1,0	16,0	5,8	30	34	70	6	2	066	066	066	066
8	0,3	21,0	7,7	40	44	80	8	2	082	082	082	082
8	0,5	21,0	7,7	40	44	80	8	2	084	084	084	084
8	1,0	21,0	7,7	40	44	80	8	2	086	086	086	086
10	0,5	26,0	9,7	50	54	94	10	2	102	102	102	102
10	1,0	26,0	9,7	50	54	94	10	2	104	104	104	104
10	1,5	26,0	9,7	50	54	94	10	2	106	106	106	106
12	1,0	31,0	11,6	60	64	109	12	2	122	122	122	122
12	1,5	31,0	11,6	60	64	109	12	2	124	124	124	124
12	2,0	31,0	11,6	60	64	109	12	2	126	126	126	126
16	2,0	41,0	15,5	80	84	132	16	2	162	162	162	162
16	2,5	41,0	15,5	80	84	132	16	2	164	164	164	164
16	4,0	41,0	15,5	80	84	132	16	2	166	166	166	166
20	2,0	52,0	19,5	100	104	154	20	2	202	202	202	202
20	2,5	52,0	19,5	100	104	154	20	2	204	204	204	204
20	4,0	52,0	19,5	100	104	154	20	2	207	207	207	207
25	2,0	65,0	24,5	125	130	186	25	2	252	252	252	252
25	4,0	65,0	24,5	125	130	186	25	2	254	254	254	254
P												
M												
K												
N									●	●	●	●
S												
H												
O												

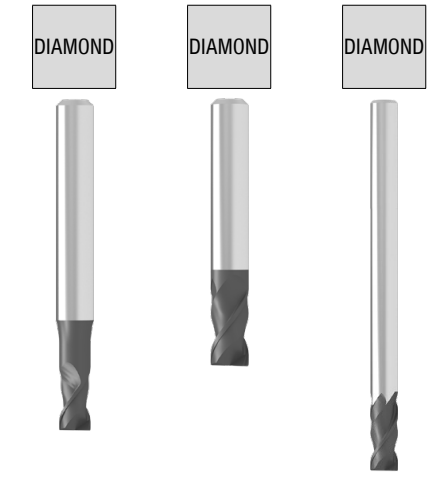
→ v_c/f_z Page 448+449

14

Slot milling cutter





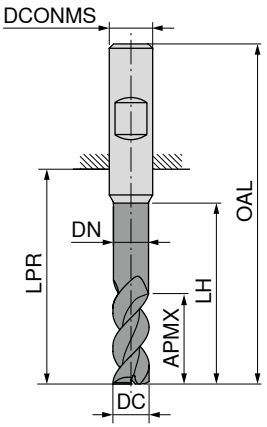


										DIN 6527	DIN 6527	Factory standard
										HA	HA	HA
										52 760 ...	**52 761 ...**	**52 762 ...**
DC mm	Tol.	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	CHW mm	ZEFP			
2	e8	3			14	50	6	0,04	2	**020**		
2	h10	8	1,8	31	32	60	2	0,04	2			**020**
3	e8	4			14	50	6	0,07	2	**030**		
3	h10	12	2,8	41	42	70	3	0,07	2			**030**
4	e8	5			18	54	6	0,07	2	**040**		
4	h10	15	3,8	51	52	80	4	0,07	2			**040**
5	e8	6			18	54	6	0,12	2	**050**		
5	h10	20	4,8	71	72	100	5	0,12	2			**050**
6	e8	10			21	57	6	0,12	2		**060**	
6	h10	20	5,8	63	64	100	6	0,12	2			**060**
8	e8	16			27	63	8	0,12	2		**080**	
8	h10	20	7,8	83	84	120	8	0,12	2			**080**
10	e8	19			32	72	10	0,20	2		**100**	
10	h10	25	9,8	99	100	140	10	0,20	2			**100**
12	e8	22			38	83	12	0,20	2		**120**	
12	h10	25	11,8	104	105	150	12	0,20	2			**120**
P												
M												
K												
N										●	●	●
S												
H												
O										●	●	●

→ v_c/f_z Page 458

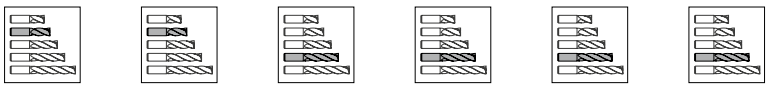
End milling cutter

W | λ_s=45° γ_s= 7° | ZEFP | HPC



LPR with Shank DIN 6535 HB





								Factory standard	Factory standard	Factory standard	Factory standard	Factory standard	Factory standard
								HA	HA	HA	HA	HB	HB
								54 610 ...	54 612 ...	54 610 ...	54 612 ...	54 611 ...	54 613 ...
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP						
3	3,5	2,8	12	19	55	6	3	033	033				
3	3,5	2,8	15	22	58	6	3			034	034		
3	8,0	2,8	15	22	58	6	3			032	032	032	032
4	4,5	3,8	12	19	55	6	3	043	043				
4	4,5	3,8	20	26	62	6	3			044	044		
4	10,5	3,8	20	26	62	6	3			042	042	042	042
5	5,5	4,8	15	22	58	6	3	053	053				
5	5,5	4,8	25	34	70	6	3			054	054		
5	13,0	4,8	25	34	70	6	3			052	052	052	052
6	7,0	5,8	18	22	58	6	3	063	063				
6	7,0	5,8	30	34	70	6	3			064	064		
6	16,0	5,8	30	34	70	6	3			062	062	062	062
7	21,0	6,7	40	44	80	8	3			072	072	072	072
8	9,0	7,7	24	28	64	8	3	083	083				
8	9,0	7,7	40	44	80	8	3			084	084		
8	21,0	7,7	40	44	80	8	3			082	082	082	082
9	26,0	8,7	50	54	94	10	3			092	092	092	092
10	11,0	9,7	30	34	74	10	3	103	103				
10	11,0	9,7	50	54	94	10	3			104	104		
10	26,0	9,7	50	54	94	10	3			102	102	102	102
11	31,0	10,6	60	64	109	12	3			112	112	112	112
12	13,0	11,6	36	40	85	12	3	123	123				
12	13,0	11,6	60	64	109	12	3			124	124		
12	31,0	11,6	60	64	109	12	3			122	122	122	122
13	36,0	12,6	70	74	119	14	3			132	132	132	132
14	15,0	13,6	42	46	91	14	3	143	143				
14	15,0	13,6	70	74	119	14	3			144	144		
14	36,0	13,6	70	74	119	14	3			142	142	142	142
15	17,0	14,5	48	52	100	16	3	153	153				
15	17,0	14,5	80	84	132	16	3			154	154		
15	41,0	14,5	80	84	132	16	3			152	152	152	152
16	17,0	15,5	48	52	100	16	3	163	163				
16	17,0	15,5	80	84	132	16	3			164	164		
16	41,0	15,5	80	84	132	16	3			162	162	162	162
18	20,0	17,5	54	58	106	18	3	183	183				
18	20,0	17,5	90	94	142	18	3			184	184		
18	47,0	17,5	90	94	142	18	3			182	182	182	182
20	22,0	19,5	60	64	114	20	3	203	203				
20	22,0	19,5	100	104	154	20	3			204	204		
20	52,0	19,5	100	104	154	20	3			202	202	202	202
25	27,0	24,5	75	80	136	25	3	253	253				
25	27,0	24,5	125	130	186	25	3			254	254		

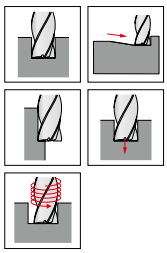
P						
M						
K						
N	●	●	●	●	●	●
S						
H						
O						

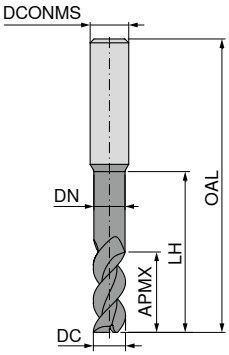
→ v_c/f_z Page 448+449

14

End milling cutter

W | λ_s=45° γ_s= 7° | ZEFP | HPC | Ti1005







Factory standard | Factory standard

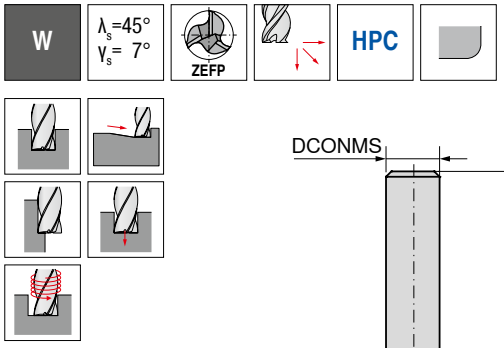
HA | HA

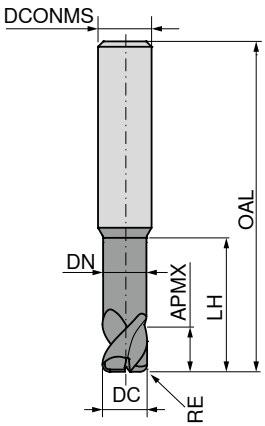
DC $_{h6}$ mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS $_{h5}$ mm	ZEFP	54 610 ...		54 612 ...	
3	3,5	2,8	24	67	6	3	**035**		**035**	
4	4,5	3,8	32	74	6	3	**045**		**045**	
5	5,5	4,8	40	88	6	3	**055**		**055**	
6	7,0	5,8	48	88	6	3	**065**		**065**	
8	9,0	7,7	64	104	8	3	**085**		**085**	
10	11,0	9,7	80	124	10	3	**105**		**105**	
12	13,0	11,6	96	145	12	3	**125**		**125**	
14	15,0	13,6	112	161	14	3	**145**		**145**	
16	17,0	15,5	128	180	16	3	**165**		**165**	
18	20,0	17,5	144	196	18	3	**185**		**185**	
20	22,0	19,5	160	214	20	3	**205**		**205**	

P		
M		
K		
N	●	●
S		
H		
O		

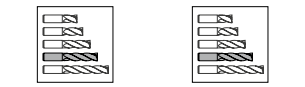
→ v_c/f_z Page 448+449

End milling cutter with corner radius









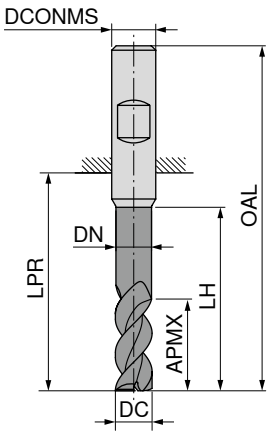
DC h6 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h5 mm	ZEFP	54 620 ...		54 622 ...	
3	0,4	3,5	2,8	12	55	6	3	034		034	
3	0,6	3,5	2,8	12	55	6	3	035		035	
4	0,4	4,5	3,8	12	55	6	3	044		044	
4	0,6	4,5	3,8	12	55	6	3	046		046	
5	0,4	5,5	4,8	15	58	6	3	054		054	
5	0,6	5,5	4,8	15	58	6	3	056		056	
6	0,4	7,0	5,8	18	58	6	3	064		064	
6	0,6	7,0	5,8	18	58	6	3	066		066	
8	0,4	9,0	7,7	24	64	8	3	084		084	
8	0,6	9,0	7,7	24	64	8	3	086		086	
8	0,8	9,0	7,7	24	64	8	3	087		087	
10	1,6	11,0	9,7	30	74	10	3	103		103	
12	2,0	13,0	11,6	36	85	12	3	124		124	
14	0,6	15,0	13,6	42	91	14	3	146		146	
14	0,8	15,0	13,6	42	91	14	3	147		147	
16	1,6	17,0	15,5	48	100	16	3	163		163	
16	3,2	17,0	15,5	48	100	16	3	167		167	
18	1,6	20,0	17,5	54	106	18	3	183		183	
20	3,2	22,0	19,5	60	114	20	3	207		207	
20	5,0	22,0	19,5	60	114	20	3	209		209	
P											
M											
K											
N									●		●
S											
H											
O											

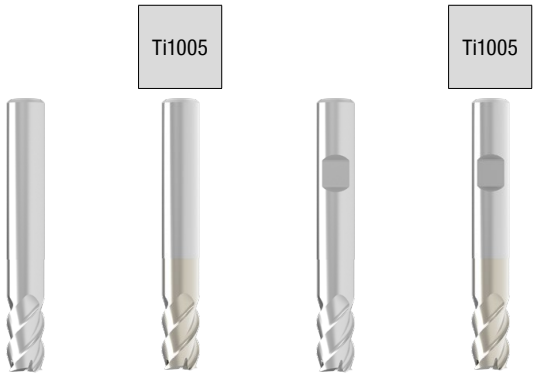
→ v_c/f_z Page 448+449

14

End milling cutter

W | λ_s=45° γ_s= 7° | ZEFP | HPC



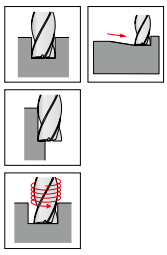


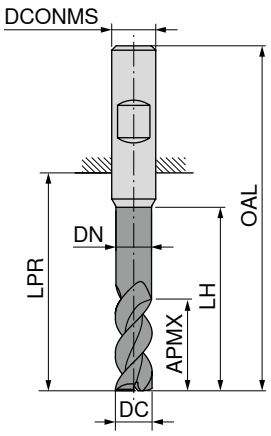
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	Factory standard HA 54 630 ...	Factory standard HA 54 632 ...	Factory standard HB 54 631 ...	Factory standard HB 54 633 ...
6	10	5,8	18	22	58	6	4	**061**	**061**	**061**	**061**
7	13	6,7	24	28	64	8	4	**071**	**071**	**071**	**071**
8	13	7,7	24	28	64	8	4	**081**	**081**	**081**	**081**
9	16	8,7	30	34	74	10	4	**091**	**091**	**091**	**091**
10	16	9,7	30	34	74	10	4	**101**	**101**	**101**	**101**
11	19	10,6	36	40	85	12	4	**111**	**111**	**111**	**111**
12	19	11,6	36	40	85	12	4	**121**	**121**	**121**	**121**
13	22	12,6	42	46	91	14	4	**131**	**131**	**131**	**131**
14	22	13,6	42	46	91	14	4	**141**	**141**	**141**	**141**
15	25	14,5	48	52	100	16	4	**151**	**151**	**151**	**151**
16	25	15,5	48	52	100	16	4	**161**	**161**	**161**	**161**
18	29	17,5	54	58	106	18	4	**181**	**181**	**181**	**181**
20	32	19,5	60	64	114	20	4	**201**	**201**	**201**	**201**
P											
M											
K											
N								●	●	●	●
S											
H											
O											

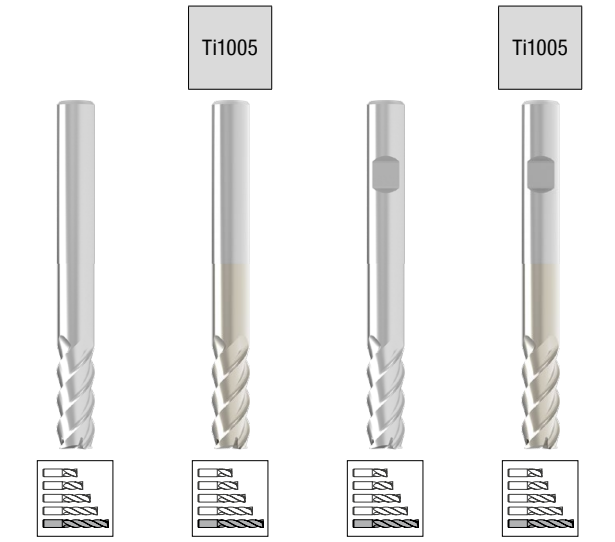
→ v_c/f_z Page 448+449

End milling cutter

W | λ_s=45° γ_s= 7° | ZEFP | HPC







								Factory standard	Factory standard	Factory standard	Factory standard
								HA	HA	HB	HB
								54 630 ...	54 632 ...	54 631 ...	54 633 ...
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP				
6	16	5,8	30	34	70	6	4	062	062	062	062
7	21	6,7	40	44	80	8	4	072	072	072	072
8	21	7,7	40	44	80	8	4	082	082	082	082
9	26	8,7	50	54	94	10	4	092	092	092	092
10	26	9,7	50	54	94	10	4	102	102	102	102
11	31	10,6	60	64	109	12	4	112	112	112	112
12	31	11,6	60	64	109	12	4	122	122	122	122
13	36	12,6	70	74	119	14	4	132	132	132	132
14	36	13,6	70	74	119	14	4	142	142	142	142
15	41	14,5	80	84	132	16	4	152	152	152	152
16	41	15,5	80	84	132	16	4	162	162	162	162
18	47	17,5	90	94	142	18	4	182	182	182	182
20	52	19,5	100	104	154	20	4	202	202	202	202

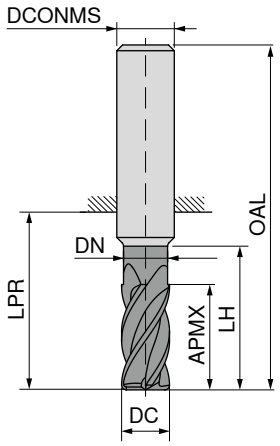
P				
M				
K				
N	●	●	●	●
S				
H				
O				

→ v_c/f_z Page 448+449

14

End milling cutter

W | λ_s=38° γ_s=17° | ZEFP | HPC | Ti1005





Factory standard | Factory standard

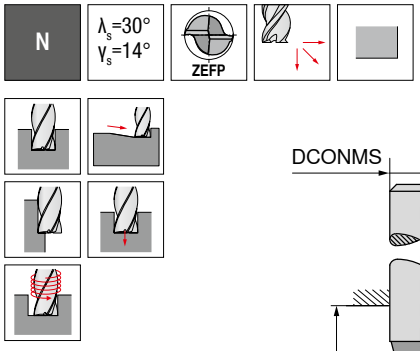
HA | HA

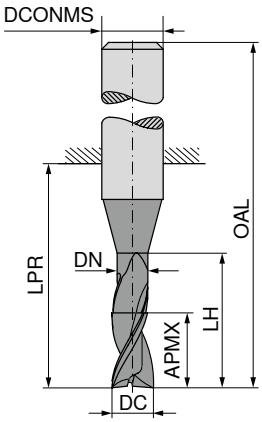
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	54 650 ...		54 652 ...	
6	19	5,8	30	34	70	6	5	**062**			**062**
8	25	7,7	40	44	80	8	5	**082**			**082**
10	31	9,7	50	54	94	10	5	**102**			**102**
12	37	11,6	60	64	109	12	5	**122**			**122**
14	43	13,6	70	74	119	14	5	**142**			**142**
16	49	15,5	80	84	132	16	7	**162**			**162**
18	56	17,5	90	94	142	18	7	**182**			**182**
20	62	19,5	100	104	154	20	7	**202**			**202**

P		
M		
K		
N	●	●
S		
H		
O		

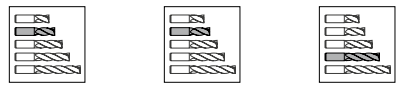
→ v_c/f_z Page 448+449

End milling cutter









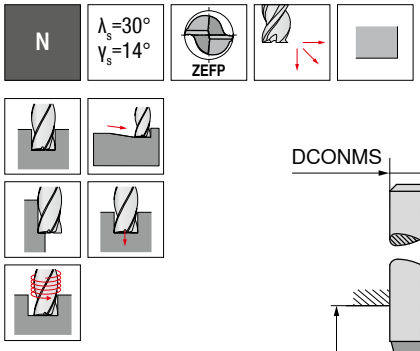
								Factory standard		Factory standard		Factory standard
								HA		HB		HB
								52 942 ...		52 941 ...		52 948 ...
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP					
0,20	0,4			10	38	3	2	92000				
0,25	0,5			10	38	3	2	92500				
0,30	1,0			10	38	3	2	93000				
0,35	1,0			10	38	3	2	93500				
0,40	1,0			10	38	3	2	94000				
0,50	1,5			10	38	3	2	95000				
0,60	1,5			10	38	3	2	96000				
0,70	2,0			10	38	3	2	97000				
0,80	2,0			10	38	3	2	98000				
0,90	2,5			10	38	3	2	99000				
1,00	3,0			10	38	3	2	31000				
1,00	4,0	0,90	6	22	58	6	2					01000
1,10	3,0			10	38	3	2	31100				
1,20	4,0			10	38	3	2	31200				
1,30	4,0			10	38	3	2	31300				
1,40	4,0			10	38	3	2	31400				
1,50	3,0	1,40	6	18	54	6	2	01500		01500		
1,50	4,0			10	38	3	2	31500				
1,50	6,0	1,40	8	22	58	6	2					01500
1,60	4,0			10	38	3	2	31600				
1,80	5,0			10	38	3	2	31800				
2,00	4,0	1,90	8	18	54	6	2	02000		02000		
2,00	7,0	1,90	10	22	58	6	2					02000
2,50	4,0	2,40	8	18	54	6	2			02500		
2,50	6,0			10	38	3	2	32500				
2,80	4,0	2,70	9	18	54	6	2	02800		02800		
2,80	7,0	2,70	12	22	58	6	2					02800
3,00	6,0	2,90	9	18	54	6	2	03000		03000		
3,00	10,0	2,90	14	22	58	6	2					03000
3,50	6,0	3,30	9	18	54	6	2			03500		
3,80	7,0	3,60	12	18	54	6	2	03800		03800		
3,80	10,0	3,60	18	22	58	6	2					03800
4,00	7,0	3,80	12	18	54	6	2	04000		04000		
4,00	13,0	3,80	18	22	58	6	2					04000
4,50	7,0	4,30	12	18	54	6	2			04500		
4,80	8,0	4,60	16	18	54	6	2	04800		04800		
4,80	13,0	4,60	18	22	58	6	2					04800
5,00	8,0	4,80	16	18	54	6	2	05000		05000		
5,00	15,0	4,80	18	22	58	6	2					05000
5,50	8,0	5,30	16	18	54	6	2			05500		
5,75	10,0	5,55	16	18	54	6	2	05700		05700		
P								●		●		●
M								○		○		○
K								●		●		●
N								○		○		○
S								○		○		○
H												
O								○		○		○

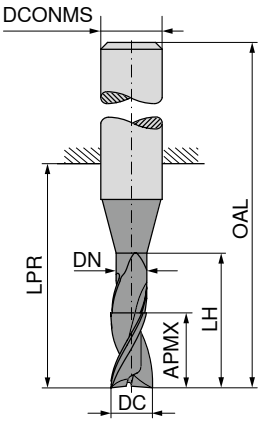
→ v_c/f_z Page 460–463

14

Continued on next page

End milling cutter





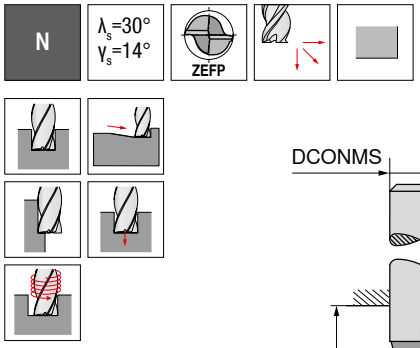


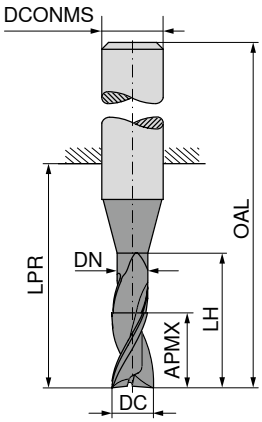
								Factory standard HA	Factory standard HB	Factory standard HB
								52 942 ...	52 941 ...	52 948 ...
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP			
5,75	15,0	5,55	18	22	58	6	2			05700
6,00	10,0	5,80	16	18	54	6	2	06000	06000	
6,00	16,0	5,80	20	22	58	6	2			06000
6,75	10,0	6,45	16	23	59	8	2	06700	06700	
6,75	16,0	6,45	23	34	70	8	2			06700
7,00	12,0	6,70	18	23	59	8	2		07000	
7,00	16,0	6,70	23	34	70	8	2			07000
7,75	12,0	7,45	18	23	59	8	2	07700	07700	
7,75	16,0	7,45	23	34	70	8	2			07700
8,00	12,0	7,70	20	23	59	8	2	08000	08000	
8,00	22,0	7,70	25	34	70	8	2			08000
8,70	12,0	8,40	12	27	67	10	2	08700	08700	
9,70	13,0	9,40	13	27	67	10	2	09700	09700	
9,70	22,0	9,40	22	33	73	10	2			09700
10,00	13,0	9,70	13	27	67	10	2	10000	10000	
10,00	25,0	9,70	25	33	73	10	2			10000
11,00	25,0	10,60	25	39	84	12	2			11000
12,00	16,0	11,60	16	28	73	12	2	12000	12000	
12,00	26,0	11,60	26	39	84	12	2			12000
13,70	16,0	13,30	26	30	75	14	2	13700	13700	
13,70	26,0	13,30	35	39	84	14	2			13700
14,00	16,0	13,60	28	30	75	14	2	14000	14000	
14,00	26,0	13,60	35	39	84	14	2			14000
16,00	20,0	15,50	32	35	83	16	2	16000	16000	
16,00	30,0	15,50	40	45	93	16	2			16000
20,00	25,0	19,50	40	43	93	20	2	20000	20000	
20,00	40,0	19,50	50	54	104	20	2			20000

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

→ v_c/f_z Page 460–463

End milling cutter









DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 943 ...		52 944 ...		52 947 ...		52 949 ...	
0,20	0,4			10	38	3	2	**92000**							
0,25	0,5			10	38	3	2	**92500**							
0,30	1,0			10	38	3	2	**93000**							
0,35	1,0			10	38	3	2	**93500**							
0,40	1,0			10	38	3	2	**94000**							
0,50	1,5			10	38	3	2	**95000**							
0,60	1,5			10	38	3	2	**96000**							
0,70	2,0			10	38	3	2	**97000**							
0,80	2,0			10	38	3	2	**98000**							
0,90	2,5			10	38	3	2	**99000**							
1,00	3,0			10	38	3	2	**31000**							
1,00	4,0	0,90	6	22	58	6	2					**01000**		**01000**	
1,10	3,0			10	38	3	2	**31100**							
1,20	4,0			10	38	3	2	**31200**							
1,30	4,0			10	38	3	2	**31300**							
1,40	4,0			10	38	3	2	**31400**							
1,50	4,0			10	38	3	2	**31500**							
1,50	3,0	1,40	6	18	54	6	2	**01500**		**01500**					
1,50	6,0	1,40	8	22	58	6	2					**01500**		**01500**	
1,60	4,0			10	38	3	2	**31600**							
1,80	5,0			10	38	3	2	**31800**							
2,00	4,0	1,90	8	18	54	6	2	**02000**		**02000**					
2,00	5,0			10	38	3	2	**32000**							
2,00	7,0	1,90	10	22	58	6	2					**02000**		**02000**	
2,50	4,0	2,40	8	18	54	6	2	**02500**		**02500**					
2,50	6,0			10	38	3	2	**32500**							
2,80	4,0	2,70	9	18	54	6	2	**02800**		**02800**					
2,80	7,0	2,70	12	22	58	6	2					**02800**		**02800**	
3,00	6,0	2,90	9	18	54	6	2	**03000**		**03000**					
3,00	6,0			10	38	3	2	**33000**							
3,00	10,0	2,90	14	22	58	6	2					**03000**		**03000**	
3,50	6,0	3,30	9	18	54	6	2	**03500**		**03500**					
3,80	7,0	3,60	12	18	54	6	2	**03800**		**03800**					
3,80	10,0	3,60	18	22	58	6	2					**03800**		**03800**	
4,00	7,0	3,80	12	18	54	6	2	**04000**		**04000**					
4,00	13,0	3,80	18	22	58	6	2					**04000**		**04000**	
4,50	7,0	4,30	12	18	54	6	2	**04500**		**04500**					
4,80	8,0	4,60	16	18	54	6	2	**04800**		**04800**					

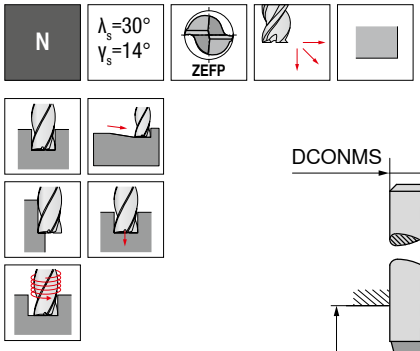
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H	○	○	○	○
O	○	○	○	○

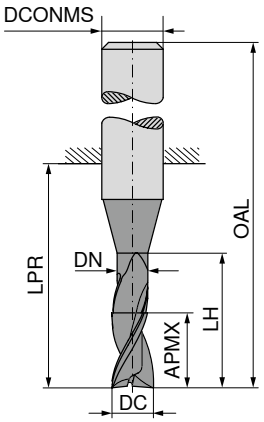
→ v_c/f_z Page 460–463

14

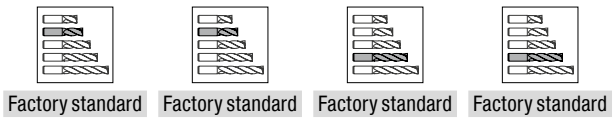
Continued on next page

End milling cutter





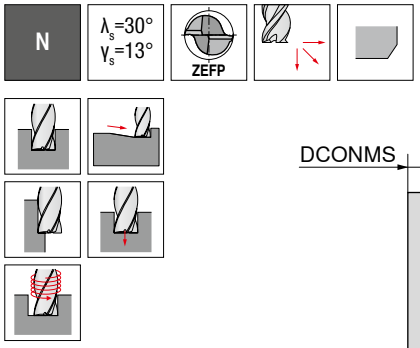


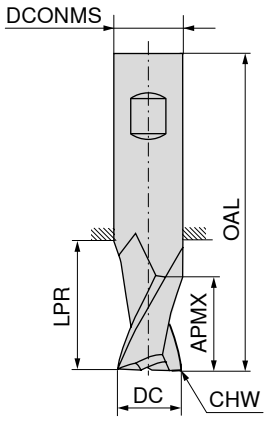


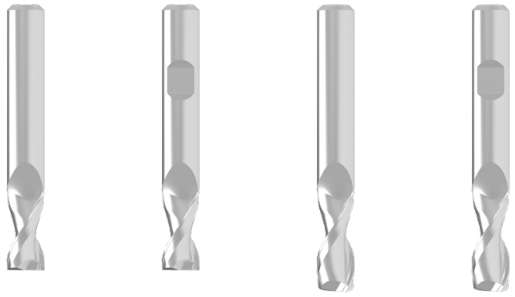
								Factory standard	Factory standard	Factory standard	Factory standard
								HA	HB	HA	HB
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 943 ...	52 944 ...	52 947 ...	52 949 ...
4,80	13,0	4,60	18	22	58	6	2			**04800**	**04800**
5,00	8,0	4,80	16	18	54	6	2	**05000**	**05000**		
5,00	15,0	4,80	18	22	58	6	2			**05000**	**05000**
5,50	8,0	5,30	16	18	54	6	2	**05500**	**05500**		
5,75	10,0	5,55	16	18	54	6	2	**05700**	**05700**		
5,75	15,0	5,55	18	22	58	6	2			**05700**	**05700**
6,00	16,0	5,80	20	22	58	6	2			**06000**	**06000**
6,00	10,0	5,80	16	18	54	6	2	**06000**	**06000**		
6,75	10,0	6,45	16	23	59	8	2		**06700**		
6,75	16,0	6,45	23	34	70	8	2			**06700**	**06700**
7,00	16,0	6,70	23	34	70	8	2			**07000**	**07000**
7,00	12,0	6,70	18	23	59	8	2	**07000**	**07000**		
7,75	12,0	7,45	18	23	59	8	2	**07700**	**07700**		
7,75	16,0	7,45	23	34	70	8	2			**07700**	**07700**
8,00	22,0	7,70	25	34	70	8	2			**08000**	**08000**
8,00	12,0	7,70	20	23	59	8	2	**08000**	**08000**		
8,70	12,0	8,40	12	27	67	10	2		**08700**		
9,00	13,0	8,70	13	27	67	10	2	**09000**	**09000**		
9,00	22,0	8,70	22	33	73	10	2			**09000**	**09000**
9,70	13,0	9,40	13	27	67	10	2	**09700**	**09700**		
9,70	22,0	9,40	22	33	73	10	2			**09700**	**09700**
10,00	25,0	9,70	25	33	73	10	2			**10000**	**10000**
10,00	13,0	9,70	13	27	67	10	2	**10000**	**10000**		
11,00	25,0	10,60	25	39	84	12	2			**11000**	**11000**
11,70	16,0	11,30	16	28	73	12	2	**11700**	**11700**		
12,00	16,0	11,60	16	28	73	12	2	**12000**	**12000**		
12,00	26,0	11,60	26	39	84	12	2			**12000**	**12000**
13,70	16,0	13,30	26	30	75	14	2		**13700**		
14,00	16,0	13,60	28	30	75	14	2	**14000**	**14000**		
16,00	20,0	15,50	32	35	83	16	2	**16000**	**16000**		
16,00	30,0	15,50	40	45	93	16	2			**16000**	**16000**
18,00	20,0	17,50	34	37	85	18	2	**18000**	**18000**		
20,00	25,0	19,50	40	43	93	20	2	**20000**	**20000**		
20,00	40,0	19,50	50	54	104	20	2			**20000**	**20000**
P								●	●	●	●
M								○	○	○	○
K								●	●	●	●
N								○	○	○	○
S								○	○	○	○
H								○	○	○	○
O								○	○	○	○

→ v_c/f_z Page 460–463

End milling cutter







	Factory standard	Factory standard	≈DIN 6527	≈DIN 6527
	HA	HB	HA	HB
	50 593 ...	50 593 ...	50 594 ...	50 594 ...

DC e8 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP					
0,25	0,5	10	38	3,0		2				925	
0,30	1,0	10	38	3,0		2				930	
0,35	1,0	10	38	3,0		2				935	
0,40	1,0	10	38	3,0		2				940	
0,50	1,5	10	38	3,0		2				950	
0,60	1,5	10	38	3,0		2				960	
0,70	2,0	10	38	3,0		2				970	
0,80	2,0	10	38	3,0		2				980	
0,90	2,5	10	38	3,0		2				990	
1,00	3,0	22	50	3,0		2				010	
1,10	3,0	22	50	3,0		2				011	
1,20	4,0	22	50	3,0		2				012	
1,40	4,0	22	50	3,0		2				014	
1,50	4,0	22	50	3,0		2				015	
1,60	4,0	22	50	3,0		2				016	
1,80	5,0	22	50	3,0		2				018	
2,00	5,0	22	50	3,0	0,07	2				020	
2,00	8,0	8	32	2,0	0,07	2	020				
2,50	6,0	22	50	3,0	0,07	2				025	
2,50	8,0	8	32	2,5	0,07	2	025				
2,80	8,0	21	57	6,0	0,07	2					028
3,00	8,0	21	57	6,0	0,15	2					030
3,00	12,0	12	32	3,0	0,15	2	030				
3,50	12,0	12	32	3,5	0,15	2	035				
3,80	11,0	21	57	6,0	0,15	2					038
4,00	11,0	21	57	6,0	0,15	2					040
4,00	12,0	12	40	4,0	0,15	2	040				
4,50	14,0	22	50	4,5	0,15	2	045				
4,80	13,0	21	57	6,0	0,15	2					048
5,00	13,0	21	57	6,0	0,15	2					050
5,00	14,0	22	50	5,0	0,15	2	050				
5,50	16,0	22	50	5,5	0,15	2	055				
5,80	13,0	21	57	6,0	0,15	2					058
6,00	13,0	21	57	6,0	0,15	2					060
6,00	16,0	14	50	6,0	0,15	2		060			
6,50	16,0	16	50	6,5	0,15	2	065				
6,80	16,0	27	63	8,0	0,15	2					068
7,00	16,0	27	63	8,0	0,15	2					070
7,00	20,0	24	60	7,0	0,15	2	070				
7,50	20,0	24	60	7,5	0,15	2	075				

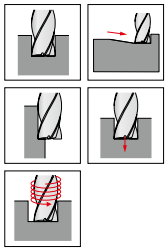
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H				
O	○	○	○	○

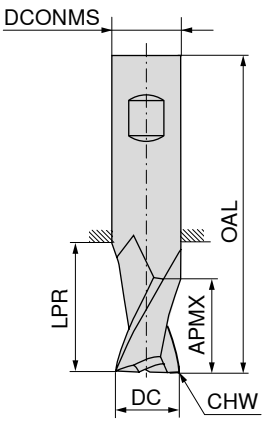
→ v_c/f_z Page 460–463

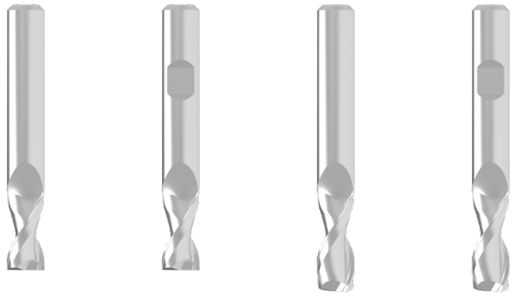
Continued on next page

End milling cutter









	Factory standard	Factory standard	≈DIN 6527	≈DIN 6527
	HA	HB	HA	HB
	50 593 ...	50 593 ...	50 594 ...	50 594 ...

DC e8 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP				
7,80	19,0	27	63	8,0	0,15	2				078
8,00	18,0	24	60	8,0	0,15	2		080		
8,00	19,0	27	63	8,0	0,15	2				080
8,50	20,0	24	60	8,5	0,15	2	085			
8,70	19,0	32	72	10,0	0,15	2				087
9,00	19,0	32	72	10,0	0,15	2				090
9,00	20,0	24	60	9,0	0,15	2	090			
9,50	22,0	34	70	9,5	0,15	2	095			
9,70	22,0	32	72	10,0	0,15	2				097
10,00	20,0	30	70	10,0	0,15	2		100		
10,00	22,0	32	72	10,0	0,15	2				100
10,70	26,0	38	83	12,0	0,15	2				107
11,00	22,0	30	70	11,0	0,15	2	110			
11,00	26,0	38	83	12,0	0,15	2				110
11,70	26,0	38	83	12,0	0,15	2				117
12,00	20,0	25	70	12,0	0,15	2		120		
12,00	26,0	38	83	12,0	0,15	2				120
13,00	25,0	30	75	13,0	0,15	2	130			
13,70	26,0	38	83	14,0	0,15	2				137
14,00	22,0	30	75	14,0	0,15	2		140		
14,00	26,0	38	83	14,0	0,15	2				140
15,00	25,0	30	75	15,0	0,15	2	150			
15,70	32,0	44	92	16,0	0,15	2				157
16,00	22,0	27	75	16,0	0,15	2		160		
16,00	32,0	44	92	16,0	0,15	2				160
17,70	32,0	44	92	18,0	0,15	2				177
18,00	30,0	52	100	18,0	0,15	2		180		
18,00	32,0	44	92	18,0	0,15	2				180
19,70	38,0	54	104	20,0	0,15	2				197
20,00	30,0	50	100	20,0	0,15	2		200		
20,00	38,0	54	104	20,0	0,15	2				200

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

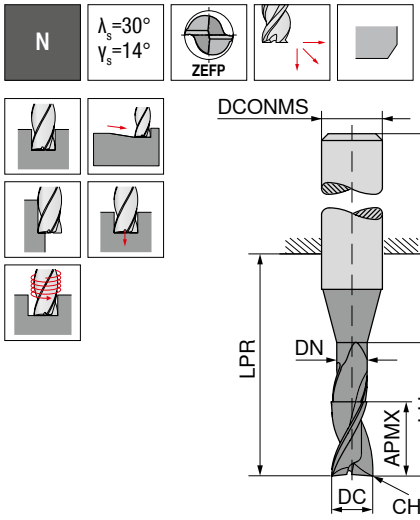
→ v_c/f_z Page 460–463

End milling cutter

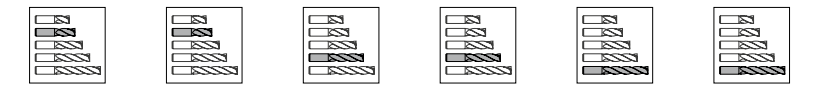
N

λ_s=30°
γ_s=14°

ZEFP







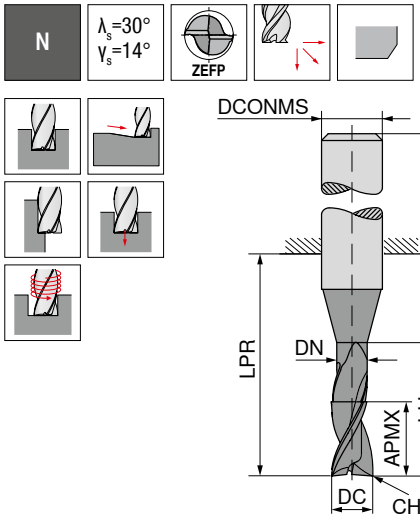
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 939 ...	52 940 ...	52 945 ...	52 946 ...	52 950 ...	52 951 ...
2,00	4	1,90	8	18	54	6	0,04	2	02000	02000				
2,00	5			10	38	3	0,04	2	32000					
2,00	6			10	38	2	0,04	2			22000			
2,00	7	1,90	10	22	58	6	0,04	2				02000		
2,50	4	2,40	8	18	54	6	0,07	2	02500	02500				
2,50	6			10	38	3	0,07	2	32500					
2,80	4	2,70	9	18	54	6	0,07	2	02800	02800				
2,80	7			10	38	3	0,07	2			32800			
2,80	7	2,70	12	22	58	6	0,07	2				02800		
3,00	6	2,90	9	18	54	6	0,07	2	03000	03000				
3,00	6			10	38	3	0,07	2	33000					
3,00	7			10	38	3	0,07	2			33000			
3,00	10	2,90	14	22	58	6	0,07	2				03000		
3,00	20	2,90	24	32	60	3	0,07	2					33000	
3,50	6	3,30	9	18	54	6	0,07	2	03500	03500				
3,80	7	3,60	12	18	54	6	0,07	2	03800	03800				
3,80	8	3,60	20	22	50	4	0,07	2			43800			
3,80	10	3,60	18	22	58	6	0,07	2				03800		
4,00	7	3,80	12	18	54	6	0,07	2	04000	04000				
4,00	8	3,80	20	22	50	4	0,07	2			44000			
4,00	13	3,80	18	22	58	6	0,07	2				04000		
4,00	30	3,80	35	47	75	4	0,07	2					44000	
4,50	7	4,30	12	18	54	6	0,12	2	04500	04500				
4,80	8	4,60	16	18	54	6	0,12	2	04800	04800				
4,80	10	4,60	20	22	50	5	0,12	2			54800			
4,80	13	4,60	18	22	58	6	0,12	2				04800		
5,00	8	4,80	16	18	54	6	0,12	2	05000	05000				
5,00	10	4,80	20	22	50	5	0,12	2			55000			
5,00	15	4,80	18	22	58	6	0,12	2				05000		
5,00	30	4,80	35	47	75	5	0,12	2					55000	
5,50	8	5,30	16	18	54	6	0,12	2	05500	05500				
5,75	10	5,55	16	18	54	6	0,12	2	05700	05700				
5,75	15	5,55	18	22	58	6	0,12	2			05700	05700		
6,00	10	5,80	16	18	54	6	0,12	2	06000	06000				
6,00	16	5,80	20	22	58	6	0,12	2			06000	06000		
6,00	40	5,80	60	64	100	6	0,12	2					06000	06000

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

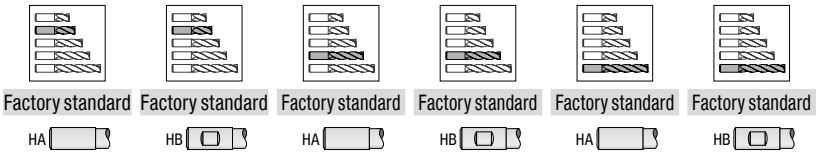
→ v_c/f_z Page 460–465

Continued on next page

End milling cutter





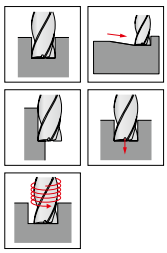


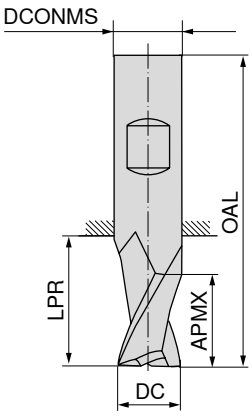
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 939 ...		52 940 ...		52 945 ...		52 946 ...		52 950 ...		52 951 ...	
6,75	16	6,45	23	34	70	8	0,12	2					06700		06700					
7,00	12	6,70	18	23	59	8	0,12	2	07000		07000									
7,00	16	6,70	23	34	70	8	0,12	2					07000		07000					
7,75	12	7,45	18	23	59	8	0,12	2	07700		07700									
7,75	16	7,45	23	34	70	8	0,12	2					07700		07700					
8,00	12	7,70	20	23	59	8	0,12	2	08000		08000									
8,00	22	7,70	25	34	70	8	0,12	2					08000		08000					
8,00	40	7,70	60	64	100	8	0,12	2									08000		08000	
9,00	13	8,70	22	27	67	10	0,20	2	09000		09000									
9,00	22	8,70	28	33	73	10	0,20	2					09000		09000					
9,70	13	9,40	22	27	67	10	0,20	2	09700		09700									
9,70	22	9,40	28	33	73	10	0,20	2					09700		09700					
10,00	13	9,70	24	27	67	10	0,20	2	10000		10000									
10,00	25	9,70	30	33	73	10	0,20	2					10000		10000					
10,00	40	9,70	55	60	100	10	0,20	2									10000		10000	
11,00	25	10,60	32	39	84	12	0,20	2					11000		11000					
12,00	16	11,60	26	28	73	12	0,20	2	12000		12000									
12,00	26	11,60	35	39	84	12	0,20	2					12000		12000					
12,00	45	11,60	50	55	100	12	0,20	2									12000		12000	
13,70	26	13,30	35	39	84	14	0,20	2					13700		13700					
14,00	16	13,60	28	30	75	14	0,20	2	14000		14000									
14,00	26	13,60	35	39	84	14	0,20	2					14000		14000					
16,00	20	15,50	32	35	83	16	0,20	2	16000		16000									
16,00	30	15,50	40	45	93	16	0,20	2					16000		16000					
16,00	65	15,50	90	102	150	16	0,20	2									16000		16000	
20,00	25	19,50	40	43	93	20	0,30	2	20000		20000									
20,00	40	19,50	50	54	104	20	0,30	2					20000		20000					
20,00	65	19,50	90	100	150	20	0,30	2									20000		20000	
P									●		●		●		●		●		●	
M									○		○		○		○		○		○	
K									●		●		●		●		●		●	
N									○		○		○		○		○		○	
S									○		○		○		○		○		○	
H									○		○		○		○		○		○	
O									○		○		○		○		○		○	

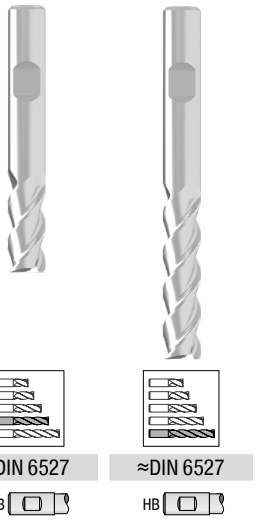
→ v_c/f_z Page 460–465

End milling cutter





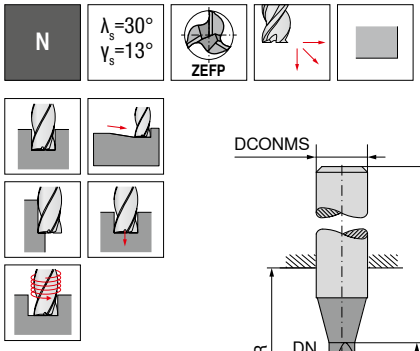




DC e8 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	≈DIN 6527 HB 50 614 ...	≈DIN 6527 HB 50 614 ...
3,0	8	21	57	6	3	030	
3,5	11	21	57	6	3	035	
3,5	15	23	59	6	3		036
4,0	11	21	57	6	3	040	
4,0	19	27	63	6	3		041
4,5	13	21	57	6	3	045	
4,5	19	27	63	6	3		046
5,0	13	21	57	6	3	050	
5,0	24	32	68	6	3		051
5,5	13	21	57	6	3	055	
5,5	24	32	68	6	3		056
6,0	13	21	57	6	3	060	
6,0	24	32	68	6	3		061
6,5	16	27	63	8	3	065	
6,5	30	44	80	8	3		066
7,0	16	27	63	8	3	070	
7,0	30	44	80	8	3		071
7,5	19	27	63	8	3	075	
7,5	30	44	80	8	3		076
8,0	19	27	63	8	3	080	
8,0	38	52	88	8	3		081
8,5	19	32	72	10	3	085	
8,5	38	48	88	10	3		086
9,0	19	32	72	10	3	090	
9,0	38	48	88	10	3		091
9,5	22	32	72	10	3	095	
9,5	38	48	88	10	3		096
10,0	22	32	72	10	3	100	
10,0	45	55	95	10	3		101
11,0	26	38	83	12	3	110	
11,0	45	57	102	12	3		111
12,0	26	38	83	12	3	120	
12,0	53	65	110	12	3		121
14,0	26	38	83	14	3	140	
14,0	53	65	110	14	3		141
16,0	32	44	92	16	3	160	
16,0	63	75	123	16	3		161
18,0	32	44	92	18	3	180	
18,0	63	75	123	18	3		181
20,0	38	54	104	20	3	200	
20,0	75	91	141	20	3		201
P						○	○
M						●	●
K						○	○
N						○	○
S						●	●
H							
O						○	○

→ v_c/f_z Page 460–465

End milling cutter



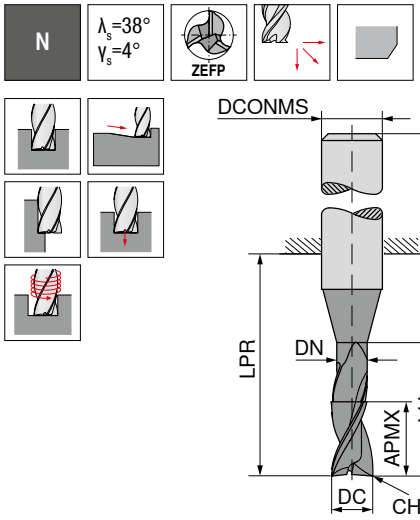




								Factory standard HB	Factory standard HA	Factory standard HB	Factory standard HB	Factory standard HA	Factory standard HB
								52 923 ...	52 921 ...	52 922 ...	52 928 ...	52 926 ...	52 927 ...
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP						
1,00	4			22	58	6	3				01000	01000	01000
1,50	3	1,40	6	18	54	6	3	01500	01500	01500			
1,50	3	1,40	6	10	38	3	3		31500				
1,50	6			22	58	6	3				01500	01500	01500
2,00	4	1,90	8	18	54	6	3	02000	02000	02000			
2,00	4	1,90	8	10	38	3	3		32000				
2,00	7			22	58	6	3				02000	02000	02000
2,50	4	2,40	8	18	54	6	3	02500	02500	02500			
2,50	4	2,40	8	10	38	3	3		32500				
2,80	6	2,70	9	18	54	6	3	02800	02800	02800			
3,00	6	2,90	9	18	54	6	3	03000	03000	03000			
3,00	6	2,90	9	10	38	3	3		33000				
3,00	10	2,90	14	22	58	6	3				03000	03000	03000
3,50	6	3,30	9	18	54	6	3	03500	03500	03500			
3,80	6	3,60	12	18	54	6	3	03800	03800	03800			
4,00	7	3,80	12	18	54	6	3	04000	04000	04000			
4,00	13	3,80	17	22	58	6	3				04000	04000	04000
4,50	7	4,30	12	18	54	6	3	04500	04500	04500			
4,80	8	4,60	16	18	54	6	3	04800	04800	04800			
5,00	8	4,80	16	18	54	6	3	05000	05000	05000			
5,00	15	4,80	19	22	58	6	3				05000	05000	05000
5,50	8	5,30	16	18	54	6	3	05500	05500	05500			
5,75	8	5,55	16	18	54	6	3	05700	05700	05700			
6,00	10	5,80	16	18	54	6	3	06000	06000	06000			
6,00	16	5,80	20	22	58	6	3				06000	06000	06000
7,00	19	6,70	23	28	64	8	3				07000	07000	07000
7,75	10	7,45	18	22	58	8	3	07700	07700	07700			
8,00	12	7,70	20	23	59	8	3	08000	08000	08000			
8,00	22	7,70	26	34	70	8	3				08000	08000	08000
9,00	23	8,70	28	32	72	10	3				09000	09000	09000
9,70	12	9,40	18	19	59	10	3	09700	09700	09700			
10,00	13	9,70	24	27	67	10	3	10000	10000	10000			
10,00	25	9,70	31	33	73	10	3				10000	10000	10000
11,00	25	10,60	34	38	83	12	3				11000	11000	11000
11,70	16	11,30	20	22	67	12	3	11700	11700	11700			
12,00	16	11,60	26	28	73	12	3	12000	12000	12000			
12,00	26	11,60	37	39	84	12	3				12000	12000	12000
14,00	16	13,60	28	30	75	14	3	14000	14000	14000			
14,00	26	13,60	37	39	84	14	3				14000	14000	14000
16,00	20	15,50	32	35	83	16	3	16000	16000	16000			
16,00	32	15,50	43	45	93	16	3				16000	16000	16000
20,00	25	19,50	40	43	93	20	3	20000	20000	20000			
20,00	40	19,50	52	54	104	20	3				20000	20000	20000
P								●	●	●	●	●	●
M								○	○	○	○	○	○
K								●	●	●	●	●	●
N								○	○	○	○	○	○
S								○	○	○	○	○	○
H									○	○		○	○
O								○	○	○	○	○	○

→ v_c/f_z Page 460–463

End milling cutter



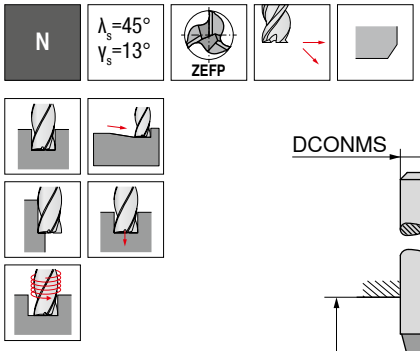


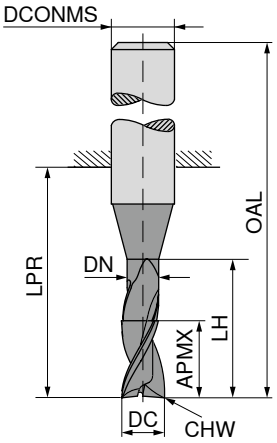


									Factory standard HB	Factory standard HA	Factory standard HB	Factory standard HB	Factory standard HA	Factory standard HB
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	CHW mm	DCONMS h6 mm	ZEFP	52 931 ...	52 929 ...	52 930 ...	52 934 ...	52 932 ...	52 933 ...
2,0	4	1,9	8	18	54	0,04	6	3	02000	02000	02000			
2,0	7	1,9	10	22	58	0,04	6	3				02000	02000	02000
2,5	5	2,4	8	18	54	0,07	6	3	02500	02500	02500			
3,0	6	2,9	9	18	54	0,07	6	3	03000	03000	03000			
3,0	10	2,9	14	22	58	0,07	6	3				03000	03000	03000
4,0	7	3,8	12	18	54	0,07	6	3	04000	04000	04000			
4,0	13	3,8	17	22	58	0,07	6	3				04000	04000	04000
5,0	8	4,8	16	18	54	0,12	6	3	05000	05000	05000			
5,0	15	4,8	19	22	58	0,07	6	3				05000	05000	05000
6,0	10	5,8	16	18	54	0,12	6	3	06000	06000	06000			
6,0	16	5,8	20	22	58	0,12	6	3				06000	06000	06000
7,0	11	6,7	18	23	59	0,12	8	3	07000	07000	07000			
7,0	19	6,7	23	34	70	0,12	8	3				07000	07000	07000
8,0	12	7,7	20	23	59	0,12	8	3	08000	08000	08000			
8,0	22	7,7	26	34	70	0,12	8	3				08000	08000	08000
9,0	13	8,7	22	27	67	0,20	10	3	09000	09000	09000			
9,0	23	8,7	28	33	73	0,12	10	3				09000	09000	09000
10,0	14	9,7	24	27	67	0,20	10	3	10000	10000	10000			
10,0	25	9,7	31	33	73	0,20	10	3				10000	10000	10000
12,0	16	11,6	26	28	73	0,20	12	3	12000	12000	12000			
12,0	28	11,6	37	39	84	0,20	12	3				12000	12000	12000
14,0	18	13,6	28	30	75	0,20	14	3	14000	14000	14000			
14,0	30	13,6	37	39	84	0,20	14	3				14000	14000	14000
16,0	20	16,0	32	35	83	0,20	16	3	16000	16000	16000			
16,0	35	16,0	43	45	93	0,20	16	3				16000	16000	16000
20,0	25	20,0	40	43	93	0,30	20	3	20000	20000	20000			
20,0	40	20,0	52	54	104	0,20	20	3				20000	20000	20000
P									○	○	○	○	○	○
M									●	●	●	●	●	●
K									○	○	○	○	○	○
N									●	●	●	●	●	●
S									●	●	●	●	●	●
H														
O									●	●	●	●	●	●

→ v_c/f_z Page 460–463

End milling cutter







Factory standard | Factory standard

HA | HB

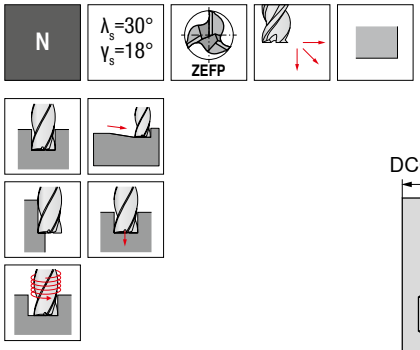
DC e8 mm	DN mm	APMX mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 935 ...	52 936 ...
3	3,0	20	20	24	60	6	0,07	3	**03000**	**03000**
4	3,8	30	35	39	75	6	0,07	3	**04000**	**04000**
5	4,8	30	35	39	75	6	0,12	3	**05000**	**05000**
6	5,8	40	60	64	100	6	0,12	3	**06000**	**06000**
8	7,7	40	60	64	100	8	0,12	3	**08000**	**08000**
10	9,7	40	55	60	100	10	0,20	3	**10000**	**10000**
12	11,6	45	50	55	100	12	0,20	3	**12000**	**12000**
14	13,6	45	50	55	100	14	0,20	3	**14000**	**14000**
16	15,5	65	90	102	150	16	0,20	3	**16000**	**16000**
20	19,5	65	90	100	150	20	0,30	3	**20000**	**20000**

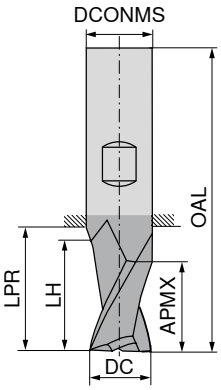
P	○	○
M	●	●
K	○	○
N	●	●
S	●	●
H		
O	●	●

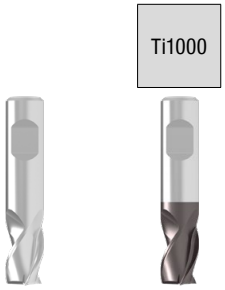
→ v_c/f_z Page 460–465

Mini milling cutter

▲ Shank similar to DIN 6535











Factory standard HB

Factory standard HB

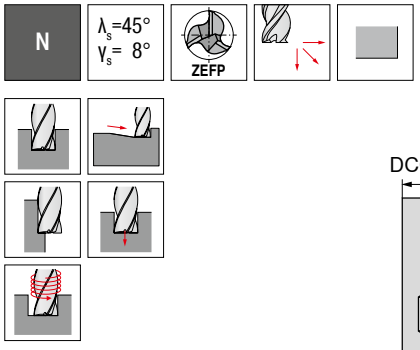
DC e8 mm	APMX mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	50 598 ...	50 599 ...
2,00	4	4,0	10	35	6	3	**020**	**020**
2,50	4	4,0	10	35	6	3	**025**	**025**
3,00	5	5,0	10	36	6	3	**030**	**030**
3,50	5	5,0	10	36	6	3	**035**	**035**
4,00	7	7,0	12	38	6	3	**040**	**040**
4,50	7	7,0	12	38	6	3	**045**	**045**
5,00	8	8,0	13	39	6	3	**050**	**050**
5,50	8	8,0	13	39	6	3	**055**	**055**
5,75	8	8,0	13	39	6	3	**057**	**057**
6,00	8	8,5	13	39	6	3	**060**	**060**
6,75	11	11,5	16	43	8	3	**067**	**067**
7,00	11	11,5	16	43	8	3	**070**	**070**
7,75	11	11,5	16	43	8	3	**077**	**077**
8,00	11	11,5	16	43	8	3	**080**	**080**
8,70	13	13,5	18	50	10	3	**087**	**087**
9,00	13	13,5	18	50	10	3	**090**	**090**
9,70	13	13,5	18	50	10	3	**097**	**097**
10,00	13	13,5	18	50	10	3	**100**	**100**
12,00	15	15,5	24	55	12	3	**120**	**120**
14,00	15	15,5	26	58	14	3	**140**	**140**
16,00	18	18,5	28	62	16	3	**160**	**160**
18,00	20	20,5	35	70	18	3	**180**	**180**
20,00	22	22,5	40	75	20	3	**200**	**200**

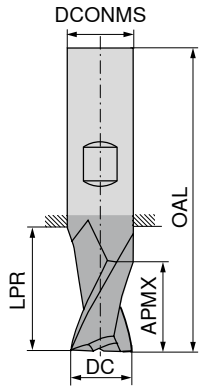
P	○	●
M	○	○
K	○	●
N	●	○
S	○	○
H		○
O	●	○

→ v_c/f_z Page 460–463

Mini milling cutter

▲ Shank similar to DIN 6535





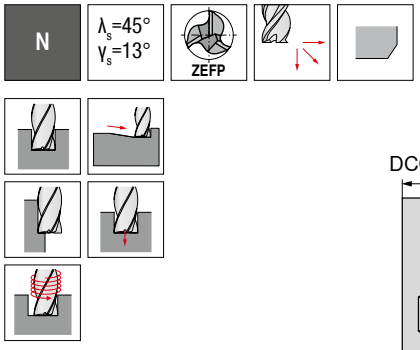


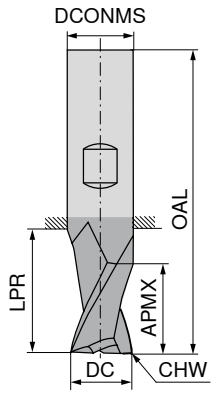
DC e8 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	Factory standard ~HA 50 664 ...	Factory standard ~HA 50 691 ...	Factory standard HB 50 664 ...	Factory standard HB 50 691 ...
0,50	1,5	17	45	3	3	**30500**	**30500**		
1,00	2,0	12	45	6	3			**01000**	**01000**
1,00	2,0	17	45	3	3	**31000**	**31000**		
1,20	2,0	12	45	6	3			**01200**	**01200**
1,20	3,0	17	45	3	3	**31200**	**31200**		
1,50	3,0	12	45	6	3			**01500**	**01500**
1,50	3,0	17	45	3	3	**31500**	**31500**		
1,80	3,0	12	45	6	3			**01800**	**01800**
1,80	3,0	17	45	3	3	**31800**	**31800**		
2,00	4,0	13	45	6	3			**02000**	**02000**
2,50	6,0	13	45	6	3			**02500**	**02500**
2,80	6,0	13	45	6	3			**02800**	**02800**
3,00	6,0	13	45	6	3			**03000**	**03000**
3,50	7,0	13	45	6	3			**03500**	**03500**
3,80	7,0	13	45	6	3			**03800**	**03800**
4,00	7,0	12	45	6	3			**04000**	**04000**
4,50	8,0	11	45	6	3			**04500**	**04500**
4,80	8,0	11	45	6	3			**04800**	**04800**
5,00	8,0	11	45	6	3			**05000**	**05000**
5,50	8,0	9	45	6	3			**05500**	**05500**
5,75	8,0	9	45	6	3			**05700**	**05700**
6,00	8,0	9	45	6	3			**06000**	**06000**
6,70	10,0	19	55	8	3			**06700**	**06700**
7,00	12,0	19	55	8	3			**07000**	**07000**
7,70	12,0	19	55	8	3			**07700**	**07700**
8,00	13,0	19	55	8	3			**08000**	**08000**
8,70	14,0	17	55	10	3			**08700**	**08700**
9,00	16,0	17	55	10	3			**09000**	**09000**
9,70	16,0	17	55	10	3			**09700**	**09700**
10,00	16,0	17	55	10	3			**10000**	**10000**
P							●		●
M							●		●
K							●		●
N						●	○	●	○
S						○	●	○	●
H									
O									

→ v_c/f_z Page 444–447

Mini milling cutter

▲ Shank similar to DIN 6535







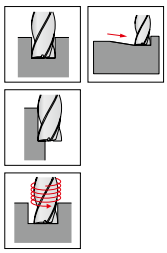


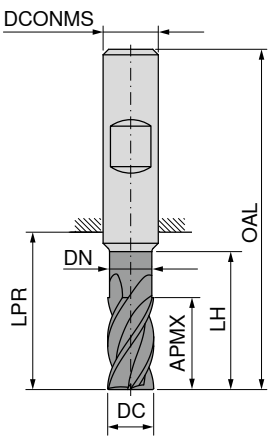
DC e8 mm	CHW mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	50 608 ...		50 609 ...		50 608 ...		50 609 ...	
0,50	0,05	1,5	17	45	3	3	30500		30500					
1,00	0,05	2,0	12	45	6	3					01000		01000	
1,00	0,05	2,0	17	45	3	3	31000		31000					
1,20	0,05	2,0	12	45	6	3					01200		01200	
1,20	0,05	3,0	17	45	3	3	31200		31200					
1,50	0,05	3,0	12	45	6	3					01500		01500	
1,50	0,05	3,0	17	45	3	3	31500		31500					
1,80	0,05	3,0	12	45	6	3					01800		01800	
1,80	0,05	3,0	17	45	3	3	31800		31800					
2,00	0,05	4,0	13	45	6	3					020		02000	
2,50	0,05	6,0	13	45	6	3					025		02500	
2,80	0,05	6,0	13	45	6	3					02800		02800	
3,00	0,10	6,0	13	45	6	3					030		03000	
3,50	0,10	7,0	13	45	6	3					03500		03500	
3,80	0,10	7,0	13	45	6	3					03800		03800	
4,00	0,10	7,0	12	45	6	3					040		04000	
4,50	0,10	8,0	11	45	6	3					04500		04500	
4,80	0,10	8,0	11	45	6	3					04800		04800	
5,00	0,10	8,0	11	45	6	3					050		05000	
5,50	0,10	8,0	9	45	6	3					05500		05500	
5,75	0,10	8,0	9	45	6	3					05700		05700	
6,00	0,10	8,0	9	45	6	3					060		06000	
6,70	0,10	10,0	19	55	8	3					06700		06700	
7,00	0,10	12,0	19	55	8	3					070		07000	
7,70	0,10	12,0	19	55	8	3					07700		07700	
8,00	0,10	13,0	19	55	8	3					080		08000	
8,70	0,10	14,0	17	55	10	3					08700		08700	
9,00	0,10	16,0	17	55	10	3					09000		09000	
9,70	0,10	16,0	17	55	10	3					09700		09700	
10,00	0,10	16,0	17	55	10	3					100		10000	
P									●				●	
M									●				●	
K									●				●	
N							●		○		●		○	
S							○		●		○		●	
H														
O														

→ v_c/f_z Page 444–447

End milling cutter









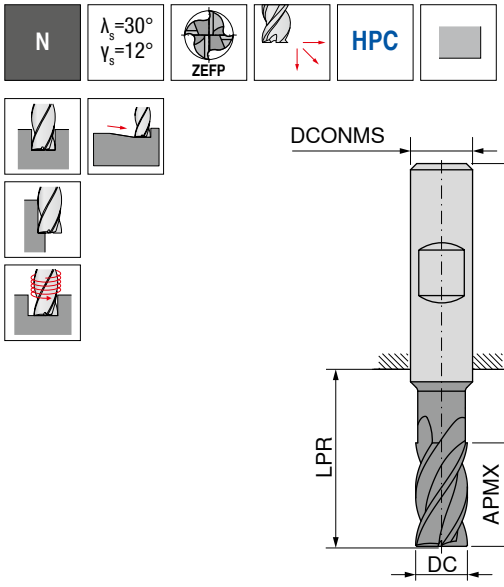


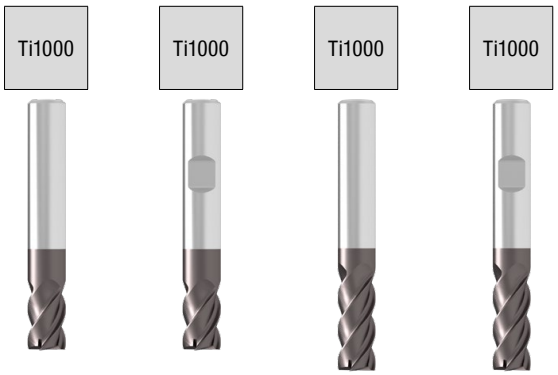
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 209 ...	52 213 ...
2	4	1,9	8	18	54	6	4	02000	
2	7			22	58	6	4		02000
3	6	2,9	9	18	54	6	4	03000	
3	10	2,8	14	22	58	6	4		03000
4	7	3,8	12	18	54	6	4	04000	
4	13	3,8	17	22	58	6	4		04000
5	8	4,8	16	18	54	6	4	05000	
5	15	4,8	19	22	58	6	4		05000
6	10	5,8	16	18	54	6	4	06000	
6	16	5,7	20	22	58	6	4		06000
7	19	6,7	23	27	63	8	4		07000
8	12	7,7	20	22	58	8	4	08000	
8	22	7,7	26	34	70	8	4		08000
9	23	8,7	28	33	73	10	4		09000
10	14	9,7	24	26	66	10	4	10000	
10	25	9,6	31	33	73	10	4		10000
11	26	10,6	34	39	84	12	4		11000
12	16	11,6	26	28	73	12	4	12000	
12	28	11,6	37	39	84	12	4		12000
14	18	13,6	28	30	75	14	4	14000	
14	30	13,6	37	39	84	14	4		14000
16	22	15,5	32	34	82	16	4	16000	
16	35	15,6	43	45	93	16	4		16000
18	20	17,5	34	32	80	18	4	18000	
18	35	17,6	43	45	93	18	4		18000
20	25	19,5	40	42	92	20	4	20000	
20	40	19,6	52	54	104	20	4		20000
P								●	●
M								○	○
K								●	●
N								○	○
S								○	○
H									
O								○	○

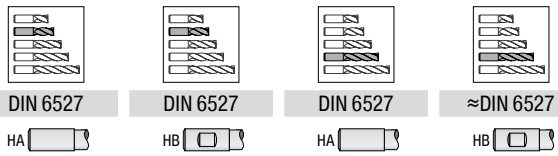
→ v_c/f_z Page 460–463

End milling cutter

▲ Cutting edges with irregular pitch



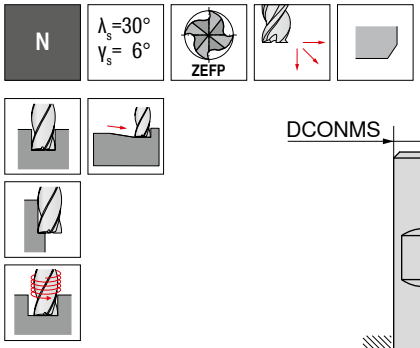


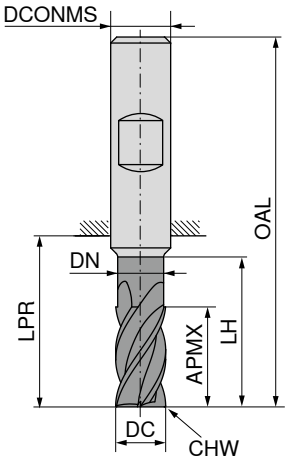


						DIN 6527 HA	DIN 6527 HB	DIN 6527 HA	≈DIN 6527 HB
DC e8 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 121 ...	52 131 ...	52 126 ...	52 132 ...
3,0	6	18	54	6	4	030	030		
3,0	10	22	58	6	4			030	030
3,5	7	18	54	6	4	035	035		
3,5	13	22	58	6	4			035	035
4,0	7	18	54	6	4	040	040		
4,0	13	22	58	6	4			040	040
4,5	8	18	54	6	4	045	045		
4,5	15	22	58	6	4			045	045
5,0	8	18	54	6	4	050	050		
5,0	15	22	58	6	4			050	050
6,0	10	18	54	6	4	060	060		
6,0	16	22	58	6	4			060	060
8,0	12	23	59	8	4	080	080		
8,0	22	34	70	8	4			080	080
10,0	14	27	67	10	4	100	100		
10,0	25	33	73	10	4			100	100
12,0	16	28	73	12	4	120	120		
12,0	28	39	84	12	4			120	120
14,0	16	30	75	14	4	140	140		
14,0	30	39	84	14	4			140	140
16,0	20	35	83	16	4	160	160		
16,0	35	45	93	16	4			160	160
18,0	20	32	80	18	4	180	180		
18,0	35	45	93	18	4			180	180
20,0	25	43	93	20	4	200	200		
20,0	40	54	104	20	4			200	200
P						●	●	●	●
M						○	○	○	○
K						●	●	●	●
N						○	○	○	○
S						○	○	○	○
H						○	○	○	○
O						○	○	○	○

→ v_c/f_z Page 460–463

End milling cutter







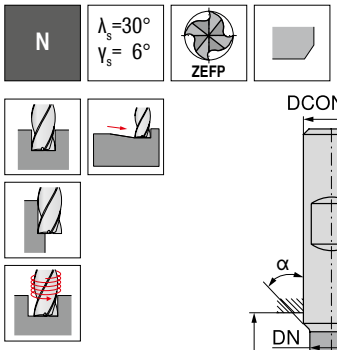
Factory standard

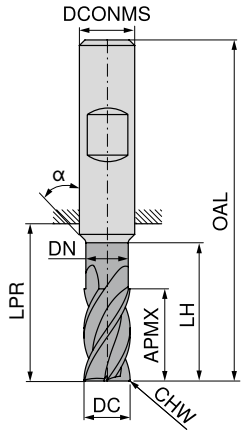
	52 206 ...		52 207 ...		52 210 ...		52 211 ...	
	HA		HB		HA		HB	
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP
1,5	3	1,4	6	10	38	3	0,02	4	31500					
2,0	4	1,9	8	10	38	3	0,03	4	32000					
2,0	4	1,9	8	18	54	6	0,03	4	02000		02000			
2,0	7			10	38	2	0,03	4					22000	
2,5	4	2,4	8	10	38	3	0,04	4	32500					
3,0	6	2,9	9	10	38	3	0,04	4	33000					
3,0	6	2,9	9	18	54	6	0,04	4	03000		03000			
3,0	10	2,8	14	14	38	3	0,03	4					33000	
4,0	7	3,8	12	18	54	6	0,05	4	04000		04000			
4,0	13	3,8	17	22	50	4	0,04	4					44000	
5,0	8	4,8	16	18	54	6	0,06	4	05000		05000			
5,0	15	4,8	19	22	50	5	0,04	4					55000	
6,0	10	5,8	16	18	54	6	0,07	4	06000		06000			
6,0	16	5,7	20	22	58	6	0,04	4					06000	06000
7,0	19	6,7	23	27	63	8	0,05	4					07000	07000
8,0	12	7,7	20	22	58	8	0,08	4	08000		08000			
8,0	22	7,7	26	34	70	8	0,06	4					08000	08000
9,0	23	8,7	28	33	73	10	0,07	4					09000	09000
10,0	14	9,7	24	26	66	10	0,10	4	10000		10000			
10,0	25	9,6	31	33	73	10	0,08	4					10000	10000
11,0	26	10,6	34	39	84	12	0,10	4					11000	11000
12,0	16	11,6	26	28	73	12	0,13	4	12000		12000			
12,0	28	11,6	37	39	84	12	0,13	4					12000	12000
14,0	18	13,6	28	30	75	14	0,15	4	14000		14000			
14,0	30	13,6	37	39	84	14	0,15	4					14000	14000
16,0	22	15,5	32	34	82	16	0,18	4	16000		16000			
16,0	35	15,6	43	45	93	16	0,18	4					16000	16000
20,0	25	19,5	40	42	92	20	0,20	4	20000		20000			
20,0	40	19,6	52	54	104	20	0,20	4					20000	20000
P									●		●		●	●
M									○		○		○	○
K									●		●		●	●
N									○		○		○	○
S									○		○		○	○
H									○		○		○	○
O									○		○		○	○

→ v_c/f_z Page 460–463

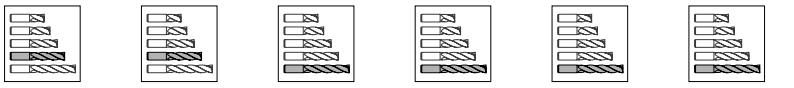
End milling cutter

▲ Transition angle α = 30°









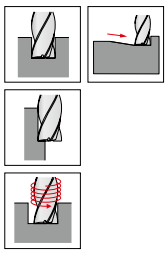
									Factory standard	Factory standard	Factory standard	Factory standard	Factory standard	Factory standard
									HB	HB	HA	HB	HA	HB
									52 221 ...	52 219 ...	52 215 ...	52 220 ...	52 214 ...	52 222 ...
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP						
3	16	2,8	32	47	75	3	0,04	4			**33000**		**33000**	
4	16	3,8	32	47	75	4	0,05	4			**44000**		**44000**	
4	20	3,8	48	72	100	4	0,05	4			**44100**		**44100**	
5	20	4,8	35	47	75	5	0,06	4			**55000**		**55000**	
5	25	4,8	55	72	100	5	0,06	4			**55100**		**55100**	
6	24	5,8	42	44	80	6	0,07	4	**06000**	**06000**				
6	30	5,8	62	64	100	6	0,07	4				**06000**		**06000**
8	32	7,8	60	64	100	8	0,08	4	**08000**	**08000**				
8	40	7,8	75	84	120	8	0,08	4				**08000**		**08000**
10	40	9,8	58	60	100	10	0,10	4	**10000**	**10000**				
10	50	9,8	78	80	120	10	0,10	4				**10000**		**10000**
12	48	11,8	60	75	120	12	0,13	4	**12000**	**12000**				
12	60	11,8	90	105	150	12	0,13	4				**12000**		**12000**
14	45	13,8	50	55	100	14	0,15	4	**14000**	**14000**				
14	56	13,8	95	105	150	14	0,15	4				**14000**		**14000**
16	50	15,8	70	77	125	16	0,18	4	**16000**	**16000**				
16	65	15,8	95	102	150	16	0,18	4				**16000**		**16000**
18	72	17,8	95	102	150	18	0,18	4				**18000**		**18000**
20	60	19,8	80	85	135	20	0,20	4	**20000**	**20000**				
20	80	19,8	95	100	150	20	0,20	4				**20000**		**20000**
25	75	24,5	90	94	150	25	0,25	4	**25000**	**25000**				
P									●	●	●	●	●	●
M									○	○	○	○	○	○
K									●	●	●	●	●	●
N									○	○	○	○	○	○
S									○	○	○	○	○	○
H										○			○	○
O									○	○	○	○	○	○

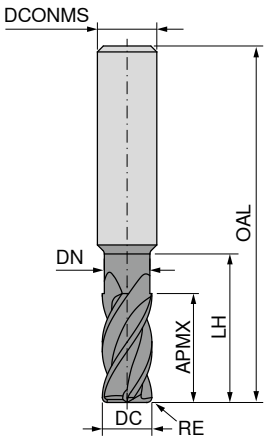
→ v_c/f_z Page 460–465

End milling cutter with corner radius

▲ optimal quiet running with irregular helix













Factory standard

HA 

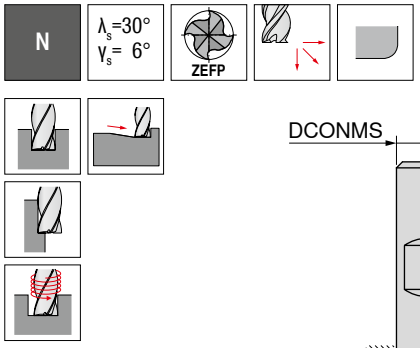
52 102 ...

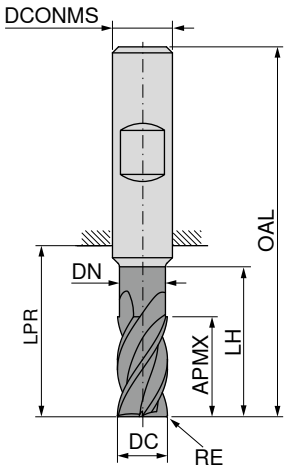
DC e8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h6 mm	ZEFP	
2	0,2	7	1,8	11	58	6	4	**022**
3	0,3	8	2,8	13	58	6	4	**033**
4	0,4	11	3,8	16	58	6	4	**044**
5	0,5	13	4,8	18	58	6	4	**055**
6	0,5	16	5,8	26	58	6	4	**065**
6	1,0	16	5,8	26	58	6	4	**066**
8	0,5	22	7,8	32	64	8	4	**085**
8	1,0	22	7,8	32	64	8	4	**086**
8	1,5	22	7,8	32	64	8	4	**087**
10	0,5	25	9,8	35	73	10	4	**105**
10	1,0	25	9,8	35	73	10	4	**106**
10	1,5	25	9,8	35	73	10	4	**107**
12	0,5	28	11,8	38	84	12	4	**125**
12	1,0	28	11,8	38	84	12	4	**126**
12	1,5	28	11,8	38	84	12	4	**127**

P	○
M	●
K	○
N	●
S	●
H	
O	●

→ v_c/f_z Page 460–463

End milling cutter with corner radius










Factory standard | Factory standard

HA | HB

DC e8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 231 ...	52 232 ...
3	0,3	8	2,8	13	21	57	6	4	**03003**	**03003**
3	0,5	8	2,8	13	21	57	6	4	**03005**	**03005**
4	0,3	11	3,8	16	21	57	6	4	**04003**	**04003**
4	0,5	11	3,8	16	21	57	6	4	**04005**	**04005**
5	0,3	13	4,8	18	21	57	6	4	**05003**	**05003**
5	0,5	13	4,8	18	21	57	6	4	**05005**	**05005**
6	0,5	13	5,8	26	21	57	6	4	**06005**	**06005**
6	1,0	13	5,8	26	21	57	6	4	**06010**	**06010**
6	1,5	13	5,8	26	21	57	6	4	**06015**	**06015**
8	0,5	19	7,8	32	27	63	8	4	**08005**	**08005**
8	1,0	19	7,8	32	27	63	8	4	**08010**	**08010**
8	1,5	19	7,8	32	27	63	8	4	**08015**	**08015**
8	2,0	19	7,8	32	27	63	8	4	**08020**	**08020**
10	1,0	22	9,8	35	32	72	10	4	**10010**	**10010**
10	1,5	22	9,8	35	32	72	10	4	**10015**	**10015**
10	2,0	22	9,8	35	32	72	10	4	**10020**	**10020**
12	1,0	26	11,8	38	38	83	12	4	**12010**	**12010**
12	1,5	26	11,8	38	38	83	12	4	**12015**	**12015**
12	2,0	26	11,8	38	38	83	12	4	**12020**	**12020**
12	3,0	26	11,8	38	38	83	12	4	**12030**	**12030**
16	1,0	32	15,8	44	44	92	16	4	**16010**	**16010**
16	1,5	32	15,8	44	44	92	16	4	**16015**	**16015**
16	2,0	32	15,8	44	44	92	16	4	**16020**	**16020**
16	3,0	32	15,8	44	44	92	16	4	**16030**	**16030**
20	1,5	38	19,8	52	54	104	20	4	**20015**	**20015**
20	2,0	38	19,8	52	54	104	20	4	**20020**	**20020**
20	3,0	38	19,8	52	54	104	20	4	**20030**	**20030**

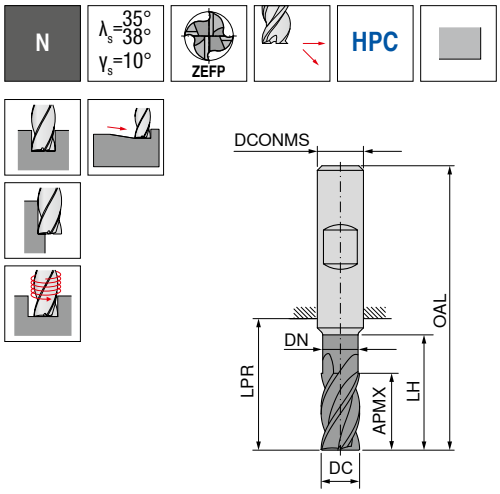
P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H	○	○
O	○	○

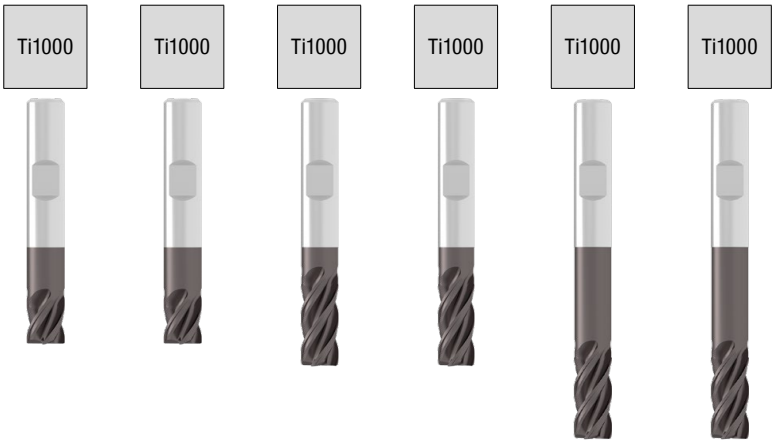
→ v_c/f_z Page 460–463

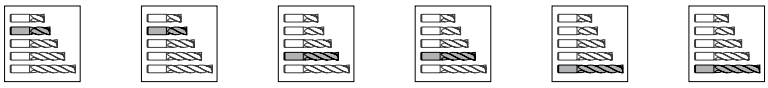
14

End milling cutter

- ▲ irregular helix angle
- ▲ 54 050 ... / 54 051 ... / 54 052 ...: special cutting edge preperation for the machining of steel
- ▲ 54 060 ... / 54 061 ... / 54 062 ...: special cutting edge preperation for the machining of stainless steel







≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527

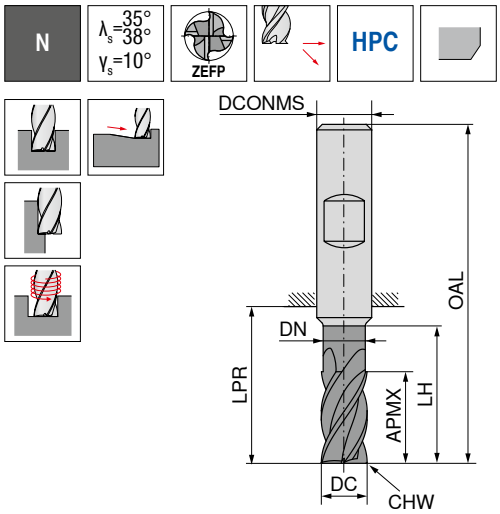
HB | HB | HB | HB | HB | HB

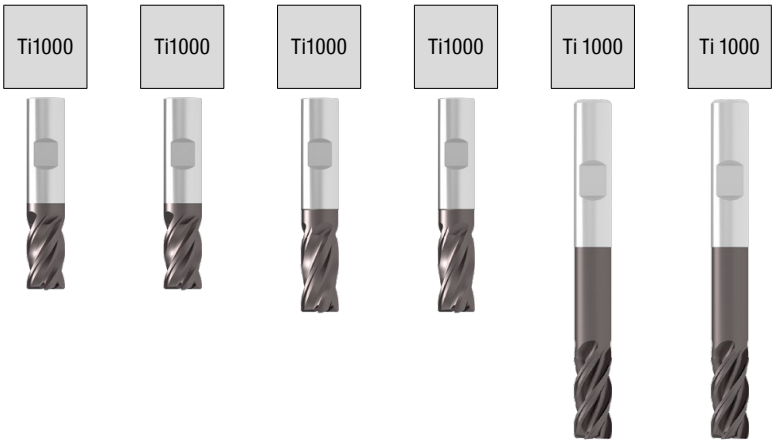
DC h10 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	54 050 ...	54 060 ...	54 051 ...	54 061 ...	54 052 ...	54 062 ...
3	5			14	50	6	4	030	030				
3	8	2,8	12	21	57	6	4			030	030		
3	8	2,8	15	34	70	6	4					030	030
4	8			18	54	6	4	040	040				
4	11	3,8	15	21	57	6	4			040	040		
4	11	3,8	20	34	70	6	4					040	040
5	9			18	54	6	4	050	050				
5	13	4,8	17	21	57	6	4			050	050		
5	13	4,8	25	34	70	6	4					050	050
6	10			18	54	6	4	060	060				
6	13	5,8	21	21	57	6	4			060	060		
6	13	5,8	30	34	70	6	4					060	060
8	12			22	58	8	4	080	080				
8	19	7,7	27	27	63	8	4			080	080		
8	19	7,7	40	44	80	8	4					080	080
10	14			26	66	10	4	100	100				
10	22	9,7	32	32	72	10	4			100	100		
10	22	9,7	50	54	94	10	4					100	100
12	16			28	73	12	4	120	120				
12	26	11,6	38	38	83	12	4			120	120		
12	26	11,6	64	64	109	12	4					120	120
16	22			34	82	16	4	160	160				
16	32	15,5	44	44	92	16	4			160	160		
16	32	15,5	80	84	132	16	4					160	160
20	26			42	92	20	4	200	200				
20	38	19,5	54	54	104	20	4			200	200		
20	38	19,5	100	104	154	20	4					200	200
P								●	●	●	●	●	●
M									●		●		●
K								●	○	●	○	●	○
N									○		○		○
S									●		●		●
H													
O													

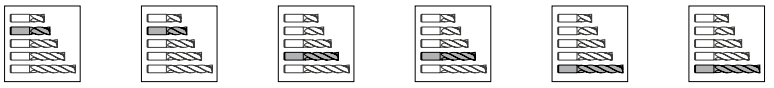
→ v_c/f_z Page 450–453

End milling cutter

- ▲ irregular helix angle
- ▲ 54 001 ... / 54 002 ... / 54 003 ...: special cutting edge preperation for the machining of steel
- ▲ 54 004 ... / 54 005 ... / 54 006 ...: special cutting edge preperation for the machining of stainless steel







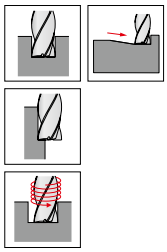
									≈DIN 6527 HB	≈DIN 6527 HB	≈DIN 6527 HB	≈DIN 6527 HB	≈DIN 6527 HB	≈DIN 6527 HB
DC h10/ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	54 001 ...	54 005 ...	54 002 ...	54 006 ...	54 003 ...	54 004 ...
3,0	5			14	50	6	0,15	4	030	030				
3,0	8	2,8	12,0	21	57	6	0,15	4			030	030		
3,0	8	2,8	15,0	34	70	6	0,15	4					030	030
4,0	8			18	54	6	0,15	4	040	040				
4,0	11	3,8	15,0	21	57	6	0,15	4			040	040		
4,0	11	3,8	20,0	34	70	6	0,15	4					040	040
5,0	9			18	54	6	0,15	4	050	050				
5,0	13	4,8	17,0	21	57	6	0,15	4			050	050		
5,0	13	4,8	25,0	34	70	6	0,15	4					050	050
6,0	10			18	54	6	0,15	4	060	060				
6,0	13	5,8	21,0	21	57	6	0,15	4			060	060		
6,0	13	5,8	30,0	34	70	6	0,15	4					060	060
8,0	12			22	58	8	0,25	4	080	080				
8,0	19	7,7	27,0	27	63	8	0,25	4			080	080		
8,0	19	7,7	40,0	44	80	8	0,25	4					080	080
10,0	14			26	66	10	0,25	4	100	100				
10,0	22	9,7	32,0	32	72	10	0,25	4			100	100		
10,0	22	9,7	50,0	54	94	10	0,25	4					100	100
12,0	16			28	73	12	0,35	4	120	120				
12,0	26	11,6	38,0	38	83	12	0,35	4			120	120		
12,0	26	11,6	64,0	64	109	12	0,35	4					120	120
16,0	22			34	82	16	0,35	4	160	160				
16,0	32	15,5	44,0	44	92	16	0,35	4			160	160		
16,0	32	15,5	80,0	84	132	16	0,35	4					160	160
20,0	26			42	92	20	0,35	4	200	200				
20,0	38	19,5	54,0	54	104	20	0,35	4			200	200		
20,0	38	19,5	100,0	104	154	20	0,35	4					200	200
P									●	●	●	●	●	●
M										●		●		●
K									●	○	●	○	●	○
N										○		○		○
S										●		●		●
H														
O														

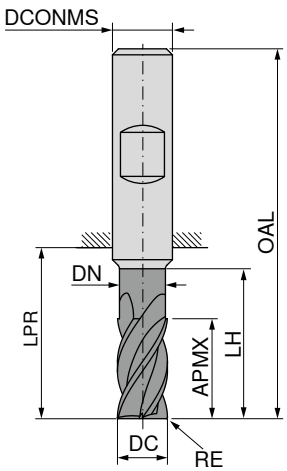
→ v_c/f_z Page 450–453

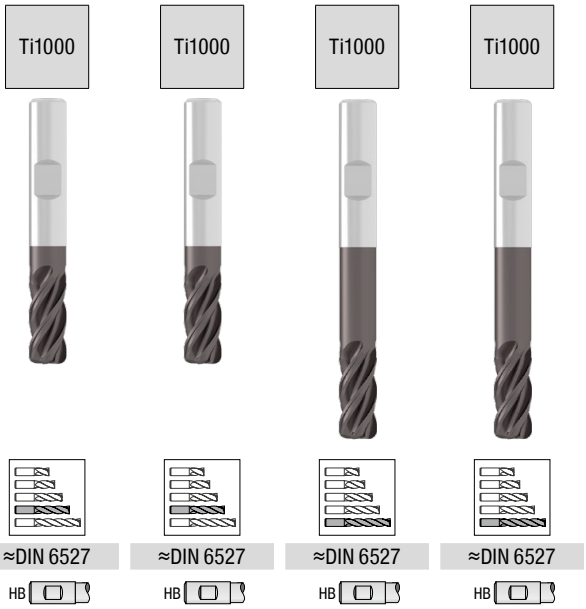
End milling cutter with corner radius

- ▲ irregular helix angle
- ▲ 54 053 ... / 54 054 ...: special cutting edge preperation for the machining of steel
- ▲ 54 063 ... / 54 064 ...: special cutting edge preperation for the machining of stainless steel









≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527

HB | HB | HB | HB

DC h10 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	54 053 ...	54 063 ...	54 054 ...	54 064 ...
3	0,1	8	2,8	12	21	57	6	4	03001	03001		
3	0,1	8	2,8	15	34	70	6	4			03001	03001
3	0,3	8	2,8	12	21	57	6	4	03003	03003		
3	0,3	8	2,8	15	34	70	6	4			03003	03003
3	0,5	8	2,8	12	21	57	6	4	03005	03005		
3	0,5	8	2,8	15	34	70	6	4			03005	03005
3	1,0	8	2,8	12	21	57	6	4	03010	03010		
3	1,0	8	2,8	15	34	70	6	4			03010	03010
4	0,1	11	3,8	15	21	57	6	4	04001	04001		
4	0,1	11	3,8	20	34	70	6	4			04001	04001
4	0,3	11	3,8	15	21	57	6	4	04003	04003		
4	0,3	11	3,8	20	34	70	6	4			04003	04003
4	0,5	11	3,8	15	21	57	6	4	04005	04005		
4	0,5	11	3,8	20	34	70	6	4			04005	04005
4	1,0	11	3,8	15	21	57	6	4	04010	04010		
4	1,0	11	3,8	20	34	70	6	4			04010	04010
5	0,1	13	4,8	17	21	57	6	4	05001	05001		
5	0,1	13	4,8	25	34	70	6	4			05001	05001
5	0,3	13	4,8	17	21	57	6	4	05003	05003		
5	0,3	13	4,8	25	34	70	6	4			05003	05003
5	0,5	13	4,8	17	21	57	6	4	05005	05005		
5	0,5	13	4,8	25	34	70	6	4			05005	05005
5	1,0	13	4,8	17	21	57	6	4	05010	05010		
5	1,0	13	4,8	25	34	70	6	4			05010	05010
6	0,1	13	5,8	21	21	57	6	4	06001	06001		
6	0,1	13	5,8	30	34	70	6	4			06001	06001
6	0,3	13	5,8	21	21	57	6	4	06003	06003		
6	0,3	13	5,8	30	34	70	6	4			06003	06003
6	0,5	13	5,8	21	21	57	6	4	06005	06005		
6	0,5	13	5,8	30	34	70	6	4			06005	06005
6	1,0	13	5,8	21	21	57	6	4	06010	06010		
6	1,0	13	5,8	30	34	70	6	4			06010	06010
6	1,5	13	5,8	21	21	57	6	4	06015	06015		
6	1,5	13	5,8	30	34	70	6	4			06015	06015
6	2,0	13	5,8	21	21	57	6	4	06020	06020		
6	2,0	13	5,8	30	34	70	6	4			06020	06020
8	0,1	19	7,7	27	27	63	8	4	08001	08001		
8	0,1	19	7,7	40	44	80	8	4			08001	08001
8	0,3	19	7,7	27	27	63	8	4	08003	08003		
8	0,3	19	7,7	40	44	80	8	4			08003	08003
8	0,5	19	7,7	27	27	63	8	4	08005	08005		

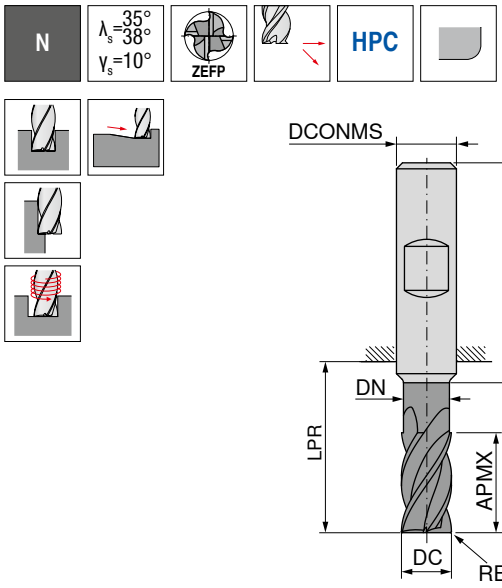
P	●	●	●	●
M		●		●
K	●	○	●	○
N		○		○
S		●		●
H				
O				

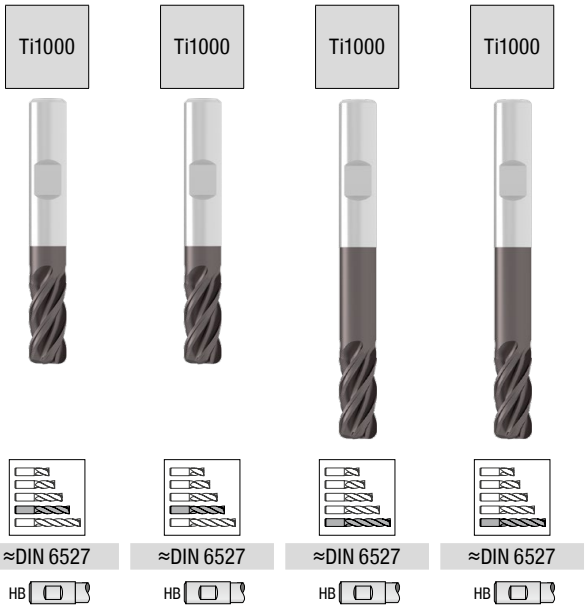
→ v_c/f_z Page 450–453

Continued on next page

End milling cutter with corner radius

- irregular helix angle
- 54 053 ... / 54 054 ...: special cutting edge preperation for the machining of steel
- 54 063 ... / 54 064 ...: special cutting edge preperation for the machining of stainless steel





≈DIN 6527 HB | ≈DIN 6527 HB | ≈DIN 6527 HB | ≈DIN 6527 HB

DC h10 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	54 053 ...	54 063 ...	54 054 ...	54 064 ...
8	0,5	19	7,7	40	44	80	8	4			08005	08005
8	1,0	19	7,7	27	27	63	8	4	08010	08010		
8	1,0	19	7,7	40	44	80	8	4			08010	08010
8	1,5	19	7,7	27	27	63	8	4	08015	08015		
8	1,5	19	7,7	40	44	80	8	4			08015	08015
8	1,6	19	7,7	27	27	63	8	4	08016	08016		
8	1,6	19	7,7	40	44	80	8	4			08016	08016
8	2,0	19	7,7	27	27	63	8	4	08020	08020		
8	2,0	19	7,7	40	44	80	8	4			08020	08020
10	0,1	22	9,7	32	32	72	10	4	10001	10001		
10	0,1	22	9,7	50	54	94	10	4			10001	10001
10	0,3	22	9,7	32	32	72	10	4	10003	10003		
10	0,3	22	9,7	50	54	94	10	4			10003	10003
10	0,5	22	9,7	32	32	72	10	4	10005	10005		
10	0,5	22	9,7	50	54	94	10	4			10005	10005
10	1,0	22	9,7	32	32	72	10	4	10010	10010		
10	1,0	22	9,7	50	54	94	10	4			10010	10010
10	1,5	22	9,7	32	32	72	10	4	10015	10015		
10	1,5	22	9,7	50	54	94	10	4			10015	10015
10	1,6	22	9,7	32	32	72	10	4	10016	10016		
10	1,6	22	9,7	50	54	94	10	4			10016	10016
10	2,0	22	9,7	32	32	72	10	4	10020	10020		
10	2,0	22	9,7	50	54	94	10	4			10020	10020
12	0,1	26	11,6	38	38	83	12	4	12001	12001		
12	0,1	26	11,6	64	64	109	12	4			12001	12001
12	0,3	26	11,6	38	38	83	12	4	12003	12003		
12	0,3	26	11,6	64	64	109	12	4			12003	12003
12	0,5	26	11,6	38	38	83	12	4	12005	12005		
12	0,5	26	11,6	64	64	109	12	4			12005	12005
12	1,0	26	11,6	38	38	83	12	4	12010	12010		
12	1,0	26	11,6	64	64	109	12	4			12010	12010
12	1,5	26	11,6	38	38	83	12	4	12015	12015		
12	1,5	26	11,6	64	64	109	12	4			12015	12015
12	1,6	26	11,6	38	38	83	12	4	12016	12016		
12	1,6	26	11,6	64	64	109	12	4			12016	12016
12	2,0	26	11,6	38	38	83	12	4	12020	12020		
12	2,0	26	11,6	64	64	109	12	4			12020	12020
12	3,0	26	11,6	38	38	83	12	4	12030	12030		
12	3,0	26	11,6	64	64	109	12	4			12030	12030
16	0,1	32	15,5	44	44	92	16	4	16001	16001		
16	0,1	32	15,5	80	84	132	16	4			16001	16001

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

→ v_c/f_z Page 450–453

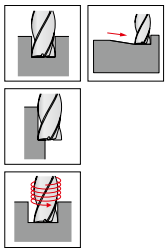
14

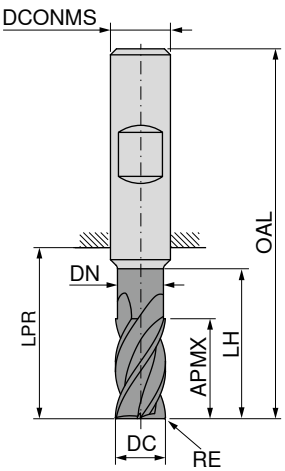
Continued on next page

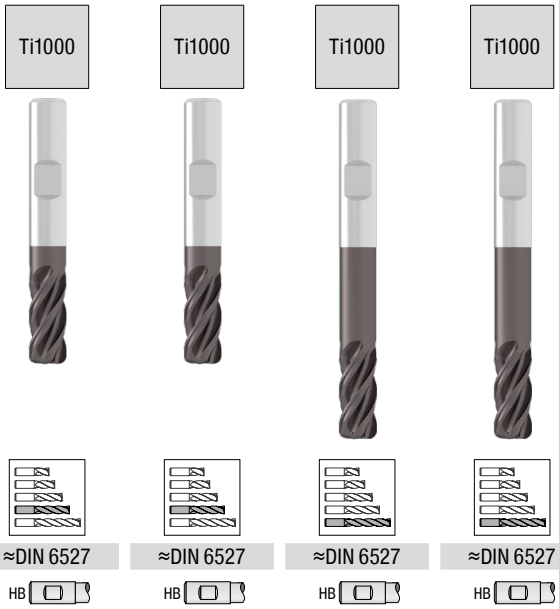
End milling cutter with corner radius

- irregular helix angle
- 54 053 ... / 54 054 ...: special cutting edge preperation for the machining of steel
- 54 063 ... / 54 064 ...: special cutting edge preperation for the machining of stainless steel









≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527

HB | HB | HB | HB

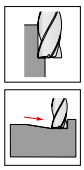
DC h10 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	54 053 ...		54 063 ...		54 054 ...		54 064 ...	
16	0,3	32	15,5	44	44	92	16	4		16003		16003				
16	0,3	32	15,5	80	84	132	16	4						16003		16003
16	0,5	32	15,5	44	44	92	16	4		16005		16005				
16	0,5	32	15,5	80	84	132	16	4						16005		16005
16	1,0	32	15,5	44	44	92	16	4		16010		16010				
16	1,0	32	15,5	80	84	132	16	4						16010		16010
16	1,5	32	15,5	44	44	92	16	4		16015		16015				
16	1,5	32	15,5	80	84	132	16	4						16015		16015
16	1,6	32	15,5	44	44	92	16	4		16016		16016				
16	1,6	32	15,5	80	84	132	16	4						16016		16016
16	2,0	32	15,5	44	44	92	16	4		16020		16020				
16	2,0	32	15,5	80	84	132	16	4						16020		16020
16	3,0	32	15,5	44	44	92	16	4		16030		16030				
16	3,0	32	15,5	80	84	132	16	4						16030		16030
16	4,0	32	15,5	44	44	92	16	4		16040		16040				
16	4,0	32	15,5	80	84	132	16	4						16040		16040
20	0,1	38	19,5	54	54	104	20	4		20001		20001				
20	0,1	38	19,5	100	104	154	20	4						20001		20001
20	0,3	38	19,5	54	54	104	20	4		20103		20003				
20	0,3	38	19,5	100	104	154	20	4						20003		20003
20	0,5	38	19,5	54	54	104	20	4		20205		20005				
20	0,5	38	19,5	100	104	154	20	4						20005		20005
20	1,0	38	19,5	54	54	104	20	4		20310		20010				
20	1,0	38	19,5	100	104	154	20	4						20010		20010
20	1,5	38	19,5	54	54	104	20	4		20415		20015				
20	1,5	38	19,5	100	104	154	20	4						20015		20015
20	1,6	38	19,5	54	54	104	20	4		20516		20016				
20	1,6	38	19,5	100	104	154	20	4						20016		20016
20	2,0	38	19,5	54	54	104	20	4		20620		20020				
20	2,0	38	19,5	100	104	154	20	4						20020		20020
20	3,0	38	19,5	54	54	104	20	4		20730		20030				
20	3,0	38	19,5	100	104	154	20	4						20030		20030
20	4,0	38	19,5	54	54	104	20	4		20840		20040				
20	4,0	38	19,5	100	104	154	20	4						20040		20040

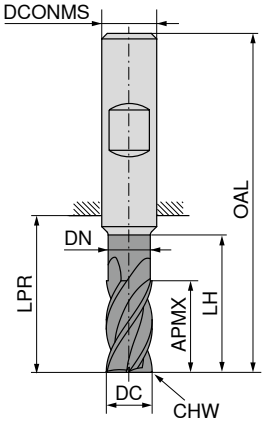
P	●	●	●	●
M		●		●
K	●	○	●	○
N		○		○
S		●		●
H				
O				

→ v_c/f_z Page 450–453

Finish milling cutter

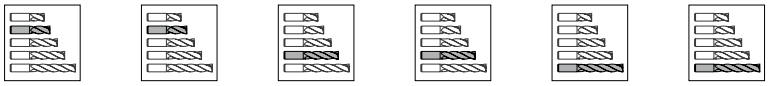






LPR with Shank DIN 6535 HB





Factory standard | Factory standard | Factory standard | Factory standard | Factory standard | Factory standard

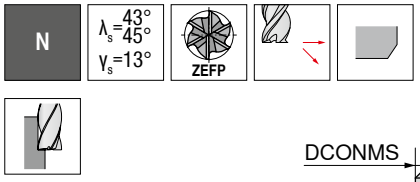
HA | HB | HA | HB | HA | HB

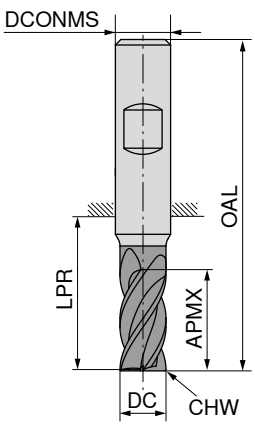
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 010 ...		52 011 ...		52 015 ...		52 016 ...		52 018 ...		52 019 ...	
5	8	4,8	13	18	54	6	0,02	6		**05000**		**05000**								
5	13	4,8	18	22	58	6	0,02	6						**05000**		**05000**				
6	10	5,8	15	18	54	6	0,03	6		**06000**		**06000**								
6	16	5,8	20	22	58	6	0,03	6						**06000**		**06000**				
6	21			29	65	6	0,03	6										**06000**		**06000**
7	12	6,8	17	23	59	8	0,04	6		**07000**		**07000**								
7	22	6,8	30	34	70	8	0,04	6						**07000**		**07000**				
7	25			39	75	8	0,04	6										**07000**		**07000**
8	12	7,8	17	23	59	8	0,04	6		**08000**		**08000**								
8	22	7,8	32	34	70	8	0,04	6						**08000**		**08000**				
8	28			39	75	8	0,04	6										**08000**		**08000**
9	14	8,8	19	20	60	10	0,04	6		**09000**		**09000**								
9	25	8,8	33	33	73	10	0,04	6						**09000**		**09000**				
9	30			45	85	10	0,04	6										**09000**		**09000**
10	14	9,8	19	20	60	10	0,05	6		**10000**		**10000**								
10	25	9,8	33	33	73	10	0,05	6						**10000**		**10000**				
10	35			45	85	10	0,05	6										**10000**		**10000**
12	16	11,8	21	25	70	12	0,05	6		**12000**		**12000**								
12	28	11,8	38	39	84	12	0,05	6						**12000**		**12000**				
12	45			55	100	12	0,05	6										**12000**		**12000**
14	18	13,8	23	25	70	14	0,06	6		**14000**		**14000**								
14	30	13,8	38	39	84	14	0,06	6						**14000**		**14000**				
16	20	15,8	28	32	80	16	0,06	8		**16000**		**16000**								
16	35	15,8	43	45	93	16	0,06	8						**16000**		**16000**				
16	50			62	110	16	0,06	8										**16000**		**16000**
16	65			77	125	16	0,06	8										**16100**		**16100**
20	25	19,8	33	35	85	20	0,07	8		**20000**		**20000**								
20	40	19,8	45	50	100	20	0,07	8						**20000**		**20000**				
20	55			65	115	20	0,07	8										**20000**		**20000**
20	70			80	130	20	0,07	8										**20100**		**20100**
25	55	24,8	63	69	125	25	0,08	8						**25000**		**25000**				
25	75			94	150	25	0,08	8										**25000**		**25000**
P									○		○		○		○		○		○	
M									●		●		●		●		●		●	
K									○		○		○		○		○		○	
N									●		●		●		●		●		●	
S									●		●		●		●		●		●	
H																				
O									●		●		●		●		●		●	

→ v_c/f_z Page 460–465

14

Finish milling cutter













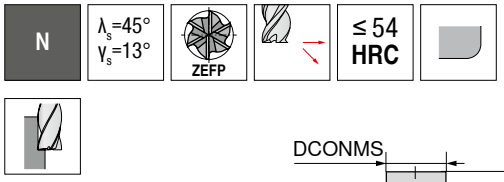
	≈DIN 6527	Factory standard
	HB	HB
	50 633 ...	50 633 ...

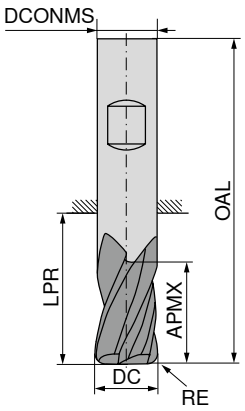
DC f8 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP		
4	11	21	57	6	0,15	6	040	
4	16	26	62	6	0,15	6		041
5	13	21	57	6	0,15	6	050	
5	18	26	62	6	0,15	6		051
6	13	21	57	6	0,15	6	060	
6	18	26	62	6	0,15	6		061
7	16	27	63	8	0,15	6	070	
7	21	32	68	8	0,15	6		071
8	19	27	63	8	0,15	6	080	
8	24	32	68	8	0,15	6		081
9	19	32	72	10	0,15	6	090	
9	27	40	80	10	0,15	6		091
10	22	32	72	10	0,15	6	100	
10	30	40	80	10	0,15	6		101
12	26	38	83	12	0,15	6	120	
12	36	48	93	12	0,15	6		121
14	26	38	83	14	0,15	6	140	
14	42	54	99	14	0,15	6		141
16	32	44	92	16	0,15	6	160	
16	48	60	108	16	0,15	6		161
16	65	77	125	16	0,15	6		162
16	75	102	150	16	0,15	6		163
16	95	102	150	16	0,15	6		164
18	32	44	92	18	0,15	8	180	
18	54	66	114	18	0,15	8		181
20	38	54	104	20	0,15	8	200	
20	60	76	126	20	0,15	8		201
20	75	85	135	20	0,15	8		202
20	95	100	150	20	0,15	8		203
25	75	94	150	25	0,15	8		250
25	95	104	160	25	0,15	8		251
32	75	90	150	32	0,15	8	320	
32	95	100	160	32	0,15	8		321

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

→ v_c/f_z Page 460–465

Finish milling cutter with corner radius





Ti1000





Factory standard

HB

50 634 ...

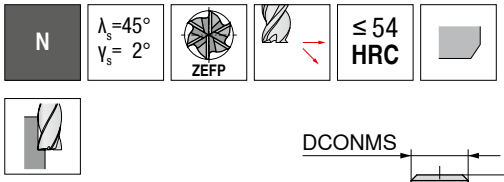
DC f8 mm	RE ±0,01 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	
6	1,0	18	26	62	6	6	**061**
6	0,5	18	26	62	6	6	**060**
8	2,0	24	32	68	8	6	**082**
8	1,0	24	32	68	8	6	**081**
8	0,5	24	32	68	8	6	**080**
10	0,5	30	40	80	10	6	**100**
10	2,0	30	40	80	10	6	**102**
10	1,0	30	40	80	10	6	**101**
12	2,0	36	48	93	12	6	**122**
12	1,0	36	48	93	12	6	**121**
12	3,0	36	48	93	12	6	**123**
12	0,5	36	48	93	12	6	**120**
16	2,0	48	60	108	16	6	**162**
16	1,0	48	60	108	16	6	**161**
16	3,0	48	60	108	16	6	**163**
16	0,5	48	60	108	16	6	**160**
20	0,5	60	76	126	20	8	**200**
20	2,0	60	76	126	20	8	**202**
20	3,0	60	76	126	20	8	**203**
20	1,0	60	76	126	20	8	**201**

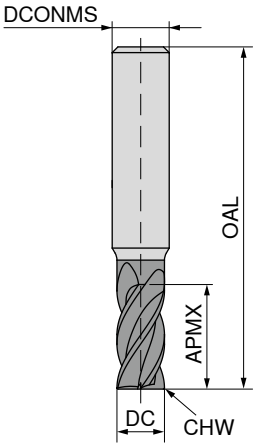
P	○
M	●
K	○
N	○
S	●
H	●
O	○

→ v_c/f_z Page 460–465

14

Finish milling cutter











Factory standard



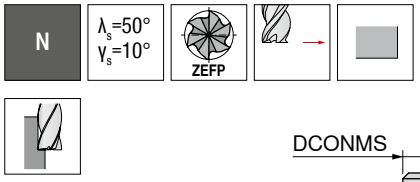
50 631 ...

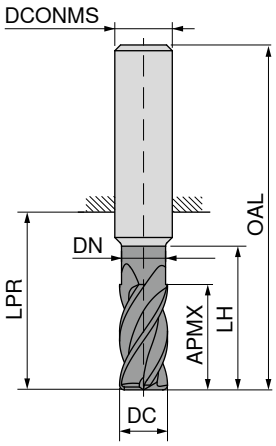
DC h10 mm	APMX mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	
4	14	40	4	0,05	5	**040**
5	18	50	5	0,05	5	**050**
6	18	50	6	0,05	7	**060**
8	25	63	8	0,05	7	**080**
10	30	72	10	0,08	9	**100**
12	32	83	12	0,08	9	**120**
14	32	83	14	0,08	9	**140**
16	36	92	16	0,08	11	**160**
18	40	92	18	0,08	11	**180**
20	45	104	20	0,08	13	**200**
25	45	120	25	0,08	13	**250**

P	○
M	●
K	○
N	○
S	●
H	
O	○

→ v_c/f_z Page 460–463

Finish milling cutter





Ti1000





Factory standard

HA

52 109 ...

DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
6	16	5,8	26	26	58	6	8	**060**
8	22	7,8	32	32	64	8	10	**080**
10	25	9,8	35	35	73	10	12	**100**
12	28	11,8	38	39	84	12	12	**120**
16	35	15,8	43	45	93	16	16	**160**
20	40	19,8	50	54	104	20	16	**200**

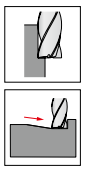
P	○
M	●
K	○
N	●
S	●
H	
O	●

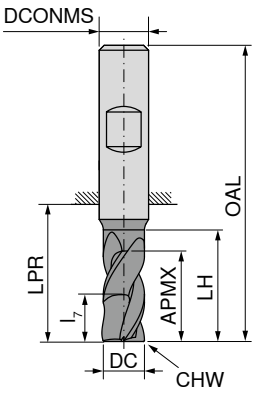
→ v_c/f_z Page 460–463

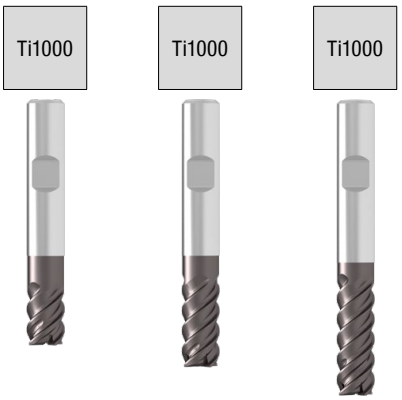
End milling cutter

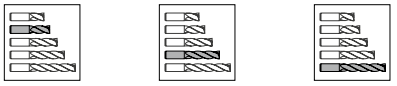
▲ With graduated flute depth











DIN 6527 | DIN 6527 | DIN 6527

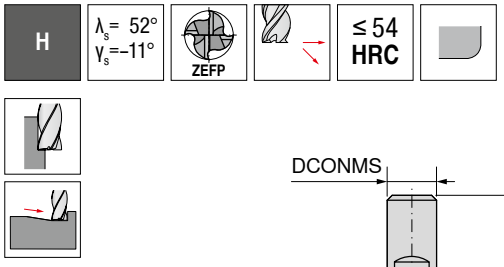
HB | HB | HB

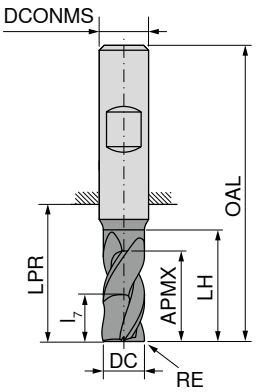
DC f8 mm	APMX mm	LH mm	l7 mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	50 907 ...	50 907 ...	50 907 ...
4	8	15	4,4	18	54	6	0,15	4	040		
4	11	18	4,4	21	57	6	0,15	4		041	
4	16	19	6,4	26	62	6	0,15	4			042
5	9	16	4,8	18	54	6	0,15	4	050		
5	13	19	4,8	21	57	6	0,15	4		051	
5	17	20	6,8	26	62	6	0,15	4			052
6	10	17	5,2	18	54	6	0,15	4	060		
6	13	19	5,2	21	57	6	0,15	4		061	
6	18	21	7,2	26	62	6	0,15	4			062
8	12	20	7,6	22	58	8	0,15	4	080		
8	19	25	7,6	27	63	8	0,15	4		081	
8	24	27	9,6	32	68	8	0,15	4			082
10	14	24	8,8	26	66	10	0,15	4	100		
10	22	30	8,8	32	72	10	0,15	4		101	
10	30	33	12,0	40	80	10	0,15	4			102
12	16	26	10,4	28	73	12	0,15	4	120		
12	26	36	10,4	38	83	12	0,15	4		121	
12	36	39	14,4	48	93	12	0,15	4			122
14	18	28	10,4	30	75	14	0,15	4	140		
14	26	36	10,4	38	83	14	0,15	4		141	
14	42	45	16,8	54	99	14	0,15	4			142
16	22	32	12,8	34	82	16	0,15	4	160		
16	32	42	12,8	44	92	16	0,15	4		161	
16	48	51	19,2	60	108	16	0,15	4			162
18	24	34	12,8	36	84	18	0,15	4	180		
18	32	42	12,8	44	92	18	0,15	4		181	
18	54	57	21,6	66	114	18	0,15	4			182
20	26	42	15,2	42	92	20	0,15	4	200		
20	38	52	15,2	54	104	20	0,15	4		201	
20	60	63	24,0	76	126	20	0,15	4			202
P									●	●	●
M											
K											
N											
S											
H									●	●	●
O											

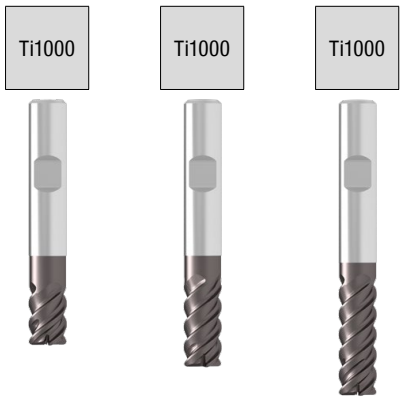
→ v_c/f_z Page 460–465

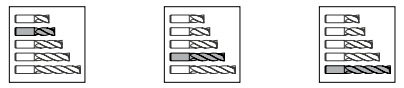
End milling cutter with corner radius

▲ With graduated flute depth









Factory standard | Factory standard | Factory standard

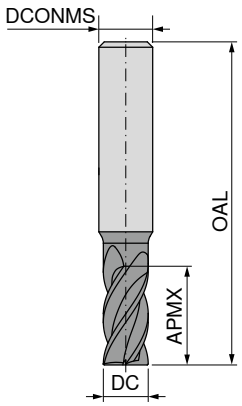
HB | HB | HB

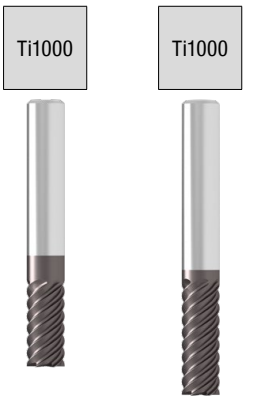
DC f8 mm	RE ±0,01 mm	APMX mm	LH mm	l_7 mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	50 908 ...	50 908 ...	50 908 ...
4	0,5	8	15	4,4	18	54	6	4	040		
4	0,5	11	18	4,4	21	57	6	4		041	
4	0,5	16	19	6,4	26	62	6	4			042
5	0,5	9	16	4,8	18	54	6	4	050		
5	0,5	13	19	4,8	21	57	6	4		051	
5	0,5	17	20	6,8	26	62	6	4			052
6	0,5	10	17	5,2	18	54	6	4	060		
6	0,5	13	19	5,2	21	57	6	4		061	
6	0,5	18	21	7,2	26	62	6	4			062
8	1,0	12	20	7,6	22	58	8	4	080		
8	1,0	19	25	7,6	27	63	8	4		081	
8	1,0	24	27	9,6	32	68	8	4			082
10	1,0	14	24	8,8	26	66	10	4	100		
10	1,0	22	30	8,8	32	72	10	4		101	
10	1,0	30	33	12,0	40	80	10	4			102
12	1,5	16	26	10,4	28	73	12	4	120		
12	1,5	26	36	10,4	38	83	12	4		121	
12	1,5	36	39	14,4	48	93	12	4			122
14	1,5	18	28	10,4	30	75	14	4	140		
14	1,5	26	36	10,4	38	83	14	4		141	
14	1,5	42	45	16,8	54	99	14	4			142
16	2,0	22	32	12,8	34	82	16	4	160		
16	2,0	32	42	12,8	44	92	16	4		161	
16	2,0	48	51	19,2	60	108	16	4			162
18	2,0	24	34	12,8	36	84	18	4	180		
18	2,0	32	42	12,8	44	92	18	4		181	
18	2,0	54	57	21,6	66	114	18	4			182
20	2,0	26	40	15,2	42	92	20	4	200		
20	2,0	38	52	15,2	54	104	20	4		201	
20	2,0	60	63	24,0	76	126	20	4			202
P									●	●	●
M											
K											
N											
S											
H									●	●	●
O											

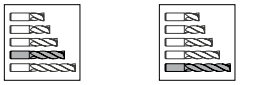
→ v_c/f_z Page 460–465

Finish milling cutter

H | λ_s=50° γ_s=–5° | ZEFP | ≤ 68 HRC







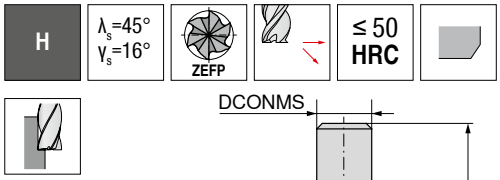
	DIN 6527	Factory standard
	HA	HA
	50 635 ...	50 635 ...

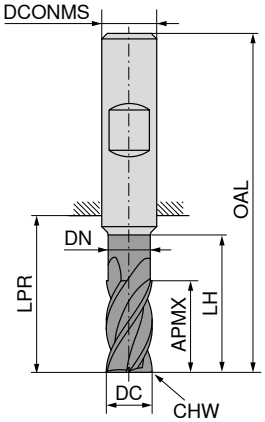
DC $_{f8}$ mm	APMX mm	OAL mm	DCONMS $_{h5}$ mm	ZEFP		
4	11	57	6	6	**040**	
4	16	62	6	6		**041**
5	13	57	6	6	**050**	
5	18	62	6	6		**051**
6	13	57	6	6	**060**	
6	18	62	6	6		**061**
8	19	63	8	6	**080**	
8	24	68	8	6		**081**
10	22	72	10	6	**100**	
10	30	80	10	6		**101**
12	26	83	12	6	**120**	
12	36	93	12	6		**121**
14	26	83	14	6	**140**	
14	42	99	14	6		**141**
16	32	92	16	8	**160**	
16	48	108	16	8		**161**
16	90	150	16	8		**162**
18	32	92	18	8	**180**	
18	54	114	18	8		**181**
20	38	104	20	8	**200**	
20	60	126	20	8		**201**
20	75	135	20	8		**202**
20	95	150	20	8		**203**
25	75	150	25	8	**250**	
25	95	160	25	8		**251**
32	75	150	32	8	**320**	
32	95	160	32	8		**321**

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

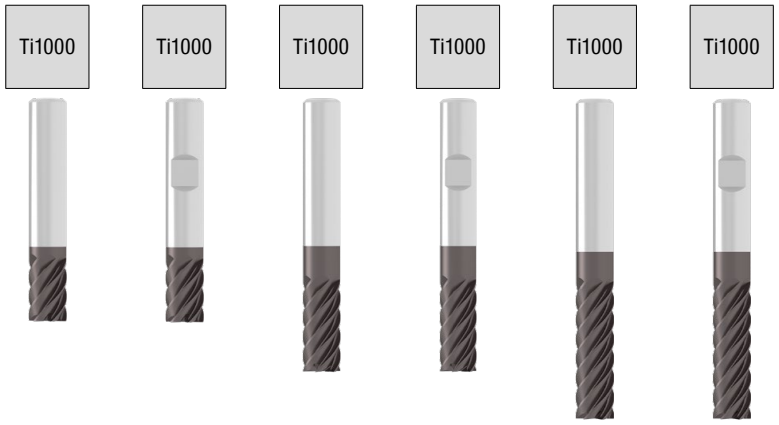
→ v_c/f_z Page 460–465

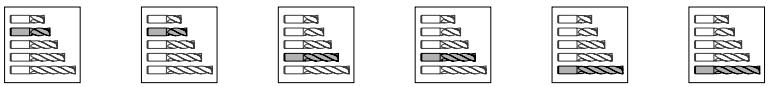
Finish milling cutter





LPR with Shank DIN 6535 HB

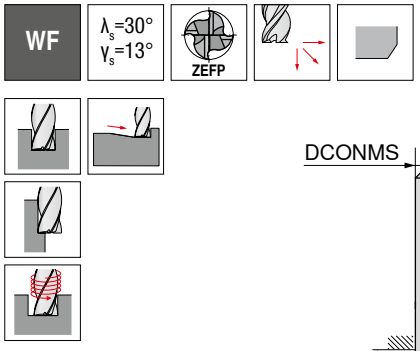


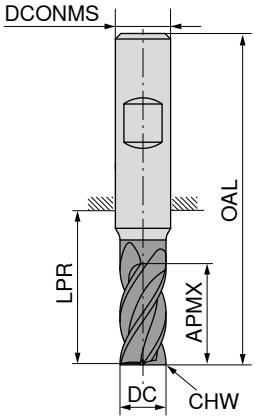


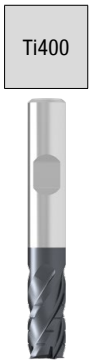
									Factory standard		Factory standard		Factory standard		Factory standard		Factory standard	
									HA		HB		HA		HB		HA		HB	
									52 112 ...		52 112 ...		52 122 ...		52 122 ...		52 123 ...		52 123 ...	
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP												
5	8	4,8	13	18	54	6	0,02	6		051		050								
5	13	4,8	18	22	58	6	0,02	6						051		050				
6	10	5,8	15	18	54	6	0,03	6		061		060								
6	16	5,8	20	22	58	6	0,03	6						061		060				
6	21			29	65	6	0,03	6										061		060
7	12	6,8	17	23	59	8	0,04	6		071		070								
7	22	6,8	30	34	70	8	0,04	6						071		070				
7	25			39	75	8	0,04	6										071		070
8	12	7,8	17	23	59	8	0,04	6		081		080								
8	22	7,8	32	34	70	8	0,04	6						081		080				
8	28			39	75	8	0,04	6										081		080
9	14	8,8	19	20	60	10	0,04	6		091		090								
9	25	8,8	33	33	73	10	0,04	6						091		090				
9	30			45	85	10	0,04	6										091		090
10	14	9,8	19	20	60	10	0,05	6		101		100								
10	25	9,8	33	33	73	10	0,05	6						101		100				
10	35			45	85	10	0,05	6										101		100
12	16	11,8	21	25	70	12	0,05	6		121		120								
12	28	11,8	38	39	84	12	0,05	6						121		120				
12	45			55	100	12	0,05	6										121		120
14	18	13,8	23	25	70	14	0,06	6		141		140								
14	30	13,8	38	39	84	14	0,06	6						141		140				
16	20	15,8	28	32	80	16	0,06	6		161		160								
16	35	15,8	43	45	93	16	0,06	6						161		160				
16	50			62	110	16	0,06	6										162		160
16	65			77	125	16	0,06	6										163		161
18	20	17,8	28	32	80	18	0,07	8		181		180								
18	35	17,8	43	45	93	18	0,07	8						181		180				
20	25	19,8	33	35	85	20	0,07	8		201		200								
20	40	19,8	45	50	100	20	0,07	8						201		200				
20	55			65	115	20	0,07	8										202		200
20	70			80	130	20	0,07	8										203		201
25	55	24,8	63	69	125	25	0,08	8						251		250				
25	75			94	150	25	0,08	8										251		250
P										○		○		○		○		○		○
M										●		●		●		●		●		●
K										○		○		○		○		○		○
N										●		●		●		●		●		●
S										●		●		●		●		●		●
H																				
O										●		●		●		●		●		●

→ v_c/f_z Page 460–465

Roughing-Finishing Cutter









DIN 6527

HB

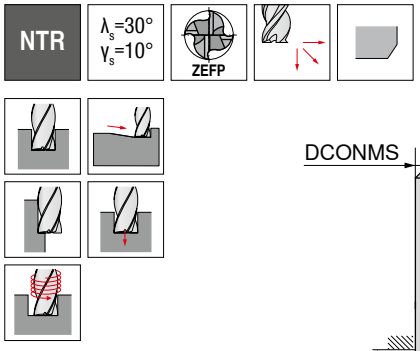
50 628 ...

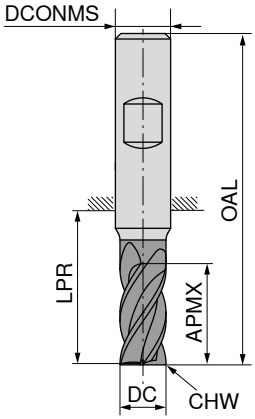
DC d11 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	
5	15	21	57	6	0,25	4	**050**
6	16	21	57	6	0,25	4	**060**
8	22	27	63	8	0,25	4	**080**
10	25	32	72	10	0,25	4	**100**
12	28	38	83	12	0,25	4	**120**
16	35	44	92	16	0,25	4	**160**
20	40	54	104	20	0,25	4	**200**

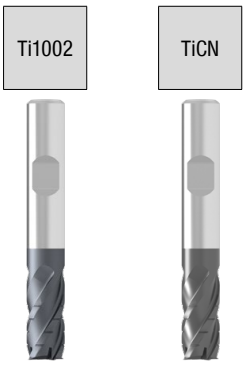
P	
M	
K	
N	●
S	○
H	
O	●

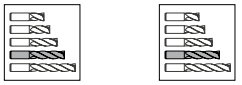
→ v_c/f_z Page 460–463

Roughing-Finishing Cutter









DIN 6527 | DIN 6527

HB | HB

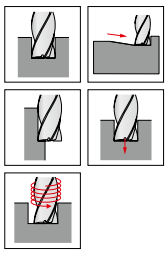
DC h10 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 301 ...	52 300 ...
6	13	21	57	6		3	**060**	**060**
8	19	27	63	8	0,08	3	**080**	**080**
10	22	32	72	10	0,12	4	**100**	**100**
12	26	38	83	12	0,15	4	**120**	**120**
14	26	38	83	14	0,17	4	**140**	**140**
16	32	44	92	16	0,20	4	**160**	**160**
18	32	48	92	18	0,22	4	**180**	**180**
20	38	54	104	20	0,25	4	**200**	**200**

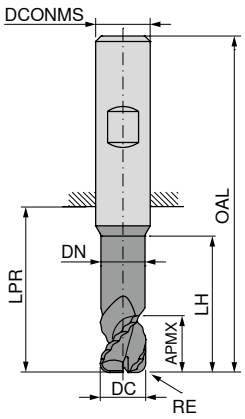
P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H	○	
O	○	○

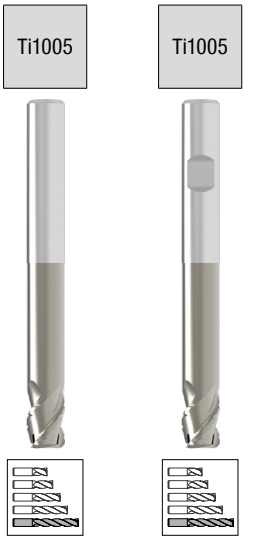
→ v_c/f_z Page 460–463

Rough milling cutter with corner radius

WR | λ_s=45° γ_s= 9° | ZEFP | HPC







Factory standard | Factory standard

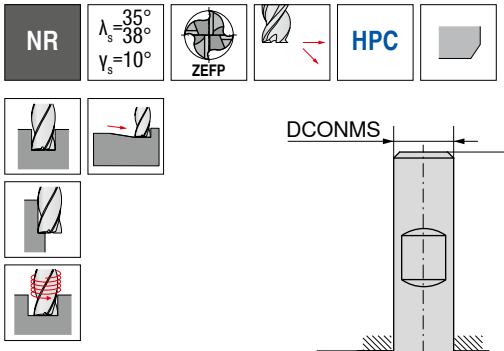
HA | HB

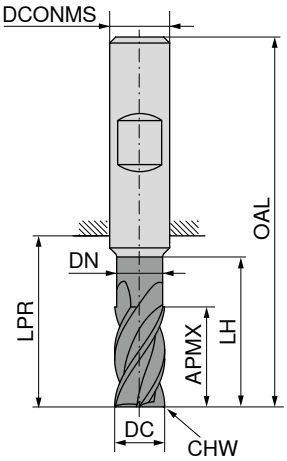
DC h6 mm	RE +/-0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	54 625 ...		54 627 ...	
3		4,5	2,8	15	22	58	6	3	030		030	
3		8,0	2,8	15	22	58	6	3	031		031	
4		5,5	3,8	20	26	62	6	3	040		040	
4		10,5	3,8	20	26	62	6	3	041		041	
5		7,0	4,8	25	34	70	6	3	050		050	
5		13,0	4,8	25	34	70	6	3	051		051	
6	1	8,5	5,8	30	34	70	6	3	061		061	
6	1	16,0	5,8	30	34	70	6	3	062		062	
7	1	11,0	6,7	40	44	80	8	3	071		071	
7	1	21,0	6,7	40	44	80	8	3	072		072	
8	1	11,0	7,7	40	44	80	8	3	081		081	
8	1	21,0	7,7	40	44	80	8	3	082		082	
9	1	14,0	8,7	50	54	94	10	3	091		091	
9	1	26,0	8,7	50	54	94	10	3	092		092	
10	2	14,0	9,7	50	54	94	10	3	101		101	
10	2	26,0	9,7	50	54	94	10	3	102		102	
11	2	16,0	10,6	60	64	109	12	3	111		111	
11	2	31,0	10,6	60	64	109	12	3	112		112	
12	2	16,0	11,6	60	64	109	12	3	121		121	
12	2	31,0	11,6	60	64	109	12	3	122		122	
14	2	19,0	13,6	70	74	119	14	3	141		141	
14	2	36,0	13,6	70	74	119	14	3	142		142	
16	2	22,0	15,5	80	84	132	16	3	161		161	
16	2	41,0	15,5	80	84	132	16	3	162		162	
18	2	25,0	17,5	90	94	142	18	3	181		181	
18	2	47,0	17,5	90	94	142	18	3	182		182	
20	2	27,0	19,5	100	104	154	20	3	201		201	
20	2	52,0	19,5	100	104	154	20	3	202		202	

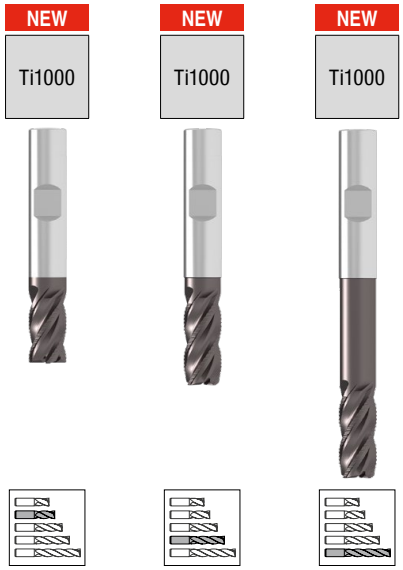
P		
M		
K		
N	●	●
S		
H		
O		

→ v_c/f_z Page 448+449

Rough milling cutter



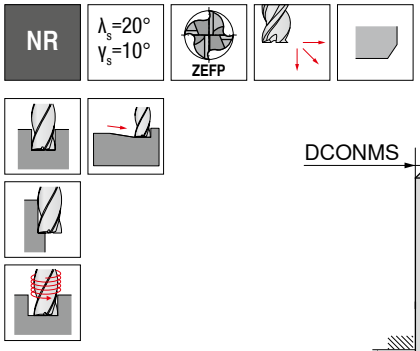


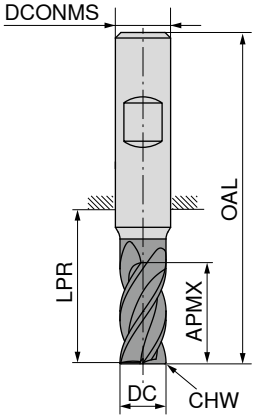


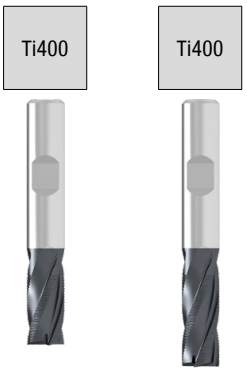
DC h10 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	DIN 6527 HB 54 000 ...	Factory standard HB 54 015 ...	Factory standard HB 54 015 ...
3	5			14	50	6	0,15	4	03100		
3	8	2,8	12	21	57	6	0,15	4		03200	
3	8	2,8	15	34	70	6	0,15	4			03400
4	8			18	54	6	0,15	4	04100		
4	11	3,8	15	21	57	6	0,15	4		04200	
4	11	3,8	20	34	70	6	0,15	4			04400
5	9			18	54	6	0,15	4	05100		
5	13	4,8	17	21	57	6	0,15	4		05200	
5	13	4,8	25	34	70	6	0,15	4			05400
6	10			18	54	6	0,15	4	06100		
6	13	5,8	21	21	57	6	0,15	4		06200	
6	13	5,8	30	34	70	6	0,15	4			06400
8	12			22	58	8	0,25	4	08100		
8	19	7,7	27	27	63	8	0,25	4		08200	
8	19	7,7	40	44	80	8	0,25	4			08400
10	14			26	66	10	0,25	4	10100		
10	22	9,7	32	32	72	10	0,25	4		10200	
10	22	9,7	50	54	94	10	0,25	4			10400
12	16			28	73	12	0,35	4	12100		
12	26	11,6	38	38	83	12	0,35	4		12200	
12	26	11,6	64	65	109	12	0,35	4			12400
16	22			34	82	16	0,35	4	16100		
16	32	15,5	44	44	92	16	0,35	4		16200	
16	32	15,5	80	84	132	16	0,35	4			16400
20	26			42	92	20	0,35	4	20100		
20	38	19,5	54	54	104	20	0,35	4		20200	
20	38	19,5	100	104	154	20	0,35	4			20400
P									●	●	●
M									●	●	●
K									●	●	●
N									○	○	○
S									○	○	○
H											
O											

→ v_c/f_z Page 452+453

Rough milling cutter











DIN 6527 | DIN 6527

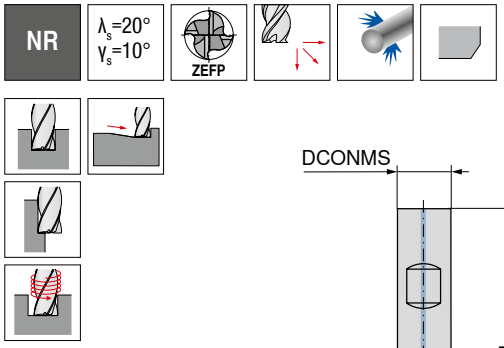
HB | HB

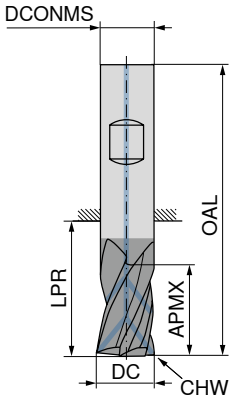
DC d11 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	50 618 ...	50 624 ...
4	8	21	57	6	0,6	4		040
5	8	18	54	6	0,6	4	050	
5	13	21	57	6	0,6	4		050
6	8	18	54	6	0,6	4	060	
6	13	21	57	6	0,6	4		060
7	11	22	58	8	0,6	4	070	
7	19	27	63	8	0,6	4		070
8	11	22	58	8	0,6	4	080	
8	19	27	63	8	0,6	4		080
9	13	26	66	10	0,6	4	090	
9	22	32	72	10	0,6	4		090
10	13	26	66	10	0,6	4	100	
10	22	32	72	10	0,6	4		100
11	26	38	83	12	0,6	4		110
12	16	28	73	12	0,6	4	120	
12	26	38	83	12	0,6	4		120
13	26	38	83	14	0,6	4		130
14	16	31	76	14	0,6	4	140	
14	26	38	83	14	0,6	4		140
16	19	34	82	16	0,6	4	160	
16	32	44	92	16	0,6	4		160
18	19	36	84	18	0,6	4	180	
18	32	44	92	18	0,6	4		180
20	19	42	92	20	0,6	4	200	
20	38	54	104	20	0,6	4		200
25	45	65	121	25	0,6	5		250

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

→ v_c/f_z Page 460–463

Rough milling cutter











DIN 6527

HB

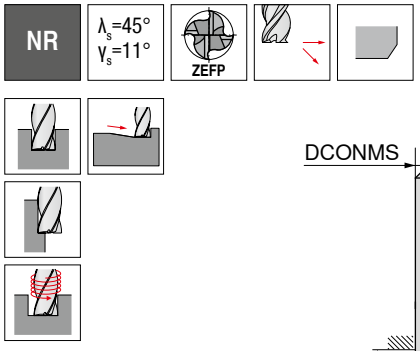
50 625 ...

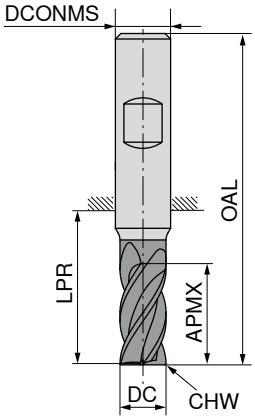
DC d11 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	
6	13	21	57	6	0,6	4	**060**
8	19	27	63	8	0,6	4	**080**
10	22	32	72	10	0,6	4	**100**
12	26	38	83	12	0,6	4	**120**
14	26	38	83	14	0,6	4	**140**
16	32	44	92	16	0,6	4	**160**
18	32	44	92	18	0,6	4	**180**
20	38	54	104	20	0,6	4	**200**

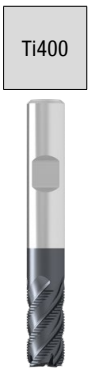
P	●
M	○
K	●
N	○
S	○
H	
O	○

→ v_c/f_z Page 460–463

Rough milling cutter









DIN 6527

HB

50 637 ...

DC d11 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	
6	13	21	57	6	0,5	4	**060**
8	19	27	63	8	0,5	4	**080**
10	22	32	72	10	0,5	4	**100**
12	26	38	83	12	0,5	4	**120**
14	26	38	83	14	0,5	4	**140**
16	32	44	92	16	0,5	5	**160**
18	32	44	92	18	0,5	5	**180**
20	38	54	104	20	0,5	6	**200**
25	45	65	121	25	0,5	6	**250**

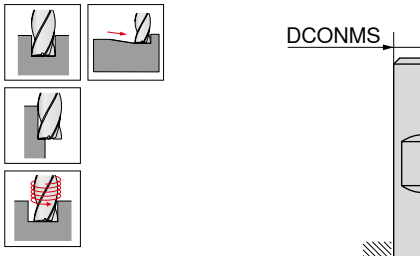
P	○
M	●
K	○
N	○
S	●
H	
O	○

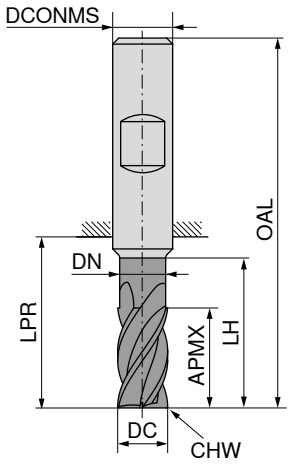
→ v_c/f_z Page 460–463

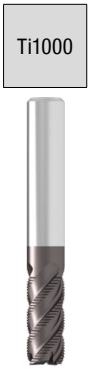
Rough milling cutter

▲ with integrated chip breakers in the flutes

HR | λ_s=55° γ_s= 5° | ZEFP













Factory standard

HA

Factory standard

HB

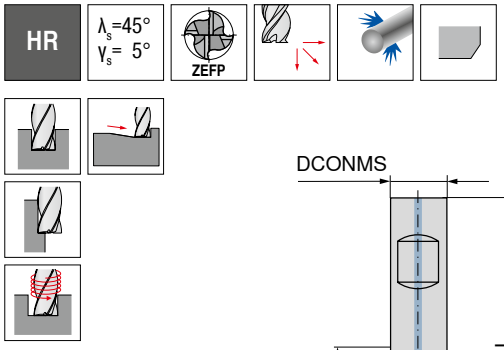
DC $_{h11}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	CHW mm	ZEFP	52 340 ...	52 341 ...
6	16	5,8	21	22	58	6	0,15	4	**060**	**060**
8	22	7,7	27	34	70	8	0,20	4	**080**	**080**
10	25	9,7	30	33	73	10	0,20	4	**100**	**100**
12	28	11,6	38	39	84	12	0,25	4	**120**	**120**
14	30	13,6	40	39	84	14	0,30	4	**140**	**140**
16	35	15,5	45	45	93	16	0,35	5	**160**	**160**
18	35	17,5	45	45	93	18	0,40	5	**180**	**180**
20	40	19,5	55	54	104	20	0,40	5	**200**	**200**
25	50	24,0	65	69	125	25	0,50	5	**250**	**250**
P									○	○
M									●	●
K									○	○
N										
S										
H										
O										

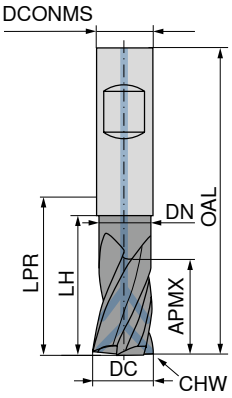
→ v_c/f_z Page 454+455

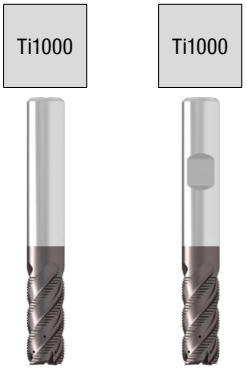
14

Rough milling cutter

▲ with integrated chip breakers in the flutes











Factory standard

HA

Factory standard

HB

DC h11 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 338 ...	52 339 ...
6	16	5,8	21	22	58	6	0,15	4	**060**	**060**
8	22	7,7	27	34	70	8	0,20	4	**080**	**080**
10	25	9,7	30	33	73	10	0,20	4	**100**	**100**
12	28	11,6	38	39	84	12	0,25	4	**120**	**120**
14	30	13,6	40	39	84	14	0,25	4	**140**	**140**
16	35	15,5	45	45	93	16	0,35	5	**160**	**160**
18	35	17,5	45	45	93	18	0,35	5	**180**	**180**
20	40	19,5	55	54	104	20	0,40	5	**200**	**200**
P									●	●
M									●	●
K									●	●
N										
S										
H										
O										

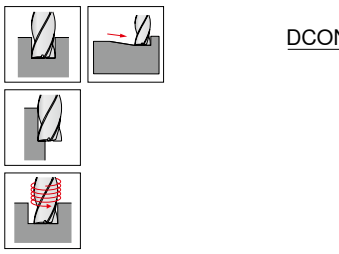
→ v_c/f_z Page 454+455

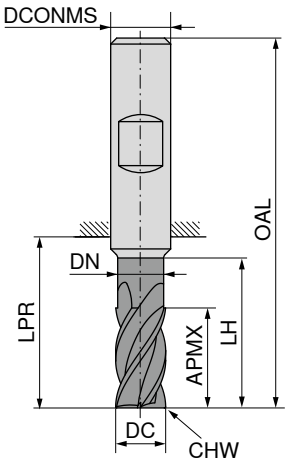
Rough milling cutter

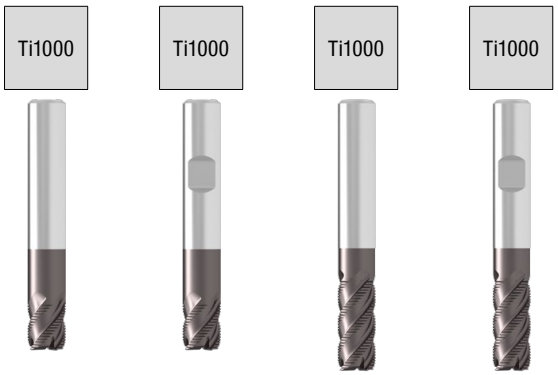
▲ with integrated chip breakers in the flutes

HR

λ_s=45°
γ_s= 5°









Factory standard | Factory standard | Factory standard | Factory standard

HA | HB | HA | HB

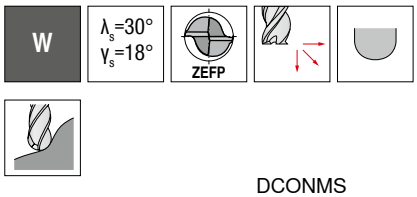
DC $_{h11}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	CHW mm	ZEFP	52 342 ...	52 343 ...	52 342 ...	52 343 ...
6	8	6,0		18	54	6	0,15	4	**060**	**060**		
6	16	5,8	21	22	58	6	0,15	4			**061**	**061**
8	11	8,0		23	59	8	0,20	4	**080**	**080**		
8	22	7,7	27	34	70	8	0,20	4			**081**	**081**
10	13	10,0		27	67	10	0,20	4	**100**	**100**		
10	25	9,7	30	33	73	10	0,20	4			**101**	**101**
12	16	12,0		29	74	12	0,25	4	**120**	**120**		
12	28	11,6	38	39	84	12	0,25	4			**121**	**121**
14	16	14,0		30	75	14	0,25	4	**140**	**140**		
14	30	13,5	40	39	84	14	0,25	4			**141**	**141**
16	19	16,0		36	84	16	0,35	5	**160**	**160**		
16	35	15,5	45	45	93	16	0,35	5			**161**	**161**
18	19	18,0		32	80	18	0,35	5	**180**	**180**		
18	35	17,5	45	45	93	18	0,35	5			**181**	**181**
20	19	20,0		43	93	20	0,40	5	**200**	**200**		
20	40	19,5	55	54	104	20	0,40	5			**201**	**201**
25	50	24,0	65	69	125	25	0,50	5			**251**	**251**
P									●	●	●	●
M									○	○	○	○
K									●	●	●	●
N												
S												
H												
O												

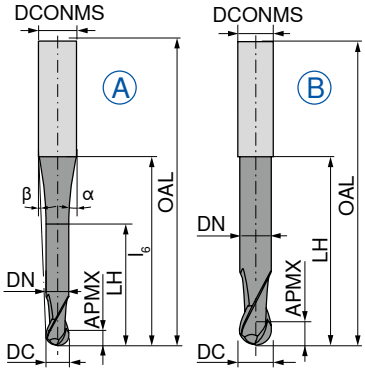
→ v_c/f_z Page 454+455

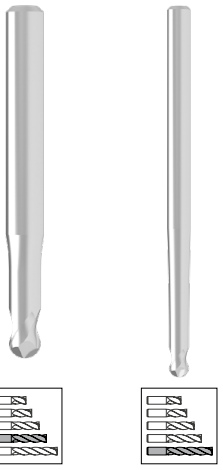
14

Ball Nosed Cutter

▲ Radius accuracy: ± 0.005 mm
▲ For Ø DC ≤ 5.0 mm, angle tolerance α and β: ± 0.5°







Factory standard
HA
52 718 ...

Factory standard
HA
52 720 ...

DC ±0,01 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	ZEFP	Fig.	52 718 ...	52 720 ...
0,5	1,0	0,45	2,0	9	38	10	8	3	2	A	**005**	
1,0	2,0	0,95	4,0	9	38	12,5	6,5	3	2	A	**010**	
1,5	2,5	1,40	7,5	9	38	32	5	3	2	A	**015**	
2,0	3,0	1,80	8,0	9	38	31	3,5	3	2	A	**020**	
3,0	3,5	2,80	10,0	20	57	11,5	5	6	2	A	**030**	
3,0	3,5	2,80	12,0	40	80	3,5	2,5	6	2	A		**030**
4,0	4,0	3,80	12,0	20	57	11	3,5	6	2	A	**040**	
4,0	4,0	3,80	20,0	40	80	4	1,5	6	2	A		**040**
5,0	5,0	4,70	10,0	40	100	1,5	1	6	2	A		**050**
5,0	5,0	4,70	14,0	20	57	10	2	6	2	A	**050**	
6,0	6,0	5,60	20,0		57			6	2	B	**060**	
6,0	6,0	5,60	40,0		100			6	2	B		**060**
8,0	7,0	7,60	25,0		63			8	2	B	**080**	
8,0	7,0	7,60	60,0		120			8	2	B		**080**
10,0	8,0	9,60	30,0		72			10	2	B	**100**	
10,0	8,0	9,60	60,0		120			10	2	B		**100**
12,0	8,0	11,50	40,0		83			12	2	B	**120**	
12,0	10,0	11,50	70,0		160			12	2	B		**120**

P		
M		
K		
N	●	●
S	○	○
H		
O	●	●

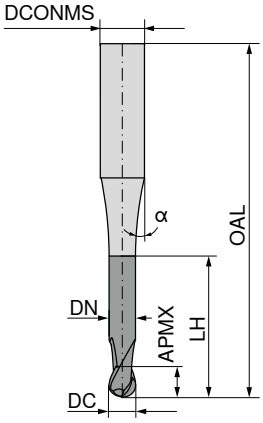
→ v_c/f_z Page 460–466

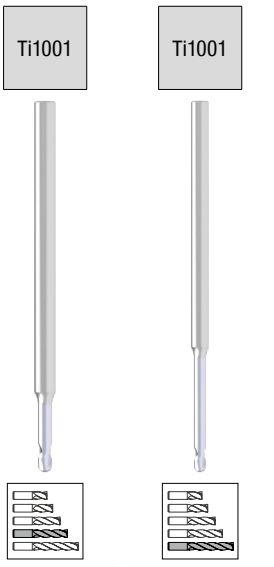
Ball Nosed Cutter

▲ Radius accuracy: ± 0.01 mm









Factory standard | Factory standard

HA | HA

DC f8 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 903 ...	50 903 ...
0,2	0,2	0,18	0,6	55	15	3	2	**021**	
0,2	0,2	0,18	1,0	55	15	3	2	**022**	
0,2	0,2	0,18	1,6	55	15	3	2	**023**	
0,2	0,2	0,18	2,0	55	15	3	2	**024**	
0,3	0,3	0,28	0,9	55	15	3	2	**031**	
0,3	0,3	0,28	1,5	55	15	3	2	**032**	
0,3	0,3	0,28	2,4	55	15	3	2	**033**	
0,3	0,3	0,28	3,0	55	15	3	2	**034**	
0,4	0,4	0,37	1,2	55	15	3	2	**041**	
0,4	0,4	0,37	2,0	55	15	3	2	**042**	
0,4	0,4	0,37	3,2	55	15	3	2	**043**	
0,4	0,4	0,37	4,0	55	15	3	2	**044**	
0,5	0,5	0,45	1,5	55	15	3	2	**051**	
0,5	0,5	0,45	2,5	55	15	3	2	**052**	
0,5	0,5	0,45	4,0	55	15	3	2	**053**	
0,5	0,5	0,45	5,0	55	15	3	2	**054**	
0,6	0,6	0,58	2,0	55	15	3	2	**061**	
0,6	0,6	0,58	3,0	55	15	3	2	**062**	
0,6	0,6	0,58	5,0	65	15	3	2		**063**
0,6	0,6	0,58	6,0	65	15	3	2		**064**
0,8	0,8	0,77	2,5	55	15	3	2	**081**	
0,8	0,8	0,77	4,0	55	15	3	2	**082**	
0,8	0,8	0,77	6,5	65	15	3	2		**083**
0,8	0,8	0,77	8,0	65	15	3	2		**084**
1,0	1,0	0,95	3,0	55	15	3	2	**101**	
1,0	1,0	0,95	5,0	55	15	3	2	**102**	
1,0	1,0	0,95	8,0	65	15	3	2		**103**
1,0	1,0	0,95	10,0	65	15	3	2		**104**
1,0	1,0	0,95	12,0	65	15	3	2		**105**
1,2	1,2	1,15	3,0	55	15	3	2	**121**	
1,2	1,2	1,15	6,0	55	15	3	2	**122**	
1,2	1,2	1,15	10,0	65	15	3	2		**123**
1,2	1,2	1,15	12,0	65	15	3	2		**124**
1,3	1,3	1,25	4,0	55	15	3	2	**131**	
1,3	1,3	1,25	7,0	55	15	3	2	**132**	
1,3	1,3	1,25	11,0	65	15	3	2		**133**
1,3	1,3	1,25	13,0	65	15	3	2		**134**
1,5	1,5	1,44	5,0	55	15	3	2	**151**	
1,5	1,5	1,44	7,5	55	15	3	2	**152**	

P		
M		
K		
N	●	●
S		
H		
O		

→ v_c/f_z Page 460–466

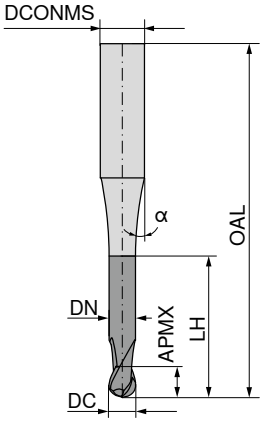
14

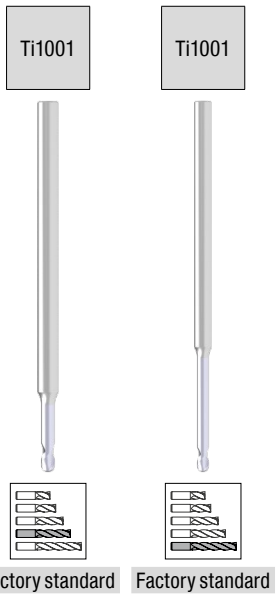
Continued on next page

Ball Nosed Cutter

▲ Radius accuracy: ± 0.01 mm







Factory standard | Factory standard

HA | HA

DC f8 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 903 ...	50 903 ...
1,5	1,5	1,44	12,0	65	15	3	2		154
1,5	1,5	1,44	15,0	65	15	3	2		153
1,6	1,6	1,52	5,0	55	15	3	2	161	
1,6	1,6	1,52	8,0	55	15	3	2	162	
1,6	1,6	1,52	13,0	65	15	3	2		163
1,6	1,6	1,52	16,0	65	15	3	2		164
1,8	1,8	1,72	5,5	55	15	3	2	181	
1,8	1,8	1,72	9,0	55	15	3	2	182	
1,8	1,8	1,72	14,5	65	15	3	2		183
1,8	1,8	1,72	18,0	65	15	3	2		184
2,0	2,0	1,92	6,0	55	15	3	2	201	
2,0	2,0	1,92	10,0	55	15	3	2	202	
2,0	2,0	1,92	14,0	55	15	3	2	203	
2,0	2,0	1,92	16,0	65	15	3	2		204
2,0	2,0	1,92	20,0	65	15	3	2		205
2,3	2,3	2,22	7,0	55	15	3	2	231	
2,3	2,3	2,22	11,5	55	15	3	2	232	
2,3	2,3	2,22	18,5	65	15	3	2		233
2,3	2,3	2,22	20,0	65	15	3	2		234
2,3	2,3	2,22	23,0	65	15	3	2		235
3,0	3,0	2,90	9,0	65	15	6	2	301	
3,0	3,0	2,90	15,0	65	15	6	2	302	
3,0	3,0	2,90	24,0	100	15	6	2		303
3,0	3,0	2,90	30,0	100	15	6	2		304
4,0	4,0	3,90	12,0	65	15	6	2	401	
4,0	4,0	3,90	20,0	65	15	6	2	402	
4,0	4,0	3,90	32,0	100	15	6	2		403
4,0	4,0	3,90	40,0	100	15	6	2		404
5,0	5,0	4,90	15,0	65	15	6	2	501	
5,0	5,0	4,90	25,0	65	15	6	2	502	
5,0	5,0	4,90	40,0	100	15	6	2		503
5,0	5,0	4,90	50,0	100	15	6	2		504
6,0	6,0	5,90	18,0	65	15	6	2	601	
6,0	6,0	5,90	30,0	100	15	6	2		602
6,0	6,0	5,90	48,0	100	15	6	2		603
6,0	6,0	5,90	60,0	100	15	6	2		604

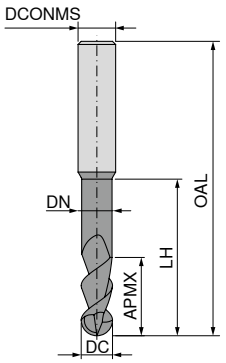
P		
M		
K		
N	●	●
S		
H		
O		

→ v_c/f_z Page 460–466

Ball Nosed Cutter

▲ Radius accuracy: ± 0,01 mm

W | λ_s=55° γ_s= 7° | ZEFP | HPC





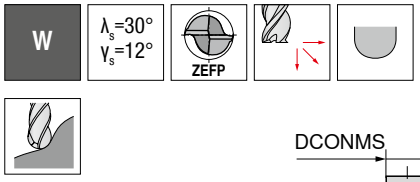


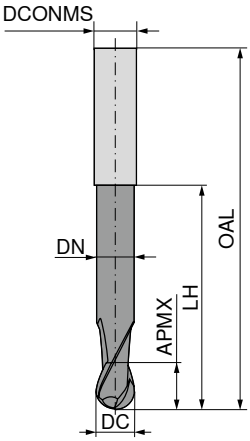
							Factory standard	Factory standard	Factory standard	Factory standard	Factory standard	Factory standard
							HA	HA	HA	HA	HA	HA
							54 640 ...	54 642 ...	54 640 ...	54 642 ...	54 640 ...	54 642 ...
DC $_{h6}$ mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS $_{h5}$ mm	ZEFP						
3	5,0	2,8	12	55	6	2	031	031				
3	3,5	2,8	15	58	6	2			034	034		
3	8,0	2,8	15	58	6	2			032	032		
3	3,5	2,8	24	67	6	2					035	035
4	6,5	3,8	12	55	6	2	041	041				
4	10,5	3,8	20	62	6	2			042	042		
4	4,5	3,8	20	62	6	2			044	044		
4	4,5	3,8	32	74	6	2					045	045
5	8,0	4,8	15	58	6	2	051	051				
5	13,0	4,8	25	70	6	2			052	052		
5	5,5	4,8	25	70	6	2			054	054		
5	5,5	4,8	40	88	6	2					055	055
6	10,0	5,8	18	58	6	2	061	061				
6	16,0	5,8	30	70	6	2			062	062		
6	7,0	5,8	30	70	6	2			064	064		
6	7,0	5,8	48	88	6	2					065	065
8	13,0	7,7	24	64	8	2	081	081				
8	21,0	7,7	40	80	8	2			082	082		
8	9,0	7,7	40	80	8	2			084	084		
8	9,0	7,7	64	104	8	2					085	085
10	16,0	9,7	30	74	10	2	101	101				
10	26,0	9,7	50	94	10	2			102	102		
10	11,0	9,7	50	94	10	2			104	104		
10	11,0	9,7	80	124	10	2					105	105
12	19,0	11,6	36	85	12	2	121	121				
12	31,0	11,6	60	109	12	2			122	122		
12	13,0	11,6	60	109	12	2			124	124		
12	13,0	11,6	96	145	12	2					125	125
14	22,0	13,6	42	91	14	2	141	141				
14	36,0	13,6	70	119	14	2			142	142		
14	15,0	13,6	70	119	14	2			144	144		
14	15,0	13,6	112	161	14	2					145	145
16	25,0	15,5	48	100	16	2	161	161				
16	41,0	15,5	80	132	16	2			162	162		
16	17,0	15,5	80	132	16	2			164	164		
16	17,0	15,5	128	180	16	2					165	165
18	29,0	17,5	54	106	18	2	181	181				
18	47,0	17,5	90	142	18	2			182	182		
18	20,0	17,5	90	142	18	2			184	184		
18	20,0	17,5	144	196	18	2					185	185
20	32,0	19,5	60	114	20	2	201	201				
20	52,0	19,5	100	154	20	2			202	202		
20	22,0	19,5	100	154	20	2			204	204		
20	22,0	19,5	160	214	20	2					205	205
P												
M												
K												
N							●	●	●	●	●	●
S												
H												
O												

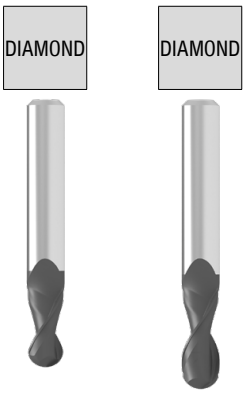
→ v_c/f_z Page 448+449

14

Ball Nosed Cutter











Factory standard | Factory standard

HA | HA

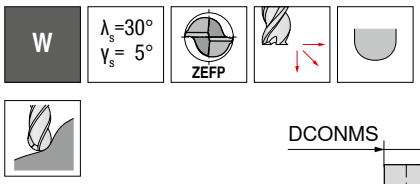
DC h10 mm	APMX mm	LH mm	DN mm	OAL mm	DCONMS h6 mm	ZEFP	52 766 ...	52 768 ...
0,5	1,5			38	3	2	**005**	
1,0	2,0			38	3	2	**010**	
2,0	3,0			38	3	2	**020**	
2,0	3,0			50	6	2	**021**	
2,0	8,0	31	1,8	60	2	2		**020**
3,0	5,0			38	3	2	**030**	
3,0	5,0			50	6	2	**031**	
3,0	12,0	41	2,8	70	3	2		**030**
4,0	8,0			54	6	2	**040**	
4,0	15,0	51	3,8	80	4	2		**040**
5,0	9,0			54	6	2	**050**	
5,0	20,0	71	4,8	100	5	2		**050**
6,0	10,0			54	6	2	**060**	
6,0	20,0	63	5,8	100	6	2		**060**
8,0	12,0			58	8	2	**080**	
8,0	20,0	83	7,8	120	8	2		**080**
10,0	14,0			66	10	2	**100**	
10,0	25,0	99	9,8	140	10	2		**100**
12,0	25,0	104	11,8	150	12	2		**120**

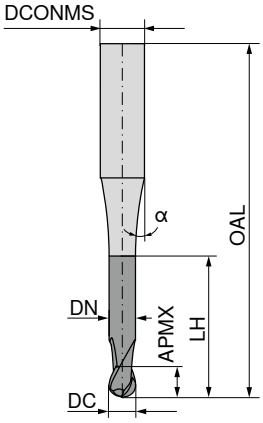
P		
M		
K		
N	●	●
S		
H		
O	●	●

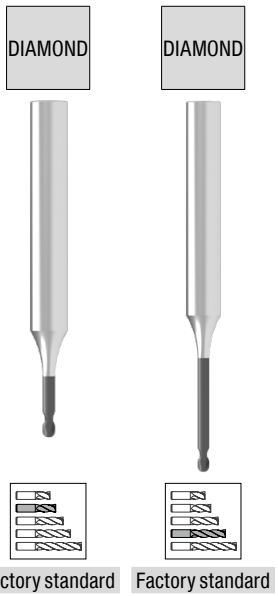
→ v_c/f_z Page 458

Micro-ball nosed cutter

▲ Radius accuracy: ± 0.01 mm







Factory standard | Factory standard

HA | HA

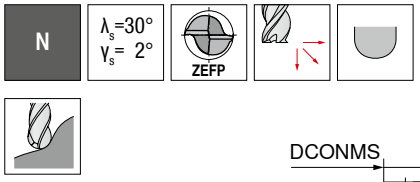
DC f8 mm	APMX mm	LH mm	DN mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 912 ...	50 912 ...
0,6	1,2	3,0	0,58	55	15	6	2	**906**	
0,6	1,2	6,0	0,58	65	15	6	2		**006**
0,8	1,2	4,0	0,77	55	15	6	2	**908**	
0,8	1,2	8,0	0,77	65	15	6	2		**008**
1,0	1,5	5,0	0,95	55	15	6	2	**910**	
1,0	1,5	12,0	0,95	65	15	6	2		**010**
1,2	1,6	6,0	1,15	55	15	6	2	**912**	
1,2	1,6	12,0	1,15	65	15	6	2		**012**
1,5	1,8	7,5	1,44	55	15	6	2	**915**	
1,5	1,8	15,0	1,44	65	15	6	2		**015**
2,0	2,0	10,0	1,92	55	15	6	2	**920**	
2,0	2,0	20,0	1,92	65	15	6	2		**020**
P									
M									
K									
N								●	●
S									
H									
O								●	●

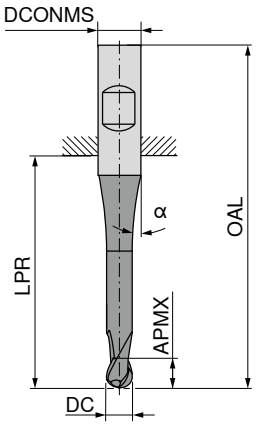
→ v_c/f_z Page 458

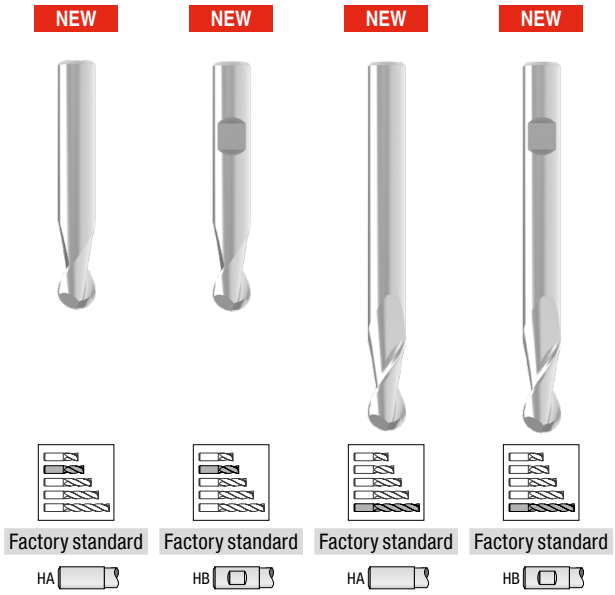
14

Ball Nosed Cutter

▲ Radius accuracy: ± 0,005 mm







DC f8 mm	APMX mm	LPR mm	OAL mm	α°	DCONMS h6 mm	ZEFP	52 050 ...	52 052 ...	52 051 ...	52 053 ...
0,10	0,2	12,5	38	8	3	2	**91000**			
0,15	0,3	11,5	38	8	3	2	**91500**			
0,20	0,4	12,0	38	8	3	2	**92000**			
0,25	0,5	12,5	38	8	3	2	**92500**			
0,30	1,0	11,3	38	8	3	2	**93000**			
0,35	1,0	11,1	38	8	3	2	**93500**			
0,40	1,0	10,9	38	8	3	2	**94000**			
0,50	1,5	11,7	38	7	3	2	**95000**			
0,50	1,5	18,0	54	11	6	2	**95100**			
0,50	1,5	47,0	75	7	3	2			**95000**	
0,50	1,5	44,0	80	11	6	2			**95100**	
0,60	1,5	11,3	38	7	3	2	**96000**			
0,70	2,0	11,4	38	7	3	2	**97000**			
0,80	2,0	11,7	38	7	3	2	**98000**			
0,90	2,5	11,7	38	7	3	2	**99000**			
1,00	2,0	22,0	50	7	3	2	**31000**			
1,00	2,0	18,0	54	10	6	2	**01000**	**01000**		
1,00	3,0	47,0	75	7	3	2			**31000**	
1,00	3,0	44,0	80	10	6	2			**01000**	**01000**
1,10	3,0	22,0	50	6	3	2	**31100**			
1,20	3,0	22,0	50	5	3	2	**31200**			
1,40	3,0	22,0	50	5	3	2	**31400**			
1,50	3,0	22,0	50	6	3	2	**31500**			
1,50	3,0	18,0	54	10	6	2	**01500**	**01500**		
1,50	4,0	47,0	75	5	3	2			**31500**	
1,50	4,0	44,0	80	10	6	2			**01500**	**01500**
1,60	4,0	22,0	50	6	3	2	**31600**			
1,80	4,0	22,0	50	6	3	2	**31800**			
2,00	4,0	22,0	50	5	3	2	**32000**			
2,00	4,0	18,0	54	9	6	2	**02000**	**02000**		
2,00	6,0	47,0	75	5	3	2			**32000**	
2,00	6,0	44,0	80	10	6	2			**02000**	**02000**
2,50	5,0	22,0	50	3	3	2	**32500**			
2,50	5,0	18,0	54	9	6	2	**02500**	**02500**		
2,50	8,0	47,0	75	3	3	2			**32500**	
2,50	8,0	44,0	80	10	6	2			**02500**	**02500**
3,00	6,0	22,0	50		3	2	**33000**			
3,00	6,0	18,0	54	9	6	2	**03000**	**03000**		
3,00	10,0	47,0	75		3	2			**33000**	
3,00	10,0	44,0	80	9	6	2			**03000**	**03000**

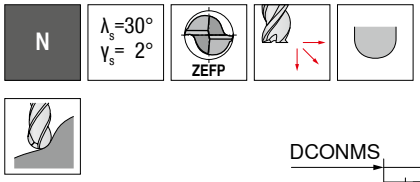
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H				
O	○	○	○	○

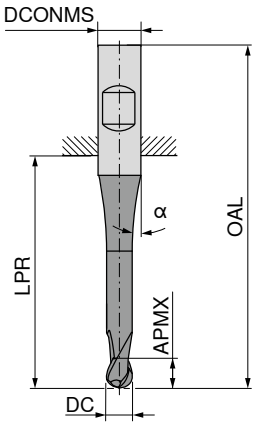
→ v_c/f_z Page 460–466

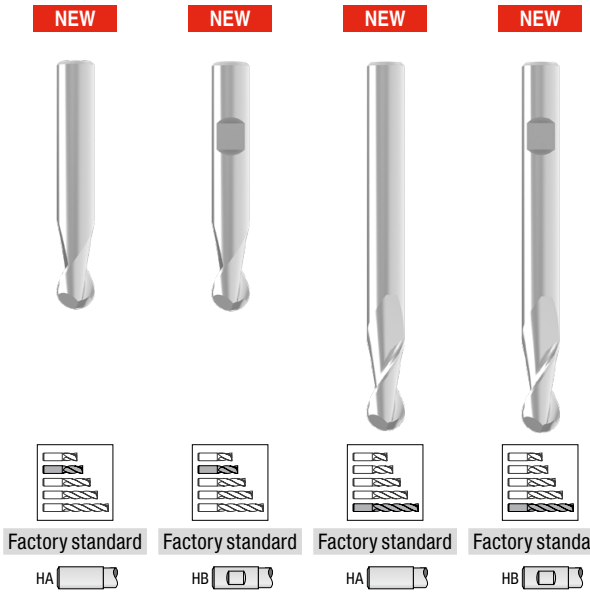
Continued on next page

Ball Nosed Cutter

▲ Radius accuracy: ± 0,005 mm







Factory standard | Factory standard | Factory standard | Factory standard

HA | HB | HA | HB

DC f8 mm	APMX mm	LPR mm	OAL mm	α°	DCONMS h6 mm	ZEFP	52 050 ...		52 052 ...		52 051 ...		52 053 ...	
4,00	7,0	18,0	54	7	6	2	**04000**		**04000**					
4,00	7,0	26,0	54		4	2	**44000**							
4,00	13,0	47,0	75		4	2					**44000**			
4,00	13,0	44,0	80	8	6	2					**04000**		**04000**	
5,00	8,0	18,0	54	6	6	2	**05000**		**05000**					
5,00	8,0	26,0	54		5	2	**55000**							
5,00	14,0	47,0	75		5	2					**55000**			
5,00	14,0	64,0	100	5	6	2					**05000**		**05000**	
6,00	10,0	18,0	54		6	2	**06000**		**06000**					
6,00	16,0	64,0	100		6	2					**06000**		**06000**	
8,00	12,0	23,0	59		8	2	**08000**		**08000**					
8,00	22,0	64,0	100		8	2					**08000**		**08000**	
10,00	13,0	27,0	67		10	2	**10000**		**10000**					
10,00	25,0	60,0	100		10	2					**10000**		**10000**	
12,00	16,0	28,0	73		12	2	**12000**		**12000**					
12,00	26,0	55,0	100		12	2					**12000**		**12000**	
14,00	16,0	30,0	75		14	2	**14000**		**14000**					
14,00	26,0	55,0	100		14	2					**14000**		**14000**	
16,00	20,0	35,0	83		16	2	**16000**		**16000**					
16,00	30,0	102,0	150		16	2					**16000**		**16000**	
20,00	25,0	43,0	93		20	2	**20000**		**20000**					
20,00	40,0	100,0	150		20	2					**20000**		**20000**	

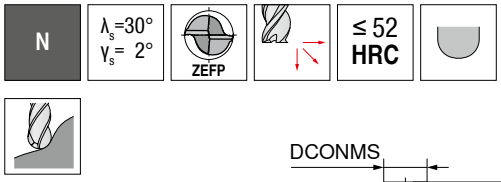
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H				
O	○	○	○	○

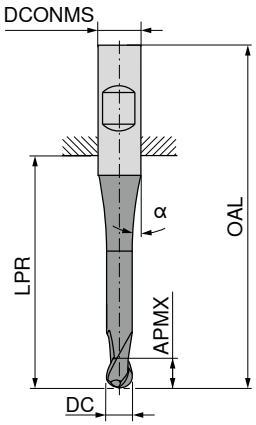
→ v_c/f_z Page 460–466

14

Ball Nosed Cutter

▲ Radius accuracy: ± 0,005 mm







DC f8 mm	APMX mm	LPR mm	OAL mm	α°	DCONMS h6 mm	ZEFP	52 054 ...		52 056 ...		52 055 ...		52 057 ...	
0,10	0,2	12,5	38	8	3	2	**91000**							
0,15	0,3	11,5	38	8	3	2	**91500**							
0,20	0,4	12,0	38	8	3	2	**92000**							
0,25	0,5	12,5	38	8	3	2	**92500**							
0,30	1,0	11,3	38	8	3	2	**93000**							
0,35	1,0	11,1	38	8	3	2	**93500**							
0,40	1,0	10,9	38	8	3	2	**94000**							
0,50	1,5	11,7	38	7	3	2	**95000**							
0,50	1,5	44,0	80	11	6	2					**95100**			
0,50	1,5	18,0	54	11	6	2	**95100**							
0,50	1,5	47,0	75	7	3	2					**95000**			
0,60	1,5	11,3	38	7	3	2	**96000**							
0,70	2,0	11,4	38	7	3	2	**97000**							
0,80	2,0	11,7	38	7	3	2	**98000**							
0,90	2,5	11,7	38	7	3	2	**99000**							
1,00	2,0	22,0	50	7	3	2	**31000**							
1,00	2,0	18,0	54	10	6	2	**01000**		**01000**					
1,00	3,0	47,0	75	7	3	2					**31000**			
1,00	3,0	44,0	80	10	6	2					**01000**		**01000**	
1,10	3,0	22,0	50	6	3	2	**31100**							
1,20	3,0	22,0	50	5	3	2	**31200**							
1,40	3,0	22,0	50	5	3	2	**31400**							
1,50	3,0	22,0	50	6	3	2	**31500**							
1,50	3,0	18,0	54	10	6	2	**01500**		**01500**					
1,50	4,0	47,0	75	5	3	2					**31500**			
1,50	4,0	44,0	80	10	6	2					**01500**		**01500**	
1,60	4,0	22,0	50	6	3	2	**31600**							
1,80	4,0	22,0	50	6	3	2	**31800**							
2,00	4,0	18,0	54	9	6	2	**02000**		**02000**					
2,00	4,0	22,0	50	5	3	2	**32000**							
2,00	6,0	47,0	75	5	3	2					**32000**			
2,00	6,0	44,0	80	10	6	2					**02000**		**02000**	
2,50	5,0	18,0	54	9	6	2	**02500**		**02500**					
2,50	5,0	22,0	50	3	3	2	**32500**							
2,50	8,0	47,0	75	3	3	2					**32500**			
2,50	8,0	44,0	80	10	6	2					**02500**		**02500**	

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

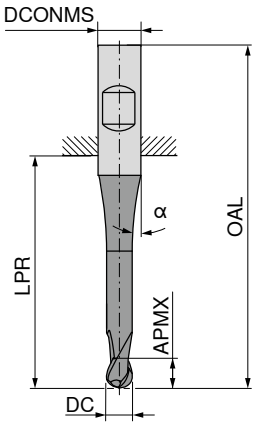
→ v_c/f_z Page 460–466

Continued on next page

Ball Nosed Cutter

▲ Radius accuracy: ± 0,005 mm

N | λ_s=30° γ_s= 2° | ZEFP | ≤ 52 HRC







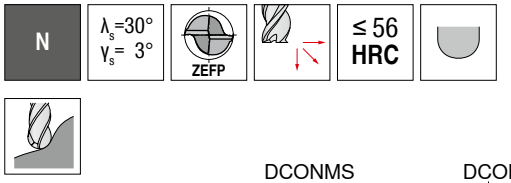
							Factory standard	Factory standard	Factory standard	Factory standard
							HA	HB	HA	HB
							52 054 ...	52 056 ...	52 055 ...	52 057 ...
DC f8 mm	APMX mm	LPR mm	OAL mm	α°	DCONMS h6 mm	ZEFP				
3,00	6,0	18,0	54	9	6	2	03000	03000		
3,00	6,0	22,0	50		3	2	33000			
3,00	10,0	47,0	75		3	2			33000	
3,00	10,0	44,0	80	9	6	2			03000	03000
4,00	7,0	18,0	54	10	6	2	04000	04000		
4,00	7,0	26,0	54		4	2	44000			
4,00	13,0	47,0	75		4	2			44000	
4,00	13,0	44,0	80	8	6	2			04000	04000
5,00	8,0	18,0	54	6	6	2	05000	05000		
5,00	8,0	26,0	54		5	2	55000			
5,00	14,0	47,0	75		5	2			55000	
5,00	14,0	64,0	100	5	6	2			05000	05000
6,00	10,0	18,0	54		6	2	06000	06000		
6,00	16,0	64,0	100		6	2			06000	06000
8,00	12,0	23,0	59		8	2	08000	08000		
8,00	22,0	64,0	100		8	2			08000	08000
10,00	13,0	27,0	67		10	2	10000	10000		
10,00	25,0	60,0	100		10	2			10000	10000
12,00	16,0	28,0	73		12	2	12000	12000		
12,00	26,0	55,0	100		12	2			12000	12000
14,00	16,0	30,0	75		14	2	14000	14000		
14,00	26,0	55,0	100		14	2			14000	14000
16,00	20,0	35,0	83		16	2	16000	16000		
16,00	30,0	102,0	150		16	2			16000	16000
18,00	22,0	45,0	93		18	2	18000	18000		
20,00	25,0	43,0	93		20	2	20000	20000		
20,00	40,0	100,0	150		20	2			20000	20000
P							●	●	●	●
M							○	○	○	○
K							●	●	●	●
N							○	○	○	○
S							○	○	○	○
H							○	○	○	○
O							○	○	○	○

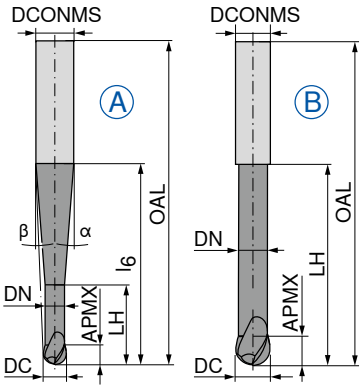
→ v_c/f_z Page 460–466

14

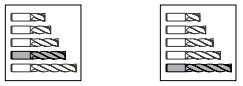
Ball Nosed Cutter

▲ Radius accuracy: ± 0.005 mm
▲ For Ø DC ≤ 5.0 mm, angle tolerance α and β: ± 0.5°









Factory standard | Factory standard

HA | HA

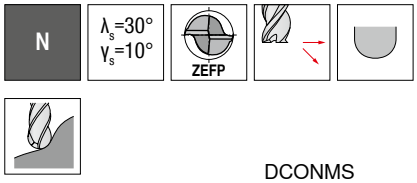
DC ±0,01 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	ZEFP	Fig.	52 714 ...	52 717 ...
0,5	1,0	0,45	2,0	20	57	10	8,5	6	2	A	**005**	
1,0	2,0	0,95	4,0	20	57	10	8	6	2	A	**010**	
1,0	2,0	0,95	4,0	40	80	4,5	4	6	2	A		**010**
1,5	2,5	1,40	7,5	20	57	12,5	7	6	2	A	**015**	
1,5	2,5	1,40	7,5	40	80	4,5	3,5	6	2	A		**015**
2,0	3,0	1,80	8,0	20	57	12	6,5	6	2	A	**020**	
2,0	3,0	1,80	8,0	40	80	4	3	6	2	A		**020**
3,0	3,5	2,80	10,0	20	57	11,5	5	6	2	A	**030**	
3,0	3,5	2,80	12,0	40	80	3,5	2,5	6	2	A		**030**
4,0	4,0	3,80	12,0	20	57	11	3,5	6	2	A	**040**	
4,0	4,0	3,80	20,0	40	80	4	1,5	6	2	A		**040**
5,0	5,0	4,70	14,0	20	57	10	2	6	2	A	**050**	
5,0	5,0	4,70	25,0	40	80	3	1	6	2	A		**050**
6,0	6,0	5,60	20,0		57			6	2	B	**060**	
6,0	6,0	5,60	40,0		80			6	2	B		**060**
6,0	6,0	5,60	25,0	60	100	2	1	8	2	A		**061**
8,0	7,0	7,60	25,0		63			8	2	B	**080**	
8,0	7,0	7,60	60,0		100			8	2	B		**080**
8,0	7,0	7,60	30,0	75	120	2	1	10	2	A		**081**
10,0	8,0	9,60	30,0		72			10	2	B	**100**	
10,0	8,0	9,60	50,0		100			10	2	B		**102**
10,0	8,0	9,60	75,0		120			10	2	B		**100**
10,0	8,0	9,60	40,0	110	160	1	1	12	2	A		**101**
12,0	10,0	11,50	35,0		83			12	2	B	**120**	
12,0	10,0	11,50	35,0	40	92	35	3,5	16	2	A	**121**	
12,0	10,0	11,50	70,0		120			12	2	B		**122**
12,0	10,0	11,50	70,0		160			12	2	B		**120**
12,0	10,0	11,50	50,0	150	200	1,5	1	16	2	A		**121**
16,0	12,0	15,50	40,0		92			16	2	B	**160**	
16,0	12,0	15,50	80,0		200			16	2	B		**160**

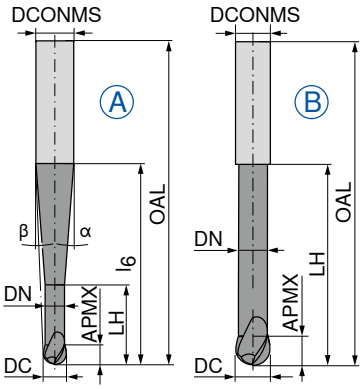
P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H	○	○
O	○	○

→ v_c/f_z Page 460–466

Ball Nosed Cutter

- Radius accuracy: ± 0,01 mm
- for Ø ≤ 5.0 mm, angle tolerance α and β: ± 0.5 °









Factory standard

HA

52 320 ...

DC e8 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h6 mm	ZEFP	Fig.	
2	3	1,8	8	40	100	3,6	3	6	2	A	**020**
3	4	2,8	12	40	100	3,1	2,1	6	2	A	**030**
4	5	3,8	16	40	100	2,4	1,2	6	2	A	**040**
5	6	4,7	20	40	100	1,4	0,7	6	2	A	**050**
6	6	5,7	25	50	100	2,3	1,2	8	2	A	**061**
6	6	5,7	25		100			6	2	B	**060**
8	7	7,7	32		100			8	2	B	**080**
8	7	7,7	32	60	120	2	1	10	2	A	**081**
10	9	9,6	40		120			10	2	B	**100**
10	9	9,6	40	81	160	1,4	0,7	12	2	A	**101**
12	11	11,6	50		160			12	2	B	**120**
12	11	11,6	50	101	200	2,3	1,2	16	2	A	**121**
16	14	15,6	60		200			16	2	B	**160**

P	●
M	○
K	●
N	○
S	○
H	
O	○

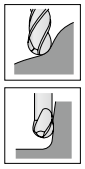
→ v_c/f_z Page 460–466

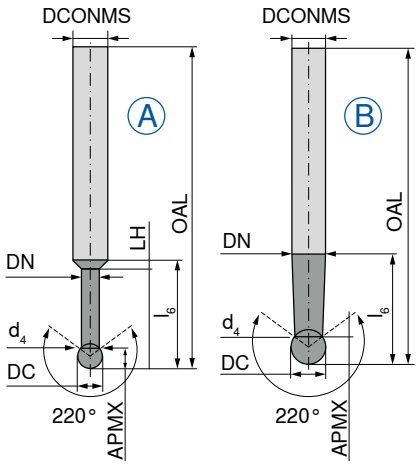
14

Ball Nosed Cutter 220°

▲ Radius accuracy: ± 0,005 mm







Ti1000





Factory standard

HA

52 323 ...

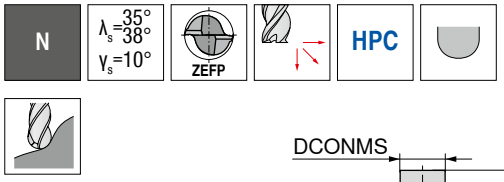
DC f8 mm	APMX mm	DN mm	d_4 mm	LH mm	l_6 mm	OAL mm	DCONMS h6 mm	ZEFP	Fig.	
1,0	0,7	0,85	0,8	5	17	58	6	2	A	**010**
1,5	1,2	1,25	1,2	8	20	58	6	2	A	**015**
2,0	1,5	1,70	1,4	10	21	58	6	2	A	**020**
3,0	2,3	2,70	2,4	15	22	65	6	2	A	**030**
4,0	3,0	3,70	3,3	20	25	70	6	2	A	**040**
5,0	3,5	4,70	4,3	25	28	80	6	2	A	**050**
6,0	4,0	5,90	5,3		30	100	6	2	B	**060**
8,0	5,4	7,90	6,2		40	100	8	2	B	**080**
10,0	6,7	9,90	7,6		50	100	10	2	B	**100**
12,0	9,0	11,90	9,2		110	160	12	2	B	**121**
12,0	9,0	11,90	9,2		70	120	12	2	B	**120**

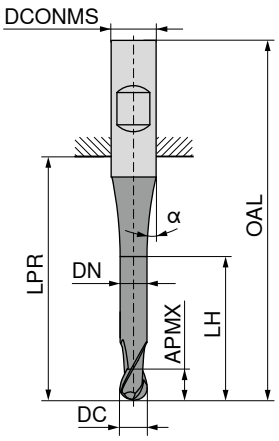
P	●
M	○
K	●
N	○
S	○
H	○
O	○

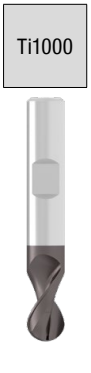
→ v_c/f_z Page 460–466

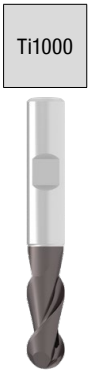
Ball Nosed Cutter

▲ Radius accuracy: ± 0,01 mm













≈DIN 6527 | ≈DIN 6527

HB | HB

DC h10 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	α°	ZEFP	54 055 ...	54 056 ...
3	5			14	50	6	15	2	030	
3	8	2,8	12	21	57	6	15	2		030
4	8			18	54	6	15	2	040	
4	11	3,8	15	21	57	6	15	2		040
5	9			18	54	6	15	2	050	
5	13	4,8	17	21	57	6	15	2		050
6	10			18	54	6	30	2	060	
6	13	5,8	21	21	57	6	30	2		060
8	12			22	58	8	30	2	080	
8	19	7,7	27	27	63	8	30	2		080
10	14			26	66	10	30	2	100	
10	22	9,7	32	32	72	10	30	2		100
12	16			28	73	12	30	2	120	
12	26	11,6	38	38	83	12	30	2		120
16	22			34	82	16	30	2	160	
16	32	15,5	44	44	92	16	30	2		160
20	26			42	92	20	30	2	200	
20	38	19,5	54	54	104	20	30	2		200

P	●	●
M	●	●
K	○	○
N	○	○
S	●	●
H		
O		

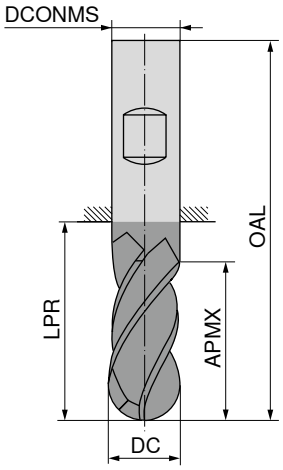
→ v_c/f_z Page 460–466

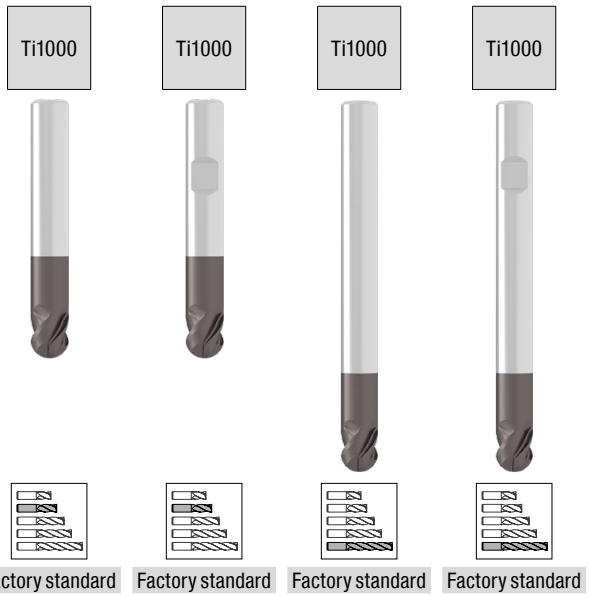
14

Ball Nosed Cutter

▲ Radius accuracy: ± 0,005 mm

N | λ_s=45° γ_s=15° | ZEFP



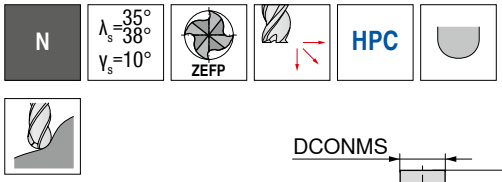


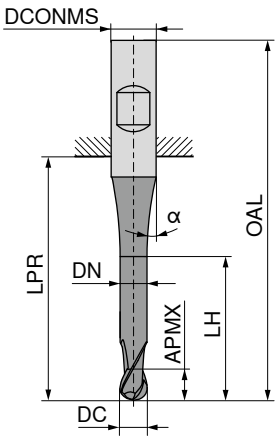
						Factory standard	Factory standard	Factory standard	Factory standard
						HA	HB	HA	HB
						52 400 ...	52 401 ...	52 402 ...	52 403 ...
DC f8 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP				
3	5	22	50	3	4	030			
3	5	47	75	3	4			030	
4	8	26	54	4	4	040			
4	8	47	75	4	4			040	
5	9	26	54	5	4	050			
5	9	47	75	5	4			050	
6	10	18	54	6	4	060	060		
6	10	64	100	6	4			060	060
8	12	23	59	8	4	080	080		
8	12	64	100	8	4			080	080
10	14	27	67	10	4	100	100		
10	14	60	100	10	4			100	100
12	16	29	74	12	4	120	120		
12	16	55	100	12	4			120	120
14	18	30	75	14	4	140	140		
14	18	55	100	14	4			140	140
16	22	35	83	16	4	160	160		
16	22	102	150	16	4			160	160
20	26	43	93	20	4	200	200		
20	26	100	150	20	4			200	200
P						○	○	○	○
M						●	●	●	●
K						○	○	○	○
N						●	●	●	●
S						●	●	●	●
H									
O						●	●	●	●

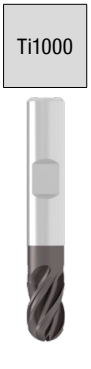
→ v_c/f_z Page 460–466

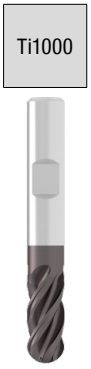
Ball Nosed Cutter

▲ Radius accuracy: ± 0,01 mm













≈DIN 6527 HB

≈DIN 6527 HB

DC h10 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	α°	ZEFP	54 057 ...	54 058 ...
3	5			14	50	6	15	4	030	
3	8	2,8	12	21	57	6	15	4		030
4	8			18	54	6	15	4	040	
4	11	3,8	15	21	57	6	15	4		040
5	9			18	54	6	15	4	050	
5	13	4,8	17	21	57	6	15	4		050
6	10			18	54	6	30	4	060	
6	13	5,8	21	21	57	6	30	4		060
8	12			22	58	8	30	4	080	
8	19	7,7	27	27	63	8	30	4		080
10	14			26	66	10	30	4	100	
10	22	9,7	32	32	72	10	30	4		100
12	16			28	73	12	30	4	120	
12	26	11,6	38	38	83	12	30	4		120
16	22			34	82	16	30	4	160	
16	32	15,5	44	44	92	16	30	4		160
20	26			42	92	20	30	4	200	
20	38	19,5	54	54	104	20	30	4		200

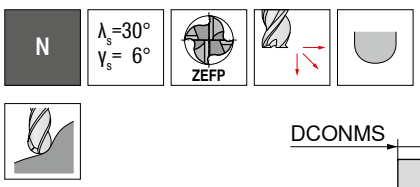
P	●	●
M	●	●
K	○	○
N	○	○
S	●	●
H		
O		

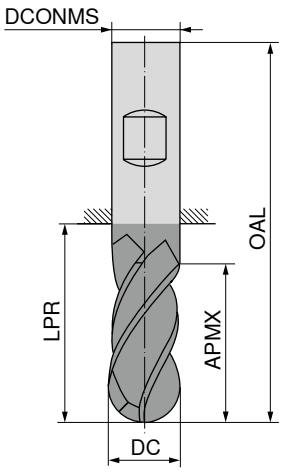
→ v_c/f_z Page 460–466

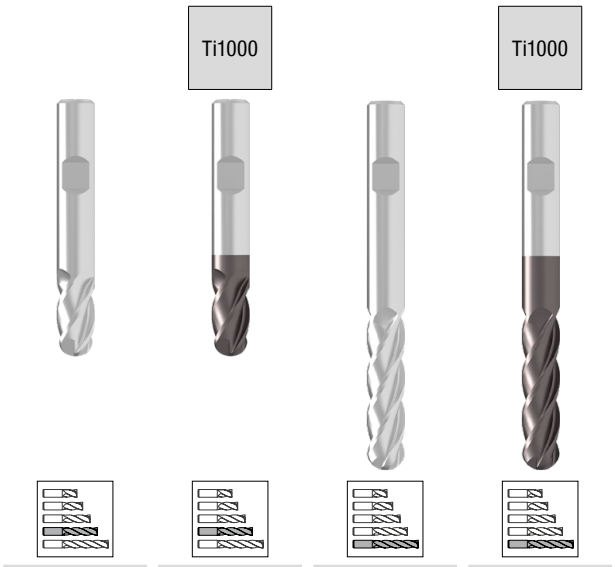
14

Ball Nosed Cutter

▲ Radius accuracy: ± 0,01 mm







DC f8 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	DIN 6527 HB 50 642 ...	DIN 6527 HB 50 643 ...	Factory standard HB 50 642 ...	DIN 6527 HB 50 643 ...
3	8	21	57	6	4	**030**	**030**		
4	11	21	57	6	4	**040**	**040**		
6	13	21	57	6	4	**060**	**060**		
6	40	64	100	6	4			**061**	**061**
8	19	27	63	8	4	**080**	**080**		
8	40	64	100	8	4			**081**	**081**
10	22	32	72	10	4	**100**	**100**		
10	40	60	100	10	4			**101**	**101**
12	26	38	83	12	4	**120**	**120**		
12	45	55	100	12	4			**121**	**121**
12	75	105	150	12	4			**122**	**122**
14	26	38	83	14	4	**140**	**140**		
14	45	55	100	14	4			**141**	**141**
16	32	44	92	16	4	**160**	**160**		
16	75	102	150	16	4			**161**	**161**
20	38	54	104	20	4	**200**	**200**		
20	75	100	150	20	4			**201**	**201**
P						●	●	●	●
M						○	○	○	○
K						●	●	●	●
N						○	○	○	○
S						○	○	○	○
H							○		○
O						○	○	○	○

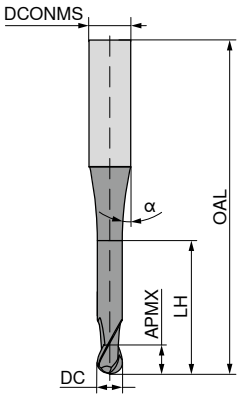
→ v_c/f_z Page 460–466

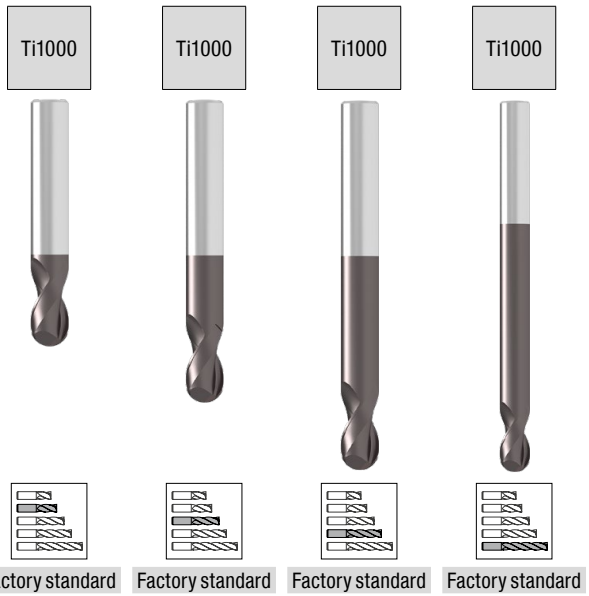
Ball Nosed Cutter

▲ Radius accuracy: ± 0.01 mm

H | λ_s=30° γ_s= 4° | ZEFP | ≤ 68 HRC







Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HA | HA

DC mm	Tol.	APMX mm	LH mm	OAL mm	α°	DCONMS $_{h5}$ mm	ZEFP	50 906 ...							
0,20	0/-0,015	0,3	0,6	40	15	4	2	**002**							
0,25	0/-0,015	0,3	0,6	40	15	4	2	**925**							
0,30	0/-0,015	0,3	0,6	40	15	4	2	**003**							
0,35	0/-0,015	0,4	0,7	40	15	4	2	**935**							
0,40	0/-0,015	0,4	0,7	40	15	4	2	**004**							
0,50	0/-0,015	0,5	0,8	40	15	4	2	**005**							
0,50	0/-0,015	0,5	0,8	54	15	6	2	**951**							
0,60	0/-0,015	0,6	0,9	40	15	4	2	**006**							
0,70	0/-0,015	0,8	1,1	40	15	4	2	**007**							
0,80	0/-0,015	0,8	1,1	40	15	4	2	**008**							
0,90	0/-0,015	0,9	1,2	40	15	4	2	**009**							
1,00	0/-0,015	1,0	1,3	54		4	2					**010**			
1,00	0/-0,015	1,0	1,3	54	15	6	2	**011**							
1,00	0/-0,015	1,0	1,3	64		6	2					**012**			
1,00	0/-0,015	1,0	1,3	80		6	2							**013**	
1,00	0/-0,015	1,0	1,3	100		6	2							**014**	
1,20	0/-0,015	1,2	1,5	54		4	2					**112**			
1,40	0/-0,015	1,4	1,8	54		4	2					**114**			
1,50	0/-0,015	1,5	1,9	54		4	2					**115**			
1,50	0/-0,015	1,5	1,9	54	15	6	2	**215**							
1,50	0/-0,015	1,5	1,9	80		6	2							**315**	
1,60	0/-0,015	1,8	2,3	54		4	2					**116**			
1,80	0/-0,015	1,8	2,3	54		4	2					**118**			
2,00	0/-0,015	2,0	2,5	54		4	2					**206**			
2,00	0/-0,015	4,0	5,0	54		6	2					**202**			
2,00	0/-0,015	4,0	5,0	64		6	2					**207**			
2,00	0/-0,015	4,0	5,0	82		6	2							**204**	
2,00	0/-0,015	4,0	5,0	100		6	2							**205**	
2,50	0/-0,02	5,0	6,6	54		4	2					**251**			
2,50	0/-0,02	5,0	6,3	54	15	6	2	**252**							
2,50	0/-0,02	5,0	6,3	64		6	2					**253**			
2,50	0/-0,02	5,0	6,3	82		6	2							**254**	
2,50	0/-0,02	5,0	6,3	100		6	2							**255**	
3,00	0/-0,02	5,0	6,3	54		4	2					**030**			
3,00	0/-0,02	5,0	6,3	82		4	2							**032**	
3,00	0/-0,02	5,0	6,3	100		4	2							**033**	
3,00	0/-0,02	5,0	6,3	54	15	6	2	**035**							
3,00	0/-0,02	5,0	6,3	64		6	2					**036**			
3,00	0/-0,02	5,0	6,3	82		6	2							**037**	
3,00	0/-0,02	8,0	10,0	100		6	2							**038**	
4,00	0/-0,02	8,0		54	15	4	2					**040**			
4,00	0/-0,02	8,0		82	15	4	2							**042**	
4,00	0/-0,02	8,0		100	15	4	2							**043**	

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

→ v_c/f_z Page 460–466

14

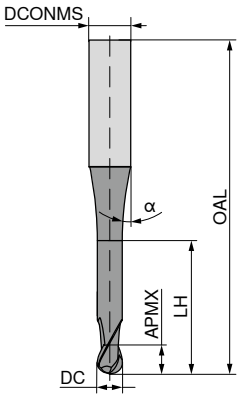
Continued on next page

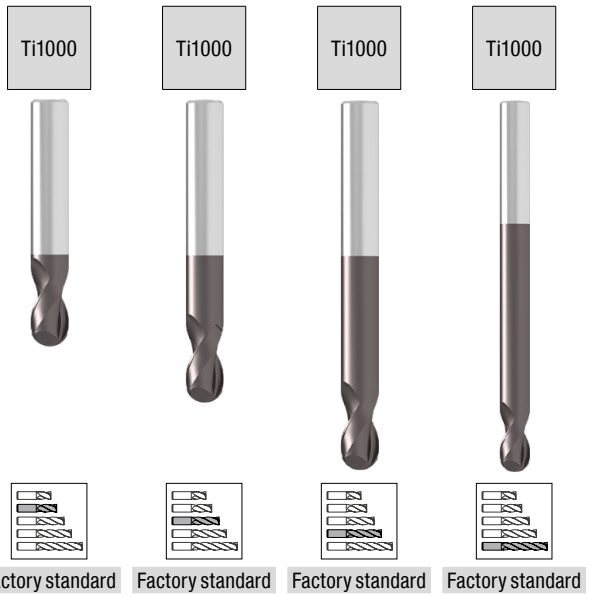
Ball Nosed Cutter

▲ Radius accuracy: ± 0.01 mm

H | λ_s=30° γ_s= 4° | ZEFP | ≤ 68 HRC







Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HA | HA

DC mm	Tol.	APMX mm	LH mm	OAL mm	α°	DCONMS $_{h5}$ mm	ZEFP	50 906 ...	50 906 ...	50 906 ...	50 906 ...
4,00	0/-0,02	8,0	10,0	54	15	6	2	**045**			
4,00	0/-0,02	8,0	10,0	64		6	2			**046**	
4,00	0/-0,02	8,0	10,0	82		6	2				**047**
4,00	0/-0,02	8,0	10,0	100		6	2				**048**
5,00	0/-0,02	9,0		54	15	5	2			**050**	
5,00	0/-0,02	9,0		64	15	5	2			**051**	
5,00	0/-0,02	9,0		82	15	5	2				**052**
5,00	0/-0,02	9,0		100	15	5	2				**053**
5,00	0/-0,02	9,0	11,3	54	15	6	2	**055**			
5,00	0/-0,02	9,0	11,3	64		6	2			**056**	
5,00	0/-0,02	9,0	11,3	82		6	2				**057**
5,00	0/-0,02	9,0	11,3	100		6	2				**058**
6,00	0/-0,02	10,0		54	15	6	2	**060**			
6,00	0/-0,02	10,0		64	15	6	2			**061**	
6,00	0/-0,02	10,0		82	15	6	2				**062**
6,00	0/-0,02	10,0		100	15	6	2				**063**
6,00	0/-0,02	10,0		120	15	6	2				**064**
8,00	0/-0,025	12,0		64	15	8	2			**081**	
8,00	0/-0,025	12,0		82	15	8	2		**082**		
8,00	0/-0,025	12,0		100	15	8	2				**083**
8,00	0/-0,025	12,0		120	15	8	2				**084**
10,00	0/-0,025	14,0		67	15	10	2	**101**			
10,00	0/-0,025	14,0		82	15	10	2		**102**		
10,00	0/-0,025	14,0		100	15	10	2				**103**
10,00	0/-0,025	14,0		127	15	10	2				**104**
12,00	0/-0,025	16,0		75	15	12	2	**121**			
12,00	0/-0,025	16,0		100	15	12	2		**122**		
12,00	0/-0,025	16,0		150	15	12	2				**123**
14,00	0/-0,025	18,0		80	15	14	2	**141**			
14,00	0/-0,025	18,0		100	15	14	2		**142**		
14,00	0/-0,025	18,0		150	15	14	2				**143**
16,00	0/-0,025	22,0		85	15	16	2	**161**			
16,00	0/-0,025	22,0		150	15	16	2				**163**
20,00	0/-0,025	26,0		90	15	20	2	**201**			
20,00	0/-0,025	26,0		150	15	20	2				**203**
P								●	●	●	●
M								○	○	○	○
K								●	●	●	●
N								○	○	○	○
S								○	○	○	○
H								○	○	○	○
O								○	○	○	○

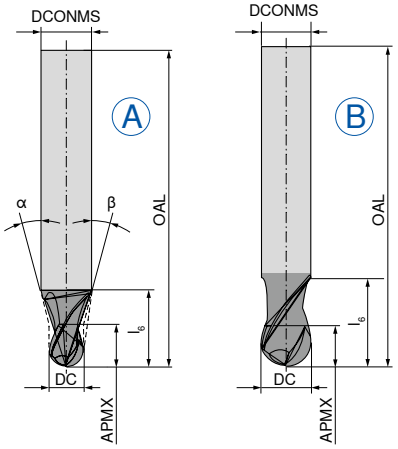
→ v_c/f_z Page 460–466

Ball Nosed Cutter

▲ Radius accuracy: ± 0,005 mm

H | λ_s=30° γ_s=–3° | ZEFP | 45–66 HRC | Ti1000









Factory standard

HA

52 741 ...

DC ±0,01 mm	APMX mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	ZEFP	Fig.	
2	1,5	3,3	38	15	9	3	2	A	**020**
3	2,0	7,5	57	15	12	6	2	A	**030**
4	2,5	6,0	57	15	9	6	2	A	**040**
5	3,0	5,0	57	15	6	6	2	A	**050**
6	3,5		57	15		6	2	B	**060**
8	4,5		63	15		8	2	B	**080**
10	5,5		72	15		10	2	B	**100**
12	6,5		83	15		12	2	B	**120**

P	●
M	○
K	●
N	○
S	○
H	○
O	○

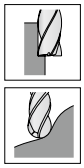
→ v_c/f_z Page 460–466

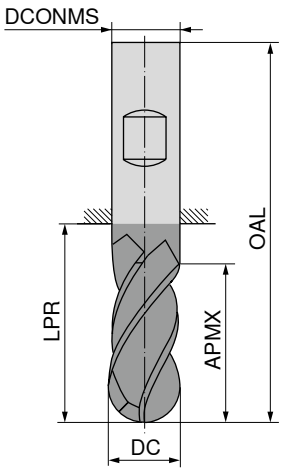
14

Ball nose cutter for rough milling

▲ Radius accuracy: ± 0,01 mm

NR | λ_s=20° γ_s=10° | ZEFP





Ti400





DIN 6527

HB 

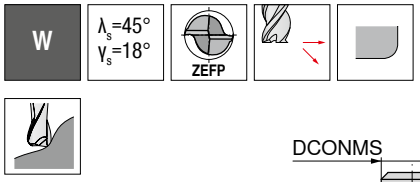
50 641 ...

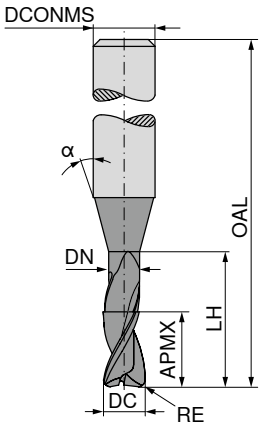
DC $_{d11}$ mm	APMX mm	LPR mm	OAL mm	DCONMS $_{h5}$ mm	ZEFP	
6	13	21	57	6	4	**060**
8	19	27	63	8	4	**080**
10	22	32	72	10	4	**100**
12	26	38	83	12	4	**120**
14	26	38	83	14	4	**140**
16	32	44	92	16	4	**160**
18	32	44	92	18	4	**180**
20	38	54	104	20	4	**200**

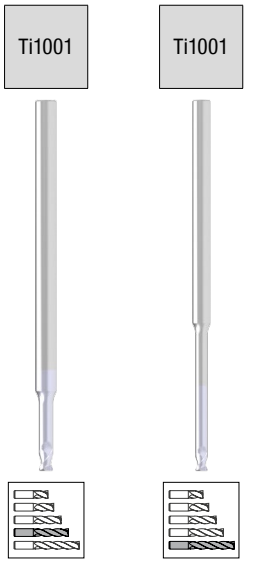
P	●
M	○
K	●
N	○
S	○
H	
O	○

→ v_c/f_z Page 460–466

Torus Cutter







Factory standard | Factory standard

HA | HA

DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 901 ...	50 901 ...
0,2	0,02	0,2	0,18	0,6	55	15	3	2	**021**	
0,2	0,02	0,2	0,18	1,0	55	15	3	2	**022**	
0,2	0,02	0,2	0,18	1,6	55	15	3	2	**023**	
0,2	0,02	0,2	0,18	2,0	55	15	3	2	**024**	
0,3	0,03	0,3	0,28	0,9	55	15	3	2	**031**	
0,3	0,03	0,3	0,28	1,5	55	15	3	2	**032**	
0,3	0,03	0,3	0,28	2,4	55	15	3	2	**033**	
0,3	0,03	0,3	0,28	3,0	55	15	3	2	**034**	
0,4	0,04	0,4	0,37	1,2	55	15	3	2	**041**	
0,4	0,04	0,4	0,37	2,0	55	15	3	2	**042**	
0,4	0,04	0,4	0,37	3,2	55	15	3	2	**043**	
0,4	0,04	0,4	0,37	4,0	55	15	3	2	**044**	
0,5	0,05	0,5	0,45	1,5	55	15	3	2	**051**	
0,5	0,05	0,5	0,45	2,5	55	15	3	2	**052**	
0,5	0,05	0,5	0,45	4,0	55	15	3	2	**053**	
0,5	0,05	0,5	0,45	5,0	55	15	3	2	**054**	
0,6	0,06	0,6	0,58	2,0	55	15	3	2	**061**	
0,6	0,06	0,6	0,58	3,0	55	15	3	2	**062**	
0,6	0,06	0,6	0,58	4,2	55	15	3	2	**063**	
0,6	0,06	0,6	0,58	5,0	65	15	3	2		**064**
0,6	0,06	0,6	0,58	6,0	65	15	3	2		**065**
0,8	0,08	0,8	0,77	2,5	55	15	3	2	**081**	
0,8	0,08	0,8	0,77	4,0	55	15	3	2	**082**	
0,8	0,08	0,8	0,77	6,5	65	15	3	2		**083**
0,8	0,08	0,8	0,77	8,0	65	15	3	2		**084**
1,0	0,10	1,0	0,95	3,0	55	15	3	2	**101**	
1,0	0,10	1,0	0,95	5,0	55	15	3	2	**102**	
1,0	0,10	1,0	0,95	8,0	65	15	3	2		**103**
1,0	0,10	1,0	0,95	10,0	65	15	3	2		**104**
1,0	0,10	1,0	0,95	12,0	65	15	3	2		**105**
1,2	0,12	1,2	1,15	3,0	55	15	3	2	**121**	
1,2	0,12	1,2	1,15	6,0	55	15	3	2	**122**	
1,2	0,12	1,2	1,15	10,0	65	15	3	2		**123**
1,2	0,12	1,2	1,15	12,0	65	15	3	2		**124**
1,3	0,13	1,3	1,25	4,0	55	15	3	2	**131**	
1,3	0,13	1,3	1,25	7,0	55	15	3	2	**132**	
1,3	0,13	1,3	1,25	11,0	65	15	3	2		**133**
1,3	0,13	1,3	1,25	13,0	65	15	3	2		**134**
1,5	0,15	1,5	1,44	5,0	55	15	3	2	**151**	
1,5	0,15	1,5	1,44	7,5	55	15	3	2	**152**	
1,5	0,15	1,5	1,44	12,0	65	15	3	2		**153**
1,5	0,15	1,5	1,44	15,0	65	15	3	2		**154**
1,6	0,16	1,6	1,52	5,0	55	15	3	2	**161**	
1,6	0,16	1,6	1,52	8,0	55	15	3	2	**162**	
1,6	0,16	1,6	1,52	13,0	65	15	3	2		**163**

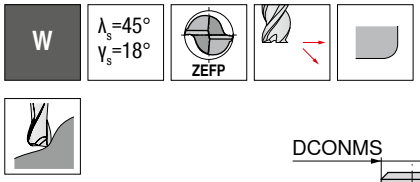
P		
M		
K		
N	●	●
S		
H		
O		

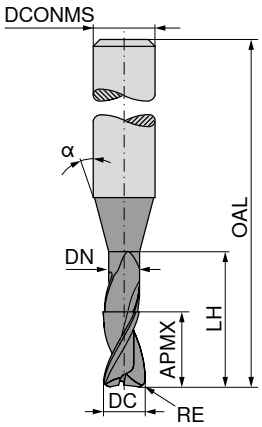
→ v_c/f_z Page 460–466

14

Continued on next page

Torus Cutter









Factory standard | Factory standard

HA | HA

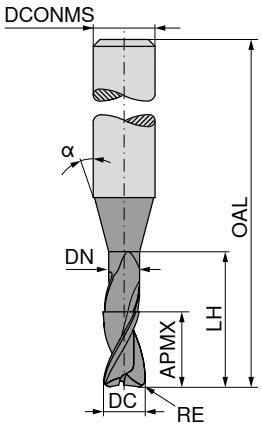
DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 901 ...	50 901 ...
1,6	0,16	1,6	1,52	16,0	65	15	3	2		164
1,8	0,18	1,8	1,72	5,5	55	15	3	2	181	
1,8	0,18	1,8	1,72	9,0	55	15	3	2	182	
1,8	0,18	1,8	1,72	14,5	65	15	3	2		183
1,8	0,18	1,8	1,72	18,0	65	15	3	2		184
2,0	0,20	2,0	1,92	6,0	55	15	3	2	201	
2,0	0,20	2,0	1,92	10,0	55	15	3	2	202	
2,0	0,20	2,0	1,92	14,0	55	15	3	2	203	
2,0	0,20	2,0	1,92	16,0	65	15	3	2		204
2,0	0,20	2,0	1,92	20,0	65	15	3	2		205
2,3	0,23	2,3	2,22	7,0	55	15	3	2	231	
2,3	0,23	2,3	2,22	11,5	55	15	3	2	232	
2,3	0,23	2,3	2,22	14,0	55	15	3	2	233	
2,3	0,23	2,3	2,22	18,5	65	15	3	2		234
2,3	0,23	2,3	2,22	20,0	65	15	3	2		235
2,3	0,23	2,3	2,22	23,0	65	15	3	2		236
3,0	0,30	3,0	2,90	9,0	65	15	6	2	301	
3,0	0,30	3,0	2,90	15,0	65	15	6	2	302	
3,0	0,30	3,0	2,90	24,0	100	15	6	2		303
3,0	0,30	3,0	2,90	30,0	100	15	6	2		304
4,0	0,40	4,0	3,90	12,0	65	15	6	2	401	
4,0	0,40	4,0	3,90	20,0	65	15	6	2	402	
4,0	0,40	4,0	3,90	32,0	100	15	6	2		403
4,0	0,40	4,0	3,90	40,0	100	15	6	2		404
5,0	0,50	5,0	4,90	15,0	65	15	6	2	501	
5,0	0,50	5,0	4,90	25,0	65	15	6	2	502	
5,0	0,50	5,0	4,90	40,0	100	15	6	2		503
5,0	0,50	5,0	4,90	50,0	100	15	6	2		504
6,0	0,60	6,0	5,90	18,0	65	15	6	2	601	
6,0	0,60	6,0	5,90	30,0	100	15	6	2		602
6,0	0,60	6,0	5,90	48,0	100	15	6	2		603
6,0	0,60	6,0	5,90	60,0	100	15	6	2		604

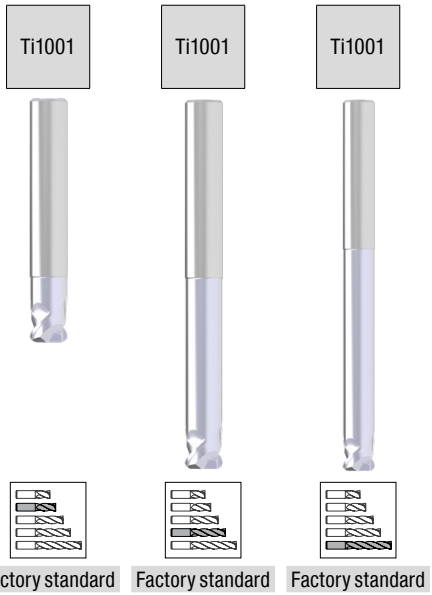
P		
M		
K		
N	●	●
S		
H		
O		

→ v_c/f_z Page 460–466

Torus Cutter

W | λ_s=45° γ_s=15° | ZEFP





Factory standard | Factory standard | Factory standard

HA | HA | HA

DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 902 ...		50 902 ...		50 902 ...	
2	0,3	2	1,8	12	50	45	6	2	020					
2	0,5	2	1,8	12	50	45	6	2	023					
2	0,3	2	1,8	22	60	45	6	2			021			
2	0,5	2	1,8	22	60	45	6	2			024			
2	0,3	2	1,8	47	85	45	6	2						022
2	0,5	2	1,8	47	85	45	6	2						025
3	0,3	2	2,8	12	50	45	6	2	030					
3	0,5	2	2,8	12	50	45	6	2	033					
3	0,3	2	2,8	22	60	45	6	2			031			
3	0,5	2	2,8	22	60	45	6	2			034			
3	0,3	2	2,8	47	85	45	6	2						032
3	0,5	2	2,8	47	85	45	6	2						035
4	0,3	3	3,8	16	54	45	6	2	040					
4	0,5	3	3,8	16	54	45	6	2	043					
4	1,0	3	3,8	16	54	45	6	2	046					
4	0,3	3	3,8	37	75	45	6	2			041			
4	0,5	3	3,8	37	75	45	6	2			044			
4	1,0	3	3,8	37	75	45	6	2			047			
4	0,3	3	3,8	47	85	45	6	2						042
4	0,5	3	3,8	47	85	45	6	2						045
4	1,0	3	3,8	47	85	45	6	2						048
5	0,5	3	4,6	16	54	45	6	2	050					
5	1,0	3	4,6	16	54	45	6	2	052					
5	1,5	3	4,6	16	54	45	6	2	054					
5	0,5	3	4,6	37	75	45	6	2			051			
5	1,0	2	4,6	37	75	45	6	2			053			
5	1,5	3	4,6	37	75	45	6	2			055			
6	0,5	4	5,6	16	54	45	6	2	060					
6	1,0	4	5,6	16	54	45	6	2	063					
6	2,0	4	5,6	16	54	45	6	2	066					
6	0,5	4	5,6	47	85	45	6	2			061			
6	1,0	4	5,6	47	85	45	6	2			064			
6	2,0	4	5,6	47	85	45	6	2			067			
6	0,5	4	5,6	47	85	45	8	2			069			
6	1,0	4	5,6	47	85	45	8	2			070			
6	2,0	4	5,6	47	85	45	8	2			071			
6	0,5	4	5,6	62	100	45	6	2						062
6	1,0	4	5,6	62	100	45	6	2						065
6	2,0	4	5,6	62	100	45	6	2						068
8	0,5	4	7,6	20	58	45	8	2	080					

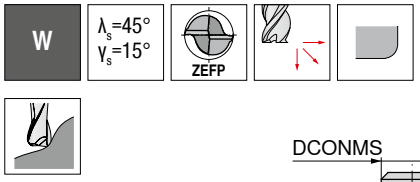
P			
M			
K			
N	●	●	●
S			
H			
O			

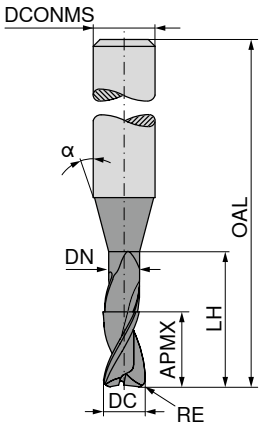
→ v_c/f_z Page 460–466

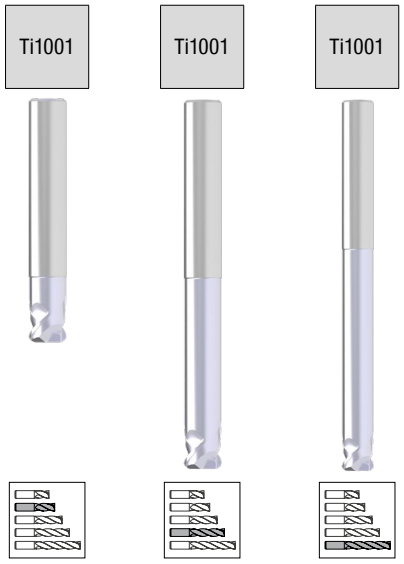
14

Continued on next page

Torus Cutter







Factory standard | Factory standard | Factory standard

HA | HA | HA

DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 902 ...		50 902 ...		50 902 ...	
8	1,0	4	7,6	20	58	45	8	2	**082**					
8	2,0	4	7,6	20	58	45	8	2	**084**					
8	0,5	4	7,6	62	100	45	8	2						**081**
8	1,0	4	7,6	62	100	45	8	2						**083**
8	2,0	4	7,6	62	100	45	8	2						**085**
8	2,0	4	7,6	62	100	45	10	2						**086**
10	1,0	6	9,6	18	66	45	10	2	**100**					
10	2,0	6	9,6	18	66	45	10	2	**103**					
10	3,0	6	9,6	18	66	45	10	2	**106**					
10	1,0	6	9,6	58	100	45	10	2			**101**			
10	2,0	6	9,6	58	100	45	10	2			**104**			
10	3,0	6	9,6	58	100	45	10	2			**107**			
10	1,0	6	9,6	78	120	45	10	2						**102**
10	2,0	6	9,6	78	120	45	10	2						**105**
10	3,0	6	9,6	78	120	45	10	2						**108**
10	1,0	6	9,6	78	120	45	12	2						**109**
10	2,0	6	9,6	78	120	45	12	2						**110**
10	3,0	6	9,6	78	120	45	12	2						**111**
12	1,0	8	11,5	26	73	45	12	2	**120**					
12	2,0	8	11,5	26	73	45	12	2	**123**					
12	3,0	8	11,5	26	73	45	12	2	**126**					
12	4,0	8	11,5	26	73	45	12	2	**129**					
12	1,0	8	11,5	53	100	45	12	2			**121**			
12	2,0	8	11,5	53	100	45	12	2			**124**			
12	3,0	8	11,5	53	100	45	12	2			**127**			
12	4,0	8	11,5	53	100	45	12	2			**130**			
12	1,0	8	11,5	73	120	45	12	2						**122**
12	2,0	8	11,5	73	120	45	12	2						**125**
12	3,0	8	11,5	73	120	45	12	2						**128**
12	4,0	8	11,5	73	120	45	12	2						**131**
12	1,0	8	11,5	103	150	45	16	2						**132**
12	2,0	8	11,5	103	150	45	16	2						**133**
12	3,0	8	11,5	103	150	45	16	2						**134**
12	4,0	8	11,5	103	150	45	16	2						**135**

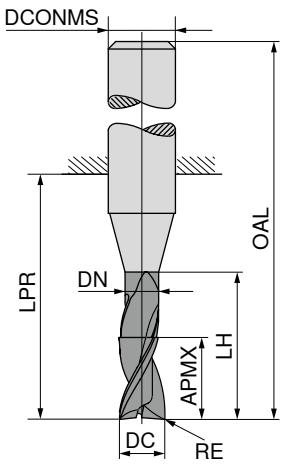
P			
M			
K			
N	●	●	●
S			
H			
O			

→ v_c/f_z Page 460–466

Torus Cutter













Factory standard

HA 

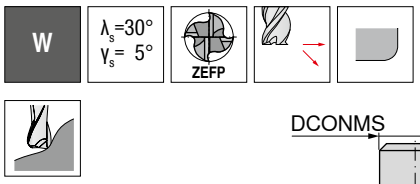
52 765 ...

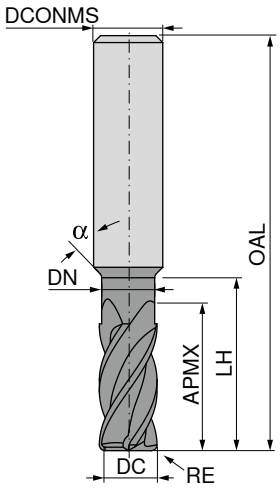
DC h10 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	
2	0,3	8	1,8	31	32	60	2	2	**021**
3	0,5	12	2,8	41	42	70	3	2	**032**
4	0,5	15	3,8	51	52	80	4	2	**042**
5	0,5	20	4,8	71	72	100	5	2	**052**
6	0,8	20	5,8	63	64	100	6	2	**063**
8	1,0	20	7,8	83	84	120	8	2	**084**
10	1,0	25	9,8	99	100	140	10	2	**104**
12	1,5	25	11,8	104	105	150	12	2	**125**

P	
M	
K	
N	●
S	
H	
O	●

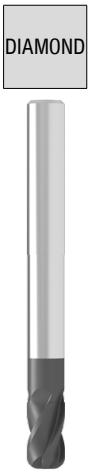
→ v_c/f_z Page 458

Torus Cutter













Factory standard

HA

Factory standard

HA

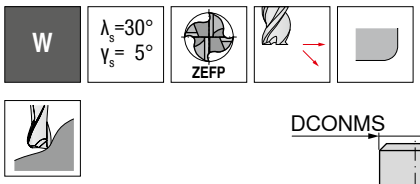
DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 911 ...	50 911 ...
4	0,5	8	3,8	12	54	45	6	4	040	
4	1,0	8	3,8	12	54	45	6	4	041	
4	0,5	10	3,8	37	75	45	6	4		042
4	1,0	10	3,8	37	75	45	6	4		043
5	0,5	9	4,8	16	54	45	6	4	050	
5	1,0	9	4,8	16	54	45	6	4	051	
5	1,5	9	4,8	16	54	45	6	4	052	
5	0,5	12	4,8	37	75	45	6	4		053
5	1,0	12	4,8	37	75	45	6	4		054
5	1,5	12	4,8	37	75	45	6	4		055
6	0,5	10	5,6	16	54	45	6	4	060	
6	1,0	10	5,6	16	54	45	6	4	061	
6	1,5	10	5,6	16	54	45	6	4	062	
6	2,0	10	5,6	16	54	45	6	4	063	
6	0,5	12	5,6	62	100	45	6	4		064
6	1,0	12	5,6	62	100	45	6	4		065
6	1,5	12	5,6	62	100	45	6	4		066
6	2,0	12	5,6	62	100	45	6	4		067
7	0,5	11	6,6	20	58	45	8	4	070	
7	1,0	11	6,6	20	58	45	8	4	071	
7	1,5	11	6,6	20	58	45	8	4	072	
7	2,0	11	6,6	20	58	45	8	4	073	
7	0,5	14	6,6	62	100	45	8	4		074
7	1,0	14	6,6	62	100	45	8	4		075
7	1,5	14	6,6	62	100	45	8	4		076
7	2,0	14	6,6	62	100	45	8	4		077
8	0,5	12	7,6	20	58	45	8	4	080	
8	1,0	12	7,6	20	58	45	8	4	081	
8	1,5	12	7,6	20	58	45	8	4	086	
8	2,0	12	7,6	20	58	45	8	4	083	
8	0,5	14	7,6	62	100	45	8	4		084
8	1,0	14	7,6	62	100	45	8	4		085
8	1,5	14	7,6	62	100	45	8	4		082
8	2,0	14	7,6	62	100	45	8	4		087
10	0,5	14	9,6	24	66	45	10	4	100	
10	1,0	14	9,6	24	66	45	10	4	101	
10	1,5	14	9,6	24	66	45	10	4	107	
10	2,0	14	9,6	24	66	45	10	4	103	
10	3,0	14	9,6	24	66	45	10	4	104	
10	0,5	18	9,6	58	100	45	10	4		105
10	1,0	18	9,6	58	100	45	10	4		106

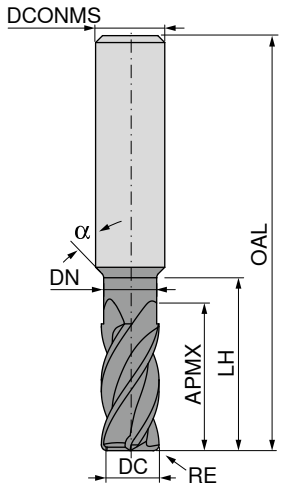
P		
M		
K		
N	●	●
S		
H		
O	●	●

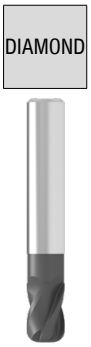
→ v_c/f_z Page 458

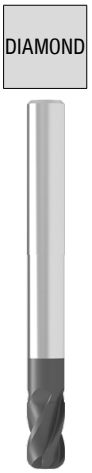
Continued on next page

Torus Cutter













Factory standard

HA

50 911 ...

Factory standard

HA

50 911 ...

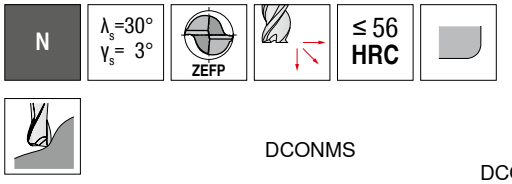
DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP			
10	1,5	18	9,6	58	100	45	10	4			**102**
10	2,0	18	9,6	58	100	45	10	4			**108**
10	3,0	18	9,6	58	100	45	10	4			**109**
12	0,5	16	11,5	26	73	45	12	4	**120**		
12	1,0	16	11,5	26	73	45	12	4	**121**		
12	1,5	16	11,5	26	73	45	12	4	**127**		
12	2,0	16	11,5	26	73	45	12	4	**123**		
12	4,0	16	11,5	26	73	45	12	4	**124**		
12	0,5	22	11,5	53	100	45	12	4			**125**
12	1,0	22	11,5	53	100	45	12	4			**126**
12	1,5	22	11,5	53	100	45	12	4			**122**
12	2,0	22	11,5	53	100	45	12	4			**128**
12	4,0	22	11,5	53	100	45	12	4			**129**

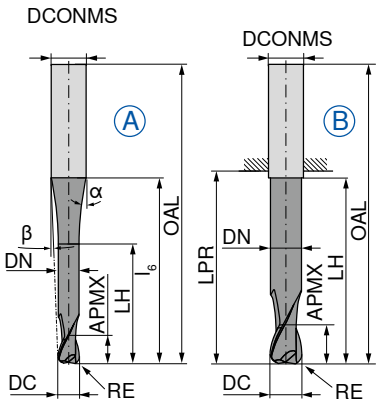
P		
M		
K		
N	●	●
S		
H		
O	●	●

→ v_c/f_z Page 458

Torus Cutter

▲ Radius accuracy: ± 0,005 mm
▲ for Ø ≤ 5.0 mm, angle tolerance α and β: ± 0.5 °

















Factory standard
HA

Factory standard
HA

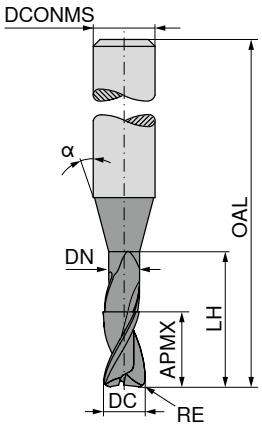
DC ±0,01 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	ZEFP	Fig.	52 730 ...	52 734 ...
0,5	0,10	1,0	0,45	2,0	20	57	10	8,5	6	2	A	005	
1,0	0,25	2,0	0,95	4,0	20	57	10	8	6	2	A	010	
1,0	0,25	2,0	0,95	4,0	40	80	4,5	4	6	2	A		010
1,5	0,30	2,5	1,40	7,5	20	57	12,5	7	6	2	A	015	
1,5	0,30	2,5	1,40	7,5	40	80	4,5	3,5	6	2	A		015
2,0	0,50	3,0	1,80	8,0	20	57	12	6,5	6	2	A	020	
2,0	0,50	3,0	1,80	8,0	40	80	4	3	6	2	A		020
3,0	0,50	3,5	2,80	10,0	20	57	11,5	5	6	2	A	030	
3,0	0,50	3,5	2,80	12,0	40	80	3,5	2,5	6	2	A		030
4,0	0,50	4,0	3,80	12,0	20	57	11	3,5	6	2	A	041	
4,0	0,50	4,0	3,80	20,0	40	80	4	1,5	6	2	A		041
4,0	1,00	4,0	3,80	12,0	20	57	11	3,5	6	2	A	040	
4,0	1,00	4,0	3,80	20,0	40	80	4	1,5	6	2	A		040
5,0	1,00	5,0	4,70	14,0	20	57	10	2	6	2	A	051	
5,0	1,00	5,0	4,70	25,0	40	80	3	1	6	2	A		051
5,0	1,50	5,0	4,70	14,0	20	57	10	2	6	2	A	050	
5,0	1,50	5,0	4,70	25,0	40	80	3	1	6	2	A		050
6,0	1,00	6,0	5,60	20,0		57			6	2	B	961	
6,0	1,00	6,0	5,60	40,0		80			6	2	B		961
6,0	2,00	6,0	5,60	20,0		57			6	2	B	060	
6,0	2,00	6,0	5,60	40,0		80			6	2	B		060
6,0	2,00	6,0	5,60	25,0	60	100	2	1	8	2	A		061
8,0	1,00	7,0	7,60	25,0		63			8	2	B	082	
8,0	1,00	7,0	7,60	60,0		100			8	2	B		082
8,0	2,00	7,0	7,60	25,0		63			8	2	B	080	
8,0	2,00	7,0	7,60	60,0		100			8	2	B		080
8,0	2,00	7,0	7,60	30,0	75	120	2	1	10	2	A		081
8,0	2,50	7,0	7,60	60,0		100			8	2	B		083
10,0	1,50	8,0	9,60	30,0		72			10	2	B	102	
10,0	1,50	8,0	9,60	75,0		120			10	2	B		102
10,0	2,50	8,0	9,60	75,0		120			10	2	B		104
10,0	3,00	8,0	9,60	30,0		72			10	2	B	100	
10,0	3,00	8,0	9,60	50,0		100			10	2	B		103
10,0	3,00	8,0	9,60	75,0		120			10	2	B		100
10,0	3,00	8,0	9,60	40,0	110	160	1	0,5	12	2	A		101
12,0	1,50	10,0	11,50	35,0		83			12	2	B	122	
12,0	1,50	10,0	11,50	70,0		160			12	2	B		122
12,0	4,00	10,0	11,50	35,0		83			12	2	B	120	
12,0	4,00	10,0	11,50	35,0	40	92	37	3,5	16	2	A	121	
12,0	4,00	10,0	11,50	70,0		160			12	2	B		120
12,0	4,00	10,0	11,50	50,0	150	200	1,5	1	16	2	A		121
16,0	5,00	12,0	15,50	40,0		92			16	2	B	160	
16,0	5,00	12,0	15,50	80,0		200			16	2	B		160

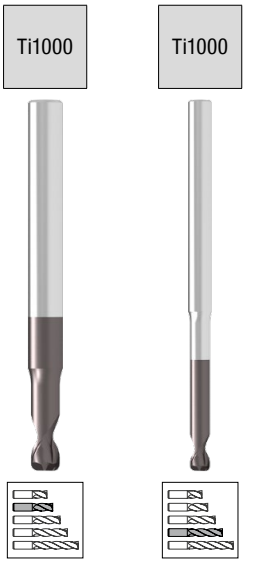
P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H	○	○
O	○	○

→ v_c/f_z Page 460–466

Torus Cutter

H | λ_s=30° γ_s= 3° | ZEFP | ≤ 54 HRC





Factory standard | Factory standard

HA | HA

DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 649 ...	50 649 ...
0,2	0,02	0,2	0,18	0,6	55	15	6	2	**921**	
0,2	0,02	0,2	0,18	1,0	55	15	6	2	**022**	
0,2	0,02	0,2	0,18	1,6	55	15	6	2	**023**	
0,2	0,02	0,2	0,18	2,0	55	15	6	2	**024**	
0,3	0,03	0,3	0,28	0,9	55	15	6	2	**031**	
0,3	0,03	0,3	0,28	1,5	55	15	6	2	**032**	
0,3	0,03	0,3	0,28	2,4	55	15	6	2	**033**	
0,3	0,03	0,3	0,28	3,0	55	15	6	2	**034**	
0,4	0,04	0,4	0,37	1,2	55	15	6	2	**041**	
0,4	0,04	0,4	0,37	2,0	55	15	6	2	**042**	
0,4	0,04	0,4	0,37	3,2	55	15	6	2	**043**	
0,4	0,04	0,4	0,45	4,0	55	15	6	2	**044**	
0,5	0,05	0,5	0,45	1,5	55	15	6	2	**051**	
0,5	0,05	0,5	0,45	2,5	55	15	6	2	**052**	
0,5	0,05	0,5	0,45	4,0	55	15	6	2	**053**	
0,5	0,05	0,5	0,45	5,0	55	15	6	2	**054**	
0,6	0,06	0,6	0,58	2,0	55	15	6	2	**061**	
0,6	0,06	0,6	0,58	3,0	55	15	6	2	**960**	
0,6	0,06	0,6	0,58	5,0	65	15	6	2		**063**
0,6	0,06	0,6	0,58	6,0	65	15	6	2	**961**	
0,8	0,08	0,8	0,77	2,5	55	15	6	2	**081**	
0,8	0,08	0,8	0,77	4,0	55	15	6	2	**980**	
0,8	0,08	0,8	0,77	6,5	65	15	6	2		**083**
0,8	0,08	0,8	0,77	8,0	65	15	6	2	**981**	
1,0	0,10	1,0	0,95	3,0	55	15	6	2	**101**	
1,0	0,10	1,0	0,95	5,0	55	15	6	2	**010**	
1,0	0,10	1,0	0,95	8,0	65	15	6	2		**103**
1,0	0,10	1,0	0,95	10,0	65	15	6	2		**011**
1,0	0,10	1,0	0,95	12,0	65	15	6	2		**105**
1,2	0,12	1,2	1,15	3,0	55	15	6	2	**121**	
1,2	0,12	1,2	1,15	6,0	55	15	6	2	**012**	
1,2	0,12	1,2	1,15	10,0	65	15	6	2	**123**	
1,2	0,12	1,2	1,15	12,0	65	15	6	2		**013**
1,3	0,13	1,3	1,25	4,0	55	15	6	2	**131**	
1,3	0,13	1,3	1,25	7,0	55	15	6	2	**132**	
1,3	0,13	1,3	1,25	11,0	65	15	6	2		**133**
1,3	0,13	1,3	1,25	13,0	65	15	6	2		**134**
1,5	0,15	1,5	1,44	5,0	55	15	6	2	**151**	
1,5	0,15	1,5	1,44	7,5	55	15	6	2	**015**	
1,5	0,15	1,5	1,44	12,0	65	15	6	2		**153**

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

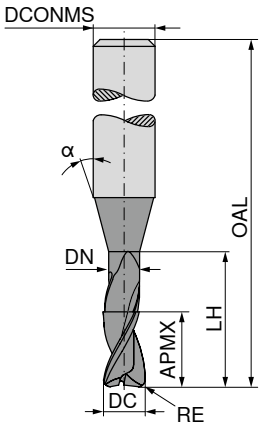
→ v_c/f_z Page 460–466

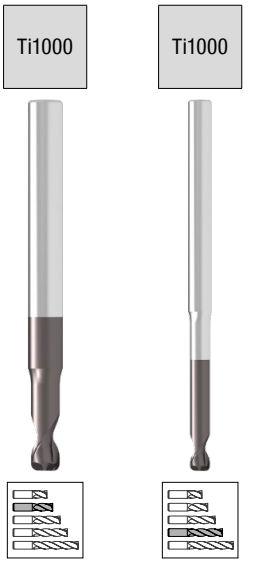
14

Continued on next page

Torus Cutter

H | λ_s=30° γ_s= 3° | ZEFP | ≤ 54 HRC





Factory standard | Factory standard

HA | HA

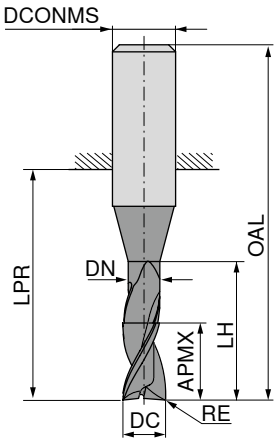
DC $_{f8}$ mm	RE $_{\pm 0,01}$ mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS $_{h5}$ mm	ZEFP	50 649 ...	50 649 ...
1,5	0,15	1,5	1,44	15,0	65	15	6	2		016
1,6	0,16	1,6	1,52	5,0	55	15	6	2	161	
1,6	0,16	1,6	1,52	8,0	55	15	6	2	162	
1,6	0,16	1,6	1,52	13,0	65	15	6	2		163
1,6	0,16	1,6	1,52	16,0	65	15	6	2		164
1,8	0,18	1,8	1,72	5,5	55	15	6	2	181	
1,8	0,18	1,8	1,72	9,0	55	15	6	2	182	
1,8	0,18	1,8	1,72	14,5	65	15	6	2		183
1,8	0,18	1,8	1,72	18,0	65	15	6	2		184
2,0	0,20	2,0	1,92	6,0	55	15	6	2	201	
2,0	0,20	2,0	1,92	10,0	55	15	6	2	202	
2,0	0,20	2,0	1,92	14,0	55	15	6	2	020	
2,0	0,20	2,0	1,92	16,0	65	15	6	2		204
2,0	0,20	2,0	1,92	20,0	65	15	6	2		021
2,3	0,23	2,3	2,22	7,0	55	15	6	2	231	
2,3	0,23	2,3	2,22	11,5	55	15	6	2	232	
2,3	0,23	2,3	2,22	18,5	65	15	6	2		233
2,3	0,23	2,3	2,22	23,0	65	15	6	2		234
3,0	0,30	3,0	2,90	9,0	65	15	6	2	301	
3,0	0,30	3,0	2,90	15,0	65	15	6	2	302	
3,0	0,30	3,0	2,90	24,0	100	15	6	2		303
3,0	0,30	3,0	2,90	30,0	100	15	6	2		304
4,0	0,40	4,0	3,90	12,0	65	15	6	2	401	
4,0	0,40	4,0	3,90	20,0	65	15	6	2	402	
4,0	0,40	4,0	3,90	32,0	100	15	6	2		403
4,0	0,40	4,0	3,90	40,0	100	15	6	2		404
5,0	0,50	5,0	4,90	15,0	65	15	6	2	501	
5,0	0,50	5,0	4,90	25,0	65	15	6	2	502	
5,0	0,50	5,0	4,90	40,0	100	15	6	2		503
5,0	0,50	5,0	4,90	50,0	100	15	6	2		504
6,0	0,60	6,0	5,90	18,0	65	15	6	2	601	
6,0	0,60	6,0	5,90	30,0	100	15	6	2		602
6,0	0,60	6,0	5,90	48,0	100	15	6	2		603
6,0	0,60	6,0	5,90	60,0	100	15	6	2		604

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

→ v_c/f_z Page 460–466

Torus Cutter

H | λ_s=30° γ_s= 3° | ZEFP | ≤ 68 HRC





Factory standard | Factory standard | Factory standard

HA | HA | HA

DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	50 651 ...					
2	0,3	2	1,8	7	14	50	6	2	020					
2	0,5	2	1,8	7	14	50	6	2	021					
2	0,3	2	1,8	7	24	60	6	2			022			
2	0,5	2	1,8	7	24	60	6	2			023			
2	0,3	2	1,8	7	49	85	6	2						024
2	0,5	2	1,8	7	49	85	6	2						025
3	0,3	2	2,8	7	14	50	6	2	030					
3	0,5	2	2,8	7	14	50	6	2	031					
3	0,3	2	2,8	12	24	60	6	2			032			
3	0,5	2	2,8	12	24	60	6	2			033			
3	0,3	2	2,8	12	49	85	6	2						034
3	0,5	2	2,8	12	49	85	6	2						035
4	0,3	3	3,8	13	18	54	6	2	040					
4	0,5	3	3,8	13	18	54	6	2	041					
4	1,0	3	3,8	13	18	54	6	2	042					
4	0,3	3	3,8	20	39	75	6	2			043			
4	0,5	3	3,8	20	39	75	6	2			044			
4	1,0	3	3,8	20	39	75	6	2			045			
4	0,3	3	3,8	20	49	85	6	2						046
4	0,5	3	3,8	20	49	85	6	2						047
4	1,0	3	3,8	20	49	85	6	2						048
5	0,5	3	4,6	13	18	54	6	2	050					
5	1,0	3	4,6	13	18	54	6	2	051					
5	1,5	3	4,6	13	18	54	6	2	052					
5	1,0	3	4,6	20	39	75	6	2			053			
5	1,5	3	4,6	20	39	75	6	2			054			
6	0,5	4	5,6	14	18	54	6	2	060					
6	1,0	4	5,6	14	18	54	6	2	061					
6	2,0	4	5,6	14	18	54	6	2	062					
6	0,5	4	5,6	45	49	85	6	2			066			
6	1,0	4	5,6	45	49	85	6	2			067			
6	2,0	4	5,6	45	49	85	6	2			068			
6	0,5	4	5,6	25	64	100	6	2						069
6	1,0	4	5,6	25	64	100	6	2						070
6	2,0	4	5,6	25	64	100	6	2						071
6	0,5	4	5,6	25	49	85	8	2			063			
6	1,0	4	5,6	25	49	85	8	2			064			
6	2,0	4	5,6	25	49	85	8	2			065			
8	0,5	4	7,6	16	22	58	8	2	080					
8	1,0	4	7,6	16	22	58	8	2	081					

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

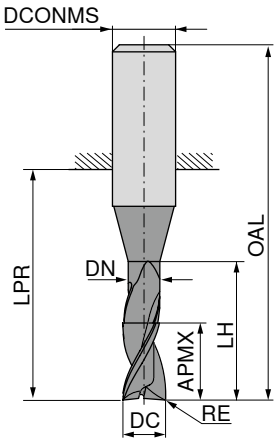
→ v_c/f_z Page 460–466

14

Continued on next page

Torus Cutter

H | λ_s=30° γ_s= 3° | ZEFP | ≤ 68 HRC





Factory standard | Factory standard | Factory standard

HA | HA | HA

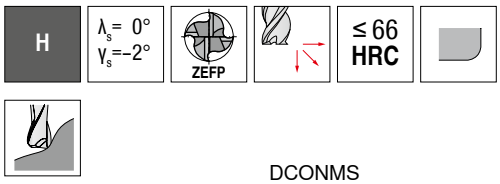
DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	50 651 ...	50 651 ...	50 651 ...
8	2,0	4	7,6	16	22	58	8	2	082		
8	0,5	4	7,6	50	64	100	8	2			083
8	2,0	4	7,6	50	64	100	8	2			084
8	1,0	4	7,6	30	60	100	10	2			085
8	2,0	4	7,6	30	60	100	10	2			086
10	1,0	6	9,6	18	26	66	10	2	100		
10	3,0	6	9,6	18	26	66	10	2	101		
10	1,0	6	9,6	50	60	100	10	2		102	
10	2,0	6	9,6	50	60	100	10	2		103	
10	3,0	6	9,6	50	60	100	10	2		104	
10	1,0	6	9,6	60	80	120	10	2			105
10	2,0	6	9,6	60	80	120	10	2			106
10	3,0	6	9,6	60	80	120	10	2			107
10	1,0	6	9,6	30	75	120	12	2			108
10	2,0	6	9,6	30	75	120	12	2			109
10	3,0	6	9,6	30	75	120	12	2			110
12	1,0	8	11,5	18	28	73	12	2	120		
12	2,0	8	11,5	18	28	73	12	2	121		
12	3,0	8	11,5	18	28	73	12	2	122		
12	4,0	8	11,5	18	28	73	12	2	123		
12	1,0	8	11,5	45	55	100	12	2		124	
12	2,0	8	11,5	45	55	100	12	2		125	
12	3,0	8	11,5	45	55	100	12	2		126	
12	4,0	8	11,5	45	55	100	12	2		127	
12	1,0	8	11,5	70	75	120	12	2			128
12	2,0	8	11,5	70	75	120	12	2			129
12	3,0	8	11,5	70	75	120	12	2			130
12	4,0	8	11,5	70	75	120	12	2			131
12	1,0	8	11,5	35	102	150	16	2			132
12	2,0	8	11,5	35	102	150	16	2			133
12	3,0	8	11,5	35	102	150	16	2			134
12	4,0	8	11,5	35	102	150	16	2			135

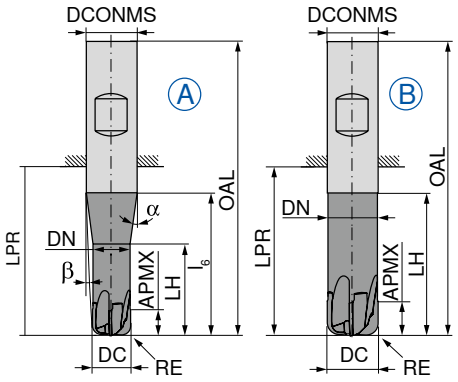
P	●	●	●
M	○	○	○
K	●	●	●
N	○	○	○
S	○	○	○
H	○	○	○
O	○	○	○

→ v_c/f_z Page 460–466

Torus Cutter

- Radius accuracy: ± 0,005 mm
- High-performance tool for clearing
- for Ø ≤ 5.0 mm, angle tolerance α and β: ± 0.5 °





LPR with Shank DIN 6535 HB



Factory standard | Factory standard | Factory standard

HA | HB | HA

DC ±0,01 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	α°	β°	DCONMS h5 mm	ZEFP	Fig.	52 732 ...	52 733 ...	52 732 ...
3	0,75	2,0	2,8	10	20	21	57	11,5	5	6	4	A	033	033	
4	1,00	2,5	3,8	12	20	21	57	11	3,5	6	4	A	044	044	
5	1,25	3,0	4,7	14	20	21	57	10	2	6	4	A	055	055	
6	1,50	4,0	5,6	20		21	57			6	4	B	065	065	
6	1,50	4,0	5,6	30		44	80			6	4	B			066
8	1,00	5,0	7,6	25		27	63			8	4	B	084		
8	1,00	5,0	7,6	35		44	80			8	4	B			085
8	2,00	5,0	7,6	25		27	63			8	4	B	086	086	
8	2,00	5,0	7,6	35		44	80			8	4	B			087
10	1,00	6,0	9,6	30		32	72			10	4	B	104		
10	1,00	6,0	9,6	30		32	72			10	6	B	105		
10	1,00	6,0	9,6	45		60	100			10	4	B			106
10	1,00	6,0	9,6	45		60	100			10	6	B			110
10	2,50	6,0	9,6	30		32	72			10	4	B	107	107	
10	2,50	6,0	9,6	30		32	72			10	6	B	108		
10	2,50	6,0	9,6	45		60	100			10	4	B			109
10	2,50	6,0	9,6	45		60	100			10	6	B			111
12	1,00	7,0	11,5	35		38	83			12	4	B	124		
12	1,00	7,0	11,5	35		38	83			12	8	B	125		
12	1,00	7,0	11,5	50		55	100			12	4	B			130
12	1,00	7,0	11,5	50		55	100			12	8	B			132
12	3,00	7,0	11,5	35		38	83			12	4	B	128	128	
12	3,00	7,0	11,5	35		38	83			12	8	B	129		
12	3,00	7,0	11,5	50		55	100			12	4	B			131
12	3,00	7,0	11,5	50		55	100			12	8	B			133
16	4,00	8,0	15,5	40		44	92			16	4	B	169	169	
16	4,00	8,0	15,5	60		72	120			16	4	B			170
16	4,00	8,0	15,5	60		72	120			16	8	B			171

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

→ v_c/f_z Page 460–466

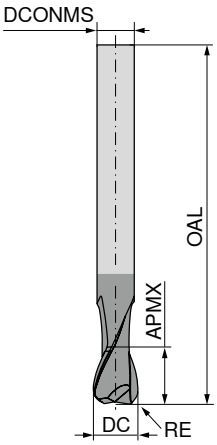
14

Intermediate Size Torus Cutter

▲ Reduced shank Ø for flexible application in various overhang lengths!

H | λ_s=45° γ_s=12° | ZEFP | ≤ 56 HRC | Ti1000









Factory standard

HA

52 107 ...

DC e8 mm	RE ±0,01 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	
7	0,5	9	120	6	4	**075**
7	1,0	9	120	6	4	**076**
7	1,5	9	120	6	4	**077**
9	0,5	12	135	8	4	**095**
9	1,0	12	135	8	4	**096**
9	1,5	12	135	8	4	**097**
11	1,0	15	150	10	4	**115**
11	1,5	15	150	10	4	**116**
11	2,0	15	150	10	4	**117**
13	1,0	18	160	12	4	**135**
13	1,5	18	160	12	4	**136**
13	2,0	18	160	12	4	**137**
15	1,0	21	160	14	4	**156**
15	1,5	21	160	14	4	**157**
15	2,0	21	160	14	4	**158**
17	1,0	24	180	16	4	**176**
17	1,5	24	180	16	4	**177**
17	2,0	24	180	16	4	**178**
17	3,0	24	180	16	4	**179**

P	○
M	●
K	○
N	●
S	●
H	
O	●

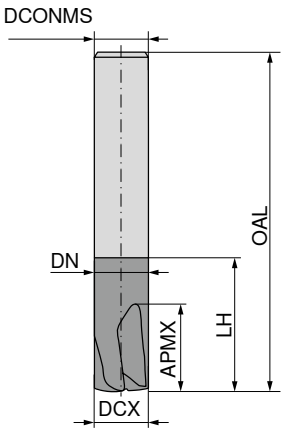
→ v_c/f_z Page 460–466

High Feed Cutter

- ▲ APMX does not correspond to the maximum cutting depth
- ▲ For feed per tooth (f_z) up to 1 mm
- ▲ Roughing in large depths
- ▲ Extremely quiet running
- ▲ r_{3D} = corner radius to be programmed













Factory standard

HA

56 900 ...

DCX h6 mm	r_{3D} mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h6 mm	ZEFP	
6	0,50	6	5,8	21	57	6	4	**060**
8	0,70	8	7,8	27	63	8	4	**080**
10	0,85	10	9,8	32	72	10	4	**100**
12	1,00	12	11,8	38	83	12	4	**120**
16	1,40	16	15,8	50	92	16	4	**160**

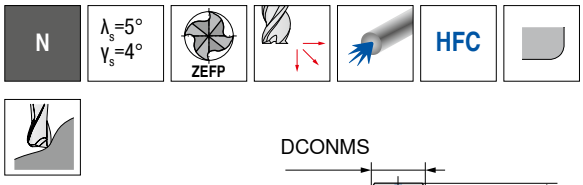
P	●
M	○
K	○
N	○
S	○
H	●
O	

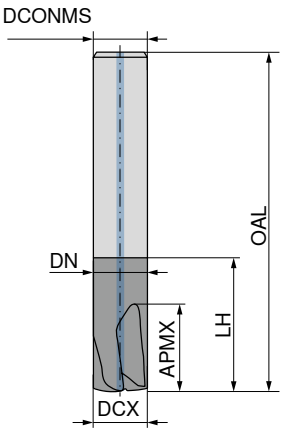
→ v_c/f_z Page 456+457

14

High Feed Cutter

- ▲ APMX does not correspond to the maximum cutting depth
- ▲ For feed per tooth (f_z) up to 1 mm
- ▲ Roughing in large depths
- ▲ Extremely quiet running
- ▲ r_{3D} = corner radius to be programmed

















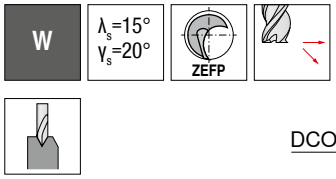
Factory standard | Factory standard

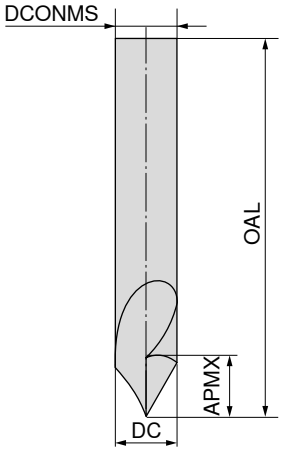
HA | HA

DCX h6 mm	r_{3D} mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h6 mm	ZEFP	56 902 ...	56 904 ...
6	0,50	6	5,8	21	57	6	4	060	
6	0,50	6	5,8	64	100	6	4		060
8	0,70	8	7,8	27	63	8	4	080	
8	0,70	8	7,8	64	100	8	4		080
10	0,85	10	9,8	32	72	10	4	100	
10	0,85	10	9,8	60	100	10	4		100
12	1,00	12	11,8	38	83	12	4	120	
12	1,00	12	11,8	65	110	12	4		120
16	1,40	16	15,8	50	92	16	4	160	
16	1,40	16	15,8	65	150	16	4		160
P								●	●
M								○	○
K								○	○
N								○	○
S								○	○
H								●	●
O									

→ v_c/f_z Page 456+457

Engraving cutter 60°







Factory standard

HA

52 195 ...

DC h6 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	
3	15	50	3	1	**030**
4	18	50	4	1	**040**
6	20	54	6	1	**060**

P	○
M	○
K	○
N	●
S	○
H	
O	●

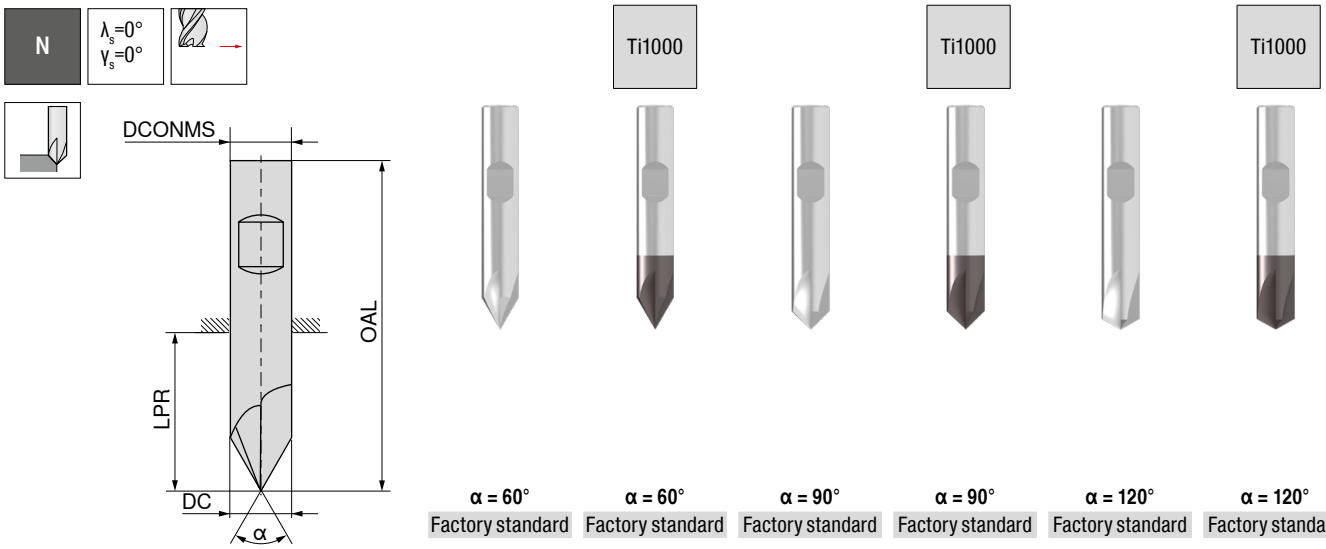
→ v_c/f_z Page 460–463

14

NC deburring cutter

N

λ_s=0°
γ_s=0°



DC mm	OAL mm	LPR mm	DCONMS mm	ZEFP	α = 60° Factory standard HB 52 150 ...	α = 60° Factory standard HB 52 153 ...	α = 90° Factory standard HB 52 151 ...	α = 90° Factory standard HB 52 154 ...	α = 120° Factory standard HB 52 152 ...	α = 120° Factory standard HB 52 155 ...
4	50	22	4	4	040 [1]	040 [1]	040 [1]	040 [1]	040 [1]	040 [1]
6	54	18	6	4	060 [2]	060	060 [2]	060	060 [2]	060
8	59	23	8	4	080 [2]	080	080 [2]	080	080 [2]	080
10	60	20	10	4	100 [2]	100	100 [2]	100	100 [2]	100
12	70	25	12	4	120 [2]	120	120 [2]	120	120 [2]	120
P					●	●	●	●	●	●
M					○	○	○	○	○	○
K					●	●	●	●	●	●
N					○	○	○	○	○	○
S					○	○	○	○	○	○
H						○		○		○
O					●	●	●	●	●	●

1) DIN 6535 HA Shank
2) Included in the set

→ v_c/f_z Page 460–463

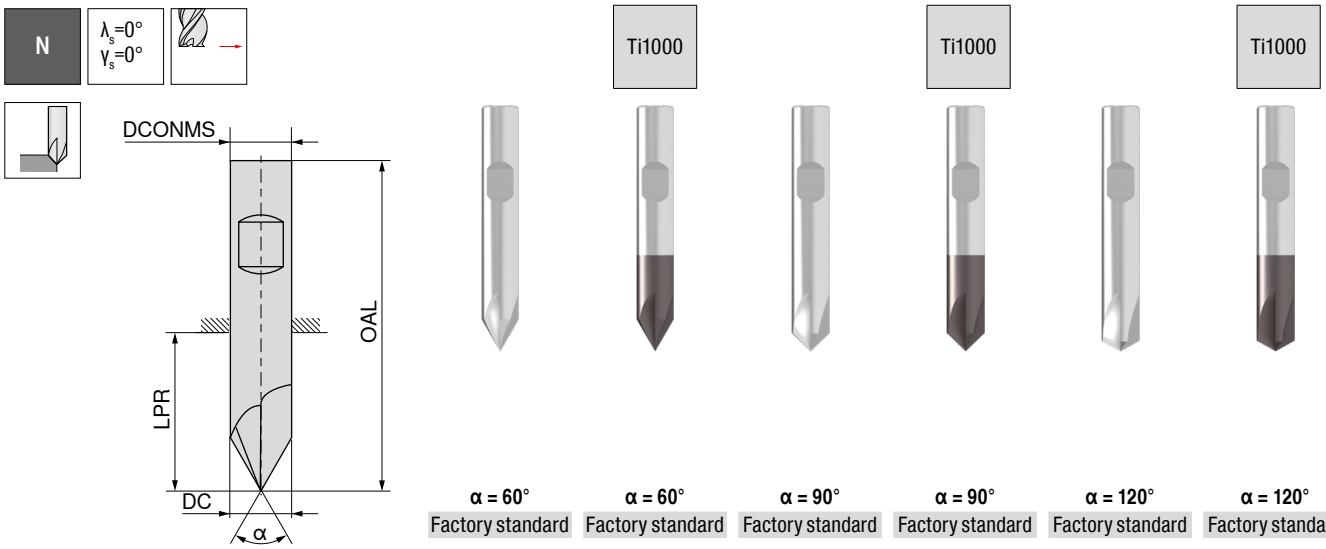
Solid carbide NC deburring cutter set, factory standard

▲ Sets contain Ø 6, Ø 8, Ø 10 and Ø 12 mm



	α = 60° HB 52 150 ...	α = 90° HB 52 151 ...	α = 120° HB 52 152 ...
Set	999	999	999

NC deburring cutter

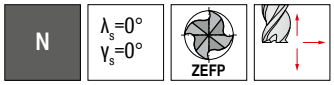


DC mm	OAL mm	LPR mm	DCONMS mm	ZEFP	α = 60° Factory standard HB 50 940 ...	α = 60° Factory standard HB 50 943 ...	α = 90° Factory standard HB 50 941 ...	α = 90° Factory standard HB 50 944 ...	α = 120° Factory standard HB 50 942 ...	α = 120° Factory standard HB 50 945 ...
4	54	26	4	4	**040** 1)	**040** 1)	**040** 1)	**040** 1)	**040** 1)	**040** 1)
6	54	18	6	4	**060**	**060**	**060**	**060**	**060**	**060**
8	58	22	8	4	**080**	**080**	**080**	**080**	**080**	**080**
10	66	26	10	4	**100**	**100**	**100**	**100**	**100**	**100**
12	73	28	12	4	**120**	**120**	**120**	**120**	**120**	**120**
P					●	●	●	●	●	●
M					○	○	○	○	○	○
K					●	●	●	●	●	●
N					○	○	○	○	○	○
S					○	○	○	○	○	○
H						○		○		○
O					●	●	●	●	●	●

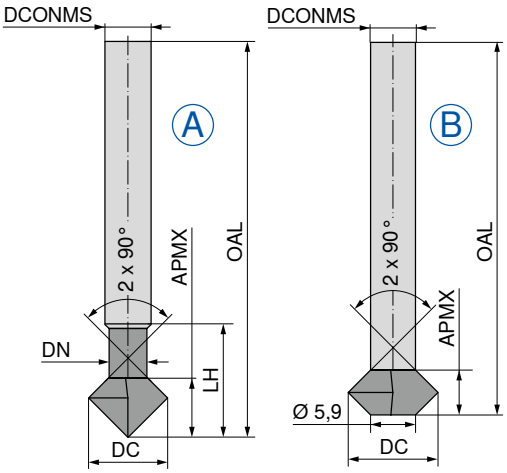
1) DIN 6535 HA Shank

→ v_c/f_z Page 460–463

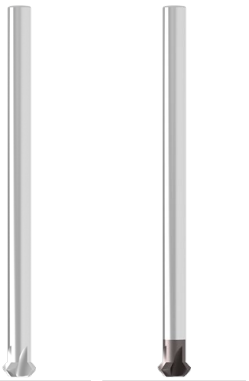
NC front and rear chamfer milling cutter







Ti1000



Factory standard
HA

52 158 ...

Factory standard
HA

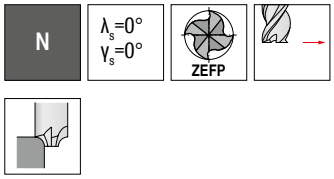
52 159 ...

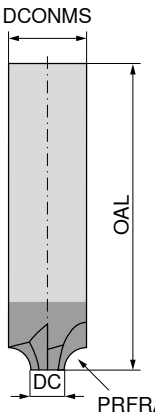
DC mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h5 mm	ZEFP	Fig.	52 158 ...	52 159 ...
3	2,0	2,2	12,0	75	4	4	A	**030**	**030**
4	2,7	2,9	17,7	75	4	4	A	**040**	**040**
5	3,0	3,9	18,0	75	5	4	A	**050**	**050**
6	4,0	3,9	19,0	100	6	4	A	**060**	**060**
8	2,0			100	6	4	B	**080**	**080**
10	4,0			100	6	4	B	**100**	**100**
12	6,0			100	6	4	B	**120**	**120**

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

→ v_c/f_z Page 460–463

Quarter-round profile milling cutter, concave







Factory standard

HA

52 249 ...

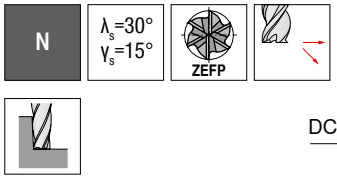
PRFRAD +/-0,02 mm	DC mm	OAL mm	DCONMS h6 mm	ZEFP	
0,50	7,0	70	8	4	**005**
1,00	6,0	70	8	4	**010**
1,25	7,5	75	10	4	**012**
1,50	7,0	75	10	4	**015**
2,00	6,0	75	10	4	**020**
2,50	7,0	73	12	4	**025**
3,00	6,0	73	12	4	**030**
3,50	9,0	80	16	4	**035**
4,00	8,0	80	16	4	**040**
4,50	7,0	80	16	4	**045**
5,00	10,0	80	20	4	**050**
6,00	8,0	80	20	4	**060**

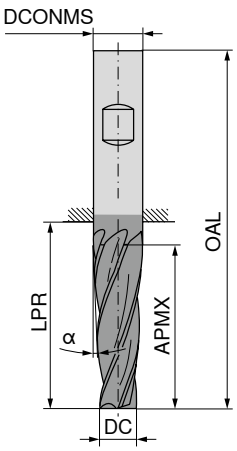
P	●
M	○
K	●
N	○
S	○
H	○
O	●

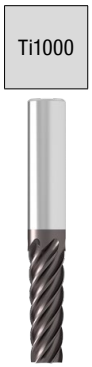
→ v_c/f_z Page 460–463

14

Die milling cutter









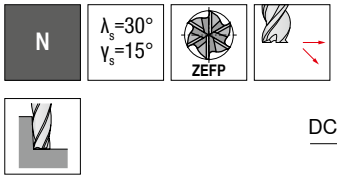
DC ±0,1 mm	α°	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	Factory standard HA 52 291 ...	Factory standard HB 52 291 ...
2,0	0,5	10	22	50	3	4	000	
2,5	0,5	10	22	50	3	4	001	
2,5	0,5	20	32	60	4	4	002	
3,0	0,5	20	32	60	4	4	003	
4,0	0,5	20	32	60	5	4	004	
5,0	0,5	30	34	75	6	6		005
6,0	0,5	30	35	75	8	6		006
8,0	0,5	30	35	80	10	6		007
10,0	0,5	30	36	85	12	6		008
12,0	0,5	30	36	85	14	6		009
12,0	0,5	50	57	110	14	6		010
16,0	0,5	60	72	120	18	6		011
2,0	1	10	22	50	3	4	100	
2,5	1	10	22	50	3	4	101	
2,5	1	20	32	60	4	4	102	
3,0	1	20	32	60	4	4	103	
3,5	1	20	32	60	5	4	104	
4,0	1	20	32	60	5	4	105	
4,5	1	20	29	65	6	6		106
5,0	1	25	29	70	6	6		107
6,0	1	30	36	75	8	6		108
8,0	1	30	36	80	10	6		109
10,0	1	30	36	85	12	6		110
12,0	1	30	36	85	14	6		111
12,0	1	50	55	110	14	6		112
16,0	1	55	61	115	18	6		113
2,0	1,5	10	22	50	3	4	200	
2,5	1,5	10	22	50	4	4	201	
2,5	1,5	20	32	60	4	4	202	
3,0	1,5	20	32	60	4	4	203	
3,5	1,5	20	32	60	5	4	204	
4,0	1,5	20	32	60	5	4	205	
4,5	1,5	20	25	65	6	4		206
5,0	1,5	30	36	75	8	6		207
6,0	1,5	30	36	75	8	6		208
8,0	1,5	30	36	80	10	6		209
10,0	1,5	30	36	85	12	6		210
12,0	1,5	30	36	85	14	6		211
12,0	1,5	50	56	110	16	6		212
16,0	1,5	60	68	125	20	6		213
2,0	2	10	22	50	3	4	301	

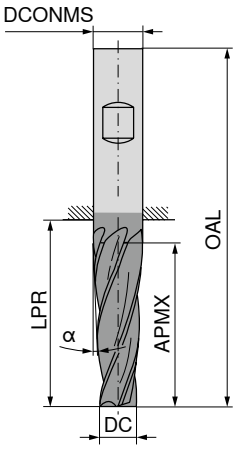
P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H	○	○
O	●	●

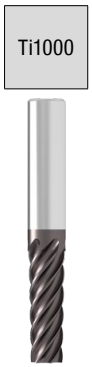
→ v_c/f_z Page 460–463

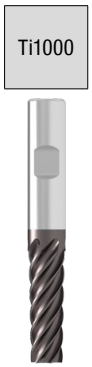
Continued on next page

Die milling cutter









DC ±0,1 mm	α°	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	Factory standard HA 52 291 ...	Factory standard HB 52 291 ...
2,5	2	10	22	50	4	4	302	
2,5	2	20	32	60	4	4	303	
3,0	2	20	32	60	5	4	304	
3,5	2	20	32	60	5	4	305	
4,0	2	20	27	65	6	4		306
4,5	2	30	37	75	8	4		307
5,0	2	30	37	75	8	6		308
6,0	2	28	32	75	8	6		309
8,0	2	28	33	75	10	6		310
10,0	2	28	33	85	12	6		311
12,0	2	28	33	85	14	6		312
12,0	2	50	56	110	16	6		313
16,0	2	55	62	115	20	6		314
2,0	2,5	15	22	50	4	4	401	
2,5	2,5	20	32	60	5	4	402	
3,0	2,5	20	32	60	5	4	403	
4,0	2,5	20	26	65	6	4		404
5,0	2,5	30	35	75	8	6		405
6,0	2,5	30	36	80	10	6		406
8,0	2,5	30	36	85	12	6		407
10,0	2,5	40	46	100	14	6		408
2,0	3	10	22	50	4	4	500	
2,5	3	10	22	50	4	4	501	
2,5	3	20	27	65	6	4		502
3,0	3	25	32	70	6	4		503
3,0	3	30	38	75	8	4		504
3,0	3	40	47	85	8	4		505
4,0	3	25	30	70	8	6		506
4,0	3	30	35	75	8	6		507
5,0	3	40	46	90	10	6		508
6,0	3	30	36	80	10	6		509
8,0	3	30	36	85	12	6		510
8,0	3	50	57	110	14	6		511
10,0	3	30	36	85	14	6		512
10,0	3	50	57	110	16	6		513
12,0	3	30	38	90	16	6		514
12,0	3	50	57	110	18	6		515
2,5	4	25	30	65	6	4		601
3,0	4	20	26	65	6	4		602
3,5	4	25	32	70	8	4		603
4,0	4	28	33	70	8	6		604

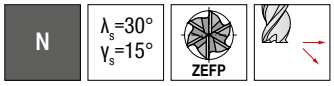
P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H	○	○
O	●	●

→ v_c/f_z Page 460–463

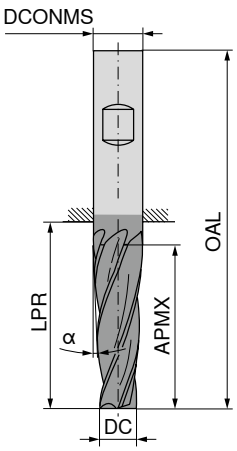
14

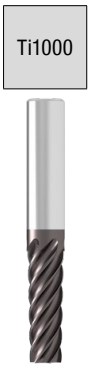
Continued on next page

Die milling cutter











DC ±0,1 mm	α°	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	Factory standard HA 52 291 ...	Factory standard HB 52 291 ...
5,0	4	30	36	85	10	6		605
5,0	4	45	51	100	12	6		606
6,0	4	30	38	84	12	6		607
6,0	4	50	58	110	14	6		608
8,0	4	30	38	84	14	6		609
8,0	4	50	58	110	16	6		610
10,0	4	30	39	93	16	6		611
10,0	4	50	58	114	18	6		612
2,5	5	20	25	65	6	4		701
3,0	5	28	34	70	8	4		702
3,5	5	30	38	80	10	4		703
4,0	5	30	36	80	10	6		704
4,5	5	30	36	80	10	6		705
5,0	5	30	38	84	12	6		706
5,0	5	40	46	100	12	6		707
6,0	5	30	36	93	12	6		708
6,0	5	55	62	110	16	6		709
8,0	5	30	38	90	14	6		710
8,0	5	50	58	114	18	6		711
10,0	5	30	38	93	16	6		712
10,0	5	55	63	115	20	6		713
12,0	5	30	38	93	18	6		714
12,0	5	45	52	100	20	6		715
P							●	●
M							○	○
K							●	●
N							○	○
S							○	○
H							○	○
O							●	●

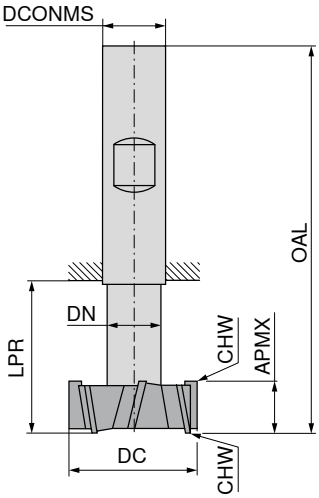
→ v_c/f_z Page 460–463

T-slot milling cutters

- Solid carbide cutting head with soldered steel shank
- For slots according to DIN 650







NEW

Ti1000



DIN 851 A

HB

54 065 ...

DC e9 mm	APMX d11 mm	DN mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	
11,0	4	4	13,5	53,5	10	0,10	6	**11000**
12,5	6	5	17,0	57,0	10	0,10	6	**12500**
16,0	8	7	22,0	62,0	10	0,20	6	**16000**
18,0	8	8	25,0	70,0	12	0,20	6	**18000**
19,0	9	8	26,0	71,0	12	0,20	6	**19000**
21,0	9	10	29,0	74,0	12	0,25	6	**21000**
22,0	10	10	30,0	75,0	12	0,25	6	**22000**
25,0	11	12	34,0	82,0	16	0,30	8	**25000**
28,0	12	13	37,0	85,0	16	0,30	8	**28000**
32,0	14	15	42,0	90,0	16	0,35	8	**32000**
36,0	16	17	47,0	103,0	25	0,40	8	**36000**
40,0	18	19	52,0	108,0	25	0,40	10	**40000**

P	●
M	○
K	●
N	
S	
H	
O	

→ v_c/f_z Page 443

14

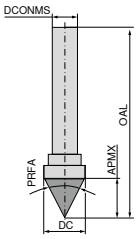
Carbide burrs, similar to DIN 8033


Teeth **Z3**: Application "medium"


Teeth **Z6**: Application "medium"

v_c in min = 300–600

KSJ



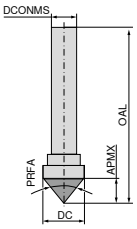

Z3


Z6

DC mm	APMX mm	OAL mm	DCONMS mm	PRFA	50 928 ... Z3		50 928 ... Z6	
6	5	52	6	60°	606		706	
12	10	60	6	60°	612	1)	712	1)

1) Steel shank / carbide head – shank tolerance h9

KSK



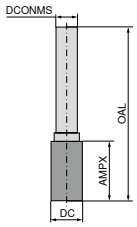

Z3


Z6

DC mm	APMX mm	OAL mm	DCONMS mm	PRFA	50 927 ... Z3		50 927 ... Z6	
6	3	52	6	90°	606		706	
12	6	56	6	90°	612	1)	712	1)

1) Steel shank / carbide head – shank tolerance h9

ZYA



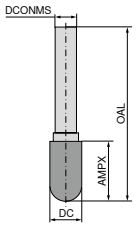

Z3


Z6

DC mm	APMX mm	OAL mm	DCONMS mm	50 921 ... Z3		50 921 ... Z6	
3	13	40	3	303		403	
6	13	48	3	306	1)	406	1)
6	16	55	6	606		706	
8	20	65	6	608	1)	708	1)
10	20	65	6	610	1)	710	1)
12	25	70	6	612	1)	712	2)

1) Steel shank / carbide head – shank tolerance h9
2) Steel shank / carbide head – shank tolerance h7

WRC



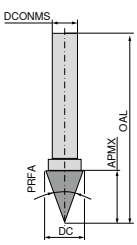

Z3


Z6

DC mm	APMX mm	OAL mm	DCONMS mm	50 922 ... Z3		50 922 ... Z6	
3	13	40	3	303		403	
6	13	48	3	306	1)	406	1)
6	16	50	6	606		706	
8	18	63	6	608	1)	708	1)
10	20	65	6	610	1)	710	1)
12	25	70	6	612	1)	712	1)
16	25	70	6	616	1)	716	1)

1) Steel shank / carbide head – shank tolerance h9

SKM



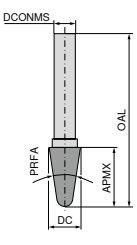

Z3


Z6

DC mm	APMX mm	OAL mm	DCONMS mm	PRFA	50 926 ... Z3		50 926 ... Z6	
3	11	40	3	14°	303		403	
6	13	48	3	23°	306	1)	406	1)
6	18	50	6	16°	606		706	
8	20	65	6	20°	608	1)	708	1)
10	20	65	6	25°	610	1)	710	1)
12	25	70	6	25°	612	1)	712	1)

1) Steel shank / carbide head – shank tolerance h9

KEL




Z3


Z6

DC mm	APMX mm	OAL mm	DCONMS mm	PRFA	50 923 ... Z3		50 923 ... Z6	
3	14	40	3	6°	303		403	
6	20	55	3	12°	306	1)	406	1)
6	20	50	6	10°	606		706	
8	20	65	6	14°	608	1)	708	1)
10	20	65	6	14°	610	1)	710	1)
12	30	75	6	14°	612	1)	712	1)

1) Steel shank / carbide head – shank tolerance h9

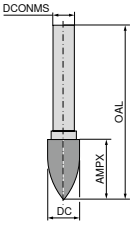
Carbide burrs, similar to DIN 8033

Teeth **Z3**: Application "medium"

Teeth **Z6**: Application "medium"

v_c in min = 300–600

SPG



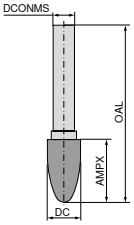

Z3


Z6

DC mm	APMX mm	OAL mm	DCONMS mm	50 925 ...		50 925 ...	
3	13	40	3	303		403	
6	13	48	3	306	1)	406	1)
6	18	50	6	606		706	
8	20	65	6	608	1)	708	1)
10	20	65	6	610	1)	710	1)
12	25	70	6	612	2)	712	1)

1) Steel shank / carbide head – shank tolerance h9
2) Steel shank / carbide head – shank tolerance h7

RBF



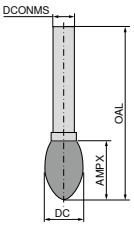

Z3


Z6

DC mm	APMX mm	OAL mm	DCONMS mm	50 924 ...		50 924 ...	
3	13	40	3	303		403	
6	13	48	3	306	1)	406	1)
6	18	50	6	606		706	
8	20	65	6	608	1)	708	1)
10	20	65	6	610	1)	710	1)
12	25	70	6	612	1)	712	1)
16	30	75	6	616	1)	716	1)

1) Steel shank / carbide head – shank tolerance h9

TRE



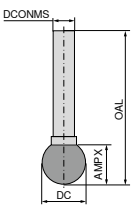

Z3


Z6

DC mm	APMX mm	OAL mm	DCONMS mm	50 929 ...		50 929 ...	
3	7	40	3	303		403	
6	10	45	3	306	1)	406	1)
6	10	50	6	606		706	
8	13	58	6	608	1)	708	1)
10	16	61	6	610	1)	710	1)
12	20	65	6	612	1)	712	1)

1) Steel shank / carbide head – shank tolerance h9

KUD



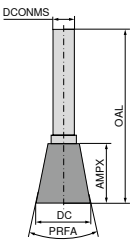

Z3


Z6

DC mm	APMX mm	OAL mm	DCONMS mm	50 930 ...		50 930 ...	
3	2,7	40,0	3	303		403	
6	5,4	40,4	3	306	1)	406	1)
6	5,0	50,0	6	606		706	
8	7,2	52,2	6	608	1)	708	1)
10	9,0	54,0	6	610	1)	710	1)
12	10,8	55,8	6	612	1)	712	1)
16	14,4	59,4	6	616	1)	716	1)

1) Steel shank / carbide head – shank tolerance h9

WKN




Z3


Z6

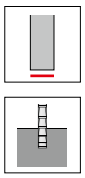
DC mm	APMX mm	OAL mm	DCONMS mm	PRFA	50 931 ...		50 931 ...	
3	7	40	3	10°	303		403	
6	7	50	6	10°	606		706	
12	13	58	6	20°	612	1)	712	1)

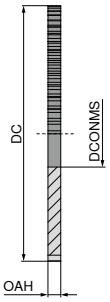
1) Steel shank / carbide head – shank tolerance h9

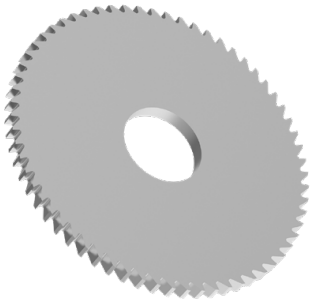
14

Solid carbide circular saw blades

▲ straight cut







DIN 1837 A

54 700 ...

DC js15 mm	OAH ±0,01 mm	DCONMS H6 mm	ZEFP	
15	0,20	5	64	102
15	0,25	5	64	103
15	0,30	5	64	104
15	0,35	5	64	105
15	0,40	5	64	106
15	0,50	5	48	107
15	0,60	5	48	108
15	0,70	5	48	109
15	0,80	5	40	110
15	0,90	5	40	111
15	1,00	5	40	112
15	1,10	5	40	113
15	1,20	5	40	114
15	1,30	5	40	115
15	1,40	5	40	116
15	1,50	5	40	117
15	1,60	5	40	118
15	1,70	5	40	119
15	1,80	5	40	120
15	1,90	5	40	121
15	2,00	5	40	122
15	2,50	5	40	123
15	3,00	5	40	124
15	3,50	5	40	125
15	4,00	5	40	126
15	4,50	5	40	127
15	5,00	5	40	128
15	5,50	5	40	129
15	6,00	5	40	130
20	0,20	5	80	152
20	0,25	5	64	153
20	0,30	5	64	154
20	0,35	5	64	155
20	0,40	5	64	156
20	0,50	5	48	157
20	0,60	5	48	158
20	0,70	5	48	159
20	0,80	5	48	160
20	0,90	5	40	161
20	1,00	5	40	162
20	1,10	5	40	163
20	1,20	5	40	164
20	1,30	5	40	165
20	1,40	5	40	166
20	1,50	5	40	167
20	1,60	5	40	168
20	1,70	5	40	169
20	1,80	5	32	170
20	1,90	5	32	171
20	2,00	5	32	172
20	2,50	5	32	173
20	3,00	5	32	174
20	3,50	5	24	175
20	4,00	5	24	176
20	4,50	5	24	177
20	5,00	5	24	178
20	5,50	5	24	179
20	6,00	5	24	180
25	0,20	8	80	202

54 700 ...

DC js15 mm	OAH ±0,01 mm	DCONMS H6 mm	ZEFP	
25	0,25	8	80	203
25	0,30	8	80	204
25	0,35	8	64	205
25	0,40	8	64	206
25	0,50	8	64	207
25	0,60	8	64	208
25	0,70	8	48	209
25	0,80	8	48	210
25	0,90	8	48	211
25	1,00	8	48	212
25	1,10	8	48	213
25	1,20	8	48	214
25	1,30	8	40	215
25	1,40	8	40	216
25	1,50	8	40	217
25	1,60	8	40	218
25	1,70	8	40	219
25	1,80	8	40	220
25	1,90	8	40	221
25	2,00	8	40	222
25	2,50	8	40	223
25	3,00	8	32	224
25	3,50	8	32	225
25	4,00	8	32	226
25	4,50	8	32	227
25	5,00	8	32	228
25	5,50	8	24	229
25	6,00	8	24	230
30	0,20	8	100	252
30	0,25	8	100	253
30	0,30	8	80	254
30	0,35	8	80	255
30	0,40	8	80	256
30	0,50	8	80	257
30	0,60	8	64	258
30	0,70	8	64	259
30	0,80	8	64	260
30	0,90	8	64	261
30	1,00	8	64	262
30	1,10	8	64	263
30	1,20	8	48	264
30	1,30	8	48	265
30	1,40	8	48	266
30	1,50	8	48	267
30	1,60	8	48	268
30	1,70	8	48	269
30	1,80	8	48	270
30	1,90	8	48	271
30	2,00	8	48	272
30	2,50	8	40	273
30	3,00	8	40	274
30	3,50	8	40	275
30	4,00	8	40	276
30	4,50	8	32	277
30	5,00	8	32	278
30	5,50	8	32	279
30	6,00	8	32	280

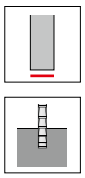
P	●
M	●
K	●
N	●
S	●
H	
O	●

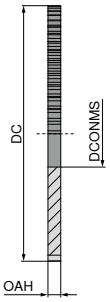
→ v_c/fz Page 459

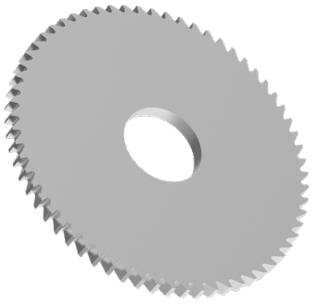
Diameters 80–200 mm, and the coarse toothed variant according to DIN 1838 B can be found in our online shop.

Solid carbide circular saw blades

▲ straight cut







DIN 1837 A

54 700 ...

DC js15 mm	OAH ±0,01 mm	DCONMS H6 mm	ZEFP	
40	0,20	10	128	302
40	0,25	10	100	303
40	0,30	10	100	304
40	0,35	10	100	305
40	0,40	10	100	306
40	0,50	10	80	307
40	0,60	10	80	308
40	0,70	10	80	309
40	0,80	10	80	310
40	0,90	10	64	311
40	1,00	10	64	312
40	1,10	10	64	313
40	1,20	10	64	314
40	1,30	10	64	315
40	1,40	10	64	316
40	1,50	10	64	317
40	1,60	10	64	318
40	1,70	10	48	319
40	1,80	10	48	320
40	1,90	10	48	321
40	2,00	10	48	322
40	2,50	10	48	323
40	3,00	10	48	324
40	3,50	10	48	325
40	4,00	10	40	326
40	4,50	10	40	327
40	5,00	10	40	328
40	5,50	10	40	329
40	6,00	10	40	330
50	0,20	13	128	352
50	0,25	13	128	353
50	0,30	13	128	354
50	0,35	13	100	355
50	0,40	13	100	356
50	0,50	13	100	357
50	0,60	13	100	358
50	0,70	13	80	359
50	0,80	13	80	360
50	0,90	13	80	361
50	1,00	13	80	362
50	1,10	13	80	363
50	1,20	13	80	364
50	1,30	13	64	365
50	1,40	13	64	366
50	1,50	13	64	367
50	1,60	13	64	368
50	1,70	13	64	369
50	1,80	13	64	370
50	1,90	13	64	371
50	2,00	13	64	372
50	2,50	13	64	373
50	3,00	13	48	374
50	3,50	13	48	375
50	4,00	13	48	376
50	4,50	13	48	377
50	5,00	13	48	378
50	5,50	13	40	379
50	6,00	13	40	380
63	0,20	16	160	402

54 700 ...

DC js15 mm	OAH ±0,01 mm	DCONMS H6 mm	ZEFP	
63	0,25	16	160	403
63	0,30	16	128	404
63	0,35	16	128	405
63	0,40	16	128	406
63	0,50	16	128	407
63	0,60	16	100	408
63	0,70	16	100	409
63	0,80	16	100	410
63	0,90	16	100	411
63	1,00	16	100	412
63	1,10	16	80	413
63	1,20	16	80	414
63	1,30	16	80	415
63	1,40	16	80	416
63	1,50	16	80	417
63	1,60	16	80	418
63	1,70	16	80	419
63	1,80	16	80	420
63	1,90	16	80	421
63	2,00	16	80	422
63	2,50	16	64	423
63	3,00	16	64	424
63	3,50	16	64	425
63	4,00	16	64	426
63	4,50	16	64	427
63	5,00	16	48	428
63	5,50	16	48	429
63	6,00	16	48	430

P	●
M	●
K	●
N	●
S	●
H	
O	●

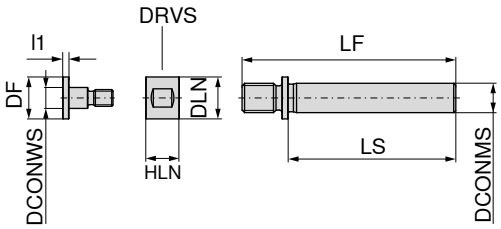
→ v_c/fz Page 459

Diameters 80–200 mm, and the coarse toothed variant according to DIN 1838 B can be found in our online shop.

14

Cylindrical shank adapter for circular saw blades

▲ DCONWS = circular saw blade bore diameter





DCONWS $_{H7}$ mm	DCONMS $_{h7}$ mm	DLN mm	DF mm	LF mm	LS mm	HLN mm	l_1 mm	DRVS mm	72 900 ...
5	7	10	10	51	40	8	3	9	**005**
5	10	10	10	61	50	8	3	9	**105**
8	7	15	15	51	40	8	3	14	**008**
8	10	15	15	61	50	8	3	14	**108**
10	7	17	17	53	40	10	3	16	**010**
10	10	17	17	63	50	10	3	16	**110**
10	16	17	17	74	55	10	3	16	**210**
13	10	20	20	66	50	10	3	18	**113**
13	16	20	20	77	55	10	3	18	**213**
16	10	24	24	66	50	14	3	22	**116**
16	16	24	24	79	55	14	3	22	**216**



Screw - SR



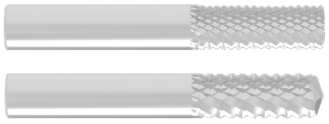
Lock nut - KM

Spare parts for Article no.	72 945 ...	72 945 ...
72 900 005	**000**	**005**
72 900 105	**000**	**005**
72 900 008	**001**	**006**
72 900 108	**001**	**006**
72 900 010	**002**	**007**
72 900 110	**002**	**007**
72 900 210	**010**	**012**
72 900 113	**003**	**008**
72 900 213	**003**	**008**
72 900 116	**004**	**009**
72 900 216	**011**	**013**

Application data for plastics cutters

Material	Strength N/mm² – HB	50 981 ... - 50 988 ...	50 932 ...	50 937 ...	50 936 ...	50 938 ...	50 610 ... 50 611 ...	50 946 ...	50 948 ...	50 947 ...
Aluminium (non alloyed, low alloyed)	< 350 N/mm²						●			
Aluminium	< 500 N/mm²						●			
Aluminium alloy 0,5–10% Si	< 400 N/mm²						●			
Aluminium alloy 10–15% Si	< 400 N/mm²					●		●	●	●
Aluminium	< 400 N/mm²					●		●	●	
Copper (non alloyed, low alloyed)	< 350 N/mm²						●			
Copper wrought alloys	< 700 N/mm²					●		●	●	●
Special copper alloys	< 200 HB					●		●	●	●
Special copper alloys	< 300 HB					●		●	●	●
Special copper alloys	< 300 HB					●		●	●	●
Short-chipping brass, bronze, red bronze	< 600 N/mm²						●			
Long-chipping brass	< 600 N/mm²						●			
Magnesium and Magnesium Alloys	< 850 N/mm²					●		●	●	●
Tungsten and tungsten alloys									●	●
Molybdenum and molybdenum alloys									●	●
Thermoplastics							●			
Duroplastics		●	●	●			●			
Fibre-reinforced plastics		●	●	●	●	●		●	●	●
Graphite		●	●	●	●	●		●		●
Machining direction		↘ 1	↘ 2	↘ 3	↘ 4	↘ 5	↘ 6	↘ 7	↘ 8	↘ 9

Tips

1


▲ Very sharp cutting edges for GFK and CFK and to prevent delamination of the component.

2


▲ For excellent tool life when machining AFK, CFK and Graphite.

3


4


▲ Specialist for machining honeycomb materials; Milling of pockets not fully through the workpiece.

5


▲ Specialist for machining honeycomb materials.

▲ Milling of recesses that pass through the material, the lower deck is pushed and upper deck pulled therefore the workpiece material is stabilized.

6


▲ For machining non fibre-reinforced plastics and non-ferrous metals with low silicon content. (PE, PA, PVC, acrylic glass)

7


8

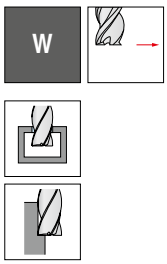

▲ For machining fibre-reinforced plastics and non-ferrous metals with high silicon content.

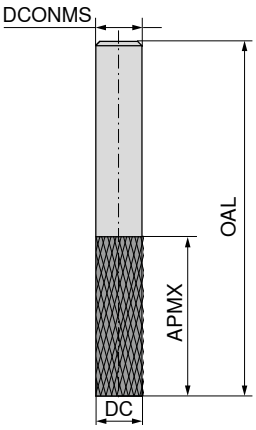
9


14

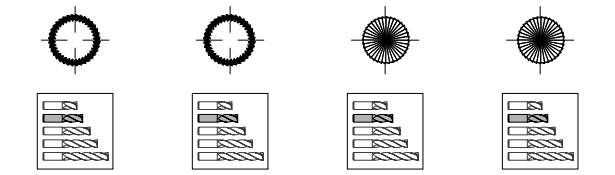
Cutter for plastics

- right hand cutting
- cross-pitched
- Downward chip evacuation
- 50 981 ... and 50 983 ... = fine pitch
- 50 982 ... and 50 984 ... = medium pitch







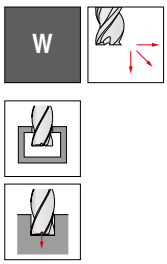


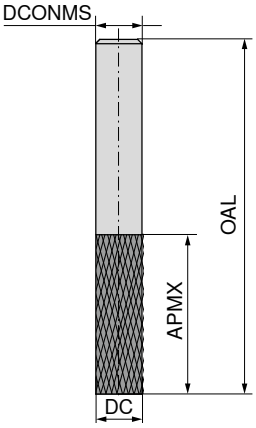
				Factory standard	Factory standard	Factory standard	Factory standard
				HA	HA	HA	HA
				50 981 ...	50 982 ...	50 983 ...	50 984 ...
DC mm	APMX mm	OAL mm	DCONMS mm				
2,0	7	40	2,0	020	020	020	020
2,0	7	50	6,0	021	021	021	021
3,0	10	40	3,0	030	030	030	030
3,0	12	50	6,0	031	031	031	031
3,5	12	40	3,5	035	035	035	035
4,0	15	40	4,0	040	040	040	040
4,0	20	50	6,0	041	041	041	041
4,5	15	50	4,5	045	045	045	045
5,0	16	50	5,0	050	050	050	050
5,0	25	75	6,0	051	051	051	051
6,0	18	50	6,0	060	060	060	060
6,0	35	75	6,0	061	061	061	061
7,0	22	60	7,0	070	070	070	070
8,0	25	63	8,0	080	080	080	080
8,0	40	100	8,0	081	081	081	081
9,0	25	63	9,0	090	090	090	090
10,0	30	72	10,0	100	100	100	100
12,0	32	83	12,0	120	120	120	120
14,0	32	83	14,0	140	140	140	140
16,0	36	92	16,0	160	160	160	160
18,0	40	92	18,0	180	180	180	180
20,0	45	104	20,0	200	200	200	200
P							
M							
K							
N							
S							
H							
O				●	●	●	●

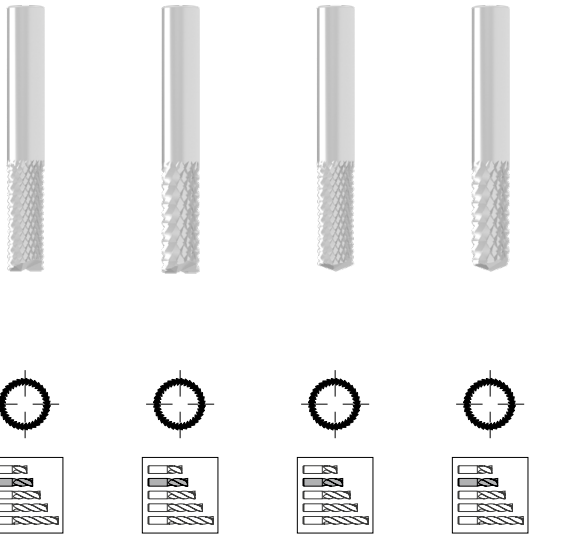
→ v_c/f_z Page 458

Cutter for plastics

- right hand cutting
- cross-pitched
- Downward chip evacuation
- 50 985 ... and 50 987 ... = fine pitch
- 50 986 ... and 50 988 ... = medium pitch







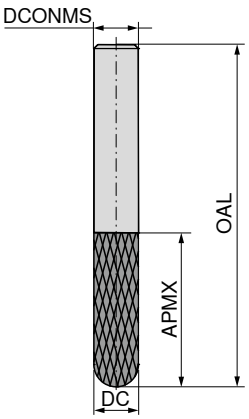
				Factory standard	Factory standard	Factory standard	Factory standard
				HA	HA	HA	HA
				50 985 ...	50 986 ...	50 987 ...	50 988 ...
DC mm	APMX mm	OAL mm	DCONMS mm				
2,0	7	40	2,0	020	020	020	020
2,0	7	50	6,0	021	021	021	021
3,0	10	40	3,0	030	030	030	030
3,0	12	50	6,0	031	031	031	031
3,5	12	40	3,5	035	035	035	035
4,0	15	40	4,0	040	040	040	040
4,0	20	50	6,0	041	041	041	041
4,5	15	50	4,5	045	045	045	045
5,0	16	50	5,0	050	050	050	050
5,0	25	75	6,0	051	051	051	051
6,0	18	50	6,0	060	060	060	060
6,0	35	75	6,0	061	061	061	061
7,0	22	60	7,0	070	070	070	070
8,0	25	63	8,0	080	080	080	080
8,0	40	100	8,0	081	081	081	081
9,0	25	63	9,0	090	090	090	090
10,0	30	72	10,0	100	100	100	100
12,0	32	83	12,0	120	120	120	120
14,0	32	83	14,0	140	140	140	140
16,0	36	92	16,0	160	160	160	160
18,0	40	92	18,0	180	180	180	180
20,0	45	104	20,0	200	200	200	200
P							
M							
K							
N							
S							
H							
O				●	●	●	●

→ v_c/f_z Page 458

Ball nosed cutter for plastics

- right hand cutting
- cross-pitched

W



DIAMOND



Factory standard

HA

50 932 ...

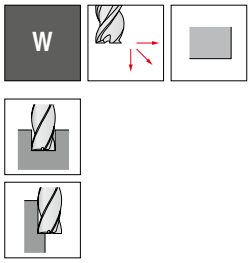
DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	
2	7	40	2	**020**
2	7	50	6	**022**
3	10	40	3	**030**
3	12	50	6	**032**
4	15	40	4	**040**
4	20	50	6	**042**
5	16	50	5	**050**
5	25	75	6	**052**
6	18	50	6	**060**
6	35	75	6	**062**
8	25	63	8	**080**
8	40	100	8	**082**
10	30	72	10	**100**
12	32	83	12	**120**
16	36	92	16	**160**
20	40	104	20	**200**

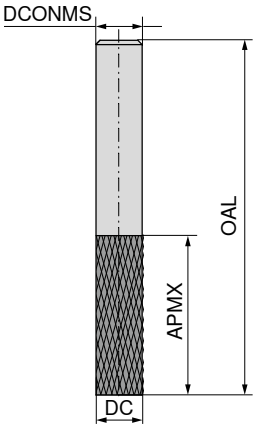
P	
M	
K	
N	
S	
H	
O	●

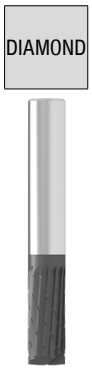
→ v_c/f_z Page 458

Cutter for plastics

▲ right hand cutting
▲ cross-pitched









Factory standard

HA

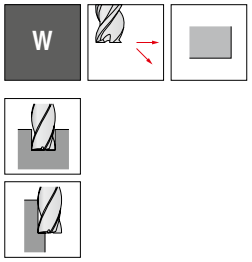
50 937 ...

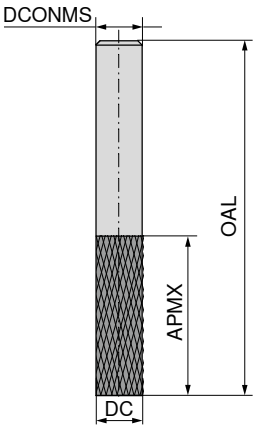
DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	
5	16	60	6	**050**
5	28	75	6	**052**
6	20	60	6	**060**
6	35	75	6	**062**
8	22	63	8	**080**
8	40	100	8	**082**
10	25	72	10	**100**
10	50	100	10	**102**
12	30	83	12	**120**
12	50	100	12	**122**
16	35	92	16	**160**
16	60	125	16	**162**

P	
M	
K	
N	
S	
H	
O	●

→ v_c/f_z Page 458

Cutter for honeycomb materials











Factory standard



50 936 ...

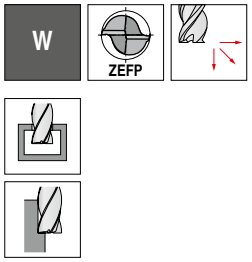
DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	
6	16	50	6	**006**
8	19	63	8	**008**
10	22	72	10	**010**
12	26	83	12	**012**
14	17	100	12	**014**
16	17	100	12	**016**
20	17	100	12	**020**
24	10	100	12	**024**
24	17	100	12	**025**
44	17	100	12	**044** 1)

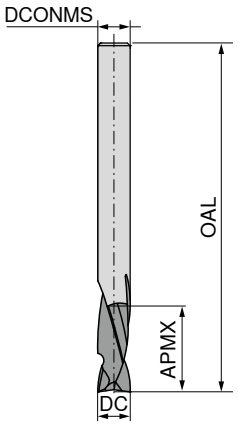
P	
M	
K	
N	
S	
H	
O	●

1) vertical plunging not possible

→ v_c/f_z Page 458

Right and left hand helix cutter for fibre re-inforced plastics











Factory standard



50 938 ...

DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	
2	6	40	6	2	**020**
3	12	40	3	2	**030**
3	12	50	6	2	**032**
4	14	40	4	2	**040**
5	16	50	5	2	**050**
6	18	50	6	2	**060**
8	20	63	8	2	**080**
10	25	72	10	2	**100**
12	30	83	12	2	**120**

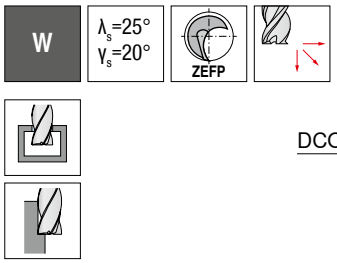
P	
M	
K	
N	●
S	
H	
O	●

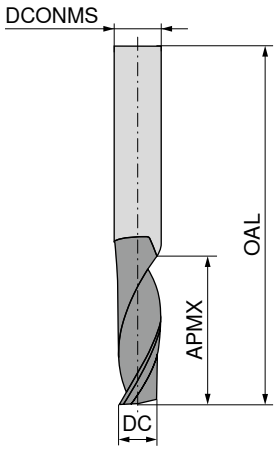
→ v_c/f_z Page 458

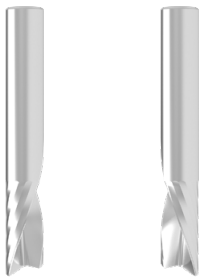
14

Single flute cutter

▲ With polished chip flutes









Right-hand helix
right-hand cutting



Left-hand helix
right-hand cutting

					Factory standard		Factory standard	
					HA		HA	
					50 610 ...		50 611 ...	
DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP				
1,5	6	40	3,0	1		015		015
2,0	6	40	3,0	1		019		019
2,0	10	40	2,0	1		020		020
2,0	10	60	6,0	1		022		022
2,0	12	60	6,0	1		024		024
2,5	6	40	2,5	1		025		025
3,0	12	40	3,0	1		030		030
3,0	10	40	6,0	1		032		032
3,0	12	60	6,0	1		034		034
3,0	15	60	6,0	1		036		036
4,0	15	40	4,0	1		040		040
4,0	15	60	6,0	1		042		042
4,0	20	75	6,0	1		044		044
5,0	16	50	5,0	1		050		050
5,0	16	60	6,0	1		052		052
5,0	28	75	6,0	1		054		054
6,0	20	60	6,0	1		060		060
6,0	30	60	6,0	1		062		062
6,0	35	75	6,0	1		064		064
8,0	22	63	8,0	1		080		080
8,0	40	100	8,0	1		084		084
10,0	25	72	10,0	1		100		100
10,0	55	100	10,0	1		105		105
12,0	30	83	12,0	1		120		120
14,0	30	83	14,0	1		140		140
16,0	35	92	16,0	1		160		160
18,0	35	92	18,0	1		180		180
20,0	40	104	20,0	1		200		200
P								
M								
K								
N						●		●
S								
H								
O						●		●

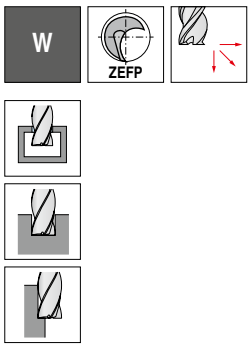
→ v_c/f_z Page 458

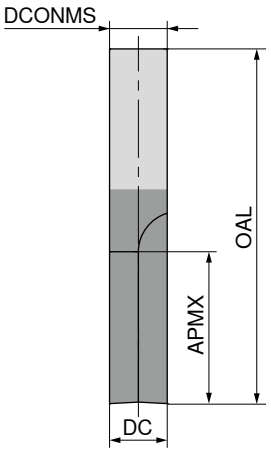
Cutter for plastics

▲ With polished flutes

W

ZEFP





Ti40





Factory standard

HA

50 946 ...

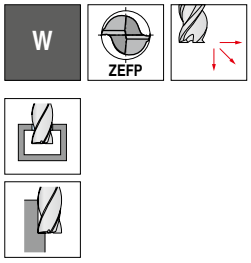
DC $_{h10}$ mm	APMX mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	
1,5	6	40	3	1	**015**
2,0	6	40	3	1	**020**
2,0	10	40	2	1	**022**
2,0	10	60	6	1	**024**
2,0	12	60	6	1	**026**
3,0	12	40	3	1	**030**
3,0	12	60	6	1	**032**
3,0	15	60	6	1	**034**
4,0	15	60	6	1	**040**
4,0	20	75	6	1	**042**
5,0	16	60	6	1	**050**
5,0	28	75	6	1	**052**
6,0	20	60	6	1	**060**
6,0	30	60	6	1	**062**
6,0	35	75	6	1	**064**
8,0	22	63	8	1	**080**
8,0	40	100	8	1	**082**
10,0	25	72	10	1	**100**
10,0	55	100	10	1	**102**
12,0	30	83	12	1	**120**

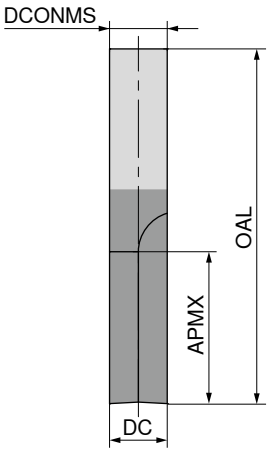
P	
M	
K	
N	●
S	
H	
O	●

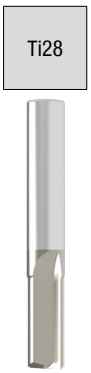
→ v_c/f_z Page 458

Cutter for plastics

▲ with polished flutes









Factory standard

HA

50 948 ...

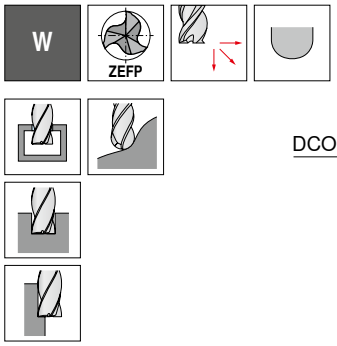
DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	
2	6	40	6	2	**020**
3	12	40	3	2	**030**
3	12	50	6	2	**031**
4	14	40	6	2	**040**
5	16	50	5	2	**050**
6	18	50	6	2	**060**
8	20	63	8	2	**080**
10	25	72	10	2	**100**
12	30	83	12	2	**120**

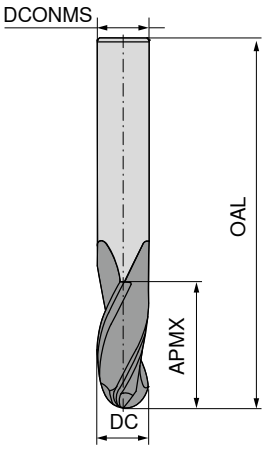
P	
M	
K	
N	●
S	
H	
O	●

→ v_c/f_z Page 458

Ball nosed cutter for plastics

▲ with polished flutes
▲ irregular pitch









DIN 6527 L

HA

50 947 ...

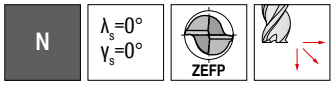
DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	
3	10	57	6	3	**030**
4	13	57	6	3	**040**
5	15	57	6	3	**050**
6	18	57	6	3	**060**
7	20	63	8	3	**070**
8	20	63	8	3	**080**
9	22	72	10	3	**090**
10	25	72	10	3	**100**
12	30	83	12	3	**120**
14	30	83	14	3	**140**
16	35	92	16	3	**160**
18	35	92	18	3	**180**
20	45	104	20	3	**200**

P	
M	
K	
N	●
S	
H	
O	●

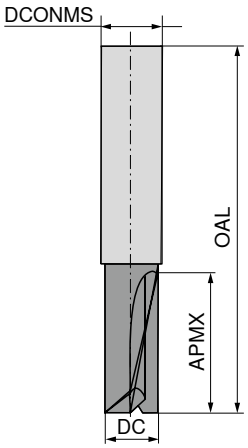
→ v_c/f_z Page 458

14

Slot milling cutter











Factory standard

HA

52 168 ...

DC e8 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	
2	8	50	3	2	**020**
3	12	50	3	2	**030**
4	13	60	4	2	**040**
5	14	60	5	2	**050**
6	16	58	6	2	**060**
7	20	65	8	2	**070**
8	20	65	8	2	**080**
9	22	70	10	2	**090**
10	22	70	10	2	**100**
12	25	70	12	2	**120**

P	●
M	○
K	●
N	○
S	○
H	
O	●

→ v_c/f_z Page 460–463

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²				
		O.3.1	Graphite						

*** Tensile strength**

14

Cutting data standard values – MonsterMill – SCR – End mill, short – long

					52 600 ... / 52 601 ... / 52 602 ... / 52 603 ... / 52 604 ... / 52 606 ... / 52 607 ... / 52 608 ... / 52 611 ... / 52 612 ...																	
					Ø DC = 3,0–3,5 mm			Ø DC = 4,0–4,5 mm						Ø DC = 5,0–5,5 mm			Ø DC = 6,0–7,5 mm			Ø DC = 8,0–9,5 mm		
	Emulsion	Compressed air	MMS	short	long	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	short	long	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min			$a_{p\,max.}$ x DC		f_z mm			f_z mm			$a_{p\,max.}$ x DC		f_z mm			f_z mm			f_z mm		
P.1.1	90	160		1,0	1,0	0,031	0,024	0,017	0,043	0,033	0,024	1,0	1,0*	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06
P.1.2	90	150		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.1.3	90	150		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.1.4	90	140		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.1.5	90	140		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.2.1	90	140		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.2.2	90	140		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.2.3	80	120		1,0	1,0	0,025	0,019	0,014	0,035	0,027	0,020	1,0	1,0*	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
P.2.4	80	120		1,0	1,0	0,025	0,019	0,014	0,035	0,027	0,020	1,0	1,0*	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
P.3.1	90	140		1,0	1,0	0,022	0,017	0,013	0,031	0,024	0,018	1,0	1,0*	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
P.3.2	80	130		1,0	1,0	0,022	0,017	0,013	0,031	0,024	0,018	1,0	1,0*	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
P.3.3	80	110		1,0	1,0	0,022	0,017	0,013	0,031	0,024	0,018	1,0	1,0*	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
P.4.1	80			1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
P.4.2	80			1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
M.1.1	80			1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
M.2.1	80			1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
M.3.1	80			1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
K.1.1		200		1,0	1,0	0,040	0,031	0,022	0,055	0,043	0,031	1,0	1,0*	0,079	0,059	0,040	0,106	0,079	0,053	0,14	0,11	0,07
K.1.2		180		1,0	1,0	0,040	0,031	0,022	0,055	0,043	0,031	1,0	1,0*	0,079	0,059	0,040	0,106	0,079	0,053	0,14	0,11	0,07
K.2.1		200		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
K.2.2		180		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
K.3.1		140		1,0	1,0	0,028	0,022	0,016	0,040	0,031	0,022	1,0	1,0*	0,057	0,042	0,028	0,076	0,056	0,038	0,10	0,08	0,05
K.3.2		140		1,0	1,0	0,028	0,022	0,016	0,040	0,031	0,022	1,0	1,0*	0,057	0,042	0,028	0,076	0,056	0,038	0,10	0,08	0,05
N.1.1																						
N.1.2																						
N.2.1																						
N.2.2																						
N.2.3																						
N.3.1	150	280		1,0	1,0	0,031	0,024	0,017	0,043	0,033	0,024	1,0	1,0*	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06
N.3.2	140	230		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
N.3.3	140	230		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
N.4.1																						
S.1.1	45			0,5	0,5	0,016	0,007	0,009	0,022	0,017	0,012	0,5	0,5	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.1.2	45			0,5	0,5	0,016	0,007	0,009	0,022	0,017	0,012	0,5	0,5	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.2.1	30			0,5	0,5	0,018	0,014	0,010	0,025	0,019	0,014	0,5	0,5	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
S.2.2	30			0,5	0,5	0,016	0,007	0,009	0,022	0,017	0,012	0,5	0,5	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.2.3	30			0,5	0,5	0,016	0,012	0,009	0,022	0,017	0,012	0,5	0,5	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.3.1	80			0,5	0,5	0,025	0,019	0,014	0,035	0,027	0,020	0,5	0,5	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
S.3.2	60			0,5	0,5	0,025	0,019	0,014	0,035	0,027	0,019	0,5	0,5	0,050	0,037	0,025	0,066	0,049	0,033	0,09	0,07	0,04
S.3.3	60			0,5	0,5	0,022	0,017	0,013	0,031	0,024	0,018	0,5	0,5	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
H.1.1		80		0,3	0,3	0,018	0,014	0,010	0,025	0,019	0,014	0,3	0,3	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
H.1.2		60		0,15	0,15	0,016	0,012	0,009	0,022	0,017	0,012	0,15	0,15	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
H.1.3																						
H.1.4																						
H.2.1		120		0,5	0,5	0,020	0,016	0,011	0,028	0,022	0,016	0,5	0,5	0,041	0,030	0,020	0,054	0,040	0,027	0,07	0,05	0,04
H.3.1		80		0,3	0,3	0,018	0,014	0,010	0,025	0,019	0,014	0,3	0,3	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
O.1.1	180	300		1,0	1,0	0,067	0,052	0,038	0,094	0,073	0,053	1,0	1,0*	0,135	0,101	0,068	0,180	0,134	0,090	0,24	0,18	0,12
O.1.2																						
O.2.1																						
O.2.2																						
O.3.1																						

*= With an a_p of 1.5xD, the feed rate per tooth f_z should be multiplied by 0.8

SCR ball nosed cutters at full slot, reduce f_z by 25 %!

Plunging angle for ramping and helical milling:
No. of teeth 4 = 4°/No. of teeth 6 = 1°

	52 600 ... / 52 601 ... / 52 602 ... / 52 603 ... / 52 604 ... / 52 606 ... / 52 607 ... / 52 608 ... / 52 611 ... / 52 612 ...																		● 1st choice ○ suitable		
	Ø DC = 10,0–11,5 mm			Ø DC = 12,0 mm			Ø DC = 14,0–15,5 mm			Ø DC = 16,0–17,0 mm			Ø DC = 18,0–19,5 mm			Ø DC = 20,0 mm					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
P.1.1	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,16	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	○	●	○
P.1.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.1.3	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.1.4	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.1.5	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.2.1	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.2.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.2.3	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	○	●	○
P.2.4	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	○	●	○
P.3.1	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
P.3.2	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
P.3.3	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
P.4.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
P.4.2	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
M.1.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
M.2.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
M.3.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
K.1.1	0,18	0,13	0,09	0,19	0,14	0,10	0,19	0,15	0,11	0,21	0,16	0,12	0,22	0,18	0,14	0,25	0,20	0,16		●	
K.1.2	0,18	0,13	0,09	0,19	0,14	0,10	0,19	0,15	0,11	0,21	0,16	0,12	0,22	0,18	0,14	0,25	0,20	0,16		●	
K.2.1	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14		●	
K.2.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14		●	
K.3.1	0,13	0,09	0,06	0,14	0,10	0,07	0,14	0,11	0,08	0,15	0,11	0,09	0,16	0,13	0,10	0,18	0,15	0,11		●	
K.3.2	0,13	0,09	0,06	0,14	0,10	0,07	0,14	0,11	0,08	0,15	0,11	0,09	0,16	0,13	0,10	0,18	0,15	0,11		●	
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,16	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	●		○
N.3.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
N.3.3	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
N.4.1																					
S.1.1	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.1.2	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.2.1	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,10	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07	●		
S.2.2	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.2.3	0,07	0,05	0,04	0,08	0,03	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.3.1	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●		
S.3.2	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,11	0,09	0,16	0,13	0,10	●		
S.3.3	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	●		
H.1.1	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,10	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07		●	
H.1.2	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06		●	
H.1.3																					
H.1.4																					
H.2.1	0,09	0,07	0,05	0,10	0,07	0,05	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,07	0,13	0,11	0,08		●	
H.3.1	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,10	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07		●	
O.1.1	0,30	0,22	0,15	0,33	0,25	0,17	0,33	0,26	0,18	0,36	0,27	0,21	0,38	0,31	0,24	0,43	0,35	0,27	●		○
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

Feed rate guide values for ball nosed and torus cutters on → **Page 466**

14

Cutting data standard values – MonsterMill – SCR – End mill, extra long

					52 605 ... / 52 608 ...														
					Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
	Emulsion	Compressed air	MMS	extra long	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min			$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	80	110		1,0* 0,5	0,031	0,024	0,017	0,043	0,033	0,024	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06
P.1.2	80	110		1,0* 0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.1.3	80	110		1,0* 0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.1.4	80	110		1,0* 0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.1.5	80	110		1,0* 0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.2.1	80	90		1,0* 0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.2.2	80	90		1,0* 0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.2.3	70	80		1,0* 0,5	0,025	0,019	0,014	0,035	0,027	0,020	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
P.2.4	70	80		1,0* 0,5	0,025	0,019	0,014	0,035	0,027	0,020	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
P.3.1	70	80		1,0* 0,5	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
P.3.2	70	80		1,0* 0,5	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
P.3.3	70	80		1,0* 0,5	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
P.4.1	70			1,0* 0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
P.4.2	70			1,0* 0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
M.1.1	70			1,0* 0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
M.2.1	70			1,0* 0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
M.3.1	70			1,0* 0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
K.1.1		160		1,0* 0,5	0,040	0,031	0,022	0,055	0,043	0,031	0,079	0,059	0,040	0,106	0,079	0,053	0,14	0,11	0,07
K.1.2		120		1,0* 0,5	0,040	0,031	0,022	0,055	0,043	0,031	0,079	0,059	0,040	0,106	0,079	0,053	0,14	0,11	0,07
K.2.1		160		1,0* 0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
K.2.2		120		1,0* 0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
K.3.1		100		1,0* 0,5	0,028	0,022	0,016	0,040	0,031	0,022	0,057	0,042	0,028	0,076	0,056	0,038	0,10	0,08	0,05
K.3.2		100		1,0* 0,5	0,028	0,022	0,016	0,040	0,031	0,022	0,057	0,042	0,028	0,076	0,056	0,038	0,10	0,08	0,05
N.1.1																			
N.1.2																			
N.2.1																			
N.2.2																			
N.2.3																			
N.3.1	120	240		1,0* 0,5	0,031	0,024	0,017	0,043	0,033	0,024	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06
N.3.2	100	200		1,0* 0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
N.3.3	100	200		1,0* 0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
N.4.1																			
S.1.1	40			0,5* 0,25	0,016	0,007	0,009	0,022	0,017	0,012	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.1.2	40			0,5* 0,25	0,016	0,007	0,009	0,022	0,017	0,012	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.2.1	25			0,5* 0,25	0,018	0,014	0,010	0,025	0,019	0,014	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
S.2.2	25			0,5* 0,25	0,016	0,007	0,009	0,022	0,017	0,012	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.2.3	25			0,5* 0,25	0,016	0,012	0,009	0,022	0,017	0,012	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.3.1	60			0,5* 0,25	0,025	0,019	0,014	0,035	0,027	0,020	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
S.3.2	50			0,5* 0,25	0,025	0,019	0,014	0,035	0,027	0,019	0,050	0,037	0,025	0,066	0,049	0,033	0,09	0,07	0,04
S.3.3	50			0,5* 0,25	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
H.1.1		60		0,5* 0,3	0,018	0,014	0,010	0,025	0,019	0,014	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
H.1.2		50		0,5* 0,15	0,016	0,012	0,009	0,022	0,017	0,012	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
H.1.3																			
H.1.4																			
H.2.1		80		0,5* 0,5	0,020	0,016	0,011	0,028	0,022	0,016	0,041	0,030	0,020	0,054	0,040	0,027	0,07	0,05	0,04
H.3.1		60		0,5* 0,3	0,018	0,014	0,010	0,025	0,019	0,014	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
O.1.1	120	240		1,0* 0,5	0,067	0,052	0,038	0,094	0,073	0,053	0,135	0,101	0,068	0,180	0,134	0,090	0,24	0,18	0,12
O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

* = Trimming and trochoidal slot milling

Plunging angle for ramping and helical milling: No. of teeth 4 = 4 °/No. of teeth 6 = 1°

	52 605 ... / 52 608 ...																					● 1st choice ○ suitable		
	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16 mm			Ø DC = 18 mm			Ø DC = 20 mm								
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm																							
P.1.1	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,15	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	○	●	○
P.1.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.1.3	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.1.4	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.1.5	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.2.1	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.2.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.2.3	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,12	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	○	●	○
P.2.4	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,12	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	○	●	○
P.3.1	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
P.3.2	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
P.3.3	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
P.4.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
P.4.2	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
M.1.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
M.2.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
M.3.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
K.1.1	0,18	0,13	0,09	0,19	0,14	0,10	0,19	0,15	0,11	0,20	0,16	0,12	0,22	0,18	0,14	0,25	0,20	0,16	○	●	○
K.1.2	0,18	0,13	0,09	0,19	0,14	0,10	0,19	0,15	0,11	0,20	0,16	0,12	0,22	0,18	0,14	0,25	0,20	0,16	○	●	○
K.2.1	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
K.2.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
K.3.1	0,13	0,09	0,06	0,14	0,10	0,07	0,14	0,11	0,08	0,14	0,11	0,09	0,16	0,13	0,10	0,18	0,15	0,11	○	●	○
K.3.2	0,13	0,09	0,06	0,14	0,10	0,07	0,14	0,11	0,08	0,14	0,11	0,09	0,16	0,13	0,10	0,18	0,15	0,11	○	●	○
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,15	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	●		○
N.3.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
N.3.3	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
N.4.1																					
S.1.1	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.1.2	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.2.1	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,09	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07	●		
S.2.2	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.2.3	0,07	0,05	0,04	0,08	0,03	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.3.1	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,12	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●		
S.3.2	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,09	0,07	0,12	0,10	0,08	0,14	0,11	0,09	0,16	0,13	0,10	●		
S.3.3	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	●		
H.1.1	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,09	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07		●	
H.1.2	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06		●	
H.1.3																					
H.1.4																					
H.2.1	0,09	0,07	0,05	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,11	0,08		●	
H.3.1	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,09	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07		●	
O.1.1	0,30	0,22	0,15	0,33	0,25	0,17	0,33	0,26	0,18	0,33	0,27	0,21	0,38	0,31	0,24	0,43	0,35	0,27	●		○
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

14

Cutting data standard values – MonsterMill – SCR – Torus face cutter, long

			52 609 ...															
			Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
		long	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	150	1,0	0,019	0,017	0,012	0,029	0,022	0,016	0,040	0,030	0,020	0,048	0,036	0,024	0,06	0,05	0,03
P.1.2	130	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
P.1.3	130	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
P.1.4	140	1,0	0,019	0,017	0,012	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
P.1.5	140	1,0	0,019	0,017	0,012	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
P.2.1	150	1,0	0,024	0,021	0,015	0,029	0,022	0,016	0,040	0,030	0,020	0,048	0,036	0,024	0,06	0,05	0,03
P.2.2	150	1,0	0,019	0,017	0,012	0,029	0,022	0,016	0,040	0,030	0,020	0,048	0,036	0,024	0,06	0,05	0,03
P.2.3	130	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
P.2.4	130	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
P.3.1	130	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
P.3.2	150	1,0	0,024	0,021	0,015	0,029	0,022	0,016	0,040	0,030	0,020	0,048	0,036	0,024	0,06	0,05	0,03
P.3.3	130	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
P.4.1																	
P.4.2																	
M.1.1																	
M.2.1																	
M.3.1																	
K.1.1	170	1,0	0,028	0,025	0,018	0,043	0,033	0,024	0,056	0,042	0,028	0,072	0,054	0,036	0,10	0,07	0,05
K.1.2	170	1,0	0,028	0,025	0,018	0,043	0,033	0,024	0,056	0,042	0,028	0,072	0,054	0,036	0,10	0,07	0,05
K.2.1	150	1,0	0,024	0,021	0,015	0,036	0,028	0,020	0,046	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
K.2.2	150	1,0	0,024	0,021	0,015	0,036	0,028	0,020	0,046	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
K.3.1	80	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
K.3.2	80	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
N.1.1																	
N.1.2																	
N.2.1																	
N.2.2																	
N.2.3																	
N.3.1																	
N.3.2																	
N.3.3																	
N.4.1																	
S.1.1																	
S.1.2																	
S.2.1																	
S.2.2																	
S.2.3																	
S.3.1																	
S.3.2																	
S.3.3																	
H.1.1	80	0,3	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
H.1.2	60	0,15	0,009	0,008	0,006	0,014	0,011	0,008	0,020	0,015	0,010	0,024	0,018	0,012	0,03	0,02	0,02
H.1.3																	
H.1.4																	
H.2.1	100	0,5	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
H.3.1	80	0,3	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
O.1.1																	
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

	52 609 ...											
	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			● 1st choice		
										○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm					
P.1.1	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
P.1.2	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.1.3	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.1.4	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.1.5	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.2.1	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
P.2.2	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
P.2.3	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.2.4	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.3.1	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.3.2	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
P.3.3	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1	0,12	0,09	0,06	0,14	0,11	0,07	0,15	0,12	0,09	○	●	
K.1.2	0,12	0,09	0,06	0,14	0,11	0,07	0,15	0,12	0,09	○	●	
K.2.1	0,10	0,08	0,05	0,12	0,09	0,06	0,14	0,10	0,08	○	●	
K.2.2	0,10	0,08	0,05	0,12	0,09	0,06	0,14	0,10	0,08	○	●	
K.3.1	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
K.3.2	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05		●	
H.1.2	0,04	0,03	0,02	0,05	0,04	0,02	0,05	0,04	0,03		●	
H.1.3												
H.1.4												
H.2.1	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05		●	
H.3.1	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05		●	
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

Cutting data standard values – MonsterMill – SCR – Torus face cutter, extra long

				52 610 ...																
				Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			● 1st choice		
		extra long														○ suitable		
				a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	v_c m/min	$a_{p\,max.}$ x DC		f_z mm			f_z mm			f_z mm			f_z mm					
P.1.1	100	1,0*	0,5	0,06	0,05	0,03	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
P.1.2	90	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.1.3	90	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.1.4	100	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.1.5	100	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.2.1	100	1,0*	0,5	0,06	0,05	0,03	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
P.2.2	100	1,0*	0,5	0,06	0,05	0,03	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
P.2.3	90	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.2.4	90	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.3.1	90	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.3.2	100	1,0*	0,5	0,06	0,05	0,03	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
P.3.3	90	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.4.1																		
P.4.2																		
M.1.1																		
M.2.1																		
M.3.1																		
K.1.1	120	1,0*	0,5	0,10	0,07	0,05	0,12	0,09	0,06	0,14	0,11	0,07	0,15	0,12	0,09	○	●	
K.1.2	120	1,0*	0,5	0,10	0,07	0,05	0,12	0,09	0,06	0,14	0,11	0,07	0,15	0,12	0,09	○	●	
K.2.1	100	1,0*	0,5	0,08	0,06	0,04	0,10	0,08	0,05	0,12	0,09	0,06	0,14	0,10	0,08	○	●	
K.2.2	100	1,0*	0,5	0,08	0,06	0,04	0,10	0,08	0,05	0,12	0,09	0,06	0,14	0,10	0,08	○	●	
K.3.1	60	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
K.3.2	60	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1																		
N.3.2																		
N.3.3																		
N.4.1																		
S.1.1																		
S.1.2																		
S.2.1																		
S.2.2																		
S.2.3																		
S.3.1																		
S.3.2																		
S.3.3																		
H.1.1	60	0,5*	0,3	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05		●	
H.1.2	50	0,5*	0,15	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,05	0,04	0,03		●	
H.1.3																		
H.1.4																		
H.2.1	70	0,5*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05		●	
H.3.1	60	0,5*	0,3	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05		●	
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

* = Trimming and trochoidal slot milling

Cutting data standard values – MonsterMill – SCR – Torus face cutter, HSC machining

				52 609 ... / 52 610 ...								● 1st choice		
				Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	○ suitable		
Index	v_c m/min	a_p x DC	a_e x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.1	200	0,04	0,5	0,090	0,120	0,150	0,180	0,24	0,30	0,36	0,48	○	●	
P.1.2	170	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
P.1.3	170	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
P.1.4	190	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38	○	●	
P.1.5	190	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38	○	●	
P.2.1	200	0,04	0,5	0,090	0,120	0,150	0,180	0,24	0,30	0,36	0,48	○	●	
P.2.2	200	0,04	0,5	0,090	0,120	0,150	0,180	0,24	0,30	0,36	0,48	○	●	
P.2.3	170	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
P.2.4	170	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
P.3.1	170	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
P.3.2	200	0,04	0,5	0,090	0,120	0,150	0,180	0,24	0,30	0,36	0,48	○	●	
P.3.3	170	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
P.4.1														
P.4.2														
M.1.1														
M.2.1														
M.3.1														
K.1.1	230	0,05	0,6	0,120	0,160	0,200	0,240	0,32	0,40	0,48	0,64	○	●	
K.1.2	230	0,05	0,6	0,120	0,160	0,200	0,240	0,32	0,40	0,48	0,64	○	●	
K.2.1	200	0,04	0,5	0,096	0,130	0,160	0,192	0,26	0,32	0,38	0,51	○	●	
K.2.2	200	0,04	0,5	0,096	0,130	0,160	0,192	0,26	0,32	0,38	0,51	○	●	
K.3.1	100	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38	○	●	
K.3.2	100	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38	○	●	
N.1.1														
N.1.2														
N.2.1														
N.2.2														
N.2.3														
N.3.1														
N.3.2														
N.3.3														
N.4.1														
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1														
S.3.2														
S.3.3														
H.1.1	100	0,03	0,3	0,060	0,080	0,100	0,120	0,16	0,20	0,24	0,32		●	
H.1.2	90	0,02	0,3	0,048	0,064	0,080	0,096	0,13	0,16	0,19	0,26		●	
H.1.3	80	0,02	0,2	0,024	0,056	0,070	0,084	0,11	0,14	0,17	0,22		●	
H.1.4	60	0,02	0,2	0,036	0,048	0,060	0,072	0,10	0,12	0,14	0,19		●	
H.2.1	130	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38		●	
H.3.1	100	0,03	0,3	0,060	0,080	0,100	0,120	0,16	0,20	0,24	0,32		●	
O.1.1														
O.1.2														
O.2.1														
O.2.2														
O.3.1														

Cutting data standard values – MonsterMill – ICR – End mill, short

				52 784 ...													
				Ø DC = 1,5 mm			Ø DC = 2 mm			Ø DC = 2,5 mm			● 1st choice		
													○ suitable		
	Emulsion	Compressed air	MMS	short	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	v_c m/min			$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm					
P.1.1	140	130		0,25	0,014	0,013	0,010	0,020	0,019	0,014	0,029	0,024	0,018	○	●	○
P.1.2	140	130		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○
P.1.3	140	130		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○
P.1.4	140	130		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○
P.1.5	140	130		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○
P.2.1	120			0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○
P.2.2	120	110		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○
P.2.3	80	90		0,25	0,013	0,012	0,009	0,016	0,015	0,011	0,024	0,020	0,015	○	●	○
P.2.4	80	90		0,25	0,013	0,012	0,009	0,016	0,015	0,011	0,024	0,020	0,015	○	●	○
P.3.1	80	90		0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	○	●	○
P.3.2	80	90		0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	○	●	○
P.3.3	100	110		0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	○	●	○
P.4.1	100			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	●		
P.4.2	100			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	●		
M.1.1	**100**			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	●		
M.2.1	**80**			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	●		
M.3.1	**100**			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	●		
K.1.1		180		0,25	0,020	0,019	0,014	0,025	0,024	0,018	0,036	0,030	0,022		●	
K.1.2		160		0,25	0,020	0,019	0,014	0,025	0,024	0,018	0,036	0,030	0,022		●	
K.2.1		180		0,25	0,016	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019		●	
K.2.2		160		0,25	0,016	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019		●	
K.3.1		120		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016		●	
K.3.2		120		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016		●	
N.1.1																
N.1.2																
N.2.1																
N.2.2																
N.2.3																
N.3.1	280	280		0,25	0,007	0,007	0,005	0,020	0,019	0,014	0,029	0,024	0,018	●		○
N.3.2	220	220		0,25	0,016	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019	●		○
N.3.3	220	220		0,25	0,016	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019	●		○
N.4.1																
S.1.1	45			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,012	0,012	●		
S.1.2	45			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,012	0,012	●		
S.2.1	25			0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	●		
S.2.2	30			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,012	0,012	●		
S.2.3	25			0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	●		
S.3.1	80			0,25	0,013	0,012	0,009	0,016	0,015	0,011	0,024	0,020	0,015	●		
S.3.2	60			0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	●		
S.3.3	60			0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	●		
H.1.1		80		0,20	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013		●	
H.1.2		60		0,15	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012		●	
H.1.3																
H.1.4																
H.2.1		80		0,25	0,013	0,012	0,009	0,016	0,015	0,011	0,024	0,020	0,015		●	
H.3.1		80		0,20	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013		●	
O.1.1	300	300		0,25	0,029	0,027	0,020	0,043	0,040	0,030	0,051	0,043	0,032	●		○
O.1.2																
O.2.1																
O.2.2																
O.3.1																

Plunging angle for ramping and helical milling: No. of teeth 3 = 5°/No. of teeth 4 = 4°/No. of teeth 5 = 3°

Cutting data standard values – MonsterMill – ICR – End mill, short – long

	52 784 ... / 52 786 ...																						
						Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			● 1st choice					
																		○ suitable					
	Emulsion	Compressed air	MMS	short	long	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS			
Index	v_c m/min			$a_{p\,max.}$ x DC		f_z mm			f_z mm			f_z mm			f_z mm								
P.1.1	140	130		1,0	1,0*	0,038	0,029	0,021	0,049	0,038	0,028	0,063	0,049	0,035	0,074	0,057	0,041	○	●	○			
P.1.2	140	130		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○			
P.1.3	140	130		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○			
P.1.4	140	130		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○			
P.1.5	140	130		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○			
P.2.1	120	110		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○			
P.2.2	120	110		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○			
P.2.3	80	90		1,0	1,0*	0,031	0,024	0,018	0,063	0,049	0,035	0,052	0,040	0,029	0,061	0,047	0,034	○	●	○			
P.2.4	80	90		1,0	1,0*	0,031	0,024	0,018	0,063	0,049	0,035	0,052	0,040	0,029	0,061	0,047	0,034	○	●	○			
P.3.1	80	90		1,0	1,0*	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	○	●	○			
P.3.2	80	90		1,0	1,0*	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	○	●	○			
P.3.3	100	110		1,0	1,0*	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	○	●	○			
P.4.1	100			1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●					
P.4.2	100			1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●					
M.1.1	**100**			1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●					
M.2.1	**80**			1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●					
M.3.1	**100**			1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●					
K.1.1		180		1,0	1,0*	0,047	0,036	0,026	0,063	0,049	0,035	0,079	0,061	0,044	0,094	0,073	0,053		●				
K.1.2		160		1,0	1,0*	0,047	0,036	0,026	0,063	0,049	0,035	0,079	0,061	0,044	0,094	0,073	0,053		●				
K.2.1		180		1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045		●				
K.2.2		160		1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045		●				
K.3.1		120		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038		●				
K.3.2		120		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038		●				
N.1.1																							
N.1.2																							
N.2.1																							
N.2.2																							
N.2.3																							
N.3.1	280	280		1,0	1,0*	0,038	0,029	0,021	0,049	0,038	0,028	0,063	0,049	0,035	0,741	0,572	0,413	●		○			
N.3.2	220	220		1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	●		○			
N.3.3	220	220		1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	●		○			
N.4.1																							
S.1.1	45			0,5	0,5	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●					
S.1.2	45			0,5	0,5	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●					
S.2.1	25			0,5	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	●					
S.2.2	30			0,5	0,5	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●					
S.2.3	25			0,5	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	●					
S.3.1	80			0,5	0,5	0,031	0,024	0,018	0,040	0,031	0,023	0,052	0,040	0,029	0,061	0,047	0,034	●					
S.3.2	60			0,5	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	●					
S.3.3	60			0,5	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	●					
H.1.1		80		0,3	0,3	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030		●				
H.1.2		60		0,15	0,15	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026		●				
H.1.3																							
H.1.4																							
H.2.1		80		0,5	0,5	0,031	0,024	0,018	0,040	0,031	0,023	0,052	0,040	0,029	0,061	0,047	0,034		●				
H.3.1		80		0,3	0,3	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030		●				
O.1.1	300	300		1,0	1,0*	0,058	0,045	0,033	0,108	0,083	0,060	0,135	0,104	0,075	0,162	0,125	0,090	●		○			
O.1.2																							
O.2.1																							
O.2.2																							
O.3.1																							

* = with an a_p of 1.5 x D the f_z should be multiplied by 0.8

Continued on the next page

Plunging angle for ramping and helical milling: No. of teeth 3 = 5°/No. of teeth 4 = 4°/No. of teeth 5 = 3°

14

Cutting data standard values – MonsterMill – ICR – End mill, short – long

						52 784 ... / 52 786 ...											
						Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm		
	Emulsion	Compressed air	MMS	short	long	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min			$a_{p\,max.}$ x DC		f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	140	130		1,0	1,0*	0,10	0,08	0,06	0,12	0,10	0,07	0,15	0,11	0,08	0,17	0,13	0,10
P.1.2	140	130		1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09
P.1.3	140	130		1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09
P.1.4	140	130		1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09
P.1.5	140	130		1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09
P.2.1	120	110		1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09
P.2.2	120	110		1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09
P.2.3	80	90		1,0	1,0*	0,08	0,06	0,05	0,11	0,09	0,06	0,12	0,09	0,07	0,14	0,11	0,08
P.2.4	80	90		1,0	1,0*	0,08	0,06	0,05	0,11	0,09	0,06	0,12	0,09	0,07	0,14	0,11	0,08
P.3.1	80	90		1,0	1,0*	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
P.3.2	80	90		1,0	1,0*	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
P.3.3	100	110		1,0	1,0*	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
P.4.1	100			1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,09	0,06
P.4.2	100			1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,09	0,06
M.1.1	**100**			1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
M.2.1	**80**			1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
M.3.1	**100**			1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
K.1.1		180		1,0	1,0*	0,13	0,10	0,07	0,14	0,10	0,08	0,16	0,13	0,09	0,22	0,17	0,12
K.1.2		160		1,0	1,0*	0,13	0,10	0,07	0,14	0,10	0,08	0,16	0,13	0,09	0,22	0,17	0,12
K.2.1		180		1,0	1,0*	0,11	0,08	0,06	0,14	0,10	0,08	0,14	0,11	0,08	0,19	0,15	0,11
K.2.2		160		1,0	1,0*	0,11	0,08	0,06	0,12	0,09	0,07	0,14	0,11	0,08	0,19	0,15	0,11
K.3.1		120		1,0	1,0*	0,09	0,07	0,05	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09
K.3.2		120		1,0	1,0*	0,09	0,07	0,05	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09
N.1.1																	
N.1.2																	
N.2.1																	
N.2.2																	
N.2.3																	
N.3.1	280	280		1,0	1,0*	0,10	0,08	0,06	0,12	0,10	0,07	0,15	0,11	0,08	0,17	0,13	0,10
N.3.2	220	220		1,0	1,0*	0,11	0,08	0,06	0,14	0,10	0,08	0,16	0,13	0,09	0,14	0,11	0,08
N.3.3	220	220		1,0	1,0*	0,11	0,08	0,06	0,14	0,10	0,08	0,16	0,13	0,09	0,14	0,11	0,08
N.4.1																	
S.1.1	45			0,5	0,5	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
S.1.2	45			0,5	0,5	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
S.2.1	25			0,5	0,5	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
S.2.2	30			0,5	0,5	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
S.2.3	25			0,5	0,5	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,05	0,06	0,13	0,10	0,07
S.3.1	80			0,5	0,5	0,08	0,06	0,05	0,10	0,08	0,06	0,12	0,09	0,07	0,14	0,11	0,08
S.3.2	60			0,5	0,5	0,09	0,07	0,05	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09
S.3.3	60			0,5	0,5	0,09	0,07	0,05	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09
H.1.1		80		0,3	0,3	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
H.1.2		60		0,15	0,15	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
H.1.3																	
H.1.4																	
H.2.1		80		0,5	0,5	0,08	0,06	0,05	0,10	0,08	0,06	0,12	0,09	0,07	0,14	0,11	0,08
H.3.1		80		0,3	0,3	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
O.1.1	300	300		1,0	1,0*	0,22	0,17	0,12	0,27	0,21	0,15	0,32	0,25	0,18	0,38	0,29	0,21
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

* = with an a_p of 1.5 x D the f_z should be multiplied by 0.8

Plunging angle for ramping and helical milling: No. of teeth 3 = 5°/No. of teeth 4 = 4°/No. of teeth 5 = 3°

	52 784 ... / 52 786 ...											
	Ø DC = 16 mm			Ø DC = 18 mm			Ø DC = 20 mm			● 1st choice		
										○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm					
P.1.1	0,18	0,14	0,11	0,19	0,16	0,12	0,20	0,17	0,14	○	●	○
P.1.2	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.1.3	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.1.4	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.1.5	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.2.1	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.2.2	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.2.3	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	○	●	○
P.2.4	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	○	●	○
P.3.1	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
P.3.2	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
P.3.3	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
P.4.1	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
P.4.2	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
M.1.1	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
M.2.1	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
M.3.1	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
K.1.1	0,22	0,18	0,14	0,24	0,20	0,16	0,25	0,22	0,18		●	
K.1.2	0,22	0,18	0,14	0,24	0,20	0,16	0,25	0,22	0,18		●	
K.2.1	0,19	0,16	0,12	0,20	0,17	0,13	0,25	0,22	0,18		●	
K.2.2	0,19	0,16	0,12	0,20	0,17	0,13	0,22	0,19	0,15		●	
K.3.1	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13		●	
K.3.2	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13		●	
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1	0,18	0,14	0,11	0,19	0,16	0,12	0,20	0,17	0,14	●		○
N.3.2	0,19	0,16	0,12	0,21	0,17	0,14	0,22	0,19	0,15	●		○
N.3.3	0,19	0,16	0,12	0,21	0,17	0,14	0,22	0,19	0,15	●		○
N.4.1												
S.1.1	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
S.1.2	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
S.2.1	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	●		
S.2.2	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
S.2.3	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	●		
S.3.1	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	●		
S.3.2	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	●		
S.3.3	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	●		
H.1.1	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10		●	
H.1.2	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09		●	
H.1.3												
H.1.4												
H.2.1	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11		●	
H.3.1	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10		●	
O.1.1	0,38	0,31	0,24	0,41	0,35	0,27	0,43	0,38	0,30	●		○
O.1.2												
O.2.1												
O.2.2												
O.3.1												

Cutting data standard values – MonsterMill – ICR – End mill, extra long

					52 784 ...																
					Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
	Emulsion	Compressed air	MMS	extra long	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min			$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	120	110		1,0	0,5	0,038	0,029	0,021	0,049	0,038	0,028	0,063	0,049	0,035	0,074	0,057	0,041	0,10	0,08	0,06
P.1.2	120	110		1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
P.1.3	120	110		1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
P.1.4	120	110		1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
P.1.5	120	110		1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
P.2.1	100	90		1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
P.2.2	100	90		1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
P.2.3	70	70		1,0	0,5	0,031	0,024	0,018	0,063	0,049	0,035	0,052	0,040	0,029	0,061	0,047	0,034	0,08	0,06	0,05
P.2.4	70	70		1,0	0,5	0,031	0,024	0,018	0,063	0,049	0,035	0,052	0,040	0,029	0,061	0,047	0,034	0,08	0,06	0,05
P.3.1	70	70		1,0	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,07	0,06	0,04
P.3.2	70	70		1,0	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,07	0,06	0,04
P.3.3	85	90		1,0	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,07	0,06	0,04
P.4.1	85			1,0	0,5	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
P.4.2	85			1,0	0,5	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
M.1.1	**85**			1,0	0,5	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
M.2.1	**70**			1,0	0,5	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
M.3.1	**85**			1,0	0,5	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
K.1.1		150		1,0	0,5	0,047	0,036	0,026	0,063	0,049	0,035	0,079	0,061	0,044	0,094	0,073	0,053	0,13	0,10	0,07
K.1.2		140		1,0	0,5	0,047	0,036	0,026	0,063	0,049	0,035	0,079	0,061	0,044	0,094	0,073	0,053	0,13	0,10	0,07
K.2.1		150		1,0	0,5	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	0,11	0,08	0,06
K.2.2		140		1,0	0,5	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	0,11	0,08	0,06
K.3.1		105		1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
K.3.2		105		1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
N.1.1																				
N.1.2																				
N.2.1																				
N.2.2																				
N.2.3																				
N.3.1	240	240		1,0	0,5	0,038	0,029	0,021	0,049	0,038	0,028	0,063	0,049	0,035	0,741	0,572	0,413	0,10	0,08	0,06
N.3.2	190	190		1,0	0,5	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	0,11	0,08	0,06
N.3.3	190	190		1,0	0,5	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	0,11	0,08	0,06
N.4.1																				
S.1.1	38			0,5	0,25	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
S.1.2	38			0,5	0,25	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
S.2.1	23			0,5	0,25	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,07	0,06	0,04
S.2.2	27			0,5	0,25	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
S.2.3	23			0,5	0,25	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,07	0,06	0,04
S.3.1	70			0,5	0,25	0,031	0,024	0,018	0,040	0,031	0,023	0,052	0,040	0,029	0,061	0,047	0,034	0,08	0,06	0,05
S.3.2	50			0,5	0,25	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
S.3.3	50			0,5	0,25	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
H.1.1		70		0,5*		0,027	0,021		0,036	0,028		0,045	0,035		0,054	0,042		0,07	0,06	
H.1.2		50		0,5*		0,025	0,019		0,031	0,024		0,040	0,031		0,047	0,036		0,06	0,05	
H.1.3																				
H.1.4																				
H.2.1		70		0,5*		0,031	0,024		0,040	0,031		0,052	0,040		0,061	0,047		0,08	0,06	
H.3.1		70		0,5*		0,027	0,021		0,036	0,028		0,045	0,035		0,054	0,042		0,07	0,06	
O.1.1	250	250		1,0	0,5	0,058	0,045	0,033	0,108	0,083	0,060	0,135	0,104	0,075	0,162	0,125	0,090	0,22	0,17	0,12
O.1.2																				
O.2.1																				
O.2.2																				
O.3.1																				

*= Edge Milling and Trochoidal Milling

Plunging angle for ramping and helical milling: No. of teeth 3 = 5°/No. of teeth 4 = 4°/No. of teeth 5 = 3°

	52 784 ...																							
	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16 mm			Ø DC = 18 mm			Ø DC = 20 mm			● 1st choice		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	○ suitable		
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			Emulsion	Compressed air	MMS
P.1.1	0,12	0,10	0,07	0,15	0,11	0,08	0,17	0,13	0,10	0,18	0,14	0,11	0,19	0,16	0,12	0,20	0,17	0,14	○	●	○
P.1.2	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.1.3	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.1.4	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.1.5	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.2.1	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.2.2	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.2.3	0,11	0,09	0,06	0,12	0,09	0,07	0,14	0,11	0,08	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	○	●	○
P.2.4	0,11	0,09	0,06	0,12	0,09	0,07	0,14	0,11	0,08	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	○	●	○
P.3.1	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
P.3.2	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
P.3.3	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
P.4.1	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
P.4.2	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
M.1.1	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
M.2.1	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
M.3.1	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
K.1.1	0,14	0,10	0,08	0,16	0,13	0,09	0,22	0,17	0,12	0,22	0,18	0,14	0,24	0,20	0,16	0,25	0,22	0,18		●	
K.1.2	0,14	0,10	0,08	0,16	0,13	0,09	0,22	0,17	0,12	0,22	0,18	0,14	0,24	0,20	0,16	0,25	0,22	0,18		●	
K.2.1	0,14	0,10	0,08	0,14	0,11	0,08	0,19	0,15	0,11	0,19	0,16	0,12	0,20	0,17	0,13	0,25	0,22	0,18		●	
K.2.2	0,12	0,09	0,07	0,14	0,11	0,08	0,19	0,15	0,11	0,19	0,16	0,12	0,20	0,17	0,13	0,22	0,19	0,15		●	
K.3.1	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13		●	
K.3.2	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13		●	
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	0,12	0,10	0,07	0,15	0,11	0,08	0,17	0,13	0,10	0,18	0,14	0,11	0,19	0,16	0,12	0,20	0,17	0,14	●		○
N.3.2	0,14	0,10	0,08	0,16	0,13	0,09	0,14	0,11	0,08	0,19	0,16	0,12	0,21	0,17	0,14	0,22	0,19	0,15	●		○
N.3.3	0,14	0,10	0,08	0,16	0,13	0,09	0,14	0,11	0,08	0,19	0,16	0,12	0,21	0,17	0,14	0,22	0,19	0,15	●		○
N.4.1																					
S.1.1	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
S.1.2	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
S.2.1	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	●		
S.2.2	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
S.2.3	0,09	0,07	0,05	0,11	0,05	0,06	0,13	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	●		
S.3.1	0,10	0,08	0,06	0,12	0,09	0,07	0,14	0,11	0,08	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	●		
S.3.2	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	●		
S.3.3	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	●		
H.1.1	0,09	0,07		0,11	0,08		0,13	0,10		0,13	0,10		0,14	0,12		0,14	0,13			●	
H.1.2	0,08	0,06		0,09	0,07		0,11	0,09		0,11	0,09		0,12	0,10		0,13	0,11			●	
H.1.3																					
H.1.4																					
H.2.1	0,10	0,08		0,12	0,09		0,14	0,11		0,14	0,12		0,16	0,13		0,16	0,14			●	
H.3.1	0,09	0,07		0,11	0,08		0,13	0,10		0,13	0,10		0,14	0,12		0,14	0,13			●	
O.1.1	0,27	0,21	0,15	0,32	0,25	0,18	0,38	0,29	0,21	0,38	0,31	0,24	0,41	0,35	0,27	0,43	0,38	0,30	●		○
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

14

Cutting data standard values – MonsterMill – TCR – End mill

					52 503 ... / 52 504 ... / 52 507 ... / 52 508 ...											
					Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
	long	extra long	long	extra long	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	v_c m/min	$a_{p\,max.}$ x DC	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.4.1	110	88	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,037	0,025
P.4.2	100	80	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,037	0,025
M.1.1	110	88	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,037	0,025
M.2.1	80	64	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,037	0,025
M.3.1	100	80	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,037	0,025
S.1.1																
S.1.2																
S.2.1																
S.2.2																
S.2.3																
S.3.1	**80**	**96**	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,037	0,025
S.3.2	**70**	**80**	1,0	0,5	0,02	0,015	0,01	0,03	0,022	0,014	0,04	0,029	0,019	0,048	0,035	0,022
S.3.3	**60**	**64**	1,0	0,5	0,15	0,01	0,008	0,025	0,018	0,01	0,035	0,25	0,015	0,04	0,03	0,018

Cutting data standard values – MonsterMill – TCR – End mill

			52 505 ... / 52 506 ...													
			Ø DC = 4 mm		Ø DC = 5 mm		Ø DC = 6 mm		Ø DC = 8 mm		Ø DC = 10 mm		Ø DC = 12mm		Ø DC = 16 mm	
	long	long	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.4.1	110	1,0	0,022	0,017	0,032	0,024	0,042	0,031	0,05	0,037	0,064	0,048	0,08	0,06	0,085	0,065
P.4.2	100	1,0	0,022	0,017	0,032	0,024	0,042	0,031	0,05	0,037	0,064	0,048	0,08	0,06	0,085	0,065
M.1.1	110	1,0	0,022	0,017	0,032	0,024	0,042	0,031	0,05	0,037	0,064	0,048	0,08	0,06	0,085	0,065
M.2.1	80	1,0	0,022	0,017	0,032	0,024	0,042	0,031	0,05	0,037	0,064	0,048	0,08	0,06	0,085	0,065
M.3.1	100	1,0	0,022	0,017	0,032	0,024	0,042	0,031	0,05	0,037	0,064	0,048	0,08	0,06	0,085	0,065
S.1.1																
S.1.2																
S.2.1																
S.2.2																
S.2.3																
S.3.1	**80**	**1,0**	0,022	0,017	0,032	0,024	0,042	0,031	0,05	0,037	0,064	0,048	0,08	0,06	0,085	0,065
S.3.2	**70**	**1,0**	0,02	0,015	0,03	0,022	0,04	0,029	0,048	0,035	0,062	0,046	0,078	0,058	0,083	0,063
S.3.3	**60**	**1,0**	0,15	0,01	0,025	0,018	0,035	0,25	0,04	0,03	0,055	0,035	0,07	0,05	0,075	0,055

	52 503 ... / 52 504 ... / 52 507 ... / 52 508 ...												● 1st choice ○ suitable		
	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20 mm					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
Index	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.4.1	0,064	0,048	0,032	0,08	0,06	0,04	0,085	0,065	0,045	0,111	0,09	0,07	●	○	
P.4.2	0,064	0,048	0,032	0,08	0,06	0,04	0,085	0,065	0,045	0,111	0,09	0,07	●	○	
M.1.1	0,064	0,048	0,032	0,08	0,06	0,04	0,085	0,065	0,045	0,111	0,09	0,07	●	○	
M.2.1	0,064	0,048	0,032	0,08	0,06	0,04	0,085	0,065	0,045	0,111	0,09	0,07	●	○	
M.3.1	0,064	0,048	0,032	0,08	0,06	0,04	0,085	0,065	0,045	0,111	0,09	0,07	●	○	
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1	0,064	0,048	0,032	0,08	0,06	0,04	0,085	0,065	0,045	0,111	0,09	0,07	●		
S.3.2	0,062	0,046	0,03	0,078	0,058	0,038	0,083	0,063	0,043	0,109	0,088	0,068	●		
S.3.3	0,055	0,035	0,025	0,07	0,05	0,03	0,075	0,055	0,035	0,1	0,08	0,06	●		

	Ø DC = 20 mm		● 1st choice ○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC			
Index	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.4.1	0,111	0,09	●	○	
P.4.2	0,111	0,09	●	○	
M.1.1	0,111	0,09	●	○	
M.2.1	0,111	0,09	●	○	
M.3.1	0,111	0,09	●	○	
S.1.1					
S.1.2					
S.2.1					
S.2.2					
S.2.3					
S.3.1	0,111	0,09	●		
S.3.2	0,109	0,088	●		
S.3.3	0,1	0,08	●		

Cutting data standard values – MonsterMill – TCR – Ball-nosed end mill

				52 513 ... / 52 514 ...											
				Ø DC = 2 mm		Ø DC = 3 mm		Ø DC = 4 mm		Ø DC = 5 mm		Ø DC = 6 mm		Ø DC = 8 mm	
	long	extra long		a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC
Index	v_c m/min	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.4.1	110	65	0,1 – 0,2	0,015	0,011	0,018	0,012	0,02	0,015	0,02	0,015	0,03	0,02	0,04	0,03
P.4.2	100	60	0,1 – 0,2	0,015	0,011	0,018	0,012	0,02	0,015	0,02	0,015	0,03	0,02	0,04	0,03
M.1.1	110	65	0,1 – 0,2	0,015	0,011	0,018	0,012	0,02	0,015	0,02	0,015	0,03	0,02	0,04	0,03
M.2.1	80	55	0,1 – 0,2	0,015	0,011	0,018	0,012	0,02	0,015	0,02	0,015	0,03	0,02	0,04	0,03
M.3.1	100	60	0,1 – 0,2	0,015	0,011	0,018	0,012	0,02	0,015	0,02	0,015	0,03	0,02	0,04	0,03
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1	**80**	**60**	0,1 – 0,2	0,017	0,013	0,02	0,014	0,022	0,017	0,022	0,017	0,034	0,025	0,053	0,042
S.3.2	**70**	**50**	0,1 – 0,2	0,014	0,011	0,017	0,012	0,019	0,014	0,019	0,014	0,029	0,022	0,046	0,036
S.3.3	**60**	**40**	0,1 – 0,2	0,012	0,009	0,014	0,01	0,016	0,012	0,016	0,012	0,024	0,018	0,038	0,03

Cutting data standard values – MonsterMill – TCR – Torus face cutter

				52 511 ... / 52 512 ...									● 1st choice		
				Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	○ suitable		
	long	extra long		a_e 0,1–1,0 x DC	a_e 0,1–1,0 x DC	a_e 0,1–1,0 x DC	a_e 0,1–1,0 x DC	a_e 0,1–1,0 x DC	a_e 0,1–1,0 x DC	a_e 0,1–1,0 x DC	a_e 0,1–1,0 x DC	a_e 0,1–1,0 x DC	Emulsion	Compressed air	MMS
Index	v_c m/min	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm			
P.4.1	120	110	0,06	0,025	0,04	0,06	0,07	0,09	0,11	0,13	0,18	0,22	●	○	
P.4.2	110	100	0,06	0,025	0,04	0,06	0,07	0,09	0,11	0,13	0,18	0,22	●	○	
M.1.1	120	110	0,06	0,025	0,04	0,06	0,07	0,09	0,11	0,13	0,18	0,22	●	○	
M.2.1	100	90	0,06	0,025	0,04	0,06	0,07	0,09	0,11	0,13	0,18	0,22	●	○	
M.3.1	110	100	0,06	0,025	0,04	0,06	0,07	0,09	0,11	0,13	0,18	0,22	●	○	
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1	**130**	**120**	0,06	0,025	0,04	0,06	0,07	0,09	0,11	0,13	0,18	0,22	●		
S.3.2	**110**	**100**	0,06	0,02	0,035	0,055	0,065	0,085	0,1	0,12	0,16	0,2	●		
S.3.3	**90**	**80**	0,06	0,015	0,03	0,05	0,06	0,08	0,09	0,11	0,15	0,18	●		

	52 513 ... / 52 514 ...								
	Ø DC = 10 mm		Ø DC = 12 mm		Ø DC = 16 mm		● 1st choice		
							○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC			
Index	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.4.1	0,05	0,04	0,06	0,05	0,07	0,06	●	○	
P.4.2	0,05	0,04	0,06	0,05	0,07	0,06	●	○	
M.1.1	0,05	0,04	0,06	0,05	0,07	0,06	●	○	
M.2.1	0,05	0,04	0,06	0,05	0,07	0,06	●	○	
M.3.1	0,05	0,04	0,06	0,05	0,07	0,06	●	○	
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1	0,059	0,046	0,066	0,056	0,073	0,063	●		
S.3.2	0,05	0,04	0,056	0,048	0,062	0,054	●		
S.3.3	0,042	0,033	0,047	0,04	0,052	0,045	●		

Cutting data standard values – MonsterMill – NCR – End mill, long

					53 030 ...											
	ZEFP = 4				Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC		a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	v_c m/min	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
M.1.1	120	100	70	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
M.2.1	100	80	60	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
M.3.1	120	100	70	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
S.1.1	**50**	**40**	**30**	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
S.1.2	**50**	**40**	**30**	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
S.2.1	**35**	**30**	**25**	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
S.2.2	**35**	**30**	**25**	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
S.2.3	**35**	**30**	**25**	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
S.3.1	**120**	**100**	**80**	1,0	0,04	0,03	0,02	0,05	0,04	0,03	0,05	0,04	0,03	0,07	0,06	0,04
S.3.2	**100**	**80**	**60**	1,0	0,04	0,03	0,02	0,05	0,04	0,03	0,05	0,04	0,03	0,07	0,06	0,04
S.3.3	**80**	**70**	**60**	1,0	0,04	0,03	0,02	0,05	0,04	0,03	0,05	0,04	0,03	0,07	0,06	0,04

Plunging angle for ramping and helical milling: 3°

Cutting data standard values – MonsterMill – NCR– End mill, extra long

				53 030 ...											
	ZEFP = 4			Ø DC = 4 mm		Ø DC = 5 mm		Ø DC = 6 mm		Ø DC = 8 mm		Ø DC = 10 mm		Ø DC = 12mm	
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC		a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC
Index	v_c m/min	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
M.1.1	100	80	1,0	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
M.2.1	90	70	1,0	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
M.3.1	100	80	1,0	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
S.1.1	**50**	**40**	**1,0**	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
S.1.2	**50**	**40**	**1,0**	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
S.2.1	**35**	**30**	**1,0**	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
S.2.2	**35**	**30**	**1,0**	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
S.2.3	**35**	**30**	**1,0**	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
S.3.1	**100**	**80**	**1,0**	0,04	0,03	0,05	0,04	0,05	0,04	0,07	0,06	0,09	0,07	0,11	0,08
S.3.2	**80**	**70**	**1,0**	0,04	0,03	0,05	0,04	0,05	0,04	0,07	0,06	0,09	0,07	0,11	0,08
S.3.3	**70**	**60**	**1,0**	0,04	0,03	0,05	0,04	0,05	0,04	0,07	0,06	0,09	0,07	0,11	0,08

Plunging angle for ramping and helical milling: 3°

	53 030 ...												● 1st choice ○ suitable		
	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20 mm					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
Index	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
M.1.1	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		○
M.2.1	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		○
M.3.1	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		○
S.1.1	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		
S.1.2	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		
S.2.1	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		
S.2.2	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		
S.2.3	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		
S.3.1	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,16	0,12	0,08	●		
S.3.2	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,16	0,12	0,08	●		
S.3.3	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,16	0,12	0,08	●		

	53 030 ...				● 1st choice ○ suitable		
	Ø DC = 16 mm		Ø DC = 20 mm				
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC			
Index	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
M.1.1	0,12	0,09	0,14	0,10	●		○
M.2.1	0,12	0,09	0,14	0,10	●		○
M.3.1	0,12	0,09	0,14	0,10	●		○
S.1.1	0,12	0,09	0,14	0,10	●		
S.1.2	0,12	0,09	0,14	0,10	●		
S.2.1	0,12	0,09	0,14	0,10	●		
S.2.2	0,12	0,09	0,14	0,10	●		
S.2.3	0,12	0,09	0,14	0,10	●		
S.3.1	0,13	0,10	0,16	0,12	●		
S.3.2	0,13	0,10	0,16	0,12	●		
S.3.3	0,13	0,10	0,16	0,12	●		

Cutting data standard values – MonsterMill – NCR – End mill, long

			53 031 ...														
			Ø DC = 6 mm		Ø DC = 8 mm		Ø DC = 10 mm		Ø DC = 12 mm		Ø DC = 16 mm		Ø DC = 20 mm		● 1st choice		
	ZEFP = 5		a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	○ suitable		
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
M.1.1	100	1,5	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		○
M.2.1	80	1,5	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		○
M.3.1	100	1,5	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		○
S.1.1	**40**	**1,5**	**0,04**	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		
S.1.2	**40**	**1,5**	**0,04**	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		
S.2.1	**35**	**1,5**	**0,04**	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		
S.2.2	**35**	**1,5**	**0,04**	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		
S.2.3	**35**	**1,5**	**0,04**	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		
S.3.1	**100**	**1,5**	**0,05**	0,04	0,06	0,05	0,08	0,06	0,10	0,07	0,12	0,09	0,14	0,10	●		
S.3.2	**80**	**1,5**	**0,05**	0,04	0,06	0,05	0,08	0,06	0,10	0,07	0,12	0,09	0,14	0,10	●		
S.3.3	**70**	**1,5**	**0,05**	0,04	0,06	0,05	0,08	0,06	0,10	0,07	0,12	0,09	0,14	0,10	●		

Plunging angle for ramping and helical milling = 1°

Cutting data standard values – MonsterMill – HCR – End mill

$T_x \leq 2 \times DC$			53 605 ...								● 1st choice		
			Ø DC = 1 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	○ suitable		
Peripheral milling			a_e 0,05 x DC										
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	200	2,0	0,018	0,027	0,038	0,051	0,075	0,093	0,120	0,135	○	●	●
P.2.3	200	2,0	0,018	0,027	0,038	0,051	0,075	0,093	0,120	0,135	○	●	●
P.3.3	200	2,0	0,018	0,027	0,038	0,051	0,075	0,093	0,120	0,135	○	●	●
H.1.1	160	2,0	0,018	0,027	0,038	0,051	0,075	0,093	0,120	0,135	○	●	●
H.1.2	130	2,0	0,014	0,022	0,030	0,041	0,060	0,074	0,096	0,108	○	●	●
H.1.3	120	2,0	0,012	0,018	0,025	0,034	0,050	0,062	0,080	0,090	○	●	●
H.1.4	110	2,0	0,010	0,014	0,020	0,027	0,040	0,050	0,064	0,072	○	●	●

$T_x \leq 2 \times DC$			53 605 ...								● 1st choice		
			Ø DC = 1 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	○ suitable		
Face milling			a_e 0,05 x DC										
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	120	0,07	0,015	0,021	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
P.2.3	120	0,07	0,015	0,021	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
P.3.3	120	0,07	0,015	0,021	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
H.1.1	110	0,05	0,015	0,021	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
H.1.2	90	0,05	0,012	0,017	0,024	0,034	0,050	0,067	0,084	0,096	○	●	●
H.1.3	75	0,03	0,010	0,014	0,020	0,028	0,042	0,056	0,070	0,080	○	●	●
H.1.4	60	0,03	0,008	0,011	0,016	0,022	0,034	0,045	0,056	0,064	○	●	●

Cutting data standard values – MonsterMill – HCR – End mill

$T_x \leq 3 \times DC$			53 606 ...								● 1st choice		
			Ø DC = 1 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	○ suitable		
Peripheral milling			a_e 0,04 x DC										
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	140	2,0	0,014	0,024	0,033	0,045	0,066	0,083	0,105	0,120	○	●	●
P.2.3	140	2,0	0,014	0,024	0,033	0,045	0,066	0,083	0,105	0,120	○	●	●
P.3.3	140	2,0	0,014	0,024	0,033	0,045	0,066	0,083	0,105	0,120	○	●	●
H.1.1	119	2,0	0,014	0,024	0,033	0,045	0,066	0,083	0,105	0,120	○	●	●
H.1.2	112	2,0	0,011	0,019	0,026	0,036	0,053	0,066	0,084	0,096	○	●	●
H.1.3	105	2,0	0,009	0,016	0,022	0,030	0,044	0,055	0,070	0,080	○	●	●
H.1.4	77	2,0	0,007	0,013	0,018	0,024	0,035	0,044	0,056	0,064	○	●	●

$T_x \leq 3 \times DC$			53 606 ...								● 1st choice		
			Ø DC = 1 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	○ suitable		
Face milling			a_e 0,04 x DC										
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	105	0,07	0,009	0,014	0,023	0,036	0,054	0,072	0,090	0,105	○	●	●
P.2.3	105	0,07	0,009	0,014	0,023	0,036	0,054	0,072	0,090	0,105	○	●	●
P.3.3	105	0,07	0,009	0,014	0,023	0,036	0,054	0,072	0,090	0,105	○	●	●
H.1.1	84	0,05	0,009	0,014	0,023	0,036	0,054	0,072	0,090	0,105	○	●	●
H.1.2	77	0,05	0,007	0,011	0,018	0,029	0,043	0,058	0,072	0,084	○	●	●
H.1.3	63	0,03	0,006	0,009	0,015	0,024	0,036	0,048	0,060	0,070	○	●	●
H.1.4	42	0,03	0,005	0,007	0,012	0,019	0,029	0,038	0,048	0,056	○	●	●

For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30%!

Cutting data standard values – MonsterMill – HCR – End mill

$T_x \leq 2,5 \times DC$			53 603 ... / 53 604 ...									
			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
Peripheral milling			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	200	1,0	0,006	0,006	0,012	0,012	0,018	0,018	0,024	0,030	0,036	0,042
P.2.3	200	1,0	0,006	0,006	0,012	0,012	0,018	0,018	0,024	0,030	0,036	0,042
P.3.3	200	1,0	0,006	0,006	0,012	0,012	0,018	0,018	0,024	0,030	0,036	0,042
H.1.1	**170**	1,0	0,006	0,006	0,012	0,012	0,018	0,018	0,024	0,030	0,036	0,042
H.1.2	**160**	1,0	0,005	0,005	0,010	0,010	0,014	0,014	0,019	0,024	0,029	0,034
H.1.3	**150**	1,0	0,004	0,004	0,008	0,008	0,012	0,012	0,016	0,020	0,024	0,028
H.1.4	**110**	1,0	0,003	0,003	0,006	0,006	0,010	0,010	0,013	0,016	0,019	0,022

$T_x \leq 2,5 \times DC$			53 603 ... / 53 604 ...									
			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
Z-layer milling / face milling			a_e 0,3 x DC									
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	120	0,07	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
P.2.3	120	0,07	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
P.3.3	120	0,07	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
H.1.1	**110**	0,05	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
H.1.2	**100**	0,05	0,002	0,002	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017
H.1.3	**80**	0,03	0,002	0,002	0,004	0,004	0,006	0,006	0,008	0,010	0,012	0,014
H.1.4	**60**	0,03	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,010	0,011

$T_x \leq 2,5 \times DC$			53 603 ... / 53 604 ...									
			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
Full slot			a_e 1,0 x DC									
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	70	0,07	0,002	0,002	0,005	0,005	0,006	0,008	0,009	0,011	0,012	0,015
P.2.3	70	0,07	0,002	0,002	0,005	0,005	0,006	0,008	0,009	0,011	0,012	0,015
P.3.3	70	0,07	0,002	0,002	0,005	0,005	0,006	0,008	0,009	0,011	0,012	0,015
H.1.1	**55**	0,05	0,002	0,002	0,005	0,005	0,006	0,008	0,009	0,011	0,012	0,015
H.1.2	**45**	0,05	0,001	0,001	0,003	0,003	0,004	0,005	0,006	0,007	0,008	0,010
H.1.3												
H.1.4												

For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30%!

$T_x \leq 2,5 \times DC$			53 603 ... / 53 604 ...									
			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	●	1st choice	
Peripheral milling										○	suitable	
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	200	1,0	0,054	0,060	0,084	0,126	0,168	0,210	0,240	○	●	●
P.2.3	200	1,0	0,054	0,060	0,084	0,126	0,168	0,210	0,240	○	●	●
P.3.3	200	1,0	0,054	0,060	0,084	0,126	0,168	0,210	0,240	○	●	●
H.1.1	170	1,0	0,054	0,060	0,084	0,126	0,168	0,210	0,240	○	●	●
H.1.2	160	1,0	0,043	0,048	0,067	0,101	0,134	0,168	0,192	○	●	●
H.1.3	150	1,0	0,036	0,040	0,056	0,084	0,112	0,140	0,160	○	●	●
H.1.4	110	1,0	0,029	0,032	0,045	0,067	0,090	0,112	0,128	○	●	●

$T_x \leq 2,5 \times DC$			53 603 ... / 53 604 ...									
			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	●	1st choice	
Z-layer milling / face milling										○	suitable	
			a_e 0,3x DC									
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	120	0,07	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
P.2.3	120	0,07	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
P.3.3	120	0,07	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
H.1.1	110	0,05	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
H.1.2	100	0,05	0,022	0,024	0,034	0,050	0,067	0,084	0,096	○	●	●
H.1.3	80	0,03	0,018	0,020	0,028	0,042	0,056	0,070	0,080	○	●	●
H.1.4	60	0,03	0,014	0,016	0,022	0,034	0,045	0,056	0,064	○	●	●

$T_x \leq 2,5 \times DC$			53 603 ... / 53 604 ...									
			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	●	1st choice	
Full slot										○	suitable	
			a_e 1,0 x DC									
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	70	0,07	0,018	0,023	0,030	0,045	0,050	0,053	0,060	○	●	●
P.2.3	70	0,07	0,018	0,023	0,030	0,045	0,050	0,053	0,060	○	●	●
P.3.3	70	0,07	0,018	0,023	0,030	0,045	0,050	0,053	0,060	○	●	●
H.1.1	55	0,05	0,018	0,023	0,030	0,045	0,050	0,053	0,060	○	●	●
H.1.2	45	0,05	0,012	0,015	0,020	0,030	0,033	0,035	0,040	○	●	●
H.1.3												
H.1.4												

Cutting data standard values – MonsterMill – HCR – End mill

$T_x \leq 2,6–5,0 \times DC$			53 603 ... / 53 604 ...									
Peripheral milling			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	140	1,0	0,005	0,005	0,009	0,009	0,014	0,014	0,018	0,023	0,027	0,032
P.2.3	140	1,0	0,005	0,005	0,009	0,009	0,014	0,014	0,018	0,023	0,027	0,032
P.3.3	140	1,0	0,005	0,005	0,009	0,009	0,014	0,014	0,018	0,023	0,027	0,032
H.1.1	119	1,0	0,005	0,005	0,009	0,009	0,014	0,014	0,018	0,023	0,027	0,032
H.1.2	112	1,0	0,004	0,004	0,007	0,007	0,011	0,011	0,014	0,018	0,022	0,025
H.1.3	105	1,0	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
H.1.4	77	1,0	0,002	0,002	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017

$T_x \leq 2,6–5,0 \times DC$			53 603 ... / 53 604 ...									
Z-layer milling / face milling			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,3 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	84	0,07	0,002	0,002	0,005	0,005	0,007	0,007	0,009	0,011	0,014	0,016
P.2.3	84	0,07	0,002	0,002	0,005	0,005	0,007	0,007	0,009	0,011	0,014	0,016
P.3.3	84	0,07	0,002	0,002	0,005	0,005	0,007	0,007	0,009	0,011	0,014	0,016
H.1.1	77	0,05	0,002	0,002	0,005	0,005	0,007	0,007	0,009	0,011	0,014	0,016
H.1.2	70	0,05	0,002	0,002	0,004	0,004	0,005	0,005	0,007	0,009	0,011	0,013
H.1.3	56	0,03	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
H.1.4	60	0,03	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,010	0,011

$T_x \leq 2,6–5,0 \times DC$			53 603 ... / 53 604 ...									
Full slot			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 1,0 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	49	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
P.2.3	49	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
P.3.3	49	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
H.1.1	39	0,05	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
H.1.2	32	0,05	0,001	0,001	0,002	0,002	0,003	0,003	0,004	0,005	0,006	0,007
H.1.3												
H.1.4												

For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30%!

$T_x \leq 2,6–5,0 \times DC$			53 603 ... / 53 604 ...									
			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	●	1st choice	
Peripheral milling										○	suitable	
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	140	1,0	0,041	0,045	0,063	0,095	0,126	0,158	0,180	○	●	●
P.2.3	140	1,0	0,041	0,045	0,063	0,095	0,126	0,158	0,180	○	●	●
P.3.3	140	1,0	0,041	0,045	0,063	0,095	0,126	0,158	0,180	○	●	●
H.1.1	119	1,0	0,041	0,045	0,063	0,095	0,126	0,158	0,180	○	●	●
H.1.2	112	1,0	0,032	0,036	0,050	0,076	0,101	0,126	0,144	○	●	●
H.1.3	105	1,0	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
H.1.4	77	1,0	0,022	0,024	0,034	0,050	0,067	0,084	0,096	○	●	●

$T_x \leq 2,6–5,0 \times DC$			53 603 ... / 53 604 ...									
			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	●	1st choice	
Z-layer milling / face milling										○	suitable	
			a_e 0,3 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	84	0,07	0,020	0,023	0,032	0,047	0,063	0,079	0,090	○	●	●
P.2.3	84	0,07	0,020	0,023	0,032	0,047	0,063	0,079	0,090	○	●	●
P.3.3	84	0,07	0,020	0,023	0,032	0,047	0,063	0,079	0,090	○	●	●
H.1.1	77	0,05	0,020	0,023	0,032	0,047	0,063	0,079	0,090	○	●	●
H.1.2	70	0,05	0,016	0,018	0,025	0,038	0,050	0,063	0,072	○	●	●
H.1.3	56	0,03	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
H.1.4	60	0,03	0,011	0,012	0,017	0,025	0,034	0,042	0,048	○	●	●

$T_x \leq 2,6–5,0 \times DC$			53 603 ... / 53 604 ...									
			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	●	1st choice	
Full slot										○	suitable	
			a_e 1,0 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	49	0,07	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
P.2.3	49	0,07	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
P.3.3	49	0,07	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
H.1.1	39	0,05	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
H.1.2	32	0,05	0,009	0,010	0,014	0,021	0,028	0,035	0,040	○	●	●
H.1.3												
H.1.4												

Cutting data standard values – MonsterMill – HCR – End mill

$T_x \leq 5{,}1–10{,}0 \times DC$			53 603 ... / 53 604 ...									
Peripheral milling			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	110	0,75	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
P.2.3	110	0,75	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
P.3.3	110	0,75	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
H.1.1	94	0,75	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
H.1.2	88	0,75	0,002	0,002	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017
H.1.3	83	0,75	0,002	0,002	0,004	0,004	0,006	0,006	0,008	0,010	0,012	0,014
H.1.4	61	0,75	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,010	0,011

$T_x \leq 5{,}1–10{,}0 \times DC$			53 603 ... / 53 604 ...									
Z-layer milling / face milling			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,3 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	66	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
P.2.3	66	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
P.3.3	66	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
H.1.1	61	0,05	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
H.1.2	55	0,05	0,001	0,001	0,002	0,002	0,004	0,004	0,005	0,006	0,007	0,008
H.1.3	44	0,03	0,001	0,001	0,002	0,002	0,003	0,003	0,004	0,005	0,006	0,007
H.1.4	33	0,03	0,001	0,001	0,002	0,002	0,002	0,002	0,003	0,004	0,005	0,006

$T_x \leq 10{,}1–15{,}0 \times DC$			53 603 ... / 53 604 ...									
Peripheral milling			Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm	Ø DC = 2,5 mm	Ø DC = 3 mm
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024
P.2.3	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024
P.3.3	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024
H.1.1	77	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024
H.1.2	72	0,5	0,004	0,004	0,006	0,006	0,008	0,010	0,012	0,013	0,017	0,019
H.1.3	68	0,5	0,003	0,003	0,005	0,005	0,006	0,008	0,010	0,011	0,014	0,016
H.1.4	50	0,5	0,003	0,003	0,004	0,004	0,005	0,006	0,008	0,009	0,012	0,013

$T_x \leq 10{,}1–15{,}0 \times DC$			53 603 ... / 53 604 ...									
Z-layer milling / face milling			Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm	Ø DC = 2,5 mm	Ø DC = 3 mm
			a_e 0,3 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024
P.2.3	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024
P.3.3	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024
H.1.1	77	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024
H.1.2	72	0,5	0,004	0,004	0,006	0,006	0,008	0,010	0,012	0,013	0,017	0,019
H.1.3	68	0,5	0,003	0,003	0,005	0,005	0,006	0,008	0,010	0,011	0,014	0,016
H.1.4	50	0,5	0,003	0,003	0,004	0,004	0,005	0,006	0,008	0,009	0,012	0,013

For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30%!

$T_x \leq 5{,}1–10{,}0 \times DC$			53 603 ... / 53 604 ...									
			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice		
Peripheral milling										○ suitable		
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	110	0,75	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
P.2.3	110	0,75	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
P.3.3	110	0,75	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
H.1.1	94	0,75	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
H.1.2	88	0,75	0,022	0,024	0,034	0,050	0,067	0,084	0,096	○	●	●
H.1.3	83	0,75	0,018	0,020	0,028	0,042	0,056	0,070	0,080	○	●	●
H.1.4	61	0,75	0,014	0,016	0,022	0,034	0,045	0,056	0,064	○	●	●

$T_x \leq 5{,}1–10{,}0 \times DC$			53 603 ... / 53 604 ...									
			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice		
Z-layer milling / face milling										○ suitable		
			a_e 0,3 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	66	0,07	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
P.2.3	66	0,07	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
P.3.3	66	0,07	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
H.1.1	61	0,05	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
H.1.2	55	0,05	0,011	0,012	0,017	0,025	0,034	0,042	0,048	○	●	●
H.1.3	44	0,03	0,009	0,010	0,014	0,021	0,028	0,035	0,040	○	●	●
H.1.4	33	0,03	0,007	0,008	0,011	0,017	0,022	0,028	0,032	○	●	●

$T_x \leq 10{,}1–15{,}0 \times DC$			53 603 ... / 53 604 ...			
			Ø DC = 4 mm	● 1st choice		
Peripheral milling				○ suitable		
			a_e 0,05 x DC			
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	Emulsion	Compressed air	MMS
P.1.3	90	0,5	0,034	○	●	●
P.2.3	90	0,5	0,034	○	●	●
P.3.3	90	0,5	0,034	○	●	●
H.1.1	77	0,5	0,034	○	●	●
H.1.2	72	0,5	0,027	○	●	●
H.1.3	68	0,5	0,022	○	●	●
H.1.4	50	0,5	0,018	○	●	●

$T_x \leq 10{,}1–15{,}0 \times DC$			53 603 ... / 53 604 ...			
			Ø DC = 4 mm	● 1st choice		
Z-layer milling / face milling				○ suitable		
			a_e 0,3 x DC			
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	Emulsion	Compressed air	MMS
P.1.3	90	0,5	0,034	○	●	●
P.2.3	90	0,5	0,034	○	●	●
P.3.3	90	0,5	0,034	○	●	●
H.1.1	77	0,5	0,034	○	●	●
H.1.2	72	0,5	0,027	○	●	●
H.1.3	68	0,5	0,022	○	●	●
H.1.4	50	0,5	0,018	○	●	●

Cutting data standard values – MonsterMill – HCR – Ball-nosed end mill

$T_x \leq 2{,}5 \times DC$			53 600 ... / 53 601 ...									
			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	200	0,07	0,003	0,006	0,008	0,011	0,015	0,018	0,021	0,027	0,033	0,036
P.2.3	200	0,07	0,003	0,006	0,008	0,011	0,015	0,018	0,021	0,027	0,033	0,036
P.3.3	200	0,07	0,003	0,006	0,008	0,011	0,015	0,018	0,021	0,027	0,033	0,036
H.1.1	180	0,05	0,003	0,006	0,008	0,011	0,015	0,018	0,021	0,027	0,033	0,036
H.1.2	160	0,05	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
H.1.3	150	0,03	0,002	0,004	0,005	0,007	0,010	0,012	0,014	0,018	0,022	0,024
H.1.4	130	0,03	0,002	0,003	0,004	0,006	0,008	0,010	0,011	0,014	0,018	0,019

$T_x = 2{,}6–5 \times DC$			53 600 ... / 53 601 ...									
			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	120	0,07	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
P.2.3	120	0,07	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
P.3.3	120	0,07	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
H.1.1	108	0,05	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
H.1.2	96	0,05	0,002	0,004	0,005	0,007	0,010	0,011	0,014	0,017	0,020	0,023
H.1.3	90	0,03	0,002	0,003	0,004	0,006	0,008	0,010	0,012	0,015	0,017	0,019
H.1.4	78	0,03	0,001	0,002	0,003	0,004	0,006	0,008	0,009	0,012	0,014	0,015

$T_x = 5{,}1–10 \times DC$			53 600 ... / 53 601 ...									
			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	90	0,06	0,002	0,003	0,005	0,006	0,009	0,011	0,014	0,017	0,018	0,021
P.2.3	90	0,06	0,002	0,003	0,005	0,006	0,009	0,011	0,014	0,017	0,018	0,021
P.3.3	90	0,06	0,002	0,003	0,005	0,006	0,009	0,011	0,014	0,017	0,018	0,021
H.1.1	81	0,04	0,002	0,003	0,005	0,006	0,009	0,011	0,014	0,017	0,018	0,021
H.1.2	72	0,04	0,001	0,002	0,004	0,005	0,007	0,008	0,011	0,013	0,014	0,017
H.1.3	68	0,02	0,001	0,002	0,003	0,004	0,006	0,007	0,009	0,011	0,012	0,014
H.1.4	59	0,02	0,001	0,002	0,002	0,003	0,005	0,006	0,007	0,009	0,010	0,011

$T_x = 10{,}1–15 \times DC$			53 600 ... / 53 601 ...									
			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,04 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	70	0,05	0,002	0,002	0,003	0,005	0,006	0,008	0,009	0,011	0,012	0,015
P.2.3	70	0,05	0,002	0,002	0,003	0,005	0,006	0,008	0,009	0,011	0,012	0,015
P.3.3	70	0,05	0,002	0,002	0,003	0,005	0,006	0,008	0,009	0,011	0,012	0,015
H.1.1	63	0,03	0,002	0,002	0,003	0,005	0,006	0,008	0,009	0,011	0,012	0,015
H.1.2	56	0,03	0,001	0,001	0,002	0,004	0,005	0,006	0,007	0,008	0,010	0,012
H.1.3	53	0,01	0,001	0,001	0,002	0,003	0,004	0,005	0,006	0,007	0,008	0,010
H.1.4	46	0,01	0,001	0,001	0,002	0,002	0,003	0,004	0,005	0,006	0,006	0,008

For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30%!

$T_x \leq 2,5 \times DC$			53 600 ... / 53 601 ...									
			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice		
										○ suitable		
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	200	0,07	0,045	0,054	0,072	0,108	0,144	0,180	0,216	○	●	●
P.2.3	200	0,07	0,045	0,054	0,072	0,108	0,144	0,180	0,216	○	●	●
P.3.3	200	0,07	0,045	0,054	0,072	0,108	0,144	0,180	0,216	○	●	●
H.1.1	180	0,05	0,045	0,054	0,072	0,108	0,144	0,180	0,216	○	●	●
H.1.2	160	0,05	0,036	0,043	0,058	0,086	0,115	0,144	0,173	○	●	●
H.1.3	150	0,03	0,030	0,036	0,048	0,072	0,096	0,120	0,144	○	●	●
H.1.4	130	0,03	0,024	0,029	0,038	0,058	0,077	0,096	0,115	○	●	●

$T_x = 2,6–5 \times DC$			53 600 ... / 53 601 ...									
			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice		
										○ suitable		
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	120	0,07	0,036	0,044	0,058	0,076	0,104	0,133	0,162	○	●	●
P.2.3	120	0,07	0,036	0,044	0,058	0,076	0,104	0,133	0,162	○	●	●
P.3.3	120	0,07	0,036	0,044	0,058	0,076	0,104	0,133	0,162	○	●	●
H.1.1	108	0,05	0,036	0,044	0,058	0,076	0,104	0,133	0,162	○	●	●
H.1.2	96	0,05	0,029	0,035	0,046	0,060	0,084	0,107	0,130	○	●	●
H.1.3	90	0,03	0,024	0,029	0,039	0,050	0,070	0,089	0,108	○	●	●
H.1.4	78	0,03	0,019	0,023	0,031	0,040	0,056	0,071	0,086	○	●	●

$T_x = 5,1–10 \times DC$			53 600 ... / 53 601 ...									
			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice		
										○ suitable		
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	90	0,06	0,027	0,033	0,044	0,043	0,065	0,086	0,108	○	●	●
P.2.3	90	0,06	0,027	0,033	0,044	0,043	0,065	0,086	0,108	○	●	●
P.3.3	90	0,06	0,027	0,033	0,044	0,043	0,065	0,086	0,108	○	●	●
H.1.1	81	0,04	0,027	0,033	0,044	0,043	0,065	0,086	0,108	○	●	●
H.1.2	72	0,04	0,022	0,026	0,035	0,035	0,052	0,069	0,086	○	●	●
H.1.3	68	0,02	0,018	0,022	0,029	0,029	0,043	0,058	0,072	○	●	●
H.1.4	59	0,02	0,014	0,018	0,023	0,023	0,035	0,046	0,058	○	●	●

$T_x = 10,1–15 \times DC$			53 600 ... / 53 601 ...									
			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice		
										○ suitable		
			a_e 0,04 x DC		a_e 0,05 x DC							
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	70	0,05	0,021	0,027	0,035	0,035	0,052	0,069	0,086	○	●	●
P.2.3	70	0,05	0,021	0,027	0,035	0,035	0,052	0,069	0,086	○	●	●
P.3.3	70	0,05	0,021	0,027	0,035	0,035	0,052	0,069	0,086	○	●	●
H.1.1	63	0,03	0,021	0,027	0,035	0,035	0,052	0,069	0,086	○	●	●
H.1.2	56	0,03	0,017	0,022	0,028	0,028	0,041	0,055	0,069	○	●	●
H.1.3	53	0,01	0,014	0,018	0,023	0,023	0,035	0,046	0,058	○	●	●
H.1.4	46	0,01	0,011	0,014	0,019	0,018	0,028	0,037	0,046	○	●	●

Cutting data standard values – MonsterMill – HCR – Ball-nosed end mill

$T_x \leq 2,5$ x DC			53 602 ...						● 1st choice		
			Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	○ suitable		
			a_e 0,05 x DC						Emulsion	Compressed air	MMS
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm			
P.1.3	200	0,07	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
P.2.3	200	0,07	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
P.3.3	200	0,07	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
H.1.1	180	0,05	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
H.1.2	160	0,05	0,030	0,040	0,060	0,081	0,101	0,121	○	●	●
H.1.3	150	0,03	0,025	0,034	0,050	0,067	0,084	0,101	○	●	●
H.1.4	130	0,03	0,020	0,027	0,040	0,054	0,067	0,081	○	●	●

$T_x \leq 2,6–5,0$ x DC			53 602 ...						● 1st choice		
			Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	○ suitable		
			a_e 0,05 x DC						Emulsion	Compressed air	MMS
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm			
P.1.3	200	0,07	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
P.2.3	200	0,07	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
P.3.3	200	0,07	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
H.1.1	180	0,05	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
H.1.2	160	0,05	0,030	0,040	0,060	0,081	0,101	0,121	○	●	●
H.1.3	150	0,03	0,025	0,034	0,050	0,067	0,084	0,101	○	●	●
H.1.4	130	0,03	0,020	0,027	0,040	0,054	0,067	0,081	○	●	●

$T_x \leq 5,1–10$ x DC			53 602 ...						● 1st choice		
			Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	○ suitable		
			a_e 0,04 x DC						Emulsion	Compressed air	MMS
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm			
P.1.3	90	0,06	0,023	0,030	0,030	0,045	0,060	0,076	○	●	●
P.2.3	90	0,06	0,023	0,030	0,030	0,045	0,060	0,076	○	●	●
P.3.3	90	0,06	0,023	0,030	0,030	0,045	0,060	0,076	○	●	●
H.1.1	81	0,04	0,023	0,030	0,030	0,045	0,060	0,076	○	●	●
H.1.2	72	0,04	0,018	0,024	0,024	0,036	0,048	0,060	○	●	●
H.1.3	68	0,02	0,015	0,020	0,020	0,030	0,040	0,050	○	●	●
H.1.4	59	0,02	0,012	0,016	0,016	0,024	0,032	0,040	○	●	●

For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30%!

Cutting data standard values – SilverLine – NC deburring cutter

		50 560 ... / 50 561 ... / 50 562 ... / 50 563 ...						50 564 ... / 50 565 ... / 50 566 ... / 50 567 ...								
		DPB72S						uncoated								
		Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Emulsion	Compressed air	MMS
Index	v_c m/min	f_z mm						v_c m/min	f_z mm							
P.1.1	130	0,03	0,035	0,045	0,06	0,08	0,09	70	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
P.1.2	130	0,03	0,035	0,045	0,06	0,08	0,09	70	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
P.1.3	120	0,03	0,035	0,045	0,06	0,08	0,09	65	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
P.1.4	120	0,03	0,035	0,045	0,06	0,08	0,09	65	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
P.1.5	90	0,025	0,03	0,04	0,055	0,075	0,085	50	0,015	0,02	0,03	0,045	0,065	0,075	●	○	○
P.2.1	130	0,03	0,035	0,045	0,06	0,08	0,09	70	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
P.2.2	100	0,03	0,035	0,045	0,06	0,08	0,09	60	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
P.2.3	90	0,025	0,03	0,04	0,055	0,075	0,085	50	0,015	0,02	0,03	0,045	0,065	0,075	●	○	○
P.2.4	80	0,02	0,02	0,025	0,03	0,04	0,05	45	0,01	0,015	0,015	0,02	0,03	0,04	●	○	○
P.3.1	120	0,03	0,035	0,04	0,055	0,075	0,085	65	0,02	0,025	0,03	0,045	0,065	0,075	●	○	○
P.3.2	70	0,02	0,02	0,025	0,03	0,04	0,05	40	0,01	0,015	0,015	0,02	0,03	0,04	●	○	○
P.3.3	70	0,02	0,02	0,025	0,03	0,04	0,05	40	0,01	0,015	0,015	0,02	0,03	0,04	●	○	○
P.4.1	100	0,03	0,035	0,04	0,055	0,075	0,085	60	0,02	0,025	0,03	0,045	0,065	0,075	●		
P.4.2	95	0,025	0,03	0,04	0,055	0,075	0,085	55	0,015	0,02	0,03	0,045	0,065	0,075	●		
M.1.1	100	0,025	0,03	0,04	0,055	0,075	0,085	65	0,025	0,03	0,04	0,055	0,075	0,085	●		
M.2.1	80	0,02	0,02	0,025	0,03	0,04	0,05	50	0,02	0,02	0,025	0,03	0,04	0,05	●		
M.3.1	100	0,025	0,03	0,04	0,055	0,075	0,085	65	0,025	0,03	0,04	0,055	0,075	0,085	●		
K.1.1	130	0,03	0,035	0,045	0,06	0,08	0,09	85	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
K.1.2	100	0,03	0,035	0,045	0,06	0,08	0,09	65	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
K.2.1	130	0,03	0,035	0,045	0,06	0,08	0,09	85	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
K.2.2	120	0,03	0,035	0,045	0,06	0,08	0,09	80	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
K.3.1	130	0,03	0,035	0,045	0,06	0,08	0,09	85	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
K.3.2	120	0,03	0,035	0,045	0,06	0,08	0,09	80	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
N.1.1																	
N.1.2																	
N.2.1																	
N.2.2																	
N.2.3																	
N.3.1																	
N.3.2																	
N.3.3																	
N.4.1																	
S.1.1	80	0,02	0,02	0,025	0,03	0,04	0,05	50	0,01	0,015	0,025	0,03	0,035	0,04	●		
S.1.2	45	0,012	0,012	0,018	0,02	0,03	0,04	30	0,01	0,015	0,025	0,03	0,035	0,04	●		
S.2.1	50	0,015	0,015	0,02	0,025	0,035	0,045	30	0,01	0,015	0,025	0,03	0,035	0,04	●		
S.2.2	40	0,012	0,012	0,018	0,02	0,03	0,04	30	0,01	0,015	0,025	0,03	0,035	0,04	●		
S.2.3	45	0,012	0,012	0,018	0,02	0,03	0,04	30	0,01	0,015	0,025	0,03	0,035	0,04	●		
S.3.1	60	0,02	0,02	0,025	0,03	0,04	0,05	45	0,01	0,015	0,025	0,03	0,035	0,04	●		
S.3.2	65	0,02	0,02	0,025	0,03	0,04	0,05	45	0,01	0,015	0,025	0,03	0,035	0,04	●		
S.3.3	50	0,015	0,015	0,02	0,025	0,035	0,045	30	0,01	0,015	0,025	0,03	0,035	0,04	●		
H.1.1																	
H.1.2																	
H.1.3																	
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1																	
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

14

Cutting data standard values – SilverLine – End mill

			50 958 ...																		
	Type long		Ø DC = 3,0			Ø DC = 3,5–4,0 mm			Ø DC = 4,5–5,0 mm			Ø DC = 5,5–6,0 mm			Ø DC = 7,0–8,0 mm			Ø DC = 9,0–10,0mm		
			a_o 0,1–0,2 x DC	a_o 0,3–0,4 x DC	a_o 0,6–1,0 x DC	a_o 0,1–0,2 x DC	a_o 0,3–0,4 x DC	a_o 0,6–1,0 x DC	a_o 0,1–0,2 x DC	a_o 0,3–0,4 x DC	a_o 0,6–1,0 x DC	a_o 0,1–0,2 x DC	a_o 0,3–0,4 x DC	a_o 0,6–1,0 x DC	a_o 0,1–0,2 x DC	a_o 0,3–0,4 x DC	a_o 0,6–1,0 x DC	a_o 0,1–0,2 x DC	a_o 0,3–0,4 x DC	a_o 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	110	1,0*	0,035	0,028	0,018	0,042	0,034	0,021	0,050	0,040	0,025	0,058	0,046	0,029	0,072	0,058	0,036	0,086	0,069	0,043
P.1.2	90	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.1.3	90	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.1.4	80	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.1.5	80	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.2.1	90	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.2.2	70	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.2.3	70	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.2.4	55	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.3.1																				
P.3.2																				
P.3.3																				
P.4.1	50	1,0*	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033
P.4.2	40	1,0*	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033
M.1.1	40	1,0*	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033
M.2.1	50	1,0*	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033
M.3.1	50	1,0*	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033
K.1.1	130	1,0*	0,056	0,045	0,028	0,068	0,054	0,034	0,080	0,064	0,040	0,092	0,074	0,046	0,116	0,093	0,058	0,140	0,112	0,070
K.1.2	120	1,0*	0,056	0,045	0,028	0,068	0,054	0,034	0,080	0,064	0,040	0,092	0,074	0,046	0,116	0,093	0,058	0,140	0,112	0,070
K.2.1	130	1,0*	0,040	0,032	0,020	0,048	0,038	0,024	0,056	0,045	0,028	0,064	0,051	0,032	0,079	0,063	0,040	0,095	0,076	0,048
K.2.2	120	1,0*	0,040	0,032	0,020	0,048	0,038	0,024	0,056	0,045	0,028	0,064	0,051	0,032	0,079	0,063	0,040	0,095	0,076	0,048
K.3.1	130	1,0*	0,056	0,045	0,028	0,068	0,054	0,034	0,080	0,064	0,040	0,092	0,074	0,046	0,116	0,093	0,058	0,140	0,112	0,070
K.3.2	120	1,0*	0,056	0,045	0,028	0,068	0,054	0,034	0,080	0,064	0,040	0,092	0,074	0,046	0,116	0,093	0,058	0,140	0,112	0,070
N.1.1																				
N.1.2																				
N.2.1																				
N.2.2																				
N.2.3																				
N.3.1	200	1,0*	0,040	0,032	0,020	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,090	0,072	0,045	0,110	0,088	0,055
N.3.2	200	1,0*	0,040	0,032	0,020	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,090	0,072	0,045	0,110	0,088	0,055
N.3.3	140	1,0*	0,040	0,032	0,020	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,090	0,072	0,045	0,110	0,088	0,055
N.4.1																				
S.1.1	30	1,0*	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.1.2	30	1,0*	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.2.1	30	1,0*	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.2.2	30	1,0*	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.2.3	30	1,0*	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.3.1	50	1,0*	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033
S.3.2	20	1,0*	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033
S.3.3																				
H.1.1																				
H.1.2																				
H.1.3																				
H.1.4																				
H.2.1																				
H.3.1																				
O.1.1																				
O.1.2																				
O.2.1																				
O.2.2																				
O.3.1																				

* = long version: $a_{p\,max.}$ = 1.5 x DC at f_z x 0.75

Plunging angle for ramping and helical milling: 3°

	50 958 ...																	
	Ø DC = 11,0–12,0 mm			Ø DC = 14,0 mm			Ø DC = 15,0–16,0 mm			Ø DC = 17,0–18,0 mm			Ø DC = 19,0–20,0 mm			○ 1st choice		
																● suitable		
	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
P.1.1	0,102	0,082	0,051	0,116	0,093	0,058	0,124	0,099	0,062	0,131	0,105	0,066	0,139	0,111	0,070	●	○	○
P.1.2	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.1.3	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.1.4	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.1.5	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.2.1	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.2.2	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.2.3	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.2.4	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.3.1																●	○	○
P.3.2																		
P.3.3																		
P.4.1	0,079	0,063	0,040	0,092	0,074	0,046	0,099	0,079	0,050	0,105	0,084	0,053	0,111	0,089	0,056	●		
P.4.2	0,079	0,063	0,040	0,092	0,074	0,046	0,099	0,079	0,050	0,105	0,084	0,053	0,111	0,089	0,056	●		
M.1.1	0,079	0,063	0,040	0,092	0,074	0,046	0,099	0,079	0,050	0,105	0,084	0,053	0,111	0,089	0,056	●		
M.2.1	0,079	0,063	0,040	0,092	0,074	0,046	0,099	0,079	0,050	0,105	0,084	0,053	0,111	0,089	0,056	●		
M.3.1	0,079	0,063	0,040	0,092	0,074	0,046	0,099	0,079	0,050	0,105	0,084	0,053	0,111	0,089	0,056	●		
K.1.1	0,164	0,131	0,082	0,188	0,150	0,094	0,200	0,160	0,100	0,212	0,170	0,106	0,224	0,179	0,112	●	○	○
K.1.2	0,164	0,131	0,082	0,188	0,150	0,094	0,200	0,160	0,100	0,212	0,170	0,106	0,224	0,179	0,112	●	○	○
K.2.1	0,110	0,088	0,055	0,126	0,101	0,063	0,134	0,107	0,067	0,142	0,114	0,071	0,150	0,120	0,075	●	○	○
K.2.2	0,110	0,088	0,055	0,126	0,101	0,063	0,134	0,107	0,067	0,142	0,114	0,071	0,150	0,120	0,075	●	○	○
K.3.1	0,164	0,131	0,082	0,188	0,150	0,094	0,200	0,160	0,100	0,212	0,170	0,106	0,224	0,179	0,112	●	○	○
K.3.2	0,164	0,131	0,082	0,188	0,150	0,094	0,200	0,160	0,100	0,212	0,170	0,106	0,224	0,179	0,112	●	○	○
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	0,130	0,104	0,065	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	0,180	0,144	0,090	●		
N.3.2	0,130	0,104	0,065	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	0,180	0,144	0,090	●		
N.3.3	0,130	0,104	0,065	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	0,180	0,144	0,090	●		
N.4.1																		
S.1.1	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.1.2	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.1	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.2	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.3	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.3.1	0,079	0,063	0,040	0,092	0,074	0,046	0,099	0,079	0,050	0,105	0,084	0,053	0,111	0,089	0,056	●		
S.3.2	0,079	0,063	0,040	0,092	0,074	0,046	0,099	0,079	0,050	0,105	0,084	0,053	0,111	0,089	0,056	●		
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

14

Cutting data standard values – SilverLine – End mill

							50 966 ... / 50 967 ... / 50 992 ...														
	Type short		Type long		Type extra long		Ø DC = 3,0 mm			Ø DC = 3,5–4,0 mm			Ø DC = 4,5–5,0 mm			Ø DC = 5,5–6,0 mm			Ø DC = 6,5–8,0 mm		
							a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max}$ x DC	v_c m/min	$a_{p\,max}$ x DC	v_c m/min	$a_{p\,max}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	252	1,0	210	1,0*	105	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.1.2	240	1,0	200	1,0*	100	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.1.3	240	1,0	200	1,0*	100	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.1.4	228	1,0	190	1,0*	95	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.1.5	228	1,0	190	1,0*	95	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.2.1	240	1,0	200	1,0*	100	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.2.2	228	1,0	190	1,0*	95	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.2.3	216	1,0	180	1,0*	90	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.2.4	204	1,0	170	1,0*	85	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.3.1																					
P.3.2																					
P.3.3																					
P.4.1	120	1,0	100	1,0*	60	0,8	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026
P.4.2	96	1,0	80	1,0*	50	0,8	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026
M.1.1	120	1,0	100	1,0*	60	0,8	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026
M.2.1	120	1,0	100	1,0*	60	0,8	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026
M.3.1	120	1,0	100	1,0*	60	0,8	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026
K.1.1	240	1,0	200	1,0*	100	0,8	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047
K.1.2	216	1,0	180	1,0*	90	0,8	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047
K.2.1	228	1,0	190	1,0*	60	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
K.2.2	204	1,0	170	1,0*	85	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
K.3.1	216	1,0	180	1,0*	90	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
K.3.2	192	1,0	160	1,0*	80	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	420	1,0	350	1,0*	175	0,8	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047
N.3.2	420	1,0	350	1,0*	175	0,8	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047
N.3.3	336	1,0	280	1,0*	140	0,8	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047
N.4.1																					
S.1.1	30	0,5	25	0,5	15	0,4	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.1.2	30	0,5	25	0,5	15	0,4	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.2.1	30	0,5	25	0,5	15	0,4	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.2.2	30	0,5	25	0,5	15	0,4	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.2.3	30	0,5	25	0,5	15	0,4	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.3.1	108	1,0	90	1,0*	45	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
S.3.2	60	1,0	50	1,0*	25	0,8	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026
S.3.3																					
H.1.1																					
H.1.2																					
H.1.3																					
H.1.4																					
H.2.1																					
H.3.1																					
O.1.1																					
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

* = long version: $a_{p\,max.}$ = 1.5 x DC at f_z x 0.75

"Extra-long" version: when profiling with an a_e of 0.1–0.4 x DC an a_p of 1.0 x DC should be used.

	50 966 ... / 50 967 ... / 50 992 ...																		● 1st choice		
	Ø DC = 8,5–10,0mm			Ø DC = 12,0 mm			Ø DC = 14,0mm			Ø DC = 16,0mm			Ø DC = 18,0 mm			Ø DC = 20,0 mm			○ suitable		
	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
P.1.1	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.1.2	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.1.3	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.1.4	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.1.5	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.2.1	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.2.2	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.2.3	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.2.4	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.3.1																			●	○	○
P.3.2																					
P.3.3																					
P.4.1	0,066	0,053	0,033	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
P.4.2	0,066	0,053	0,033	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
M.1.1	0,066	0,053	0,033	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
M.2.1	0,066	0,053	0,033	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
M.3.1	0,066	0,053	0,033	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
K.1.1	0,116	0,093	0,058	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	●	●
K.1.2	0,116	0,093	0,058	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	●	●
K.2.1	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	●	●
K.2.2	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	●	●
K.3.1	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	●	●
K.3.2	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	●	●
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	0,116	0,093	0,058	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●		
N.3.2	0,116	0,093	0,058	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●		
N.3.3	0,116	0,093	0,058	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●		
N.4.1																					
S.1.1	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.1.2	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.1	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.2	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.3	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.3.1	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●		
S.3.2	0,066	0,053	0,033	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
S.3.3																					
H.1.1																					
H.1.2																					
H.1.3																					
H.1.4																					
H.2.1																					
H.3.1																					
O.1.1																					
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

Plunging angle for ramping and helical milling: 3°

14

Cutting data standard values – SilverLine – End mill

			50 976 ... / 50 977 ...																	
	Type long		Ø DC = 3,0 mm		Ø DC = 4,0 mm		Ø DC = 5,0 mm		Ø DC = 6,0 mm		Ø DC = 8,0 mm		Ø DC = 10,0 mm		Ø DC = 12,0 mm		Ø DC = 14,0 mm		Ø DC = 16,0 mm	
			a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm																	
P.1.1	210	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
P.1.2	200	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
P.1.3	200	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
P.1.4	190	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
P.1.5	190	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
P.2.1	200	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
P.2.2	190	2,0	0,020	0,014	0,027	0,019	0,034	0,025	0,042	0,030	0,056	0,040	0,070	0,050	0,084	0,060	0,098	0,070	0,105	0,075
P.2.3	180	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
P.2.4	170	2,0	0,020	0,014	0,027	0,019	0,034	0,025	0,042	0,030	0,056	0,040	0,070	0,050	0,084	0,060	0,098	0,070	0,105	0,075
P.3.1	180	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
P.3.2	170	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
P.3.3	140	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
P.4.1	120	1,5	0,012	0,009	0,017	0,012	0,022	0,016	0,027	0,019	0,036	0,026	0,046	0,033	0,056	0,040	0,066	0,047	0,071	0,051
P.4.2	100	1,5	0,012	0,009	0,017	0,012	0,022	0,016	0,027	0,019	0,036	0,026	0,046	0,033	0,056	0,040	0,066	0,047	0,071	0,051
M.1.1	120	1,5	0,012	0,009	0,017	0,012	0,022	0,016	0,027	0,019	0,036	0,026	0,046	0,033	0,056	0,040	0,066	0,047	0,071	0,051
M.2.1	120	1,5	0,012	0,009	0,017	0,012	0,022	0,016	0,027	0,019	0,036	0,026	0,046	0,033	0,056	0,040	0,066	0,047	0,071	0,051
M.3.1	120	1,5	0,012	0,009	0,017	0,012	0,022	0,016	0,027	0,019	0,036	0,026	0,046	0,033	0,056	0,040	0,066	0,047	0,071	0,051
K.1.1	200	2,0	0,031	0,022	0,039	0,028	0,048	0,034	0,056	0,040	0,074	0,053	0,091	0,065	0,108	0,077	0,126	0,090	0,134	0,096
K.1.2	180	2,0	0,031	0,022	0,039	0,028	0,048	0,034	0,056	0,040	0,074	0,053	0,091	0,065	0,108	0,077	0,126	0,090	0,134	0,096
K.2.1	190	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
K.2.2	170	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
K.3.1	180	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
K.3.2	160	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
N.1.1																				
N.1.2																				
N.2.1																				
N.2.2																				
N.2.3																				
N.3.1	350	2,0	0,031	0,022	0,039	0,028	0,048	0,034	0,056	0,040	0,074	0,053	0,091	0,065	0,108	0,077	0,126	0,090	0,134	0,096
N.3.2	350	2,0	0,031	0,022	0,039	0,028	0,048	0,034	0,056	0,040	0,074	0,053	0,091	0,065	0,108	0,077	0,126	0,090	0,134	0,096
N.3.3	280	2,0	0,031	0,022	0,039	0,028	0,048	0,034	0,056	0,040	0,074	0,053	0,091	0,065	0,108	0,077	0,126	0,090	0,134	0,096
N.4.1																				
S.1.1																				
S.1.2																				
S.2.1																				
S.2.2																				
S.2.3																				
S.3.1																				
S.3.2																				
S.3.3																				
H.1.1																				
H.1.2																				
H.1.3																				
H.1.4																				
H.2.1																				
H.3.1																				
O.1.1																				
O.1.2																				
O.2.1																				
O.2.2																				
O.3.1																				

Profiling with an a_e < 0.3xDC only possible under certain conditions!

Plunging angle for ramping and helical milling: 3°

	50 976 ... / 50 977 ...						
	Ø DC = 18,0 mm		Ø DC = 20,0 mm		● 1st choice		
					○ suitable		
	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm		f_z mm				
P.1.1	0,129	0,092	0,137	0,098	●	○	○
P.1.2	0,129	0,092	0,137	0,098	●	○	○
P.1.3	0,129	0,092	0,137	0,098	●	○	○
P.1.4	0,129	0,092	0,137	0,098	●	○	○
P.1.5	0,129	0,092	0,137	0,098	●	○	○
P.2.1	0,129	0,092	0,137	0,098	●	○	○
P.2.2	0,112	0,080	0,119	0,085	●	○	○
P.2.3	0,129	0,092	0,137	0,098	●	○	○
P.2.4	0,112	0,080	0,119	0,085	●	○	○
P.3.1	0,129	0,092	0,137	0,098	●	○	○
P.3.2	0,129	0,092	0,137	0,098	●	○	○
P.3.3	0,129	0,092	0,137	0,098	●	○	○
P.4.1	0,076	0,054	0,081	0,058	●		
P.4.2	0,076	0,054	0,081	0,058	●		
M.1.1	0,076	0,054	0,081	0,058	●		
M.2.1	0,076	0,054	0,081	0,058	●		
M.3.1	0,076	0,054	0,081	0,058	●		
K.1.1	0,143	0,102	0,151	0,108	●	●	●
K.1.2	0,143	0,102	0,151	0,108	●	●	●
K.2.1	0,129	0,092	0,137	0,098	●	●	●
K.2.2	0,129	0,092	0,137	0,098	●	●	●
K.3.1	0,129	0,092	0,137	0,098	●	●	●
K.3.2	0,129	0,092	0,137	0,098	●	●	●
N.1.1							
N.1.2							
N.2.1							
N.2.2							
N.2.3							
N.3.1	0,143	0,102	0,151	0,108	●	○	○
N.3.2	0,143	0,102	0,151	0,108	●	○	○
N.3.3	0,143	0,102	0,151	0,108	●	○	○
N.4.1							
S.1.1							
S.1.2							
S.2.1							
S.2.2							
S.2.3							
S.3.1							
S.3.2							
S.3.3							
H.1.1							
H.1.2							
H.1.3							
H.1.4							
H.2.1							
H.3.1							
O.1.1							
O.1.2							
O.2.1							
O.2.2							
O.3.1							

Cutting data standard values – SilverLine – End mill

			50 970 ... / 50 971 ... / 50 974 ... / 50 975 ...																	
	Type extra long		Ø DC = 3,0 mm			Ø DC = 4,0 mm			Ø DC = 5,0 mm			Ø DC = 6,0 mm			Ø DC = 8,0 mm			Ø DC = 10,0 mm		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm																	
P.1.1	160	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.1.2	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.1.3	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.1.4	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.1.5	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.2.1	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.2.2	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.2.3	120	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.2.4	120	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.3.1	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.3.2	80	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.3.3	80	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.4.1	80	0,5	0,016	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,038	0,028	0,019	0,050	0,037	0,025	0,064	0,048	0,032
P.4.2	80	0,5	0,016	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,038	0,028	0,019	0,050	0,037	0,025	0,064	0,048	0,032
M.1.1	80	0,5	0,016	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,038	0,028	0,019	0,050	0,037	0,025	0,064	0,048	0,032
M.2.1	70	0,5	0,016	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,038	0,028	0,019	0,050	0,037	0,025	0,064	0,048	0,032
M.3.1	80	0,5	0,016	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,038	0,028	0,019	0,050	0,037	0,025	0,064	0,048	0,032
K.1.1	150	1,0	0,040	0,031	0,022	0,054	0,042	0,030	0,070	0,052	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,110	0,082	0,055
K.1.2	140	1,0	0,040	0,031	0,022	0,054	0,042	0,030	0,070	0,052	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,110	0,082	0,055
K.2.1	150	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,090	0,067	0,045
K.2.2	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,090	0,067	0,045
K.3.1	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,090	0,067	0,045
K.3.2	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,090	0,067	0,045
N.1.1																				
N.1.2																				
N.2.1																				
N.2.2																				
N.2.3																				
N.3.1	220	1,0	0,034	0,026	0,019	0,045	0,035	0,025	0,054	0,042	0,030	0,063	0,049	0,035	0,081	0,062	0,045	0,102	0,079	0,057
N.3.2	180	1,0	0,034	0,026	0,019	0,045	0,035	0,025	0,054	0,042	0,030	0,063	0,049	0,035	0,081	0,062	0,045	0,102	0,079	0,057
N.3.3	180	1,0	0,034	0,026	0,019	0,045	0,035	0,025	0,054	0,042	0,030	0,063	0,049	0,035	0,081	0,062	0,045	0,102	0,079	0,057
N.4.1																				
S.1.1	25	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,022	0,017	0,012	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025
S.1.2	25	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,022	0,017	0,012	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025
S.2.1	25	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,022	0,017	0,012	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025
S.2.2	25	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,022	0,017	0,012	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025
S.2.3	25	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,022	0,017	0,012	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025
S.3.1	80	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,072	0,055	0,040	0,090	0,069	0,050
S.3.2	70	0,5	0,020	0,015	0,011	0,027	0,021	0,015	0,032	0,025	0,018	0,040	0,031	0,022	0,054	0,042	0,030	0,072	0,055	0,040
S.3.3																				
H.1.1																				
H.1.2																				
H.1.3																				
H.1.4																				
H.2.1																				
H.3.1																				
O.1.1																				
O.1.2																				
O.2.1																				
O.2.2																				
O.3.1																				

Plunging angle for ramping and helical milling: 3°

	50 970 ... / 50 971 ... / 50 974 ... / 50 975 ...															● 1st choice		
	Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16,0 mm			Ø DC = 18,0 mm			Ø DC = 20 mm			○ suitable		
	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
P.1.1	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.1.2	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.1.3	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.1.4	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.1.5	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.2.1	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.2.2	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.2.3	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.2.4	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.3.1	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.3.2	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.3.3	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.4.1	0,080	0,060	0,040	0,082	0,064	0,045	0,085	0,065	0,050	0,095	0,077	0,060	0,111	0,090	0,070	●		
P.4.2	0,080	0,060	0,040	0,082	0,064	0,045	0,085	0,065	0,050	0,095	0,077	0,060	0,111	0,090	0,070	●		
M.1.1	0,080	0,060	0,040	0,082	0,064	0,045	0,085	0,065	0,050	0,095	0,077	0,060	0,111	0,090	0,070	●		
M.2.1	0,080	0,060	0,040	0,082	0,064	0,045	0,085	0,065	0,050	0,095	0,077	0,060	0,111	0,090	0,070	●		
M.3.1	0,080	0,060	0,040	0,082	0,064	0,045	0,085	0,065	0,050	0,095	0,077	0,060	0,111	0,090	0,070	●		
K.1.1	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	●	●
K.1.2	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	●	●
K.2.1	0,100	0,075	0,050	0,100	0,078	0,055	0,101	0,077	0,060	0,103	0,084	0,065	0,111	0,090	0,070	●	●	●
K.2.2	0,100	0,075	0,050	0,100	0,078	0,055	0,101	0,077	0,060	0,103	0,084	0,065	0,111	0,090	0,070	●	●	●
K.3.1	0,100	0,075	0,050	0,100	0,078	0,055	0,101	0,077	0,060	0,103	0,084	0,065	0,111	0,090	0,070	●	●	●
K.3.2	0,100	0,075	0,050	0,100	0,078	0,055	0,101	0,077	0,060	0,103	0,084	0,065	0,111	0,090	0,070	●	●	●
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	0,126	0,097	0,070	0,153	0,118	0,085	0,180	0,139	0,100	0,198	0,153	0,110	0,216	0,166	0,120	●		
N.3.2	0,126	0,097	0,070	0,153	0,118	0,085	0,180	0,139	0,100	0,198	0,153	0,110	0,216	0,166	0,120	●		
N.3.3	0,126	0,097	0,070	0,153	0,118	0,085	0,180	0,139	0,100	0,198	0,153	0,110	0,216	0,166	0,120	●		
N.4.1																		
S.1.1	0,054	0,042	0,030	0,063	0,049	0,035	0,072	0,055	0,040	0,081	0,062	0,045	0,090	0,069	0,050	●		
S.1.2	0,054	0,042	0,030	0,063	0,049	0,035	0,072	0,055	0,040	0,081	0,062	0,045	0,090	0,069	0,050	●		
S.2.1	0,054	0,042	0,030	0,063	0,049	0,035	0,072	0,055	0,040	0,081	0,062	0,045	0,090	0,069	0,050	●		
S.2.2	0,054	0,042	0,030	0,063	0,049	0,035	0,072	0,055	0,040	0,081	0,062	0,045	0,090	0,069	0,050	●		
S.2.3	0,054	0,042	0,030	0,063	0,049	0,035	0,072	0,055	0,040	0,081	0,062	0,045	0,090	0,069	0,050	●		
S.3.1	0,108	0,083	0,060	0,126	0,097	0,070	0,144	0,111	0,080	0,162	0,125	0,090	0,180	0,139	0,100	●		
S.3.2	0,090	0,069	0,050	0,099	0,076	0,055	0,108	0,083	0,060	0,126	0,097	0,070	0,144	0,111	0,080	●		
S.3.3																●		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Cutting data standard values – SilverLine – End mill, roughing-finishing and

				50 969 ... / 50 970... / 50 971 ... / 50 972 ... / 50 973 ... / 50 974 ... / 50 975 ... / 50 978 ... / 50 979 ...																			
				Ø DC = 3,0 mm			Ø DC = 3,5–4,0 mm			Ø DC = 4,5–5,0 mm			Ø DC = 5,5–6,0 mm			Ø DC = 7,0–8,0 mm			Ø DC = 9,0–10,0 mm		
	Type short	Type long		a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min		$a_{p\,max}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	253	230	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.1.2	242	220	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.1.3	242	220	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.1.4	230	210	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.1.5	230	210	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.2.1	242	220	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.2.2	230	210	1,0*	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050
P.2.3	220	200	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.2.4	210	190	1,0*	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050
P.3.1	220	200	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.3.2	210	190	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.3.3	176	160	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.4.1	120	110	1,0*	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033
P.4.2	100	90	1,0*	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033
M.1.1	120	110	1,0*	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033
M.2.1	120	110	1,0*	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033
M.3.1	120	110	1,0*	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033
K.1.1	242	220	1,0*	0,046	0,037	0,023	0,062	0,050	0,031	0,078	0,062	0,039	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080
K.1.2	220	200	1,0*	0,046	0,037	0,023	0,062	0,050	0,031	0,078	0,062	0,039	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080
K.2.1	230	210	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
K.2.2	210	190	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
K.3.1	220	200	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
K.3.2	200	180	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	385	350	1,0*	0,046	0,037	0,023	0,062	0,050	0,031	0,078	0,062	0,039	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080
N.3.2	308	350	1,0*	0,046	0,037	0,023	0,062	0,050	0,031	0,078	0,062	0,039	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080
N.3.3	308	280	1,0*	0,046	0,037	0,023	0,062	0,050	0,031	0,078	0,062	0,039	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080
N.4.1																					
S.1.1	35	30	0,5	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.1.2	35	30	0,5	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.2.1	35	30	0,5	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.2.2	35	30	0,5	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.2.3	35	30	0,5	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.3.1	110	90	0,5	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050
S.3.2	70	50	0,5	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033
S.3.3																					
H.1.1																					
H.1.2																					
H.1.3																					
H.1.4																					
H.2.1																					
H.3.1																					
O.1.1																					
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

* = long version: $a_{p\,max.}$ = 1.5 x DC at f_z x 0.75

Plunging angle for ramping and helical milling: 3°

rough milling cutter

Index	50 969 ... / 50 970... / 50 971 ... / 50 972 ... / 50 973 ... / 50 974 ... / 50 975 ... / 50 978 ... / 50 979 ...																	
	Ø DC = 11,0–12,0 mm			Ø DC = 14 mm			Ø DC = 15,0–16,0 mm			Ø DC = 17,0–18,0 mm			Ø DC = 19,0–20,0 mm			● 1st choice		
																○ suitable		
	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
P.1.1	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.1.2	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.1.3	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.1.4	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.1.5	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.2.1	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.2.2	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.2.3	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.2.4	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.3.1	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.3.2	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.3.3	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.4.1	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
P.4.2	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
M.1.1	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
M.2.1	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
M.3.1	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
K.1.1	0,192	0,154	0,096	0,224	0,179	0,112	0,240	0,192	0,120	0,258	0,206	0,129	0,274	0,219	0,137	●	●	●
K.1.2	0,192	0,154	0,096	0,224	0,179	0,112	0,240	0,192	0,120	0,258	0,206	0,129	0,274	0,219	0,137	●	●	●
K.2.1	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	●	●
K.2.2	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	●	●
K.3.1	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	●	●
K.3.2	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	●	●
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	0,192	0,154	0,096	0,224	0,179	0,112	0,240	0,192	0,120	0,258	0,206	0,129	0,274	0,219	0,137	●		
N.3.2	0,192	0,154	0,096	0,224	0,179	0,112	0,240	0,192	0,120	0,258	0,206	0,129	0,274	0,219	0,137	●		
N.3.3	0,192	0,154	0,096	0,224	0,179	0,112	0,240	0,192	0,120	0,258	0,206	0,129	0,274	0,219	0,137	●		
N.4.1																		
S.1.1	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.1.2	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.1	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.2	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.3	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.3.1	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●		
S.3.2	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Cutting data standard values – SilverLine – Ball-nosed end mill

					50 963 ...																	
	Type short		Type long		Ø DC = 3,0 mm			Ø DC = 4,0 mm			Ø DC = 5,0 mm			Ø DC = 6,0 mm			Ø DC = 7,0 mm			Ø DC = 8,0 mm		
					a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC
Index	v_c m/min	$a_{p\,max}$ x DC	v_c m/min	$a_{p\,max}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	300	0,08	180	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.1.2	280	0,08	170	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.1.3	225	0,08	135	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.1.4	225	0,08	135	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.1.5	245	0,08	145	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.2.1	280	0,08	170	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.2.2	215	0,08	130	0,06	0,058	0,046	0,029	0,076	0,061	0,038	0,092	0,074	0,046	0,110	0,088	0,055	0,128	0,102	0,064	0,146	0,117	0,073
P.2.3	190	0,08	115	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.2.4	210	0,08	125	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.3.1	210	0,08	125	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.3.2	175	0,08	105	0,06	0,058	0,046	0,029	0,076	0,061	0,038	0,092	0,074	0,046	0,110	0,088	0,055	0,128	0,102	0,064	0,146	0,117	0,073
P.3.3	130	0,08	80	0,06	0,046	0,037	0,023	0,058	0,046	0,029	0,068	0,054	0,034	0,080	0,064	0,040	0,091	0,073	0,046	0,102	0,082	0,051
P.4.1																						
P.4.2																						
M.1.1																						
M.2.1																						
M.3.1																						
K.1.1	330	0,08	200	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
K.1.2	280	0,08	170	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
K.2.1	330	0,08	200	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
K.2.2	280	0,08	170	0,06	0,058	0,046	0,029	0,076	0,061	0,038	0,092	0,074	0,046	0,110	0,088	0,055	0,128	0,102	0,064	0,146	0,117	0,073
K.3.1	330	0,08	200	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
K.3.2	280	0,08	170	0,06	0,058	0,046	0,029	0,076	0,061	0,038	0,092	0,074	0,046	0,110	0,088	0,055	0,128	0,102	0,064	0,146	0,117	0,073
N.1.1																						
N.1.2																						
N.2.1																						
N.2.2																						
N.2.3																						
N.3.1																						
N.3.2																						
N.3.3	455	0,08	275	0,06	0,046	0,037	0,023	0,058	0,046	0,029	0,068	0,054	0,034	0,080	0,064	0,040	0,091	0,073	0,046	0,102	0,082	0,051
N.4.1																						
S.1.1																						
S.1.2																						
S.2.1																						
S.2.2																						
S.2.3																						
S.3.1																						
S.3.2																						
S.3.3																						
H.1.1	100	0,08	60	0,06	0,046	0,037	0,023	0,058	0,046	0,029	0,068	0,054	0,034	0,080	0,064	0,040	0,091	0,073	0,046	0,102	0,082	0,051
H.1.2	60	0,08	35	0,06	0,046	0,037	0,023	0,058	0,046	0,029	0,068	0,054	0,034	0,080	0,064	0,040	0,091	0,073	0,046	0,102	0,082	0,051
H.1.3	55	0,08	35	0,06	0,046	0,037	0,023	0,058	0,046	0,029	0,068	0,054	0,034	0,080	0,064	0,040	0,091	0,073	0,046	0,102	0,082	0,051
H.1.4																						
H.2.1	70	0,08	40	0,06	0,046	0,037	0,023	0,058	0,046	0,029	0,068	0,054	0,034	0,080	0,064	0,040	0,091	0,073	0,046	0,102	0,082	0,051
H.3.1	100	0,08	60	0,06	0,046	0,037	0,023	0,058	0,046	0,029	0,068	0,054	0,034	0,080	0,064	0,040	0,091	0,073	0,046	0,102	0,082	0,051
O.1.1																						
O.1.2																						
O.2.1																						
O.2.2																						
O.3.1																						

Plunging angle for ramping and helical milling: 3°

	50 963 ...																				
	Ø DC = 10,0 mm			Ø DC = 12,0 mm			Ø DC = 14,0 mm			Ø DC = 16,0 mm			Ø DC = 18,0 mm			Ø DC = 20,0 mm			● 1st choice		
																			○ suitable		
	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	Emulsion	Compressed air	MMS
Index	f_z mm																				
P.1.1	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
P.1.2	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
P.1.3	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
P.1.4	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
P.1.5	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
P.2.1	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
P.2.2	0,180	0,144	0,090	0,216	0,173	0,108	0,250	0,200	0,125	0,300	0,240	0,150	0,350	0,280	0,175	0,400	0,320	0,200	●	○	○
P.2.3	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,025	0,500	0,400	0,250	●	○	○
P.2.4	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,025	0,500	0,400	0,250	●	○	○
P.3.1	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,025	0,500	0,400	0,250	●	○	○
P.3.2	0,180	0,144	0,090	0,216	0,173	0,108	0,250	0,200	0,125	0,300	0,240	0,150	0,350	0,280	0,175	0,400	0,320	0,200	●	○	○
P.3.3	0,124	0,099	0,062	0,146	0,117	0,073	0,168	0,134	0,084	0,180	0,144	0,090	0,210	0,168	0,105	0,240	0,192	0,120	●	○	○
P.4.1																					
P.4.2																					
M.1.1																					
M.2.1																					
M.3.1																					
K.1.1	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
K.1.2	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
K.2.1	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
K.2.2	0,180	0,144	0,090	0,216	0,173	0,108	0,250	0,200	0,125	0,300	0,240	0,150	0,350	0,280	0,175	0,400	0,320	0,200	●	○	○
K.3.1	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
K.3.2	0,180	0,144	0,090	0,216	0,173	0,108	0,250	0,200	0,125	0,300	0,240	0,150	0,350	0,280	0,175	0,400	0,320	0,200	●	○	○
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1																					
N.3.2																					
N.3.3	0,124	0,099	0,062	0,146	0,117	0,073	0,168	0,134	0,084	0,180	0,144	0,090	0,210	0,168	0,105	0,240	0,192	0,120	●		
N.4.1																					
S.1.1																					
S.1.2																					
S.2.1																					
S.2.2																					
S.2.3																					
S.3.1																					
S.3.2																					
S.3.3																					
H.1.1	0,124	0,099	0,062	0,146	0,117	0,073	0,168	0,134	0,084	0,179	0,143	0,090	0,190	0,152	0,095	0,200	0,160	0,100		●	
H.1.2	0,124	0,099	0,062	0,146	0,117	0,073	0,168	0,134	0,084	0,179	0,143	0,090	0,190	0,152	0,095	0,200	0,160	0,100		●	
H.1.3	0,124	0,099	0,062	0,146	0,117	0,073	0,168	0,134	0,084	0,179	0,143	0,090	0,190	0,152	0,095	0,200	0,160	0,100		●	
H.1.4																					
H.2.1	0,124	0,099	0,062	0,146	0,117	0,073	0,168	0,134	0,084	0,179	0,143	0,090	0,190	0,152	0,095	0,200	0,160	0,100		●	
H.3.1	0,124	0,099	0,062	0,146	0,117	0,073	0,168	0,134	0,084	0,179	0,143	0,090	0,190	0,152	0,095	0,200	0,160	0,100		●	
O.1.1																					
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

Cutting data standard values – SilverLine – High-precision finish milling cutter

				50 991 ...										
				Ø DC = 6,0 mm	Ø DC = 8,0 mm	Ø DC = 10,0 mm	Ø DC = 12,0 mm	Ø DC = 16,0 mm	Ø DC = 20,0 mm	Ø DC = 25,0 mm	● 1st choice			
											○ suitable			
	Type long	Type extra long		a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC				
Index	v_c m/min	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS	
P.1.1	**260**	**180**	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●			
P.1.2	**250**	**175**	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●			
P.1.3	**250**	**175**	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●			
P.1.4	**230**	**160**	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●			
P.1.5	**230**	**160**	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●			
P.2.1	**250**	**175**	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●			
P.2.2	**230**	**160**	2,0	0,023	0,031	0,039	0,047	0,059	0,067	0,077	●			
P.2.3	**220**	**155**	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●			
P.2.4	**210**	**145**	2,0	0,023	0,031	0,039	0,047	0,059	0,067	0,077	●			
P.3.1	**220**	**155**	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●			
P.3.2	**210**	**145**	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●			
P.3.3	**175**	**120**	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●			
P.4.1	**120**	**80**	2,0	0,019	0,026	0,033	0,040	0,051	0,058	0,066	●			
P.4.2	**100**	**70**	2,0	0,019	0,026	0,033	0,040	0,051	0,058	0,066	●			
M.1.1	**120**	**80**	2,0	0,019	0,026	0,033	0,040	0,051	0,058	0,066	●			
M.2.1	**120**	**80**	2,0	0,019	0,026	0,033	0,040	0,051	0,058	0,066	●			
M.3.1	**120**	**80**	2,0	0,019	0,026	0,033	0,040	0,051	0,058	0,066	●			
K.1.1	250	175	2,0	0,035	0,047	0,058	0,070	0,087	0,098	0,112	●			
K.1.2	220	155	2,0	0,035	0,047	0,058	0,070	0,087	0,098	0,112	●			
K.2.1	230	160	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●			
K.2.2	210	145	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●			
K.3.1	220	155	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●			
K.3.2	200	140	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●			
N.1.1														
N.1.2														
N.2.1														
N.2.2														
N.2.3														
N.3.1	430	300	2,0	0,035	0,047	0,058	0,070	0,087	0,098	0,112	●			
N.3.2	430	300	2,0	0,035	0,047	0,058	0,070	0,087	0,098	0,112	●			
N.3.3	350	245	2,0	0,035	0,047	0,058	0,070	0,087	0,098	0,112	●			
N.4.1														
S.1.1	**40**	**30**	2,0	0,015	0,020	0,025	0,030	0,038	0,042	0,048	●			
S.1.2	**40**	**30**	2,0	0,015	0,020	0,025	0,030	0,038	0,042	0,048	●			
S.2.1	**40**	**30**	2,0	0,015	0,020	0,025	0,030	0,038	0,042	0,048	●			
S.2.2	**40**	**30**	2,0	0,015	0,020	0,025	0,030	0,038	0,042	0,048	●			
S.2.3	**40**	**30**	2,0	0,015	0,020	0,025	0,030	0,038	0,042	0,048	●			
S.3.1	**200**	**140**	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●			
S.3.2	**125**	**85**	2,0	0,019	0,026	0,033	0,040	0,051	0,058	0,066	●			
S.3.3														
H.1.1														
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1														
O.1.1														
O.1.2														
O.2.1														
O.2.2														
O.3.1														

Plunging angle for ramping and helical milling = 1°

Cutting data standard values – SilverLine – Radius milling cutters – 50 990 ... – Finish machining

			50 990 ...								● 1st choice ○ suitable		
	Type long		Ø DC = 4,0 mm	Ø DC = 5,0 mm	Ø DC = 6,0 mm	Ø DC = 8,0 mm	Ø DC = 10,0 mm	Ø DC = 12,0 mm	Ø DC = 16,0 mm	Ø DC = 20,0 mm			
			a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	Emulsion	Compressed air	MMS
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm			
P.1.1	195	0,08	0,019	0,025	0,030	0,040	0,050	0,060	0,075	0,085	●	○	○
P.1.2	165	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.1.3	165	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.1.4	145	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.1.5	145	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.2.1	165	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.2.2	130	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.2.3	130	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.2.4	100	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.3.1													
P.3.2													
P.3.3													
P.4.1	90	0,08	0,011	0,014	0,017	0,023	0,029	0,035	0,044	0,050	●		
P.4.2	75	0,08	0,011	0,014	0,017	0,023	0,029	0,035	0,044	0,050	●		
M.1.1	75	0,08	0,011	0,014	0,017	0,023	0,029	0,035	0,044	0,050	●		
M.2.1	90	0,08	0,011	0,014	0,017	0,023	0,029	0,035	0,044	0,050	●		
M.3.1	90	0,08	0,011	0,014	0,017	0,023	0,029	0,035	0,044	0,050	●		
K.1.1	235	0,08	0,028	0,034	0,040	0,053	0,065	0,077	0,096	0,108	●		○
K.1.2	220	0,08	0,028	0,034	0,040	0,053	0,065	0,077	0,096	0,108	●		○
K.2.1	235	0,08	0,028	0,033	0,039	0,050	0,061	0,072	0,089	0,100	●		○
K.2.2	220	0,08	0,028	0,033	0,039	0,050	0,061	0,072	0,089	0,100	●		○
K.3.1	235	0,08	0,028	0,034	0,040	0,053	0,065	0,077	0,096	0,108	●		○
K.3.2	220	0,08	0,028	0,034	0,040	0,053	0,065	0,077	0,096	0,108	●		○
N.1.1													
N.1.2													
N.2.1													
N.2.2													
N.2.3													
N.3.1	360	0,08	0,028	0,034	0,040	0,053	0,065	0,077	0,096	0,108	●	○	○
N.3.2	360	0,08	0,028	0,034	0,040	0,053	0,065	0,077	0,096	0,108	●	○	○
N.3.3	255	0,08	0,028	0,034	0,040	0,053	0,065	0,077	0,096	0,108	●	○	○
N.4.1													
S.1.1													
S.1.2													
S.2.1													
S.2.2													
S.2.3													
S.3.1													
S.3.2													
S.3.3													
H.1.1													
H.1.2													
H.1.3													
H.1.4													
H.2.1													
H.3.1													
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

Plunging angle for ramping and helical milling: 3°

Cutting data standard values – SilverLine – Radius milling cutters – 50 990 ... –

			50 990 ...																		
	Type long		Ø DC = 4,0 mm			Ø DC = 5,0 mm			Ø DC = 6,0 mm			Ø DC = 8,0 mm			Ø DC = 10,0 mm			Ø DC = 12,0 mm		
			a_o 0,1–0,2 x DC	a_o 0,3–0,4 x DC	a_o 0,6–1,0 x DC	a_o 0,1–0,2 x DC	a_o 0,3–0,4 x DC	a_o 0,6–1,0 x DC	a_o 0,1–0,2 x DC	a_o 0,3–0,4 x DC	a_o 0,6–1,0 x DC	a_o 0,1–0,2 x DC	a_o 0,3–0,4 x DC	a_o 0,6–1,0 x DC	a_o 0,1–0,2 x DC	a_o 0,3–0,4 x DC	a_o 0,6–1,0 x DC	a_o 0,1–0,2 x DC	a_o 0,3–0,4 x DC	a_o 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	130	1,0	0,026	0,022	0,017	0,031	0,027	0,021	0,036	0,031	0,024	0,047	0,040	0,031	0,056	0,049	0,038	0,067	0,058	0,045
P.1.2	110	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040
P.1.3	110	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040
P.1.4	95	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040
P.1.5	95	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040
P.2.1	110	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040
P.2.2	85	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040
P.2.3	85	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040
P.2.4	65	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040
P.3.1																				
P.3.2																				
P.3.3																				
P.4.1	60	1,0	0,015	0,013	0,010	0,019	0,016	0,013	0,023	0,020	0,015	0,030	0,026	0,020	0,038	0,033	0,025	0,045	0,039	0,030
P.4.2	50	1,0	0,015	0,013	0,010	0,019	0,016	0,013	0,023	0,020	0,015	0,030	0,026	0,020	0,038	0,033	0,025	0,045	0,039	0,030
M.1.1	50	1,0	0,015	0,013	0,010	0,019	0,016	0,013	0,023	0,020	0,015	0,030	0,026	0,020	0,038	0,033	0,025	0,045	0,039	0,030
M.2.1	60	1,0	0,015	0,013	0,010	0,019	0,016	0,013	0,023	0,020	0,015	0,030	0,026	0,020	0,038	0,033	0,025	0,045	0,039	0,030
M.3.1	60	1,0	0,015	0,013	0,010	0,019	0,016	0,013	0,023	0,020	0,015	0,030	0,026	0,020	0,038	0,033	0,025	0,045	0,039	0,030
K.1.1	155	1,0	0,042	0,036	0,028	0,050	0,043	0,033	0,059	0,051	0,039	0,075	0,065	0,050	0,092	0,079	0,061	0,108	0,094	0,072
K.1.2	145	1,0	0,042	0,036	0,028	0,050	0,043	0,033	0,059	0,051	0,039	0,075	0,065	0,050	0,092	0,079	0,061	0,108	0,094	0,072
K.2.1	155	1,0	0,032	0,027	0,021	0,038	0,033	0,025	0,044	0,038	0,029	0,054	0,047	0,036	0,065	0,056	0,043	0,077	0,066	0,051
K.2.2	145	1,0	0,032	0,027	0,021	0,038	0,033	0,025	0,044	0,038	0,029	0,054	0,047	0,036	0,065	0,056	0,043	0,077	0,066	0,051
K.3.1	155	1,0	0,042	0,036	0,028	0,050	0,043	0,033	0,059	0,051	0,039	0,075	0,065	0,050	0,092	0,079	0,061	0,108	0,094	0,072
K.3.2	145	1,0	0,042	0,036	0,028	0,050	0,043	0,033	0,059	0,051	0,039	0,075	0,065	0,050	0,092	0,079	0,061	0,108	0,094	0,072
N.1.1																				
N.1.2																				
N.2.1																				
N.2.2																				
N.2.3																				
N.3.1	240	1,0	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033	0,066	0,057	0,044	0,083	0,072	0,055	0,099	0,086	0,066
N.3.2	240	1,0	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033	0,066	0,057	0,044	0,083	0,072	0,055	0,099	0,086	0,066
N.3.3	170	1,0	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033	0,066	0,057	0,044	0,083	0,072	0,055	0,099	0,086	0,066
N.4.1																				
S.1.1																				
S.1.2																				
S.2.1																				
S.2.2																				
S.2.3																				
S.3.1																				
S.3.2																				
S.3.3																				
H.1.1																				
H.1.2																				
H.1.3																				
H.1.4																				
H.2.1																				
H.3.1																				
O.1.1																				
O.1.2																				
O.2.1																				
O.2.2																				
O.3.1																				

Plunging angle for ramping and helical milling: 3°

Rough machining

	50 990 ...								
	Ø DC = 16 mm			Ø DC = 20 mm			○ 1st choice		
							● suitable		
	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm					
P.1.1	0,083	0,072	0,055	0,092	0,080	0,062	●	○	○
P.1.2	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.1.3	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.1.4	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.1.5	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.2.1	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.2.2	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.2.3	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.2.4	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.3.1									
P.3.2									
P.3.3									
P.4.1	0,056	0,049	0,038	0,063	0,055	0,042	●		
P.4.2	0,056	0,049	0,038	0,063	0,055	0,042	●		
M.1.1	0,056	0,049	0,038	0,063	0,055	0,042	●		
M.2.1	0,056	0,049	0,038	0,063	0,055	0,042	●		
M.3.1	0,056	0,049	0,038	0,063	0,055	0,042	●		
K.1.1	0,133	0,115	0,089	0,150	0,130	0,100	●	○	○
K.1.2	0,133	0,115	0,089	0,150	0,130	0,100	●	○	○
K.2.1	0,093	0,081	0,062	0,104	0,090	0,070	●	○	○
K.2.2	0,093	0,081	0,062	0,104	0,090	0,070	●	○	○
K.3.1	0,133	0,115	0,089	0,150	0,130	0,100	●	○	○
K.3.2	0,133	0,115	0,089	0,150	0,130	0,100	●	○	○
N.1.1									
N.1.2									
N.2.1									
N.2.2									
N.2.3									
N.3.1	0,125	0,108	0,083	0,141	0,122	0,094	●	○	○
N.3.2	0,125	0,108	0,083	0,141	0,122	0,094	●	○	○
N.3.3	0,125	0,108	0,083	0,141	0,122	0,094	●	○	○
N.4.1									
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2									
S.3.3									
H.1.1									
H.1.2									
H.1.3									
H.1.4									
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

Cutting data standard values – SilverLine – Torus face cutter

				50 989 ...														
				Ø DC = 6,0 mm			Ø DC = 8,0 mm			Ø DC = 10,0 mm			Ø DC = 12,0 mm			Ø DC = 16,0 mm		
	Type long	Type extra long		a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,5 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,5 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,5 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,5 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,5 x DC
Index	v_c m/min		$a_{p\,max}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	240	190	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.1.2	210	170	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.1.3	210	170	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.1.4	190	150	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.1.5	190	150	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.2.1	220	175	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.2.2	200	160	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.2.3	180	145	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.2.4	170	135	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.3.1	170	135	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.3.2	150	120	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.3.3	120	95	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.4.1	90	70	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.4.2	70	55	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
M.1.1	90	70	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
M.2.1	90	70	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
M.3.1	90	70	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
K.1.1	250	200	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
K.1.2	230	185	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
K.2.1	200	160	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
K.2.2	180	145	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
K.3.1	220	175	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
K.3.2	210	170	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1																		
N.3.2																		
N.3.3	250	200	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
N.4.1																		
S.1.1																		
S.1.2																		
S.2.1																		
S.2.2																		
S.2.3																		
S.3.1																		
S.3.2																		
S.3.3																		
H.1.1	120	95	0,03	0,240	0,192	0,120	0,330	0,264	0,165	0,420	0,336	0,210	0,510	0,408	0,255	0,644	0,515	0,322
H.1.2	80	65	0,03	0,240	0,192	0,120	0,330	0,264	0,165	0,420	0,336	0,210	0,510	0,408	0,255	0,644	0,515	0,322
H.1.3																		
H.1.4																		
H.2.1	120	95	0,03	0,240	0,192	0,120	0,330	0,264	0,165	0,420	0,336	0,210	0,510	0,408	0,255	0,644	0,515	0,322
H.3.1	120	95	0,03	0,240	0,192	0,120	0,330	0,264	0,165	0,420	0,336	0,210	0,510	0,408	0,255	0,644	0,515	0,322
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Plunging angle for ramping and helical milling: 3°

	50 989 ...					
	Ø DC = 20,0 mm			● 1st choice		
				○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,5 x DC	Emulsion	Compressed air	MMS
Index	f_z mm					
P.1.1	0,912	0,730	0,456	●	○	○
P.1.2	0,912	0,730	0,456	●	○	○
P.1.3	0,912	0,730	0,456	●	○	○
P.1.4	0,912	0,730	0,456	●	○	○
P.1.5	0,912	0,730	0,456	●	○	○
P.2.1	0,912	0,730	0,456	●	○	○
P.2.2	0,912	0,730	0,456	●	○	○
P.2.3	0,912	0,730	0,456	●	○	○
P.2.4	0,912	0,730	0,456	●	○	○
P.3.1	0,912	0,730	0,456	●	○	○
P.3.2	0,912	0,730	0,456	●	○	○
P.3.3	0,912	0,730	0,456	●	○	○
P.4.1	0,912	0,730	0,456	●		
P.4.2	0,912	0,730	0,456	●		
M.1.1	0,912	0,730	0,456	●		
M.2.1	0,912	0,730	0,456	●		
M.3.1	0,912	0,730	0,456	●		
K.1.1	0,912	0,730	0,456	●	○	○
K.1.2	0,912	0,730	0,456	●	○	○
K.2.1	0,912	0,730	0,456	●	○	○
K.2.2	0,912	0,730	0,456	●	○	○
K.3.1	0,912	0,730	0,456	●	○	○
K.3.2	0,912	0,730	0,456	●	○	○
N.1.1						
N.1.2						
N.2.1						
N.2.2						
N.2.3						
N.3.1						
N.3.2						
N.3.3	0,912	0,730	0,456	●	○	○
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1	0,736	0,589	0,368		●	●
H.1.2	0,736	0,589	0,368		●	●
H.1.3						
H.1.4						
H.2.1	0,736	0,589	0,368		●	●
H.3.1	0,736	0,589	0,368		●	●
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

Cutting data standard values – MonsterMill – PCR – End mill, UNI version

			52 613 ... / 52 614 ... / 52 615 ... / 52 619 ...																				
			Ø DC = 5,0 mm			Ø DC = 5,7–6,0 mm			Ø DC = 6,7–7,0 mm			Ø DC = 7,7–8,0 mm			Ø DC = 8,7–9,0 mm			Ø DC = 9,7–10,0 mm			Ø DC = 11,7–12,0 mm		
	Short / long / extra long		a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	240	1,0	0,096	0,068	0,043	0,107	0,075	0,048	0,122	0,086	0,054	0,136	0,096	0,061	0,150	0,106	0,067	0,163	0,115	0,073	0,188	0,133	0,084
P.1.2	230	1,0	0,092	0,065	0,041	0,102	0,072	0,046	0,116	0,082	0,052	0,130	0,092	0,058	0,143	0,101	0,064	0,156	0,110	0,070	0,179	0,127	0,080
P.1.3	220	1,0	0,087	0,062	0,039	0,097	0,069	0,043	0,111	0,078	0,050	0,124	0,088	0,055	0,136	0,096	0,061	0,148	0,105	0,066	0,171	0,121	0,076
P.1.4	205	1,0	0,083	0,059	0,037	0,092	0,065	0,041	0,105	0,074	0,047	0,118	0,083	0,053	0,130	0,092	0,058	0,141	0,100	0,063	0,162	0,115	0,072
P.1.5	195	1,0	0,079	0,056	0,035	0,087	0,062	0,039	0,100	0,070	0,045	0,111	0,079	0,050	0,123	0,087	0,055	0,134	0,094	0,060	0,153	0,109	0,069
P.2.1	220	1,0	0,096	0,068	0,043	0,107	0,075	0,048	0,122	0,086	0,054	0,136	0,096	0,061	0,150	0,106	0,067	0,163	0,115	0,073	0,188	0,133	0,084
P.2.2	200	1,0	0,087	0,062	0,039	0,097	0,069	0,043	0,111	0,078	0,050	0,124	0,088	0,055	0,136	0,096	0,061	0,148	0,105	0,066	0,171	0,121	0,076
P.2.3	180	1,0	0,079	0,056	0,035	0,087	0,062	0,039	0,100	0,070	0,045	0,111	0,079	0,050	0,123	0,087	0,055	0,134	0,094	0,060	0,153	0,109	0,069
P.2.4	140	1,0	0,073	0,051	0,033	0,081	0,057	0,036	0,092	0,065	0,041	0,103	0,073	0,046	0,114	0,080	0,051	0,124	0,087	0,055	0,142	0,100	0,064
P.3.1	130	1,0	0,084	0,060	0,038	0,094	0,066	0,042	0,107	0,076	0,048	0,120	0,085	0,054	0,132	0,093	0,059	0,143	0,101	0,064	0,165	0,117	0,074
P.3.2	120	1,0	0,080	0,057	0,036	0,089	0,063	0,040	0,101	0,072	0,045	0,114	0,080	0,051	0,125	0,088	0,056	0,136	0,096	0,061	0,156	0,111	0,070
P.3.3	110	1,0	0,076	0,053	0,034	0,084	0,059	0,038	0,096	0,068	0,043	0,107	0,076	0,048	0,118	0,084	0,053	0,129	0,091	0,058	0,148	0,104	0,066
P.4.1	90	1,0	0,058	0,041	0,026	0,065	0,046	0,029	0,074	0,052	0,033	0,083	0,058	0,037	0,091	0,064	0,041	0,099	0,070	0,044	0,114	0,080	0,051
P.4.2	90	1,0	0,058	0,041	0,026	0,065	0,046	0,029	0,074	0,052	0,033	0,083	0,058	0,037	0,091	0,064	0,041	0,099	0,070	0,044	0,114	0,080	0,051
M.1.1	60	1,0	0,051	0,036	0,023	0,057	0,040	0,025	0,065	0,046	0,029	0,072	0,051	0,032	0,080	0,056	0,036	0,087	0,061	0,039	0,099	0,070	0,044
M.2.1	55	1,0	0,042	0,030	0,019	0,047	0,033	0,021	0,054	0,038	0,024	0,060	0,042	0,027	0,066	0,047	0,029	0,072	0,051	0,032	0,082	0,058	0,037
M.3.1	60	1,0	0,044	0,031	0,020	0,048	0,034	0,022	0,055	0,039	0,025	0,062	0,044	0,028	0,068	0,048	0,031	0,074	0,052	0,033	0,085	0,060	0,038
K.1.1	240	1,0	0,145	0,103	0,065	0,162	0,114	0,072	0,185	0,130	0,083	0,206	0,146	0,092	0,227	0,161	0,102	0,247	0,175	0,111	0,284	0,201	0,127
K.1.2	180	1,0	0,102	0,072	0,046	0,113	0,080	0,051	0,129	0,091	0,058	0,145	0,102	0,065	0,159	0,113	0,071	0,173	0,122	0,077	0,199	0,141	0,089
K.2.1	220	1,0	0,124	0,087	0,055	0,137	0,097	0,061	0,157	0,111	0,070	0,175	0,124	0,078	0,193	0,137	0,086	0,210	0,149	0,094	0,242	0,171	0,108
K.2.2	180	1,0	0,102	0,072	0,046	0,113	0,080	0,051	0,129	0,091	0,058	0,145	0,102	0,065	0,159	0,113	0,071	0,173	0,122	0,077	0,199	0,141	0,089
K.3.1	160	1,0	0,102	0,072	0,046	0,113	0,080	0,051	0,129	0,091	0,058	0,145	0,102	0,065	0,159	0,113	0,071	0,173	0,122	0,077	0,199	0,141	0,089
K.3.2	150	1,0	0,087	0,062	0,039	0,097	0,069	0,043	0,111	0,078	0,050	0,124	0,088	0,055	0,136	0,096	0,061	0,148	0,105	0,066	0,171	0,121	0,076
N.1.1																							
N.1.2																							
N.2.1																							
N.2.2																							
N.2.3																							
N.3.1																							
N.3.2																							
N.3.3																							
N.4.1																							
S.1.1																							
S.1.2																							
S.2.1																							
S.2.2																							
S.2.3																							
S.3.1																							
S.3.2																							
S.3.3																							
H.1.1																							
H.1.2																							
H.1.3																							
H.1.4																							
H.2.1																							
H.3.1																							
O.1.1																							
O.1.2																							
O.2.1																							
O.2.2																							
O.3.1																							

With an a_p of 1.5 x DC the f_z should be multiplied by 0.75.

52 613 ... / 52 614 ... / 52 615 ... / 52 619 ...

Index	Ø DC = 13,7–14,0 mm			Ø DC = 15,5–16,0 mm			Ø DC = 17,5–20,0 mm			Ramping	Helical milling			Drilling	● 1st choice ○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	1,0 x DC		Hole diameter		1,0 x DC			
	f_z mm			f_z mm			f_z mm			Max. plunging angle	$\alpha_{R\,max.}$*	$D_{min.}$ DC x 1,5	$D_{max.}$ DC x 1,8	f_z Factor	Emulsion	Compressed air	MMS
P.1.1	0,209	0,148	0,094	0,229	0,162	0,102	0,262	0,185	0,117	45	0,75 x DC	25°	16°	0,9	○	●	○
P.1.2	0,200	0,141	0,089	0,219	0,155	0,098	0,250	0,177	0,112	45	0,75 x DC	25°	16°	0,9	○	●	○
P.1.3	0,190	0,135	0,085	0,208	0,147	0,093	0,238	0,168	0,107	45	0,75 x DC	25°	16°	0,9	○	●	○
P.1.4	0,181	0,128	0,081	0,198	0,140	0,088	0,226	0,160	0,101	45	0,75 x DC	25°	16°	0,9	○	●	○
P.1.5	0,171	0,121	0,077	0,187	0,133	0,084	0,214	0,152	0,096	45	0,75 x DC	25°	16°	0,9	○	●	○
P.2.1	0,209	0,148	0,094	0,229	0,162	0,102	0,262	0,185	0,117	45	0,75 x DC	25°	16°	0,8	○	●	○
P.2.2	0,190	0,135	0,085	0,208	0,147	0,093	0,238	0,168	0,107	45	0,75 x DC	25°	16°	0,8	○	●	○
P.2.3	0,171	0,121	0,077	0,187	0,133	0,084	0,214	0,152	0,096	45	0,75 x DC	25°	16°	0,8	○	●	○
P.2.4	0,159	0,112	0,071	0,174	0,123	0,078	0,198	0,140	0,089	45	0,75 x DC	25°	16°	0,7	○	●	○
P.3.1	0,184	0,130	0,082	0,201	0,142	0,090	0,230	0,163	0,103	30	0,5 x DC	18°	11°	0,8	●		○
P.3.2	0,175	0,123	0,078	0,191	0,135	0,085	0,218	0,154	0,098	30	0,5 x DC	18°	11°	0,7	●		○
P.3.3	0,165	0,117	0,074	0,181	0,128	0,081	0,206	0,146	0,092	30	0,5 x DC	18°	11°	0,7	●		○
P.4.1	0,127	0,090	0,057	0,139	0,098	0,062	0,159	0,112	0,071	15	0,5 x DC	18°	11°		●		○
P.4.2	0,127	0,090	0,057	0,139	0,098	0,062	0,159	0,112	0,071	15	0,5 x DC	18°	11°		●		○
M.1.1	0,111	0,079	0,050	0,122	0,086	0,054	0,139	0,098	0,062	15	0,5 x DC	18°	11°		●		
M.2.1	0,092	0,065	0,041	0,101	0,071	0,045	0,115	0,081	0,051	15	0,5 x DC	18°	11°		●		
M.3.1	0,095	0,067	0,043	0,104	0,074	0,047	0,119	0,084	0,053	15	0,5 x DC	18°	11°		●		
K.1.1	0,317	0,224	0,142	0,347	0,245	0,155	0,397	0,281	0,178	45	0,75 x DC	25°	16°	0,8		●	
K.1.2	0,222	0,157	0,099	0,243	0,172	0,109	0,278	0,196	0,124	45	0,75 x DC	25°	16°	0,8		●	
K.2.1	0,270	0,191	0,121	0,295	0,209	0,132	0,337	0,239	0,151	45	0,75 x DC	25°	16°	0,8		●	
K.2.2	0,222	0,157	0,099	0,243	0,172	0,109	0,278	0,196	0,124	45	0,75 x DC	25°	16°	0,8		●	
K.3.1	0,222	0,157	0,099	0,243	0,172	0,109	0,278	0,196	0,124	45	0,75 x DC	25°	16°	0,8		●	
K.3.2	0,190	0,135	0,085	0,208	0,147	0,093	0,238	0,168	0,107	45	0,75 x DC	25°	16°	0,8		●	
N.1.1																	
N.1.2																	
N.2.1																	
N.2.2																	
N.2.3																	
N.3.1																	
N.3.2																	
N.3.3																	
N.4.1																	
S.1.1																	
S.1.2																	
S.2.1																	
S.2.2																	
S.2.3																	
S.3.1																	
S.3.2																	
S.3.3																	
H.1.1																	
H.1.2																	
H.1.3																	
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1																	
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

14

* Width of cut per helical revolution

Cutting data for ramping and helical milling = 100 %
Multiply cutting data for drilling by the factor from the table

Cutting data standard values – MonsterMill – PCR – End mill, UNI version – trochoidal milling

			52 619 ...																			
	Type long	max. angle of engagement	Ø DC = 5 mm				Ø DC = 6 mm				Ø DC = 8 mm				Ø DC = 10 mm				Ø DC = 12 mm			
			a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m
Index	v_c m/min		f_z mm				f_z mm				f_z mm				f_z mm				f_z mm			
P.1.1	505	46°	0,09	0,07	0,05	0,021	0,11	0,08	0,06	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,038	0,19	0,14	0,11	0,043
P.1.2	480	46°	0,09	0,06	0,05	0,020	0,11	0,07	0,06	0,024	0,13	0,10	0,08	0,030	0,16	0,11	0,09	0,036	0,19	0,13	0,11	0,041
P.1.3	460	46°	0,09	0,06	0,05	0,019	0,10	0,07	0,06	0,022	0,13	0,09	0,07	0,029	0,15	0,11	0,09	0,034	0,18	0,12	0,10	0,039
P.1.4	435	46°	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,021	0,12	0,09	0,07	0,027	0,15	0,10	0,08	0,033	0,17	0,12	0,10	0,038
P.1.5	415	46°	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,020	0,12	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,036
P.2.1	460	46°	0,09	0,07	0,05	0,021	0,11	0,08	0,06	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,038	0,19	0,14	0,11	0,043
P.2.2	415	46°	0,09	0,06	0,05	0,019	0,10	0,07	0,06	0,022	0,13	0,09	0,07	0,029	0,15	0,11	0,09	0,034	0,18	0,12	0,10	0,039
P.2.3	375	46°	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,020	0,12	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,036
P.2.4	290	46°	0,07	0,05	0,04	0,016	0,08	0,06	0,05	0,019	0,11	0,08	0,06	0,024	0,13	0,09	0,07	0,029	0,15	0,10	0,08	0,033
P.3.1	270	46°	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,022	0,12	0,09	0,07	0,028	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,038
P.3.2	250	46°	0,08	0,06	0,05	0,018	0,09	0,07	0,05	0,021	0,12	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,036
P.3.3	230	46°	0,07	0,05	0,04	0,017	0,09	0,06	0,05	0,019	0,11	0,08	0,06	0,025	0,13	0,09	0,08	0,030	0,15	0,11	0,09	0,034
P.4.1	190	46°	0,06	0,04	0,03	0,013	0,07	0,05	0,04	0,015	0,09	0,06	0,05	0,019	0,10	0,07	0,06	0,023	0,12	0,08	0,07	0,026
P.4.2	190	46°	0,06	0,04	0,03	0,013	0,07	0,05	0,04	0,015	0,09	0,06	0,05	0,019	0,10	0,07	0,06	0,023	0,12	0,08	0,07	0,026
M.1.1	220	35°	0,05	0,03		0,011	0,06	0,04		0,013	0,08	0,05		0,018	0,10	0,06		0,022	0,12	0,07		0,027
M.2.1	200	35°	0,06	0,04		0,013	0,07	0,05		0,016	0,10	0,06		0,021	0,12	0,08		0,027	0,14	0,10		0,032
M.3.1	200	35°	0,06	0,04		0,013	0,07	0,05		0,016	0,10	0,06		0,021	0,12	0,08		0,027	0,14	0,10		0,032
K.1.1	500	46°	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,037	0,21	0,15	0,12	0,048	0,26	0,18	0,15	0,057	0,29	0,21	0,17	0,066
K.1.2	375	46°	0,10	0,07	0,06	0,022	0,12	0,08	0,07	0,026	0,15	0,11	0,09	0,033	0,18	0,13	0,10	0,040	0,21	0,15	0,12	0,046
K.2.1	460	46°	0,12	0,09	0,07	0,027	0,14	0,10	0,08	0,032	0,18	0,13	0,10	0,041	0,22	0,15	0,13	0,049	0,25	0,18	0,14	0,056
K.2.2	375	46°	0,10	0,07	0,06	0,022	0,12	0,08	0,07	0,026	0,15	0,11	0,09	0,033	0,18	0,13	0,10	0,040	0,21	0,15	0,12	0,046
K.3.1	335	46°	0,10	0,07	0,06	0,022	0,12	0,08	0,07	0,026	0,15	0,11	0,09	0,033	0,18	0,13	0,10	0,040	0,21	0,15	0,12	0,046
K.3.2	315	46°	0,09	0,06	0,05	0,019	0,10	0,07	0,06	0,022	0,13	0,09	0,07	0,029	0,15	0,11	0,09	0,034	0,18	0,12	0,10	0,039
N.1.1																						
N.1.2																						
N.2.1																						
N.2.2																						
N.2.3																						
N.3.1																						
N.3.2																						
N.3.3																						
N.4.1																						
S.1.1																						
S.1.2																						
S.2.1																						
S.2.2																						
S.2.3																						
S.3.1																						
S.3.2																						
S.3.3																						
H.1.1																						
H.1.2																						
H.1.3																						
H.1.4																						
H.2.1																						
H.3.1																						
O.1.1																						
O.1.2																						
O.2.1																						
O.2.2																						
O.3.1																						

Cutting depth corresponding to the cutting length

52 619 ...

● 1st choice
○ suitable

Index	Ø DC = 14 mm				Ø DC = 16 mm				Ø DC = 18 mm				Ø DC = 20 mm				Emulsion	Compressed air	MMS
	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m			
	f_z mm				f_z mm				f_z mm				f_z mm						
P.1.1	0,22	0,15	0,13	0,049	0,24	0,17	0,14	0,053	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,061	○	●	○
P.1.2	0,21	0,15	0,12	0,046	0,23	0,16	0,13	0,051	0,24	0,17	0,14	0,054	0,26	0,18	0,15	0,058	○	●	○
P.1.3	0,20	0,14	0,11	0,044	0,22	0,15	0,12	0,048	0,23	0,16	0,13	0,052	0,25	0,17	0,14	0,055	○	●	○
P.1.4	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,046	0,22	0,16	0,13	0,049	0,23	0,17	0,14	0,052	○	●	○
P.1.5	0,18	0,13	0,10	0,040	0,19	0,14	0,11	0,043	0,21	0,15	0,12	0,047	0,22	0,16	0,13	0,050	○	●	○
P.2.1	0,22	0,15	0,13	0,049	0,24	0,17	0,14	0,053	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,061	○	●	○
P.2.2	0,20	0,14	0,11	0,044	0,22	0,15	0,12	0,048	0,23	0,16	0,13	0,052	0,25	0,17	0,14	0,055	○	●	○
P.2.3	0,18	0,13	0,10	0,040	0,19	0,14	0,11	0,043	0,21	0,15	0,12	0,047	0,22	0,16	0,13	0,050	○	●	○
P.2.4	0,16	0,12	0,09	0,037	0,18	0,13	0,10	0,040	0,19	0,14	0,11	0,043	0,21	0,15	0,12	0,046	○	●	○
P.3.1	0,19	0,13	0,11	0,043	0,21	0,15	0,12	0,047	0,22	0,16	0,13	0,050	0,24	0,17	0,14	0,053	●		○
P.3.2	0,18	0,13	0,10	0,040	0,20	0,14	0,11	0,044	0,21	0,15	0,12	0,048	0,23	0,16	0,13	0,051	●		○
P.3.3	0,17	0,12	0,10	0,038	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,048	●		○
P.4.1	0,13	0,09	0,08	0,029	0,14	0,10	0,08	0,032	0,15	0,11	0,09	0,035	0,16	0,12	0,09	0,037	●		○
P.4.2	0,13	0,09	0,08	0,029	0,14	0,10	0,08	0,032	0,15	0,11	0,09	0,035	0,16	0,12	0,09	0,037	●		○
M.1.1	0,14	0,08		0,031	0,16	0,10		0,036	0,18	0,11		0,040	0,20	0,12		0,045	●		
M.2.1	0,17	0,11		0,038	0,19	0,13		0,043	0,22	0,14		0,048	0,24	0,16		0,054	●		
M.3.1	0,17	0,11		0,038	0,19	0,13		0,043	0,22	0,14		0,048	0,24	0,16		0,054	●		
K.1.1	0,33	0,23	0,19	0,073	0,36	0,25	0,21	0,080	0,39	0,27	0,22	0,086	0,41	0,29	0,24	0,092		●	
K.1.2	0,23	0,16	0,13	0,051	0,25	0,18	0,15	0,056	0,27	0,19	0,16	0,061	0,29	0,20	0,17	0,064		●	
K.2.1	0,28	0,20	0,16	0,062	0,31	0,22	0,18	0,068	0,33	0,23	0,19	0,074	0,35	0,25	0,20	0,078		●	
K.2.2	0,23	0,16	0,13	0,051	0,25	0,18	0,15	0,056	0,27	0,19	0,16	0,061	0,29	0,20	0,17	0,064		●	
K.3.1	0,23	0,16	0,13	0,051	0,25	0,18	0,15	0,056	0,27	0,19	0,16	0,061	0,29	0,20	0,17	0,064		●	
K.3.2	0,20	0,14	0,11	0,044	0,22	0,15	0,12	0,048	0,23	0,16	0,13	0,052	0,25	0,17	0,14	0,055		●	
N.1.1																			
N.1.2																			
N.2.1																			
N.2.2																			
N.2.3																			
N.3.1																			
N.3.2																			
N.3.3																			
N.4.1																			
S.1.1																			
S.1.2																			
S.2.1																			
S.2.2																			
S.2.3																			
S.3.1																			
S.3.2																			
S.3.3																			
H.1.1																			
H.1.2																			
H.1.3																			
H.1.4																			
H.2.1																			
H.3.1																			
O.1.1																			
O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

14

Cutting data standard values – MonsterMill – PCR – End mill, AL version

			52 616 ... / 52 617 ... / 52 618 ...																				
			Ø DC = 5,0 mm			Ø DC = 5,7–7,0 mm			Ø DC = 7,7–8,0 mm			Ø DC = 8,7–10,0 mm			Ø DC =11,7–12,0 mm			Ø DC = 13,7–14,0 mm			Ø DC = 15,5–16,0 mm		
	Type long / extra long		a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1																							
P.1.2																							
P.1.3																							
P.1.4																							
P.1.5																							
P.2.1																							
P.2.2																							
P.2.3																							
P.2.4																							
P.3.1																							
P.3.2																							
P.3.3																							
P.4.1																							
P.4.2																							
M.1.1																							
M.2.1																							
M.3.1																							
K.1.1																							
K.1.2																							
K.2.1																							
K.2.2																							
K.3.1																							
K.3.2																							
N.1.1	630	1,0	0,111	0,078	0,050	0,149	0,105	0,067	0,167	0,118	0,075	0,200	0,141	0,089	0,229	0,162	0,103	0,256	0,181	0,115	0,280	0,198	0,125
N.1.2	575	1,0	0,101	0,071	0,045	0,135	0,096	0,061	0,151	0,107	0,068	0,181	0,128	0,081	0,208	0,147	0,093	0,233	0,165	0,104	0,255	0,180	0,114
N.2.1	380	1,0	0,106	0,075	0,047	0,142	0,101	0,064	0,159	0,112	0,071	0,190	0,135	0,085	0,219	0,155	0,098	0,244	0,173	0,109	0,267	0,189	0,120
N.2.2	305	1,0	0,111	0,078	0,050	0,149	0,105	0,067	0,167	0,118	0,075	0,200	0,141	0,089	0,229	0,162	0,103	0,256	0,181	0,115	0,280	0,198	0,125
N.2.3	220	1,0	0,121	0,086	0,054	0,162	0,115	0,073	0,182	0,129	0,081	0,218	0,154	0,097	0,250	0,177	0,112	0,279	0,198	0,125	0,306	0,216	0,137
N.3.1	275	1,0	0,050	0,036	0,023	0,068	0,048	0,030	0,076	0,054	0,034	0,091	0,064	0,041	0,104	0,074	0,047	0,116	0,082	0,052	0,127	0,090	0,057
N.3.2	165	1,0	0,081	0,057	0,036	0,108	0,077	0,048	0,121	0,086	0,054	0,145	0,103	0,065	0,167	0,118	0,075	0,186	0,132	0,083	0,204	0,144	0,091
N.3.3	220	1,0	0,081	0,057	0,036	0,108	0,077	0,048	0,121	0,086	0,054	0,145	0,103	0,065	0,167	0,118	0,075	0,186	0,132	0,083	0,204	0,144	0,091
N.4.1																							
S.1.1																							
S.1.2																							
S.2.1																							
S.2.2																							
S.2.3																							
S.3.1																							
S.3.2																							
S.3.3																							
H.1.1																							
H.1.2																							
H.1.3																							
H.1.4																							
H.2.1																							
H.3.1																							
O.1.1																							
O.1.2																							
O.2.1																							
O.2.2																							
O.3.1																							

With an a_p of 1.5 x DC the f_z should be multiplied by 0.75.

52 616 ... / 52 617 ... / 52 618 ...

● 1st choice
○ suitable

Index	Ø DC = 17,5–18,0 mm a_e 0,1–0,2 x DC f_z mm	Ø DC = 17,5–18,0 mm a_e 0,3–0,4 x DC f_z mm	Ø DC = 17,5–18,0 mm a_e 0,6–1,0 x DC f_z mm	Ø DC = 19,5–20,0 mm a_e 0,1–0,2 x DC f_z mm	Ø DC = 19,5–20,0 mm a_e 0,3–0,4 x DC f_z mm	Ø DC = 19,5–20,0 mm a_e 0,6–1,0 x DC f_z mm	Ramping 1,0 x DC Max. plunging angle	Helical milling $\alpha_{R\,max.}$*	Helical milling Hole diameter $D_{min.}$ DC x 1,5	Helical milling Hole diameter $D_{max.}$ DC x 1,8	Drilling 1,0 x DC f_z Factor	Emulsion	Compressed air	MMS
P.1.1														
P.1.2														
P.1.3														
P.1.4														
P.1.5														
P.2.1														
P.2.2														
P.2.3														
P.2.4														
P.3.1														
P.3.2														
P.3.3														
P.4.1														
P.4.2														
M.1.1														
M.2.1														
M.3.1														
K.1.1														
K.1.2														
K.2.1														
K.2.2														
K.3.1														
K.3.2														
N.1.1	0,301	0,213	0,135	0,320	0,226	0,143	45°	0,75 x DC	25°	16°	0,8	●		
N.1.2	0,274	0,194	0,123	0,291	0,206	0,130	45°	0,75 x DC	25°	16°	0,8	●		
N.2.1	0,288	0,203	0,129	0,306	0,216	0,137	45°	0,75 x DC	25°	16°	0,8	●		
N.2.2	0,301	0,213	0,135	0,320	0,226	0,143	45°	0,75 x DC	25°	16°	0,8	●		
N.2.3	0,329	0,233	0,147	0,349	0,247	0,156	45°	0,75 x DC	25°	16°	0,8	●		
N.3.1	0,137	0,097	0,061	0,146	0,103	0,065	45°	0,75 x DC	25°	16°	0,8	●		
N.3.2	0,219	0,155	0,098	0,233	0,165	0,104	45°	0,75 x DC	25°	16°	0,8	●		
N.3.3	0,219	0,155	0,098	0,233	0,165	0,104	45°	0,75 x DC	25°	16°	0,8	●		
N.4.1														
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1														
S.3.2														
S.3.3														
H.1.1														
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1														
O.1.1														
O.1.2														
O.2.1														
O.2.2														
O.3.1														

14

* Width of cut per helical revolution

Cutting data for ramping and helical milling = 100 %
Multiply cutting data for drilling by the factor from the table

Cutting data standard values – MonsterMill – PCR – End mill, AL version – trochoidal milling

			52 618 ...																			
	long	max. angle of engagement	Ø DC = 5 mm				Ø DC = 6 mm				Ø DC = 8 mm				Ø DC = 10 mm				Ø DC = 12 mm			
			a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m
Index	v_c m/min		f_z mm				f_z mm				f_z mm				f_z mm				f_z mm			
P.1.1																						
P.1.2																						
P.1.3																						
P.1.4																						
P.1.5																						
P.2.1																						
P.2.2																						
P.2.3																						
P.2.4																						
P.3.1																						
P.3.2																						
P.3.3																						
P.4.1																						
P.4.2																						
M.1.1																						
M.2.1																						
M.3.1																						
K.1.1																						
K.1.2																						
K.2.1																						
K.2.2																						
K.3.1																						
K.3.2																						
N.1.1	800	66°	0,09	0,07	0,05	0,021	0,11	0,08	0,06	0,024	0,14	0,10	0,08	0,031	0,17	0,12	0,10	0,037	0,19	0,13	0,11	0,043
N.1.2	725	66°	0,08	0,06	0,05	0,019	0,10	0,07	0,06	0,022	0,13	0,09	0,07	0,028	0,15	0,11	0,09	0,034	0,17	0,12	0,10	0,039
N.2.1	485	66°	0,09	0,06	0,05	0,020	0,10	0,07	0,06	0,023	0,13	0,09	0,08	0,030	0,16	0,11	0,09	0,035	0,18	0,13	0,11	0,041
N.2.2	385	66°	0,09	0,07	0,05	0,021	0,11	0,08	0,06	0,024	0,14	0,10	0,08	0,031	0,17	0,12	0,10	0,037	0,19	0,13	0,11	0,043
N.2.3	280	66°	0,10	0,07	0,06	0,023	0,12	0,08	0,07	0,026	0,15	0,11	0,09	0,034	0,18	0,13	0,10	0,040	0,21	0,15	0,12	0,047
N.3.1	350	66°	0,04	0,03	0,02	0,009	0,05	0,03	0,03	0,011	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,019
N.3.2	210	66°	0,07	0,05	0,04	0,015	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,023	0,12	0,09	0,07	0,027	0,14	0,10	0,08	0,031
N.3.3	280	66°	0,07	0,05	0,04	0,015	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,023	0,12	0,09	0,07	0,027	0,14	0,10	0,08	0,031
N.4.1																						
S.1.1																						
S.1.2																						
S.2.1																						
S.2.2																						
S.2.3																						
S.3.1																						
S.3.2																						
S.3.3																						
H.1.1																						
H.1.2																						
H.1.3																						
H.1.4																						
H.2.1																						
H.3.1																						
O.1.1																						
O.1.2																						
O.2.1																						
O.2.2																						
O.3.1																						

Cutting depth corresponding to the cutting length

	52 618 ...																● 1st choice ○ suitable		
	Ø DC = 14 mm				Ø DC = 16 mm				Ø DC = 18 mm				Ø DC = 20 mm						
Index	a_e 0,1 x DC	a_p 0,2 x DC	a_p 0,3 x DC	h_m	a_e 0,1 x DC	a_p 0,2 x DC	a_p 0,3 x DC	h_m	a_e 0,1 x DC	a_p 0,2 x DC	a_p 0,3 x DC	h_m	a_e 0,1 x DC	a_p 0,2 x DC	a_p 0,3 x DC	h_m	Emulsion	Compressed air	MMS
	f_z mm				f_z mm				f_z mm				f_z mm						
P.1.1																			
P.1.2																			
P.1.3																			
P.1.4																			
P.1.5																			
P.2.1																			
P.2.2																			
P.2.3																			
P.2.4																			
P.3.1																			
P.3.2																			
P.3.3																			
P.4.1																			
P.4.2																			
M.1.1																			
M.2.1																			
M.3.1																			
K.1.1																			
K.1.2																			
K.2.1																			
K.2.2																			
K.3.1																			
K.3.2																			
N.1.1	0,21	0,15	0,12	0,048	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,056	0,27	0,19	0,15	0,060	●		
N.1.2	0,19	0,14	0,11	0,043	0,21	0,15	0,12	0,047	0,23	0,16	0,13	0,051	0,24	0,17	0,14	0,054	●		
N.2.1	0,20	0,14	0,12	0,045	0,22	0,16	0,13	0,050	0,24	0,17	0,14	0,054	0,25	0,18	0,15	0,057	●		
N.2.2	0,21	0,15	0,12	0,048	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,056	0,27	0,19	0,15	0,060	●		
N.2.3	0,23	0,16	0,13	0,052	0,25	0,18	0,15	0,057	0,27	0,19	0,16	0,061	0,29	0,21	0,17	0,065	●		
N.3.1	0,10	0,07	0,06	0,022	0,11	0,07	0,06	0,024	0,11	0,08	0,07	0,025	0,12	0,09	0,07	0,027	●		
N.3.2	0,15	0,11	0,09	0,035	0,17	0,12	0,10	0,038	0,18	0,13	0,11	0,041	0,19	0,14	0,11	0,043	●		
N.3.3	0,15	0,11	0,09	0,035	0,17	0,12	0,10	0,038	0,18	0,13	0,11	0,041	0,19	0,14	0,11	0,043	●		
N.4.1																			
S.1.1																			
S.1.2																			
S.2.1																			
S.2.2																			
S.2.3																			
S.3.1																			
S.3.2																			
S.3.3																			
H.1.1																			
H.1.2																			
H.1.3																			
H.1.4																			
H.2.1																			
H.3.1																			
O.1.1																			
O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

Cutting data standard values – MonsterMill – MCR – End mill, short – long

			52 752 ...									52 752 ...								
			Ø DC = 1 mm			Ø DC = 2 mm						Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm		
		Type short	a_e 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	Type short	Type long	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			$a_{p\,max.}$ x DC		f_z mm			f_z mm			f_z mm		
P.1.1	160	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.1.2	140	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.1.3	120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.1.4	120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.1.5	100	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.2.1	140	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.2.2	120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.2.3	100	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.2.4	80	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.3.1	80	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.3.2	80	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.3.3	80	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.4.1	60	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,030	0,022	0,014	0,038	0,028	0,018	0,049	0,036	0,023
P.4.2	60	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,030	0,022	0,014	0,038	0,028	0,018	0,049	0,036	0,023
M.1.1	60	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,030	0,022	0,014	0,038	0,028	0,018	0,049	0,036	0,023
M.2.1																			
M.3.1	60	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,030	0,022	0,014	0,038	0,028	0,018	0,049	0,036	0,023
K.1.1	160	0,5	0,012	0,010	0,006	0,023	0,019	0,012	1,0	1,0*	0,045	0,033	0,021	0,060	0,044	0,028	0,075	0,055	0,035
K.1.2	160	0,5	0,012	0,010	0,006	0,023	0,019	0,012	1,0	1,0*	0,045	0,033	0,021	0,060	0,044	0,028	0,075	0,055	0,035
K.2.1	140	0,5	0,012	0,010	0,006	0,023	0,019	0,012	1,0	1,0*	0,045	0,033	0,021	0,060	0,044	0,028	0,075	0,055	0,035
K.2.2	140	0,5	0,012	0,010	0,006	0,023	0,019	0,012	1,0	1,0*	0,045	0,033	0,021	0,060	0,044	0,028	0,075	0,055	0,035
K.3.1	100	0,5	0,010	0,008	0,005	0,019	0,016	0,010	1,0	1,0*	0,038	0,028	0,018	0,051	0,038	0,024	0,064	0,047	0,030
K.3.2	100	0,5	0,010	0,008	0,005	0,019	0,016	0,010	1,0	1,0*	0,038	0,028	0,018	0,051	0,038	0,024	0,064	0,047	0,030
N.1.1																			
N.1.2																			
N.2.1																			
N.2.2																			
N.2.3																			
N.3.1	140	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
N.3.2	140	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
N.3.3	140	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
N.4.1																			
S.1.1																			
S.1.2																			
S.2.1																			
S.2.2																			
S.2.3																			
S.3.1	60	0,25	0,008	0,007	0,004	0,015	0,013	0,008	0,5	0,5	0,026	0,019	0,012	0,034	0,025	0,016	0,043	0,032	0,020
S.3.2	60	0,25	0,008	0,007	0,004	0,015	0,013	0,008	0,5	0,5	0,026	0,019	0,012	0,034	0,025	0,016	0,043	0,032	0,020
S.3.3	60	0,25	0,008	0,007	0,004	0,015	0,013	0,008	0,5	0,5	0,026	0,019	0,012	0,034	0,025	0,016	0,043	0,032	0,020
H.1.1																			
H.1.2																			
H.1.3																			
H.1.4																			
H.2.1	80	0,25	0,008	0,007	0,004	0,015	0,013	0,008	0,5	0,5	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
H.3.1																			
O.1.1																			
O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

* = with an a_p of 1.5 x d_1 the f_z should be multiplied by 0.8

Plunging angle for ramping and helical milling: Diameter 3–5 = 3° / Diameter 6–9 = 5° / Diameter 10–20 = 8°

52 752 ...

● 1st choice
○ suitable

Ø DC = 6 mm			Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16 mm			Ø DC = 20 mm			Emulsion	Compressed air	MMS
a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC			
f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
0,058	0,043	0,027	0,08	0,06	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,11	0,09	0,06	0,12	0,10	0,07	0,14	0,12	0,09	●		
0,058	0,043	0,027	0,08	0,06	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,11	0,09	0,06	0,12	0,10	0,07	0,14	0,12	0,09	●		
0,058	0,043	0,027	0,08	0,06	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,11	0,09	0,06	0,12	0,10	0,07	0,14	0,12	0,09	●		
0,090	0,066	0,042	0,12	0,09	0,06	0,15	0,11	0,07	0,16	0,13	0,08	0,18	0,14	0,10	0,19	0,16	0,11	0,22	0,18	0,14		●	
0,090	0,066	0,042	0,12	0,09	0,06	0,15	0,11	0,07	0,16	0,13	0,08	0,18	0,14	0,10	0,19	0,16	0,11	0,22	0,18	0,14		●	
0,090	0,066	0,042	0,12	0,09	0,06	0,15	0,11	0,07	0,16	0,13	0,08	0,18	0,14	0,10	0,19	0,16	0,11	0,22	0,18	0,14		●	
0,090	0,066	0,042	0,12	0,09	0,06	0,15	0,11	0,07	0,16	0,13	0,08	0,18	0,14	0,10	0,19	0,16	0,11	0,22	0,18	0,14		●	
0,077	0,057	0,036	0,10	0,08	0,05	0,13	0,10	0,06	0,14	0,11	0,07	0,15	0,12	0,08	0,16	0,14	0,10	0,19	0,16	0,12		●	
0,077	0,057	0,036	0,10	0,08	0,05	0,13	0,10	0,06	0,14	0,11	0,07	0,15	0,12	0,08	0,16	0,14	0,10	0,19	0,16	0,12		●	
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10	●		
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10	●		
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10	●		
0,051	0,038	0,024	0,07	0,05	0,03	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,13	0,10	0,08	●		
0,051	0,038	0,024	0,07	0,05	0,03	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,13	0,10	0,08	●		
0,051	0,038	0,024	0,07	0,05	0,03	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,13	0,10	0,08	●		
0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	

Cutting data standard values – MonsterMill – MCR – End mill, extra long

				52 752 ...															
		Type extra long		Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
				a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max}$ x DC		f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	120	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.1.2	100	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.1.3	80	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.1.4	80	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.1.5	80	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.2.1	100	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.2.2	80	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.2.3	70	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.2.4	70	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.3.1	70	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.3.2	70	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.3.3	70	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.4.1	50	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
P.4.2	50	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
M.1.1	50	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
M.2.1																		
M.3.1	50	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
K.1.1	120	1,0*	0,5	0,034	0,024	0,015	0,045	0,032	0,020	0,056	0,040	0,025	0,067	0,047	0,030	0,09	0,06	0,04
K.1.2	120	1,0*	0,5	0,034	0,024	0,015	0,045	0,032	0,020	0,056	0,040	0,025	0,067	0,047	0,030	0,09	0,06	0,04
K.2.1	120	1,0*	0,5	0,034	0,024	0,015	0,045	0,032	0,020	0,056	0,040	0,025	0,067	0,047	0,030	0,09	0,06	0,04
K.2.2	120	1,0*	0,5	0,034	0,024	0,015	0,045	0,032	0,020	0,056	0,040	0,025	0,067	0,047	0,030	0,09	0,06	0,04
K.3.1	100	1,0*	0,5	0,027	0,019	0,012	0,036	0,025	0,016	0,045	0,032	0,020	0,054	0,038	0,024	0,07	0,05	0,03
K.3.2	100	1,0*	0,5	0,027	0,019	0,012	0,036	0,025	0,016	0,045	0,032	0,020	0,054	0,038	0,024	0,07	0,05	0,03
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	120	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
N.3.2	120	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
N.3.3	120	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
N.4.1																		
S.1.1																		
S.1.2																		
S.2.1																		
S.2.2																		
S.2.3																		
S.3.1	60	0,5*	0,25	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
S.3.2	60	0,5*	0,25	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
S.3.3	60	0,5*	0,25	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1	80	0,5*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

* = Trimming and trochoidal slot milling

Plunging angle for ramping and helical milling: Diameter 3–5 = 3° / Diameter 6–9 = 5° / Diameter 10–20 = 8°

	52 752 ...																	
	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16 mm			Ø DC = 20 mm			● 1st choice		
																○ suitable		
	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			Emulsion	Compressed air	MMS
P.1.1	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.1.2	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.1.3	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.1.4	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.1.5	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.2.1	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.2.2	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.2.3	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.2.4	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.3.1	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.3.2	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.3.3	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.4.1	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
P.4.2	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
M.1.1	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
M.2.1																		
M.3.1	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
K.1.1	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,17	0,14	0,10		●	
K.1.2	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,17	0,14	0,10		●	
K.2.1	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,17	0,14	0,10		●	
K.2.2	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,17	0,14	0,10		●	
K.3.1	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,14	0,11	0,08		●	
K.3.2	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,14	0,11	0,08		●	
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
N.3.2	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
N.3.3	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
N.4.1																		
S.1.1																		
S.1.2																		
S.2.1																		
S.2.2																		
S.2.3																		
S.3.1	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
S.3.2	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
S.3.3	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

14

Cutting data – CircularLine – End Mills – CCR UNI, short – long

			53 585... / 53 587... / 53 586 ... / 53 642 ...															
			Ø DC = 6 mm				Ø DC = 8 mm				Ø DC = 10 mm				Ø DC = 12 mm			
	Type short / long	max. angle of engagement	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC		a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC		a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC		a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	
Index	v_c m/min		f_z mm			h_m	f_z mm			h_m	f_z mm			h_m	f_z mm			h_m
P.1.1	280	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
P.1.2	280	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.1.3	280	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.1.4	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.1.5	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.2.1	280	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
P.2.2	280	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
P.2.3	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.2.4	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.3.1	220	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.3.2	220	45°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.3.3	200	45°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.4.1	180	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
P.4.2	160	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
M.1.1	140	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
M.2.1	140	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
M.3.1	140	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
K.1.1	300	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
K.1.2	300	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
K.2.1	300	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
K.2.2	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
K.3.1	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
K.3.2	200	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1																		
N.3.2																		
N.3.3																		
N.4.1																		
S.1.1	80	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.1.2	80	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.2.1	60	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.2.2	60	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.2.3																		
S.3.1	140	40°	0,06	0,04	0,04	0,014	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,023	0,12	0,09	0,07	0,028
S.3.2	100	40°	0,06	0,04	0,04	0,014	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,023	0,12	0,09	0,07	0,028
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Depth of cut corresponds to the flute length

	53 585... / 53 587... / 53 586 ... / 53 642 ...																		
	Ø DC = 14 mm				Ø DC = 16 mm				Ø DC = 18 mm				Ø DC = 20 mm				● 1st choice ○ suitable		
Index	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	Emulsion	Compressed air	MMS
	f_z mm				f_z mm				f_z mm				f_z mm						
P.1.1	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,060	0,28	0,20	0,16	0,063	0,30	0,21	0,17	0,066	○	●	○
P.1.2	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.1.3	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.1.4	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.1.5	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.2.1	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,060	0,28	0,20	0,16	0,063	0,30	0,21	0,17	0,066	○	●	○
P.2.2	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,060	0,28	0,20	0,16	0,063	0,30	0,21	0,17	0,066	○	●	○
P.2.3	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.2.4	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.3.1	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.3.2	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.3.3	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.4.1	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
P.4.2	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
M.1.1	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
M.2.1	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
M.3.1	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
K.1.1	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,060	0,28	0,20	0,16	0,063	0,30	0,21	0,17	0,066	○	●	○
K.1.2	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,060	0,28	0,20	0,16	0,063	0,30	0,21	0,17	0,066	○	●	○
K.2.1	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,060	0,28	0,20	0,16	0,063	0,30	0,21	0,17	0,066	○	●	○
K.2.2	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
K.3.1	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
K.3.2	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
N.1.1																			
N.1.2																			
N.2.1																			
N.2.2																			
N.2.3																			
N.3.1																			
N.3.2																			
N.3.3																			
N.4.1																			
S.1.1	0,11	0,08	0,06	0,024	0,11	0,08	0,07	0,026	0,12	0,09	0,07	0,027	0,13	0,09	0,08	0,029	●		
S.1.2	0,11	0,08	0,06	0,024	0,11	0,08	0,07	0,026	0,12	0,09	0,07	0,027	0,13	0,09	0,08	0,029	●		
S.2.1	0,11	0,08	0,06	0,024	0,11	0,08	0,07	0,026	0,12	0,09	0,07	0,027	0,13	0,09	0,08	0,029	●		
S.2.2	0,11	0,08	0,06	0,024	0,11	0,08	0,07	0,026	0,12	0,09	0,07	0,027	0,13	0,09	0,08	0,029	●		
S.2.3																			
S.3.1	0,15	0,10	0,08	0,033	0,16	0,11	0,09	0,035	0,17	0,12	0,10	0,037	0,18	0,12	0,10	0,040	●		
S.3.2	0,15	0,10	0,08	0,033	0,16	0,11	0,09	0,035	0,17	0,12	0,10	0,037	0,18	0,12	0,10	0,040	●		
S.3.3																			
H.1.1																			
H.1.2																			
H.1.3																			
H.1.4																			
H.2.1																			
H.3.1																			
O.1.1																			
O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

14

Cutting data standard values – CircularLine – End mill – CCR UNI, extra long 4xDC

			53 589 ... / 53 593 ...															
	Type extra long	max. angle of engagement	Ø DC = 6 mm			Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm		
			a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC	
Index	v_c m/min		f_z mm		h_m	f_z mm		h_m	f_z mm		h_m	f_z mm		h_m	f_z mm		h_m
P.1.1	250	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
P.1.2	250	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.1.3	250	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.1.4	230	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.1.5	230	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.2.1	250	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
P.2.2	250	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
P.2.3	230	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.2.4	230	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.3.1	200	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.3.2	200	45°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.3.3	180	45°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.4.1	150	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
P.4.2	130	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
M.1.1	110	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
M.2.1	110	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
M.3.1	110	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
K.1.1	260	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
K.1.2	260	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
K.2.1	260	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
K.2.2	230	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
K.3.1	230	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
K.3.2	180	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
N.1.1																	
N.1.2																	
N.2.1																	
N.2.2																	
N.2.3																	
N.3.1																	
N.3.2																	
N.3.3																	
N.4.1																	
S.1.1	70	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.1.2	70	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.2.1	50	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.2.2	50	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.2.3																	
S.3.1	120	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.3.2	90	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.3.3																	
H.1.1																	
H.1.2																	
H.1.3																	
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1																	
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

Depth of cut corresponds to the flute length

	53 589 ... / 53 593 ...									● 1st choice		
	Ø DC = 16 mm			Ø DC = 18 mm			Ø DC = 20 mm			○ suitable		
	a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC				
Index	f_z mm		h_m	f_z mm		h_m	f_z mm		h_m	Emulsion	Compressed air	MMS
P.1.1	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
P.1.2	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.1.3	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.1.4	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.1.5	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.2.1	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
P.2.2	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
P.2.3	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.2.4	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.3.1	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.3.2	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.3.3	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.4.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
P.4.2	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
M.1.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
M.2.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
M.3.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
K.1.1	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
K.1.2	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
K.2.1	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
K.2.2	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
K.3.1	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
K.3.2	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.1.2	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.2.1	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.2.2	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.2.3												
S.3.1	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.3.2	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

Cutting data standard values – CircularLine – End mill – CCR UNI, extra long 5xDC

			53 593 ...															
	Type extra long	max. angle of engagement	Ø DC = 6 mm			Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm		
			a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC	
Index	v_c m/min		f_z mm		h_m	f_z mm		h_m	f_z mm		h_m	f_z mm		h_m	f_z mm		h_m
P.1.1	220	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
P.1.2	220	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.1.3	220	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.1.4	210	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.1.5	210	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.2.1	220	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
P.2.2	220	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
P.2.3	210	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.2.4	210	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.3.1	180	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.3.2	180	45°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.3.3	160	45°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.4.1	130	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
P.4.2	110	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
M.1.1	90	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
M.2.1	90	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
M.3.1	90	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
K.1.1	230	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
K.1.2	230	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
K.2.1	230	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
K.2.2	210	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
K.3.1	210	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
K.3.2	170	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
N.1.1																	
N.1.2																	
N.2.1																	
N.2.2																	
N.2.3																	
N.3.1																	
N.3.2																	
N.3.3																	
N.4.1																	
S.1.1	60	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.1.2	60	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.2.1	40	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.2.2	40	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.2.3																	
S.3.1	100	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.3.2	80	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.3.3																	
H.1.1																	
H.1.2																	
H.1.3																	
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1																	
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

Depth of cut corresponds to the flute length

	53 593 ...											
	Ø DC = 16 mm			Ø DC = 18 mm			Ø DC = 20 mm			● 1st choice		
										○ suitable		
	a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC				
Index	f_z mm		h_m	f_z mm		h_m	f_z mm		h_m	Emulsion	Compressed air	MMS
P.1.1	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
P.1.2	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.1.3	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.1.4	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.1.5	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.2.1	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
P.2.2	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
P.2.3	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.2.4	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.3.1	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.3.2	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.3.3	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.4.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
P.4.2	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
M.1.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
M.2.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
M.3.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
K.1.1	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
K.1.2	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
K.2.1	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
K.2.2	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
K.3.1	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
K.3.2	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.1.2	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.2.1	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.2.2	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.2.3												
S.3.1	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.3.2	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

Cutting data – CircularLine – End Mills – CCR AL, long – extra long

	53 590 ... / 53 591 ... / 53 594 ... / 53 595 ...																● 1st choice ○ suitable		
	Type long	Type extra long	max. angle of engagement	Ø DC = 6 mm				Ø DC = 8 mm				Ø DC = 10 mm				Emulsion	Compressed air	MMS
				a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC		a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC		a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC				
Index	v_c m/min			f_z mm			h_m	f_z mm			h_m	f_z mm			h_m			
N.1.1	500	400	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	●		○
N.1.2	500	400	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	●		○
N.2.1	500	400	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	●		○
N.2.2	500	400	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	●		○
N.2.3	400	350	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	●		○
N.3.1	400	350	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	●		○
N.3.2	400	350	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	●		○
N.3.3	300	250	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	●		○
N.4.1																		

	53 590 ... / 53 591 ... / 53 594 ... / 53 595 ...																● 1st choice ○ suitable		
	Type long	Type extra long	max. angle of engagement	Ø DC = 12 mm				Ø DC = 14 mm				Ø DC = 16 mm				Emulsion	Compressed air	MMS
				a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC		a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC		a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC				
Index	v_c m/min			f_z mm			h_m	f_z mm			h_m	f_z mm			h_m			
N.1.1	500	400	60°	0,45	0,31	0,26	0,141	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	●		○
N.1.2	500	400	60°	0,45	0,31	0,26	0,141	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	●		○
N.2.1	500	400	60°	0,45	0,31	0,26	0,141	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	●		○
N.2.2	500	400	60°	0,45	0,31	0,26	0,141	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	●		○
N.2.3	400	350	60°	0,45	0,31	0,26	0,141	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	●		○
N.3.1	400	350	60°	0,45	0,31	0,26	0,141	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	●		○
N.3.2	400	350	60°	0,45	0,31	0,26	0,141	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	●		○
N.3.3	300	250	60°	0,45	0,31	0,26	0,141	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	●		○
N.4.1																		

	53 590 ... / 53 591 ... / 53 594 ... / 53 595 ...										● 1st choice ○ suitable		
	Type long	Type extra long	max. angle of engagement	Ø DC = 18 mm				Ø DC = 20 mm				Emulsion	Compressed air	MMS
				a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC		a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC				
Index	v_c m/min			f_z mm			h_m	f_z mm			h_m			
N.1.1	500	400	60°	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.1.2	500	400	60°	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.2.1	500	400	60°	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.2.2	500	400	60°	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.2.3	400	350	60°	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.3.1	400	350	60°	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.3.2	400	350	60°	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.3.3	300	250	60°	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.4.1														

Depth of cut corresponds to the flute length

Plunging angle for ramping and helical milling: 4°

Cutting data standard values – CircularLine – End mill – CCR H

			53 596 ...												● 1st choice		
	Type long	max. angle of engagement	Ø DC = 6 mm				Ø DC = 8 mm				Ø DC = 10 mm				○ suitable		
			a_e 0,02 x DC	a_e 0,05 x DC	a_e 0,10 x DC		a_e 0,02 x DC	a_e 0,05 x DC	a_e 0,10 x DC		a_e 0,02 x DC	a_e 0,05 x DC	a_e 0,10 x DC				
Index	v_c m/min		f_z mm			h_m	f_z mm			h_m	f_z mm			h_m	Emulsion	Compressed air	MMS
H.1.1	130	30°	0,11	0,07	0,05	0,015	0,13	0,08	0,06	0,019	0,16	0,10	0,07	0,023		●	○
H.1.2	120	30°	0,06	0,04	0,03	0,008	0,07	0,05	0,03	0,010	0,09	0,06	0,04	0,012		●	○
H.1.3	115	30°	0,04	0,03		0,006	0,05	0,03		0,007	0,06	0,04		0,009		●	○
H.1.4	110	30°	0,02			0,003	0,03				0,04			0,006		●	○
H.2.1	130	30°	0,11	0,07	0,05	0,015	0,13	0,08	0,06	0,019	0,16	0,10	0,07	0,023		●	○
H.3.1	130	30°	0,11	0,07	0,05	0,015	0,13	0,08	0,06	0,019	0,16	0,10	0,07	0,023			

			53 596 ...												● 1st choice		
	Type long	max. angle of engagement	Ø DC = 12 mm				Ø DC = 16 mm				Ø DC = 20 mm				○ suitable		
			a_e 0,02 x DC	a_e 0,05 x DC	a_e 0,10 x DC		a_e 0,02 x DC	a_e 0,05 x DC	a_e 0,10 x DC		a_e 0,02 x DC	a_e 0,05 x DC	a_e 0,10 x DC				
Index	v_c m/min		f_z mm			h_m	f_z mm			h_m	f_z mm			h_m	Emulsion	Compressed air	MMS
H.1.1	130	30°	0,19	0,12	0,08	0,027	0,22	0,14	0,10	0,031	0,24	0,15	0,11	0,034		●	○
H.1.2	120	30°	0,10	0,07	0,05	0,015	0,13	0,08		0,018	0,14	0,09		0,020		●	○
H.1.3	115	30°	0,07	0,05		0,010	0,09	0,06		0,012	0,09	0,06		0,013		●	○
H.1.4	110	30°	0,05			0,006	0,06			0,008	0,08			0,011		●	○
H.2.1	130	30°	0,19	0,12	0,08	0,027	0,22	0,14		0,031	0,24	0,15		0,034		●	○
H.3.1	130	30°	0,19	0,12	0,08	0,027	0,22	0,14	0,10	0,031	0,24	0,15	0,11	0,034		●	○

Depth of cut corresponds to the flute length

14

Cutting data standard values – CircularLine – CCR Ti, long

			52 509 ... / 52 510 ...											
			Ø DC = 6 mm				Ø DC = 8 mm				Ø DC = 10 mm			
	Type long	max. angle of engagement	a_e 0,05 x DC	a_e 0,10 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	a_e 0,15 x DC	h_m
Index	v_c m/min		f_z mm	f_z mm	f_z mm		f_z mm	f_z mm	f_z mm		f_z mm	f_z mm	f_z mm	
P.4.1	200	35°	0,080	0,057	0,046	0,022	0,098	0,070	0,057	0,033	0,125	0,089	0,072	0,042
P.4.2	180	35°	0,080	0,057	0,046	0,022	0,098	0,070	0,057	0,033	0,125	0,089	0,072	0,042
M.1.1	200	35°	0,080	0,057	0,046	0,022	0,098	0,070	0,057	0,033	0,125	0,089	0,072	0,042
M.2.1	160	35°	0,080	0,057	0,046	0,022	0,098	0,070	0,057	0,033	0,125	0,089	0,072	0,042
M.3.1	180	35°	0,080	0,057	0,046	0,022	0,098	0,070	0,057	0,033	0,125	0,089	0,072	0,042
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1	**140**	25°	0,060	0,042	0,034	0,020	0,070	0,049	0,040	0,030	0,089	0,063	0,052	0,040
S.3.2	**120**	25°	0,060	0,042	0,034	0,020	0,070	0,049	0,040	0,030	0,089	0,063	0,052	0,040
S.3.3	**100**	25°	0,045	0,032	0,026	0,018	0,052	0,037	0,030	0,028	0,067	0,047	0,039	0,038

Cutting data standard values – CircularLine – CCR Ti, extra-long

			52 509 ... / 52 510 ...											
			Ø DC = 6 mm			Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm		
	Type extra long	max. angle of engagement	a_e 0,05 x DC	a_e 0,10 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	h_m
Index	v_c m/min		f_z mm	f_z mm		f_z mm	f_z mm		f_z mm	f_z mm		f_z mm	f_z mm	
P.4.1	170	35°	0,057	0,046	0,018	0,070	0,057	0,026	0,089	0,072	0,036	0,114	0,093	0,046
P.4.2	150	35°	0,057	0,046	0,018	0,070	0,057	0,026	0,089	0,072	0,036	0,114	0,093	0,046
M.1.1	170	35°	0,057	0,046	0,018	0,070	0,057	0,026	0,089	0,072	0,036	0,114	0,093	0,046
M.2.1	130	35°	0,057	0,046	0,018	0,070	0,057	0,026	0,089	0,072	0,036	0,114	0,093	0,046
M.3.1	150	35°	0,057	0,046	0,018	0,070	0,057	0,026	0,089	0,072	0,036	0,114	0,093	0,046
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1	**120**	25°	0,031	0,022	0,015	0,036	0,025	0,020	0,045	0,032	0,030	0,054	0,038	0,040
S.3.2	**100**	25°	0,031	0,022	0,015	0,036	0,025	0,020	0,045	0,032	0,030	0,054	0,038	0,040
S.3.3	**90**	25°	0,022	0,016	0,013	0,027	0,019	0,015	0,036	0,025	0,025	0,045	0,032	0,035

Depth of cut corresponds to the flute length

	52 509 ... / 52 510 ...														
	Ø DC = 12 mm				Ø DC = 16 mm				Ø DC = 20 mm				● 1st choice		
													○ suitable		
	a_e 0,05 x DC	a_e 0,10 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	a_e 0,15 x DC	h_m			
Index	f_z mm	f_z mm	f_z mm		f_z mm	f_z mm	f_z mm		f_z mm	f_z mm	f_z mm		Emulsion	Compressed air	MMS
P.4.1	0,161	0,114	0,093	0,053	0,188	0,133	0,108	0,064	0,268	0,190	0,155	0,079	●	○	
P.4.2	0,161	0,114	0,093	0,053	0,188	0,133	0,108	0,064	0,268	0,190	0,155	0,079	●	○	
M.1.1	0,161	0,114	0,093	0,053	0,188	0,133	0,108	0,064	0,268	0,190	0,155	0,079	●	○	
M.2.1	0,161	0,114	0,093	0,053	0,188	0,133	0,108	0,064	0,268	0,190	0,155	0,079	●	○	
M.3.1	0,161	0,114	0,093	0,053	0,188	0,133	0,108	0,064	0,268	0,190	0,155	0,079	●	○	
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1	0,113	0,080	0,065	0,050	0,157	0,111	0,090	0,060	0,217	0,153	0,125	0,075	●		
S.3.2	0,113	0,080	0,065	0,050	0,157	0,111	0,090	0,060	0,217	0,153	0,125	0,075	●		
S.3.3	0,085	0,060	0,049	0,048	0,117	0,083	0,068	0,058	0,163	0,115	0,094	0,070	●		

	52 509 ... / 52 510 ...								
	Ø DC = 16 mm			Ø DC = 20 mm			● 1st choice		
							○ suitable		
	a_e 0,05 x DC	a_e 0,10 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	h_m			
Index	f_z mm	f_z mm		f_z mm	f_z mm		Emulsion	Compressed air	MMS
P.4.1	0,133	0,108	0,056	0,190	0,155	0,066	●	○	
P.4.2	0,133	0,108	0,056	0,190	0,155	0,066	●	○	
M.1.1	0,133	0,108	0,056	0,190	0,155	0,066	●	○	
M.2.1	0,133	0,108	0,056	0,190	0,155	0,066	●	○	
M.3.1	0,133	0,108	0,056	0,190	0,155	0,066	●	○	
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1	0,076	0,054	0,050	0,107	0,076	0,060	●		
S.3.2	0,076	0,054	0,050	0,107	0,076	0,060	●		
S.3.3	0,058	0,041	0,045	0,080	0,057	0,055	●		

Cutting data standard values – AluLine – End mills – ZEFP = 2

	53 623... / 53 624... / 53 625... / 53 626... / 53 633... / 53 634... / 53 635... / 53636... / 53619... / 53 620... / 53 621... /																						
	Type short		Medium-length version		Ø DC = 2 mm			Ø DC = 2,5–3,0 mm			Ø DC = 3,5–4,0 mm			Ø DC = 4,5–5,0 mm			Ø DC = 5,5–6,0 mm			Ø DC = 6,5–8,0 mm		
					a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
N.1.1	600	1,0	360	0,7	0,032	0,027	0,021	0,045	0,039	0,030	0,057	0,049	0,038	0,071	0,061	0,047	0,084	0,073	0,056	0,110	0,095	0,073
N.1.2	600	1,0	360	0,7	0,032	0,027	0,021	0,045	0,039	0,030	0,057	0,049	0,038	0,071	0,061	0,047	0,084	0,073	0,056	0,110	0,095	0,073
N.2.1	360	1,0	215	0,7	0,023	0,020	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047	0,095	0,082	0,063
N.2.2	360	1,0	215	0,7	0,023	0,020	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047	0,095	0,082	0,063
N.2.3	240	1,0	145	0,7	0,023	0,020	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047	0,095	0,082	0,063
N.3.1	240	1,0	145	0,7	0,018	0,016	0,012	0,029	0,025	0,019	0,038	0,033	0,025	0,048	0,042	0,032	0,058	0,050	0,039	0,078	0,068	0,052
N.3.2	240	1,0	145	0,7	0,018	0,016	0,012	0,029	0,025	0,019	0,038	0,033	0,025	0,048	0,042	0,032	0,058	0,050	0,039	0,078	0,068	0,052
N.3.3	170	1,0	100	0,7	0,018	0,016	0,012	0,029	0,025	0,019	0,038	0,033	0,025	0,048	0,042	0,032	0,058	0,050	0,039	0,078	0,068	0,052
N.4.1	220	1,0	130	0,7	0,023	0,020	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047	0,095	0,082	0,063

Cutting data standard values – AluLine – End mill – ZEFP = 3

	53 615... / 53 616... / 53 617... / 53 618... / 53 611... / 53 612... / 53 613... / 53 614... / 53 712... / 53 713... / 53 714... / 53 715... / 53 708... / 53 709... / 53 710... / 53 711... / 53 584... / 53 597.../																				
	Type short / medium length		Type long		Type extra long		Ø DC = 2,0 mm			Ø DC = 2,5–3,0 mm			Ø DC = 3,5–4,0 mm			Ø DC = 4,5–5,0 mm			Ø DC =5,5–6,0 mm		
							a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	v_c m/min	$a_{p\,max.}$ x DC	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
N.1.1	600	1,0	480	0,8	240	0,6	0,023	0,020	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047
N.1.2	600	1,0	480	0,8	240	0,6	0,023	0,020	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047
N.2.1	360	1,0	290	0,8	145	0,6	0,023	0,020	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044
N.2.2	360	1,0	290	0,8	145	0,6	0,023	0,020	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044
N.2.3	240	1,0	190	0,8	95	0,6	0,023	0,020	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044
N.3.1	240	1,0	190	0,8	95	0,6	0,015	0,013	0,010	0,024	0,021	0,016	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033
N.3.2	240	1,0	190	0,8	95	0,6	0,015	0,013	0,010	0,024	0,021	0,016	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033
N.3.3	170	1,0	135	0,8	70	0,6	0,015	0,013	0,010	0,024	0,021	0,016	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033
N.4.1	220	1,0	175	0,8	90	0,6	0,023	0,020	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044

Cutting data standard values – AluLine – End mill – ZEFP = 4

	53 700... / 53 701... / 53 702... / 53 703... / 53 704... / 53 705... / 53 706... / 53 707... / 53 560... / 53 561... / 53 562... / 53 563... / 53 564... / 53 565... / 53 566... / 53 567... / 53 568... / 53 569...																				
	Type short / medium length		Type long		Type extra long		Ø DC = 2,0 mm			Ø DC = 3,0 mm			Ø DC = 4,0 mm			Ø DC = 5,0 mm			Ø DC =6,0 mm		
							a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	v_c m/min	$a_{p\,max.}$ x DC	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
N.1.1	600	1,0	480	0,8	240	0,6	0,018	0,016	0,012	0,029	0,025	0,019	0,038	0,033	0,025	0,048	0,042	0,032	0,058	0,050	0,039
N.1.2	600	1,0	480	0,8	240	0,6	0,018	0,016	0,012	0,029	0,025	0,019	0,038	0,033	0,025	0,048	0,042	0,032	0,058	0,050	0,039
N.2.1	360	1,0	290	0,8	145	0,6	0,020	0,017	0,013	0,028	0,024	0,019	0,036	0,031	0,024	0,045	0,039	0,030	0,053	0,046	0,035
N.2.2	480	1,0	385	0,8	145	0,6	0,020	0,017	0,013	0,028	0,024	0,019	0,036	0,031	0,024	0,045	0,039	0,030	0,053	0,046	0,035
N.2.3	240	1,0	190	0,8	95	0,6	0,020	0,017	0,013	0,028	0,024	0,019	0,036	0,031	0,024	0,045	0,039	0,030	0,053	0,046	0,035
N.3.1	240	1,0	190	0,8	95	0,6	0,014	0,012	0,009	0,021	0,018	0,014	0,029	0,025	0,019	0,037	0,032	0,025	0,045	0,039	0,030
N.3.2	240	1,0	190	0,8	95	0,6	0,014	0,012	0,009	0,021	0,018	0,014	0,029	0,025	0,019	0,037	0,032	0,025	0,045	0,039	0,030
N.3.3	170	1,0	135	0,8	70	0,6	0,014	0,012	0,009	0,021	0,018	0,014	0,029	0,025	0,019	0,037	0,032	0,025	0,045	0,039	0,030
N.4.1	220	1,0	175	0,8	90	0,6	0,020	0,017	0,013	0,028	0,024	0,019	0,036	0,031	0,024	0,045	0,039	0,030	0,053	0,046	0,035

53 622... / 53 629... / 53 630... / 53 631... / 53 632... / 52 627... / 53628... / 53637... / 53 638...

	Ø DC = 8,5-10,0 mm			Ø DC = 10,5–12 mm			Ø DC = 12,5–14 mm			Ø DC = 14,5–16 mm			Ø DC = 16,5–18 mm			Ø DC = 18,5–20,0 mm			● 1st choice ○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
N.1.1	0,137	0,118	0,091	0,162	0,140	0,108	0,189	0,164	0,126	0,203	0,176	0,135	0,216	0,187	0,144	0,230	0,199	0,153	●	○*	○
N.1.2	0,137	0,118	0,091	0,162	0,140	0,108	0,189	0,164	0,126	0,203	0,176	0,135	0,216	0,187	0,144	0,230	0,199	0,153	●	○*	○
N.2.1	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,194	0,168	0,129	0,206	0,178	0,137	●	○*	○
N.2.2	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,194	0,168	0,129	0,206	0,178	0,137	●	○*	○
N.2.3	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,194	0,168	0,129	0,206	0,178	0,137	●	○*	○
N.3.1	0,098	0,085	0,065	0,119	0,103	0,079	0,138	0,120	0,092	0,149	0,129	0,099	0,158	0,137	0,105	0,168	0,146	0,112	●	○*	○
N.3.2	0,098	0,085	0,065	0,119	0,103	0,079	0,138	0,120	0,092	0,149	0,129	0,099	0,158	0,137	0,105	0,168	0,146	0,112	●	○*	○
N.3.3	0,098	0,085	0,065	0,119	0,103	0,079	0,138	0,120	0,092	0,149	0,129	0,099	0,158	0,137	0,105	0,168	0,146	0,112	●	○*	○
N.4.1	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,194	0,168	0,129	0,206	0,178	0,137	●	○*	○

53 598... / 53 599... / 53 578... / 53 579... / 53 580.../ 53 581... / 53 517... / 53 518... / 53 519... / 53 520... / 53 521... / 53 522... / 53 523... / 53 524...

	Ø DC = 6,5–8,0 mm			Ø DC = 8,5–10,0 mm			Ø DC = 10,5–12,0 mm			Ø DC = 12,5–14,0 mm			Ø DC = 14,5–16 mm			Ø DC = 16,5–18,0 mm			Ø DC = 18,5–20,0 mm			● 1st choice ○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
N.1.1	0,095	0,082	0,063	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,194	0,168	0,129	0,206	0,178	0,137	●	○*	○
N.1.2	0,095	0,082	0,063	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,194	0,168	0,129	0,206	0,178	0,137	●	○*	○
N.2.1	0,087	0,075	0,058	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,174	0,151	0,116	0,186	0,161	0,124	●	○*	○
N.2.2	0,087	0,075	0,058	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,174	0,151	0,116	0,186	0,161	0,124	●	○*	○
N.2.3	0,087	0,075	0,058	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,174	0,151	0,116	0,186	0,161	0,124	●	○*	○
N.3.1	0,066	0,057	0,044	0,083	0,072	0,055	0,099	0,086	0,066	0,117	0,101	0,078	0,125	0,108	0,083	0,134	0,116	0,089	0,141	0,122	0,094	●	○*	○
N.3.2	0,066	0,057	0,044	0,083	0,072	0,055	0,099	0,086	0,066	0,117	0,101	0,078	0,125	0,108	0,083	0,134	0,116	0,089	0,141	0,122	0,094	●	○*	○
N.3.3	0,066	0,057	0,044	0,083	0,072	0,055	0,099	0,086	0,066	0,117	0,101	0,078	0,125	0,108	0,083	0,134	0,116	0,089	0,141	0,122	0,094	●	○*	○
N.4.1	0,087	0,075	0,058	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,174	0,151	0,116	0,186	0,161	0,124	●	○*	○

53 700... / 53 701... / 53 702... / 53 703... / 53 704... / 53 705... / 53 706... / 53 707... / 53 560... / 53 561... / 53 562... / 53 563... / 53 564... / 53 565... / 53 566... / 53 567... / 53 568... / 53 569...

	Ø DC = 8,0 mm			Ø DC = 10,0 mm			Ø DC = 12,0 mm			Ø DC = 14,0 mm			Ø DC = 16 mm			Ø DC = 18,0 mm			Ø DC = 20,0 mm			1st choice ○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
N.1.1	0,078	0,068	0,052	0,098	0,085	0,065	0,119	0,103	0,079	0,138	0,120	0,092	0,149	0,129	0,099	0,158	0,137	0,105	0,168	0,146	0,112	●	○*	○
N.1.2	0,078	0,068	0,052	0,098	0,085	0,065	0,119	0,103	0,079	0,138	0,120	0,092	0,149	0,129	0,099	0,158	0,137	0,105	0,168	0,146	0,112	●	○*	○
N.2.1	0,071	0,061	0,047	0,087	0,075	0,058	0,105	0,091	0,070	0,122	0,105	0,081	0,130	0,112	0,087	0,138	0,120	0,092	0,147	0,127	0,098	●	○*	○
N.2.2	0,071	0,061	0,047	0,087	0,075	0,058	0,105	0,091	0,070	0,122	0,105	0,081	0,130	0,112	0,087	0,138	0,120	0,092	0,147	0,127	0,098	●	○*	○
N.2.3	0,071	0,061	0,047	0,087	0,075	0,058	0,105	0,091	0,070	0,122	0,105	0,081	0,130	0,112	0,087	0,138	0,120	0,092	0,147	0,127	0,098	●	○*	○
N.3.1	0,060	0,052	0,040	0,075	0,065	0,050	0,090	0,078	0,060	0,105	0,091	0,070	0,113	0,098	0,075	0,120	0,104	0,080	0,128	0,111	0,085	●	○*	○
N.3.2	0,060	0,052	0,040	0,075	0,065	0,050	0,090	0,078	0,060	0,105	0,091	0,070	0,113	0,098	0,075	0,120	0,104	0,080	0,128	0,111	0,085	●	○*	○
N.3.3	0,060	0,052	0,040	0,075	0,065	0,050	0,090	0,078	0,060	0,105	0,091	0,070	0,113	0,098	0,075	0,120	0,104	0,080	0,128	0,111	0,085	●	○*	○
N.4.1	0,071	0,061	0,047	0,087	0,075	0,058	0,105	0,091	0,070	0,122	0,105	0,081	0,130	0,112	0,087	0,138	0,120	0,092	0,147	0,127	0,098	●	○*	○

* = only suitable for DLC-coated cutters

Cutting data standard values – AluLine – Roughing-finishing milling cutter

					53 582 ... / 53 583 ...														
	Type short / long		Medium-length version		Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
					a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
N.1.1	600	1,0	480	0,8	0,114	0,099	0,076	0,131	0,113	0,087	0,147	0,127	0,098	0,162	0,140	0,108	0,195	0,169	0,130
N.1.2	600	1,0	480	0,8	0,114	0,099	0,076	0,131	0,113	0,087	0,147	0,127	0,098	0,162	0,140	0,108	0,195	0,169	0,130
N.2.1	360	1,0	290	0,8	0,082	0,071	0,055	0,098	0,085	0,065	0,113	0,098	0,075	0,129	0,112	0,086	0,162	0,140	0,108
N.2.2	360	1,0	290	0,8	0,082	0,071	0,055	0,098	0,085	0,065	0,113	0,098	0,075	0,129	0,112	0,086	0,162	0,140	0,108
N.2.3	240	1,0	190	0,8	0,082	0,071	0,055	0,098	0,085	0,065	0,113	0,098	0,075	0,129	0,112	0,086	0,162	0,140	0,108
N.3.1	240	1,0	190	0,8	0,049	0,042	0,033	0,065	0,056	0,043	0,081	0,070	0,054	0,098	0,085	0,065	0,129	0,112	0,086
N.3.2	240	1,0	190	0,8	0,049	0,042	0,033	0,065	0,056	0,043	0,081	0,070	0,054	0,098	0,085	0,065	0,129	0,112	0,086
N.3.3	170	1,0	135	0,8	0,049	0,042	0,033	0,065	0,056	0,043	0,081	0,070	0,054	0,098	0,085	0,065	0,129	0,112	0,086
N.4.1	220	1,0	175	0,8	0,082	0,071	0,055	0,098	0,085	0,065	0,113	0,098	0,075	0,129	0,112	0,086	0,162	0,140	0,108

Cutting data – AluLine – Ball Nosed End Mills

							53 607 ... / 53 608 ... / 53 609 ... / 53 610 ...												
	Type short		Type long		Type extra long		Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
							a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	v_c m/min	$a_{p\,max.}$ x DC	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
N.1.1	750	0,03	450	0,02	225	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047	0,095	0,082	0,063
N.1.2	750	0,03	450	0,02	225	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047	0,095	0,082	0,063
N.2.1	600	0,03	360	0,02	180	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044	0,087	0,075	0,058
N.2.2	600	0,03	360	0,02	180	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044	0,087	0,075	0,058
N.2.3	400	0,03	240	0,02	120	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044	0,087	0,075	0,058
N.3.1	180	0,03	110	0,02	55	0,015	0,024	0,021	0,016	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033	0,066	0,057	0,044
N.3.2	180	0,03	110	0,02	55	0,015	0,024	0,021	0,016	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033	0,066	0,057	0,044
N.3.3	230	0,03	140	0,02	70	0,015	0,024	0,021	0,016	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033	0,066	0,057	0,044
N.4.1	350	0,03	210	0,02	105	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044	0,087	0,075	0,058
O.1.1	65	0,03	40	0,03	40	0,03				0,135	0,104	0,075	0,200	0,149	0,100	0,240	0,179	0,120	0,300	0,224	0,150
O.1.2	240	0,03	145	0,03	145	0,03				0,135	0,104	0,075	0,200	0,149	0,100	0,240	0,179	0,120	0,300	0,224	0,150

Cutting data – AluLine – High Accuracy Finishing Cutters

					53 639 ...														
	Type short	Type long	Type extra long		Ø DC = 6 mm			Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm		
					a_e < 0,02 x DC	a_e 0,02–0,04 x DC	a_e 0,05 x DC	a_e < 0,02 x DC	a_e 0,02–0,04 x DC	a_e 0,05 x DC	a_e < 0,02 x DC	a_e 0,02–0,04 x DC	a_e 0,05 x DC	a_e < 0,02 x DC	a_e 0,02–0,04 x DC	a_e 0,05 x DC	a_e < 0,02 x DC	a_e 0,02–0,04 x DC	a_e 0,05 x DC
Index	v_c m/min	v_c m/min	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
N.1.1	500	400	300	2,0	0,036	0,031	0,024	0,047	0,040	0,031	0,056	0,049	0,038	0,067	0,058	0,045	0,083	0,072	0,055
N.1.2	500	400	300	2,0	0,036	0,031	0,024	0,047	0,040	0,031	0,056	0,049	0,038	0,067	0,058	0,045	0,083	0,072	0,055
N.2.1	300	240	180	2,0	0,027	0,023	0,018	0,036	0,031	0,024	0,045	0,039	0,030	0,054	0,047	0,036	0,068	0,059	0,045
N.2.2	300	240	180	2,0	0,027	0,023	0,018	0,036	0,031	0,024	0,045	0,039	0,030	0,054	0,047	0,036	0,068	0,059	0,045
N.2.3	210	170	125	2,0	0,027	0,023	0,018	0,036	0,031	0,024	0,045	0,039	0,030	0,054	0,047	0,036	0,068	0,059	0,045
N.3.1	210	170	125	2,0	0,027	0,023	0,018	0,036	0,031	0,024	0,045	0,039	0,030	0,054	0,047	0,036	0,068	0,059	0,045
N.3.2	210	170	125	2,0	0,027	0,023	0,018	0,036	0,031	0,024	0,045	0,039	0,030	0,054	0,047	0,036	0,068	0,059	0,045
N.3.3	150	120	90	2,0	0,027	0,023	0,018	0,036	0,031	0,024	0,045	0,039	0,030	0,054	0,047	0,036	0,068	0,059	0,045
N.4.1	200	160	120	2,0	0,027	0,023	0,018	0,036	0,031	0,024	0,045	0,039	0,030	0,054	0,047	0,036	0,068	0,059	0,045

53 582 ... / 53 583 ...

● 1st choice
○ suitable

Index	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20 mm			Emulsion	Compressed air	MMS
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
	f_z mm			f_z mm			f_z mm			f_z mm					
N.1.1	0,225	0,195	0,150	0,258	0,224	0,172	0,305	0,264	0,203	0,336	0,291	0,224	●		
N.1.2	0,225	0,195	0,150	0,258	0,224	0,172	0,305	0,264	0,203	0,336	0,291	0,224	●		
N.2.1	0,194	0,168	0,129	0,225	0,195	0,150	0,273	0,237	0,182	0,305	0,264	0,203	●		
N.2.2	0,194	0,168	0,129	0,225	0,195	0,150	0,273	0,237	0,182	0,305	0,264	0,203	●		
N.2.3	0,194	0,168	0,129	0,225	0,195	0,150	0,273	0,237	0,182	0,305	0,264	0,203	●		
N.3.1	0,161	0,139	0,107	0,194	0,168	0,129	0,240	0,208	0,160	0,272	0,235	0,181	●		
N.3.2	0,161	0,139	0,107	0,194	0,168	0,129	0,240	0,208	0,160	0,272	0,235	0,181	●		
N.3.3	0,161	0,139	0,107	0,194	0,168	0,129	0,240	0,208	0,160	0,272	0,235	0,181	●		
N.4.1	0,194	0,168	0,129	0,225	0,195	0,150	0,273	0,237	0,182	0,305	0,264	0,203	●		

53 607 ... / 53 608 ... / 53 609 ... / 53 610 ...

● 1st choice
○ suitable

Index	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16 mm			Ø DC = 20 mm			Emulsion	Compressed air	MMS
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
N.1.1	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,206	0,178	0,137	●		○
N.1.2	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,206	0,178	0,137	●		○
N.2.1	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,186	0,161	0,124	●		○
N.2.2	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,186	0,161	0,124	●		○
N.2.3	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,186	0,161	0,124	●		○
N.3.1	0,083	0,072	0,055	0,099	0,086	0,066	0,117	0,101	0,078	0,125	0,108	0,083	0,141	0,122	0,094	●		○
N.3.2	0,083	0,072	0,055	0,099	0,086	0,066	0,117	0,101	0,078	0,125	0,108	0,083	0,141	0,122	0,094	●		○
N.3.3	0,083	0,072	0,055	0,099	0,086	0,066	0,117	0,101	0,078	0,125	0,108	0,083	0,141	0,122	0,094	●		○
N.4.1	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,186	0,161	0,124	●		○
O.1.1	0,400	0,298	0,200	0,500	0,373	0,250	0,548	0,424	0,300	0,592	0,452	0,350	0,712	0,581	0,450	●		○
O.1.2	0,400	0,298	0,200	0,500	0,373	0,250	0,548	0,424	0,300	0,592	0,452	0,350	0,712	0,581	0,450	●		○

53 639 ...

● 1st choice
○ suitable

Index	Ø DC = 20 mm			Emulsion	Compressed air	MMS
	a_e < 0,02 x DC	a_e 0,02–0,04 x DC	a_e 0,05 x DC			
	f_z mm					
N.1.1	0,092	0,080	0,062	●		○
N.1.2	0,092	0,080	0,062	●		○
N.2.1	0,077	0,066	0,051	●		○
N.2.2	0,077	0,066	0,051	●		○
N.2.3	0,077	0,066	0,051	●		○
N.3.1	0,077	0,066	0,051	●		○
N.3.2	0,077	0,066	0,051	●		○
N.3.3	0,077	0,066	0,051	●		○
N.4.1	0,077	0,066	0,051	●		○

Cutting data standard values – AluLine – NC deburring cutter

		53 660 ... / 53 661 ... / 53 662 ... / 53 663 ...						53 664 ... / 53 665 ... / 53 666 ... / 53 667 ...									
		DLC						uncoated									
		Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 6 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 6 mm	Emulsion	Compressed air	MMS
Index	v_c m/min	f_z mm						v_c m/min	f_z mm								
P.1.1																	
P.1.2																	
P.1.3																	
P.1.4																	
P.1.5																	
P.2.1																	
P.2.2																	
P.2.3																	
P.2.4																	
P.3.1																	
P.3.2																	
P.3.3																	
P.4.1																	
P.4.2																	
M.1.1																	
M.2.1																	
M.3.1																	
K.1.1																	
K.1.2																	
K.2.1																	
K.2.2																	
K.3.1																	
K.3.2																	
N.1.1	300	0,03	0,04	0,05	0,06	0,07	0,08	195	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.1.2	300	0,03	0,04	0,05	0,06	0,07	0,08	195	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.2.1	260	0,03	0,04	0,05	0,06	0,07	0,08	170	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.2.2	280	0,03	0,04	0,05	0,06	0,07	0,08	180	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.2.3	250	0,03	0,04	0,05	0,06	0,07	0,08	165	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.3.1	110	0,03	0,04	0,05	0,06	0,07	0,08	75	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.3.2	140	0,03	0,04	0,05	0,06	0,07	0,08	90	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.3.3	120	0,03	0,04	0,05	0,06	0,07	0,08	80	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.4.1																	
S.1.1																	
S.1.2																	
S.2.1																	
S.2.2																	
S.2.3																	
S.3.1																	
S.3.2																	
S.3.3																	
H.1.1																	
H.1.2																	
H.1.3																	
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1	320	0,03	0,04	0,05	0,06	0,07	0,08	195	0,02	0,03	0,04	0,05	0,06	0,07	●	○	○
O.1.2	320	0,03	0,04	0,05	0,06	0,07	0,08	195	0,02	0,03	0,04	0,05	0,06	0,07	●	○	○
O.2.1																	
O.2.2																	
O.3.1																	

* = only suitable for DLC-coated cutters

Cutting data standard values – BlueLine – NC deburring cutter

		52 560 ... / 52 561 ... / 52 562 ... / 52 563 ...								
		Ti2000								
		Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 6 mm	Emulsion	Compressed air	MMS
Index	v_c m/min	f_z mm								
P.3.2	**80**	0,02	0,02	0,025	0,03	0,04	0,05		●	
P.3.3	**70**	0,02	0,02	0,025	0,03	0,04	0,05		●	
H.1.1	120	0,045	0,055	0,06	0,065	0,065	0,07		●	
H.1.2	90	0,04	0,05	0,055	0,06	0,06	0,065		●	
H.1.3	70	0,035	0,045	0,05	0,055	0,055	0,06		●	
H.1.4	50	0,025	0,03	0,04	0,045	0,045	0,05		●	
H.2.1										
H.3.1										

14

Cutting data standard values – BlueLine – Micro-end mill / micro-torus cutter

$T_x \leq 2,5 \times DC$		52 345 ... / 52 346 ... / 52 347 ... / 52 349 ... / 52 350 ... / 52 351 ... / 52 362 ...											
	Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm	Compressed air
		a_e 0,05 x DC												
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm											
P.3.2	190	0,5	0,0038	0,0045	0,005	0,0078	0,0093	0,0131	0,0165	0,018	0,0195	0,021	0,0225	0,024	●
P.3.3	190	0,5	0,0038	0,0045	0,005	0,0078	0,0093	0,0131	0,0165	0,018	0,0195	0,021	0,0225	0,024	●
H.1.1	120	0,5	0,0038	0,0045	0,005	0,0078	0,0093	0,0131	0,0165	0,018	0,0195	0,021	0,0225	0,024	●
H.1.2	70	0,5	0,003	0,036	0,0045	0,0062	0,0074	0,0104	0,0132	0,0144	0,0156	0,0168	0,018	0,0192	●
H.1.3	50	0,5	0,0025	0,003	0,004	0,0052	0,0062	0,0087	0,011	0,012	0,013	0,014	0,015	0,016	●
H.1.4															
H.2.1	190	0,5	0,0038	0,0045	0,005	0,0078	0,0093	0,0131	0,0165	0,018	0,0195	0,021	0,0225	0,024	●
H.3.1	70	0,5	0,003	0,036	0,0045	0,0062	0,0074	0,0104	0,0132	0,0144	0,0156	0,0168	0,018	0,0192	●

$T_x \leq 2,6–5,0 \times DC$		52 345 ... / 52 346 ... / 52 347 ... / 52 349 ... / 52 350 ... / 52 351 ... / 52 362 ...											
	Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm	Compressed air
		a_e 0,05 x DC												
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm											
P.3.2	170	0,5	0,0038	0,0041	0,0045	0,0063	0,0075	0,0102	0,0134	0,0152	0,0158	0,0176	0,0195	0,0195	●
P.3.3	170	0,5	0,0038	0,0041	0,0045	0,0063	0,0075	0,0102	0,0134	0,0152	0,0158	0,0176	0,0195	0,0195	●
H.1.1	108	0,5	0,0038	0,0041	0,0045	0,0063	0,0075	0,0102	0,0134	0,0152	0,0158	0,0176	0,0195	0,0195	●
H.1.2	63	0,5	0,003	0,0032	0,0036	0,005	0,006	0,0082	0,0107	0,0121	0,0126	0,014	0,0156	0,0156	●
H.1.3	45	0,5	0,0025	0,0027	0,003	0,0042	0,005	0,0068	0,0089	0,0101	0,0105	0,0117	0,013	0,013	●
H.1.4															
H.2.1	170	0,5	0,0038	0,0041	0,0045	0,0063	0,0075	0,0102	0,0134	0,0152	0,0158	0,0176	0,0195	0,0195	●
H.3.1	63	0,5	0,003	0,0032	0,0036	0,005	0,006	0,0082	0,0107	0,0121	0,0126	0,014	0,0156	0,0156	●

$T_x \leq 5,1–10,0 \times DC$		52 345 ... / 52 346 ... / 52 347 ... / 52 349 ... / 52 350 ... / 52 351 ... / 52 362 ...											
	Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm	Compressed air
		a_e 0,05 x DC												
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm											
P.3.2	150	0,5	0,003	0,0038	0,0045	0,006	0,0068	0,0075	0,0083	0,009	0,0105	0,0113	0,012	0,0128	●
P.3.3	150	0,5	0,003	0,0038	0,0045	0,006	0,0068	0,0075	0,0083	0,009	0,0105	0,0113	0,012	0,0128	●
H.1.1	96	0,5	0,003	0,0038	0,0045	0,006	0,,0068	0,0075	0,0083	0,009	0,0105	0,0113	0,012	0,0128	●
H.1.2	56	0,5	0,0024	0,003	0,0036	0,0048	0,0054	0,006	0,0066	0,0072	0,0084	0,009	0,0096	0,0102	●
H.1.3	40	0,5	0,002	0,0025	0,003	0,004	0,0045	0,005	0,0055	0,006	0,007	0,0075	0,008	0,0085	●
H.1.4															
H.2.1	150	0,5	0,003	0,0038	0,0045	0,006	0,,0068	0,0075	0,0083	0,009	0,0105	0,0113	0,012	0,0128	●
H.3.1	56	0,5	0,0024	0,003	0,0036	0,0048	0,0054	0,006	0,0066	0,0072	0,0084	0,009	0,0096	0,0102	●

$T_x \leq 10{,}1–15{,}0 \times DC$		52 345 ... / 52 346 ... / 52 347 ... / 52 349 ... / 52 350 ... / 52 351 ... / 52 362 ...											
	Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm	Compressed air
		a_e 0,05 x DC												
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm											
P.3.2	114	0,5	0,0015	0,0023	0,003	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,006	0,0063	0,0066	●
P.3.3	114	0,5	0,0015	0,0023	0,003	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,006	0,0063	0,0066	●
H.1.1	72	0,5	0,0015	0,0023	0,003	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,006	0,0063	0,0066	●
H.1.2	42	0,5	0,0012	0,0018	0,0024	0,003	0,0036	0,0038	0,0041	0,0043	0,0046	0,0048	0,005	0,0053	●
H.1.3	30	0,5	0,001	0,0015	0,002	0,0025	0,003	0,0032	0,0034	0,0036	0,0038	0,004	0,0042	0,0044	●
H.1.4															
H.2.1	114	0,5	0,0015	0,0023	0,003	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,006	0,0063	0,0066	●
H.3.1	42	0,5	0,0012	0,0018	0,0024	0,003	0,0036	0,0038	0,0041	0,0043	0,0046	0,0048	0,005	0,0053	●

$T_x \leq 15{,}1–20{,}0 \times DC$		52 345 ... / 52 346 ... / 52 347 ... / 52 349 ... / 52 350 ... / 52 351 ... / 52 362 ...											
	Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm	Compressed air
		a_e 0,05 x DC												
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm											
P.3.2	75	0,5	0,0015	0,0015	0,0023	0,003	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,006	0,0063	●
P.3.3	75	0,5	0,0015	0,0015	0,0023	0,003	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,006	0,0063	●
H.1.1	48	0,5	0,0015	0,0015	0,0023	0,003	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,006	0,0063	●
H.1.2	28	0,5	0,0012	0,0012	0,0018	0,0024	0,003	0,0036	0,0038	0,0041	0,0043	0,0046	0,0048	0,005	●
H.1.3	20	0,5	0,001	0,001	0,0015	0,002	0,0025	0,003	0,0032	0,0034	0,0036	0,0038	0,004	0,0042	●
H.1.4															
H.2.1	75	0,5	0,0015	0,0015	0,0023	0,003	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,006	0,0063	●
H.3.1	28	0,5	0,0012	0,0012	0,0018	0,0024	0,003	0,0036	0,0038	0,0041	0,0043	0,0046	0,0048	0,005	●

$T_x \leq 20{,}1–30{,}0 \times DC$		52 345 ... / 52 346 ... / 52 347 ... / 52 349 ... / 52 350 ... / 52 351 ... / 52 362 ...											
	Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm	Compressed air
		a_e 0,05 x DC												
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm											
P.3.2	57	0,5	0,001	0,002	0,002	0,003	0,003	0,003	0,004	0,004	0,004	0,005	0,005	0,005	●
P.3.3	57	0,5	0,001	0,002	0,002	0,003	0,003	0,003	0,004	0,004	0,004	0,005	0,005	0,005	●
H.1.1	36	0,5	0,001	0,002	0,002	0,003	0,003	0,003	0,004	0,004	0,004	0,005	0,005	0,005	●
H.1.2	21	0,5	0,001	0,001	0,002	0,002	0,002	0,003	0,003	0,003	0,003	0,004	0,004	0,004	●
H.1.3	15	0,5	0,0008	0,001	0,0013	0,0017	0,0019	0,0022	0,0025	0,0027	0,0029	0,003	0,0031	0,0032	●
H.1.4															
H.2.1	57	0,5	0,001	0,002	0,002	0,003	0,003	0,003	0,004	0,004	0,004	0,005	0,005	0,005	●
H.3.1	21	0,5	0,001	0,001	0,002	0,002	0,002	0,003	0,003	0,003	0,003	0,004	0,004	0,004	●

Cutting data standard values – BlueLine – Micro-ball-nosed end mill

$T_x \leq 2,5 \times DC$		52 356 ... / 52 357 ... / 52 358 ... / 52 359 ... / 52 360 ...												
	Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm	Compressed air
		a_e 0,05 x DC												
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm											
P.3.2	190	0,5	0,0015	0,0023	0,003	0,0038	0,0045	0,0053	0,006	0,0063	0,0066	0,0069	0,0072	0,0075	●
P.3.3	190	0,5	0,0015	0,0023	0,003	0,0038	0,0045	0,0053	0,006	0,0063	0,0066	0,0069	0,0072	0,0075	●
H.1.1	120	0,5	0,0015	0,0023	0,003	0,0038	0,0045	0,0053	0,006	0,0063	0,0066	0,0069	0,0072	0,0075	●
H.1.2	70	0,5	0,0012	0,0018	0,0024	0,003	0,0036	0,0042	0,0048	0,005	0,0053	0,0055	0,0058	0,006	●
H.1.3	50	0,5	0,001	0,0015	0,002	0,0025	0,003	0,0035	0,004	0,0042	0,0044	0,0046	0,0048	0,005	●
H.1.4															
H.2.1	190	0,5	0,0015	0,0023	0,003	0,0038	0,0045	0,0053	0,006	0,0063	0,0066	0,0069	0,0072	0,0075	●
H.3.1	70	0,5	0,0012	0,0018	0,0024	0,003	0,0036	0,0042	0,0048	0,005	0,0053	0,0055	0,0058	0,006	●

$T_x \leq 2,6–5,0 \times DC$		52 356 ... / 52 357 ... / 52 358 ... / 52 359 ... / 52 360 ...												
	Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm	Compressed air
		a_e 0,05 x DC												
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm											
P.3.2	170	0,5	0,0011	0,0014	0,0018	0,0023	0,0026	0,0029	0,0032	0,0035	0,0038	0,0041	0,0044	0,0048	●
P.3.3	170	0,5	0,0011	0,0014	0,0018	0,0023	0,0026	0,0029	0,0032	0,0035	0,0038	0,0041	0,0044	0,0048	●
H.1.1	108	0,5	0,0011	0,0014	0,0018	0,0023	0,0026	0,0029	0,0032	0,0035	0,0038	0,0041	0,0044	0,0048	●
H.1.2	63	0,5	0,0008	0,0011	0,0014	0,0018	0,0019	0,0021	0,0023	0,0025	0,0027	0,0029	0,0032	0,0038	●
H.1.3	45	0,5	0,0007	0,0009	0,0012	0,0015	0,0017	0,0019	0,0021	0,0023	0,0025	0,0027	0,0029	0,0032	●
H.1.4															
H.2.1	170	0,5	0,0011	0,0014	0,0018	0,0023	0,0026	0,0029	0,0032	0,0035	0,0038	0,0041	0,0044	0,0048	●
H.3.1	63	0,5	0,0008	0,0011	0,0014	0,0018	0,0019	0,0021	0,0023	0,0025	0,0027	0,0029	0,0032	0,0038	●

$T_x \leq 5,1–10,0 \times DC$		52 356 ... / 52 357 ... / 52 358 ... / 52 359 ... / 52 360 ...												
	Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm	Compressed air
		a_e 0,05 x DC												
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm											
P.3.2	150	0,5	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	0,0036	0,0039	●
P.3.3	150	0,5	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	0,0036	0,0039	●
H.1.1	96	0,5	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	0,0036	0,0039	●
H.1.2	56	0,5	0,0005	0,0007	0,001	0,0012	0,0014	0,0017	0,0019	0,0022	0,0024	0,0026	0,0029	0,0031	●
H.1.3	40	0,5	0,0004	0,0006	0,0008	0,001	0,0012	0,0014	0,0016	0,0018	0,002	0,0022	0,0024	0,0026	●
H.1.4															
H.2.1	150	0,5	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	0,0036	0,0039	●
H.3.1	56	0,5	0,0005	0,0007	0,001	0,0012	0,0014	0,0017	0,0019	0,0022	0,0024	0,0026	0,0029	0,0031	●

$T_x \leq 10{,}1–15{,}0 \times DC$		52 356 ... / 52 357 ... / 52 358 ... / 52 359 ... / 52 360 ...												
	Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm	Compressed air
		a_e 0,05 x DC												
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm											
P.3.2	114	0,5	0,0003	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	0,0036	●
P.3.3	114	0,5	0,0003	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	0,0036	●
H.1.1	72	0,5	0,0003	0,0006	0,0008	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	0,0036	●
H.1.2	42	0,5	0,0002	0,0005	0,0007	0,001	0,0012	0,0014	0,0017	0,0019	0,0022	0,0022	0,0026	0,0029	●
H.1.3	30	0,5	0,0002	0,0004	0,0006	0,0008	0,001	0,0012	0,0014	0,0016	0,0018	0,002	0,0022	0,0024	●
H.1.4															
H.2.1	114	0,5	0,0003	0,0006	0,0008	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	0,0036	●
H.3.1	42	0,5	0,0002	0,0005	0,0007	0,001	0,0012	0,0014	0,0017	0,0019	0,0022	0,0022	0,0026	0,0029	●

$T_x \leq 15{,}1–20{,}0 \times DC$		52 356 ... / 52 357 ... / 52 358 ... / 52 359 ... / 52 360 ...												
	Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm	Compressed air
		a_e 0,05 x DC												
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm											
P.3.2	114	0,5	0,0002	0,0004	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	●
P.3.3	114	0,5	0,0002	0,0004	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	●
H.1.1	72	0,5	0,0002	0,0004	0,0005	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	●
H.1.2	42	0,5	0,0001	0,0003	0,0004	0,0007	0,0009	0,0011	0,0014	0,0016	0,0019	0,0019	0,0023	0,0026	●
H.1.3	30	0,5	0,0001	0,0002	0,0003	0,0005	0,0007	0,0009	0,0011	0,0013	0,0015	0,0017	0,0019	0,0021	●
H.1.4															
H.2.1	114	0,5	0,0002	0,0004	0,0005	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	●
H.3.1	42	0,5	0,0001	0,0003	0,0004	0,0007	0,0009	0,0011	0,0014	0,0016	0,0019	0,0021	0,0023	0,0026	●

Cutting data standard values – BlueLine – End mill



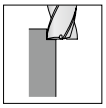
Index	52 140 ... 52 141 ... v_c m/min	52 133 ... 52 134 ... 52 324 ... v_c m/min	$a_{p\,max.}$ x DC	52 133 ... / 52 134 ... / 52 140 ... / 52 141 ... / 52 324 ...									
				Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm	Compressed air
				a_e 0,05 x DC									
				f_z mm									
P.3.2	190	160	1,0	0,018	0,02	0,022	0,024	0,025	0,03	0,035	0,038	0,04	●
P.3.3	190	160	1,0	0,018	0,02	0,022	0,024	0,025	0,03	0,035	0,038	0,04	●
H.1.1	160	140	1,0	0,013	0,013	0,016	0,018	0,02	0,023	0,025	0,029	0,032	●
H.1.2	**140**	**130**	1,0	0,011	0,011	0,014	0,016	0,018	0,02	0,022	0,025	0,027	●
H.1.3	**100**	**90**	1,0	0,01	0,01	0,012	0,014	0,016	0,018	0,02	0,023	0,025	●
H.1.4													
H.2.1	**190**	**160**	1,0	0,018	0,02	0,022	0,024	0,025	0,03	0,035	0,038	0,04	●
H.3.1	**140**	**130**	1,0	0,011	0,011	0,014	0,016	0,018	0,02	0,022	0,025	0,027	●



Index	v_c m/min	$a_{p\,max.}$ x DC	52 135 ... / 52 136 ... / 52 325 ... / 52 326 ...									
			Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm	Compressed air
			a_e 0,05 x DC									
			f_z mm									
P.3.2	140	1,0	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035	●
P.3.3	140	1,0	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035	●
H.1.1	125	1,0	0,008	0,009	0,011	0,014	0,016	0,02	0,023	0,026	0,028	●
H.1.2	**115**	1,0	0,007	0,008	0,009	0,012	0,014	0,017	0,02	0,023	0,025	●
H.1.3	**80**	1,0	0,005	0,006	0,007	0,01	0,012	0,015	0,017	0,019	0,02	●
H.1.4												
H.2.1	**140**	1,0	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035	●
H.3.1	**115**	1,0	0,007	0,008	0,009	0,012	0,014	0,017	0,02	0,023	0,025	●

Index	v_c m/min	$a_{p\,max.}$ x DC	52 344 ...															
			Ø DC = 0,5 mm			Ø DC = 1,0–1,5 mm			Ø DC = 2,0–2,5 mm			Ø DC = 3,0–3,5 mm			Ø DC = 4,0 mm			Ø DC = 5,0 mm		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
			f_z mm															
P.3.2	**120**	0,5	0,006	0,004	0,004	0,008	0,006	0,005	0,011	0,008	0,006	0,016	0,012	0,009	0,022	0,017	0,012	0,027	0,02	0,014
P.3.3	**120**	0,5	0,006	0,004	0,004	0,008	0,006	0,005	0,011	0,008	0,006	0,016	0,012	0,009	0,022	0,017	0,012	0,027	0,02	0,014
H.1.1	**80**	0,5	0,006	0,004	0,004	0,008	0,006	0,005	0,011	0,008	0,006	0,016	0,012	0,009	0,022	0,017	0,012	0,027	0,02	0,014
H.1.2	**60**	0,5	0,004	0,004	0,003	0,006	0,005	0,004	0,009	0,007	0,005	0,013	0,01	0,007	0,017	0,013	0,01	0,022	0,016	0,011
H.1.3	**50**	0,5	0,004	0,003	0,002	0,005	0,004	0,003	0,007	0,006	0,004	0,011	0,008	0,006	0,014	0,011	0,008	0,018	0,013	0,009
H.1.4																				
H.2.1	**120**	0,5	0,006	0,004	0,004	0,008	0,006	0,005	0,011	0,008	0,006	0,016	0,012	0,009	0,022	0,017	0,012	0,027	0,02	0,014
H.3.1	**60**	0,5	0,004	0,004	0,003	0,006	0,005	0,004	0,009	0,007	0,005	0,013	0,01	0,007	0,017	0,013	0,01	0,022	0,016	0,011

				52 133 ... / 52 134 ... / 52 140 ... / 52 141 ... / 52 324 ...									
	52 140 ... 52 141 ...	52 133 ... 52 134 ... 52 324 ...		Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm	Compressed air
				a_e 0,6–1,0 x DC									
Index	v_c m/min	v_c m/min	$a_{p\,max.}$ x DC	f_z mm									
P.3.2	190	160	0,05	0,018	0,02	0,022	0,024	0,025	0,03	0,035	0,038	0,04	●
P.3.3	190	160	0,05	0,018	0,02	0,022	0,024	0,025	0,03	0,035	0,038	0,04	●
H.1.1	160	140	0,05	0,013	0,013	0,016	0,018	0,02	0,023	0,025	0,029	0,032	●
H.1.2	**140**	**130**	0,05	0,011	0,011	0,014	0,016	0,018	0,02	0,022	0,025	0,027	●
H.1.3	**100**	**90**	0,05	0,01	0,01	0,012	0,014	0,016	0,018	0,02	0,023	0,025	●
H.1.4													
H.2.1	**190**	**160**	0,05	0,018	0,02	0,022	0,024	0,025	0,03	0,035	0,038	0,04	●
H.3.1	**140**	**130**	0,05	0,011	0,011	0,014	0,016	0,018	0,02	0,022	0,025	0,027	●

			52 135 ... / 52 136 ... / 52 325 ... / 52 326 ...									
			Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm	Compressed air
			a_e 0,6–1,0 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm									
P.3.2	140	0,05	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035	●
P.3.3	140	0,05	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035	●
H.1.1	125	0,05	0,008	0,009	0,011	0,014	0,016	0,02	0,023	0,026	0,028	●
H.1.2	**115**	0,05	0,007	0,008	0,009	0,012	0,014	0,017	0,02	0,023	0,025	●
H.1.3	**80**	0,05	0,005	0,006	0,007	0,01	0,012	0,015	0,017	0,019	0,02	●
H.1.4												
H.2.1	**140**	0,05	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035	●
H.3.1	**115**	0,05	0,007	0,008	0,009	0,012	0,014	0,017	0,02	0,023	0,025	●

	52 344 ...																		
	Ø DC = 6,0 mm			Ø DC = 8,0 mm			Ø DC = 10,0 mm			Ø DC = 12,0 mm			Ø DC = 16,0 mm			Ø DC = 20,0 mm			Compressed air
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			
P.3.2	0,036	0,027	0,018	0,048	0,036	0,024	0,054	0,04	0,027	0,06	0,045	0,03	0,076	0,058	0,045	0,095	0,077	0,06	●
P.3.3	0,036	0,027	0,018	0,048	0,036	0,024	0,054	0,04	0,027	0,06	0,045	0,03	0,076	0,058	0,045	0,095	0,077	0,06	●
H.1.1	0,036	0,027	0,018	0,048	0,036	0,024	0,054	0,04	0,027	0,06	0,045	0,03	0,076	0,058	0,045	0,095	0,077	0,06	●
H.1.2	0,029	0,021	0,014	0,038	0,029	0,019	0,043	0,032	0,022	0,048	0,036	0,024	0,061	0,046	0,036	0,076	0,062	0,048	●
H.1.3	0,024	0,018	0,012	0,032	0,024	0,016	0,036	0,027	0,018	0,04	0,03	0,02	0,051	0,039	0,03	0,063	0,052	0,04	●
H.1.4																			
H.2.1	0,036	0,027	0,018	0,048	0,036	0,024	0,054	0,04	0,027	0,06	0,045	0,03	0,076	0,058	0,045	0,095	0,077	0,06	●
H.3.1	0,029	0,021	0,014	0,038	0,029	0,019	0,043	0,032	0,022	0,048	0,036	0,024	0,061	0,046	0,036	0,076	0,062	0,048	●

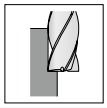
14

Cutting data standard values – BlueLine – End mill

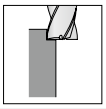
			52 348 ...												
			Ø DC = 6 mm		Ø DC = 8 mm		Ø DC = 10 mm		Ø DC = 12 mm		Ø DC = 16 mm		Ø DC = 20 mm		Compressed air
			a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,05 x DC	a_e 0,1 x DC	
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm												
P.3.2	120	2,0	0,025	0,021	0,029	0,024	0,031	0,027	0,036	0,032	0,042	0,038	0,049	0,045	●
P.3.3	120	2,0	0,025	0,021	0,029	0,024	0,031	0,027	0,036	0,032	0,042	0,038	0,049	0,045	●
H.1.1	100	2,0	0,025	0,021	0,029	0,024	0,031	0,027	0,036	0,032	0,042	0,038	0,049	0,045	●
H.1.2	90	2,0	0,021	0,017	0,024	0,019	0,027	0,022	0,03	0,025	0,035	0,03	0,041	0,036	●
H.1.3	60	2,0	0,014	0,011	0,016	0,013	0,018	0,015	0,021	0,018	0,025	0,022	0,03	0,027	●
H.1.4															
H.2.1	120	2,0	0,025	0,021	0,029	0,024	0,031	0,027	0,036	0,032	0,042	0,038	0,049	0,045	●
H.3.1	90	2,0	0,021	0,017	0,024	0,019	0,027	0,022	0,03	0,025	0,035	0,03	0,041	0,036	●



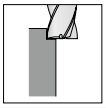
			52 353 ...										
			Ø DC = 1 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Compressed air
			a_e 0,05 x DC										
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm										
P.3.2	200	0,5	0,008	0,015	0,03	0,045	0,06	0,075	0,09	0,105	0,12	0,135	●
P.3.3	200	0,5	0,008	0,015	0,03	0,045	0,06	0,075	0,09	0,105	0,12	0,135	●
H.1.1	170	0,5	0,008	0,15	0,03	0,045	0,06	0,075	0,09	0,105	0,12	0,135	●
H.1.2	150	0,5	0,006	0,012	0,024	0,036	0,048	0,06	0,072	0,084	0,096	0,108	●
H.1.3	110	0,5	0,005	0,01	0,02	0,03	0,04	0,05	0,06	0,07	0,08	0,09	●
H.1.4													
H.2.1	200	0,5	0,008	0,15	0,03	0,045	0,06	0,075	0,09	0,105	0,12	0,135	●
H.3.1	150	0,5	0,006	0,012	0,024	0,036	0,048	0,06	0,072	0,084	0,096	0,108	●



			52 354 ...										
			Ø DC = 1 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Compressed air
			a_e 0,05 x DC										
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm										
P.3.2	200	0,5	0,005	0,008	0,015	0,023	0,03	0,038	0,045	0,053	0,06	0,068	●
P.3.3	200	0,5	0,005	0,008	0,015	0,023	0,03	0,038	0,045	0,053	0,06	0,068	●
H.1.1	170	0,5	0,005	0,008	0,015	0,023	0,03	0,038	0,045	0,053	0,06	0,068	●
H.1.2	150	0,5	0,004	0,006	0,012	0,018	0,024	0,03	0,036	0,042	0,048	0,054	●
H.1.3	110	0,5	0,003	0,005	0,01	0,015	0,02	0,025	0,03	0,035	0,04	0,045	●
H.1.4													
H.2.1	200	0,5	0,005	0,008	0,015	0,023	0,03	0,038	0,045	0,053	0,06	0,068	●
H.3.1	150	0,5	0,004	0,006	0,012	0,018	0,024	0,03	0,036	0,042	0,048	0,054	●



Index	v_c m/min	$a_{p\,max.}$ x DC	52 353 ... Ø DC = 1 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Compressed air
			a_e 0,6–1,0 x DC										
			f_z mm										
P.3.2	**200**	0,05	0,008	0,015	0,03	0,045	0,06	0,075	0,09	0,105	0,12	0,135	●
P.3.3	**200**	0,05	0,008	0,015	0,03	0,045	0,06	0,075	0,09	0,105	0,12	0,135	●
H.1.1	**170**	0,05	0,008	0,15	0,03	0,045	0,06	0,075	0,09	0,105	0,12	0,135	●
H.1.2	**150**	0,05	0,006	0,012	0,024	0,036	0,048	0,06	0,072	0,084	0,096	0,108	●
H.1.3	**110**	0,05	0,005	0,01	0,02	0,03	0,04	0,05	0,06	0,07	0,08	0,09	●
H.1.4													
H.2.1	**200**	0,05	0,008	0,15	0,03	0,045	0,06	0,075	0,09	0,105	0,12	0,135	●
H.3.1	**150**	0,05	0,006	0,012	0,024	0,036	0,048	0,06	0,072	0,084	0,096	0,108	●



Index	v_c m/min	$a_{p\,max.}$ x DC	52 354 ... Ø DC = 1 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Compressed air
			a_e 0,6–1,0 x DC										
			f_z mm										
P.3.2	**200**	0,05	0,005	0,008	0,015	0,023	0,03	0,038	0,045	0,053	0,06	0,068	●
P.3.3	**200**	0,05	0,005	0,008	0,015	0,023	0,03	0,038	0,045	0,053	0,06	0,068	●
H.1.1	**170**	0,05	0,005	0,008	0,015	0,023	0,03	0,038	0,045	0,053	0,06	0,068	●
H.1.2	**150**	0,05	0,004	0,006	0,012	0,018	0,024	0,03	0,036	0,042	0,048	0,054	●
H.1.3	**110**	0,05	0,003	0,005	0,01	0,015	0,02	0,025	0,03	0,035	0,04	0,045	●
H.1.4													
H.2.1	**200**	0,05	0,005	0,008	0,015	0,023	0,03	0,038	0,045	0,053	0,06	0,068	●
H.3.1	**150**	0,05	0,004	0,006	0,012	0,018	0,024	0,03	0,036	0,042	0,048	0,054	●

Cutting data standard values – BlueLine – Ball-nosed end mill



			52 258 ... / 52 259 ...										
			Ø DC = 0,1–0,5 mm	Ø DC = 0,6–1,0 mm	Ø DC = 1,5–2,0 mm	Ø DC = 2,5 mm	Ø DC = 3,0 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Compressed air
			a_e 0,05 x DC										
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm										
P.3.2	190	0,05	0,008	0,01	0,012	0,016	0,02	0,025	0,03	0,04	0,05	0,06	●
P.3.3	190	0,05	0,008	0,01	0,012	0,016	0,02	0,025	0,03	0,04	0,05	0,06	●
H.1.1	165	0,05	0,004	0,005	0,006	0,008	0,01	0,014	0,017	0,028	0,038	0,048	●
H.1.2	**145**	**0,05**	0,004	0,004	0,005	0,006	0,008	0,012	0,015	0,025	0,035	0,045	●
H.1.3	**105**	**0,05**	0,003	0,004	0,005	0,005	0,006	0,01	0,014	0,022	0,03	0,04	●
H.1.4													
H.2.1	**190**	**0,05**	0,008	0,01	0,012	0,016	0,02	0,025	0,03	0,04	0,05	0,06	●
H.3.1	**145**	**0,05**	0,004	0,004	0,005	0,006	0,008	0,012	0,015	0,025	0,035	0,045	●



			52 256 ... / 52 257 ... / 52 302 ... / 52 303 ... / 52 404 ... / 52 405 ...										
			Ø DC = 0,1–0,5 mm	Ø DC = 0,6–1,0 mm	Ø DC = 1,1–1,5 mm	Ø DC = 1,6–2,0 mm	Ø DC = 2,5 mm	Ø DC = 3,0 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 7 mm	Compressed air
			a_e 0,05 x DC										
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm										
P.3.2	200	0,05	0,01	0,012	0,015	0,019	0,025	0,03	0,033	0,036	0,04	0,04	●
P.3.3	200	0,05	0,01	0,012	0,015	0,019	0,025	0,03	0,033	0,036	0,04	0,04	●
H.1.1	170	0,05	0,005	0,006	0,006	0,008	0,011	0,015	0,02	0,024	0,027	0,035	●
H.1.2	**150**	0,05	0,005	0,006	0,006	0,008	0,01	0,013	0,018	0,022	0,025	0,032	●
H.1.3	**110**	0,05	0,004	0,005	0,005	0,007	0,009	0,013	0,016	0,021	0,025	0,03	●
H.1.4													
H.2.1	**200**	0,05	0,01	0,012	0,015	0,019	0,025	0,03	0,033	0,036	0,04	0,04	●
H.3.1	**150**	0,05	0,005	0,006	0,006	0,008	0,01	0,013	0,018	0,022	0,025	0,032	●



			52 352 ... / 52 355 ...											
			Ø DC = 0,6–0,8 mm	Ø DC = 1 mm	Ø DC = 1,2–1,5 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Compressed air
			a_e 0,05 x DC											
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm											
P.3.2	**200**	0,05	0,006	0,008	0,01	0,015	0,03	0,045	0,06	0,075	0,09	0,105	0,12	●
P.3.3	**200**	0,05	0,006	0,008	0,01	0,015	0,03	0,045	0,06	0,075	0,09	0,105	0,12	●
H.1.1	**170**	0,05	0,006	0,008	0,01	0,015	0,03	0,045	0,06	0,075	0,09	0,105	0,12	●
H.1.2	**150**	0,05	0,004	0,006	0,008	0,012	0,024	0,036	0,048	0,06	0,072	0,084	0,096	●
H.1.3	**110**	0,05	0,004	0,005	0,007	0,01	0,02	0,03	0,04	0,05	0,06	0,07	0,08	●
H.1.4														
H.2.1	**200**	0,05	0,006	0,008	0,01	0,015	0,03	0,045	0,06	0,075	0,09	0,105	0,12	●
H.3.1	**150**	0,05	0,004	0,006	0,008	0,012	0,024	0,036	0,048	0,06	0,072	0,084	0,096	●

	52 258 ... / 52 259 ...			
	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm	Compressed air
	a_e 0,05 x DC			
Index	f_z mm			
P.3.2	0,07	0,09	0,1	●
P.3.3	0,07	0,09	0,1	●
H.1.1	0,058	0,078	0,09	●
H.1.2	0,055	0,075	0,08	●
H.1.3	0,05	0,07	0,07	●
H.1.4				
H.2.1	0,07	0,09	0,1	●
H.3.1	0,055	0,075	0,08	●

	52 256 ... / 52 257 ... / 52 302 ... / 52 303 ... / 52 404 ... / 52 405 ...							
	Ø DC = 8 mm	Ø DC = 9 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 14 mm	Ø DC = 16 mm	Ø DC = 20 mm	Compressed air
	a_e 0,05 x DC							
Index	f_z mm							
P.3.2	0,05	0,06	0,07	0,08	0,09	0,1	0,12	●
P.3.3	0,05	0,06	0,07	0,08	0,09	0,1	0,12	●
H.1.1	0,042	0,048	0,058	0,068	0,078	0,088	0,105	●
H.1.2	0,039	0,045	0,055	0,065	0,075	0,085	0,1	●
H.1.3	0,035	0,04	0,05	0,06	0,07	0,08	0,09	●
H.1.4								
H.2.1	0,05	0,06	0,07	0,08	0,09	0,1	0,12	●
H.3.1	0,039	0,045	0,055	0,065	0,075	0,085	0,1	●

Cutting data standard values – BlueLine – Torus cutter



			52 304...									
			Ø DC = 0,5–1,5 mm	Ø DC = 2,0–3,0 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Compressed air
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm									
P.3.2	190	1,0	0,012	0,028	0,055	0,055	0,065	0,075	0,09	0,1	0,12	●
P.3.3	190	1,0	0,012	0,028	0,055	0,055	0,065	0,075	0,09	0,1	0,12	●
H.1.1	160	1,0	0,007	0,023	0,04	0,04	0,055	0,07	0,082	0,09	0,11	●
H.1.2	**140**	1,0	0,006	0,02	0,038	0,038	0,052	0,065	0,08	0,085	0,105	●
H.1.3	**100**	1,0	0,005	0,018	0,035	0,035	0,05	0,06	0,075	0,08	0,1	●
H.1.4												
H.2.1	**190**	1,0	0,012	0,028	0,055	0,055	0,065	0,075	0,09	0,1	0,12	●
H.3.1	**140**	1,0	0,006	0,02	0,038	0,038	0,052	0,065	0,08	0,085	0,105	●



			52 305...						
			Ø DC = 1,0–1,5 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Compressed air
			a_e 0,05 x DC						
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm						
P.3.2	190	1,0	0,01	0,025	0,025	0,05	0,05	0,06	●
P.3.3	190	1,0	0,01	0,025	0,025	0,05	0,05	0,06	●
H.1.1	160	1,0	0,005	0,02	0,02	0,035	0,035	0,05	●
H.1.2	**140**	1,0	0,004	0,017	0,017	0,033	0,033	0,053	●
H.1.3	**100**	1,0	0,003	0,015	0,015	0,03	0,03	0,005	●
H.1.4									
H.2.1	**190**	1,0	0,01	0,025	0,025	0,05	0,05	0,06	●
H.3.1	**140**	1,0	0,004	0,017	0,017	0,033	0,033	0,053	●



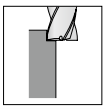
			52 361...									
			Ø DC = 0,8–1,0 mm	Ø DC = 1,2–1,5 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Compressed air
			a_e 0,1 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm									
P.3.2	200	0,5	0,008	0,01	0,015	0,03	0,045	0,075	0,09	0,105	0,12	●
P.3.3	200	0,5	0,008	0,01	0,015	0,03	0,045	0,075	0,09	0,105	0,12	●
H.1.1	170	0,5	0,008	0,01	0,015	0,03	0,045	0,075	0,09	0,105	0,12	●
H.1.2	**150**	0,5	0,006	0,008	0,012	0,024	0,036	0,06	0,072	0,084	0,096	●
H.1.3	**110**	0,5	0,005	0,007	0,01	0,02	0,03	0,05	0,06	0,07	0,08	●
H.1.4												
H.2.1	**200**	0,5	0,008	0,01	0,015	0,03	0,045	0,075	0,09	0,105	0,12	●
H.3.1	**150**	0,5	0,006	0,008	0,012	0,024	0,036	0,06	0,072	0,084	0,096	●



Index	v_c m/min	$a_{p\,max.}$ x DC	52 304... Ø DC = 0,5–1,5 mm	Ø DC = 2,0–3,0 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Compressed air
			a_e 0,05 x DC									
			f_z mm									
P.3.2	**190**	**0,05**	0,016	0,032	0,06	0,06	0,08	0,09	0,1	0,12	0,14	●
P.3.3	**190**	**0,05**	0,016	0,032	0,06	0,06	0,08	0,09	0,1	0,12	0,14	●
H.1.1	**160**	**0,05**	0,011	0,028	0,05	0,05	0,07	0,08	0,09	0,1	0,13	●
H.1.2	**140**	**0,05**	0,01	0,025	0,044	0,044	0,07	0,075	0,088	0,085	0,125	●
H.1.3	**100**	**0,05**	0,009	0,021	0,04	0,04	0,065	0,07	0,085	0,08	0,12	●
H.1.4												
H.2.1	**190**	**0,05**	0,016	0,032	0,06	0,06	0,08	0,09	0,1	0,12	0,14	●
H.3.1	**140**	**0,05**	0,01	0,025	0,044	0,044	0,07	0,075	0,088	0,085	0,125	●



Index	v_c m/min	$a_{p\,max.}$ x DC	52 305... Ø DC = 1,0–1,5 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Compressed air
			a_e 0,05 x DC						
			f_z mm						
P.3.2	190	0,05	0,014	0,03	0,03	0,055	0,055	0,07	●
P.3.3	190	0,05	0,014	0,03	0,03	0,055	0,055	0,07	●
H.1.1	160	0,05	0,009	0,025	0,025	0,045	0,045	0,06	●
H.1.2	**140**	0,05	0,008	0,022	0,022	0,04	0,04	0,058	●
H.1.3	**100**	0,05	0,007	0,018	0,018	0,035	0,035	0,05	●
H.1.4									
H.2.1	**190**	0,05	0,014	0,03	0,03	0,055	0,055	0,07	●
H.3.1	**140**	0,05	0,008	0,022	0,022	0,04	0,04	0,058	●



Index	v_c m/min	$a_{p\,max.}$ x DC	52 361... Ø DC = 0,8–1,0 mm	Ø DC = 1,2–1,5 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Compressed air
			a_e 0,1 x DC									
			f_z mm									
P.3.2	200	0,05	0,008	0,01	0,015	0,03	0,045	0,075	0,09	0,105	0,12	●
P.3.3	200	0,05	0,008	0,01	0,015	0,03	0,045	0,075	0,09	0,105	0,12	●
H.1.1	170	0,05	0,008	0,01	0,015	0,03	0,045	0,075	0,09	0,105	0,12	●
H.1.2	**150**	0,05	0,006	0,008	0,012	0,024	0,036	0,06	0,072	0,084	0,096	●
H.1.3	**110**	0,05	0,005	0,007	0,01	0,02	0,03	0,05	0,06	0,07	0,08	●
H.1.4												
H.2.1	**200**	0,05	0,008	0,01	0,015	0,03	0,045	0,075	0,09	0,105	0,12	●
H.3.1	**150**	0,05	0,006	0,008	0,012	0,024	0,036	0,06	0,072	0,084	0,096	●

Cutting data standard values – PCD milling cutter

		50 011 ... / 50 012 ...		50 010 ... / 50 013 ...		50 014 ...		50 015 ...			
Index	v_c m/min	a_p max.	a_e	a_p max.	a_e	a_p max.	a_e	a_p max.	a_e	a_p max.	a_e
N.1.1	900	0,15xDC	1xDC	1xDC	0,1xDC	0,15xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
N.1.2	900	0,15xDC	1xDC	1xDC	0,1xDC	0,15xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
N.2.1	700	0,15xDC	1xDC	1xDC	0,1xDC	0,15xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
N.2.2	600	0,15xDC	1xDC	1xDC	0,1xDC	0,15xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
N.2.3	400	0,15xDC	1xDC	1xDC	0,1xDC	0,15xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
N.3.1	500							0,9xAPMX	0,3xDC	0,1xDC	1xDC
N.3.2											
N.3.3											
N.4.1	900							0,9xAPMX	0,3xDC	0,1xDC	1xDC
O.1.1	120	0,2xDC	1xDC	1xDC	0,1xDC	0,2xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
O.1.2	250	0,2xDC	1xDC	1xDC	0,1xDC	0,2xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
O.2.1											
O.2.2	200-300	0,2xDC	1xDC	1xDC	0,1xDC	0,2xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
O.3.1	650	0,2xDC	1xDC	1xDC	0,1xDC	0,2xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC

		50 016 ... / 50 017 ...				50 018 ...				50 020 ...			
Index	v_c m/min	a_p max.	a_e	a_p max.	a_e	a_p max.	a_e	a_p max.	a_e	a_p max.	a_e	a_p max.	a_e
N.1.1	900	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
N.1.2	900	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
N.2.1	700	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
N.2.2	600	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
N.2.3	400	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
N.3.1	500	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
N.3.2													
N.3.3													
N.4.1	900	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
O.1.1	120	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
O.1.2	250	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
O.2.1													
O.2.2	200–300	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
O.3.1	650	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC

		50 019 ...				Ø DC = 40 mm	Ø DC = 50 mm	Ø DC = 63 mm	Ø DC = 80 mm	Ø DC = 100 mm	Ø DC = 125 mm	● 1st choice ○ suitable		
Index	v_c m/min	a_p max.	a_e	a_p max.	a_e							Emulsion	Compressed air	MMS
N.1.1	2200	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,150	0,150	0,150	0,150	0,150	0,150	●		○
N.1.2	2100	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,150	0,150	0,150	0,150	0,150	0,150	●		○
N.2.1	1850	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,150	0,150	0,150	0,150	0,150	0,150	●		○
N.2.2	1850	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,150	0,150	0,150	0,150	0,150	0,150	●		○
N.2.3	1750	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,150	0,150	0,150	0,150	0,150	0,150	●		○
N.3.1	1000–1500	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,150	0,150	0,150	0,150	0,150	0,150	●		○
N.3.2														
N.3.3														
N.4.1	2200	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,150	0,150	0,150	0,150	0,150	0,150	●		○
O.1.1														
O.1.2														
O.2.1														
O.2.2	500–600	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,230	0,230	0,230	0,230	0,230	0,230	●		○
O.3.1														

Index	Ø DC = 2 mm	Ø DC = 3mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm	Ø DC = 25 mm	Ø DC = 32 mm	● 1st choice ○ suitable Emulsion	Compressed air	MMS
N.1.1	0,018	0,027	0,035	0,048	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.1.2	0,018	0,027	0,035	0,048	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.2.1	0,018	0,027	0,035	0,048	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.2.2	0,018	0,027	0,035	0,048	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.2.3	0,018	0,027	0,035	0,048	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.3.1							0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.3.2															
N.3.3															
N.4.1							0,070	0,080	0,090	0,120	0,140	0,160	●		○
O.1.1	0,025	0,038	0,050	0,071	0,100	0,150	0,200	0,250	0,300	0,400	0,440	0,460	●		○
O.1.2	0,021	0,031	0,040	0,050	0,060	0,070	0,080	0,115	0,150	0,200	0,220	0,260	●		○
O.2.1															
O.2.2	0,021	0,031	0,040	0,050	0,060	0,070	0,080	0,115	0,150	0,20	0,220	0,260	●		○
O.3.1	0,021	0,031	0,040	0,050	0,060	0,070	0,080	0,115	0,150	0,20	0,220	0,260	●		○

Index	Ø DC = 2 mm	Ø DC = 3mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm	Ø DC = 25 mm	Ø DC = 32 mm	● 1st choice ○ suitable Emulsion	Compressed air	MMS
N.1.1	0,018	0,027	0,035	0,0475	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.1.2	0,018	0,027	0,035	0,0475	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.2.1	0,018	0,027	0,035	0,0475	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.2.2	0,018	0,027	0,035	0,0475	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.2.3	0,018	0,027	0,035	0,0475	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.3.1							0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.3.2															
N.3.3															
N.4.1							0,070	0,080	0,090	0,120	0,140	0,160	●		○
O.1.1	0,025	0,038	0,050	0,0705	0,100	0,150	0,200	0,250	0,300	0,400	0,440	0,460	●		○
O.1.2	0,021	0,031	0,040	0,050	0,060	0,070	0,080	0,115	0,150	0,200	0,220	0,260	●		○
O.2.1															
O.2.2	0,021	0,031	0,040	0,050	0,060	0,070	0,080	0,115	0,150	0,200	0,220	0,260	●		○
O.3.1	0,021	0,031	0,040	0,050	0,060	0,070	0,080	0,115	0,150	0,200	0,220	0,260	●		○

Cutting data standard values – S-Cut – End mill, short – long

			52 205 ... / 52 223 ... / 52 224 ... / 52 225 ... / 52 228 ... / 52 229 ...														
	Type short / long		Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	150	1,0	0,036	0,028	0,02	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
P.1.2	150	1,0	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.1.3	130	1,0	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.1.4	140	1,0	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.1.5	120	1,0	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.2.1	140	1,0	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.2.2	120	1,0	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.2.3	140	1,0	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.2.4	120	1,0	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.3.1	100	1,0	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
P.3.2	120	1,0	0,025	0,02	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046
P.3.3	100	1,0	0,025	0,02	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046
P.4.1	130	1,0	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
P.4.2	110	1,0	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
M.1.1	100	1,0	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
M.2.1	50	1,0	0,02	0,015	0,012	0,028	0,021	0,015	0,039	0,029	0,02	0,053	0,039	0,026	0,069	0,029	0,035
M.3.1	100	1,0	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
K.1.1	200	1,0	0,046	0,036	0,025	0,063	0,049	0,036	0,091	0,068	0,046	0,122	0,091	0,061	0,161	0,127	0,081
K.1.2	200	1,0	0,046	0,036	0,025	0,063	0,049	0,036	0,091	0,068	0,046	0,122	0,091	0,061	0,161	0,127	0,081
K.2.1	220	1,0	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
K.2.2	200	1,0	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
K.3.1	180	1,0	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
K.3.2	160	1,0	0,032	0,025	0,018	0,046	0,036	0,025	0,066	0,048	0,032	0,087	0,064	0,044	0,115	0,092	0,058
N.1.1																	
N.1.2																	
N.2.1																	
N.2.2																	
N.2.3																	
N.3.1	250	1,0	0,036	0,028	0,02	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
N.3.2	250	1,0	0,036	0,028	0,02	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
N.3.3	250	1,0	0,036	0,028	0,02	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
N.4.1		1,0															
S.1.1	50	0,5	0,02	0,015	0,012	0,028	0,021	0,015	0,039	0,029	0,02	0,053	0,039	0,026	0,069	0,029	0,035
S.1.2	50	0,5	0,02	0,015	0,012	0,028	0,021	0,015	0,039	0,029	0,02	0,053	0,039	0,026	0,069	0,029	0,035
S.2.1	30	0,5	0,018	0,014	0,01	0,025	0,02	0,014	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035
S.2.2	30	0,5	0,018	0,014	0,01	0,025	0,02	0,014	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035
S.2.3	30	0,5	0,018	0,014	0,01	0,025	0,02	0,014	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035
S.3.1	120	0,5	0,029	0,022	0,016	0,04	0,031	0,023	0,058	0,044	0,029	0,077	0,058	0,039	0,104	0,081	0,058
S.3.2	110	0,5	0,029	0,022	0,016	0,04	0,031	0,022	0,058	0,043	0,029	0,076	0,056	0,038	0,104	0,081	0,058
S.3.3	75	0,5	0,025	0,02	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046
H.1.1	120	0,5	0,023	0,018	0,013	0,032	0,025	0,018	0,047	0,035	0,023	0,062	0,046	0,031	0,081	0,058	0,046
H.1.2	120	0,3	0,023	0,018	0,013	0,032	0,025	0,018	0,047	0,035	0,023	0,062	0,046	0,031	0,081	0,058	0,046
H.1.3	120	0,2	0,023	0,018	0,013	0,032	0,025	0,018	0,047	0,035	0,023	0,062	0,046	0,031	0,081	0,058	0,046
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1																	
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

With an a_p of 1.5 x DC the f_z should be multiplied by 0.75.
With an a_p of 2.0 x DC the f_z should be multiplied by 0.5.

Plunging angle for ramping and helical milling: 3°

	52 205 ... / 52 223 ... / 52 224 ... / 52 225 ... / 52 228 ... / 52 229 ...															● 1st choice ○ suitable		
	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20 mm			Ø DC = 25 mm					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			Emulsion	Compressed air	MMS
P.1.1	0,161	0,115	0,081	0,173	0,127	0,029	0,184	0,15	0,115	0,23	0,184	0,138	0,292	0,234	0,175	●	○	○
P.1.2	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.1.3	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.1.4	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.1.5	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.2.1	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.2.2	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.2.3	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.2.4	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.3.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,19	0,146	0,117	●		
P.3.2	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,204	0,175	0,131	●	○	○
P.3.3	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,204	0,175	0,131	●	○	○
P.4.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,19	0,146	0,117	●		
P.4.2	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,19	0,146	0,117	●		
M.1.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,19	0,146	0,117	●		
M.2.1	0,092	0,069	0,046	0,092	0,069	0,046	0,104	0,081	0,058	0,127	0,104	0,081	0,161	0,131	0,102	●		
M.3.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,19	0,146	0,117	●		
K.1.1	0,207	0,15	0,104	0,219	0,161	0,115	0,242	0,184	0,138	0,288	0,23	0,184	0,365	0,292	0,234	○	●	○
K.1.2	0,207	0,15	0,104	0,219	0,161	0,115	0,242	0,184	0,138	0,288	0,23	0,184	0,365	0,292	0,234	○	●	○
K.2.1	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	○	●	○
K.2.2	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	○	●	○
K.3.1	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	○	●	○
K.3.2	0,15	0,104	0,069	0,161	0,115	0,081	0,173	0,127	0,104	0,207	0,173	0,127	0,263	0,219	0,161	○	●	○
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	0,161	0,115	0,081	0,173	0,127	0,092	0,184	0,15	0,127	0,23	0,184	0,138	0,292	0,234	0,175	●		○
N.3.2	0,161	0,115	0,081	0,173	0,127	0,092	0,184	0,15	0,127	0,23	0,184	0,138	0,292	0,234	0,175	●		○
N.3.3	0,161	0,115	0,081	0,173	0,127	0,092	0,184	0,15	0,115	0,23	0,184	0,138	0,292	0,234	0,175	●		○
N.4.1																		
S.1.1	0,092	0,069	0,046	0,092	0,069	0,046	0,104	0,081	0,058	0,127	0,104	0,081	0,161	0,131	0,102	●		
S.1.2	0,092	0,069	0,046	0,092	0,069	0,046	0,104	0,081	0,058	0,127	0,104	0,081	0,161	0,131	0,102	●		
S.2.1	0,081	0,058	0,046	0,092	0,035	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,146	0,117	0,088	●		
S.2.2	0,081	0,058	0,046	0,092	0,035	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,146	0,117	0,088	●		
S.2.3	0,081	0,058	0,046	0,092	0,035	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,146	0,117	0,088	●		
S.3.1	0,127	0,092	0,069	0,138	0,104	0,069	0,15	0,115	0,092	0,184	0,15	0,115	0,234	0,19	0,146	●		
S.3.2	0,127	0,092	0,069	0,138	0,104	0,069	0,15	0,115	0,092	0,184	0,15	0,115	0,234	0,19	0,146	●		
S.3.3	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,204	0,175	0,131	●		
H.1.1	0,104	0,081	0,058	0,115	0,081	0,058	0,127	0,092	0,069	0,15	0,127	0,092	0,19	0,161	0,117		●	
H.1.2	0,104	0,081	0,058	0,115	0,081	0,058	0,127	0,092	0,069	0,15	0,127	0,092	0,19	0,161	0,117		●	
H.1.3	0,104	0,081	0,058	0,115	0,081	0,058	0,127	0,092	0,069	0,15	0,127	0,092	0,19	0,161	0,117		●	
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Cutting data standard values – S-Cut – End mill, extra long

				52 205 ... / 52 226 ... / 52 227 ...														
	Type extra long			Ø DC = 3,0 mm			Ø DC = 4,0 mm			Ø DC = 5,0 mm			Ø DC = 6,0 mm			Ø DC = 8,0 mm		
				a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC		f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	130	1,0	0,5	0,036	0,028	0,02	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
P.1.2	120	1,0	0,5	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.1.3	100	1,0	0,5	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.1.4	120	1,0	0,5	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.1.5	100	1,0	0,5	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.2.1	110	1,0	0,5	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.2.2	100	1,0	0,5	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.2.3	100	1,0	0,5	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.2.4	90	1,0	0,5	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.3.1	70	1,0	0,5	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
P.3.2	100	1,0	0,5	0,025	0,02	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046
P.3.3	90	1,0	0,5	0,025	0,02	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046
P.4.1	70	1,0	0,5	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
P.4.2	60	1,0	0,5	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
M.1.1	60	1,0	0,5	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
M.2.1	40	1,0	0,5	0,02	0,015	0,012	0,028	0,021	0,015	0,039	0,029	0,02	0,053	0,039	0,026	0,069	0,029	0,035
M.3.1	60	1,0	0,5	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
K.1.1	180	1,0	0,5	0,046	0,036	0,025	0,063	0,049	0,036	0,091	0,068	0,046	0,122	0,091	0,061	0,161	0,127	0,081
K.1.2	140	1,0	0,5	0,046	0,036	0,025	0,063	0,049	0,036	0,091	0,068	0,046	0,122	0,091	0,061	0,161	0,127	0,081
K.2.1	180	1,0	0,5	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
K.2.2	140	1,0	0,5	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
K.3.1	140	1,0	0,5	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
K.3.2	120	1,0	0,5	0,032	0,025	0,018	0,046	0,036	0,025	0,066	0,048	0,032	0,087	0,064	0,044	0,115	0,092	0,058
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	250	1,0	0,5	0,036	0,028	0,02	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
N.3.2	250	1,0	0,5	0,036	0,028	0,02	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
N.3.3	250	1,0	0,5	0,036	0,028	0,02	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
N.4.1																		
S.1.1	40	0,5	0,25	0,02	0,015	0,012	0,028	0,021	0,015	0,039	0,029	0,02	0,053	0,039	0,026	0,069	0,029	0,035
S.1.2	40	0,5	0,25	0,02	0,015	0,012	0,028	0,021	0,015	0,039	0,029	0,02	0,053	0,039	0,026	0,069	0,029	0,035
S.2.1	25	0,5	0,25	0,018	0,014	0,01	0,025	0,02	0,014	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035
S.2.2	25	0,5	0,25	0,018	0,014	0,01	0,025	0,02	0,014	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035
S.2.3	25	0,5	0,25	0,018	0,014	0,01	0,025	0,02	0,014	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035
S.3.1	50	0,5	0,25	0,029	0,022	0,016	0,04	0,031	0,023	0,058	0,044	0,029	0,077	0,058	0,039	0,104	0,081	0,058
S.3.2	40	0,5	0,25	0,029	0,022	0,016	0,04	0,031	0,022	0,058	0,043	0,029	0,076	0,056	0,038	0,104	0,081	0,058
S.3.3	40	0,5	0,25	0,025	0,02	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046
H.1.1	100	0,5	0,5	0,023	0,018	0,013	0,032	0,025	0,018	0,047	0,035	0,023	0,062	0,046	0,031	0,081	0,058	0,046
H.1.2	100	0,5	0,3	0,023	0,018	0,013	0,032	0,025	0,018	0,047	0,035	0,023	0,062	0,046	0,031	0,081	0,058	0,046
H.1.3	100	0,5	0,15	0,023	0,018	0,013	0,032	0,025	0,018	0,047	0,035	0,023	0,062	0,046	0,031	0,081	0,058	0,046
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Plunging angle for ramping and helical milling: 3°

	52 205 ... / 52 226 ... / 52 227 ...															● 1st choice ○ suitable		
	Ø DC = 10,0 mm			Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20,0 mm			Ø DC = 25,0 mm					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
P.1.1	0,161	0,115	0,081	0,173	0,127	0,029	0,184	0,15	0,115	0,23	0,184	0,138	0,276	0,23	0,184	●	○	○
P.1.2	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.1.3	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.1.4	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.1.5	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.2.1	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.2.2	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.2.3	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.2.4	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.3.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,184	0,15	0,115	●		
P.3.2	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,184	0,161	0,138	●	○	○
P.3.3	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,184	0,161	0,138	●	○	○
P.4.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,184	0,15	0,115	●		
P.4.2	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,184	0,15	0,115	●		
M.1.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,184	0,15	0,115	●		
M.2.1	0,092	0,069	0,046	0,092	0,069	0,046	0,104	0,081	0,058	0,127	0,104	0,081	0,15	0,127	0,104	●		
M.3.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,184	0,15	0,115	●		
K.1.1	0,207	0,15	0,104	0,219	0,161	0,115	0,242	0,184	0,138	0,288	0,23	0,184	0,345	0,288	0,23	○	●	○
K.1.2	0,207	0,15	0,104	0,219	0,161	0,115	0,242	0,184	0,138	0,288	0,23	0,184	0,345	0,288	0,23	○	●	○
K.2.1	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	○	●	○
K.2.2	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	○	●	○
K.3.1	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	○	●	○
K.3.2	0,15	0,104	0,069	0,161	0,115	0,081	0,173	0,127	0,104	0,207	0,173	0,127	0,242	0,207	0,173	○	●	○
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	0,161	0,115	0,081	0,173	0,127	0,092	0,184	0,15	0,127	0,23	0,184	0,138	0,276	0,23	0,184	●		○
N.3.2	0,161	0,115	0,081	0,173	0,127	0,092	0,184	0,15	0,127	0,23	0,184	0,138	0,276	0,23	0,184	●		○
N.3.3	0,161	0,115	0,081	0,173	0,127	0,092	0,184	0,15	0,115	0,23	0,184	0,138	0,276	0,23	0,184	●		○
N.4.1																		
S.1.1	0,092	0,069	0,046	0,092	0,069	0,046	0,104	0,081	0,058	0,127	0,104	0,081	0,15	0,127	0,104	●		
S.1.2	0,092	0,069	0,046	0,092	0,069	0,046	0,104	0,081	0,058	0,127	0,104	0,081	0,15	0,127	0,104	●		
S.2.1	0,081	0,058	0,046	0,092	0,035	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,138	0,115	0,092	●		
S.2.2	0,081	0,058	0,046	0,092	0,035	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,138	0,115	0,092	●		
S.2.3	0,081	0,058	0,046	0,092	0,035	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,138	0,115	0,092	●		
S.3.1	0,127	0,092	0,069	0,138	0,104	0,069	0,15	0,115	0,092	0,184	0,15	0,115	0,219	0,184	0,15	●		
S.3.2	0,127	0,092	0,069	0,138	0,104	0,069	0,15	0,115	0,092	0,184	0,15	0,115	0,219	0,184	0,15	●		
S.3.3	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,184	0,161	0,138	●		
H.1.1	0,104	0,081	0,058	0,115	0,081	0,058	0,127	0,092	0,069	0,15	0,127	0,092	0,173	0,15	0,127		●	
H.1.2	0,104	0,081	0,058	0,115	0,081	0,058	0,127	0,092	0,069	0,15	0,127	0,092	0,173	0,15	0,127		●	
H.1.3	0,104	0,081	0,058	0,115	0,081	0,058	0,127	0,092	0,069	0,15	0,127	0,092	0,173	0,15	0,127		●	
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Cutting data standard values – S-Cut – End mills – SC-UNI, ZEFP = 5, long

			52 230 ...															
			Ø DC = 6 mm				Ø DC = 8 mm				Ø DC = 10 mm				Ø DC = 12 mm			
	Type long	max. angle of engagement	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m
Index	v_c m/min		f_z mm				f_z mm				f_z mm				f_z mm			
P.1.1	280	50°	0,134	0,095	0,077	0,03	0,157	0,111	0,09	0,035	0,201	0,142	0,116	0,045	0,255	0,18	0,147	0,057
P.1.2	280	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,04	0,228	0,161	0,132	0,051
P.1.3	280	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,04	0,228	0,161	0,132	0,051
P.1.4	260	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,04	0,228	0,161	0,132	0,051
P.1.5	260	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,04	0,228	0,161	0,132	0,051
P.2.1	280	50°	0,134	0,095	0,077	0,03	0,157	0,111	0,09	0,035	0,201	0,142	0,116	0,045	0,255	0,18	0,147	0,057
P.2.2	280	50°	0,134	0,095	0,077	0,03	0,157	0,111	0,09	0,035	0,201	0,142	0,116	0,045	0,255	0,18	0,147	0,057
P.2.3	280	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,04	0,228	0,161	0,132	0,051
P.2.4	280	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,04	0,228	0,161	0,132	0,051
P.3.1	160	50°	0,08	0,057	0,046	0,018	0,098	0,07	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
P.3.2	220	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,04	0,228	0,161	0,132	0,051
P.3.3	220	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,04	0,228	0,161	0,132	0,051
P.4.1	180	50°	0,08	0,057	0,046	0,018	0,098	0,07	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
P.4.2	180	50°	0,08	0,057	0,046	0,018	0,098	0,07	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
M.1.1	140	45°	0,08	0,057	0,046	0,018	0,098	0,07	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
M.2.1	140	45°	0,08	0,057	0,046	0,018	0,098	0,07	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
M.3.1	140	45°	0,08	0,057	0,046	0,018	0,098	0,07	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
K.1.1	300	50°	0,134	0,095	0,077	0,03	0,157	0,111	0,09	0,035	0,201	0,142	0,116	0,045	0,255	0,18	0,147	0,057
K.1.2	300	50°	0,134	0,095	0,077	0,03	0,157	0,111	0,09	0,035	0,201	0,142	0,116	0,045	0,255	0,18	0,147	0,057
K.2.1	300	50°	0,134	0,095	0,077	0,03	0,157	0,111	0,09	0,035	0,201	0,142	0,116	0,045	0,255	0,18	0,147	0,057
K.2.2	260	50°	0,134	0,095	0,077	0,03	0,157	0,111	0,09	0,035	0,201	0,142	0,116	0,045	0,255	0,18	0,147	0,057
K.3.1	260	50°	0,112	0,079	0,065	0,025	0,157	0,111	0,09	0,035	0,179	0,126	0,103	0,04	0,228	0,161	0,132	0,051
K.3.2	200	50°	0,112	0,079	0,065	0,025	0,157	0,111	0,09	0,035	0,179	0,126	0,103	0,04	0,228	0,161	0,132	0,051
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1																		
N.3.2																		
N.3.3																		
N.4.1																		
S.1.1	140	40°	0,08	0,057	0,046	0,018	0,098	0,07	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
S.1.2	140	40°	0,08	0,057	0,046	0,018	0,098	0,07	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
S.2.1	60	40°	0,045	0,032	0,026	0,01	0,054	0,038	0,031	0,012	0,067	0,047	0,039	0,015	0,085	0,06	0,049	0,019
S.2.2	60	40°	0,045	0,032	0,026	0,01	0,054	0,038	0,031	0,012	0,067	0,047	0,039	0,015	0,085	0,06	0,049	0,019
S.2.3	60	40°	0,045	0,032	0,026	0,01	0,054	0,038	0,031	0,012	0,067	0,047	0,039	0,015	0,085	0,06	0,049	0,019
S.3.1	140	40°	0,045	0,032	0,026	0,01	0,072	0,051	0,041	0,016	0,089	0,063	0,052	0,02	0,112	0,079	0,065	0,025
S.3.2	120	40°	0,045	0,032	0,026	0,01	0,072	0,051	0,041	0,016	0,089	0,063	0,052	0,02	0,112	0,079	0,065	0,025
S.3.3	100	40°	0,045	0,032	0,026	0,01	0,054	0,038	0,031	0,012	0,067	0,047	0,039	0,015	0,085	0,06	0,049	0,019
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Cutting depth corresponding to the cutting length

	52 230 ...										
	Ø DC = 16 mm				Ø DC = 20 mm				● 1st choice		
									○ suitable		
	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	Emulsion	Compressed air	MMS
Index	f_z mm				f_z mm						
P.1.1	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
P.1.2	0,268	0,19	0,155	0,06	0,291	0,206	0,168	0,065	○	●	○
P.1.3	0,268	0,19	0,155	0,06	0,291	0,206	0,168	0,065	○	●	○
P.1.4	0,268	0,19	0,155	0,06	0,291	0,206	0,168	0,065	○	●	○
P.1.5	0,268	0,19	0,155	0,06	0,291	0,206	0,168	0,065	○	●	○
P.2.1	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
P.2.2	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
P.2.3	0,268	0,19	0,155	0,06	0,291	0,206	0,168	0,065	○	●	○
P.2.4	0,268	0,19	0,155	0,06	0,291	0,206	0,168	0,065	○	●	○
P.3.1	0,188	0,133	0,108	0,042	0,268	0,19	0,155	0,06	●		
P.3.2	0,268	0,19	0,155	0,06	0,291	0,206	0,168	0,065	○	●	○
P.3.3	0,268	0,19	0,155	0,06	0,291	0,206	0,168	0,065	○	●	○
P.4.1	0,188	0,133	0,108	0,042	0,268	0,19	0,155	0,06	●		
P.4.2	0,188	0,133	0,108	0,042	0,268	0,19	0,155	0,06	●		
M.1.1	0,188	0,133	0,108	0,042	0,268	0,19	0,155	0,06	●		
M.2.1	0,188	0,133	0,108	0,042	0,268	0,19	0,155	0,06	●		
M.3.1	0,188	0,133	0,108	0,042	0,268	0,19	0,155	0,06	●		
K.1.1	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
K.1.2	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
K.2.1	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
K.2.2	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
K.3.1	0,268	0,19	0,155	0,06	0,291	0,206	0,168	0,065	○	●	○
K.3.2	0,268	0,19	0,155	0,06	0,291	0,206	0,168	0,065	○	●	○
N.1.1											
N.1.2											
N.2.1											
N.2.2											
N.2.3											
N.3.1											
N.3.2											
N.3.3											
N.4.1											
S.1.1	0,188	0,133	0,108	0,042	0,268	0,19	0,155	0,06	●		
S.1.2	0,188	0,133	0,108	0,042	0,268	0,19	0,155	0,06	●		
S.2.1	0,116	0,082	0,067	0,026	0,161	0,114	0,093	0,036	●		
S.2.2	0,116	0,082	0,067	0,026	0,161	0,114	0,093	0,036	●		
S.2.3	0,116	0,082	0,067	0,026	0,161	0,114	0,093	0,036	●		
S.3.1	0,157	0,111	0,09	0,035	0,219	0,155	0,127	0,049	●		
S.3.2	0,157	0,111	0,09	0,035	0,219	0,155	0,127	0,049	●		
S.3.3	0,116	0,082	0,067	0,026	0,161	0,114	0,093	0,036	●		
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1											
O.1.2											
O.2.1											
O.2.2											
O.3.1											

Cutting data standard values – 3D Finish – barrel shape

		52 739 ...				
		Ø DC = 10 mm		● 1st choice ○ suitable		
		a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	Emulsion	Compressed air	MMS
Index	v_c m/min	f_z mm				
P.1.1	280	0,07	0,06	●	●	○
P.1.2	250	0,07	0,05	●	●	○
P.1.3	250	0,07	0,05	●	●	○
P.1.4	250	0,07	0,05	●	●	○
P.1.5	250	0,07	0,05	●	●	○
P.2.1	250	0,07	0,05	●	●	○
P.2.2	250	0,07	0,05	●	●	○
P.2.3	210	0,06	0,04	●	●	○
P.2.4	210	0,06	0,04	●	●	○
P.3.1	210	0,06	0,04	●	●	○
P.3.2	200	0,05	0,03		●	
P.3.3	200	0,05	0,03		●	
P.4.1	80	0,05	0,03	●		○
P.4.2	80	0,05	0,03	●		○
M.1.1	60	0,04	0,02	●		○
M.2.1	60	0,04	0,02	●		○
M.3.1	60	0,04	0,02	●		○
K.1.1	280	0,08	0,06		●	
K.1.2	280	0,08	0,06		●	
K.2.1	250	0,07	0,05		●	
K.2.2	250	0,07	0,05		●	
K.3.1	140	0,04	0,03		●	
K.3.2	140	0,04	0,03		●	
N.1.1	600	0,07	0,05	●		○
N.1.2	600	0,06	0,04	●		○
N.2.1	410	0,07	0,05	●		○
N.2.2						
N.2.3						
N.3.1	180	0,08	0,06	●	○	○
N.3.2	180	0,08	0,06	●		○
N.3.3	180	0,08	0,06	●		○
N.4.1	410	0,1	0,08	●		○
S.1.1	30	0,04	0,02	●		
S.1.2	30	0,04	0,02	●		
S.2.1	30	0,04	0,02	●		
S.2.2	30	0,04	0,02	●		
S.2.3	30	0,04	0,02	●		
S.3.1	100	0,04	0,02	●		
S.3.2	80	0,04	0,02	●		
S.3.3	60	0,04	0,02	●		
H.1.1	100	0,05	0,03		●	
H.1.2						
H.1.3						
H.1.4						
H.2.1	130	0,05	0,03		●	
H.3.1	100	0,05	0,03		●	
O.1.1	410	0,1	0,08	●	○	○
O.1.2	600	0,1	0,08	●		○
O.2.1						
O.2.2						
O.3.1						

In order to calculate the rotational speed n, the diameter DC has to be used.

Cutting data standard values – 3D Finish – oval shape

		52 745 ...																		
		Ø DC = 6 mm			Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			● 1st choice		
																	○ suitable		
		a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,2–0,3 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,2–0,3 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,2–0,3 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,2–0,3 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,2–0,3 mm			
Index	v_c m/min	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			Emulsion	Compressed air	MMS
P.1.1	280	0,04	0,04	0,04	0,06	0,06	0,05	0,07	0,07	0,06	0,08	0,08	0,07	0,11	0,11	0,1	●	●	○
P.1.2	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,1	0,08	●	●	○
P.1.3	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,1	0,08	●	●	○
P.1.4	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,1	0,08	●	●	○
P.1.5	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,1	0,08	●	●	○
P.2.1	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,1	0,08	●	●	○
P.2.2	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,1	0,08	●	●	○
P.2.3	210	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,1	0,08	0,06	●	●	○
P.2.4	210	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,1	0,08	0,06	●	●	○
P.3.1	210	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,1	0,08	0,06	●	●	○
P.3.2	200	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05		●	
P.3.3	200	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05		●	
P.4.1	80	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05	●		○
P.4.2	80	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05	●		○
M.1.1	60	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		○
M.2.1	60	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		○
M.3.1	60	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		○
K.1.1	280	0,05	0,04	0,04	0,06	0,06	0,05	0,08	0,07	0,06	0,1	0,08	0,07	0,13	0,11	0,1		●	
K.1.2	280	0,05	0,04	0,04	0,06	0,06	0,05	0,08	0,07	0,06	0,1	0,08	0,07	0,13	0,11	0,1		●	
K.2.1	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,1	0,08		●	
K.2.2	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,1	0,08		●	
K.3.1	140	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03		●	
K.3.2	140	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03		●	
N.1.1	600	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,1	0,08	●		○
N.1.2	600	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,1	0,08	0,06	●		○
N.2.1	410	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,1	0,08	●		○
N.2.2																			
N.2.3																			
N.3.1	180	0,05	0,04	0,04	0,06	0,06	0,05	0,08	0,07	0,06	0,1	0,08	0,07	0,13	0,11	0,1	●	○	○
N.3.2	180	0,05	0,04	0,04	0,06	0,06	0,05	0,08	0,07	0,06	0,1	0,08	0,07	0,13	0,11	0,1	●		○
N.3.3	180	0,05	0,04	0,04	0,06	0,06	0,05	0,08	0,07	0,06	0,1	0,08	0,07	0,13	0,11	0,1	●		○
N.4.1	410	0,06	0,05	0,05	0,08	0,06	0,06	0,1	0,08	0,08	0,12	0,1	0,1	0,16	0,13	0,13	●		○
S.1.1	30	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		
S.1.2	30	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		
S.2.1	30	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		
S.2.2	30	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		
S.2.3	30	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		
S.3.1	100	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,1	0,08	0,06	●		
S.3.2	80	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05	●		
S.3.3	60	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05	●		
H.1.1	100	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05		●	
H.1.2																			
H.1.3																			
H.1.4																			
H.2.1	130	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05		●	
H.3.1	100	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05		●	
O.1.1	410	0,06	0,05	0,05	0,08	0,06	0,06	0,1	0,08	0,08	0,12	0,1	0,1	0,16	0,13	0,13	●	○	○
O.1.2	600	0,06	0,05	0,05	0,08	0,06	0,06	0,1	0,08	0,08	0,12	0,1	0,1	0,16	0,13	0,13	●		○
O.2.1																			
O.2.2																			
O.3.1																			

In order to calculate the rotational speed n, the diameter DC has to be used.

Cutting data standard values – 3D Finish – taper shape

		52 753 ... / 52 755 ...													
		Ø DC = 6 mm		Ø DC = 8 mm		Ø DC = 10 mm		Ø DC = 12 mm		Ø DC = 16 mm		● 1st choice		
												○ suitable		
		a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm			
Index	v_c m/min	f_z mm										Emulsion	Compressed air	MMS
P.1.1	280	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,1	0,06	●	●	○
P.1.2	250	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,1	0,06	●	●	○
P.1.3	250	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,1	0,06	●	●	○
P.1.4	250	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,1	0,06	●	●	○
P.1.5	250	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,1	0,06	●	●	○
P.2.1	250	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,1	0,06	●	●	○
P.2.2	250	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,1	0,06	●	●	○
P.2.3	210	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,08	0,05	●	●	○
P.2.4	210	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,08	0,05	●	●	○
P.3.1	210	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,08	0,05	●	●	○
P.3.2	200	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05		●	
P.3.3	200	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05		●	
P.4.1	80	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	●		○
P.4.2	80	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	●		○
M.1.1	60	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		○
M.2.1	60	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		○
M.3.1	60	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		○
K.1.1	280	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,11	0,08		●	
K.1.2	280	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,11	0,08		●	
K.2.1	250	0,04	0,03	0,05	0,04	0,06	0,05	0,07	0,06	0,1	0,08		●	
K.2.2	250	0,04	0,03	0,05	0,04	0,06	0,05	0,07	0,06	0,1	0,08		●	
K.3.1	140	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03		●	
K.3.2	140	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03		●	
N.1.1	600	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,1	0,06	●		○
N.1.2	600	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	●		○
N.2.1	410	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,1	0,06	●		○
N.2.2														
N.2.3														
N.3.1	180	0,04	0,03	0,05	0,04	0,06	0,05	0,07	0,06	0,1	0,08	●	○	○
N.3.2	180	0,04	0,03	0,05	0,04	0,06	0,05	0,07	0,06	0,1	0,08	●		○
N.3.3	180	0,04	0,03	0,05	0,04	0,06	0,05	0,07	0,06	0,1	0,08	●		○
N.4.1	410	0,06	0,05	0,08	0,06	0,1	0,08	0,12	0,1	0,16	0,13	●		○
S.1.1	30	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
S.1.2	30	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
S.2.1	30	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
S.2.2	30	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
S.2.3	30	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
S.3.1	100	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
S.3.2	80	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
S.3.3	60	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
H.1.1	100	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05		●	
H.1.2														
H.1.3														
H.1.4														
H.2.1	130	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05		●	
H.3.1	100	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05		●	
O.1.1	410	0,06	0,05	0,08	0,06	0,1	0,08	0,12	0,1	0,16	0,13	●	○	○
O.1.2	600	0,06	0,05	0,08	0,06	0,1	0,08	0,12	0,1	0,16	0,13	●		○
O.2.1														
O.2.2														
O.3.1														

In order to calculate the rotational speed n, the diameter DC has to be used.

Cutting data standard values – 3D Finish – lens shape

		52 756 ...												
		Ø DC = 4 mm		Ø DC = 6 mm		Ø DC = 8 mm		Ø DC = 10 mm		Ø DC = 12 mm		● 1st choice		
												○ suitable		
		a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm			
Index	v_c m/min	f_z mm		f_z mm		f_z mm		f_z mm		f_z mm		Emulsion	Compressed air	MMS
P.1.1	280	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●	●	○
P.1.2	240	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●	●	○
P.1.3	240	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●	●	○
P.1.4	240	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●	●	○
P.1.5	240	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●	●	○
P.2.1	240	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●	●	○
P.2.2	240	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●	●	○
P.2.3	200	0,02	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	●	●	○
P.2.4	200	0,02	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	●	●	○
P.3.1	200	0,02	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	●	●	○
P.3.2	180	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04		●	
P.3.3	180	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04		●	
P.4.1	120	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04	●		○
P.4.2	120	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04	●		○
M.1.1	90	0,02	0,01	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,02	●		○
M.2.1	90	0,02	0,01	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,02	●		○
M.3.1	90	0,02	0,01	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,02	●		○
K.1.1	300	0,03	0,02	0,05	0,04	0,06	0,05	0,08	0,06	0,1	0,07		●	
K.1.2	300	0,03	0,02	0,05	0,04	0,06	0,05	0,08	0,06	0,1	0,07		●	
K.2.1	270	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06		●	
K.2.2	270	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06		●	
K.3.1	150	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04		●	
K.3.2	150	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04		●	
N.1.1	900	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●		○
N.1.2	900	0,02	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	●		○
N.2.1	600	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●		○
N.2.2														
N.2.3														
N.3.1	270	0,03	0,02	0,05	0,04	0,06	0,05	0,08	0,06	0,1	0,07	●	○	○
N.3.2	270	0,03	0,02	0,05	0,04	0,06	0,05	0,08	0,06	0,1	0,07	●		○
N.3.3	270	0,03	0,02	0,05	0,04	0,06	0,05	0,08	0,06	0,1	0,07	●		○
N.4.1	600	0,04	0,03	0,06	0,05	0,08	0,06	0,1	0,08	0,12	0,1	●		○
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1	150	0,02	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	●		
S.3.2	120	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04	●		
S.3.3	90	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04	●		
H.1.1														
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1														
O.1.1														
O.1.2														
O.2.1														
O.2.2														
O.3.1														

14

In order to calculate the rotational speed n, the diameter DC has to be used.

Cutting data standard values – Micro cutter – 2.2xDC

		52 802 ... / 52 804 ... / 52 806 ...															
		Ø DC = 0,2–0,4 mm					Ø DC = 0,5–0,7 mm					Ø DC = 0,8–0,9 mm					
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC
	$a_{p\,max.}$	0,02	0,02	0,02	0,01	0,01	$a_{p\,max.}$	0,1	0,1	0,1	0,1	0,05	$a_{p\,max.}$	0,2	0,2	0,2	0,2	0,12
	$n_{min.}$	30.000					$n_{min.}$	12.000					$n_{min.}$	8.000				
Index	n	v_f mm/min.					n	v_f mm/min.					n	v_f mm/min.				
P.1.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
P.1.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
P.1.3	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
P.1.4	50.000	201	175	151	125	101	50.000	237	206	178	147	119	50.000	420	365	315	260	210
P.1.5	50.000	201	175	151	125	101	50.000	237	206	178	147	119	50.000	420	365	315	260	210
P.2.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
P.2.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
P.2.3	50.000	201	175	151	125	101	50.000	237	206	178	147	119	50.000	420	365	315	260	210
P.2.4	50.000	201	175	151	125	101	50.000	237	206	178	147	119	50.000	420	365	315	260	210
P.3.1	50.000	201	175	151	125	101	50.000	237	206	178	147	119	50.000	420	365	315	260	210
P.3.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
P.3.3	50.000	201	175	151	125	101	50.000	237	206	178	147	119	50.000	420	365	315	260	210
P.4.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
P.4.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
M.1.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
M.2.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
M.3.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
K.1.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
K.1.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
K.2.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
K.2.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
K.3.1	50.000	141	123	106	88	71	50.000	175	152	131	109	88	32.000	285	248	213	176	142
K.3.2	50.000	141	123	106	88	71	50.000	175	152	131	109	88	32.000	285	248	213	176	142
N.1.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	582	506	436	361	291
N.1.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	582	506	436	361	291
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	44.000	485	422	364	301	242
N.3.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	582	506	436	361	291
N.3.3	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	582	506	436	361	291
N.4.1	50.000	212	185	159	132	106	50.000	250	218	188	155	125	50.000	531	462	398	329	266
S.1.1	50.000	46	40	35	29	23	30.000	55	48	41	34	27	19.000	69	60	51	43	34
S.1.2	50.000	46	40	35	29	23	30.000	55	48	41	34	27	19.000	69	60	51	43	34
S.2.1	50.000	72	62	54	44	36	50.000	89	77	66	55	44	25.000	91	79	68	56	45
S.2.2	50.000	46	40	35	29	23	30.000	55	48	41	34	27	19.000	69	60	51	43	34
S.2.3	50.000	54	47	41	34	27	30000	66	57	49	41	33	12.000	78	68	59	49	39
S.3.1	50.000	114	99	85	71	57	50.000	164	143	123	102	82	44.000	114	99	85	71	57
S.3.2	50.000	114	99	85	71	57	50.000	164	143	123	102	82	44.000	164	143	123	102	82
S.3.3	50.000	70	61	53	43	35	50.000	85	74	64	53	42	38.000	101	88	76	63	51
H.1.1	50.000	219	191	164	136	110	50.000	232	202	174	144	116	50.000	388	338	291	241	194
H.1.2	50.000	201	175	151	125	101	50.000	285	248	213	176	142	38.000	336	292	252	208	168
H.1.3	50.000	114	99	85	71	57	50.000	134	117	101	83	67	25.000	156	136	117	97	78
H.1.4	50.000	107	93	80	67	54	50.000	126	110	95	78	63	25.000	141	123	106	88	71
H.2.1	50.000	219	191	164	136	110	50.000	232	202	174	144	116	50.000	388	338	291	241	194
H.3.1	50.000	201	175	151	125	101	50.000	285	248	213	176	142	38.000	336	292	252	208	168
O.1.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	582	506	436	361	291
O.1.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	582	506	436	361	291
O.2.1	50.000	212	185	159	132	106	50.000	200	174	150	124	100	38.000	316	275	237	196	158
O.2.2	50.000	212	185	159	132	106	50.000	200	174	150	124	100	38.000	316	275	237	196	158
O.3.1																		

		52 802 ... / 52 804 ... / 52 806 ...												● 1st choice		
		Ø DC = 1,0–1,4 mm						Ø DC = 1,5–1,7 mm						○ suitable		
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6 –1,0 x DC		a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC			
	$a_{p\,max.}$	0,3	0,3	0,3	0,3	0,2		$a_{p\,max.}$	0,45	0,45	0,45	0,45	0,3			
	$n_{min.}$	6.500						$n_{min.}$	6.500							
Index	n	v_f mm/min.						n	v_f mm/min.					Emulsion	Compressed air	MMS
P.1.1	50.000	775	674	581	480	387		33.000	1200	1044	900	744	600	●	○	○
P.1.2	50.000	775	674	581	480	387		33.000	1200	1044	900	744	600	●	○	○
P.1.3	50.000	775	674	581	480	387		33.000	1200	1044	900	744	600	●	○	○
P.1.4	50.000	671	584	503	416	335		33.000	1039	904	779	644	520	●	○	○
P.1.5	50.000	671	584	503	416	335		33.000	1039	904	779	644	520	●	○	○
P.2.1	50.000	775	674	581	480	387		33.000	1200	1044	900	744	600		●	○
P.2.2	50.000	775	674	581	480	387		33.000	1200	1044	900	744	600		●	○
P.2.3	50.000	671	584	503	416	335		33.000	1039	904	779	644	520		●	○
P.2.4	50.000	671	584	503	416	335		33.000	1039	904	779	644	520		●	○
P.3.1	50.000	671	584	503	416	335		33.000	1039	904	779	644	520		●	○
P.3.2	50.000	775	674	581	480	387		33.000	1200	1044	900	744	600		●	○
P.3.3	50.000	671	584	503	416	335		33.000	1039	904	779	644	520		●	○
P.4.1	50.000	775	674	581	480	387		33.000	1200	1044	900	744	600		●	○
P.4.2	50.000	775	674	581	480	387		33.000	1200	1044	900	744	600		●	○
M.1.1	50.000	775	674	581	480	387		33.000	1200	1044	900	744	600	●		○
M.2.1	50.000	775	674	581	480	387		33.000	1200	1044	900	744	600	●		○
M.3.1	50.000	775	674	581	480	387		33.000	1200	1044	900	744	600	●		○
K.1.1	50.000	775	674	581	480	387		33.000	1200	1044	900	744	600	○	●	
K.1.2	50.000	775	674	581	480	387		33.000	1200	1044	900	744	600	○	●	
K.2.1	50.000	775	674	581	480	387		33.000	1200	1044	900	744	600	○	●	
K.2.2	50.000	775	674	581	480	387		33.000	1200	1044	900	744	600	○	●	
K.3.1	50.000	389	338	292	241	194		21.000	548	477	411	340	274		●	
K.3.2	25000	389	338	292	241	194		21.000	548	477	411	340	274		●	
N.1.1	50.000	930	809	697	576	465		50.000	1500	1305	1125	930	750	●		○
N.1.2	50.000	930	809	697	576	465		50.000	1500	1305	1125	930	750	●		○
N.2.1																
N.2.2																
N.2.3																
N.3.1	44.000	775	674	581	480	387		29.000	1160	1009	870	719	580	●		○
N.3.2	50.000	930	809	697	576	465		38.000	1400	1218	1050	868	700	●		○
N.3.3	50.000	930	809	697	576	465		38.000	1400	1218	1050	868	700	●		○
N.4.1	50.000	849	738	636	526	424		38.000	1388	1207	1041	860	694	●		○
S.1.1	15.000	99	86	74	61	49		12.000	170	148	127	105	85	●		○
S.1.2	15.000	99	86	74	61	49		12.000	170	148	127	105	85	●		○
S.2.1	25.000	152	132	114	94	76		16.000	294	256	220	182	147	●		○
S.2.2	15.000	99	86	74	61	49		12.000	170	148	127	105	85	●		○
S.2.3	12.000	131	114	99	82	66		8.000	255	221	191	158	127	●		○
S.3.1	44.000	170	148	127	105	85		29.000	329	286	246	204	164	●		○
S.3.2	44.000	247	215	186	153	124		29.000	365	318	274	226	183	●		○
S.3.3	38.000	170	148	127	105	85		25.000	329	286	246	204	164	●		○
H.1.1	50.000	620	539	465	384	310		33.000	850	740	638	527	425		●	
H.1.2	38.000	537	467	402	333	268		25.000	779	678	585	483	390		●	
H.1.3	25.000	235	204	176	146	117		16.000	346	301	260	215	173		●	
H.1.4	25.000	221	193	166	137	111		16.000	327	284	245	202	163		●	
H.2.1	50.000	620	539	465	384	310		33.000	850	740	638	527	425		●	
H.3.1	38.000	537	467	402	333	268		25.000	779	678	585	483	390		●	
O.1.1	50.000	930	809	697	576	465		38.000	1520	1322	1140	942	760	●	○	○
O.1.2	50.000	930	809	697	576	465		33.000	1320	1148	990	818	660	●	○	○
O.2.1	38.000	495	431	371	307	247		25.000	685	596	513	424	342	●	○	○
O.2.2	38.000	495	431	371	307	247		25.000	685	596	513	424	342	●	○	○
O.3.1																

Continued on the next page

Cutting data standard values – Micro cutter – 2.2xDC

		52 802 ... / 52 804 ... / 52 806 ...												● 1st choice		
		Ø DC = 1,8–1,9 mm						Ø DC = 2,0 mm						○ suitable		
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC				
	$a_{p\,max.}$	0,54	0,54	0,54	0,54	0,36	$a_{p\,max.}$	0,6	0,6	0,6	0,6	0,4				
	$n_{min.}$	5.500					$n_{min.}$	5.000								
Index	n	v_f mm/min.					n	v_f mm/min.						Emulsion	Compressed air	MMS
P.1.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○	○
P.1.2	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○	○
P.1.3	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○	○
P.1.4	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○	○
P.1.5	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○	○
P.2.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750			●	○
P.2.2	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750			●	○
P.2.3	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750			●	○
P.2.4	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750			●	○
P.3.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750			●	○
P.3.2	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750			●	○
P.3.3	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750			●	○
P.4.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750			●	○
P.4.2	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750			●	○
M.1.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●		○
M.2.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●		○
M.3.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●		○
K.1.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		○	●	
K.1.2	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		○	●	
K.2.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		○	●	
K.2.2	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		○	●	
K.3.1	18.000	630	548	473	391	315	12.000	750	650	550	450	350			●	
K.3.2	18.000	630	548	473	391	315	12.000	750	650	550	450	350			●	
N.1.1	44.000	1800	1566	1350	1116	900	25.000	1500	1300	1125	930	750		●		○
N.1.2	44.000	1800	1566	1350	1116	900	25.000	1500	1300	1125	930	750		●		○
N.2.1																
N.2.2																
N.2.3																
N.3.1	25.000	1250	1088	938	775	625	19.000	1140	990	855	700	570		●		○
N.3.2	32.000	1520	1322	1140	942	760	25.000	1500	1300	1125	930	750		●		○
N.3.3	32.000	1520	1322	1140	942	760	25.000	1500	1300	1125	930	750		●		○
N.4.1	33.000	1560	1357	1170	967	780	25.000	1500	1300	1125	930	750		●		○
S.1.1	10.000	280	244	210	174	140	7.500	300	260	230	200	160		●		○
S.1.2	10.000	280	244	210	174	140	7.500	300	260	230	200	160		●		○
S.2.1	14.000	420	365	315	260	210	12.500	500	400	350	300	250		●		○
S.2.2	10.000	280	244	210	174	140	7.500	300	260	230	200	160		●		○
S.2.3	7.000	370	322	278	229	185	6.000	300	260	230	200	160		●		○
S.3.1	25.000	400	348	300	248	200	25.000	1500	1300	1125	930	750		●		○
S.3.2	25.000	480	418	360	298	240	25.000	1500	1300	1125	930	750		●		○
S.3.3	22.000	380	331	285	236	190	25.000	1500	1300	1125	930	750		●		○
H.1.1	29.000	1200	1044	900	744	600	25.000	1500	1300	1125	930	750			●	
H.1.2	22.000	1000	870	750	620	500	19.000	1140	990	855	700	570			●	
H.1.3	14.000	420	365	315	260	210	19.000	1140	990	855	700	570			●	
H.1.4	14.000	420	365	315	260	210	19.000	1140	990	855	700	570			●	
H.2.1	29.000	1200	1044	900	744	600	25.000	1500	1300	1125	930	750			●	
H.3.1	22.000	1000	870	750	620	500	19.000	1140	990	855	700	570			●	
O.1.1	33.000	1560	1357	1170	967	780	19.000	1140	990	855	700	570		●	○	○
O.1.2	28.000	1400	1218	1050	868	700	19.000	1140	990	855	700	570		●	○	○
O.2.1	22.000	800	696	600	496	400	12.000	720	630	540	450	360		●	○	○
O.2.2	22.000	800	696	600	496	400	12.000	720	630	540	450	360		●	○	○
O.3.1																

Cutting data standard values – Micro cutter – 5xDC

	52 802 ... / 52 804 ... / 52 806 ...																● 1st choice ○ suitable		
	Ø DC = 0,2–0,4 mm					Ø DC = 0,5–0,7 mm					Ø DC = 0,8–0,9 mm								
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC			
	$a_{p\,max.}$	0,012	0,012	0,012	0,012	$a_{p\,max.}$	0,06	0,06	0,06	0,06	$a_{p\,max.}$	0,12	0,12	0,12	0,12	0,064			
	$n_{min.}$	30.000				$n_{min.}$	12.000				$n_{min.}$	8.000							
Index	n	v_f mm/min.				n	v_f mm/min.				n	v_f mm/min.					Emulsion	Compressed air	MMS
P.1.1	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242	●	○	○
P.1.2	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242	●	○	○
P.1.3	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242	●	○	○
P.1.4	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165	●	○	○
P.1.5	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165	●	○	○
P.2.1	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242		●	○
P.2.2	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242		●	○
P.2.3	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165		●	○
P.2.4	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165		●	○
P.3.1	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165		●	○
P.3.2	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242		●	○
P.3.3	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165		●	○
P.4.1	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242		●	○
P.4.2	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242		●	○
M.1.1	50.000	232	202	174	144	50.000	219	191	164	136	31.000	346	301	260	215	173	●		○
M.2.1	50.000	232	202	174	144	50.000	219	191	164	136	31.000	346	301	260	215	173	●		○
M.3.1	50.000	232	202	174	144	50.000	219	191	164	136	31.000	346	301	260	215	173	●		○
K.1.1	50.000	232	202	174	144	50.000	219	191	164	136	50.000	416	362	312	258	208	○	●	
K.1.2	50.000	232	202	174	144	50.000	219	191	164	136	50.000	416	362	312	258	208	○	●	
K.2.1	50.000	232	202	174	144	50.000	219	191	164	136	50.000	416	362	312	258	208	○	●	
K.2.2	50.000	232	202	174	144	50.000	219	191	164	136	50.000	416	362	312	258	208	○	●	
K.3.1	50.000	141	123	106	88	50.000	175	152	131	109	25.000	240	209	180	149	120		●	
K.3.2	50.000	141	123	106	88	50.000	175	152	131	109	25.000	240	209	180	149	120		●	
N.1.1	50.000	232	202	174	144	50.000	274	238	205	170	50.000	554	482	416	344	277	●		○
N.1.2	50.000	232	202	174	144	50.000	274	238	205	170	50.000	554	482	416	344	277	●		○
N.2.1																			
N.2.2																			
N.2.3																			
N.3.1	50.000	232	202	174	144	50.000	274	238	205	170	38.000	485	422	364	301	242	●		○
N.3.2	50.000	232	202	174	144	50.000	274	238	205	170	50.000	554	482	416	344	277	●		○
N.3.3	50.000	232	202	174	144	50.000	274	238	205	170	50.000	554	482	416	344	277	●		○
N.4.1	50.000	212	185	159	132	50.000	250	218	188	155	50.000	506	440	379	314	253	●		○
S.1.1	50.000	55	48	41	32	31.000	58	51	44	36	15.000	98	85	73	61	49	●		○
S.1.2	50.000	55	48	41	32	31.000	58	51	44	36	15.000	98	85	73	61	49	●		○
S.2.1	50.000	63	54	47	39	44.000	76	66	57	47	22.000	91	79	68	56	45	●		○
S.2.2	50.000	55	47	40	32	31.000	58	51	44	36	15.000	98	85	73	61	49	●		○
S.2.3	50.000	46	40	35	29	25.000	55	48	41	34	12.000	78	68	59	49	39	●		○
S.3.1	50.000	60	61	48	41	50.000	71	62	53	44	38.000	114	99	85	71	57	●		○
S.3.2	50.000	60	61	48	41	50.000	71	62	53	44	38.000	126	110	95	78	63	●		○
S.3.3	50.000	60	52	45	37	50.000	71	62	49	39	31.000	89	77	66	55	44	●		○
H.1.1	50.000	95	83	71	59	50.000	134	117	101	83	31.000	180	157	135	112	90		●	
H.1.2	50.000	95	83	71	59	44.000	134	117	101	83	22.000	180	157	135	112	90		●	
H.1.3	50.000	89	78	67	55	44.000	126	110	95	78	22.000	170	148	127	105	85		●	
H.1.4																			
H.2.1	50.000	155	135	116	96	50.000	164	143	123	102	44.000	346	301	260	215	173		●	
H.3.1	50.000	95	83	71	59	50.000	134	117	101	83	31.000	180	157	135	112	90		●	
O.1.1	50.000	232	202	174	144	50.000	274	238	205	170	50.000	554	482	416	344	277	●	○	○
O.1.2	50.000	232	202	174	144	50.000	274	238	205	170	44.000	554	482	416	344	277	●	○	○
O.2.1	50.000	141	123	106	88	50.000	200	174	150	124	31.000	316	275	237	196	158	●	○	○
O.2.2	50.000	141	123	106	88	50.000	200	174	150	124	31.000	316	275	237	196	158	●	○	○
O.3.1																			

Continued on the next page

a_e= 0.6–1.0 x DC: If values are missing, only trochoidal slot milling and profiling are permitted. Otherwise, there is the risk of tool breakage.

Cutting data standard values – Micro cutter – 5xDC

		52 802 ... / 52 804 ... / 52 806 ...															
		Ø DC = 1,0–1,4 mm					Ø DC = 1,5–1,7 mm					Ø DC = 1,8–1,9 mm					
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC
	$a_{p\,max.}$	0,3	0,3	0,3	0,3	0,2	$a_{p\,max.}$	0,3	0,3	0,3	0,3	0,2	$a_{p\,max.}$	0,54	0,54	0,54	0,54	0,36
	$n_{min.}$	6.500					$n_{min.}$	6.500					$n_{min.}$	5.500				
Index	n	v_f mm/min.					n	v_f mm/min.					n	v_f mm/min.				
P.1.1	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
P.1.2	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
P.1.3	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
P.1.4	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
P.1.5	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
P.2.1	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
P.2.2	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
P.2.3	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
P.2.4	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
P.3.1	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
P.3.2	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
P.3.3	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
P.4.1	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
P.4.2	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
M.1.1	31.000	480	418	360	298	240	21.000	800	696	600	496	400	18.000	850	740	638	527	425
M.2.1	31.000	480	418	360	298	240	21.000	800	696	600	496	400	18.000	850	740	638	527	425
M.3.1	31.000	480	418	360	298	240	21.000	800	696	600	496	400	18.000	850	740	638	527	425
K.1.1	50.000	620	539	465	384	310	33.000	1000	870	750	620	500	28.000	1320	1148	990	818	660
K.1.2	50.000	620	539	465	384	310	33.000	1000	870	750	620	500	28.000	1320	1148	990	818	660
K.2.1	50.000	620	539	465	384	310	33.000	1000	870	750	620	500	28.000	1320	1148	990	818	660
K.2.2	50.000	620	539	465	384	310	33.000	1000	870	750	620	500	28.000	1320	1148	990	818	660
K.3.1	25.000	297	258	223	184	148	16.000	411	357	308	255	205	14.000	480	418	360	298	240
K.3.2	25.000	297	258	223	184	148	16.000	411	357	308	255	205	14.000	480	418	360	298	240
N.1.1	50.000	775	674	581	480	387	42.000	1200	1044	900	744	600	36.000	1500	1305	1125	930	750
N.1.2	50.000	775	674	581	480	387	42.000	1200	1044	900	744	600	36.000	1500	1305	1125	930	750
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	38.000	697	607	523	432	349	25.000	1000	870	750	620	500	22.000	1100	957	825	682	550
N.3.2	50.000	930	809	697	576	465	33.000	1320	1148	990	818	660	28.000	1400	1218	1050	868	700
N.3.3	50.000	930	809	697	576	465	33.000	1320	1148	990	818	660	28.000	1400	1218	1050	868	700
N.4.1	50.000	849	738	636	526	424	33.000	1205	1048	904	747	602	28.000	1400	1218	1050	868	700
S.1.1	15.000	120	105	90	75	60	10.000	184	160	138	114	92	8.000	280	244	210	174	140
S.1.2	15.000	120	105	90	75	60	10.000	184	160	138	114	92	8.000	280	244	210	174	140
S.2.1	22.000	114	99	85	71	57	14.000	196	170	147	121	98	12.000	300	261	225	186	150
S.2.2	15.000	120	105	90	75	60	10.000	184	160	138	114	92	8.000	280	244	210	174	140
S.2.3	12.000	131	114	99	82	66	8.000	170	148	127	105	85	7.000	240	209	180	149	120
S.3.1	38.000	156	135	117	96	78	25.000	274	238	205	170	137	22.000	380	331	285	236	190
S.3.2	38.000	212	185	159	132	106	25.000	365	318	274	226	183	22.000	450	392	338	279	225
S.3.3	31.000	127	111	95	79	64	21.000	201	175	151	125	100	18.000	300	261	225	186	150
H.1.1	31.000	201	175	151	125	101	21.000	346	301	260	215	173	16.000	500	435	375	310	250
H.1.2	22.000	235	204	176	146	117	14.000	346	301	260	215	173	12.000	450	392	338	279	225
H.1.3	22.000	221	193	166	137	111	14.000	327	284	245	202	163	12.000	450	392	338	279	225
H.1.4																		
H.2.1	44.000	426	371	320	264	213	29.000	600	522	450	372	300	25.000	800	696	600	496	400
H.3.1	31.000	201	175	151	125	101	21.000	346	301	260	215	173	16.000	500	435	375	310	250
O.1.1	50.000	930	809	697	576	465	33.000	1320	1148	990	818	660	28.000	1400	1218	1050	868	700
O.1.2	44.000	813	708	610	504	407	29.000	1160	1009	870	719	580	25.000	1200	1044	900	744	600
O.2.1	31.000	438	381	329	272	219	21.000	575	500	431	357	288	18.000	650	566	488	403	325
O.2.2	31.000	438	381	329	272	219	21.000	575	500	431	357	288	18.000	650	566	488	403	325
O.3.1																		

		52 802 ... / 52 804 ... / 52 806 ...							
		Ø DC = 2,0 mm					● 1st choice		
							○ suitable		
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC			
	$a_{p\,max.}$	0,6	0,6	0,6	0,6	0,4			
	$n_{min.}$	5.000							
Index	n	v_f mm/min.					Emulsion	Compressed air	MMS
P.1.1	22.000	1320	1148	990	818	660	●	○	○
P.1.2	22.000	1320	1148	990	818	660	●	○	○
P.1.3	22.000	1320	1148	990	818	660	●	○	○
P.1.4	15.000	900	783	675	558	450	●	○	○
P.1.5	15.000	900	783	675	558	450	●	○	○
P.2.1	22.000	1320	1148	990	818	660		●	○
P.2.2	22.000	1320	1148	990	818	660		●	○
P.2.3	15.000	900	783	675	558	450		●	○
P.2.4	15.000	900	783	675	558	450		●	○
P.3.1	15.000	900	783	675	558	450		●	○
P.3.2	22.000	1320	1148	990	818	660		●	○
P.3.3	15.000	900	783	675	558	450		●	○
P.4.1	22.000	1320	1148	990	818	660		●	○
P.4.2	22.000	1320	1148	990	818	660		●	○
M.1.1	15.000	900	783	675	558	450	●		○
M.2.1	15.000	900	783	675	558	450	●		○
M.3.1	15.000	900	783	675	558	450	●		○
K.1.1	25.000	1500	1305	1125	930	750	○	●	
K.1.2	25.000	1500	1305	1125	930	750	○	●	
K.2.1	25.000	1500	1305	1125	930	750	○	●	
K.2.2	25.000	1500	1305	1125	930	750	○	●	
K.3.1	12.000	520	452	390	322	260		●	
K.3.2	12.000	520	452	390	322	260		●	
N.1.1	31.000	1860	1618	1395	1153	930	●		○
N.1.2	31.000	1860	1618	1395	1153	930	●		○
N.2.1									
N.2.2									
N.2.3									
N.3.1	19.000	1140	992	855	707	570	●		○
N.3.2	25.000	1500	1305	1125	930	750	●		○
N.3.3	25.000	1500	1305	1125	930	750	●		○
N.4.1	25.000	1500	1305	1125	930	750	●		○
S.1.1	7.000	300	261	225	186	150	●		○
S.1.2	7.000	300	261	225	186	150	●		○
S.2.1	11.000	400	348	300	248	200	●		○
S.2.2	7.000	300	261	225	186	150	●		○
S.2.3	6.000	260	226	195	161	130	●		○
S.3.1	19.000	420	365	315	260	210	●		○
S.3.2	19.000	500	435	375	310	250	●		○
S.3.3	15.000	400	348	300	248	200	●		○
H.1.1	15.000	500	435	375	310	250		●	
H.1.2	11.000	480	418	360	298	240		●	
H.1.3	11.000	480	418	360	298	240		●	
H.1.4									
H.2.1	22.000	1000	870	750	620	500		●	
H.3.1	15.000	500	435	375	310	250		●	
O.1.1	25.000	1500	1305	1125	930	750	●	○	○
O.1.2	22.000	1320	1148	990	818	660	●	○	○
O.2.1	15.000	660	574	495	409	330	●	○	○
O.2.2	15.000	660	574	495	409	330	●	○	○
O.3.1									

Cutting data standard values – Micro cutter – 10xDC

		52 802 ... / 52 804 ... / 52 806 ...															
		Ø DC = 0,2–0,4 mm				Ø DC = 0,5–0,7 mm					Ø DC = 0,8–0,9 mm				Ø DC = 1,0–1,4 mm			
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC
	$a_{p\,max.}$	0,006	0,006	0,006	0,006	0,015	0,015	0,015	0,015	$a_{p\,max.}$	0,024	0,024	0,024	0,024	0,03	0,03	0,03	0,03
	$n_{min.}$	30.000				12.000				$n_{min.}$	8.000				6.500			
Index	n	v_f mm/min.				v_f mm/min.				n	v_f mm/min.				v_f mm/min.			
P.1.1	**50.000**	232	202	174	144	274	238	205	170	**38.000**	450	392	338	279	589	512	442	365
P.1.2	**50.000**	232	202	174	144	274	238	205	170	**38.000**	450	392	338	279	589	512	442	365
P.1.3	**50.000**	232	202	174	144	274	238	205	170	**38.000**	450	392	338	279	589	512	442	365
P.1.4	**50.000**	201	175	151	125	190	165	142	118	**25.000**	300	261	225	186	335	292	252	208
P.1.5	**50.000**	201	175	151	125	190	165	142	118	**25.000**	300	261	225	186	335	292	252	208
P.2.1	**50.000**	232	202	174	144	274	238	205	170	**38.000**	450	392	338	279	589	512	442	365
P.2.2	**50.000**	232	202	174	144	274	238	205	170	**38.000**	450	392	338	279	589	512	442	365
P.2.3	**50.000**	201	175	151	125	190	165	142	118	**25.000**	300	261	225	186	335	292	252	208
P.2.4	**50.000**	201	175	151	125	190	165	142	118	**25.000**	300	261	225	186	335	292	252	208
P.3.1	**50.000**	201	175	151	125	190	165	142	118	**25.000**	300	261	225	186	335	292	252	208
P.3.2	**50.000**	232	202	174	144	274	238	205	170	**38.000**	450	392	338	279	589	512	442	365
P.3.3	**50.000**	201	175	151	125	190	165	142	118	**25.000**	300	261	225	186	335	292	252	208
P.4.1	**50.000**	232	202	174	144	274	238	205	170	**38.000**	450	392	338	279	589	512	442	365
P.4.2	**50.000**	232	202	174	144	274	238	205	170	**38.000**	450	392	338	279	589	512	442	365
M.1.1	**50.000**	155	135	116	96	219	191	164	136	**25.000**	312	271	234	193	387	337	290	240
M.2.1	**50.000**	155	135	116	96	219	191	164	136	**25.000**	312	271	234	193	387	337	290	240
M.3.1	**50.000**	155	135	116	96	219	191	164	136	**25.000**	312	271	234	193	387	337	290	240
K.1.1	**50.000**	232	202	174	144	274	238	205	170	**44.000**	485	422	364	301	682	593	511	423
K.1.2	**50.000**	232	202	174	144	274	238	205	170	**44.000**	485	422	364	301	682	593	511	423
K.2.1	**50.000**	232	202	174	144	274	238	205	170	**44.000**	485	422	364	301	682	593	511	423
K.2.2	**50.000**	232	202	174	144	274	238	205	170	**44.000**	485	422	364	301	682	593	511	423
K.3.1	**50.000**	141	123	106	88	150	131	113	93	**19.000**	215	187	161	133	269	234	202	167
K.3.2	**50.000**	141	123	106	88	150	131	113	93	**19.000**	215	187	161	133	269	234	202	167
N.1.1	**50.000**	232	202	174	144	438	381	329	272	**50.000**	693	603	520	430	930	809	697	576
N.1.2	**50.000**	232	202	174	144	438	381	329	272	**50.000**	693	603	520	430	930	809	697	576
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	**50.000**	232	202	174	144	274	238	205	170	**31.000**	402	350	301	249	480	418	360	298
N.3.2	**50.000**	232	202	174	144	274	238	205	170	**44.000**	416	362	312	258	542	472	407	336
N.3.3	**50.000**	232	202	174	144	274	238	205	170	**44.000**	416	362	312	258	542	472	407	336
N.4.1	**50.000**	212	185	159	132	300	261	225	186	**44.000**	506	440	379	314	742	646	557	460
S.1.1	**50.000**	46	40	35	29	55	48	41	34	**12.000**	69	60	51	43	88	76	66	54
S.1.2	**50.000**	46	40	35	29	55	48	41	34	**12.000**	69	60	51	43	88	76	66	54
S.2.1	**50.000**	54	47	40	33	63	55	47	39	**19.000**	102	89	76	63	126	110	95	78
S.2.2	**50.000**	46	40	35	29	55	48	41	34	**12.000**	69	60	51	43	88	76	66	54
S.2.3	**50.000**	46	40	35	29	55	48	41	34	**12.000**	59	51	44	36	82	71	62	51
S.3.1	**50.000**	60	52	45	37	71	62	53	44	**31.000**	101	88	76	63	141	123	106	88
S.3.2	**50.000**	60	52	45	37	71	62	53	44	**31.000**	101	88	76	63	177	154	133	110
S.3.3	**50.000**	60	52	45	37	71	62	53	44	**25.000**	89	77	66	55	141	123	106	88
H.1.1	50.000	47	41	36	29	67	58	50	42	25.000	90	78	68	56	101	88	75	62
H.1.2	50.000	47	41	36	29	67	58	50	42	19.000	90	78	68	56	101	88	75	62
H.1.3	50.000	45	39	34	28	63	55	47	39	19.000	85	74	64	53	95	83	71	59
H.1.4																		
H.2.1	50.000	77	67	58	48	82	71	62	51	38.000	173	151	130	107	194	168	145	120
H.3.1	50.000	47	41	36	29	67	58	50	42	25.000	90	78	68	56	101	88	75	62
O.1.1	50.000	232	202	174	144	329	286	246	204	44.000	554	482	416	344	813	708	610	504
O.1.2	50.000	232	202	174	144	329	286	246	204	38.000	554	482	416	344	705	613	529	437
O.2.1	50.000	141	123	106	88	200	174	150	124	25.000	285	248	213	176	339	295	255	210
O.2.2	50.000	141	123	106	88	200	174	150	124	25.000	285	248	213	176	339	295	255	210
O.3.1																		

a_e= 0,6–1,0 x DC: Missing values only trochodial slotting and milling is recommended. Otherwise there is the risk of tool breakage.

52 802 ... / 52 804 ... / 52 806 ...

● 1st choice
○ suitable

Index		Ø DC = 1,5–1,7 mm				Ø DC = 1,8–1,9 mm				Ø DC = 2,0 mm				Emulsion	Compressed air	MMS
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC			
	$a_{p\,max.}$	0,06	0,06	0,06	0,06	0,072	0,072	0,072	0,072	0,08	0,08	0,08	0,08			
	$n_{min.}$	6.500				5.500				5.000						
	n	v_f mm/min.				n	v_f mm/min.			n	v_f mm/min.					
P.1.1	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707	●	○	○
P.1.2	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707	●	○	○
P.1.3	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707	●	○	○
P.1.4	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446	●	○	○
P.1.5	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446	●	○	○
P.2.1	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
P.2.2	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
P.2.3	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446		●	○
P.2.4	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446		●	○
P.3.1	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446		●	○
P.3.2	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
P.3.3	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446		●	○
P.4.1	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
P.4.2	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
M.1.1	16.000	600	522	450	372	14.000	650	566	488	403	12.000	720	626	540	446	●		○
M.2.1	16.000	600	522	450	372	14.000	650	566	488	403	12.000	720	626	540	446	●		○
M.3.1	16.000	600	522	450	372	14.000	650	566	488	403	12.000	720	626	540	446	●		○
K.1.1	29.000	1160	1009	870	719	25.000	1240	1079	930	769	22.000	1320	1148	990	818	○	●	
K.1.2	29.000	1160	1009	870	719	25.000	1240	1079	930	769	22.000	1320	1148	990	818	○	●	
K.2.1	29.000	1160	1009	870	719	25.000	1240	1079	930	769	22.000	1320	1148	990	818	○	●	
K.2.2	29.000	1160	1009	870	719	25.000	1240	1079	930	769	22.000	1320	1148	990	818	○	●	
K.3.1	12.000	329	286	246	204	10.000	380	331	285	236	9.000	390	339	293	242		●	
K.3.2	12.000	329	286	246	204	10.000	380	331	285	236	9.000	390	339	293	242		●	
N.1.1	38.000	1520	1322	1140	942	33.000	1600	1392	1200	992	28.000	1680	1462	1260	1042	●		○
N.1.2	38.000	1520	1322	1140	942	33.000	1600	1392	1200	992	28.000	1680	1462	1260	1042	●		○
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	21.000	800	696	600	496	18.000	850	740	638	527	15.000	900	783	675	558	●		○
N.3.2	29.000	900	783	675	558	25.000	1000	870	750	620	22.000	1140	992	855	707	●		○
N.3.3	29.000	900	783	675	558	25.000	1000	870	750	620	22.000	1140	992	855	707	●		○
N.4.1	29.000	1059	921	794	657	25.000	1200	1044	900	744	22.000	1320	1148	990	818	●		○
S.1.1	8.000	127	111	95	79	7.000	220	191	165	136	6.000	250	218	188	155	●		○
S.1.2	8.000	127	111	95	79	7.000	220	191	165	136	6.000	250	218	188	155	●		○
S.2.1	12.000	204	178	153	127	10.000	300	261	225	186	9.000	350	305	263	217	●		○
S.2.2	8.000	127	111	95	79	7.000	220	191	165	136	6.000	250	218	188	155	●		○
S.2.3	8.000	106	92	80	66	7.000	200	174	150	124	6.000	220	191	165	136	●		○
S.3.1	21.000	228	199	171	141	18.000	300	261	225	186	15.000	380	331	285	236	●		○
S.3.2	21.000	274	238	205	170	18.000	400	348	300	248	15.000	450	392	338	279	●		○
S.3.3	16.000	237	206	178	147	14.000	300	261	225	186	12.000	380	331	285	236	●		○
H.1.1	16.000	173	151	130	107	14.000	200	174	150	124	12.000	240	209	180	149		●	
H.1.2	12.000	173	151	130	107	10.000	200	174	150	124	9.000	240	209	180	149		●	
H.1.3	12.000	163	142	122	101	10.000	200	174	150	124	9.000	240	209	180	149		●	
H.1.4																		
H.2.1	25.000	300	261	225	186	21.000	400	348	300	248	19.000	500	435	375	310		●	
H.3.1	16.000	173	151	130	107	14.000	200	174	150	124	12.000	240	209	180	149		●	
O.1.1	29.000	1160	1009	870	719	25.000	1200	1044	900	744	22.000	1320	1148	990	818	●	○	○
O.1.2	25.000	1000	870	750	620	18.000	1000	870	750	620	19.000	1140	992	855	707	●	○	○
O.2.1	16.000	438	381	329	272	14.000	500	435	375	310	12.000	520	452	390	322	●	○	○
O.2.2	16.000	438	381	329	272	14.000	500	435	375	310	12.000	520	452	390	322	●	○	○
O.3.1																		

Cutting data standard values – MultiLock – Radius milling cutter

	53 803 ... CTC5240	53 804 ... CTPX225	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm	Ø DC = 25 mm	● 1st choice ○ suitable		
			a_e / a_p = 0,05 x DC	a_e / a_p = 0,05 x DC	a_e / a_p = 0,05 x DC	a_e / a_p = 0,05 x DC	Emulsion	Compressed air	MMS
Index	v_c m/min	v_c m/min	f_z mm	f_z mm	f_z mm	f_z mm			
P.1.1		180	0,12	0,15	0,18	0,20	●	○	○
P.1.2		160	0,13	0,16	0,19	0,21	●	○	○
P.1.3		160	0,13	0,16	0,19	0,21	●	○	○
P.1.4		140	0,10	0,13	0,16	0,18	●	○	○
P.1.5		140	0,10	0,13	0,16	0,18	●	○	○
P.2.1		150	0,10	0,13	0,16	0,18	●	○	○
P.2.2		150	0,10	0,13	0,16	0,18	●	○	○
P.2.3		90	0,09	0,10	0,13	0,14	●	○	○
P.2.4		90	0,09	0,10	0,13	0,14	●	○	○
P.3.1		80	0,07	0,09	0,11	0,12	●	○	○
P.3.2		80	0,07	0,09	0,11	0,12	●	○	○
P.3.3		80	0,07	0,09	0,11	0,12	●	○	○
P.4.1		60	0,09	0,10	0,13	0,14	●		○
P.4.2		50	0,09	0,10	0,13	0,14	●		○
M.1.1		50	0,07	0,09	0,11	0,12	●		○
M.2.1		40	0,06	0,08	0,10	0,11	●		○
M.3.1		50	0,07	0,09	0,11	0,12	●		○
K.1.1		150	0,13	0,17	0,21	0,23	●	○	○
K.1.2		120	0,12	0,15	0,18	0,20	●	○	○
K.2.1		140	0,13	0,16	0,19	0,21	●	○	○
K.2.2		120	0,10	0,13	0,16	0,18	●	○	○
K.3.1		120	0,13	0,16	0,19	0,21	●	○	○
K.3.2		100	0,12	0,15	0,18	0,20	●	○	○
N.1.1		500	0,20	0,25	0,30	0,33	●		○
N.1.2		450	0,20	0,25	0,30	0,33	●		○
N.2.1									
N.2.2		380	0,19	0,24	0,28	0,31	●		○
N.2.3		150	0,16	0,20	0,24	0,26	●		○
N.3.1		220	0,13	0,17	0,21	0,23	●		○
N.3.2		190	0,13	0,17	0,21	0,23	●		○
N.3.3		250	0,13	0,16	0,19	0,21	●		○
N.4.1									
S.1.1	60		0,08	0,11	0,16	0,17	●		
S.1.2									
S.2.1	60		0,08	0,11	0,16	0,17	●		
S.2.2	60		0,08	0,11	0,16	0,17	●		
S.2.3									
S.3.1	140		0,11	0,16	0,21	0,22	●		
S.3.2	100		0,08	0,11	0,16	0,17	●		
S.3.3									
H.1.1									
H.1.2									
H.1.3									
H.1.4									
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

Cutting data standard values – MultiLock – Torus cutter

	53 805 ... CTC5240	53 806 ... CTPX225	Ø DC = 12 mm		Ø DC = 16 mm		Ø DC = 20 mm		Ø DC = 25 mm		● 1st choice ○ suitable		
			a_e = 0,1–0,3 x DC	a_e = 0,3–0,6 x DC	a_e = 0,1–0,3 x DC	a_e = 0,3–0,6 x DC	a_e = 0,1–0,3 x DC	a_e = 0,3–0,6 x DC	a_e = 0,1–0,3 x DC	a_e = 0,3–0,6 x DC			
			$a_{p\,max.}$ = 3 mm		$a_{p\,max.}$ = 4,5 mm		$a_{p\,max.}$ = 6 mm		$a_{p\,max.}$ = 8 mm				
Index	v_c m/min	v_c m/min	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.1		180	0,08	0,05	0,11	0,07	0,14	0,08	0,15	0,08	●	○	○
P.1.2		160	0,09	0,05	0,12	0,07	0,15	0,09	0,17	0,09	●	○	○
P.1.3		160	0,09	0,05	0,12	0,07	0,15	0,09	0,17	0,09	●	○	○
P.1.4		140	0,07	0,04	0,10	0,06	0,13	0,08	0,14	0,08	●	○	○
P.1.5		140	0,07	0,04	0,10	0,06	0,13	0,08	0,14	0,08	●	○	○
P.2.1		150	0,07	0,04	0,10	0,06	0,13	0,08	0,14	0,08	●	○	○
P.2.2		150	0,07	0,04	0,10	0,06	0,13	0,08	0,14	0,08	●	○	○
P.2.3		90	0,06	0,03	0,08	0,05	0,10	0,06	0,11	0,06	●	○	○
P.2.4		90	0,06	0,03	0,08	0,05	0,10	0,06	0,11	0,06	●	○	○
P.3.1		80	0,05	0,03	0,07	0,04	0,09	0,06	0,10	0,06	●	○	○
P.3.2		80	0,05	0,03	0,07	0,04	0,09	0,06	0,10	0,06	●	○	○
P.3.3		80	0,05	0,03	0,07	0,04	0,09	0,06	0,10	0,06	●	○	○
P.4.1		60	0,06	0,05	0,08	0,07	0,10	0,09	0,11	0,09	●		○
P.4.2		50	0,06	0,05	0,08	0,07	0,10	0,09	0,11	0,09	●		○
M.1.1		50	0,05	0,04	0,07	0,06	0,09	0,08	0,10	0,08	●		○
M.2.1		40	0,04	0,03	0,06	0,05	0,08	0,07	0,09	0,07	●		○
M.3.1		50	0,05	0,04	0,07	0,06	0,09	0,08	0,10	0,08	●		○
K.1.1		150	0,09	0,06	0,13	0,08	0,16	0,10	0,18	0,10	●	○	○
K.1.2		120	0,08	0,05	0,11	0,07	0,14	0,08	0,15	0,08	●	○	○
K.2.1		140	0,09	0,05	0,12	0,07	0,15	0,09	0,17	0,09	●	○	○
K.2.2		120	0,07	0,04	0,10	0,06	0,13	0,08	0,14	0,08	●	○	○
K.3.1		120	0,09	0,05	0,12	0,07	0,15	0,09	0,17	0,09	●	○	○
K.3.2		100	0,08	0,05	0,11	0,07	0,14	0,08	0,15	0,08	●	○	○
N.1.1													
N.1.2													
N.2.1													
N.2.2													
N.2.3													
N.3.1													
N.3.2		220	0,09	0,06	0,13	0,08	0,16	0,10	0,18	0,10	●		○
N.3.3													
N.4.1													
S.1.1	60		0,07	0,04	0,10	0,06	0,15	0,08	0,17	0,10	●		
S.1.2	60		0,07	0,04	0,10	0,06	0,15	0,08	0,17	0,10	●		
S.2.1	60		0,07	0,04	0,10	0,06	0,15	0,08	0,17	0,10	●		
S.2.2	60		0,07	0,04	0,10	0,06	0,15	0,08	0,17	0,10	●		
S.2.3	60		0,07	0,04	0,10	0,06	0,15	0,08	0,17	0,10	●		
S.3.1	140		0,10	0,05	0,15	0,08	0,2	0,11	0,22	0,13	●		
S.3.2	100		0,07	0,04	0,10	0,06	0,15	0,08	0,17	0,10	●		
S.3.3													
H.1.1													
H.1.2													
H.1.3													
H.1.4													
H.2.1													
H.3.1													
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

Plunging angle for ramping milling = 1.9°
Plunging angle for helical milling = 1.5°
Bore diameter with helical milling = D_{min} 1.7xDC / D_{max} 1.95xDC
With ramping and helical milling, multiply the f_z by 0.5

14

Cutting data standard values – MultiLock – HFC milling cutter

	53 801 ... CTC5240	53 802 ... CTPX225	Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20 mm			Ø DC = 25 mm			● 1st choice ○ suitable		
			a_e = 0,1–0,2 x DC	a_e = 0,3–0,4 x DC	a_e = 0,6–1,0 x DC	a_e = 0,1–0,2 x DC	a_e = 0,3–0,4 x DC	a_e = 0,6–1,0 x DC	a_e = 0,1–0,2 x DC	a_e = 0,3–0,4 x DC	a_e = 0,6–1,0 x DC	a_e = 0,1–0,2 x DC	a_e = 0,3–0,4 x DC	a_e = 0,6–1,0 x DC			
			$a_{p\,max.}$ = 0,5 mm			$a_{p\,max.}$ = 0,8 mm			$a_{p\,max.}$ = 0,8 mm			$a_{p\,max.}$ = 0,8 mm					
Index	v_c m/min	v_c m/min	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.1		**200**	0,45	0,36	0,26	0,63	0,47	0,30	0,81	0,60	0,38	0,89	0,63	0,38	●	○	○
P.1.2		**180**	0,50	0,39	0,29	0,69	0,51	0,33	0,89	0,65	0,41	0,98	0,69	0,41	●	○	○
P.1.3		**180**	0,50	0,39	0,29	0,69	0,51	0,33	0,89	0,65	0,41	0,98	0,69	0,41	●	○	○
P.1.4		**150**	0,41	0,33	0,24	0,57	0,42	0,27	0,74	0,54	0,35	0,82	0,58	0,35	●	○	○
P.1.5		**150**	0,41	0,33	0,24	0,57	0,42	0,27	0,74	0,54	0,35	0,82	0,58	0,35	●	○	○
P.2.1		**170**	0,41	0,33	0,24	0,57	0,42	0,27	0,74	0,54	0,35	0,82	0,58	0,35	●	○	○
P.2.2		**170**	0,41	0,33	0,24	0,57	0,42	0,27	0,74	0,54	0,35	0,82	0,58	0,35	●	○	○
P.2.3		**100**	0,33	0,26	0,20	0,46	0,34	0,22	0,59	0,44	0,28	0,65	0,47	0,28	●	○	○
P.2.4		**100**	0,33	0,26	0,20	0,46	0,34	0,22	0,59	0,44	0,28	0,65	0,47	0,28	●	○	○
P.3.1		**90**	0,29	0,23	0,17	0,41	0,30	0,19	0,52	0,38	0,25	0,57	0,41	0,25	●	○	○
P.3.2		**90**	0,29	0,23	0,17	0,41	0,30	0,19	0,52	0,38	0,25	0,57	0,41	0,25	●	○	○
P.3.3		**90**	0,29	0,23	0,17	0,41	0,30	0,19	0,52	0,38	0,25	0,57	0,41	0,25	●	○	○
P.4.1		**70**	0,50	0,39	0,29	0,69	0,51	0,33	0,89	0,65	0,41	0,98	0,69	0,41	●		○
P.4.2		**60**	0,50	0,39	0,29	0,69	0,51	0,33	0,89	0,65	0,41	0,98	0,69	0,41	●		○
M.1.1		55	0,29	0,23	0,17	0,41	0,30	0,19	0,52	0,38	0,24	0,57	0,40	0,24	●		○
M.2.1		40	0,25	0,20	0,15	0,35	0,26	0,17	0,44	0,33	0,21	0,49	0,35	0,21	●		○
M.3.1		60	0,29	0,23	0,17	0,41	0,30	0,19	0,52	0,38	0,24	0,57	0,40	0,24	●		○
K.1.1		**170**	0,53	0,42	0,32	0,74	0,55	0,35	0,96	0,71	0,45	1,06	0,75	0,45	●	○	○
K.1.2		**130**	0,45	0,36	0,26	0,63	0,47	0,3	0,81	0,59	0,38	0,89	0,63	0,38	●	○	○
K.2.1		**150**	0,50	0,39	0,29	0,69	0,51	0,33	0,89	0,65	0,41	0,98	0,69	0,41	●	○	○
K.2.2		**130**	0,41	0,33	0,24	0,57	0,42	0,27	0,74	0,54	0,35	0,82	0,58	0,35	●	○	○
K.3.1		**130**	0,50	0,39	0,29	0,69	0,51	0,33	0,89	0,65	0,41	0,98	0,69	0,41	●	○	○
K.3.2		**110**	0,45	0,36	0,26	0,63	0,47	0,30	0,81	0,59	0,38	0,89	0,63	0,38	●	○	○
N.1.1																	
N.1.2																	
N.2.1																	
N.2.2																	
N.2.3																	
N.3.1																	
N.3.2																	
N.3.3																	
N.4.1																	
S.1.1	**60**		0,18	0,15	0,11	0,20	0,15	0,11	0,21	0,18	0,14	0,23	0,19	0,16	●		
S.1.2	**60**		0,18	0,15	0,11	0,20	0,15	0,11	0,21	0,18	0,14	0,23	0,19	0,16	●		
S.2.1	**60**		0,18	0,15	0,11	0,20	0,15	0,11	0,21	0,18	0,14	0,23	0,19	0,16	●		
S.2.2	**60**		0,18	0,15	0,11	0,20	0,15	0,11	0,21	0,18	0,14	0,23	0,19	0,16	●		
S.2.3	**60**		0,18	0,15	0,11	0,20	0,15	0,11	0,21	0,18	0,14	0,23	0,19	0,16	●		
S.3.1	**140**		0,18	0,15	0,11	0,20	0,15	0,11	0,21	0,18	0,14	0,23	0,19	0,16	●		
S.3.2	**100**		0,25	0,19	0,14	0,26	0,19	0,12	0,28	0,22	0,17	0,29	0,24	0,18	●		
S.3.3	**140**		0,18	0,15	0,11	0,20	0,15	0,11	0,22	0,18	0,14	0,23	0,20	0,16	●		
H.1.1																	
H.1.2																	
H.1.3																	
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1																	
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

Plunging angle for ramping and helical milling = 1.9°
Bore diameter with helical milling = D_{min} 1.6xDC / D_{max} 1.95xDC
With ramping and helical milling, multiply the f_z by 0.5

Cutting data standard values – MultiLock – Deburring cutter

	53 800 ... CTPX225	Ø DC = 12 mm	Ø DC = 16 mm	● 1st choice ○ suitable		
		a_e = 0,1–0,2 x DC	a_e = 0,1–0,3 x DC			
		$a_{p\,max.}$ = 4 mm	$a_{p\,max.}$ = 6 mm			
Index	v_c m/min	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.1	200	0,09	0,12	●	○	○
P.1.2	180	0,10	0,13	●	○	○
P.1.3	180	0,10	0,13	●	○	○
P.1.4	150	0,08	0,11	●	○	○
P.1.5	150	0,08	0,11	●	○	○
P.2.1	170	0,08	0,11	●	○	○
P.2.2	170	0,08	0,11	●	○	○
P.2.3	100	0,07	0,09	●	○	○
P.2.4	100	0,07	0,09	●	○	○
P.3.1	90	0,06	0,08	●	○	○
P.3.2	90	0,06	0,08	●	○	○
P.3.3	90	0,06	0,08	●	○	○
P.4.1	70	0,07	0,09	●		○
P.4.2	60	0,07	0,09	●		○
M.1.1	60	0,06	0,08	●		○
M.2.1	40	0,05	0,07	●		○
M.3.1	60	0,06	0,08	●		○
K.1.1	170	0,11	0,14	●	○	○
K.1.2	130	0,09	0,12	●	○	○
K.2.1	150	0,10	0,13	●	○	○
K.2.2	130	0,08	0,11	●	○	○
K.3.1	130	0,10	0,13	●	○	○
K.3.2	110	0,09	0,12	●	○	○
N.1.1	550	0,16	0,21	●		
N.1.2	500	0,16	0,21	●		
N.2.1						
N.2.2	420	0,15	0,20	●		
N.2.3	170	0,13	0,17	●		
N.3.1	240	0,11	0,14	●		
N.3.2	210	0,11	0,14	●		
N.3.3	280	0,10	0,13	●		
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

Cutting data standard values – MultiChange – PCR-UNI

	52 871 ...													
					Feedrates for extra short and short holder									
					Ø DC	9,7–10,0	11,7–12,0	15,7–16,0	19,7–20,0	Ø DC	9,7–10,0	11,7–12,0	15,7–16,0	19,7–20,0
						a_e 0,25xDC					a_e 1xDC			
Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	a_p max.	v_c m/min	f_z mm				v_c m/min	f_z mm			
P.1.1	0,9	0,7*	0,6*	0,56	490	0,057	0,065	0,080	0,091	240	0,028	0,033	0,040	0,046
P.1.2	0,9	0,7*	0,6*	0,56	470	0,054	0,062	0,076	0,087	230	0,027	0,031	0,038	0,044
P.1.3	0,9	0,7*	0,6*	0,56	445	0,052	0,059	0,073	0,083	220	0,026	0,030	0,036	0,041
P.1.4	0,9	0,7*	0,6*	0,56	425	0,049	0,056	0,069	0,079	205	0,025	0,028	0,034	0,039
P.1.5	0,9	0,7*	0,6*	0,56	400	0,047	0,053	0,065	0,075	195	0,023	0,027	0,033	0,037
P.2.1	0,9	0,7*	0,6*	0,56	445	0,057	0,065	0,080	0,091	220	0,028	0,033	0,040	0,046
P.2.2	0,9	0,7*	0,6*	0,56	405	0,052	0,059	0,073	0,083	200	0,026	0,030	0,036	0,041
P.2.3	0,9	0,7*	0,6*	0,56	365	0,047	0,053	0,065	0,075	180	0,023	0,027	0,033	0,037
P.2.4	0,9	0,7*	0,6*	0,56	285	0,043	0,050	0,060	0,069	140	0,022	0,025	0,030	0,035
P.3.1	0,9	0,7*	0,6*	0,56	265	0,050	0,057	0,070	0,080	130	0,025	0,029	0,035	0,040
P.3.2	0,9	0,7*	0,6*	0,56	245	0,047	0,054	0,067	0,076	120	0,024	0,027	0,033	0,038
P.3.3	0,9	0,7*	0,6*	0,56	225	0,045	0,051	0,063	0,072	110	0,022	0,026	0,031	0,036
P.4.1	0,9	0,7*	0,6*	0,56	180	0,034	0,040	0,048	0,055	90	0,017	0,020	0,024	0,028
P.4.2	0,9	0,7*	0,6*	0,56	180	0,034	0,040	0,048	0,055	90	0,017	0,020	0,024	0,028
M.1.1	0,9	0,7*	0,6*	0,56	120	0,030	0,035	0,042	0,048	60	0,015	0,017	0,021	0,024
M.2.1	0,9	0,7*	0,6*	0,56	115	0,025	0,029	0,035	0,040	55	0,012	0,014	0,018	0,020
M.3.1	0,9	0,7*	0,6*	0,56	120	0,026	0,030	0,036	0,041	60	0,013	0,015	0,018	0,021
K.1.1	0,9	0,7*	0,6*	0,56	485	0,086	0,099	0,121	0,138	240	0,043	0,050	0,060	0,069
K.1.2	0,9	0,7*	0,6*	0,56	365	0,060	0,069	0,085	0,097	180	0,030	0,035	0,042	0,048
K.2.1	0,9	0,7*	0,6*	0,56	445	0,073	0,084	0,103	0,118	220	0,037	0,042	0,051	0,059
K.2.2	0,9	0,7*	0,6*	0,56	365	0,060	0,069	0,085	0,097	180	0,030	0,035	0,042	0,048
K.3.1	0,9	0,7*	0,6*	0,56	325	0,060	0,069	0,085	0,097	160	0,030	0,035	0,042	0,048
K.3.2	0,9	0,7*	0,6*	0,56	305	0,052	0,059	0,073	0,083	150	0,026	0,030	0,036	0,041

* = Trimming and trochoidal slot milling

Cutting data standard values – MultiChange – PCR-ALU

	52 872 ...													
					Feedrates for extra short and short holder									
					Ø DC	9,7–10,0	11,7–12,0	15,7–16,0	19,7–20,0	Ø DC	9,7–10,0	11,7–12,0	15,7–16,0	19,7–20,0
						a_e 0,25xDC					a_e 1xDC			
Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	a_p max.	v_c m/min	f_z mm				v_c m/min	f_z mm			
N.1.1	0,9	0,7*	0,6*	0,56	1035	0,169	0,194	0,237	0,271	675	0,084	0,097	0,119	0,136
N.1.2	0,9	0,7*	0,6*	0,56	945	0,154	0,177	0,216	0,247	610	0,077	0,088	0,108	0,123
N.2.1	0,9	0,7*	0,6*	0,56	625	0,161	0,185	0,226	0,259	405	0,081	0,093	0,113	0,129
N.2.2	0,9	0,7*	0,6*	0,56	500	0,169	0,194	0,237	0,271	325	0,084	0,097	0,119	0,136
N.2.3	0,9	0,7*	0,6*	0,56	360	0,184	0,212	0,259	0,296	235	0,092	0,106	0,129	0,148
N.3.1	0,9	0,7*	0,6*	0,56	450	0,077	0,088	0,108	0,123	295	0,038	0,044	0,054	0,062
N.3.2	0,9	0,7*	0,6*	0,56	270	0,123	0,141	0,173	0,197	175	0,061	0,071	0,086	0,099
N.3.3	0,9	0,7*	0,6*	0,56	360	0,123	0,141	0,173	0,197	235	0,061	0,071	0,086	0,099
N.4.1														

* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

52 871 ...

		Ramping	Drilling	Helical milling			● 1st choice		
							○ suitable		
					Max. plunging angle				
	v_c m/min	Max. angle	f_z factor	$a_{R\,max.}$ **	$D_{min.}$ 1,5 x DC	$D_{max.}$ 1,8 x DC	Emulsion	Compressed air	MMS
	P.1.1	45°	0,9	0,56xDC	20°	13°	○	●	○
	P.1.2	45°	0,9	0,56xDC	20°	13°	○	●	○
	P.1.3	45°	0,9	0,56xDC	20°	13°	○	●	○
	P.1.4	45°	0,9	0,56xDC	20°	13°	○	●	○
	P.1.5	45°	0,9	0,56xDC	20°	13°	○	●	○
	P.2.1	45°	0,8	0,56xDC	20°	13°	○	●	○
	P.2.2	45°	0,8	0,56xDC	20°	13°	○	●	○
	P.2.3	45°	0,8	0,56xDC	20°	13°	○	●	○
	P.2.4	45°	0,7	0,56xDC	20°	13°	○	●	○
	P.3.1	30°	0,8	0,56xDC	20°	13°	●		○
	P.3.2	30°	0,7	0,56xDC	20°	13°	●		○
	P.3.3	30°	0,7	0,56xDC	20°	13°	●		○
	P.4.1	15°		0,56xDC	20°	13°	●		○
	P.4.2	15°		0,56xDC	20°	13°	●		○
	M.1.1	15°		0,4xDC	14°	9°	●		
	M.2.1	15°		0,4xDC	14°	9°	●		
	M.3.1	15°		0,4xDC	14°	9°	●		
	K.1.1	45°	0,8	0,56xDC	20	13		●	
	K.1.2	45°	0,8	0,56xDC	20	13		●	
	K.2.1	45°	0,8	0,56xDC	20	13		●	
	K.2.2	45°	0,8	0,56xDC	20	13		●	
	K.3.1	45°	0,8	0,56xDC	20	13		●	
	K.3.2	45°	0,8	0,56xDC	20	13		●	

52 872 ...

		Ramping	Drilling	Helical milling			● 1st choice		
							○ suitable		
					Max. plunging angle				
	v_c m/min	Max. angle	f_z factor	$a_{R\,max.}$ **	$D_{min.}$ 1,5 x DC	$D_{max.}$ 1,8 x DC	Emulsion	Compressed air	MMS
	N.1.1	45°	0,9	0,56xDC	20°	13°	●		○
	N.1.2	45°	0,9	0,56xDC	20°	13°	●		○
	N.2.1	45°	0,9	0,56xDC	20°	13°	●		○
	N.2.2	45°	0,9	0,56xDC	20°	13°	●		○
	N.2.3	45°	0,9	0,56xDC	20°	13°	●		○
	N.3.1	45°	0,9	0,56xDC	20°	13°	●		○
	N.3.2	45°	0,9	0,56xDC	20°	13°	●		○
	N.3.3	45°	0,9	0,56xDC	20°	13°	●		○
	N.4.1								

** Width of cut per helical revolution

Cutting data standard values – MultiChange – Shoulder milling heads

				52 860 ... / 52 861 ...																				
				Feedrates for extra short and short holder																				
				Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20 mm			● 1st choice		
				$a_{p\,max.}$	5,2 mm	4,4 mm	3,6 mm	6,5 mm	5,5 mm	4,5 mm	7,8 mm	6,6 mm	5,4 mm	10,4 mm	8,8 mm	7,2 mm	13 mm	11 mm	9 mm	○ suitable		
					a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c m/min	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			Emulsion	Compressed air	MMS
P.1.1	0,9	0,7*	0,6*	175	0,05	0,04	0,02	0,06	0,04	0,03	0,07	0,05	0,03	0,08	0,06	0,04	0,09	0,07	0,05	○	●	○
P.1.2	0,9	0,7*	0,6*	165	0,05	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,03	0,08	0,06	0,04	0,09	0,07	0,04	○	●	○
P.1.3	0,9	0,7*	0,6*	160	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,04	0,03	0,07	0,05	0,04	0,08	0,06	0,04	○	●	○
P.1.4	0,9	0,7*	0,6*	150	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,04	0,03	0,07	0,05	0,03	0,08	0,06	0,04	○	●	○
P.1.5	0,9	0,7*	0,6*	145	0,04	0,03	0,02	0,05	0,04	0,02	0,05	0,04	0,03	0,07	0,05	0,03	0,08	0,06	0,04	○	●	○
P.2.1	0,9	0,7*	0,6*	160	0,05	0,04	0,02	0,06	0,04	0,03	0,07	0,05	0,03	0,08	0,06	0,04	0,09	0,07	0,05	○	●	○
P.2.2	0,9	0,7*	0,6*	145	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,04	0,03	0,07	0,05	0,04	0,08	0,06	0,04	○	●	○
P.2.3	0,9	0,7*	0,6*	130	0,04	0,03	0,02	0,05	0,04	0,02	0,05	0,04	0,03	0,07	0,05	0,03	0,08	0,06	0,04	○	●	○
P.2.4	0,9	0,7*	0,6*	100	0,04	0,03	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,03	0,07	0,05	0,04	○	●	○
P.3.1	0,9	0,7*	0,6*	95	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,04	0,03	0,07	0,05	0,04	0,08	0,06	0,04	●		○
P.3.2	0,9	0,7*	0,6*	85	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,04	0,03	0,07	0,05	0,03	0,08	0,06	0,04	●		○
P.3.3	0,9	0,7*	0,6*	80	0,04	0,03	0,02	0,05	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,03	0,07	0,05	0,04	●		○
P.4.1	0,9	0,7*	0,6*	65	0,03	0,02	0,01	0,03	0,03	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,04	0,03	●		○
P.4.2	0,9	0,7*	0,6*	65	0,03	0,02	0,01	0,03	0,03	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,04	0,03	●		○
M.1.1																						
M.2.1																						
M.3.1																						
K.1.1	0,9	0,7*	0,6*	175	0,07	0,05	0,04	0,09	0,07	0,04	0,10	0,07	0,05	0,12	0,09	0,06	0,14	0,10	0,07		●	
K.1.2	0,9	0,7*	0,6*	130	0,05	0,04	0,03	0,06	0,05	0,03	0,07	0,05	0,04	0,09	0,06	0,04	0,10	0,07	0,05		●	
K.2.1	0,9	0,7*	0,6*	160	0,06	0,05	0,03	0,07	0,06	0,04	0,09	0,06	0,04	0,10	0,08	0,05	0,12	0,09	0,06		●	
K.2.2	0,9	0,7*	0,6*	130	0,05	0,04	0,03	0,06	0,05	0,03	0,07	0,05	0,04	0,09	0,06	0,04	0,10	0,07	0,05		●	
K.3.1	0,9	0,7*	0,6*	115	0,05	0,04	0,03	0,06	0,05	0,03	0,07	0,05	0,04	0,09	0,06	0,04	0,10	0,07	0,05		●	
K.3.2	0,9	0,7*	0,6*	110	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,04	0,03	0,07	0,05	0,04	0,08	0,06	0,04		●	
N.1.1																						
N.1.2																						
N.2.1																						
N.2.2																						
N.2.3																						
N.3.1																						
N.3.2																						
N.3.3																						
N.4.1																						
S.1.1																						
S.1.2																						
S.2.1																						
S.2.2																						
S.2.3																						
S.3.1																						
S.3.2																						
S.3.3																						
H.1.1																						
H.1.2																						
H.1.3																						
H.1.4																						
H.2.1																						
H.3.1																						
O.1.1																						
O.1.2																						
O.2.1																						
O.2.2																						
O.3.1																						

* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

Cutting data standard values – MultiChange – Rough-finishing milling heads

	52 862 ...																
				Feedrates for extra short and short holder													
				Ø DC = 8 mm		Ø DC = 10 mm		Ø DC = 12 mm		Ø DC = 16 mm		Ø DC = 20 mm		● 1st choice		
				$a_{p\,max.}$ 7,5 mm		9,4 mm		11,3 mm		15,0 mm		18,8 mm		○ suitable		
				a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC			
Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c m/min	f_z mm		f_z mm		f_z mm		f_z mm		f_z mm		Emulsion	Compressed air	MMS
P.1.1	0,9	0,7*	0,6*	225	0,04	0,03	0,05	0,04	0,06	0,04	0,08	0,05	0,09	0,06	○	●	○
P.1.2	0,9	0,7*	0,6*	215	0,04	0,03	0,05	0,04	0,06	0,04	0,07	0,05	0,08	0,06	○	●	○
P.1.3	0,9	0,7*	0,6*	205	0,04	0,03	0,05	0,03	0,06	0,04	0,07	0,05	0,08	0,06	○	●	○
P.1.4	0,9	0,7*	0,6*	195	0,04	0,03	0,05	0,03	0,05	0,04	0,06	0,05	0,07	0,05	○	●	○
P.1.5	0,9	0,7*	0,6*	185	0,04	0,03	0,04	0,03	0,05	0,04	0,06	0,04	0,07	0,05	○	●	○
P.2.1	0,9	0,7*	0,6*	205	0,04	0,03	0,05	0,04	0,06	0,04	0,08	0,05	0,09	0,06	○	●	○
P.2.2	0,9	0,7*	0,6*	185	0,04	0,03	0,05	0,03	0,06	0,04	0,07	0,05	0,08	0,06	○	●	○
P.2.3	0,9	0,7*	0,6*	170	0,04	0,03	0,04	0,03	0,05	0,04	0,06	0,04	0,07	0,05	○	●	○
P.2.4	0,9	0,7*	0,6*	130	0,03	0,02	0,04	0,03	0,05	0,03	0,06	0,04	0,06	0,05	○	●	○
P.3.1	0,9	0,7*	0,6*	120	0,04	0,03	0,05	0,03	0,05	0,04	0,07	0,05	0,08	0,05	●		○
P.3.2	0,9	0,7*	0,6*	110	0,04	0,03	0,04	0,03	0,05	0,04	0,06	0,04	0,07	0,05	●		○
P.3.3	0,9	0,7*	0,6*	105	0,04	0,02	0,04	0,03	0,05	0,03	0,06	0,04	0,07	0,05	●		○
P.4.1	0,9	0,7*	0,6*	85	0,03	0,02	0,03	0,02	0,04	0,03	0,05	0,03	0,05	0,04	●		○
P.4.2	0,9	0,7*	0,6*	85	0,03	0,02	0,03	0,02	0,04	0,03	0,05	0,03	0,05	0,04	●		○
M.1.1	0,9	0,7*	0,6*	55	0,02	0,02	0,03	0,02	0,03	0,02	0,04	0,03	0,05	0,03	●		
M.2.1	0,9	0,7*	0,6*	50	0,02	0,01	0,02	0,02	0,03	0,02	0,03	0,02	0,04	0,03	●		
M.3.1	0,9	0,7*	0,6*	55	0,02	0,01	0,02	0,02	0,03	0,02	0,03	0,02	0,04	0,03	●		
K.1.1	0,9	0,7*	0,6*	225	0,07	0,05	0,08	0,06	0,09	0,07	0,11	0,08	0,13	0,09		●	
K.1.2	0,9	0,7*	0,6*	170	0,05	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,09	0,06		●	
K.2.1	0,9	0,7*	0,6*	205	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,11	0,08		●	
K.2.2	0,9	0,7*	0,6*	170	0,05	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,09	0,06		●	
K.3.1	0,9	0,7*	0,6*	150	0,05	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,09	0,06		●	
K.3.2	0,9	0,7*	0,6*	140	0,04	0,03	0,05	0,03	0,06	0,04	0,07	0,05	0,08	0,06		●	
N.1.1	0,9	0,7*	0,6*	785	0,08	0,05	0,09	0,06	0,10	0,07	0,13	0,09	0,15	0,10	●		○
N.1.2	0,9	0,7*	0,6*	715	0,07	0,05	0,08	0,06	0,09	0,07	0,12	0,08	0,13	0,09	●		○
N.2.1	0,9	0,7*	0,6*	475	0,07	0,05	0,09	0,06	0,10	0,07	0,12	0,09	0,14	0,10	●		○
N.2.2	0,9	0,7*	0,6*	380	0,08	0,05	0,09	0,06	0,10	0,07	0,13	0,09	0,15	0,10	●		○
N.2.3	0,9	0,7*	0,6*	275	0,08	0,06	0,10	0,07	0,11	0,08	0,14	0,10	0,16	0,11	●		○
N.3.1	0,9	0,7*	0,6*	340	0,03	0,02	0,04	0,03	0,05	0,03	0,06	0,04	0,07	0,05	●		○
N.3.2	0,9	0,7*	0,6*	205	0,06	0,04	0,07	0,05	0,08	0,05	0,09	0,07	0,11	0,07	●		○
N.3.3	0,9	0,7*	0,6*	275	0,06	0,04	0,07	0,05	0,08	0,05	0,09	0,07	0,11	0,07	●		○
N.4.1																	
S.1.1																	
S.1.2																	
S.2.1																	
S.2.2																	
S.2.3																	
S.3.1																	
S.3.2																	
S.3.3																	
H.1.1																	
H.1.2																	
H.1.3																	
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1																	
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

Cutting data standard values – MultiChange – HFC milling heads

				52 864 ...																						
				Feedrates for extra short and short holder																						
						Ø DCX = 8 mm			Ø DCX = 10 mm			Ø DCX = 12 mm			Ø DCX = 16 mm			Ø DCX = 20 mm			● 1st choice		
																					○ suitable		
						a_e 0,1–0,2 x DCX	a_e 0,3–0,4 x DCX	a_e 0,6–1,0 x DCX	a_e 0,1–0,2 x DCX	a_e 0,3–0,4 x DCX	a_e 0,6–1,0 x DCX	a_e 0,1–0,2 x DCX	a_e 0,3–0,4 x DCX	a_e 0,6–1,0 x DCX	a_e 0,1–0,2 x DCX	a_e 0,3–0,4 x DCX	a_e 0,6–1,0 x DCX	a_e 0,1–0,2 x DCX	a_e 0,3–0,4 x DCX	a_e 0,6–1,0 x DCX			
Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c m/min	$a_{p\,max.}$ x DCX	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			Emulsion	Compressed air	MMS
P.1.1	0,9	0,7*	0,6*	175	0,05	0,44	0,31	0,20	0,53	0,37	0,24	0,61	0,43	0,27	0,74	0,52	0,33	0,85	0,60	0,38	○	●	○
P.1.2	0,9	0,7*	0,6*	165	0,05	0,42	0,30	0,19	0,50	0,36	0,22	0,58	0,41	0,26	0,71	0,50	0,32	0,81	0,57	0,36	○	●	○
P.1.3	0,9	0,7*	0,6*	160	0,05	0,40	0,28	0,18	0,48	0,34	0,21	0,55	0,39	0,25	0,67	0,48	0,30	0,77	0,54	0,34	○	●	○
P.1.4	0,9	0,7*	0,6*	150	0,05	0,38	0,27	0,17	0,45	0,32	0,20	0,52	0,37	0,23	0,64	0,45	0,29	0,73	0,52	0,33	○	●	○
P.1.5	0,9	0,7*	0,6*	145	0,05	0,36	0,25	0,16	0,43	0,30	0,19	0,50	0,35	0,22	0,60	0,43	0,27	0,69	0,49	0,31	○	●	○
P.2.1	0,9	0,7*	0,6*	160	0,05	0,44	0,31	0,20	0,53	0,37	0,24	0,61	0,43	0,27	0,74	0,52	0,33	0,85	0,60	0,38	○	●	○
P.2.2	0,9	0,7*	0,6*	145	0,05	0,40	0,28	0,18	0,48	0,34	0,21	0,55	0,39	0,25	0,67	0,48	0,30	0,77	0,54	0,34	○	●	○
P.2.3	0,9	0,7*	0,6*	130	0,05	0,36	0,25	0,16	0,43	0,30	0,19	0,50	0,35	0,22	0,60	0,43	0,27	0,69	0,49	0,31	○	●	○
P.2.4	0,9	0,7*	0,6*	100	0,05	0,33	0,24	0,15	0,40	0,28	0,18	0,46	0,32	0,21	0,56	0,40	0,25	0,64	0,45	0,29	○	●	○
P.3.1	0,9	0,7*	0,6*	95	0,05	0,39	0,27	0,17	0,46	0,33	0,21	0,53	0,38	0,24	0,65	0,46	0,29	0,74	0,53	0,33	●		○
P.3.2	0,9	0,7*	0,6*	85	0,05	0,37	0,26	0,16	0,44	0,31	0,20	0,50	0,36	0,23	0,62	0,44	0,28	0,70	0,50	0,32	●		○
P.3.3	0,9	0,7*	0,6*	80	0,05	0,35	0,24	0,15	0,41	0,29	0,19	0,48	0,34	0,21	0,58	0,41	0,26	0,67	0,47	0,30	●		○
P.4.1	0,9	0,7*	0,6*	65	0,05	0,27	0,19	0,12	0,32	0,23	0,14	0,37	0,26	0,16	0,45	0,32	0,20	0,51	0,36	0,23	●		○
P.4.2	0,9	0,7*	0,6*	65	0,05	0,27	0,19	0,12	0,32	0,23	0,14	0,37	0,26	0,16	0,45	0,32	0,20	0,51	0,36	0,23	●		○
M.1.1	0,9	0,7*	0,6*	45	0,05	0,23	0,16	0,10	0,28	0,20	0,12	0,32	0,23	0,14	0,39	0,28	0,18	0,45	0,32	0,20	●		
M.2.1	0,9	0,7*	0,6*	40	0,05	0,19	0,14	0,09	0,23	0,16	0,10	0,27	0,19	0,12	0,32	0,23	0,15	0,37	0,26	0,17	●		
M.3.1	0,9	0,7*	0,6*	45	0,05	0,20	0,14	0,09	0,24	0,17	0,11	0,28	0,19	0,12	0,34	0,24	0,15	0,38	0,27	0,17	●		
K.1.1	0,9	0,7*	0,6*	175	0,05	0,67	0,47	0,30	0,80	0,56	0,36	0,92	0,65	0,41	1,12	0,79	0,50	1,28	0,91	0,57		●	
K.1.2	0,9	0,7*	0,6*	130	0,05	0,47	0,33	0,21	0,56	0,39	0,25	0,64	0,45	0,29	0,78	0,55	0,35	0,90	0,63	0,40		●	
K.2.1	0,9	0,7*	0,6*	160	0,05	0,57	0,40	0,25	0,68	0,48	0,30	0,78	0,55	0,35	0,95	0,67	0,43	1,09	0,77	0,49		●	
K.2.2	0,9	0,7*	0,6*	130	0,05	0,47	0,33	0,21	0,56	0,39	0,25	0,64	0,45	0,29	0,78	0,55	0,35	0,90	0,63	0,40		●	
K.3.1	0,9	0,7*	0,6*	115	0,05	0,47	0,33	0,21	0,56	0,39	0,25	0,64	0,45	0,29	0,78	0,55	0,35	0,90	0,63	0,40		●	
K.3.2	0,9	0,7*	0,6*	110	0,05	0,40	0,28	0,18	0,48	0,34	0,21	0,55	0,39	0,25	0,67	0,48	0,30	0,77	0,54	0,34		●	
N.1.1																							
N.1.2																							
N.2.1																							
N.2.2																							
N.2.3																							
N.3.1																							
N.3.2																							
N.3.3																							
N.4.1																							
S.1.1																							
S.1.2																							
S.2.1																							
S.2.2																							
S.2.3																							
S.3.1																							
S.3.2																							
S.3.3																							
H.1.1																							
H.1.2																							
H.1.3																							
H.1.4																							
H.2.1																							
H.3.1																							
O.1.1																							
O.1.2																							
O.2.1																							
O.2.2																							
O.3.1																							

* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

Cutting data standard values – MultiChange – Finishing milling heads

				52 863 ...								
				Feedrates for extra short and short holder								
				Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm	●	1st choice		
				$a_{p\,max.}$ 7,5 mm	9,4 mm	11,3 mm	15,0 mm	18,8 mm	○	suitable		
				a_e 0,1–0,2 x DC	a_e 0,1–0,2 x DC	a_e 0,1–0,2 x DC	a_e 0,1–0,2 x DC	a_e 0,1–0,2 x DC				
Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c m/min	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.1	0,9	0,7*	0,6*	405	0,04	0,05	0,06	0,08	0,09	○	●	○
P.1.2	0,9	0,7*	0,6*	385	0,04	0,05	0,06	0,07	0,08	○	●	○
P.1.3	0,9	0,7*	0,6*	365	0,04	0,05	0,06	0,07	0,08	○	●	○
P.1.4	0,9	0,7*	0,6*	350	0,04	0,05	0,05	0,06	0,07	○	●	○
P.1.5	0,9	0,7*	0,6*	330	0,04	0,04	0,05	0,06	0,07	○	●	○
P.2.1	0,9	0,7*	0,6*	365	0,04	0,05	0,06	0,08	0,09	○	●	○
P.2.2	0,9	0,7*	0,6*	335	0,04	0,05	0,06	0,07	0,08	○	●	○
P.2.3	0,9	0,7*	0,6*	300	0,04	0,04	0,05	0,06	0,07	○	●	○
P.2.4	0,9	0,7*	0,6*	235	0,03	0,04	0,05	0,06	0,06	○	●	○
P.3.1	0,9	0,7*	0,6*	215	0,04	0,05	0,05	0,07	0,08	●		○
P.3.2	0,9	0,7*	0,6*	200	0,04	0,04	0,05	0,06	0,07	●		○
P.3.3	0,9	0,7*	0,6*	185	0,04	0,04	0,05	0,06	0,07	●		○
P.4.1	0,9	0,7*	0,6*	150	0,03	0,03	0,04	0,05	0,05	●		○
P.4.2	0,9	0,7*	0,6*	150	0,03	0,03	0,04	0,05	0,05	●		○
M.1.1	0,9	0,7*	0,6*	100	0,02	0,03	0,03	0,04	0,05	●		
M.2.1	0,9	0,7*	0,6*	95	0,02	0,02	0,03	0,03	0,04	●		
M.3.1	0,9	0,7*	0,6*	100	0,02	0,02	0,03	0,03	0,04	●		
K.1.1	0,9	0,7*	0,6*	400	0,07	0,08	0,09	0,11	0,13		●	
K.1.2	0,9	0,7*	0,6*	300	0,05	0,06	0,07	0,08	0,09		●	
K.2.1	0,9	0,7*	0,6*	365	0,06	0,07	0,08	0,10	0,11		●	
K.2.2	0,9	0,7*	0,6*	300	0,05	0,06	0,07	0,08	0,09		●	
K.3.1	0,9	0,7*	0,6*	265	0,05	0,06	0,07	0,08	0,09		●	
K.3.2	0,9	0,7*	0,6*	250	0,04	0,05	0,06	0,07	0,08		●	
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

14

Cutting data standard values – MultiChange – Radius torus cutters

				52 865 ... / 52 866 ...																				
					Feedrates for extra short and short holder																			
					Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20 mm			●	1st choice		
				$a_{p\,max.}$	4,8 mm	1,6 mm	0,8 mm	5,6 mm	2,0 mm	1,0 mm	6,8 mm	2,4 mm	1,2 mm	9,0 mm	3,2 mm	1,6 mm	11,3 mm	4,0 mm	2,0 mm	○	suitable		
					a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c m/min	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm						
P.1.1	0,9	0,7*	0,6*	110	0,027	0,025	0,018	0,032	0,030	0,022	0,037	0,034	0,025	0,045	0,042	0,031	0,051	0,048	0,035	○	●	○
P.1.2	0,9	0,7*	0,6*	105	0,025	0,024	0,017	0,030	0,028	0,021	0,035	0,032	0,024	0,043	0,040	0,029	0,049	0,045	0,033	○	●	○
P.1.3	0,9	0,7*	0,6*	100	0,024	0,022	0,017	0,029	0,027	0,020	0,033	0,031	0,023	0,041	0,038	0,028	0,046	0,043	0,032	○	●	○
P.1.4	0,9	0,7*	0,6*	95	0,023	0,021	0,016	0,027	0,026	0,019	0,032	0,029	0,022	0,039	0,036	0,026	0,044	0,041	0,030	○	●	○
P.1.5	0,9	0,7*	0,6*	90	0,022	0,020	0,015	0,026	0,024	0,018	0,030	0,028	0,020	0,037	0,034	0,025	0,042	0,039	0,029	○	●	○
P.2.1	0,9	0,7*	0,6*	100	0,027	0,025	0,018	0,032	0,030	0,022	0,037	0,034	0,025	0,045	0,042	0,031	0,051	0,048	0,035	○	●	○
P.2.2	0,9	0,7*	0,6*	90	0,024	0,022	0,017	0,029	0,027	0,020	0,033	0,031	0,023	0,041	0,038	0,028	0,046	0,043	0,032	○	●	○
P.2.3	0,9	0,7*	0,6*	80	0,022	0,020	0,015	0,026	0,024	0,018	0,030	0,028	0,020	0,037	0,034	0,025	0,042	0,039	0,029	○	●	○
P.2.4	0,9	0,7*	0,6*	65	0,020	0,019	0,014	0,024	0,022	0,016	0,028	0,026	0,019	0,034	0,031	0,023	0,039	0,036	0,026	○	●	○
P.3.1	0,9	0,7*	0,6*	60	0,023	0,022	0,016	0,028	0,026	0,019	0,032	0,030	0,022	0,039	0,037	0,027	0,045	0,042	0,031	●		○
P.3.2	0,9	0,7*	0,6*	55	0,022	0,021	0,015	0,026	0,025	0,018	0,030	0,028	0,021	0,037	0,035	0,025	0,043	0,040	0,029	●		○
P.3.3	0,9	0,7*	0,6*	50	0,021	0,019	0,014	0,025	0,023	0,017	0,029	0,027	0,020	0,035	0,033	0,024	0,040	0,037	0,028	●		○
P.4.1	0,9	0,7*	0,6*	40	0,016	0,015	0,011	0,019	0,018	0,013	0,022	0,021	0,015	0,027	0,025	0,019	0,031	0,029	0,021	●		○
P.4.2	0,9	0,7*	0,6*	40	0,016	0,015	0,011	0,019	0,018	0,013	0,022	0,021	0,015	0,027	0,025	0,019	0,031	0,029	0,021	●		○
M.1.1	0,9	0,7*	0,6*	27	0,014	0,013	0,010	0,017	0,016	0,012	0,019	0,018	0,013	0,024	0,022	0,016	0,027	0,025	0,019	●		
M.2.1	0,9	0,7*	0,6*	25	0,012	0,011	0,008	0,014	0,013	0,010	0,016	0,015	0,011	0,020	0,018	0,013	0,022	0,021	0,015	●		
M.3.1	0,9	0,7*	0,6*	27	0,012	0,011	0,008	0,014	0,013	0,010	0,017	0,015	0,011	0,020	0,019	0,014	0,023	0,022	0,016	●		
K.1.1	0,9	0,7*	0,6*	110	0,040	0,037	0,028	0,048	0,045	0,033	0,055	0,052	0,038	0,068	0,063	0,046	0,077	0,072	0,053		●	
K.1.2	0,9	0,7*	0,6*	80	0,028	0,026	0,019	0,034	0,031	0,023	0,039	0,036	0,027	0,047	0,044	0,032	0,054	0,050	0,037		●	
K.2.1	0,9	0,7*	0,6*	100	0,034	0,032	0,023	0,041	0,038	0,028	0,047	0,044	0,032	0,057	0,054	0,039	0,066	0,061	0,045		●	
K.2.2	0,9	0,7*	0,6*	80	0,028	0,026	0,019	0,034	0,031	0,023	0,039	0,036	0,027	0,047	0,044	0,032	0,054	0,050	0,037		●	
K.3.1	0,9	0,7*	0,6*	70	0,028	0,026	0,019	0,034	0,031	0,023	0,039	0,036	0,027	0,047	0,044	0,032	0,054	0,050	0,037		●	
K.3.2	0,9	0,7*	0,6*	70	0,024	0,022	0,017	0,029	0,027	0,020	0,033	0,031	0,023	0,041	0,038	0,028	0,046	0,043	0,032		●	
N.1.1	0,9	0,7*	0,6*	420	0,045	0,042	0,031	0,054	0,050	0,037	0,062	0,058	0,042	0,076	0,071	0,052	0,087	0,081	0,059	●		○
N.1.2	0,9	0,7*	0,6*	380	0,041	0,038	0,028	0,049	0,046	0,034	0,056	0,053	0,039	0,069	0,064	0,047	0,079	0,073	0,054	●		○
N.2.1	0,9	0,7*	0,6*	255	0,043	0,040	0,029	0,052	0,048	0,035	0,059	0,055	0,041	0,072	0,067	0,050	0,083	0,077	0,057	●		○
N.2.2	0,9	0,7*	0,6*	205	0,045	0,042	0,031	0,054	0,050	0,037	0,062	0,058	0,042	0,076	0,071	0,052	0,087	0,081	0,059	●		○
N.2.3	0,9	0,7*	0,6*	145	0,049	0,046	0,034	0,059	0,055	0,040	0,068	0,063	0,046	0,083	0,077	0,057	0,095	0,088	0,065	●		○
N.3.1	0,9	0,7*	0,6*	185	0,020	0,019	0,014	0,025	0,023	0,017	0,028	0,026	0,019	0,034	0,032	0,024	0,039	0,037	0,027	●		○
N.3.2	0,9	0,7*	0,6*	110	0,033	0,031	0,022	0,039	0,037	0,027	0,045	0,042	0,031	0,055	0,051	0,038	0,063	0,059	0,043	●		○
N.3.3	0,9	0,7*	0,6*	145	0,033	0,031	0,022	0,039	0,037	0,027	0,045	0,042	0,031	0,055	0,051	0,038	0,063	0,059	0,043	●		○
N.4.1																						
S.1.1																						
S.1.2																						
S.2.1																						
S.2.2																						
S.2.3																						
S.3.1																						
S.3.2																						
S.3.3																						
H.1.1																						
H.1.2																						
H.1.3																						
H.1.4																						
H.2.1																						
H.3.1																						
O.1.1																						
O.1.2																						
O.2.1																						
O.2.2																						
O.3.1																						

* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

Cutting data standard values – MultiChange – Radius torus cutters – HSC machining

				52 865 ... / 52 866 ...								
				Feedrates for extra short and short holder								
				Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm	● 1st choice		
									○ suitable		
				a_e/a_p = 0,04	a_e/a_p = 0,05	a_e/a_p = 0,06	a_e/a_p = 0,08	a_e/a_p = 0,10			
Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c m/min	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.1	0,9	0,7*	0,6*	385	0,11	0,11	0,11	0,11	0,11	○	●	○
P.1.2	0,9	0,7*	0,6*	365	0,10	0,11	0,11	0,11	0,11	○	●	○
P.1.3	0,9	0,7*	0,6*	350	0,10	0,10	0,10	0,10	0,10	○	●	○
P.1.4	0,9	0,7*	0,6*	330	0,09	0,10	0,10	0,10	0,10	○	●	○
P.1.5	0,9	0,7*	0,6*	315	0,09	0,09	0,09	0,09	0,09	○	●	○
P.2.1	0,9	0,7*	0,6*	350	0,11	0,11	0,11	0,11	0,11	○	●	○
P.2.2	0,9	0,7*	0,6*	315	0,10	0,10	0,10	0,10	0,10	○	●	○
P.2.3	0,9	0,7*	0,6*	285	0,09	0,09	0,09	0,09	0,09	○	●	○
P.2.4	0,9	0,7*	0,6*	220	0,08	0,08	0,09	0,09	0,08	○	●	○
P.3.1	0,9	0,7*	0,6*	205	0,09	0,10	0,10	0,10	0,10	●		○
P.3.2	0,9	0,7*	0,6*	190	0,09	0,09	0,09	0,09	0,09	●		○
P.3.3	0,9	0,7*	0,6*	175	0,08	0,09	0,09	0,09	0,09	●		○
P.4.1	0,9	0,7*	0,6*	140	0,07	0,07	0,07	0,07	0,07	●		○
P.4.2	0,9	0,7*	0,6*	140	0,07	0,07	0,07	0,07	0,07	●		○
M.1.1	0,9	0,7*	0,6*	95	0,06	0,06	0,06	0,06	0,06	●		
M.2.1	0,9	0,7*	0,6*	90	0,05	0,05	0,05	0,05	0,05	●		
M.3.1	0,9	0,7*	0,6*	95	0,05	0,05	0,05	0,05	0,05	●		
K.1.1	0,9	0,7*	0,6*	380	0,16	0,17	0,17	0,17	0,17		●	
K.1.2	0,9	0,7*	0,6*	285	0,11	0,12	0,12	0,12	0,12		●	
K.2.1	0,9	0,7*	0,6*	350	0,14	0,14	0,14	0,15	0,14		●	
K.2.2	0,9	0,7*	0,6*	285	0,11	0,12	0,12	0,12	0,12		●	
K.3.1	0,9	0,7*	0,6*	255	0,11	0,12	0,12	0,12	0,12		●	
K.3.2	0,9	0,7*	0,6*	235	0,10	0,10	0,10	0,10	0,10		●	
N.1.1	0,9	0,7*	0,6*	840	0,18	0,19	0,19	0,19	0,19	●		○
N.1.2	0,9	0,7*	0,6*	765	0,17	0,17	0,17	0,17	0,17	●		○
N.2.1	0,9	0,7*	0,6*	510	0,17	0,18	0,18	0,18	0,18	●		○
N.2.2	0,9	0,7*	0,6*	405	0,18	0,19	0,19	0,19	0,19	●		○
N.2.3	0,9	0,7*	0,6*	290	0,20	0,21	0,21	0,21	0,20	●		○
N.3.1	0,9	0,7*	0,6*	365	0,08	0,09	0,09	0,09	0,09	●		○
N.3.2	0,9	0,7*	0,6*	220	0,13	0,14	0,14	0,14	0,14	●		○
N.3.3	0,9	0,7*	0,6*	290	0,13	0,14	0,14	0,14	0,14	●		○
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1				150	0,083	0,086	0,087	0,087	0,085	●		
O.1.2				100	0,083	0,086	0,087	0,087	0,085	●		
O.2.1												
O.2.2												
O.3.1												

* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

Cutting data standard values – MultiChange – Torus cutter heads

				52 870 ...											
				Feedrates for extra short and short holder											
				Ø DC = 10 mm		Ø DC = 12 mm		Ø DC = 16 mm		Ø DC = 20 mm		● 1st choice			
				$a_{p\,max.}$	5,0 mm	3,0 mm	6,0 mm	3,6 mm	8,0 mm	4,8 mm	10,0 mm	6,0 mm	○ suitable		
					a_e = DC		a_e = DC		a_e = DC		a_e = DC				
Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c m/min	f_z mm		f_z mm		f_z mm		f_z mm		Emulsion	Compressed air	MMS
P.1.1															
P.1.2															
P.1.3															
P.1.4															
P.1.5															
P.2.1															
P.2.2															
P.2.3															
P.2.4															
P.3.1															
P.3.2															
P.3.3															
P.4.1															
P.4.2															
M.1.1															
M.2.1															
M.3.1															
K.1.1															
K.1.2															
K.2.1															
K.2.2															
K.3.1															
K.3.2															
N.1.1	0,9	0,7	0,6	840	0,187	0,216	0,215	0,248	0,263	0,303	0,301	0,346	●		
N.1.2	0,9	0,7	0,6	765	0,170	0,196	0,196	0,225	0,239	0,275	0,273	0,315	●		
N.2.1	0,9	0,7	0,6	510	0,179	0,206	0,206	0,237	0,251	0,289	0,287	0,331	●		
N.2.2	0,9	0,7	0,6	405	0,187	0,216	0,215	0,248	0,263	0,303	0,301	0,346	●		
N.2.3	0,9	0,7	0,6	295	0,204	0,235	0,235	0,271	0,287	0,331	0,328	0,378	●		
N.3.1															
N.3.2															
N.3.3															
N.4.1															
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1															
S.3.2															
S.3.3															
H.1.1															
H.1.2															
H.1.3															
H.1.4															
H.2.1															
H.3.1															
O.1.1															
O.1.2															
O.2.1															
O.2.2															
O.3.1															

For unstable applications, the cutting data can be reduced.

Cutting data standard values – MultiChange – Quarter-round cutter heads

		52 869 ...														
		Ø DCX = 8 mm		Ø DCX = 10 mm		Ø DCX = 12 mm			Ø DCX = 16 mm			Ø DCX = 20 mm		● 1st choice ○ suitable		
		PRFRAD = 0,5	PRFRAD = 1,0	PRFRAD = 1,5	PRFRAD = 2,0	PRFRAD = 2,5	PRFRAD = 3,0	PRFRAD = 3,5	PRFRAD = 4,0	PRFRAD = 4,5	PRFRAD = 5,0	PRFRAD = 5,0	PRFRAD = 6,0			
Index	v_c m/min	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.1	150	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,07	0,07	0,06	0,08	0,08	○	●	○
P.1.2	170	0,03	0,03	0,04	0,04	0,06	0,05	0,05	0,08	0,08	0,07	0,09	0,09	○	●	○
P.1.3	130	0,03	0,04	0,03	0,05	0,05	0,04	0,04	0,08	0,07	0,07	0,09	0,08	○	●	○
P.1.4	120	0,03	0,04	0,03	0,05	0,05	0,04	0,04	0,08	0,07	0,07	0,09	0,08	○	●	○
P.1.5	170	0,03	0,03	0,04	0,04	0,06	0,05	0,05	0,08	0,08	0,07	0,09	0,09	○	●	○
P.2.1	130	0,03	0,02	0,03	0,03	0,05	0,04	0,04	0,06	0,06	0,05	0,07	0,07	○	●	○
P.2.2	130	0,03	0,02	0,03	0,03	0,05	0,04	0,04	0,06	0,06	0,05	0,07	0,07	○	●	○
P.2.3	120	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,08	0,07	0,07	0,09	0,08	○	●	○
P.2.4	120	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,08	0,07	0,07	0,09	0,08	○	●	○
P.3.1	80	0,02	0,02	0,03	0,02	0,03	0,03	0,03	0,05	0,05	0,04	0,06	0,06	○	●	○
P.3.2	70	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	○	●	○
P.3.3	70	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	○	●	○
P.4.1	70	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	○	●	○
P.4.2	70	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	○	●	○
M.1.1	40	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	●		
M.2.1	40	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	●		
M.3.1	40	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	●		
K.1.1	130	0,03	0,03	0,04	0,04	0,06	0,05	0,05	0,08	0,08	0,07	0,09	0,09		●	
K.1.2	100	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,07	0,07	0,06	0,08	0,08		●	
K.2.1	120	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,08	0,07	0,07	0,09	0,08		●	
K.2.2	100	0,03	0,02	0,03	0,03	0,05	0,04	0,04	0,06	0,06	0,05	0,07	0,07		●	
K.3.1	100	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,08	0,07	0,07	0,09	0,08		●	
K.3.2	90	0,03	0,02	0,03	0,03	0,05	0,04	0,04	0,06	0,06	0,05	0,07	0,07		●	
N.1.1	430	0,05	0,04	0,06	0,05	0,09	0,08	0,07	0,12	0,11	0,1	0,14	0,13	●		○
N.1.2	380	0,05	0,04	0,06	0,05	0,09	0,08	0,07	0,12	0,11	0,1	0,14	0,13	●		○
N.2.1	260	0,05	0,04	0,05	0,05	0,08	0,07	0,06	0,11	0,1	0,09	0,12	0,12	●		○
N.2.2	320	0,05	0,04	0,06	0,05	0,08	0,07	0,07	0,11	0,11	0,1	0,13	0,12	●		○
N.2.3	130	0,04	0,03	0,05	0,04	0,07	0,06	0,05	0,1	0,09	0,08	0,11	0,1	●		○
N.3.1	190	0,03	0,03	0,04	0,04	0,06	0,05	0,05	0,08	0,08	0,07	0,09	0,09	●		○
N.3.2	170	0,02	0,02	0,02	0,02	0,03	0,03	0,03	0,04	0,04	0,04	0,05	0,05	●		○
N.3.3	140	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	●		○
N.4.1																
S.1.1																
S.1.2																
S.2.1																
S.2.2																
S.2.3																
S.3.1																
S.3.2																
S.3.3																
H.1.1																
H.1.2																
H.1.3																
H.1.4																
H.2.1																
H.3.1																
O.1.1																
O.1.2																
O.2.1																
O.2.2																
O.3.1																

For unstable applications, the cutting data can be reduced.

14

Cutting data standard values – MultiChange – Deburring milling heads

				52 867 ... / 52 868 ...							
				Feedrates for extra short and short holder							
				Ø DCX = 10 mm	Ø DCX = 12 mm	Ø DCX = 16 mm	Ø DCX = 20 mm	●	1st choice		
				$a_{p\,max.}$ 52 867 ...	5,0 mm	6,0 mm	4,8 mm	6,0 mm	○	suitable	
				$a_{p\,max.}$ 52 868 ...	1,25 mm	1,5 mm	2,0 mm	2,5 mm			
					a_e 0,1–0,2 x DCX	a_e 0,1–0,2 x DCX	a_e 0,1–0,2 x DCX	a_e 0,1–0,2 x DCX			
Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c m/min	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.1	**0,9**	**0,7**	**0,6**	**200**	0,06	0,07	0,08	0,09	○	●	○
P.1.2	**0,9**	**0,7**	**0,6**	**190**	0,06	0,06	0,08	0,09	○	●	○
P.1.3	**0,9**	**0,7**	**0,6**	**185**	0,05	0,06	0,07	0,08	○	●	○
P.1.4	**0,9**	**0,7**	**0,6**	**175**	0,05	0,06	0,07	0,08	○	●	○
P.1.5	**0,9**	**0,7**	**0,6**	**165**	0,05	0,05	0,07	0,08	○	●	○
P.2.1	**0,9**	**0,7**	**0,6**	**185**	0,06	0,07	0,08	0,09	○	●	○
P.2.2	**0,9**	**0,7**	**0,6**	**165**	0,05	0,06	0,07	0,08	○	●	○
P.2.3	**0,9**	**0,7**	**0,6**	**150**	0,05	0,05	0,07	0,08	○	●	○
P.2.4	**0,9**	**0,7**	**0,6**	**115**	0,04	0,05	0,06	0,07	○	●	○
P.3.1	**0,9**	**0,7**	**0,6**	**110**	0,05	0,06	0,07	0,08	●		○
P.3.2	**0,9**	**0,7**	**0,6**	**100**	0,05	0,06	0,07	0,08	●		○
P.3.3	**0,9**	**0,7**	**0,6**	**90**	0,05	0,05	0,06	0,07	●		○
P.4.1	**0,9**	**0,7**	**0,6**	**75**	0,04	0,04	0,05	0,06	●		○
P.4.2	**0,9**	**0,7**	**0,6**	**75**	0,04	0,04	0,05	0,06	●		○
M.1.1	0,9	0,7	0,6	50	0,03	0,04	0,04	0,05	●		
M.2.1	0,9	0,7	0,6	45	0,03	0,03	0,04	0,04	●		
M.3.1	0,9	0,7	0,6	50	0,03	0,03	0,04	0,04	●		
K.1.1	**0,9**	**0,7**	**0,6**	**200**	0,09	0,10	0,12	0,14		●	
K.1.2	**0,9**	**0,7**	**0,6**	**150**	0,06	0,07	0,09	0,10		●	
K.2.1	**0,9**	**0,7**	**0,6**	**185**	0,07	0,09	0,11	0,12		●	
K.2.2	**0,9**	**0,7**	**0,6**	**150**	0,06	0,07	0,09	0,10		●	
K.3.1	**0,9**	**0,7**	**0,6**	**135**	0,06	0,07	0,09	0,10		●	
K.3.2	**0,9**	**0,7**	**0,6**	**125**	0,05	0,06	0,07	0,08		●	
N.1.1	**0,9**	**0,7**	**0,6**	**550**	0,10	0,11	0,14	0,16	●		○
N.1.2	**0,9**	**0,7**	**0,6**	**500**	0,09	0,10	0,13	0,14	●		○
N.2.1	**0,9**	**0,7**	**0,6**	**330**	0,09	0,11	0,13	0,15	●		○
N.2.2	**0,9**	**0,7**	**0,6**	**265**	0,10	0,11	0,14	0,16	●		○
N.2.3	**0,9**	**0,7**	**0,6**	**190**	0,11	0,12	0,15	0,17	●		○
N.3.1	**0,9**	**0,7**	**0,6**	**240**	0,04	0,05	0,06	0,07	●		○
N.3.2	**0,9**	**0,7**	**0,6**	**145**	0,07	0,08	0,10	0,12	●		○
N.3.3	**0,9**	**0,7**	**0,6**	**190**	0,07	0,08	0,10	0,12	●		○
N.4.1											
S.1.1											
S.1.2											
S.2.1											
S.2.2											
S.2.3											
S.3.1											
S.3.2											
S.3.3											
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1											
O.1.2											
O.2.1											
O.2.2											
O.3.1											

For unstable applications the machining parameters must be reduced.

Cutting data standard values – T-slot milling cutter

		54 065 ...														
		Ø DC = 11,0 mm	Ø DC = 12,5 mm	Ø DC = 16,0 mm	Ø DC = 18,0 mm	Ø DC = 19,0 mm	Ø DC = 21,0 mm	Ø DC = 22,0 mm	Ø DC = 25,0 mm	Ø DC = 28,0 mm	Ø DC = 32,0 mm	Ø DC = 36,0 mm	Ø DC = 40,0 mm	● 1st choice		
														○ suitable		
Index	v_c m/min	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.1	72	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.1.2	68	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.1.3	68	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.1.4	64	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.1.5	64	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.2.1	64	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.2.2	64	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.2.3	56	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.2.4	56	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.3.1	64	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.3.2	60	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.3.3	52	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.4.1	40	0,010	0,012	0,014	0,017	0,019	0,020	0,020	0,020	0,023	0,027	0,030	0,033	●		
P.4.2	40	0,010	0,012	0,014	0,017	0,019	0,020	0,020	0,020	0,023	0,027	0,030	0,033	●		
M.1.1	40	0,010	0,012	0,014	0,017	0,019	0,020	0,020	0,020	0,023	0,027	0,030	0,033	●		
M.2.1	40	0,010	0,012	0,014	0,017	0,019	0,020	0,020	0,020	0,023	0,027	0,030	0,033	●		
M.3.1	40	0,010	0,012	0,014	0,017	0,019	0,020	0,020	0,020	0,023	0,027	0,030	0,033	●		
K.1.1	68	0,040	0,048	0,056	0,067	0,075	0,080	0,080	0,080	0,093	0,093	0,105	0,117	●		
K.1.2	56	0,030	0,036	0,042	0,050	0,056	0,060	0,060	0,060	0,070	0,070	0,079	0,088	●		
K.2.1	64	0,030	0,036	0,042	0,050	0,056	0,060	0,060	0,060	0,070	0,070	0,079	0,088	●		
K.2.2	52	0,030	0,036	0,042	0,050	0,056	0,060	0,060	0,060	0,070	0,070	0,079	0,088	●		
K.3.1	56	0,030	0,036	0,042	0,050	0,056	0,060	0,060	0,060	0,070	0,070	0,079	0,088	●		
K.3.2	54	0,030	0,036	0,042	0,050	0,056	0,060	0,060	0,060	0,070	0,070	0,079	0,088	●		
N.1.1																
N.1.2																
N.2.1																
N.2.2																
N.2.3																
N.3.1																
N.3.2																
N.3.3																
N.4.1																
S.1.1																
S.1.2																
S.2.1																
S.2.2																
S.2.3																
S.3.1																
S.3.2																
S.3.3																
H.1.1																
H.1.2																
H.1.3																
H.1.4																
H.2.1																
H.3.1																
O.1.1																
O.1.2																
O.2.1																
O.2.2																
O.3.1																

Cutting data standard values – mini milling cutter, uncoated

			50 608 ... / 50 664 ...																
		Extra-short type	Ø DC = 0,5 mm			Ø DC = 1,0 mm			Ø DC = 1,2 mm			Ø DC = 1,5 mm			Ø DC = 1,8–2,0 mm			Ø DC = 2,5–3,0 mm		
			a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1																				
P.1.2																				
P.1.3																				
P.1.4																				
P.1.5																				
P.2.1																				
P.2.2																				
P.2.3																				
P.2.4																				
P.3.1																				
P.3.2																				
P.3.3																				
P.4.1																				
P.4.2																				
M.1.1																				
M.2.1																				
M.3.1																				
K.1.1																				
K.1.2																				
K.2.1																				
K.2.2																				
K.3.1																				
K.3.2																				
N.1.1	250	1,0	0,007	0,006		0,011	0,009		0,014	0,011		0,018	0,014		0,024	0,019		0,038	0,030	0,019
N.1.2	250	1,0	0,007	0,006		0,011	0,009		0,014	0,011		0,018	0,014		0,024	0,019		0,038	0,030	0,019
N.2.1	180	1,0	0,009	0,007		0,013	0,010		0,016	0,013		0,020	0,016		0,026	0,021		0,037	0,030	0,019
N.2.2	180	1,0	0,009	0,007		0,013	0,010		0,016	0,013		0,020	0,016		0,026	0,021		0,037	0,030	0,019
N.2.3	150	1,0	0,009	0,007		0,013	0,010		0,016	0,013		0,020	0,016		0,026	0,021		0,037	0,030	0,019
N.3.1	200	1,0	0,004	0,003		0,008	0,006		0,010	0,008		0,014	0,011		0,018	0,014		0,028	0,022	0,014
N.3.2	200	1,0	0,004	0,003		0,008	0,006		0,010	0,008		0,014	0,011		0,018	0,014		0,028	0,022	0,014
N.3.3	140	1,0	0,004	0,003		0,008	0,006		0,010	0,008		0,014	0,011		0,018	0,014		0,028	0,022	0,014
N.4.1	180	1,0	0,009	0,007		0,013	0,010		0,016	0,013		0,020	0,016		0,026	0,021		0,037	0,030	0,019
S.1.1																				
S.1.2																				
S.2.1																				
S.2.2																				
S.2.3																				
S.3.1	50	0,5	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
S.3.2	20	0,5	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
S.3.3																				
H.1.1																				
H.1.2																				
H.1.3																				
H.1.4																				
H.2.1																				
H.3.1																				
O.1.1																				
O.1.2																				
O.2.1																				
O.2.2																				
O.3.1																				

	50 608 ... / 50 664 ...															● 1st choice		
	Ø DC = 3,5–4,0 mm			Ø DC = 4,5–5,0 mm			Ø DC = 5,5–6,0 mm			Ø DC = 6,7–8,0 mm			Ø DC = 8,7–10,0 mm			○ suitable		
	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
P.1.1																		
P.1.2																		
P.1.3																		
P.1.4																		
P.1.5																		
P.2.1																		
P.2.2																		
P.2.3																		
P.2.4																		
P.3.1																		
P.3.2																		
P.3.3																		
P.4.1																		
P.4.2																		
M.1.1																		
M.2.1																		
M.3.1																		
K.1.1																		
K.1.2																		
K.2.1																		
K.2.2																		
K.3.1																		
K.3.2																		
N.1.1	0,050	0,040	0,025	0,064	0,051	0,032	0,077	0,062	0,039	0,104	0,083	0,052	0,130	0,104	0,065	●		○
N.1.2	0,050	0,040	0,025	0,064	0,051	0,032	0,077	0,062	0,039	0,104	0,083	0,052	0,130	0,104	0,065	●		○
N.2.1	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	●		○
N.2.2	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	●		○
N.2.3	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	●		○
N.3.1	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	●		○
N.3.2	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	●		○
N.3.3	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	●		○
N.4.1	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	●		○
S.1.1																		
S.1.2																		
S.2.1																		
S.2.2																		
S.2.3																		
S.3.1	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.3.2	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

14

Cutting data standard values – mini milling cutter, coated

			50 609 ... / 50 691 ...																	
		Extra-short type	Ø DC = 0,5 mm			Ø DC = 1,0 mm			Ø DC = 1,2 mm			Ø DC = 1,5 mm			Ø DC = 1,8–2,0 mm			Ø DC = 2,5–3,0 mm		
			a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	110	1,0	0,011	0,009		0,014	0,011		0,015	0,012		0,017	0,014		0,020	0,016		0,027	0,022	0,014
P.1.2	90	1,0	0,006	0,005		0,008	0,006		0,010	0,008		0,012	0,010		0,015	0,012		0,022	0,018	0,011
P.1.3	90	1,0	0,006	0,005		0,008	0,006		0,010	0,008		0,012	0,010		0,015	0,012		0,022	0,018	0,011
P.1.4	80	1,0	0,006	0,005		0,008	0,006		0,010	0,008		0,012	0,010		0,015	0,012		0,022	0,018	0,011
P.1.5	80	1,0	0,006	0,005		0,008	0,006		0,010	0,008		0,012	0,010		0,015	0,012		0,022	0,018	0,011
P.2.1	90	1,0	0,006	0,005		0,008	0,006		0,010	0,008		0,012	0,010		0,015	0,012		0,022	0,018	0,011
P.2.2	70	1,0	0,006	0,005		0,008	0,006		0,010	0,008		0,012	0,010		0,015	0,012		0,022	0,018	0,011
P.2.3	70	1,0	0,006	0,005		0,008	0,006		0,010	0,008		0,012	0,010		0,015	0,012		0,022	0,018	0,011
P.2.4	55	1,0	0,006	0,005		0,008	0,006		0,010	0,008		0,012	0,010		0,015	0,012		0,022	0,018	0,011
P.3.1																				
P.3.2																				
P.3.3																				
P.4.1	50	1,0	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
P.4.2	40	1,0	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
M.1.1	40	1,0	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
M.2.1	50	1,0	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
M.3.1	50	1,0	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
K.1.1	130	1,0	0,018	0,014		0,022	0,018		0,024	0,019		0,028	0,022		0,034	0,027		0,044	0,035	0,022
K.1.2	120	1,0	0,018	0,014		0,022	0,018		0,024	0,019		0,028	0,022		0,034	0,027		0,044	0,035	0,022
K.2.1	130	1,0	0,017	0,014		0,020	0,016		0,022	0,018		0,024	0,019		0,028	0,022		0,035	0,028	0,018
K.2.2	120	1,0	0,017	0,014		0,020	0,016		0,022	0,018		0,024	0,019		0,028	0,022		0,035	0,028	0,018
K.3.1	130	1,0	0,018	0,014		0,022	0,018		0,024	0,019		0,028	0,022		0,034	0,027		0,044	0,035	0,022
K.3.2	120	1,0	0,018	0,014		0,022	0,018		0,024	0,019		0,028	0,022		0,034	0,027		0,044	0,035	0,022
N.1.1																				
N.1.2																				
N.2.1																				
N.2.2																				
N.2.3																				
N.3.1	200	1,0	0,004	0,003		0,008	0,006		0,010	0,008		0,014	0,011		0,018	0,014		0,028	0,022	0,014
N.3.2	200	1,0	0,004	0,003		0,008	0,006		0,010	0,008		0,014	0,011		0,018	0,014		0,028	0,022	0,014
N.3.3	140	1,0	0,004	0,003		0,008	0,006		0,010	0,008		0,014	0,011		0,018	0,014		0,028	0,022	0,014
N.4.1																				
S.1.1	30	0,5	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
S.1.2	30	0,5	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
S.2.1	30	0,5	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
S.2.2	30	0,5	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
S.2.3	30	0,5	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
S.3.1	50	0,5	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
S.3.2	20	0,5	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
S.3.3																				
H.1.1																				
H.1.2																				
H.1.3																				
H.1.4																				
H.2.1																				
H.3.1																				
O.1.1																				
O.1.2																				
O.2.1																				
O.2.2																				
O.3.1																				

	50 609 ... / 50 691 ...															● 1st choice		
	Ø DC = 3,5–4,0 mm			Ø DC = 4,5–5,0 mm			Ø DC = 5,5–6,0 mm			Ø DC = 6,7–8,0 mm			Ø DC = 8,7–10,0 mm			○ suitable		
	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
P.1.1	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038	○	●	○
P.1.2	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.1.3	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.1.4	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.1.5	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.2.1	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.2.2	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.2.3	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.2.4	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.3.1																		
P.3.2																		
P.3.3																		
P.4.1	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
P.4.2	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
M.1.1	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
M.2.1	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
M.3.1	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
K.1.1	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050	0,122	0,098	0,061	○	●	○
K.1.2	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050	0,122	0,098	0,061	○	●	○
K.2.1	0,042	0,034	0,021	0,050	0,040	0,025	0,058	0,046	0,029	0,072	0,058	0,036	0,086	0,069	0,043	○	●	○
K.2.2	0,042	0,034	0,021	0,050	0,040	0,025	0,058	0,046	0,029	0,072	0,058	0,036	0,086	0,069	0,043	○	●	○
K.3.1	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050	0,122	0,098	0,061	○	●	○
K.3.2	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050	0,122	0,098	0,061	○	●	○
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	●		○
N.3.2	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	●		○
N.3.3	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	●		○
N.4.1																		
S.1.1	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.1.2	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.2.1	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.2.2	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.2.3	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.3.1	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.3.2	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

14

Cutting data standard values – End mill – W version, short

			54 590... / 54 592... / 54 591... / 54 593... / 54 594... / 54 595... / 54 596... / 54 597... / 54 610... / 54 611... / 54 612... / 54 613... / 54 640... / 54 642...																	
	HPC		Ø DC = 2,7–3,0 mm			Ø DC = 3,7–4,0 mm			Ø DC = 4,7–5,0 mm			Ø DC = 5,7–7,0 mm			Ø DC = 7,7–9,0 mm			Ø DC = 9,7–11,0 mm		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm																	
N.1.1	560	1,0*	0,054	0,042	0,030	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,200	0,150	0,100	0,240	0,180	0,120
N.1.2	560	1,0*	0,054	0,042	0,030	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,200	0,150	0,100	0,240	0,180	0,120
N.2.1	336	1,0*	0,054	0,042	0,030	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,200	0,150	0,100	0,240	0,180	0,120
N.2.2	336	1,0*	0,054	0,042	0,030	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,200	0,150	0,100	0,240	0,180	0,120
N.2.3	224	1,0*	0,054	0,042	0,030	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,200	0,150	0,100	0,240	0,180	0,120
N.3.1	224	1,0*	0,036	0,028	0,020	0,054	0,042	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,160	0,120	0,080	0,200	0,150	0,100
N.3.2	160	1,0*	0,036	0,028	0,020	0,054	0,042	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,160	0,120	0,080	0,200	0,150	0,100
N.3.3	160	1,0*	0,036	0,028	0,020	0,054	0,042	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,160	0,120	0,080	0,200	0,150	0,100
N.4.1																				

* = use a_p 1.5 x DC only in a_e range 0.1–0.4 x DC

Cutting data standard values – End mill – W version, long

			50 960 ... / 54 590 ... / 54 592 ... / 54 591 ... / 54 593 ... / 54 594 ... / 54 595 ... / 54 596 ... / 54 597 ... / 54 610 ... / 54 611 ... / 54 612 ... / 54 613 ... / 54 620 ... / 54 622 ... / 54 630 ... / 54 631 ... / 54 632... / 54 633... / 54 640 ... / 54 642 ...																	
	HPC		Ø DC = 2,7–3,0 mm			Ø DC = 3,7–4,0 mm			Ø DC = 4,7–5,0 mm			Ø DC = 5,7–7,0 mm			Ø DC = 7,7–9,0 mm			Ø DC = 9,7–11,0 mm		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm																	
N.1.1	320	1,0*	0,036	0,028	0,020	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,160	0,120	0,080	0,200	0,150	0,100
N.1.2	320	1,0*	0,036	0,028	0,020	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,160	0,120	0,080	0,200	0,150	0,100
N.2.1	192	1,0*	0,036	0,028	0,020	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,160	0,120	0,080	0,200	0,150	0,100
N.2.2	192	1,0*	0,036	0,028	0,020	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,160	0,120	0,080	0,200	0,150	0,100
N.2.3	128	1,0*	0,036	0,028	0,020	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,160	0,120	0,080	0,200	0,150	0,100
N.3.1	128	1,0*	0,027	0,021	0,015	0,045	0,035	0,025	0,070	0,052	0,035	0,100	0,075	0,050	0,140	0,100	0,070	0,180	0,130	0,090
N.3.2	92	1,0*	0,027	0,021	0,015	0,045	0,035	0,025	0,070	0,052	0,035	0,100	0,075	0,050	0,140	0,100	0,070	0,180	0,130	0,090
N.3.3	92	1,0*	0,027	0,021	0,015	0,045	0,035	0,025	0,070	0,052	0,035	0,100	0,075	0,050	0,140	0,100	0,070	0,180	0,130	0,090
N.4.1																				

* = use a_p 1.5 x DC only in a_e range 0.1–0.4 x DC

Cutting data standard values – End mill – W and WR version, extra long

			54 590 ... / 54 592 ... / 54 610 ... / 54 612 ... / 54 630 ... / 54 631 ... / 54 632 ... / 54 633 ... / 54 650 ... / 54 652 ... / 54 640 ... / 54 642 ...																	
	HPC		Ø DC = 2,7–3,0 mm			Ø DC = 3,7–4,0 mm			Ø DC = 4,7–5,0 mm			Ø DC = 5,7–7,0 mm			Ø DC = 7,7–9,0 mm			Ø DC = 9,7–11,0 mm		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm																	
N.1.1	240	0,75*	0,013	0,010	0,007	0,018	0,014	0,010	0,040	0,030	0,020	0,050	0,037	0,025	0,060	0,050	0,030	0,070	0,050	0,040
N.1.2	240	0,75*	0,013	0,010	0,007	0,018	0,014	0,010	0,040	0,030	0,020	0,050	0,037	0,025	0,060	0,050	0,030	0,070	0,050	0,040
N.2.1	144	0,75*	0,013	0,010	0,007	0,018	0,014	0,010	0,040	0,030	0,020	0,050	0,037	0,025	0,060	0,050	0,030	0,070	0,050	0,040
N.2.2	144	0,75*	0,013	0,010	0,007	0,018	0,014	0,010	0,040	0,030	0,020	0,050	0,037	0,025	0,060	0,050	0,030	0,070	0,050	0,040
N.2.3	100	0,75*	0,013	0,010	0,007	0,018	0,014	0,010	0,040	0,030	0,020	0,050	0,037	0,025	0,060	0,050	0,030	0,070	0,050	0,040
N.3.1	100	0,75*	0,009	0,007	0,005	0,014	0,011	0,008	0,020	0,015	0,010	0,030	0,022	0,015	0,040	0,030	0,020	0,050	0,040	0,030
N.3.2	72	0,75*	0,009	0,007	0,005	0,014	0,011	0,008	0,020	0,015	0,010	0,030	0,022	0,015	0,040	0,030	0,020	0,050	0,040	0,030
N.3.3	72	0,75*	0,009	0,007	0,005	0,014	0,011	0,008	0,020	0,015	0,010	0,030	0,022	0,015	0,040	0,030	0,020	0,050	0,040	0,030
N.4.1																				

* = use a_p 1.25 x DC only in a_e range 0.1–0.4 x DC

Cooling lubrication with emulsion

Feed rate guide values for ball nosed and torus cutters on → **Page 466**

	54 590... / 54 592... / 54 591... / 54 593... / 54 594... / 54 595... / 54 596... / 54 597... / 54 610... / 54 611... / 54 612... / 54 613... / 54 640... / 54 642...																			
	Ø DC = 11,7–13,0 mm			Ø DC = 13,7–15,0 mm			Ø DC = 15,7–16,0 mm			Ø DC = 18,0 mm			Ø DC = 19,7–20,0 mm			Ø DC = 24,7–25,0 mm			Emulsion	MMS
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC		
Index	f_z mm																			
N.1.1	0,270	0,220	0,150	0,290	0,230	0,160	0,310	0,240	0,170	0,330	0,250	0,180	0,340	0,270	0,270	0,350	0,280	0,220	●	●
N.1.2	0,270	0,220	0,150	0,290	0,230	0,160	0,310	0,240	0,170	0,330	0,250	0,180	0,340	0,270	0,270	0,350	0,280	0,220	●	●
N.2.1	0,270	0,220	0,150	0,290	0,230	0,160	0,310	0,240	0,170	0,330	0,250	0,180	0,340	0,270	0,270	0,350	0,280	0,220	●	●
N.2.2	0,270	0,220	0,150	0,290	0,230	0,160	0,310	0,240	0,170	0,330	0,250	0,180	0,340	0,270	0,270	0,350	0,280	0,220	●	●
N.2.3	0,270	0,220	0,150	0,290	0,230	0,160	0,310	0,240	0,170	0,330	0,250	0,180	0,340	0,270	0,270	0,350	0,280	0,220	●	●
N.3.1	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,240	0,320	0,260	0,200	●	●
N.3.2	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,240	0,320	0,260	0,200	●	●
N.3.3	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,240	0,320	0,260	0,200	●	●
N.4.1																				

	50 960 ... / 54 590 ... / 54 592 ... / 54 591 ... / 54 593 ... / 54 594 ... / 54 595 ... / 54 596 ... / 54 597 ... / 54 610 ... / 54 611 ... / 54 612 ... / 54 613 ... / 54 620 ... / 54 622 ... / 54 630 ... / 54 631 ... / 54 632... / 54 633... / 54 640 ... / 54 642 ...																			
	Ø DC = 11,7–13,0 mm			Ø DC = 13,7–15,0 mm			Ø DC = 15,7–16,0 mm			Ø DC = 18,0 mm			Ø DC = 19,7–20,0 mm			Ø DC = 24,7–25,0 mm			Emulsion	MMS
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC		
Index	f_z mm																			
N.1.1	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,170	0,320	0,260	0,200	●	●
N.1.2	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,170	0,320	0,260	0,200	●	●
N.2.1	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,170	0,320	0,260	0,200	●	●
N.2.2	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,170	0,320	0,260	0,200	●	●
N.2.3	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,170	0,320	0,260	0,200	●	●
N.3.1	0,200	0,160	0,110	0,220	0,170	0,120	0,230	0,180	0,130	0,260	0,200	0,140	0,260	0,210	0,150	0,290	0,230	0,180	●	●
N.3.2	0,200	0,160	0,110	0,220	0,170	0,120	0,230	0,180	0,130	0,260	0,200	0,140	0,260	0,210	0,150	0,290	0,230	0,180	●	●
N.3.3	0,200	0,160	0,110	0,220	0,170	0,120	0,230	0,180	0,130	0,260	0,200	0,140	0,260	0,210	0,150	0,290	0,230	0,180	●	●
N.4.1																				

	54 590 ... / 54 592 ... / 54 610 ... / 54 612 ... / 54 630 ... / 54 631 ... / 54 632 ... / 54 633 ... / 54 650 ... / 54 652 ... / 54 640 ... / 54 642 ...																			
	Ø DC = 11,7–13,0 mm			Ø DC = 13,7–15,0 mm			Ø DC = 15,7–16,0 mm			Ø DC = 18,0 mm			Ø DC = 19,7–20,0 mm			Ø DC = 24,7–25,0 mm			Emulsion	MMS
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC		
Index	f_z mm																			
N.1.1	0,080	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,130	0,100	0,080	0,160	0,130	0,100	●	●
N.1.2	0,080	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,130	0,100	0,080	0,160	0,130	0,100	●	●
N.2.1	0,080	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,130	0,100	0,080	0,160	0,130	0,100	●	●
N.2.2	0,080	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,130	0,100	0,080	0,160	0,130	0,100	●	●
N.2.3	0,080	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,130	0,100	0,080	0,160	0,130	0,100	●	●
N.3.1	0,060	0,050	0,030	0,070	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,140	0,120	0,090	●	●
N.3.2	0,060	0,050	0,030	0,070	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,140	0,120	0,090	●	●
N.3.3	0,060	0,050	0,030	0,070	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,140	0,120	0,090	●	●
N.4.1																				

Cutting data standard values – End mill

					54 001 ... / 54 002 ... / 54 003 ... / 54 050 ... / 54 051 ... / 54 052 ... / 54 053 ... / 54 054 ...														
	Type short / long	Type extra long	Type short / long	Type extra long	Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
					a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min		$a_{p\,max.}$ x DC	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	**190**	**150**	1,0	0,5	0,019	0,015	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.1.2	**180**	**145**	1,0	0,5	0,019	0,015	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.1.3	**180**	**145**	1,0	0,5	0,019	0,015	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.1.4	**170**	**140**	1,0	0,5	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.1.5	**170**	**140**	1,0	0,5	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.2.1	**170**	**140**	1,0	0,5	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.2.2	**170**	**140**	1,0	0,5	0,014	0,011	0,008	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.2.3	**150**	**125**	1,0	0,5	0,014	0,011	0,008	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.2.4	**150**	**125**	1,0	0,5	0,014	0,011	0,008	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.3.1	**170**	**140**	1,0	0,5	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.3.2	**160**	**130**	1,0	0,5	0,019	0,015	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.3.3	**140**	**110**	1,0	0,5	0,019	0,015	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.4.1																			
P.4.2																			
M.1.1																			
M.2.1																			
M.3.1																			
K.1.1	**180**	**145**	1,0	0,5	0,027	0,021	0,015	0,040	0,031	0,023	0,058	0,043	0,029	0,068	0,051	0,034	0,080	0,060	0,040
K.1.2	**160**	**130**	1,0	0,5	0,021	0,016	0,011	0,040	0,031	0,023	0,058	0,043	0,029	0,068	0,051	0,034	0,080	0,060	0,040
K.2.1	**170**	**140**	1,0	0,5	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
K.2.2	**155**	**125**	1,0	0,5	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
K.3.1	**150**	**120**	1,0	0,5	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
K.3.2	**145**	**120**	1,0	0,5	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
N.1.1																			
N.1.2																			
N.2.1																			
N.2.2																			
N.2.3																			
N.3.1																			
N.3.2																			
N.3.3																			
N.4.1																			
S.1.1																			
S.1.2																			
S.2.1																			
S.2.2																			
S.2.3																			
S.3.1																			
S.3.2																			
S.3.3																			
H.1.1																			
H.1.2																			
H.1.3																			
H.1.4																			
H.2.1																			
H.3.1																			
O.1.1																			
O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

"Extra-long" version: when profiling with an a_e of 0.1–0.4 x DC an a_p of 1.0 x DC should be used.

Plunging angle for ramping and helical milling: 3°

	54 001 ... / 54 002 ... / 54 003 ... / 54 050 ... / 54 051 ... / 54 052 ... / 54 053 ... / 54 054 ...														
	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20 mm			● 1st choice		○ suitable
	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC			
Index	f_z mm			f_z mm			f_z mm			f_z mm			Emulsion	Compressed air	MMS
P.1.1	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	○	○
P.1.2	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	○	○
P.1.3	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	○	○
P.1.4	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	○	○
P.1.5	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	○	○
P.2.1	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	○	○
P.2.2	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	○	○
P.2.3	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	○	○
P.2.4	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	○	○
P.3.1	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	○	○
P.3.2	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	●	○
P.3.3	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	●	○
P.4.1															
P.4.2															
M.1.1															
M.2.1															
M.3.1															
K.1.1	0,100	0,080	0,050	0,130	0,090	0,060	0,150	0,120	0,090	0,170	0,140	0,110	●	●	●
K.1.2	0,100	0,080	0,050	0,130	0,090	0,060	0,150	0,120	0,090	0,170	0,140	0,110	●	●	●
K.2.1	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	●	●
K.2.2	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	●	●
K.3.1	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	●	●
K.3.2	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	●	●
N.1.1															
N.1.2															
N.2.1															
N.2.2															
N.2.3															
N.3.1															
N.3.2															
N.3.3															
N.4.1															
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1															
S.3.2															
S.3.3															
H.1.1															
H.1.2															
H.1.3															
H.1.4															
H.2.1															
H.3.1															
O.1.1															
O.1.2															
O.2.1															
O.2.2															
O.3.1															

Feed rate guide values for ball nosed and torus cutters on → **Page 466**

Cutting data standard values – End mill

					54 000 ... / 54 004 ... / 54 005 ... / 54 006 ... / 54 015 ... / 54 060 ... / 54 061 ... / 54 062 ... / 54 063 ... / 54 064 ...														
	Type short / long	Type extra long	Type short / long	Type extra long	Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
					a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min		$a_{p\,max.}$ x DC	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	**180**	**140**	1,0	0,5	0,017	0,013	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.1.2	**170**	**135**	1,0	0,5	0,017	0,013	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.1.3	**170**	**135**	1,0	0,5	0,017	0,013	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.1.4	**160**	**130**	1,0	0,5	0,018	0,014	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.1.5	**160**	**130**	1,0	0,5	0,018	0,014	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.2.1	**160**	**130**	1,0	0,5	0,018	0,014	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.2.2	**160**	**130**	1,0	0,5	0,012	0,009	0,007	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.2.3	**140**	**115**	1,0	0,5	0,012	0,009	0,007	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.2.4	**140**	**115**	1,0	0,5	0,012	0,009	0,007	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.3.1	**160**	**130**	1,0	0,5	0,018	0,014	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.3.2	**150**	**120**	1,0	0,5	0,017	0,013	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.3.3	**130**	**100**	1,0	0,5	0,017	0,013	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.4.1	**100**	**80**	1,0	0,5	0,012	0,009	0,007	0,018	0,014	0,010	0,027	0,020	0,014	0,036	0,027	0,018	0,040	0,030	0,020
P.4.2	**100**	**80**	1,0	0,5	0,012	0,009	0,007	0,018	0,014	0,010	0,027	0,020	0,014	0,036	0,027	0,018	0,040	0,030	0,020
M.1.1	**100**	**80**	1,0	0,5	0,012	0,009	0,007	0,018	0,014	0,010	0,027	0,020	0,014	0,036	0,027	0,018	0,040	0,030	0,020
M.2.1	**85**	**70**	1,0	0,5	0,012	0,009	0,007	0,018	0,014	0,010	0,027	0,020	0,014	0,036	0,027	0,018	0,040	0,030	0,020
M.3.1	**100**	**80**	1,0	0,5	0,012	0,009	0,007	0,018	0,014	0,010	0,027	0,020	0,014	0,036	0,027	0,018	0,040	0,030	0,020
K.1.1	170	135	1,0	0,5	0,024	0,019	0,014	0,036	0,028	0,020	0,051	0,038	0,026	0,061	0,045	0,030	0,070	0,050	0,040
K.1.2	140	110	1,0	0,5	0,018	0,014	0,010	0,036	0,028	0,020	0,051	0,038	0,026	0,061	0,045	0,030	0,070	0,050	0,040
K.2.1	160	130	1,0	0,5	0,018	0,014	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
K.2.2	130	100	1,0	0,5	0,018	0,014	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
K.3.1	140	110	1,0	0,5	0,018	0,014	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
K.3.2	135	110	1,0	0,5	0,018	0,014	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
N.1.1																			
N.1.2																			
N.2.1																			
N.2.2																			
N.2.3																			
N.3.1	300	240	1,0	0,5	0,029	0,022	0,016	0,038	0,029	0,021	0,054	0,041	0,027	0,065	0,048	0,032	0,080	0,060	0,040
N.3.2	240	190	1,0	0,5	0,029	0,022	0,016	0,038	0,029	0,021	0,054	0,041	0,027	0,065	0,048	0,032	0,080	0,060	0,040
N.3.3	240	190	1,0	0,5	0,029	0,022	0,016	0,038	0,029	0,021	0,054	0,041	0,027	0,065	0,048	0,032	0,080	0,060	0,040
N.4.1																			
S.1.1	**25**	**20**	0,5	0,3	0,011	0,008	0,006	0,015	0,012	0,009	0,022	0,016	0,011	0,029	0,022	0,014	0,030	0,030	0,020
S.1.2	**25**	**20**	0,5	0,3	0,011	0,008	0,006	0,015	0,012	0,009	0,022	0,016	0,011	0,029	0,022	0,014	0,030	0,030	0,020
S.2.1	**25**	**20**	0,5	0,3	0,011	0,008	0,006	0,015	0,012	0,009	0,022	0,016	0,011	0,029	0,022	0,014	0,030	0,030	0,020
S.2.2	**25**	**20**	0,5	0,3	0,011	0,008	0,006	0,015	0,012	0,009	0,022	0,016	0,011	0,029	0,022	0,014	0,030	0,030	0,020
S.2.3	**25**	**20**	0,5	0,3	0,011	0,008	0,006	0,015	0,012	0,009	0,022	0,016	0,011	0,029	0,022	0,014	0,030	0,030	0,020
S.3.1	**100**	**70**	0,5	0,3	0,021	0,017	0,012	0,031	0,024	0,017	0,046	0,034	0,023	0,056	0,042	0,028	0,070	0,050	0,030
S.3.2	**80**	**60**	0,5	0,3	0,015	0,012	0,009	0,023	0,018	0,013	0,034	0,025	0,017	0,043	0,032	0,021	0,050	0,040	0,030
S.3.3																			
H.1.1																			
H.1.2																			
H.1.3																			
H.1.4																			
H.2.1																			
H.3.1																			
O.1.1																			
O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

"Extra-long" version: when profiling with an a_e of 0.1–0.4 x DC an a_p of 1.0 x DC should be used.

Plunging angle for ramping and helical milling: 3°

	54 000 ... / 54 004 ... / 54 005 ... / 54 006 ... / 54 015 ... / 54 060 ... / 54 061 ... / 54 062 ... / 54 063 ... / 54 064 ...												● 1st choice		○ suitable
	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20 mm					
	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_p 0,6–1,0 x DC			
Index	f_z mm			f_z mm			f_z mm			f_z mm			Emulsion	Compressed air	MMS
P.1.1	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.1.2	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.1.3	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.1.4	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.1.5	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.2.1	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.2.2	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.2.3	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.2.4	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.3.1	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.3.2	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.3.3	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.4.1	0,050	0,040	0,030	0,070	0,050	0,030	0,070	0,050	0,040	0,090	0,080	0,060	●		
P.4.2	0,050	0,040	0,030	0,070	0,050	0,030	0,070	0,050	0,040	0,090	0,080	0,060	●		
M.1.1	0,050	0,040	0,030	0,070	0,050	0,030	0,070	0,050	0,040	0,090	0,080	0,060	●		
M.2.1	0,050	0,040	0,030	0,070	0,050	0,030	0,070	0,050	0,040	0,090	0,080	0,060	●		
M.3.1	0,050	0,040	0,030	0,070	0,050	0,030	0,070	0,050	0,040	0,090	0,080	0,060	●		
K.1.1	0,090	0,070	0,050	0,110	0,080	0,060	0,140	0,100	0,080	0,150	0,120	0,100	●	●	●
K.1.2	0,090	0,070	0,050	0,110	0,080	0,060	0,140	0,100	0,080	0,150	0,120	0,100	●	●	●
K.2.1	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	●	●
K.2.2	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	●	●
K.3.1	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	●	●
K.3.2	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	●	●
N.1.1															
N.1.2															
N.2.1															
N.2.2															
N.2.3															
N.3.1	0,100	0,070	0,050	0,140	0,110	0,070	0,160	0,120	0,090	0,160	0,130	0,100	●		
N.3.2	0,100	0,070	0,050	0,140	0,110	0,070	0,160	0,120	0,090	0,190	0,150	0,120	●		
N.3.3	0,100	0,070	0,050	0,140	0,110	0,070	0,160	0,120	0,090	0,190	0,150	0,120	●		
N.4.1															
S.1.1	0,040	0,030	0,020	0,060	0,040	0,030	0,060	0,050	0,040	0,070	0,060	0,050	●		
S.1.2	0,040	0,030	0,020	0,060	0,040	0,030	0,060	0,050	0,040	0,070	0,060	0,050	●		
S.2.1	0,040	0,030	0,020	0,060	0,040	0,030	0,060	0,050	0,040	0,070	0,060	0,050	●		
S.2.2	0,040	0,030	0,020	0,060	0,040	0,030	0,060	0,050	0,040	0,070	0,060	0,050	●		
S.2.3	0,040	0,030	0,020	0,060	0,020	0,030	0,060	0,050	0,040	0,070	0,060	0,050	●		
S.3.1	0,090	0,060	0,040	0,120	0,090	0,060	0,130	0,100	0,080	0,150	0,120	0,090	●		
S.3.2	0,070	0,050	0,030	0,090	0,070	0,050	0,100	0,080	0,060	0,120	0,100	0,080	●		
S.3.3															
H.1.1															
H.1.2															
H.1.3															
H.1.4															
H.2.1															
H.3.1															
O.1.1															
O.1.2															
O.2.1															
O.2.2															
O.3.1															

14

Feed rate guide values for ball nosed and torus cutters on → **Page 466**

Cutting data standard values – Rough milling cutter

	52 338 ... / 52 339 ... / 52 340 ... / 52 341 ... / 52 342 ... / 52 343 ...											
	Full slot milling	Contour milling	Ti1000									
			Ø DC = 6 mm f_z in mm		Ø DC = 8 mm f_z in mm		Ø DC = 10 mm f_z in mm		Ø DC = 12 mm f_z in mm		Ø DC = 14 mm f_z in mm	
Index	v_c m/min	v_c m/min										
P.1.1	170	190	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.1.2	160	180	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.1.3	150	170	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.1.4	150	170	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.1.5	130	150	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.2.1	110	130	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.2.2	110	130	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.2.3	110	130	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.2.4	110	130	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.3.1	160	180	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.3.2	90	110	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.3.3	90	110	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.4.1	55	65	0,02	0,03	0,03	0,04	0,04	0,05	0,05	0,06	0,06	0,07
P.4.2	35	45	0,02	0,03	0,03	0,04	0,04	0,05	0,05	0,06	0,06	0,07
M.1.1	60	70	0,02	0,03	0,03	0,04	0,04	0,05	0,05	0,06	0,06	0,07
M.2.1	45	55	0,02	0,03	0,03	0,04	0,04	0,05	0,05	0,06	0,06	0,07
M.3.1	50	60	0,02	0,03	0,03	0,04	0,04	0,05	0,05	0,06	0,06	0,07
K.1.1	120	130	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
K.1.2	110	120	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
K.2.1	110	120	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
K.2.2	90	100	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
K.3.1	110	120	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
K.3.2	100	110	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

For **Full slot milling** the values indicated in the table are based on:
a_e = 1,0 x DC / a_p = 1,0 x DC

For **Contour milling** the values indicated in the table are based on:
a_e = 0,4 x DC / a_p = 1,0 x DC

52 338 ... / 52 339 ... / 52 340 ... / 52 341 ... / 52 342 ... / 52 343 ...

Ti1000

● 1st choice
○ suitable

Index	Ø DC = 16 mm f_z in mm		Ø DC = 18 mm f_z in mm		Ø DC = 20 mm f_z in mm		Ø DC = 25 mm f_z in mm		Emulsion	Compressed air	MMS
P.1.1	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.1.2	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.1.3	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.1.4	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.1.5	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.2.1	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.2.2	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.2.3	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.2.4	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.3.1	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.3.2	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.3.3	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.4.1	0,06	0,08	0,07	0,09	0,08	0,1	0,08	0,1	●		
P.4.2	0,06	0,08	0,07	0,09	0,08	0,1	0,08	0,1	●		
M.1.1	0,06	0,08	0,07	0,09	0,08	0,1	0,08	0,1	●		
M.2.1	0,06	0,08	0,07	0,09	0,08	0,1	0,08	0,1	●		
M.3.1	0,06	0,08	0,07	0,09	0,08	0,1	0,08	0,1	●		
K.1.1	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
K.1.2	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
K.2.1	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
K.2.2	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
K.3.1	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
K.3.2	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
N.1.1											
N.1.2											
N.2.1											
N.2.2											
N.2.3											
N.3.1											
N.3.2											
N.3.3											
N.4.1											
S.1.1											
S.1.2											
S.2.1											
S.2.2											
S.2.3											
S.3.1											
S.3.2											
S.3.3											
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1											
O.1.2											
O.2.1											
O.2.2											
O.3.1											

With tools with internal cooling (52 338.../52 339...) the cutting speed (v_c) can be increased by 20–30 %!

Cutting data standard values – High-feed milling cutter

		56 900 ... / 56 902 ... / 56 904 ...							
		Medium machining					● 1st choice		
							○ suitable		
		Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10mm	Ø DC = 12 mm	Ø DC = 16 mm			
		a_p = 0,1–0,2	a_p = 0,1–0,2	a_p = 0,1–0,2	a_p = 0,1–0,2	a_p = 0,1–0,25			
Index	v_c m/min	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.1	275	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45		○	●
P.1.2	235	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		○	●
P.1.3	235	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		○	●
P.1.4	235	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		○	●
P.1.5	235	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		○	●
P.2.1	180	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		○	●
P.2.2	225	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		○	●
P.2.3	170	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		○	●
P.2.4	170	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		○	●
P.3.1	180	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		○	●
P.3.2	160	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		○	●
P.3.3	160	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		○	●
P.4.1	130	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35	●		○
P.4.2	130	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35	●		○
M.1.1	95	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35	●		○
M.2.1	130	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35	●		○
M.3.1	130	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35	●		○
K.1.1	325	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45		●	○
K.1.2	215	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45		●	○
K.2.1	225	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		●	○
K.2.2	225	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		●	○
K.3.1	225	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		●	○
K.3.2	225	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		●	○
N.1.1	500	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	●		○
N.1.2	500	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	●		○
N.2.1	500	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	●		○
N.2.2	500	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	●		○
N.2.3	500	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	●		○
N.3.1	400	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	●		○
N.3.2	400	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	●		○
N.3.3	400	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	●		○
N.4.1									
S.1.1	65	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	○		●
S.1.2	65	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	○		●
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2	65	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	○		●
S.3.3	60	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	○		●
H.1.1	165	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		●	○
H.1.2	135	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		●	○
H.1.3	95	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		●	○
H.1.4									
H.2.1	175	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45		●	○
H.3.1	165	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		●	○
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

The width of cut (a_e) in steel should be 60–95% of the cutter diameter (Ø DC), with high-grade steels and for sticking materials 40 % of Ø DC maximum!

		56 900 ... / 56 902 ... / 56 904 ...							
		Rough machining					● 1st choice		
							○ suitable		
		Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10mm	Ø DC = 12 mm	Ø DC = 16 mm			
		a_p = 0,2-0,3	a_p = 0,2-0,3	a_p = 0,2-0,3	a_p = 0,2-0,3	a_p = 0,2-0,4			
Index	v_c m/min	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.1	200	0,22-0,35	0,3-0,5	0,4-0,7	0,45-0,8	0,45-0,8		○	●
P.1.2	210	0,22-0,35	0,25-0,4	0,25-0,4	0,35-0,6	0,35-0,6		○	●
P.1.3	210	0,22-0,35	0,25-0,4	0,25-0,4	0,35-0,6	0,35-0,6		○	●
P.1.4	210	0,22-0,35	0,25-0,4	0,25-0,4	0,35-0,6	0,35-0,6		○	●
P.1.5	210	0,22-0,35	0,25-0,4	0,25-0,4	0,35-0,6	0,35-0,6		○	●
P.2.1	180	0,22-0,35	0,25-0,4	0,25-0,4	0,35-0,6	0,35-0,6		○	●
P.2.2	190	0,22-0,35	0,25-0,4	0,25-0,4	0,35-0,6	0,35-0,6		○	●
P.2.3	170	0,22-0,35	0,25-0,4	0,25-0,4	0,35-0,6	0,35-0,6		○	●
P.2.4	170	0,22-0,35	0,25-0,4	0,25-0,4	0,35-0,6	0,35-0,6		○	●
P.3.1	180	0,22-0,35	0,25-0,4	0,25-0,4	0,35-0,6	0,35-0,6		○	●
P.3.2	160	0,22-0,35	0,25-0,4	0,25-0,4	0,35-0,6	0,35-0,6		○	●
P.3.3	160	0,22-0,35	0,25-0,4	0,25-0,4	0,35-0,6	0,35-0,6		○	●
P.4.1	90	0,22-0,35	0,25-0,4	0,25-0,4	0,35-0,6	0,35-0,6	●		○
P.4.2	90	0,22-0,35	0,25-0,4	0,25-0,4	0,35-0,6	0,35-0,6	●		○
M.1.1	75	0,22-0,35	0,25-0,4	0,25-0,4	0,35-0,6	0,35-0,6	●		○
M.2.1	90	0,22-0,35	0,25-0,4	0,25-0,4	0,35-0,6	0,35-0,6	●		○
M.3.1	90	0,22-0,35	0,25-0,4	0,25-0,4	0,35-0,6	0,35-0,6	●		○
K.1.1	275	0,22-0,35	0,3-0,5	0,4-0,7	0,45-0,8	0,45-0,8		●	○
K.1.2	215	0,22-0,35	0,3-0,5	0,4-0,7	0,45-0,8	0,45-0,8		●	○
K.2.1	175	0,22-0,35	0,25-0,4	0,25-0,4	0,35-0,6	0,35-0,6		●	○
K.2.2	175	0,22-0,35	0,25-0,4	0,25-0,4	0,35-0,6	0,35-0,6		●	○
K.3.1	175	0,22-0,35	0,25-0,4	0,25-0,4	0,35-0,6	0,35-0,6		●	○
K.3.2	175	0,22-0,35	0,25-0,4	0,25-0,4	0,35-0,6	0,35-0,6		●	○
N.1.1	500	0,22-0,35	0,3-0,5	0,4-0,7	0,45-0,8	0,45-0,8	●		○
N.1.2	500	0,22-0,35	0,3-0,5	0,4-0,7	0,45-0,8	0,45-0,8	●		○
N.2.1	500	0,22-0,35	0,3-0,5	0,4-0,7	0,45-0,8	0,45-0,8	●		○
N.2.2	500	0,22-0,35	0,3-0,5	0,4-0,7	0,45-0,8	0,45-0,8	●		○
N.2.3	500	0,22-0,35	0,3-0,5	0,4-0,7	0,45-0,8	0,45-0,8	●		○
N.3.1	400	0,22-0,35	0,3-0,5	0,4-0,7	0,45-0,8	0,45-0,8	●		○
N.3.2	400	0,22-0,35	0,3-0,5	0,4-0,7	0,45-0,8	0,45-0,8	●		○
N.3.3	400	0,22-0,35	0,3-0,5	0,4-0,7	0,45-0,8	0,45-0,8	●		○
N.4.1									
S.1.1	40	0,22-0,35	0,3-0,5	0,4-0,7	0,45-0,8	0,45-0,8	○		●
S.1.2	40	0,22-0,35	0,3-0,5	0,4-0,7	0,45-0,8	0,45-0,8	○		●
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2	70	0,22-0,35	0,3-0,5	0,4-0,7	0,45-0,8	0,45-0,8	○		●
S.3.3	60	0,22-0,35	0,3-0,5	0,4-0,7	0,45-0,8	0,45-0,8	○		●
H.1.1	100	0,22-0,35	0,25-0,4	0,25-0,4	0,35-0,6	0,35-0,6		●	○
H.1.2	90	0,2-0,3	0,2-0,3	0,25-0,35	0,3-0,4	0,35-0,45		●	○
H.1.3	75	0,2-0,3	0,2-0,3	0,25-0,35	0,3-0,4	0,35-0,45		●	○
H.1.4									
H.2.1	175	0,22-0,35	0,3-0,5	0,4-0,7	0,45-0,8	0,45-0,8		●	○
H.3.1	100	0,22-0,35	0,25-0,4	0,25-0,4	0,35-0,6	0,35-0,6		●	○
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

Cutting data – Cutters for plastic machining

Suitable for:		Strength N/mm² – HB	50 981 ...	50 982 ...	50 983 ...	50 984 ...	50 985 ...	50 986 ...	50 987 ...	50 988 ...	50 932 ...	50 937 ...	50 936 ...	50 938 ...	50 610 ...	50 611 ...	52 76. ...	50 91. ...	50 946 ...	50 948 ...	50 947 ...
N.1.1	non hardenable	60 HB													400–450			400–450			
N.1.2	hardenable	340 N/mm² / 100 HB													400–450			400–450			
N.2.1	≤ 12% Si, non-hardenable	250 N/mm² / 75 HB													350–400			350–400			
N.2.2	≤ 12% Si, hardenable	300 N/mm² / 90 HB												300–400					300–400	300–400	300–400
N.2.3	> 12% Si, non-hardenable	440 N/mm² / 130 HB												300–400					250–300	250–300	250–300
N.3.1	Free-machining alloys, PB > 1%	375 N/mm² / 110 HB													350–400			350–400			
N.3.2	CuZn, CuSnZn	300 N/mm² / 90 HB													400–450			400–450			
N.3.3	CuSn, lead-free copper and electrolytic copper	340 N/mm² / 100 HB													400–450			400–450			
N.4.1	Magnesium and magnesium alloys	70 HB												250					250	250	250
O.1.1	Plastics, duroplastic	≤ 150 N/mm²				300–350						300–350			500–550			500–550			
O.1.2	Plastics, thermoplastic	≤ 100 N/mm²													500–550			500–550			
O.2.1	Aramid fibre-reinforced	≤ 1000 N/mm²				150–200						150–200	500–600	150–200					150–200	150–200	150–200
O.2.2	Glass/carbon-fibre reinforced	≤ 1000 N/mm²				150–200						150–200	500–600	150–200					150–200	150–200	150–200
O.3.1	Graphite					300–400						500–600	500–600	300–400				300	300–400		300–400

	Plastics, Thermoset, Hardwood, Pressed Cardboard					Plastic, Thermoplast, Polycarbonate, Non-ferrous metal, Hard rubber				
	End milling cutter Type W			Ball nosed cutter Type W		End milling cutter Type W			Ball nosed cutter Type W	
	Shoulder milling, trimming		Slot milling	Copy milling – Line milling		Shoulder milling, trimming		Slot milling	Copy milling – Line milling	
	Roughing	Finishing		Roughing	Finishing	Roughing	Finishing		Roughing	Finishing
	a_p = 1,0 x DC	a_p = 1,0 x DC		a_p = 0,5 x DC	a_p = 0,03 x DC	a_p = 1,5 x DC	a_p = 1,0 x DC		a_p = 0,5 x DC	a_p = 0,03 x DC
	a_e = 0,4 x DC	a_e = 0,1 x DC		a_e = 0,5 x DC	a_e = 0,02 x DC	a_e = 0,8 x DC	a_e = 0,1 x DC		a_e = 0,5 x DC	a_e = 0,02 x DC
DC in mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
2	0,024	0,018	0,016	0,028	0,024	0,024	0,022	0,017	0,037	0,030
3	0,036	0,027	0,024	0,042	0,036	0,036	0,033	0,026	0,056	0,045
4	0,048	0,036	0,032	0,056	0,048	0,048	0,044	0,034	0,074	0,060
5	0,060	0,045	0,040	0,070	0,060	0,060	0,055	0,043	0,093	0,075
6	0,072	0,054	0,048	0,084	0,072	0,072	0,066	0,051	0,111	0,090
8	0,100	0,070	0,060	0,110	0,100	0,100	0,090	0,070	0,150	0,120
10	0,120	0,090	0,080	0,140	0,120	0,120	0,110	0,090	0,190	0,150
12	0,140	0,110	0,100	0,170	0,140	0,140	0,130	0,100	0,220	0,180
14	0,170	0,130	0,110	0,200	0,170	0,170	0,150	0,120	0,260	0,210
16	0,190	0,140	0,130	0,220	0,190	0,190	0,180	0,140	0,300	0,240
18	0,220	0,160	0,140	0,250	0,220	0,220	0,200	0,150	0,330	0,270
20	0,240	0,180	0,160	0,280	0,240	0,240	0,220	0,170	0,370	0,300

	Fiber reinforced plastics AFK, CFK, GFK			
	End mill staggered teeth			
	Shoulder milling, trimming		Copy milling – Line milling	
	a_p = 1,0 x DC	a_p = 1,0 x DC	a_p = 0,35 x DC	a_p = 0,35 x DC
	a_e = 0,05 x DC	a_e = 0,05 x DC		
	fine	Medium	fine	Medium
DC in mm	f	f	f	f
2	0,16	0,14	0,14	0,12
3	0,24	0,21	0,21	0,18
4	0,32	0,28	0,28	0,24
5	0,40	0,35	0,35	0,30
6	0,48	0,42	0,42	0,36
8	0,64	0,56	0,56	0,48
10	0,80	0,70	0,70	0,60
12	0,96	0,84	0,84	0,72
16	1,28	1,12	1,12	0,96
20	1,60	1,40	1,40	1,20

Feed rate guide values for ball nosed and torus cutters on → **Page 466**

Cutting data standard values – Circular saw blades

	54 700 ... Circular saws Solid carbide Fine	
Index	v_c m/min	f_z mm
P.1.1	80 – 140	0,002 – 0,012
P.1.2	50 – 80	0,001 – 0,012
P.1.3	50 – 80	0,001 – 0,012
P.1.4	50 – 80	0,001 – 0,012
P.1.5	50 – 80	0,001 – 0,012
P.2.1	50 – 80	0,001 – 0,012
P.2.2	50 – 80	0,001 – 0,012
P.2.3	50 – 80	0,001 – 0,012
P.2.4	50 – 80	0,001 – 0,012
P.3.1	50 – 80	0,001 – 0,012
P.3.2	50 – 80	0,001 – 0,012
P.3.3	50 – 80	0,001 – 0,012
P.4.1	80 – 120	0,001 – 0,012
P.4.2	50 – 80	0,001 – 0,012
M.1.1	50 – 80	0,001 – 0,012
M.2.1	50 – 80	0,001 – 0,012
M.3.1	50 – 80	0,001 – 0,012
K.1.1	80 – 140	0,002 – 0,012
K.1.2	50 – 80	0,001 – 0,01
K.2.1	50 – 80	0,001 – 0,01
K.2.2	50 – 80	0,001 – 0,01
K.3.1	50 – 80	0,001 – 0,01
K.3.2	50 – 80	0,001 – 0,01
N.1.1	200 – 500	0,003 – 0,012
N.1.2	200 – 500	0,003 – 0,012
N.2.1	200 – 450	0,003 – 0,012
N.2.2	200 – 450	0,003 – 0,012
N.2.3	200 – 450	0,003 – 0,012
N.3.1	200 – 450	0,003 – 0,012
N.3.2	200 – 450	0,003 – 0,012
N.3.3	200 – 450	0,003 – 0,012
N.4.1		
S.1.1	20 – 30	0,001 – 0,012
S.1.2	20 – 30	0,001 – 0,012
S.2.1	20 – 30	0,001 – 0,012
S.2.2	20 – 30	0,001 – 0,012
S.2.3	20 – 30	0,001 – 0,012
S.3.1	30 – 70	0,001 – 0,012
S.3.2	30 – 70	0,001 – 0,012
S.3.3	30 – 70	0,001 – 0,012
H.1.1		
H.1.2		
H.1.3		
H.1.4		
H.2.1		
H.3.1		
O.1.1	130 – 200	0,003 – 0,015
O.1.2	130 – 200	0,003 – 0,015
O.2.1		
O.2.2		
O.3.1		

The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type. The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting Speeds – Depending upon Coating

			TiCN		Ti400		● 1st choice ○ suitable			Ti1000 / Ti1002 / DPX72S		● 1st choice ○ suitable		
							Emulsion	Compressed air	MMS			Emulsion	Compressed air	MMS
Index	v_c m/min		v_c m/min		v_c m/min					v_c m/min				
P.1.1	90–110	130–160	110–130	160–200	90–130	140–200	●	○	○	150–170	220–240	○	●	○
P.1.2	80–100	120–140	100–120	150–170	90–110	100–160	●	○	○	130–150	180–220	○	●	○
P.1.3	80–100	120–140	100–120	150–170	90–110	100–160	●	○	○	130–150	180–220	○	●	○
P.1.4	50–60	70–90	60–80	80–110	60–70	80–110	●	○	○	70–100	100–140	○	●	○
P.1.5	50–60	70–90	60–80	80–110	60–70	80–110	●	○	○	70–100	100–140	○	●	○
P.2.1	70–90	100–130	90–110	120–160	80–100	140–160	●	○	○	120–140	170–200	○	●	○
P.2.2	70–90	100–130	90–110	120–160	80–100	100–150	●	○	○	120–140	170–200	○	●	○
P.2.3	40–60	60–80	50–70	70–100	50–70	70–100	●	○	○	60–80	90–120	○	●	○
P.2.4	40–60	60–80	50–70	70–100	50–70	70–100	●	○	○	60–80	90–120	○	●	○
P.3.1	50–60	70–90	60–80	80–110	60–80	70–110	●	○	○	70–100	100–140	○	●	○
P.3.2	30–50	40–70	30–60	50–80	40–60	70–100	●	○	○	60–80	80–120	○	●	○
P.3.3	25–40	40–60	30–50	50–70	40–60	70–100	●	○	○	50–80	70–110	○	●	○
P.4.1	40–50	60–70	50–60	70–80	40–50	60–80	●	○	○	60–80	90–120	●		○
P.4.2	40–50	60–70	50–60	70–80	40–50	60–80	●	○	○	60–80	90–120	●		○
M.1.1	40–50	60–70	50–60	70–80	50–60	80–110	●	○	○	70–80	100–120	●		○
M.2.1	20–30	30–40	25–35	40–50	25–35	40–70	●	○	○	40–60	60–80	●		○
M.3.1	30–40	40–50	30–40	50–60	40–50	70–100	●	○	○	50–70	80–100	●		○
K.1.1	60–80	90–120	70–100	110–140	70–90	100–130	●	○	○	100–110	140–160	○	●	○
K.1.2	60–70	80–100	70–90	100–120	60–80	90–120	●	○	○	80–100	120–140	○	●	○
K.2.1	60–70	80–100	70–90	100–120	70–90	100–130	●	○	○	80–100	120–140	○	●	○
K.2.2	50–60	70–90	60–80	80–110	60–80	90–120	●	○	○	70–80	100–120	○	●	○
K.3.1	60–80	90–120	80–100	110–150	60–80	90–120	●	○	○	100–110	140–160	○	●	○
K.3.2	50–60	70–90	60–80	90–110	60–80	90–120	●	○	○	70–80	100–120	○	●	○
N.1.1	<300	<400	<300	<450	280–320	250–350	●	○	○	180–350	250–500	●		○
N.1.2	<300	<400	<300	<450	280–320	220–320	●	○	○	180–350	250–500	●		○
N.2.1	130–180	200–250	170–210	240–300	220–270	200–300	●	○	○	140–200	200–300	●		○
N.2.2	100–120	140–170	120–140	170–200	170–200	200–250	●	○	○	110–130	160–180	●		○
N.2.3	40–60	60–80	50–70	70–90	120–180	150–200	●	○	○	50–70	80–100	●		○
N.3.1	160–200	230–280	180–210	280–330	100–130	120–200	●	○	○	180–210	250–300	●	○	○
N.3.2	150–180	210–260	180–210	250–310	100–130	120–180	●	○	○	180–210	250–300	●		○
N.3.3	150–180	210–260	180–210	250–310	100–130	120–180	●	○	○	180–210	250–300	●		○
N.4.1	150–180	220–260	180–210	270–310	170–200	170–250		●	○	180–210	250–300		●	○
S.1.1			20–30	40–50	25–35	30–50	●	○	○	30–40	40–60	●	○	○
S.1.2			20–30	40–50	25–35	30–50	●	○	○	30–40	40–60	●	○	○
S.2.1	15–25	20–35	30–40	40–60	40–60	50–80	●	○	○	35–50	50–70	●	○	○
S.2.2			20–30	40–50	30–40	40–60	●	○	○	30–40	40–60	●	○	○
S.2.3														
S.3.1	30–50	40–70	50–60	60–80	40–50	70–100	●	○	○	50–70	80–100	●	○	○
S.3.2	30–40	40–50	40–50	60–70	50–60	80–120	●	○	○	50–60	70–90	●	○	○
S.3.3			15–20	30–40	30–40	40–60	●	○	○	20–30	30–40	●	○	○
H.1.1										60–70	80–100		●	○
H.1.2										40–60	60–80		●	○
H.1.3										30–40	40–60		●	○
H.1.4										20–30	30–40		●	○
H.2.1										70–80	100–120		●	○
H.3.1										60–70	80–100		●	○
O.1.1	50–70	70–100	60–80	80–120	120–180	150–220	●	○	○	60–80	80–120	○	●	○
O.1.2	40–60	60–90	40–70	70–100	70–90	90–120	●	○	○	40–70	60–100	○	●	○
O.2.1	30–50	40–70	40–60	50–80	50–70	70–110	●	○	○	40–60	60–80	○	●	○
O.2.2	30–50	40–70	40–60	50–80	50–70	70–110	●	○	○	40–60	60–80	○	●	○
O.3.1	70–100	100–140	80–120	120–170	100–120	130–180		●	○	80–120	120–180		●	○

Index	Ti1001 v_c m/min		● 1st choice ○ suitable Emulsion	Compressed air	MMS	Ti10 / Ti20 v_c m/min		● 1st choice ○ suitable Emulsion	Compressed air	MMS
P.1.1										
P.1.2										
P.1.3										
P.1.4										
P.1.5										
P.2.1										
P.2.2										
P.2.3										
P.2.4										
P.3.1										
P.3.2										
P.3.3										
P.4.1										
P.4.2										
M.1.1										
M.2.1										
M.3.1										
K.1.1										
K.1.2										
K.2.1										
K.2.2										
K.3.1										
K.3.2										
N.1.1	300–400	300–500	●		○	150–350	250–500	●		○
N.1.2	300–400	300–500	●		○	120–220	150–300	●		○
N.2.1	250–300	300–450	●		○	150–180	220–250	●		○
N.2.2	200–250	250–350	●		○	100–130	150–180	●		○
N.2.3	150–200	200–250	●		○					○
N.3.1						170–180	240–260	●		○
N.3.2	220–280	250–330	●		○	120–150	170–220	●		○
N.3.3	220–280	250–330	●		○	120–150	170–220	●		○
N.4.1						140–170	200–250		●	
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1							80–100	●		○
S.3.2										
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1						220–280	300–400	●		○
O.1.2						140–170	200–240	●		○
O.2.1						70–100	100–140	●		○
O.2.2						70–100	100–140	●		○
O.3.1										

14

Depths of Cut Reference Values – Milling Cutters – extra short – long

			Ø DC = 2,5 mm			Ø DC = 3 mm					Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	$a_{p\,max.}$ x DC		f_z mm			f_z mm			$a_{p\,max.}$ x DC		f_z mm			f_z mm			f_z mm		
P.1.1	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,041	0,027	0,020	0,054	0,035	0,026
P.1.2	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.1.3	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.1.4	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.1.5	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.2.1	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.2.2	1,0	0,5	0,014	0,009	0,007	0,020	0,013	0,010	1,5	1,0	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
P.2.3	1,0	0,5	0,014	0,009	0,007	0,020	0,013	0,010	1,5	1,0	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
P.2.4	1,0	0,5	0,014	0,009	0,007	0,020	0,013	0,010	1,5	1,0	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
P.3.1	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.3.2	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.3.3	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.4.1	1,0	0,5	0,011	0,007	0,005	0,016	0,011	0,008	1,5	1,0	0,022	0,014	0,011	0,029	0,019	0,014	0,036	0,023	0,017
P.4.2	1,0	0,5	0,011	0,007	0,005	0,016	0,011	0,008	1,5	1,0	0,022	0,014	0,011	0,029	0,019	0,014	0,036	0,023	0,017
M.1.1	1,0	0,5	0,011	0,007	0,005	0,016	0,011	0,008	1,5	1,0	0,022	0,014	0,011	0,029	0,019	0,014	0,036	0,023	0,017
M.2.1	1,0	0,5	0,011	0,007	0,005	0,016	0,011	0,008	1,5	1,0	0,022	0,014	0,011	0,029	0,019	0,014	0,036	0,023	0,017
M.3.1	1,0	0,5	0,011	0,007	0,005	0,016	0,011	0,008	1,5	1,0	0,022	0,014	0,011	0,029	0,019	0,014	0,036	0,023	0,017
K.1.1	1,0	0,5	0,020	0,013	0,010	0,029	0,019	0,014	1,5	1,0	0,039	0,026	0,019	0,052	0,034	0,025	0,064	0,042	0,031
K.1.2	1,0	0,5	0,017	0,011	0,008	0,025	0,016	0,012	1,5	1,0	0,034	0,022	0,016	0,044	0,029	0,022	0,055	0,036	0,027
K.2.1	1,0	0,5	0,017	0,011	0,008	0,025	0,016	0,012	1,5	1,0	0,034	0,022	0,016	0,044	0,029	0,022	0,055	0,036	0,027
K.2.2	1,0	0,5	0,017	0,011	0,008	0,025	0,016	0,012	1,5	1,0	0,034	0,022	0,016	0,044	0,029	0,022	0,055	0,036	0,027
K.3.1	1,0	0,5	0,017	0,011	0,008	0,025	0,016	0,012	1,5	1,0	0,034	0,022	0,016	0,044	0,029	0,022	0,055	0,036	0,027
K.3.2	1,0	0,5	0,017	0,011	0,008	0,025	0,016	0,012	1,5	1,0	0,034	0,022	0,016	0,044	0,029	0,022	0,055	0,036	0,027
N.1.1	1,0	0,5	0,028	0,018	0,013	0,040	0,027	0,020	1,5	1,0	0,055	0,036	0,027	0,072	0,047	0,035	0,090	0,059	0,043
N.1.2	1,0	0,5	0,028	0,018	0,013	0,040	0,027	0,020	1,5	1,0	0,055	0,036	0,027	0,072	0,047	0,035	0,090	0,059	0,043
N.2.1	1,0	0,5	0,028	0,018	0,013	0,040	0,027	0,020	1,5	1,0	0,055	0,036	0,027	0,072	0,047	0,035	0,090	0,059	0,043
N.2.2	1,0	0,5	0,028	0,018	0,013	0,040	0,027	0,020	1,5	1,0	0,055	0,036	0,027	0,072	0,047	0,035	0,090	0,059	0,043
N.2.3	1,0	0,5	0,028	0,018	0,013	0,040	0,027	0,020	1,5	1,0	0,055	0,036	0,027	0,072	0,047	0,035	0,090	0,059	0,043
N.3.1	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1,0	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
N.3.2	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1,0	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
N.3.3	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1,0	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
N.4.1	1,0	0,5	0,026	0,017	0,012	0,038	0,025	0,018	1,5	1,0	0,051	0,033	0,025	0,067	0,044	0,033	0,083	0,054	0,040
S.1.1	0,7	0,3	0,014	0,009	0,007	0,020	0,013	0,010	1,0	1,0	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
S.1.2	0,7	0,3	0,014	0,009	0,007	0,020	0,013	0,010	1,0	1,0	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
S.2.1	0,7	0,3	0,015	0,010	0,007	0,022	0,014	0,011	1,0	1,0	0,030	0,020	0,014	0,039	0,026	0,019	0,049	0,032	0,024
S.2.2	0,7	0,3	0,014	0,009	0,007	0,020	0,013	0,010	1,0	1,0	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
S.2.3	0,7	0,3	0,015	0,010	0,007	0,022	0,014	0,011	1,0	1,0	0,030	0,020	0,014	0,039	0,026	0,019	0,049	0,032	0,024
S.3.1	0,7	0,3	0,017	0,011	0,008	0,024	0,016	0,012	1,0	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
S.3.2	0,7	0,3	0,018	0,012	0,009	0,026	0,017	0,013	1,0	1,0	0,035	0,023	0,017	0,046	0,030	0,023	0,058	0,038	0,028
S.3.3	0,7	0,3	0,018	0,012	0,009	0,026	0,017	0,013	1,0	1,0	0,035	0,023	0,017	0,046	0,030	0,023	0,058	0,038	0,028
H.1.1	0,5*		0,019**			0,027**			1,0		0,037**			0,049**			0,061**		
H.1.2	0,5*		0,017**			0,025**			1,0		0,034**			0,045**			0,056**		
H.1.3	0,5*		0,015**			0,022**			1,0		0,030**			0,040**			0,050**		
H.1.4	0,5*		0,013**			0,020**			1,0		0,026**			0,035**			0,043**		
H.2.1	0,5*		0,021**			0,030**			1,0		0,041**			0,054**			0,067**		
H.3.1	0,5*		0,019**			0,027**			1,0		0,037**			0,049**			0,061**		
O.1.1	1,0	0,5	0,044	0,029	0,021	0,064	0,042	0,031	1,5	1,0	0,086	0,057	0,042	0,114	0,074	0,055	0,141	0,092	0,068
O.1.2	1,0	0,5	0,040	0,026	0,019	0,058	0,038	0,028	1,5	1,1	0,078	0,051	0,038	0,103	0,068	0,050	0,128	0,084	0,062
O.2.1	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1,2	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
O.2.2	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1,3	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
O.3.1	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1,4	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030

* = Trimming and trochoidal slot milling

** = With an a_e = 0.1xDC

Depths of cut reference values – Finish milling, extra short – long

	Ø DC = 2,5 mm		Ø DC = 3 mm				Ø DC = 4 mm		Ø DC = 5 mm		Ø DC = 6 mm	
							a_e : 0,2–0,3 mm		a_e : 0,2–0,3 mm		a_e : 0,2–0,3 mm	
$a_{p\,max.}$ x DC						$a_{p\,max.}$ x DC	f_z mm		f_z mm		f_z mm	
0,7						1,5	0,080***		0,090***		0,100***	

*** = To improve the surface quality reduce the f_z

Cutting data for Micro-Mini cutters for milling with diameter < 2.5 mm → v_c/f_z Page 420–427

Index	Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16 mm			Ø DC = 18 mm			Ø DC = 20–25 mm		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.1.2	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.1.3	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.1.4	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.1.5	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.2.1	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.2.2	0,060	0,040	0,030	0,070	0,050	0,040	0,080	0,050	0,040	0,100	0,060	0,040	0,110	0,070	0,050	0,120	0,080	0,050	0,140	0,090	0,06
P.2.3	0,060	0,040	0,030	0,070	0,050	0,040	0,080	0,050	0,040	0,100	0,060	0,040	0,110	0,070	0,050	0,120	0,080	0,050	0,140	0,090	0,06
P.2.4	0,060	0,040	0,030	0,070	0,050	0,040	0,080	0,050	0,040	0,100	0,060	0,040	0,110	0,070	0,050	0,120	0,080	0,050	0,140	0,090	0,06
P.3.1	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.3.2	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.3.3	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.4.1	0,050	0,030	0,020	0,060	0,040	0,030	0,060	0,040	0,030	0,080	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,040	0,110	0,070	0,05
P.4.2	0,050	0,030	0,020	0,060	0,040	0,030	0,060	0,040	0,030	0,080	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,040	0,110	0,070	0,05
M.1.1	0,050	0,030	0,020	0,060	0,040	0,030	0,060	0,040	0,030	0,080	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,040	0,110	0,070	0,05
M.2.1	0,050	0,030	0,020	0,060	0,040	0,030	0,060	0,040	0,030	0,080	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,040	0,110	0,070	0,05
M.3.1	0,050	0,030	0,020	0,060	0,040	0,030	0,060	0,040	0,030	0,080	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,040	0,110	0,070	0,05
K.1.1	0,080	0,050	0,040	0,100	0,070	0,050	0,110	0,070	0,060	0,140	0,080	0,060	0,160	0,100	0,070	0,170	0,110	0,080	0,200	0,130	0,08
K.1.2	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,140	0,090	0,060	0,150	0,100	0,070	0,170	0,110	0,07
K.2.1	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,140	0,090	0,060	0,150	0,100	0,070	0,170	0,110	0,07
K.2.2	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,140	0,090	0,060	0,150	0,100	0,070	0,170	0,110	0,07
K.3.1	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,140	0,090	0,060	0,150	0,100	0,070	0,170	0,110	0,07
K.3.2	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,140	0,090	0,060	0,150	0,100	0,070	0,170	0,110	0,07
N.1.1	0,120	0,080	0,060	0,150	0,100	0,070	0,160	0,100	0,080	0,200	0,110	0,080	0,220	0,150	0,100	0,240	0,160	0,110	0,270	0,180	0,12
N.1.2	0,120	0,080	0,060	0,150	0,100	0,070	0,160	0,100	0,080	0,200	0,110	0,080	0,220	0,150	0,100	0,240	0,160	0,110	0,270	0,180	0,12
N.2.1	0,120	0,080	0,060	0,150	0,100	0,070	0,160	0,100	0,080	0,200	0,110	0,080	0,220	0,150	0,100	0,240	0,160	0,110	0,270	0,180	0,12
N.2.2	0,120	0,080	0,060	0,150	0,100	0,070	0,160	0,100	0,080	0,200	0,110	0,080	0,220	0,150	0,100	0,240	0,160	0,110	0,270	0,180	0,12
N.2.3	0,120	0,080	0,060	0,150	0,100	0,070	0,160	0,100	0,080	0,200	0,110	0,080	0,220	0,150	0,100	0,240	0,160	0,110	0,270	0,180	0,12
N.3.1	0,080	0,050	0,040	0,100	0,070	0,050	0,110	0,070	0,050	0,130	0,080	0,060	0,150	0,100	0,070	0,170	0,110	0,070	0,190	0,120	0,08
N.3.2	0,080	0,050	0,040	0,100	0,070	0,050	0,110	0,070	0,050	0,130	0,080	0,060	0,150	0,100	0,070	0,170	0,110	0,070	0,190	0,120	0,08
N.3.3	0,080	0,050	0,040	0,100	0,070	0,050	0,110	0,070	0,050	0,130	0,080	0,060	0,150	0,100	0,070	0,170	0,110	0,070	0,190	0,120	0,08
N.4.1	0,110	0,070	0,050	0,130	0,090	0,070	0,150	0,100	0,070	0,180	0,110	0,080	0,210	0,130	0,090	0,230	0,150	0,100	0,250	0,170	0,11
S.1.1	0,060	0,040	0,030	0,070	0,050	0,040	0,080	0,050	0,040	0,100	0,060	0,040	0,110	0,070	0,050	0,120	0,080	0,050	0,140	0,090	0,06
S.1.2	0,060	0,040	0,030	0,070	0,050	0,040	0,080	0,050	0,040	0,100	0,060	0,040	0,110	0,070	0,050	0,120	0,080	0,050	0,140	0,090	0,06
S.2.1	0,060	0,040	0,030	0,080	0,050	0,040	0,090	0,060	0,040	0,110	0,060	0,050	0,120	0,080	0,050	0,130	0,090	0,060	0,150	0,100	0,06
S.2.2	0,060	0,040	0,030	0,070	0,050	0,040	0,080	0,050	0,040	0,100	0,060	0,040	0,110	0,070	0,050	0,120	0,080	0,050	0,140	0,090	0,06
S.2.3	0,060	0,040	0,030	0,080	0,050	0,040	0,090	0,060	0,040	0,110	0,060	0,050	0,120	0,080	0,050	0,130	0,090	0,060	0,150	0,100	0,06
S.3.1	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
S.3.2	0,070	0,050	0,040	0,090	0,060	0,050	0,100	0,070	0,050	0,130	0,070	0,050	0,140	0,090	0,060	0,160	0,100	0,070	0,180	0,120	0,08
S.3.3	0,070	0,050	0,040	0,090	0,060	0,050	0,100	0,070	0,050	0,130	0,070	0,050	0,140	0,090	0,060	0,160	0,100	0,070	0,180	0,120	0,08
H.1.1	0,080**			0,100**			0,110**			0,120**			0,130**			0,150**			0,170**		
H.1.2	0,070**			0,090**			0,100**			0,110**			0,120**			0,140**			0,150**		
H.1.3	0,060**			0,080**			0,090**			0,100**			0,110**			0,120**			0,130**		
H.1.4	0,060**			0,070**			0,080**			0,080**			0,100**			0,110**			0,120**		
H.2.1	0,090**			0,110**			0,120**			0,130**			0,150**			0,160**			0,180**		
H.3.1	0,080**			0,100**			0,110**			0,120**			0,130**			0,150**			0,170**		
O.1.1	0,180	0,120	0,090	0,230	0,150	0,110	0,250	0,160	0,120	0,310	0,180	0,130	0,350	0,230	0,150	0,380	0,250	0,170	0,430	0,280	0,19
O.1.2	0,170	0,110	0,080	0,210	0,140	0,100	0,230	0,150	0,110	0,280	0,160	0,120	0,320	0,210	0,140	0,350	0,230	0,150	0,390	0,260	0,17
O.2.1	0,080	0,050	0,040	0,100	0,070	0,050	0,110	0,070	0,050	0,130	0,080	0,060	0,150	0,100	0,070	0,170	0,110	0,070	0,190	0,120	0,08
O.2.2	0,080	0,050	0,040	0,100	0,070	0,050	0,110	0,070	0,050	0,130	0,080	0,060	0,150	0,100	0,070	0,170	0,110	0,070	0,190	0,120	0,08
O.3.1	0,080	0,050	0,040	0,100	0,070	0,050	0,110	0,070	0,050	0,130	0,080	0,060	0,150	0,100	0,070	0,170	0,110	0,070	0,190	0,120	0,08

Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 14 mm	Ø DC = 16 mm	Ø DC = 18 mm	Ø DC = 20–25 mm
a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm
f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
0,110***	0,130***	0,150***	0,170***	0,190***	0,210***	0,230***

Plunging angle for ramping and helical milling: 3°

Feed rate guide values for ball nosed and torus cutters on → **Page 466**

14

Depths of Cut Reference Values – Milling Cutters – extra long

		Ø DC = 2,5 mm		Ø DC = 3 mm			Ø DC = 4 mm		Ø DC = 5 mm		Ø DC = 6 mm		Ø DC = 8 mm		Ø DC = 10 mm		Ø DC = 12 mm	
		a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC		a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC
Index	$a_{p\,max.}$ x DC	f_z mm		f_z mm		$a_{p\,max.}$ x DC	f_z mm		f_z mm		f_z mm		f_z mm		f_z mm		f_z mm	
P.1.1	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,052	0,034	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.1.2	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.1.3	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.1.4	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.1.5	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.2.1	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.2.2	0,6	0,011	0,007	0,020	0,013	1,0	0,027	0,018	0,034	0,022	0,041	0,027	0,050	0,040	0,070	0,040	0,080	0,050
P.2.3	0,6	0,011	0,007	0,020	0,013	1,0	0,027	0,018	0,034	0,022	0,041	0,027	0,050	0,040	0,070	0,040	0,080	0,050
P.2.4	0,6	0,011	0,007	0,020	0,013	1,0	0,027	0,018	0,034	0,022	0,041	0,027	0,050	0,040	0,070	0,040	0,080	0,050
P.3.1	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.3.2	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.3.3	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.4.1	0,6	0,009	0,006	0,016	0,011	1,0	0,022	0,014	0,027	0,018	0,033	0,021	0,040	0,030	0,050	0,040	0,060	0,040
P.4.2	0,6	0,009	0,006	0,016	0,011	1,0	0,022	0,014	0,027	0,018	0,033	0,021	0,040	0,030	0,050	0,040	0,060	0,040
M.1.1	0,6	0,009	0,006	0,016	0,011	1,0	0,022	0,014	0,027	0,018	0,033	0,021	0,040	0,030	0,050	0,040	0,060	0,040
M.2.1	0,6	0,009	0,006	0,016	0,011	1,0	0,022	0,014	0,027	0,018	0,033	0,021	0,040	0,030	0,050	0,040	0,060	0,040
M.3.1	0,6	0,009	0,006	0,016	0,011	1,0	0,022	0,014	0,027	0,018	0,033	0,021	0,040	0,030	0,050	0,040	0,060	0,040
K.1.1	0,6	0,015	0,010	0,029	0,019	1,0	0,039	0,025	0,048	0,032	0,058	0,038	0,080	0,050	0,100	0,060	0,110	0,070
K.1.2	0,6	0,013	0,009	0,025	0,016	1,0	0,033	0,022	0,042	0,027	0,050	0,033	0,070	0,040	0,080	0,060	0,090	0,060
K.2.1	0,6	0,013	0,009	0,025	0,016	1,0	0,033	0,022	0,042	0,027	0,050	0,033	0,070	0,040	0,080	0,060	0,090	0,060
K.2.2	0,6	0,013	0,009	0,025	0,016	1,0	0,033	0,022	0,042	0,027	0,050	0,033	0,070	0,040	0,080	0,060	0,090	0,060
K.3.1	0,6	0,013	0,009	0,025	0,016	1,0	0,033	0,022	0,042	0,027	0,050	0,033	0,070	0,040	0,080	0,060	0,090	0,060
K.3.2	0,6	0,013	0,009	0,025	0,016	1,0	0,033	0,022	0,042	0,027	0,050	0,033	0,070	0,040	0,080	0,060	0,090	0,060
N.1.1	0,6	0,022	0,014	0,041	0,027	1,0	0,054	0,035	0,068	0,044	0,081	0,053	0,110	0,070	0,140	0,090	0,150	0,100
N.1.2	0,6	0,022	0,014	0,041	0,027	1,0	0,054	0,035	0,068	0,044	0,081	0,053	0,110	0,070	0,140	0,090	0,150	0,100
N.2.1	0,6	0,022	0,014	0,041	0,027	1,0	0,054	0,035	0,068	0,044	0,081	0,053	0,110	0,070	0,140	0,090	0,150	0,100
N.2.2	0,6	0,022	0,014	0,041	0,027	1,0	0,054	0,035	0,068	0,044	0,081	0,053	0,110	0,070	0,140	0,090	0,150	0,100
N.2.3	0,6	0,022	0,014	0,041	0,027	1,0	0,054	0,035	0,068	0,044	0,081	0,053	0,110	0,070	0,140	0,090	0,150	0,100
N.3.1	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,070	0,050	0,090	0,060	0,100	0,070
N.3.2	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,070	0,050	0,090	0,060	0,100	0,070
N.3.3	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,070	0,050	0,090	0,060	0,100	0,070
N.4.1	0,6	0,020	0,013	0,038	0,025	1,0	0,050	0,033	0,063	0,041	0,076	0,049	0,100	0,070	0,130	0,080	0,140	0,090
S.1.1	0,3	0,011	0,007	0,020	0,013	0,5	0,027	0,018	0,034	0,022	0,041	0,027	0,050	0,040	0,070	0,040	0,080	0,050
S.1.2	0,3	0,011	0,007	0,020	0,013	0,5	0,027	0,018	0,034	0,022	0,041	0,027	0,050	0,040	0,070	0,040	0,080	0,050
S.2.1	0,3	0,012	0,008	0,022	0,014	0,5	0,029	0,019	0,037	0,024	0,044	0,029	0,060	0,040	0,070	0,050	0,080	0,050
S.2.2	0,3	0,011	0,007	0,020	0,013	0,5	0,027	0,018	0,034	0,022	0,041	0,027	0,050	0,040	0,070	0,040	0,080	0,050
S.2.3	0,3	0,012	0,008	0,022	0,014	0,5	0,029	0,019	0,037	0,024	0,044	0,029	0,060	0,040	0,070	0,050	0,080	0,050
S.3.1	0,3	0,013	0,009	0,024	0,016	0,5	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
S.3.2	0,3	0,014	0,009	0,026	0,017	0,5	0,035	0,023	0,044	0,029	0,052	0,034	0,070	0,050	0,090	0,060	0,100	0,060
S.3.3	0,3	0,014	0,009	0,026	0,017	0,5	0,035	0,023	0,044	0,029	0,052	0,034	0,070	0,050	0,090	0,060	0,100	0,060
H.1.1	0,3*	0,012**		0,022**		0,5*	0,029**		0,037**		0,044**		0,060**		0,070**		0,080**	
H.1.2	0,3*	0,011**		0,020**		0,5*	0,027**		0,034**		0,041**		0,050**		0,070**		0,080**	
H.1.3	0,3*	0,010**		0,018**		0,5*	0,024**		0,030**		0,036**		0,050**		0,060**		0,070**	
H.1.4	0,3*	0,008**		0,016**		0,5*	0,021**		0,026**		0,031**		0,040**		0,050**		0,060**	
H.2.1	0,3*	0,013**		0,024**		0,5*	0,033**		0,041**		0,049**		0,070**		0,080**		0,090**	
H.3.1	0,3*	0,012**		0,022**		0,5*	0,029**		0,037**		0,044**		0,060**		0,070**		0,080**	
O.1.1	0,6	0,034	0,022	0,064	0,042	1,0	0,085	0,056	0,107	0,070	0,128	0,084	0,170	0,110	0,210	0,140	0,230	0,150
O.1.2	0,6	0,031	0,020	0,058	0,038	1,0	0,077	0,051	0,097	0,063	0,116	0,076	0,160	0,100	0,190	0,130	0,210	0,140
O.2.1	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,070	0,050	0,090	0,060	0,100	0,070
O.2.2	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,070	0,050	0,090	0,060	0,100	0,070
O.3.1	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,070	0,050	0,090	0,060	0,100	0,070

* = Trimming and trochoidal slot milling

** = With an a_e = 0.1xDC

Depths of cut reference values – Finish milling, extra long

	Ø DC = 2,5 mm	Ø DC = 3 mm		Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm
	a_e 0,2–0,3 mm	a_e 0,2–0,3 mm		a_e 0,2–0,3 mm	a_e 0,2–0,3 mm	a_e 0,2–0,3 mm	a_e 0,2–0,3 mm	a_e 0,2–0,3 mm	a_e 0,2–0,3 mm
$a_{p\,max.}$ x DC	f_z mm	f_z mm	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
0,7			0,7	0,080***	0,090***	0,100***	0,110***	0,130***	0,150***

*** = With an a_p of 1.5 x DC multiply the f_z by 0.75

Cutting data for Micro-Mini cutters for milling with diameter < 2.5 mm → v_c/f_z Page 420–427

	Ø DC = 14 mm		Ø DC = 16 mm		Ø DC = 18 mm		Ø DC = 20–25 mm	
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC
Index	f_z mm		f_z mm		f_z mm		f_z mm	
P.1.1	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.1.2	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.1.3	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.1.4	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.1.5	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.2.1	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.2.2	0,080	0,050	0,090	0,060	0,100	0,070	0,110	0,080
P.2.3	0,080	0,050	0,090	0,060	0,100	0,070	0,110	0,080
P.2.4	0,080	0,050	0,090	0,060	0,100	0,070	0,110	0,080
P.3.1	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.3.2	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.3.3	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.4.1	0,070	0,040	0,070	0,050	0,080	0,050	0,090	0,060
P.4.2	0,070	0,040	0,070	0,050	0,080	0,050	0,090	0,060
M.1.1	0,070	0,040	0,070	0,050	0,080	0,050	0,090	0,060
M.2.1	0,070	0,040	0,070	0,050	0,080	0,050	0,090	0,060
M.3.1	0,070	0,040	0,070	0,050	0,080	0,050	0,090	0,060
K.1.1	0,120	0,080	0,130	0,090	0,150	0,100	0,160	0,110
K.1.2	0,100	0,070	0,110	0,070	0,130	0,080	0,140	0,090
K.2.1	0,100	0,070	0,110	0,070	0,130	0,080	0,140	0,090
K.2.2	0,100	0,070	0,110	0,070	0,130	0,080	0,140	0,090
K.3.1	0,100	0,070	0,110	0,070	0,130	0,080	0,140	0,090
K.3.2	0,100	0,070	0,110	0,070	0,130	0,080	0,140	0,090
N.1.1	0,160	0,110	0,180	0,120	0,200	0,130	0,230	0,150
N.1.2	0,160	0,110	0,180	0,120	0,200	0,130	0,230	0,150
N.2.1	0,160	0,110	0,180	0,120	0,200	0,130	0,230	0,150
N.2.2	0,160	0,110	0,180	0,120	0,200	0,130	0,230	0,150
N.2.3	0,160	0,110	0,180	0,120	0,200	0,130	0,230	0,150
N.3.1	0,110	0,070	0,130	0,080	0,140	0,090	0,160	0,100
N.3.2	0,110	0,070	0,130	0,080	0,140	0,090	0,160	0,100
N.3.3	0,110	0,070	0,130	0,080	0,140	0,090	0,160	0,100
N.4.1	0,150	0,100	0,170	0,110	0,190	0,120	0,210	0,140
S.1.1	0,080	0,050	0,090	0,060	0,100	0,070	0,110	0,080
S.1.2	0,080	0,050	0,090	0,060	0,100	0,070	0,110	0,080
S.2.1	0,090	0,060	0,100	0,070	0,110	0,070	0,120	0,080
S.2.2	0,080	0,050	0,090	0,060	0,100	0,070	0,110	0,080
S.2.3	0,090	0,060	0,100	0,070	0,110	0,070	0,120	0,080
S.3.1	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
S.3.2	0,110	0,070	0,120	0,080	0,130	0,090	0,150	0,100
S.3.3	0,110	0,070	0,120	0,080	0,130	0,090	0,150	0,100
H.1.1	0,090**		0,100**		0,110**		0,120**	
H.1.2	0,080**		0,090**		0,100**		0,110**	
H.1.3	0,070**		0,080**		0,090**		0,100**	
H.1.4	0,060**		0,070**		0,080**		0,090**	
H.2.1	0,100**		0,110**		0,120**		0,140**	
H.3.1	0,090**		0,100**		0,110**		0,120**	
O.1.1	0,260	0,170	0,290	0,190	0,320	0,210	0,360	0,230
O.1.2	0,230	0,150	0,260	0,170	0,290	0,190	0,330	0,210
O.2.1	0,110	0,070	0,130	0,080	0,140	0,090	0,160	0,100
O.2.2	0,110	0,070	0,130	0,080	0,140	0,090	0,160	0,100
O.3.1	0,110	0,070	0,130	0,080	0,140	0,090	0,160	0,100

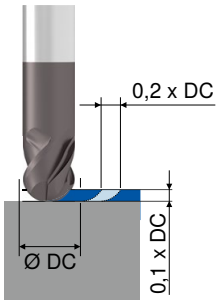
Ø DC = 14 mm	Ø DC = 16 mm	Ø DC = 18 mm	Ø DC = 20–25 mm
a_e 0,2–0,3 mm	a_e 0,2–0,3 mm	a_e 0,2–0,3 mm	a_e 0,2–0,3 mm
f_z mm	f_z mm	f_z mm	f_z mm
0,170***	0,190***	0,210***	0,230***

Plunging angle for ramping and helical milling: 3°

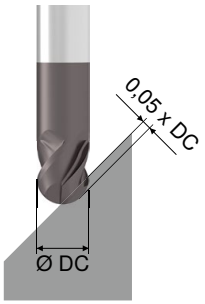
Feedrate values for ball nosed and torus cutters on → **page 466**

Feedrate for machining in steel, iron and non-ferrous materials with torus and ball nosed end mills

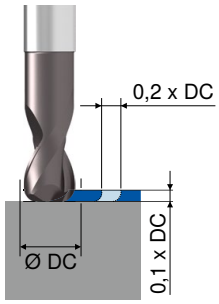
Ball nose end milling cutters



Ball Nosed and Torus Cutters



Torus end milling cutters



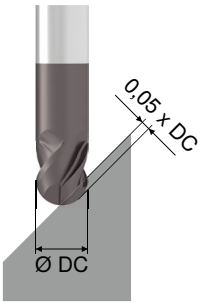
Ø DC mm	f_z mm	f_z mm	f_z mm
2	0,015	0,010	0,010
3	0,030	0,020	0,015
4	0,040	0,030	0,020
5	0,060	0,050	0,030
6	0,070	0,060	0,050
8	0,100	0,080	0,070
10	0,120	0,100	0,080
12	0,150	0,120	0,100
16	0,180	0,150	0,120
18	0,200	0,180	0,140
20	0,220	0,200	0,150

The feed should be reduced by 10–20% for uncoated tools.

Feedrates for the machining of hardened materials with Ti1000 coated torus and ball nosed cutters

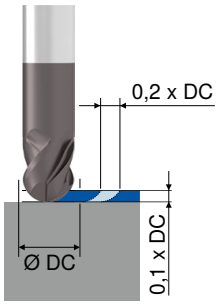
Ball Nosed and Torus Cutters

Hardness = 40–60 HRC
v_c = 80 -120 m/min



Ball Nosed and Torus Cutters

Hardness = 40–60 HRC
v_c = 80 -120 m/min



Ø DC mm	f_z mm	f_z mm
2	0,005	0,005
3	0,015	0,010
4	0,030	0,015
5	0,050	0,020
6	0,060	0,030
8	0,070	0,035
10	0,080	0,040
12	0,080	0,050
16	0,100	0,080

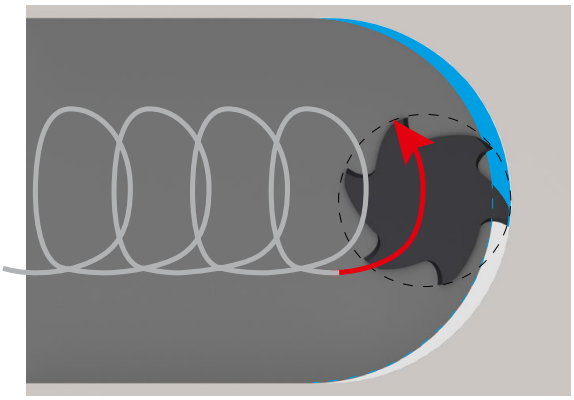
Trochoidal Milling

The trochoidal milling process means that large depths of cut with unstable or lower powered machines are possible.

Depending on the strength of the material, radial step over of between 5–20% of the cutting diameter should be used. Since the trochoidal milling is only peripheral milling, the cutting forces are far less.

Advantages/Benefits

- Reduced tool wear
- Reduced cycle time
- Protection of the machine tool components
- Exploiting the full length of the cutting edge
- Reduced cutting pressure



Most CAM providers offer an application for trochoidal milling. Our recommendations for this application are as follows:

Material	Depth of Cut	Radial Infeed	Feed rate Correction Factor	v_c Correction Factor
Steel	2xDC	0,05xD	3,5	1,6
	2xDC	0,10xD	2,5	1,3
Stainless steel	2xDC	0,05xD	3,5	1,4
	2xDC	0,10xD	2,5	1,2
Cast iron	2xDC	0,05xD	3,5	1,6
	2xDC	0,10xD	2,5	1,3
Non ferrous metals	2xDC	0,05xD	3,5	1,8
	2xDC	0,10xD	2,5	1,4
	2xDC	0,20xD	1,5	1,2

14

Please note that the indicated values may require reducing due to the component design, machine rigidity and machine dynamics. In optimal conditions, the values can also be increased.

Technical references

Feedrate Adjustment

If the rpm indicated in the tables cannot be obtained by the machine spindle, the feed rate is to be reduced proportionally to the max rpm.

Example:
according to table = n 50000 1/min. and v_f 1000 mm/min.,
maximum machine rpm = 40000 1/min.

Calculation of feed rate which can be applied:
40000 = 80 % of 50000 1/min. accordingly 80 % of 1000 = 800 mm/min.

Feed rate which can be applied = **800 mm/min.**

Cutting data for tapered milling cutters

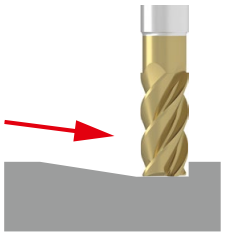
Using tapered milling cutters in various positions of the cutting edge different effective diameters cut into the material, the following has to be observed when calculating the cutting parameters:

- To determine the rpm, the largest diameter must be used in line with the cutting data table
- To determine the feedrate, the smallest diameter must be used in line with the cutting data table



Angled ramping with solid carbide cutters

Angled ramping with solid carbide cutters is possible at an angle of 3° to 6° depending on the cutter type.
A protective edge chamfer or corner radius is an advantage.

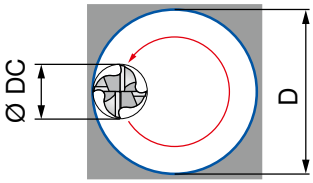
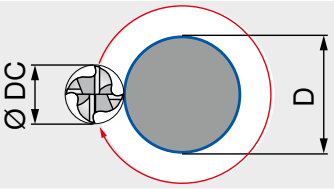
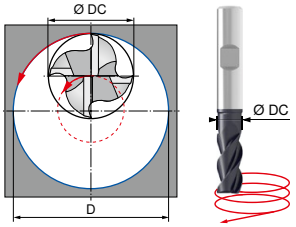


General formula for calculating the cutting parameters

Designation	Abbreviation	Unit	Formula	Example	
Number of revolutions	**n**	**min^{-1}**	$n = \frac{v_c \times 1000}{DC \times \pi}$	v_c = 25 m/min DC = 20 mm	$n = \frac{25 \times 1000}{20 \times \pi}$ = 398 min^{-1}
Cutting speed	**v_c**	**m/min**	$v_c = \frac{DC \times \pi \times n}{1000}$	n = 400 min^{-1} DC = 20 mm	$v_c = \frac{20 \times \pi \times 400}{1000}$ = 25 m/min
Feed per tooth	**f_z**	**mm**	$f_z = \frac{v_f}{ZEFP \times n}$	v_f = 320 mm/min. n = 400 min^{-1} ZEFP = 4	$f_z = \frac{320}{4 \times 400}$ = 0,2 mm
Feed per revolution	**f**	**mm**	$f = f_z \times ZEFP$	f_z = 0,2 mm ZEFP = 4	f = 0,2 x 4 = 0,8 mm
Feed rate	**v_f**	**mm/min.**	$v_f = f_z \times ZEFP \times n$	f_z = 0,2 mm ZEFP = 4 n = 400 min^{-1}	v_f = 0,2 x 4 x 400 = 320 mm/min
Average chip thickness	**h_m**	**mm**	$h_m = f_z \times \sqrt{\frac{a_e}{DC}}$	f_z = 0,2 mm a_e = 0,3 mm DC = 20 mm	h_m = 0,2 x $\sqrt{\frac{0,3}{20}}$ = 0,024 mm

ZEFP = Number of flutes
a_e = cutting width

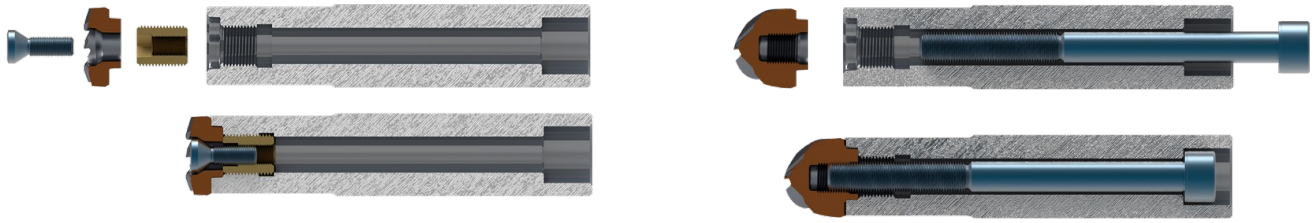
Calculation of the feed rate on the midpoint path of the milling cutter (v_{fM})

Designation	Abbreviation	Unit	Formula	Example
Internal contour	**v_{fM}**	**mm/min.**	$V_{fM} = \frac{v_f \times (D - DC)}{D}$	
Outside profile	**v_{fM}**	**mm/min.**	$V_{fM} = \frac{v_f \times (D + DC)}{D}$	
Helical ramping	**v_{fM}**	**mm/min.**	$V_{fM} = \frac{n \times f_z \times ZEFP \times (D - D_C)}{D}$	

14

Assembly instructions

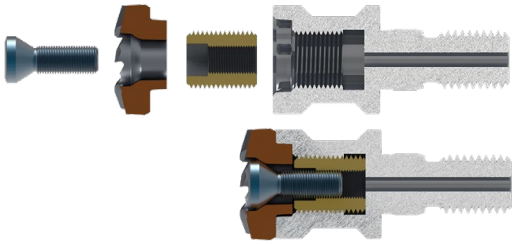
Image of MultiLock cylindrical shank adapter assembly



▲ The cylindrical shank adapter can be used universally. In this case, the MultiLock high-feed and torus cutters are clamped from the front using a threaded bush and clamping screw. The MultiLock radius milling and deburring cutters are clamped via the shank using a cylindrical screw.

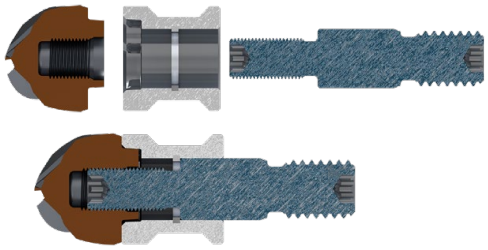
Image of MultiLock screw-in adapter assembly

Type A



▲ The type A screw-in adapter must be used for MultiLock high-feed and torus cutters. These are clamped from the front using a threaded bush and clamping screw.

Type B



▲ The type B screw-in adapter has two parts and must be used for MultiLock radius milling and deburring cutters. These are tensioned from the rear using a clamping screw. The clamping screw is simultaneously used for screwing in the adapter.

Detailed assembly instructions are enclosed with the respective holders. You can also find this in our online shop.

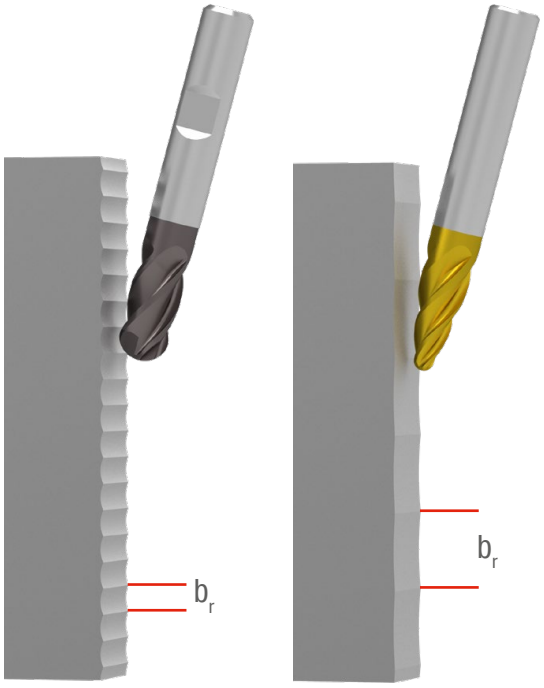
Comparison – ball nose end milling cutters vs. 3D Finish

3D Finish

- Radius does not depend on the tool diameter
- High depths of cut possible owing to the large radius
- Tools with a large radius and small shank diameter are more economical as the carbide content is lower, e.g. diameter 16 mm, radius 1500 mm

Ball nose end milling cutters

- Radius depends on the tool diameter
- Only low widths of cut are possible; linked to the small radius
- Tools with a large diameter/radius are expensive due to the high carbide content, e.g. diameter 16 mm radius 8 mm



Formulae for calculations:

$$b_r = 2 \times \sqrt{R_{th} \times (RE \times 2 - R_{th})}$$

$$R_{th} = RE - \sqrt{\frac{(RE \times 2)^2 - b_r^2}{4}}$$

$$R_a \simeq 0{,}1 \times R_{th}$$

$$R_{th} \simeq R_a / 0{,}1$$

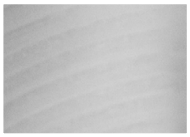
Result

Required surface quality = R_a 0,4
$R_{th} \simeq 0{,}4 / 0{,}1 \simeq 4\ \mu m = 0{,}004$ mm

Ball nose end milling cutters
Diameter 16 mm, radius 8 mm
$b_r = 2 \times \sqrt{0{,}004 \times (8 \times 2 - 0{,}004)}$
b_r = 0,51 mm



3D Finish
Diameter 16 mm, radius 1500 mm
$b_r = 2 \times \sqrt{0{,}004 \times (1500 \times 2 - 0{,}004)}$
b_r = 6,93 mm



Application information



3D Finish – barrel shape

- Suitable for easily accessible areas

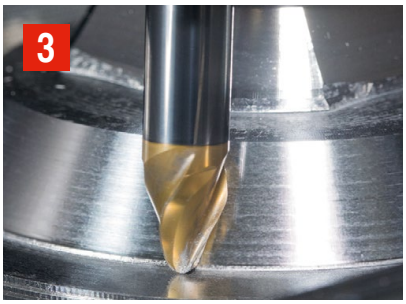




3D Finish – oval shape

- Suitable for easily accessible flanks
- Not suitable for deep areas

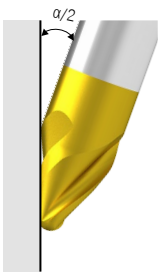




3D Finish – taper shape

- Suitable for steep walls and deep cavities
- α/2 is the angle to the surface to be used
- If the surface exhibits a tilt angle of α/2, the surface can also be machined on three axes



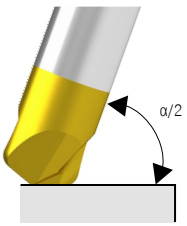


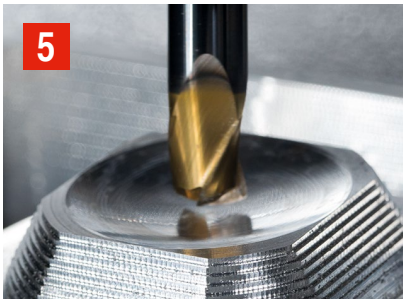


3D Finish – taper shape

- Suitable for flat areas
- α/2 is the angle to the surface to be used
- If the surface exhibits a tilt angle of α/2, the surface can also be machined on three axes



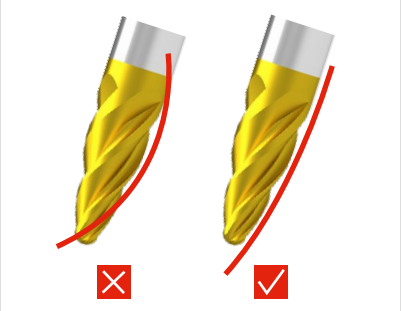




3D Finish – lens shape

- Suitable for flat areas





Please note:

Note that the curvature of the component should be greater than the curvature of the tool.

Check whether your programming system supports the tool geometry of the 3D Finish and can work with it.

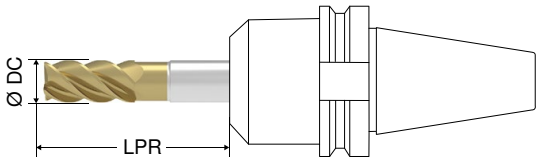
Tips for Tool Selection

Rake and helix angles combined with the coating are decisive factors for the operational area.

Characteristics	Benefits
Helix angle with slow spiral	
▲ For materials with high tensile strength	▲ High edge stability
▲ For high material removal rates	▲ Low tendency to edge chipping
▲ For slot milling, pocket milling, rough milling	
Helix angle with quick spiral	
▲ For soft steels, non ferrous metals, etc.	▲ Soft cut
▲ For low material removal rates	▲ Low cutting forces
▲ Typical for finishing processes	
Small rake angles are applied	
▲ For hard, brittle materials	▲ High edge stability
▲ For high material removal rates	▲ Low tendency to edge chipping
▲ For rough machining	
Large rake angles are applied	
▲ For soft materials	▲ Soft cut
▲ For low material removal rates	▲ Low cutting forces
▲ For finishing	▲ Favorable chip flow
	▲ Low tendency to stick

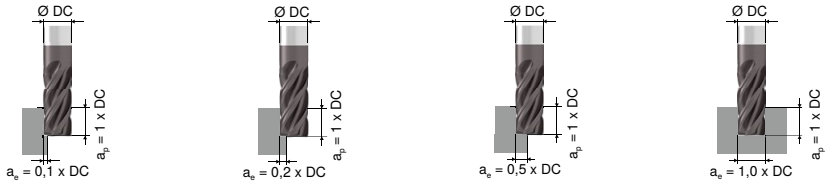
Correction factor for solid carbide milling cutters

Factors for cutting speed (v_c) and feed rate (f_z) in relation to the overhang length (LPR)



Length					
Overhang length (LPR)	1,5 x DC	4 x DC	8 x DC	12 x DC	> 12 x DC
Factor for v_c (Kf v_c)	1,0	1,0	0,9	0,85	0,7
Factor for f_z (Kf f_z)	1,2	1,0	0,8	0,7	0,5

Factors for cutting speed (v_c) and feed rate (f_z) in relation to the cutting depth (a_p) and cutting width (a_e)



Factor for v_c (Kf v_c)	1,3	1,1	1,0	0,85
Factor for f_z (Kf f_z)	1,5	1,3	1,0	0,8

Calculation aid for copy milling

Theoretical surface roughness (R_{th}) and step over (b_r)

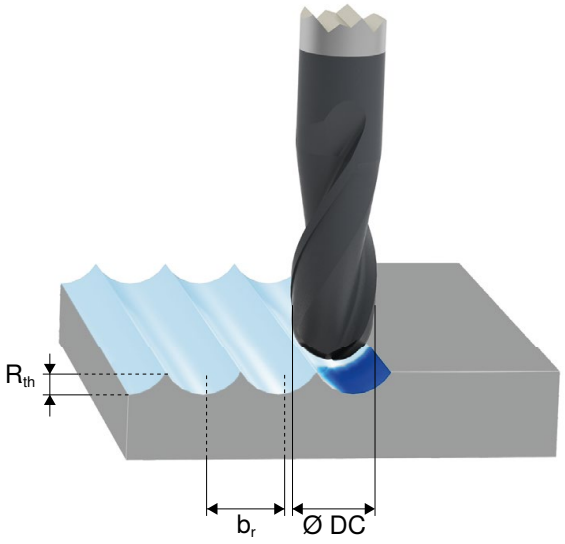
$$R_{th} = r - \sqrt{\frac{(r \times 2)^2 - b_r^2}{4}}$$

$$b_r = 2 \times \sqrt{R_{th} \times (r \times 2 - R_{th})}$$

$$R_{th} \simeq R_a / 0{,}1$$

$$R_a \simeq 0{,}1 \times R_{th}$$

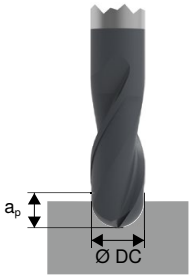
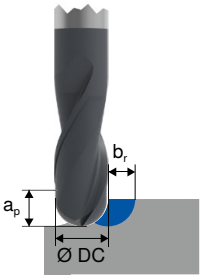
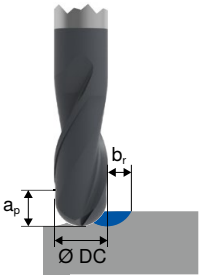
When copy milling, in order to achieve as smooth a surface as possible, the step over b_r should be adapted to the cutter diameter DC. The smaller the cutter diameter DC is, the smaller the step over b_r must be.



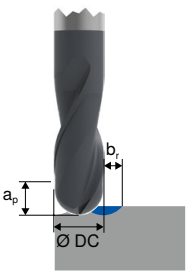
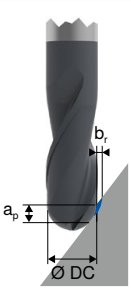
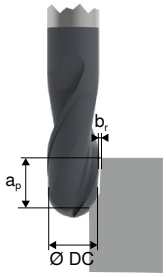
RPM correction factor (Kf n) for copy milling

$$n = \frac{v_c \times 1000}{DC \times \pi} \times Kf\ n$$

Rough machining

	Peripheral and ball nose copy milling	Ball nose copy milling	
			
Axial milling depth a_p	0,5 x DC	> 0,5 x DC	0,2 x DC – 0,5 x DC
Step over b_r	1 x DC	0,2 x DC – 0,5 x DC	0,2 x DC – 0,5 x DC
Correction factor (Kf n)	1	1	1,1

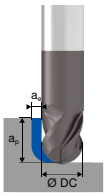
Finish milling

	Ball nose copy milling		
			
Axial milling depth a_p	< 0,2 x DC	0,2 x DC – 0,5 x DC	> 0,5 x DC
Step over b_r	< 0,2 x DC	< 0,2 x DC	< 0,2 x DC
Correction factor (Kf n)	2	1,3	1

Calculation aid for copy milling

For peripheral milling or ball nosed copy milling at cutting depths of $\mathbf{a_p} \geq 0.5 \times DC$ and $\mathbf{a_e}$ = **0.2 to 0.5 x DC** the rpm can be calculated with the following fomula:

$$n = \frac{v_c \times 1000}{DC \times \pi}$$

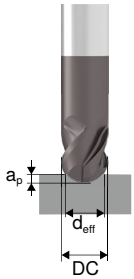


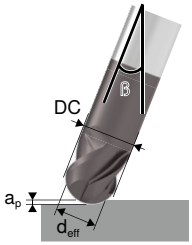
When ball milling the effective milling diameter $\mathbf{d}_{eff.}$ must be determined using the following formula:

Ball nose milling cutters

$$d_{eff.} = 2 \times \sqrt{a_p \times (DC - a_p)}$$

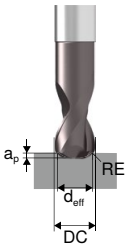
$$d_{eff.} = DC \times \sin\left(\beta \pm \arccos\left(\frac{DC - 2a_p}{DC}\right)\right)$$





Torus end milling cutters

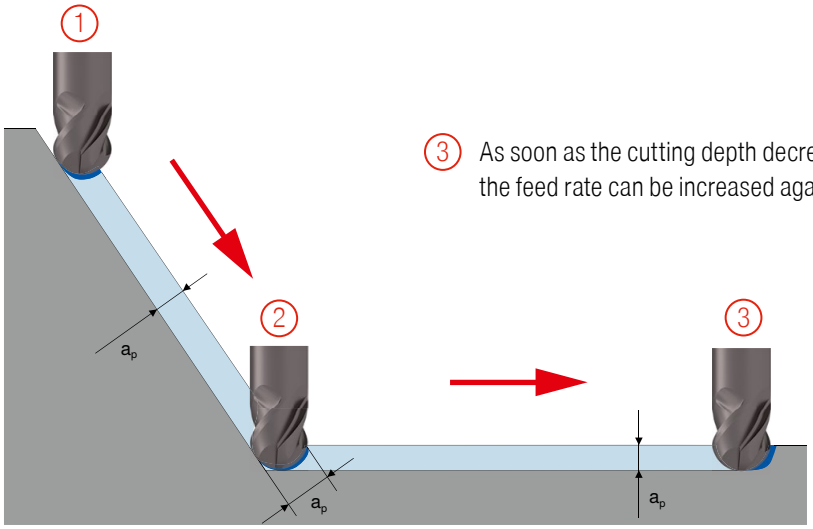
$$d_{eff.} = (DC - 2RE) + 2 \times \sqrt{a_p \times (2RE - a_p)}$$



Information concerning plunge and draw milling

1. When machining the profile flanks relatively high feed rates are possible as the cutting depth is relatively low (area highlighted in blue).

2. A large increase in cutting depth occurs when the base of the profile is reached. Here the feed rate must be reduced as othwerwise tool breakage can occur due to vibrations, misalignment or chattering.



3. As soon as the cutting depth decreases during the machining of the profile base, the feed rate can be increased again.

Rule:
The steeper the angle, the lower the feed rate.
The shallower the angle, the larger the feed rate.

When plunge or draw milling dies, the feed rate has to be adapted to the various milling positions. Otherwise the cutting edge can be damaged due to overload (vibrations, misalignment or chattering).

Version description

CCR AL	Circular Cutter – Non-ferrous metals
CCR H	Circular Cutter – Tempered steel
CCR Ti	Circular Cutter – Heat-resistant alloys
CCR UNI	Circular Cutter – Universal
H	For high-strength steels and tempered materials
HR	For high-strength steels and tempered materials – with roughing profile
N	For machining steel and cast materials, as well as stainless steels
NF	For machining steel and cast materials, as well as stainless steels – with roughing-finishing profile
NR	For machining steel and cast materials, as well as stainless steels – with roughing profile
NTR	For machining steel and cast materials, as well as stainless steels – with trapezoidal chip breakers
SC UNI	Soft Cut – Universal
SC NR	Soft Cut – with round cord profile
W	For soft materials and non-ferrous metals (aluminium, copper, brass)
WF	For soft materials and non-ferrous metals (aluminium, copper, brass) – with roughing-finishing profile
WR	For soft materials and non-ferrous metals (aluminium, copper, brass) – with roughing profile

MonsterMill

HCR	Hard Cutter
ICR	Inox Cutter
MCR	Multi Cutter
NCR	Nickel Alloy Cutter
PCR ALU	Plunging Cutter – Non-ferrous metals
PCR UNI	Plunging Cutter – Universal
SCR	Steel Cutter
TCR	Titanium Cutter

Deburring cutters

KEL	Round cone (shape L)
KSJ	Conical 60° (shape J)
KSK	Conical 90° (shape K)
KUD	Spherical (shape D)
RBF	Round arch (shape F)
SKM	Tapered cone (shape M)
SPG	Ogival (shape G)
TRE	Droplet (shape E)
WKN	Angular without spur gearing (shape N)
WRC	Round roller (shape C)
ZYA	Cylindrical without spur gearing (shape A)

Coatings

APA72S
- AlCrN multilayer coating
- HV0.05 = 3500
- Coefficient of friction (against steel) = 0.35
- Maximum application temperature: 1100 °C

APB72S
- Special nanolayer coating
- HV0.05 = 3300
- Coefficient of friction (against steel) = 0.6
- Maximum application temperature: 900 °C

APX72S
- Special nanolayer coating
- HV0.05 = 3800
- Coefficient of friction (against steel) = 0.4
- Maximum application temperature: 1100 °C

CTC5240
- TiB2-based coating
- HIT 43 GPa ~ 4300 HV0.05
- Friction value against steel 0.3
- Maximum application temperature 1000 °C

CTPX225
- AlTiN-based coating
- HIT 35 GPa ~ 3500 HV0.05
- Friction value against steel 0.5
- Maximum application temperature 1000 °C

DIAMOND
- Diamond monolayer coating
- HV0.025 = 10,000
- Coefficient of friction (against steel) = 0.2
- Maximum application temperature: 700 °C

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

DPA52S
- Special nanolayer coating
- HV0.05 = 3400
- Coefficient of friction (against steel) = 0.5
- Maximum application temperature: 1100 °C

DPA72S
- Special nanolayer coating
- HV0.05 = 3200
- Coefficient of friction (against steel) = 0.5
- Maximum application temperature: 1000 °C

DPB72S
- TiAlCrN multilayer coating
- HV0.05 = 3200
- Coefficient of friction (against steel) = 0.35
- Maximum application temperature: 1000 °C

DPX52S
- TiSiN multilayer coating
- HV0.05 = 3500
- Coefficient of friction (against steel) = 0.4
- Maximum application temperature: 1000 °C

DPX62S
- TiAlN multilayer coating
- HV0.05 = 3800
- Coefficient of friction (against steel) = 0.4
- Maximum application temperature: 800 °C

DPX62U
- Special TiAlN coating
- HV0.05 = 4000
- Coefficient of friction (against steel) = 0.5
- Maximum application temperature: 1150 °C

DPX72S
- Special multilayer coating
- HV0.05 = 3400
- Coefficient of friction (against steel) = 0.6
- Maximum application temperature: 900 °C

TiAlN
- TiAlN multilayer coating
- Maximum application temperature: 900 °C

TiCN
- TiCN multilayer coating
- Maximum application temperature: 450 °C

Ti28
- Ti multilayer coating
- HV0.05 = 2800
- Coefficient of friction (against steel) = 0.1
- Maximum application temperature: 500 °C

Ti40
- Ti monolayer coating
- HV0.05 = 4000
- Maximum application temperature: 900 °C

Ti400
- Ti multilayer coating
- HV0.05 = 3500
- Coefficient of friction (against steel) = 0.6
- Maximum application temperature: 400 °C

Ti1000
- Ti monolayer coating
- HV0.05 = 3500
- Coefficient of friction (against steel) = 0.3
- Maximum application temperature: 800 °C

Ti1001
- Ti monolayer coating
- HV0.05 = 3500
- Coefficient of friction (against steel) = 0.6
- Maximum application temperature: 800 °C

Ti1002
- Ti monolayer coating
- HV0.05 = 3300
- Coefficient of friction (against steel) = 0.4
- Maximum application temperature: 900 °C

Ti1005
- Ti multilayer coating
- HV0.05 = 2800
- Coefficient of friction (against steel) = 0.4
- Maximum application temperature: 600 °C

Ti1050
- Ti multilayer coating
- HV0.005 = 3300
- Coefficient of friction (against steel) = 0.3-0.5
- Maximum application temperature: 900 °C

Ti1100
- Ti multilayer coating
- HV0.05 = 3200
- Coefficient of friction (against steel) = 0.35
- Maximum application temperature: 1100 °C

Ti1200
- Ti nanolayer coating
- Maximum application temperature: 1100–1200 °C

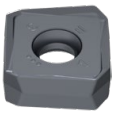
Ti1500
- Ti nanolayer coating
- HV0.05 = 3400
- Coefficient of friction (against steel) = 0.7
- Maximum application temperature: 900 °C

Ti2000
- Ti multilayer coating
- HV0.05 = 3500
- Coefficient of friction (against steel) = 0.5
- Maximum application temperature: 900 °C

New products for machining technicians

NEW

MaxiMill 271-12



→ Page 24+25

New system size for more economy

NEW

MaxiMill 211-11KN / 211-15KN

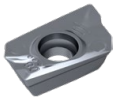


→ Page 65+71

Porcupine cutter update

NEW

MaxiMill 211-20



→ Page 76

Indexable insert product extension

NEW

CTCM245



New high-performance grade for machining high-alloy steels



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drills

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

Table of contents

Symbol explanation	2
Toolfinder	3–11
Product programme	12–140
Technical Information	
Cutting data standard values	141–144
Application parameters – Face milling	145–153
Application parameters – End milling	154–171
Application parameters – Form milling	172–186
Application parameters – Other milling systems	187+188
Power Screw	189
Abbreviations & dimensions	190
Engagement conditions	191
ISO Designation System	192+193
Cutting Edge Wear Conditions	194
Chip Breakers Overview	195
Chip groove description	196+197
Grades Overview	198+199
Grade description	200+201

CERATIZIT \ Performance

Premium quality tools for high performance.

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

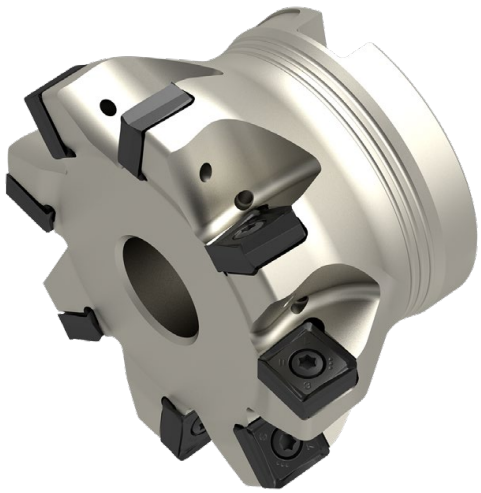
Symbol explanation


central internal coolant


lateral internal coolant



Cutting edge angle



ZNF = Number of flutes

● = **Main Application**

○ = Extended application

Application symbols


Face milling


Angled ramping


Circular drill milling


plunge milling


Slot milling


Shoulder milling


Slot milling (45°)


Chamfer milling

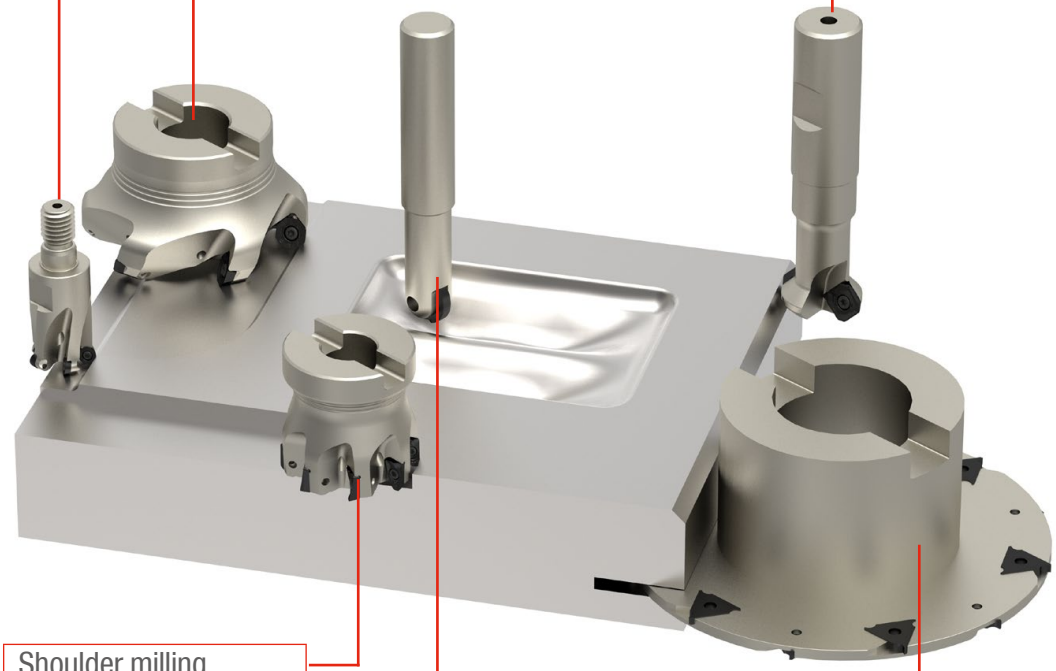

Free form milling

Toolfinder – Application Selection Guide

Form milling
→ System Selection:
8+9

Face milling
→ System Selection:
4+5

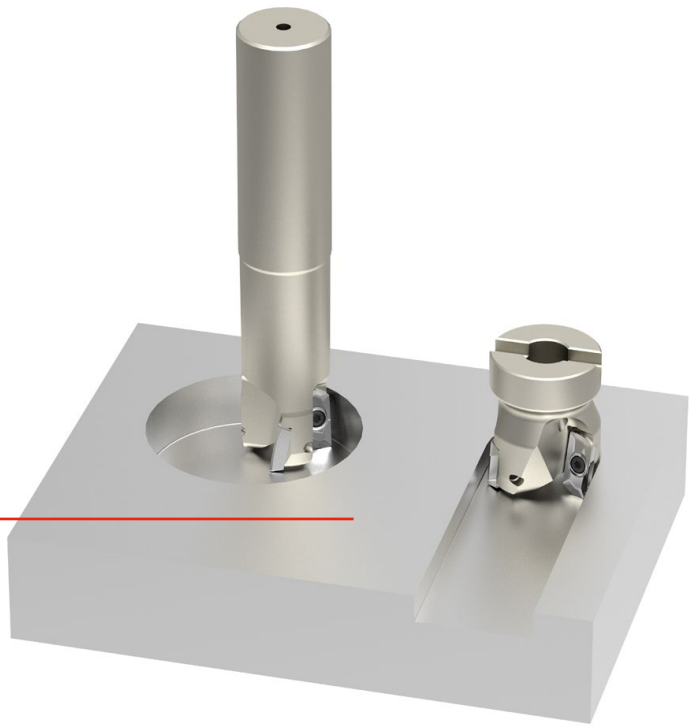
Chamfer/Angle milling cutters
→ System Selection:
10



Shoulder milling
→ System Selection:
6+7

Slot milling and saws
→ System Selection:
10

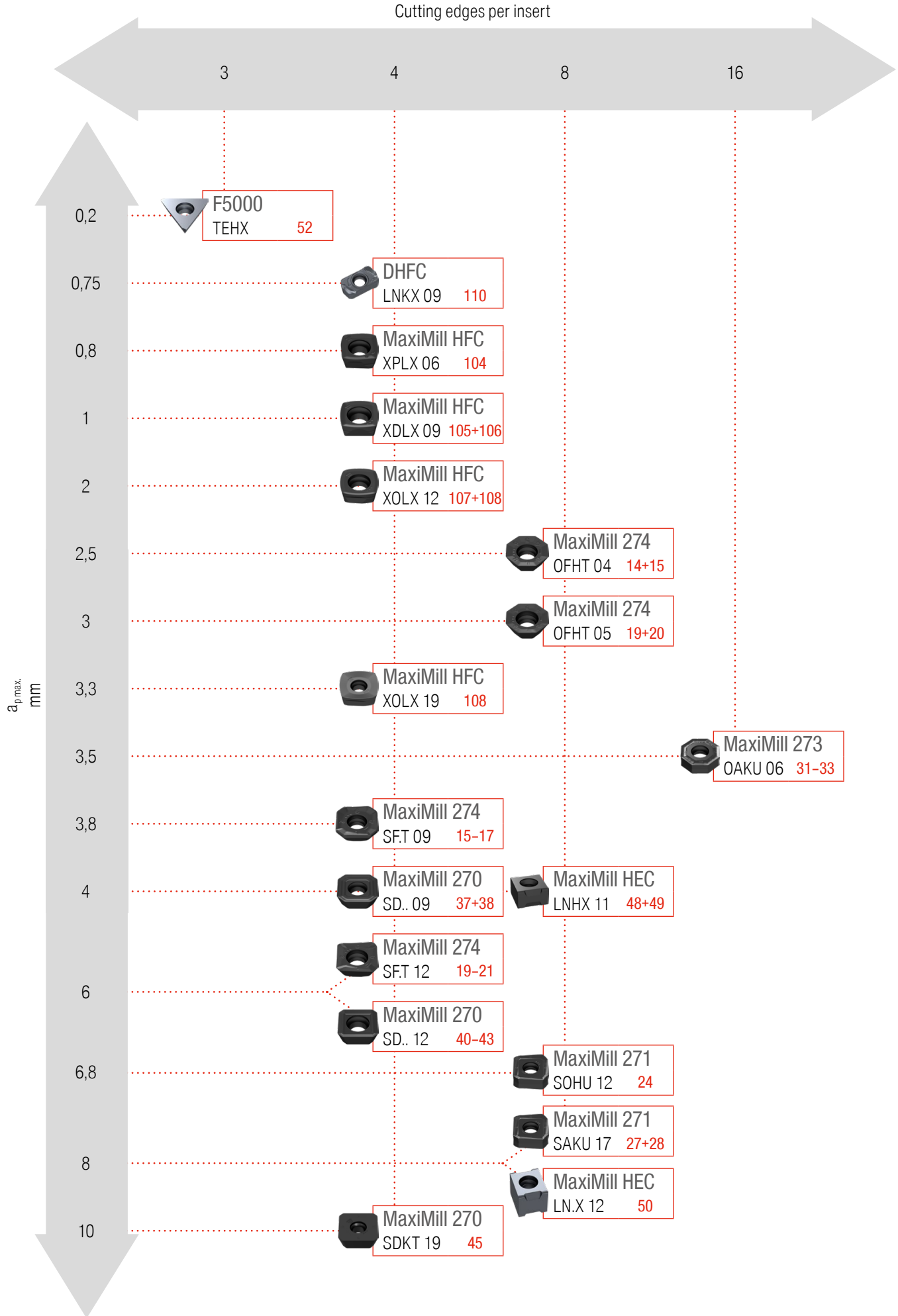
Form milling
→ System Selection:
8+9



HSC-/HPC-milling
→ System Selection:
6+7

15

Toolfinder – Face Milling Cutters



Overview – Face Milling Cutters

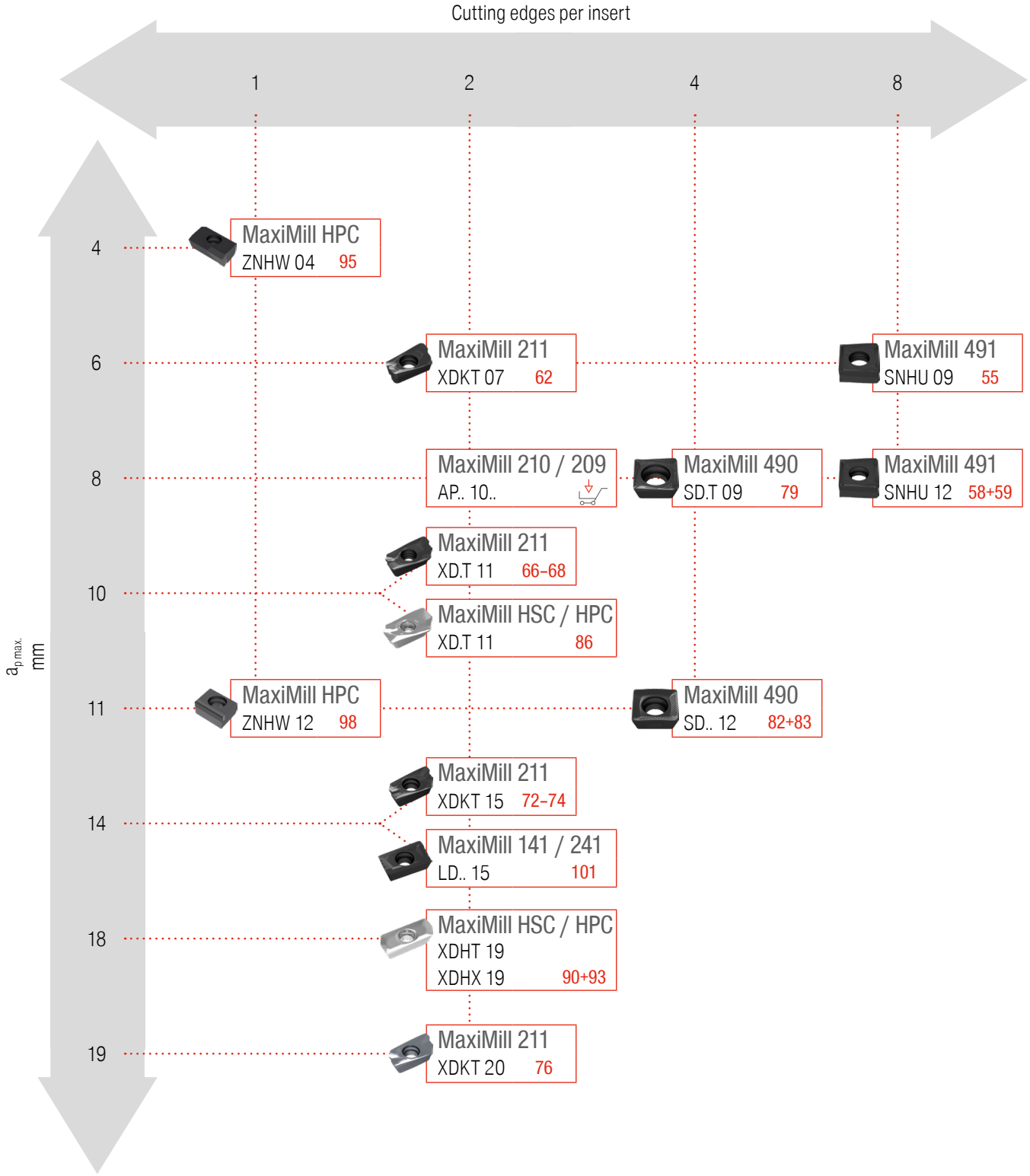
System	Inserts	Cutting edges per insert	$a_{p\,max.}$ mm	Ø-range mm			Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	hardened materials	Non metal materials	Page No.
MaxiMill 274	**OFH.** 04.. / 05.. | **SF.T** 09.. / 12..	8 | 4	2,5–6	Ø 20–32	Ø 20–32	Ø 32–160	●	●	●	●	●			12–21
MaxiMill 271	**SOHU** 1204.. | **SAKU** 1706..	8	6,8 | 8,4		Ø 32–40	Ø 40–250	●	●	●		●			22–28
MaxiMill 273	**OAKU** 0605..	16	3,5		Ø 32–40	Ø 40–250	●	●	●		●			29–33
MaxiMill 270	**SD..** 0903.. / 1204.. / 19..	4	4–10	Ø 16–32	Ø 6–32	Ø 32–315	●	●	●	●	●			34–45
MaxiMill HEC	**LNHX** 1106.. | **LN.X** 1210..	8	4–8			Ø 50–160	●	○	●					46–50
F 5000	**TEHX** 16T3..	3	0,2			Ø 42–100	●	○	●	○		●		51+52
MaxiMill HFC	**X..X** 06.. / 09.. / 12.. / 19..	4	0,8–3,3	Ø 16–42	Ø 16–35	Ø 32–160	●	●	●		●			102–108
DHFC	**LNKX** 09..	4	0,75	Ø 16–42	Ø 16–20		●	●	●		●	●		109+110

Additional diameters are available upon request.

Indexable inserts for systems that are no longer listed here can be found in our online shop at cuttingtools.ceratizit.com

15

Toolfinder – shoulder milling



Overview – Shoulder Milling Cutters

System	Inserts	Cutting edges per insert	$a_{p\,max.}$ mm	Ø-range mm				Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	hardened materials	Non metal materials	Page No.
MaxiMill 491	**SNHU** 09T3.. / 1204..	8	6–8	Ø 25–32	Ø 25–32	Ø 40–160		●	●	●	●	●			53–59
MaxiMill 211	**XD.T** 0703.. / 11T3.. / 1505.. / 2007..	2	6–19	Ø 16–40	Ø 10–40	Ø 32–160		●	●	●	●	●	○		60–76
MaxiMill 211KN	**XD.T** 11T3.. / 1505.. / 2007..	2	27–75,5		Ø 25–50	Ø 40–50		●	●	●	●	●			65+71
MaxiMill 490	**SD..** 09T3.. / 1205..	4	8–11	Ø 25–40	Ø 25–32	Ø 40–160		●	●	●	●	●			77–83
MaxiMill 490K	**SD..** 09T3..	4	41			Ø 40–63		●	●	●	●	●			78
MaxiMill HSC / HPC	**XD..** 11T3.. / 1904..	2	10–18	Ø 16–40	Ø 16–32	Ø 40–125	Ø 25–50			○	●				84
MaxiMill HPC	**ZNHW** 04T3.. / 1205..	1	4–11	Ø 20–40	Ø 20–40	Ø 40–315	Ø 40–160			●	●		○		94–98
MaxiMill 141 / 241	**LD..** 1504..	2	14	Ø 25–40	Ø 20–32	Ø 40–100		●	●	●	●				99–101
MaxiMill 209 / 210	**AP..** 1003..	2	8	Ø 16,0–31,7	Ø 9,7–32	Ø 40–125		●	●	●	●	●	●		

Additional diameters are available upon request.

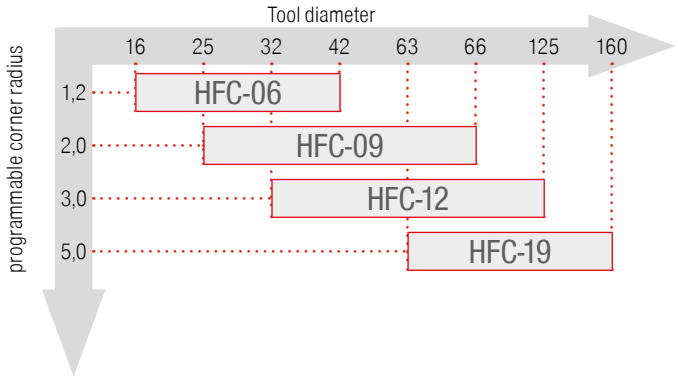
Indexable inserts for systems that are no longer listed here can be found in our online shop at cuttingtools.ceratizit.com

This article can be found in our online shop at cuttingtools.ceratizit.com

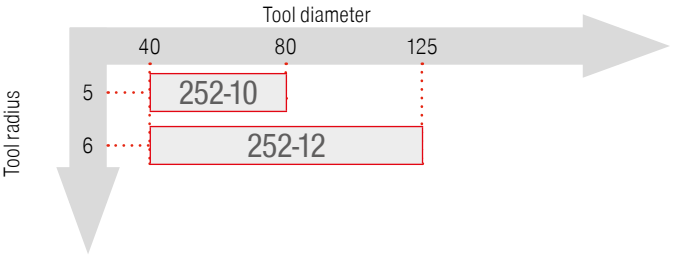
15

Toolfinder – form milling

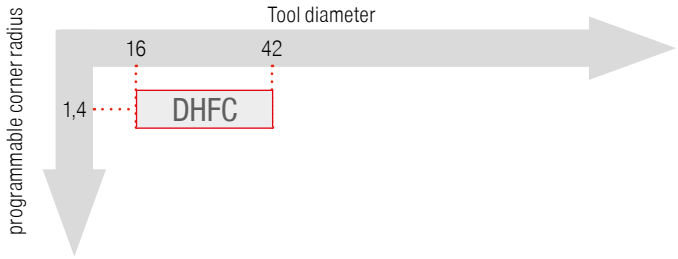
MaxiMill HFC 102–108



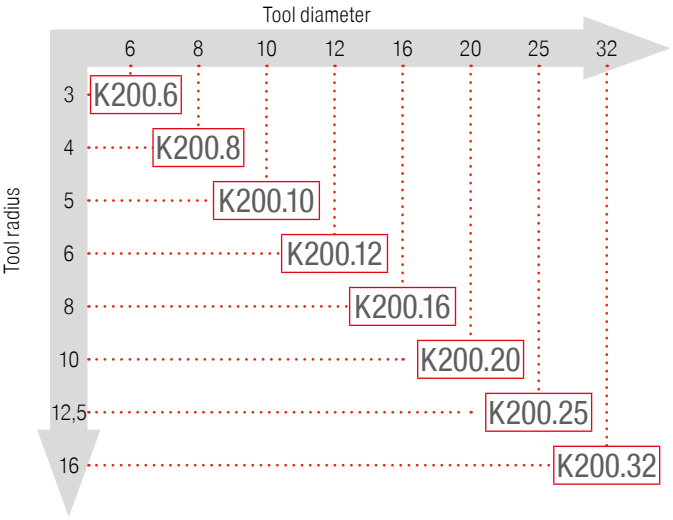
MaxiMill 252 125+126



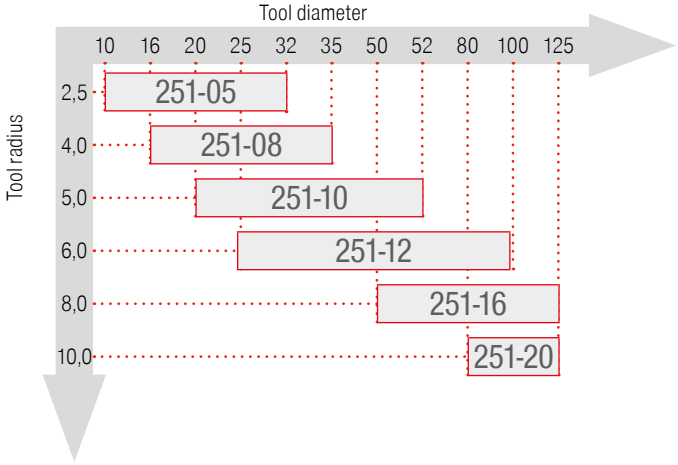
DHFC 109+110



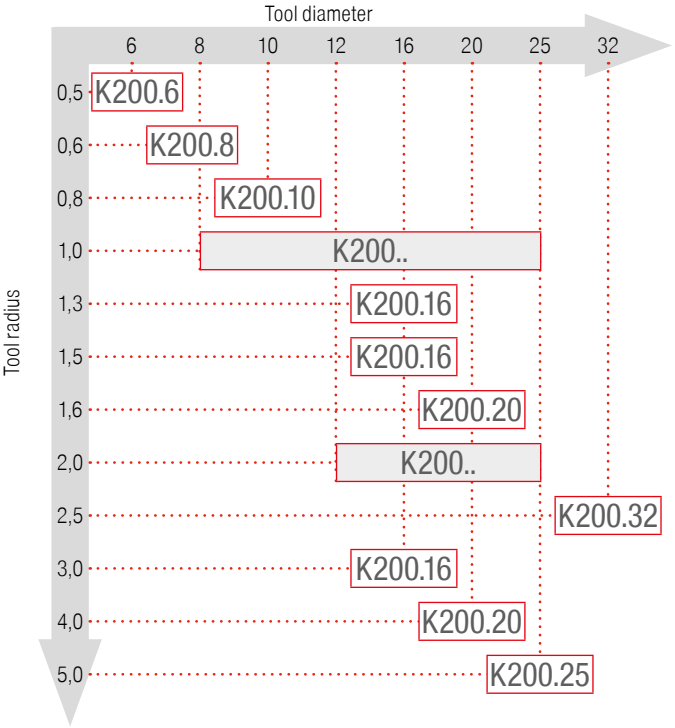
K200. Ball Nosed 127–131



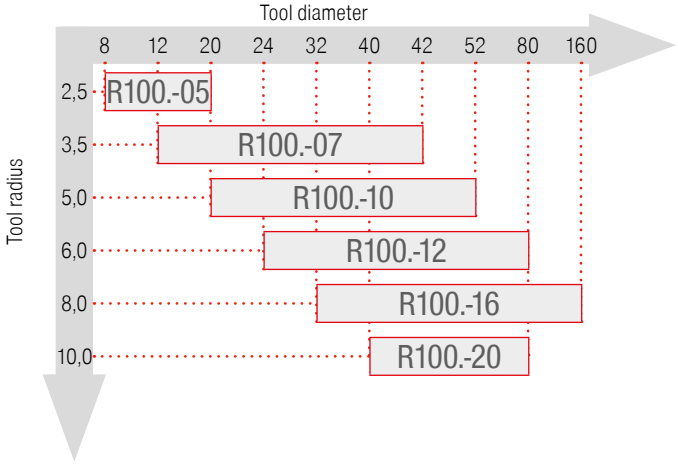
MaxiMill 251 / 251 RS 111–119



K200. Torus 132–135



R100. 120–124



Application range

Tool diameter

Overview – form milling

System	Inserts	Cutting edges per insert	$a_{p\,max.}$ mm	Ø-range mm			Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	hardened materials	Non metal materials	Page No.
MaxiMill HFC	**X.LX** 06.. / 09.. / 12.. / 19..	4	0,8–3,3	Ø 16–42	Ø 16–35	Ø 32–160	●	●	●		●			102–108
DHFC	**LNKX** 09..	4	0,75	Ø 16–42	Ø 16–20		●	●	●		○	○		109+110
MaxiMill 251/ 251 RS	**R..X** 05.. / 08.. / 10.. / 12.. / 16.. / 20..	8	2,5–10	Ø 10–42	Ø 10–32	Ø 40–125	●	●	●	●	●			111–119
R100.	**RD.X** 05.. / 07.. / 10.. / 12.. / 16.. / 20..	8	5	Ø 12–42	Ø 8–20	Ø 42–160	●	●	●	●	○	●		120–124
MaxiMill 252	**RNHU** 10.. / 12..	8	3			Ø 40–125	●	●	○		●			125+126
K200. Ball Nosed	**RO.X** .... / **XOHX**	1	0,4–8	Ø 8–32	Ø 6–32		●	●	●	●	●	●		127–131
K200. Torus	**XO.X**	1	0,5–8	Ø 8–32	Ø 8–32		●	●	●	●	●	●		132–135

Additional diameters are available upon request.

Indexable inserts for systems that are no longer listed here can be found in our online shop at cuttingtools.ceratizit.com

15

Overview – Chamfer / Angle Milling Cutters

System	Inserts	Cutting edges per insert	$a_{p\ max.}$ mm	Ø-range mm		Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	hardened materials	Non metal materials	Page No.
													
MaxiMill 272	**SD..** 0903..	4	4	Ø 6–25		●	●	○	●	●			36–38
													
MaxiMill 242	**LD..** 1504..	2			Ø 50–92	○	●			●			100+101

Additional diameters are available upon request.

Overview – Saw cutters

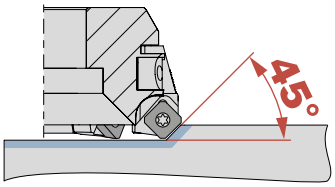
System	Inserts	Cutting edges per insert	$a_{p\ max.}$ mm	Ø-range mm		Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	hardened materials	Non metal materials	Page No.
													
TX	**TX..** R/L	3	64	Ø 80–160	Ø 100–200	●	●	●	●	●			136–138

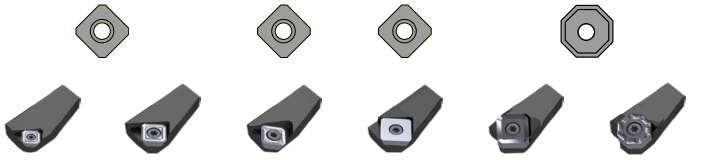
Additional diameters are available upon request.

Overview – Combi Milling Cutters

System	Cutting edges per insert	a_p max. mm	Ø-range mm	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	hardened materials	Non metal materials	Page No.
MaxiMill 260	2–16	0,8–33	Ø 80–400	●	●	●	●	●	●		139

Cartridge no. 041 | 031 | 029 | 032 | 058 | 057

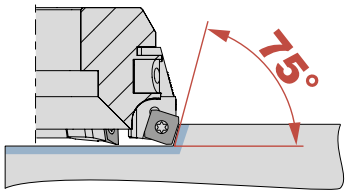




SD.. 0903.. | **SD..** 1204.. **XD..** 1204.. | **SE..** 1204.. | **SD..** 1504.. | **SA..** 1706.. | **OA..** 0605.. **XA..** 0605..

140

Cartridge no. 018

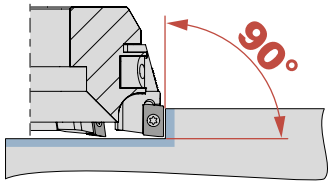


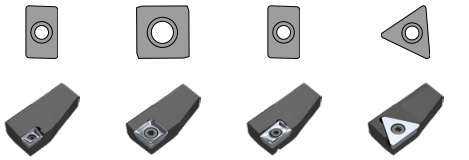


SP.. 1204..

140

Cartridge no. 042 | 039 | 051 | 025

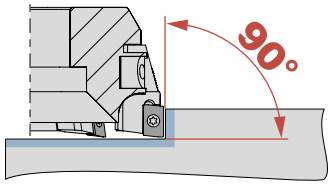




AP.. 1003.. | **SD..** 1205.. | **LD..** 1504.. | **TP..** 2204..

140

Cartridge no. 055 | 054 | 056

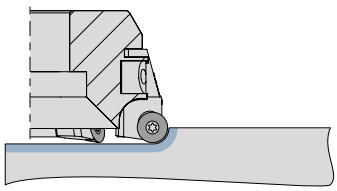


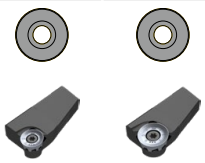


SD.. 09T3 | **XD..** 11T3 | **XD..** 1505

140

Cartridge no. 052 | 053



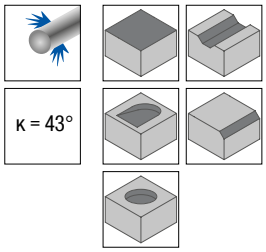


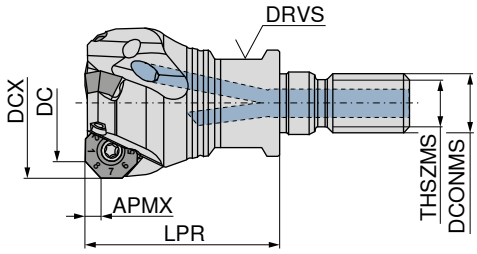
RP.X 1204.. | **RP.X** 1604..

140

15

MaxiMill – Screw in cutter G 274-04/-09

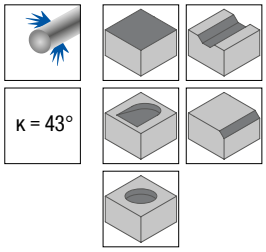


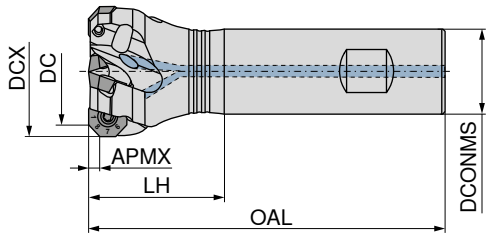




Designation	DC mm	DCX mm	ZNF	APMX mm	LPR mm	THSZMS	DCONMS mm	DRVS mm	torque moment Nm	Insert	50 742 ...
G274.20.R.03-09	20	25,5	3	3,8	35	M12	12,5	17	1,2	OF.. 0403 / SF.. 0903	**020**
G274.25.R.04-09	25	30,6	4	3,8	35	M12	12,5	17	1,2	OF.. 0403 / SF.. 0903	**025**
G274.32.R.05-09	32	37,6	5	3,8	35	M16	17,0	24	1,2	OF.. 0403 / SF.. 0903	**032**

MaxiMill – End milling cutter C 274-04/-09

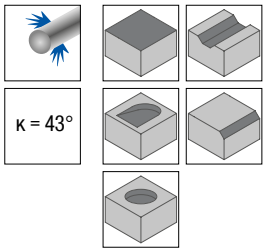


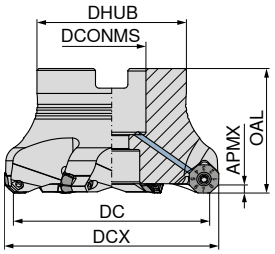


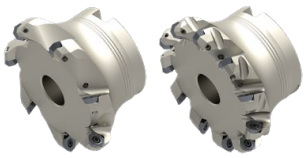


ISO designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	torque moment Nm	Insert	A 50 743 ...	B 50 743 ...
C274.20.R.03-09-A20-25	20	25,5	3	3,8	77	25	20	1,2	OF.. 0403 / SF.. 0903	**020**	
C274.20.R.03-09-B20-25	20	25,5	3	3,8	77	25	20	1,2	OF.. 0403 / SF.. 0903		**120**
C274.25.R.04-09-A20-32	25	30,6	4	3,8	84	32	20	1,2	OF.. 0403 / SF.. 0903	**025**	
C274.25.R.04-09-B20-32	25	30,6	4	3,8	84	32	20	1,2	OF.. 0403 / SF.. 0903		**125**
C274.32.R.05-09-A25-40	32	37,6	5	3,8	98	40	25	1,2	OF.. 0403 / SF.. 0903	**032**	
C274.32.R.05-09-B25-40	32	37,6	5	3,8	98	40	25	1,2	OF.. 0403 / SF.. 0903		**132**

MaxiMill – Shell mill A 274-04/-09







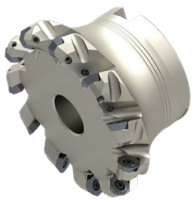
										50 744 ...		50 744 ...	
Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	torque moment Nm	Insert				
A274.32.R.05-09	32	37,7	5	3,8	40	38	16	1,2	OF.. 0403 / SF.. 0903				**032**
A274.40.R.04-09	40	45,7	4	3,8	40	38	16	1,2	OF.. 0403 / SF.. 0903		**040**		
A274.40.R.06-09	40	45,7	6	3,8	40	38	16	1,2	OF.. 0403 / SF.. 0903				**140**
A274.50.R.05-09	50	55,7	5	3,8	40	48	22	1,2	OF.. 0403 / SF.. 0903		**050**		
A274.50.R.07-09	50	55,7	7	3,8	40	48	22	1,2	OF.. 0403 / SF.. 0903				**150**
A274.63.R.06-09	63	68,7	6	3,8	40	48	22	1,2	OF.. 0403 / SF.. 0903		**063**		
A274.63.R.09-09	63	68,7	9	3,8	40	48	22	1,2	OF.. 0403 / SF.. 0903				**163**
A274.80.R.07-09	80	85,7	7	3,8	50	58	27	1,2	OF.. 0403 / SF.. 0903		**080**		
A274.80.R.11-09	80	85,7	11	3,8	50	58	27	1,2	OF.. 0403 / SF.. 0903				**180**
A274.100.R.09-09	100	105,7	9	3,8	50	78	32	1,2	OF.. 0403 / SF.. 0903		**100**		
A274.100.R.13-09	100	105,7	13	3,8	50	78	32	1,2	OF.. 0403 / SF.. 0903				**200**
A274.125.R.12-09	125	130,7	12	3,8	63	88	40	1,2	OF.. 0403 / SF.. 0903		**125**		

	TORX® blade	 Clamping key - T	 Key D	 Power Screw	 Molykote	 Clamping screw	 Torque screwdriver
	80 950 ...	**80 397 ...**	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts DC							
20 - 32	**043**		**125**		**303**	**133**	**191**
32 - 40	**043**	**040**	**125**	**151**	**303**	**133**	**191**
50 - 125	**043**		**125**		**303**	**133**	**191**

Two insert types – ONE Cutter



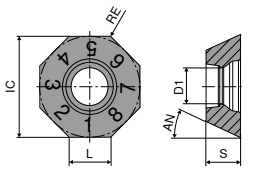




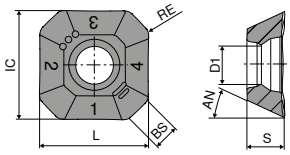


OFHT / OFHW / SFHT / SFKT

Designation	IC mm	D1 mm	L mm	BS mm	S mm	AN °
OFH. 0403..	9,52	3,35	3,94	-	3,18	25
SF.T 0903..	9,80	3,35	9,00	2,25	3,50	25



OF..

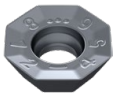


SF.T

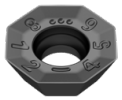
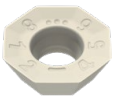
OFHT

ISO	RE mm	-F50 CTCP220 DRAGONSKIN	-F50 CTPP225 DRAGONSKIN	-F50 CTCP230 DRAGONSKIN	-M50 CTCP230 DRAGONSKIN	-F50 CTPP235 DRAGONSKIN	-M50 CTPP235 DRAGONSKIN
							
		OFHT	OFHT	OFHT	OFHT	OFHT	OFHT
		51 002 ...	**51 002 ...**	**51 002 ...**	**51 003 ...**	**51 002 ...**	**51 003 ...**
040305SN	0,5	**255**	**055**	**005**	**005**	**105**	**105**
P		●	●	●	●	●	●
M						○	○
K				○	○	○	○
N							
S							
H							
O							

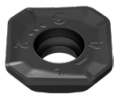
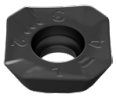
OFHT / OFHW

ISO	RE mm	-F50 CTPM225 DRAGONSKIN	-F50 CTCM235 DRAGONSKIN	-F50 CTPM240 DRAGONSKIN	-M50 CTPM240 DRAGONSKIN	-F50 CTPM245 DRAGONSKIN	CTPM245 DRAGONSKIN
							
		OFHT	OFHT	OFHT	OFHT	OFHT	OFHW
		51 002 ...	**51 002 ...**	**51 002 ...**	**51 003 ...**	**51 002 ...**	**51 105 ...**
040302EN	0,2						**452**
040305SN	0,5	**205**	**305**	**405**	**405**	**455**	
P		●	●	○	○	●	●
M		●	●	●	●	●	●
K							
N							
S							
H							
O							

OFHT / OFHW

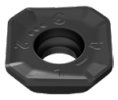
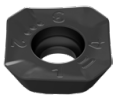
		NEW	NEW					
		-F50 CTCM245 DRAGONSKIN	CTCM245 DRAGONSKIN	-M50 CTCK215 DRAGONSKIN	-F10 CTWN215	-F50 CTC5240 DRAGONSKIN	CTC5240 DRAGONSKIN	-F50 CTCS245 DRAGONSKIN
								
		OFHT	OFHW	OFHT	OFHT	OFHT	OFHW	OFHT
		51 002 ...	51 105 ...	51 003 ...	50 459 ...	51 002 ...	50 457 ...	51 002 ...
ISO	RE mm							
040302EN	0,2		90201				504	
040305FN	0,5				505			
040305SN	0,5	90501		505		15500		555
P		●	●					
M		●	●					
K				●	○			
N					●			
S		○	○			●	●	●
H								
O					○			

SFHT / SFKT

		-F50 CTCP220 DRAGONSKIN	-M50 CTCP220 DRAGONSKIN	-F50 CTPP225 DRAGONSKIN	-M50 CTPP225 DRAGONSKIN
					
		SFHT	SFKT	SFHT	SFKT
		51 012 ...	51 013 ...	51 012 ...	51 013 ...
ISO	RE mm				
0903AFSR	1	270	270	070	070
P		●	●	●	●
M					
K					
N					
S					
H					
O					

15

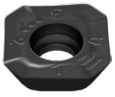
SFHT / SFKT

		-F50 CTCP230	-M50 CTCP230	-F50 CTPP235	-M50 CTPP235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		SFHT	SFKT	SFHT	SFKT
		51 012 ...	51 013 ...	51 012 ...	51 013 ...
ISO	RE mm				
0903AFSR	1	020	020	120	120
P		●	●	●	●
M				○	○
K		○	○	○	○
N					
S					
H					
O					

SFHT / SFKT

		-F50 CTPM225	-M50 CTPM225	-F50 CTCM235	-F50 CTPM240	-M50 CTPM240	-F50 CTPM245	NEW -F50 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		SFHT	SFKT	SFHT	SFHT	SFKT	SFHT	SFHT
		51 012 ...	51 013 ...	51 012 ...	51 012 ...	51 013 ...	51 012 ...	51 012 ...
ISO	RE mm							
0903AFSR	1	220	220	320	420	42000	470	92001
P		●	●	●	○	○	●	●
M		●	●	●	●	●	●	●
K								
N								
S								○
H								
O								

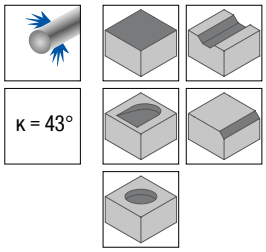
SFKT / SFHT

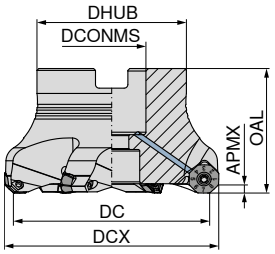
	-R50 CTCK215	-R50 CTPK220	-F10 CTWN215	-F40 CTC5240
	DRAGONSKIN	DRAGONSKIN		DRAGONSKIN
				
	SFKT	SFKT	SFHT	SFHT
	51 065 ...	51 065 ...	50 514 ...	50 514 ...
ISO / RE mm				
0903AFFR 1			505	
0903AFSR 1	520	620		504
P				
M				
K	●	●	○	
N			●	
S				●
H				
O			○	

Milling guide

Cutting data standard values	→ 141–144	Machining strategy	→ 145
Starting Parameter	→ 146	Technical Information	→ 189–194
Chip groove description and overview	→ 195–197	Grade description and overview	→ 198–201

MaxiMill – Shell mill A 274-05/-12





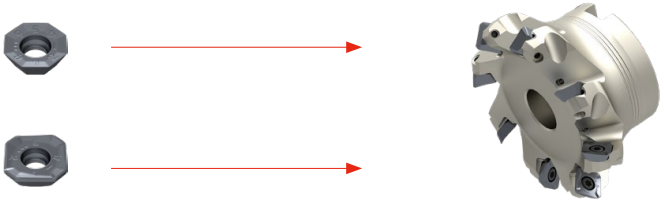


Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	torque moment Nm	Insert	50 772 ...		50 772 ...	
A274.40.R.03-12	40	48,0	3	6	40	38	16	3,2	OFHT 0504 / SFKT 1204	**24000**			
A274.40.R.04-12	40	48,0	4	6	40	38	16	3,2	OFHT 0504 / SFKT 1204				**04000**
A274.50.R.05-12	50	58,0	5	6	40	43	22	3,2	OFHT 0504 / SFKT 1204				**050**
A274.50.R.04-12	50	58,1	4	6	40	43	22	3,2	OFHT 0504 / SFKT 1204	**25000**			
A274.63.R.06-12	63	71,0	6	6	40	48	22	3,2	OFHT 0504 / SFKT 1204				**063**
A274.63.R.05-12	63	71,1	5	6	40	48	22	3,2	OFHT 0504 / SFKT 1204	**26300**			
A274.80.R.06-12	80	88,0	6	6	50	58	27	3,2	OFHT 0504 / SFKT 1204	**28000**			
A274.80.R.08-12	80	88,0	8	6	50	58	27	3,2	OFHT 0504 / SFKT 1204				**080**
A274.100.R.10-12	100	107,9	10	6	50	78	32	3,2	OFHT 0504 / SFKT 1204				**100**
A274.100.R.08-12	100	108,0	8	6	50	78	32	3,2	OFHT 0504 / SFKT 1204	**30000**			
A274.125.R.12-12	125	132,9	12	6	63	88	40	3,2	OFHT 0504 / SFKT 1204				**125**
A274.125.R.09-12	125	133,0	9	6	63	88	40	3,2	OFHT 0504 / SFKT 1204	**32500**			
A274.160.R.14-12	160	167,9	14	6	63	98	40	3,2	OFHT 0504 / SFKT 1204				**16000** [1]
A274.160.R.11-12	160	168,0	11	6	63	98	40	3,2	OFHT 0504 / SFKT 1204	**36000** [1]			

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

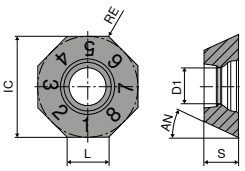
	TORX® blade	Key D	 Molykote	 Clamping screw	 Torque screwdriver
	80 950 ...	**80 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts					
DC					
40 - 160	**054**	**128**	**303**	**340**	**193**

Two insert types – ONE Cutter

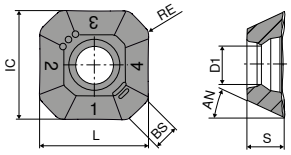


OFHT / SFHT / SFKT

Designation	IC mm	D1 mm	L mm	BS mm	S mm	AN °
OFHT 0504..	12,7	4,8	4,5	-	4,76	25
SF.T 1204..	12,7	4,8	12,7	1,42	4,76	25

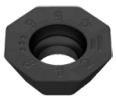


OF..

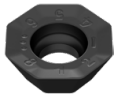
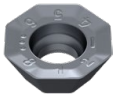
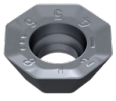


SF.T

OFHT

		-F50 CTCP230 DRAGONSKIN	-M50 CTCP230 DRAGONSKIN	-F50 CTPP235 DRAGONSKIN	-M50 CTPP235 DRAGONSKIN
					
		OFHT	OFHT	OFHT	OFHT
		51 002 ...	**51 003 ...**	**51 002 ...**	**51 003 ...**
ISO	RE mm				
050410SN	1	**010**	**01000**	**110**	**11000**
P		●	●	●	●
M				○	○
K		○	○	○	○
N					
S					
H					
O					

OFHT

		-F50 CTPM225 DRAGONSKIN	-M50 CTPM225 DRAGONSKIN	-F50 CTCM235 DRAGONSKIN	-F50 CTPM240 DRAGONSKIN	-M50 CTPM240 DRAGONSKIN	-F50 CTPM245 DRAGONSKIN
							
		OFHT	OFHT	OFHT	OFHT	OFHT	OFHT
		51 002 ...	**51 003 ...**	**51 002 ...**	**51 002 ...**	**51 003 ...**	**51 002 ...**
ISO	RE mm						
050410SN	1	**210**	**210**	**310**	**410**	**41000**	**460**
P		●	●	●	○	○	●
M		●	●	●	●	●	●
K							
N							
S							
H							
O							

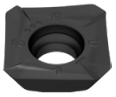
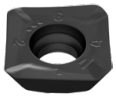
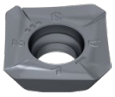
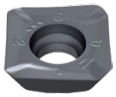
15

OFHT

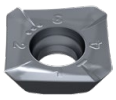
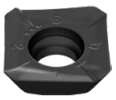
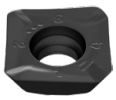
NEW

		-F50 CTCM245 DRAGONSKIN	-F10 CTWN215	-F50 CTC5240 DRAGONSKIN
				
		OFHT	OFHT	OFHT
		51 002 ...	51 122 ...	51 002 ...
ISO	RE mm			
050410FN	1		36000	
050410SN	1	91001		16000
P		●		
M		●		
K			○	
N			●	
S		○		●
H				
O			○	

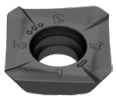
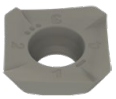
SFHT / SFKT

		-F50 CTCP230 DRAGONSKIN	-M50 CTCP230 DRAGONSKIN	-F50 CTPP235 DRAGONSKIN	-M50 CTPP235 DRAGONSKIN
					
		SFHT	SFKT	SFHT	SFKT
		51 012 ...	51 013 ...	51 012 ...	51 013 ...
ISO	RE mm				
1204AFSR	1	02500	025	12500	125
P		●	●	●	●
M				○	○
K		○	○	○	○
N					
S					
H					
O					

SFHT / SFKT

		-F50 CTPM225	-M50 CTPM225	-F50 CTCM235	-M50 CTCM235	-F50 CTPM240	-M50 CTPM240
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		SFHT	SFKT	SFHT	SFKT	SFHT	SFKT
		51 012 ...	51 013 ...	51 012 ...	51 013 ...	51 012 ...	51 013 ...
ISO	RE mm						
1204AFSR	1	225	225	325	325	42500	425
P		●	●	●	●	○	○
M		●	●	●	●	●	●
K							
N							
S							
H							
O							

SFHT

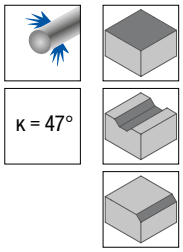
			NEW			
		-F50 CTPM245	-F50 CTCM245	-F10 CTWN215	-F40 CTC5240	
		DRAGONSKIN	DRAGONSKIN		DRAGONSKIN	
						
		SFHT	SFHT	SFHT	SFHT	
		51 012 ...	51 012 ...	51 123 ...	50 514 ...	
ISO	RE mm					
1204AFER	1					50900
1204AFFR	1			37000		
1204AFSR	1	47500	92501			
P		●	●			
M		●	●			
K				○		
N				●		
S			○		●	
H						
O				○		

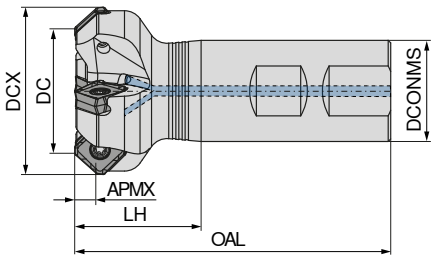
Milling guide

Cutting data standard values	→ 141–144	Machining strategy	→ 147
Starting Parameter	→ 148	Technical Information	→ 189–194
Chip groove description and overview	→ 195–197	Grade description and overview	→ 198–201

15

MaxiMill – End milling cutter C 271-12







NEW

B

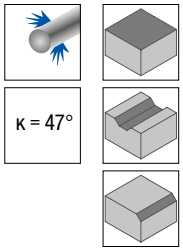
50 786 ...

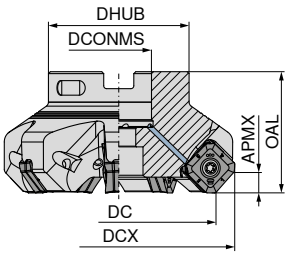
Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS $_{h6}$ mm	RPMX 1/min.	torque moment Nm	Insert	
C271.32.R.03-12-B-40	32	45	3	6,8	100	40	32	18400	3,2	SOHU 1204.. / XOHU 1204..	**03203**
C271.40.R.04-12-B32-40	40	53	4	6,8	100	40	32	16800	3,2	SOHU 1204.. / XOHU 1204..	**04004**

	TORX® blade	 Key D	 Molykote	 Clamping screw	 Torque screwdriver
	80 950 ...	**80 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts DC					
32 - 40	**054**	**120**	**303**	**859**	**193**

MaxiMill – A 271-12 Face mill

▲ 8 cutting edges per insert





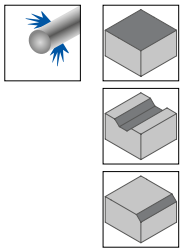


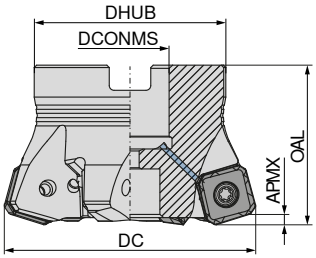
NEW NEW

Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	RPMX 1/min.	torque moment Nm	Insert	50 787 ...	50 787 ...
A271.40.R.04-12	40	53	4	6,8	40	38	16	17900	3,2	SOHU 1204.. / XOHU 1204..		04004
A271.50.R.05-12	50	63	5	6,8	40	43	22	15200	3,2	SOHU 1204.. / XOHU 1204..		05005
A271.63.R.07-12	63	76	7	6,8	40	48	22	13100	3,2	SOHU 1204.. / XOHU 1204..		06307
A271.80.R.06-12	80	93	6	6,8	50	58	27	11300	3,2	SOHU 1204.. / XOHU 1204..	08006	
A271.80.R.08-12	80	93	8	6,8	50	58	27	11300	3,2	SOHU 1204.. / XOHU 1204..		08008
A271.100.R.07-12	100	113	7	6,8	63	78	32	9900	3,2	SOHU 1204.. / XOHU 1204..	10007	
A271.100.R.10-12	100	113	10	6,8	63	78	32	9900	3,2	SOHU 1204.. / XOHU 1204..		10010
A271.125.R.08-12	125	138	8	6,8	63	88	40	8700	3,2	SOHU 1204.. / XOHU 1204..	12508	
A271.125.R.12-12	125	138	12	6,8	63	88	40	8700	3,2	SOHU 1204.. / XOHU 1204..		12512
A271.160.R.09-12	160	173	9	6,8	63	98	40	7600	3,2	SOHU 1204.. / XOHU 1204..	16009 [1]	
A271.160.R.14-12	160	173	14	6,8	63	98	40	7600	3,2	SOHU 1204.. / XOHU 1204..		16014 [1]
A271.200.R.11-12	200	213	11	6,8	63	132	60	6700	3,2	SOHU 1204.. / XOHU 1204..	20011 [1]	
A271.200.R.17-12	200	213	17	6,8	63	132	60	6700	3,2	SOHU 1204.. / XOHU 1204..		20017 [1]
A271.250.R.13-12	250	263	13	6,8	63	132	60	6000	3,2	SOHU 1204.. / XOHU 1204..	25013 [1]	
A271.250.R.21-12	250	263	21	6,8	63	132	60	6000	3,2	SOHU 1204.. / XOHU 1204..		25021 [1]

1) Without Through Coolant

MaxiMill – A 271-12 HFC Face mill







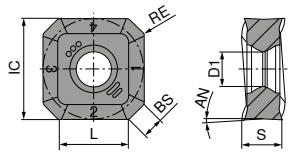
NEW

Designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	RPMX 1/min.	torque moment Nm	Insert	50 788 ...
A271.50.R.04-12-HFC	50	4	2,6	40	43	22	14600	3,2	SOHU 1204..	05004
A271.63.R.06-12-HFC	63	6	2,6	40	48	22	12500	3,2	SOHU 1204..	06306
A271.80.R.07-12-HFC	80	7	2,6	50	58	27	10800	3,2	SOHU 1204..	08007

Spare parts DC	TORX® blade 80 950 ...	Clamping key - T 80 397 ...	Key D 80 950 ...	Power Screw 70 950 ...	Molykote 70 950 ...	Clamping screw 70 950 ...	Torque screwdriver 80 950 ...
40 (5078704004)	054	040	120	151	303	859	193
50 - 250	054		120		303	859	193
50 (5078805004)	054	050	120	154	303	859	193

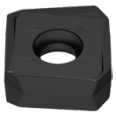
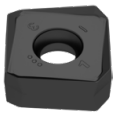
SOHU

Designation	IC mm	D1 mm	L mm	BS mm	S mm	AN °
SOHU 1204..	13,36	4,4	8,8	1,7	5,00	7,4

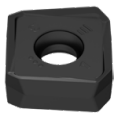
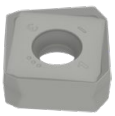


SOHU

SOHU

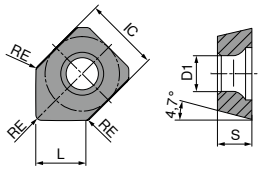
		NEW	NEW	NEW	NEW	NEW	NEW
		-M50 CTCP230	-M50 CTPP235	-M50 CTCM235	-M50 CTPM240	-F50 CTPM245	-F50 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		SOHU	SOHU	SOHU	SOHU	SOHU	SOHU
		51 138 ...	51 138 ...	51 138 ...	51 138 ...	51 140 ...	51 140 ...
ISO	RE mm						
1204ABSR	0,8	02000	12000	32000	42000	47000	92001
P		●	●	●	○	●	●
M			○	●	●	●	●
K		○	○				
N							
S							○
H							
O							

SOHU

		NEW	NEW	NEW	NEW
		-R50 CTCK215	-R50 CTPK220	-F40 CTC5240	-F50 CTC5240
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		SOHU	SOHU	SOHU	SOHU
		51 139 ...	51 139 ...	51 148 ...	51 140 ...
ISO	RE mm				
1204ABSR	0,8	52000	62000	12001	17000
P					
M					
K		●	●		
N					
S				●	●
H					
O					

XOHU

Designation	IC mm	D1 mm	L mm	BS mm	S mm
XOHU 1204..	13,36	4,4	8,8	1,83	5,00



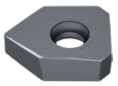
XOHU

XOHU

NEW

-M50
CTPP235

DRAGONSKIN


XOHU

51 141 ...

ISO	RE mm	12000
1204ABSR	0,8	
P		●
M		○
K		○
N		
S		
H		
O		

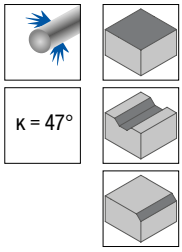
Milling guide

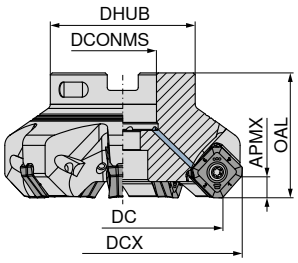
Cutting data standard values	→ 141–144	Starting Parameter	→ 149
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

15

MaxiMill – A 271 Face mill

▲ 8 cutting edges per insert







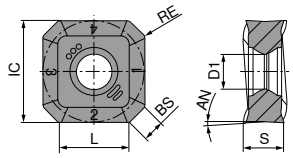
ISO designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DCONMS mm	DHUB mm	torque moment Nm	Insert	50 767 ...
A271.50.R.04-17	50	66,1	4	8,4	40	22	43	5	SAKU 1706	**050**
A271.63.R.06-17	63	79,1	6	8,4	40	22	48	5	SAKU 1706	**063**
A271.80.R.07-17	80	96,1	7	8,4	50	27	58	5	SAKU 1706	**080**
A271.100.R.08-17	100	116,1	8	6,8	50	32	78	5	SAKU 1706	**100**
A271.125.R.10-17	125	141,1	10	8,4	63	40	88	5	SAKU 1706	**125**
A271.160.R.12-17	160	176,1	12	8,4	63	40	104	5	SAKU 1706	**16000**[1)]
A271.200.R.13-17	200	216,1	13	8,4	63	60	134	5	SAKU 1706	**20000**[2)]
A271.250.R.15-17	250	266,1	15	8,4	63	60	134	5	SAKU 1706	**25000**[2)]

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant
2) With threaded holes M16 on the front face, pitch circle diameter = 101.6 mm / Without Through Coolant

Spare parts DC		TORX® blade	Key D	Molykote	Clamping screw	Torque screwdriver
		80 950 ...	**80 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
50 - 250		**037**	**114**	**303**	**302**	**193**

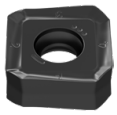
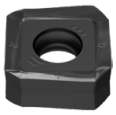
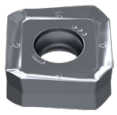
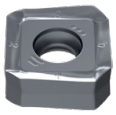
SAKU

Designation	IC mm	D1 mm	L mm	BS mm	S mm	AN °
SAKU 1706..	17	5,8	11,85	3,7	6,35	3

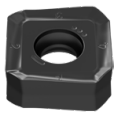
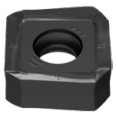
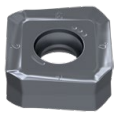


SAKU

SAKU

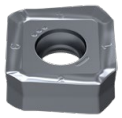
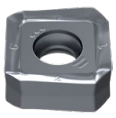
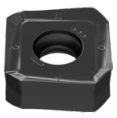
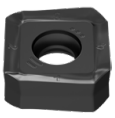
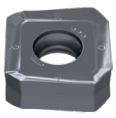
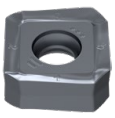
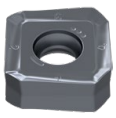
		-F50 CTCP220	-M50 CTCP220	-F50 CTPP225	-M50 CTPP225
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		SAKU	SAKU	SAKU	SAKU
		51 004 ...	**51 005 ...**	**51 004 ...**	**51 005 ...**
ISO	RE mm				
1706ABSR	0,8	**270**	**270**	**070**	**070**
P		●	●	●	●
M					
K					
N					
S					
H					
O					

SAKU

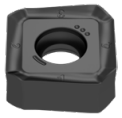
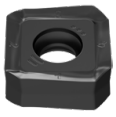
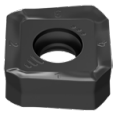
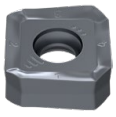
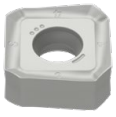
		-F50 CTCP230	-M50 CTCP230	-F50 CTPP235	-M50 CTPP235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		SAKU	SAKU	SAKU	SAKU
		51 004 ...	**51 005 ...**	**51 004 ...**	**51 005 ...**
ISO	RE mm				
1706ABSR	0,8	**020**	**020**	**120**	**120**
P		●	●	●	●
M				○	○
K		○	○	○	○
N					
S					
H					
O					

15

SAKU

		-F50 CTPM225	-M50 CTPM225	-F50 CTCM235	-M50 CTCM235	-F50 CTPM240	-M50 CTPM240	-F50 CTPM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		SAKU	SAKU	SAKU	SAKU	SAKU	SAKU	SAKU
		51 004 ...	51 005 ...	51 004 ...	51 005 ...	51 004 ...	51 005 ...	51 004 ...
ISO	RE mm							
1706ABSR	0,8	220	220	320	320	420	420	470
P		●	●	●	●	○	○	●
M		●	●	●	●	●	●	●
K								
N								
S								
H								
O								

SAKU

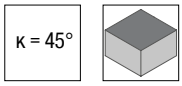
		NEW						
		-F50 CTCM245	-M50 CTCK215	-R50 CTCK215	-M50 CTPK220	-R50 CTPK220	-F50 CTC5240	-F50 CTCS245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		SAKU	SAKU	SAKU	SAKU	SAKU	SAKU	SAKU
		51 004 ...	51 005 ...	51 058 ...	51 005 ...	51 058 ...	50 306 ...	51 004 ...
ISO	RE mm							
1706ABSR	0,8	92001	520	520	620	620	520	570
Steel		●	○	○	○	○		
Stainless steel		●						
Cast iron			●	●	●	●		
Non ferrous metals								
Heat resistant alloys		●					●	●
Hardened materials								

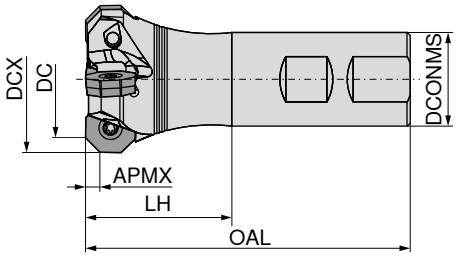
Milling guide

Cutting data standard values	→ 141–144	Starting Parameter	→ 149
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

MaxiMill – End milling cutter C 273

▲ 16 cutting edges per insert





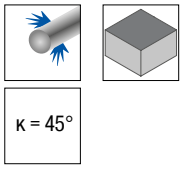


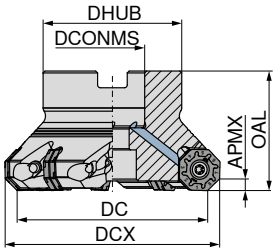
B

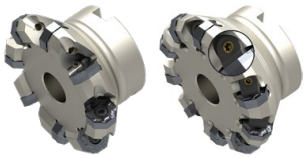
Designation	DC mm	DCX mm	ZNF	APMX mm	DCONMS h6 mm	LH mm	OAL mm	torque moment Nm	Insert	50 762 ...
C273.32.R.03-06-B-40	32	42,1	3	3,5	32	40	101	5	OAKU / XAHT 0605	032
C273.40.R.04-06-B32-50	40	50,1	4	3,5	32	50	111	5	OAKU / XAHT 0605	040

MaxiMill – Shell mill A 273

▲ 16 cutting edges per insert







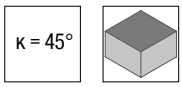
Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DCONMS H6 mm	DHUB mm	torque moment Nm	Insert	50 741 ...	50 741 ...
A273.40.R.04-06	40	50,2	3	3,5	40	16	38	5	OAKU / XAHT 0605	040	
A273.40.R.04-06	40	50,2	4	3,5	40	16	38	5	OAKU / XAHT 0605	140 5)	
A273.50.R.05-06	50	60,2	5	3,5	40	22	43	5	OAKU / XAHT 0605	050	
A273.63.R.07-06	63	73,2	7	3,5	40	22	48	5	OAKU / XAHT 0605	063	
A273.80.R.08-06	80	90,2	8	3,5	50	27	58	5	OAKU / XAHT 0605	080	
A273.80.R.10-06	80	90,2	10	3,5	50	27	58	5	OAKU / XAHT 0605		180 1)
A273.100.R.10-06	100	110,2	10	3,5	50	32	78	5	OAKU / XAHT 0605	100	
A273.100.R.14-06	100	110,2	14	3,5	50	32	78	5	OAKU / XAHT 0605		200 1)
A273.125.R.12-06	125	135,2	12	3,5	63	40	88	5	OAKU / XAHT 0605	125	
A273.125.R.17-06	125	135,2	17	3,5	63	40	88	5	OAKU / XAHT 0605		225 1)
A273.160.R.14-06	160	170,2	14	3,5	63	40	104	5	OAKU / XAHT 0605	160 4)	
A273.160.R.20-06	160	170,2	20	3,5	63	40	104	5	OAKU / XAHT 0605		260 2)
A273.200.R.25-06	200	210,2	25	3,5	63	60	153	5	OAKU / XAHT 0605		300 3)
A273.250.R.31-06	250	260,2	31	3,5	63	60	153	5	OAKU / XAHT 0605		25031 3)

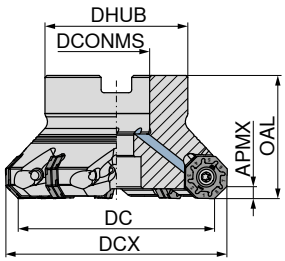
1) Version with Wedge, without internal coolant supply
2) Version with Wedge, without internal coolant supply / With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant
3) Version with Wedge, without internal coolant supply / With threaded holes M16 on the front face, pitch circle diameter = 101.6 mm / Without Through Coolant
4) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant
5) Without Through Coolant

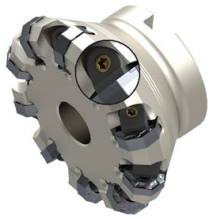
Spare parts DC	TORX® blade 80 950 ...	Clamping key - T 80 397 ...	Clamping wedge screw 70 950 ...	Clamping wedge Face mill 70 950 ...	Key D 80 950 ...	Power Screw 70 950 ...	Clamping screw 70 950 ...	Torque screwdriver 80 950 ...
40	037	040			114	151	302	193
50	037	050			114	154	302	193
63 - 80	037				114		302	193
80 - 100	036		844	845	113			193
100 - 125	037				114		302	193
125	036		844	845	113			193
160	037				114		302	193
160 - 250	036		844	845	113			193

MaxiMill – Shell mill A 273

- 16 cutting edges per indexable insert
- Axially adjustable







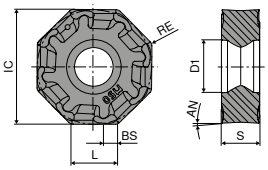
Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DCONMS $_{H6}$ mm	DHUB mm	torque moment Nm	Insert	50 777 ...
A273.80.R.10A10-06	80	90,2	10	3,5	50	27	58	5	OAKU / XAHT 0605	**08010**[1]
A273.100.R.14A14-06	100	110,2	14	3,5	50	32	78	5	OAKU / XAHT 0605	**10014**[1]
A273.125.R.17A17-06	125	135,2	17	3,5	63	40	88	5	OAKU / XAHT 0605	**12517**[1]
A273.160.R.20A20-06	160	170,2	20	3,5	63	40	104	5	OAKU / XAHT 0605	**16020**[2]
A273.200.R.25A25-06	200	210,2	25	3,5	63	60	153	5	OAKU / XAHT 0605	**20025**[3]
A273.250.R.31A31-06	250	260,2	31	3,5	63	60	153	5	OAKU / XAHT 0605	**25031**[3]

1) Carbide version
2) Carbide version / With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm
3) Carbide version / With threaded holes M16 on the front face, pitch circle diameter = 101.6 mm

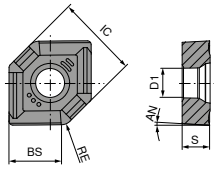
	TORX® blade	 Clamping wedge screw	 Clamping wedge Face mill	Key D	 Molykote	 Wedge	 Torque screwdriver
	80 950 ...	**70 950 ...**	**70 950 ...**	**80 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts DC							
80 - 250	**036**	**844**	**845**	**113**	**303**	**199**	**193**

OAKU / XAHT

Designation	IC mm	D1 mm	L mm	BS mm	S mm	AN °
XAHT 0605..	17,08	6,0	-	11,95	5,56	3
OAKU 0605..	17,10	5,8	6	2,00	5,66	3

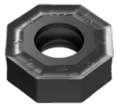
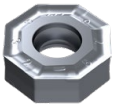


OAKU

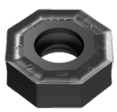
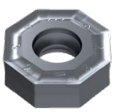


XAHT

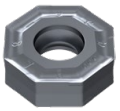
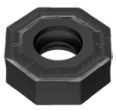
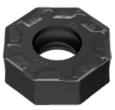
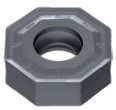
OAKU

	-F50 CTCP220	-M50 CTCP220	-F50 CTPP225	-M50 CTPP225
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
				
	OAKU	OAKU	OAKU	OAKU
	51 000 ...	51 001 ...	51 000 ...	51 001 ...
ISO RE mm				
060508SR 0,8	**258**	**258**	**058**	**058**
P	●	●	●	●
M				
K				
N				
S				
H				
O				

OAKU

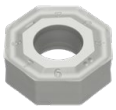
	-F50 CTCP230	-M50 CTCP230	-F50 CTPP235	-M50 CTPP235
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
				
	OAKU	OAKU	OAKU	OAKU
	51 000 ...	51 001 ...	51 000 ...	51 001 ...
ISO RE mm				
060508SR 0,8	**008**	**008**	**108**	**108**
P	●	●	●	●
M			○	○
K	○	○	○	○
N				
S				
H				
O				

OAKU

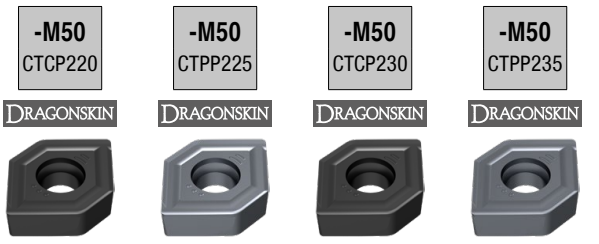
		-F50 CTPM225	-M50 CTPM225	-F50 CTCM235	-M50 CTCM235	-F50 CTPM240	-M50 CTPM240	-F40 CTPM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		OAKU	OAKU	OAKU	OAKU	OAKU	OAKU	OAKU
		51 000 ...	51 001 ...	51 000 ...	51 001 ...	51 000 ...	51 001 ...	51 104 ...
ISO	RE mm							
060508ER	0,8							458
060508SR	0,8	208	208	308	308	408	408	
P		●	●	●	●	○	○	●
M		●	●	●	●	●	●	●
K								
N								
S								
H								
O								

OAKU

NEW

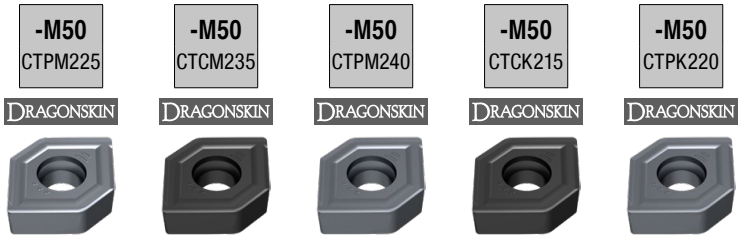
		-F40 CTCM245	-M50 CTCK215	-R50 CTCK215	-M50 CTPK220	-R50 CTPK220	-F40 CTC5240	-F40 CTCS245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		OAKU	OAKU	OAKU	OAKU	OAKU	OAKU	OAKU
		51 104 ...	51 001 ...	51 027 ...	51 001 ...	51 027 ...	50 446 ...	51 104 ...
ISO	RE mm							
060508ER	0,8	90801					550	50801
060508SR	0,8		508	508	608	608		
P		●						
M		●						
K			●	●	●	●		
N								
S		○					●	●
H								
O								

XAHT



ISO	RE mm	51 014 ...			
060525SR	2,5	275	075	025	125
P		●	●	●	●
M					○
K				○	○
N					
S					
H					
O					

XAHT



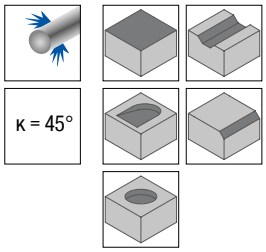
ISO	RE mm	51 014 ...				
060525SR	2,5	225	325	425	525	625
P		●	●	○		
M		●	●	●		
K					●	●
N						
S						
H						
O						

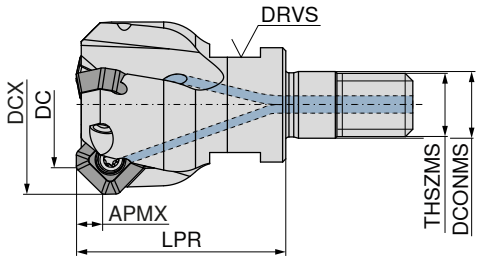
Milling guide

Cutting data standard values	→ 141–144	Starting Parameter	→ 150
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

15

MaxiMill – Screw in cutter 45° G 270-09



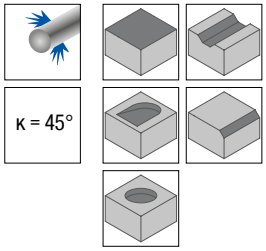


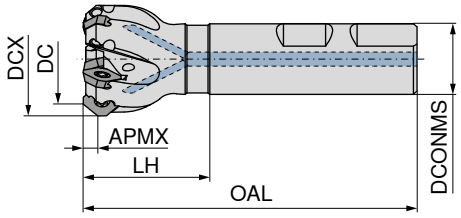


55 202 ...

Designation	DC mm	DCX mm	ZNF	APMX mm	LPR mm	THSZMS	DCONMS mm	DRVS mm	torque moment Nm	Insert	
G270.ESF.16.R.02-09	16	24,4	2	4	27	M8	8,5	10	1,8	SD.. 0903..	**016**
G270.ESF.20.R.03-09	20	28,4	3	4	33	M10	10,5	15	1,8	SD.. 0903..	**020**
G270.ESF.25.R.04-09	25	33,4	4	4	35	M12	12,5	17	1,8	SD.. 0903..	**025**
G270.ESF.32.R.05-09	32	40,4	5	4	35	M16	17,0	17	1,8	SD.. 0903..	**032**

MaxiMill – End milling cutter 45° C 270-09





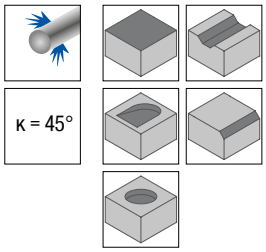


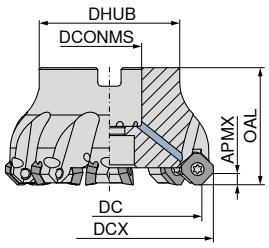
B

50 666 ...

Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	torque moment Nm	Insert	
C270.06.R.01-09	6	14,4	1	4	80	32	16	1,2	SD.. 0903..	**006**
C270.12.R.01-09	12	20,4	1	4	80	32	16	1,2	SD.. 0903..	**012**
C270.16.R.02-09	16	24,4	2	4	90	40	20	1,8	SD.. 0903..	**016**
C270.20.R.03-09	20	28,4	3	4	90	40	20	1,8	SD.. 0903..	**020**
C270.25.R.04-09	25	33,4	4	4	100	44	25	1,8	SD.. 0903..	**025**
C270.32.R.05-09	32	40,4	5	4	95	36	25	1,8	SD.. 0903..	**032**

MaxiMill – Shell mill 45° A 270-09







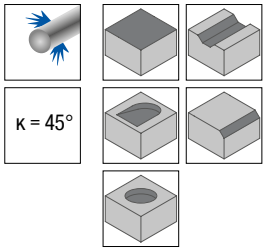
									right		right		right		left	
									50 704 ...		**50 705 ...**		**50 706 ...**		**50 707 ...**	
Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	torque moment Nm								
A270.32.R.05-09	32	40,4	5	4	40	34	16	1,8						**532**		
A270.40.R.04-09	40	48,4	4	4	40	38	16	1,8				**540**				
A270.40.R.06-09	40	48,4	6	4	40	38	16	1,8						**540**		
A270.42.R.06-09	42	50,4	6	4	40	38	16	1,8						**542**		
A270.50.R.06-09	50	58,4	6	4	40	43	22	1,8				**550**				
A270.50.R.08-09	50	58,4	8	4	40	43	22	1,8						**550**		
A270.50.L.08-09	50	58,4	8	4	40	43	22	1,8								**550**
A270.52.R.08-09	52	60,4	8	4	40	43	22	1,8						**552**		
A270.63.R.05-09	63	71,4	5	4	40	48	22	1,8	**563**							
A270.63.R.08-09	63	71,4	8	4	40	48	22	1,8				**563**				
A270.63.R.10-09	63	71,4	10	4	40	48	22	1,8						**563**		
A270.63.L.10-09	63	71,4	10	4	40	48	22	1,8								**563**
A270.66.R.10-09	66	74,4	10	4	40	48	22	1,8						**566**		
A270.80.R.06-09	80	88,4	6	4	50	58	27	1,8	**580**							
A270.80.R.10-09	80	88,4	10	4	50	58	27	1,8				**580**				
A270.80.R.12-09	80	88,4	12	4	50	58	27	1,8						**580**		
A270.80.L.12-09	80	88,4	12	4	50	58	27	1,8								**580**
A270.100.R.07-09	100	108,4	7	4	50	78	32	1,8	**600**							
A270.100.R.12-09	100	108,4	12	4	50	78	32	1,8				**600**				
A270.100.R.14-09	100	108,4	14	4	50	78	32	1,8						**600**		
A270.125.R.12-09	125	133,4	12	4	63	88	40	1,8				**625**				
A270.160.R.12-09	160	168,4	12	4	63	93	40	1,8	**660** [1]							

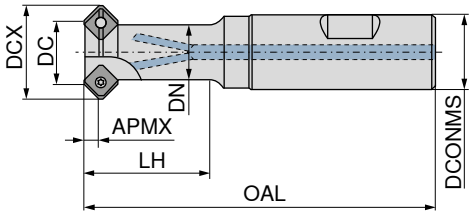
1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

- ▲ 50 704 ... Open pitch for use on aluminum alloys, non-ferrous metals and plastics
- ▲ 50 705 ... Normal pitch for a broad spectrum of use on aluminum alloys, non-ferrous metals, and soft steel materials
- ▲ 50 706 ... Fine pitch for highest feed rates, predominantly used on steel and cast materials
- ▲ 50 707 ... As 50 706 ..., but **left hand** version

MaxiMill – Chamfer milling cutter C 272-09

▲ Usable on front and rear cutting edges







B

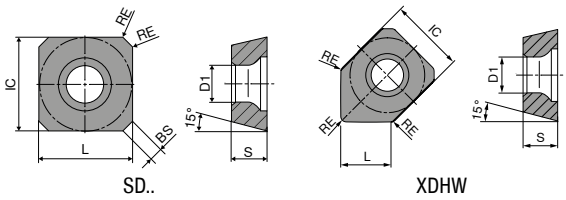
50 669 ...

Designation	DC mm	DCX mm	ZNF	APMX mm	DN mm	OAL mm	LH mm	DCONMS mm	torque moment Nm	Insert	
C272.06.R.01-09	6	14,4	1	4	10	91	24,0	16	1,2	SD.. 0903..	**006**
C272.08.R.01-09	8	16,4	1	4	10	91	25,5	16	1,2	SD.. 0903..	**008**
C272.12.R.01-09	12	20,4	1	4	12	91	26,0	16	1,2	SD.. 0903..	**012**
C272.16.R.02-09	16	24,4	2	4	15	97	30,0	20	1,8	SD.. 0903..	**016**
C272.18.R.02-09	18	26,4	2	4	16	97	30,0	20	1,8	SD.. 0903..	**018**
C272.25.R.03-09	25	33,4	3	4	21	109	35,0	25	1,8	SD.. 0903..	**025**

	TORX® blade	Key D	Molykote	Clamping screw	Torque screwdriver
	80 950 ...	**80 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts DC					
6 - 12	**033**	**110**	**303**	**365**	**191**
16 - 25	**033**	**110**	**303**	**115**	**191**

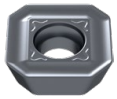
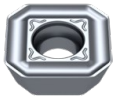
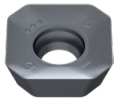
SDHW / SDNT / SDHT / XDHW

Designation	IC mm	D1 mm	L mm	BS mm	S mm
XDHW 0903..	9,52	3,4	5,50	1,68	3,18
SD.. 0903..	9,52	3,4	9,52	1,68	3,18

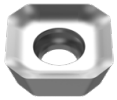
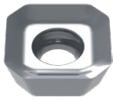


SDHW / SDNT / SDHT

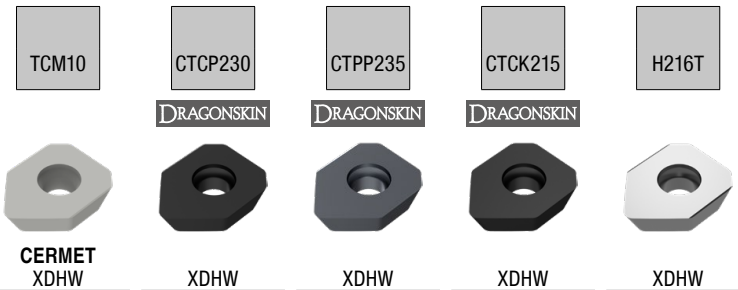
NEW

	TCM10	-29 CTCP230	-29 CTPP235	-33 CTPM240	-33P CTPM240	-F50 CTPM245	-F50 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	CERMET SDHW	SDNT	SDNT	SDHT	SDHT	SDHT	SDHT
	50 428 ...	51 011 ...	51 011 ...	51 028 ...	51 086 ...	51 109 ...	51 109 ...
ISO RE mm							
0903AESN 1	**898**	**020**	**120**	**420**	**420**	**470**	**92001**
P	●	●	●	○	○	●	●
M			○	●	●	●	●
K	○	○	○				
N							
S							○
H							
O							

SDNT / SDHT

	-31 CTCK215	-27P H216T	-27P AMZ	-M31 CTC5240	-F50 CTCS245
	DRAGONSKIN			DRAGONSKIN	DRAGONSKIN
					
	SDNT	SDHT	SDHT	SDHT	SDHT
	51 029 ...	50 426 ...	50 426 ...	50 421 ...	51 109 ...
ISO RE mm					
0903AEFN 1		**548**	**848**		
0903AESN 1	**520**			**509**	**57100**
P					
M					
K	●	○	○		
N		●	●		
S				●	●
H					
O		○	○		

XDHW



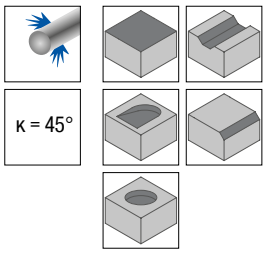
ISO	RE mm	CERMET XDHW 50 449 ...	XDHW 51 015 ...	XDHW 51 015 ...	XDHW 51 015 ...	XDHW 50 449 ...
		898	020	120	520	548
0903AEEN	1					
0903AEFN	1					
0903AESN	1					
P		●	●	●		
M				○		
K		○	○	○	●	○
N						●
S						
H						
O						○

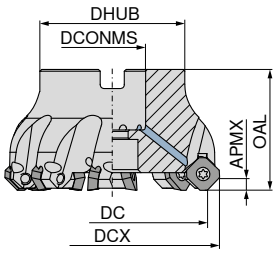
Milling guide

Cutting data standard values	→ 141–144	Machining strategy	→ 151
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

MaxiMill – Shell mill 45° A 270-12

- ▲ 50 705 ... Normal pitch for a broad spectrum of use on aluminum alloys, non-ferrous metals, up to soft steel materials
- ▲ 50 706 ... Predominantly fine pitch for highest feed rates, use on steel and cast materials







										50 705 ...		50 706 ...	
Designation	DC mm	DCX mm	ZNF	APMX mm	DCONMS $_{H6}$ mm	OAL mm	DHUB mm	torque moment Nm	Insert				
A270.32.R.03-12	32	46	3	6	16	40	32	5	SD../XD.. 1204..	**032**			
A270.40.R.03-12	40	54	3	6	16	40	38	5	SD../XD.. 1204..	**040**			
A270.40.R.04-12	40	54	4	6	16	40	38	5	SD../XD.. 1204..				**040**
A270.50.R.04-12	50	64	4	6	22	40	43	5	SD../XD.. 1204..	**050**			
A270.50.R.05-12	50	64	5	6	22	40	43	5	SD../XD.. 1204..				**050**
A270.63.R.04-12	63	77	4	6	22	40	48	5	SD../XD.. 1204..	**063**			
A270.63.R.06-12	63	77	6	6	22	40	48	5	SD../XD.. 1204..				**063**
A270.80.R.05-12	80	94	5	6	27	50	58	5	SD../XD.. 1204..	**080**			
A270.80.R.08-12	80	94	8	6	27	50	58	5	SD../XD.. 1204..				**080**
A270.100.R.06-12	100	114	6	6	32	50	78	5	SD../XD.. 1204..	**100**			
A270.100.R.10-12	100	114	10	6	32	50	78	5	SD../XD.. 1204..				**100**
A270.125.R.07-12	125	139	7	6	40	63	88	5	SD../XD.. 1204..	**125**			
A270.125.R.12-12	125	139	12	6	40	63	88	5	SD../XD.. 1204..				**125**
A270.160.R.08-12	160	174	8	6	40	63	94	5	SD../XD.. 1204..	**160** [1]			

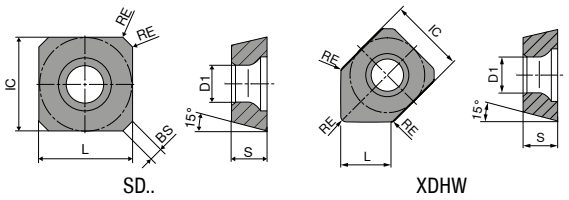
1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

	TORX® blade	 Clamping key - T	 Key D	 Power Screw	 Molykote	 Clamping screw	 Torque screwdriver
	80 950 ...	**80 397 ...**	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts DC							
32 - 40	**037**	**040**	**114**	**151**	**303**	**01200**	**193**
50 - 160	**037**		**114**		**303**	**01200**	**193**

15

SDHT / SDHW / SDMT / XDHW

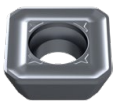
Designation	IC mm	D1 mm	L mm	BS mm	S mm
XDHW 1204..	12,7	5,5	7,5	1,74	4,76
SD.. 1204..	12,7	5,5	12,7	1,74	4,76



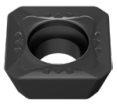
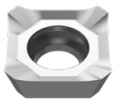
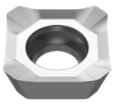
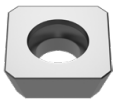
SDHT / SDHW / SDMT

		TCM10	-R TCM10	-29R CTCP230	-R CTCP230	CTCP230
				DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		CERMET SDHT	CERMET SDHW	SDMT	SDHT	SDHW
		50 426 ...	50 428 ...	51 010 ...	51 006 ...	51 008 ...
ISO	RE mm					
1204AESN	0,2	900				
1204AESN	1,0		899	020	020	020
P		●	●	●	●	●
M						
K		○	○	○	○	○
N						
S						
H						
O						

SDMT / SDHT / SDHW

			-29R CTPP235	-R CTPP235	-R CTPP235	-33 CTPM240	-F50 CTPM245	NEW -F50 CTCM245
			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
			SDMT	SDHT	SDHW	SDHT	SDHT	SDHT
			51 010 ...	51 006 ...	51 008 ...	51 028 ...	51 109 ...	51 109 ...
ISO	RE mm							
1204AESN	1	120	120	120	425	475	92501
P			●	●	●	○	●	●
M			○	○	○	●	●	●
K			○	○	○			
N								
S								○
H								
O								

SDMT / SDHW / SDHT

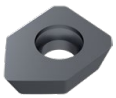
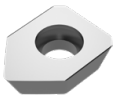
	-31 CTCK215 DRAGONSKIN	-R CTCK215 DRAGONSKIN	-27 H216T	-27P H216T	H216T
					
	SDMT	SDHW	SDHT	SDHT	SDHW
	51 059 ...	51 008 ...	50 426 ...	50 426 ...	50 428 ...
ISO / RE mm					
1204AEEN 1,0	520	520			
1204AEFN 0,2			504		
1204AEFN 1,0				554	
1204AESN 0,2					600
P					
M					
K	●	●	○	○	○
N			●	●	●
S					
H					
O			○	○	○

SDHT

	-M31 CTC5240 DRAGONSKIN	-F50 CTCS245 DRAGONSKIN
		
	SDHT	SDHT
	50 421 ...	51 109 ...
ISO / RE mm		
1204AESN 1	512	57600
P		
M		
K		
N		
S	●	●
H		
O		

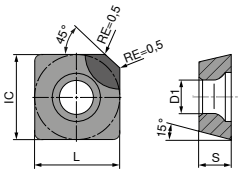
15

XDHW

		TCM10	CTCP230	CTPP235	CTCK215	H216T
			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	
						
		CERMET				
		XDHW	XDHW	XDHW	XDHW	XDHW
		50 449 ...	51 015 ...	51 015 ...	51 015 ...	50 449 ...
ISO	RE mm					
1204AEEN	1				525	
1204AEFN	1					600
1204AESN	1	900	025	125		
P		●	●	●		
M				○		
K		○	○	○	●	○
N						●
S						
H						
O						○

SDHW

Designation	IC mm	D1 mm	L mm	S mm
SDHW 1204..	12,7	5,5	12,7	4,76



SDHW

SDHW





ISO	DIAMOND SDHW 51 900 ...	CBN SDHW 51 900 ...
1204AEFN-2	100 [1]	
1204AEFN-3	102 [2]	
1204AETN-2		300 [1]
P		
M		
K		●
N	●	
S		
H		○
O		

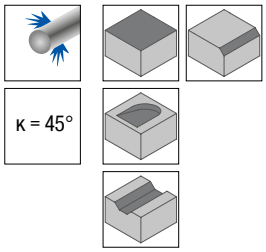
1) $a_{p\,max.}$ = 2.0 mm
2) $a_{p\,max.}$ = 3,5 mm

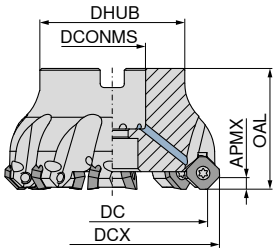
Milling guide

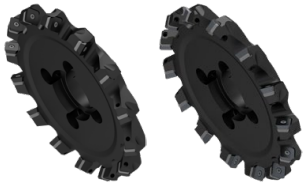
Cutting data standard values	→ 141–144	Machining strategy	→ 151
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

15

MaxiMill – Shell mill 45° A 270-19

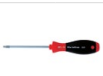






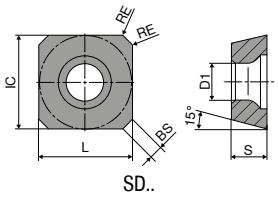
Designation	DC mm	DCX mm	ZNF	APMX mm	DCONMS $_{H6}$ mm	OAL mm	DHUB mm	torque moment Nm	Insert	Left-hand 50 698 ...	Right-hand 50 698 ...
A270.125.R.07-19	125	146,4	7	10	40	63	88	5	SD.. 1907..		**12507**
A270.160.R.09-19	160	181,4	9	10	40	63	104	5	SD.. 1907..		**16009** [1]
A270.200.R.11-19	200	221,1	11	10	60	63	134	5	SD.. 1907..		**20011** [2]
A270.250.L.14-19	250	271,4	14	10	60	63	134	5	SD.. 1907..	**75014** [2]	
A270.250.R.14-19	250	271,4	14	10	60	63	134	5	SD.. 1907..		**25014** [2]
A270.315.L.17-19	315	336,4	17	10	60	63	226	5	SD.. 1907..	**81517** [4]	
A270.315.R.17-19	315	336,4	17	10	60	63	226	5	SD.. 1907..		**31517** [3]

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant
2) With threaded holes M16 on the front face, pitch circle diameter = 101.6 mm / Without Through Coolant
3) With 4 threaded holes M16 on the front face, pitch circle diameter = 101.6 mm and with 4 threaded holes M20 on the front face, pitch circle diameter = 177.8 mm / Without Through Coolant
4) With 4 threaded holes M16 on the front face, pitch circle diameter = 101.6 mm and with 4 threaded holes M20 on the front face, pitch circle diameter = 177.8 mm

Spare parts DC	TORX® blade 80 950 ...	 Key D 80 950 ...	 Molykote 70 950 ...	 Clamping screw 70 950 ...	 Solid Carbide support S 70 950 ...	 Threaded sleeve 70 950 ...	 Torque screwdriver 80 950 ...
125 - 315	**037**	**114**	**303**	**302**	**01500**	**01400**	**193**

SDKT

Designation	IC mm	D1 mm	L mm	BS mm	S mm	AN °
SDKT 1907..	19,15	6	19,15	1,5	7,35	15
SDKT 1907..	19,15	6	19,15	1,5	7,16	15



SD..

SDKT

		-M50 CTCP220	-R50 CTPP225	-R50 CTCP230	-M50 CTPP235	-R50 CTPP235	-R50 CTPM225	-R50 CTCK215
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		SDKT	SDKT	SDKT	SDKT	SDKT	SDKT	SDKT
		51 131 ...	51 132 ...	51 132 ...	51 131 ...	51 132 ...	51 132 ...	51 132 ...
ISO	RE mm							
1907AESN	1,6	**22001**	**07000**	**02100**	**12000**	**12300**	**22200**	**52000**
P		●	●	●	●	●	●	
M					○	○	●	
K				○	○	○		●
N								
S								
H								
O								

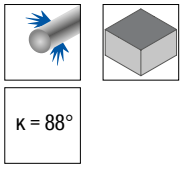
Milling guide

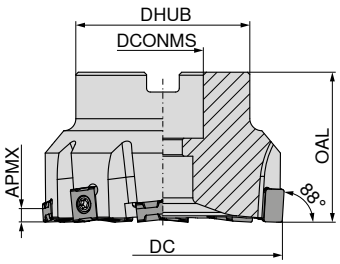
Cutting data standard values	→ 141–144	Technical Information	→ 189–194
Chip groove description and overview	→ 195–197	Grade description and overview	→ 198–201

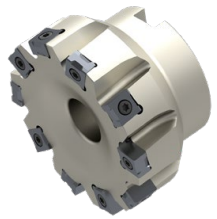
15

MaxiMill – Shell mill HEC 11

▲ not adjustable







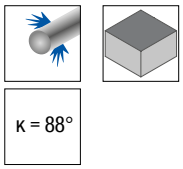
50 725 ...

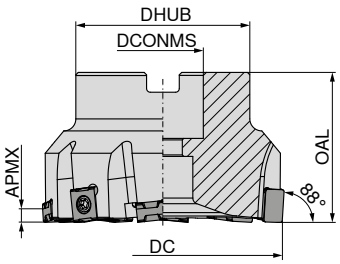
ISO designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	RPMX 1/min.	torque moment Nm	Insert	
AHEC.50.R.06-11	50	6	6	40	48	22	12700	3,2	LNHX 1106	**050**
AHEC.63.R.08-11	63	8	6	40	48	22	10100	3,2	LNHX 1106	**063**
AHEC.80.R.10-11	80	10	6	50	58	27	8000	3,2	LNHX 1106	**080**
AHEC.100.R.12-11	100	12	6	50	78	32	6400	3,2	LNHX 1106	**100**
AHEC.125.R.12-11	125	12	6	63	88	40	5100	3,2	LNHX 1106	**125**
AHEC.125.R.16-11	125	16	6	63	88	40	5100	3,2	LNHX 1106	**12516**
AHEC.160.R.20-11	160	20	6	63	100	40	4000	3,2	LNHX 1106	**160** 1)

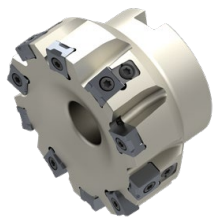
1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

MaxiMill – Shell mill HEC 11

▲ Axially adjustable with same tooth pitch







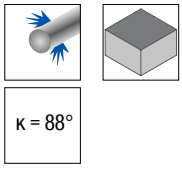
50 733 ...

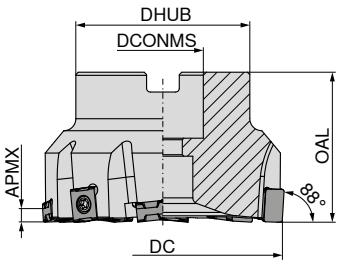
Designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	RPMX 1/min.	torque moment Nm	Insert	
AHEC.50.R.06A03-11	50	6	6	40	48	22	12700	3,2	LNHX 1106	**050**
AHEC.63.R.08A04-11	63	8	6	40	48	22	10100	3,2	LNHX 1106	**063**
AHEC.80.R.10A05-11	80	10	6	50	58	27	8000	3,2	LNHX 1106	**080**
AHEC.100.R.12A06-11	100	12	6	50	78	32	6400	3,2	LNHX 1106	**100**
AHEC.125.R.16A08-11	125	16	6	63	88	40	5100	3,2	LNHX 1106	**125**
AHEC.160.R.20A10-11	160	20	6	63	100	40	4000	3,2	LNHX 1106	**160** 1)

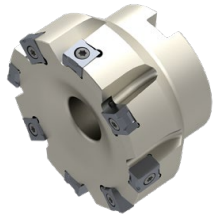
1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

MaxiMill – Shell mill HEC 11

▲ with irregular pitch, non adjustable







Designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	RPMX 1/min.	torque moment Nm	Insert	50 733 ...
AHEC.50.R.04B-11	50	4	6	40	48	22	12700	3,2	LNHX 1106	**550**
AHEC.63.R.06B-11	63	6	6	40	48	22	10100	3,2	LNHX 1106	**563**
AHEC.80.R.08B-11	80	8	6	50	58	27	8000	3,2	LNHX 1106	**580**
AHEC.100.R.10B-11	100	10	6	50	78	32	6400	3,2	LNHX 1106	**600**
AHEC.125.R.12B-11	125	12	6	63	88	40	5100	3,2	LNHX 1106	**625**
AHEC.160.R.14B-11	160	14	6	63	100	40	4000	3,2	LNHX 1106	**660** [1]

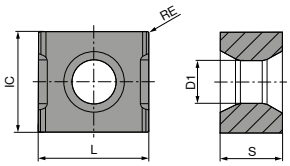
1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

	TORX® blade	 Molykote	 Coolant Disc	 Clamping screw	 Wedge	Torque screwdriver
	80 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts DC						
50 - 63	**036**	**303**	**852**	**113**		**193**
80	**036**	**303**	**853**	**113**	**199**	**193**
100	**036**	**303**	**854**	**113**		**193**
125	**036**	**303**	**855**	**113**		**193**
160	**036**	**303**		**113**		**193**

15

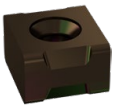
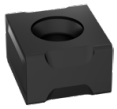
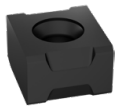
LNHX

Designation	IC mm	D1 mm	L mm	S mm
LNHX 1106..	10	4,27	11	6,35



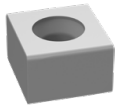
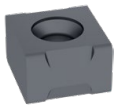
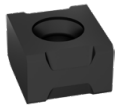
LNHX

LNHX

	CTEP210	CTCK215	-R50 CTCK215	-Q CTCK215
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
				
	CERMET			
	LNHX	LNHX	LNHX	LNHX
	51 046 ...	51 046 ...	51 024 ...	51 045 ...
ISO RE mm				
1106PNER 0,5		520	520	
1106ZZER 0,5				520 1)
1106PNER 0,8	820			
110616EN 1,6		51600		
P	●			
M				
K	●	●	●	●
N				
S				
H				
O				

1) -Q = Wiper insert

LNHX

		CTPK220	-R50 CTPK220	CTN3105	CTL3215	-Q CTL3215
		DRAGONSKIN	DRAGONSKIN			
						
				CERAMIC	CBN	CBN
		LNHX	LNHX	LNHX	LNHX	LNHX
		51 046 ...	51 024 ...	50 500 ...	51 046 ...	51 045 ...
ISO	RE mm					
110608EN	0,8		608			
1106PNER	0,5	620	620			
1106PNSR	0,5			904		
1106PNSR					87200	
1106ZZER						87000 [1]
P						
M						
K		●	●	●	●	●
N						
S						
H					○	○
O						

1) -Q = Wiper insert

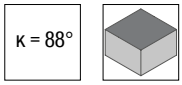
Milling guide

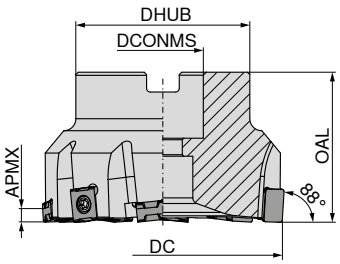
Cutting data standard values	→ 141–144	Assembly instructions	→ 152
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

15

MaxiMill – Shell mill HEC 12

▲ not adjustable

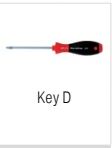






Designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	RPMX 1/min.	torque moment Nm	Insert	50 725 ...
AHEC.125.R.12-1210	125	12	8	63	88	40	5000	3,2	LN.. 1210..	**32512**
AHEC.160.R.16-1210	160	16	8	63	88	40	3900	3,2	LN.. 1210..	**36016** [1]

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant


Key D

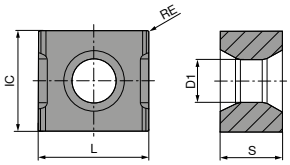

Coolant Disc


Clamping screw

Spare parts DC	Key D 80 950 ...	Coolant Disc 70 950 ...	Clamping screw 70 950 ...
125 - 160	**105**	**855**	**10800**

LNHX / LNEX

Designation	IC mm	D1 mm	L mm	S mm
LN.X 1210..	10	4,4	12,7	10,00



LNHX

LNHX / LNEX



LNHX



LNEX



LNHX

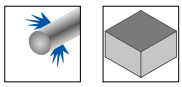
ISO	RE mm	51 135 ...	51 133 ...	51 134 ...
121008EN	0,8			**60800**
121008SN	0,8	**50900**		
121020EN	2,0		**62000**	
121020SN	2,0	**52100**		
P				
M				
K		●	●	●
N				
S				
H				
O				

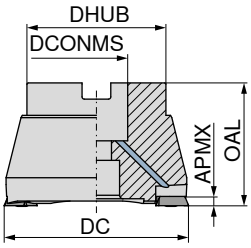
Milling guide

Cutting data standard values	→ 141–144	Assembly instructions	→ 152
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

Finishing cutter F 5000 A

- With µm-adjustable inserts
- Adjust with screw (56 950 017) and set with Torx 20 key (80 950 114)







ISO designation	DC mm	ZNF	APMX mm	OAL mm	DCONMS mm	DHUB mm	torque moment Nm	Insert	56 511 ...
F5000A.42.2.43.IK	42	2	0,2	43	16	35	3,2	TEHX 16T3..	**421**
F5000A.52.2.43.IK	52	2	0,2	43	22	48	3,2	TEHX 16T3..	**521**
F5000A.66.2.53.IK	66	2	0,2	53	27	60	3,2	TEHX 16T3..	**661**
F5000A.80.2.53.IK	80	2	0,2	53	27	60	3,2	TEHX 16T3..	**801**
F5000A.100.2.53	100	2	0,2	53	32	70	3,2	TEHX 16T3..	**910** 1)

1) Without Through Coolant

	TORX® blade	 Key-T	 Key D	 Power Screw	 Axial runout adjustment screw	 Molykote	 Clamping screw	 Torque screwdriver
	80 950 ...	**80 950 ...**	**80 950 ...**	**56 950 ...**	**56 950 ...**	**70 950 ...**	**56 950 ...**	**80 950 ...**
Spare parts DC								
42	**036**	**088**	**114**	**121**	**017**	**303**	**028**	**193**
52	**036**	**088**	**113**		**017**	**303**	**028**	**193**
66	**036**	**088**	**113**		**017**	**303**	**028**	**193**
80	**036**	**088**	**113**		**017**	**303**	**028**	**193**
100	**036**	**088**	**113**	**121**	**017**	**303**	**028**	**193**

Description of article

- Tightening torque of the indexable insert clamping screw 56 950 028 is 3.2 Nm.
- This tool produces surfaces with excellent surface quality Rz ≤ 2.5 µm with high axial run-out precision.
- The two precision adjustment screws make adjustment to µm accuracy possible.
- Additional grinding is therefore avoided, so machining time and costs are reduced.
- The tool is also well-suited for unstable workpieces and low power machines.

The screws for the adjustment of the axial run-out are mounted on every milling cutter and have to be tightened to a preset value. Otherwise there is the danger that the screws loosen during the machining operation. This can result in damage of the workpiece or tool and also cause danger for the machine operator. Should the screws for fine adjustment not be needed we recommend to remove them from the tool.

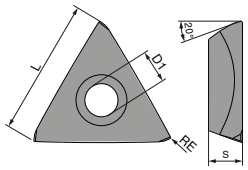
Material	v_c m/min	f_z mm	a_p mm
Steel	150–250*)	0,5–2	0,05–0,2
Cast iron	150–250*)	0,5–2	0,05–0,2
Hardened materials ≤ 56 HRC	35–200*)	0,2–1	0,05–0,1

*) Depending on the machining and structural state of the processed workpiece.

15

TEHX

Designation	L mm	S mm	D1 mm
TEHX 16T3..	14,32	4,00	3,9



TEHX



TEHX

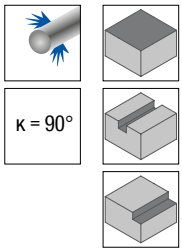
56 327 ...

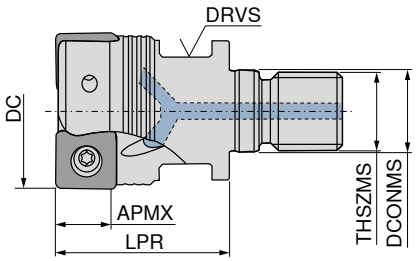
ISO	RE mm	
16T3ZF	0,2	**151**
P		●
M		●
K		●
N		
S		
H		●
O		

Milling guide

Cutting data standard values	→ 141–144	Technical Information	→ 189–194
Chip groove description and overview	→ 195–197	Grade description and overview	→ 198–201

MaxiMill – Screw in cutter G 491

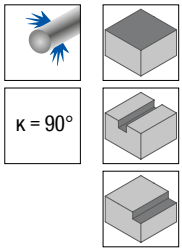


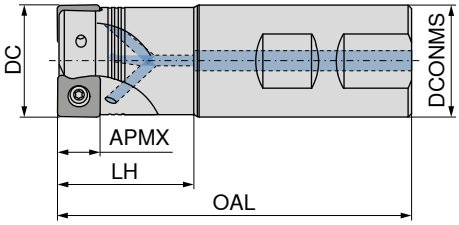




Designation	DC mm	ZNF	APMX mm	LPR mm	THSZMS	DCONMS mm	DRVS mm	torque moment Nm	Insert	50 773 ...
G491.25.R.03-09	25	3	6	35	M12	12,5	17	2	SNHU 09T3	125
G491.32.R.03-09	32	3	6	35	M16	17,0	24	2	SNHU 09T3	132
G491.32.R.04-09	32	4	6	35	M16	17,0	24	2	SNHU 09T3	232

MaxiMill – End milling cutter C 491





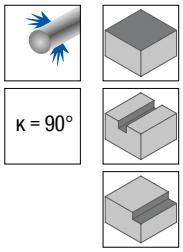


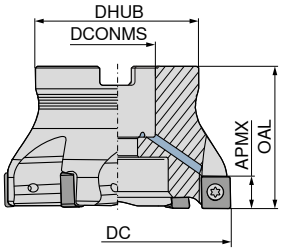
Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS h6 mm	RPMX 1/min.	torque moment Nm	Insert	A 50 774 ...	B 50 774 ...
C491.25.R.03-09-B-32	25	3	6	89	32	25	23500	2	SNHU 09T3		425
C491.25.R.03-09-A-50-225	25	3	6	225	50	25	23500	2	SNHU 09T3	325	
C491.32.R.03-09-B-40	32	3	6	101	40	32	19600	2	SNHU 09T3		632
C491.32.R.04-09-B-40	32	4	6	101	40	32	19600	2	SNHU 09T3		432
C491.32.R.03-09-A-63-250	32	3	6	250	63	32	19600	2	SNHU 09T3	532	
C491.32.R.04-09-A-63-250	32	4	6	250	63	32	19600	2	SNHU 09T3	332	

Spare parts DC	TORX® blade 80 950 ...	 Key D 80 950 ...	 Molykote 70 950 ...	 Clamping screw 70 950 ...	 Torque screwdriver 80 950 ...
25 - 32	053	119	303	710	193
32	054	128	303	859	193

15

MaxiMill – Shell mill A 491





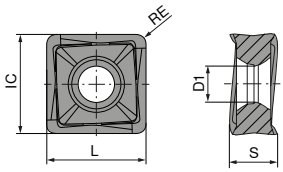


Designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	RPMX 1/min.	torque moment Nm	Insert	50 776 ...	50 775 ...
A491.40.R.03-09	40	3	6	40	38	16	16800	2	SNHU 09T3		240
A491.40.R.05-09	40	5	6	40	38	16	16800	2	SNHU 09T3	240	
A491.50.R.04-09	50	4	6	40	43	22	14600	2	SNHU 09T3		250
A491.50.R.06-09	50	6	6	40	43	22	14600	2	SNHU 09T3	250	
A491.63.R.05-09	63	5	6	40	48	22	12700	2	SNHU 09T3		263
A491.63.R.08-09	63	8	6	40	48	22	12700	2	SNHU 09T3	263	
A491.80.R.06-09	80	6	6	50	58	27	11100	2	SNHU 09T3		280
A491.80.R.10-09	80	10	6	50	58	27	11100	2	SNHU 09T3	280	
A491.100.R.07-09	100	7	6	50	78	32	9800	2	SNHU 09T3		300
A491.100.R.12-09	100	12	6	50	78	32	9800	2	SNHU 09T3	300	
A491.125.R.08-09	125	8	6	63	88	40	8700	2	SNHU 09T3		325
A491.125.R.15-09	125	15	6	63	88	40	8700	2	SNHU 09T3	325	

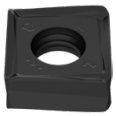
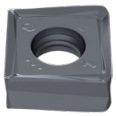
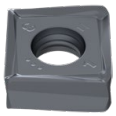
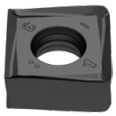
Spare parts DC	TORX® blade 80 950 ...	 Clamping key - T 80 397 ...	 Key D 80 950 ...	 Power Screw 70 950 ...	 Molykote 70 950 ...	 Clamping screw 70 950 ...	 Torque screwdriver 80 950 ...
40	**053**	**040**	**119**	**151**	**303**	**710**	**193**
50 - 125	**053**		**119**		**303**	**710**	**193**

SNHU

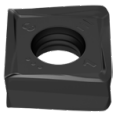
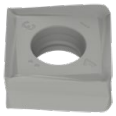
Designation	IC mm	L mm	S mm	D1 mm
SNHU 09T3..	9,15	9,15	3,70	3,85



SNHU

		-M50 CTCP230	-M50 CTPP235	-F50 CTPM240	-M50 CTPM240	-F40 CTPM245	NEW -F40 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		SNHU	SNHU	SNHU	SNHU	SNHU	SNHU
		51 120 ...	51 120 ...	51 119 ...	51 120 ...	51 126 ...	51 126 ...
ISO	RE mm						
09T308ER	0,8					45800	90801
09T308SR	0,8	008	108	408	408		
09T312SR	1,2	01200	11200	41200	41200		
09T316SR	1,6	01600	11600	41600	41600		
P		●	●	○	○	●	●
M			○	●	●	●	●
K		○	○				
N							
S							○
H							
O							

SNHU

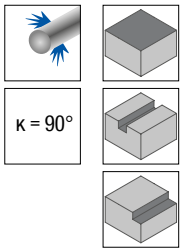
		-R50 CTCK215	NEW -R50 CTPK220	-F10 CTWN215	-F40 CTC5240	-F40 CTCS245
		DRAGONSKIN			DRAGONSKIN	DRAGONSKIN
						
		SNHU	SNHU	SNHU	SNHU	SNHU
		51 121 ...	51 121 ...	51 118 ...	51 126 ...	51 126 ...
ISO	RE mm					
09T308ER	0,8				15800	55800
09T308FR	0,8			358		
09T308SR	0,8	508	60800			
09T312FR	1,2			36200		
09T312SR	1,2	51200				
09T316FR	1,6			36600		
09T316SR	1,6	51600				
P						
M						
K		●	●	○		
N				●		
S					●	●
H						
O				○		

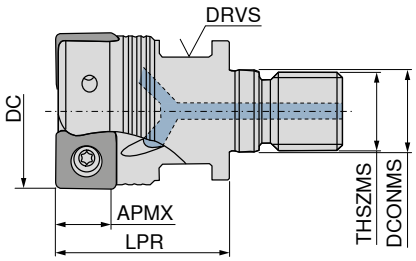
Milling guide

Cutting data standard values	→ 141–144	Starting Parameter	→ 154
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

15

MaxiMill – Screw in cutter G 491

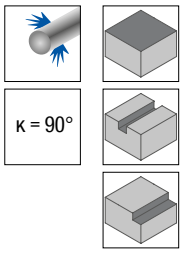


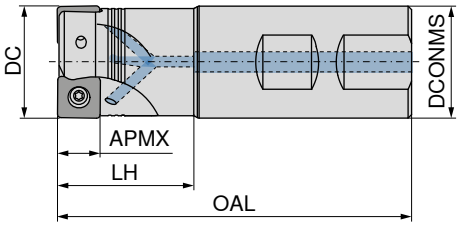




										50 773 ...
Designation	DC mm	ZNF	APMX mm	LPR mm	THSZMS	DCONMS mm	DRVS mm	torque moment Nm	Insert	
G491.32.R.02-12	32	2	8	35	M16	17	24	3,2	SNHU 1204	**032**

MaxiMill – End milling cutter C 491







										A 50 774 ...	B 50 774 ...
Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS $_{h6}$ mm	RPMX 1/min.	torque moment Nm	Insert		
C491.32.R.02-12-B-40	32	2	8	102	40	32	13600	3,2	SNHU 1204		**032**
C491.32.R.02-12-A-63-250	32	2	8	250	63	32	10200	3,2	SNHU 1204	**232**	

TORX® blade
80 950 ...

Key D
80 950 ...

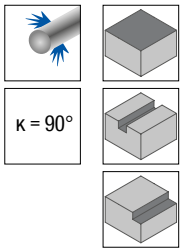

Molykote
70 950 ...

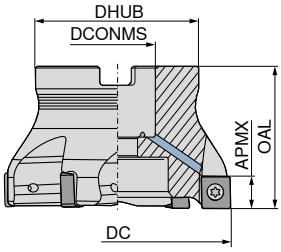

Clamping screw
70 950 ...


Torque screwdriver
80 950 ...

Spare parts										
DC										
25 - 32	**053**		**119**		**303**		**710**		**193**	
32	**054**		**128**		**303**		**859**		**193**	

MaxiMill – Shell mill A 491







Designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS H6 mm	RPMX 1/min.	torque moment Nm	Insert	50 776 ...	50 775 ...
A491.40.R.03-12	40	3	8	40	38	16	11500	3,2	SNHU 1204		**040**
A491.40.R.04-12	40	4	8	40	38	16	11500	3,2	SNHU 1204	**040**	
A491.50.R.04-12	50	4	8	40	43	22	9800	3,2	SNHU 1204		**050**
A491.50.R.05-12	50	5	8	40	43	22	9800	3,2	SNHU 1204	**050**	
A491.63.R.05-12	63	5	8	40	48	22	8500	3,2	SNHU 1204		**063**
A491.63.R.06-12	63	6	8	40	48	22	8500	3,2	SNHU 1204	**063**	
A491.80.R.06-12	80	6	8	50	58	27	7400	3,2	SNHU 1204		**080**
A491.80.R.08-12	80	8	8	50	58	27	7400	3,2	SNHU 1204	**080**	
A491.100.R.07-12	100	7	8	50	78	32	6500	3,2	SNHU 1204		**100**
A491.100.R.10-12	100	10	8	50	78	32	6500	3,2	SNHU 1204	**100**	
A491.125.R.08-12	125	8	8	63	88	40	5700	3,2	SNHU 1204		**125**
A491.125.R.12-12	125	12	8	63	88	40	5700	3,2	SNHU 1204	**125**	
A491.160.R.09-12	160	9	8	63	98	40	5000	3,2	SNHU 1204		**160** [1]
A491.160.R.14-12	160	14	8	63	98	40	5000	3,2	SNHU 1204	**160** [1]	

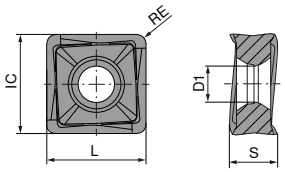
1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

Spare parts DC	TORX® blade 80 950 ...		Clamping key - T 80 397 ...		Key D 80 950 ...		Power Screw 70 950 ...		Molykote 70 950 ...		Clamping screw 70 950 ...		Torque screwdriver 80 950 ...	
40		**054**		**040**		**128**		**151**		**303**		**859**		**193**
50 - 160		**054**				**128**				**303**		**859**		**193**

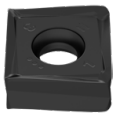
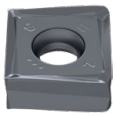
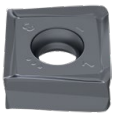
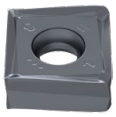
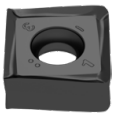
15

SNHU

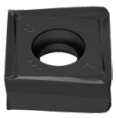
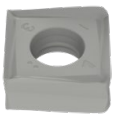
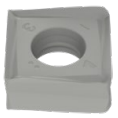
Designation	IC mm	L mm	S mm	D1 mm
SNHU 1204..	12,2	12,2	5,00	4,4



SNHU

		-M50 CTCP230	-M50 CTPP235	-F50 CTPM240	-M50 CTPM240	-F40 CTPM245	NEW -F40 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		SNHU	SNHU	SNHU	SNHU	SNHU	SNHU
		51 100 ...	51 100 ...	51 102 ...	51 100 ...	51 128 ...	51 128 ...
ISO	RE mm						
120408ER	0,8					45800	90801
120408SR	0,8	008	108	408	408		
120412SR	1,2		112	412			
120416SR	1,6		116	416			
120420SR	2,0		120	420			
P		●	●	○	○	●	●
M			○	●	●	●	●
K		○	○				
N							
S							○
H							
O							

SNHU

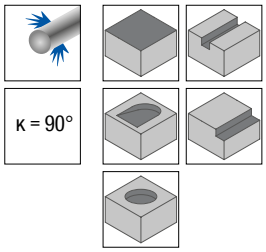
		-R50 CTCK215	-R50 CTPK220	-F10 CTWN215	-F40 CTC5240	-F40 CTCS245
		DRAGONSKIN	DRAGONSKIN		DRAGONSKIN	DRAGONSKIN
						
		SNHU	SNHU	SNHU	SNHU	SNHU
		51 103 ...	51 103 ...	51 101 ...	51 128 ...	51 128 ...
ISO	RE mm					
120408ER	0,8				15800	55800
120408FR	0,8			358		
120408SR	0,8	508	608			
120412FR	1,2			362		
120412SR	1,2	512				
120416FR	1,6			366		
120416SR	1,6	516				
120420FR	2,0			370		
120420SR	2,0	520				
P						
M						
K		●	●	○		
N				●		
S					●	●
H						
O				○		

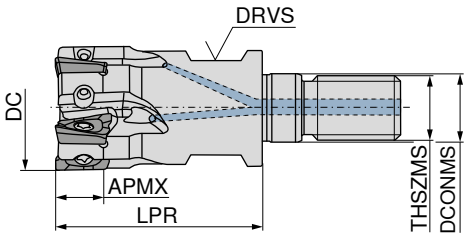
Milling guide

Cutting data standard values	→ 141–144	Starting Parameter	→ 154
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

15

MaxiMill – Screw in cutter G 211-07



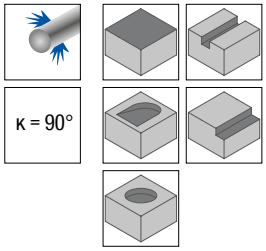


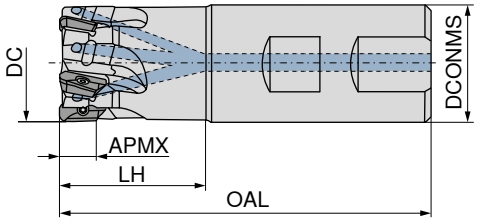


50 751 ...

Designation	DC mm	ZNF	APMX mm	LPR mm	DCONMS mm	THSZMS	DRVS mm	RPMX 1/min.	torque moment Nm	Insert	
G211.16.R.04-07	16	4	6	27	8,5	M8	10	50400	1	XD.T 0703	**016**
G211.20.R.05-07	20	5	6	33	10,5	M10	15	44280	1	XD.T 0703	**020**
G211.25.R.06-07	25	6	6	35	12,5	M12	17	39480	1	XD.T 0703	**025**
G211.32.R.08-07	32	8	6	35	17,0	M16	24	36240	1	XD.T 0703	**032**

MaxiMill – End milling cutter C 211-07





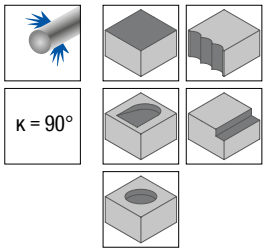


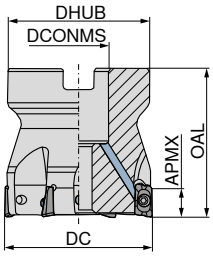


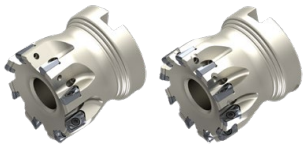
50 752 ... (A) **50 752 ...** (B)

Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	RPMX 1/min.	torque moment Nm	Insert		
C211.10.R.01-07-A-20	10	1	6	61,0	20	10	72000	1	XD.T 0703	**010**	
C211.12.R.02-07-A-20	12	2	6	66,5	20	12	66600	1	XD.T 0703	**012**	
C211.16.R.04-07-A/B-25	16	4	6	74,5	25	16	50400	1	XD.T 0703	**016**	**216**
C211.16.R.03-07-A-32-165	16	3	6	165,0	32	16	17760	1	XD.T 0703	**116**	
C211.20.R.05-07-A/B-25	20	5	6	77,0	25	20	44280	1	XD.T 0703	**020**	**220**
C211.20.R.04-07-A-40-200	20	4	6	200,0	40	20	12600	1	XD.T 0703	**120**	
C211.25.R.06-07-A/B20-32	25	6	6	84,0	32	20	39840	1	XD.T 0703	**025**	**225**
C211.25.R.05-07-A20-50-225	25	5	6	225,0	50	20	11280	1	XD.T 0703	**125**	
C211.32.R.08-07-A/B25-40	32	8	6	98,0	40	25	36240	1	XD.T 0703	**032**	**232**

MaxiMill – Shell mill A 211-07





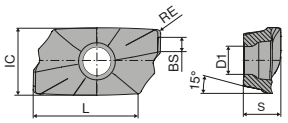


										50 753 ...		50 754 ...	
Designation	DC mm	ZNF	APMX mm	OAL mm	DCONMS $_{H6}$ mm	DHUB mm	RPMX 1/min.	torque moment Nm	Insert				
A211.32.R.06-07	32	6	6	40	16	38	36240	1	XD.T 0703		**032**		
A211.32.R.08-07	32	8	6	40	16	38	36240	1	XD.T 0703				**032**
A211.40.R.08-07	40	8	6	40	16	38	33240	1	XD.T 0703		**040**		
A211.40.R.10-07	40	10	6	40	16	38	33240	1	XD.T 0703				**040**
A211.50.R.10-07	50	10	6	40	22	43	30480	1	XD.T 0703		**050**		
A211.50.R.12-07	50	12	6	40	22	43	30480	1	XD.T 0703				**050**

	TORX® blade	 Clamping key - T	 Key D	 Power Screw	 Molykote	 Clamping screw	 Torque screwdriver
	80 950 ...	**80 397 ...**	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts DC							
10 - 32	**051**		**124**		**303**	**137**	**191**
32	**051**	**040**	**124**	**151**	**303**	**137**	**191**
40 - 50	**051**		**124**		**303**	**137**	**191**

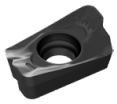
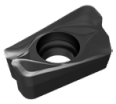
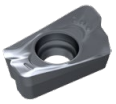
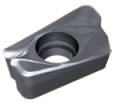
XDKT

Designation	IC mm	D1 mm	L mm	BS mm	S mm
XDKT 0703..	4,9	2,5	7,8	1,2	3,18

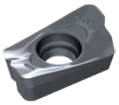
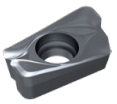
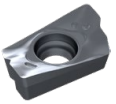
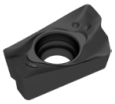


XDKT

XDKT

ISO	RE mm	-F50 CTCP230 DRAGONSKIN	-M50 CTCP230 DRAGONSKIN	-F50 CTPP235 DRAGONSKIN	-M50 CTPP235 DRAGONSKIN
		 XDKT	 XDKT	 XDKT	 XDKT
		51 033 ...	51 036 ...	51 033 ...	51 036 ...
070304SR	0,4	004	004	104	104
070308SR	0,8	008	008	108	108
P		●	●	●	●
M				○	○
K		○	○	○	○
N					
S					
H					
O					

XDKT

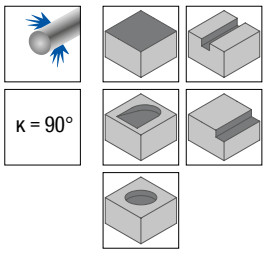
ISO	RE mm	-F50 CTPM240 DRAGONSKIN	-M50 CTPM240 DRAGONSKIN	-F40 CTPM245 DRAGONSKIN	NEW -F40 CTCM245 DRAGONSKIN	-F20 CTWN215	-F40 CTC5240 DRAGONSKIN	-F40 CTCS245 DRAGONSKIN
		 XDKT	 XDKT	 XDKT	 XDKT	 XDKT	 XDKT	 XDKT
		51 033 ...	51 036 ...	51 112 ...	51 112 ...	50 507 ...	50 498 ...	51 112 ...
070304ER	0,4			454	90401		544	
070304FR	0,4					504		
070304SR	0,4	404	404					
070308ER	0,8			458	90801		548	558
070308FR	0,8					508		
070308SR	0,8	408	408					
P		○	○	●	●			
M		●	●	●	●			
K						○		
N						●		
S					○		●	●
H								
O						○		

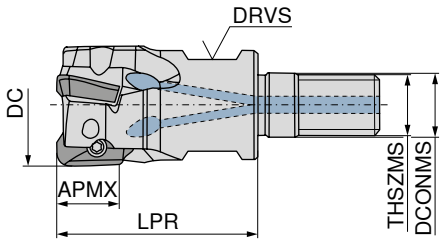
Milling guide

Cutting data standard values	→ 141–144	Machining strategy	→ 155
Starting Parameter	→ 155	Technical Information	→ 189–194
Chip groove description and overview	→ 195–197	Grade description and overview	→ 198–201

MaxiMill – Screw in cutter G 211-11

▲ Insert radius >1,6 mm: Modify cutter body



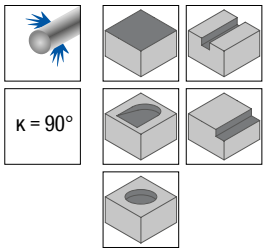


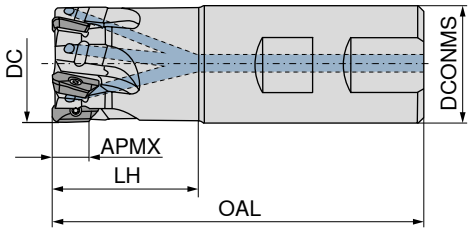


Designation	DC mm	ZNF	APMX mm	LPR mm	DCONMS mm	THSZMS	DRVS mm	RPMX 1/min.	torque moment Nm	Insert	50 736 ...
G211.16.R.02-11	16	2	10	27	8,5	M8	10	42000	1,6	XD.T 11T3	016
G211.20.R.03-11	20	3	10	33	10,5	M10	15	36900	1,6	XD.T 11T3	020
G211.25.R.03-11	25	3	10	35	12,5	M12	17	33200	1,6	XD.T 11T3	12500
G211.25.R.04-11	25	4	10	35	12,5	M12	17	33200	1,6	XD.T 11T3	025
G211.32.R.04-11	32	4	10	35	17,0	M16	24	30200	1,6	XD.T 11T3	13200
G211.32.R.05-11	32	5	10	35	17,0	M16	24	30200	1,6	XD.T 11T3	032
G211.40.R.06-11	40	6	10	35	17,0	M16	27	27700	1,6	XD.T 11T3	040

MaxiMill – End milling cutter C 211-11

▲ Insert radius >1,6 mm: Modify cutter body



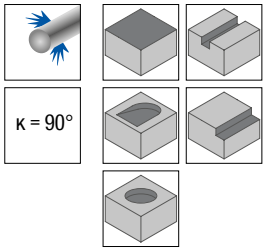


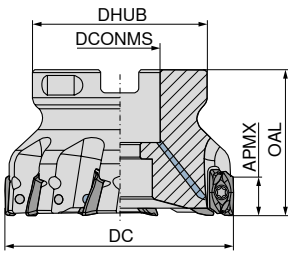


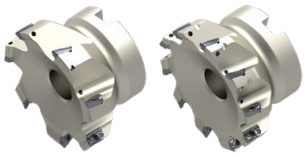
Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS h6 mm	RPMX 1/min.	torque moment Nm	Insert	A 50 737 ...	B 50 737 ...
C211.12.R.01-11-B-20	12	1	10	75	20	16	55000	1,6	XD.T 11T3		012
C211.16.R.02-11-A/B-25	16	2	10	75	25	16	42000	1,6	XD.T 11T3	116	016
C211.16.R.02-11-A15-32-165	16	2	10	165	32	15	14800	1,6	XD.T 11T3	316	
C211.16.R.02-11-A-32-165	16	2	10	165	32	16	14800	1,6	XD.T 11T3	216	
C211.20.R.03-11-A-25	20	3	10	77	25	20	36900	1,6	XD.T 11T3	120	
C211.20.R.02-11-B-25	20	2	10	77	25	20	36900	1,6	XD.T 11T3		02002
C211.20.R.02-11-A-25	20	2	10	77	25	20	36900	1,6	XD.T 11T3	12002	
C211.20.R.03-11-B-25	20	3	10	77	25	20	36900	1,6	XD.T 11T3		020
C211.20.R.03-11-A-32-165	20	3	10	165	32	20	15800	1,6	XD.T 11T3	320	
C211.20.R.02-11-A-40-200	20	2	10	200	40	20	10500	1,6	XD.T 11T3	420	
C211.20.R.02-11-A19-40-200	20	2	10	200	40	19	10500	1,6	XD.T 11T3	620	
C211.25.R.03-11-A/B-32	25	3	10	90	32	25	33200	1,6	XD.T 11T3	625	725
C211.25.R.04-11-A/B-32	25	4	10	90	32	25	33200	1,6	XD.T 11T3	125	025
C211.25.R.04-11-A-40-165	25	4	10	165	40	25	19900	1,6	XD.T 11T3	325	
C211.25.R.03-11-A-50-225	25	3	10	225	50	25	9400	1,6	XD.T 11T3	425	
C211.25.R.02-11-A-50-225	25	2	10	225	50	25	9400	1,6	XD.T 11T3	02502	
C211.25.R.03-11-A24-50-225	25	3	10	225	50	24	9400	1,6	XD.T 11T3	825	
C211.32.R.04-11-A-40	32	4	10	102	40	32	30200	1,6	XD.T 11T3	13204	
C211.32.R.05-11-B25-40	32	5	10	102	40	25	30200	1,6	XD.T 11T3		73200
C211.32.R.04-11-B-25	32	4	10	102	40	32	30200	1,6	XD.T 11T3		83200
C211.32.R.04-11-A25-40	32	4	10	102	40	25	30200	1,6	XD.T 11T3	53204	
C211.32.R.05-11-A/B-40	32	5	10	102	40	32	30200	1,6	XD.T 11T3	132	032
C211.32.R.05-11-A-50-165	32	5	10	165	50	32	20900	1,6	XD.T 11T3	332	
C211.32.R.04-11-A-64-250	32	4	10	250	64	32	8500	1,6	XD.T 11T3	432	
C211.40.R.06-11-B32-50	40	6	10	110	50	32	27700	1,6	XD.T 11T3		04000
C211.40.R.06-11-B-50	40	6	10	122	50	40	27700	1,6	XD.T 11T3		14000

MaxiMill – Shell mill A 211-11

▲ Insert radius >1,6 mm: Modify cutter body





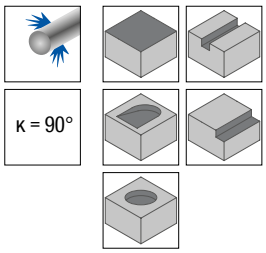


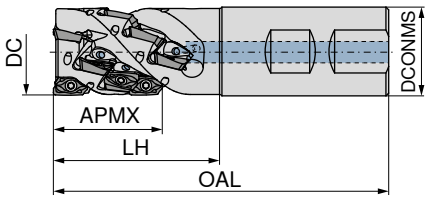
Designation	DC mm	ZNF	APMX mm	OAL mm	DCONMS H6 mm	DHUB mm	RPMX 1/min.	torque moment Nm	Insert	50 738 ...	50 739 ...
A211.40.R.04-11	40	4	10	40	16	38	27700	1,6	XD.T 11T3	**040**	
A211.40.R.06-11	40	6	10	40	16	38	27700	1,6	XD.T 11T3		**040**
A211.50.R.08-11	50	8	10	40	22	43	25400	1,6	XD.T 11T3		**050**
A211.50.R.05-11	50	5	10	40	22	43	25400	1,6	XD.T 11T3	**050**	
A211.63.R.10-11	63	10	10	40	22	48	23300	1,6	XD.T 11T3		**063**
A211.63.R.06-11	63	6	10	40	22	48	23300	1,6	XD.T 11T3	**063**	
A211.80.R.10-11	80	10	10	50	27	58	21300	1,6	XD.T 11T3		**180**
A211.80.R.07-11	80	7	10	50	27	58	21300	1,6	XD.T 11T3	**080**	
A211.80.R.12-11	80	12	10	50	27	58	21300	1,6	XD.T 11T3		**08012**
A211.100.R.08-11	100	8	10	50	32	78	19600	1,6	XD.T 11T3	**10000**	
A211.100.R.14-11	100	14	10	50	32	78	19600	1,6	XD.T 11T3		**10014**
A211.125.R.10-11	125	10	10	63	40	88	17900	1,6	XD.T 11T3	**12500**	

Spare parts DC	TORX® blade	 Clamping key - T	 Key D	 Power Screw	 Molykote	 Clamping screw	 Torque screwdriver
	80 950 ...	**80 397 ...**	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
12	**043**		**125**		**303**	**116**	**191**
16 - 32	**043**		**125**		**303**	**128**	**191**
40	**043**	**040**	**125**	**151**	**303**	**131**	**191**
50	**043**	**050**	**125**	**154**	**303**	**131**	**191**
63 - 125	**043**		**125**		**303**	**131**	**191**

MaxiMill – Shell end mill C 211-11KN

▲ ZEFP = Number of inserts
▲ ZNP = Number of teeth







NEW

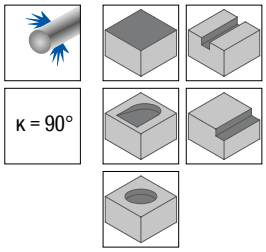
B

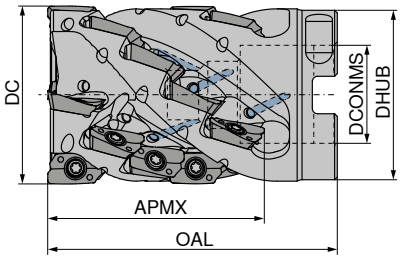
50 784 ...

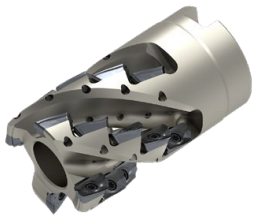
ISO designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	ZEFP	ZNP	torque moment Nm	Insert	
C211.25.R.02KN3-11-B-40	25	2	28	97	40	25	6	3	1,6	XD.T 11T3	02523
C211.25.R.02KN4-11-B-50	25	2	37	107	50	25	8	4	1,6	XD.T 11T3	02524
C211.25.R.02KN5-11-B-60	25	2	46	117	60	25	10	5	1,6	XD.T 11T3	02525
C211.32.R.02KN4-11-B-50	32	2	37	111	50	32	8	4	1,6	XD.T 11T3	03224
C211.32.R.03KN5-11-B-60	32	3	46	121	60	32	15	5	1,6	XD.T 11T3	03235
C211.40.R.03KN4-11-B32-50	40	3	37	111	50	32	12	4	1,6	XD.T 11T3	04034
C211.40.R.04KN5-11-B32-60	40	4	46	121	60	32	20	5	1,6	XD.T 11T3	04045

MaxiMill – Shell end mill A 211-11KN

▲ ZEFP = Number of inserts
▲ ZNP = Number of teeth







NEW

50 794 ...

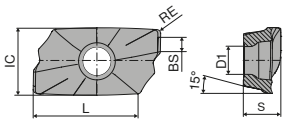
ISO designation	DC mm	ZNF	APMX mm	ZEFP	ZNP	OAL mm	DCONMS H6 mm	DHUB mm	torque moment Nm	Insert	
A211.40.R.03KN4-11	40	3	37	12	4	65	22	38	1,6	XD.T 11T3	04034
A211.40.R.04KN4-11	40	4	37	16	4	65	22	38	1,6	XD.T 11T3	04044
A211.40.R.04KN5-11	40	4	46	20	5	74	22	38	1,6	XD.T 11T3	04045
A211.50.R.04KN5-11	50	4	46	20	5	75	27	48	1,6	XD.T 11T3	05045
A211.50.R.05KN5-11	50	5	46	25	5	75	27	48	1,6	XD.T 11T3	05055
A211.50.R.05KN6-11	50	5	55	30	6	85	27	48	1,6	XD.T 11T3	05056

Spare parts Designation	 Cylindrical screw 70 950 ...	TORX® blade 80 950 ...	Key D 80 950 ...	 Molykote 70 950 ...	 Clamping screw 70 950 ...	 Socket head screw 70 950 ...	Torque screwdriver 80 950 ...
A211.40. KN4		043	125	303	20400	20900	191
A211.40. KN5		043	125	303	20400	21000	191
A211.50. KN5	002	043	125	303	20400	20600	191
A211.50. KN6	002	043	125	303	20400	20600	191
C211.25		043	125	303	20700		191
C211.32		043	125	303	20700		191
C211.40		043	125	303	20400		191

15

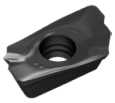
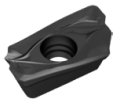
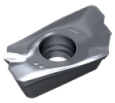
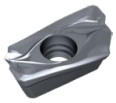
XDKT / XDHT

Designation	IC mm	D1 mm	L mm	BS mm	S mm
XD.T 11T302..	6,8	2,8	10,6	2	3,80
XD.T 11T304..	6,8	2,8	10,6	1,8	3,80
XD.T 11T308..	6,8	2,8	10,6	1,4	3,80
XD.T 11T312..	6,8	2,8	10,6	1,4	3,80
XD.T 11T316..	6,8	2,8	10,6	1,4	3,80
XD.T 11T320..	6,8	2,8	10,6	1,4	3,80
XD.T 11T325..	6,8	2,8	10,6	1,4	3,80
XD.T 11T332..	6,8	2,8	10,6	0,8	3,80
XD.T 11T340..	6,8	2,8	10,6	-	3,80
XDHT 11T350..	6,8	2,8	10,6	-	3,80
XDKT 11T332..	6,8	2,8	10,6	1,4	3,80
XDKT 11T332..	6,8	2,8	10,6	-	3,80

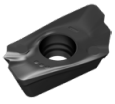
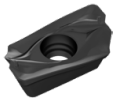
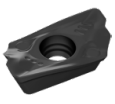
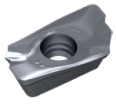
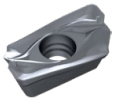
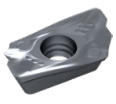


XDKT

XDKT

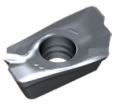
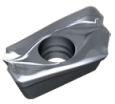
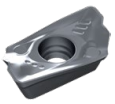
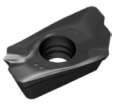
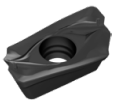
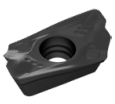
		-F50 CTCP220	-M50 CTCP220	-F50 CTPP225	-M50 CTPP225
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		XDKT	XDKT	XDKT	XDKT
		51 034 ...	51 037 ...	51 034 ...	51 037 ...
ISO	RE mm				
11T308SR	0,8	258	258	058	058
P		●	●	●	●
M					
K					
N					
S					
H					
O					

XDKT

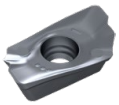
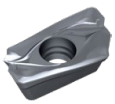
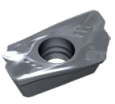
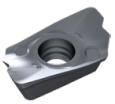
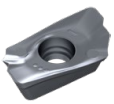
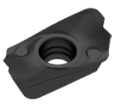
		-F50 CTCP230	-M50 CTCP230	-R50 CTCP230	-F50 CTPP235	-M50 CTPP235	-R50 CTPP235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		XDKT	XDKT	XDKT	XDKT	XDKT	XDKT
		51 034 ...	51 037 ...	51 039 ...	51 034 ...	51 037 ...	51 039 ...
ISO	RE mm						
11T304SR	0,4	004	004	004	104	104	104
11T308SR	0,8	008	008	008	108	108	108
11T312SR	1,2		012			112	
11T320SR	2,0	020 [1)]	020 [1)]	020 [1)]	120 [1)]	120 [1)]	120 [1)]
11T325SR	2,5	025 [1)]	025 [1)]	025 [1)]	125 [1)]	125 [1)]	125 [1)]
11T332SR	3,2				13200 [1)]		
11T340SR	4,0				14000 [1)]		
P		●	●	●	●	●	●
M					○	○	○
K		○	○	○	○	○	○
N							
S							
H							
O							

1) Insert radius >1.6 mm: Modify cutter body

XDKT

		-F50 CTPM225	-M50 CTPM225	-R50 CTPM225	-F50 CTCM235	-M50 CTCM235	-R50 CTCM235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		XDKT	XDKT	XDKT	XDKT	XDKT	XDKT
		51 034 ...	51 037 ...	51 039 ...	51 034 ...	51 037 ...	51 039 ...
ISO	RE mm						
11T308SR	0,8	208	208	208	308	308	308
P		●	●	●	●	●	●
M		●	●	●	●	●	●
K							
N							
S							
H							
O							

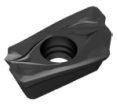
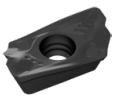
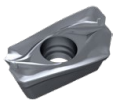
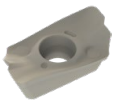
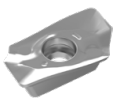
XDKT

		-F50 CTPM240	-M50 CTPM240	-R50 CTPM240	-F40 CTPM245	-F50 CTPM245	NEW -F40 CTCM245	NEW -F50 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		XDKT	XDKT	XDKT	XDKT	XDKT	XDKT	XDKT
		51 034 ...	51 037 ...	51 039 ...	51 113 ...	51 034 ...	51 113 ...	51 034 ...
ISO	RE mm							
11T304ER	0,4				454		90401	
11T304SR	0,4		404					
11T308ER	0,8				458		90801	
11T308SR	0,8	408	408	408		458		90801
11T312ER	1,2				462		91201	
11T312SR	1,2	412	412	412				
11T316ER	1,6				466		91601	
11T320ER	2,0				470 [1)]		92001 [1)]	
11T320SR	2,0	420 [1)]	420 [1)]	420 [1)]				
11T325ER	2,5				475 [1)]		92501 [1)]	
11T332ER	3,2				482 [1)]		93201 [1)]	
11T332SR	3,2	432 [1)]	432 [1)]	432 [1)]				
11T340ER	4,0				490 [1)]		94001 [1)]	
P		○	○	○	●	●	●	●
M		●	●	●	●	●	●	●
K								
N								
S							○	○
H								
O								

1) Insert radius >1.6 mm: Modify cutter body

15

XDKT / XDHT

		-M50 CTCK215 DRAGONSKIN	-R50 CTCK215 DRAGONSKIN	-M50 CTPK220 DRAGONSKIN	-F20 CTWN215	-27P H216T
						
		XDKT	XDKT	XDKT	XDKT	XDHT
		51 037 ...	51 039 ...	51 037 ...	50 478 ...	50 477 ...
ISO	RE mm					
11T302FR	0,2				502	502
11T304FR	0,4				504	504
11T304SR	0,4	504				
11T308FR	0,8				508	508
11T308SR	0,8	508	508	608		
11T312FR	1,2					512
11T316FR	1,6					516
11T320FR	2,0				520 1)	520 1)
11T325FR	2,5				525 1)	525 1)
11T332FR	3,2					532 1)
11T340FR	4,0					540 1)
11T350FR	5,0					550 1)
P						
M						
K		●	●	●	○	○
N					●	●
S						
H						
O					○	○

1) Insert radius >1.6 mm: Modify cutter body

XDKT

		-F40 CTC5240 DRAGONSKIN	-F40 CTCS245 DRAGONSKIN	-R60 CTP6215
				
		XDKT	XDKT	XDKT
		50 463 ...	51 113 ...	50 464 ...
ISO	RE mm			
11T304ER	0,4	504		
11T308ER	0,8	500	558	
11T308SR	0,8			300
11T312ER	1,2	512	562	
11T316ER	1,6	516	566	
11T320ER	2,0	520 1)	570 1)	
11T325ER	2,5	525 1)	57500 1)	
11T332ER	3,2	532 1)	582 1)	
11T340ER	4,0	540 1)	59000 1)	
P				
M				
K				●
N				
S		●	●	
H				●
O				

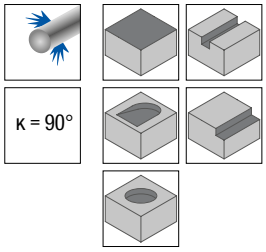
1) Insert radius >1.6 mm: Modify cutter body

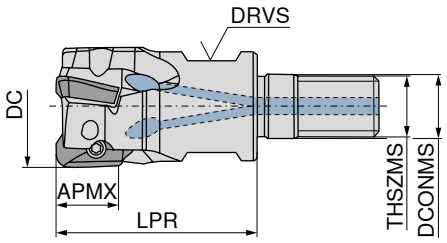
Milling guide

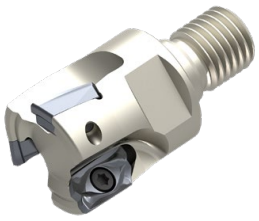
Cutting data standard values	→ 141–144	Machining strategy	→ 156
Starting Parameter	→ 156	Technical Information	→ 189–194
Chip groove description and overview	→ 195–197	Grade description and overview	→ 198–201

MaxiMill – Screw in cutter G 211-15

▲ Insert radius >2,5 mm: Modify cutter body



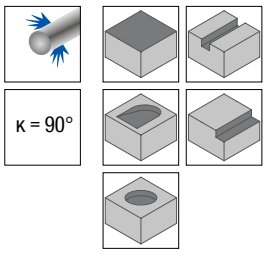


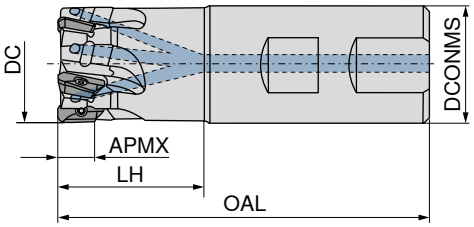


Designation	DC mm	ZNF	APMX mm	LPR mm	DCONMS mm	THSZMS	DRVS mm	RPMX 1/min.	torque moment Nm	Insert	50 746 ...
G211.25.R.02-15	25	2	14	35	12,5	M12	17	26560	3,2	XD.T 1505	025
G211.32.R.03-15	32	3	14	35	17,0	M16	24	30200	3,2	XD.T 1505	032
G211.40.R.04-15	40	4	14	40	17,0	M16	27	27700	3,2	XD.T 1505	040

MaxiMill – End milling cutter C 211-15

▲ Insert radius >2,5 mm: Modify cutter body



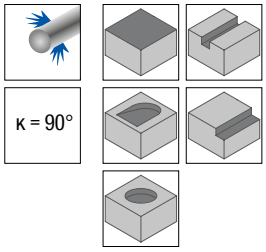


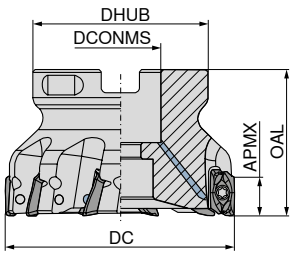


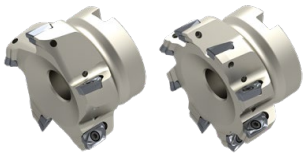
Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	RPMX 1/min.	torque moment Nm	Insert	A 50 747 ...	B 50 747 ...
C211.25.R.02-15-B20-32	25	2	14	83	32	20	26560	3,2	XD.T 1505		125
C211.25.R.02-15-B/A-32	25	2	14	90	32	25	26560	3,2	XD.T 1505	225	025
C211.25.R.02-15-A-50-225	25	2	14	225	50	25	7520	3,2	XD.T 1505	325	
C211.32.R.03-15-B25-40	32	3	14	96	40	25	22160	3,2	XD.T 1505		132
C211.32.R.03-15-A-40	32	3	14	103	40	32	24160	3,2	XD.T 1505	232	
C211.32.R.03-15-B-40	32	3	14	103	40	32	24160	3,2	XD.T 1505		032
C211.32.R.03-15-A-63-250	32	3	14	250	63	32	6800	3,2	XD.T 1505	332	
C211.40.R.04-15-A-50	40	4	14	110	50	32	22160	3,2	XD.T 1505	240	
C211.40.R.04-15-B32-50	40	4	14	110	50	32	22160	3,2	XD.T 1505		040
C211.40.R.03-15-A-50-275	40	3	14	275	50	32	6120	3,2	XD.T 1505	340	

MaxiMill – Shell mill A 211-15

▲ Insert radius >2,5 mm: Modify cutter body







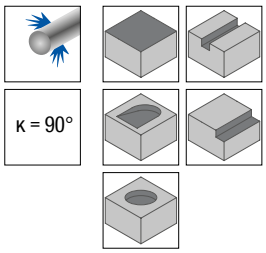
Designation	DC mm	ZNF	APMX mm	OAL mm	DCONMS $_{H6}$ mm	DHUB mm	RPMX 1/min.	torque moment Nm	Insert	50 748 ...	50 749 ...
A211.40.R.03-15	40	3	14	40	16	38	22160	3,2	XD.T 1505	040	
A211.40.R.04-15	40	4	14	40	16	38	22160	3,2	XD.T 1505		040
A211.50.R.03-15	50	3	14	40	22	43	20320	3,2	XD.T 1505	050	
A211.50.R.05-15	50	5	14	40	22	43	20320	3,2	XD.T 1505		050
A211.63.R.04-15	63	4	14	45	22	48	18640	3,2	XD.T 1505	063	
A211.63.R.06-15	63	6	14	45	22	48	18640	3,2	XD.T 1505		063
A211.80.R.05-15	80	5	14	50	27	58	17040	3,2	XD.T 1505	080	
A211.80.R.08-15	80	8	14	50	27	58	17040	3,2	XD.T 1505		080
A211.100.R.06-15	100	6	14	50	32	78	15680	3,2	XD.T 1505	100	
A211.100.R.10-15	100	10	14	50	32	78	15680	3,2	XD.T 1505		100
A211.125.R.07-15	125	7	14	63	40	88	14320	3,2	XD.T 1505	125	
A211.125.R.11-15	125	11	14	63	40	88	14320	3,2	XD.T 1505		125
A211.160.R.08-15	160	8	14	63	40	93	13200	3,2	XD.T 1505	160 [1]	
A211.160.R.12-15	160	12	14	63	40	93	13200	3,2	XD.T 1505		160 [1]

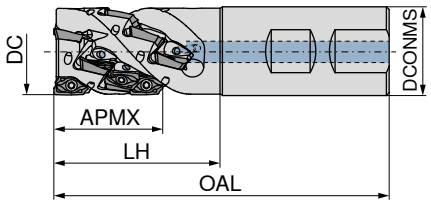
1) Without Through Coolant

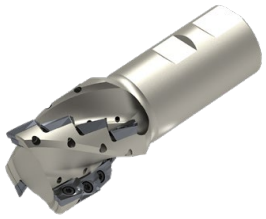
Spare parts DC	TORX® blade		 Clamping key - T		 Key D		 Power Screw		 Molykote		 Clamping screw		 Torque screwdriver	
	80 950 ...		80 397 ...		80 950 ...		70 950 ...		70 950 ...		70 950 ...		80 950 ...	
25 - 32		054				128				303		839		193
40		054		040		128		151		303		839		193
50		054		050		128		154		303		839		193
63 - 160		054				128				303		839		193

MaxiMill – Shell end mill C 211-15KN

▲ ZEFP = Number of Inserts
▲ ZNP = Number of rows







NEW

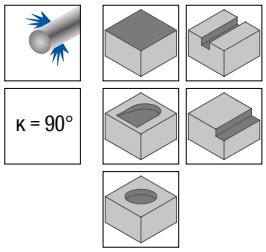
B

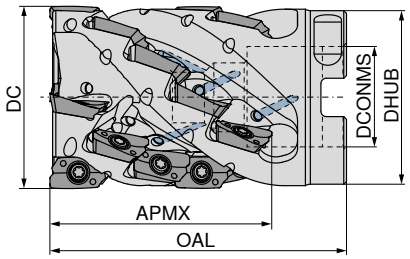
50 783 ...

ISO designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	ZEFP	ZNP	torque moment Nm	Insert	
C211.40.R.03KN3-15-B32-60	40	3	39,6	121	60	32	9	3	3,2	XD.T 1505	04033
C211.50.R.03KN4-15-B40-68	50	3	52,6	138	67	40	12	4	3,2	XD.T 1505	05034

MaxiMill – Shell end mill A 211-15KN

▲ ZEFP = Number of Inserts
▲ ZNP = Number of rows







NEW

50 781 ...

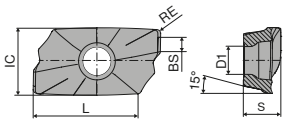
ISO designation	DC mm	ZNF	APMX mm	ZEFP	ZNP	OAL mm	DCONMS H6 mm	DHUB mm	torque moment Nm	Insert	
A211.50.R.03KN4-15	50	3	52,6	12	4	87	27	48	3,2	XD.T 1505	05034
A211.50.R.03KN5-15	50	3	65,8	15	5	100	27	48	3,2	XD.T 1505	05035
A211.50.R.04KN5-15	50	4	65,8	20	5	100	27	48	3,2	XD.T 1505	05045
A211.63.R.03KN4-15	63	3	52,6	12	4	76	27	58	3,2	XD.T 1505	06334
A211.63.R.03KN5-15	63	3	65,8	15	5	90	27	58	3,2	XD.T 1505	06335
A211.63.R.04KN6-15	63	4	78,5	24	6	102	27	58	3,2	XD.T 1505	06346
A211.63.R.05KN5-15	63	5	65,8	25	5	90	27	58	3,2	XD.T 1505	06355
A211.80.R.04KN5-15	80	4	65,8	20	5	90	32	78	3,2	XD.T 1505	08045
A211.80.R.05KN6-15	80	5	78,5	30	6	102	32	78	3,2	XD.T 1505	08056

Spare parts Designation	 Cylindrical screw 70 950 ...	TORX® blade 80 950 ...	 Key D 80 950 ...	 Molykote 70 950 ...	 Clamping screw 70 950 ...	 Socket head screw 70 950 ...	 Torque screwdriver 80 950 ...
A211.50	002	054	128	303	20800	20600	193
A211.63	002	054	128	303	20500	20600	193
A211.80	004	054	128	303	20500	234	193
C211.40		054	128	303	20800		193
C211.50		054	128	303	20800		193

15

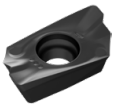
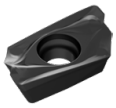
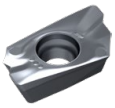
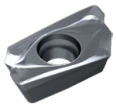
XDKT

Designation	IC mm	D1 mm	L mm	BS mm	S mm
XDKT 150508..	9,3	4,4	14,8	1,6	5,56
XDKT 150512..	9,3	4,4	14,8	1,6	5,56
XDKT 150516..	9,3	4,4	14,8	1,6	5,56
XDKT 150520..	9,3	4,4	14,8	1,6	5,56
XDKT 150525..	9,3	4,4	14,8	1,6	5,56
XDKT 150530..	9,3	4,4	14,8	1,6	5,56
XDKT 150532..	9,3	4,4	14,8	1,9	5,56
XDKT 150540..	9,3	4,4	14,8	1,2	5,56
XDKT 150560..	9,3	4,4	14,8	-	5,56

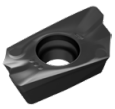
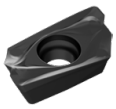
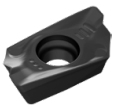
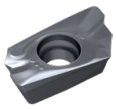
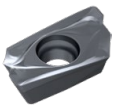
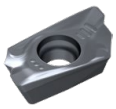


XDKT

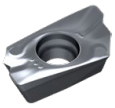
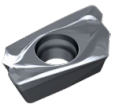
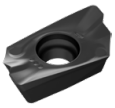
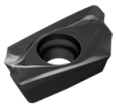
XDKT

		-F50 CTCP220	-M50 CTCP220	-F50 CTPP225	-M50 CTPP225
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		XDKT	XDKT	XDKT	XDKT
		51 035 ...	**51 038 ...**	**51 035 ...**	**51 038 ...**
ISO	RE mm				
150508SR	0,8	**258**	**258**	**058**	**058**
P		●	●	●	●
M					
K					
N					
S					
H					
O					

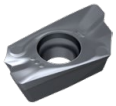
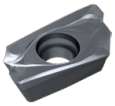
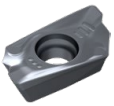
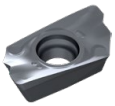
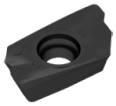
XDKT

		-F50 CTCP230	-M50 CTCP230	-R50 CTCP230	-F50 CTPP235	-M50 CTPP235	-R50 CTPP235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		XDKT	XDKT	XDKT	XDKT	XDKT	XDKT
		51 035 ...	**51 038 ...**	**51 040 ...**	**51 035 ...**	**51 038 ...**	**51 040 ...**
ISO	RE mm						
150508SR	0,8	**008**	**008**	**008**	**108**	**108**	**108**
150512SR	1,2		**012**			**112**	
150516SR	1,6		**016**			**116**	
150520SR	2,0			**020**		**120**	**120**
150530SR	3,0		**030**			**130**	
150540SR	4,0		**040**			**140**	
P		●	●	●	●	●	●
M					○	○	○
K		○	○	○	○	○	○
N							
S							
H							
O							

XDKT

ISO	RE mm	-F50 CTPM225 DRAGONSKIN	-M50 CTPM225 DRAGONSKIN	-F50 CTCM235 DRAGONSKIN	-M50 CTCM235 DRAGONSKIN
					
		XDKT	XDKT	XDKT	XDKT
		51 035 ...	51 038 ...	51 035 ...	51 038 ...
150508SR	0,8	208	208	308	308
P		●	●	●	●
M		●	●	●	●
K					
N					
S					
H					
O					

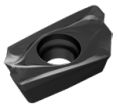
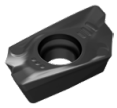
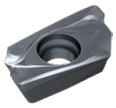
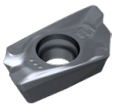
XDKT

ISO	RE mm	-F50 CTPM240 DRAGONSKIN	-M50 CTPM240 DRAGONSKIN	-R50 CTPM240 DRAGONSKIN	-F40 CTPM245 DRAGONSKIN	NEW -F40 CTCM245 DRAGONSKIN
						
		XDKT	XDKT	XDKT	XDKT	XDKT
		51 035 ...	51 038 ...	51 040 ...	51 114 ...	51 114 ...
150508ER	0,8				458	90801
150508SR	0,8	408	408	408		
150512ER	1,2					91201
150512SR	1,2		412			
150516ER	1,6					91601
150516SR	1,6		416			
150520ER	2,0					92001
150525ER	2,5					92501
150530SR	3,0		430 1)			
150532ER	3,2				482 1)	93201 1)
150540ER	4,0				490 1)	94001 1)
150540SR	4,0		440 1)			
150560ER	6,0					96001 1)
P		○	○	○	●	●
M		●	●	●	●	●
K						
N						
S						○
H						
O						

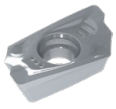
1) Insert radius >2.5 mm: Modify cutter body

15

XDKT

	-M50 CTCK215 DRAGONSKIN	-R50 CTCK215 DRAGONSKIN	-M50 CTPK220 DRAGONSKIN	-R50 CTPK220 DRAGONSKIN	-F20 CTWN215
					
	XDKT	XDKT	XDKT	XDKT	XDKT
	51 038 ...	51 040 ...	51 038 ...	51 040 ...	50 479 ...
ISO / RE mm					
150508FR 0,8					508
150508SR 0,8	508	508	608	608	
P					
M					
K	●	●	●	●	○
N					●
S					
H					
O					○

XDKT

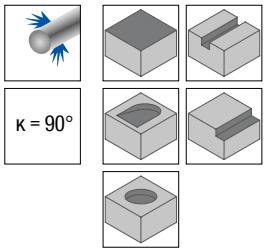
	-F40 CTC5240 DRAGONSKIN	-F40 CTCS245 DRAGONSKIN	-R60 CTP6215
			
	XDKT	XDKT	XDKT
	50 473 ...	51 114 ...	50 469 ...
ISO / RE mm			
150508ER 0,8	508	558	
150508SR 0,8			300
150532ER 3,2	532 [1]		
150540ER 4,0	540 [1]	59000 [1]	
P			
M			
K			●
N			
S	●	●	
H			●
O			

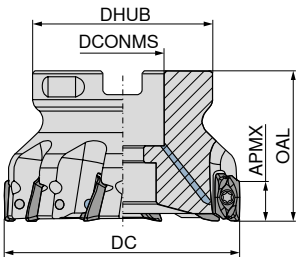
1) Insert radius >2.5 mm: Modify cutter body

Milling guide

Cutting data standard values	→ 141–144	Machining strategy	→ 157
Starting Parameter	→ 157	Technical Information	→ 189–194
Chip groove description and overview	→ 195–197	Grade description and overview	→ 198–201

MaxiMill – Shell mill A 211-20





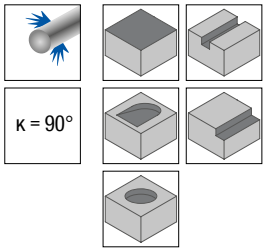


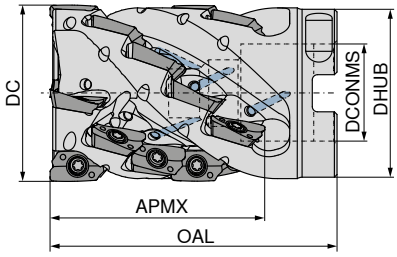
50 778 ...

Designation	DC mm	ZNF	APMX mm	OAL mm	DCONMS H6 mm	DHUB mm	RPMX 1/min.	torque moment Nm	Insert	
A211.63.R.05-20	63	5	19	45	22	48	14400	5	XD.. 2007..	**06305**
A211.80.R.06-20	80	6	19	50	27	58	12400	5	XD.. 2007..	**08006**
A211.100.R.07-20	100	7	19	50	32	78	10900	5	XD.. 2007..	**10007**

MaxiMill – Extended flute cutter A 211-20K

- ZEFP = Number of Inserts
- ZNP = Number of rows







NEW

50 780 ...

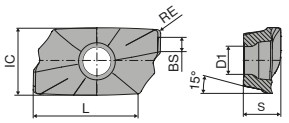
Designation	DC mm	ZNF	APMX mm	ZEFP	ZNP	OAL mm	DCONMS H6 mm	DHUB mm	torque moment Nm	Insert	
A211.63.R.04K4-20	63	4	68	16	4	92	27	58	5	XD.. 2007..	**06304**
A211.80.R.05K4-20	80	5	68	20	4	92	32	76	5	XD.. 2007..	**08005**

	 Cylindrical screw	TORX® blade	 Key D	 Molykote	 Clamping screw	 Socket head screw	 Torque screw-driver
	70 950 ...	**80 950 ...**	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts DC							
63		**037**	**106**	**303**	**280**	**180**	**193**
80		**037**	**106**	**303**	**280**	**181**	**193**
63	**003**	**037**	**106**	**303**	**280**	**181**	**193**
80	**004**	**037**	**106**	**303**	**280**	**234**	**193**
100		**037**	**106**	**303**	**280**		**193**

15

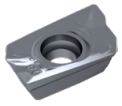
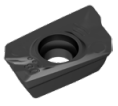
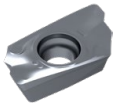
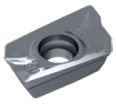
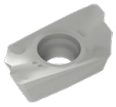
XDKT

Designation	IC mm	D1 mm	L mm	S mm
XDKT 200708..	12,5	5,5	18,8	6,93
XDKT 200716..	12,5	5,5	18,8	6,89
XDKT 200732..	12,5	5,5	18,8	6,82
XDKT 200740..	12,5	5,5	18,8	6,80
XDKT 200760..	12,5	5,5	18,8	6,80



XDKT

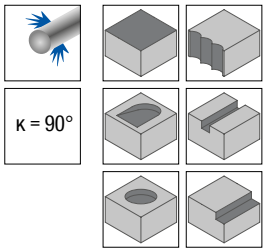
XDKT

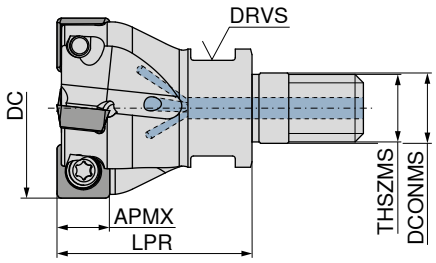
		NEW	NEW		NEW	NEW		
		-M50 CTPP235	-M50 CTCP230	-F40 CTPM245	-F40 CTCM245	-M50 CTPK220	-F40 CTC5240	-F40 CTCS245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		XDKT	XDKT	XDKT	XDKT	XDKT	XDKT	XDKT
		51 145 ...	51 145 ...	51 127 ...	51 127 ...	51 145 ...	51 127 ...	51 127 ...
ISO	RE mm							
200708ER	0,8	**10800**	**00800**	**45800**	**90801**	**60800**	**15800**	**55800**
200716ER	1,6	**11600**	**01600**	**46600**	**91601**	**61600**	**16600**	**56600**
200732ER	3,2			**48200**	**93201**		**18200**	**58200**
200740ER	4,0				**94001**		**19000**	
200760ER	6,0				**96001**		**19200**	
P		●	●	●	●			
M		○		●	●			
K		○	○			●		
N								
S					○		●	●
H								
O								

Milling guide

Cutting data standard values	→ 141–144	Machining strategy	→ 158
Starting Parameter	→ 158	Technical Information	→ 189–194
Chip groove description and overview	→ 195–197	Grade description and overview	→ 198–201

MaxiMill – Screw in cutter G 490-09

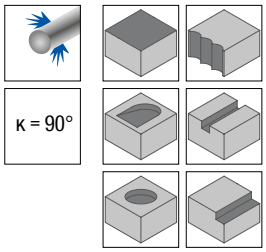


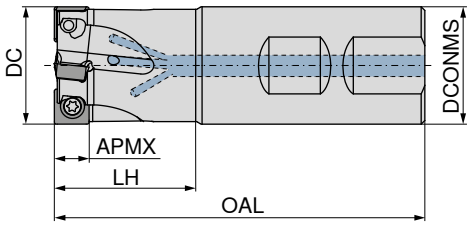




Designation	DC mm	ZNF	APMX mm	LPR mm	THSZMS	DCONMS mm	DRVS mm	torque moment Nm	Insert	50 726 ...
G490.25.R.03-09	25	3	8	35	M12	12,5	17	3,2	SD.. 09T3..	025
G490.32.R.04-09	32	4	8	35	M16	17,0	24	3,2	SD.. 09T3..	032

MaxiMill – End milling cutter C 490-09

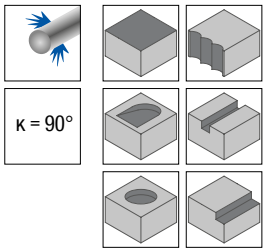


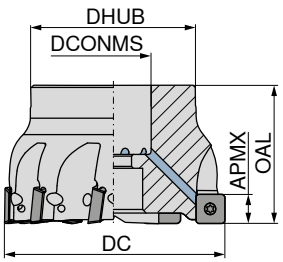


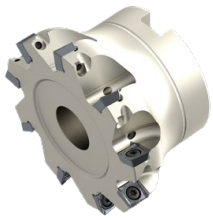


Designation	DC mm	ZNF	APMX mm	DCONMS mm	OAL mm	LH mm	torque moment Nm	Insert	A 50 727 ...	B 50 727 ...
C490.25.R.03-09-B-32	25	3	8	25	88	32	3,2	SD.. 09T3..		025
C490.25.R.02-09-A-20	25	2	8	20	165	40	3,2	SD.. 09T3..	225	
C490.25.R.02-09-A-40-165	25	2	8	25	165	40	3,2	SD.. 09T3..	125	
C490.32.R.04-09-B-25	32	4	8	25	100	40	3,2	SD.. 09T3..		132
C490.32.R.04-09-B-40	32	4	8	32	100	40	3,2	SD.. 09T3..		032

MaxiMill – Shell mill A 490-09





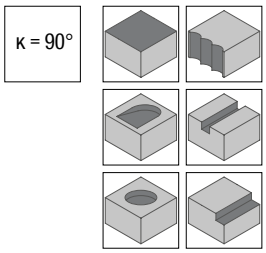


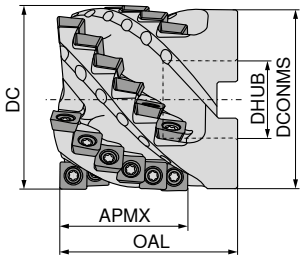
Designation	DC mm	ZNF	APMX mm	DHUB mm	DCONMS H6 mm	OAL mm	torque moment Nm	Insert	50 728 ...
A490.40.R.05-09	40	5	8	38	16	40	3,2	SD.. 09T3..	040
A490.42.R.06-09	42	6	8	38	16	40	3,2	SD.. 09T3..	042
A490.50.R.06-09	50	6	8	43	22	40	3,2	SD.. 09T3..	050
A490.52.R.07-09	52	7	8	43	22	40	3,2	SD.. 09T3..	052
A490.63.R.07-09	63	7	8	48	22	40	3,2	SD.. 09T3..	063
A490.66.R.08-09	66	8	8	48	22	40	3,2	SD.. 09T3..	066
A490.80.R.09-09	80	9	8	58	27	50	3,2	SD.. 09T3..	080
A490.100.R.10-09	100	10	8	78	32	50	3,2	SD.. 09T3..	100
A490.160.R.14-09	160	14	8	88	40	62	3,2	SD.. 09T3..	160 1)

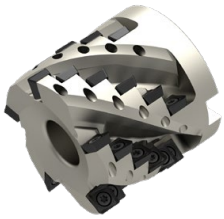
1) Without Through Coolant

MaxiMill – Extended flute cutter A 490K

▲ ZEFP = Number of Inserts
▲ ZNP = Number of rows







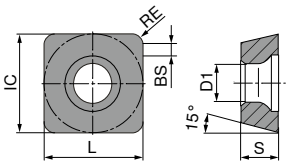
50 761 ...

Designation	DC mm	ZNF	APMX mm	ZEFP	ZNP	OAL mm	DCONMS H6 mm	DHUB mm	torque moment Nm	Insert	
A490.40.R.03K6-09	40	3	41	18	6	55	16	38	3,2	SD.. 09T3..	**040**
A490.50.R.04K6-09	50	4	41	24	6	55	22	48	3,2	SD.. 09T3..	**050**
A490.63.R.05K6-09	63	5	41	30	6	60	27	61	3,2	SD.. 09T3..	**063**

Spare parts DC	TORX® blade		Clamping key - T		Key D		Power Screw		Molykote		Clamping screw		Torque screwdriver	
	80 950 ...		**80 397 ...**		**80 950 ...**		**70 950 ...**		**70 950 ...**		**70 950 ...**		**80 950 ...**	
25 - 32		**036**				**113**				**303**		**110**		**192**
40 - 42		**036**		**040**		**113**		**151**		**303**		**110**		**192**
50 - 160		**036**				**113**				**303**		**110**		**192**

SDHT / SDNT

Designation	IC mm	D1 mm	L mm	BS mm	S mm
SD.T 09T3..	9,52	4,4	9,52	2,5	3,97



SDHT / SDNT

NEW

	TCM10	-29 CTCP230	CTPP235	-29 CTPP235	-33 CTPM240	-F50 CTPM245	-F50 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
	CERMET SDHT	SDNT	SDNT	SDNT	SDNT	SDNT	SDNT
	50 424 ...	51 011 ...	51 082 ...	51 011 ...	51 030 ...	51 111 ...	51 111 ...
ISO / RE mm							
09T308ER 0,8 / 09T308SR 0,8	900	008	108	108	408	458	90801
P	●	●	●	●	○	●	●
M			○	○	●	●	●
K	○	○	○	○			
N							
S							○
H							
O							

SDNT / SDHT

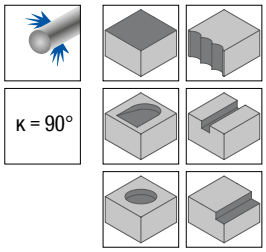
	-31 CTCK215	-27P H216T	-27P AMZ	-27 CTC5240	-M31 CTC5240	-F10 CTCS245
	DRAGONSKIN			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
	SDNT	SDHT	SDHT	SDHT	SDNT	SDHT
	51 029 ...	50 424 ...	50 424 ...	50 496 ...	50 425 ...	51 125 ...
ISO / RE mm						
09T308ER 0,8 / 09T308FR 0,8 / 09T308SR 0,8	508	550	650	508	508	55800
P						
M						
K	●	○	○			
N		●	●			
S				●	●	●
H						
O		○	○			

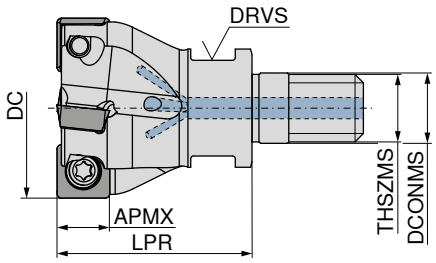
Milling guide

Cutting data standard values	→ 141–144	Starting Parameter	→ 159
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

15

MaxiMill – Screw in cutter G 490-12



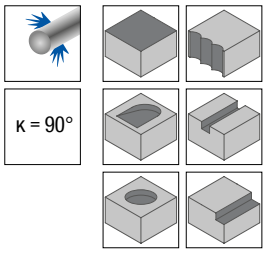


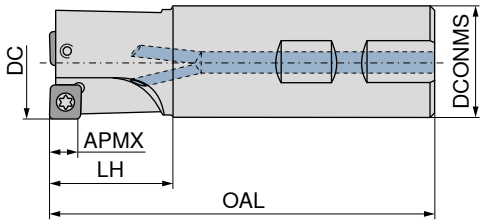


50 726 ...

Designation	DC mm	ZNF	APMX mm	LPR mm	THSZMS	DCONMS mm	DRVS mm	torque moment Nm	Insert	
G490.32.R.03-12	32	3	10,7	35	M16	17	24	3,2	SD.. 1205..	**13200**
G490.40.R.04-12	40	4	10,7	40	M16	17	24	3,2	SD.. 1205..	**14000**

MaxiMill – End milling cutter C 490-12







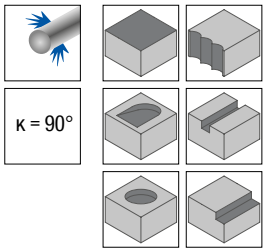
B

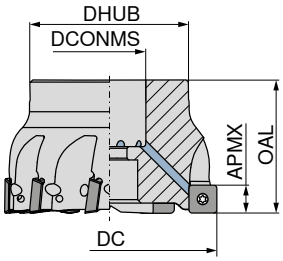
50 703 ...

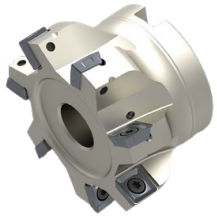
ISO designation	DC mm	ZNF	APMX mm	DCONMS mm	OAL mm	LH mm	torque moment Nm	Insert	
C490.32.R.02	32	2	11	32	110	40	5	SD.. 1205..	**032**
C490.32.R.03-12-B-40	32	3	11	32	101	40	5	SD.. 1205..	**13200**
C490.40.R.03	40	3	11	32	115	45	5	SD.. 1205..	**040**
C490.40.R.04-12-B32-50	40	4	11	32	112	50	5	SD.. 1205..	**14000**

	TORX® blade	 Key D	 Molykote	 Clamping screw	 Torque screw-driver
	80 950 ...	**80 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts DC					
32	**037**	**114**	**303**	**01200**	**193**
32	**037**			**01200**	**193**
40	**037**	**114**	**303**	**01200**	**193**
40	**037**			**01200**	**193**

MaxiMill – Shell mill A 490-12







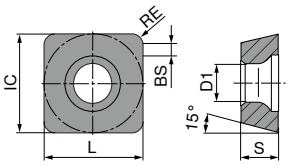
									50 703 ...
Designation	DC mm	ZNF	APMX mm	DHUB mm	DCONMS mm	OAL mm	torque moment Nm	Insert	
A490.40.R.04-12	40	4	11	38	16	40	5	SD.. 1205..	**54000**
A490.50.R.05-12	50	5	11	43	22	40	5	SD.. 1205..	**550**
A490.63.R.06-12	63	6	11	48	22	40	5	SD.. 1205..	**563**
A490.80.R.07-12	80	7	11	58	27	50	5	SD.. 1205..	**580**
A490.100.R.08-12	100	8	11	75	32	50	5	SD.. 1205..	**600**
A490.125.R.10-12	125	10	11	88	40	63	5	SD.. 1205..	**625**

	TORX® blade	 Clamping key - T	 Key D	 Power Screw	 Molykote	 Clamping screw	 Torque screwdriver
	80 950 ...	**80 397 ...**	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts							
DC							
40	**037**	**040**	**114**	**151**	**303**	**01200**	**193**
50	**037**	**040**	**114**	**154**	**303**	**01200**	**193**
63 - 125	**037**	**040**	**114**		**303**	**01200**	**193**

15

SDHW / SDMT / SDHT

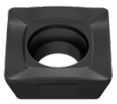
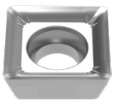
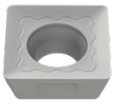
Designation	IC mm	D1 mm	L mm	BS mm	S mm
SDH. 120508..	12,7	5,5	12,7	2,2	5,00
SDHT 120512..	12,7	5,5	12,7	1,8	5,00
SDHT 120520..	12,7	5,5	12,7	1,0	5,00
SDHT 120525..	12,7	5,5	12,7	1,5	5,00
SDMT 120508..	12,7	5,5	12,7	3,0	5,00
SDMT 1205ZZ..	12,7	5,5	12,7	0,9	5,00



SDHW / SDMT / SDHT

		TCM10	-29 CTCP230	-29 CTPP235	-29 CTPM240	-33 CTPM240	-F50 CTPM245	NEW -F50 CTCM245
			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		CERMET						
		SDHW	SDMT	SDMT	SDMT	SDHT	SDMT	SDMT
		50 428 ...	51 081 ...	51 081 ...	51 081 ...	51 028 ...	51 110 ...	51 110 ...
ISO	RE mm							
120508ER	0,8						458	90801
120508SR	0,8	901						
120512SR	1,2					412		
120520SR	2,0					421		
1205ZZSN	0,8		020	120	420			
P		●	●	●	○	○	●	●
M				○	●	●	●	●
K		○	○	○				
N								
S								○
H								
O								

SDMT / SDHT

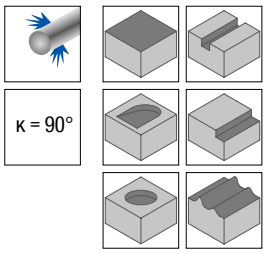
		-31 CTCK215	-27P H216T	-27P AMZ	-M31 CTC5240	-F50 CTCS245
		DRAGONSKIN			DRAGONSKIN	DRAGONSKIN
						
		SDMT	SDHT	SDHT	SDMT	SDMT
		51 059 ...	50 426 ...	50 426 ...	50 580 ...	51 110 ...
ISO	RE mm					
120508ER	0,8				508	55800
120508FR	0,8		555	655		
120525FR	2,5		559			
1205ZZSN	0,8	521				
P						
M						
K		●	○	○		
N			●	●		
S					●	●
H						
O			○	○		

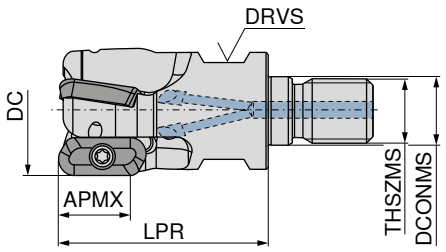
Milling guide

Cutting data standard values	→ 141–144	Starting Parameter	→ 160
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

MaxiMill – Screw in cutter 90° G HSC-11

▲ Insert radius >3.2 mm: Modify cutter body





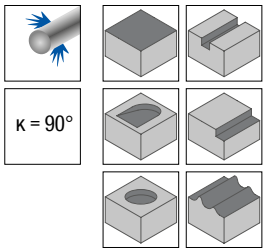


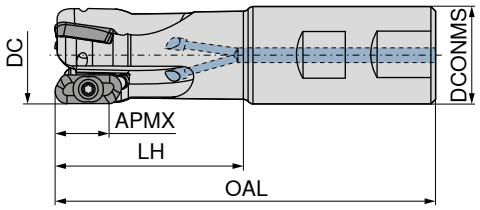
55 107 ...

Designation	DC mm	ZNF	APMX mm	DCONMS mm	LPR mm	THSZMS	RPMX 1/min.	DRVS mm	torque moment Nm	Insert	
GHSC.16.R.02-11	16	2	10	8,5	27	M8	56000	10	1,8	XDHT 11T3..	**016**
GHSC.18.R.02-11	18	2	10	8,5	27	M8	53100	10	1,8	XDHT 11T3..	**018**
GHSC.20.R.02-11	20	2	10	10,5	33	M10	50100	15	1,8	XDHT 11T3..	**020**
GHSC.25.R.03-11	25	3	10	12,5	35	M12	45000	17	1,8	XDHT 11T3..	**025**
GHSC.32.R.03-11	32	3	10	17,0	35	M16	39800	24	1,8	XDHT 11T3..	**032**
GHSC.40.R.03-11	40	3	10	17,0	35	M16	35500	24	1,8	XDHT 11T3..	**040**

MaxiMill – End milling cutter 90° C HSC-11

▲ Insert radius >3.2 mm: Modify cutter body





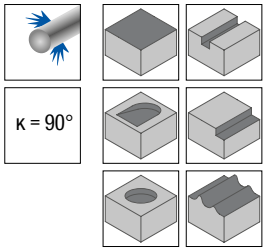


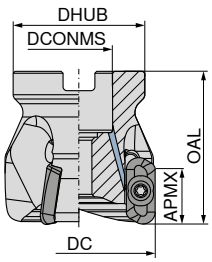
50 675 ... (A) **50 675 ...** (B)

Designation	DC mm	ZNF	APMX mm	DCONMS $_{h6}$ mm	OAL mm	LH mm	RPMX 1/min.	torque moment Nm	Insert		
CHSC.16.R.02-11-B/A-25	16	2	10	16	75	25	56200	1,8	XDHT 11T3..	**016**	**416**
CHSC.16.R.02-11-A-32	16	2	10	16	165	32	18800	1,8	XDHT 11T3..	**116**	
CHSC.18.R.02-11-A-25	18	2	10	20	78	25	56100	1,8	XDHT 11T3..	**018**	
CHSC.18.R.02-11-A-32	18	2	10	20	165	32	23900	1,8	XDHT 11T3..	**118**	
CHSC.19.R.02-11-A-25	19	2	10	20	78	25	51700	1,8	XDHT 11T3..	**019**	
CHSC.19.R.02-11-A-32	19	2	10	20	165	32	25400	1,8	XDHT 11T3..	**119**	
CHSC.20.R.02-11-A-32	20	2	10	20	84	32	50100	1,8	XDHT 11T3..	**020**	
CHSC.20.R.03-11-B-32	20	3	10	20	84	32	50100	1,8	XDHT 11T3..		**420**
CHSC.20.R.02-11-A-40	20	2	10	20	165	40	26700	1,8	XDHT 11T3..	**120**	
CHSC.22.R.02-11-A-32	22	2	10	25	91	32	47800	1,8	XDHT 11T3..	**022**	
CHSC.22.R.02-11-A-40	22	2	10	25	165	40	30200	1,8	XDHT 11T3..	**122**	
CHSC.25.R.02-11-A-40	25	2	10	25	98	40	45000	1,8	XDHT 11T3..	**025**	
CHSC.25.R.03-11-A-40	25	3	10	25	98	40	45000	1,8	XDHT 11T3..	**225**	
CHSC.25.R.04-11-B-40	25	4	10	25	98	40	45000	1,8	XDHT 11T3..		**425**
CHSC.25.R.02-11-A-50	25	2	10	25	165	50	31700	1,8	XDHT 11T3..	**125**	
CHSC.25.R.03-11-A-50	25	3	10	25	165	50	31700	1,8	XDHT 11T3..	**325**	
CHSC.32.R.03-11-A-50	32	3	10	32	112	50	39800	1,8	XDHT 11T3..	**032**	
CHSC.32.R.05-11-B-50	32	5	10	25	112	50	39800	1,8	XDHT 11T3..		**432**
CHSC.32.R.03-11-A-63	32	3	10	32	165	63	33400	1,8	XDHT 11T3..	**132**	

MaxiMill – Shell mill 90° A HSC-11

▲ Insert radius >3.2 mm: Modify cutter body







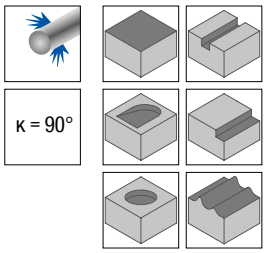
50 718 ...

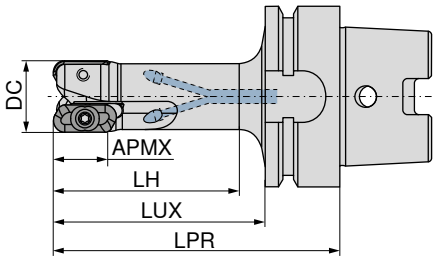
Designation	DC mm	ZNF	APMX mm	DCONMS $_{H6}$ mm	DHUB mm	OAL mm	RPMX 1/min.	torque moment Nm	Insert	
AHSC.40.R.04-11	40	4	10	16	38	50	35500	1,8	XDHT 11T3..	**040**
AHSC.50.R.04-11	50	4	10	22	43	50	31800	1,8	XDHT 11T3..	**050**
AHSC.63.R.05-11	63	5	10	22	43	50	28300	1,8	XDHT 11T3..	**063**
AHSC.80.R.05-11	80	5	10	27	58	50	25100	1,8	XDHT 11T3..	**080**
AHSC.100.R.05-11	100	5	10	32	78	50	22400	1,8	XDHT 11T3..	**100**

MaxiMill – Milling cutter 90° M HSC-11 with HSK 63-A

▲ balanced to G 6,3

▲ Insert radius >3.2 mm: Modify cutter body







50 722 ...

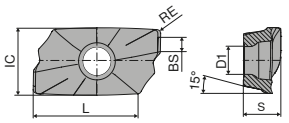
Designation	DC mm	ZNF	APMX mm	LPR mm	LH mm	LUX mm	RPMX 1/min.	torque moment Nm	Insert	
MHSC.25.R.03-11-H63A-50	25	3	10	90	50	64	45000	1,8	XDHT 11T3..	**025**
MHSC.25.R.03-11-H63A-63	25	3	10	100	63	74	42000	1,8	XDHT 11T3..	**125**
MHSC.32.R.03-11-H63A-63	32	3	10	100	63	74	39800	1,8	XDHT 11T3..	**032**
MHSC.32.R.03-11-H63A-80	32	3	10	120	80	94	37200	1,8	XDHT 11T3..	**132**
MHSC.40.R.04-11-H63A-63	40	4	10	100	63	74	35500	1,8	XDHT 11T3..	**040**
MHSC.40.R.04-11-H63A-80	40	4	10	120	80	94	35500	1,8	XDHT 11T3..	**140**
MHSC.50.R.04-11-H63A-63	50	4	10	100	63	74	31800	1,8	XDHT 11T3..	**050**
MHSC.50.R.04-11-H63A-100	50	4	10	140	100	114	31800	1,8	XDHT 11T3..	**150**

	TORX® blade	 Clamping key - T	 Key D	 Power Screw	 Molykote	 Clamping screw	 Torque screwdriver
	80 950 ...	**80 397 ...**	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts DC							
16 - 25	**043**		**125**		**303**	**128**	**192**
32	**043**		**125**		**303**	**131**	**192**
40	**043**	**040**	**125**	**151**	**303**	**131**	**192**
50 - 63	**043**	**050**	**125**	**154**	**303**	**131**	**192**
80 - 100	**043**		**125**		**303**	**131**	**192**

15

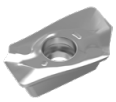
XDKT / XDHT

Designation	IC mm	D1 mm	L mm	BS mm	S mm
XD.T 11T302FR	6,8	2,8	10,6	2	3,80
XD.T 11T304FR	6,8	2,8	10,6	1,8	3,80
XD.T 11T308FR	6,8	2,8	10,6	1,4	3,80
XD.T 11T320FR	6,8	2,8	10,6	1,4	3,80
XD.T 11T325FR	6,8	2,8	10,6	1,4	3,80
XDHT 11T312FR	6,8	2,8	10,6	1,4	3,80
XDHT 11T316FR	6,8	2,8	10,6	1,4	3,80
XDHT 11T332FR	6,8	2,8	10,6	0,8	3,80
XDHT 11T340FR	6,8	2,8	10,6	-	3,80
XDHT 11T350FR	6,8	2,8	10,6	-	3,80



XDKT

XDKT / XDHT

	-F20 CTWN215	-27P H216T
		
	XDKT	XDHT
	50 478 ...	50 477 ...

ISO	RE mm		
11T302FR	0,2	502	502
11T304FR	0,4	504	504
11T308FR	0,8	508	508
11T312FR	1,2		512
11T316FR	1,6		516
11T320FR	2,0	520 1)	520 1)
11T325FR	2,5	525 1)	525 1)
11T332FR	3,2		532 1)
11T340FR	4,0		540 1)
11T350FR	5,0		550 1)
P			
M			
K		○	○
N		●	●
S			
H			
O		○	○

1) Insert radius >1.6 mm: Modify cutter body

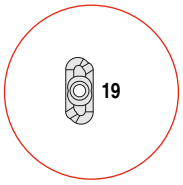
Milling guide

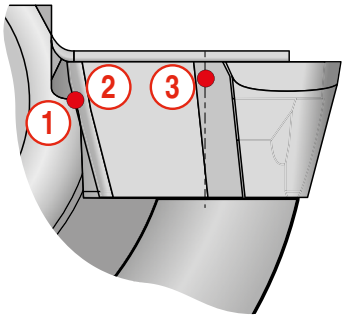
Safety advice	→ 161	Cutting data standard values	→ 162
Machining strategy	→ 163+164	Technical Information	→ 189–194
Chip groove description and overview	→ 195–197	Grade description and overview	→ 198–201

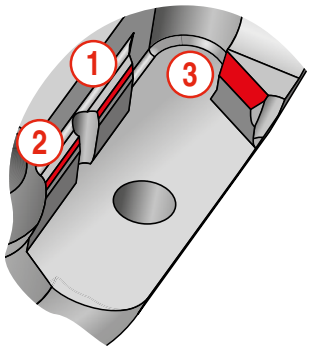
HSC-19

For medium – high number of revolutions

n_{max} = 34400 min^{-1}
$a_{p\,max}$ = 18 mm







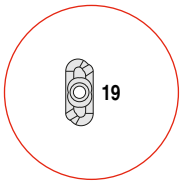
(1) (2) Radial contact points
- ▲ Guaranteed 90° corner angles and exact radial run-out

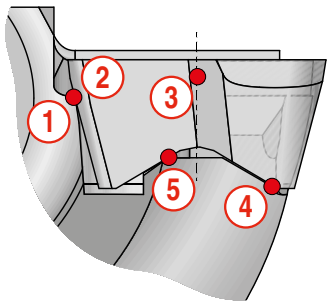
(3) Axial contact point
- ▲ guarantees precise axial run-out

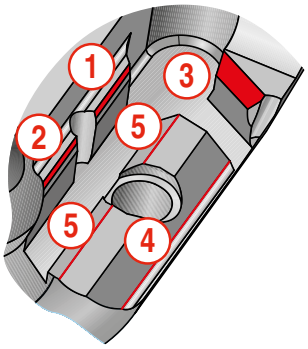
HPC-19

For maximum number of revolutions

n_{max} = 45200 min^{-1}
$a_{p\,max}$ = 18 mm







Roof-shaped surface, included angle 140 °
- ▲ greater stability, higher security
- ▲ guaranteed positive connection between insert and tool

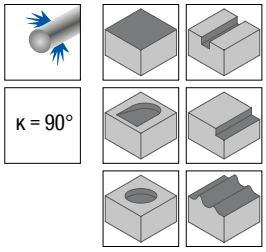
(1) (2) Radial contact points
- ▲ Guaranteed 90° corner angles and exact radial run-out

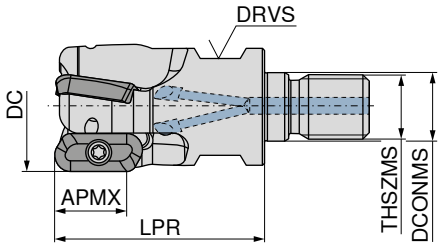
(3) Axial contact point
- ▲ guarantees precise axial run-out

(4) (5) Contact Point
- ▲ resist machining and centrifugal forces

MaxiMill – Screw-in cutter 90° G HSC-19

▲ Insert radius >4.0 mm: Modify cutter body



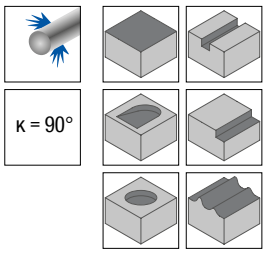


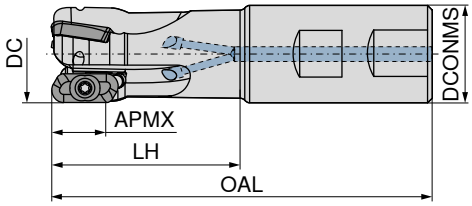


Designation	DC mm	ZNF	APMX mm	DCONMS mm	LPR mm	THSZMS	DRVS mm	RPMX 1/min.	torque moment Nm	Insert	55 108 ...
GHSC.25.R.02-19	25	2	18	12,5	45	M12	17	34400	5	XDHT 1904..	**025**
GHSC.32.R.03-19	32	3	18	17,0	52	M16	24	29100	5	XDHT 1904..	**032**
GHSC.40.R.03-19	40	3	18	17,0	52	M16	24	24900	5	XDHT 1904..	**040**

MaxiMill – End milling cutter 90° C HSC-19

▲ Insert radius >4.0 mm: Modify cutter body





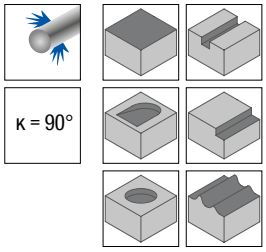


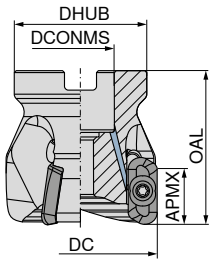


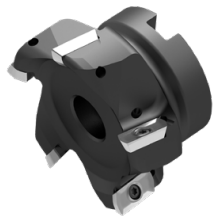
Designation	DC mm	ZNF	APMX mm	DCONMS $_{h5}$ mm	OAL mm	LH mm	RPMX 1/min.	torque moment Nm	Insert	A 50 679 ...	B 50 679 ...
CHSC.25.R.02-19-A-50	25	2	18	25	121	50	32400	5	XDHT 1904..	**225**	
CHSC.25.R.02-19	25	2	18	25	121	65	32400	5	XDHT 1904..		**025**
CHSC.25.R.02-19-A-63	25	2	18	25	165	63	24700	5	XDHT 1904..	**325**	
CHSC.32.R.02-19-A-63	32	2	18	32	125	63	28900	5	XDHT 1904..	**232**	
CHSC.32.R.03-19-A-63	32	3	18	32	125	63	28900	5	XDHT 1904..	**432**	
CHSC.32.R.03-19	32	3	18	32	125	65	28900	5	XDHT 1904..		**033**
CHSC.32.R.02-19	32	2	18	32	125	65	28900	5	XDHT 1904..		**032**
CHSC.32.R.02-19-A-80	32	2	18	32	165	80	24400	5	XDHT 1904..	**332**	
CHSC.32.R.03-19-A-80	32	3	18	32	165	80	24400	5	XDHT 1904..	**532**	

MaxiMill – Shell mill 90° A HSC-19

▲ Insert radius >4.0 mm: Modify cutter body







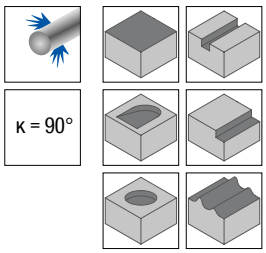
50 716 ...

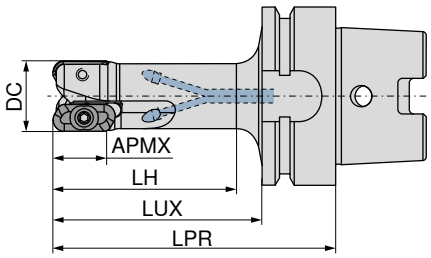
Designation	DC mm	ZNF	APMX mm	DCONMS $_{H6}$ mm	DHUB mm	OAL mm	RPMX 1/min.	torque moment Nm	Insert	
AHSC.40.R.03-19	40	3	18	16	38	50	24900	5	XDHT 1904..	**040**
AHSC.50.R.04-19	50	4	18	22	43	50	21600	5	XDHT 1904..	**050**
AHSC.63.R.04-19	63	4	18	22	48	50	18800	5	XDHT 1904..	**163**
AHSC.63.R.05-19	63	5	18	22	48	50	18800	5	XDHT 1904..	**063**
AHSC.80.R.04-19	80	4	18	27	58	50	16400	5	XDHT 1904..	**180**
AHSC.80.R.05-19	80	5	18	27	58	50	16400	5	XDHT 1904..	**080**
AHSC.100.R.04-19	100	4	18	32	78	50	14500	5	XDHT 1904..	**200**
AHSC.100.R.05-19	100	5	18	32	78	50	14500	5	XDHT 1904..	**100**
AHSC.125.R.05-19	125	5	18	40	88	63	12800	5	XDHT 1904..	**125**
AHSC.125.R.06-19	125	6	18	40	88	63	12800	5	XDHT 1904..	**225**

MaxiMill – Milling cutter 90° M HSC-19 with HSK 63-A

▲ balanced to G 6,3

▲ Insert radius >4.0 mm: Modify cutter body







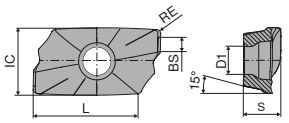
50 720 ...

Designation	DC mm	ZNF	APMX mm	LPR mm	LH mm	LUX mm	RPMX 1/min.	torque moment Nm	Insert	
MHSC.25.R.02-19-H63A-50	25	2	18	90	50	64	35000	5	XDHT 1904..	**525**
MHSC.25.R.02-19-H63A-63	25	2	18	100	63	74	32700	5	XDHT 1904..	**625**
MHSC.32.R.02-19-H63A-63	32	2	18	100	63	74	29100	5	XDHT 1904..	**532**
MHSC.32.R.02-19-H63A-80	32	2	18	120	80	94	27200	5	XDHT 1904..	**632**
MHSC.32.R.03-19-H63A-63	32	3	18	100	63	74	29100	5	XDHT 1904..	**732**
MHSC.32.R.03-19-H63A-80	32	3	18	120	80	94	27200	5	XDHT 1904..	**832**
MHSC.40.R.03-19-H63A-63	40	3	18	100	63	74	24900	5	XDHT 1904..	**540**
MHSC.40.R.03-19-H63A-80	40	3	18	120	80	94	24900	5	XDHT 1904..	**640**
MHSC.50.R.03-19-H63A-100	50	3	18	140	100	114	21600	5	XDHT 1904..	**550**

	TORX® blade	 Clamping key - T	 Key D	 Power Screw	 Molykote	 Clamping screw	 Torque screwdriver
	80 950 ...	**80 397 ...**	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts DC							
25	**036**		**113**		**303**	**172**	**193**
32	**036**		**113**		**303**	**173**	**193**
40	**036**	**040**	**113**	**151**	**303**	**173**	**193**
50 - 63	**036**	**050**	**113**	**154**	**303**	**174**	**193**
80 - 125	**036**		**113**		**303**	**174**	**193**

XDHT

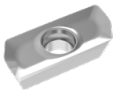
Designation	IC mm	D1 mm	L mm	BS mm	S mm
XDHT 190402..	9,52	4,65	19	2	4,76
XDHT 190404..	9,52	4,65	19	2	4,76
XDHT 190408..	9,52	4,65	19	2	4,76
XDHT 190412..	9,52	4,65	19	2	4,76
XDHT 190416..	9,52	4,65	19	2	4,76
XDHT 190420..	9,52	4,65	19	2	4,76
XDHT 190425..	9,52	4,65	19	1,4	4,76
XDHT 190432..	9,52	4,65	19	1	4,76
XDHT 190440..	9,52	4,65	19	1	4,76
XDHT 190450..	9,52	4,65	19	-	4,76



XDKT

XDHT

-27P
H216T


XDHT
50 487 ...

ISO	RE mm	
190402FR	0,2	**552**
190404FR	0,4	**554**
190408FR	0,8	**556**
190412FR	1,2	**557**
190416FR	1,6	**558**
190420FR	2,0	**560**
190425FR	2,5	**562**
190432FR	3,2	**564**
190440FR	4,0	**566**
190450FR	5,0	**568** [1]

P	
M	
K	○
N	●
S	
H	
O	○

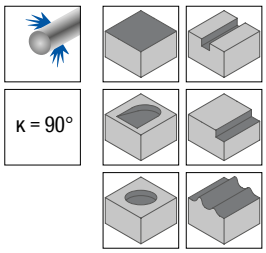
1) Insert radius > 4.0 mm: Modify cutter body

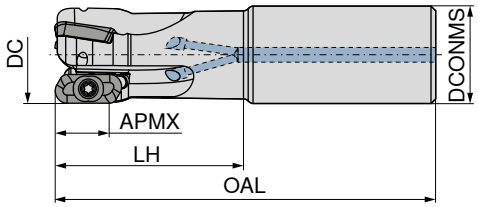
Milling guide

Cutting data standard values	→ 141–144	Safety advice	→ 161
Machining strategy	→ 165–167	Technical Information	→ 189–194
Chip groove description and overview	→ 195–197	Grade description and overview	→ 198–201

MaxiMill – End milling cutter 90° C HPC-19

- Shank type to DIN 1835-A
- Insert radius >4.0 mm: Modify cutter body







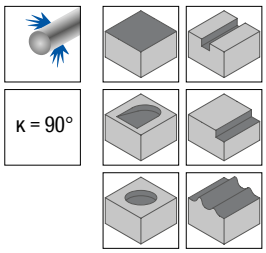
A

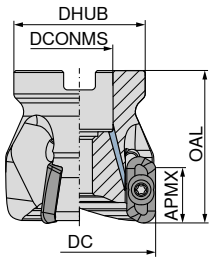
50 680 ...

ISO designation	DC mm	ZNF	APMX mm	DCONMS $_{h5}$ mm	OAL mm	LH mm	RPMX 1/min.	torque moment Nm	Insert	
CHPC.22.R.02-19-A-40	22	2	18	22	165	40	31900	5	XDHX 1904..	**122**
CHPC.25.R.02-19-A-50	25	2	18	25	121	50	41800	5	XDHX 1904..	**125**
CHPC.25.R.02-19-A-63	25	2	18	25	165	63	31900	5	XDHX 1904..	**225**
CHPC.32.R.02-19-A-63	32	2	18	32	125	63	39800	5	XDHX 1904..	**132**
CHPC.32.R.02-19-A-80	32	2	18	32	165	80	33500	5	XDHX 1904..	**232**
CHPC.32.R.03-19-A-63	32	3	18	32	125	63	39800	5	XDHX 1904..	**332**
CHPC.32.R.03-19-A-80	32	3	18	32	165	80	33500	5	XDHX 1904..	**432**

MaxiMill – Shell mill 90° A HPC-19

- Insert radius >4.0 mm: Modify cutter body





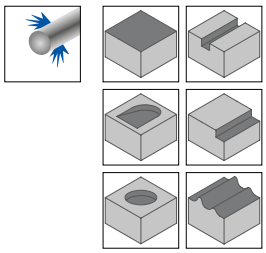


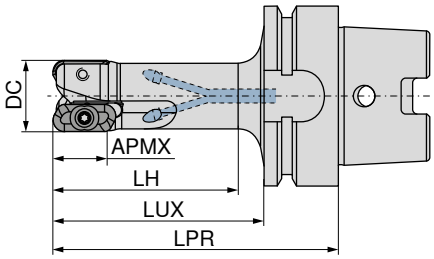
50 717 ...

Designation	DC mm	ZNF	APMX mm	DCONMS $_{H6}$ mm	DHUB mm	OAL mm	RPMX 1/min.	torque moment Nm	Insert	
AHPC.40.R.03-19	40	3	18	16	38	50	35700	5	XDHX 1904..	**040**
AHPC.50.R.03-19	50	3	18	22	43	50	31900	5	XDHX 1904..	**050**
AHPC.63.R.03-19	63	3	18	22	48	50	28500	5	XDHX 1904..	**063**
AHPC.63.R.04-19	63	4	18	22	48	50	28500	5	XDHX 1904..	**163**

MaxiMill – Milling cutter 90° M HPC-19 with HSK 63-A

- balanced to G 6,3
- Insert radius >4.0 mm: Modify cutter body







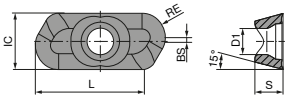
50 721 ...

Designation	DC mm	ZNF	APMX mm	LPR mm	LH mm	LUX mm	RPMX 1/min.	torque moment Nm	Insert	
MHPC.25.R.02-19-H63A-50	25	2	18	90	50	64	45200	5	XDHX 1904..	**025**
MHPC.25.R.02-19-H63A-63	25	2	18	100	63	74	42300	5	XDHX 1904..	**125**
MHPC.25.R.02-19-H63A-80	25	2	18	120	80	94	38400	5	XDHX 1904..	**225**
MHPC.25.R.02-19-H63A-100	25	2	18	140	100	114	33900	5	XDHX 1904..	**325**
MHPC.32.R.02-19-H63A-63	32	2	18	100	63	74	40000	5	XDHX 1904..	**032**
MHPC.32.R.03-19-H63A-63	32	3	18	100	63	74	40000	5	XDHX 1904..	**532**
MHPC.32.R.02-19-H63A-80	32	2	18	120	80	94	37500	5	XDHX 1904..	**132**
MHPC.32.R.03-19-H63A-80	32	3	18	120	80	94	37500	5	XDHX 1904..	**632**
MHPC.32.R.02-19-H63A-100	32	2	18	140	100	114	34300	5	XDHX 1904..	**232**
MHPC.40.R.03-19-H63A-63	40	3	18	100	63	74	35700	5	XDHX 1904..	**040**
MHPC.40.R.03-19-H63A-80	40	3	18	120	80	94	35700	5	XDHX 1904..	**140**
MHPC.40.R.03-19-H63A-100	40	3	18	140	100	114	33500	5	XDHX 1904..	**240**
MHPC.50.R.03-19-H63A-63	50	3	18	100	63	74	31900	5	XDHX 1904..	**050**
MHPC.50.R.03-19-H63A-80	50	3	18	120	80	94	31900	5	XDHX 1904..	**150**
MHPC.50.R.03-19-H63A-100	50	3	18	140	100	114	31900	5	XDHX 1904..	**250**

	TORX® blade	 Clamping key - T	 Key D	 Power Screw	 Molykote	 Clamping screw	 Torque screw-driver
	80 950 ...	**80 397 ...**	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts DC							
22 - 25	**036**		**113**		**303**	**172**	**193**
32	**036**		**113**		**303**	**173**	**193**
40	**036**	**040**	**113**	**151**	**303**	**173**	**193**
50 - 63	**036**	**050**	**113**	**154**	**303**	**174**	**193**

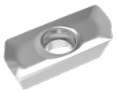
XDHX

Designation	IC mm	D1 mm	L mm	BS mm	S mm
XDHX 190402..	9,52	4,65	19	2	4,76
XDHX 190404..	9,52	4,65	19	2	4,76
XDHX 190408..	9,52	4,65	19	2	4,76
XDHX 190412..	9,52	4,65	19	2	4,76
XDHX 190416..	9,52	4,65	19	2	4,76
XDHX 190420..	9,52	4,65	19	2	4,76
XDHX 190425..	9,52	4,65	19	1,4	4,76
XDHX 190432..	9,52	4,65	19	1	4,76
XDHX 190440..	9,52	4,65	19	1	4,76
XDHX 190450..	9,52	4,65	19	-	4,76



XDHX

-27P
H216T



XDHX
50 488 ...

ISO	RE mm	
190402FR	0,2	**552**
190404FR	0,4	**554**
190408FR	0,8	**556**
190412FR	1,2	**557**
190416FR	1,6	**558**
190420FR	2,0	**560**
190425FR	2,5	**562**
190432FR	3,2	**564**
190440FR	4,0	**566**
190450FR	5,0	**568** 1)

P	
M	
K	○
N	●
S	
H	
O	○

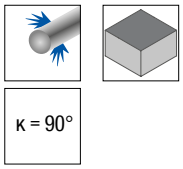
1) Insert radius > 4.0 mm: Modify cutter body

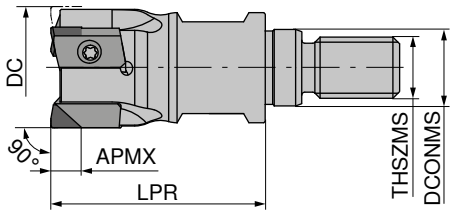
Milling guide

Cutting data standard values	→ 141–144	Safety advice	→ 161
Machining strategy	→ 165–167	Technical Information	→ 189–194
Chip groove description and overview	→ 195–197	Grade description and overview	→ 198–201

15

MaxiMill – Screw-in cutter G HPC 04



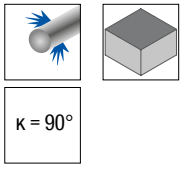


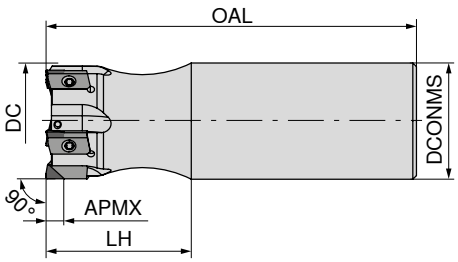


50 785 ...

Designation	DC mm	ZNF	APMX mm	THSZMS	DCONMS mm	LPR mm	RPMX 1/min.	torque moment Nm	Insert	
GHPC.20.R.03-04	20	3	4	M10	10,5	35	52000	1,6	ZNHW 04T3..	**20003**
GHPC.25.R.04-04	25	4	4	M12	12,5	35	45000	1,6	ZNHW 04T3..	**25004**
GHPC.32.R.05-04	32	5	4	M16	17,0	35	38000	1,6	ZNHW 04T3..	**32005**
GHPC.40.R.06-04	40	6	4	M16	17,0	35	34000	1,6	ZNHW 04T3..	**40006**

MaxiMill – End Mill C HPC 04







A

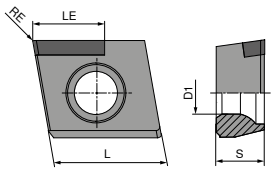
50 680 ...

Designation	DC mm	ZNF	APMX mm	DCONMS mm	OAL mm	LH mm	RPMX 1/min.	torque moment Nm	Insert	
CHPC.20.R.03-04-A-25	20	3	4	20	77	25	52000	1,6	ZNHW 04T3..	**02003**
CHPC.25.R.04-04-A-32	25	4	4	25	90	32	45000	1,6	ZNHW 04T3..	**02504**
CHPC.32.R.05-04-A-40	32	5	4	32	102	40	38000	1,6	ZNHW 04T3..	**03205**
CHPC.40.R.06-04-A-50	40	6	4	32	112	50	34000	1,6	ZNHW 04T3..	**04006**

	TORX® blade	Key D	Molykote	Clamping screw	Torque screwdriver
	80 950 ...	**80 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts DC					
20 - 40	**043**	**125**	**303**	**131**	**191**

ZNHW

Designation	LE mm	D1 mm	L mm	S mm
ZNHW 04T3..	4	2,8	11	3,97



ZNHW





ISO	RE mm	DIAMOND ZNHW 51 137 ...	CBN ZNHW 51 137 ...
04T304ER	0,4	75400	
04T305ER	0,5		85500
04T308ER	0,8	75800	
04T3POER		77000	
P			
M			
K			●
N		●	
S			
H			○
O		○	

Milling guide

Cutting data standard values	→ 141–144	Machining strategy	→ 168
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

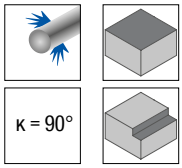
15

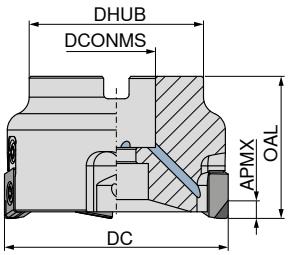
MaxiMill – Shell mill HPC 12

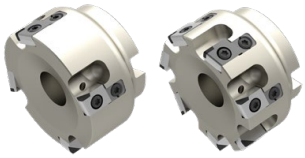
- ▲ 50 723 ... normal pitch
- ▲ 50 724 ... fine pitch

Scope of supply:

Tool, adjustment wedges and setting key; incl. wooden box







Designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	RPMX 1/min.	torque moment Nm	Insert	50 723 ...	50 724 ...
AHPC.40.R.04-12	40	4	11	40	34	16	32000	5	ZNHW 1205..	**040**	
AHPC.50.R.04-12	50	4	11	40	49	22	32000	5	ZNHW 1205..	**050**	
AHPC.50.R.05-12	50	5	11	40	49	22	32000	5	ZNHW 1205..		**050**
AHPC.63.R.04-12	63	4	11	40	49	22	29000	5	ZNHW 1205..	**063**	
AHPC.63.R.07-12	63	7	11	40	49	22	29000	5	ZNHW 1205..		**063**
AHPC.80.R.09-12	80	9	11	50	60	27	26000	5	ZNHW 1205..		**080**
AHPC.80.R.05-12	80	5	11	50	60	27	26000	5	ZNHW 1205..	**080**	
AHPC.100.R.06-12	100	6	11	50	70	32	24000	5	ZNHW 1205..	**100**	
AHPC.100.R.12-12	100	12	11	50	70	32	24000	5	ZNHW 1205..		**100**
AHPC.125.R.08-12	125	8	11	63	72	40	22000	5	ZNHW 1205..	**125**	
AHPC.125.R.14-12	125	14	11	63	72	40	22000	5	ZNHW 1205..		**12514**
AHPC.160.R.10-12	160	10	11	63	118	40	18000	5	ZNHW 1205..	**16010** [1]	
AHPC.160.R.16-12	160	16	11	63	118	40	18000	5	ZNHW 1205..		**16016** [1]
AHPC.200.R.12-12	200	12	11	63	153	60	16000	5	ZNHW 1205..	**20000** [1]	
AHPC.250.R.14-12	250	14	11	63	200	60	14000	5	ZNHW 1205..	**25014** [1]	
AHPC.315.R.18-12	315	18	11	80	265	60	12000	5	ZNHW 1205..	**31518** [1]	

1) Without Through Coolant

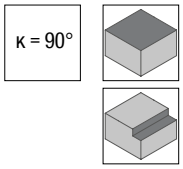
Spare parts DC	TORX® blade 80 950 ...	 Molykote 70 950 ...	 Clamping screw 70 950 ...	 Wedge 70 950 ...	 Torque screwdriver 80 950 ...
40 - 315	**036**	**303**	**174**	**199**	**193**

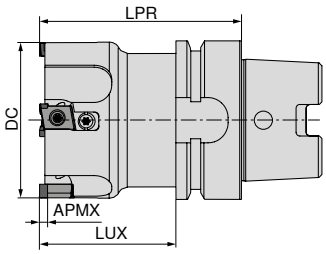
MaxiMill – Monoblock HPC 12

▲ balanced to G 6,3

Scope of supply:

Tool, adjustment wedges and setting key; incl. wooden box







Designation	DC mm	ZNF	APMX mm	LPR mm	LUX mm	RPMX 1/min.	torque moment Nm	Insert	50 721 ...	50 721 ...
MHPC.40.R.04-12-H63A-70	40	4	11	70	44	32000	5	ZNHW 1205..		**04004**
MHPC.50.R.04-12-H63A-80	50	4	11	80	54	32000	5	ZNHW 1205..		**05004**
MHPC.50.R.05-12-H63A-80	50	5	11	80	54	32000	5	ZNHW 1205..	**05005**	
MHPC.63.R.04-12-H63A-80	63	4	11	80	54	29000	5	ZNHW 1205..		**06304**
MHPC.63.R.07-12-H63A-80	63	7	11	80	54	29000	5	ZNHW 1205..	**06307**	
MHPC.80.R.05-12-H63A-90	80	5	11	90	64	26000	5	ZNHW 1205..		**08005**
MHPC.80.R.09-12-H63A-90	80	9	11	90	64	26000	5	ZNHW 1205..	**08009**	
MHPC.100.R.06-12-H63A-90	100	6	11	90	64	24000	5	ZNHW 1205..		**10006**
MHPC.100.R.12-12-H63A-90	100	12	11	90	64	24000	5	ZNHW 1205..	**10012**	
MHPC.125.R.08-12-H63A-123	125	8	11	123	97	22000	5	ZNHW 1205..		**12508**
MHPC.160.R.10-12-H63A-123	160	10	11	123	97	18000	5	ZNHW 1205..		**16010** [1]

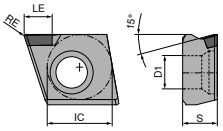
1) Without Through Coolant

Spare parts DC	TORX® blade	 Molykote	 Clamping screw	 Wedge	 Torque screwdriver
	80 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
40 - 160	**036**	**303**	**174**	**199**	**193**

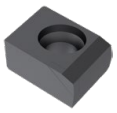
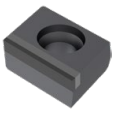
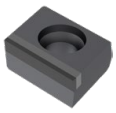
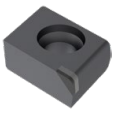
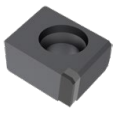
15

ZNHW

Designation	LE mm	D1 mm	IC mm	S mm
ZNHW 120504ER-1503	3	4,85	10	5,40
ZNHW 120504FR-0007	7	4,85	10	5,40
ZNHW 120508ER-1503	3	4,85	10	5,40
ZNHW 120508SR-0003	3	4,85	10	5,40
ZNHW 1205EOER-1002	2	4,85	10	5,40
ZNHW 1205POER-1511	11	4,85	10	5,40
ZNHW 1205POFR-1003	3	4,85	10	5,40
ZNHW 1205POSR-1503	3	4,85	10	5,40
ZNHW 1205POSR-1506	6	4,85	10	5,40
ZNHW 1205POSR-3003	3	4,85	10	5,40
ZNHW 1205ZZSR-5003	3	4,85	10	5,40



ZNHW

	CTL3215	CTD4205	-R CTD4205	CTD4205	-Q CTD4205
					
	CBN ZNHW	DIAMOND ZNHW	DIAMOND ZNHW	DIAMOND ZNHW	DIAMOND ZNHW
	50 515 ...	50 467 ...	50 517 ...	50 468 ...	50 466 ...
ISO / RE mm					
120504ER-1503 / 0,4				906	
120504FR-0007 / 0,4				904	
120508ER-1503 / 0,8				910	
120508SR-0003 / 0,8				908	
1205EOER-1002	952				
1205POER-1511		902			
1205POFR-1003		90600			
1205POSR-1503		900			
1205POSR-1506		90800	90800		
1205POSR-3003		904			
1205ZZSR-5003					900 [1]
P					
M					
K	●				
N		●	●	●	●
S					
H	○				
O		○	○	○	○

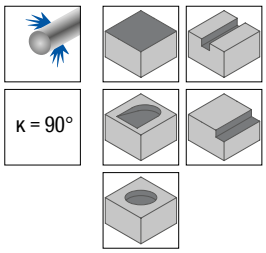
1) -Q = Wiper insert

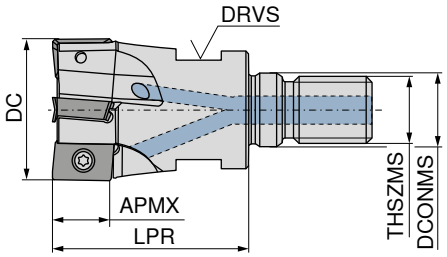
Milling guide

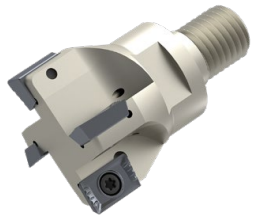
Cutting data standard values	→ 141–144	Machining strategy	→ 168
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

MaxiMill – Screw in cutter G 141

▲ Insert radius >3.2 mm: Modify cutter body





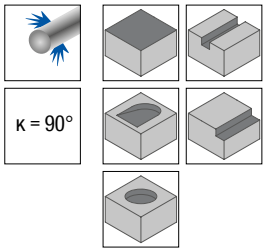


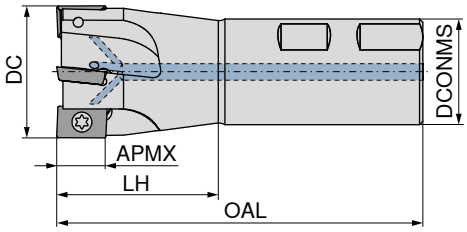
50 770 ...

ISO designation	DC mm	ZNF	APMX mm	LPR mm	THSZMS	DCONMS mm	DRVS mm	torque moment Nm	Insert	
G141.25.R.02.IK	25	2	14	35	M12	12,5	17	3,2	LD.. 1504..	**025**
G141.32.R.03.IK	32	3	14	40	M16	17,0	24	3,2	LD.. 1504..	**032**
G141.40.R.04.IK	40	4	14	40	M16	17,0	24	3,2	LD.. 1504..	**040**

MaxiMill – End milling cutter C 141

▲ Insert radius >3.2 mm: Modify cutter body







B

50 771 ...

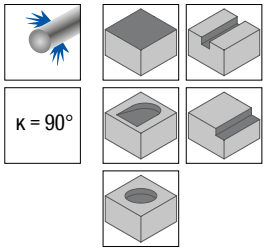
ISO designation	DC mm	ZNF	APMX mm	DCONMS mm	OAL mm	LH mm	torque moment Nm	Insert	
C141.20.R.01	20	1	14	25	95	39	3,2	LD.. 1504..	**020**
C141.25.R.02	25	2	14	25	100	44	3,2	LD.. 1504..	**025**
C141.32.R.03	32	3	14	32	108	48	3,2	LD.. 1504..	**032**

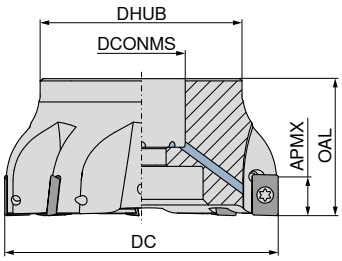
	TORX® blade	 Key D	 Molykote	 Clamping screw	 Torque screwdriver
	80 950 ...	**80 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts DC					
20 - 40	**036**	**113**	**303**	**01100**	**192**

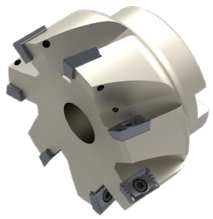
15

MaxiMill – Shell mill A 241

▲ Insert radius >3.2 mm: Modify cutter body







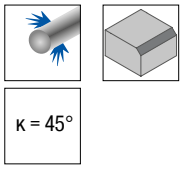
50 769 ...

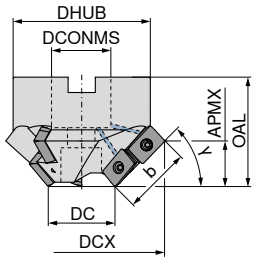
ISO designation	DC mm	ZNF	APMX mm	DHUB mm	DCONMS mm	OAL mm	torque moment Nm	Insert	
A241.40.R.04	40	4	14	33	16	40	3,2	LD.. 1504..	**040**
A241.50.R.05	50	5	14	43	22	40	3,2	LD.. 1504..	**050**
A241.52.R.05	52	5	14	43	22	40	3,2	LD.. 1504..	**052**
A241.63.R.06	63	6	14	48	22	40	3,2	LD.. 1504..	**063**
A241.66.R.06	66	6	14	58	27	50	3,2	LD.. 1504..	**066**
A241.80.R.07	80	7	14	58	27	50	3,2	LD.. 1504..	**080**
A241.100.R.08	100	8	14	75	32	50	3,2	LD.. 1504..	**100**

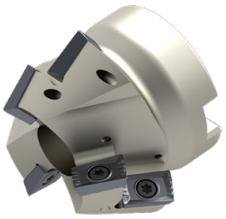
	TORX® blade	 Key D	 Molykote	 Clamping screw	 Torque screwdriver
	80 950 ...	**80 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts DC					
40	**036**	**113**	**303**	**110**	**192**
50 - 100	**036**	**113**	**303**	**304**	**192**

MaxiMill – Chamfer Cutter A 242

▲ Caution: Use only inserts with a corner radius of less than 1.6 mm
▲ ZEFP = number of inserts
▲ ZNP = tooth rows







50 768 ...

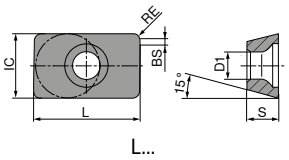
KAPR °	DC mm	DCX ±0,3 mm	ZNF	APMX ±0,3 mm	ZEFP	b ±0,3 mm	OAL mm	DCONMS mm	DHUB mm	ZNP	torque moment Nm	Insert	
15	35	92,2	3	7,6	6	29,6	50	27	62,5	2	3,2	LD.. 1504..	**015**
30	35	86,3	3	14,8	6	29,6	50	27	62,5	2	3,2	LD.. 1504..	**030**
45	35	76,9	3	20,9	6	29,6	50	27	62,5	2	3,2	LD.. 1504..	**045**
60	35	64,6	3	25,6	6	29,6	50	22	62,5	2	3,2	LD.. 1504..	**060** 1)
75	35	50,3	3	28,5	6	29,6	60	22	49,0	2	3,2	LD.. 1504..	**075** 1)

1) Version with Powerscrew

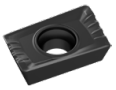
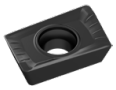
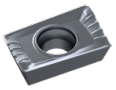
	TORX® blade	 Clamping key - T	Key D	 Power Screw	 Molykote	 Clamping screw	 Torque screwdriver	 clamping screw
	80 950 ...	**80 397 ...**	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**	**83 950 ...**
Spare parts KAPR								
15 - 45	**036**		**113**		**303**	**304**	**192**	**125**
60 - 75	**036**	**050**	**113**	**154**	**303**	**304**	**192**	

LDFW / LDFT / LDMT

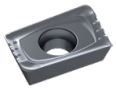
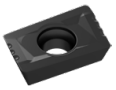
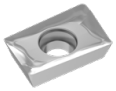
Designation	IC mm	D1 mm	L mm	BS mm	S mm
LD.. 1504PD..	9,52	4,4	15	1,2	4,76
LDFT 150408..	9,52	4,4	15	1,2	4,76
LDFT 150416..	9,52	4,4	15	0,9	4,76
LDFT 150432..	9,52	4,4	15	1,0	4,76
LDFT 1504PD..	9,52	4,4	15	0,8	4,76



LDFW / LDFT / LDMT

		CTCP230	-29 CTCP230	-29 CTCP230	-29 CTPP235	-29 CTPP235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		LDFW	LDFT	LDMT	LDFT	LDMT
		51 043 ...	51 079 ...	51 080 ...	51 079 ...	51 080 ...
ISO	RE mm					
1504PDSR	0,8	020	020	020	120	120
P		●	●	●	●	●
M					○	○
K		○	○	○	○	○
N						
S						
H						
O						

LDFT / LDFW

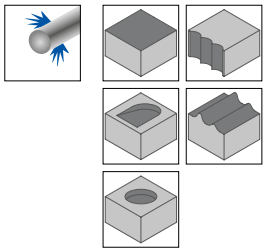
		-33 CTPM240	CTCK215	-27P H216T
		DRAGONSKIN	DRAGONSKIN	
				
		LDFT	LDFW	LDFT
		51 042 ...	51 043 ...	50 409 ...
ISO	RE mm			
150408FR	0,8			550
150416SR	1,6	41600		
150432SR	3,2	43200		
1504PDSR	1,2	420		
1504PDSR	0,8		520	
P		○		
M		●		
K			●	○
N				●
S				
H				
O				○

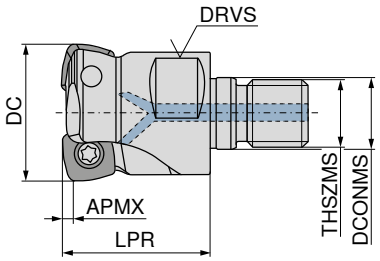
Milling guide

Cutting data standard values	→ 141–144	Machining strategy	→ 170
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

15

MaxiMill – Screw in cutter G HFC

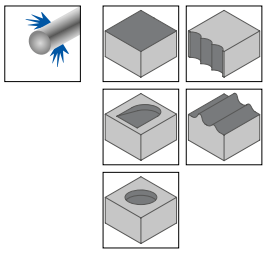


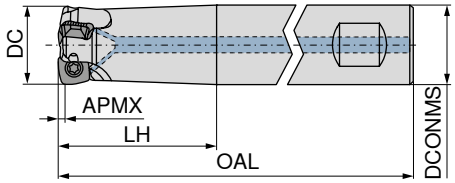




Designation	DC mm	ZNF	APMX mm	LPR mm	DCONMS mm	THSZMS	DRVS mm	RPMX 1/min.	torque moment Nm	Insert	50 682 ...
GHFC.16.R.02-06	16	2	0,8	27	8,5	M8	10	20800	1,2	XPLX 0603..	616
GHFC.20.R.03-06	20	3	0,8	33	10,5	M10	15	19800	1,2	XPLX 0603..	620
GHFC.25.R.04-06	25	4	0,8	35	12,5	M12	17	18700	1,2	XPLX 0603..	625
GHFC.32.R.05-06	32	5	0,8	35	17,0	M16	24	22000	1,2	XPLX 0603..	632
GHFC.42.R.07-06	42	7	0,8	35	17,0	M16	24	15000	1,2	XPLX 0603..	04207
GHFC.25.R.02-09	25	2	1,0	35	12,5	M12	17	30000	3,2	XDLX 09T3..	025
GHFC.25.R.03-09	25	3	1,0	35	12,5	M12	17	30000	3,2	XDLX 09T3..	125
GHFC.32.R.03-09	32	3	1,0	35	17,0	M16	24	27000	3,2	XDLX 09T3..	032
GHFC.42.R.05-09	42	5	1,0	35	17,0	M16	24	26100	3,2	XDLX 09T3..	04205
GHFC.32.R.02-12	32	2	2,0	35	17,0	M16	24	21600	5	XOLX 1204..	132
GHFC.35.R.03-12	35	3	2,0	35	17,0	M16	24	21360	5	XOLX 1204..	035
GHFC.42.R.04-12	42	4	2,0	35	17,0	M16	24	20800	5	XOLX 1204..	04204

MaxiMill – End milling cutter C HFC

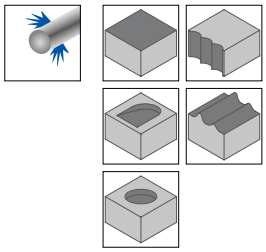


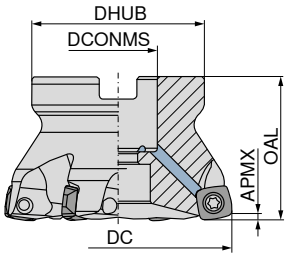


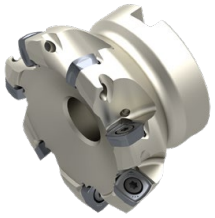


Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS $_{h6}$ mm	RPMX 1/min.	torque moment Nm	Insert	A 50 681 ...	B 50 681 ...
CHFC.16.R.02-06-A-40-200	16	2	0,8	200	40	16	4600	1,2	XPLX 0603..	716	
CHFC.16.R.02-06-B-40	16	2	0,8	89	40	16	17300	1,2	XPLX 0603..		616
CHFC.20.R.03-06-B-50	20	3	0,8	101	50	20	14500	1,2	XPLX 0603..		620
CHFC.20.R.03-06-A-50-225	20	3	0,8	225	50	20	4200	1,2	XPLX 0603..	720	
CHFC.25.R.04-06-B-50	25	4	0,8	107	50	25	15600	1,2	XPLX 0603..		625
CHFC.25.R.04-06-A-50-225	25	4	0,8	225	50	25	4600	1,2	XPLX 0603..	725	
CHFC.32.R.05-06-B-25-60	32	5	0,8	117	60	25	11000	1,2	XPLX 0603..		632
CHFC.32.R.05-06-A-25-60-225	32	5	0,8	225	60	25	3900	1,2	XPLX 0603..	732	
CHFC.25.R.02-09-A-50-225	25	2	1,0	225	50	25	9000	3,2	XDLX 09T3..	025	
CHFC.25.R.03-09-A-50-225	25	3	1,0	225	50	25	9000	3,2	XDLX 09T3..	125	
CHFC.32.R.03-09-A-63-250	32	3	1,0	250	63	32	8100	3,2	XDLX 09T3..	032	
CHFC.32.R.02-12-A-63-250	32	2	2,0	250	63	32	6480	5	XOLX 1204..	132	
CHFC.35.R.03-12-A-63-250	35	3	2,0	250	63	32	6480	5	XOLX 1204..	035	

MaxiMill – Shell mill A HFC







Designation	DC mm	ZNF	APMX mm	OAL mm	DCONMS H6 mm	DHUB mm	RPMX 1/min.	torque moment Nm	Insert	50 683 ...
AHFC.32.R.03-09	32	3	1,0	40	16	38	27700	3,2	XDLX 09T3..	**032**
AHFC.35.R.04-09	35	4	1,0	40	16	38	26700	3,2	XDLX 09T3..	**035**
AHFC.40.R.04-09	40	4	1,0	40	16	38	26400	3,2	XDLX 09T3..	**140**
AHFC.42.R.05-09	42	5	1,0	40	16	38	26100	3,2	XDLX 09T3..	**142**
AHFC.50.R.05-09	50	5	1,0	40	22	43	23500	3,2	XDLX 09T3..	**150**
AHFC.52.R.06-09	52	6	1,0	40	22	43	23000	3,2	XDLX 09T3..	**152**
AHFC.63.R.06-09	63	6	1,0	40	22	48	20500	3,2	XDLX 09T3..	**163**
AHFC.66.R.07-09	66	7	1,0	40	22	48	20000	3,2	XDLX 09T3..	**16600**
AHFC.40.R.03-12	40	3	2,0	40	16	38	21120	5	XOLX 1204..	**040**
AHFC.42.R.04-12	42	4	2,0	40	16	38	20880	5	XOLX 1204..	**042**
AHFC.50.R.04-12	50	4	2,0	40	22	43	18800	5	XOLX 1204..	**050**
AHFC.52.R.05-12	52	5	2,0	40	22	43	18400	5	XOLX 1204..	**052**
AHFC.63.R.05-12	63	5	2,0	40	22	48	16400	5	XOLX 1204..	**063**
AHFC.66.R.06-12	66	6	2,0	40	22	48	16000	5	XOLX 1204..	**066**
AHFC.80.R.07-12	80	7	2,0	50	27	58	14000	5	XOLX 1204..	**080**
AHFC.100.R.08-12	100	8	2,0	50	32	78	12000	5	XOLX 1204..	**100**
AHFC.63.R.05-19	63	5	3,3	40	22	48	5500	5	XOLX 1906..	**263**
AHFC.80.R.06-19	80	6	3,3	50	27	58	4700	5	XOLX 1906..	**280**
AHFC.100.R.08-19	100	8	3,3	52	32	78	4100	5	XOLX 1906..	**300**
AHFC.125.R.10-19	125	10	3,3	63	40	88	3600	5	XOLX 1906..	**325**
AHFC.160.R.11-19	160	11	3,3	63	40	98	3100	5	XOLX 1906..	**360** 1)

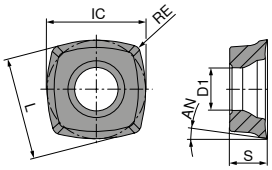
1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

Spare parts	TORX® blade 80 950 ...	 Clamping key - T 80 397 ...	 Key D 80 950 ...	 Power Screw 70 950 ...	 Molykote 70 950 ...	 Clamping screw 70 950 ...	 Torque screwdriver 80 950 ...
XDLX 09T3..	**036**		**113**		**303**	**110**	**192**
XDLX 09T3.. (Ø32 – Ø42)	**036**	**040**	**113**	**151**	**303**	**110**	**192**
XOLX 1204..	**037**		**114**		**303**	**01200**	**193**
XOLX 1204.. (Ø40 – Ø42)	**037**	**040**	**114**	**151**	**303**	**01200**	**193**
XOLX 1906..	**037**		**114**		**303**	**302**	**193**
XPLX 0603..	**033**		**110**		**303**	**116**	**192**

15

XPLX / XDLX / XOLX / XOHX

Designation	IC mm	D1 mm	L mm	BS mm	S mm	AN °
XPLX 0603..	6,35	2,8	6	1	2,75	11
XDLX 09T3..	9,52	4,4	9	1,9	3,97	15
XO.X 1204..	12,70	5,5	12	1,3	4,76	10
XOLX 1906..	19,14	6,0	19	-	6,35	10



XPLX

NEW

	-M50 CTCP220	-M50 CTPP225	-M50 CTPP235	-M50 CTPM225	-M50 CTPM240	-F40 CTPM245	-F40 CTCM245
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
	XPLX	XPLX	XPLX	XPLX	XPLX	XPLX	XPLX
	51 019 ...	**51 019 ...**	**51 019 ...**	**51 019 ...**	**51 019 ...**	**51 116 ...**	**51 116 ...**
ISO RE mm							
060305ER 0,5						**455**	**90501**
060305SR 0,5	**255**	**055**	**105**	**205**	**405**		
P	●	●	●	●	○	●	●
M			○	●	●	●	●
K			○				
N							
S							○
H							
O							

XPLX

	-M50 CTCK215	-F40 CTC5240	-F40 CTCS245
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
	XPLX	XPLX	XPLX
	51 019 ...	**50 518 ...**	**51 116 ...**
ISO RE mm			
060305ER 0,5		**558**	**55500**
060305SR 0,5	**505**		
P			
M			
K	●		
N			
S		●	●
H			
O			

XDLX

		-M50 CTCP220	-M50 CTPP225	-M50 CTCP230	-M50 CTPP235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		XDLX	XDLX	XDLX	XDLX
		51 016 ...	51 016 ...	51 016 ...	51 016 ...
ISO	RE mm				
09T308SR	0,8	258	058	008	108
P		●	●	●	●
M					○
K				○	○
N					
S					
H					
O					

XDLX

		NEW					
		-M50 CTPM225	-M50 CTCM235	-M50 CTPM240	-F40 CTPM245	-M50 CTPM245	-M50 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		XDLX	XDLX	XDLX	XDLX	XDLX	XDLX
		51 016 ...	51 016 ...	51 016 ...	51 115 ...	51 016 ...	51 016 ...
ISO	RE mm						
09T308ER	0,8				458		
09T308SR	0,8	208	308	408		458	90801
P		●	●	○	●	●	●
M		●	●	●	●	●	●
K							
N							
S							○
H							
O							

15

XDLX / XOLX

		-M50 CTCK215	NEW -M50 CTPK220	-F40 CTC5240	-F40 CTCS245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		XDLX	XOLX	XDLX	XDLX
		51 016 ...	51 017 ...	50 503 ...	51 115 ...
ISO	RE mm				
09T308ER	0,8			558	558
09T308SR	0,8	508			
190615SR	1,5		61500		
P					
M					
K		●	●		
N					
S				●	●
H					
O					

XOLX

		-M50 CTCP220	-M50 CTPP225	-M50 CTCP230	-M50 CTPP235	-R50 CTPP235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		XOLX	XOLX	XOLX	XOLX	XOLX
		51 017 ...	51 017 ...	51 017 ...	51 017 ...	51 018 ...
ISO	RE mm					
120410SR	1,0	260	060	010	110	110
P		●	●	●	●	●
M					○	○
K				○	○	○
N						
S						
H						
O						

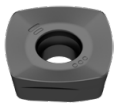
XOLX

		-M50 CTPM225	-M50 CTCM235	-M50 CTPM240	-F40 CTPM245	-M50 CTPM245	NEW -F40 CTCM245	NEW -M50 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		XOLX	XOLX	XOLX	XOLX	XOLX	XOLX	XOLX
		51 017 ...	51 017 ...	51 017 ...	51 022 ...	51 017 ...	51 022 ...	51 017 ...
ISO	RE mm							
120410ER	1,0				460		91001	
120410SR	1,0	210	310	410		460		91001
P		●	●	○	●	●	●	●
M		●	●	●	●	●	●	●
K								
N								
S							○	○
H								
O								

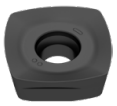
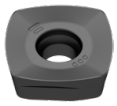
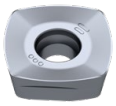
XOLX / XOHX

		-M50 CTCK215	-F40 CTC5240	-F50 CTC5240	-F40 CTCS245	-F50 CTCS245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		XOLX	XOLX	XOHX	XOLX	XOHX
		51 017 ...	50 504 ...	51 124 ...	51 022 ...	51 124 ...
ISO	RE mm					
120410ER	1,0		558		560	
120410SR	1,0	510		16000		56000
P						
M						
K		●				
N						
S			●	●	●	●
H						
O						

XOLX

		-M50 CTCP230 DRAGONSKIN	-M50 CTPP235 DRAGONSKIN	-M50 CTPM240 DRAGONSKIN	-F40 CTPM245 DRAGONSKIN
					
		XOLX	XOLX	XOLX	XOLX
		51 017 ...	51 017 ...	51 017 ...	51 022 ...
ISO	RE mm				
190615ER	1,5				465
190615SR	1,5	015	115	415	
P		●	●	○	●
M			○	●	●
K		○	○		
N					
S					
H					
O					

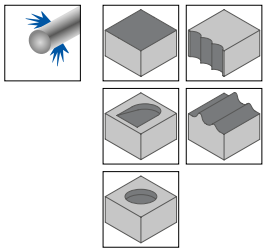
XOLX

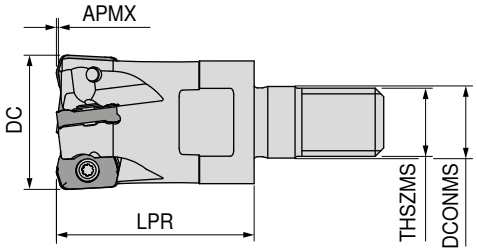
		NEW -F40 CTCM245 DRAGONSKIN	-M50 CTCK215 DRAGONSKIN	NEW -M50 CTPK220 DRAGONSKIN	-F40 CTC5240 DRAGONSKIN	-F40 CTCS245 DRAGONSKIN
						
		XOLX	XOLX	XOLX	XOLX	XOLX
		51 022 ...	51 017 ...	51 017 ...	50 504 ...	51 022 ...
ISO	RE mm					
190615ER	1,5	91501			515	56500
190615SR	1,5		515	61500		
P		●				
M		●				
K			●	●		
N						
S		○			●	●
H						
O						

Milling guide

Cutting data standard values	→ 141–144	Machining strategy	→ 172–175
Starting Parameter	→ 172–175	Technical Information	→ 189–194
Chip groove description and overview	→ 195–197	Grade description and overview	→ 198–201

MaxiMill – Screw in cutter G DHFC

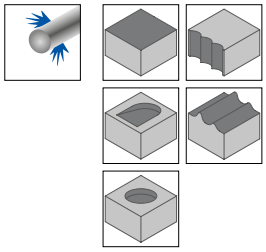


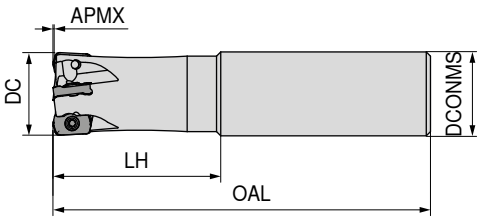




Designation	DC mm	ZNF	APMX mm	LPR mm	DCONMS mm	THSZMS	torque moment Nm	Insert	56 411 ...
GDHFC.16.R.02-09	16	2	0,75	29	8,5	M8	0,65	LNKX 0925..	01602
GDHFC.16.R.03-09	16	3	0,75	29	8,5	M8	0,65	LNKX 0925..	01603
GDHFC.20.R.04-09	20	4	0,75	29	10,5	M10	0,65	LNKX 0925..	02004
GDHFC.25.R.05-09	25	5	0,75	33	12,5	M12	0,65	LNKX 0925..	02505
GDHFC.32.R.05-09	32	5	0,75	42	17,0	M16	0,65	LNKX 0925..	03205
GDHFC.35.R.06-09	35	6	0,75	42	17,0	M16	0,65	LNKX 0925..	03506
GDHFC.42.R.06-09	42	6	0,75	42	17,0	M16	0,65	LNKX 0925..	04206

MaxiMill – End milling cutter C DHFC







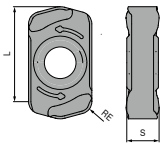


Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS $_{h6}$ mm	torque moment Nm	Insert	56 417 ...
CDHFC.16.R.05-09-A-32	16	3	0,75	80	32	16	0,65	LNKX 0925..	01603
CDHFC.20.R.04-09-A-40	20	4	0,75	90	40	20	0,65	LNKX 0925..	02004

Spare parts DC	TORX® blade	Key D	Molykote	Clamping screw	Torque screwdriver
	80 950 ...	80 950 ...	70 950 ...	56 950 ...	80 950 ...
16 - 42	051	117	303	15000	191

LNKX

Designation	L mm	S mm
LNKX 0925..	9	2,50



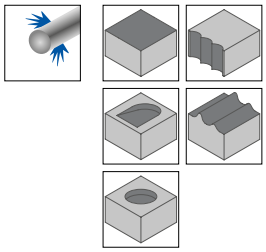
LNKX

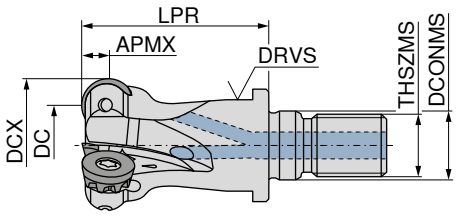
		-R50 CTPP231	-M50 CTPP236	-R50 CTPP236	-M50 CTPM241	-R50 CTPK221
						
		LNKX	LNKX	LNKX	LNKX	LNKX
		56 353 ...	56 355 ...	56 353 ...	56 355 ...	56 353 ...
ISO	RE mm					
0925ZSR	1	12000	02500	02000	42500	27000
P		●	●	●	○	○
M		○	○	○	●	
K		○	○	○		●
N						
S					○	
H						
O						

Milling guide

Cutting data standard values	→ 141–144	Machining strategy	→ 176
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

MaxiMill – Screw in cutter G 251



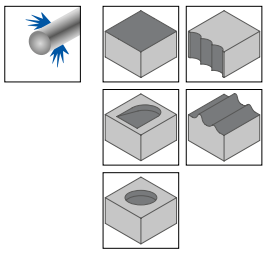


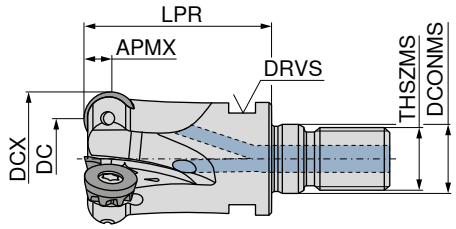


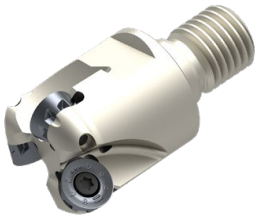
55 112 ...

Designation	DC mm	DCX mm	ZNF	APMX mm	THSZMS	LPR mm	DCONMS mm	DRVS mm	torque moment Nm	Insert	
G251.10.R.02-05	5	10	2	2,5	M8	20	8,5	10	0,7	RDHX 0501..	110
G251.12.R.03-05	7	12	3	2,5	M8	20	8,5	10	0,7	RDHX 0501..	112
G251.15.R.04-05	10	15	4	2,5	M8	20	8,5	10	0,7	RDHX 0501..	115
G251.16.R.04-05	11	16	4	2,5	M8	20	8,5	10	0,7	RDHX 0501..	216
G251.20.R.05-05	15	20	5	2,5	M10	25	10,5	15	0,7	RDHX 0501..	320
G251.20.R.03-08	12	20	3	4,0	M10	28	10,5	15	1,2	RDHX 0802..	420
G251.25.R.04-08	17	25	4	4,0	M12	28	12,5	17	1,2	RDHX 0802..	425
G251.32.R.06-08	24	32	6	4,0	M16	28	17,0	24	1,2	RDHX 0802..	432
G251.35.R.06-08	27	35	6	4,0	M16	28	17,0	24	1,2	RDHX 0802..	435
G251.20.R.02-10	10	20	2	5,0	M10	33	10,5	15	2	RP.X 10T3..	220
G251.32.R.04-10	22	32	4	5,0	M16	35	17,0	24	2	RP.X 10T3..	232
G251.35.R.05-10	25	35	5	5,0	M16	35	17,0	24	2	RP.X 10T3..	235
G251.25.R.02-12.IK	13	25	2	6,0	M12	35	12,5	17	3,2	RP.X 1204..	525
G251.32.R.03-12.IK	20	32	3	6,0	M16	35	17,0	24	3,2	RP.X 1204..	532
G251.35.R.03-12.IK	23	35	3	6,0	M16	35	17,0	24	3,2	RP.X 1204..	535
G251.42.R.04-12.IK	30	42	4	6,0	M16	42	17,0	24	3,2	RP.X 1204..	542

MaxiMill – Screw in cutter G 251 RS



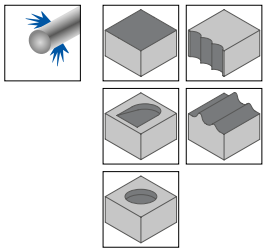


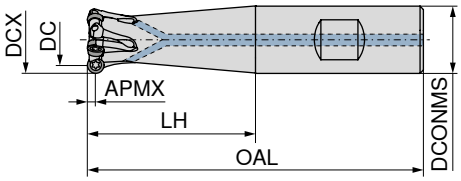


50 684 ...

Designation	DC mm	DCX mm	ZNF	APMX mm	DCONMS mm	LPR mm	THSZMS	DRVS mm	RPMX 1/min.	torque moment Nm	Insert	
G251.20.R.05-05-RS	15	20	5	2,5	10,5	33	M10	15	31800	0,7	RDHX 0501..	220
G251.25.R.06-05-RS	20	25	6	2,5	12,5	35	M12	17	24450	0,7	RDHX 0501..	225
G251.32.R.07-05-RS	27	32	7	2,5	17,0	35	M16	24	19850	0,7	RDHX 0501..	232
G251.20.R.03-08-RS	12	20	3	4,0	10,5	33	M10	15	25000	1,2	RDHX 0802..	120
G251.25.R.04-08-RS	17	25	4	4,0	12,5	35	M12	17	19000	1,2	RDHX 0802..	125
G251.32.R.05-08-35-RS	24	32	5	4,0	17,0	35	M16	24	19000	1,2	RDHX 0802..	132
G251.20.R.02-10-RS	10	20	2	5,0	10,5	33	M10	15	30000	2	RP.X 10T3..	020
G251.25.R.03-10-RS	15	25	3	5,0	12,5	35	M12	17	30000	2	RP.X 10T3..	025
G251.32.R.04-10-RS	22	32	4	5,0	17,0	35	M16	24	25000	2	RP.X 10T3..	032
G251.25.R.02-12-35-RS	13	25	2	6,0	12,5	35	M12	17	25000	3,2	RP.X 1204..	525
G251.32.R.03-12-35-RS	20	32	3	6,0	17,0	35	M16	24	19850	3,2	RP.X 1204..	532
G251.35.R.03-12-35-RS	23	35	3	6,0	17,0	35	M16	24	15900	3,2	RP.X 1204..	535
G251.42.R.04-12-42-RS	30	42	4	6,0	17,0	42	M16	24	15000	3,2	RP.X 1204..	542

MaxiMill – End milling cutter C 251 RS



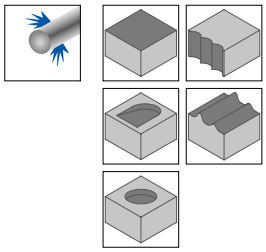


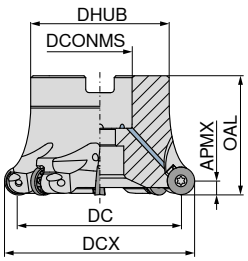


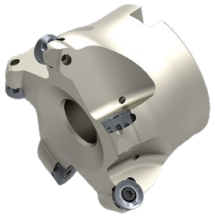
Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	RPMX 1/min.	Insert	A 50 685 ...	B 50 685 ...
C251.10.R-02-05-B-12-20-RS	5	10	2	2,5	67	21,5	12	40000	RDHX 0501..		010
C251.10.R-02-05-A-25-165-RS	5	10	2	2,5	165	25,0	10	12000	RDHX 0501..	110	
C251.12.R-03-05-B-16-25-RS	7	12	3	2,5	75	25,0	16	40000	RDHX 0501..		012
C251.12.R-03-05-A-32-165-RS	7	12	3	2,5	165	32,0	12	16000	RDHX 0501..	112	
C251.16.R-04-05-B-32-RS	11	16	4	2,5	81	32,0	16	40000	RDHX 0501..		316
C251.16.R-04-05-A-40-165-RS	11	16	4	2,5	165	40,0	16	18000	RDHX 0501..	016	
C251.20.R-05-05-B-40-RS	15	20	5	2,5	91	40,0	20	31800	RDHX 0501..		620
C251.20.R-05-05-A-50-165-RS	15	20	5	2,5	165	50,0	20	18000	RDHX 0501..	120	
C251.16.R-02-08-B-32-RS	8	16	2	4,0	81	32,0	16	40000	RDHX 0802..		116
C251.16.R-02-08-A-40-165-RS	8	16	2	4,0	165	40,0	16	18000	RDHX 0802..	216	
C251.20.R-03-08-B-40-RS	12	20	3	4,0	91	40,0	20	31800	RDHX 0802..		220
C251.20.R-03-08-A-60-RS	12	20	3	4,0	110	50,0	20	30000	RDHX 0802..	020	
C251.20.R-03-08-A-50-200-RS	12	20	3	4,0	200	50,0	20	25000	RDHX 0802..	320	
C251.25.R-04-08-B-50-RS	17	25	4	4,0	107	50,0	25	25500	RDHX 0802..		625
C251.25.R-04-08-A-60-RS	17	25	4	4,0	116	60,0	25	19000	RDHX 0802..	125	
C251.25.R-04-08-A-60-225-RS	17	25	4	4,0	225	60,0	25	18000	RDHX 0802..	225	
C251.20.R-02-10-A-50-RS	10	20	2	5,0	102	50,0	20	25000	RP.X 10T3..	420	
C251.20.R-02-10-A-50-200-RS	10	20	2	5,0	200	50,0	20	25000	RP.X 10T3..	520	
C251.25.R.03-10-A-60-RS	15	25	3	5,0	116	60,0	25	25000	RP.X 10T3..	025	
C251.25.R-03-10-B-60-RS	15	25	3	5,0	116	60,0	25	20000	RP.X 10T3..		325
C251.25.R-03-10-A-60-225-RS	15	25	3	5,0	225	60,0	25	18000	RP.X 10T3..	425	
C251.32.R.04-10-A-70-RS	22	32	4	5,0	130	70,0	32	25000	RP.X 10T3..	032	
C251.25.R-02-12-B-30-RS	13	25	2	6,0	86	30,0	25	25000	RP.X 1204..		525
C251.32.R-03-12-A-RS	20	32	3	6,0	100	40,0	32	19000	RP.X 1204..	232	
C251.32.R-03-12-B-40-RS	20	32	3	6,0	100	40,0	32	19000	RP.X 1204..		132

Spare parts Insert	TORX® blade 80 950 ...	Key D 80 950 ...	Molykote 70 950 ...	Clamping screw 70 950 ...	Torque screwdriver 80 950 ...
RDHX 0501..	031	108	303	149	191
RDHX 0802..	033	110	303	116	191
RP.X 10T3..	035	112	303	840	192
RP.X 1204..	036	113	303	304	192

MaxiMill – Shell mill A 251 RS







50 686 ...

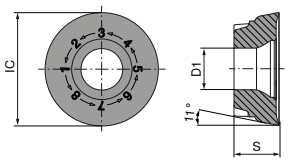
Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS H6 mm	RPMX 1/min.	torque moment Nm	Insert	
A251.40.R.03-10-RS	30	40	3	5	40	38	16	15900	2	RP.X 10T3..	**240**
A251.40.R.05-10-RS	30	40	5	5	40	38	16	16000	2	RP.X 10T3..	**140**
A251.42.R.06-10-RS	32	42	6	5	40	38	16	16000	2	RP.X 10T3..	**142**
A251.50.R.04-10-RS	40	50	4	5	40	43	22	12700	2	RP.X 10T3..	**350**
A251.50.R.06-10-RS	40	50	6	5	40	43	22	12500	2	RP.X 10T3..	**150**
A251.52.R.06-10-RS	42	52	6	5	40	43	22	12500	2	RP.X 10T3..	**152**
A251.40.R.04-12-RS	28	40	4	6	40	38	16	15900	3,2	RP.X 1204..	**340**
A251.50.R.04-12-RS	38	50	4	6	40	43	22	12700	3,2	RP.X 1204..	**250**
A251.50.R.05-12-RS	38	50	5	6	40	43	22	12500	3,2	RP.X 1204..	**050**
A251.52.R.05-12-RS	40	52	5	6	40	43	22	12500	3,2	RP.X 1204..	**052**
A251.63.R.06-12-RS	51	63	6	6	40	48	22	10000	3,2	RP.X 1204..	**063**
A251.66.R.07-12-RS	54	66	7	6	40	48	22	9000	3,2	RP.X 1204..	**166**
A251.80.R.05-12-RS	68	80	5	6	50	58	27	7950	3,2	RP.X 1204..	**180**
A251.80.R.07-12-RS	68	80	7	6	50	58	27	8000	3,2	RP.X 1204..	**080**
A251.100.R.06-12-RS	88	100	6	6	50	78	32	6350	3,2	RP.X 1204..	**100**
A251.100.R.10-12-RS	88	100	10	6	50	78	32	6350	3,2	RP.X 1204..	**200**
A251.50.R.04-16-RS	34	50	4	8	40	48	22	12700	5	RP.X 1605..	**450**
A251.52.R.04-16-RS	36	52	4	8	40	48	22	10100	5	RP.X 1605..	**452**
A251.63.R.05-16-RS	47	63	5	8	40	48	22	10100	5	RP.X 1605..	**163**
A251.66.R.05-16-RS	50	66	5	8	40	48	22	7950	5	RP.X 1605..	**466**
A251.80.R.06-16-RS	64	80	6	8	50	58	27	7950	5	RP.X 1605..	**280**
A251.100.R.07-16-RS	84	100	7	8	50	78	32	6350	5	RP.X 1605..	**300**
A251.125.R.08-16-RS	109	125	8	8	63	88	40	5050	5	RP.X 1605..	**225**
A251.80.R.05-20-RS	60	80	5	10	50	58	27	7950	5	RP.X 2006..	**380**
A251.100.R.06-20-RS	80	100	6	10	50	78	32	6350	5	RP.X 2006..	**400**
A251.125.R.06-20-RS	105	125	6	10	63	88	40	5050	5	RP.X 2006..	**125**

	TORX® blade	 Clamping key - T	 Key D	 Power Screw	 Molykote	 Clamping screw	 Torque screwdriver
	80 950 ...	**80 397 ...**	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts Insert							
RP.X 10T3..	**035**	**040**	**112**	**151**	**303**	**840**	**192**
RP.X 1204..	**036**	**040**	**113**	**151**	**303**	**304**	**192**
RP.X 1605..	**037**	**050**	**114**	**154**	**303**	**01200**	**193**
RP.X 2006..	**037**		**114**		**303**	**302**	**193**

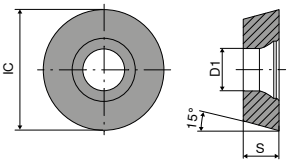
15

RDHX / RPHX / RPNX

Designation	IC mm	D1 mm	S mm
RDHX 0501..	5	2,5	1,59
RDHX 0802..	8	2,8	2,38
RP.X 10T3..	10	3,4	3,97
RP.X 1204..	12	4,4	4,76
RP.X 1605..	16	5,5	5,56
RP.X 2006..	20	6,0	6,35



RP.X 10T3.. / RP.X 1204.. / RP.X 1605.. / RPNX 2006..



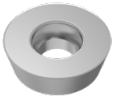
RDHX 0501.. / RDHX0802..

RDHX

NEW

	-SN CTCP230	-SN CTPP235	-F50 CTPM240	-F50 CTPM245	-F50 CTCM245
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
	RDHX	RDHX	RDHX	RDHX	RDHX
	51 048 ...	51 048 ...	51 083 ...	51 083 ...	51 083 ...
ISO					
0501M0SN	020	120		465	
0802M0SN	025	125	420	470	92001
0802M4SN				471	92101
P	●	●	○	●	●
M		○	●	●	●
K	○	○			
N					
S					○
H					
O					

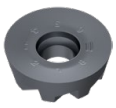
RDHX

	-EN CTCK215	-FN H216T	-M31 CTC5240	-F50 CTCS245
	DRAGONSKIN		DRAGONSKIN	DRAGONSKIN
				
	RDHX	RDHX	RDHX	RDHX
	51 048 ...	50 481 ...	50 481 ...	51 083 ...
ISO				
0501M0FN		600		
0802M0EN			500	
0802M0FN		602		
0802M0SN				570
0802M4EN	520		50100	
P				
M				
K	●	○		
N		●		
S			●	●
H				
O		○		

RPHX / RPNX

	-SN TCM10	-F50 CTCP230 DRAGONSKIN	-M50 CTCP230 DRAGONSKIN	-SN CTCP230 DRAGONSKIN	-SN CTCP230 DRAGONSKIN
					
	CERMET				
	RPHX	RPNX	RPNX	RPHX	RPNX
	50 483 ...	51 055 ...	51 054 ...	51 052 ...	51 057 ...
ISO					
10T3M0SN	900				
10T3M8SN		020	020	020	
1204M0SN	902				
1204M8SN		025	025	025	025
1605M8SN			030	030	030
2006M8SN					035
P	●	●	●	●	●
M					
K	○	○	○	○	○
N					
S					
H					
O					

RPHX / RPNX

	-F50 CTPP235 DRAGONSKIN	-F50 CTPP235 DRAGONSKIN	-M30 CTPP235 DRAGONSKIN	-M30 CTPP235 DRAGONSKIN
				
	RPHX	RPNX	RPHX	RPNX
	51 051 ...	51 055 ...	51 049 ...	51 053 ...
ISO				
10T3M8EN			120	
10T3M8SN	12000	120		
1204M8SN	125	125		
1605M0SN		130		
2006M8EN				120
P	●	●	●	●
M	○	○	○	○
K	○	○	○	○
N				
S				
H				
O				

15

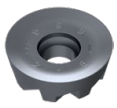
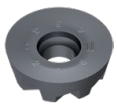
RPNX / RPHX

	-M50 CTPP235 DRAGONSKIN	-M50 CTPP235 DRAGONSKIN	-SN CTPP235 DRAGONSKIN	-SN CTPP235 DRAGONSKIN
				
	RPNX	RPHX	RPHX	RPNX
	51 054 ...	51 050 ...	51 052 ...	51 057 ...
ISO				
10T3M8SN	12000	12000	120	
1204M8SN	125		125	125
1605M8SN	130		130	130
2006M8SN				135
P	●	●	●	●
M	○	○	○	○
K	○	○	○	○
N				
S				
H				
O				

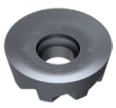
RPHX

	-F50 CTPM225 DRAGONSKIN	-M30 CTPM225 DRAGONSKIN	-SN CTPM225 DRAGONSKIN	-F50 CTCM235 DRAGONSKIN	-M30 CTCM235 DRAGONSKIN
					
	RPHX	RPHX	RPHX	RPHX	RPHX
	51 051 ...	51 049 ...	51 052 ...	51 051 ...	51 049 ...
ISO					
1204M8EN		225			325
1204M8SN	225		225	325	
P	●	●	●	●	●
M	●	●	●	●	●
K					
N					
S					
H					
O					

RPHX / RPNX

	-F50 CTPM240 DRAGONSKIN	-F50 CTPM240 DRAGONSKIN	-M30 CTPM240 DRAGONSKIN	-M30 CTPM240 DRAGONSKIN	-M50 CTPM240 DRAGONSKIN
					
	RPHX	RPNX	RPHX	RPNX	RPHX
	51 051 ...	51 055 ...	51 049 ...	51 053 ...	51 050 ...
ISO					
10T3M8EN			420		
10T3M8SN	420				420
1204M8EN			425		
1204M8SN	425				425
1605M8EN			430		
1605M8SN	430				
2006M8EN				420	
2006M8SN		435			
P	○	○	○	○	○
M	●	●	●	●	●
K					
N					
S					
H					
O					

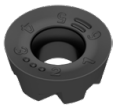
RPHX / RPNX

	CTPM245 DRAGONSKIN	-F50 CTPM245 DRAGONSKIN	-F50 CTPM245 DRAGONSKIN	-M32 CTPM245 DRAGONSKIN	-M50 CTPM245 DRAGONSKIN
					
	RPHX	RPHX	RPNX	RPHX	RPHX
	51 052 ...	51 051 ...	51 055 ...	51 108 ...	51 050 ...
ISO					
10T3M4SN		470 [1]	470 [1]		470 [1]
10T3M8SN		471	471		471
1204M4EN	475 [1]			475 [1]	
1204M4SN		475 [1]	475 [1]		475 [1]
1204M6SN		476			476
1204M8SN		477	476		477
1605M8SN		480			
2006M4SN		485 [1]			
2006M8SN			485		
P	●	●	●	●	●
M	●	●	●	●	●
K					
N					
S					
H					
O					

1) Insert with 4 indexes

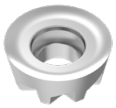
15

RPNX / RPHX

	NEW -F50 CTCM245 DRAGONSKIN	NEW -M50 CTCM245 DRAGONSKIN	NEW -F50 CTCM245 DRAGONSKIN	NEW -M50 CTCM245 DRAGONSKIN
				
	RPNX	RPNX	RPHX	RPHX
	51 055 ...	51 054 ...	51 051 ...	51 050 ...
ISO				
10T3M4SN	92001 [1]		92001 [1]	92001 [1]
10T3M8SN	92101		92101	
1204M4SN	92501 [1]		92501 [1]	92501 [1]
1204M6SN		92601	92601	92601
1204M8SN	92601			92701
1605M8SN	93001		93001	
2006M8SN	93501	93501		
P	●	●	●	●
M	●	●	●	●
K				
N				
S	○	○	○	○
H				
O				

1) Insert with 4 indexes

RPNX / RPHX

	-R30 CTCK215 DRAGONSKIN	-SN CTCK215 DRAGONSKIN	-SN CTCK215 DRAGONSKIN	-SN CTPK220 DRAGONSKIN	-27P H216T
					
	RPNX	RPHX	RPNX	RPNX	RPHX
	51 056 ...	51 052 ...	51 057 ...	51 057 ...	50 483 ...
ISO					
10T3M8EN	520				
10T3M8FN					600
10T3M8SN		520		620	
1204M8EN	525				
1204M8FN					602
1204M8SN		525	525	625	
1605M8FN					604
1605M8SN		530	530	630	
2006M8SN			535	635	
P					
M					
K	●	●	●	●	○
N					●
S					
H					
O					○

RPNX / RPHX

ISO	NEW -M31 CTC5240 DRAGONSKIN	-M31 CTC5240 DRAGONSKIN	-F50 CTCS245 DRAGONSKIN	-F50 CTCS245 DRAGONSKIN	-R60 CTP6215
					
	RPNX	RPHX	RPHX	RPNX	RPNX
	51 149 ...	**50 493 ...**	**51 051 ...**	**51 055 ...**	**50 508 ...**
10T3M4EN		550 [1]			
10T3M4SN			570 [1]		
10T3M8EN		551			
10T3M8SN			571		
1204M4EN		552 [1]			
1204M4SN			575		
1204M6EN		56200	57800		
1204M8EN		582			300
1204M8SN			577		
1605M8EN		555	58100		
2006M8EN	12001				
2006M8SN				585	
P					
M					
K					●
N					
S	●	●	●	●	
H					●
O					

1) Insert with 4 indexes

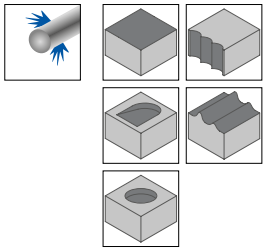
Milling guide

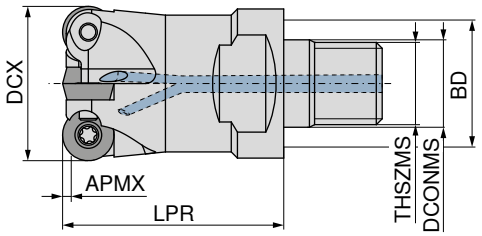
Cutting data standard values	→ 141–144	Machining strategy	→ 177
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

15

Button insert milling cutter R 1000 G

▲ Insert angle 0°





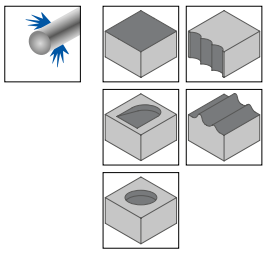


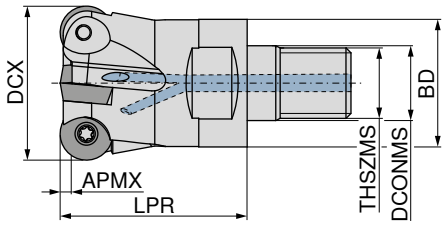
Designation	DCX mm	ZNF	APMX mm	THSZMS	LPR mm	DCONMS mm	BD mm	torque moment Nm	Insert	56 403 ...
R1000G.15.4.M8-05.IK	15	4	1,3	M8	20,5	8,5	13,8	0,43	RDHX 0501..	151
R1000G.20.5.M10-05.IK	20	5	1,3	M10	25,5	10,5	18,0	0,43	RDHX 0501..	201
R1000G.12.2.M8-07.IK	12	2	1,5	M8	28,5	8,5	11,8	0,75	RD.X 07T1..	123
R1000G.15.3.M8-07.IK	15	3	1,5	M8	28,5	8,5	13,8	0,75	RD.X 07T1..	152
R1000G.20.4.M10-07.IK	20	4	1,5	M10	28,5	10,5	18,0	0,75	RD.X 07T1..	202
R1000G.25.5.M12-07.IK	25	5	1,5	M12	28,5	10,5	21,0	0,75	RD.X 07T1..	251
R1000G.15.2.M8-07.IK	15	2	1,5	M8	28,5	8,5	13,8	0,9	RD.X 0702..	153
R1000G.16.3.M8-07.IK	16	3	1,5	M8	28,5	8,5	13,8	0,9	RD.X 0702..	161
R1000G.20.4.M10-07.IK	20	4	1,5	M10	28,5	10,5	18,0	0,9	RD.X 0702..	203
R1000G.25.5.M12-07.IK	25	5	1,5	M12	28,5	12,5	21,0	0,9	RD.X 0702..	252
R1000G.30.5.M16-07.IK	30	5	1,5	M16	28,5	17,0	29,0	0,9	RD.X 0702..	301
R1000G.35.6.M16-07.IK	35	6	1,5	M16	28,5	17,0	29,0	0,9	RD.X 0702..	351
R1000G.42.7.M16-07.IK	42	7	1,5	M16	42,5	17,0	29,0	0,9	RD.X 0702..	421
R1000G.20.2.M10-10.IK	20	2	2,8	M10	29,0	10,5	18,0	2,4	RD.X 1003..	204
R1000G.25.2.M12-10.IK	25	2	2,8	M12	33,0	12,5	21,0	2,4	RD.X 1003..	253
R1000G.25.3.M12-10.IK	25	3	2,8	M12	33,0	12,5	21,0	2,4	RD.X 1003..	254
R1000G.30.4.M12-10.IK	30	4	2,3	M12	33,0	12,5	21,0	2,4	RD.X 1003..	302
R1000G.30.4.M16-10.IK	30	4	2,8	M16	43,0	17,0	23,0	2,4	RD.X 1003..	303
R1000G.35.5.M16-10.IK	35	5	2,8	M16	43,0	17,0	29,0	2,4	RD.X 1003..	352
R1000G.42.5.M16-10.IK	42	5	2,8	M16	43,0	17,0	29,0	2,4	RD.X 1003..	422
R1000G.42.6.M16-10.IK	42	6	2,8	M16	43,0	17,0	29,0	2,4	RD.X 1003..	423
R1000G.24.2.M12-12.IK	24	2	3,0	M12	33,0	12,5	21,0	2,4	RD.X 12T3..	241
R1000G.35.3.M16-12.IK	35	3	3,0	M16	43,0	17,0	29,0	2,4	RD.X 12T3..	353
R1000G.35.4.M16-12.IK	35	4	3,0	M16	43,0	17,0	29,0	2,4	RD.X 12T3..	354
R1000G.42.4.M16-12.IK	42	4	3,0	M16	43,0	17,0	29,0	2,4	RD.X 12T3..	424
R1000G.42.5.M16-12.IK	42	5	3,0	M16	43,0	17,0	29,0	2,4	RD.X 12T3..	425
R1000G.32.2.M16-16.IK	32	2	4,0	M16	43,5	17,0	29,0	4,3	RD.X 1604..	321
R1000G.35.3.M16-16.IK	35	3	4,0	M16	43,5	17,0	29,0	4,3	RD.X 1604..	355
R1000G.40.2.M16-20.IK	40	2	7,0	M16	53,5	17,0	29,0	4,3	RD.X 2006..	401

	TORX® blade	 Clamping Screw	 over clamp	 Key D	 Molykote	 Clamping screw	 Torque screwdriver
	80 950 ...	56 950 ...	56 950 ...	80 950 ...	70 950 ...	56 950 ...	80 950 ...
Spare parts							
Insert							
RD.X 0702..	032			109	303	006	191
RD.X 07T1..	032			109	303	004	191
RD.X 1003..	036			113	303	010	192
RD.X 12T3..	036	022		113	303	010	192
RD.X 1604..	037		210	114	303	012	192
RD.X 2006..	037		210	114	303	012	192
RDHX 0501..				108	303	002	191

Button insert milling cutter R 1007 G

- Insert angle 7°
- for Steel < 10 % Cr





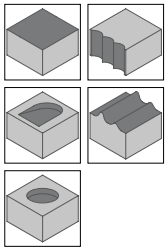


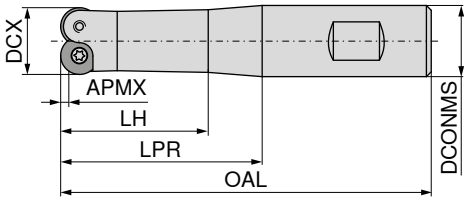
56 405 ...

Designation	DCX mm	ZNF	APMX mm	THSZMS	LPR mm	DCONMS mm	BD mm	torque moment Nm	Insert	
R1007G.25.3.M12-10.IK	25	3	2,5	M12	32,5	12,5	21	2,4	RD.X 1003..	**251**
R1007G.42.6.M16-10.IK	42	6	2,5	M16	42,5	17,0	29	2,4	RD.X 1003..	**421**
R1007G.35.3.M16-12.IK	35	3	3,0	M16	42,5	17,0	29	2,4	RD.X 12T3..	**351**
R1007G.35.4.M16-12.IK	35	4	3,0	M16	42,5	17,0	29	2,4	RD.X 12T3..	**352**

Button insert milling cutter R 1000 C

- Insert angle 0°







A

56 441 ...

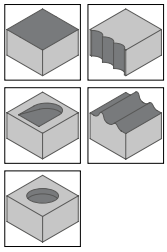
Designation	DCX mm	ZNF	APMX mm	OAL mm	LPR mm	LH mm	DCONMS mm	torque moment Nm	Insert	
R1000C.8.1.30-05	8	1	1,3	75	30	18	10	0,43	RDHX 0501..	**081**
R1000C.10.2.30-05	10	2	1,3	75	30	23	10	0,43	RDHX 0501..	**101**
R1000C.12.3.30-05	12	3	1,3	81	30	23	12	0,43	RDHX 0501..	**121**
R1000C.12.2.30-07	12	2	1,5	76	30	23	12	0,75	RD.X 07T1..	**122**

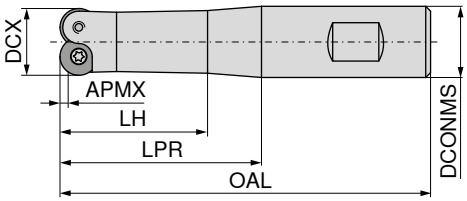
	TORX® blade	 Key D	 Molykote	 Clamping screw	 Torque screwdriver
	80 950 ...	**80 950 ...**	**70 950 ...**	**56 950 ...**	**80 950 ...**
Spare parts					
Insert					
RD.X 07T1..	**032**	**109**	**303**	**004**	**191**
RDHX 0501..		**108**	**303**	**002**	**191**

15

Button insert milling cutter R 1002 C

▲ Insert angle 0°







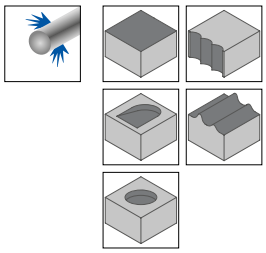
B

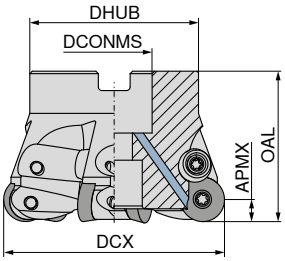
56 443 ...

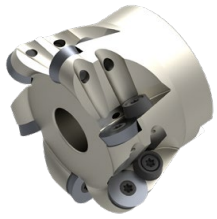
Designation	DCX mm	ZNF	APMX mm	OAL mm	LPR mm	LH mm	DCONMS mm	Insert	
R1002C.12.2.40-07	12	2	1,5	89	40	19,5	16	RD.X 07T1..	**121**
R1002C.12.2.60-07	12	2	1,5	110	60	19,5	16	RD.X 07T1..	**122**
R1002C.12.2.80-07	12	2	1,5	129	80	19,5	16	RD.X 07T1..	**123**
R1002C.15.2.40-07	15	2	2,6	89	40	23,0	16	RD.X 0702..	**151**
R1002C.15.2.60-07	15	2	2,6	109	60	23,0	16	RD.X 0702..	**152**
R1002C.15.2.80-07	15	2	2,6	131	80	22,0	20	RD.X 0702..	**153**
R1002C.15.2.100-07	15	2	2,6	151	100	22,0	20	RD.X 0702..	**154**
R1002C.20.2.40-10	20	2	4,0	91	40	23,0	20	RD.X 1003..	**201**
R1002C.20.2.60-10	20	2	4,0	111	60	23,0	20	RD.X 1003..	**202**
R1002C.20.2.80-10	20	2	4,0	137	80	23,0	25	RD.X 1003..	**203**
R1002C.20.2.100-10	20	2	4,0	157	100	23,0	25	RD.X 1003..	**204**
R1002C.20.2.120-10	20	2	4,0	177	125	23,0	25	RD.X 1003..	**205**

Button insert milling cutter R 1000 A

▲ Insert angle 0°







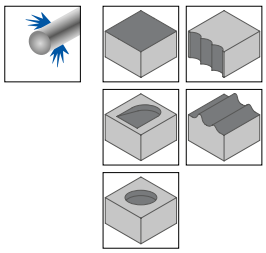
56 407 ...

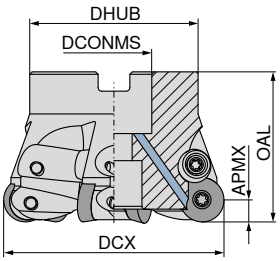
Designation	DCX mm	ZNF	APMX mm	OAL mm	DCONMS mm	DHUB mm	torque moment Nm	Insert	
R1000A.42.6.43-10.IK	42	6	2,8	43,0	16	35	2,4	RD.X 1003..	**420**
R1000A.42.4.43-12.IK	42	4	3,0	43,0	16	35	2,4	RD.X 12T3..	**421**
R1000A.42.5.43-12.IK	42	5	3,0	43,0	16	35	2,4	RD.X 12T3..	**422**
R1000A.52.5.53-12.IK	52	5	3,5	53,0	22	40	2,4	RD.X 12T3..	**521**
R1000A.52.4.53,5-16.IK	52	4	4,7	53,5	22	40	4,3	RD.X 1604..	**522**
R1000A.66.5.53,5-16.IK	66	5	5,1	53,5	27	48	4,3	RD.X 1604..	**661**
R1000A.80.6.53,5-16.IK	80	6	5,8	53,5	27	60	4,3	RD.X 1604..	**801**

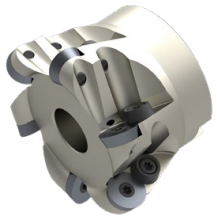
	TORX® blade	 Clamping Screw	 over clamp	 Key D	 Molykote	 Clamping screw	 Torque screwdriver
	80 950 ...	**56 950 ...**	**56 950 ...**	**80 950 ...**	**70 950 ...**	**56 950 ...**	**80 950 ...**
Spare parts							
Insert							
RD.X 1003..	**036**			**113**	**303**	**010**	**192**
RD.X 12T3..	**036**	**022**		**113**	**303**	**010**	**192**
RD.X 1604..	**037**		**210**	**114**	**303**	**012**	**192**

Button insert milling cutter R 1007 A

- ▲ Insert angle 7°
- ▲ for Steel < 10 % Cr + Milling machines with low power







Designation	DCX mm	ZNF	APMX mm	OAL mm	DCONMS mm	DHUB mm	torque moment Nm	Insert	56 409 ...
R1007A.42.6.42,5-10.IK	42	6	3,5	42,5	16	35	2,4	RD.X 1003..	**421**
R1007A.52.7.52,5-10.IK	52	7	3,5	52,5	22	40	2,4	RD.X 1003..	**521**
R1007A.52.5.52,5-12.IK	52	5	3,5	52,5	22	40	2,4	RD.X 12T3..	**522**
R1007A.66.6.52,5-12.IK	66	6	3,5	52,5	27	48	2,4	RD.X 12T3..	**661**
R1007A.80.7.54,5-12.IK	80	7	3,5	54,5	27	60	2,4	RD.X 12T3..	**801**
R1007A.52.5.53-16.IK	52	5	4,1	53,0	22	40	4,3	RD.X 1604..	**523**
R1007A.66.5.53-16.IK	66	5	4,6	53,0	27	48	4,3	RD.X 1604..	**662**
R1007A.66.6.53-16.IK	66	6	5,1	53,0	27	48	4,3	RD.X 1604..	**663**
R1007A.80.6.53-16.IK	80	6	5,1	53,0	27	60	4,3	RD.X 1604..	**802**
R1007A.100.7.53-16	100	7	5,1	53,0	32	70	4,3	RD.X 1604..	**910** 1)
R1007A.125.8.53-16	125	8	5,2	53,0	40	90	4,3	RD.X 1604..	**925** 1)
R1007A.160.9.53-16	160	9	5,1	53,0	40	120	4,3	RD.X 1604..	**960** 1)
R1007A.66.5.53-20.IK	66	5	7,0	53,0	27	48	4,3	RD.X 2006..	**664**
R1007A.80.5.53-20.IK	80	5	7,4	53,0	27	60	4,3	RD.X 2006..	**803**

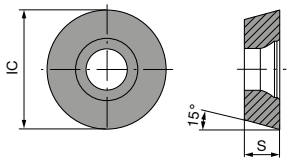
1) Without Through Coolant

	TORX® blade	 Clamping Screw	 over clamp	 Key D	 Molykote	 Clamping screw	 Torque screwdriver
	80 950 ...	**56 950 ...**	**56 950 ...**	**80 950 ...**	**70 950 ...**	**56 950 ...**	**80 950 ...**
Spare parts							
Insert							
RD.X 1003..	**036**			**113**	**303**	**010**	**192**
RD.X 12T3..	**036**	**022**		**113**	**303**	**010**	**192**
RD.X 1604..	**037**		**210**	**114**	**303**	**012**	**192**
RD.X 2006..	**037**		**210**	**114**	**303**	**012**	**192**

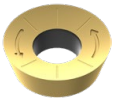
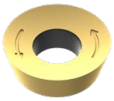
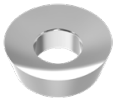
15

RDHX / RDMX / RDEX / RDPX

Designation	IC mm	S mm
RDHX 0501..	5	1,50
RD.X 07T1..	7	1,99
RD.X 0702..	7	2,38
RD.X 1003..	10	3,18
RD.X 12T3..	12	3,97
RD.X 1604..	16	4,76
RDHX 2006..	20	6,00



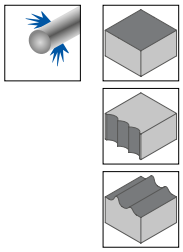
RDHX / RDMX / RDEX / RDPX

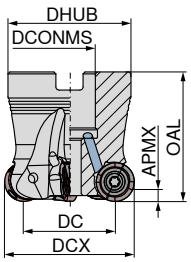
	WTN1205	WAN1240	WAX1240	-HP WAN2225	-F30P WUN4210
					
	RDHX	RDMX	RDEX	RDPX	RDHX
	56 302 ...	56 309 ...	56 314 ...	56 348 ...	56 304 ...
ISO					
0501M0T	100				
0702M0E					611
0702M0T	111		611		
07T1M0E					621
07T1M0T	121		621		
1003M0S				231	
1003M0T	131	731	631		631
12T3M0S				241	
12T3M0T	141	741	641		641
1604M0S				251	
1604M0T	151	751	651		651
2006M0T	161				661
P	●	●	●		
M	●	○	○	●	
K	●	○	○		○
N					●
S				●	
H	●				
O					○

Milling guide

Cutting data standard values	→ 178–180	Machining strategy	→ 181+182
Technical Information	→ 189–194	Grade description	→ 195–197
Designation System	→ 198–201		

MaxiMill – Shell mill A 252







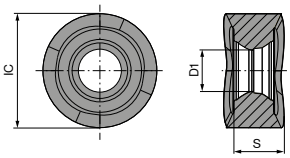
50 689 ...

Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS mm	torque moment Nm	Insert	
A252.40.R.05-10	30	40	5	2,5	40	38	16	2	RNHU 1004..	**140**
A252.42.R.05-10	32	42	5	2,5	40	38	16	2	RNHU 1004..	**142**
A252.50.R.06-10	40	50	6	2,5	40	43	22	2	RNHU 1004..	**150**
A252.52.R.07-10	42	52	7	2,5	40	43	22	2	RNHU 1004..	**152**
A252.63.R.08-10	53	63	8	2,5	40	48	22	2	RNHU 1004..	**16300**
A252.80.R.10-10	70	80	10	2,5	50	58	27	2	RNHU 1004..	**18000**
A252.40.R.04-12	28	40	4	3,0	40	38	16	3,2	RNHU 1205..	**240**
A252.50.R.05-12	38	50	5	3,0	40	43	22	3,2	RNHU 1205..	**250**
A252.52.R.05-12	40	52	5	3,0	40	43	22	3,2	RNHU 1205..	**252**
A252.63.R.06-12	51	63	6	3,0	40	48	22	3,2	RNHU 1205..	**263**
A252.66.R.07-12	54	66	7	3,0	40	48	22	3,2	RNHU 1205..	**266**
A252.80.R.08-12	68	80	8	3,0	50	58	27	3,2	RNHU 1205..	**280**
A252.100.R.10-12	88	100	10	3,0	50	78	32	3,2	RNHU 1205..	**30000**
A252.125.R.12-12	113	125	12	3,0	63	88	40	3,2	RNHU 1205..	**32500**

	TORX® blade	 Clamping key - T	 Key D	 Power Screw	 Molykote	 Clamping screw	 Torque screwdriver
	80 950 ...	**80 397 ...**	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts							
RNHU 1004.. (Ø40 – Ø80)	**053**		**127**		**303**	**710**	**192**
RNHU 1205.. (Ø40)	**054**	**040**	**128**	**151**	**303**	**839**	**192**
RNHU 1205.. (Ø50 – Ø125)	**054**		**128**		**303**	**839**	**192**

RNHU

Designation	IC mm	D1 mm	S mm
RNHU 1004..	10	3,4	4,60
RNHU 1205..	12	4,4	5,30



RNHU

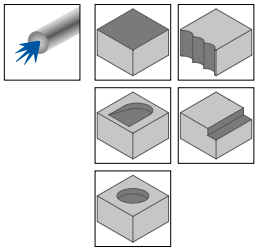
	-M50 CTPP235	-F50 CTPM240	-M31 CTPM245	-M32 CTPM245	-M31 CTC5240	-M31 CTC5240
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
	RNHU	RNHU	RNHU	RNHU	RNHU	RNHU
	51 130 ...	51 129 ...	51 106 ...	51 107 ...	50 520 ...	50 521 ...
ISO						
1004M4ER	12000	42000	470	470	550	
1205M4ER		42500	475	475		552
1205M4SR	12500					
P	●	○	●	●		
M	○	●	●	●		
K	○					
N						
S					●	●
H						
O						

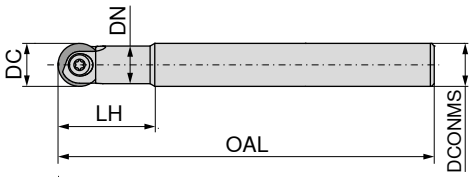
Milling guide

Cutting data standard values	→ 141–144	Machining strategy	→ 183
Technical Information	→ 189+194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

Copy milling cutter K 2000C / K 2001C

▲ with carbide shank







Designation	DC mm	DN mm	LH mm	OAL mm	DCONMS $_{h6}$ mm	torque moment Nm	56 100 ...	56 101 ...
K2000C.6.16.100	6	5,3	16	100	8	0,5	**060** [1]	
K2000C.6.20.100	6	5,8	20	100	6	0,5	**061** [1]	
K2000C.6.70.150	6	5,8	70	150	6	0,5	**062** [1]	
K2000C.6.100.200	6	5,8	100	200	6	0,5	**063** [1]	
K2000C.8.25.80	8	7,0	25	80	8	1	**081** [1]	
K2000C.8.25.100	8	7,0	25	100	8	1	**082** [1]	
K2000C.8.25.150	8	7,0	40	150	8	1	**083** [1]	
K2000C.10.35.80	10	8,8	35	80	10	3	**101** [1]	
K2000C.10.35.120	10	8,8	35	120	10	3	**102** [1]	
K2000C.10.50.150	10	8,8	50	150	10	3	**103** [1]	
K2000C/K2001C.12.35.80	12	10,5	35	80	12	4	**121** [1]	**121**
K2000C/K2001C.12.35.120	12	10,5	35	120	12	4	**122** [1]	**122**
K2000C/K2001C.12.50.160	12	10,5	50	160	12	4	**123** [1]	**123**
K2001C.16.40.100	16	14,0	40	100	16	5		**161**
K2001C.16.40.140	16	14,0	40	140	16	5		**162**
K2001C.16.55.175	16	14,0	55	175	16	5		**163**
K2001C.20.50.100	20	18,0	50	100	20	5		**201**
K2001C.20.50.140	20	18,0	50	140	20	5		**202**
K2001C.20.75.190	20	18,0	75	190	20	5		**203**
K2001C.25.60.160	25	22,4	60	160	25	8		**252**
K2001C.25.90.210	25	22,4	90	210	25	8		**253**

1) Without Through Coolant

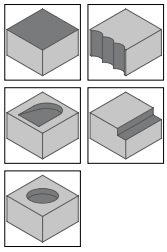
Applicable inserts

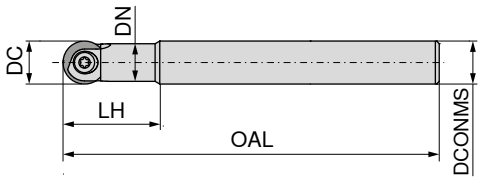
	**ROHX-FM3, ROHX-FM4, ROHX-FM6, ROHX-MR5, ROGX-MR4**

	**XOHX06.. -MR2, XOHX-FM1**

Copy milling cutter K 2002C

▲ cylindrical steel shank version







56 102 ...

Designation	DC mm	DN mm	LH mm	OAL mm	DCONMS $_{h6}$ mm	torque moment Nm	
K2002C.12.32.90	12	10,5	32	90	12	4	**121**
K2002C.12.32.130	12	10,5	32	130	12	4	**122**
K2002C.12.46.150	12	10,5	46	150	12	4	**123**
K2002C.16.36.100	16	14,0	36	100	16	5	**161**
K2002C.16.36.140	16	14,0	36	140	16	5	**162**
K2002C.16.53.160	16	14,0	53	160	16	5	**163**
K2002C.20.45.160	20	18,0	45	160	20	5	**202**
K2002C.20.61.175	20	18,0	61	175	20	5	**203**
K2002C.25.45.160	25	22,4	45	160	25	8	**252**
K2002C.25.70.190	25	22,4	70	190	25	8	**253**
K2002C.32.56.175	32	28,6	56	175	32	8	**322**
K2002C.32.80.210	32	28,6	80	210	32	8	**323**

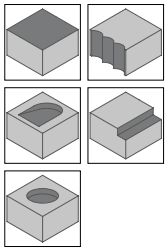
Applicable inserts

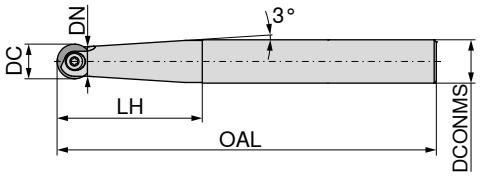
	**ROHX-FM3, ROHX-FM4, ROHX-FM6, ROHX-MR5, ROGX-MR4**

	**XOHX-FM1**

Copy milling cutter K 2003C

▲ tapered execution







56 104 ...

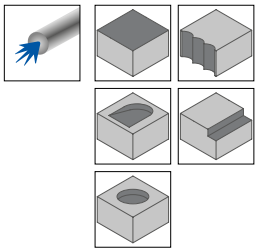
Designation	DC mm	DN mm	LH mm	OAL mm	DCONMS $_{h6}$ mm	torque moment Nm	
K2003C.6.16.90	6	5,3	40	90	10	0,5	**061**
K2003C.8.50.85	8	7,5	50	85	12	1	**081**
K2003C.8.50.140	8	7,5	50	140	12	1	**082**
K2003C.10.35.85	10	9,0	35	85	12	3	**101**
K2003C.10.35.150	10	9,0	35	150	12	3	**102**
K2003C.12.60.110	12	10,5	60	110	16	4	**121**
K2003C.12.60.160	12	10,5	60	160	16	4	**122**
K2003C.16.67.120	16	14,0	67	120	20	5	**161**
K2003C.16.67.175	16	14,0	67	175	20	5	**162**
K2003C.20.80.190	20	18,0	80	190	25	5	**201**
K2003C.25.100.210	25	22,4	100	210	32	8	**251**
K2003C.32.123.240	32	28,6	123	240	40	8	**321**

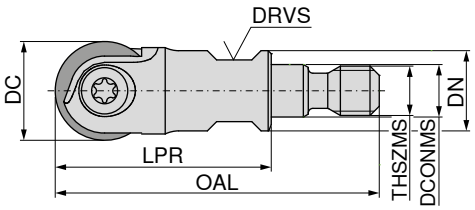
Applicable inserts

	**ROHX-FM3, ROHX-FM4, ROHX-FM6, ROHX-MR5, ROGX-MR4**

	**XOHX-FM1**

Copy milling cutter K 2000G







56 120 ...

Designation	DC mm	LPR mm	DN mm	OAL mm	DCONMS mm	THSZMS	DRVS mm	torque moment Nm	
K2000G.8.25.M6	8	25	10	39,5	6,5	M6	8	1	**081** [1]
K2000G.10.25.M6	10	25	10	39,5	6,5	M6	8	3	**101** [1]
K2000G.12.25.M6	12	25	10	39,5	6,5	M6	8	4	**121** [1]
K2000G.12.26.M8	12	26	13	43,5	8,5	M8	10	4	**122**
K2000G.16.26.M8	16	26	13	43,5	8,5	M8	10	5	**161**
K2000G.20.30.M10	20	30	18	49,5	10,5	M10	15	5	**201**
K2000G.25.40.M12	25	40	21	62,0	12,5	M12	17	8	**251**
K2000G.32.45.M16	32	45	30	69,0	17,0	M16	26	8	**321**

1) Without Through Coolant

Applicable inserts



ROHX-FM3, ROHX-FM4, ROHX-FM6, ROHX-MR5, ROGX-MR4

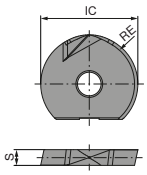


XOHX-FM1

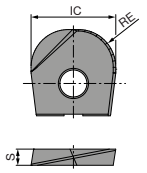
Spare parts DC	TORX® blade **80 950 ...**	 Key D **80 950 ...**	 Molykote **70 950 ...**	 Clamping screw **56 950 ...**	 Torque screwdriver **80 950 ...**
6	**031**	**108**	**303**	**041**	**191**
8	**033**	**110**	**303**	**042**	**191**
10	**036**	**113**	**303**	**043**	**193**
12	**037**	**114**	**303**	**044**	**193**
16	**037**	**114**	**303**	**045**	**193**
20	**037**	**114**	**303**	**046**	**193**
25		**131**	**303**	**047**	
32		**131**	**303**	**048**	

ROHX / XOHX / ROGX

Designation	IC mm	S mm
ROHX0616R..	6	1,60
ROHX0820R..	8	2,00
ROHX1025R..	10	2,50
XOHX10254..	10	2,50
XOHX12255..	12	2,50
RO.X1225R..	12	2,50
RO.X1630R..	16	3,00
XOHX16307..	16	3,00
XOHX20309..	20	3,00
RO.X2030R..	20	3,00
RO.X2540R..	25	4,00
RO.X3250R..	32	5,00



RO.X



XOHX

ROHX / XOHX / ROGX

	-MR5 CTPP211	-FM1 CTPP216	-FM3 CTPP216	-FM4 CTPP216	-FM4 CTPK226	-MR4 CTPK231	-FM6 CTCN211
							
	ROHX	XOHX	ROHX	ROHX	ROHX	ROGX	ROHX
	56 149 ...	56 169 ...	56 147 ...	56 141 ...	56 141 ...	56 143 ...	56 145 ...
ISO	RE mm						
0616 R3	3,0			30200	90200			602 [1]
0820 R4	4,0	71300		31300	71300	11300		613 [1]
1025 R5	5,0	72400		32400	72400	12400		624 [1]
102540	4,0		92400					
1225 R6	6,0			33500	73500	13500	53500	635 [1]
122550	5,0		93500					
1630 R8	8,0			34600	74600	14600	54600	646 [1]
163070	7,0		94700					
2030 R10	10,0			35700	75700	15700	55700	
203090	9,0		95900					
2540 R12,5	12,5			36800	76800	16800	56800	
3250 R16	16,0			37900	77900	17900	57900	
P		●	●	●	●	●	●	
M		○	○	○	○	●	●	
K		○	●	●	●	●	●	
N		○	○	○	○		○	○
S		○	○	○	○		○	
H		○	●	●	●	○	○	
O		○	○	○	○			●

1) Specifically for machining graphite !

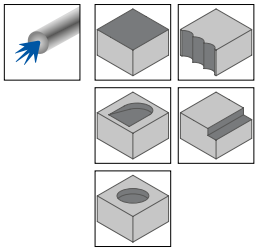
Milling guide

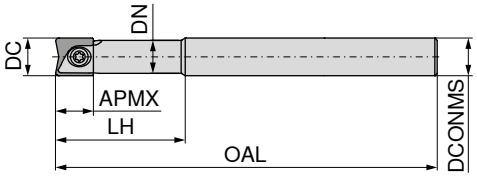
Cutting data standard values	→ 184+185	Depth of Cut	→ 186
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

15

Copy milling cutter K 2005C / K 2006C

▲ with carbide shank







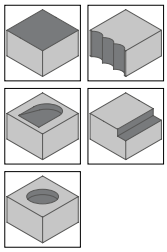
Designation	DC mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS $_{h6}$ mm	torque moment Nm	56 110 ...	56 111 ...
K2005C.8.27.82	8	9,5	7,0	27	82	8	1	**081** [1]	
K2005C.8.27.102	8	9,5	7,0	27	102	8	1	**082** [1]	
K2005C.8.42.152	8	9,5	7,0	42	152	8	1	**083** [1]	
K2005C.10.37.82	10	11,5	8,8	37	82	10	3	**101** [1]	
K2005C.10.37.122	10	11,5	8,8	37	122	10	3	**102** [1]	
K2005C.10.52.152	10	11,5	8,8	52	152	10	3	**103** [1]	
K2005C/K2006C.12.37.82	12	14,0	10,5	37	82	12	4	**121** [1]	**121**
K2005C/K2006C.12.37.122	12	14,0	10,5	37	122	12	4	**122** [1]	**122**
K2005C/K2006C.12.52.162	12	14,0	10,5	52	162	12	4	**123** [1]	**123**
K2006C.16.42.102	16	16,0	14,0	42	102	16	5		**161**
K2006C.16.42.142	16	16,0	14,0	42	142	16	5		**162**
K2006C.16.57.177	16	16,0	14,0	57	177	16	5		**163**
K2006C.20.52.102	20	18,0	18,0	52	102	20	5		**201**
K2006C.20.52.142	20	18,0	18,0	52	142	20	5		**202**
K2006C.20.77.192	20	18,0	18,0	77	192	20	5		**203**
K2006C.25.62.162	25	23,5	22,4	62	162	25	8		**252**
K2006C.25.92.212	25	23,5	22,4	92	212	25	8		**253**

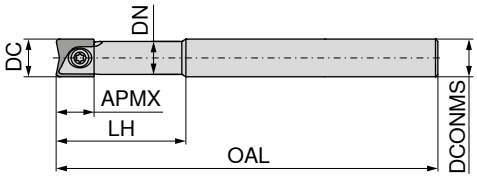
1) Without Through Coolant

Applicable inserts

	**XOHX-FM2 / -FM5 / -MR2 / -MR3 / -MR6**
	XOGX-MF4

Copy milling cutter K 2007C







56 112 ...

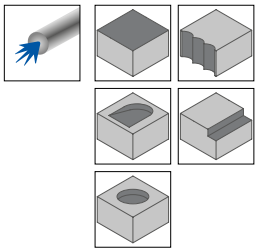
Designation	DC mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h6 mm	torque moment Nm	
K2007C.12.34.92	12	14,0	10,5	34	92	12	4	**121**
K2007C.12.34.132	12	14,0	10,5	34	132	12	4	**122**
K2007C.12.48.152	12	14,0	10,5	48	152	12	4	**123**
K2007C.16.38.102	16	16,0	14,0	38	102	16	5	**161**
K2007C.16.38.142	16	16,0	14,0	38	142	16	5	**162**
K2007C.16.55.162	16	16,0	14,0	55	162	16	5	**163**
K2007C.20.47.162	20	18,0	18,0	47	162	20	5	**202**
K2007C.20.63.177	20	18,0	18,0	63	177	20	5	**203**
K2007C.25.47.162	25	23,5	22,4	47	162	25	8	**252**
K2007C.25.72.192	25	23,5	22,4	72	192	25	8	**253**
K2007C.32.58.177	32	28,0	28,6	58	177	32	8	**322**
K2007C.32.82.212	32	28,0	28,6	82	212	32	8	**323**

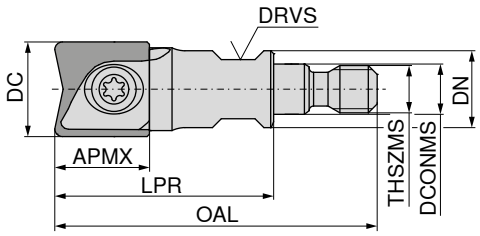
Applicable inserts

	**XOHX-FM2 / -FM5 / -MR2 / -MR3 / -MR6**
	XOGX-MF4

15

Copy milling cutter K 2005G







56 130 ...

Designation	DC mm	APMX mm	DN mm	LPR mm	OAL mm	DCONMS mm	THSZMS	DRVS mm	torque moment Nm	
K2005G.8.25.M6	8	9,5	10	25	39,5	6,5	M6	8	1	**081** [1]
K2005G.10.25.M6	10	11,5	10	25	39,5	6,5	M6	8	3	**101** [1]
K2005G.12.25.M6	12	14,0	10	25	39,5	6,5	M6	8	4	**121** [1]
K2005G.12.28.M8	12	14,0	13	28	45,5	8,5	M8	8	4	**122**
K2005G.16.28.M8	16	16,0	13	28	45,5	8,5	M8	10	5	**161**
K2005G.20.32.M10	20	18,0	18	32	51,5	10,5	M10	15	5	**201**
K2005G.25.42.M12	25	23,5	21	42	64,0	12,5	M12	17	8	**251**
K2005G.32.47.M16	32	28,0	30	47	71,0	17,0	M16	26	8	**321**

1) Without Through Coolant

Applicable inserts



XOHX-FM2 / -FM5 / -MR2 / -MR3 / -MR6
XOGX-MF4

TORX® blade

80 950 ...



Key D

80 950 ...



Molykote

70 950 ...



Clamping screw

56 950 ...



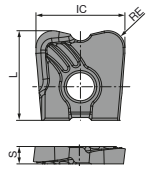
Torque screwdriver

80 950 ...

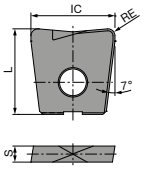
Spare parts DC										
8	**033**		**110**		**303**		**042**		**191**	
10	**036**		**113**		**303**		**043**		**193**	
12	**037**		**114**		**303**		**044**		**193**	
16	**037**		**114**		**303**		**045**		**193**	
20	**037**		**114**		**303**		**046**		**193**	
25			**131**		**303**		**047**			
32			**131**		**303**		**048**			

XOHX / XOGX

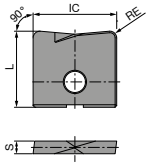
Designation	IC mm	S mm	L mm
XO.X10251..	10	2,50	11,5
XO.X12251..	12	2,50	14,0
XO.X16301..	16	3,00	16,0
XO.X16303..	16	3,00	16,0
XO.X20301..	20	3,00	18,0
XO.X20304..	20	3,00	18,0
XOGX12252..	12	2,50	14,0
XOHX06160..	6	1,60	8,0
XOHX08200..	8	2,00	9,5
XOHX08201..	8	2,00	9,5
XOHX10250..	10	2,50	11,5
XOHX12252..	12	3,00	14,0
XOHX20302..	20	3,00	18,0
XOHX25401..	25	4,00	23,5
XOHX25402..	25	4,00	23,5
XOHX25405..	25	4,00	23,5
XOHX32502..	32	5,00	28,0



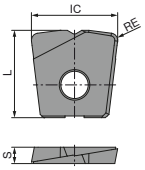
XOGX



XOHX

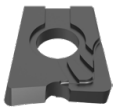
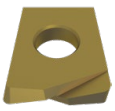


XOHX



XOHX

XOHX / XOGX

ISO	RE mm	-MR2 CTPP211	-MR6 CTPP211	-FM2 CTPP216	-FM5 CTPP216	-MF4 CTPP216	-MR3 CTPK231	-MR2 CTCN211
		 XOHX	 XOHX	 XOHX	 XOHX	 XOGX	 XOHX	 XOHX
		56 167 ...	56 163 ...	56 165 ...	56 159 ...	56 161 ...	56 171 ...	56 168 ...
061605	0,5	71000						610 1)
082006	0,6		71000	71000	71000			
082010	1,0	71200		71200				612 1)
102508	0,8		72100	72100	72100		32100	
102510	1,0	72200		72200		92200		622 1)
122510	1,0	73200	73200	73200	73200	93200	53200	632 1)
122520	2,0	73500		73500		93500		
163010	1,0	74200		74200		94200		642 1)
163013	1,3		74300	74300	74300			
163015	1,5						54400	
163030	3,0	74700		74500		94700		
203010	1,0	75200		75200		95200		
203016	1,6		75400	75400	75400			
203020	2,0						55500	
203040	4,0	75800		75800		95800		
254010	1,0	76200		76200				
254020	2,0		76500	76500	76500			
254050	5,0	76900		76900				
325025	2,5		77600		77600			
P		●	●	●	●	●	●	
M		○	○	○	○	○	●	
K		○	○	●	●	●	●	
N		○	○	○	○	○	○	○
S		○	○	○	○	○	○	
H		○	○	●	●	●	○	
O		○	○	○	○	○		●

1) Specifically for machining graphite !

Milling guide

Cutting data standard values	→ 184+185	Depth of Cut	→ 186
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

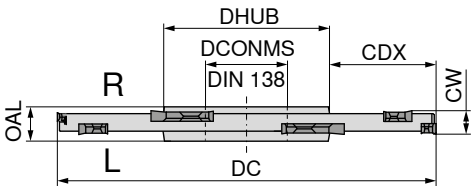
15

Saw Cutter TX

▲ Note: side and face milling cutters TX are cross-pitched and equipped with indexable inserts for both right-hand and left-hand version.
▲ ZEFP = number of inserts

Scope of supply:
side and face milling cutter, 2 spare clamping screws and 1 Torx key







Designation	DC mm	CW mm	ZNF	CDX mm	DCONMS mm	DHUB mm	OAL mm	ZEFP	Insert	torque moment Nm	50 730 ...
TX.STF.80X27.03.Z4	80	3	4	18,0	27	40	8	8	TX. 161702	0,7	**083**
TX.STF.100X32.03.Z5	100	3	5	25,0	32	46	8	10	TX. 161702	0,7	**103**
TX.STF.125X40.03.Z6	125	3	6	32,0	40	54	10	12	TX. 161702	0,7	**123**
TX.STF.160X40.03.Z8	160	3	8	50,0	40	54	10	16	TX. 161702	0,7	**163** 1)
TX.STF.80X27.04.Z4	80	4	4	18,0	27	40	8	8	TX. 162302	1,3	**084**
TX.STF.100X32.04.Z5	100	4	5	25,0	32	46	8	10	TX. 162302	1,3	**104**
TX.STF.125X40.04.Z6	125	4	6	32,0	40	54	10	12	TX. 162302	1,3	**124**
TX.STF.160X40.04.Z8	160	4	8	50,0	40	54	10	16	TX. 162302	1,3	**164** 1)
TX.STF.80X27.06.Z4	80	6	4	21,0	27	36	10	8	TX. 223202	2	**086**
TX.STF.80X22.06.Z4	80	6	4	22,0	22	33	10	8	TX. 223202	2	**080**
TX.STF.100X32.06.Z5	100	6	5	25,5	32	47	10	10	TX. 223202	2	**106**
TX.STF.125X40.06.Z6	125	6	6	32,5	40	58	10	12	TX. 223202	2	**136**
TX.STF.160X40.06.Z8	160	6	8	50,0	40	58	10	16	TX. 223202	2	**166** 1)
TX.STF.80X27.08.Z4	80	8	4	21,0	27	36	12	8	TX. 224302	2,8	**088**
TX.STF.100X32.08.Z5	100	8	5	25,5	32	47	12	10	TX. 224302	2,8	**108**
TX.STF.125X40.08.Z6	125	8	6	32,5	40	58	12	12	TX. 224302	2,8	**138**
TX.STF.160X40.08.Z8	160	8	8	50,0	40	58	12	16	TX. 224302	2,8	**168** 1)
TX.STF.80X27.10.Z4	80	10	4	21,0	27	36	12	8	TX. 225402	3	**090**
TX.STF.100X32.10.Z5	100	10	5	25,5	32	47	12	10	TX. 225402	3	**110**
TX.STF.125X40.10.Z6	125	10	6	32,5	40	58	14	12	TX. 225402	3	**140**
TX.STF.160X40.10.Z8	160	10	8	50,0	40	58	14	16	TX. 225402	3	**170** 1)

1) Without Through Coolant

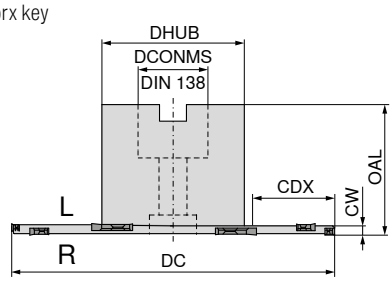
Spare parts CW	TORX® blade 80 950 ...	 Key D 80 950 ...	 Molykote 70 950 ...	 Clamping screw 70 950 ...	 Torque screwdriver 80 950 ...
3	**032**	**109**	**303**	**858**	**191**
4	**033**	**110**	**303**	**218**	**191**
6	**036**	**113**	**303**	**101**	**192**
8	**037**	**114**	**303**	**135**	**192**
10	**037**	**114**	**303**	**146**	**192**

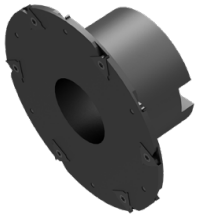
TX shell / side and face milling cutter

▲ Note: side and face milling cutters TX are cross-pitched and equipped with indexable inserts for both right-hand and left-hand version.
▲ ZEFP = number of inserts

Scope of supply:
side and face milling cutter, 2 spare clamping screws and 1 Torx key







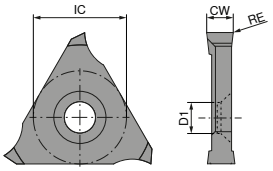
Designation	DC mm	CW mm	ZNF	CDX mm	DCONMS mm	DHUB mm	OAL mm	ZEFP	torque moment Nm	Insert	50 734 ...
TX.ASF.100.R.03.Z5	100	3	5	25,0	27	48	50	10	0,7	TX. 161702	**300**
TX.ASF.125.R.03.Z6	125	3	6	37,5	27	48	50	12	0,7	TX. 161702	**225**
TX.ASF.160.R.03.Z8	160	3	8	44,0	40	70	50	16	0,7	TX. 161702	**260** 1)
TX.ASF.100.R.04.Z5	100	4	5	25,0	27	48	50	10	3,2	TX. 162302	**100**
TX.ASF.125.R.04.Z6	125	4	6	37,5	27	48	50	12	3,2	TX. 162302	**025**
TX.ASF.125.R.04.Z6	125	4	6	26,5	40	70	50	12	3,2	TX. 162302	**125**
TX.ASF.160.R.04.Z8	160	4	8	55,0	27	48	50	16	3,2	TX. 162302	**060** 1)
TX.ASF.160.R.04.Z8	160	4	8	44,0	40	70	50	16	3,2	TX. 162302	**160** 1)
TX.ASF.180.R.04.Z9	180	4	9	54,0	40	70	50	18	3,2	TX. 162302	**180** 1)
TX.ASF.200.R.04.Z10	200	4	10	64,0	40	70	50	20	3,2	TX. 162302	**200** 1)

1) Without Through Coolant

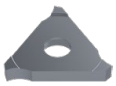
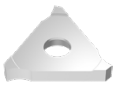
		 Washer	TORX® blade	 Clamping Screw	 Key D	 Molykote	 Clamping screw	 Torque screwdriver
		70 950 ...	**80 950 ...**	**70 950 ...**	**80 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts								
CW	**DCONMS**							
3	27	**221**	**032**	**219**	**109**	**303**	**858**	**191**
3	40	**222**	**032**	**220**	**109**	**303**	**858**	**191**
4	27	**221**	**033**	**219**	**110**	**303**	**218**	**192**
4	40	**222**	**033**	**220**	**110**	**303**	**218**	**192**

TX-L / TX-R

Designation	IC mm	D1 mm	CW mm
TX . 1617..	10	3,95	1,7
TX . 1623..	10	3,95	2,3
TX . 2232..	13	5,50	3,2
TX . 2243..	13	5,50	4,3
TX . 2254..	13	5,50	5,4



TX-L / TX-R

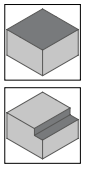
		CWX500	CWX500	CWK10	CWK10
					
		TX-L	TX-R	TX-L	TX-R
		50 382 ...	**50 381 ...**	**50 382 ...**	**50 381 ...**
ISO	RE mm				
TX 161702	0,2	**217**	**217**		
TX 162302	0,2	**223**	**223**		
TX 223202	0,2	**232**	**232**	**532**	**532**
TX 224302	0,2	**243**	**243**	**543**	**543**
TX 225402	0,2	**254**	**254**	**554**	**554**
P		●	●		
M		●	●		
K		●	●		
N		●	●	●	●
S		○	○		
H					
O		○	○	○	○

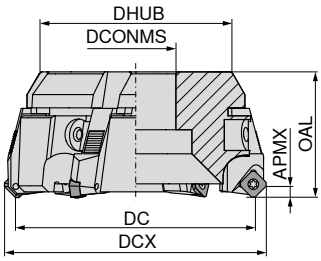
Milling guide

Cutting data standard values	→ 187	Technical Information	→ 189–194
Chip groove description and overview	→ 195–197	Grade description and overview	→ 198–201

MaxiMill – Combi Mill Base Holder 260

▲ Basic body with clamping wedges, without cartridges







DC mm	ZNF	DCONMS mm	DHUB mm	OAL mm	WT kg	50 715 ...
80	5	27	66	52	1	**080**
100	6	32	86	52	2	**100**
125	7	40	95	63	3	**125**
160	10	40	130	63	6	**160** 1)
200	12	60	172	63	9	**200** 1)
250	14	60	222	63	17	**250** 1)
315	18	60	280	80	31	**315** 1)
400	22	60	365	80	52	**400** 1)

1) Without Through Coolant

For information on axial runout setting, see → **page 188**

Spare parts DC	 Clamping wedge screw 70 950 ...	 Clamping Wedge 70 950 ...	 Key-T 70 950 ...	 Molykote 70 950 ...	 Eccentric Key 70 950 ...
80 - 400	**297**	**296**	**317**	**303**	**298**

Insert related diameter

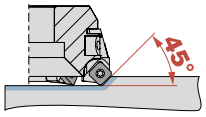
		Nominal Ø in mm															
		80		**100**		**120**		**160**		**200**		**250**		**315**		**400**	
	Inserts	**DC mm**	**DCX mm**	**DC mm**	**DCX mm**	**DC mm**	**DCX mm**	**DC mm**	**DCX mm**	**DC mm**	**DCX mm**	**DC mm**	**DCX mm**	**DC mm**	**DCX mm**	**DC mm**	**DCX mm**
	SD.. 0903..	80	88,4	100	108,4	123	131,4	158	166,4	198	206,4	248	256,4	313	321,4	398	406,4
	SD.. 1204..	80	94,5	100	114,5	123	137,5	158	172,5	198	212,5	248	262,5	313	327,5	398	412,5
	SE.. 1204..	80	93	100	113	123	136	158	171	198	211	248	261	313	326	398	411
	SD.. 1504..	75	94	95	114	118	137	153	172	193	212	243	262	308	327	393	412
	SP.. 1204..	82	88	102	108	125	131	160	166	200	206	250	256	315	321	400	406
	OA.. 0605..	80	85,6	100	105,6	123	128,6	158	163,6	198	203,6	248	253,6	313	318,6	398	403,6
	RP.X 1204..	80	92	100	112	123	135	158	170	198	210	248	260	313	325	398	410
	RP.X 16..	76	92	96	112	119	135	154	170	194	210	244	260	309	325	394	410
	SD.. 1205..	89		109		132		167		207		257		322		407	
	SD.. 09T3	89		109		132		167		207		257		322		407	
	LD..1504..	89		109		132		167		207		257		322		407	
	XD.T 11T3	89		109		132		167		207		257		322		407	
	XDKT 1505	89		109		132		167		207		257		322		407	
	AP.. 1003..	89		109		132		167		207		257		322		407	
	TPKW 2204..	89		109		132		167		207		257		322		407	

15

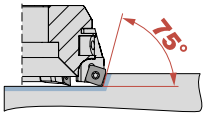
MaxiMill 260/combi cutter system

Cassette for inserts

Face milling

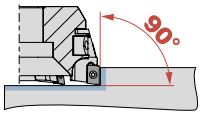


	SD.. 0903..	SD.. 1204.. XD.. 1204..	SE.. 1204..	SD.. 1504..	SA.. 1706..	OA.. 0605..
Cartridge no.	041	031	029	032	058	057
Article no. 70 950 ...	329	411	306	412	30800	338



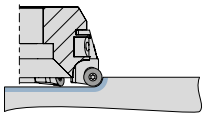
	SP.. 1204..
Cartridge no.	018
Article no. 70 950 ...	310

Shoulder milling



	AP.. 1003..	LD.. 1504..	XD.T 11T3..	XDKT 1505..	SD.. 1205..	SD.. 09T3..	TPKW 2204..
Cartridge no.	042	051	054	056	039	055	025
Article no. 70 950 ...	307	300	336	339	311	337	313

Face/Copy milling



	RP.X 1204..	RP.X 16....
Cartridge no.	052	053
Article no. 70 950 ...	333	707

Insert	APMX mm	Cassette 70 950 ...
AP.. 1003..	8,0	307
LD.. 1504..	14,0	300
OA.. 0605..	3,5	338
RP.X 1204..	6,0	333
RP.X 16..	8,0	707
SAKU 1706	8,4	30800
SD.. 0903..	4,0	329
SD.. 09T3..	8,0	337
SD.. 1204..	6,0	411
SD.. 1205..	6,0	311
SD.. 1504..	9,0	412
SE.. 1204..	6,0	306
SP.. 1204..	9,0	310
TPKW 2204..	18,0	313
XD.T 11T3	10,0	336
XDKT 1505..	14,0	339

Spare parts Insert	TORX® blade 80 950 ...	 Key D 80 950 ...	 Molykote 70 950 ...	 Clamping screw 70 950 ...	 Torque screwdriver 80 950 ...
AP.. 1003..	033	110	303	112	191
OA.. 0605..	037	114	303	302	193
RP.X 1204.. / LD.. 1504..	036	113	303	304	192
SD.. 0903..	033	110	303	115	191
SD.. 09T3..	036	113	303	110	192
SD.. 1204.. / SE.. 1204.. / SP.. 1204.. / SD.. 1205.. / SD.. 1504.. / RP.X 16.. / TPKW 2204..	037	114	303	280	193
XD.T.. 11T3..	043	125	303	131	191
XDKT 1505..	054	128	303	839	192

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²				
		O.3.1	Graphite						

*** Tensile strength**

Cutting data standard values

Cutting Material **hard** (v_c↑) → **tough** (v_c↓)

	DRAGONSKIN CERMET CTEP210		DRAGONSKIN CERMET TCM10		DRAGONSKIN CTCP220		DRAGONSKIN CTPP225		DRAGONSKIN CTCP230		DRAGONSKIN CTPP231		DRAGONSKIN CTPP235		DRAGONSKIN CTPP236	
Index																
P.1.1	344		292		339	170	263	157	286	150	200	100	246	137	300	180
P.1.2	302		257		308	154	234	143	242	133	170	90	208	121	270	160
P.1.3	263		224		280	140	207	129	202	118	140	80	172	106	225	130
P.1.4	250		214		270	135	198	125	189	112	170	90	160	101	270	160
P.1.5	230		197		256	128	185	118	169	105	160	90	143	94	240	140
P.2.1	308		262		313	157	238	145	249	136	170	90	214	123	270	160
P.2.2	246		211		268	134	196	124	185	111	130	70	157	100	200	120
P.2.3	230		197		256	128	185	118	169	105	170	90	143	94	270	160
P.2.4	181		157		220	110	151	102	118	85	120	60	98	76	180	110
P.3.1					140	70	130	65	140	87	170	90	121	97	270	160
P.3.2					95	50	100	50	90	55	140	80	108	83	180	140
P.3.3					50	30	70	35	40	22	120	70	96	69	150	120
P.4.1					140	70	130	65	140	87	140	80	121	97	180	140
P.4.2					118	60	115	58	115	71	130	70	114	90	170	130
M.1.1											170	90	121	97	270	160
M.2.1													108	83		
M.3.1													117	93		
K.1.1									310	190	150	110	160	110	360	90
K.1.2	300		240						160	100	150	110	150	110	360	90
K.2.1	350		280						200	120	150	110	150	110	230	170
K.2.2	300		240						130	80	150	110	150	110	160	110
K.3.1	300		240						190	115					210	160
K.3.2									160	100					210	160
N.1.1																
N.1.2																
N.2.1																
N.2.2																
N.2.3																
N.3.1																
N.3.2																
N.3.3																
N.4.1																
S.1.1																
S.1.2																
S.2.1																
S.2.2																
S.2.3																
S.3.1																
S.3.2																
S.3.3																
H.1.1																
H.1.2																
H.1.3																
H.1.4																
H.2.1																
H.3.1																
O.1.1																
O.1.2																
O.2.1																
O.2.2																
O.3.1																

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions.

Cutting data standard values

Cutting Material **hard** (v_c↑) → **tough** (v_c↓)

	DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN					
	CTPM225		CTCM235		CTPM240		CTPM241		CTPM245		CTCM245		CERAMIC CTN3105		CBN CTL3215	
Index																
P.1.1	272	191	251	184	226	141	200	100	244	139	279	134				
P.1.2	231	163	210	152	188	126	170	90	207	124	242	119				
P.1.3	193	137	172	123	152	112	140	70	173	109	208	104				
P.1.4	180	129	160	113	140	107	170	90	161	104	196	99				
P.1.5	161	116	141	99	123	100	150	80	144	97	179	92				
P.2.1	237	167	217	157	194	128	170	90	212	126	247	121				
P.2.2	177	127	157	111	137	106	120	60	158	103	193	98				
P.2.3	161	116	141	99	123	100	170	90	144	97	179	92				
P.2.4	114	84	94	62	78	83	110	60	101	78	136	73				
P.3.1	148	121	136	115	126	105	210	100	155	107	175	122				
P.3.2	121	101	128	110	112	95	180	100	143	93	163	108				
P.3.3	95	81	120	105	98	85	160	90	131	79	151	94				
P.4.1	148	121	136	115	126	105	140	90	155	107	175	122				
P.4.2	134	111	132	113	119	100	130	80	149	100	169	115				
M.1.1	**148**	**121**	**136**	**115**	**126**	**105**	**210**	**100**	**155**	**107**	**175**	**122**				
M.2.1	**121**	**101**	**128**	**110**	**112**	**95**	**180**	**90**	**143**	**93**	**163**	**108**				
M.3.1	**140**	**115**	**134**	**114**	**121**	**102**	**210**	**100**	**152**	**103**	**172**	**118**				
K.1.1													**800**		**800**	
K.1.2													**600**		**600**	
K.2.1																
K.2.2															**450**	
K.3.1																
K.3.2																
N.1.1																
N.1.2																
N.2.1																
N.2.2																
N.2.3																
N.3.1																
N.3.2																
N.3.3																
N.4.1																
S.1.1								60				80				
S.1.2								60				70				
S.2.1								60				35				
S.2.2								60				25				
S.2.3								60				30				
S.3.1								60				80				
S.3.2								60				50				
S.3.3								60				40				
H.1.1																
H.1.2															150	
H.1.3																
H.1.4																
H.2.1															280	
H.3.1																
O.1.1																
O.1.2																
O.2.1																
O.2.2																
O.3.1																

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions.

Cutting data standard values

Cutting Material **hard** (v_c↑) → **tough** (v_c↓)

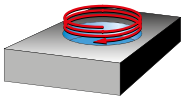
Index	CTCK215		CTPK220		CTPK221		AMZ		H216T		CTWN215		CTC5240		CTCS245		CTP6215	
	DRAGONSKIN		DRAGONSKIN										DRAGONSKIN					
	dry	wet	dry	wet	dry	wet	dry	wet	dry	wet	dry	wet	dry	wet	dry	wet	dry	wet
P.1.1					190	120												
P.1.2					180	100												
P.1.3					150	80												
P.1.4					180	100												
P.1.5					170	90												
P.2.1					180	100												
P.2.2					140	80												
P.2.3					180	100												
P.2.4					130	80												
P.3.1					210	120												
P.3.2					160	90												
P.3.3					130	80												
P.4.1					210	120												
P.4.2					190	100												
M.1.1																		
M.2.1																		
M.3.1																		
K.1.1	**360**	**210**	**320**	**190**	**270**	**200**	200		130	130	130	130					280	250
K.1.2	**220**	**130**	**170**	**100**	**270**	**200**	160		110	110	110	110					190	160
K.2.1	**230**	**140**	**210**	**130**	**250**	**180**	185		130	130	130	130					180	150
K.2.2	**160**	**100**	**140**	**90**	**180**	**120**	150		120	120	120	120					180	150
K.3.1	**250**	**150**	**200**	**120**	**220**	**170**	200		130	130	130	130					250	220
K.3.2	**210**	**130**	**170**	**100**	**220**	**170**	175		110	120	110	110					190	160
N.1.1								**1500**		**1500**		**1500**						
N.1.2								**1000**		**1000**		**1000**						
N.2.1								**1200**		**1100**		**1100**						
N.2.2								**1200**		**1000**		**1000**						
N.2.3								**300**		**280**		**280**						
N.3.1								**350**		**350**		**350**						
N.3.2								**350**		**350**		**350**						
N.3.3								**320**		**320**		**320**						
N.4.1								**320**		**320**		**320**						
S.1.1														**80**		**64**		
S.1.2														**70**		**56**		
S.2.1														**35**		**28**		
S.2.2														**25**		**20**		
S.2.3														**30**		**24**		
S.3.1														**80**		**64**		
S.3.2														**50**		**40**		
S.3.3														**40**		**32**		
H.1.1																	**50**	
H.1.2																	**40**	
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1								160	160	160	160	160						
O.1.2																		
O.2.1								180	240	240	240	240						
O.2.2																		
O.3.1																		

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions.

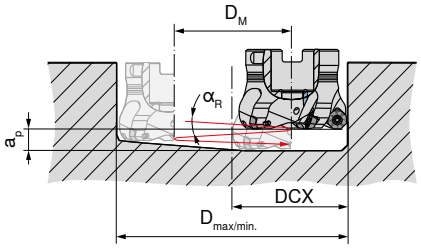
System MaxiMill 274-04/-09

Machining strategy

Helical plunge milling



$D_{max.}$ in mm = largest diameter for flat bottom hole
$D_{min.}$ in mm = smallest hole diameter for flat bottom surface
D_M = D_{max} – DCX and D_{min} – DCX



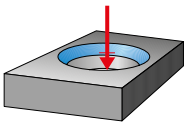
OF..04

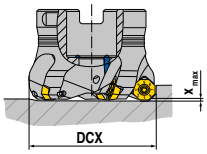
DCX mm	D_{max} mm	D_{min} mm	$\alpha_{R\,max}$ °
25,6	45	39	2,3
30,7	55	49	1,9
37,7	69	63	1,4
45,7	85	79	1,2
55,7	105	99	0,9
68,7	131	125	0,7
85,7	165	159	0,6
105,7	205	199	0,5
130,7	255	249	0,4

SF..09

DCX mm	D_{max} mm	D_{min} mm	$\alpha_{R\,max}$ °
27,4	45,00	42,0	1,9
32,5	55,00	52,0	1,5
39,2	69,00	66,0	1,1
47,6	85,00	82,0	0,9
57,6	105,00	102,0	0,7
70,5	131,00	128,0	0,5
87,5	165,00	162,0	0,4
107,5	205,00	202,0	0,3
132,5	255,00	252,0	0,3

Axial plunging





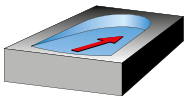
OF..04

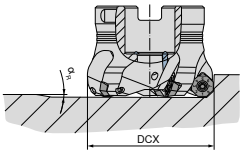
DCX mm	x_{max} mm
25,6	2,5
30,7	2,5
37,7	2,5
45,7	2,5
55,7	2,5
68,7	2,5
85,7	2,5
105,7	2,5
130,7	2,5

SF..09

DCX mm	x_{max} mm
27,4	3,7
32,5	3,5
39,2	3,2
47,6	3,1
57,6	3,1
70,5	3,0
87,5	2,9
107,5	2,7
132,5	2,7

Angled ramping





OF..04

DCX mm	$\alpha_{R\,max}$ °
25,6	14,2
30,7	9,5
37,7	6,5
45,7	4,7
55,7	3,5
68,7	2,7
85,7	2,0
105,7	1,6
130,7	1,2

SF..09

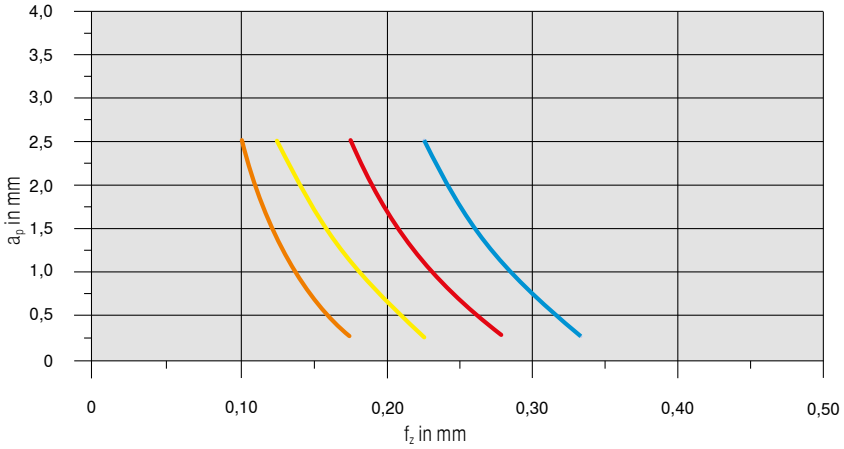
DCX mm	$\alpha_{R\,max}$ °
27,4	20,4
32,5	13,0
39,2	8,0
47,6	5,8
57,6	4,3
70,5	3,2
87,5	2,3
107,5	1,7
132,5	1,3

System MaxiMill 274-04

Starting Parameter



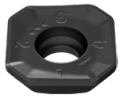
OF.. 04



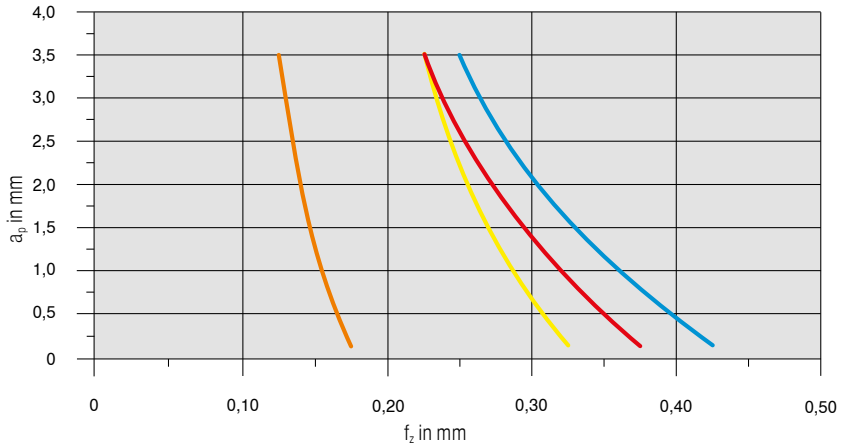
Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**OFHT040305SN-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**OFHT040305SN-F50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**OFHT040305SN-M50**	**CTCK215**	250	Dry
Heat resistant	**S.2.2**	Inconel 718	**OFHT040305SN-F50**	**CTC5240**	35	Emulsion

System MaxiMill 274-09

Starting Parameter



SF.. 09



Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**SFKT0903AFSR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SFHT0903AFSR-F50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**SFKT0903AFSR-R50**	**CTCK215**	250	Dry
Heat resistant	**S.2.2**	Inconel 718	**SFHT0903AFSR-F50**	**CTC5240**	35	Emulsion

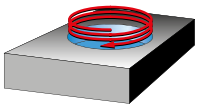
Detailed information on cutting speed for each grade can be found on → page 142–144

From v_c > 400 m/min, the tool must be balanced!

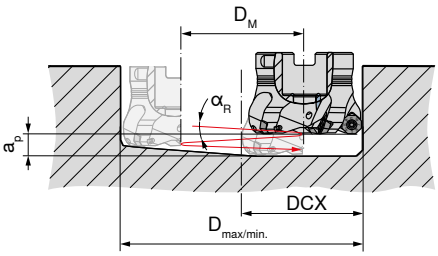
System MaxiMill 274-05/-12

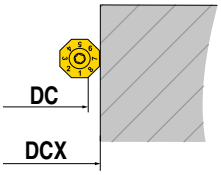
Machining strategy

Helical plunge milling



$D_{max.}$ in mm = largest diameter for flat bottom hole
$D_{min.}$ in mm = smallest hole diameter for flat bottom surface
D_M = D_{max} – DCX and D_{min} – DCX





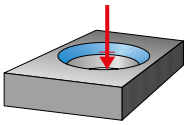
OF..05

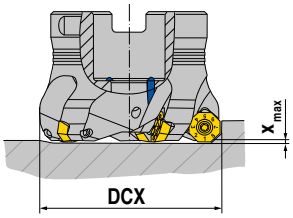
DC mm	DCX mm	D_{max} mm	D_{min} mm	$\alpha_{R\,max}$ °
50	**58**	107	99	1,1
63	**71**	133	125	0,9
80	**88**	167	159	0,7
100	**107,9**	207	199	0,5
125	**132,9**	257	249	0,4

SF..12

DC mm	DCX mm	D_{max} mm	D_{min} mm	$\alpha_{R\,max}$ °
47,0	**61,0**	107	105	0,5
59,9	**74,0**	133	131	0,4
76,9	**90,9**	167	165	0,3
96,9	**110,9**	207	205	0,25
121,9	**135,9**	257	255	0,2

Axial plunging





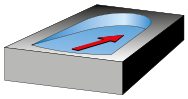
OF..05

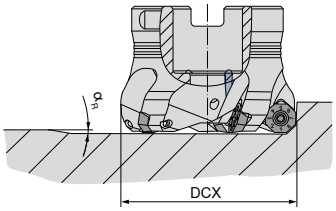
DC mm	DCX mm	X_{max} mm
50	**58**	2,2
63	**71**	1,9
80	**88**	1,8
100	**107,9**	1,1
125	**132,9**	1,4

SF..12

DC mm	DCX mm	X_{max} mm
47,0	**61,0**	3,4
59,9	**74,0**	3,2
76,9	**90,9**	3,0
96,9	**110,9**	2,5
121,9	**135,9**	2,6

Angled ramping





OF..05

DC mm	DCX mm	$\alpha_{R\,max}$ °
50	**58**	3,2
63	**71**	2,0
80	**88**	1,5
100	**107,9**	0,7
125	**132,9**	0,7

SF..12

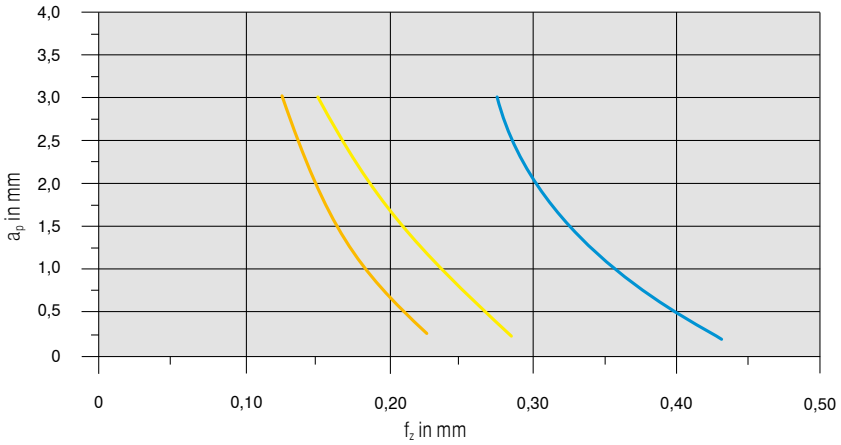
DC mm	DCX mm	$\alpha_{R\,max}$ °
47,0	**61,0**	4,9
59,9	**74,0**	3,4
76,9	**90,9**	2,4
96,9	**110,9**	1,6
121,9	**135,9**	1,3

System MaxiMill 274-05

Starting Parameter



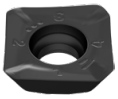
OF.. 05



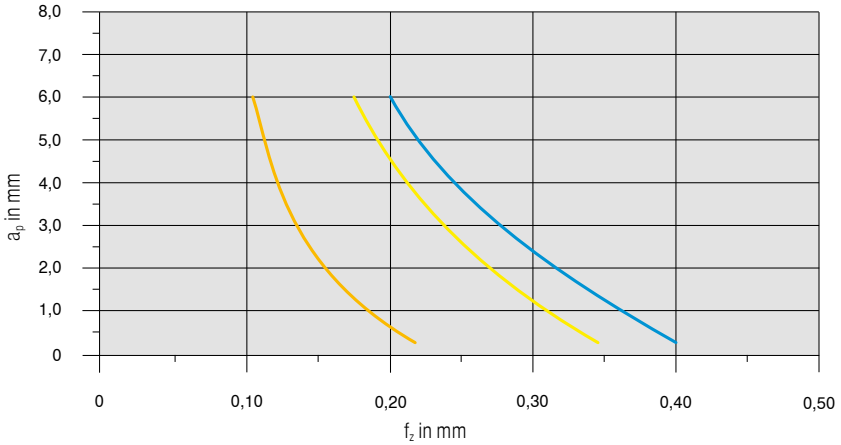
Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**OFHT050410SN-M50**	**CTCP230**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**OFHT050410SN-F50**	**CTPM240**	180	Dry
Heat resistant	**S.2.2**	Inconel 718	**OFHT050410SN-F50**	**CTC5240**	35	Emulsion

System MaxiMill 274-12

Starting Parameter



SF.. 12



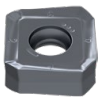
Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**SFKT1204AFSR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SFKT1204AFSR-M50**	**CTPM240**	180	Dry
Heat resistant	**S.2.2**	Inconel 718	**SFHT1204AFER-F40**	**CTC5240**	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 142–144

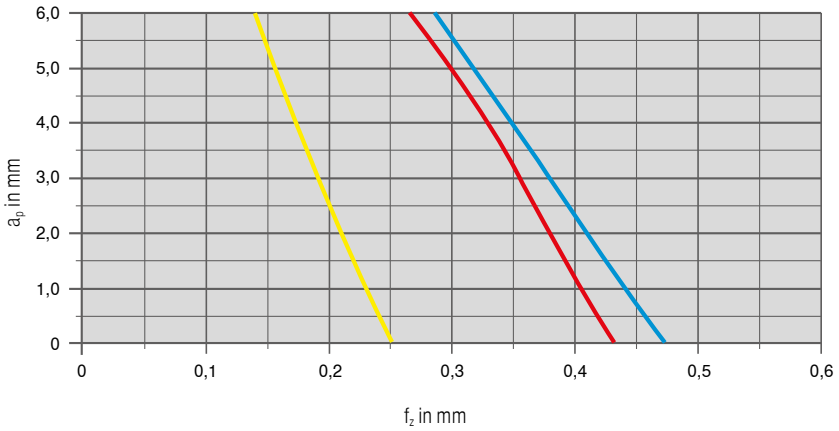
From v_c > 400 m/min, the tool must be balanced!

MaxiMill 271-12 system

Starting Parameter



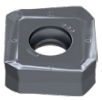
SOHU 12



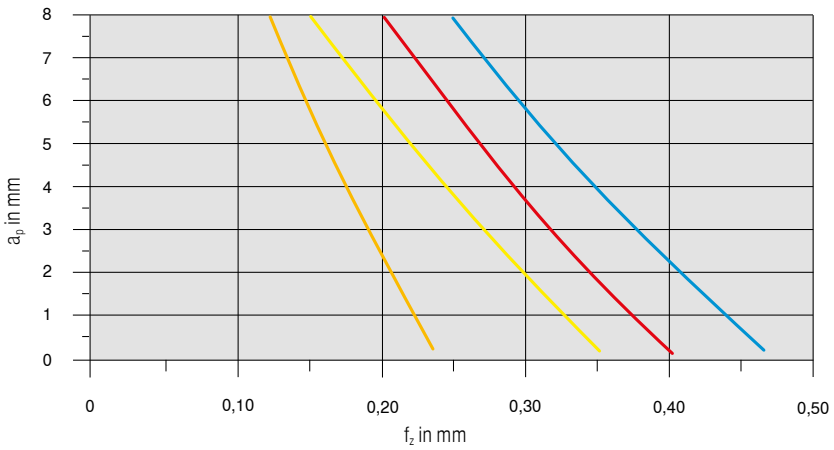
Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**SOHU 1204ABSR-M50**	**CTPP230**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SOHU 1204ABSR**	**CTPM240**		Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**SOHU 1204ABSR-R50**	**CTCK215**	300	Dry
Heat resistant	**S.2.2**	Inconel 718	**SOHU 1204ABSR-F50**	**CTC5240**	30	Emulsion

System MaxiMill 271-17

Starting Parameter



SAKU 17



Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**SAKU 1706ABSR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SAKU 1706ABSR-F50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**SAKU 1706ABSR-R50**	**CTCK215**	250	Dry
Heat resistant	**S.2.2**	Inconel 718	**SAKU 1706ABSR-F50**	**CTC5240**	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 142–144

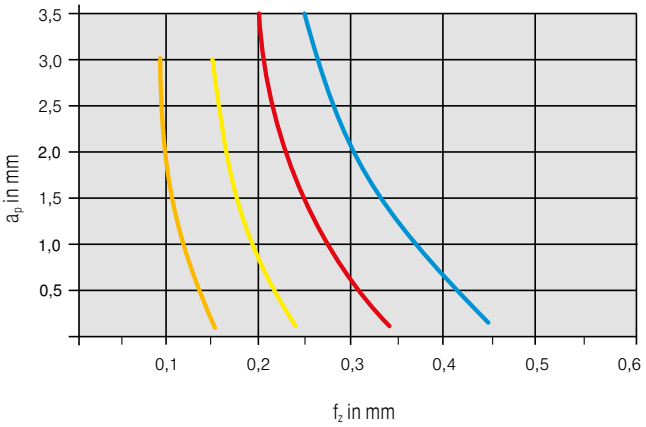
From v_c > 400 m/min, the tool must be balanced!

MaxiMill 273 system

Starting Parameter



OAKU



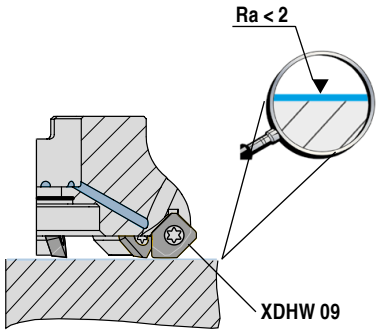
Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**OAKU 060508SR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**OAKU 060508SR-F50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**OAKU 060508SR-R50**	**CTCK215**	250	Dry
Heat resistant	**S.2.2**	Inconel 718	**OAKU 060508ER-F40**	**CTC5240**	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 142–144

From v_c > 400 m/min, the tool must be balanced!

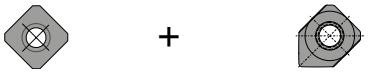
MaxiMill 270 system

Machining strategy



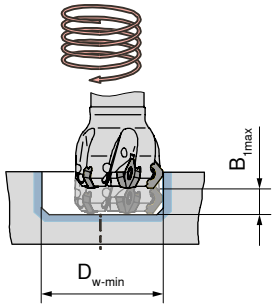
Finish milling with wiper inserts

Two wiper inserts are mounted in each 125 mm head



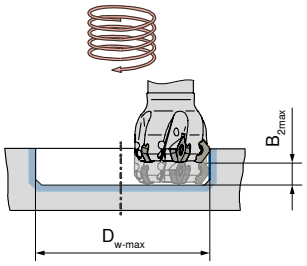
Steel	SDNT	0903AESN-29	CTPP235	+	XDHW	0903AESN	CTPP235
	SDNT	0903AESN-29	CTCP230	+	XDHW	0903AESN	CTCP230
	SDHT	0903AESN-33	CTCP230	+	XDHW	0903AESN	CTCP230
	SDHW	0903AESN	TCM10	+	XDHW	0903AESN	TCM10
Cast iron	SDNT	0903AESN-31	CTCK215	+	XDHW	0903AEEN	CTCK215
Non ferrous metals	SDHT	0903AEFN-ALP	-27P H216T	+	XDHW	0903AEFN	-27P H216T

Helical plunge milling (without start hole)



C 270-09

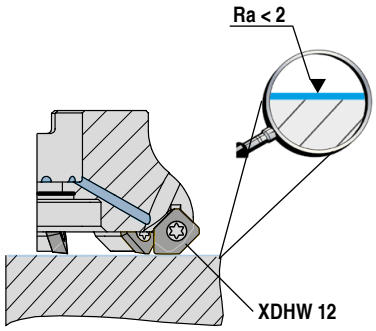
DC mm	$D_{w\text{-}min}$ mm	$B_{1\,max}$ mm	$D_{w\text{-}max}$ mm	$B_{2\,max}$ mm
6	14,4	1,5	19,0	1,5
12	28,5	1,5	31,0	1,5
16	36,5	1,5	39,0	1,5
20	44,5	1,5	47,0	1,5
25	54,5	1,5	57,0	1,5
32	68,5	1,5	71,0	1,5



A 270-09

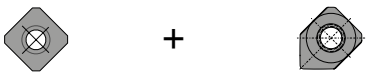
DC mm	$D_{w\text{-}min}$ mm	$B_{1\,max}$ mm	$D_{w\text{-}max}$ mm	$B_{2\,max}$ mm
32	68,5	1,5	71,0	1,5
40	84,5	1,5	87,0	1,5
50	104,5	1,5	107,0	1,5
63	130,5	1,5	133,0	1,5
80	164,5	1,5	167,0	1,5
100	204,5	1,5	207,0	1,5
125	254,5	1,5	257,0	1,5
160	324,5	1,5	327,0	1,5

System MaxiMill 270-12



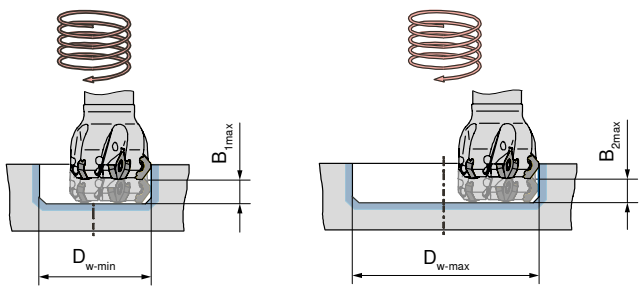
Finish milling with wiper inserts

Two wiper inserts are mounted in each 125 mm head



Steel	SDMT	1204AESN-29R	CTPP235	+	XDHW	1204AESN	CTPP235
	SDMT	1204AESN-29R	CTCP230	+	XDHW	1204AESN	CTCP230
	SDHW	1204AESN-R	TCM10	+	XDHW	1204AESN	TCM10
Cast iron	SDMT	1204AEEN-31	CTCK215	+	XDHW	1204AEEN	CTCK215
	SDHW	1204AESN-R	CTCK215	+	XDHW	1204AEEN	CTCK215
Non ferrous metals	SDHT	1204AEFN-ALP	-27P H216T	+	XDHW	1204AEFN	-27P H216T

Helical plunge milling (without start hole)

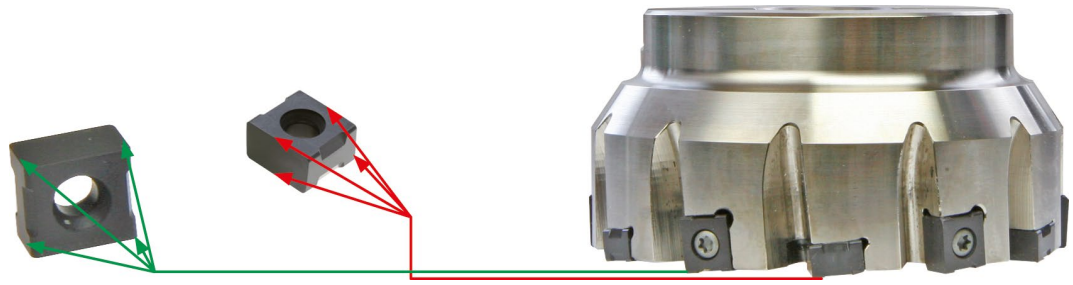


DC mm	$D_{w\text{-}min}$ mm	$B_{1\,max}$ mm	$D_{w\text{-}max}$ mm	$B_{2\,max}$ mm
32	74,5	1,5	78,0	1,5
40	90,5	1,5	94,0	1,5
50	110,5	1,5	114,0	1,5
63	136,5	1,5	140,0	1,5
80	170,5	1,5	174,0	1,5
100	210,5	1,5	214,0	1,5
125	260,5	1,5	264,0	1,5
160	330,5	1,5	334,0	1,5

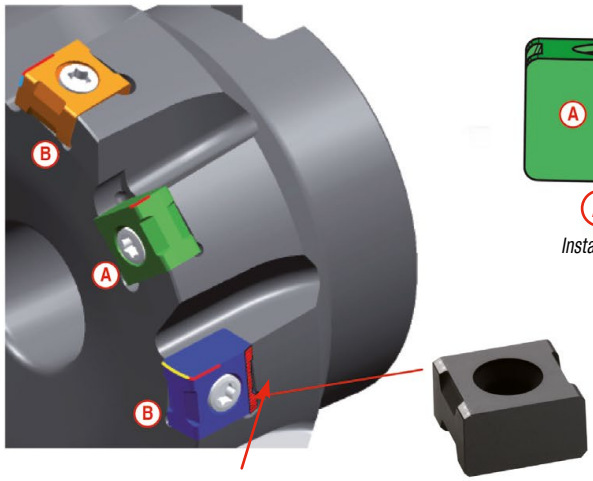
From v_c > 400 m/min, the tool must be balanced!

MaxiMill HEC 11 / HEC 12 system

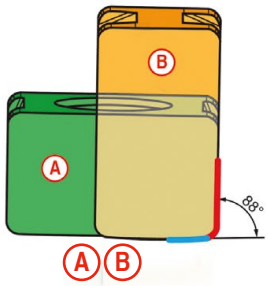
4 cutting edges per installation position



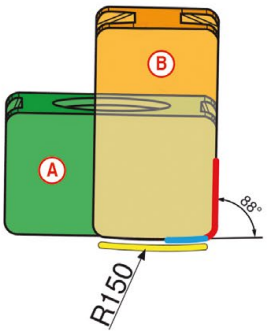
Correct assembly of standard and wiper inserts



Marking for the correct assembly



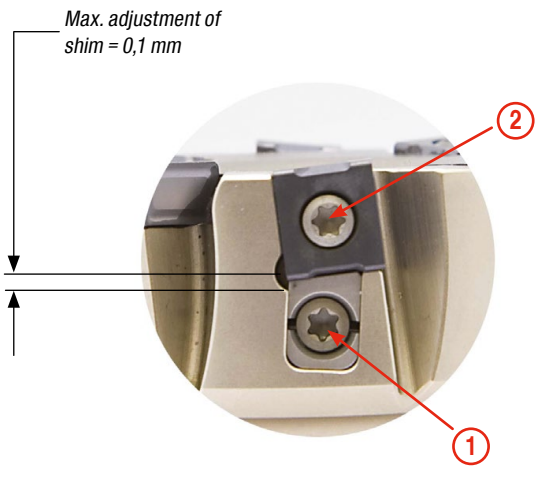
Installation position



Face machining insert — B
Insert main cutting edge — A B
Wiper Facet — B

Adjust the tools in axial direction

- Install the wedge into the cutter body and lightly clamp the clamping screw so as not to clamp. (1)
- Install the inserts as shown and tighten to 1,0 Nm torque. (2)
- Using pre-setting equipment, mark the highest cutting edge. (1)
- With small adjustments of the setting screw set all cutting edges to the same height by 0,005 mm or better. (1)
- Clamp insert with 3,2 Nm torque. (2)



Average chip thickness [h_m] – the approach

Face milling

1 Select appropriate average chip thickness [h_m] for the steel from the table.

Material	Tensile strength N/mm²	h_m mm
for steel	...–800	0,2
for steel	800–1000	0,18
for steel	1000–1200	0,16
for steel	1200–...	0,14
for stainless steel	... –750	0,21
for stainless steel	750–900	0,19
for stainless steel	900–1150	0,17
for stainless steel	1150– ...	0,15

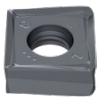
2 Select the corrected feed rate value from the table based on the appropriate chip thickness [h_m] and depth of cut [a_e].

h_m mm	Corrected feed value f_z for h_m			
0,20	0,40 **	0,40 **	0,33	0,28
0,18	0,40 **	0,40 **	0,29	0,25
0,16	0,40 **	0,36	0,26	0,23
0,14	0,36	0,31	0,23	0,20
0,21	0,40 **	0,40 **	0,34	0,30
0,19	0,40 **	0,40 **	0,31	0,27
0,17	0,40 **	0,38	0,28	0,24
0,15	0,39	0,34	0,24	0,21
a_e =	**0,3 x DC**	**0,4 x DC**	**0,75 x DC**	**1 x DC**

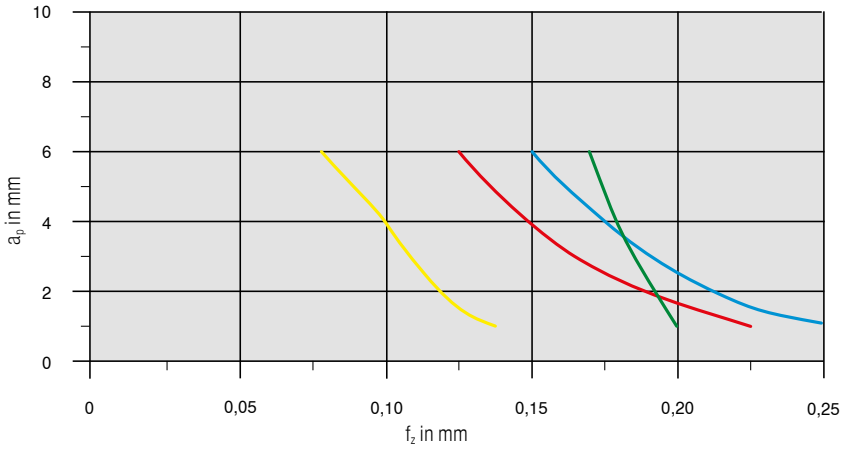
** f_z > 0,4 mm: Danger of an open space contact

MaxiMill 491-09 system

Starting Parameter



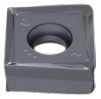
SNHU 09



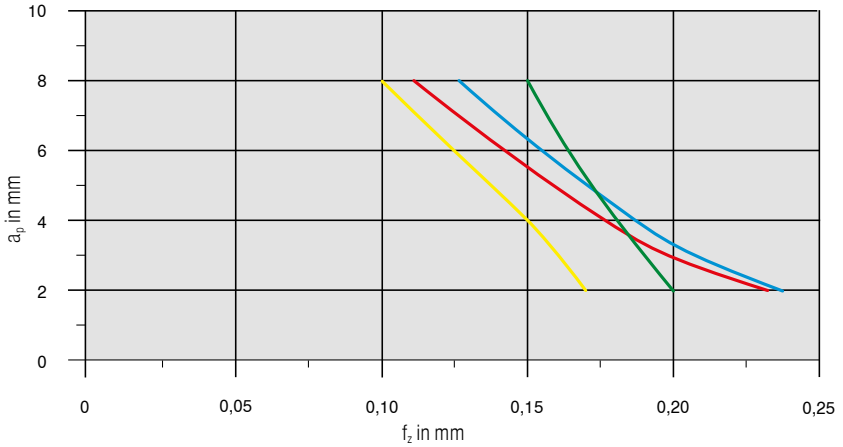
Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**SNHU09T308SR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SNHU09T308SR-F50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**SNHU09T308SR-R50**	**CTCK215**	250	Dry
Non ferrous metals	**N.1.2**	AlMgSi1	**SNHU09T308FR-F10**	**CTWN215**	500	Emulsion

MaxiMill 491-12 system

Starting Parameter



SNHU 12



Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**SNHU120408SR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SNHU120408SR-F50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**SNHU120408SR-R50**	**CTCK215**	250	Dry
Non ferrous metals	**N.1.2**	AlMgSi1	**SNHU120408FR-F10**	**CTC5240**	500	Emulsion

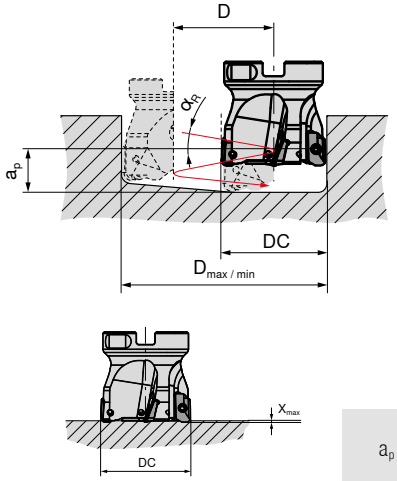
Detailed information on cutting speed for each grade can be found on → page 142–144

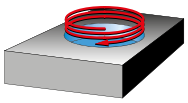
From v_c > 400 m/min, the tool must be balanced!

System MaxiMill 211-07

Machining strategy

Helical plunge milling



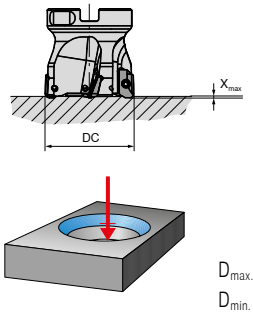


a_p in mm = $D * \pi * \tan \alpha_R$

DC mm	D_{max} / RE 0,4 mm	D_{min} mm	$\alpha_{R\,max}$ °
10	19	13	5,5
12	23	17	6,0
16	31	25	3,0
20	39	33	2,0
25	49	43	1,5
32	63	57	1,2
40	79	73	0,8
50	99	93	0,7

DC mm	D mm	$\alpha_{R\,max\,360°}$ °
10	13	5,5
12	17	6,0
16	25	3,0
20	33	2,0
25	43	1,5
32	57	1,2
40	73	0,8
50	93	0,7

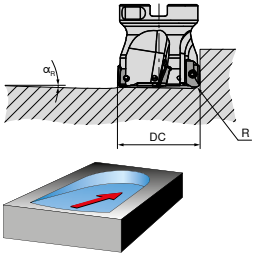
Axial plunging



DC mm	X_{max} mm
10	0,8
12	0,8
16	0,8
20	0,8
25	0,8
32	0,8
40	0,8
50	0,8

$D_{max.}$ in mm = largest diameter for flat bottom hole
$D_{min.}$ in mm = smallest hole diameter for flat bottom surface

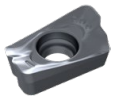
Angled ramping



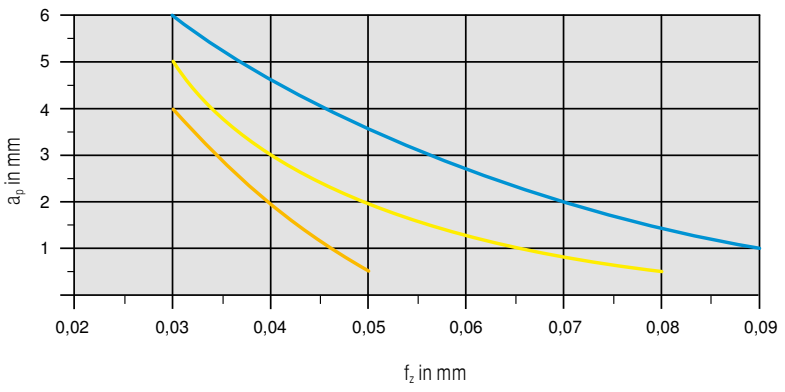
DC mm	α °
10	11,0
12	7,9
16	4,3
20	3,0
25	2,5
32	1,6
40	1,2
50	1,0

$D = D_{max} - DC / D_{min} - DC$

Starting Parameter



XDKT 07



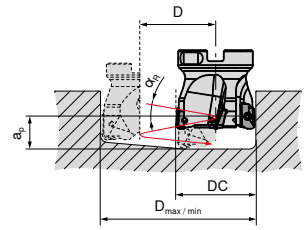
Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**XDKT070308SR-M50**	**CTCP230**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**XDKT070308SR-F50**	**CTPM240**	180	Dry
Heat resistant	**S.2.2**	Inconel 718	**XDKT070308ER-F50**	**CTC5240**	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 142–144

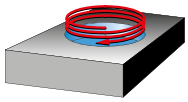
From v_c > 400 m/min, the tool must be balanced!

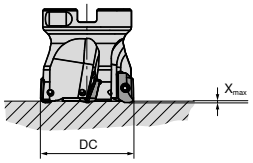
System MaxiMill 211-11

Machining strategy

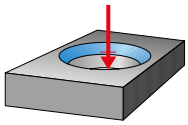


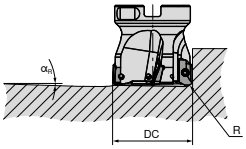
1 Helical plunge milling



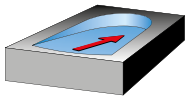


2 Axial plunging





3 Angled ramping



DC mm	1 Helical plunge milling RE = 0,8 mm	2 Axial plunging X_{max}	3 Angled ramping α_R
12	α_R 16 ° $D_{max.}$ 21 mm $D_{min.}$ 14 mm	1,3 mm	18 °
16	α_R 9,5 ° $D_{max.}$ 29 mm $D_{min.}$ 21 mm	1,5 mm	10,8 °
20	α_R 7 ° $D_{max.}$ 37 mm $D_{min.}$ 30 mm	2,0 mm	9,8 °
25	α_R 4,5 ° $D_{max.}$ 47 mm $D_{min.}$ 40 mm	2,0 mm	7,5 °
32	α_R 3,2 ° $D_{max.}$ 61 mm $D_{min.}$ 53 mm	1,0 mm	4,8 °
40	α_R 2,2 ° $D_{max.}$ 77 mm $D_{min.}$ 72 mm	1,6 mm	2,9 °
50	α_R 1,7 ° $D_{max.}$ 98 mm $D_{min.}$ 93 mm	1,6 mm	2,2 °
63	α_R 1,5 ° $D_{max.}$ 123 mm $D_{min.}$ 116 mm	1,6 mm	1,8 °
80	α_R 1,0 ° $D_{max.}$ 157 mm $D_{min.}$ 153 mm	1,6 mm	1,4 °
100	α_R 0,8 ° $D_{max.}$ 107 mm $D_{min.}$ 101 mm	1,6 mm	1,1 °

$D_{max.}$ in mm = largest diameter for flat bottom hole

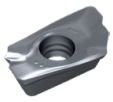
$D_{min.}$ in mm = Smallest diameter for flat bottom surface

a_p in mm = $D \times \pi \times \tan(\alpha_R)$ = Pitch

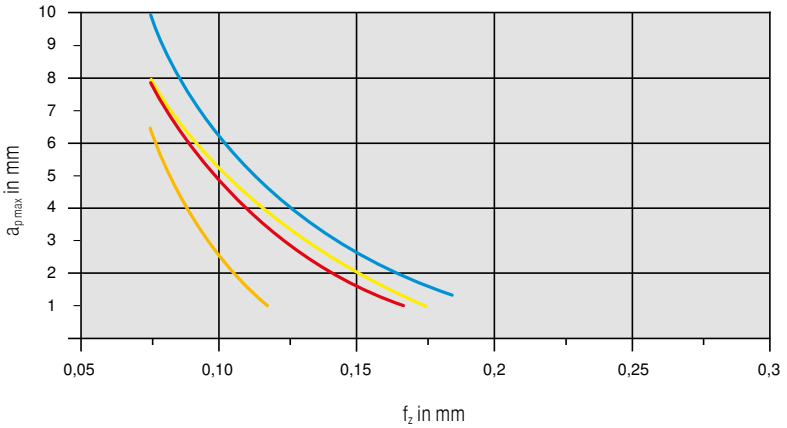
l_a in mm = Overhang length

DC mm	Maximum speed related to projection length n_{max} in min^{-1} $l_a = 1–2 \times Ø$ mm	$l_a = 2,5 \times Ø$ mm	$l_a = 3 \times Ø$ mm	$l_a = 4 \times Ø$ mm	$l_a = 5 \times Ø$ mm
12	55000	51500	47000	42000	37000
16	42000	38500	34100	28900	24200
20	36900	33000	28500	23900	19500
25	33200	29000	24400	19900	15400
32	30200	26000	20900	16600	11900
40	27700	23000	18000	13500	9000
50	25400	20400	15400	10800	6100
63	23300	18300	12900	8300	3700
80	21300	16100	10600	5800	
100	19600	14100	8400		

Starting Parameter



XDKT 11



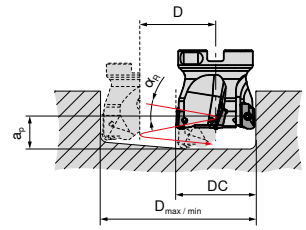
Material			Inserts		v_c in m/min	Cooling
Steel	P.4.1	40CrMnMoS 8-6	XDKT11T308SR-M50	CTCP230	200	Dry
Stainless steel	M.1.1	X6CrNiMoTi 1712 2	XDKT11T308SR-F50	CTPM240	180	Dry
Cast iron	K.1.1	EN-GJL-250 (GG25)	XDKT11T308SR-R50	CTCK215	250	Dry
Heat resistant	S.2.2	Inconel 718	XDKT11T308ER-F50	CTC5240	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 142–144

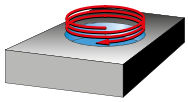
From v_c > 400 m/min, the tool must be balanced!

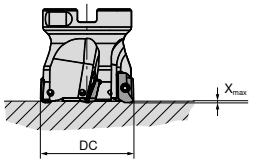
System MaxiMill 211-15

Machining strategy

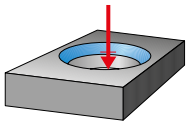


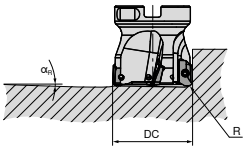
1 Helical plunge milling



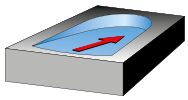


2 Axial plunging





3 Angled ramping



DC mm	1 Helical plunge milling RE = 0,8 mm	2 Axial plunging X_{max}	3 Angled ramping α_R
25	α_R 7,5 ° $D_{max.}$ 48 mm $D_{min.}$ 37 mm	2,7 mm	9,5 °
32	α_R 5 ° $D_{max.}$ 62 mm $D_{min.}$ 47 mm	2,5 mm	6,8 °
40	α_R 3,2 ° $D_{max.}$ 78 mm $D_{min.}$ 63 mm	2,5 mm	5,1 °
50	α_R 2,5 ° $D_{max.}$ 98 mm $D_{min.}$ 86 mm	2,5 mm	2,5 °
63	α_R 1,5 ° $D_{max.}$ 124 mm $D_{min.}$ 111 mm	2,5 mm	2,5 °
80	α_R 1,3 ° $D_{max.}$ 158 mm $D_{min.}$ 147 mm	2,5 mm	2,0 °
100	α_R 1,1 ° $D_{max.}$ 198 mm $D_{min.}$ 190 mm	2,5 mm	1,5 °
125	α_R 0,9 ° $D_{max.}$ 248 mm $D_{min.}$ 240 mm	2,5 mm	0,9 °
160	α_R 0,6 ° $D_{max.}$ 318 mm $D_{min.}$ 310 mm	2,5 mm	0,7 °
100	α_R 0,8 ° $D_{max.}$ 107 mm $D_{min.}$ 101 mm	1,6 mm	1,1 °

$D_{max.}$ in mm = largest diameter for flat bottom hole

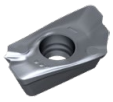
$D_{min.}$ in mm = Smallest diameter for flat bottom surface

a_p in mm = $D \times \pi \times \tan(\alpha_R)$ = Pitch

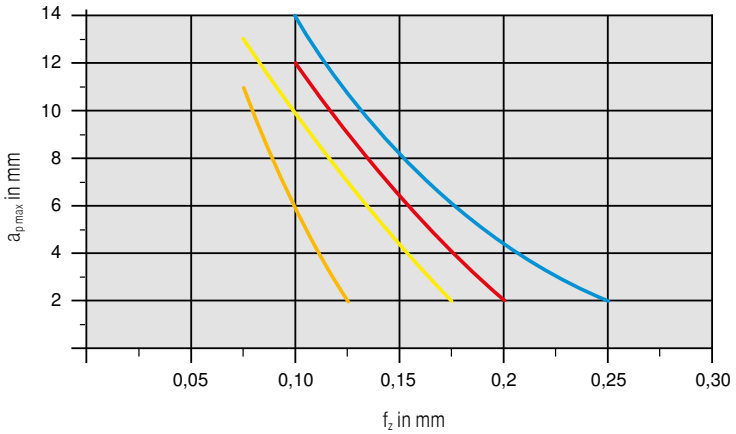
l_a in mm = Overhang length

DC mm	Maximum speed related to projection length n_{max} in min^{-1} $l_a = 2 \times Ø$ mm	$l_a = 3 \times Ø$ mm	$l_a = 5 \times Ø$ mm
25	26560	19520	13320
32	24160	16720	9520
40	22160	14400	7200
50	20320	12320	4880
63	18640	10320	2960
80	17040	8480	
100	15680	6720	
125	14320		
160	13200		

Starting Parameter



XDKT 15



Material			Inserts		v_c in m/min	Cooling
Steel	P.4.1	40CrMnMoS 8-6	XDKT150508SR-M50	CTCP230	200	Dry
Stainless steel	M.1.1	X6CrNiMoTi 1712 2	XDKT150508SR-F50	CTPM240	180	Dry
Cast iron	K.1.1	EN-GJL-250 (GG25)	XDKT150508SR-R50	CTCK215	250	Dry
Heat resistant	S.2.2	Inconel 718	XDKT150508ER-F40	CTC5240	35	Emulsion

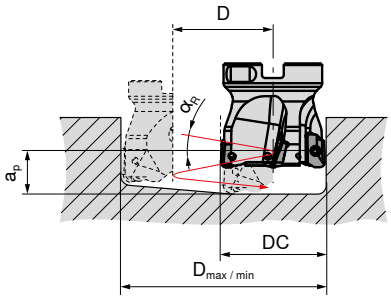
Detailed information on cutting speed for each grade can be found on → page 142–144

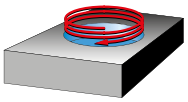
From v_c > 400 m/min, the tool must be balanced!

System MaxiMill 211-20

Machining strategy

Helical plunge milling

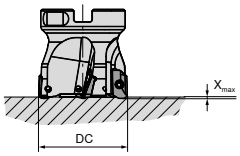


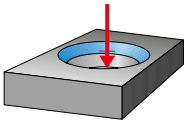


DC mm	D_{max} / RE 0,4 mm	D_{min} mm	$\alpha_{R\,max}$ °
63	124	107	2,2
80	158	143	1,7
100	198	183	1,3

a_p in mm = $D * \pi * \tan \alpha_R$

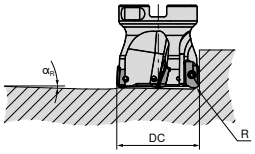
Axial plunging

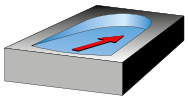




DC mm	X_{max} mm
63	2,0
80	2,0
100	2,0

Angled ramping



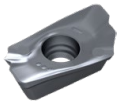


DC mm	α °
63	2,2
80	1,7
100	1,3

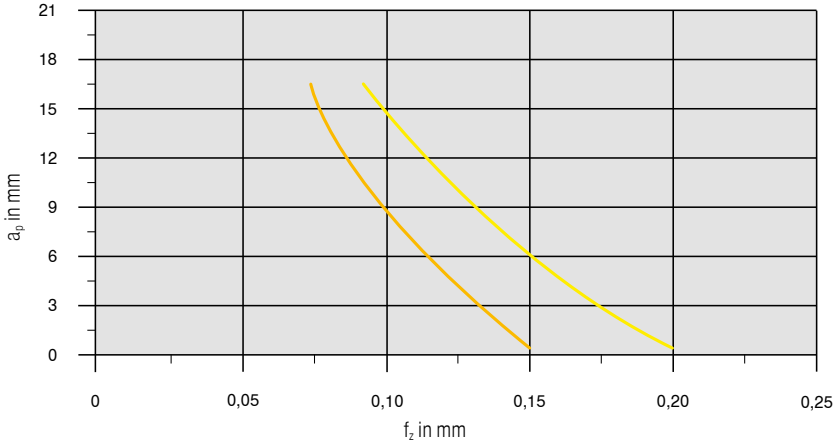
D = D_{max} - DC / D_{min} - DC

$D_{max.}$ in mm = largest diameter for flat bottom hole
$D_{min.}$ in mm = smallest hole diameter for flat bottom surface

Starting Parameter



XDKT 20



Material			Inserts		v_c in m/min	Cooling
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**XDKT200708ER-F40**	**CTPM240**	180	Dry
Heat resistant	**S.2.2**	Inconel 718	**XDKT200708ER-F40**	**CTC5240**	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 142–144

From v_c > 400 m/min, the tool must be balanced!

System MaxiMill 490-09

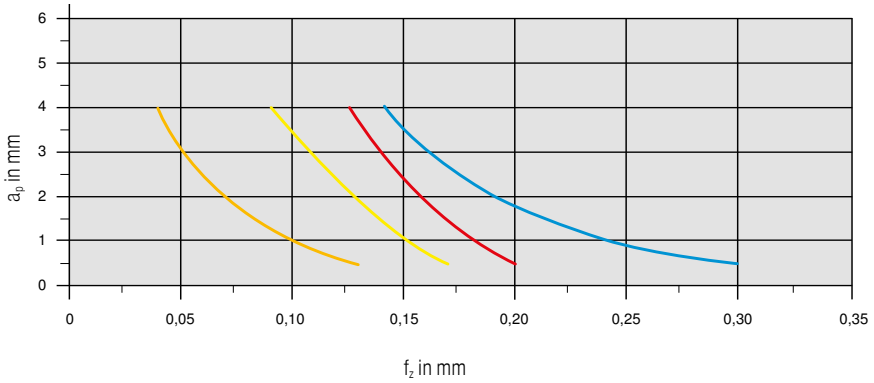
Machining strategy

System MaxiMill 490-09 is not suitable for plunging!

Starting Parameter



SDNT 09



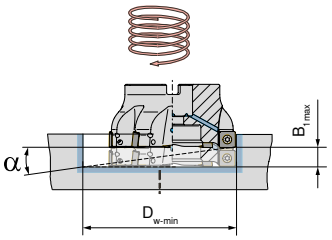
Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**SDNT09T308SR-29**	**CTCP230**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SDNT09T308SR-33**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**SDNT09T308SR-31**	**CTCK215**	250	Dry
Heat resistant	**S.2.2**	Inconel 718	**SDNT09T308ER-M31**	**CTC5240**	35	Emulsion

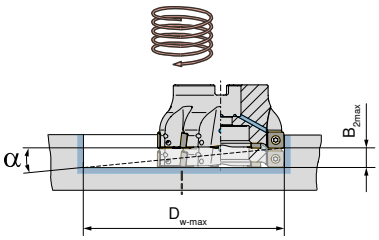
Detailed information on cutting speed for each grade can be found on → page 142–144

System MaxiMill 490-12

Machining strategy

Helical plunge milling (without start hole)





$$B = (D_W - DC) \times \pi \times \tan \alpha$$

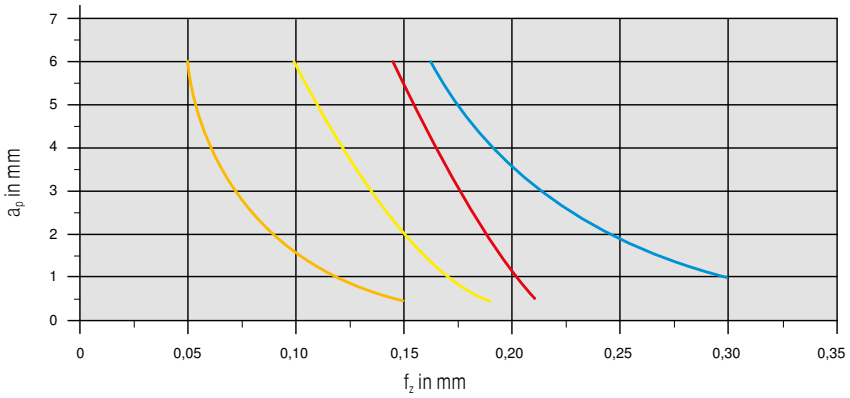
D_w = Diameter of the hole to be produced
DC = Nominal diameter of the milling tool
B = Axial feed to 360° circular movement

DC mm	D_{w-min} mm	$B_{1\,max}$ mm	D_{w-max} mm	$B_{2\,max}$ mm	α °
50	77	2,5	98	4,8	2,0
63	103	1,8	124	3,0	1,0
80	137	2,1	158	3,0	0,8
100	177	2,1	198	2,9	0,6
125	227	1,8	248	2,4	0,4

Starting Parameter



SDMT 12



Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**SDMT1205ZZSN-29**	**CTCP230**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SDMT120512SR-33**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**SDMT1205ZZSN-31**	**CTCK215**	250	Dry
Heat resistant	**S.2.2**	Inconel 718	**SDMT120508ER-M31**	**CTC5240**	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 142–144

HSC/HPC machining

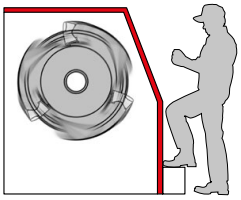
Safety advice

Suitability of the tool for HSC machining

HSC tools from CERATIZIT have been specially developed for this machining strategy and guarantee maximum operational reliability.

Observation of safety precautions of the machine manufacturer

Make sure that all safety precautions of the machine-manufacturer are observed (e.g.: closed machine guards).

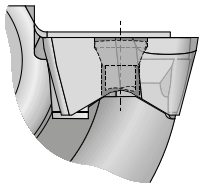


Suitability of the adapters for HSC machining

According to the milling situation, choose the optimum tool/clamping device combination.
For high speed milling applications it is necessary to dynamically balance tool and tool adapter together (see ISO 1940 directives).

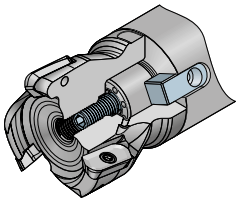
Mounting the indexable insert with centrifugal force protection

Insert clamping: EURO-patent EP 1083017A1
Make sure that the insert pocket is cleaned and the threading bore for the clamping screw is in good condition.
Check the axial and radial contact points of the insert in the pocket.
The clamping screws for positive insert clamping must be tightened with a torque of (XDHT11 = 1,8 Nm; XDH.19 = 6,0 Nm).



Optimum mounting of HSC milling cutters (DC = Ø 40–63) to milling arbors using power screw

The power screw guarantees a stable connection of tool and milling adapter and is easy to use.



Power Screw

Maximum admissible number of revolutions

Please note the maximum number of revolutions stated on the tool. This number is exclusively valid for the specific tool and must be adapted according to the selected tool adapter, total overhang length and the respective machining situation.



Optimum application range of the tool (a_e, a_p, f_z, n)

In order to guarantee productive milling, please observe the recommendations regarding the cutting parameters.

Failure to comply with these safety regulations automatically excludes CERATIZIT from any liability

System MaxiMill HSC-11

Cutting data standard values

Workpiece material		Treatment / alloy		VDI 3323 Group	Hardness HB	H216T (CWK26) v_c in m/min (dry)	H216T (CWK26) v_c in m/min (MQL)
N	Aluminum alloys,	non hardenable		21	60		200–3000
		hardenable		22	100		200–2000
	Cast aluminum alloy	non hardenable	< 12 % Si	23	80		200–2000
		hardenable	< 12 % Si	24	90		200–1800
		non hardenable	> 12 % Si	25	130		200–1000
	Copper and copper alloys (Bronze, Brass)		Free-cutting steel alloy (1 % Pb)	26			200–600
			brass, red bronze	27	90	250–1000	250–1000
			bronze	28	100		150–400
			lead-free copper and electrolytic copper	29	100		300–800
O	Non metal materials		Duroplastics	29		80–1000	80–1000
			Fibre-reinforced plastics	29		70–500	70–500
			hard rubber	30		80–300	80–300

= full lubricant

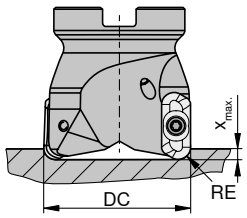
= Minimum quantity lubrication

= dry machining

System MaxiMill HSC-11

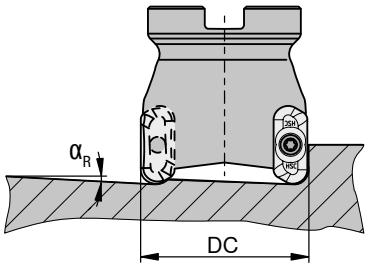
Machining strategy

Axial ramping



DC mm	11 RE 0,2–4,0 $x_{max.}$ mm
16	1,70
18	2,11
19	2,24
20	2,39
22	2,70
25	2,55
32	2,40
40	2,28
50	2,26
63	2,10
80	1,75
100	1,79

Linear ramping



DC mm	α_R °
16	18,8
18	16,3
19	15,3
20	14,8
22	13,8
25	10,3
32	6,8
40	4,8
50	3,5
63	2,5
80	1,8
100	1,3

Milling strategy for roughing and finishing

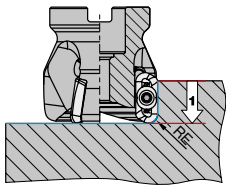
With maximum chip volume

Indexable Insert	RE mm	1 a_p mm	2 3 4 $a_{p\,max.}$ mm
XDHT 11T302FR-ALP	0,2	10	9,8
XDHT 11T304FR-ALP	0,4	10	9,6
XDHT 11T308FR-ALP	0,8	10	9,2
XDHT 11T312FR-ALP	1,2	10	8,8
XDHT 11T316FR-ALP	1,6	10	8,4
XDHT 11T320FR-ALP	2,0	10	8,0
XDHT 11T325FR-ALP	2,5	10	7,5
XDHT 11T332FR-ALP	3,2	10	6,8
XDHT 11T340FR-ALP	4,0	10	6,0
XDHT 11T350FR-ALP	5,0	10	5,0

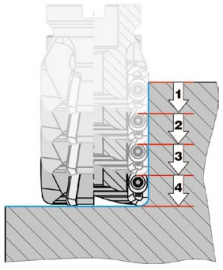
With maximum side wall quality

Indexable Insert	RE mm	2 3 4 $a_{p\,max.}$ mm
XDHT 11T302FR-ALP	0,2	7,8
XDHT 11T304FR-ALP	0,4	7,6
XDHT 11T308FR-ALP	0,8	7,2
XDHT 11T312FR-ALP	1,2	6,5
XDHT 11T316FR-ALP	1,6	6,8
XDHT 11T320FR-ALP	2,0	6,4
XDHT 11T325FR-ALP	2,5	5,5
XDHT 11T332FR-ALP	3,2	4,8
XDHT 11T340FR-ALP	4,0	4,0
XDHT 11T350FR-ALP	5,0	3,0

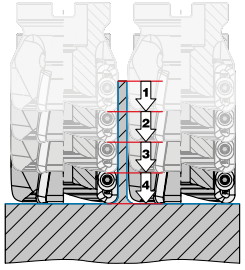
Shoulder milling



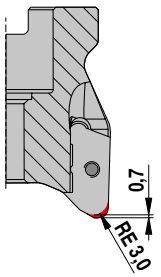
Pocket milling

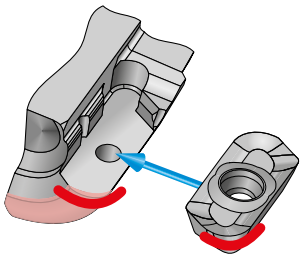


Pocket milling with thin walled components



Modification to front profile



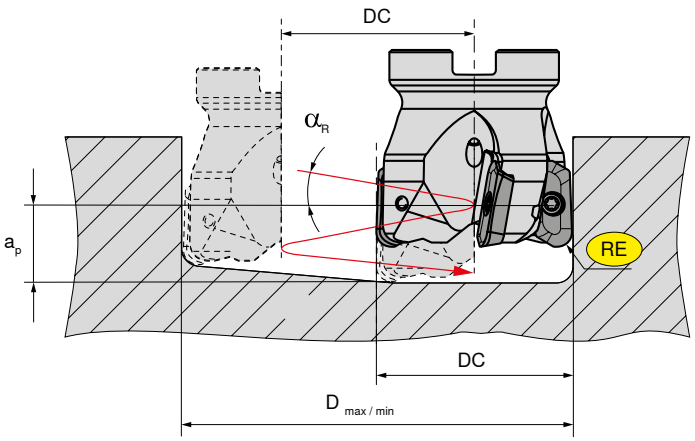


For inserts with a corner radius larger than 3.2 mm the basic body of the tool must be modified according to the drawing above.

System MaxiMill HSC-11

Machining strategy

Helical plunging



RE = Insert radius
α_R in mm = Maximum ramping angle (related to centre of tool)

a_p in mm = pitch → D x π x tan (α_R)

D in mm = → D_{max} – DC and/or D_{min} – DC

For flat bottom hole

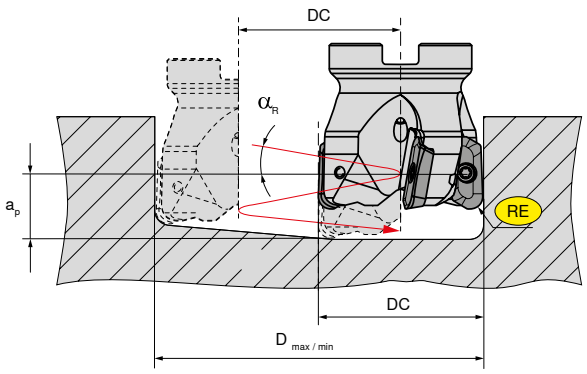
$D_{max.}$ in mm = largest drilling diameter
$D_{min.}$ in mm = smallest drilling diameter
$DN_{max.}$ in mm = Maximum hole diameter for non flat bottom

DC mm		XDHT-11 (HSC-11)								
(DN_{max})		RE = 0,2	RE = 0,4	RE = 0,8	RE = 1,2	RE = 1,6	RE = 2,0	RE = 2,5	RE = 3,2	RE = 4,0
16	α_R	9,7°	10,0°	9,9°	9,4°	8,9°	8,4°	7,9°	7,0°	6,1°
	$D_{max..}$	30	30	29	28	27	27	26	24	23
(31)	$D_{min..}$	18	18	18	18	18	18	18	18	18
18	α_R	9,4°	9,1°	8,7°	8,3°	7,9°	7,5°	6,9°	6,2°	5,3°
	$D_{max.}$	34	34	33	32	31	31	30	28	27
(35)	$D_{min.}$	22	22	22	22	22	22	22	22	22
19	α_R	8,8°	8,6°	8,3°	7,9°	7,5°	7,5°	6,5°	5,9°	5,1°
	$D_{max..}$	36	36	35	34	33	33	32	30	29
(37)	$D_{min..}$	24	24	24	24	24	24	24	24	24
20	α_R	8,4°	8,2°	7,8°	7,4°	7,7°	6,7°	6,2°	5,5°	4,8°
	$D_{max.}$	38	38	37	36	35	35	34	32	31
(39)	$D_{min.}$	26	26	26	26	26	26	26	26	26
22	α_R	7,6°	7,4°	7,8°	6,7°	6,4°	6,5°	5,6°	5,2°	4,3°
	$D_{max..}$	42	42	41	40	39	39	38	36	35
(43)	$D_{min..}$	30	30	30	30	30	30	30	30	30
25	α_R	6,7°	6,5°	6,2°	5,9°	5,6°	5,3°	4,9°	4,4°	3,8°
	$D_{max.}$	48	48	47	46	45	45	44	42	41
(49)	$D_{min.}$	36	36	36	36	36	36	36	36	36
32	α_R	4,7°	4,7°	4,8°	4,6°	4,3°	4,1°	3,8°	3,4°	2,9°
	$D_{max.}$	62	62	61	60	59	59	58	56	55
(63)	$D_{min.}$	50	50	50	50	50	50	50	50	50
40	α_R	3,3°	3,3°	3,4°	3,4°	3,5°	3,3°	3,0°	2,7°	2,3°
	$D_{max.}$	78	78	77	76	75	75	74	72	71
(79)	$D_{min.}$	66	66	66	66	66	66	66	66	66
50	α_R	2,4°	2,5°	2,5°	2,5°	2,6°	2,6°	2,4°	2,2°	1,9°
	$D_{max.}$	98	98	97	96	95	95	94	92	91
(99)	$D_{min.}$	86	86	86	86	86	86	86	86	86
63	α_R	1,7°	1,7°	1,7°	1,8°	1,8°	1,8°	1,8°	1,7°	1,5°
	$D_{max.}$	124	124	123	122	121	121	120	118	117
(125)	$D_{min.}$	112	112	112	112	112	112	112	112	112
80	α_R	1,1°	1,1°	1,1°	1,1°	1,1°	1,1°	1,1°	1,2°	1,2°
	$D_{max.}$	158	158	157	156	155	155	154	152	151
(159)	$D_{min.}$	146	146	146	146	146	146	146	146	146
100	α_R	0,8°	0,8°	0,9°	0,9°	0,9°	0,9°	0,9°	0,9°	0,9°
	D_{max}	198	198	197	196	195	195	194	192	191
(199)	$D_{min.}$	186	186	186	186	186	186	186	186	186

System MaxiMill HSC/HPC-19

Machining strategy

Helical plunging



RE = Insert radius
α_R in mm = Maximum ramping angle (related to centre of tool)

a_p in mm = pitch → D x π x tan (α_R)

D in mm = → D_{max} – DC and/or D_{min} – DC

For flat bottom hole

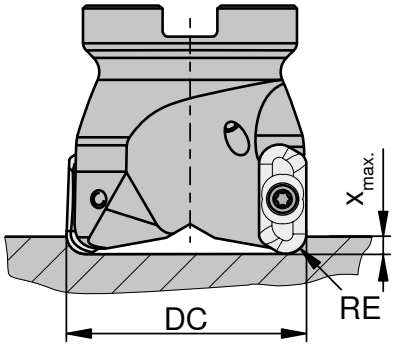
$D_{max.}$ in mm = largest drilling diameter
$D_{min.}$ in mm = smallest drilling diameter
$DN_{max.}$ in mm = Maximum hole diameter for non flat bottom

	DC mm	DN_{max} mm	α_R °	D_{max} mm	D_{min} mm
RE = 0,2 mm	**25**	49	7°02‘	48	32
	32	63	4°34‘	62	46
	40	79	3°47‘	78	62
	50	99	3°01‘	97	81
	63	125	2°17‘	124	107
	80	159		158	141
	100	199		198	181
RE = 0,4 mm	**25**	49	7°08‘	48	32
	32	63	4°37‘	62	46
	40	79	3°49‘	78	62
	50	99	3°02‘	98	81
	63	125	2°18‘	124	107
	80	159		158	141
	100	199		198	181
RE = 0,8 mm	**25**	49	7°21‘	47	32
	32	63	4°44‘	61	46
	40	79	3°53‘	77	62
	50	99	3°05‘	97	81
	63	125	2°20‘	123	107
	80	159		157	141
	100	199		197	181
RE = 2,0 mm	**25**	49	8°40‘	45	32
	32	63	5°04‘	59	46
	40	79	4°06‘	75	62
	50	99	3°13‘	95	81
	63	125	2°25‘	121	107
	80	159		155	141
	100	199		195	181
RE = 2,5 mm	**25**	49	8°24‘	44	32
	32	63	5°13‘	58	46
	40	79	4°12‘	74	62
	50	99	3°17‘	94	81
	63	125	2°27‘	120	107
	80	159		154	141
	100	199		194	181
RE = 3,2 mm	**25**	49	8°54‘	42	32
	32	63	5°26‘	56	46
	40	79	4°20‘	72	62
	50	99	3°21‘	92	81
	63	125	2°30‘	118	107
	80	159		152	141
	100	199		192	181
RE = 4,0 mm	**25**	49	9°32‘	41	32
	32	63	5°42‘	55	46
	40	79	4°30‘	71	62
	50	99	3°28‘	91	81
	63	125	2°33‘	117	107
	80	159		151	141
	100	199		191	181
RE = 5,0 mm	**25**	49	6°49‘	39	32
	32	63	3°59‘	53	46
	40	79	3°20‘	69	62
	50	99	2°13‘	89	81
	63	125	1°52‘	115	107
	80	159		149	141
	100	199		189	181

System MaxiMill HSC/HPC-19

Machining strategy

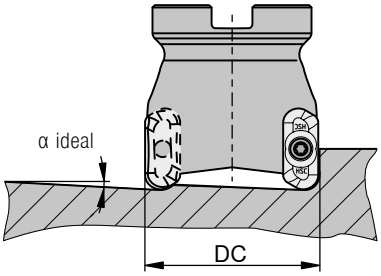
Axial ramping



HSC 19	DC mm	19 RE 0,2–4,0 $x_{max.}$ mm	19 RE 5,0 $x_{max.}$ mm
CHSC 19 / GHSC 19 / MHSC 19	25	5,0	4,0
CHSC 19 / GHSC 19 / MHSC 19	32–40	4,0	3,0
AHSC 19	40–100	4,0	3,0

HPC 19	DC mm	19 RE 0,2–4,0 $x_{max.}$ mm	19 RE 5,0 $x_{max.}$ mm
CHPC 19 / MHPC 19	22–25	5,0	4,0
CHPC 19 / MHPC 19	32–50	6,0	5,0
AHPC 19	40–63	6,0	5,0

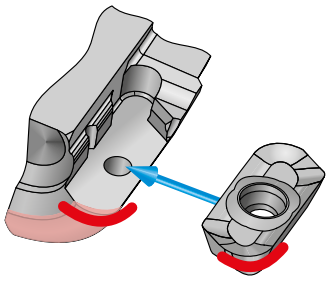
Linear ramping

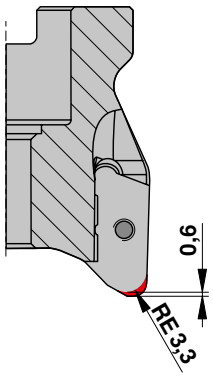


DC mm	α ideal HSC 19	α ideal HPC 19
25	11°	11°
32	7°	7°
40	5°	5°
50	4°	4°
63	3°	3°
80	2°	
100	2°	

Modification to basic body

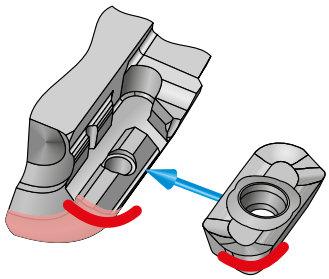
HSC 19





Modification to front profile

HPC 19

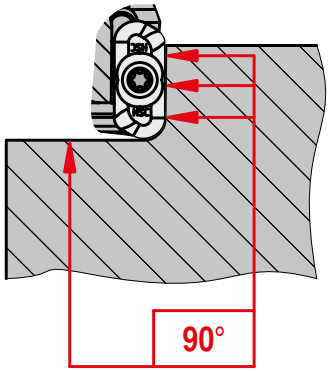


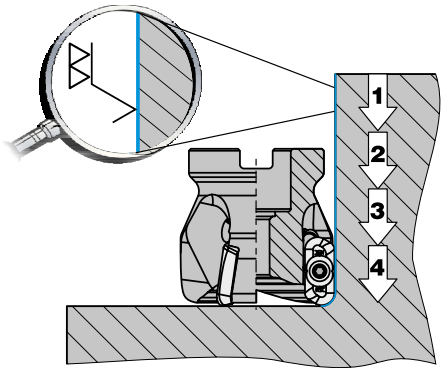
For inserts with a corner radius larger than 4.0 mm the basic body of the tool must be modified according to the drawing above.

System MaxiMill HSC/HPC-19

Machining strategy

Excellent side wall quality after roughing operation.
Additional finishing operations minimized or no longer required.





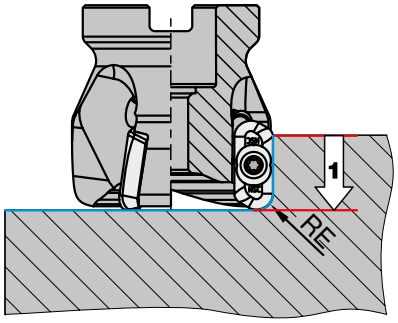
With maximum chip volume

Indexable Insert	RE mm	a_p mm	$a_{p\ max.}$ mm
XDH. 190402FR-ALP	0,2	18,0	17,8
XDH. 190404FR-ALP	0,4	18,0	17,6
XDH. 190408FR-ALP	0,8	18,0	17,2
XDH. 190420FR-ALP	2,0	18,0	16,0
XDH. 190425FR-ALP	2,5	18,0	15,0
XDH. 190432FR-ALP	3,2	18,0	14,8
XDH. 190440FR-ALP	4,0	18,0	14,0
XDH. 190450FR-ALP	5,0	17,0	13,0

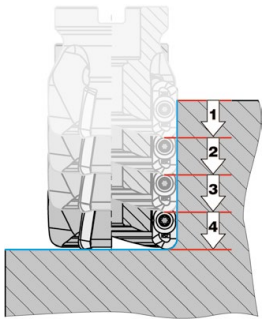
With maximum side wall quality

Indexable Insert	RE mm	$a_{p\ max.}$ mm
XDH. 190402FR-ALP	0,2	11,8
XDH. 190404FR-ALP	0,4	11,6
XDH. 190408FR-ALP	0,8	11,2
XDH. 190420FR-ALP	2,0	10,0
XDH. 190425FR-ALP	2,5	9,5
XDH. 190432FR-ALP	3,2	8,8
XDH. 190440FR-ALP	4,0	8,0
XDH. 190450FR-ALP	5,0	7,0

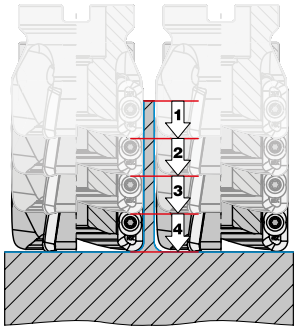
Shoulder milling



Pocket milling



Pocket milling with
thin walled components



15

This information applies to the inserts type XDHT 19 and XDHX 19.

System MaxiMill HPC-04/12

Machining strategy

What do you have to take into account?

- Machine stability.
- Stable work piece clamping and tool adapter.
- Use of coolant generally not necessary, however, this will facilitate the removal of the chips - also improved surface quality.
- Take into account thermal stress and critical temperature of 600°C! If required for material, work with coolant.
- Avoid vibration.
- Observe balancing quality class.
- Observe chemical reactions of diamond to carbide forming elements (Fe, Ti, Ta, Co, Ni)

Excellent suitability

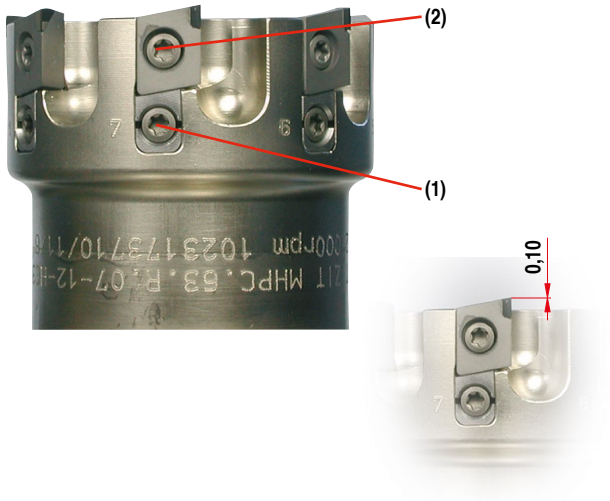
- for components made of light metals and non-ferrous metals, plastic, fibre composite materials, graphite ...
- when the simplest setting method saves cost for tool presetting.
- for high-volume production.
- for high surface quality of the work pieces.
- when long tool life is necessary to reduce tool changes and expensive machine downtime.
- when the tool is already on site (presetting, etc.)

Quality class check

After assembly, clamping of the inserts and adjustment of the axial run-out the balancing quality class of the tools should be checked. When applying shell milling cutters, after assembly with an adapter balancing is necessary.

Setting wiper inserts

As in the setting procedure described above the standard inserts are adjusted to a radial run-out of = 0.02 mm. The inserts with wiper edge are then set to 0.02–0.03 mm above the highest cutting edge.



The adjustment procedure

1 Mount Adjustment wedgesin the tools (as delivered).
Tighten adjustment screw (1) without deforming the wedges.

2 Mount the PCD inserts and tighten the clamping screws (2) with 1.0 Nm.

3 Mark „ highest edge“ with the help of pre-setting equipment.

4 Adjust the PCD insert by 0.02 mm turning the clamping screw (1) clockwise. Pre-loading must be reached. Use the angled TORX screwdrivers

5 Set other cutting edges to this level, maximum deviation of 0.005 mm. Maximum length adjustment = 0.10 mm.

6 Tighten all insert tightening screws (2) to 5,0 Nm.

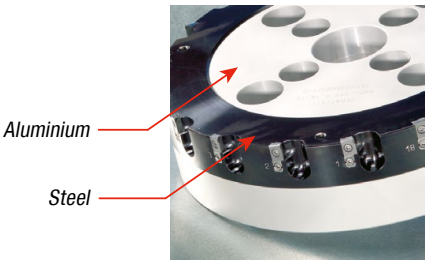
7 Check axial run-out of all inserts: Target = 0.005 mm.

Perfect precision – MaxiMill HPC-12

The adjustable high-performance tool for the finishing of aluminium components

Tool body made of steel

- For highest stability
- Maximum abrasion resistance
- Bimetallic version from diameter 160 mm easier handling and spindle protection with large tools



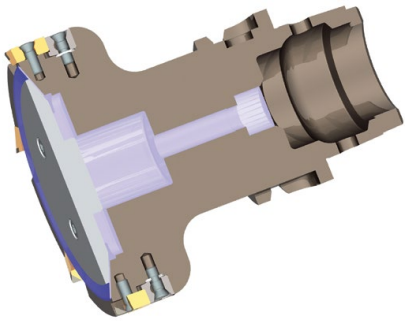
Picture shows bimetallic version

Available as shell milling cutters and monobloc type

- Direct HSK63 connection as monobloc type
- Monobloc tools balanced to G 2.5 at n=20,000 min^{-1} (ISO1940)

Particularly for HSC applications with internal coolant supply

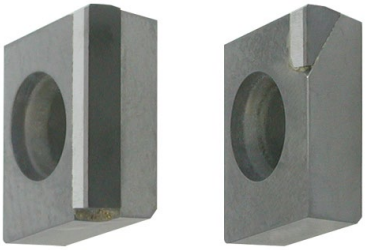
- Improved chip evacuation
- High surface quality
- Optimum application conditions
- Suitability for minimum quantity lubrication



Time is money – the system MaxiMill HPC-12 is simple and quick to adjust!

Highly positive rake angle of +25°

- Low cutting forces
- Increased parallelism of surfaces
- Minimised component deformation



Tangential concept

- Stable location for the PCD segment and maximum process security

Adapted PCD cutting edge

- High impact strength when milling!
- Maximum edge stability
- Reduced built-up edge on the work piece
- The machining of Al-Si alloys with over 12 % silicon is possible without problems

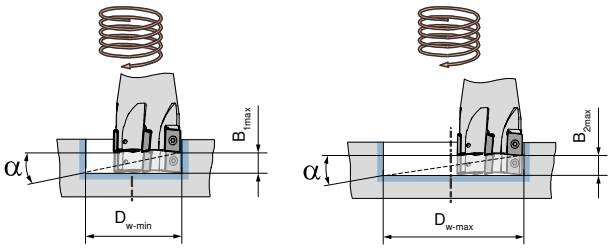
Inserts Selection

- Standard insert
- Insert with corner radius
- Insert with wiper edge

System MaxiMill 141 / 241

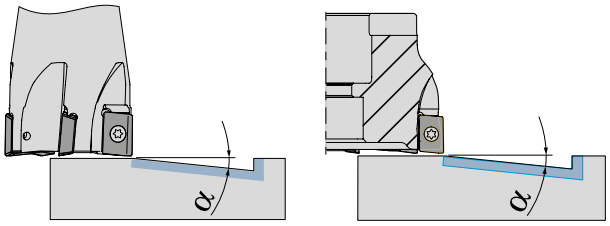
Machining strategy

Helical plunge milling (without start hole)



D_w = Diameter of bore to be produced
DC = Nominal diameter of milling cutter
B = Depth of cut calculated for 360° helical movement

Angled ramping



$$B = (D_w - DC) \times \pi \times \tan \alpha$$

C 141

DC mm	$D_{w\text{-}min}$ mm	$B_{1\,max}$ mm	$D_{w\text{-}max}$ mm	$B_{2\,max}$ mm	α °
16	20,0	0,4	30,0	1,5	2,0
20	24,0	0,4	38,0	1,9	2,0
25	34,0	0,9	48,0	2,5	2,0
32	48,0	1,7	62,0	3,2	2,0
40	64,0	1,9	78,0	3,1	1,5

A 241

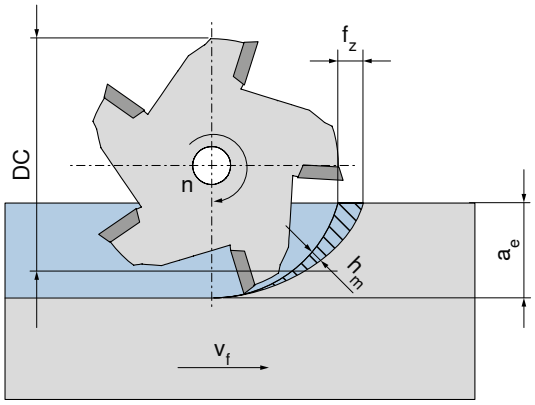
DC mm	$D_{w\text{-}min}$ mm	$B_{1\,max}$ mm	$D_{w\text{-}max}$ mm	$B_{2\,max}$ mm	α °
40	64,0	1,9	78,0	3,1	1,5
50	84,0	1,8	98,0	2,6	1,0
63	110,0	1,2	124,0	1,6	0,5
80	144,0	1,4	158,0	1,7	0,4
100	184,0	1,3	198,0	1,6	0,3
125	234,0	1,2	248,0	1,3	0,2

Average chip thickness [h_m] – the approach

Shoulder milling

1 Select appropriate average chip thickness [h_m] for the steel from the table.

Material	Tensile strength N/mm²	h_m mm
for steel	...–800	0,16
for steel	800–1000	0,14
for steel	1000–1200	0,12
for steel	1200–...	0,10
for stainless steel	...–750	0,15
for stainless steel	750–900	0,13
for stainless steel	900–1150	0,11
for stainless steel	1150–...	0,09 *

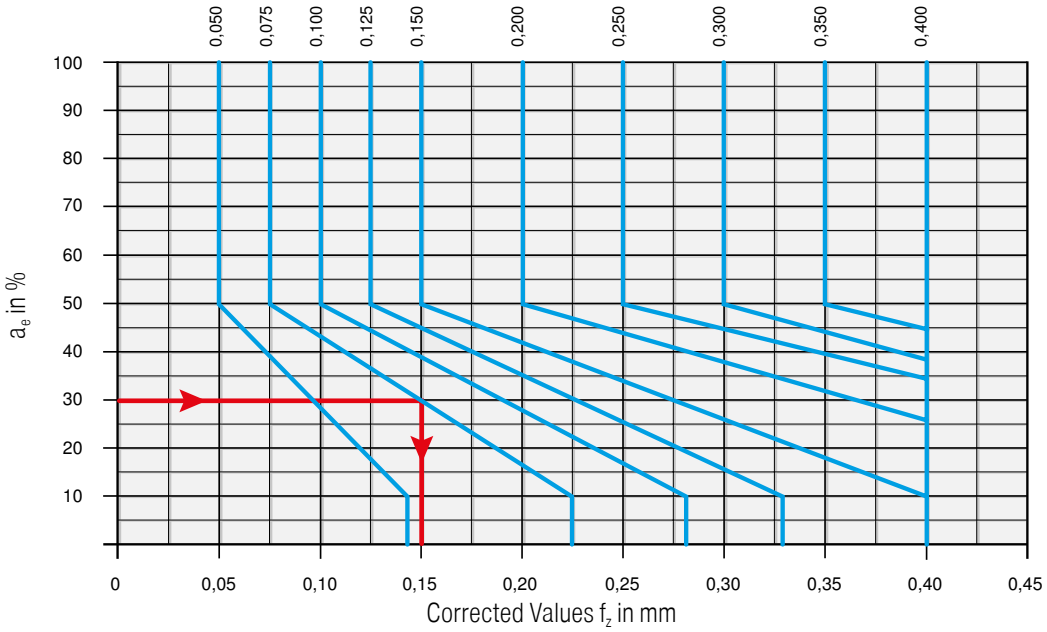


2 Select the corrected feed rate value from the table based on the appropriate chip thickness [h_m] and depth of cut [a_e].

h_m mm	Corrected feed value f_z for h_m				
0,16	0,36	0,29	0,25	0,18	0,16
0,14	0,31	0,26	0,22	0,16	0,14
0,12	0,27	0,22	0,19	0,14	0,12
0,10	0,22	0,18	0,16	0,12	0,10
0,15	0,34	0,27	0,24	0,17	0,15
0,13	0,29	0,24	0,21	0,15	0,13
0,11	0,25	0,20	0,17	0,13	0,11
0,09 *	0,20	0,16	0,14	0,10	0,09 *
a_e =	**0,2 x DC**	**0,3 x DC**	**0,4 x DC**	**0,75 x DC**	**1 x DC**

* f_z < 0,08 mm: Danger, as tool is not working and cutting

Start values f_z in mm from starting parameter diagram



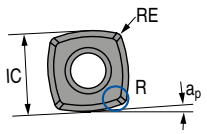
Example:
Start value (f_z) = 0.075 mm
a_e = 30 %
corrected value (f_z) = 0.15 mm

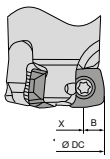
15

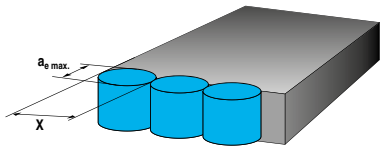
System MaxiMill HFC-06

Machining strategy

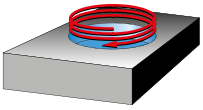
Programmed radius R = 1.2 mm

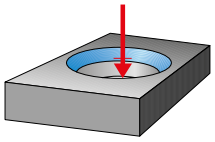


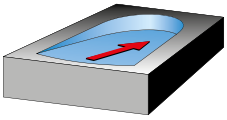




Cutting depth and remaining material			Cutting width for flat surfaces			Cutting depth when plunging				
IC in mm	RE in mm	$a_{p\ max.}$ in mm	DC in mm	X in mm	B in mm	$a_{e\ max.}$ in mm	f_z in mm			X
							initial	min.	max.	
6,35	0,5	0,8	16–32	DC–(2 x B)	4,3	5,3	0,10	0,08	0,15	<0,7 x DC

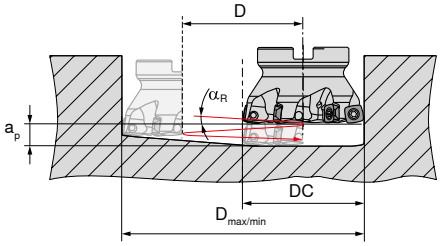






	circular		
	Helical plunging (helical plunging into solid material)		
DC mm	$D_{min.}$ mm	$D_{max.}$ mm	$\alpha_{R\ max.}$ °
16	31	22	4,5°
20	39	30	2,3°
25	49	40	1,3°
32	63	54	0,9°

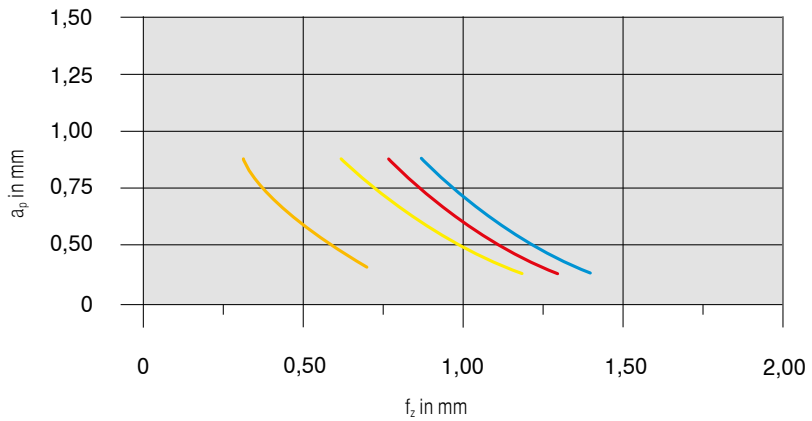
	axial	Angled
	Plunging	
DC mm	$X_{max.}$ mm	$\alpha_{R\ max.}$ °
16	0,5	5,9°
20		3,2°
25		2°
32		1,3°



Starting Parameter



XPLX 06



Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**XPLX 060305SR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**XPLX 060305ER-M40**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**XPLX 060305ER-M50**	**CTCK215**	250	Dry
Heat resistant	**S.2.2**	Inconel 718	**XPLX 060305SR-F40**	**CTC5240**	35	Emulsion

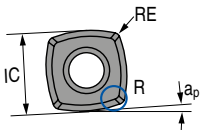
Detailed information on cutting speed for each grade can be found on → page 142–144

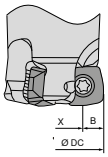
From v_c > 400 m/min, the tool must be balanced!

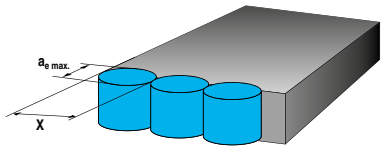
System MaxiMill HFC-09

Machining strategy

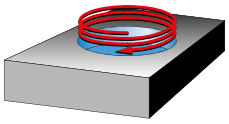
Programmed radius R = 2 mm

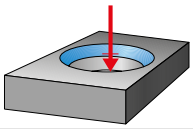


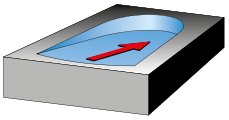




Cutting depth and remaining material			Cutting width for flat surfaces			Cutting depth when plunging				
IC in mm	RE in mm	$a_{p\,max.}$ in mm	DC in mm	X in mm	B in mm	$a_{e\,max.}$ in mm	f_z in mm			X
							initial	min.	max.	
9	0,8	1	25–66	DC–(2 x B)	5,9	7,5	0,10	0,08	0,15	<0,7 x DC

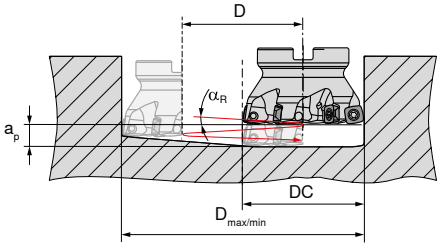






	circular		
	Helical plunging (helical plunging into solid material)		
DC mm	$D_{min.}$ mm	$D_{max.}$ mm	$\alpha_{R\,max.}$ °
25	48	35	3,1°
32	62	49	1,7°
35	68	55	1,4°
40	78	65	1,0°
42	82	69	0,9°
50	98	85	0,8°
52	102	89	0,7°
63	124	111	0,7°
66	130	117	0,6°

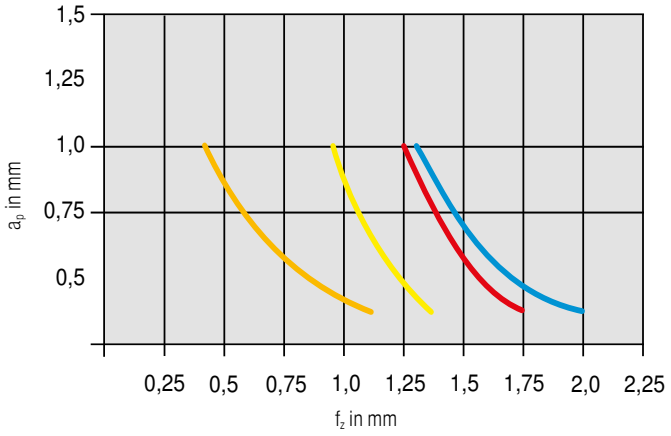
	axial	Angled
	Plunging	
DC mm	$X_{max.}$ mm	$\alpha_{R\,max.}$ °
25		3,6°
32		2,0°
35		1,6°
40		1,2°
42	0,75	1,1°
50		0,9°
52		0,8°
63		0,8°
66		0,7°



Starting Parameter



XDLX 09



Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**XDLX09T308SR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**XDLX09T308SR-M50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**XDLX09T308SR-M50**	**CTCK215**	250	Dry
Heat resistant	**S.2.2**	Inconel 718	**XDLX09T308ER-F40**	**CTC5240**	35	Emulsion

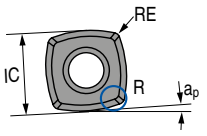
Detailed information on cutting speed for each grade can be found on → page 142–144

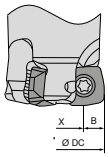
From v_c > 400 m/min, the tool must be balanced!

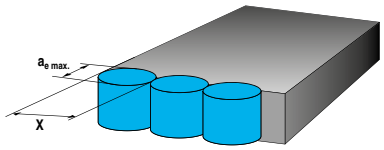
System MaxiMill HFC-12

Machining strategy

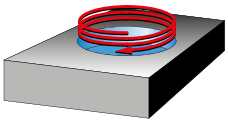
Programmed radius R = 3 mm

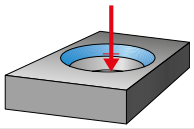


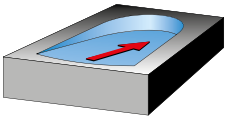




Cutting depth and remaining material			Cutting width for flat surfaces			Cutting depth when plunging				
IC in mm	RE in mm	$a_{p\,max.}$ in mm	DC in mm	X in mm	B in mm	$a_{e\,max.}$ in mm	f_z in mm			X
							initial	min.	max.	
12	1,0	2	32–100	DC–(2 x B)	8,3	10	0,15	0,10	0,20	<0,7 x DC

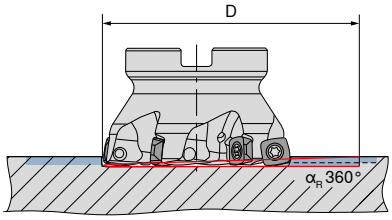






	circular	
	Helical plunging (helical plunging into solid material)	
DC mm	$D_{min.}$ mm	$D_{max.}$ mm	$\alpha_{R\,max.}$ °
32	62	44	6,1°
35	68	50	3,7°
40	78	60	2,5°
42	82	64	2,3°
50	98	80	1,3°
52	102	84	1,3°
63	124	106	0,9°
66	130	112	0,9°
80	158	140	1,1°
100	198	180	0,6°

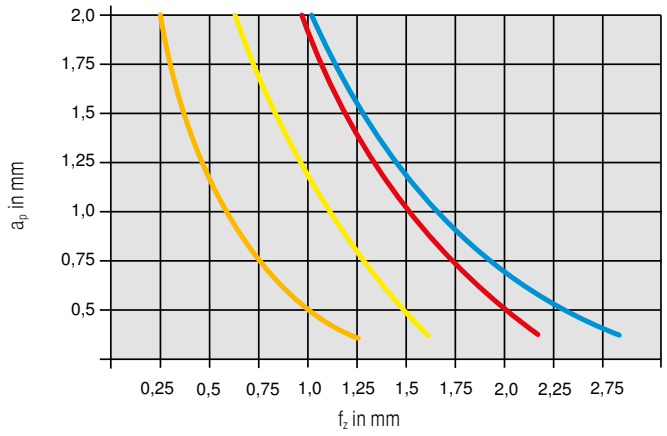
	axial	Angled
	Plunging	
DC mm	$X_{max.}$ mm	$\alpha_{R\,max.}$ °
32	1,15	7,2°
35		4,4°
40		2,9°
42		2,7°
50 + 52		1,5°
63 + 66		1,1°
80		1,3°
100		0,7°



Starting Parameter



XOLX 12



Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**XOLX120410SR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**XOLX120410ER-M50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**XOLX120410ER-M50**	**CTCK215**	250	Dry
Heat resistant	**S.2.2**	Inconel 718	**XOLX120410ER-F40**	**CTC5240**	35	Emulsion

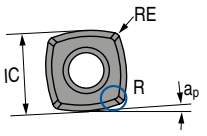
Detailed information on cutting speed for each grade can be found on → page 142–144

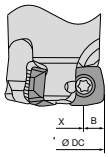
From v_c > 400 m/min, the tool must be balanced!

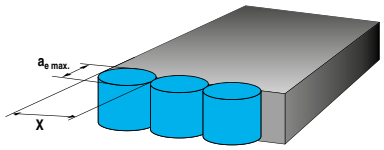
System MaxiMill HFC-19

Machining strategy

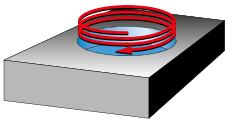
Programmed radius R = 5 mm

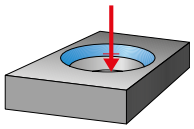


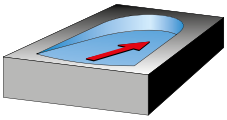




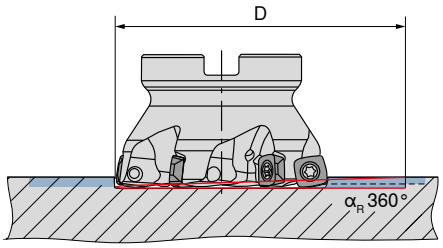
Cutting depth and remaining material			Cutting width for flat surfaces			Cutting depth when plunging				
IC in mm	RE in mm	$a_{p\,max.}$ in mm	DC in mm	X in mm	B in mm	$a_{e\,max.}$ in mm	f_z in mm			X
							initial	min.	max.	
19,14	1,5	3,3	63–160	DC–(2 x B)	13,1	12	0,2	0,10	0,25	<0,65 x DC







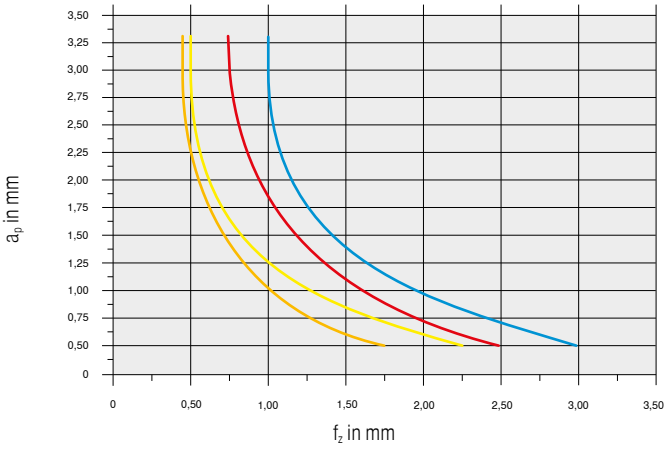
	circular			axial	Angled	
	Helical plunging (helical plunging into solid material)				Plunging	
DC mm	$D_{min.}$ mm	$D_{max.}$ mm	$\alpha_{R\,max.}$ °	$X_{max.}$ mm	$\alpha_{R\,max.}$ °	$a_{p\,max}$ mm
63	97	123	2,5		2,9	
80	131	157	1,4		1,8	
100	171	197	1,0	1,7	1,3	3,3
125	221	247	0,7		1,0	
160	291	317	0,5		0,7	



Starting Parameter



XOLX 19



Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**XOLX190615SR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**XOLX190615SR-M50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**XOLX190615SR-M50**	**CTCK215**	250	Dry
Heat resistant	**S.2.2**	Inconel 718	**XOLX190615ER-F40**	**CTC5240**	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 142–144

From v_c > 400 m/min, the tool must be balanced!

System DHFC

Cutting data standard values

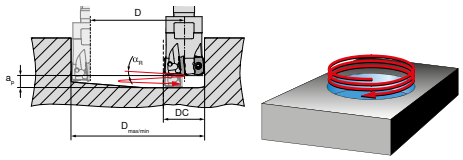
for standard inserts

	F			M			R		
Material	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm
Steel	130–300	0,25–1,0	0,70	130–300	0,25–1,0	0,75			
Stainless steel				90–210	0,25–1,0	0,60			
Cast iron				120–270	0,2–1,1	0,70	120–270	0,2–1,2	0,75
Non ferrous metals									
Heat resistant				40–80	0,15–0,75	0,60			
Hardened materials									
Non metal materials									

Machining strategy

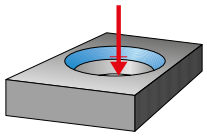
Programmed Radius R = 1,4 mm

Circular Milling



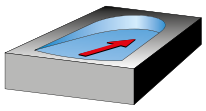
DC mm	D_{min} mm	D_{max} mm
16	23	31
20	31	39
25	41	49
32	55	63
35	61	69
42	75	83

Axial plunging into solid material



DC mm	X_{max} mm
16	0,35
20	0,40
25	0,45
32–35	0,50
40	0,55

Angled ramping



DC mm	α°	y mm
16	<2,5	7
20	<1,9	11
25	<1,5	16
32	<1,2	23
35	<1,0	26
42	<0,9	33

Detailed information on cutting speed for each grade can be found on → page 142–144

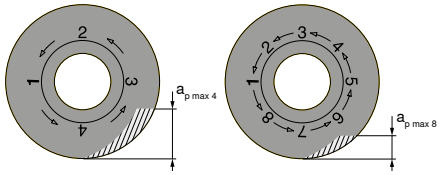
MaxiMill 251/251 RS system

Technical data

Recommended cutting depth

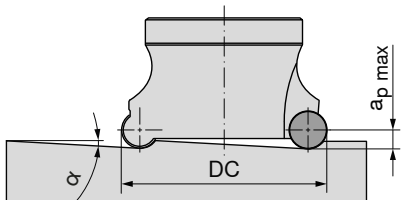
Ø mm	4-position $a_{p\,max.}$ mm	4-position $a_{p\,max}$ theoretical mm	8-face $a_{p\,max.}$ mm
5	1,0	2,0	0,7
8	1,5	3,5	1,1
10	2,5	4,5	1,4
12	3,0	5,5	1,7
16	4,0	7,5	2,3
20	4,0	9,5	2,9

Average depth for the 4/8 index use of the insert



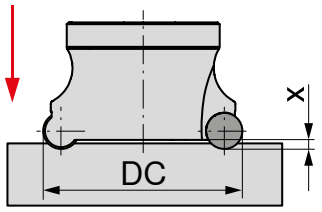
Detailed information on cutting speed for each grade can be found on → page 142–144

Linear ramping



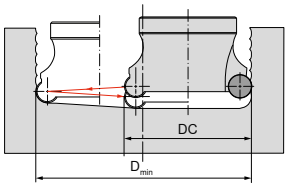
Ø DC mm	05 α °	08 α °	10 α °	12 α °	16 α °	20 α °
10	3,4					
12	16,0					
16	8,0	5,0				
20	5,5	20,0	1,3			
25	4,0	13,0	2,0	6,0		
32	3,0	8,0	3,0	4,0		
40			3,3	2,8		
42			3,1			
50			2,4	2,6	4,0	
52			2,2	2,3		
63				1,9	2,8	
66				1,6		
80				1,3	2,0	3,2
100				1,0	1,5	2,3
125						1,7

Axial ramping

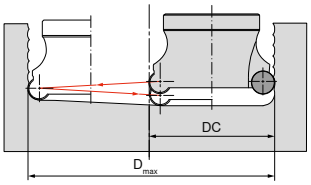


Ø DC mm	05 $X_{max.}$ mm	08 $X_{max.}$ mm	10 $X_{max.}$ mm	12 $X_{max.}$ mm	16 $X_{max.}$ mm	20 $X_{max.}$ mm
10	0,5					
12	1,3					
16	1,3	0,5				
20	1,3	2,7	0,2			
25	1,3	2,7	0,4	1,0		
32	1,3	2,7	0,8	1,1		
40			1,5	1,2		
42			1,5	1,5		
50			1,5	1,5	2,0	
52			1,5	1,5	2,0	
63				1,5	2,0	
66				1,5	2,0	
80				1,5	2,0	3,0
100				1,5	2,0	3,0
125						3,0

Circular milling into solid



$D_{min.}$ = smallest drilling diameter depending on the tool diameter



$D_{max.}$ = Maximum hole diameter Depending on the tool diameter

maximum possible hole diameter = 2 x DC – 1 mm

Ø DC mm	05 D_{min} mm	05 D_{max} mm	05 α_R °	08 D_{min} mm	08 D_{max} mm	08 α_R °	10 D_{min} mm	10 D_{max} mm	10 α_R °	12 D_{min} mm	12 D_{max} mm	12 α_R °	16 D_{min} mm	16 D_{max} mm	16 α_R °	20 D_{min} mm	20 D_{max} mm	20 α_R °
10	12	15	2,5															
12	16	19	2,1															
16	24	27	1,5	21	24	2,4												
20	32	35	1,2	27	32	1,9	26	30	1,3									
25	42	45	1,0	37	42	1,5	37	40	1,8	31	38	2,2						
32	56	59	0,7	51	56	1,2	50	54	1,5	46	52	1,7						
40							64	70	1,1	62	68	1,4						
42							68	74	1,1									
50							84	90	0,9	81	88	1,1	75	84	1,5			
52							88	94	0,9	86	92	1,0						
63										107	114	0,9	101	110	1,1			
66										113	120	0,8						
80										142	148	0,7	135	144	0,9	128	140	1,1
100										181	188	0,5	175	184	0,7	168	180	0,9
125																218	230	0,7

R100. system

Cutting data standard values

Index	WTN1205	WTN1205	WAN2225	WAN2225	WAN1240	WAN1240	WAX1240	WAX1240	WUN4210	WUN4210
P.1.1	**275**	150			**300**	180	**200**	100		
P.1.2	**230**	130			**270**	160	**170**	90		
P.1.3	**190**	100			**225**	130	**140**	80		
P.1.4	**230**	130			**270**	160	**170**	90		
P.1.5	**210**	110			**240**	140	**160**	90		
P.2.1	**230**	130			**270**	160	**170**	90		
P.2.2	**170**	100			**200**	120	**130**	70		
P.2.3	**230**	130			**270**	160	**170**	90		
P.2.4	**160**	90			**180**	110	**120**	60		
P.3.1	**230**	130			**270**	160	**170**	90		
P.3.2	**150**	110			**180**	140	**140**	80		
P.3.3	**130**	90			**150**	120	**120**	70		
P.4.1	**150**	110			**180**	140	**140**	80		
P.4.2	**150**	100			**170**	130	**130**	70		
M.1.1	**230**	130	**230**	**140**	270	160	170	90		
M.2.1			**200**	**120**						
M.3.1										
K.1.1	**275**	200			360	90	150	110	200	150
K.1.2	**150**	100			360	90	150	110	150	120
K.2.1	**180**	100			230	170	150	110	200	150
K.2.2	**150**	100			160	110	150	110	160	130
K.3.1	**180**	100			210	160			200	150
K.3.2	**180**	100			210	160			150	120
N.1.1										**1200**
N.1.2										**800**
N.2.1										**880**
N.2.2										**800**
N.2.3										**230**
N.3.1										**280**
N.3.2										**280**
N.3.3										**160**
N.4.1										**260**
S.1.1				**50**						
S.1.2				**45**						
S.2.1				**24**						
S.2.2				**16**						
S.2.3				**20**						
S.3.1				**50**						
S.3.2				**32**						
S.3.3				**25**						
H.1.1	**140**	80								
H.1.2	**120**	70								
H.1.3	80	40								
H.1.4										
H.2.1										
H.3.1										
O.1.1									180	150
O.1.2										
O.2.1									260	230
O.2.2										
O.3.1									450	

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions.

System R 1000, 1002, 1007

Cutting data standard values

		f_z / a_p mm	WTN1205	WAN2225	WAN1240	WAX1240	WUN4210
Steel							
	0501	f_z	**0,1–0,3**				
		a_p	**0,1–0,3**				
	07T1	f_z	**0,1–0,3**			**0,1–0,3**	0,1–0,2
		a_p	**0,1–0,3**			**0,1–0,7**	0,1–0,2
	0702	f_z	**0,1–0,7**			**0,2–0,5**	0,1–0,2
		a_p	**0,1–0,7**			**0,1–0,75**	0,1–0,2
	1003	f_z	**0,1–0,3**		**0,2–0,9**	**0,2–0,7**	0,15–0,3
		a_p	**0,1–1,0**		**0,2–1,5**	**0,2–1,5**	0,1–0,3
	12T3	f_z	**0,1–0,3**		**0,25–1,0**	**0,–0,8**	0,15–0,3
		a_p	**0,1–1,5**		**0,2–2,0**	**0,2–2,0**	0,1–0,3
	1604	f_z	**0,2–0,3**		**0,3–1,2**	**0,25–1,0**	0,15–0,3
		a_p	**0,2–1,5**		**0,25–3,0**	**0,2–3,0**	0,1–0,4
	2006	f_z	**0,25–0,4**				0,15–0,4
		a_p	**0,2–2,0**				0,1–0,3
Stainless steel							
	0501	f_z	0,1–0,15				
		a_p	0,1–0,15				
	07T1	f_z	0,1–0,2			0,1–0,3	0,1–0,2
		a_p	0,1–0,2			0,1–0,7	0,1–0,2
	0702	f_z	0,1–0,2			0,2–0,5	0,1–0,2
		a_p	0,1–0,2			0,1–0,75	0,1–0,2
	1003	f_z	0,15–0,3	**0,15–0,6**		0,2–0,7	0,15–0,3
		a_p	0,1–0,3	**0,4–1,0**		0,2–1,5	0,1–0,3
	12T3	f_z	0,15–0,3	**0,2–0,8**		0,–0,8	0,15–0,3
		a_p	0,1–0,3	**0,5–2,0**		0,2–2,0	0,1–0,3
	1604	f_z	0,15–0,3	**0,3–1,0**		0,25–1,0	0,15–0,3
		a_p	0,1–0,3	**0,6–3,0**		0,2–3,0	0,1–0,3
	2006	f_z	0,15–0,4				0,15–0,4
		a_p	0,1–0,4				0,1–0,4
Cast iron							
	**0501**	f_z	**0,1–0,2**				
		a_p	**0,1–0,3**				
	**07T1**	f_z	**0,1–0,3**			0,1–0,3	0,1–0,3
		a_p	**0,1–0,5**			0,1–0,5	0,1–0,5
	**0702**	f_z	**0,1–0,3**			0,1–0,3	0,1–0,3
		a_p	**0,1–0,7**			0,1–0,7	0,1–0,7
	**1003**	f_z	**0,15–0,3**		0,1–0,3	0,1–0,3	0,15–0,3
		a_p	**0,1–1,0**		0,1–1,0	0,1–1,0	0,1–1,0
	**12T3**	f_z	**0,15–0,4**		0,1–0,4	0,1–0,4	0,15–0,4
		a_p	**0,1–1,5**		0,1–1,15	0,1–1,5	0,1–1,5
	**1604**	f_z	**0,2–0,5**		0,2–0,5	0,2–0,5	0,2–0,5
		a_p	**0,2–3,0**		0,2–2,0	0,2–3,0	0,2–3,0
	**2006**	f_z	**0,25–0,6**				0,25–0,6
		a_p	**0,2–4,0**				0,2–4,0

15

System R 1000, 1002, 1007

Cutting data standard values

		f_z / a_p mm	WTN1205	WAN2225	WAN1240	WAX1240	WUN4210
Non ferrous metals							
	07T1	f_z					**0,1–0,3**
		a_p					**0,1–0,7**
	0702	f_z					**0,1–0,3**
		a_p					**0,1–1,0**
	1003	f_z					**0,1–0,3**
		a_p					**0,1–1,5**
	12T3	f_z					**0,1–0,4**
		a_p					**0,1–2,0**
	1604	f_z					**0,2–0,5**
		a_p					**0,2–4,0**
	2006	f_z					**0,25–0,6**
		a_p					**0,2–5,0**
Heat resistant							
	1003	f_z		**0,1–0,4**			
		a_p		**0,2–1,0**			
	12T3	f_z		**0,15–0,5**			
		a_p		**0,3–1,5**			
	1604	f_z		**0,15–0,5**			
		a_p		**0,3–2,0**			
Hardened materials							
	0501	f_z	**0,1–0,15**				
		a_p	**0,1–0,2**				
	07T1	f_z	**0,1–0,15**				
		a_p	**0,1–0,2**				
	0702	f_z	**01–0,2**				
		a_p	**0,1–0,3**				
	1003	f_z	**0,1–0,2**				
		a_p	**0,1–0,5**				
	12T3	f_z	**0,1–0,25**				
		a_p	**0,1–0,7**				
	1604	f_z	**0,15–0,3**				
		a_p	**0,2–1,0**				
	2006	f_z	**0,2–0,4**				
		a_p	**0,2–1,0**				
Non metal materials							
	07T1	f_z					0,1–0,3
		a_p					0,1–0,7
	0702	f_z					0,1–0,3
		a_p					0,1–1,0
	1003	f_z					0,1–0,3
		a_p					0,1–1,5
	12T3	f_z					0,1–0,4
		a_p					0,1–2,0
	1604	f_z					0,2–0,5
		a_p					0,2–4,0
	2006	f_z					0,25–0,6
		a_p					0,2–5,0

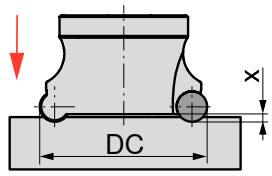
WTN 1205

Up to 48 HRC: a_p-range as indicated in the table
Up to 55 HRC: maximum value a_p x 0,7
Up to 65 HRC: maximum value a_p x 0,5

System R 1000, 1002, 1007

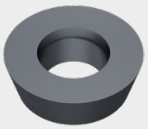
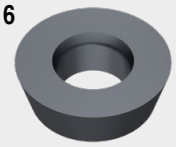
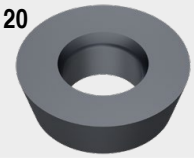
Machining strategy

Axial ramping

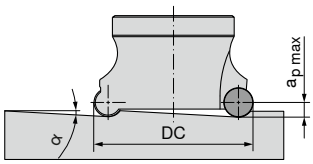


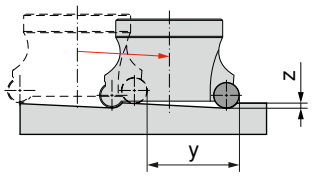
reduce f_z according to table by 30 %

→ v_c Page 178–180

	05	07	10	12	16	20
						
ØDC mm	$X_{max.}$ mm	$X_{max.}$ mm	$X_{max.}$ mm	$X_{max.}$ mm	$X_{max.}$ mm	$X_{max.}$ mm
8–160	1,0	1,2	2,5	3,0	4,0	5,0

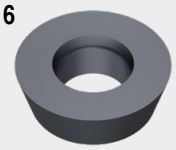
Linear ramping





y = minimum cutter movement
z = minimum cutter movement
a_p / f_z application table

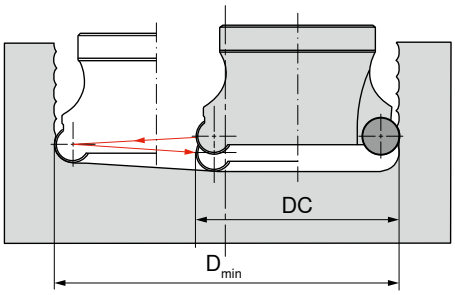
→ v_c Page 178–180

	05	07	10	12	16	20
						
ØDC mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm
8	26,5	2	< 1,0															
10																		
12	14,0	4	< 1,0															
14	9,5	6	< 1,0															
15	8,1	7	< 1,0	26,5	2	< 1,2												
16	7,1	8	< 1,0	14,0	4	< 1,2												
18	5,7	10	< 1,0	11,3	6	< 1,2												
20	4,7	12	< 1,0	8,5	8	< 1,2												
22																		
24																		
25				5,3	13	< 1,2	19,7	7	< 2,5									
30				3,8	18	< 1,2	11,7	12	< 2,5									
32																		
35				3,0	23	< 1,2	8,4	17	< 2,5	13,0	13	< 3,0	38,7	5	< 4,0			
40																		
42				2,3	30	< 1,2	5,9	24	< 2,5	8,5	20	< 3,0						
50																22,6	12	< 5,0
52							4,2	34	< 2,5	5,7	30	< 3,0	10,3	22	< 4,0			
66										3,9	44	< 3,0	6,4	36	< 4,0	10,1	28	< 5,0
80										3,0	58	< 3,0	4,6	50	< 4,0	6,8	42	< 5,0
100													3,3	70	< 4,0	4,6	62	< 5,0
125													2,4	95	< 4,0	3,3	87	< 5,0
160													1,8	130	< 4,0	2,3	122	< 5,0

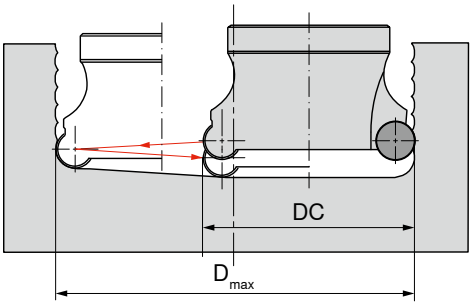
System R 1000, 1002, 1007

Machining strategy

Helical plunging



D_{min} = smallest drilling diameter depending on the tool diameter



D_{max} = largest drilling diameter depending on the tool diameter

a_p / f_z according to table
→ v_c Page 178–180

	05			07			10			12			16			20		
ØDC mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm
8	10	16																
10	12	20																
12	16	24	14	24														
14	20	28	16	28														
15	22	30	17	30														
16	24	30	20	32														
18	28	36	24	36	20	36												
20	32	40	28	40	22	40												
22							24	44										
24							26	48										
25			38	50	32	50												
30			48	60	42	60												
32									34	64								
35			58	80	72	70	48	70	40	70			38,7	5	< 4,0			
40											42	80						
42			72	84	66	84	62	84										
50											62	100				22,6	12	< 5,0
52					86	104	82	104	74	104			10,3	22	< 4,0			
66							110	132	102	132	94	132	6,4	36	< 4,0	10,1	28	< 5,0
80							138	160	130	160	122	160	4,6	50	< 4,0	6,8	42	< 5,0
100									170	200	162	200	3,3	70	< 4,0	4,6	62	< 5,0
125									220	250	212	250	2,4	95	< 4,0	3,3	87	< 5,0
160									290	320	282	320	1,8	130	< 4,0	2,3	122	< 5,0

System MaxiMill 252

Machining strategy

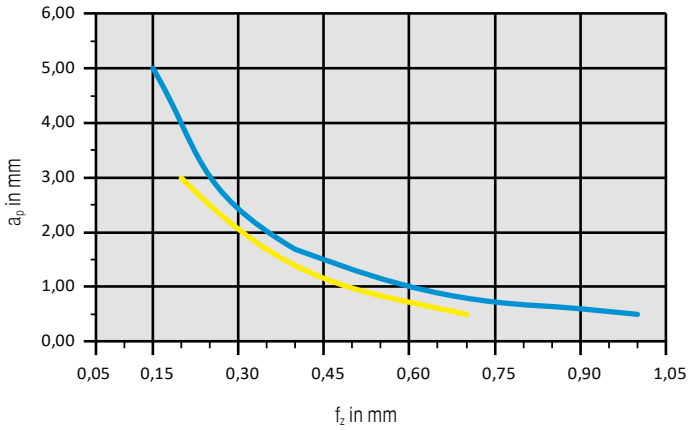
Recommended cutting depth

Ø	4-position	
	$a_{p\,max}$	
mm	mm	mm
10	2,5	4,5
12	3,0	5,5

Starting Parameter



RNHU 10

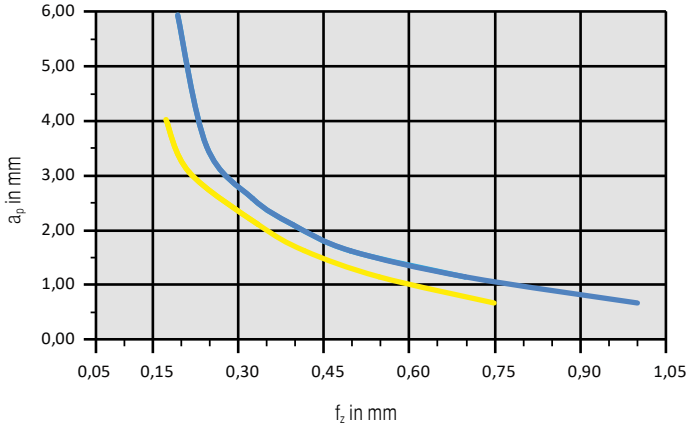


Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**RNHU1005M4SR-M50**	**CTPP235**	180	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**RNHU1005M4ER-F50**	**CTPM240**	180	Dry

Starting Parameter



RNHU 12



Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**RNHU1205M4SR-M50**	**CTPP235**	180	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**RNHU1205M4ER-F50**	**CTPM240**	180	Dry

Detailed information on cutting speed for each grade can be found on → page 142–144

From v_c > 400 m/min, the tool must be balanced!

Cutting data standard values for copy milling cutter K200.

	R	F	R	F	R	F	R	F	R	F	● 1st choice	○ suitable	
	CTPK226		CTPP211		CTPK231		CTCN211		CTPP216		Emulsion	Compressed air	MMS
Index	v_c m/min		v_c m/min		v_c m/min		v_c m/min		v_c m/min				
P.1.1		280–300	180–220	220–280	160–200				220–300	280–300	○	●	●
P.1.2		220–240	180–220	220–280	160–200				220–300	280–300	○	●	●
P.1.3		220–240	180–220	220–280	160–200				220–300	280–300	○	●	
P.1.4		220–240	180–220	220–280	160–200				220–300	280–300	○	●	
P.1.5		220–240	180–220	220–280	160–200				220–300	280–300	○	●	
P.2.1		280–300	180–220	220–280	160–200				220–300	280–300	○	●	●
P.2.2		280–300	180–220	220–300	160–200				220–300	280–300	○	●	●
P.2.3		280–300	180–220	240–320	160–200				250–360	240–320	○	●	
P.2.4		280–300	180–220	240–320	160–200				250–360	240–320	○	●	
P.3.1		280–300	180–220	220–280	160–200				220–300	280–300	○	●	
P.3.2		280–320	180 – 220	240–320	160–200				250–360	240–320	○	●	●
P.3.3		280–320	180 – 220	240–320	160–200				250–360	240–320	○	●	●
P.4.1		220–220	140–180	200–240	120–180				140–180	200–240	○	●	
P.4.2		220–220	140–180	200–240	120–180				140–180	200–240	○	●	
M.1.1		180–200	140–160	180–200	120–160				220–250	220–240	●	○	
M.2.1		180–200	140–160	180–240	120–160				220–250	220–240	●		
M.3.1		220–220	140–180	200–240	120–180				140–180	200–240	●		
K.1.1		280–300	160–200	200–300	120–200				240–350	240–260		●	○
K.1.2		280–300	160–200	200–300	120–200				240–350	240–260		●	○
K.2.1		280–300	160–200	200–300	120–200				240–350	240–260		●	○
K.2.2		300–350	180–220	240–350	180–200				340–400	240–360		●	○
K.3.1		300–350	180–220	240–350	180–200				340–400	240–360		●	○
K.3.2		240–260	160–200	220–260	160–200				280–340	220–300		●	○
N.1.1			240–280	300–600	300–600					400–450	●		
N.1.2			240–280	300–600	300–600					400–450	●		
N.2.1			240–280	300–600	300–600					400–450	●		
N.2.2			240–280	300–600	300–600					400–450	●		
N.2.3										300–400	●		
N.3.1			240–280	280–320	240–280					300–400	●		
N.3.2			240–280	280–320	240–280					300–400	●		
N.3.3			240–280	280–320	240–280					300–400	●		
N.4.1			300–400	300–400				300–400			●		
S.1.1				80–120	80–120					60–80	●		
S.1.2				80–120	80–120					60–80	●		
S.2.1				80–120	80–120					60–80	●		
S.2.2				80–120	80–120					60–80	●		
S.2.3				80–120	80–120					60–80	●		
S.3.1				60–80	80–120					60–80	●		
S.3.2				60–80	60–80					60–80	●	○	
S.3.3				60–80	60–80					60–80	●	○	
H.1.1		240–260		280–300	140–160				240–260	240–260		●	
H.1.2		240–260		280–300	80–100				220–240	160–240		●	○
H.1.3		200–220		240–260					120–140	100–140		●	○
H.1.4		120–140		160–200								●	○
H.2.1		240–260		280–300	80–100				220–240	160–240		●	○
H.3.1		240–260		280–300	80–100				220–240	160–240		●	
O.1.1			300–400	300–400						300–350		●	
O.1.2			500–600	500–600						600–800		●	
O.2.1			300–400	300–400								●	
O.2.2			300–400	300–400								●	
O.3.1							400–600	600–800				●	

Cutting data standard values for copy milling cutter K200.

	Roughing (R)		Finishing (F)		only for -MR3 Roughing (R)		● 1st choice	○ suitable	
	Ø 6-16	Ø 20-32	Ø 6-16	Ø 20-32	Ø 6-16	Ø 20-32	Emulsion	Compressed air	MMS
Index	f_z in mm		f_z in mm		f_z in mm				
P.1.1	0,08–0,04	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,8**	**1,2–1,5**	○	●	●
P.1.2	0,08–0,04	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,8**	**1,2–1,5**	○	●	●
P.1.3	0,08–0,04	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,8**	**1,2–1,5**	○		●
P.1.4	0,08–0,04	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,6**	**0,8–1,25**	○		●
P.1.5	0,08–0,04	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,6**	**0,8–1,25**	○		●
P.2.1	0,08–0,04	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,8**	**1,2–1,5**	○	●	●
P.2.2	0,08–0,04	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,6**	**0,8–1,25**	○	●	●
P.2.3	0,08–0,04	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,6**	**0,8–1,25**	○		●
P.2.4	0,08–0,04	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,6**	**0,8–1,25**	○		●
P.3.1	0,08–0,04	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,8**	**1,2–1,5**	○		●
P.3.2	0,08–0,04	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,6**	**0,8–1,25**	○	●	●
P.3.3	0,08–0,04	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,6**	**0,8–1,25**	○	●	●
P.4.1	0,08–0,04	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,8**	**1,2–1,5**	○		●
P.4.2	0,08–0,04	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,8**	**1,2–1,5**	○		●
M.1.1	0,08–0,4	**0,25–0,5**	0,08–0,3	0,2–0,5	**0,3–0,6**	0,8–1,5	●	○	
M.2.1	0,08–0,4	**0,25–0,5**	0,08–0,4	0,2–0,6	**0,3–0,6**	0,8–1,25	●		
M.3.1	0,08–0,4	**0,25–0,5**	0,08–0,5	0,2–0,7	**0,3–0,6**	0,8–1,25	●		
K.1.1	0,08–0,4	**0,25–0,5**	0,08–0,3	0,2–0,5	**0,3–0,8**	1,0–1,5		●	○
K.1.2	0,08–0,5	**0,25–0,6**	0,08–0,4	0,2–0,6	**0,3–0,8**	1,0–1,5		●	○
K.2.1	0,08–0,6	**0,25–0,7**	0,08–0,5	0,2–0,7	**0,3–0,8**	1,0–1,5		●	○
K.2.2	0,08–0,7	**0,25–0,8**	0,08–0,6	0,2–0,8	**0,3–0,6**	0,8–1,25		●	○
K.3.1	0,08–0,8	**0,25–0,9**	0,08–0,7	0,2–0,9	**0,3–0,6**	0,8–1,25		●	○
K.3.2	0,08–0,9	**0,25–0,10**	0,08–0,8	0,2–0,10	**0,3–0,6**	0,8–1,25		●	○
N.1.1	0,08–0,35	0,25–0,45	0,06–0,25	0,025–0,45			●		
N.1.2	0,08–0,36	0,25–0,46	0,06–0,26	0,025–0,46			●		
N.2.1	0,08–0,37	0,25–0,47	0,06–0,27	0,025–0,47			●		
N.2.2	0,08–0,38	0,25–0,48	0,06–0,28	0,025–0,48			●		
N.2.3	0,08–0,39	0,25–0,49	0,06–0,29	0,025–0,49			●		
N.3.1	0,08–0,40	0,25–0,50	0,06–0,30	0,025–0,50			●		
N.3.2	0,08–0,41	0,25–0,51	0,06–0,31	0,025–0,51			●		
N.3.3	0,08–0,42	0,25–0,52	0,06–0,32	0,025–0,52			●		
N.4.1	0,08–0,43	0,25–0,53	0,06–0,33	0,025–0,53			●		
S.1.1	0,08–0,3	0,15–0,4	0,05–0,2	0,15–0,25	0,25–0,5	0,6–1,0	●		
S.1.2	0,08–0,3	0,15–0,4	0,05–0,2	0,15–0,25	0,25–0,5	0,6–1,0	●		
S.2.1	0,08–0,3	0,15–0,4	0,05–0,2	0,15–0,25	0,25–0,5	0,6–1,0	●		
S.2.2	0,08–0,3	0,15–0,4	0,05–0,2	0,15–0,25	0,25–0,5	0,6–1,0	●		
S.2.3	0,08–0,3	0,15–0,4	0,05–0,2	0,15–0,25	0,25–0,5	0,6–1,0	●		
S.3.1	0,08–0,3	0,15–0,4	0,05–0,2	0,15–0,25	0,25–0,5	0,6–1,0	●		
S.3.2	0,08–0,35	0,4–0,5	0,08–0,3	0,25–0,5	0,25–0,5	0,6–1,0	●	○	
S.3.3	0,08–0,35	0,4–0,5	0,08–0,3	0,25–0,5	0,25–0,5	0,6–1,0	●	○	
H.1.1								●	
H.1.2								●	○
H.1.3								●	○
H.1.4								●	○
H.2.1								●	○
H.3.1								●	
O.1.1								●	
O.1.2								●	
O.2.1								●	
O.2.2								●	
O.3.1								●	

15

Maximum axial depths of cut a_p for copy milling cutter K200.



Ball nose insert									
Insert Ø in mm		6	8	10	12	16	20	25	32
		$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$
ROHX-FM3	**R**	0,8	1,0	1,5	2,0	3,0	4,0	5,0	6,0
	F	0,4	0,8	1,0	1,2	1,5	1,5	2,0	2,0
ROHX-FM4	**R**	0,8	1,0	2,0	3,0	4,0	5,0	6,0	8,0
	F	0,4	0,8	1,0	1,2	1,5	1,5	2,0	2,0
ROHX-FM6	**R**	0,8	1,0	1,5	2,0	3,0	4,0	5,0	6,0
	F	0,4	0,8	1,0	1,2	1,5	1,5	2,0	2,0
ROGX-MR4	**R***				4,0	6,0	8,0	12,0	16,0
	F				2,0	3,0	4,0	5,0	6,0
ROHX-MR5	**R**		1,5	2,0					
	F		0,8	1,0					

*a_p with full interference 25 % of Ø DC maximum!



Torus inserts									
Insert Ø in mm		6	8	10	12	16	20	25	32
		$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$
XOHX-FM5	**R**		2,0	3,0	3,0	4,0	5,0	6,0	8,0
	F		0,6	2,0	2,4	3,2	4,0	5,0	6,4
XOHX-MR6	**R**		2,0	3,0	3,0	4,0	5,0	6,0	8,0
	F		0,6	2,0	2,4	3,2	4,0	5,0	6,4
XOHX-FM1	**R**			1,5	2,0	3,0	4,0		
	F			0,8	0,8	1,0	1,0		
XOHX-FM2	**R**		1,0	1,5	2,0	3,0	4,0	5,0	
	F		0,5	0,7	0,8	1,0	1,0	1,5	
XOHX-MR2	**R**	0,8	1,0	1,5	2,0	3,0	4,0	5,0	
	F	0,5	0,5	0,7	0,8	1,0	1,0	1,5	
XOGX-MF4	**R**			1,5	2,0	3,0	4,0		
	F			0,7	0,8	1,0	1,0		
XOHX-MR3	**R**			0,5	0,6	0,8	1,0		
	F								

Ranges of application of geometry

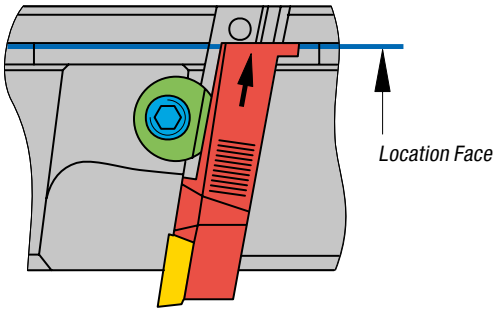
Inserts	F	M	R	Main Application
XOHX-FM1	●	●		Steel, steel casting, heat resistant steel, hardened steel to 63 HRc
XOHX-FM2	●	●		Steel, steel casting, heat resistant steel, hardened steel to 60 HRc
ROHX-FM3	●	●		Steel, steel casting, heat resistant steel
ROHX-FM4	●	●		Steel, steel casting, heat resistant steel, hardened steel to 60 HRc
XOHX-FM5	●	●		Steel, steel casting, heat resistant steel, hardened steel to 60 HRc
ROHX-FM6	●	●	●	Non ferrous metals, plastics, graphite
XOHX-MR2		●	●	long-chipping ferrous metals
XOHX-MR3		●	●	Steel, steel casting, heat resistant steel
ROGX-MR4		●	●	Steel, steel casting, heat resistant steel
XOGX-MF4	●	●		Steel, steel casting, heat resistant steel
ROHX-MR5		●	●	long-chipping ferrous metals
XOHX-MR6		●	●	long-chipping ferrous metals

Cutting data for side and face milling cutters TX

Index	CWX500 v_c m/min	CWK10 v_c m/min
P.1.1	160	
P.1.2	140	
P.1.3	110	
P.1.4	110	
P.1.5	90	
P.2.1	110	
P.2.2	90	
P.2.3	90	
P.2.4	80	
P.3.1	80	
P.3.2	60	
P.3.3	50	
P.4.1	100	
P.4.2	90	
M.1.1	110	
M.2.1	90	
M.3.1	70	
K.1.1	140	
K.1.2	100	
K.2.1	90	
K.2.2	80	
K.3.1	140	
K.3.2	120	
N.1.1	600	250
N.1.2	400	230
N.2.1	220	210
N.2.2	180	190
N.2.3	140	120
N.3.1	240	200
N.3.2	200	180
N.3.3	180	160
N.4.1	180	160
S.1.1	60	
S.1.2	50	
S.2.1	60	
S.2.2	50	
S.2.3	40	
S.3.1	60	
S.3.2	40	
S.3.3	30	
H.1.1		
H.1.2		
H.1.3		
H.1.4		
H.2.1		
H.3.1		
O.1.1	180	160
O.1.2	180	160
O.2.1	150	120
O.2.2	110	100
O.3.1	170	160

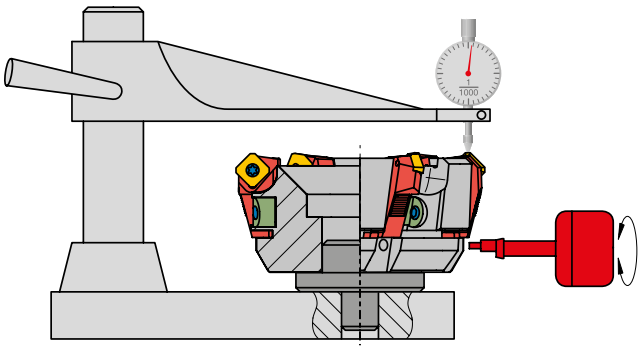
System MaxiMill 260

Setting of axial run-out for roughing



For assembly simply press cartridges onto the location face of the radial groove. The axial run-out amounts to 0.03 mm measured on the master insert.

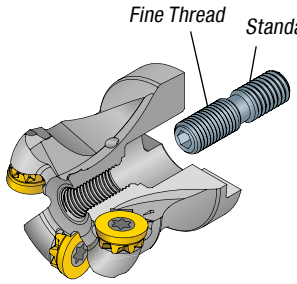
Setting of axial run-out with eccentric key and clock gauge or on optical presetting equipment



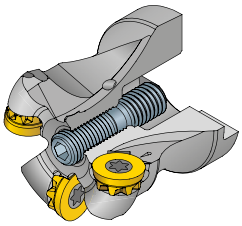
Exact setting of axial run-out up to 0.002 mm

- Clean the milling tools
- Mount cutter on appropriate setting equipment.
- Loosen clamping wedge, push cassette to face and tighten wedge lightly.
- Insert ecentric key into hole and turn until cassette is in desired position.
- Keep ecentric key in contact with the cassette so that it remains in position.
  Tighten wedge (torque moment 10 Nm).
- The tool is now ready for use.

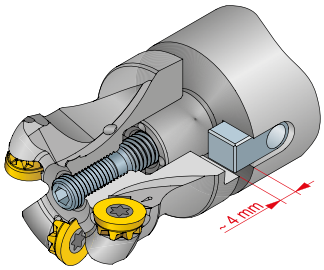
Easy and safe clamping – with the CERATIZIT power screw



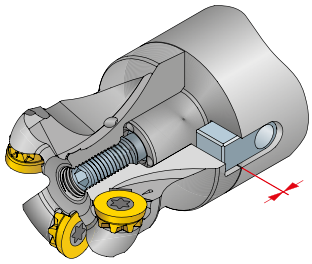
The fine-pitch part of the power screw is threaded into the milling cutter.



The power screw is turned carefully until the stop (as screw was delivered).



In order to guarantee an optimum connection of tool and shank, a gap of 4 mm is required between cutter body and adapter prior to final clamping. Using standardised adpaters this is automatically guaranteed. If necessary, you can readjust by means of the power screw with 0.5 mm/rev.



Turn clamping screw to tighten.

Torque moments for clamping screws for mounting the milling cutter to the shell mill adapter

	10				12				16			
Cutter Ø mm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm
40			70 950 151	10			70 950 151	10				
42			70 950 151	10			70 950 151	10				
50	M10x25	80			M10x25	80					70 950 154	15
52					M10x25	80					70 950 154	15
63					M10x25	80			M10x25	80		
66					M10x25	80			M10x25	80		

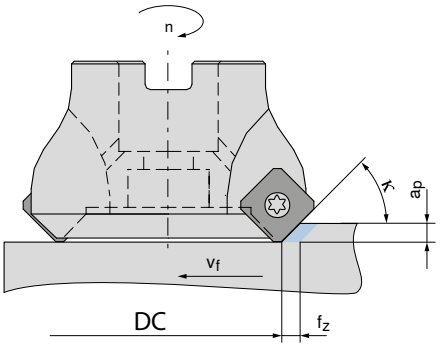
	12				16				20			
Cutter Ø mm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm
80	M12x30	140			M12x30	140			M12x30	140		
100	M16x35	180			M16x35	180			M16x35	180		
125					M16x35	180			M16x35	180		

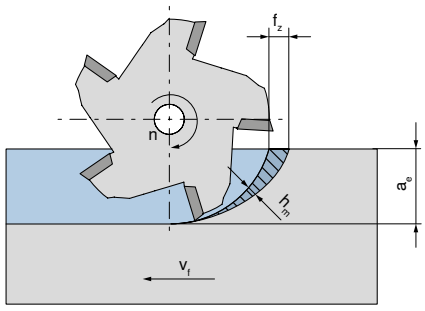
15

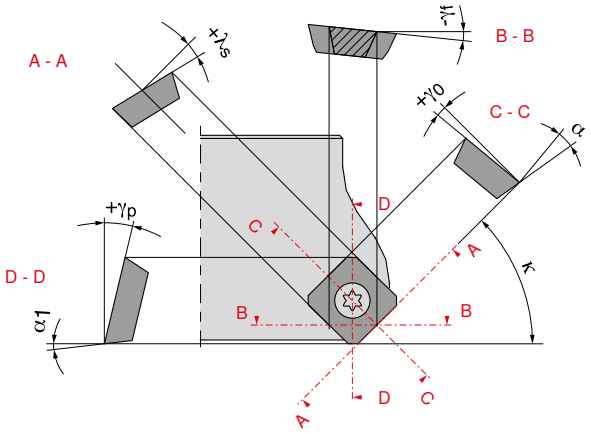
Abbreviations & dimensions

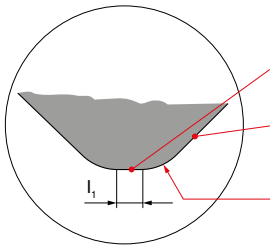
a_e	Cutting width	mm
a_p	Cutting depth	mm
DC	Tool diameter	mm
D_w	Workpiece diameter	mm
f_z	Feed per tooth	mm
h_m	Average Chip Thickness	mm
k	Number of teeth	
k_c	Specific cutting force	N/mm²
$k_{c1.1}$	Specific cutting force for 1 mm ² chip area	N/mm²
BS	Length of wiper land	mm
m_c	Increase of specific cutting force	
n	rpm	rpm
Q	Chip volume	cm³/min
v_c	Cutting speed	m/min
v_f	Feed rate	mm/min.
ZNF	Number of Effective Teeth	

γ_0	Effective cutting angle	degree
γ_f	Side clearance angle	degree
γ_p	Axial cutting angle	degree
κ	Cutting edge angle	degree
λ_s	Angle of inclination	degree
α	Clearance angle	degree
α_1	Side clearance angle	degree









Wiper land

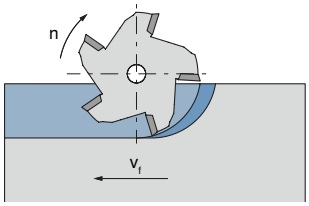
Main cutting edge

Corner radius

Engagement conditions

Recommended

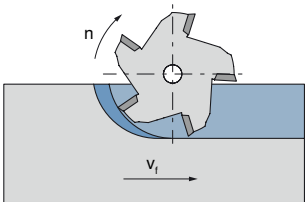
Climb milling



The feed direction of the workpiece is the same as the direction of rotation of the milling cutter in the cutting zone. The chips have maximum thickness at the beginning, chip thickness then decreases until it becomes zero at the end of the cut.

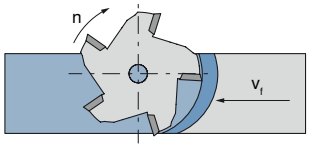
Unsuitable

Conventional milling

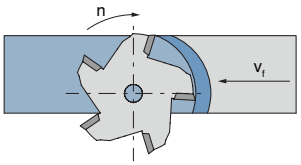


The feed direction of the workpiece is opposite to the direction of rotation of the milling cutter in the cutting zone. Chip thickness is zero at the beginning and increases until it reaches its maximum at the end of the cut.

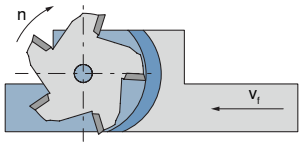
Cutter positioning



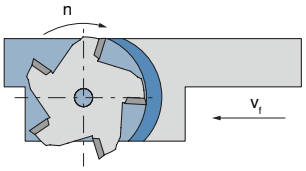
If possible the cutter should exit tangentially of the workpiece.



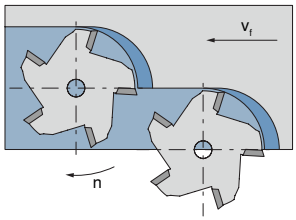
Workpiece situation



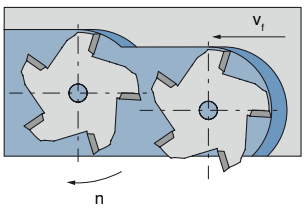
The workpiece should be clamped in such a way as to allow the cutter to emerge tangentially of the workpiece along the whole machining length.



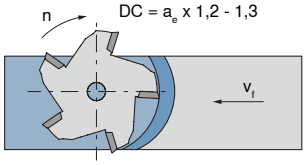
Overlapping



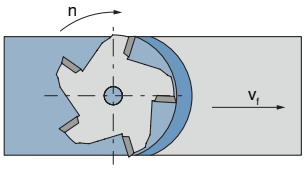
Either employ climb milling or ensure that the cutter comes out of the workpiece tangentially, as in the illustration on the left.



Cutter size



When face milling the diameter of the cutter should be 20–30 % larger than that of the workpiece.



15

ISO designation indexable milling inserts

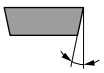
X	D	K	T	11	T3	08	S	R	-	F50
1	2	3	4	5	6	7	8	9		10

Z	N	H	W	12	05	PO	S	R	-	15	06	-	R
1	2	3	4	5	6	7	8	9		11	12		13

1 Insert shape

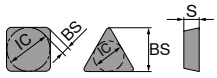
A	85°	
B	82°	
K	55°	
H	120°	
L	90°	
O	135°	
P	108°	
C	80°	
D	55°	
E	75°	
M	86°	
V	35°	
R		
S	90°	
T	60°	
W	80°	
X Z	Special version	

2 Clearance angle

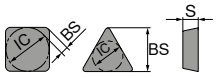


	α
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
O	Special version

3 Tolerances

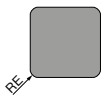


	IC ±mm	BS ±mm	S ±mm	IC = 6,35 / 9,52	IC = 12,7	IC = 15,8 / 19,05
A	0,025	0,005	0,025	●	●	●
C	0,025	0,013	0,025	●	●	●
E	0,025	0,025	0,025	●	●	●
F	0,013	0,005	0,025	●	●	●
G	0,025	0,025	0,13	●	●	●
H	0,013	0,013	0,025	●	●	●
J	0,05	0,005	0,025	●		
	0,08	0,005	0,025		●	
	0,10	0,005	0,025			●
K	0,05	0,013	0,025	●		
	0,08	0,013	0,02		●	
	0,10	0,013	0,02			●



	IC ±mm	BS ±mm	S ±mm	IC = 6,35 / 9,52	IC = 12,7	IC = 15,8 / 19,05
M	0,05	0,08	0,13	●		
	0,08	0,13	0,13		●	
	0,10	0,15	0,13			●
N	0,05	0,08	0,025	●		
	0,08	0,13	0,025		●	
	0,10	0,15	0,025			●
U	0,08	0,13	0,13	●		
	0,13	0,20	0,13		●	
	0,18	0,27	0,13			●

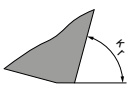
7 Wiper land / corner radius



Radius

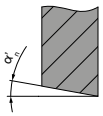
	RE in mm
M0*	
02	0,2
04	0,4
08	0,8
12	1,2

* Only with insert type "R"



1. Designation

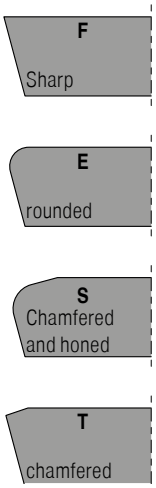
	K_r
A	45°
D	60°
E	75°
F	85°
P	90°
Z	Alternative



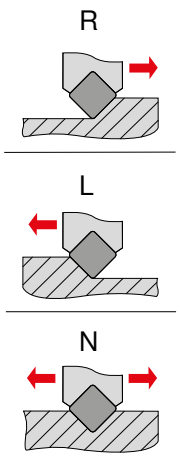
2. Designation

	α'_n
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
Z O	Alternative

8 Cutting edge

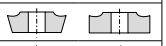
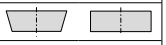


9 Direction of cut



4

Characteristics

A	
F	
G	
M	
N	
Q	
R	
T	
U	
W	
X	Special version

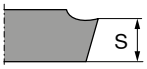
5

Cutting length

IC mm	A	T	C/S	H	L	R	V	W	O	X	Z
4,90										07	
5,00						05					
5,56			05		08			03			
6,00											
6,35		11	06		10			04		06	
6,65	10										
6,80										11	
7,00											04
7,94			07								
8,00						08					
9,00					12						
9,30										15	
9,52	16	16	09		15			06	04		
9,57	15										
9,60										09	
10,00			10		11	10					12
12,00						12					
12,50										20	
12,70		12/22	12		20		22	08		12	
15,81			15		22			10			
16,00						16					
16,20				09							
16,74			16								
17,00			17								
17,18									06		
18,18									07		
19,05			19					13			
20,00						20					

6

Insert thickness



	S mm
01	1,59
T1	1,98
02	2,38
03	3,18
T3	3,97
04	4,76
05	5,56
06	6,35
07	7,94
09	9,52

10

Chip groove

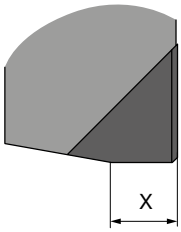
Chip breaker designation
F.. = fine
M.. = medium
R.. = roughing

Additional characteristics:
R = transition radius main/ secondary cutting edge
Q = Masterfinish

11

Manufacturer specification

Length of the finishing cutting edge

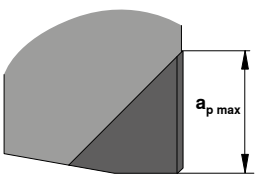


00 = 0,0 mm
10 = 1,0 mm
12 = 1,2 mm
15 = 1,5 mm
30 = 3,0 mm
50 = 5,0 mm

12

Manufacturer specification

$a_{p\,max}$



02 = 2,0 mm
03 = 3,0 mm
04 = 4,0 mm
06 = 6,0 mm
07 = 7,0 mm
11 = 11,0 mm

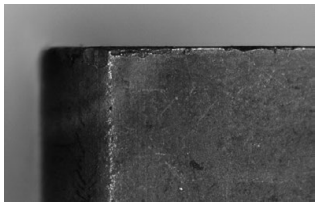
13

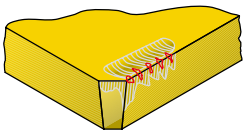
Manufacturer specification

F = Fine
M = Medium
R = Rough

15

Cutting demands when milling

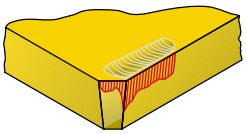




Edge chipping

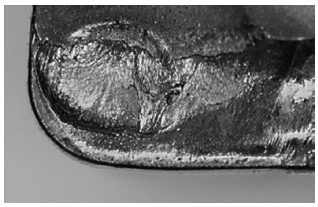
Cutting speed ↑
Feed per tooth ↓
Toughness of grade ↑
Cutting edge chamfer ↑

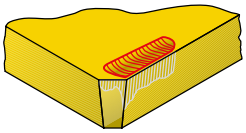




Wear on clearance face

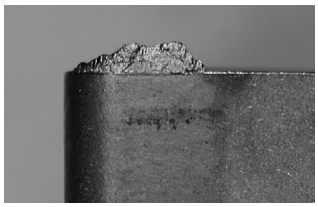
Cutting speed ↓
Feed per tooth ↑
Abrasion resistant grade ↑

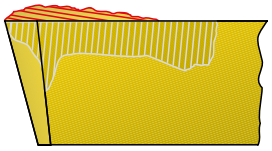




Cratering

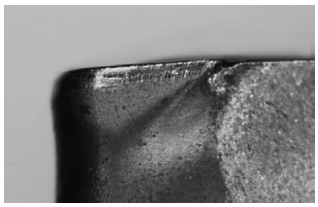
Cutting speed ↓
Feed per tooth ↓
Abrasion resistant grade ↑

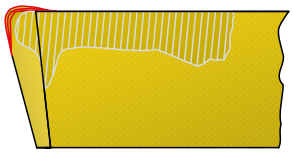




Built-up edge

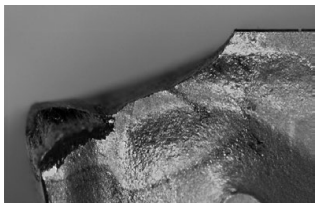
Cutting speed ↑
Feed per tooth ↑
Wear resistance ↑

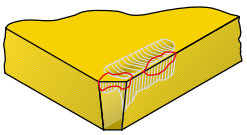




Cutting-edge deformation

Cutting speed ↓
Feed per tooth ↓
Abrasion resistant grade ↑

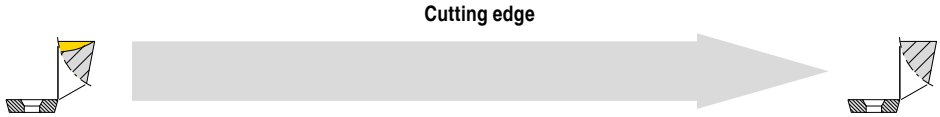




Cutting Edge Breakage

Cutting speed ↓
Toughness of grade ↑

Chip Breakers Overview



			Sharp ●		medium ● ●		stable ● ● ●	
			10	20	30	40	50	60
increasing wedge angle	fine	F	**-F10 -27 -27P**	**-F20**		**-F40**	**-F50**	**-ER -FN -33P -33**
	medium	M			**-M31 -M30 -M32**		**-M50 -31**	**-EN -29**
	rough	R			**-R30**		**-R50**	**-SN -R60 -SR**

Chip breaker code

			Cutting edge		
			Sharp 10–20	medium 30–40	stable 50–60
Application type	light	F	●	● ●	● ● ●
	universal	M	●	● ●	● ● ●
	difficult	R	●	● ●	● ● ●

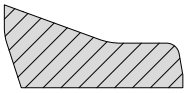
Example: Chip breaker -M50



Chip groove description

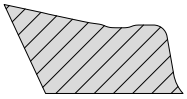
-27P

- Highly positive geometry
- Sharp cutting edges
- Reduced built up edge
- First choice for non-ferrous metals



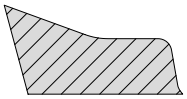
-F10

- Very positive geometry
- Sharp cutting edge
- Prevents sticking and edge build up
- First Choice for non-ferrous metal



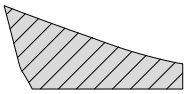
-27

- Highly positive geometry
- Sharp cutting edges
- First choice for non-ferrous metals



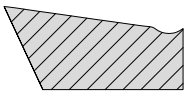
-F20

- Extremely positive geometry
- Lightly rounded cutting edge
- First choice for non-ferrous metals



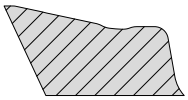
-F40

- Positive geometry
- Rounded cutting edge
- Finish and rough machining
- For unstable clamping situations
- For heat-resistant materials, titanium and super alloys



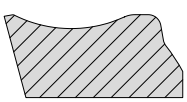
-F50

- Positive geometry with small positive protective chamfer
- Rounded cutting edge
- Low cutting force and good stability
- For unstable clamping situations
- Light rough machining
- First choice for stainless steels



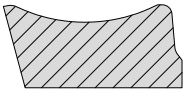
-33P

- Positive geometry with small neutral protective chamfer
- Low adhesion
- Rounded cutting edge
- Low cutting force and good stability
- For unstable clamping situations
- Light rough machining
- First choice for stainless steels



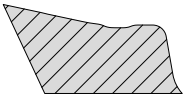
-33

- Positive geometry with small neutral protective chamfer
- Rounded cutting edge
- Low cutting force and good stability
- For unstable clamping situations
- Light rough machining
- First choice for stainless steels



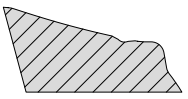
-M30

- Positive geometry
- Rounded cutting edge
- Medium rough machining
- First choice for martensitic stainless steels



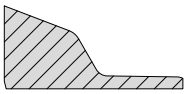
-M31

- Positive geometry
- Rounded cutting edge
- Finish and rough machining
- For unstable clamping situations
- For heat-resistant materials, titanium and super alloys



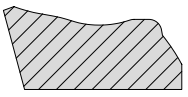
-M32

- Positive geometry
- Rounded cutting edge
- Low cutting force and good stability
- Medium rough machining
- First choice for martensitic stainless steels



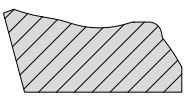
-M50

- Positive geometry with slightly negative protective chamfer
- Rounded cutting edge
- Low cutting force and good stability
- Light to medium rough machining
- First choice for general steels



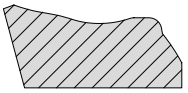
-31

- Positive geometry with neutral protective chamfer
- Rounded cutting edge
- Heavy rough machining
- Strongly interrupted cuts
- First choice for cast iron materials



-29

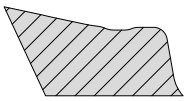
- Positive geometry with slightly negative protective chamfer
- Rounded cutting edge
- Low cutting force and good stability
- Light to medium rough machining
- First choice for general steels



Chip groove description

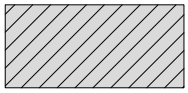
-29R

- Positive geometry with slightly negative protective chamfer
- Heavily rounded cutting edge
- Low cutting force and good stability
- Light to medium rough machining
- First choice for general steels



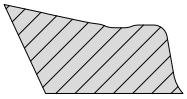
-ER

- Neutral Geometry
- Rounded cutting edge
- Universal application
- High surface quality due to face chamfer
- First choice for machining cast iron and non-ferrous metals



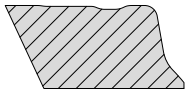
-R30

- Positive geometry with slightly negative protective chamfer
- Heavily rounded cutting edge
- Low cutting force and good stability
- Light to medium rough machining
- First choice for general steels



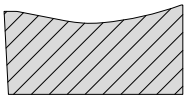
-EN

- Neutral geometry
- Rounded cutting edge
- High surface quality due to face chamfer (radial protective chamfer on indexable insert)
- First choice for machining cast iron and -ferrous metals



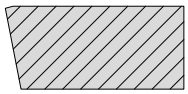
-R50

- Slightly positive geometry
- Rounded cutting edge
- Medium rough machining
- Strongly interrupted cuts
- First choice for cast iron materials



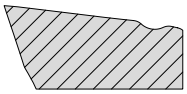
-SN

- Neutral geometry
- Rounded cutting edge
- High surface quality due to face chamfer (radial protective chamfer on indexable insert)
- Low cutting forces
- First choice for good flatness



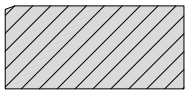
-R60

- Positive geometry with negative stable protective chamfer
- Heavily rounded cutting edge
- For stable machining conditions
- First choice for heavily interrupted cuts
- Heavy rough machining
- First choice for cast iron materials



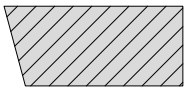
-SR

- Neutral geometry with negative protective chamfer
- Rounded cutting edge
- Robust indexable insert
- For poor machining conditions
- First choice for machining cast iron and steels



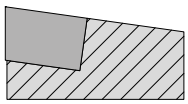
-FN

- Neutral and highly stable geometry
- Heavily rounded cutting edge
- For stable machining conditions
- First choice for hard machining up to approx. 50 HRC



-FR

- Neutral Geometry
- Slightly rounded and stable cutting edge
- Associated with Ceramic and CBN cutting materials.
- For stable machining situations
- First choice for machining cast irons



Grades Overview

Grade designation	Standard designation	ISO application range	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	hardened materials	Non metal materials
			P	M	K	N	S	H	O
CTEP210	HE-P10	01 10 20 30 40 50 / 05 15 25 35 45	●		●				
	HE-K05								
TCM10 (CWC10)	HT-P15		●		○				
	HT-K10								
WTN1205	HC-P10		●	○	●			●	
	HC-M15								
	HC-K05								
	HC-H10								
CTPP211	HC-P10		●	○	○	○	○	○	○
	HC-K10								
	HC-M15								
	HC-N10								
	HC-S15								
	HC-H10								
	HC-O10								
CTPP216	HC-P15		●	○	●	○	○	●	○
	HC-M20								
	HC-K15								
	HC-N15								
	HC-S20								
	HC-H15								
	HC-O15								
CTCP220	HC-P20		●		●				
	HC-K20								
CTPP225	HC-P25		●		●				
	HC-K25								
CTCP230	HC-P30		●		●				
	HC-K25								
CTPP231	HC-P30		●		○				
	HC-K25								
CTPP235	HC-P35		●	○	○				
	HC-M30								
	HC-K30								
CTPP236	HC-P35		●	○	○				
	HC-M35								
	HC-K30								
WAN1240	HC-P40		●	○	○				
	HC-M35								
	HC-K30								
WAX1240	HC-P30		●	○	○				
	HC-M25								
	HC-K25								
CTPM225	HC-P25		●	●					
	HC-M25								
WAN2225	HC-M25			●			●		
	HC-S30								
CTCM235	HC-P40		●	●					
	HC-M35								
CTPM240	HC-P40		○	●					
	HC-M40								
CWK10	HC-N10					●			○
	HC-O10								

● **Main Application**
○ Extended application

wear-resistant v_c+ ⟷ v_c− tough

Grades Overview

Grade designation	Standard designation	ISO application range	Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant S	hardened materials H	Non metal materials O
CTPM241	HC-P40	05 15 25 35 45 / 01 10 20 30 40 50	●	●			○		
	HC-M40								
	HC-S40								
CTPM245	HC-P45		●	●					
	HC-M50								
CTCM245	HC-P45		●	●			○		
	HC-M50								
	HC-S35								
CTN3105	CN-K05				●				
CTL3215	BC-K10				●			○	
	BC-H10								
CTCK215	HC-K15				●				
CTPK220	HC-K20				●				
CTPK221	HC-P15		○		●				
	HC-K10								
CTPK226	HC-P15		●	●	●			○	
	HC-M20								
	HC-K15								
	HC-H15								
CTPK231	HC-P30		●	●	●	○	○	○	
	HC-M35								
	HC-K30								
	HC-N30								
	HC-S35								
	HC-H30								
CTD4205	DP-N05					●			○
	DP-005								
AMZ	HC-K10				○	●			○
	HC-N10								
	HC-O10								
WUN4210	HT-K10				○	●			
	HT-N15								
CTCN211	HC-N10					○			●
	HC-O10								
CTWN215	HC-K15				○	●			○
	HC-N10								
	HC-O10								
H216T	HW-K15				○	●			○
	HW-N15								
	HW-O15								
CTC5240	HC-S35						●		
CTCS245	HC-S45						●		
CTP6215	HC-K15				●			●	
	HC-H15								
CWX500	HC-P15		●	●	○	●	○		○
	HC-M15								
	HC-K15								
	HC-N15								
	HC-S15								
	HC-O15								

● **Main Application**
○ Extended application

wear-resistant v_c+ ⟷ v_c− tough

15

Grade description

AMZ
- Carbide, TiAlN-coated
- ISO | K10 | **N10** | O10
- The coated carbide grade for aluminium machining

CTC5240
- Carbide, TiN-TiB_2-coated
- ISO | **S35**
- The special grade for machining titanium and titanium alloys

CTCK215
- Carbide, TiCN-Al_2O_3-coated
- ISO | **K15**
- The first choice for machining cast iron materials at high cutting speeds

CTCN211
- Carbide, coated
- ISO | N10 | **O10**
- Diamond-coated carbide grade especially for machining graphite and non-ferrous metals

CTCM235
- Carbide, TiCN-Al_2O_3-coated
- ISO | **P40** | **M35**
- The tough alternative for general steel machining
- Well suited to martensitic steel materials

CTCM245
- Carbide, TiCN-Al_2O_3 coated
- ISO | **P5** | **M45** | S35
- Special grade for machining high-alloy steel materials

CTCP220
- Carbide, TiCN-Al_2O_3-coated
- ISO | **P20** | **K20**
- The wear-resistant grade for dry machining steels

CTCP225
- Carbide, TiAlTaN-coated
- ISO | **P25** | **K25**
- The wear-resistant grade for wet machining of steels

CTCP230
- Carbide, TiCN-Al_2O_3-coated
- ISO | **P30** | K25
- The first choice for dry machining steel at high cutting speeds

CTD4205
- Carbide, uncoated
- ISO | **N05** | O05
- Polycrystalline diamond grade for machining non-ferrous metals and non-metallic materials

CTEP210
- Cermet, TiCN-Al_2O_3-coated
- ISO | **P10** | **K05**
- The coated cermet grade with reserves of toughness for finish machining at high cutting speeds

CTP6215
- Carbide, TiAlN-coated
- ISO | **K15** | **H15**
- The coated carbide grade for hard machining

CTPK220
- Carbide, TiAlTaN-coated
- ISO | **K20**
- Optimal for machining high-strength cast iron materials in the tougher application range

CTPK221
- Carbide, TiAlN-coated
- ISO | P15 | **K10**
- The coated standard grade for fine machining of cast iron and non-ferrous metals at medium cutting speeds

CTPK226
- Carbide, coated
- ISO | **P15** | **M20** | **K15** | H15
- Extremely wear-resistant ultra-fine grain carbide grade for machining cast iron materials and hardened steels up to 62 HRC

CTPK231
- Carbide, coated
- ISO | **P30** | **M35** | **K30** | N30 | S35 | H30
- Tough carbide grade for medium and rough machining of steel and cast iron materials
- Well suited to dry machining

CTPM225
- Carbide, TiAlTaN-coated
- ISO | **P25** | **M25**
- The wear-resistant choice for machining austenitic steels

CTPM240
- Carbide, TiAlTaN-coated
- ISO | P40 | **M40**
- The first choice for machining austenitic steels

CTPM241
- Carbide, AlTiN-coated
- ISO | **P40** | **M40** | S40
- The tough carbide grade for machining stainless and heat-resistant steels

CTPM245
- Carbide, TiAlTaN-coated
- ISO | **M45** | **P50**
- The first choice for machining martensitic steels

Grade description

CTPP211
- Carbide, coated
- ISO | **P10** | M15 | K10 | N10 | S15 | H10 | O10
- Wear-resistant carbide grade for medium and rough machining of steel and stainless steel
- Well suited to dry machining

CTPP216
- Carbide, TiAlN-coated
- ISO | **P10** | M20 | **K15** | N15 | S20 | **H15** | O15
- Highly wear-resistant carbide grade with high cutting edge stability for finish machining of high-strength materials, unalloyed tool steels, cast iron and hardened steel up to 54 HRC

CTPP231
- Carbide, coated
- ISO | **P30** | K25
- A very tough special grade for medium and rough machining of steel at medium cutting speeds and an extremely high feed per tooth

CTPP235
- Carbide, TiAlTaN-coated
- ISO | **P35** | M30 | K30
- The wear-resistant grade for wet machining of steels

CTPP236
- Carbide, TiAlN-TiN coated
- ISO | **P35** | M35 | K30
- The tough special grade for medium and rough machining of steel at high cutting speeds
- This grade is also suitable for machining cast iron and stainless steel

CTWN215
- Carbide, uncoated
- ISO | K15 | **N10** | O10
- Uncoated carbide grade for machining non-ferrous metals

H216T
- Carbide, uncoated
- ISO | K15 | **N15** | O15
- The uncoated carbide grade for machining aluminium and other non-ferrous metals
- Also highly suitable for HSC machining

TCM10
- Cermet, uncoated
- ISO | **P15** | **M10** | K10
- The uncoated cermet grade for finish machining stainless and hardened steel
- Particularly wear resistant thanks to high heat resistance

WAN1240
- Carbide, coated
- ISO | **P40** | M35 | K30
- Coated, tough special grade for machining steel at medium to high cutting speeds
- Also suitable for machining cast iron as a secondary application

WAN2225
- Carbide, coated
- ISO | **M25** | **S25**
- Fine grain size with high toughness and temperature resistance
- For rough and finish machining of rust and acid-resistant steels in both wet and dry cutting

WAX1240
- Carbide, coated
- ISO | **P40** | M25 | K30
- High-strength special grades for medium and rough machining of steel at medium cutting speeds and an extremely high feed per tooth

WTN1205
- Carbide, coated
- ISO | **P10** | M15 | **K05** | **H10**
- Coated special grade for machining steel, hardened steel, cast iron, graphite and plastics

WUN4210
- Carbide, uncoated
- ISO | K15 | **N10** | O10
- Uncoated standard grade for medium machining of non-ferrous metals and graphite

CTCS245
- Carbide, CVD TiN-TiB2 coated
- ISO | **S45**
- The special grade for machining nickel-based alloys

Grade description

C T C P 2 2 0 (Example)

Main application – material

1|P	Steel
2|M	Stainless steel
3|K	Cast iron
4|N	Light and non ferrous metals
5|S	Super alloys, titanium
6|H	Hard materials
7|X	Universal application

Application

1	Turning
2	Milling
3	Grooving
4	Drilling
5	Thread turning
6	Others
7	Several processes

Degree of hardness

05	ISO 05
10	ISO 10
15	ISO 15
	...

New products for machining technicians

NEW ABS adapters



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

NEW Adapter with ABS connection



The expansion of the tried and tested ABS system complements the existing range and continues to meet the high demands for precision.

NEW ER precision collet chuck – PCC



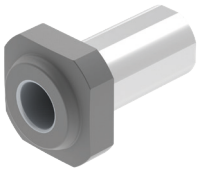
With our new PCC (Precision Collet Chuck), we offer an ER precision collet chuck that is almost equal to our Centro-P in terms of precision and quality. Compatibility with our existing range of collets and use of the same roll key complements the new PCC standard line.

NEW ER precision collet chucks – HDC



- **Secure** – the form fit using a wedge collet gives an excellent holding torque on the shaft. So the HDC doesn't just offer maximum security against twisting but also 100 % security against micro-creeping and pull-out.
- **Rigid** – stable outer contour for high stability and vibration dampening
- **Powerful** – ball-bearing clamping nut for high holding torque protects against twisting of the collet (up to 700 Nm holding torque). Thanks to the ball-bearing nut, smooth clamping is assured, with little effort.
- **Dampening** – multi-part clamping nut for additional dampening of the system
- **HDC** = Heavy Duty Chuck, specially designed for heavy duty machining

NEW Hydraulic expansion chucks and hydraulic expansion chucks with Straight shank – VDI



CERATIZIT is extending its portfolio of clamping devices with a hydraulic chuck which brings the benefits of hydro expansion technology to turning/milling centres.
It ensures highly accurate clamping of boring bars with a h7 shank tolerance and a repeatability of 3 µm. Tools are changed in a matter of seconds and this can be performed directly in the machine without auxiliary equipment.



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

Table of contents

Symbol explanation 2

Toolfinder

- Machine interface 3
- Rotating toolholders 4+5
- Adapters, stationary
  - HSK-T and PSC tool holders 6+7
  - VDI adapters for star turrets 8
  - VDI adapters for disc turrets 9
- Accessories 10

Product programme

- Adapters 12–281

Product programme

- Accessories 229–290

Technical Information

- Driven Tools 292+293
- Quick-Change 294+295
- Technical data – DIN ISO 7388-1 / DIN ISO 7388-2 / PSC 296
- Technical data – HSK-A / HSK-E 297
- Technical Information for Polygon Shank Adapters 298
- High Pressure Milling Chuck 299
- Transmittable torques and static clamping torques 300
- Technical information – ABS 301

WNT \ Performance

Premium quality tools for high performance.

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

WNT \ Standard

Quality tools for standard applications.

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

Symbol explanation

Coolant supply version


without coolant supply (Form A)


Coolant supply central
Steep taper Form AD


Coolant supply either via the flange, or central (Form AD/B)


with eroded cooling ducts


Coolant supply centrally or via the collar
with eroded cooling channels


Adapter with two additional coolant holes


Coolant supply centrally or via the collar
also additional coolant holes


Central coolant supply or via a coolant nozzle

TG specially matched adapter for ThermoGrip® shrinking process

ER-B 2 µm
Collet description
▲ Type version
▲ Radial run-out accuracy

Toolfinder – Machine interface

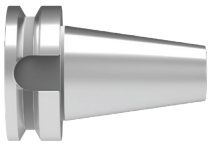
ISO 7388-1 – SK steep taper holders



- SK 30
- SK 40
- SK 50

Toolfinder – Adapters, rotating 4+5
Product programme 12–58

ISO 7388-2 – MAS-BT taper shank

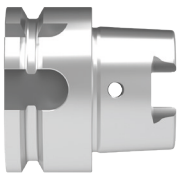


MAS-BT / MAS-BT-FC with face contact

- BT 30
- BT 40
- BT 50
- BT-FC 30
- BT-FC 40
- BT-FC 50

Toolfinder – Adapters, rotating 4+5
MAS-BT product range 59–102
MAS-BT-FC product range 103–112

HSK hollow taper adapters with face contact



ISO 12164 – HSK-A / HSK-E

- HSK-A 32
- HSK-A 40
- HSK-A 50
- HSK-A 63
- HSK-A 100
- HSK-E 25
- HSK-E 32
- HSK-E 40
- HSK-E 50

Toolfinder – Adapters, rotating 4+5
HSK-A product range 113–158
HSK-E product range 159–163

ISO 12164-3 – HSK-T

- HSK-T 63
- HSK-T 100

Toolfinder – Adapters, stationary 6+7
Product programme 199–201

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



PSC, rotating

- PSC 32
- PSC 40
- PSC 50
- PSC 63
- PSC 80

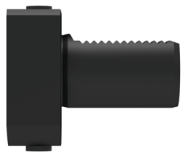
Toolfinder – Adapters, rotating 4+5
Product programme 164–182

PSC, stationary

- PSC 32
- PSC 40
- PSC 50
- PSC 63
- PSC 80
- PSC 80X

Toolfinder – Adapters, stationary 6+7
Product programme 202–208

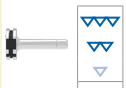
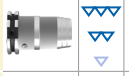
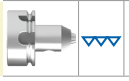
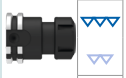
ISO 10889 – VDI tool holders with cylindrical shank



- VDI 16
- VDI 20
- VDI 25
- VDI 30
- VDI 40
- VDI 50

Toolfinder – Adapters, stationary 8+9
Product programme 209–228
Driven Tools 292+293

Toolfinder – Adapters, rotating

Holder Type		ISO 7388-1		ISO 7388-2		ISO 12164		ISO 26623-1	ABS	Morse taper	Cylindrical shank
		SK	SK-FC	MAS-BT	MAS-BT-FC	HSK-A	HSK-E	PSC			
Accuracy											
Maximum											
Centro-P											
▲ ER Precision Collet chuck		12–14		59–61	103	113–115	159+160	164			240
▲ OZ precision Collet chuck		15		62		116					
HDC											
▲ ER Precision Collet chuck		16		63	104	117					
High Pressure Milling Chuck		17–19		64–65	106	118+119		165			
Hydraulic chuck		21		66–69	107	120–122			183		236+237
Heat Shrink Adapter		22–27		70–74	105	123+129	161	166+167	184		235
Micro-Precision Collet Chuck						142	162				238
High											
Cylindrical shank adapter											
▲ Weldon		28–30		75+76	108	130–134		168	185		239
▲ Whistle Notch		31+32		77+78		135		169	186+187		
Indexable insert drill adapter		33		79		136		170			
Collet Chuck											
▲ Precision Collet chuck – PCC		34		80		137					
▲ ER Collet chuck		35		81	109	138–140		171+172	188		241+242
▲ OZ Collet Chuck		36		82							
Short drill chuck		37		83		141		173	189	231	231

Main Application
Extended application
Finishing
Roughing - Finishing
Roughing

Toolfinder – Adapters, rotating

Holder Type	ISO 7388-1 SK	ISO 7388-1 SK-FC	ISO 7388-2 MAS-BT	ISO 7388-2 MAS-BT-FC	ISO 12164 HSK-A	ISO 12164 HSK-E	ISO 26623-1 PSC	ABS	Morse taper	Cylindrical shank
Accuracy										
High										
Quick change tapping chuck										
▲ With minimum length compensation	38–39		84+85		143+144		174	190		232
▲ with length compensation	40		86		145		175	189	233	233
▲ Without length compensation	40		86		145					
ABS adapters	41+42	43	87–89	90	146+147		176	193–197		
Medium										
Adapter for milling cutters with threaded end	44+45		91		148+149		177		247	243–246
Face mill adapter										
▲ Combination shell mill adapter	46		92		150		178+179	192		
▲ Shell mill adapter	47+48		93+94	110	151+153			191		
▲ Large diameter facemill adapter	49		95							
Drill chuck adapter	50		96						230	
Milling adapter sleeve for MK shanks with thread	51		97							
Taper adapter for Morse taper	52		98		154		180		230	
Adapter										
▲ SK	53				54		55			
▲ MAS-BT	99		99		100		101			
▲ HSK-A					155		156			
▲ PSC							206+207			
Blank	56		102		157		181	198		
Test bar	56		102		158		182			
Accessories										
Pull stud	57+58		111+112							
Coolant pipe/key					163		182			

Main Application
Extended application

Finishing
Roughing - Finishing
Roughing

16

Toolfinder – Stationary adapters – HSK-T and PSC tool holders

Toolholders for negative turning inserts

	Type Machining	Illustration
CN..	DCLN 95° Internal + External	
	DCMN 95° External	
	DCMN+ DDMN External	

All tool holders for negative rotary indexable inserts CN..
can be found in → **Section 9, Turning Tools**

DN..	DCMN+ DDMN External	
	DDUN 93° Internal + External	
	DDJN 93° Internal + External	
	DDHN 107,5° Internal + External	
	DDMN 48° External	

All tool holders for negative rotary indexable inserts DN..
can be found in → **Section 9, Turning Tools**

SN..	DSDN 45° External	
VN..	DVMN 50° External	
WN..	DWLN 95° Internal + External	

All tool holders for negative rotary indexable inserts SN.., VN.. and
WN.. can be found in → **Section 9, Turning Tools**

Toolholders for positive turning inserts

	Type Machining	Illustration
CC..	SCLC 95° Internal + External	
	SCMC 50° External	

All tool holders for positive rotary indexable inserts CC..
can be found in → **Section 9, Turning Tools**

DC..	SDJC 93° Internal + External	
	SDNC 62,5° Internal + External	
	SDMC 48° External	

All tool holders for positive rotary indexable inserts DC..
can be found in → **Section 9, Turning Tools**

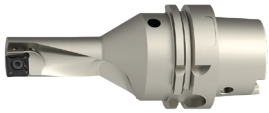
RC..	PRDC 0° External	
	PRSC Internal + External	

All tool holders for positive rotary indexable inserts RC..
can be found in → **Section 9, Turning Tools**

VC..	SVUC 93° Internal + External	
	SVJC 93° Internal + External	
	SVHC 107,5° Internal + External	
	SVMC 50° External	

All tool holders for positive rotary indexable inserts VC..
can be found in → **Section 9, Turning Tools**

You can find more information on the multifunction tool EcoCut in
→ **Section 10, Multifunctional Tools – EcoCut and FreeTurn**


2,25xD

Toolfinder – Stationary adapters – HSK-T and PSC tool holders

Holders for grooving and threading inserts

Type	Illustration
0°	
90°	

All tool holders for grooving and threading inserts can be found in
→ **Section 11, Grooving tools**

Toolholders for threading inserts

Type	Illustration
Internal thread	
External thread	

All tool holders for threading inserts can be found in
→ **Section 8, Thread turning tools**

Boring bars for negative inserts

	Type	Illustration
 CN..	DCLN 95°	
 DN..	DDUN 93°	
 WN..	DWLN 95°	

All boring bars for negative indexable inserts can be found in
→ **Section 9, Indexable insert turning tools**

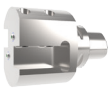
Boring bars for positive inserts

	Type	Illustration
 CC..	SCLC 95°	
 DC..	SDUC 93°	
 VC..	SVUC 93°	
	SVQC 107,5°	

All boring bars for positive indexable inserts can be found in
→ **Section 9, Indexable insert turning tools**

Basic holder




Type	Illustration	HSK-T ISO 12164	PSC ISO 26623
Square shank holder 0°		200	202
Square shank holder 45°		200	203
Square shank holder 90°		201	202
Square shank holder 2 face 0°			203
Square shank holder 3 face 0°		200	203
Boring bar holder		201	204

Parting blade holders

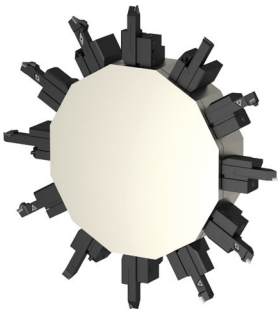
Type	Illustration	HSK-T ISO 12164	PSC ISO 26623
Parting Blade Holder GX / LX / FX / SX		199	
Radial Grooving Holders, right / left			202

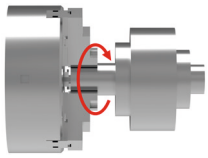
Accessories

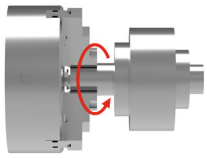
Protection plug		208
Hollow nose keys		208

16

Toolfinder – Stationary adapters – VDI adapters for star turrets







Toolholders above

Upper turret		Spindle rotation clockwise		Spindle rotation counter clockwise	
	Square Shank Adapters	B2/B3/B6/B7/C1/C2/D1/D2	209–212	B2/B3/B6/B7/C3/C4/D1/D2	209–212
	Part Off Holder	double	217+218	double – overhead	217+218
	Adapter VDI to VDI	Left-hand	224	Left-hand	224
	Boring bar holder	Left-hand	223+224	Left-hand	223+224

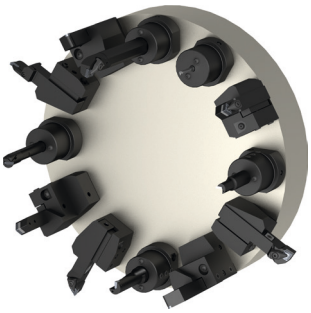
Lower turret		Spindle rotation clockwise		Spindle rotation counter clockwise	
	Square Shank Adapters	B2/B3/B6/B7/C3/C4/D1/D2	209–212	B2/B3/B6/B7/C1/C2/D1/D2	209–212
	Part Off Holder	double – overhead	217+218	double	217+218
	Adapter VDI to VDI	Right-hand	224	Right-hand	224
	Boring bar holder	Right-hand	223+224	Right-hand	223+224

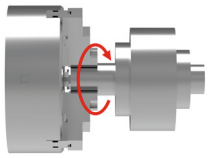
Toolholders below

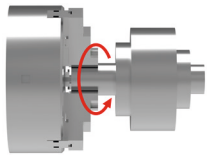
Upper turret		Spindle rotation clockwise		Spindle rotation counter clockwise	
	Square Shank Adapters	B2/B3/B6/B7/C3/C4/D1/D2	209–212	B2/B3/B6/B7/C1/C2/D1/D2	209–212
	Part Off Holder	double	217+218	double – overhead	217+218
	Adapter VDI to VDI	Right-hand	224	Right-hand	224
	Boring bar holder	Right-hand	223+224	Right-hand	223+224

Lower turret		Spindle rotation clockwise		Spindle rotation counter clockwise	
	Square Shank Adapters	B2/B3/B6/B7/C1/C2/D1/D2	209–212	B2/B3/B6/B7/C3/C4/D1/D2	209–212
	Part Off Holder	double – overhead	217+218	double	217+218
	Adapter VDI to VDI	Left-hand	224	Left-hand	224
	Boring bar holder	Left-hand	223+224	Left-hand	223+224

Toolfinder – Stationary adapters – VDI adapters for disc turrets







Upper turret		Spindle rotation clockwise		Spindle rotation counter clockwise	
	**Square Shank Adapters**	B1/B5/C1/C2/D1	209–212	B3/B7/C3/C4/D2	209–212
	**Cylindrical Shank Adapters**	E/E1/E2/E3/E4	212–215	E/E1/E2/E3/E4	212–215
	**Taper Adapters**	F1	216	F1	216
	**Part Off Holder**	Right-hand	217+218	Overhead right	217+218
	**Short drill chuck**	NC 2010	219	NC 2010	219
	**Tapping Chucks**	GSF/GML	220	GSF/GML	220
	**Hydraulic chuck**		221		221

Lower turret		Spindle rotation clockwise		Spindle rotation counter clockwise	
	**Square Shank Adapters**	B4/B8/C3/C4/D2	209–212	B2/B6/C1/C2/D1	209–212
	**Cylindrical Shank Adapters**	E/E1/E2/E3/E4	212–215	E/E1/E2/E3/E4	212–215
	**Taper Adapters**	F1	216	F1	216
	**Part Off Holder**	Overhead left	217+218	Left-hand	217+218
	**Short drill chuck**	NC 2010	219	NC 2010	219
	**Tapping Chucks**	GSF/GML	220	GSF/GML	220
	**Hydraulic chuck**		221		221

Accessories

 **Bar stop** 219

 **Test arbors** 221

 **Tool holders** 222

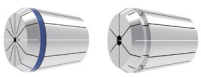
 **Bar pullers** 227

 **Gripper accessories** 228

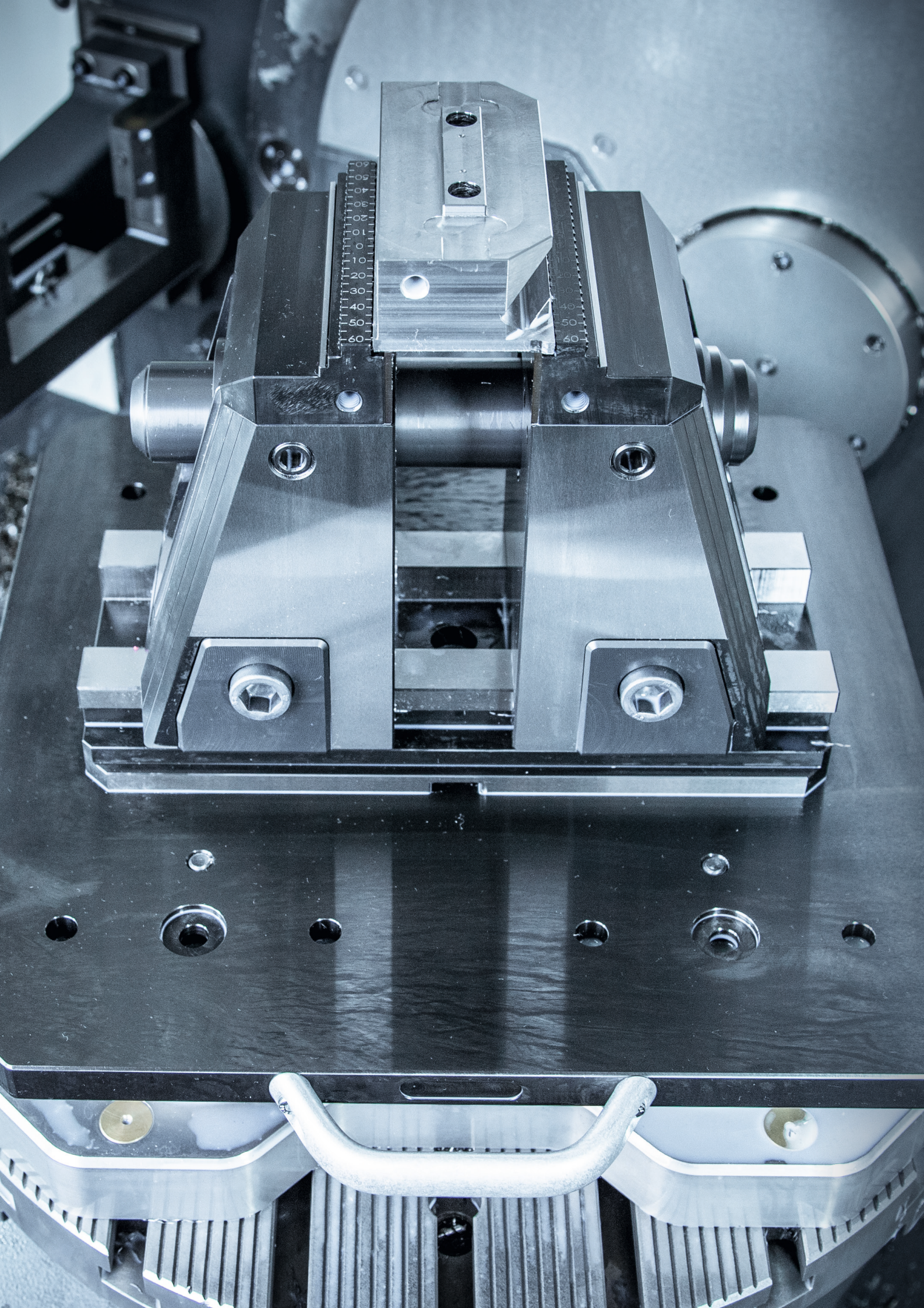
 **Protection plug** 228

16

Toolfinder – accessories

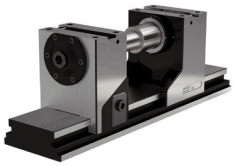
Type		Page No.
Drill chuck with internal taper		229
Tap clamping sleeve for Weldon adapters		234
Extension for Shell mill arbors		252
Milling adapter ring		253
Accessories for VDI		254
Accessories for driven tools		255
Lock nuts		276
Accessories for Centro-P		274
Collets		256–268
Sealing discs		269+270
Roll key		275
Quick change applications		277–281
Reduction sleeve and reducing bushings		271+272
Cleaning propeller		291
TORX® screwdrivers, TORX® interchangeable blades, TORX® bit holders and adapters		283–287
Assembly device for SK, HSK and PSC adapters		273
MultiChange - Holder		249–251
3D tester and zero setting device		288+289
MultiChange key		282
Cool-jet		290
Taper wiper		273


CERATIZIT GROUP
83 402 32099
Ø 20 x 19, 5 mm
4751352-023



New products for clamping technology

NEW H5G-Z and H5G-Z-S single vice



→ Page 23

H5G -Z | H5G -Z-S

New overall lengths for the H5G-Z and H5G-Z-S.

NEW X5G-Z single vice



→ Page 32

X5G -Z | X5G -Z-S

All the advantages that ensure optimum and simple 5- and 6-sided machining combined in a single clamping device.

NEW Single vice ESG 5

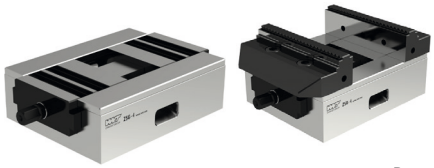


→ Page 51

ESG 5

New version of the sealed centric vice ZSG 4 as single vice.

NEW Centric Vice ZSG 4



→ Page 74–76

ZSG 4

New overall lengths for the ZSG 4.

Solid drilling and bore machining
1 HSS drilling
2 Solid carbide drilling
3 Indexable insert drilling
4 Reaming and Countersinking
5 Spindle Tooling

Threading
6 Taps and thread formers
7 Circular and Thread Milling
8 Thread turning

Turning
9 Turning Tools
10 Multifunctional Tools – EcoCut and FreeTurn
11 Grooving Tools
12 Miniature turning tools

Milling
13 HSS Milling Cutters
14 Solid Carbide milling cutters
15 Milling tools with indexable inserts

Catalogue – Clamping technology
16 Adaptors and Accessories
17 Workpiece clamping
18 Material examples and article no. Index

Table of contents

The new X5G-Z	2
Clamping systems overview	3
Toolfinder – Vices	4+5
Toolfinder – Clamping variants and clamping towers	6
Product programme	8–149
General top jaws overview	134–140
Workpiece supports overview	141–144
Accessories General Overview	145+146
Clamping levers overview	147
Screws Overview	148+149

WNT \ Performance

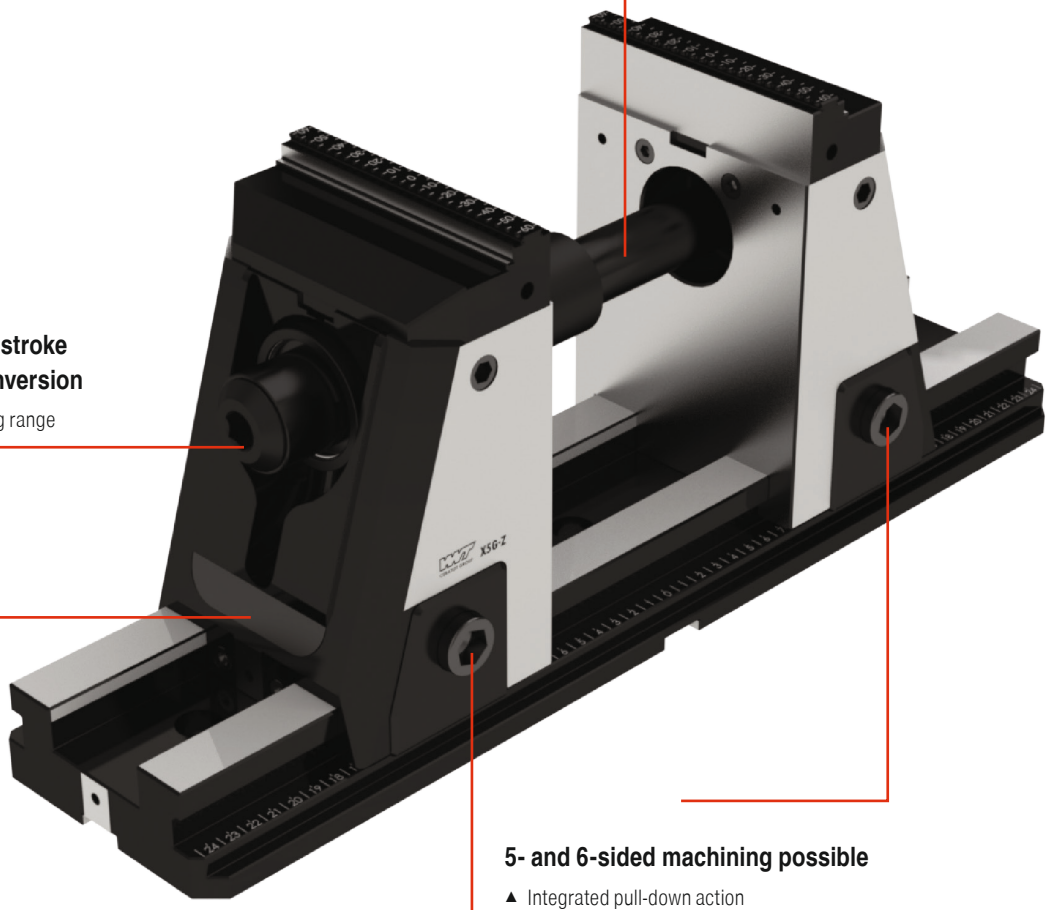
Premium quality tools for high performance.

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

The new X5G-Z

Simple to extend up to a clamping range of 687 mm

▲ Fully encapsulated, mechanical spindle



130 mm basic clamping stroke without the need for conversion

▲ Quick adjustment of clamping range

Optimised against vibrations

▲ Integrated, internal elastomer damping

5- and 6-sided machining possible

▲ Integrated pull-down action
▲ No force transmission across the seating surface

Clamping systems overview

Single clamping vice

- Power-assisted systems NCG, HDG and H5G
- Fixed jaws as reference
- High repeatability
- Very good angular accuracy



High precision and force amplification

Centric vice

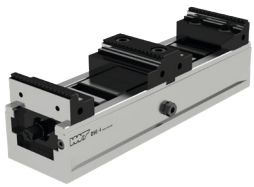
- symmetrical clamping
- very good accessibility for 5-sided machining
- part datum always centered
- high repeatability



High process security with encapsulated system

Multiple vice

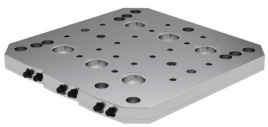
- Faster set up times
- multifunctional use
- optimum utilization of the machine table
- high repeatability



Increased machine uptime

Clamping variants

- Zero point clamping system
- Zero point clamping system grid plate



Reduction in setup times

Clamping Towers

- Double sided clamping tower
- Triangular clamping tower
- Cruciform clamping tower
- Cube clamping tower

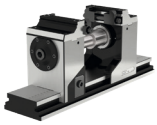
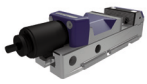
A variety of clamping towers can be found in our online shop at cuttingtools.ceratizit.com



Automation made easy

17

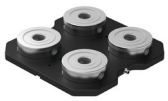
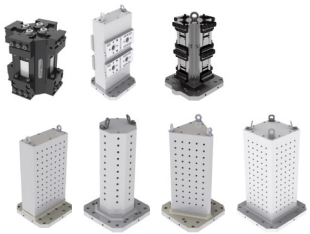
Toolfinder clamping systems – Vices

	Type		Description	3 axis	5 axis
Single clamping vice	NCG		▲ 160° quick clamping ▲ rapid installation and removal of the spindle assembly ▲ quick span adjustment	✓	
	NCG 5A		▲ 160° quick clamping ▲ for 5 axis machining ▲ quick span adjustment	✓	✓
	H5G		▲ fast handle clamping ▲ 5 axis high power vice ▲ 100% encapsulated	✓	✓
	H5G -Z		▲ Fast handle clamping ▲ 5-axis high power vice ▲ 100% encapsulated ▲ With movable fixed jaw	✓	✓
	X5G -Z		▲ 100% encapsulated ▲ Optimum accessibility ▲ 5- and 6-sided machining possible ▲ Fast jaw changeover without tools	✓	✓
	ESG 4		▲ 100 % encapsulated ▲ Precision base body ▲ High clamping force ▲ Large clamping range	✓	✓
	ESG 5		▲ New version of the sealed centric vice ZSG 4 as single vice ▲ Identical dimensions and function as the ZSG 4	✓	✓
	ESG mini		▲ 100% encapsulated ▲ Compact and precise ▲ Fixed zero point ▲ Hydraulic versions also available	✓	✓
	HDG 2		▲ mechanical power transmission ▲ clamping force with only one turn of the handle ▲ infinitely variable clamping force setting	✓	
Centric vice	ZSG 4		▲ ball bearing, backlash free spindle ▲ high precision, clamping force and process security ▲ repeatability ±0.01 mm	✓	✓
Multiple vice	DSG 4		▲ Quick assembly and disassembly ▲ Flexible clamping system ▲ Can be converted into single vice	✓	✓
	MSG 2		▲ internal serration ▲ variable use	✓	✓

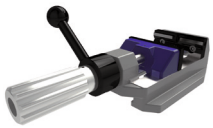
Jaw width in mm	Body length in mm	max. clamping range in mm	cubic workpieces	assymetrical workpieces	round workpieces	max. clamping force in kN	Page No.
100 125 160	305 390 530	245 343 506	✓	✓	✓	30 40 40	8–18
100 125	305 390	199 269	✓		✓	18 24	11–18
125	300	274	✓	✓	✓	40	19–29
125	430 500 630	396 466 596	✓	✓	✓	40	23–29
125	330 430 500 630 800	80-210 80-310 80-380 80-510 80-680	✓	✓	✓	40	30–39
80 125 160	214 362 480	192 308 324	✓	✓	✓	25 40 50	40–48
80 125 160	130+190 160+235+300 280+480	63-171 84-281 125-448	✓	✓	✓	35	49–55
40 65 100	132 180 240	122 174 243	✓	✓	✓	12 20 40	56–66
100 125 160	342 400 544	278 338 470	✓		✓	30 40 60	67–70
80 125 160	130+190 160+235+300 280+480	121–185 163–303 134–465	✓	✓	✓	25 35 50	71–86
80 125	300 320+390+460 530+600+670+740	122 114+149+184 219+254+289+324	✓	✓	✓	25 40	87–95
65 90	220–650 400–650	538 538	✓		✓	25–50	96–103

17

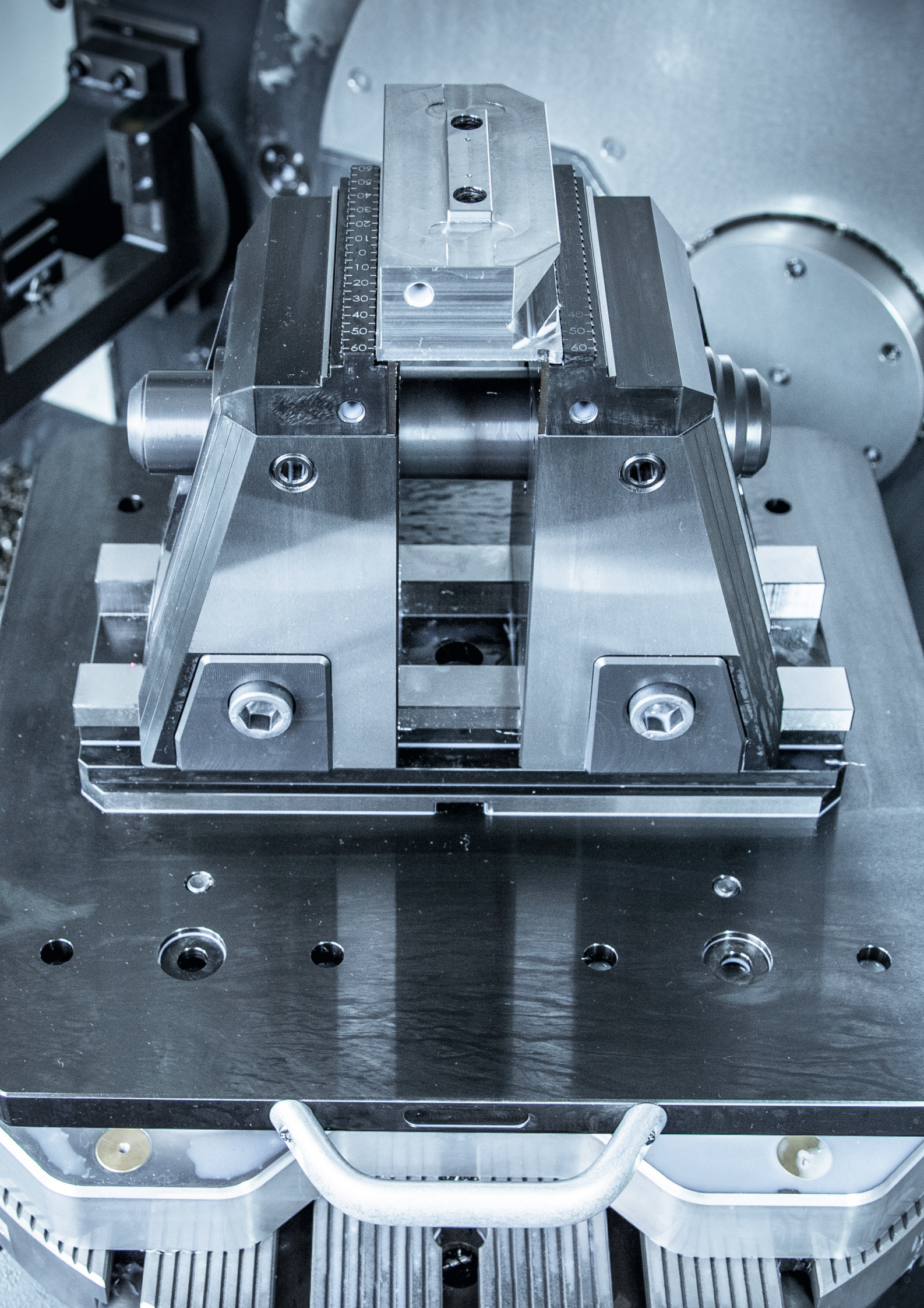
Toolfinder clamping systems – Clamping variants and clamping towers

	Type		mechanical	pneumatic	Comments	Page No.
Zero point clamping system grid plate	MNG		✓		All round plate for all machine tables	107–121
Multi-adapter pallets	PNG			✓	Process security thanks to self-locking mechanism	122–133
Clamping Towers			✓		Increased machine uptime	

Manual machine vice

	Type		mechanical	pneumatic	Comments	Page No.
Drilling machine vice	HSG		✓		fast jaw adjustment, compact and precise	104–106

This article can be found in our online shop at cuttingtools.ceratizit.com







Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drills

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

Extended Material Examples for the Cutting Data Tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB
		P.1.3		Tempered	840 N/mm² / 250 HB
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB
		P.1.5		Tempered	1010 N/mm² / 300 HB
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB
		P.2.2		Tempered	930 N/mm² / 275 HB
		P.2.3		Tempered	1010 N/mm² / 300 HB
		P.2.4		Tempered	1200 N/mm² / 375 HB
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB
		M.2.1	Austenitic	Tempered	300 HB
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB
		K.2.2	Pearlitic		845 N/mm² / 250 HB
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB
		K.3.2	Pearlitic		780 N/mm² / 230 HB
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB
		S.1.2		Age-hardened	950 N/mm² / 280 HB
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB
		S.2.2		Age-hardened	1180 N/mm² / 350 HB
		S.2.3		Cast	1080 N/mm² / 320 HB
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB
		S.3.3	Beta alloys		1400 N/mm² / 410 HB
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC
		H.1.2		Hardened and tempered	56–60 HRC
		H.1.3		Hardened and tempered	61–65 HRC
		H.1.4		Hardened and tempered	66–70 HRC
	Chilled iron	H.2.1		Cast	400 HB
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²
		O.3.1	Graphite		

*** Tensile strength**

On the following 16 pages you will find an extension of the material examples to our usual indexes with additional international standards.

Overview of standards:

DIN

Deutsche **I**ndustrie **N**orm
(German Standard)

AFNOR

Association **F**rancaise de **N**ormalisation
(French Standard)

UNI

Unificazione **I**taliana
(Italian Standard)

ČSN

Czechoslovakian Standard

BS

British **S**tandards

SIS

Standardiseringen **i** **S**verige
(Swedish Standard)

UNE

Spanish Standard

JIS

Japanese **I**ndustrial **S**tandard

ГОСТ

Soviet Standard

UNS

Unified **N**umbering **S**ystem

USA

Under **USA** several American standards are summarized

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	ГОСТ	UNS	USA
P	P.1.1	1.5423	16 Mo 5		16 Mo 5		1503-245-420					G 45200	4520
		1.0037	St 37-2	E 24-2		11 343				STKM 12 C			
		1.0044	St 44-2	E 28-2	Fe 430 B FN	11 443	4360-43 B	1412		SM 41 B			A 570 Gr. 40
		1.0116	St 37-3	E 24-3; E 24-4	Fe 360 D FF	11 378	4360-40 C	1312; 1313			St 3 kp; ps; sp		A 573 Gr. 58
		1.0144	St 44-3	E 28-3; E 28-4	Fe 430 D FF		4360-43 C	1412; 1414		SM 41 C	St 4 kp; ps; sp		A 573 Gr. 70
		1.0301	C 10	AF 34 C 10; XC 10	C 10	12 010	045 M 10			S 10 C	10	G 10100	1010
		1.0401	C 15	AF3 7 C 12; XC 18	C 15; C 16	12 020	080 M 15	1350	F-111			G 10170	1015
		1.0402	C 22	AF 42 C 20	C 20; C 21	12 024	050 A 20	1450	F-112		20	G 10200	1020
		1.0406	C 25	AF 50 C 30	C 25	12 030	070 M 26						1025
		1.0570	St 52-3	E 36-3; E 36-4	Fe 510 B; C; D	11 523	4360-50 B	2132		SM 50 YA	17 GS		
		1.1121	Ck 10	XC 10	C 10	12 010	045 M 10	1265	F-1510	S 10 C; S 9 CK	08; 10	G 10100	1010
		1.1133	20 Mn 5	20 M 5	G 22 Mn 3		120 M 19			SMnC 420		G 10220	1022; 1518
		1.1141	Ck 15	XC 15; XC 18	C 15; C 16	12 020	080 M 15	1370	F-1511	S 15 C; S 15 CK	15	G 10170	1015
		1.1151	Ck 22	XC 25; XC 18	C 20		050 A 20			S 20 C; S 20 CK	20		1023
		1.1158	Ck 25	XC 25	C 25	12 030	070 M 26			S 25 C	25	G 10250	1025
	P.1.2	1.0050	St 50-2	A 50-2	Fe 490	11 500	4360-50 B	2172		SS 50	BSt 5 ps; sp		A 570 Gr. 50
		1.0060	St 60-2	A 60-2	Fe 590; Fe 60-2	11 600	4360-SSE; SSC			SM 58	St 6 ps; sp		
		1.0406	C 25	AF 50 C 30	C 25	12 030	070 M 26						1025
		1.0420	GS-38										
		1.0446	GS-45										
		1.0481	17 Mn 4			11 748							
		1.0501	C 35	AF 55 C 35	C 35	12 040	060 A 35	1550	F-113		35	G 10350	1035
		1.0503	C 45	AF 65 C 45	C 45	12 050	080 M 46	1650	F-114		45	G 10430	1045
		1.0511	C 40	AF 60 C 40	C 40	12 041							1040
		1.0528	C 30			12 031							
		1.0540	C 50										
		1.0552	GS-52										
		1.0558	GS-60										
		1.0619	GS-C 25										
		1.0711	9 S 20		CF 9 S 22		220 M 07	220 M 07		SUM 21	SUM 21	G 12120	1212
		1.0715	9 SMn 28	S 250	CF 9 SMn 28	11 109	230 M 07	1912	F-211 / F-2111	SUM 22		G 12130	1213
		1.0718	9 SMnPb 28	S 250 Pb	CF 9 SMnPb 28			1914	F-212 / F-2112	SUM 22 L		G 12134	12 L 13
		1.0721	10 S 20	10 F 1	CF 10 S 20	10 110	210 M 15		F-2121				1108
		1.0722	10 SPb 20	10 PbF 2	CF 10 SPb 20				F-2122				11 L 08
		1.0723	15 S 20				210 A 15	1922		SUM 32			
		1.0736	9 SMn 36	S 300	CF 9 SMn 36		240 M 07		F-2113			G 12150	1215
		1.0737	9 SMnPb 36	S 300 Pb	CF 9 SMnPb 36			1926	F-2114			G 12144	12 L 14
		1.1118	GS-24 Mn 6			42 2714							
		1.1120	GS-20 Mn 5										
		1.1131	GS-16 Mn 5										
		1.1138	GS-21 Mn 5										
		1.1142	GS-Ck 16										
		1.1151	Ck 22	XC 25; XC 18	C 20		050 A 20			S 20 C; S 20 CK	20		1023
		1.1155	GS-Ck 25										
		1.1158	Ck 25	XC 25	C 25	12 030	070 M 26			S 25 C	25	G 10250	1025
		1.1178	Ck 30										
		1.1181	Ck 35	XC 38 H1:XC 32	C 35		080 M 36	1572		S 35 C	35	G 10340	1035
		1.1186	Ck 40	XC 42 H1	C 40		080 M 40			S 40 C	40		1040
		1.1191	Ck 45	XC 42	C 45		080 M 46	1672		S 45 C	45	G 10420	1045
		1.1206	Ck 50	XC 48 H1			080 M 50				50		1050
		1.1730	C 45 W	Y3 42									

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	ГОСТ	UNS	USA
P	P.1.3	1.0501	C 35	AF 55 C 35	C 35	12 040	060 A 35	1550	F-113		35	G 10350	1035
		1.0503	C 45	AF 65 C 45	C 45	12 050	080 M 46	1650	F-114		45	G 10430	1045
		1.0511	C 40	AF 60 C 40	C 40	12 041							1040
		1.0528	C 30			12 031							
		1.0540	C 50										
		1.0726	35 S 20	35 MF 4		11 140	212 M 36	1957	F-210.G			G 11400	1140
		1.0727	45 S 20	45 MF 4			212 M 44	1973				G 11460	1146
		1.0728	60 S 20	60 MF 4									
		1.1178	Ck 30										
		1.1181	Ck 35	XC 38 H1:XC 32	C 35		080 M 36	1572		S 35 C	35	G 10340	1035
		1.1186	Ck 40	XC 42 H1	C 40		080 M 40			S 40 C	40		1040
		1.1191	Ck 45	XC 42	C 45		080 M 46	1672		S 45 C	45	G 10420	1045
		1.1206	Ck 50	XC 48 H1			080 M 50				50		1050
	P.1.4	1.0535	C 55	AF 70 C55	C 55	12 060	070 M 55	1655			55		1055
		1.0601	C 60	CC 55	C 60		080 A 62				60	G 10600	1060
		1.0757	46 SPb 20										
		1.1203	Ck 55	XC 55	C50		070 M 55			S 55 C	55		1055
		1.1221	Ck 60	XC 60	C60		080 A 62	1665; 1678		S 58 C	60; 60G	G 10640	1060
		1.1248	Ck 75	XC 75	C 75	12 081	060 A 78	1774; 1778			75	G 10780	1078; 1080
		1.1274	Ck 101	XC 100			060 A 96	1870		SUP 4		G 10950	1095
		1.1520	C 70 W1										
		1.1525	C 80 W1	Y1 90; Y1 80	C 80 KU						U8A	T 72301	W 108
		1.1545+G502	C 105 W1	Y1 105	C 100 KU			1880			U10A	T 72301	W 110
		1.1620	C 70 W2										
		1.1625	C 80 W2		C 80 KU		BW 1 B			SKC 3; SK 5; SK 6	U8; 80	T 72301	W 1
		1.1645	C 105 W2	Y2 105	C 100 KU					SK 3	U10	T 72301	
		1.1663	C 125 W	Y2 120	C 120 KU					SK 2	U13	T 72301	W 112
		1.1673	C 135 W	Y2 140	C 140 KU					SK 1			
		1.1740	C 60 W	Y3 55						SK 7			
		1.1750	C 75 W				BW 1A				75		W 1
		1.1820	C 55 W										
		1.1830	C 85 W	Y3 90						SK 5			
	P.1.5	1.0535	C 55	AF 70 C55	C 55	12 060	070 M 55	1655			55		1055
		1.0601	C 60	CC 55	C 60		080 A 62				60	G 10600	1060
		1.1203	Ck 55	XC 55	C50		070 M 55			S 55 C	55		1055
		1.1221	Ck 60	XC 60	C60		080 A 62	1665; 1678		S 58 C	60; 60G	G 10640	1060
		1.1231	Ck 67	XC 68	C 70	12 071	060 A 67	1770			70	G 10700	1070
		1.1274	Ck 101	XC 100			060 A 96	1870		SUP 4		G 10950	1095
		1.1520	C 70 W1										
	P.2.1	1.2162	21 MnCr 5	20 NC 5		19 487				SCR 420 H			
		1.2210	115 CrV 3	100 C 3	107 CrV 3 KU	19 421						T 61202	L 2
		1.2323	GS-48 CrMoV 6 7										
		1.2341	X 6 CrMo 4										
		1.2369	81 CrMov 42 16										
		1.2516	120 WV 4	110 WC 20	110 W 4 KU	19 711	BF 1						
		1.2542	45 WCrV 7		45 WCrV 8 KU	19 732	BS 1	2710				T 41901	S 1
		1.2550	60 WCrV 7	55 WC 20	55 WCrV 8 KU	19 735							
		1.2711	54 NiCrMoV 6	55 NCDV 6		19 662							
		1.2735	15 NiCr 14	10 NC 12		16 240				SNC 22		T 51606	
		1.2762	75 CrMoNiW 6 7										
		1.2842	90 MnCrV 8	90 MV 8	90 MnVCr 8 KU	19 314	BO 2					T 31502	O 2

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	ГОСТ	UNS	USA
P	P.2.1	1.5015	GS-8 Mn 7										
		1.5122	37 MnSi 4			13 240							
		1.5415	15 Mo 3	15 D 3	16 Mo 3		1501-240	2912					A 204 Gr. A
		1.5419	GS-22 Mo 4										
		1.5621	GS-10 Ni 6										
		1.5622	14 Ni 6	16 N 6	14 Ni 6								A 350-LF 5
		1.5633	GS-24 Ni 8										
		1.5638	GS-10 Ni 14										
		1.5732	14 NiCr 10	14 NC 11	16 NiCr 11				F-1540	SNC 415 (H)			3415
		1.5752	14 NiCr 14	12 NC 15		16 240	655 M 13		F-1540	SNC 815 (H)		G 33106	3310; 9314
		1.5919	15 CrNi 6	16 NC 6	16 CrNi 4	16 220	S 107						
		1.5920	18 CrNi 8	20 NC 6		13 231							
		1.6221	GS-13 MnNi 6 4										
		1.6523	21 NiCrMo 2	20 NCD 2	20 NiCrMo 2		805 M 20	2506	F-1522	SNCM 220 (H)		G 86170	8620
		1.6587	17 CrNiMo 6	18 NCD 6	18 NiCrMo 7		820 A 16						
		1.6750	GS-20 NiCrMo 3 7										
		1.7003	38 Cr 2	38 C 2	38 Cr 2								
		1.7006	46 Cr 2	42 C 2	45 Cr 2								5045
		1.7012	13 Cr 2										
		1.7015	15 Cr 3	12 C 3		14 120	523 M 15			SCr 415 (H)	15Ch	G 50150	5015
		1.7020	32 Cr 2										
		1.7030	28 Cr 4				530 A 30				30Ch		5130
		1.7033	34 Cr 4	32 C 4	34 Cr 4 (KB)		530 A 32			SCr 430 (H)	35Ch	G 51320	5132
		1.7131	16 MnCr 5	16 MC 5	16 MnCr 5	14 220	527 M 17	2511	F-1516 / F-1517	SCR 415	18ChG	G 51170	5115
		1.7139	16 MnCrS 5						F-150D				
		1.7147	20 MnCr 5	20 MC 5	20 MnCr 5	14 221				SMnC 420 (H)	18ChG	G 51200	5120
		1.7149	20 MnCrS 5						F-1551				
		1.7218	25 CrMo 4	25 CD 4 S	25 CrMo 4 (KB)	15 130	1717 CDS 110	2225		SCM 420; SCM 430	30ChM	G 41300	4130
		1.7219	GS-26 CrMo 4										
		1.7220	34 CrMo 4	35 CD 4	35 CrMo 4	15 131	708 A 37	2234		SCM 432; SCCrM 3	AS38ChGM	G 41350	4135; 4137
		1.7262	15 CrMo 5	12 CD 4	12 CrMo 4					SCM 415 (H)			
		1.7264	20 CrMo 5	18 CD 4						SCM 421			
		1.7271	23 CrMoB 3 3										
		1.7311	20 CrMo 2						F-1523				
		1.7321	20 MoCr 4	20 CD 4									
		1.7335	13 CrMo 4 4	15 CD 3.5	14 CrMo 4 5		1501-620 Gr. 27	2216			12ChM; 15ChM		A 182-F11; F12
		1.7337	16 CrMo 4 4	15 CD 4.5	14 CrMo 4 5		1501-620 Gr. 27	2216			15ChM		A 387 Gr. 12 Cl. 2
		1.7357	GS-17 CrMo 5 5										
		1.7363	GS-12 CrMo 19 5										
		1.7377	GS-17 CrMo 9 10										
		1.7379	GS-18 CrMo 9 10										
		1.7380	10 CrMo 9 10	10 CD 9.10	12 CrMo 9 10		1501-622 Gr. 31; 45	2218				J 21890	A 182-F22
		1.7715	14 MoV 6 3				1503-660-440						
		1.7725	GS-30 CrMoV 6 4										
		1.8504	34 CrAl 6			14 340							
		1.8506	34 CrAlS 5									K 23745	
		1.8521	15 CrMoV 5 9										
		1.0904	55 Si 7	55 S 7	55 Si 8		250 A 53	2085; 2090			55S2		9255
	P.2.2	1.2067	100 Cr 6	Y 100 C 6			BL 3					T 61203	L 3
		1.2101	62 SiMnCr 4										
		1.2103	58 SiCr 8			19 452							

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	ГОСТ	UNS	USA
P	P.2.2	1.2108	90 CrSi 5P										
		1.2162	21 MnCr 5	20 NC 5		19 487				SCR 420 H			
		1.2210	115 CrV 3	100 C 3	107 CrV 3 KU	19 421						T 61202	L 2
		1.2311	40 CrMnMo 7			19 520							
		1.2312	40 CrMnMoS 8 6	40 CMD 8 + S									
		1.2323	GS-48 CrMoV 6 7										
		1.2330	35 CrMo 4	34 CD 4	35 CrMo 4		708 A 37	2234			35 HM	T 51620	4135
		1.2332	47 CrMo 4	42 CD 4	40 CrMo 4		708 M 40	2244					4142
		1.2419	105 WCr 6	105 WC 13	107 WCr 5 KU					SKS 31	ChWG		
		1.2510	100 MnCrW 4	90 MWCV 5	95 MnWCr 5 KU	19 314	BO 1	2140	F-5220	SKS 3		T 31501	O 1
		1.2542	45 WCrV 7		45 WCrV 8 KU	19 732	BS 1	2710				T 41901	S 1
		1.2550	60 WCrV 7	55 WC 20	55 WCrV 8 KU	19 735							
		1.2711	54 NiCrMoV 6	55 NCDV 6		19 662							
		1.2713	55 NiCrMoV 6	55 NCDV 7		19 662			F-520.S	SKT 4	5ChNM	T 61206	L 6
		1.2721	50 NiCr 13										
		1.2738	40 CrMnNiMo 8						F-5303				
		1.2826	60 MnSiCr 4										
		1.2833	100 V 1	Y1 105 V	102 V 2 KU	19 356	BW 2			SKS 43		T 72302	W 210
		1.2842	90 MnCrV 8	90 MV 8	90 MnVCr 8 KU	19 314	BO 2					T 31502	O 2
		1.3505	100 Cr 6	100 C 6	100 Cr 6	14 100	534 A 99	2258	F-131 / F-1310	SUJ 2	SchCh 15	G 52986	52100
		1.3520	100 CrMn 6			14 209							
		1.3561	44 Cr 2										
		1.3563	43 CrMo 4										
		1.5120	38 MnSi 4										
		1.5121	46 MnSi 4										
		1.5122	37 MnSi 5			13 240							
		1.5131	50 MnSi 4										
		1.5141	53 MnSi 4										
		1.5223	42 MnV 7			13 242							
		1.5710	36 NiCr 6	35 NC 6		16 240	640 A 35			SNC 236			3135
		1.5736	36 NiCr 10	30 NC 11	35 NiCr 9					SNC 631 (H)			3435
		1.5755	31 NiCr 14	18 NC 13			653 M 31			SNC 836			
		1.6511	36 CrNiMo 4	40 NCD 3	38 NiCrMo 4 (KB)	16 341	816 M 40				40 ChN2MA	G 98400	9840
		1.6513	28 NiCrMo 4										
		1.6546	40 NiCrMo 2 2	40 NCD 2	40 NiCrMo 2 (KB)		311-Type 7			SNCM 240	38ChGNM	G 87400	8740
		1.6565	40 NiCrMo 6				311-Type 6			SNCM 439	40Ch2N2MA		4340
		1.6570	GS-30 NiCrMo 8 5										
		1.6580	30 CrNiMo 8	30 CND 8	30 NiCrMo 8		823 M 30		F-1272	SNCM 431			
		1.6582	34 CrNiMo 6	35 NCD 6	35 NiCrMo 6 (KW)	16 342	817 M 40	2541	F-128 / F-1270	SNCM 447	38Ch2N2MA		4340
		1.6746	32 NiCrMo 14 5	35 NCD 14			830 M 31						
		1.6781	GS-18 NiCrMo 12 6										
		1.7003	38 Cr 2	38 C 2	38 Cr 2								
		1.7006	46 Cr 2	42 C 2	45 Cr 2								5045
		1.7030	28 Cr 4				530 A 30				30Ch		5130
		1.7033	34 Cr 4	32 C 4	34 Cr 4 (KB)		530 A 32			SCr 430 (H)	35Ch	G 51320	5132
		1.7034	37 Cr 4	38 C 4	38 Cr 4	14 140	530 A 36			SCr 435 H	40Ch		5135
		1.7035	41 Cr 4	42 C 4	41 Cr 4		530 M 40			SCr 440 (H)	40Ch	G 51400	5140
		1.7045	42 Cr 4	42 C 4 TS	41 Cr 4		530 A 40	2245		SCr 440	40Ch		5140
		1.7103	67 SiCr 5										
		1.7131	16 MnCr 5	16 MC 5	16 MnCr 5	14 220	527 M 17	2511	F-1516 / F-1517	SCR 415	18ChG	G 51170	5115
		1.7139	16 MnCrS 5						F-150D				

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	ГОСТ	UNS	USA
P	P.2.2	1.7147	20 MnCr 5	20 MC 5	20 MnCr 5	14 221				SMnC 420 (H)	18ChG	G 51200	5120
		1.7149	20 MnCrS 5						F-1551				
		1.7176	55 Cr 3	55 C 3	55 Cr 3		527 A 60	2253	F-1431	SUP 9 (A)	50ChGA	G 51550	5155
		1.7218	25 CrMo 4	25 CD 4 S	25 CrMo 4 (KB)	15 130	1717 CDS 110	2225		SCM 420; SCM 430	30ChM	G 41300	4130
		1.7220	34 CrMo 4	35 CD 4	35 CrMo 4	15 131	708 A 37	2234		SCM 432; SCCrM 3	AS38ChGM	G 41350	4135; 4137
		1.7223	41 CrMo 4	42 CD 4 TS	41 CrMo 4		708 M 40	2244		SCM 440	40 ChFA	G 41420	4142; 4140
		1.7225	42 CrMo 4	42 CD 4	42 CrMo 4	15 142	708 M 40	2244		SCM 440 (H)		G 41400	4142; 4140
		1.7228	50 CrMo 4	50 CR MO4			708 A 47			SCM 445 (H)	50ChFA	G 41470	4150
		1.7323	20 MoCrS 4	20 CD 4 S									
		1.7325	25 MoCr 4	25 CD 4									
		1.7326	25 MoCrS 4	25 CD 4 S									
		1.7361	32 CrMo 12	30 CD 12	32 CrMo 12	15 230	722 M 24	2240	F-124A				
		1.7707	30 CrMoV 9			15 330							
		1.7709	21 CrMoV 5 7										
		1.7725	GS-30 CrMoV 6 4										
		1.7735	14 CrMoV 6 9	15 CDV 6									
		1.8159	50 CrV 4	50 CV 4	51 CrV 4	15 260	735 A 50	2230	F-143 / F-1430	SUP 10	50ChGFA	G 61500	6150
		1.8161	58 CrV 4			15 261							
		1.8507	34 CrAlMo 5	30 CAD 6.12	34 CrAlMo 7		905 M 31		F-1741			K 23545	A 355 Cl. D
		1.8509	41 CrAlMo 7	40 CAD 6.12	41 CrAlMo 7	15 340	905 M 39	2940	F-1740	SACM 645	38ChMJuA	K 24065	A 355 Cl. A
		1.8515	31 CrMo 12	30 CD 12	31 CrMo 12		722 M 24	2240	F-1712				
		1.8519	31 CrMoV 9						F-1721				
		1.8523	39 CrMoV 13 9		36 CrMoV 13 9		897 M 39						
		1.8550	34 CrAlNi 7									K 52440	
		1.0904	55 Si 7	55 S 7	55 Si 8		250 A 53	2085; 2090			55S2		9255
		1.1157	40 Mn 4	35 M 5			150 M 36				40G	G 10390	1039
		1.1165	30 Mn 5	35 M 5			120 M 36			SMn 433 H; SCMn 2	30GSL		1330
		1.1167	36 Mn 5	40 M 5		42 2715	150 M 36	2120		SMn 438 (H); SCMn 3	35G2; 35GL	G 13350	1335
		1.1170	28 Mn 6	20 M 5	C 28 Mn		150 M 28			SCMn 1	30G		1330
	P.2.3	1.2744	57 NiCrMoV 7 7										
		1.7131	16 MnCr 5	16 MC 5	16 MnCr 5	14 220	527 M 17		F-1516 / F-1517	SCR 415	18ChG	G 51170	5115
		1.7755	GS-35 CrMoV 10 4										
	P.2.4	1.2714	56 NiCrMoV 7										
		1.3505	100 Cr 6	100 C 6	100 Cr 6	14 100	534 A 99	2258	F-131 / F-1310	SUJ 2	SchCh 15	G 52986	52100
		1.7225	42 CrMo 4	42 CD 4	42 CrMo 4	15 142	708 M 40	2244		SCM 440 (H)		G 41400	4142; 4140
	P.3.1	1.2080	X 210 Cr 12	Z 200 C 12	X 210 Cr 13 KU	19 436	BD 3			SKD 1	Ch12	T 30403	D 3
		1.2201	G-X 165 CrV 12										
		1.2343	X 38 CrMoV 5 1	Z 38 CDV 5	X 37 CrMoV 5 1 KU	19 552	BH 11		F-5317	SKD 6	4Ch5MFS	T 28811	H 11
		1.2363	X 100 CrMoV 5 1	Z 100 CDV 5	X 100 CrMoV 5 1 KU	19 571	BA 2	2260	F-5227	SKD 12		T 30102	A 2
		1.2365	X 32 CrMoV 3 3	32 DCV 28	30 CrMoV 12 27 KU	19 541	BH 10			SKD 7	3Ch3M3F	T 20810	H 10
		1.2367	X 38 CrMoV 5 3										
		1.2379	X 155 CrVMo 12 1	Z 160 CDV 12	X 155 CrV-Mo 12 1 KU	19 573	BD 2		F-5211	SKD 11		T 30402	D 2
		1.2436	X 210 CrW 12	Z 200 CW 12	X 215 CrW 12 1 KU	19 437		2312	F-5213	SKD 2			
		1.2567	X 30 WCrV 5 3	Z 32 WCV 5	X 30 WCrV 5 3 KU	19 720				SKD 4			
		1.2581	X 30 WCrV 9 3	Z 30 WCV 9	X 30 WCrV 9 3 KU	19 721	BH 21			SKD 5	3Ch2W8F	T 20821	H 21
		1.2601	X 165 CrMoV 12		X 165 CrMoW 12 KU	19 572		2310					
		1.2606	G-X 37 CrMoW 5 1										
		1.2764	X 19 NiCrMo 4										
		1.2767	X 45 NiCrMo 4	Y 35 NCD 16	42 NiCrMo 15 7	19 655							
		1.2880	G-X 165 CrCoMo 12										
		1.2885	X 32 CrMoCoV 3 3 3	30 DCKV 28									

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	ГОСТ	UNS	USA
P	P.3.1	1.3302	S 12-1-4			19 810							
		1.3318	S 12-1-2			19 802							
		1.3333	S 3-3-2		HS 3-3-2	19 820							
		1.3343	S 6-5-2	Z 85 WDCV 06-05-04-0	HS 6-5-2	19 830	BM 2	2722	F-5603	SKH 9; SKH 51	R6AM5	T 11302	M 2
		1.3346	S 2-9-1	Z 85 DCWV 08-04-02-0	HS 1-8-1		BM 1				H41	T 11301	H 41; M 1
		1.4943	X 4 NiCrTi 25 15	Z 6 NCTDV 25.15 B			HR 251; HR 52; HR 51			SUH 660			
		1.5662	G-X 8 Ni 9										
		1.5680	12 Ni 19	Z 18 N 5									2515
	P.3.2	1.2080	X 210 Cr 12	Z 200 C 12	X 210 Cr 13 KU	19 436	BD 3			SKD 1	Ch12	T 30403	D 3
		1.2343	X 38 CrMoV 5 1	Z 38 CDV 5	X 37 CrMoV 5 1 KU	19 552	BH 11		F-5317	SKD 6	4Ch5MFS	T 28811	H 11
		1.2344	X 40 CrMoV 5 1	Z 40 CDV 5	X 40 CrMo 5 1 1 KU	19 554	BH 13	2242	F-5318	SKD 61	4Ch5MF1S	T 20813	H 13
		1.2363	X 100 CrMoV 5 1	Z 100 CDV 5	X 100 CrMoV 5 1 KU	19 571	BA 2	2260	F-5227	SKD 12		T 30102	A 2
		1.2365	X 32 CrMoV 3 3	32 DCV 28	30 CrMoV 12 27 KU	19 541	BH 10			SKD 7	3Ch3M3F	T 20810	H 10
		1.2367	X 38 CrMoV 5 3										
		1.2379	X 155 CrVMo 12 1	Z 160 CDV 12	X 155 CrVMo 12 1 KU	19 573	BD 2		F-5211	SKD 11		T 30402	D 2
		1.2567	X 30 WCrV 5 3	Z 32 WCV 5	X 30 WCrV 5 3 KU	19 720				SKD 4			
		1.2581	X 30 WCrV 9 3	Z 30 WCV 9	X 30 WCrV 9 3 KU	19 721	BH 21			SKD 5	3Ch2W8F	T 20821	H 21
		1.2606	G-X 37 CrMoW 5 1										
		1.2709	X 2 NiCoMoTi 18 9 5										
		1.2764	X 19 NiCrMo 4										
		1.2767	X 45 NiCrMo 4	Y 35 NCD 16	42 NiCrMo 15 7	19 655							
		1.2885	X 32 CrMoCoV 3 3 3	30 DCKV 28									
		1.3207	S 10-4-3-10	Z 130 WKCDV 10-10-04	HS 10-4-3-10	19 861	BT 42		F-5553	SKH 57			
		1.3243	S 6-5-2-5	Z 85 WDKCV 06-05-05	HS 6-5-2-5	19 852		2723	F-5613	SKH 55	R6M5K5		
		1.3246	S 7-4-2-5	Z 110 WKCDV 07-05-04	HS 7-4-2-5	19 851						T 11341	M 41
		1.3247	S 2-10-1-8	Z 110 DKCWV 09-08-04	HS 2-9-1-8		BM 42			SKH 51		T 11342	M 42
		1.3249	S 2-9-2-8				BM 34					T 11333	M 33; M 34
		1.3255	S 18-1-2-5	Z 80 WKCV 18-05-04-0	HS 18-1-1-5	19 855	BT 4			SKH 3		T 12004	T 4
		1.3265	S 18-1-2-10		HS 18-0-1-10	19 860	BT 5			SKH 4 A		T 12005	T 5
		1.3344	S 6-5-3	Z 120 WDCV 06-05-04	HS 6-5-3		BM 4			SKH 52; SKH 53		T 11323	M 3 Cl. 2
		1.3348	S 2-9-2	Z 100 DCWV 09-04-02	HS 2-9-2			2782				T 11307	M 7
		1.3401	G-X 120 Mn 12	Z 120 M 12	XG 120 Mn 12		Z 120 M 12			SCMnH 1	110G13L		A 128 (A)
		1.5860	14 NiCr 18			16 523							
		1.5864	35 NiCr 18			16 640			F-122				
	P.3.3	1.6359	X 2 NiCrMo 18 8 5	Maraging 250								K 92890	
	P.4.1	1.2083	X 42 Cr 13	Z 40 C 14	X 41 Cr 13 KU	19 435			F-5263	SUS 420 J 2			
		1.2316	X 36 CrMo 17	Z 38 CD 17	X 38 CrMo 16 1 KU								
		1.3543	X 102 CrMo 17	Z 100 CD 17									
		1.4001	G-X 7 Cr 13	Z 8 C 13 FF		17 020			F-8401				
		1.4002	X 6 CrAl 13	Z 6 CA 13	X 6 CrAl 13		405 S 17	2302	F-3111	SUS 405		S 40500	405
		1.4005	X 12 CrS 13	Z 12 CF 13	X 12 CrS 13		416 S 21	2380		SUS 416		S 41600	416
		1.4006	X 10 Cr 13	Z 12 C 13	X 12 Cr 13	17 021	410 S 21	2302	F-3401	SUS 410	12Ch13	S 41000	410; CA-15
		1.4008	G-X 8 CrNi 13	Z 12 CN 13 M		42 2904							
		1.4016	X 6 Cr 17	Z 8 C 17	X 8 Cr 17	17 040	430 S 15	2320	F-3113	SUS 430	12Ch17	S 43000	430
		1.4021	X 20 Cr 13	Z 20 C 13	X 20 Cr 13	17 022	420 S 37	2303	F-3402	SUS 420 J 1	20Ch13	S 42000	420
		1.4024	X 15 Cr 13	Z 13 C 13		17 021	420 S 29			SUS 410 J 1			
		1.4027	G-X 20 Cr 14	Z 20 C 13 M		42 2906	420 C 29			SCS 2	20Ch13L		
		1.4028	X 30 Cr 13	Z 30 C 13	X 30 Cr 13	17 023	420 S 45	2304		SUS 420 J 2	30Ch13		
		1.4031	X 38 Cr 13	Z 40 C 14	X 40 Cr 14	17 024		2304	F-3404	SUS 420 J 2	40Ch13		
		1.4034	X 46 Cr 13	Z 40 C 14	X 40 Cr 14	17 029	420 S 45		F-3405		40Ch13		
		1.4085	G-X 70 Cr 29										

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	ГОСТ	UNS	USA
P	P.4.1	1.4104	X 12 CrMoS 17	Z 10 CF 17	X 10 CrS 17	17 140		2383	F-3403	SUS 430 F		S 43020	430 F
		1.4105	X 4 CrMoS 18						F-3114				
		1.4106	X 2 CrMoSiS 18 2 1										
		1.4107	G-X 8 CrNi 12			42 2904							
		1.4109	X 65 CrMo 14										
		1.4112	X 90 CrMoV 18									S 44003	
		1.4113	X 6 CrMo 17	Z 8 CD 17.01	X 8 CrMo 17		434 S 17	2325	F-3116	SUS 434		S 43400	434
		1.4116	X 45 CrMoV 15						F-3422				
		1.4122	G-X 35 CrMo 17			17 137							
		1.4125	X 105 CrMo 17	Z 100 CD 17	X 105 CrMo 17					SUS 440 C		S 44004	440 C
		1.4136	G-X 70 CrMo 29 2										
		1.4405	G-X 5 CrNiMo 16 5										
		1.4407	G-X 5 CrNiMo 13 4										
		1.4510	X 6 CrTi 17	Z 8 CT 17	X 6 CrTi 17					SUS 430 LX	08Ch17T	S 43036	XM 8; 430 Ti
		1.4511	X 8 CrNb 17	Z 8 CNb 17	X 6 CrNb 17				F-3122	SUS 430 LX			
		1.4512	X 5 CrTi 12	Z 6 CT 12	X 6 CrTi 12		409 S 19		F-3121	SUH 409		S 40900	409
		1.4528	X 105 CrCoMo 18 2										
		1.4540	G-X 4 CrNiCuNb 16 4										
		1.4724	X 10 CrAl 13	Z 10 C 13	X 10 CrAl 12	17 125	403 S 17		F-3152		10Ch13SJu		
		1.4742	X 10 CrAl 18	Z 10 CAS 18	X 8 Cr 17		430 S 15		F-3153	SUS 430; SUH21			430
		1.4761	G-X 120 CrSi 23										
		1.4762	X 10 CrAl 24	Z 10 CAS 24	X 16 Cr 26	17 153			F-3154			S 44600	446
		1.4931	G-X 22 CrMoV 12 1										
		1.4962	X 12 CrNiWTi 16 3										
		1.6982	G-X 3 CrNi 13 4										
	P.4.2	1.2316	X 36 CrMo 17	Z 38 CD 17	X 38 CrMo 16 1 KU								
		1.4000	X 6 Cr 13	Z 6 C 13	X 6 Cr 13	17 020	403 S 17	2301		SUS 403	08Ch13	S 40300	403
		1.4021	X 20 Cr 13	Z 20 C 13	X 20 Cr 13	17 022	420 S 37	2303	F-3402	SUS 420 J 1	20Ch13	S 42000	420
		1.4024	X 15 Cr 13	Z 13 C 13		17 021	420 S 29			SUS 410 J 1			
		1.4028	X 30 Cr 13	Z 30 C 13	X 30 Cr 13	17 023	420 S 45	2304		SUS 420 J 2	30Ch13		
		1.4031	X 38 Cr 13	Z 40 C 14	X 40 Cr 14	17 024		2304	F-3404	SUS 420 J 2	40Ch13		
		1.4034	X 46 Cr 13	Z 40 C 14	X 40 Cr 14	17 029	420 S 45		F-3405		40Ch13		
		1.4057	X 20 CrNi 17 2	Z 15 CN 16.02	X 16 CrNi 16	17 145	431 S 29	2321	F-3427	SUS 431	20Ch17N2	S 43100	431
		1.4059	G-X 22 CrNi 17										
		1.4086	G-X 120 Cr 29										
		1.4108	X 100 CrMo 13										
		1.4112	X 90 CrMoV 18									S 44003	
		1.4116	X 45 CrMoV 15						F-3422				
		1.4120	G-X 20 CrMo 13										
		1.4122	G-X 35 CrMo 17			17 137							
		1.4138	G-X 120 CrMo 29 2										
		1.4313	X 5 CrNi 13 4	Z 5 CN 13.4	X 6 CrNi 13 04		425 C 11	2385		SCS 5			CA 6-NM
		1.4340	G-X 40 CrNi 27 4										
		1.4464	G-X 40 CrNiMo 27 5										
		1.4542	X 7 CrNiCu 16 4 4	Z7 CNU 17 04 04 (17-4PH)						SCS 24; SUS 630		S 17400	630
		1.4545	X 5 CrNiCu 15-5	E-Z5 CNU 15 05 (15-5PH)									
		1.4710	G-X 30 CrSi 6										
		1.4718	X 45 CrSi 9 3	Z 45 CS 9	X 45 CrSi 8	17 115	401 S 45		F-3220	SUH 1	40Ch9S2	S 65007	HNV 3
		1.4729	G-X 40 CrSi 13										
		1.4740	G-X 40 CrSi 17										
		1.4743	G-X 160 CrSi 18										

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	ГОСТ	UNS	USA
P	P.4.2	1.4745	G-X 40 CrSi 23										
		1.4747	X 80 CrNiSi 20	Z 80 CSN 20.02	X 80 CrSiNi 20		443 S 65			SUH 4		S 65006	HNV 6
		1.4776	G-X 40 CrSi 29										
		1.4823	G-X 40 CrNiSi 27 4										
		1.4923	X 22 CrMoV 12 1			17 134	762						
		1.4928	G-X 12 CrNiMoCoVN 12										
		1.4935	X 20 CrMoWV 12 1									S 42200	
M	M.1.1	1.3941	G-X 4 CrNi 18 13										
		1.3944	G-X 5 CrNi 18 11										
		1.3952	G-X 4 CrNiMoN 18 14										
		1.3953	G-X 2 CrNiMo 18 15										
		1.3955	G-X 12 CrNi 18 11										
		1.3959	G-X 10 CrNiNb 16 13										
		1.4301	X 5 CrNi 18 10	Z6 CN 18-09	X 5 CrNi 18 10	17 240	304 S 15	2332; 2333	F-3504	SUS 304	08Ch18N10	S 30400	304; 304 H
		1.4303	X 5 CrNi 18 12	Z 8 CN 18.12	X 8 CrNi 19 10		305 S 19			SUS 305	06Ch18N11	S 30500	308; 305
		1.4305	X 10 CrNiS 18 9	Z8 CNF 18-03	X 10 CrNi 18 09	17 243	303 S 21	2346		SUS 303		S 30300	303
		1.4306	X 2 CrNi 19 11	Z3 CN 18-10	X 2 CrNi 18 11	17 249	304 S 12	2352; 2333	F-3503	SCS 19	03Ch18N11	S 30403	304 L
		1.4308	G-X 6 CrNi 18 9	Z 6 CN 18.10 M		42 2930	304 C 15	2333	F-8411	SCS 13	07Ch18N9L		CF-8
		1.4311	X 2 CrNiN 18 10	Z 2 CN 18 .10	X 2 CrNiN 18 11	17 249	304 S 62	2371		SUS 304 LN		S 30453	304 LN
		1.4312	G-X 10 CrNi 18 8			42 2931							
		1.4401	X 5 CrNiMo 18 10	Z6 CND 17 12 02	X 5 CrNiMo 17 12	17 346	316 S 16	2347	F-3543	SUS 316		S 31600	316
		1.4404	X 2 CrNiMo 17 13 2	Z3 CND 17 12 02	X 2 CrNiMo 17 12	17 349	316 S 11	2348	F-3533	SUS 316 L		S 31603	316 L
		1.4406	X 2 CrNiMoN 17 12 2	Z 2 CND 17.12 Az	X 2 CrNiMoN 17 12		316 S 61			SUS 316 LN		S 31653	316 LN
		1.4408	G-X 6 CrNiMo 18 10			42 2940			F-8414				
		1.4413	G-X 4 CrNiMo 13-4										
		1.4429	X 2 CrNiMoN 17 13 3	Z3 CND 17 11 03 Az	X 2 CrNiMoN 17 13		316 S 62	2375		SUS 316 LN		S 31653	316 LN
		1.4435	X 2 CrNiMo 18 14 3	Z 2 CND 17.13	X 2 CrNiMo 17 13		316 S 12	2353		SCS 16; SUS 316 L	03Ch17N 14M2	S 31603	316 L
		1.4436	X 5 CrNiMo 17 13 3	Z 6 CND 17.12	X 5 CrNiMo 17 13		316 S 16	2343		SUS 316		S 31600	316
		1.4437	G-X 6 CrNiMo 18 12			42 2940							
		1.4438	X 2 CrNiMo 18 16 4	Z 2 CND 19.15	X 2 CrNiMo 18 15		317 S 12	2367		SUS 317 L		S 31703	317 L
		1.4439	G-X 3 CrNiMo 17 13 5						F-3544				
		1.4446	G-X 2 CrNiMo 17 13 4										
		1.4448	G-X 6 CrNiMo 17 13										
		1.4449	X 3 CrNiMo 18 12 3										
		1.4507	X 2 CrNiMOCuN 25 6 3	Z3 CNDU 25 07 Az (Uranus 52 N)								S 32750	F61
		1.4541	X 6 CrNiTi 18 10	Z 6 CNT 18.10	X 6 CrNiTi 18 11	17 248	321 S 12	2337		SUS 321	12Ch18N 10T	S 32100	321
		1.4546	X 5 CrNiNb 18 10		X 6 CrNiNb 18 11		347 S 18					S 34800	348
		1.4550	X 6 CrNiNb 18 10	Z10 CNNb 18-10	X 6 CrNiNb 18 11	17 245	347 S 17	2338	F-3552 / F-3524	SUS 347	08Ch18N 12B	S 34700	347
		1.4552	G-X 5 CrNiNb 18 9			42 2933			F-8413				
		1.4571	X 6 CrNiMoTi 17 12 2	Z 6 CNT 17.12	X 6 CrNiMoTi 17 12	17 348	320 S 31	2350	F-3535		10Ch17N-13M2T	S 31635	316 Ti
		1.4573	X 10 CrNiMoTi 18 12		X 6 CrNiMoTi 17 13		320 S 33				10Ch17N-13M3T	S 31635	316 Ti
		1.4580	X 6 CrNiMoNb 17 12 2	Z 6 CNDNb 17.12	X 6 CrNiMoNb 17 12		318 S 17		F-3536		08Ch16N-13M2B	S 31640	316 Cb
		1.4581	G-X 5 CrNiMoNb 18 10	Z 4 CNDNb 18.12 M	GX 6 CrMoNb 20 11	42 2941	318 C 17			SCS 22			
		1.4583	X 10 CrNiMoNb 18 12		X 6 CrNiMoNb 17 13								318
		1.4821	X 15 CrNiSi 25-4	Z20 CNS 25 04									
		1.4825	G-X 25 CrNiSi 18 9			42 2932							
		1.4826	G-X 40 CrNiSi 22 9			42 2934							
		1.4828	X 15 CrNiSi 20 12	Z 15 CNS 20.12		17 251	309 S 24		F-3312	SUH 309	20Ch20N 14S2	S 30900	309
		1.4832	G-X 25 CrNiSi 20 14										
		1.4876	X 10 NiCrAlTi 32 20	Z10 NCAT 32-21 (Incoloy 800)		17 358	NA 15 (H)		F-3314	NCF 800			B 163
		1.4878	X 12 CrNiTi 18 9	Z 6 CNT 18.12 (B)	X 6 CrNiTi 18 11	17 246	321 S 20	2337		SUS 321	12Ch18N 10T		321

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	ГОСТ	UNS	USA
M	M.1.1	1.4968	G-X 7 CrNiNb 16 13										
		1.4988	G-X 8 CrNiMoVNb 16 1										
		1.6901	G-X 8 CrNi 18 10										
		1.6902	G-X 6 CrNi 18 10										
		1.6905	G-X 5 CrNiNb 18 10										
	M.2.1	1.3964	G-X 4 CrNiMnMoN 19 1										
		1.4310	X 12 CrNi 17 7	Z 12 CN 17.07	X 12 CrNi 17 07		301 S 21			SUS 301		S 30100	301
		1.4465	G-X 2 CrNiMoN 25 25										
		1.4536	G-X 2 NiCrMoCuN 25 2										
		1.4539	X 1 NiCrMoCu 25 20 5	Z2 NCDU 25 20 (Uranus B6)								N 08904	904L
		1.4547	X 1 CrNiMoCuN 20 18 17	Z1 CNDU 20 18 06 Az (254 SMO)									F44
		1.4568	X 7 CrNiAl 17 7										17-7 PH
		1.4837	G-X 40 CrNiSi 25 12			42 2936							
		1.4840	G-X 15 CrNi 25 20										
		1.4841	X 15 CrNiSi 25 20	Z 15 CNS 25.20	X 16 CrNiSi 25 20	17 255			F-3310	SUH 310	20Ch25N 20S2	S 31000	314; 310
		1.4845	X 12 CrNi 25 21	Z 12 CN 25.20	X 6 CrNi 26 20	17 255	310 S24	2361		SUH 310;		S 31008	310 S
		1.4848	G-X 40 CrNiSi 25 20		GX 40 CrNi 26 20	42 2952							
		1.4849	G-X 40 NiCrSiNb 38 1										
		1.4852	G-X 40 NiCrNb 35 25										
		1.4855	G-X 30 CrNiSiNb 24 2										
		1.4857	G-X 40 NiCrSi 35 25										
		1.4864	X 12 NiCrSi 36 16	Z 12 NCS 37.18		17 253	NA 17		F-3313	SUH 330		N 08330	330
		1.4865	G-X 40 NiCrSi 38 18		GX 50 NiCr 39 19		330 C 40			SCH 15; SCH 16			
		1.4871	X 53 CrMnNiN 21 9	Z 52 CMN 21.09	X 53 CrMnNiN 21 9		349 S 54		F-3217	SUH 35; SUH 36	55Ch-20G9AN4	S 63008	EV 8
		1.4873	X 45 CrNiW 18 9	Z 35 CNWS 20.09	X 45 CrNiW 18 9		331 S 40			SUH 31			
	M.3.1	1.4339	G-X 32 CrNi 28 10										
		1.4347	G-X 8 CrNi 26 7										
		1.4410	X 2 CrNiMoN 25 7 4	Z2 CND 25 07 04 Az					F-3552				F53
		1.4460	X 8 CrNiMo 27 5	Z5 CND 25 05 AZ				2324		SUS 329 J 1		S 32900	329 LN
		1.4462	X 2 CrNiMoN 22 5 3	Z2 CND 22 05 03 AZ (Uranus 45 N)		17 381			F-3308			S 31803	329 A (F51)
		1.4463	G-X 6 CrNiMo 24 8 2										
		1.4501	X 2 CrNiMoCuWN 25 7 4	Z2 CNDUW 25 07 04 Az (Zeron 100)								S 32760	F55
		1.4815	G-X 8 CrNi 19 10										
		1.4822	G-X 40 CrNi 24 5										
K	K.1.1	0.6010	GG-10	Ft 10 D	G 10	42 2410		01 10-00		FC 10	Sc 10		A48-20 B
		0.6015	GG-15	Ft 15 D	G 15	42 2415	Grade 150	01 15-00	FG-15	FC 15	Sc 15		A48-25 B
		0.6020	GG-20	Ft 20 D	G 20	42 2420	Grade 220	01 20-00	FG-20	FC 20	Sc 20		A48-30 B
		0.6025	GG-25	Ft 25 D	G 25	42 2425	Grade 260	01 25-00	FG-25	FC 25	Sc 25		A48-40 B
	K.1.2	0.6030	GG-30	Ft 30 D	G 30	42 2430	Grade 300	01 30-00	FG-30	FC 30	Sc 30		A48-45 B
		0.6035	GG-35	Ft 35 D	G 35	42 2435	Grade 350	01 35-00	FG-35	FC 35	Sc 35		A48-50 B
		0.6040	GG-40	Ft 40 D		42 2440	Grade 400	01 40-00			Sc 40		A48-60 B
		0.6652	GGL-NiMn 13 7	L- NM 13 7			L-NiMn 13 7						
		0.6655	GGL-NiCuCr 15 6 2	L-NUC 15 6 2			L-NiCuCr 15 6 2						A 436 Type 1
		0.6656	GGL-NiCuCr 15 6 3	L-NUC 15 6 3			L-NiCuCr 15 6 3						A 436 Type 1b
		0.6660	GGL-NiCr 20 2	L-NC 20 2			L-NiCr 20 2	05 23-00					A 436 Type 2
		0.6661	GGL-NiCr 20 3	L-NC 20 3			L-NiCr 20 3						A 436 Type 2b
		0.6667	GGL-NiSiCr 20 5 3	L-NSC 20 5 3			L-NiSiCr 20 5 3						
		0.6676	GGL-NiCr 30 3	L-NC 30 3			L-NiCr 30 3						A 436 Type 3
		0.6680	GGL-NiSiCr 30 5 5	L-NSC 30 5 5			L-NiSiCr 30 5 5						A 436 Type 4
	K.2.1	0.7033	GGG-35.3			42 2303							
		0.7040	GGG-40	FGS 400-12	GS 400-12	42 2304	SNG 420/12	0717-02	FGE 38-17	FCD 40	VC 42-12		60 40 18

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	ГОСТ	UNS	USA
K	K.2.1	0.7043	GGG-40.3	FGS 370-17	GSO 42/17	42 2314	SNG 370/17	0717-15			VC 42-12		
		0.7050	GGG-50	FGS 500-7	GS 500/7	42 2305	SNG 500/7	0727-02	FGE 50-7	FCD 50	VC 50-2		65-45-12
		0.7060	GGG-60	FGS 600-3	GS 600/3	42 2306	SNG 600/3	0732-03		FCD 60	VC 60-2		80-55-06
	K.2.2	0.7070	GGG-70	FGS 700-2	GS 700-2	42 2307	SNG 700/2	0737-01	FGS 70-2	FCD 70	VC 70-2		100-70-03
		0.7080	GGG-80	FGS 800-2	GS 800-2	42 2308	SNG 800/2				VC 80-2		120-90-02
		0.7652	GGG-NiMn 13 7	S-NM 13 7			S-NiMn 13 7						
		0.7660	GGG-NiCr 20 2	S-NC 20 2			S-NiCr 20 2						A 439 Type D-2
		0.7661	GGG-NiCr 20 3	S-NC 20 3			S-NiCr 20 3						A 439 Type D-2B
		0.7665	GGG-NiSiCr 20 5 2	S-NSC 20 5 2			S-NiSiCr 20 5 2						
		0.7670	GGG-Ni 22	S-N 22			S-Ni 22						A 439 Type D-2C
		0.7673	GGG-NiMn 23 4	S-NM 23 4			S-NiMn 23 4						A 439 Type D-2M
		0.7676	GGG-NiCr 30 3	S-NC 30 3			S-NiCr 30 3						A 439 Type D-3
		0.7677	GGG-NiCr 30 1	S-NC 30 1			S-NiCr 30 1						A 439 Type D-3A
		0.7680	GGG-NiSiCr 30 5 5	S-NSC 30 5 5			S-NiSiCr 30 5 5						A 439 Type D-4
		0.7683	GGG-Ni 35	S-N 35			S-Ni 35						A 439 Type D-5
		0.7685	GGG-NiCr 35 3	S-NC 35 3			S-NiCr 35 3						A 439 Type D-5B
		0.8065	GTW-65										
	K.3.1	0.8035	GTW-35-04			42 2536			GTW 35				
		0.8040	GTW-40-05			42 2540							
		0.8045	GTW-45-07										
		0.8055	GTW-55										
		0.8135	GTS-35-10	MN 35-10		42 2533	B 340/12		GTS 35				
		0.8145	GTS-45-06			42 2545	P 440/7		GTS 45				
		0.8155	GTS-55-04	MP 50-5		42 2555	P 510/4		GTS 55				
		0.8165	GTS-65-02	MP 60-3			P 570/3		GTS 65				
	K.3.2	0.8170	GTS-70-02	IP 70-2			P 690/2		GTS 70				
N	N.1.1	3.3307	Al99.85Mg0.5										
		3.3308	Al99,9Mg0,5										
		3.3315	AlMg1	5005 (AlMg1)					L-3350				
		3.3316	AlMg1.5										
		3.3317	Al99.85Mg1										
		3.3318	Al99.9Mg1										
		3.3326	AlMg1.8										
		3.3523	AlMg2.5										
		3.3525	AlMg2Mn0.3										
		3.3527	AlMg2Mn0.8										
		3.3535	AlMg3	5754									
		3.3537	AlMg2.7Mn										
		3.3555	AlMg5	5056 A									
		3.3561	G-AlMg5										
		3.3591	G-AlMg10										
		3.0205	Al99	1200 (A4)	9001/1	42 4009			L-3001				
		3.0255	Al99.5	1050 A	9001/2	42 4004			L-3051				
		3.0275	Al99.7	1070 A		42 4003			L-3071				
		3.0285	Al99.8	1080 A (A8)		42 4002			L-3081				
		3.0305	Al99.9										
		3.0505	AlMn0.5Mg0.5										
		3.0506	AlMn0.6										
		3.0515	AlMn1			42 4432			L-3810				
		3.0517	AlMnCu										
		3.0525	AlMn1Mg0.5	3005									

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	ГОСТ	UNS	USA
N	N.1.1	3.0526	AlMn1Mg1										
		3.0615	AlMgSiPb										
		3.0915	AlFeSi										
	N.1.2	3.2307	Al99.85MgSi										
		3.2315	AlMgSi1	6082	9006/4	42 4400							6082
		3.3206	AlMgSi0,5	6060 (AGS)		42 4401			L-3441				6063
		3.3208	Al99.9MgSi										
		3.3210	AlMgSi0.7	6005 A									
		3.3211	AlMg1SiCu	6061									
		3.3345	AlMg4.5										
		3.3545	AlMg4Mn	5086 (AG4MC)	9005/5				L-3322				5083
		3.3547	AlMg4,5Mn0,7	5083 (AlMg5Mn0,7)			N8		L-3321	A 5083			A95083
		3.3549	AlMg5Mn										
		3.4335	AlZn4,5Mg1	7020 (AZ5G)	9007/1	42 4441			L-3741				7020
		3.4337	Al99.8ZnMg										
		3.4345	AlZnMgCu0.5										
		3.4365	AlZnMgCu1.5	7075 (AZ5GU)		42 4222			L-3710				7075
		2.1086	G-CuSn10Zn										
		3.1255	AlCuSiMn	2014	9002/3								2014
		3.1305	AlCu2.5Mg0.5										
		3.1325	AlCuMg1	2017 A (AU4G)					L-3120				2017 A
		3.1355	AlCuMg2	2024 (AU4G1)	9002/4	42 4203			L-3140				2024
		3.1645	AlCuMgPb	2030 (AU4PB)		42 4254			L-3121				
		3.1655	AlCuBiPb	2011 (AU5PbBi)	9002/5				L-3192				2011
		MFK											
	N.2.1	3.2581	G-AlSi12			42 4330							
		3.2583	G-AlSi12(Cu)			42 4330							
		3.3261	G-AlMg5Si			42 4515							
		3.3292	GD-AlMg9			42 4519							
		3.3541	G-AlMg3										
		3.3543	G-AlMg3(Cu)										
	N.2.2	3.2134	G-AlSi5Cu1Mg										
		3.2151	G-AlSi6Cu4			42 4357							
		3.2161	G-AlSi8Cu3										
		3.2341	G-AlSi5Mg										
		3.2371	G-AlSi7Mg			42 4334							
		3.2373	G-AlSi9Mg			42 4331							
		3.2381	G-AlSi10Mg			42 4331							
		3.2383	G-AlSi10Mg(Cu)			42 4331							
		3.3241	G-AlMg3Si										
		3.1371	G-AlCu4TiMg										
		3.1841	G-AlCu4Ti										
	N.3.1	2.0040	OF-Cu			42 3000							
		2.0060	E-Cu57			42 3001							
		2.0065	E-Cu58			42 3001							
		2.0070	SE-Cu										
		2.0076	SW-Cu										
		2.0090	SF-Cu			42 3003							
		2.0220	CuZn5			42 3200							
		2.0230	CuZn10			42 3201							
		2.0240	CuZn15			42 3202							

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	ГОСТ	UNS	USA
N	N.3.1	2.0250	CuZn20			42 3203							
		2.0261	CuZn28										
		2.0265	CuZn30			42 3210							
		2.0280	CuZn33			42 3212							
		2.0321	CuZn37		C2700	42 3213							
		2.0335	CuZn36										
		2.0360	CuZn40			42 3220							
		2.0460	CuZn20Al2										
		2.0470	CuZn28Sn1										
		2.0510	CuZn37Al1			42 3231							
		2.0530	CuZn38Sn1			42 3237							
		2.0730	CuNi12Zn24										
		2.0740	CuNi18Zn20										
		2.0830	CuNi25										
		2.0842	CuNi44Mn1										
		2.0853	CuNi1.5Si										
		2.0855	CuNi2Si			42 3054							
		2.0857	CuNi3Si										
		2.0872	CuNi10Fe1Mn										
		2.0875	CuNi9Sn2										
		2.0882	CuNi30Mn1Fe										
		2.0883	CuNi30Fe2Mn2										
		2.0918	CuAl5As										
		2.0920	CuAl8										
		2.0932	CuAl8Fe3										
		2.0936	CuAl10Fe3Mn2										
		2.0960	CuAl9Mn2										
		2.0966	CuAl10Ni5Fe4										
		2.0971	CuAl9Ni3Fe2										
		2.1016	CuSn4										
		2.1020	CuSn6										
		2.1030	CuSn8										
		2.1080	CuSn6Zn6										
		2.1191	CuAg0.1P										
		2.1203	CuAg0.1										
		2.1245	CuBe1.7										
		2.1247	CuBe2										
		2.1293	CuCrZr			42 3039							
		2.1310	CuFe2P										
		2.1522	CuSi2Mn										
		2.1525	CuSi3Mn										
		Ampco 16	CuAl10Fe3										
		Ampco 18	CuAl10.5Fe3.5										
		Ampco 8	CuAl6.5Fe2.5Sn										
			Ampco 8-16										
	N.3.2	2.0331	CuZn36Pb1.5			42 3214							
		2.0332	CuZn37Pb0.5										
		2.0372	CuZn39Pb0.5			42 3221							
		2.0540	CuZn35Ni2										
		2.0550	CuZn40Al2										
		2.0561	CuZn40Al1			42 3231							

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	ГОСТ	UNS	USA
N	N.3.2	2.0572	CuZn40Mn1			42 3234							
		2.0580	CuZn40Mn1Pb										
		2.0780	CuNi12Zn30Pb1										
		2.0790	CuNi18Zn19Pb1										
		2.1498	CuSP										
		2.1504	NiAlBz										
		2.1546	CuTeP										
		Ampco 12	CuAl9Fe3										
		Ampco 20	CuAl11Fe4										
	N.3.3	2.0371	CuZn38Pb1.5			42 3222							
		2.0375	CuZn36Pb3										
		2.0380	CuZn39Pb2			42 3223							
		2.0401	CuZn39Pb3										
		2.0402	CuZn40Pb2			42 3223							
		2.0410	CuZn44Pb2										
		2.0490	CuZn31Si1										
		2.0500	CuZn23Al6Mn-4Fe3										
		2.0771	CuNi7Zn39Mn-5Pb3										
		2.0978	CuAl11Ni6Fe5										
		2.1093	G-CuSn6ZnNi										
		2.1096	G-CuSn5ZnPb										
		2.1285	CuCo2Be										
		Ampco 21	CuAl13Fe4.5										
		Ampco 22	CuAl14Fe5										
		Ampco 25											
		Ampco 26											
			Ampco 18-26										
	N.4.1	3.5101	G-MgZn4SE1Zr1										
		3.5102	G-MgZn5Th2Zr1										
		3.5103	G-MgSE3Zn2Zr1										
		3.5105	G-MgTh3Zn2Zr1										
		3.5106	G-MgAg3Se2Zr1										
		3.5200	MgMn2										
		3.5312	MgAl3Zn										
		3.5470	GD-MgAl4Si1										
		3.5612	GD-MgAl6Zn1										
		3.5662	G-MgAl6										
		3.5812	G-MgAl8Zn1			42 4911							
		3.5912	GD-MgAl9Zn1			42 4911							
S	S.1.2	1.4980	X 5 NiCrTi 26 15									S66286	
	S.2.1	1.3924	Ni54										
		1.3926	RNi12			42 3484							
		1.3927	RNi8			42 3484							
		2.4360	NiCu30Fe	Monel 400		42 3431							
		2.4610	NiMo16Cr16Ti	Hastelloy C-4									
		2.4617	NiMo28	Hastelloy B-2									
		2.4630	NiCr20Ti	Nimonic 75			HR 5						
		2.4668	NiCr19Fe18Nb5Mg	Inconel 718									
		2.4812	NiCr17Mo17FeW	Hastelloy C									
		2.4819	NiMo16Cr15W	Hastelloy C-276									
		2.4851	NiCr23Fe, Inconel 601	Inconel 601									

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	ГОСТ	UNS	USA
S	S.2.1	2.4856	NiCr22Mo9Nb	Inconel 625									
		2.4858	NiCr21Mo				NA 16			NCF 825		N 08825	
		2.4951	NiCr20Ti	Nimonic 75			HR 5						
		2.4964	CoCr20W15Ni										
		2.4989	CoCr20NiW										
	S.2.2	2.4375	NiCu30Al	Monel K 500									
		2.4631	NiCr20TiAl	Nimonic 80 A			HR 401; 601			NCF 80 A		N 07080	
		2.4634	NiCo20Cr15MoAlTi	Nimonic 105									
		2.4640	NiCr15Fe	Inconel 600									
		2.4654	NiCr20Co13Mo-4Ti4Al	Waspaloy									
		2.4662	NiCr13Mo6Ti3	Nimonic 901									
		2.4668	NiCr19Fe18Nb5Mg	Inconel 718									
		2.4816	NiCr15Fe	Inconel 600			NA 14			NCF 600		N 06600	
		2.4952	NiCr20TiAl	Nimonic 80 A									
		2.4973	NiCr19Co11MoTi										
		2.4983	NiCr18Co18MoAlTi	Udimet 500									
	S.2.3	2.4670	G-NiCr13Al6MoNb	Nimocast 713									
		2.4674	NiCo15Cr10MoAlTi	Nimocast PK 24									
		2.4979	CoCr28MoNi										
	S.3.1	3.7024	Ti99,5										
		3.7025	Ti99,8										
		3.7034	Ti99,7										
		3.7055	Ti99,4										
		3.7064	Ti99,2										
		3.7124	TiCu2										
	S.3.2	3.7114	TiAl5Sn2										
		3.7144	TiAl6Sn2Zr4Mo2										
		3.7154	TiAl6Zr5										
		3.7165	TiAl6V4	T-A 6 V			TA 10 – TA 13					R 56400	
		3.7174	TiAl6V6Sn2										
		3.7184	TiAl4Mo4Sn2				TA 45 – TA 51						
H	H.1.1	1.2311	40 CrMnMo 7			19 520							
		1.2312	40 CrMnMoS 8 6	40 CMD 8 + S									
		1.2316	X 36 CrMo 17	Z 38 CD 17	X 38 CrMo 16 1 KU								
		1.2365	X 32 CrMoV 3 3	32 DCV 28	30 CrMoV 12 27 KU	19 541	BH 10			SKD 7	3Ch3M3F	T 20810	H 10
		1.2567	X 30 WCrV 5 3	Z 32 WCV 5	X 30 WCrV 5 3 KU	19 720				SKD 4			
		1.2581	X 30 WCrV 9 3	Z 30 WCV 9	X 30 WCrV 9 3 KU	19 721	BH 21			SKD 5	3Ch2W8F	T 20821	H 21
		1.2738	40 CrMnNiMo 8						F-5303				
		1.2885	X 32 CrMoCoV 3 3 3	30 DCKV 28									
		1.4028	X 30 Cr 13	Z 30 C 13	X 30 Cr 13	17 023	420 S 45	2304		SUS 420 J 2	30Ch13		
		1.4031	X 38 Cr 13	Z 40 C 14	X 40 Cr 14	17 024		2304	F-3404	SUS 420 J 2	40Ch13		
		1.4034	X 46 Cr 13	Z 40 C 14	X 40 Cr 14	17 029	420 S 45		F-3405		40Ch13		
		1.4112	X 90 CrMoV 18									S 44003	
		1.5122	37 MnSi 4			13 240							
		1.6358	X 2 NiCoMoTi 18 9 5										
		1.6582	34 CrNiMo 6	35 NCD 6	35 NiCrMo 6 (KW)	16 342	817 M 40	2541	F-128 / F-1270	SNCM 447	38Ch2N2MA		4340
		1.7003	38 Cr 2	38 C 2	38 Cr 2								
		1.7006	46 Cr 2	42 C 2	45 Cr 2								5045
		1.7030	28 Cr 4				530 A 30				30Ch		5130
		1.7176	55 Cr 3	55 C 3	55 Cr 3		527 A 60	2253	F-1431	SUP 9 (A)	50ChGA	G 51550	5155
		1.0961	60 SiCr 7	60 SC 7	60 SiCr 8					SUP 7			9262

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	ГОСТ	UNS	USA
H	H.1.1	1.1248	Ck 75	XC 75	C 75	12 081	060 A 78	1774; 1778			75	G 10780	1078; 1080
		1.1273	90 Mn 4										
	H.1.2	1.2083	X 42 Cr 13	Z 40 C 14	X 41 Cr 13 KU	19 435			F-5263	SUS 420 J 2			
		1.2323	GS-48 CrMoV 6 7										
		1.2343	X 38 CrMoV 5 1	Z 38 CDV 5	X 37 CrMoV 5 1 KU	19 552	BH 11		F-5317	SKD 6	4Ch5MFS	T 28811	H 11
		1.2367	X 38 CrMoV 5 3										
		1.2510	100 MnCrW 4	90 MWCV 5	95 MnWCr 5 KU	19 314	BO 1	2140	F-5220	SKS 3		T 31501	O 1
		1.2542	45 WCrV 7		45 WCrV 8 KU	19 732	BS 1	2710				T 41901	S 1
		1.2550	60 WCrV 7	55 WC 20	55 WCrV 8 KU	19 735							
		1.2606	G-X 37 CrMoW 5 1										
		1.2711	54 NiCrMoV 6	55 NCDV 6		19 662							
		1.2713	55 NiCrMoV 6	55 NCDV 7		19 662			F-520.S	SKT 4	5ChNM	T 61206	L 6
		1.2764	X 19 NiCrMo 4										
		1.2767	X 45 NiCrMo 4	Y 35 NCD 16	42 NiCrMo 15 7	19 655							
		1.4109	X 65 CrMo 14										
		1.4112	X 90 CrMoV 18									S 44003	
		1.1157	40 Mn 4	35 M 5			150 M 36				40G	G 10390	1039
		1.1231	Ck 67	XC 68	C 70	12 071	060 A 67	1770			70	G 10700	1070
		1.1274	Ck 101	XC 100			060 A 96	1870		SUP 4		G 10950	1095
	H.1.3	1.2080	X 210 Cr 12	Z 200 C 12	X 210 Cr 13 KU	19 436	BD 3			SKD 1	Ch12	T 30403	D 3
		1.2101	62 SiMnCr 4										
		1.2162	21 MnCr 5	20 NC 5		19 487				SCR 420 H			
		1.2201	G-X 165 CrV 12										
		1.2210	115 CrV 3	100 C 3	107 CrV 3 KU	19 421						T 61202	L 2
		1.2341	X 6 CrMo 4										
		1.2379	X 155 CrVMo 12 1	Z 160 CDV 12	X 155 CrV-Mo 12 1 KU	19 573	BD 2		F-5211	SKD 11		T 30402	D 2
		1.2419	105 WCr 6	105 WC 13	107 WCr 5 KU					SKS 31	ChWG		
		1.2601	X 165 CrMoV 12		X 165 CrMoW 12 KU	19 572		2310					
		1.2721	50 NiCr 13										
		1.2735	15 NiCr 14	10 NC 12		16 240				SNC 22		T 51606	
		1.2833	100 V 1	Y1 105 V	102 V 2 KU	19 356	BW 2			SKS 43		T 72302	W 210
		1.2842	90 MnCrV 8	90 MV 8	90 MnVCr 8 KU	19 314	BO 2					T 31502	O 2
		1.3505	100 Cr 6	100 C 6	100 Cr 6	14 100	534 A 99	2258	F-131 / F-1310	SUJ 2	SchCh 15	G 52986	52100
		1.4112	X 90 CrMoV 18									S 44003	
		1.4125	X 105 CrMo 17	Z 100 CD 17	X 105 CrMo 17					SUS 440 C		S 44004	440 C
		1.8161	58 CrV 4			15 261							
		1.1520	C 70 W1										
	H.1.4	1.2363	X 100 CrMoV 5 1	Z 100 CDV 5	X 100 CrMoV 5 1 KU	19 571	BA 2	2260	F-5227	SKD 12		T 30102	A 2
		1.2436	X 210 CrW 12	Z 200 CW 12	X 215 CrW 12 1 KU	19 437		2312	F-5213	SKD 2			
		1.2880	G-X 165 CrCoMo 12										
		1.3202	S 12-1-4-5			19 858						T 12015	T15
		1.3207	S 10-4-3-10	Z 130 WKCDV 10-10-04	HS 10-4-3-10	19 861	BT 42		F-5553	SKH 57			
		1.3243	S 6-5-2-5	Z 85 WDKCV 06-05-05	HS 6-5-2-5	19 852		2723	F-5613	SKH 55	R6M5K5		
		1.3246	S 7-4-2-5	Z 110 WKCDV 07-05-04	HS 7-4-2-5	19 851						T 11341	M 41
		1.3247	S 2-10-1-8	Z 110 DKCWV 09-08-04	HS 2-9-1-8		BM 42			SKH 51		T 11342	M 42
		1.3249	S 2-9-2-8				BM 34					T 11333	M 33; M 34
		1.3257	S 18-1-2-15										
		1.3333	S 3-3-2		HS 3-3-2	19 820							
		1.3343	S 6-5-2	Z 85 WDCV 06-05-04-0	HS 6-5-2	19 830	BM 2	2722	F-5603	SKH 9; SKH 51	R6AM5	T 11302	M 2
		1.3344	S 6-5-3	Z 120 WDCV 06-05-04	HS 6-5-3		BM 4			SKH 52; SKH 53		T 11323	M 3 Cl. 2
		1.3346	S 2-9-1	Z 85 DCWV 08-04-02-0	HS 1-8-1		BM 1				H41	T 11301	H 41; M 1

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	ГОСТ	UNS	USA
H	H.1.4	1.3348	S 2-9-2	Z 100 DCWV 09-04-02	HS 2-9-2			2782				T 11307	M 7
		1.3355	S 18-0-1	Z 80 WCV 18-04-01	HS 18-0-1	19 824	BT 1			SKH 2	R18	T 12001	T 1
		1.1654	C 110 W										
	H.3.1	0.9620	G-X 260 NiCr 4 2				Grade 2 A	0512-00					A 532 I B NiCr-LC
		0.9625	G-X 330 NiCr 4 2				Grade 2 B	0513-00					A 532 I A NiCr-HC
		0.9630	G-X 300 CrNiSi 9 5 2				Grade 2 C; D; E	0457-00					A 532 I D Ni-HiCr
		0.9635	G-X 330 CrMo 15 3				Grade 3 A; B						A 532 II C 15% CrMo-
		0.9640	G-X 300 CrMoNi 15 2				Grade 3 A; B						
		0.9645	G-X 260 CrMoNi 20 2				Grade 3 C						A 532 II D 20% CrMo-
		0.9650	G-X 260 Cr 27				Grade 3 D	0466-00					A 532 III A 25% Cr
		0.9655	G-X 300 CrMo 27 1				Grade 3 E						A 532 III A 25% Cr
O	O.1.1	EP											
		MF											
		PF											
		UP											
	O.1.2	PA											
		PC											
		PE											
		PI											
		PMMA											
		POM											
		PP											
		PS											
		PTFE											
		PVC											
	O.2.1	AFK											
	O.2.2	CFK											
		GFK											
	O.3.1	Graphit											

Article No.	Designation	Page(s)
10 103 ...	HSS drilling	1 / 31
10 105 ...	HSS drilling	1 / 9
10 106 ...	HSS drilling	1 / 9
10 107 ...	HSS drilling	1 / 9
10 109 ...	HSS drilling	1 / 9
10 110 ...	HSS drilling	1 / 9
10 112 ...	HSS drilling	1 / 15
10 113 ...	HSS drilling	1 / 9
10 122 ...	HSS drilling	1 / 8
10 124 ...	HSS drilling	1 / 16
10 130 ...	HSS drilling	1 / 9
10 152 ...	HSS drilling	1 / 17
10 158 ...	HSS drilling	1 / 24
10 161 ...	HSS drilling	1 / 17
10 168 ...	HSS drilling	1 / 17
10 169 ...	HSS drilling	1 / 23
10 170 ...	HSS drilling	1 / 17
10 171 ...	HSS drilling	1 / 17
10 172 ...	HSS drilling	1 / 23
10 173 ...	HSS drilling	1 / 17
10 175 ...	HSS drilling	1 / 17
10 180 ...	HSS drilling	1 / 25
10 181 ...	HSS drilling	1 / 25
10 200 ...	HSS drilling	1 / 26
10 210 ...	HSS drilling	1 / 26
10 215 ...	HSS drilling	1 / 26
10 223 ...	HSS drilling	1 / 25
10 224 ...	HSS drilling	1 / 25
10 225 ...	HSS drilling	1 / 26
10 226 ...	HSS drilling	1 / 40
10 228 ...	HSS drilling	1 / 40
10 235 ...	HSS drilling	1 / 29
10 236 ...	HSS drilling	1 / 29
10 245 ...	HSS drilling	1 / 30
10 246 ...	HSS drilling	1 / 30
10 255 ...	HSS drilling	1 / 30
10 256 ...	HSS drilling	1 / 30
10 265 ...	HSS drilling	1 / 32
10 270 ...	HSS drilling	1 / 26
10 280 ...	HSS drilling	1 / 32
10 285 ...	HSS drilling	1 / 31
10 295 ...	HSS drilling	1 / 33
10 297 ...	HSS drilling	1 / 33
10 305 ...	HSS drilling	1 / 34
10 315 ...	HSS drilling	1 / 34
10 320 ...	HSS drilling	1 / 41
10 330 ...	HSS drilling	1 / 41
10 340 ...	HSS drilling	1 / 42
10 350 ...	HSS drilling	1 / 44
10 355 ...	HSS drilling	1 / 41
10 365 ...	HSS drilling	1 / 41
10 375 ...	HSS drilling	1 / 42
10 405 ...	HSS drilling	1 / 43
10 415 ...	HSS drilling	1 / 38
10 425 ...	HSS drilling	1 / 38
10 435 ...	HSS drilling	1 / 38
10 445 ...	HSS drilling	1 / 38
10 455 ...	HSS drilling	1 / 39
10 465 ...	HSS drilling	1 / 39
10 475 ...	HSS drilling	1 / 39
10 480 ...	HSS drilling	1 / 37
10 485 ...	HSS drilling	1 / 37
10 510 ...	HSS drilling	1 / 35
10 511 ...	HSS drilling	1 / 35
10 512 ...	HSS drilling	1 / 35
10 513 ...	HSS drilling	1 / 35
10 520 ...	HSS drilling	1 / 35
10 521 ...	HSS drilling	1 / 35
10 522 ...	HSS drilling	1 / 35
10 523 ...	HSS drilling	1 / 35
10 525 ...	HSS drilling	1 / 37
10 526 ...	HSS drilling	1 / 36
10 528 ...	HSS drilling	1 / 36
10 530 ...	HSS drilling	1 / 36
10 532 ...	HSS drilling	1 / 36
10 693 ...	Solid carbide drilling	2 / 80
10 694 ...	Solid carbide drilling	2 / 80
10 695 ...	Solid carbide drilling	2 / 81
10 696 ...	Solid carbide drilling	2 / 81
10 697 ...	Solid carbide drilling	2 / 82
10 698 ...	Solid carbide drilling	2 / 82
10 699 ...	Solid carbide drilling	2 / 83
10 700 ...	Solid carbide drilling	2 / 21
10 702 ...	Solid carbide drilling	2 / 89
10 703 ...	Solid carbide drilling	2 / 89
10 704 ...	Solid carbide drilling	2 / 89
10 707 ...	Solid carbide drilling	2 / 84
10 708 ...	Solid carbide drilling	2 / 91
10 709 ...	Solid carbide drilling	2 / 106
10 710 ...	Solid carbide drilling	2 / 40
10 711 ...	Solid carbide drilling	2 / 86
10 712 ...	Solid carbide drilling	2 / 106
10 713 ...	Solid carbide drilling	2 / 85
10 714 ...	Solid carbide drilling	2 / 106
10 716 ...	Solid carbide drilling	2 / 89
10 717 ...	Solid carbide drilling	2 / 89
10 718 ...	Solid carbide drilling	2 / 89
10 719 ...	Solid carbide drilling	2 / 86
10 720 ...	Solid carbide drilling	2 / 33
10 721 ...	Solid carbide drilling	2 / 57
10 724 ...	Solid carbide drilling	2 / 90
10 726 ...	Solid carbide drilling	2 / 90
10 727 ...	Solid carbide drilling	2 / 90
10 730 ...	Solid carbide drilling	2 / 35
10 731 ...	Solid carbide drilling	2 / 11
10 732 ...	Solid carbide drilling	2 / 11
10 733 ...	Solid carbide drilling	2 / 23
10 734 ...	Solid carbide drilling	2 / 23
10 735 ...	Solid carbide drilling	2 / 41
10 736 ...	Solid carbide drilling	2 / 60
10 737 ...	Solid carbide drilling	2 / 69
10 740 ...	Solid carbide drilling	2 / 35
10 741 ...	Solid carbide drilling	2 / 35
10 745 ...	Solid carbide drilling	2 / 46
10 746 ...	Solid carbide drilling	2 / 46
10 749 ...	Solid carbide drilling	2 / 46
10 753 ...	Solid carbide drilling	2 / 65
10 767 ...	Solid carbide drilling	2 / 87
10 770 ...	Solid carbide drilling	2 / 65
10 771 ...	Solid carbide drilling	2 / 41
10 772 ...	Solid carbide drilling	2 / 87
10 773 ...	Solid carbide drilling	2 / 46
10 774 ...	Solid carbide drilling	2 / 69
10 776 ...	Solid carbide drilling	2 / 22
10 777 ...	Solid carbide drilling	2 / 20
10 781 ...	Solid carbide drilling	2 / 23
10 782 ...	Solid carbide drilling	2 / 60
10 783 ...	Solid carbide drilling	2 / 88
10 786 ...	Solid carbide drilling	2 / 32
10 787 ...	Solid carbide drilling	2 / 46
10 788 ...	Solid carbide drilling	2 / 88
10 789 ...	Solid carbide drilling	2 / 58
10 791 ...	Solid carbide drilling	2 / 46
10 792 ...	Solid carbide drilling	2 / 65
10 793 ...	Solid carbide drilling	2 / 69
10 794 ...	Solid carbide drilling	2 / 68
10 796 ...	Solid carbide drilling	2 / 74
10 797 ...	Solid carbide drilling	2 / 34
10 798 ...	Solid carbide drilling	2 / 59
10 820 ...	Indexable insert drilling	3 / 27
10 821 ...	Indexable insert drilling	3 / 53
10 821 ...	Spindle Tooling	5 / 59
10 830 ...	Indexable insert drilling	3 / 36
10 852 ...	Indexable insert drilling	3 / 29
10 853 ...	Indexable insert drilling	3 / 31
10 854 ...	Indexable insert drilling	3 / 33
10 855 ...	Indexable insert drilling	3 / 35
10 860 ...	Indexable insert drilling	3 / 50
10 862 ...	Indexable insert drilling	3 / 52
10 863 ...	Indexable insert drilling	3 / 52
10 864 ...	Indexable insert drilling	3 / 47
10 866 ...	Indexable insert drilling	3 / 47
10 869 ...	Indexable insert drilling	3 / 47
10 870 ...	Indexable insert drilling	3 / 56
10 871 ...	Indexable insert drilling	3 / 56
10 872 ...	Indexable insert drilling	3 / 16
10 873 ...	Indexable insert drilling	3 / 18
10 874 ...	Indexable insert drilling	3 / 20
10 875 ...	Indexable insert drilling	3 / 22

Article No.	Designation	Page(s)
10 876 ...	Indexable insert drilling	3 / 24
10 877 ...	Indexable insert drilling	3 / 25
10 878 ...	Indexable insert drilling	3 / 26
10 892 ...	Indexable insert drilling	3 / 37
10 893 ...	Indexable insert drilling	3 / 41
10 894 ...	Indexable insert drilling	3 / 43
10 911 ...	Solid carbide drilling	2 / 102
10 912 ...	Solid carbide drilling	2 / 104
10 913 ...	Solid carbide drilling	2 / 102
10 914 ...	Solid carbide drilling	2 / 94
10 915 ...	Solid carbide drilling	2 / 103
10 916 ...	Solid carbide drilling	2 / 94
10 917 ...	Solid carbide drilling	2 / 95
10 918 ...	Solid carbide drilling	2 / 103
10 919 ...	Solid carbide drilling	2 / 96
10 921 ...	Solid carbide drilling	2 / 96
10 922 ...	Solid carbide drilling	2 / 96
10 923 ...	Solid carbide drilling	2 / 96
10 924 ...	Solid carbide drilling	2 / 96
10 925 ...	Solid carbide drilling	2 / 93
11 016 ...	Solid carbide drilling	2 / 76
11 017 ...	Solid carbide drilling	2 / 76
11 018 ...	Solid carbide drilling	2 / 75
11 020 ...	Solid carbide drilling	2 / 76
11 021 ...	Solid carbide drilling	2 / 76
11 025 ...	Solid carbide drilling	2 / 77
11 026 ...	Solid carbide drilling	2 / 77
11 030 ...	Solid carbide drilling	2 / 77
11 031 ...	Solid carbide drilling	2 / 77
11 040 ...	Solid carbide drilling	2 / 78
11 050 ...	Solid carbide drilling	2 / 78
11 600 ...	Solid carbide drilling	2 / 16
11 601 ...	Solid carbide drilling	2 / 16
11 603 ...	Solid carbide drilling	2 / 27
11 604 ...	Solid carbide drilling	2 / 27
11 606 ...	Solid carbide drilling	2 / 39
11 607 ...	Solid carbide drilling	2 / 39
11 609 ...	Solid carbide drilling	2 / 53
11 610 ...	Solid carbide drilling	2 / 53
11 612 ...	Solid carbide drilling	2 / 64
11 615 ...	Solid carbide drilling	2 / 73
11 620 ...	Solid carbide drilling	2 / 16
11 621 ...	Solid carbide drilling	2 / 16
11 623 ...	Solid carbide drilling	2 / 27
11 624 ...	Solid carbide drilling	2 / 27
11 629 ...	Solid carbide drilling	2 / 53
11 630 ...	Solid carbide drilling	2 / 53
11 770 ...	Solid carbide drilling	2 / 79
11 776 ...	Solid carbide drilling	2 / 11
11 777 ...	Solid carbide drilling	2 / 11
11 778 ...	Solid carbide drilling	2 / 11
11 779 ...	Solid carbide drilling	2 / 23
11 780 ...	Solid carbide drilling	2 / 23
11 781 ...	Solid carbide drilling	2 / 23
11 782 ...	Solid carbide drilling	2 / 35
11 783 ...	Solid carbide drilling	2 / 35
11 784 ...	Solid carbide drilling	2 / 35
11 785 ...	Solid carbide drilling	2 / 41
11 786 ...	Solid carbide drilling	2 / 41
11 787 ...	Solid carbide drilling	2 / 41
11 788 ...	Solid carbide drilling	2 / 60
11 789 ...	Solid carbide drilling	2 / 60
11 790 ...	Solid carbide drilling	2 / 60
11 892 ...	Indexable insert drilling	3 / 39
11 893 ...	Indexable insert drilling	3 / 42
22 006 ...	Taps and thread formers	6 / 51
22 007 ...	Taps and thread formers	6 / 52
22 016 ...	Taps and thread formers	6 / 45
22 020 ...	Taps and thread formers	6 / 24
22 021 ...	Taps and thread formers	6 / 24
22 028 ...	Taps and thread formers	6 / 51
22 029 ...	Taps and thread formers	6 / 52
22 030 ...	Taps and thread formers	6 / 51
22 031 ...	Taps and thread formers	6 / 52
22 032 ...	Taps and thread formers	6 / 53
22 033 ...	Taps and thread formers	6 / 53
22 036 ...	Taps and thread formers	6 / 53
22 037 ...	Taps and thread formers	6 / 53
22 038 ...	Taps and thread formers	6 / 26
22 039 ...	Taps and thread formers	6 / 26
22 040 ...	Taps and thread formers	6 / 41
22 041 ...	Taps and thread formers	6 / 41
22 042 ...	Taps and thread formers	6 / 41
22 044 ...	Taps and thread formers	6 / 40
22 045 ...	Taps and thread formers	6 / 40
22 046 ...	Taps and thread formers	6 / 40
22 056 ...	Taps and thread formers	6 / 26
22 057 ...	Taps and thread formers	6 / 26
22 058 ...	Taps and thread formers	6 / 26
22 059 ...	Taps and thread formers	6 / 26
22 073 ...	Taps and thread formers	6 / 43
22 075 ...	Taps and thread formers	6 / 27
22 076 ...	Taps and thread formers	6 / 43
22 077 ...	Taps and thread formers	6 / 27
22 078 ...	Taps and thread formers	6 / 47
22 080 ...	Taps and thread formers	6 / 47
22 081 ...	Taps and thread formers	6 / 27
22 082 ...	Taps and thread formers	6 / 39
22 083 ...	Taps and thread formers	6 / 39
22 084 ...	Taps and thread formers	6 / 39
22 085 ...	Taps and thread formers	6 / 39
22 086 ...	Taps and thread formers	6 / 42
22 087 ...	Taps and thread formers	6 / 42
22 090 ...	Taps and thread formers	6 / 41
22 091 ...	Taps and thread formers	6 / 41
22 092 ...	Taps and thread formers	6 / 25
22 093 ...	Taps and thread formers	6 / 25
22 098 ...	Taps and thread formers	6 / 30
22 100 ...	Taps and thread formers	6 / 57
22 101 ...	Taps and thread formers	6 / 57
22 104 ...	Taps and thread formers	6 / 58
22 105 ...	Taps and thread formers	6 / 58
22 106 ...	Taps and thread formers	6 / 58
22 107 ...	Taps and thread formers	6 / 58
22 108 ...	Taps and thread formers	6 / 58
22 120 ...	Taps and thread formers	6 / 25
22 121 ...	Taps and thread formers	6 / 25
22 122 ...	Taps and thread formers	6 / 55
22 123 ...	Taps and thread formers	6 / 55
22 124 ...	Taps and thread formers	6 / 43
22 127 ...	Taps and thread formers	6 / 24
22 128 ...	Taps and thread formers	6 / 57
22 138 ...	Taps and thread formers	6 / 39
22 139 ...	Taps and thread formers	6 / 39
22 140 ...	Taps and thread formers	6 / 27
22 142 ...	Taps and thread formers	6 / 27
22 144 ...	Taps and thread formers	6 / 77
22 146 ...	Taps and thread formers	6 / 77
22 147 ...	Taps and thread formers	6 / 24
22 148 ...	Taps and thread formers	6 / 23
22 149 ...	Taps and thread formers	6 / 35
22 154 ...	Taps and thread formers	6 / 58
22 159 ...	Taps and thread formers	6 / 28
22 160 ...	Taps and thread formers	6 / 28
22 163 ...	Taps and thread formers	6 / 43
22 164 ...	Taps and thread formers	6 / 43
22 166 ...	Taps and thread formers	6 / 96
22 171 ...	Taps and thread formers	6 / 78
22 173 ...	Taps and thread formers	6 / 78
22 176 ...	Taps and thread formers	6 / 72
22 177 ...	Taps and thread formers	6 / 73
22 179 ...	Taps and thread formers	6 / 79
22 182 ...	Taps and thread formers	6 / 70
22 186 ...	Taps and thread formers	6 / 69
22 188 ...	Taps and thread formers	6 / 73
22 189 ...	Taps and thread formers	6 / 73
22 193 ...	Taps and thread formers	6 / 64
22 196 ...	Taps and thread formers	6 / 80
22 197 ...	Taps and thread formers	6 / 80
22 200 ...	Taps and thread formers	6 / 79
22 202 ...	Taps and thread formers	6 / 68
22 204 ...	Taps and thread formers	6 / 80
22 205 ...	Taps and thread formers	6 / 80
22 209 ...	Taps and thread formers	6 / 78
22 210 ...	Taps and thread formers	6 / 64
22 227 ...	Taps and thread formers	6 / 54
22 228 ...	Taps and thread formers	6 / 54
22 233 ...	Taps and thread formers	6 / 29
22 234 ...	Taps and thread formers	6 / 29

Article No.	Designation	Page(s)
22 238 ...	Taps and thread formers	6 / 69
22 250 ...	Taps and thread formers	6 / 89
22 266 ...	Taps and thread formers	6 / 91
22 267 ...	Taps and thread formers	6 / 91
22 269 ...	Taps and thread formers	6 / 89
22 270 ...	Taps and thread formers	6 / 93
22 271 ...	Taps and thread formers	6 / 93
22 280 ...	Taps and thread formers	6 / 62
22 297 ...	Taps and thread formers	6 / 28
22 298 ...	Taps and thread formers	6 / 28
22 302 ...	Taps and thread formers	6 / 100
22 303 ...	Taps and thread formers	6 / 100
22 307 ...	Taps and thread formers	6 / 99
22 308 ...	Taps and thread formers	6 / 99
22 312 ...	Taps and thread formers	6 / 102
22 313 ...	Taps and thread formers	6 / 102
22 317 ...	Taps and thread formers	6 / 97
22 324 ...	Taps and thread formers	6 / 42
22 326 ...	Taps and thread formers	6 / 42
22 328 ...	Taps and thread formers	6 / 38
22 329 ...	Taps and thread formers	6 / 38
22 339 ...	Taps and thread formers	6 / 87
22 346 ...	Taps and thread formers	6 / 82
22 347 ...	Taps and thread formers	6 / 87
22 352 ...	Taps and thread formers	6 / 82
22 354 ...	Taps and thread formers	6 / 85
22 355 ...	Taps and thread formers	6 / 85
22 358 ...	Taps and thread formers	6 / 85
22 359 ...	Taps and thread formers	6 / 88
22 360 ...	Taps and thread formers	6 / 88
22 361 ...	Taps and thread formers	6 / 107
22 364 ...	Taps and thread formers	6 / 105
22 365 ...	Taps and thread formers	6 / 105
22 371 ...	Taps and thread formers	6 / 105
22 372 ...	Taps and thread formers	6 / 105
22 374 ...	Taps and thread formers	6 / 106
22 375 ...	Taps and thread formers	6 / 106
22 402 ...	Taps and thread formers	6 / 108
22 406 ...	Taps and thread formers	6 / 38
22 407 ...	Taps and thread formers	6 / 38
22 409 ...	Taps and thread formers	6 / 99
22 416 ...	Taps and thread formers	6 / 36
22 417 ...	Taps and thread formers	6 / 36
22 421 ...	Taps and thread formers	6 / 97
22 422 ...	Taps and thread formers	6 / 46
22 423 ...	Taps and thread formers	6 / 46
22 424 ...	Taps and thread formers	6 / 43
22 425 ...	Taps and thread formers	6 / 43
22 441 ...	Taps and thread formers	6 / 67
22 443 ...	Taps and thread formers	6 / 38
22 444 ...	Taps and thread formers	6 / 38
22 449 ...	Taps and thread formers	6 / 37
22 450 ...	Taps and thread formers	6 / 37
22 452 ...	Taps and thread formers	6 / 59
22 453 ...	Taps and thread formers	6 / 59
22 454 ...	Taps and thread formers	6 / 59
22 460 ...	Taps and thread formers	6 / 42
22 461 ...	Taps and thread formers	6 / 42
22 462 ...	Taps and thread formers	6 / 73
22 463 ...	Taps and thread formers	6 / 85
22 464 ...	Taps and thread formers	6 / 26
22 465 ...	Taps and thread formers	6 / 26
22 466 ...	Taps and thread formers	6 / 64
22 467 ...	Taps and thread formers	6 / 82
22 468 ...	Taps and thread formers	6 / 25
22 469 ...	Taps and thread formers	6 / 38
22 490 ...	Taps and thread formers	6 / 67
22 491 ...	Taps and thread formers	6 / 67
22 498 ...	Taps and thread formers	6 / 40
22 499 ...	Taps and thread formers	6 / 40
22 500 ...	Taps and thread formers	6 / 44
22 501 ...	Taps and thread formers	6 / 21
22 502 ...	Taps and thread formers	6 / 22
22 503 ...	Taps and thread formers	6 / 21
22 504 ...	Taps and thread formers	6 / 22
22 505 ...	Taps and thread formers	6 / 21
22 508 ...	Taps and thread formers	6 / 21
22 509 ...	Taps and thread formers	6 / 22
22 510 ...	Taps and thread formers	6 / 21
22 511 ...	Taps and thread formers	6 / 22
22 514 ...	Taps and thread formers	6 / 29
22 515 ...	Taps and thread formers	6 / 29
22 518 ...	Taps and thread formers	6 / 34
22 519 ...	Taps and thread formers	6 / 34
22 520 ...	Taps and thread formers	6 / 34
22 521 ...	Taps and thread formers	6 / 34
22 522 ...	Taps and thread formers	6 / 34
22 523 ...	Taps and thread formers	6 / 34
22 524 ...	Taps and thread formers	6 / 35
22 525 ...	Taps and thread formers	6 / 35
22 526 ...	Taps and thread formers	6 / 35
22 527 ...	Taps and thread formers	6 / 35
22 532 ...	Taps and thread formers	6 / 34
22 533 ...	Taps and thread formers	6 / 34
22 534 ...	Taps and thread formers	6 / 35
22 535 ...	Taps and thread formers	6 / 35
22 538 ...	Taps and thread formers	6 / 46
22 539 ...	Taps and thread formers	6 / 46
22 542 ...	Taps and thread formers	6 / 23
22 543 ...	Taps and thread formers	6 / 23
22 544 ...	Taps and thread formers	6 / 36
22 545 ...	Taps and thread formers	6 / 36
22 546 ...	Taps and thread formers	6 / 36
22 548 ...	Taps and thread formers	6 / 68
22 549 ...	Taps and thread formers	6 / 68
22 550 ...	Taps and thread formers	6 / 63
22 551 ...	Taps and thread formers	6 / 64
22 552 ...	Taps and thread formers	6 / 64
22 553 ...	Taps and thread formers	6 / 68
22 554 ...	Taps and thread formers	6 / 68
22 555 ...	Taps and thread formers	6 / 67
22 556 ...	Taps and thread formers	6 / 67
22 563 ...	Taps and thread formers	6 / 68
22 572 ...	Taps and thread formers	6 / 89
22 573 ...	Taps and thread formers	6 / 89
22 582 ...	Taps and thread formers	6 / 91
22 583 ...	Taps and thread formers	6 / 91
22 590 ...	Taps and thread formers	6 / 63
22 592 ...	Taps and thread formers	6 / 23
22 593 ...	Taps and thread formers	6 / 23
22 594 ...	Taps and thread formers	6 / 36
22 595 ...	Taps and thread formers	6 / 36
22 596 ...	Taps and thread formers	6 / 23
22 597 ...	Taps and thread formers	6 / 23
22 601 ...	Taps and thread formers	6 / 69
22 602 ...	Taps and thread formers	6 / 97
22 603 ...	Taps and thread formers	6 / 97
22 606 ...	Taps and thread formers	6 / 99
22 607 ...	Taps and thread formers	6 / 99
22 624 ...	Taps and thread formers	6 / 85
22 630 ...	Taps and thread formers	6 / 82
22 632 ...	Taps and thread formers	6 / 82
22 633 ...	Taps and thread formers	6 / 84
22 634 ...	Taps and thread formers	6 / 84
22 635 ...	Taps and thread formers	6 / 84
22 636 ...	Taps and thread formers	6 / 84
22 639 ...	Taps and thread formers	6 / 84
22 662 ...	Taps and thread formers	6 / 61
22 663 ...	Taps and thread formers	6 / 61
22 664 ...	Taps and thread formers	6 / 62
22 665 ...	Taps and thread formers	6 / 62
22 668 ...	Taps and thread formers	6 / 94
22 670 ...	Taps and thread formers	6 / 94
22 672 ...	Taps and thread formers	6 / 95
22 676 ...	Taps and thread formers	6 / 103
22 677 ...	Taps and thread formers	6 / 103
22 680 ...	Taps and thread formers	6 / 104
22 806 ...	Taps and thread formers	6 / 54
22 817 ...	Taps and thread formers	6 / 77
23 010 ...	Taps and thread formers	6 / 31
23 021 ...	Taps and thread formers	6 / 31
23 026 ...	Taps and thread formers	6 / 48
23 027 ...	Taps and thread formers	6 / 48
23 041 ...	Taps and thread formers	6 / 65
23 047 ...	Taps and thread formers	6 / 74
23 110 ...	Taps and thread formers	6 / 31
23 111 ...	Taps and thread formers	6 / 31
23 112 ...	Taps and thread formers	6 / 31
23 113 ...	Taps and thread formers	6 / 31

Article No.	Designation	Page(s)
23 114 ...	Taps and thread formers	6 / 32
23 115 ...	Taps and thread formers	6 / 32
23 116 ...	Taps and thread formers	6 / 32
23 117 ...	Taps and thread formers	6 / 32
23 118 ...	Taps and thread formers	6 / 48
23 119 ...	Taps and thread formers	6 / 48
23 120 ...	Taps and thread formers	6 / 48
23 121 ...	Taps and thread formers	6 / 48
23 122 ...	Taps and thread formers	6 / 48
23 123 ...	Taps and thread formers	6 / 48
23 124 ...	Taps and thread formers	6 / 48
23 125 ...	Taps and thread formers	6 / 48
23 126 ...	Taps and thread formers	6 / 49
23 127 ...	Taps and thread formers	6 / 49
23 140 ...	Taps and thread formers	6 / 66
23 141 ...	Taps and thread formers	6 / 66
23 142 ...	Taps and thread formers	6 / 66
23 143 ...	Taps and thread formers	6 / 66
23 144 ...	Taps and thread formers	6 / 75
23 145 ...	Taps and thread formers	6 / 75
23 146 ...	Taps and thread formers	6 / 75
23 147 ...	Taps and thread formers	6 / 75
23 148 ...	Taps and thread formers	6 / 75
23 149 ...	Taps and thread formers	6 / 75
23 160 ...	Taps and thread formers	6 / 83
23 161 ...	Taps and thread formers	6 / 83
23 162 ...	Taps and thread formers	6 / 86
23 163 ...	Taps and thread formers	6 / 86
23 170 ...	Taps and thread formers	6 / 90
23 171 ...	Taps and thread formers	6 / 90
23 172 ...	Taps and thread formers	6 / 92
23 173 ...	Taps and thread formers	6 / 92
23 180 ...	Taps and thread formers	6 / 98
23 181 ...	Taps and thread formers	6 / 98
23 182 ...	Taps and thread formers	6 / 101
23 183 ...	Taps and thread formers	6 / 101
23 212 ...	Taps and thread formers	6 / 32
23 213 ...	Taps and thread formers	6 / 32
23 216 ...	Taps and thread formers	6 / 49
23 217 ...	Taps and thread formers	6 / 49
23 240 ...	Taps and thread formers	6 / 66
23 241 ...	Taps and thread formers	6 / 66
23 242 ...	Taps and thread formers	6 / 75
23 243 ...	Taps and thread formers	6 / 75
23 280 ...	Taps and thread formers	6 / 98
23 281 ...	Taps and thread formers	6 / 98
23 310 ...	Taps and thread formers	6 / 32
23 311 ...	Taps and thread formers	6 / 32
23 312 ...	Taps and thread formers	6 / 49
23 313 ...	Taps and thread formers	6 / 49
23 370 ...	Taps and thread formers	6 / 90
23 371 ...	Taps and thread formers	6 / 90
23 372 ...	Taps and thread formers	6 / 92
23 373 ...	Taps and thread formers	6 / 92
23 410 ...	Taps and thread formers	6 / 33
23 411 ...	Taps and thread formers	6 / 33
23 412 ...	Taps and thread formers	6 / 33
23 413 ...	Taps and thread formers	6 / 33
23 414 ...	Taps and thread formers	6 / 49
23 415 ...	Taps and thread formers	6 / 49
23 416 ...	Taps and thread formers	6 / 50
23 417 ...	Taps and thread formers	6 / 50
23 426 ...	Taps and thread formers	6 / 50
23 427 ...	Taps and thread formers	6 / 50
23 440 ...	Taps and thread formers	6 / 66
23 441 ...	Taps and thread formers	6 / 66
23 442 ...	Taps and thread formers	6 / 76
23 443 ...	Taps and thread formers	6 / 76
23 450 ...	Taps and thread formers	6 / 33
23 451 ...	Taps and thread formers	6 / 33
23 456 ...	Taps and thread formers	6 / 50
23 457 ...	Taps and thread formers	6 / 50
23 470 ...	Taps and thread formers	6 / 90
23 471 ...	Taps and thread formers	6 / 90
23 472 ...	Taps and thread formers	6 / 92
23 473 ...	Taps and thread formers	6 / 92
23 480 ...	Taps and thread formers	6 / 98
23 481 ...	Taps and thread formers	6 / 98
23 482 ...	Taps and thread formers	6 / 101
23 483 ...	Taps and thread formers	6 / 101
23 512 ...	Taps and thread formers	6 / 56
23 513 ...	Taps and thread formers	6 / 56
23 610 ...	Taps and thread formers	6 / 33
23 611 ...	Taps and thread formers	6 / 33
23 612 ...	Taps and thread formers	6 / 33
23 613 ...	Taps and thread formers	6 / 33
23 614 ...	Taps and thread formers	6 / 50
23 615 ...	Taps and thread formers	6 / 50
23 616 ...	Taps and thread formers	6 / 50
23 617 ...	Taps and thread formers	6 / 50
23 810 ...	Taps and thread formers	6 / 60
23 811 ...	Taps and thread formers	6 / 60
23 812 ...	Taps and thread formers	6 / 60
23 813 ...	Taps and thread formers	6 / 60
23 814 ...	Taps and thread formers	6 / 60
23 815 ...	Taps and thread formers	6 / 60
23 816 ...	Taps and thread formers	6 / 60
23 817 ...	Taps and thread formers	6 / 60
23 840 ...	Taps and thread formers	6 / 81
23 841 ...	Taps and thread formers	6 / 81
23 842 ...	Taps and thread formers	6 / 81
23 843 ...	Taps and thread formers	6 / 81
30 100 ...	Reaming and Countersinking	4 / 62
30 102 ...	Reaming and Countersinking	4 / 62
30 105 ...	Reaming and Countersinking	4 / 64
30 110 ...	Reaming and Countersinking	4 / 62
30 115 ...	Reaming and Countersinking	4 / 60
30 116 ...	Reaming and Countersinking	4 / 59
30 120 ...	Reaming and Countersinking	4 / 65
30 121 ...	Reaming and Countersinking	4 / 65
30 125 ...	Reaming and Countersinking	4 / 65
30 130 ...	Reaming and Countersinking	4 / 62
30 132 ...	Reaming and Countersinking	4 / 62
30 140 ...	Reaming and Countersinking	4 / 61
30 150 ...	Reaming and Countersinking	4 / 63
30 155 ...	Reaming and Countersinking	4 / 63
30 160 ...	Reaming and Countersinking	4 / 60
30 170 ...	Reaming and Countersinking	4 / 64
30 190 ...	Reaming and Countersinking	4 / 58
30 191 ...	Reaming and Countersinking	4 / 58
30 192 ...	Reaming and Countersinking	4 / 58
30 195 ...	Reaming and Countersinking	4 / 53
30 196 ...	Reaming and Countersinking	4 / 55
30 197 ...	Reaming and Countersinking	4 / 56
40 100 ...	Reaming and Countersinking	4 / 52
40 110 ...	Reaming and Countersinking	4 / 45
40 115 ...	Reaming and Countersinking	4 / 46
40 139 ...	Reaming and Countersinking	4 / 51
40 140 ...	Reaming and Countersinking	4 / 49
40 145 ...	Reaming and Countersinking	4 / 50
40 150 ...	Reaming and Countersinking	4 / 47
40 155 ...	Reaming and Countersinking	4 / 50
40 160 ...	Reaming and Countersinking	4 / 52
40 210 ...	Reaming and Countersinking	4 / 16
40 211 ...	Reaming and Countersinking	4 / 17
40 220 ...	Reaming and Countersinking	4 / 16
40 221 ...	Reaming and Countersinking	4 / 17
40 230 ...	Reaming and Countersinking	4 / 16
40 231 ...	Reaming and Countersinking	4 / 17
40 240 ...	Reaming and Countersinking	4 / 16
40 241 ...	Reaming and Countersinking	4 / 17
40 245 ...	Reaming and Countersinking	4 / 16
40 246 ...	Reaming and Countersinking	4 / 17
40 400 ...	Reaming and Countersinking	4 / 42
40 401 ...	Reaming and Countersinking	4 / 29
40 402 ...	Reaming and Countersinking	4 / 34
40 403 ...	Reaming and Countersinking	4 / 30
40 404 ...	Reaming and Countersinking	4 / 35
40 410 ...	Reaming and Countersinking	4 / 42
40 420 ...	Reaming and Countersinking	4 / 39
40 421 ...	Reaming and Countersinking	4 / 39
40 430 ...	Reaming and Countersinking	4 / 40
40 431 ...	Reaming and Countersinking	4 / 41
40 435 ...	Reaming and Countersinking	4 / 44
40 471 ...	Reaming and Countersinking	4 / 29
40 472 ...	Reaming and Countersinking	4 / 34
40 473 ...	Reaming and Countersinking	4 / 30
40 474 ...	Reaming and Countersinking	4 / 35
40 475 ...	Reaming and Countersinking	4 / 30

Article No.	Designation	Page(s)
40 476 ...	Reaming and Countersinking	4 / 35
40 477 ...	Reaming and Countersinking	4 / 30
40 478 ...	Reaming and Countersinking	4 / 35
40 481 ...	Reaming and Countersinking	4 / 26
40 483 ...	Reaming and Countersinking	4 / 23
40 484 ...	Reaming and Countersinking	4 / 29
40 485 ...	Reaming and Countersinking	4 / 34
40 486 ...	Reaming and Countersinking	4 / 30
40 487 ...	Reaming and Countersinking	4 / 35
40 488 ...	Reaming and Countersinking	4 / 27
40 489 ...	Reaming and Countersinking	4 / 24
40 501 ...	Reaming and Countersinking	4 / 10
40 503 ...	Reaming and Countersinking	4 / 10
40 504 ...	Reaming and Countersinking	4 / 11
40 505 ...	Reaming and Countersinking	4 / 13
40 506 ...	Reaming and Countersinking	4 / 11
40 521 ...	Reaming and Countersinking	4 / 8
40 525 ...	Reaming and Countersinking	4 / 13
40 526 ...	Reaming and Countersinking	4 / 8
40 535 ...	Reaming and Countersinking	4 / 9
40 536 ...	Reaming and Countersinking	4 / 13
40 539 ...	Reaming and Countersinking	4 / 9
40 544 ...	Reaming and Countersinking	4 / 8
40 551 ...	Reaming and Countersinking	4 / 13
40 560 ...	Reaming and Countersinking	4 / 13
40 570 ...	Reaming and Countersinking	4 / 13
40 571 ...	Reaming and Countersinking	4 / 9
40 580 ...	Reaming and Countersinking	4 / 9
40 585 ...	Reaming and Countersinking	4 / 9
40 590 ...	Reaming and Countersinking	4 / 14
40 591 ...	Reaming and Countersinking	4 / 14
40 597 ...	Reaming and Countersinking	4 / 8
40 605 ...	Reaming and Countersinking	4 / 19
40 606 ...	Reaming and Countersinking	4 / 21
40 625 ...	Reaming and Countersinking	4 / 19
40 626 ...	Reaming and Countersinking	4 / 21
40 635 ...	Reaming and Countersinking	4 / 19
40 636 ...	Reaming and Countersinking	4 / 21
40 640 ...	Reaming and Countersinking	4 / 20
40 641 ...	Reaming and Countersinking	4 / 22
40 644 ...	Reaming and Countersinking	4 / 20
40 645 ...	Reaming and Countersinking	4 / 22
40 648 ...	Reaming and Countersinking	4 / 19
40 649 ...	Reaming and Countersinking	4 / 21
40 652 ...	Reaming and Countersinking	4 / 19
40 653 ...	Reaming and Countersinking	4 / 21
40 657 ...	Reaming and Countersinking	4 / 20
40 665 ...	Reaming and Countersinking	4 / 22
50 010 ...	Solid Carbide milling cutters	14 / 107
50 011 ...	Solid Carbide milling cutters	14 / 108
50 012 ...	Solid Carbide milling cutters	14 / 111
50 013 ...	Solid Carbide milling cutters	14 / 109
50 014 ...	Solid Carbide milling cutters	14 / 110
50 015 ...	Solid Carbide milling cutters	14 / 117
50 016 ...	Solid Carbide milling cutters	14 / 115
50 017 ...	Solid Carbide milling cutters	14 / 118
50 018 ...	Solid Carbide milling cutters	14 / 116
50 019 ...	Solid Carbide milling cutters	14 / 119
50 020 ...	Solid Carbide milling cutters	14 / 114
50 092 ...	HSS Milling Cutters	13 / 10
50 093 ...	HSS Milling Cutters	13 / 10
50 100 ...	HSS Milling Cutters	13 / 8
50 104 ...	HSS Milling Cutters	13 / 14
50 105 ...	HSS Milling Cutters	13 / 11
50 106 ...	HSS Milling Cutters	13 / 11
50 110 ...	HSS Milling Cutters	13 / 14
50 111 ...	HSS Milling Cutters	13 / 14
50 120 ...	HSS Milling Cutters	13 / 7
50 121 ...	HSS Milling Cutters	13 / 7
50 122 ...	HSS Milling Cutters	13 / 8
50 124 ...	HSS Milling Cutters	13 / 13
50 125 ...	HSS Milling Cutters	13 / 22
50 140 ...	HSS Milling Cutters	13 / 24
50 141 ...	HSS Milling Cutters	13 / 24
50 144 ...	HSS Milling Cutters	13 / 6
50 153 ...	HSS Milling Cutters	13 / 21
50 157 ...	HSS Milling Cutters	13 / 21
50 234 ...	HSS Milling Cutters	13 / 29
50 240 ...	HSS Milling Cutters	13 / 28
50 241 ...	HSS Milling Cutters	13 / 30
50 245 ...	HSS Milling Cutters	13 / 32
50 246 ...	HSS Milling Cutters	13 / 32
50 248 ...	HSS Milling Cutters	13 / 31
50 250 ...	HSS Milling Cutters	13 / 37
50 255 ...	HSS Milling Cutters	13 / 37
50 260 ...	HSS Milling Cutters	13 / 38
50 297 ...	HSS Milling Cutters	13 / 38
50 306 ...	Milling tools with indexable inserts	15 / 28
50 308 ...	HSS Milling Cutters	13 / 26
50 320 ...	HSS Milling Cutters	13 / 25
50 321 ...	HSS Milling Cutters	13 / 25
50 340 ...	HSS Milling Cutters	13 / 35
50 341 ...	HSS Milling Cutters	13 / 36
50 342 ...	HSS Milling Cutters	13 / 34
50 348 ...	HSS Milling Cutters	13 / 34
50 349 ...	HSS Milling Cutters	13 / 35
50 360 ...	HSS Milling Cutters	13 / 33
50 362 ...	HSS Milling Cutters	13 / 33
50 381 ...	Milling tools with indexable inserts	15 / 138
50 382 ...	Milling tools with indexable inserts	15 / 138
50 409 ...	Milling tools with indexable inserts	15 / 101
50 421 ...	Milling tools with indexable inserts	15 / 41
50 424 ...	Milling tools with indexable inserts	15 / 79
50 425 ...	Milling tools with indexable inserts	15 / 79
50 426 ...	Milling tools with indexable inserts	15 / 41
50 428 ...	Milling tools with indexable inserts	15 / 40
50 446 ...	Milling tools with indexable inserts	15 / 32
50 449 ...	Milling tools with indexable inserts	15 / 42
50 457 ...	Milling tools with indexable inserts	15 / 15
50 459 ...	Milling tools with indexable inserts	15 / 15
50 463 ...	Milling tools with indexable inserts	15 / 68
50 464 ...	Milling tools with indexable inserts	15 / 68
50 466 ...	Milling tools with indexable inserts	15 / 98
50 467 ...	Milling tools with indexable inserts	15 / 98
50 468 ...	Milling tools with indexable inserts	15 / 98
50 469 ...	Milling tools with indexable inserts	15 / 74
50 473 ...	Milling tools with indexable inserts	15 / 74
50 477 ...	Milling tools with indexable inserts	15 / 86
50 478 ...	Milling tools with indexable inserts	15 / 68
50 479 ...	Milling tools with indexable inserts	15 / 74
50 481 ...	Milling tools with indexable inserts	15 / 114
50 483 ...	Milling tools with indexable inserts	15 / 115
50 487 ...	Milling tools with indexable inserts	15 / 90
50 488 ...	Milling tools with indexable inserts	15 / 93
50 493 ...	Milling tools with indexable inserts	15 / 119
50 496 ...	Milling tools with indexable inserts	15 / 79
50 498 ...	Milling tools with indexable inserts	15 / 62
50 500 ...	Milling tools with indexable inserts	15 / 49
50 503 ...	Milling tools with indexable inserts	15 / 106
50 504 ...	Milling tools with indexable inserts	15 / 107
50 507 ...	Milling tools with indexable inserts	15 / 62
50 508 ...	Milling tools with indexable inserts	15 / 119
50 514 ...	Milling tools with indexable inserts	15 / 21
50 515 ...	Milling tools with indexable inserts	15 / 98
50 517 ...	Milling tools with indexable inserts	15 / 98
50 518 ...	Milling tools with indexable inserts	15 / 104
50 520 ...	Milling tools with indexable inserts	15 / 126
50 521 ...	Milling tools with indexable inserts	15 / 126
50 560 ...	Solid Carbide milling cutters	14 / 137
50 561 ...	Solid Carbide milling cutters	14 / 137
50 562 ...	Solid Carbide milling cutters	14 / 136
50 563 ...	Solid Carbide milling cutters	14 / 136
50 564 ...	Solid Carbide milling cutters	14 / 137
50 565 ...	Solid Carbide milling cutters	14 / 137
50 566 ...	Solid Carbide milling cutters	14 / 136
50 567 ...	Solid Carbide milling cutters	14 / 136
50 580 ...	Milling tools with indexable inserts	15 / 83
50 593 ...	Solid Carbide milling cutters	14 / 213
50 594 ...	Solid Carbide milling cutters	14 / 213
50 598 ...	Solid Carbide milling cutters	14 / 221
50 599 ...	Solid Carbide milling cutters	14 / 221
50 608 ...	Solid Carbide milling cutters	14 / 223
50 609 ...	Solid Carbide milling cutters	14 / 223
50 610 ...	Solid Carbide milling cutters	14 / 312
50 611 ...	Solid Carbide milling cutters	14 / 312
50 614 ...	Solid Carbide milling cutters	14 / 217
50 618 ...	Solid Carbide milling cutters	14 / 248
50 624 ...	Solid Carbide milling cutters	14 / 248
50 625 ...	Solid Carbide milling cutters	14 / 249

Article No.	Designation	Page(s)
50 628 ...	Solid Carbide milling cutters	14 / 244
50 631 ...	Solid Carbide milling cutters	14 / 238
50 633 ...	Solid Carbide milling cutters	14 / 236
50 634 ...	Solid Carbide milling cutters	14 / 237
50 635 ...	Solid Carbide milling cutters	14 / 242
50 637 ...	Solid Carbide milling cutters	14 / 250
50 641 ...	Solid Carbide milling cutters	14 / 274
50 642 ...	Solid Carbide milling cutters	14 / 270
50 643 ...	Solid Carbide milling cutters	14 / 270
50 649 ...	Solid Carbide milling cutters	14 / 283
50 651 ...	Solid Carbide milling cutters	14 / 285
50 664 ...	Solid Carbide milling cutters	14 / 222
50 666 ...	Milling tools with indexable inserts	15 / 34
50 669 ...	Milling tools with indexable inserts	15 / 36
50 675 ...	Milling tools with indexable inserts	15 / 84
50 679 ...	Milling tools with indexable inserts	15 / 88
50 680 ...	Milling tools with indexable inserts	15 / 91
50 681 ...	Milling tools with indexable inserts	15 / 102
50 682 ...	Milling tools with indexable inserts	15 / 102
50 683 ...	Milling tools with indexable inserts	15 / 103
50 684 ...	Milling tools with indexable inserts	15 / 111
50 685 ...	Milling tools with indexable inserts	15 / 112
50 686 ...	Milling tools with indexable inserts	15 / 113
50 689 ...	Milling tools with indexable inserts	15 / 125
50 691 ...	Solid Carbide milling cutters	14 / 222
50 698 ...	Milling tools with indexable inserts	15 / 44
50 703 ...	Milling tools with indexable inserts	15 / 80
50 704 ...	Milling tools with indexable inserts	15 / 35
50 705 ...	Milling tools with indexable inserts	15 / 35
50 706 ...	Milling tools with indexable inserts	15 / 39
50 707 ...	Milling tools with indexable inserts	15 / 35
50 715 ...	Milling tools with indexable inserts	15 / 139
50 716 ...	Milling tools with indexable inserts	15 / 89
50 717 ...	Milling tools with indexable inserts	15 / 91
50 718 ...	Milling tools with indexable inserts	15 / 85
50 720 ...	Milling tools with indexable inserts	15 / 89
50 721 ...	Milling tools with indexable inserts	15 / 92
50 722 ...	Milling tools with indexable inserts	15 / 85
50 723 ...	Milling tools with indexable inserts	15 / 96
50 724 ...	Milling tools with indexable inserts	15 / 96
50 725 ...	Milling tools with indexable inserts	15 / 50
50 726 ...	Milling tools with indexable inserts	15 / 80
50 727 ...	Milling tools with indexable inserts	15 / 77
50 728 ...	Milling tools with indexable inserts	15 / 77
50 730 ...	Milling tools with indexable inserts	15 / 136
50 733 ...	Milling tools with indexable inserts	15 / 47
50 734 ...	Milling tools with indexable inserts	15 / 137
50 736 ...	Milling tools with indexable inserts	15 / 63
50 737 ...	Milling tools with indexable inserts	15 / 63
50 738 ...	Milling tools with indexable inserts	15 / 64
50 739 ...	Milling tools with indexable inserts	15 / 64
50 741 ...	Milling tools with indexable inserts	15 / 29
50 742 ...	Milling tools with indexable inserts	15 / 12
50 743 ...	Milling tools with indexable inserts	15 / 12
50 744 ...	Milling tools with indexable inserts	15 / 13
50 746 ...	Milling tools with indexable inserts	15 / 69
50 747 ...	Milling tools with indexable inserts	15 / 69
50 748 ...	Milling tools with indexable inserts	15 / 70
50 749 ...	Milling tools with indexable inserts	15 / 70
50 751 ...	Milling tools with indexable inserts	15 / 60
50 752 ...	Milling tools with indexable inserts	15 / 60
50 753 ...	Milling tools with indexable inserts	15 / 61
50 754 ...	Milling tools with indexable inserts	15 / 61
50 761 ...	Milling tools with indexable inserts	15 / 78
50 762 ...	Milling tools with indexable inserts	15 / 29
50 767 ...	Milling tools with indexable inserts	15 / 26
50 768 ...	Milling tools with indexable inserts	15 / 100
50 769 ...	Milling tools with indexable inserts	15 / 100
50 770 ...	Milling tools with indexable inserts	15 / 99
50 771 ...	Milling tools with indexable inserts	15 / 99
50 772 ...	Milling tools with indexable inserts	15 / 18
50 773 ...	Milling tools with indexable inserts	15 / 53
50 774 ...	Milling tools with indexable inserts	15 / 56
50 775 ...	Milling tools with indexable inserts	15 / 57
50 776 ...	Milling tools with indexable inserts	15 / 54
50 777 ...	Milling tools with indexable inserts	15 / 30
50 778 ...	Milling tools with indexable inserts	15 / 75
50 780 ...	Milling tools with indexable inserts	15 / 75
50 781 ...	Milling tools with indexable inserts	15 / 71
50 783 ...	Milling tools with indexable inserts	15 / 71
50 784 ...	Milling tools with indexable inserts	15 / 65
50 785 ...	Milling tools with indexable inserts	15 / 94
50 786 ...	Milling tools with indexable inserts	15 / 22
50 787 ...	Milling tools with indexable inserts	15 / 23
50 788 ...	Milling tools with indexable inserts	15 / 23
50 794 ...	Milling tools with indexable inserts	15 / 65
50 800 ...	Circular and Thread Milling	7 / 36
50 802 ...	Circular and Thread Milling	7 / 63
50 803 ...	Circular and Thread Milling	7 / 63
50 804 ...	Circular and Thread Milling	7 / 57
50 805 ...	Circular and Thread Milling	7 / 18
50 806 ...	Circular and Thread Milling	7 / 58
50 807 ...	Circular and Thread Milling	7 / 58
50 811 ...	Circular and Thread Milling	7 / 59
50 816 ...	Circular and Thread Milling	7 / 59
50 818 ...	Circular and Thread Milling	7 / 59
50 819 ...	Circular and Thread Milling	7 / 60
50 825 ...	Circular and Thread Milling	7 / 64
50 826 ...	Circular and Thread Milling	7 / 64
50 827 ...	Circular and Thread Milling	7 / 65
50 840 ...	Circular and Thread Milling	7 / 56
50 841 ...	Circular and Thread Milling	7 / 47
50 842 ...	Circular and Thread Milling	7 / 43
50 843 ...	Circular and Thread Milling	7 / 40
50 844 ...	Circular and Thread Milling	7 / 41
50 848 ...	Circular and Thread Milling	7 / 49
50 849 ...	Circular and Thread Milling	7 / 51
50 851 ...	Circular and Thread Milling	7 / 33
50 852 ...	Circular and Thread Milling	7 / 32
50 853 ...	Circular and Thread Milling	7 / 31
50 854 ...	Circular and Thread Milling	7 / 54
50 855 ...	Circular and Thread Milling	7 / 34
50 857 ...	Circular and Thread Milling	7 / 33
50 858 ...	Circular and Thread Milling	7 / 35
50 859 ...	Circular and Thread Milling	7 / 34
50 860 ...	Circular and Thread Milling	7 / 48
50 861 ...	Circular and Thread Milling	7 / 48
50 862 ...	Circular and Thread Milling	7 / 55
50 863 ...	Circular and Thread Milling	7 / 42
50 864 ...	Circular and Thread Milling	7 / 42
50 867 ...	Circular and Thread Milling	7 / 48
50 868 ...	Circular and Thread Milling	7 / 48
50 869 ...	Circular and Thread Milling	7 / 54
50 870 ...	Circular and Thread Milling	7 / 50
50 871 ...	Circular and Thread Milling	7 / 50
50 872 ...	Circular and Thread Milling	7 / 14
50 874 ...	Circular and Thread Milling	7 / 16
50 875 ...	Circular and Thread Milling	7 / 8
50 876 ...	Circular and Thread Milling	7 / 9
50 879 ...	Circular and Thread Milling	7 / 7
50 880 ...	Circular and Thread Milling	7 / 6
50 881 ...	Circular and Thread Milling	7 / 12
50 882 ...	Circular and Thread Milling	7 / 11
50 883 ...	Circular and Thread Milling	7 / 13
50 884 ...	Circular and Thread Milling	7 / 10
50 885 ...	Circular and Thread Milling	7 / 44
50 886 ...	Circular and Thread Milling	7 / 15
50 887 ...	Circular and Thread Milling	7 / 44
50 888 ...	Circular and Thread Milling	7 / 45
50 889 ...	Circular and Thread Milling	7 / 46
50 890 ...	Circular and Thread Milling	7 / 37
50 891 ...	Circular and Thread Milling	7 / 37
50 892 ...	Circular and Thread Milling	7 / 38
50 894 ...	Circular and Thread Milling	7 / 45
50 895 ...	Circular and Thread Milling	7 / 38
50 896 ...	Circular and Thread Milling	7 / 39
50 897 ...	Circular and Thread Milling	7 / 39
50 898 ...	Circular and Thread Milling	7 / 55
50 900 ...	Solid Carbide milling cutters	14 / 194
50 901 ...	Solid Carbide milling cutters	14 / 275
50 902 ...	Solid Carbide milling cutters	14 / 277
50 903 ...	Solid Carbide milling cutters	14 / 255
50 906 ...	Solid Carbide milling cutters	14 / 271
50 907 ...	Solid Carbide milling cutters	14 / 240
50 908 ...	Solid Carbide milling cutters	14 / 241
50 911 ...	Solid Carbide milling cutters	14 / 280
50 912 ...	Solid Carbide milling cutters	14 / 259
50 921 ...	Solid Carbide milling cutters	14 / 300
50 922 ...	Solid Carbide milling cutters	14 / 300

Article No.	Designation	Page(s)
50 923 ...	Solid Carbide milling cutters	14 / 300
50 924 ...	Solid Carbide milling cutters	14 / 301
50 925 ...	Solid Carbide milling cutters	14 / 301
50 926 ...	Solid Carbide milling cutters	14 / 300
50 927 ...	Solid Carbide milling cutters	14 / 300
50 928 ...	Solid Carbide milling cutters	14 / 300
50 929 ...	Solid Carbide milling cutters	14 / 301
50 930 ...	Solid Carbide milling cutters	14 / 301
50 931 ...	Solid Carbide milling cutters	14 / 301
50 932 ...	Solid Carbide milling cutters	14 / 308
50 936 ...	Solid Carbide milling cutters	14 / 310
50 937 ...	Solid Carbide milling cutters	14 / 309
50 938 ...	Solid Carbide milling cutters	14 / 311
50 940 ...	Solid Carbide milling cutters	14 / 293
50 941 ...	Solid Carbide milling cutters	14 / 293
50 942 ...	Solid Carbide milling cutters	14 / 293
50 943 ...	Solid Carbide milling cutters	14 / 293
50 944 ...	Solid Carbide milling cutters	14 / 293
50 945 ...	Solid Carbide milling cutters	14 / 293
50 946 ...	Solid Carbide milling cutters	14 / 313
50 947 ...	Solid Carbide milling cutters	14 / 315
50 948 ...	Solid Carbide milling cutters	14 / 314
50 958 ...	Solid Carbide milling cutters	14 / 120
50 960 ...	Solid Carbide milling cutters	14 / 196
50 963 ...	Solid Carbide milling cutters	14 / 133
50 966 ...	Solid Carbide milling cutters	14 / 122
50 967 ...	Solid Carbide milling cutters	14 / 123
50 969 ...	Solid Carbide milling cutters	14 / 130
50 970 ...	Solid Carbide milling cutters	14 / 128
50 971 ...	Solid Carbide milling cutters	14 / 128
50 972 ...	Solid Carbide milling cutters	14 / 124
50 973 ...	Solid Carbide milling cutters	14 / 124
50 974 ...	Solid Carbide milling cutters	14 / 125
50 975 ...	Solid Carbide milling cutters	14 / 125
50 976 ...	Solid Carbide milling cutters	14 / 126
50 977 ...	Solid Carbide milling cutters	14 / 126
50 978 ...	Solid Carbide milling cutters	14 / 127
50 979 ...	Solid Carbide milling cutters	14 / 131
50 981 ...	Solid Carbide milling cutters	14 / 306
50 982 ...	Solid Carbide milling cutters	14 / 306
50 983 ...	Solid Carbide milling cutters	14 / 306
50 984 ...	Solid Carbide milling cutters	14 / 306
50 985 ...	Solid Carbide milling cutters	14 / 307
50 986 ...	Solid Carbide milling cutters	14 / 307
50 987 ...	Solid Carbide milling cutters	14 / 307
50 988 ...	Solid Carbide milling cutters	14 / 307
50 989 ...	Solid Carbide milling cutters	14 / 135
50 990 ...	Solid Carbide milling cutters	14 / 134
50 991 ...	Solid Carbide milling cutters	14 / 132
50 992 ...	Solid Carbide milling cutters	14 / 121
51 000 ...	Milling tools with indexable inserts	15 / 31
51 001 ...	Milling tools with indexable inserts	15 / 31
51 002 ...	Milling tools with indexable inserts	15 / 19
51 003 ...	Milling tools with indexable inserts	15 / 15
51 004 ...	Milling tools with indexable inserts	15 / 27
51 005 ...	Milling tools with indexable inserts	15 / 27
51 006 ...	Milling tools with indexable inserts	15 / 40
51 008 ...	Milling tools with indexable inserts	15 / 40
51 010 ...	Milling tools with indexable inserts	15 / 40
51 011 ...	Milling tools with indexable inserts	15 / 37
51 012 ...	Milling tools with indexable inserts	15 / 21
51 013 ...	Milling tools with indexable inserts	15 / 16
51 014 ...	Milling tools with indexable inserts	15 / 33
51 015 ...	Milling tools with indexable inserts	15 / 38
51 016 ...	Milling tools with indexable inserts	15 / 105
51 017 ...	Milling tools with indexable inserts	15 / 106
51 018 ...	Milling tools with indexable inserts	15 / 106
51 019 ...	Milling tools with indexable inserts	15 / 104
51 022 ...	Milling tools with indexable inserts	15 / 107
51 024 ...	Milling tools with indexable inserts	15 / 49
51 027 ...	Milling tools with indexable inserts	15 / 32
51 028 ...	Milling tools with indexable inserts	15 / 82
51 029 ...	Milling tools with indexable inserts	15 / 79
51 030 ...	Milling tools with indexable inserts	15 / 79
51 033 ...	Milling tools with indexable inserts	15 / 62
51 034 ...	Milling tools with indexable inserts	15 / 67
51 035 ...	Milling tools with indexable inserts	15 / 72
51 036 ...	Milling tools with indexable inserts	15 / 62
51 037 ...	Milling tools with indexable inserts	15 / 66
51 038 ...	Milling tools with indexable inserts	15 / 74
51 039 ...	Milling tools with indexable inserts	15 / 68
51 040 ...	Milling tools with indexable inserts	15 / 73
51 042 ...	Milling tools with indexable inserts	15 / 101
51 043 ...	Milling tools with indexable inserts	15 / 101
51 045 ...	Milling tools with indexable inserts	15 / 49
51 046 ...	Milling tools with indexable inserts	15 / 49
51 048 ...	Milling tools with indexable inserts	15 / 114
51 049 ...	Milling tools with indexable inserts	15 / 115
51 050 ...	Milling tools with indexable inserts	15 / 117
51 051 ...	Milling tools with indexable inserts	15 / 117
51 052 ...	Milling tools with indexable inserts	15 / 117
51 053 ...	Milling tools with indexable inserts	15 / 115
51 054 ...	Milling tools with indexable inserts	15 / 116
51 055 ...	Milling tools with indexable inserts	15 / 115
51 056 ...	Milling tools with indexable inserts	15 / 118
51 057 ...	Milling tools with indexable inserts	15 / 116
51 058 ...	Milling tools with indexable inserts	15 / 28
51 059 ...	Milling tools with indexable inserts	15 / 41
51 065 ...	Milling tools with indexable inserts	15 / 17
51 079 ...	Milling tools with indexable inserts	15 / 101
51 080 ...	Milling tools with indexable inserts	15 / 101
51 081 ...	Milling tools with indexable inserts	15 / 82
51 082 ...	Milling tools with indexable inserts	15 / 79
51 083 ...	Milling tools with indexable inserts	15 / 114
51 086 ...	Milling tools with indexable inserts	15 / 37
51 100 ...	Milling tools with indexable inserts	15 / 58
51 101 ...	Milling tools with indexable inserts	15 / 59
51 102 ...	Milling tools with indexable inserts	15 / 58
51 103 ...	Milling tools with indexable inserts	15 / 59
51 104 ...	Milling tools with indexable inserts	15 / 32
51 105 ...	Milling tools with indexable inserts	15 / 15
51 106 ...	Milling tools with indexable inserts	15 / 126
51 107 ...	Milling tools with indexable inserts	15 / 126
51 108 ...	Milling tools with indexable inserts	15 / 117
51 109 ...	Milling tools with indexable inserts	15 / 41
51 110 ...	Milling tools with indexable inserts	15 / 82
51 111 ...	Milling tools with indexable inserts	15 / 79
51 112 ...	Milling tools with indexable inserts	15 / 62
51 113 ...	Milling tools with indexable inserts	15 / 67
51 114 ...	Milling tools with indexable inserts	15 / 74
51 115 ...	Milling tools with indexable inserts	15 / 106
51 116 ...	Milling tools with indexable inserts	15 / 104
51 118 ...	Milling tools with indexable inserts	15 / 55
51 119 ...	Milling tools with indexable inserts	15 / 55
51 120 ...	Milling tools with indexable inserts	15 / 55
51 121 ...	Milling tools with indexable inserts	15 / 55
51 122 ...	Milling tools with indexable inserts	15 / 20
51 123 ...	Milling tools with indexable inserts	15 / 21
51 124 ...	Milling tools with indexable inserts	15 / 107
51 125 ...	Milling tools with indexable inserts	15 / 79
51 126 ...	Milling tools with indexable inserts	15 / 55
51 127 ...	Milling tools with indexable inserts	15 / 76
51 128 ...	Milling tools with indexable inserts	15 / 58
51 129 ...	Milling tools with indexable inserts	15 / 126
51 130 ...	Milling tools with indexable inserts	15 / 126
51 131 ...	Milling tools with indexable inserts	15 / 45
51 132 ...	Milling tools with indexable inserts	15 / 45
51 133 ...	Milling tools with indexable inserts	15 / 50
51 134 ...	Milling tools with indexable inserts	15 / 50
51 135 ...	Milling tools with indexable inserts	15 / 50
51 137 ...	Milling tools with indexable inserts	15 / 95
51 138 ...	Milling tools with indexable inserts	15 / 24
51 139 ...	Milling tools with indexable inserts	15 / 24
51 140 ...	Milling tools with indexable inserts	15 / 24
51 141 ...	Milling tools with indexable inserts	15 / 25
51 145 ...	Milling tools with indexable inserts	15 / 76
51 148 ...	Milling tools with indexable inserts	15 / 24
51 149 ...	Milling tools with indexable inserts	15 / 119
51 900 ...	Milling tools with indexable inserts	15 / 43
52 010 ...	Solid Carbide milling cutters	14 / 235
52 011 ...	Solid Carbide milling cutters	14 / 235
52 015 ...	Solid Carbide milling cutters	14 / 235
52 016 ...	Solid Carbide milling cutters	14 / 235
52 018 ...	Solid Carbide milling cutters	14 / 235
52 019 ...	Solid Carbide milling cutters	14 / 235
52 050 ...	Solid Carbide milling cutters	14 / 260
52 051 ...	Solid Carbide milling cutters	14 / 260
52 052 ...	Solid Carbide milling cutters	14 / 260
52 053 ...	Solid Carbide milling cutters	14 / 260

Article No.	Designation	Page(s)
52 054 ...	Solid Carbide milling cutters	14 / 262
52 055 ...	Solid Carbide milling cutters	14 / 262
52 056 ...	Solid Carbide milling cutters	14 / 262
52 057 ...	Solid Carbide milling cutters	14 / 262
52 102 ...	Solid Carbide milling cutters	14 / 228
52 107 ...	Solid Carbide milling cutters	14 / 288
52 109 ...	Solid Carbide milling cutters	14 / 239
52 112 ...	Solid Carbide milling cutters	14 / 243
52 121 ...	Solid Carbide milling cutters	14 / 225
52 122 ...	Solid Carbide milling cutters	14 / 243
52 123 ...	Solid Carbide milling cutters	14 / 243
52 126 ...	Solid Carbide milling cutters	14 / 225
52 131 ...	Solid Carbide milling cutters	14 / 225
52 132 ...	Solid Carbide milling cutters	14 / 225
52 133 ...	Solid Carbide milling cutters	14 / 164
52 134 ...	Solid Carbide milling cutters	14 / 164
52 135 ...	Solid Carbide milling cutters	14 / 164
52 136 ...	Solid Carbide milling cutters	14 / 164
52 140 ...	Solid Carbide milling cutters	14 / 163
52 141 ...	Solid Carbide milling cutters	14 / 163
52 150 ...	Solid Carbide milling cutters	14 / 292
52 151 ...	Solid Carbide milling cutters	14 / 292
52 152 ...	Solid Carbide milling cutters	14 / 292
52 153 ...	Solid Carbide milling cutters	14 / 292
52 154 ...	Solid Carbide milling cutters	14 / 292
52 155 ...	Solid Carbide milling cutters	14 / 292
52 158 ...	Solid Carbide milling cutters	14 / 294
52 159 ...	Solid Carbide milling cutters	14 / 294
52 168 ...	Solid Carbide milling cutters	14 / 316
52 195 ...	Solid Carbide milling cutters	14 / 291
52 205 ...	Solid Carbide milling cutters	14 / 144
52 206 ...	Solid Carbide milling cutters	14 / 226
52 207 ...	Solid Carbide milling cutters	14 / 226
52 209 ...	Solid Carbide milling cutters	14 / 224
52 210 ...	Solid Carbide milling cutters	14 / 226
52 211 ...	Solid Carbide milling cutters	14 / 226
52 213 ...	Solid Carbide milling cutters	14 / 224
52 214 ...	Solid Carbide milling cutters	14 / 227
52 215 ...	Solid Carbide milling cutters	14 / 227
52 219 ...	Solid Carbide milling cutters	14 / 227
52 220 ...	Solid Carbide milling cutters	14 / 227
52 221 ...	Solid Carbide milling cutters	14 / 227
52 222 ...	Solid Carbide milling cutters	14 / 227
52 223 ...	Solid Carbide milling cutters	14 / 139
52 224 ...	Solid Carbide milling cutters	14 / 139
52 225 ...	Solid Carbide milling cutters	14 / 138
52 226 ...	Solid Carbide milling cutters	14 / 139
52 227 ...	Solid Carbide milling cutters	14 / 139
52 228 ...	Solid Carbide milling cutters	14 / 141
52 229 ...	Solid Carbide milling cutters	14 / 140
52 230 ...	Solid Carbide milling cutters	14 / 143
52 231 ...	Solid Carbide milling cutters	14 / 229
52 232 ...	Solid Carbide milling cutters	14 / 229
52 249 ...	Solid Carbide milling cutters	14 / 295
52 256 ...	Solid Carbide milling cutters	14 / 168
52 257 ...	Solid Carbide milling cutters	14 / 168
52 258 ...	Solid Carbide milling cutters	14 / 168
52 259 ...	Solid Carbide milling cutters	14 / 168
52 291 ...	Solid Carbide milling cutters	14 / 296
52 300 ...	Solid Carbide milling cutters	14 / 245
52 301 ...	Solid Carbide milling cutters	14 / 245
52 302 ...	Solid Carbide milling cutters	14 / 166
52 303 ...	Solid Carbide milling cutters	14 / 167
52 304 ...	Solid Carbide milling cutters	14 / 174
52 305 ...	Solid Carbide milling cutters	14 / 173
52 320 ...	Solid Carbide milling cutters	14 / 265
52 323 ...	Solid Carbide milling cutters	14 / 266
52 324 ...	Solid Carbide milling cutters	14 / 165
52 325 ...	Solid Carbide milling cutters	14 / 165
52 326 ...	Solid Carbide milling cutters	14 / 165
52 338 ...	Solid Carbide milling cutters	14 / 252
52 339 ...	Solid Carbide milling cutters	14 / 252
52 340 ...	Solid Carbide milling cutters	14 / 251
52 341 ...	Solid Carbide milling cutters	14 / 251
52 342 ...	Solid Carbide milling cutters	14 / 253
52 343 ...	Solid Carbide milling cutters	14 / 253
52 344 ...	Solid Carbide milling cutters	14 / 160
52 345 ...	Solid Carbide milling cutters	14 / 150
52 346 ...	Solid Carbide milling cutters	14 / 150
52 347 ...	Solid Carbide milling cutters	14 / 150
52 348 ...	Solid Carbide milling cutters	14 / 164
52 349 ...	Solid Carbide milling cutters	14 / 156
52 350 ...	Solid Carbide milling cutters	14 / 156
52 351 ...	Solid Carbide milling cutters	14 / 156
52 352 ...	Solid Carbide milling cutters	14 / 170
52 353 ...	Solid Carbide milling cutters	14 / 161
52 354 ...	Solid Carbide milling cutters	14 / 161
52 355 ...	Solid Carbide milling cutters	14 / 171
52 356 ...	Solid Carbide milling cutters	14 / 153
52 357 ...	Solid Carbide milling cutters	14 / 153
52 358 ...	Solid Carbide milling cutters	14 / 153
52 359 ...	Solid Carbide milling cutters	14 / 153
52 360 ...	Solid Carbide milling cutters	14 / 153
52 361 ...	Solid Carbide milling cutters	14 / 175
52 362 ...	Solid Carbide milling cutters	14 / 159
52 400 ...	Solid Carbide milling cutters	14 / 268
52 401 ...	Solid Carbide milling cutters	14 / 268
52 402 ...	Solid Carbide milling cutters	14 / 268
52 403 ...	Solid Carbide milling cutters	14 / 268
52 404 ...	Solid Carbide milling cutters	14 / 172
52 405 ...	Solid Carbide milling cutters	14 / 172
52 503 ...	Solid Carbide milling cutters	14 / 27
52 504 ...	Solid Carbide milling cutters	14 / 27
52 505 ...	Solid Carbide milling cutters	14 / 27
52 506 ...	Solid Carbide milling cutters	14 / 27
52 507 ...	Solid Carbide milling cutters	14 / 28
52 508 ...	Solid Carbide milling cutters	14 / 28
52 509 ...	Solid Carbide milling cutters	14 / 65
52 510 ...	Solid Carbide milling cutters	14 / 65
52 511 ...	Solid Carbide milling cutters	14 / 31
52 512 ...	Solid Carbide milling cutters	14 / 31
52 513 ...	Solid Carbide milling cutters	14 / 30
52 514 ...	Solid Carbide milling cutters	14 / 30
52 560 ...	Solid Carbide milling cutters	14 / 176
52 561 ...	Solid Carbide milling cutters	14 / 176
52 562 ...	Solid Carbide milling cutters	14 / 176
52 563 ...	Solid Carbide milling cutters	14 / 176
52 600 ...	Solid Carbide milling cutters	14 / 17
52 601 ...	Solid Carbide milling cutters	14 / 17
52 602 ...	Solid Carbide milling cutters	14 / 17
52 603 ...	Solid Carbide milling cutters	14 / 17
52 604 ...	Solid Carbide milling cutters	14 / 20
52 605 ...	Solid Carbide milling cutters	14 / 20
52 606 ...	Solid Carbide milling cutters	14 / 19
52 607 ...	Solid Carbide milling cutters	14 / 21
52 608 ...	Solid Carbide milling cutters	14 / 22
52 609 ...	Solid Carbide milling cutters	14 / 24
52 610 ...	Solid Carbide milling cutters	14 / 24
52 611 ...	Solid Carbide milling cutters	14 / 23
52 612 ...	Solid Carbide milling cutters	14 / 23
52 613 ...	Solid Carbide milling cutters	14 / 45
52 614 ...	Solid Carbide milling cutters	14 / 45
52 615 ...	Solid Carbide milling cutters	14 / 45
52 616 ...	Solid Carbide milling cutters	14 / 48
52 617 ...	Solid Carbide milling cutters	14 / 48
52 618 ...	Solid Carbide milling cutters	14 / 49
52 619 ...	Solid Carbide milling cutters	14 / 47
52 714 ...	Solid Carbide milling cutters	14 / 264
52 717 ...	Solid Carbide milling cutters	14 / 264
52 718 ...	Solid Carbide milling cutters	14 / 254
52 720 ...	Solid Carbide milling cutters	14 / 254
52 730 ...	Solid Carbide milling cutters	14 / 282
52 732 ...	Solid Carbide milling cutters	14 / 287
52 733 ...	Solid Carbide milling cutters	14 / 287
52 734 ...	Solid Carbide milling cutters	14 / 282
52 739 ...	Solid Carbide milling cutters	14 / 145
52 741 ...	Solid Carbide milling cutters	14 / 273
52 745 ...	Solid Carbide milling cutters	14 / 146
52 752 ...	Solid Carbide milling cutters	14 / 50
52 753 ...	Solid Carbide milling cutters	14 / 147
52 755 ...	Solid Carbide milling cutters	14 / 148
52 756 ...	Solid Carbide milling cutters	14 / 149
52 760 ...	Solid Carbide milling cutters	14 / 202
52 761 ...	Solid Carbide milling cutters	14 / 202
52 762 ...	Solid Carbide milling cutters	14 / 202
52 765 ...	Solid Carbide milling cutters	14 / 279
52 766 ...	Solid Carbide milling cutters	14 / 258
52 768 ...	Solid Carbide milling cutters	14 / 258
52 784 ...	Solid Carbide milling cutters	14 / 25

Article No.	Designation	Page(s)
52 786 ...	Solid Carbide milling cutters	14 / 26
52 802 ...	Solid Carbide milling cutters	14 / 177
52 804 ...	Solid Carbide milling cutters	14 / 178
52 806 ...	Solid Carbide milling cutters	14 / 180
52 860 ...	Solid Carbide milling cutters	14 / 190
52 861 ...	Solid Carbide milling cutters	14 / 190
52 862 ...	Solid Carbide milling cutters	14 / 190
52 863 ...	Solid Carbide milling cutters	14 / 191
52 864 ...	Solid Carbide milling cutters	14 / 192
52 865 ...	Solid Carbide milling cutters	14 / 191
52 866 ...	Solid Carbide milling cutters	14 / 191
52 867 ...	Solid Carbide milling cutters	14 / 193
52 868 ...	Solid Carbide milling cutters	14 / 193
52 869 ...	Solid Carbide milling cutters	14 / 192
52 870 ...	Solid Carbide milling cutters	14 / 189
52 871 ...	Solid Carbide milling cutters	14 / 189
52 872 ...	Solid Carbide milling cutters	14 / 189
52 921 ...	Solid Carbide milling cutters	14 / 218
52 922 ...	Solid Carbide milling cutters	14 / 218
52 923 ...	Solid Carbide milling cutters	14 / 218
52 926 ...	Solid Carbide milling cutters	14 / 218
52 927 ...	Solid Carbide milling cutters	14 / 218
52 928 ...	Solid Carbide milling cutters	14 / 218
52 929 ...	Solid Carbide milling cutters	14 / 219
52 930 ...	Solid Carbide milling cutters	14 / 219
52 931 ...	Solid Carbide milling cutters	14 / 219
52 932 ...	Solid Carbide milling cutters	14 / 219
52 933 ...	Solid Carbide milling cutters	14 / 219
52 934 ...	Solid Carbide milling cutters	14 / 219
52 935 ...	Solid Carbide milling cutters	14 / 220
52 936 ...	Solid Carbide milling cutters	14 / 220
52 939 ...	Solid Carbide milling cutters	14 / 215
52 940 ...	Solid Carbide milling cutters	14 / 215
52 941 ...	Solid Carbide milling cutters	14 / 209
52 942 ...	Solid Carbide milling cutters	14 / 209
52 943 ...	Solid Carbide milling cutters	14 / 211
52 944 ...	Solid Carbide milling cutters	14 / 211
52 945 ...	Solid Carbide milling cutters	14 / 215
52 946 ...	Solid Carbide milling cutters	14 / 215
52 947 ...	Solid Carbide milling cutters	14 / 211
52 948 ...	Solid Carbide milling cutters	14 / 209
52 949 ...	Solid Carbide milling cutters	14 / 211
52 950 ...	Solid Carbide milling cutters	14 / 215
52 951 ...	Solid Carbide milling cutters	14 / 215
53 000 ...	Circular and Thread Milling	7 / 30
53 001 ...	Circular and Thread Milling	7 / 30
53 002 ...	Circular and Thread Milling	7 / 29
53 003 ...	Circular and Thread Milling	7 / 29
53 004 ...	Circular and Thread Milling	7 / 29
53 006 ...	Circular and Thread Milling	7 / 20
53 007 ...	Circular and Thread Milling	7 / 22
53 008 ...	Circular and Thread Milling	7 / 22
53 009 ...	Circular and Thread Milling	7 / 24
53 010 ...	Circular and Thread Milling	7 / 26
53 011 ...	Circular and Thread Milling	7 / 27
53 012 ...	Circular and Thread Milling	7 / 28
53 013 ...	Circular and Thread Milling	7 / 25
53 014 ...	Circular and Thread Milling	7 / 25
53 015 ...	Circular and Thread Milling	7 / 23
53 030 ...	Solid Carbide milling cutters	14 / 34
53 031 ...	Solid Carbide milling cutters	14 / 36
53 050 ...	Circular and Thread Milling	7 / 52
53 051 ...	Circular and Thread Milling	7 / 52
53 052 ...	Circular and Thread Milling	7 / 53
53 053 ...	Circular and Thread Milling	7 / 53
53 517 ...	Solid Carbide milling cutters	14 / 77
53 518 ...	Solid Carbide milling cutters	14 / 77
53 519 ...	Solid Carbide milling cutters	14 / 77
53 520 ...	Solid Carbide milling cutters	14 / 77
53 521 ...	Solid Carbide milling cutters	14 / 78
53 522 ...	Solid Carbide milling cutters	14 / 78
53 523 ...	Solid Carbide milling cutters	14 / 78
53 524 ...	Solid Carbide milling cutters	14 / 78
53 560 ...	Solid Carbide milling cutters	14 / 96
53 561 ...	Solid Carbide milling cutters	14 / 96
53 562 ...	Solid Carbide milling cutters	14 / 96
53 563 ...	Solid Carbide milling cutters	14 / 96
53 564 ...	Solid Carbide milling cutters	14 / 96
53 565 ...	Solid Carbide milling cutters	14 / 97
53 566 ...	Solid Carbide milling cutters	14 / 97
53 567 ...	Solid Carbide milling cutters	14 / 97
53 568 ...	Solid Carbide milling cutters	14 / 97
53 569 ...	Solid Carbide milling cutters	14 / 97
53 578 ...	Solid Carbide milling cutters	14 / 99
53 579 ...	Solid Carbide milling cutters	14 / 99
53 580 ...	Solid Carbide milling cutters	14 / 100
53 581 ...	Solid Carbide milling cutters	14 / 100
53 582 ...	Solid Carbide milling cutters	14 / 98
53 583 ...	Solid Carbide milling cutters	14 / 98
53 584 ...	Solid Carbide milling cutters	14 / 82
53 585 ...	Solid Carbide milling cutters	14 / 51
53 586 ...	Solid Carbide milling cutters	14 / 53
53 587 ...	Solid Carbide milling cutters	14 / 51
53 589 ...	Solid Carbide milling cutters	14 / 52
53 590 ...	Solid Carbide milling cutters	14 / 61
53 591 ...	Solid Carbide milling cutters	14 / 61
53 593 ...	Solid Carbide milling cutters	14 / 57
53 594 ...	Solid Carbide milling cutters	14 / 62
53 595 ...	Solid Carbide milling cutters	14 / 62
53 596 ...	Solid Carbide milling cutters	14 / 66
53 597 ...	Solid Carbide milling cutters	14 / 82
53 598 ...	Solid Carbide milling cutters	14 / 82
53 599 ...	Solid Carbide milling cutters	14 / 82
53 600 ...	Solid Carbide milling cutters	14 / 42
53 601 ...	Solid Carbide milling cutters	14 / 42
53 602 ...	Solid Carbide milling cutters	14 / 44
53 603 ...	Solid Carbide milling cutters	14 / 38
53 604 ...	Solid Carbide milling cutters	14 / 38
53 605 ...	Solid Carbide milling cutters	14 / 41
53 606 ...	Solid Carbide milling cutters	14 / 41
53 607 ...	Solid Carbide milling cutters	14 / 102
53 608 ...	Solid Carbide milling cutters	14 / 103
53 609 ...	Solid Carbide milling cutters	14 / 103
53 610 ...	Solid Carbide milling cutters	14 / 103
53 611 ...	Solid Carbide milling cutters	14 / 80
53 612 ...	Solid Carbide milling cutters	14 / 80
53 613 ...	Solid Carbide milling cutters	14 / 80
53 614 ...	Solid Carbide milling cutters	14 / 79
53 615 ...	Solid Carbide milling cutters	14 / 75
53 616 ...	Solid Carbide milling cutters	14 / 75
53 617 ...	Solid Carbide milling cutters	14 / 74
53 618 ...	Solid Carbide milling cutters	14 / 73
53 619 ...	Solid Carbide milling cutters	14 / 69
53 620 ...	Solid Carbide milling cutters	14 / 69
53 621 ...	Solid Carbide milling cutters	14 / 69
53 622 ...	Solid Carbide milling cutters	14 / 69
53 623 ...	Solid Carbide milling cutters	14 / 67
53 624 ...	Solid Carbide milling cutters	14 / 67
53 625 ...	Solid Carbide milling cutters	14 / 67
53 626 ...	Solid Carbide milling cutters	14 / 67
53 627 ...	Solid Carbide milling cutters	14 / 71
53 628 ...	Solid Carbide milling cutters	14 / 71
53 629 ...	Solid Carbide milling cutters	14 / 70
53 630 ...	Solid Carbide milling cutters	14 / 70
53 631 ...	Solid Carbide milling cutters	14 / 70
53 632 ...	Solid Carbide milling cutters	14 / 70
53 633 ...	Solid Carbide milling cutters	14 / 68
53 634 ...	Solid Carbide milling cutters	14 / 68
53 635 ...	Solid Carbide milling cutters	14 / 68
53 636 ...	Solid Carbide milling cutters	14 / 68
53 637 ...	Solid Carbide milling cutters	14 / 71
53 638 ...	Solid Carbide milling cutters	14 / 71
53 639 ...	Solid Carbide milling cutters	14 / 101
53 642 ...	Solid Carbide milling cutters	14 / 55
53 660 ...	Solid Carbide milling cutters	14 / 106
53 661 ...	Solid Carbide milling cutters	14 / 106
53 662 ...	Solid Carbide milling cutters	14 / 105
53 663 ...	Solid Carbide milling cutters	14 / 105
53 664 ...	Solid Carbide milling cutters	14 / 106
53 665 ...	Solid Carbide milling cutters	14 / 106
53 666 ...	Solid Carbide milling cutters	14 / 105
53 667 ...	Solid Carbide milling cutters	14 / 105
53 700 ...	Solid Carbide milling cutters	14 / 95
53 701 ...	Solid Carbide milling cutters	14 / 94
53 702 ...	Solid Carbide milling cutters	14 / 95
53 703 ...	Solid Carbide milling cutters	14 / 95
53 704 ...	Solid Carbide milling cutters	14 / 93
53 705 ...	Solid Carbide milling cutters	14 / 92
53 706 ...	Solid Carbide milling cutters	14 / 93

Article No.	Designation	Page(s)
53 707 ...	Solid Carbide milling cutters	14 / 92
53 708 ...	Solid Carbide milling cutters	14 / 87
53 709 ...	Solid Carbide milling cutters	14 / 87
53 710 ...	Solid Carbide milling cutters	14 / 85
53 711 ...	Solid Carbide milling cutters	14 / 85
53 712 ...	Solid Carbide milling cutters	14 / 89
53 713 ...	Solid Carbide milling cutters	14 / 89
53 714 ...	Solid Carbide milling cutters	14 / 90
53 715 ...	Solid Carbide milling cutters	14 / 91
53 800 ...	Solid Carbide milling cutters	14 / 184
53 801 ...	Solid Carbide milling cutters	14 / 183
53 802 ...	Solid Carbide milling cutters	14 / 183
53 803 ...	Solid Carbide milling cutters	14 / 181
53 804 ...	Solid Carbide milling cutters	14 / 181
53 805 ...	Solid Carbide milling cutters	14 / 182
53 806 ...	Solid Carbide milling cutters	14 / 182
54 000 ...	Solid Carbide milling cutters	14 / 247
54 001 ...	Solid Carbide milling cutters	14 / 231
54 002 ...	Solid Carbide milling cutters	14 / 231
54 003 ...	Solid Carbide milling cutters	14 / 231
54 004 ...	Solid Carbide milling cutters	14 / 231
54 005 ...	Solid Carbide milling cutters	14 / 231
54 006 ...	Solid Carbide milling cutters	14 / 231
54 007 ...	HSS Milling Cutters	13 / 16
54 008 ...	HSS Milling Cutters	13 / 16
54 009 ...	HSS Milling Cutters	13 / 18
54 010 ...	HSS Milling Cutters	13 / 20
54 011 ...	HSS Milling Cutters	13 / 13
54 012 ...	HSS Milling Cutters	13 / 18
54 013 ...	HSS Milling Cutters	13 / 20
54 014 ...	HSS Milling Cutters	13 / 10
54 015 ...	Solid Carbide milling cutters	14 / 247
54 016 ...	HSS Milling Cutters	13 / 11
54 017 ...	HSS Milling Cutters	13 / 13
54 018 ...	HSS Milling Cutters	13 / 14
54 019 ...	HSS Milling Cutters	13 / 14
54 020 ...	HSS Milling Cutters	13 / 8
54 021 ...	HSS Milling Cutters	13 / 11
54 022 ...	HSS Milling Cutters	13 / 24
54 023 ...	HSS Milling Cutters	13 / 24
54 024 ...	HSS Milling Cutters	13 / 24
54 025 ...	HSS Milling Cutters	13 / 8
54 026 ...	HSS Milling Cutters	13 / 21
54 027 ...	HSS Milling Cutters	13 / 21
54 028 ...	HSS Milling Cutters	13 / 17
54 029 ...	HSS Milling Cutters	13 / 17
54 030 ...	HSS Milling Cutters	13 / 22
54 031 ...	HSS Milling Cutters	13 / 23
54 032 ...	HSS Milling Cutters	13 / 23
54 033 ...	HSS Milling Cutters	13 / 23
54 034 ...	HSS Milling Cutters	13 / 19
54 035 ...	HSS Milling Cutters	13 / 37
54 036 ...	HSS Milling Cutters	13 / 37
54 037 ...	HSS Milling Cutters	13 / 38
54 038 ...	HSS Milling Cutters	13 / 26
54 039 ...	HSS Milling Cutters	13 / 26
54 040 ...	HSS Milling Cutters	13 / 27
54 041 ...	HSS Milling Cutters	13 / 25
54 042 ...	HSS Milling Cutters	13 / 10
54 050 ...	Solid Carbide milling cutters	14 / 230
54 051 ...	Solid Carbide milling cutters	14 / 230
54 052 ...	Solid Carbide milling cutters	14 / 230
54 053 ...	Solid Carbide milling cutters	14 / 232
54 054 ...	Solid Carbide milling cutters	14 / 232
54 055 ...	Solid Carbide milling cutters	14 / 267
54 056 ...	Solid Carbide milling cutters	14 / 267
54 057 ...	Solid Carbide milling cutters	14 / 269
54 058 ...	Solid Carbide milling cutters	14 / 269
54 060 ...	Solid Carbide milling cutters	14 / 230
54 061 ...	Solid Carbide milling cutters	14 / 230
54 062 ...	Solid Carbide milling cutters	14 / 230
54 063 ...	Solid Carbide milling cutters	14 / 232
54 064 ...	Solid Carbide milling cutters	14 / 232
54 065 ...	Solid Carbide milling cutters	14 / 299
54 590 ...	Solid Carbide milling cutters	14 / 198
54 591 ...	Solid Carbide milling cutters	14 / 197
54 592 ...	Solid Carbide milling cutters	14 / 198
54 593 ...	Solid Carbide milling cutters	14 / 198
54 594 ...	Solid Carbide milling cutters	14 / 200
54 595 ...	Solid Carbide milling cutters	14 / 201
54 596 ...	Solid Carbide milling cutters	14 / 201
54 597 ...	Solid Carbide milling cutters	14 / 201
54 610 ...	Solid Carbide milling cutters	14 / 203
54 611 ...	Solid Carbide milling cutters	14 / 203
54 612 ...	Solid Carbide milling cutters	14 / 203
54 613 ...	Solid Carbide milling cutters	14 / 203
54 620 ...	Solid Carbide milling cutters	14 / 205
54 622 ...	Solid Carbide milling cutters	14 / 205
54 625 ...	Solid Carbide milling cutters	14 / 246
54 627 ...	Solid Carbide milling cutters	14 / 246
54 630 ...	Solid Carbide milling cutters	14 / 207
54 631 ...	Solid Carbide milling cutters	14 / 206
54 632 ...	Solid Carbide milling cutters	14 / 207
54 633 ...	Solid Carbide milling cutters	14 / 206
54 640 ...	Solid Carbide milling cutters	14 / 257
54 642 ...	Solid Carbide milling cutters	14 / 257
54 650 ...	Solid Carbide milling cutters	14 / 208
54 652 ...	Solid Carbide milling cutters	14 / 208
54 700 ...	Solid Carbide milling cutters	14 / 302
54 800 ...	Circular and Thread Milling	7 / 66
54 801 ...	Circular and Thread Milling	7 / 61
54 802 ...	Circular and Thread Milling	7 / 66
54 803 ...	Circular and Thread Milling	7 / 61
54 804 ...	Circular and Thread Milling	7 / 66
54 805 ...	Circular and Thread Milling	7 / 61
54 809 ...	Circular and Thread Milling	7 / 62
54 810 ...	Circular and Thread Milling	7 / 67
54 811 ...	Circular and Thread Milling	7 / 62
54 812 ...	Circular and Thread Milling	7 / 68
54 813 ...	Circular and Thread Milling	7 / 62
54 832 ...	Circular and Thread Milling	7 / 69
55 107 ...	Milling tools with indexable inserts	15 / 84
55 108 ...	Milling tools with indexable inserts	15 / 88
55 112 ...	Milling tools with indexable inserts	15 / 111
55 202 ...	Milling tools with indexable inserts	15 / 34
56 100 ...	Milling tools with indexable inserts	15 / 127
56 101 ...	Milling tools with indexable inserts	15 / 127
56 102 ...	Milling tools with indexable inserts	15 / 128
56 104 ...	Milling tools with indexable inserts	15 / 129
56 110 ...	Milling tools with indexable inserts	15 / 132
56 111 ...	Milling tools with indexable inserts	15 / 132
56 112 ...	Milling tools with indexable inserts	15 / 133
56 120 ...	Milling tools with indexable inserts	15 / 130
56 130 ...	Milling tools with indexable inserts	15 / 134
56 141 ...	Milling tools with indexable inserts	15 / 131
56 143 ...	Milling tools with indexable inserts	15 / 131
56 145 ...	Milling tools with indexable inserts	15 / 131
56 147 ...	Milling tools with indexable inserts	15 / 131
56 149 ...	Milling tools with indexable inserts	15 / 131
56 159 ...	Milling tools with indexable inserts	15 / 135
56 161 ...	Milling tools with indexable inserts	15 / 135
56 163 ...	Milling tools with indexable inserts	15 / 135
56 165 ...	Milling tools with indexable inserts	15 / 135
56 167 ...	Milling tools with indexable inserts	15 / 135
56 168 ...	Milling tools with indexable inserts	15 / 135
56 169 ...	Milling tools with indexable inserts	15 / 131
56 171 ...	Milling tools with indexable inserts	15 / 135
56 302 ...	Milling tools with indexable inserts	15 / 124
56 304 ...	Milling tools with indexable inserts	15 / 124
56 309 ...	Milling tools with indexable inserts	15 / 124
56 314 ...	Milling tools with indexable inserts	15 / 124
56 327 ...	Milling tools with indexable inserts	15 / 52
56 348 ...	Milling tools with indexable inserts	15 / 124
56 353 ...	Milling tools with indexable inserts	15 / 110
56 355 ...	Milling tools with indexable inserts	15 / 110
56 403 ...	Milling tools with indexable inserts	15 / 120
56 405 ...	Milling tools with indexable inserts	15 / 121
56 407 ...	Milling tools with indexable inserts	15 / 122
56 409 ...	Milling tools with indexable inserts	15 / 123
56 411 ...	Milling tools with indexable inserts	15 / 109
56 417 ...	Milling tools with indexable inserts	15 / 109
56 441 ...	Milling tools with indexable inserts	15 / 121
56 443 ...	Milling tools with indexable inserts	15 / 122
56 511 ...	Milling tools with indexable inserts	15 / 51
56 900 ...	Solid Carbide milling cutters	14 / 289
56 902 ...	Solid Carbide milling cutters	14 / 290
56 904 ...	Solid Carbide milling cutters	14 / 290
62 104 ...	Spindle Tooling	5 / 54
62 107 ...	Spindle Tooling	5 / 51

Article No.	Designation	Page(s)
62 108 ...	Spindle Tooling	5 / 51
62 109 ...	Spindle Tooling	5 / 54
62 112 ...	Spindle Tooling	5 / 52
62 122 ...	Spindle Tooling	5 / 53
62 295 ...	Spindle Tooling	5 / 47
62 296 ...	Spindle Tooling	5 / 48
62 297 ...	Spindle Tooling	5 / 49
62 298 ...	Spindle Tooling	5 / 49
62 299 ...	Spindle Tooling	5 / 48
62 300 ...	Spindle Tooling	5 / 32
62 303 ...	Spindle Tooling	5 / 35
62 304 ...	Spindle Tooling	5 / 22
62 305 ...	Spindle Tooling	5 / 40
62 306 ...	Spindle Tooling	5 / 50
62 307 ...	Spindle Tooling	5 / 50
62 308 ...	Spindle Tooling	5 / 35
62 309 ...	Spindle Tooling	5 / 35
62 317 ...	Spindle Tooling	5 / 22
62 318 ...	Spindle Tooling	5 / 36
62 320 ...	Spindle Tooling	5 / 36
62 321 ...	Spindle Tooling	5 / 37
62 326 ...	Spindle Tooling	5 / 26
62 329 ...	Spindle Tooling	5 / 23
62 332 ...	Spindle Tooling	5 / 27
62 333 ...	Spindle Tooling	5 / 27
62 334 ...	Spindle Tooling	5 / 33
62 335 ...	Spindle Tooling	5 / 30
62 337 ...	Spindle Tooling	5 / 30
62 341 ...	Spindle Tooling	5 / 30
62 345 ...	Spindle Tooling	5 / 33
62 346 ...	Spindle Tooling	5 / 29
62 349 ...	Spindle Tooling	5 / 23
62 351 ...	Spindle Tooling	5 / 57
62 353 ...	Spindle Tooling	5 / 31
62 354 ...	Spindle Tooling	5 / 36
62 357 ...	Spindle Tooling	5 / 55
62 358 ...	Spindle Tooling	5 / 25
62 361 ...	Spindle Tooling	5 / 31
62 363 ...	Spindle Tooling	5 / 28
62 364 ...	Spindle Tooling	5 / 38
62 365 ...	Spindle Tooling	5 / 39
62 366 ...	Spindle Tooling	5 / 39
62 372 ...	Spindle Tooling	5 / 24
62 373 ...	Spindle Tooling	5 / 24
62 374 ...	Spindle Tooling	5 / 25
62 375 ...	Spindle Tooling	5 / 29
62 376 ...	Spindle Tooling	5 / 25
62 377 ...	Spindle Tooling	5 / 29
62 378 ...	Spindle Tooling	5 / 25
62 379 ...	Spindle Tooling	5 / 25
62 380 ...	Spindle Tooling	5 / 45
62 381 ...	Spindle Tooling	5 / 46
62 382 ...	Spindle Tooling	5 / 19
62 383 ...	Spindle Tooling	5 / 20
62 384 ...	Spindle Tooling	5 / 20
62 385 ...	Spindle Tooling	5 / 20
62 386 ...	Spindle Tooling	5 / 19
62 404 ...	Spindle Tooling	5 / 31
62 438 ...	Spindle Tooling	5 / 40
62 439 ...	Spindle Tooling	5 / 41
62 600 ...	Spindle Tooling	5 / 58
62 601 ...	Spindle Tooling	5 / 60
62 602 ...	Reaming and Countersinking	4 / 57
62 602 ...	Spindle Tooling	5 / 61
62 603 ...	Reaming and Countersinking	4 / 57
62 603 ...	Spindle Tooling	5 / 61
62 604 ...	Reaming and Countersinking	4 / 57
62 605 ...	Spindle Tooling	5 / 61
62 606 ...	Spindle Tooling	5 / 60
62 607 ...	Spindle Tooling	5 / 60
62 800 ...	Spindle Tooling	5 / 11
62 810 ...	Spindle Tooling	5 / 17
62 815 ...	Spindle Tooling	5 / 15
62 820 ...	Spindle Tooling	5 / 10
62 840 ...	Spindle Tooling	5 / 10
62 850 ...	Spindle Tooling	5 / 12
62 851 ...	Spindle Tooling	5 / 12
62 852 ...	Spindle Tooling	5 / 13
62 853 ...	Spindle Tooling	5 / 13
62 854 ...	Spindle Tooling	5 / 13
62 855 ...	Spindle Tooling	5 / 18
62 856 ...	Spindle Tooling	5 / 13
62 857 ...	Spindle Tooling	5 / 12
62 858 ...	Spindle Tooling	5 / 21
62 860 ...	Spindle Tooling	5 / 14
62 861 ...	Spindle Tooling	5 / 14
62 862 ...	Spindle Tooling	5 / 14
62 863 ...	Spindle Tooling	5 / 14
62 864 ...	Spindle Tooling	5 / 16
62 865 ...	Spindle Tooling	5 / 16
62 866 ...	Spindle Tooling	5 / 12
62 870 ...	Spindle Tooling	5 / 42
62 871 ...	Spindle Tooling	5 / 43
62 872 ...	Spindle Tooling	5 / 44
62 873 ...	Spindle Tooling	5 / 44
62 874 ...	Spindle Tooling	5 / 44
62 875 ...	Spindle Tooling	5 / 43
70 100 ...	Turning Tools	9 / 11
70 101 ...	Turning Tools	9 / 9
70 114 ...	Turning Tools	9 / 46
70 119 ...	Turning Tools	9 / 10
70 131 ...	Turning Tools	9 / 62
70 132 ...	Turning Tools	9 / 10
70 133 ...	Turning Tools	9 / 28
70 134 ...	Turning Tools	9 / 56
70 139 ...	Turning Tools	9 / 70
70 155 ...	Turning Tools	9 / 56
70 156 ...	Turning Tools	9 / 29
70 169 ...	Turning Tools	9 / 71
70 188 ...	Turning Tools	9 / 134
70 225 ...	Turning Tools	9 / 46
70 245 ...	Turning Tools	9 / 81
70 246 ...	Turning Tools	9 / 108
70 247 ...	Turning Tools	9 / 166
70 248 ...	Turning Tools	9 / 80
70 249 ...	Turning Tools	9 / 78
70 251 ...	Turning Tools	9 / 78
70 252 ...	Reaming and Countersinking	4 / 54
70 252 ...	Turning Tools	9 / 79
70 254 ...	Reaming and Countersinking	4 / 54
70 254 ...	Turning Tools	9 / 80
70 255 ...	Turning Tools	9 / 80
70 257 ...	Turning Tools	9 / 105
70 258 ...	Turning Tools	9 / 106
70 260 ...	Turning Tools	9 / 107
70 261 ...	Turning Tools	9 / 107
70 263 ...	Turning Tools	9 / 107
70 265 ...	Turning Tools	9 / 105
70 266 ...	Turning Tools	9 / 135
70 268 ...	Turning Tools	9 / 142
70 270 ...	Turning Tools	9 / 143
70 271 ...	Turning Tools	9 / 142
70 273 ...	Turning Tools	9 / 70
70 274 ...	Turning Tools	9 / 153
70 276 ...	Turning Tools	9 / 154
70 277 ...	Turning Tools	9 / 164
70 278 ...	Turning Tools	9 / 165
70 280 ...	Turning Tools	9 / 166
70 282 ...	Turning Tools	9 / 166
70 283 ...	Turning Tools	9 / 143
70 284 ...	Turning Tools	9 / 152
70 286 ...	EcoCut and FreeTurn	10 / 9
70 287 ...	Turning Tools	9 / 185
70 288 ...	Turning Tools	9 / 164
70 289 ...	EcoCut and FreeTurn	10 / 14
70 294 ...	Spindle Tooling	5 / 62
70 295 ...	Spindle Tooling	5 / 62
70 296 ...	Spindle Tooling	5 / 63
70 300 ...	Spindle Tooling	5 / 63
70 327 ...	Grooving Tools	11 / 75
70 330 ...	Grooving Tools	11 / 23
70 331 ...	Grooving Tools	11 / 22
70 332 ...	Grooving Tools	11 / 24
70 334 ...	Grooving Tools	11 / 25
70 335 ...	Grooving Tools	11 / 26
70 337 ...	Grooving Tools	11 / 71
70 338 ...	Grooving Tools	11 / 88
70 339 ...	Grooving Tools	11 / 89
70 340 ...	Grooving Tools	11 / 90

Article No.	Designation	Page(s)
70 342 ...	Grooving Tools	11 / 9
70 343 ...	Grooving Tools	11 / 10
70 344 ...	Grooving Tools	11 / 12
70 346 ...	Grooving Tools	11 / 8
70 349 ...	Grooving Tools	11 / 11
70 350 ...	Grooving Tools	11 / 46
70 351 ...	Grooving Tools	11 / 32
70 352 ...	Grooving Tools	11 / 35
70 353 ...	Grooving Tools	11 / 52
70 354 ...	Grooving Tools	11 / 50
70 355 ...	Grooving Tools	11 / 81
70 356 ...	Grooving Tools	11 / 83
70 357 ...	Grooving Tools	11 / 79
70 358 ...	Grooving Tools	11 / 80
70 359 ...	Grooving Tools	11 / 82
70 360 ...	Grooving Tools	11 / 30
70 362 ...	Grooving Tools	11 / 33
70 363 ...	Grooving Tools	11 / 48
70 364 ...	Grooving Tools	11 / 49
70 386 ...	EcoCut and FreeTurn	10 / 9
70 500 ...	Turning Tools	9 / 22
70 501 ...	Turning Tools	9 / 22
70 502 ...	Turning Tools	9 / 66
70 503 ...	Turning Tools	9 / 66
70 504 ...	Turning Tools	9 / 22
70 505 ...	Turning Tools	9 / 22
70 506 ...	Turning Tools	9 / 66
70 508 ...	Turning Tools	9 / 21
70 509 ...	Turning Tools	9 / 21
70 512 ...	Turning Tools	9 / 49
70 513 ...	Turning Tools	9 / 49
70 516 ...	Turning Tools	9 / 49
70 520 ...	Turning Tools	9 / 50
70 524 ...	Turning Tools	9 / 50
70 525 ...	Turning Tools	9 / 53
70 528 ...	Turning Tools	9 / 59
70 529 ...	Turning Tools	9 / 59
70 532 ...	Turning Tools	9 / 60
70 533 ...	Turning Tools	9 / 60
70 534 ...	Turning Tools	9 / 60
70 535 ...	Turning Tools	9 / 60
70 536 ...	Turning Tools	9 / 36
70 537 ...	Turning Tools	9 / 36
70 540 ...	Turning Tools	9 / 36
70 541 ...	Turning Tools	9 / 36
70 542 ...	Turning Tools	9 / 74
70 543 ...	Turning Tools	9 / 74
70 544 ...	Turning Tools	9 / 139
70 545 ...	Turning Tools	9 / 139
70 556 ...	Turning Tools	9 / 25
70 557 ...	Turning Tools	9 / 25
70 558 ...	Turning Tools	9 / 26
70 559 ...	Turning Tools	9 / 26
70 560 ...	Turning Tools	9 / 54
70 561 ...	Turning Tools	9 / 54
70 562 ...	Turning Tools	9 / 44
70 563 ...	Turning Tools	9 / 44
70 564 ...	Turning Tools	9 / 61
70 565 ...	Turning Tools	9 / 61
70 566 ...	Turning Tools	9 / 77
70 568 ...	Turning Tools	9 / 43
70 569 ...	Turning Tools	9 / 43
70 572 ...	Turning Tools	9 / 76
70 573 ...	Turning Tools	9 / 76
70 588 ...	Turning Tools	9 / 149
70 589 ...	Turning Tools	9 / 149
70 590 ...	Turning Tools	9 / 59
70 591 ...	Turning Tools	9 / 59
70 624 ...	Turning Tools	9 / 150
70 625 ...	Turning Tools	9 / 150
70 640 ...	Turning Tools	9 / 96
70 641 ...	Turning Tools	9 / 96
70 652 ...	Turning Tools	9 / 95
70 653 ...	Turning Tools	9 / 95
70 656 ...	Turning Tools	9 / 147
70 660 ...	Turning Tools	9 / 147
70 661 ...	Turning Tools	9 / 147
70 664 ...	Turning Tools	9 / 148
70 665 ...	Turning Tools	9 / 148
70 668 ...	Turning Tools	9 / 148
70 669 ...	Turning Tools	9 / 148
70 672 ...	Turning Tools	9 / 162
70 673 ...	Turning Tools	9 / 162
70 676 ...	Turning Tools	9 / 161
70 677 ...	Turning Tools	9 / 161
70 680 ...	Turning Tools	9 / 125
70 684 ...	Turning Tools	9 / 123
70 685 ...	Turning Tools	9 / 123
70 688 ...	Turning Tools	9 / 124
70 689 ...	Turning Tools	9 / 124
70 690 ...	Turning Tools	9 / 178
70 691 ...	Turning Tools	9 / 178
70 692 ...	Turning Tools	9 / 177
70 694 ...	Turning Tools	9 / 177
70 695 ...	Turning Tools	9 / 177
70 696 ...	Turning Tools	9 / 175
70 697 ...	Turning Tools	9 / 175
70 700 ...	Turning Tools	9 / 176
70 701 ...	Turning Tools	9 / 176
70 704 ...	Turning Tools	9 / 176
70 705 ...	Turning Tools	9 / 176
70 706 ...	Turning Tools	9 / 104
70 707 ...	Turning Tools	9 / 104
70 708 ...	Turning Tools	9 / 138
70 712 ...	Turning Tools	9 / 140
70 713 ...	Turning Tools	9 / 140
70 716 ...	Turning Tools	9 / 100
70 717 ...	Turning Tools	9 / 100
70 718 ...	Turning Tools	9 / 102
70 719 ...	Turning Tools	9 / 102
70 720 ...	Turning Tools	9 / 150
70 721 ...	Turning Tools	9 / 150
70 722 ...	Turning Tools	9 / 103
70 723 ...	Turning Tools	9 / 103
70 724 ...	Turning Tools	9 / 151
70 725 ...	Turning Tools	9 / 151
70 726 ...	Turning Tools	9 / 184
70 727 ...	Turning Tools	9 / 184
70 728 ...	Turning Tools	9 / 163
70 729 ...	Turning Tools	9 / 163
70 730 ...	Turning Tools	9 / 187
70 731 ...	Turning Tools	9 / 187
70 732 ...	Turning Tools	9 / 133
70 733 ...	Turning Tools	9 / 133
70 736 ...	Turning Tools	9 / 129
70 737 ...	Turning Tools	9 / 129
70 738 ...	Turning Tools	9 / 130
70 739 ...	Turning Tools	9 / 130
70 740 ...	Turning Tools	9 / 131
70 741 ...	Turning Tools	9 / 131
70 742 ...	Turning Tools	9 / 187
70 743 ...	Turning Tools	9 / 187
70 744 ...	Turning Tools	9 / 182
70 745 ...	Turning Tools	9 / 182
70 746 ...	Turning Tools	9 / 183
70 747 ...	Turning Tools	9 / 183
70 748 ...	Turning Tools	9 / 183
70 749 ...	Turning Tools	9 / 183
70 750 ...	Turning Tools	9 / 132
70 751 ...	Turning Tools	9 / 132
70 752 ...	Turning Tools	9 / 97
70 756 ...	Turning Tools	9 / 97
70 757 ...	Turning Tools	9 / 97
70 760 ...	Turning Tools	9 / 96
70 761 ...	Turning Tools	9 / 96
70 768 ...	Turning Tools	9 / 161
70 769 ...	Turning Tools	9 / 161
70 782 ...	Turning Tools	9 / 162
70 784 ...	Turning Tools	9 / 125
70 788 ...	Turning Tools	9 / 124
70 789 ...	Turning Tools	9 / 124
70 792 ...	Turning Tools	9 / 103
70 793 ...	Turning Tools	9 / 103
70 800 ...	EcoCut and FreeTurn	10 / 7
70 801 ...	EcoCut and FreeTurn	10 / 8
70 804 ...	EcoCut and FreeTurn	10 / 10
70 805 ...	EcoCut and FreeTurn	10 / 11
70 820 ...	EcoCut and FreeTurn	10 / 16
70 821 ...	EcoCut and FreeTurn	10 / 16

Article No.	Designation	Page(s)
70 823 ...	Grooving Tools	11 / 77
70 824 ...	Grooving Tools	11 / 77
70 825 ...	Grooving Tools	11 / 78
70 826 ...	Grooving Tools	11 / 78
70 827 ...	Grooving Tools	11 / 76
70 828 ...	Grooving Tools	11 / 76
70 829 ...	Grooving Tools	11 / 98
70 830 ...	Grooving Tools	11 / 99
70 831 ...	Grooving Tools	11 / 100
70 832 ...	Grooving Tools	11 / 29
70 833 ...	Grooving Tools	11 / 74
70 834 ...	Grooving Tools	11 / 57
70 835 ...	Grooving Tools	11 / 73
70 836 ...	Grooving Tools	11 / 28
70 837 ...	Grooving Tools	11 / 28
70 846 ...	Grooving Tools	11 / 21
70 847 ...	Grooving Tools	11 / 20
70 850 ...	Grooving Tools	11 / 93
70 851 ...	Grooving Tools	11 / 93
70 852 ...	Grooving Tools	11 / 94
70 853 ...	Grooving Tools	11 / 94
70 854 ...	Grooving Tools	11 / 95
70 855 ...	Grooving Tools	11 / 95
70 856 ...	Grooving Tools	11 / 87
70 857 ...	Grooving Tools	11 / 87
70 858 ...	Grooving Tools	11 / 44
70 859 ...	Grooving Tools	11 / 44
70 860 ...	Grooving Tools	11 / 97
70 861 ...	Grooving Tools	11 / 97
70 862 ...	Grooving Tools	11 / 42
70 863 ...	Grooving Tools	11 / 58
70 865 ...	Grooving Tools	11 / 39
70 866 ...	Grooving Tools	11 / 39
70 867 ...	Grooving Tools	11 / 53
70 868 ...	Grooving Tools	11 / 53
70 870 ...	Grooving Tools	11 / 38
70 871 ...	Grooving Tools	11 / 38
70 872 ...	Grooving Tools	11 / 84
70 873 ...	Grooving Tools	11 / 91
70 874 ...	Grooving Tools	11 / 92
70 875 ...	Grooving Tools	11 / 27
70 876 ...	Grooving Tools	11 / 27
70 877 ...	Grooving Tools	11 / 18
70 879 ...	Grooving Tools	11 / 17
70 880 ...	Grooving Tools	11 / 41
70 881 ...	Grooving Tools	11 / 41
70 882 ...	Grooving Tools	11 / 85
70 883 ...	Grooving Tools	11 / 85
70 884 ...	Grooving Tools	11 / 15
70 885 ...	Grooving Tools	11 / 40
70 886 ...	Grooving Tools	11 / 40
70 887 ...	Grooving Tools	11 / 86
70 888 ...	Grooving Tools	11 / 43
70 889 ...	Grooving Tools	11 / 43
70 890 ...	Grooving Tools	11 / 55
70 891 ...	Grooving Tools	11 / 55
70 894 ...	Grooving Tools	11 / 59
70 895 ...	Grooving Tools	11 / 59
70 896 ...	Grooving Tools	11 / 13
70 897 ...	Grooving Tools	11 / 13
70 903 ...	Grooving Tools	11 / 60
70 904 ...	Grooving Tools	11 / 60
70 950 ...	Milling tools with indexable inserts	15 / 137
71 000 ...	Turning Tools	9 / 86
71 001 ...	Turning Tools	9 / 86
71 002 ...	Turning Tools	9 / 86
71 003 ...	Turning Tools	9 / 17
71 005 ...	Turning Tools	9 / 17
71 007 ...	Turning Tools	9 / 113
71 008 ...	Turning Tools	9 / 111
71 009 ...	Turning Tools	9 / 113
71 012 ...	Turning Tools	9 / 113
71 017 ...	Turning Tools	9 / 32
71 027 ...	Turning Tools	9 / 157
71 028 ...	Turning Tools	9 / 155
71 029 ...	Turning Tools	9 / 155
71 034 ...	Turning Tools	9 / 157
71 035 ...	Turning Tools	9 / 168
71 036 ...	Turning Tools	9 / 168
71 037 ...	Turning Tools	9 / 186
71 062 ...	Turning Tools	9 / 172
71 063 ...	Turning Tools	9 / 172
71 064 ...	Turning Tools	9 / 172
71 108 ...	Turning Tools	9 / 58
71 120 ...	Turning Tools	9 / 90
71 121 ...	Turning Tools	9 / 87
71 123 ...	Turning Tools	9 / 87
71 124 ...	Turning Tools	9 / 88
71 125 ...	Turning Tools	9 / 90
71 126 ...	Turning Tools	9 / 90
71 127 ...	Turning Tools	9 / 19
71 128 ...	Turning Tools	9 / 34
71 130 ...	Turning Tools	9 / 118
71 131 ...	Turning Tools	9 / 114
71 134 ...	Turning Tools	9 / 114
71 135 ...	Turning Tools	9 / 120
71 136 ...	Turning Tools	9 / 120
71 138 ...	Turning Tools	9 / 120
71 139 ...	Turning Tools	9 / 121
71 140 ...	Turning Tools	9 / 155
71 144 ...	Turning Tools	9 / 121
71 145 ...	Turning Tools	9 / 121
71 154 ...	Turning Tools	9 / 186
71 160 ...	Turning Tools	9 / 168
71 161 ...	Turning Tools	9 / 89
71 162 ...	Turning Tools	9 / 84
71 163 ...	Turning Tools	9 / 116
71 164 ...	Turning Tools	9 / 155
71 165 ...	Turning Tools	9 / 168
71 166 ...	Turning Tools	9 / 92
71 167 ...	Turning Tools	9 / 94
71 168 ...	Turning Tools	9 / 91
71 169 ...	Turning Tools	9 / 91
71 170 ...	Turning Tools	9 / 92
71 171 ...	Turning Tools	9 / 94
71 172 ...	Turning Tools	9 / 91
71 173 ...	Turning Tools	9 / 119
71 174 ...	Turning Tools	9 / 119
71 175 ...	Turning Tools	9 / 119
71 176 ...	Turning Tools	9 / 118
71 177 ...	Turning Tools	9 / 122
71 178 ...	Turning Tools	9 / 118
71 179 ...	Turning Tools	9 / 137
71 180 ...	Turning Tools	9 / 145
71 181 ...	Turning Tools	9 / 146
71 182 ...	Turning Tools	9 / 145
71 183 ...	Turning Tools	9 / 145
71 184 ...	Turning Tools	9 / 159
71 185 ...	Turning Tools	9 / 160
71 186 ...	Turning Tools	9 / 160
71 187 ...	Turning Tools	9 / 159
71 188 ...	Turning Tools	9 / 160
71 189 ...	Turning Tools	9 / 172
71 190 ...	Turning Tools	9 / 174
71 191 ...	Turning Tools	9 / 173
71 200 ...	Thread turning	8 / 29
71 202 ...	Thread turning	8 / 29
71 203 ...	Thread turning	8 / 30
71 204 ...	Thread turning	8 / 30
71 206 ...	Thread turning	8 / 27
71 208 ...	Thread turning	8 / 27
71 210 ...	Thread turning	8 / 28
71 212 ...	Thread turning	8 / 28
71 220 ...	Thread turning	8 / 4
71 221 ...	Thread turning	8 / 8
71 222 ...	Thread turning	8 / 5
71 224 ...	Thread turning	8 / 6
71 226 ...	Thread turning	8 / 7
71 228 ...	Thread turning	8 / 11
71 229 ...	Thread turning	8 / 12
71 230 ...	Thread turning	8 / 13
71 231 ...	Thread turning	8 / 14
71 232 ...	Thread turning	8 / 21
71 234 ...	Thread turning	8 / 21
71 236 ...	Thread turning	8 / 22
71 238 ...	Thread turning	8 / 22
71 240 ...	Thread turning	8 / 25
71 242 ...	Thread turning	8 / 25
71 244 ...	Thread turning	8 / 26

Article No.	Designation	Page(s)
71 246 ...	Thread turning	8 / 26
71 248 ...	Thread turning	8 / 23
71 250 ...	Thread turning	8 / 23
71 252 ...	Thread turning	8 / 24
71 254 ...	Thread turning	8 / 24
71 256 ...	Thread turning	8 / 19
71 258 ...	Thread turning	8 / 19
71 260 ...	Thread turning	8 / 20
71 262 ...	Thread turning	8 / 20
71 264 ...	Thread turning	8 / 15
71 266 ...	Thread turning	8 / 16
71 268 ...	Thread turning	8 / 17
71 270 ...	Thread turning	8 / 18
71 271 ...	Thread turning	8 / 36
71 272 ...	Thread turning	8 / 39
71 273 ...	Thread turning	8 / 38
71 274 ...	Thread turning	8 / 37
71 280 ...	Thread turning	8 / 31
71 281 ...	Thread turning	8 / 31
71 282 ...	Thread turning	8 / 41
71 283 ...	Thread turning	8 / 34
71 284 ...	Thread turning	8 / 10
71 285 ...	Thread turning	8 / 10
71 286 ...	Thread turning	8 / 9
71 287 ...	Thread turning	8 / 9
71 300 ...	Turning Tools	9 / 94
71 301 ...	Turning Tools	9 / 94
71 302 ...	Turning Tools	9 / 93
71 305 ...	Turning Tools	9 / 91
71 306 ...	Turning Tools	9 / 94
71 310 ...	Turning Tools	9 / 121
71 311 ...	Turning Tools	9 / 121
71 312 ...	Turning Tools	9 / 122
71 315 ...	Turning Tools	9 / 137
71 316 ...	Turning Tools	9 / 137
71 320 ...	Turning Tools	9 / 145
71 321 ...	Turning Tools	9 / 146
71 322 ...	Turning Tools	9 / 146
71 325 ...	Turning Tools	9 / 159
71 326 ...	Turning Tools	9 / 160
71 327 ...	Turning Tools	9 / 160
71 330 ...	Turning Tools	9 / 173
71 331 ...	Turning Tools	9 / 173
71 332 ...	Turning Tools	9 / 174
71 400 ...	Turning Tools	9 / 18
71 401 ...	Turning Tools	9 / 18
71 402 ...	Turning Tools	9 / 33
71 403 ...	Turning Tools	9 / 33
71 404 ...	Turning Tools	9 / 58
71 405 ...	Turning Tools	9 / 73
71 406 ...	Turning Tools	9 / 18
71 407 ...	Turning Tools	9 / 17
71 408 ...	Turning Tools	9 / 15
71 409 ...	Turning Tools	9 / 18
71 410 ...	Turning Tools	9 / 32
71 411 ...	Turning Tools	9 / 32
71 412 ...	Turning Tools	9 / 65
71 413 ...	Turning Tools	9 / 65
71 414 ...	Turning Tools	9 / 73
71 415 ...	Turning Tools	9 / 73
71 418 ...	Turning Tools	9 / 84
71 419 ...	Turning Tools	9 / 83
71 420 ...	Turning Tools	9 / 83
71 421 ...	Turning Tools	9 / 111
71 422 ...	Turning Tools	9 / 111
71 423 ...	Turning Tools	9 / 114
71 424 ...	Turning Tools	9 / 111
71 425 ...	Turning Tools	9 / 136
71 426 ...	Turning Tools	9 / 144
71 427 ...	Turning Tools	9 / 155
71 428 ...	Turning Tools	9 / 170
71 429 ...	Turning Tools	9 / 168
71 430 ...	Turning Tools	9 / 170
71 499 ...	Turning Tools	9 / 218
71 950 ...	Thread turning	8 / 42
72 900 ...	Solid Carbide milling cutters	14 / 304
72 945 ...	Solid Carbide milling cutters	14 / 304
73 000 ...	Miniature turning tools	12 / 10
73 001 ...	Miniature turning tools	12 / 10
73 002 ...	Miniature turning tools	12 / 14
73 003 ...	Miniature turning tools	12 / 14
73 004 ...	Miniature turning tools	12 / 5
73 005 ...	Miniature turning tools	12 / 5
73 006 ...	Miniature turning tools	12 / 13
73 007 ...	Miniature turning tools	12 / 13
73 008 ...	Miniature turning tools	12 / 13
73 009 ...	Miniature turning tools	12 / 13
73 010 ...	Miniature turning tools	12 / 17
73 011 ...	Miniature turning tools	12 / 17
73 012 ...	Miniature turning tools	12 / 12
73 013 ...	Miniature turning tools	12 / 12
73 014 ...	Miniature turning tools	12 / 11
73 015 ...	Miniature turning tools	12 / 11
73 016 ...	Miniature turning tools	12 / 7
73 017 ...	Miniature turning tools	12 / 7
73 018 ...	Miniature turning tools	12 / 18
73 019 ...	Miniature turning tools	12 / 18
73 020 ...	Miniature turning tools	12 / 6
73 021 ...	Miniature turning tools	12 / 6
73 022 ...	Miniature turning tools	12 / 6
73 023 ...	Miniature turning tools	12 / 6
73 024 ...	Miniature turning tools	12 / 8
73 025 ...	Miniature turning tools	12 / 8
73 026 ...	Miniature turning tools	12 / 9
73 027 ...	Miniature turning tools	12 / 9
73 050 ...	Miniature turning tools	12 / 22
73 051 ...	Miniature turning tools	12 / 22
73 052 ...	Miniature turning tools	12 / 22
73 053 ...	Miniature turning tools	12 / 22
73 054 ...	Miniature turning tools	12 / 27
73 055 ...	Miniature turning tools	12 / 27
73 056 ...	Miniature turning tools	12 / 27
73 057 ...	Miniature turning tools	12 / 27
73 058 ...	Miniature turning tools	12 / 24
73 059 ...	Miniature turning tools	12 / 24
73 060 ...	Miniature turning tools	12 / 25
73 061 ...	Miniature turning tools	12 / 25
73 080 ...	Miniature turning tools	12 / 30
73 081 ...	Miniature turning tools	12 / 33
73 083 ...	Miniature turning tools	12 / 34
73 084 ...	Miniature turning tools	12 / 34
73 085 ...	Miniature turning tools	12 / 28
73 086 ...	Miniature turning tools	12 / 34
73 088 ...	Miniature turning tools	12 / 32
73 089 ...	Miniature turning tools	12 / 31
73 100 ...	Miniature turning tools	12 / 19
73 101 ...	Miniature turning tools	12 / 19
73 102 ...	Miniature turning tools	12 / 20
73 103 ...	Miniature turning tools	12 / 20
73 104 ...	Miniature turning tools	12 / 21
73 105 ...	Miniature turning tools	12 / 21
73 202 ...	Miniature turning tools	12 / 16
73 203 ...	Miniature turning tools	12 / 16
73 206 ...	Miniature turning tools	12 / 20
73 207 ...	Miniature turning tools	12 / 20
73 208 ...	Miniature turning tools	12 / 19
73 209 ...	Miniature turning tools	12 / 19
73 210 ...	Miniature turning tools	12 / 21
73 211 ...	Miniature turning tools	12 / 21
73 252 ...	Miniature turning tools	12 / 23
73 253 ...	Miniature turning tools	12 / 23
73 256 ...	Miniature turning tools	12 / 27
73 257 ...	Miniature turning tools	12 / 27
73 260 ...	Miniature turning tools	12 / 25
73 261 ...	Miniature turning tools	12 / 25
73 262 ...	Miniature turning tools	12 / 26
73 263 ...	Miniature turning tools	12 / 26
73 300 ...	Grooving Tools	11 / 62
73 301 ...	Grooving Tools	11 / 61
73 302 ...	Grooving Tools	11 / 61
73 303 ...	Grooving Tools	11 / 64
73 304 ...	Grooving Tools	11 / 63
73 305 ...	Grooving Tools	11 / 65
73 306 ...	Grooving Tools	11 / 65
73 310 ...	Miniature turning tools	12 / 40
73 312 ...	Miniature turning tools	12 / 40
73 314 ...	Miniature turning tools	12 / 37
73 316 ...	Miniature turning tools	12 / 37
73 318 ...	Miniature turning tools	12 / 43

Article No.	Designation	Page(s)
73 320 ...	Miniature turning tools	12 / 43
73 322 ...	Miniature turning tools	12 / 35
73 324 ...	Miniature turning tools	12 / 35
73 326 ...	Miniature turning tools	12 / 42
73 328 ...	Miniature turning tools	12 / 42
73 330 ...	Miniature turning tools	12 / 38
73 332 ...	Miniature turning tools	12 / 38
73 334 ...	Miniature turning tools	12 / 38
73 336 ...	Miniature turning tools	12 / 38
73 338 ...	Miniature turning tools	12 / 39
73 340 ...	Miniature turning tools	12 / 39
73 342 ...	Miniature turning tools	12 / 44
73 344 ...	Miniature turning tools	12 / 44
73 346 ...	Miniature turning tools	12 / 45
73 348 ...	Miniature turning tools	12 / 45
73 350 ...	Miniature turning tools	12 / 46
73 352 ...	Miniature turning tools	12 / 46
73 354 ...	Miniature turning tools	12 / 47
73 356 ...	Miniature turning tools	12 / 47
73 358 ...	Miniature turning tools	12 / 49
73 360 ...	Miniature turning tools	12 / 49
73 362 ...	Miniature turning tools	12 / 48
73 364 ...	Miniature turning tools	12 / 48
73 366 ...	Miniature turning tools	12 / 36
73 368 ...	Miniature turning tools	12 / 36
73 370 ...	Miniature turning tools	12 / 41
73 372 ...	Miniature turning tools	12 / 41
73 374 ...	Miniature turning tools	12 / 48
73 376 ...	Miniature turning tools	12 / 48
73 382 ...	Miniature turning tools	12 / 41
73 384 ...	Miniature turning tools	12 / 41
73 386 ...	Miniature turning tools	12 / 35
73 388 ...	Miniature turning tools	12 / 35
73 500 ...	Grooving Tools	11 / 66
73 501 ...	Grooving Tools	11 / 66
73 502 ...	Grooving Tools	11 / 67
73 503 ...	Grooving Tools	11 / 67
73 504 ...	Grooving Tools	11 / 68
73 505 ...	Grooving Tools	11 / 68
73 506 ...	Grooving Tools	11 / 69
73 507 ...	Grooving Tools	11 / 69
73 510 ...	Grooving Tools	11 / 70
73 511 ...	Grooving Tools	11 / 70
73 520 ...	Miniature turning tools	12 / 51
73 522 ...	Miniature turning tools	12 / 50
73 523 ...	Miniature turning tools	12 / 53
73 524 ...	Miniature turning tools	12 / 53
73 525 ...	Miniature turning tools	12 / 52
73 526 ...	Miniature turning tools	12 / 52
73 528 ...	Miniature turning tools	12 / 49
73 600 ...	Miniature turning tools	12 / 54
73 601 ...	Miniature turning tools	12 / 54
73 602 ...	Miniature turning tools	12 / 54
73 603 ...	Miniature turning tools	12 / 56
73 604 ...	Miniature turning tools	12 / 56
73 605 ...	Miniature turning tools	12 / 56
73 606 ...	Miniature turning tools	12 / 55
73 607 ...	Miniature turning tools	12 / 55
73 608 ...	Miniature turning tools	12 / 55
73 610 ...	Miniature turning tools	12 / 54
73 611 ...	Miniature turning tools	12 / 57
73 612 ...	Miniature turning tools	12 / 55
73 613 ...	Miniature turning tools	12 / 57
74 000 ...	EcoCut and FreeTurn	10 / 22
74 001 ...	EcoCut and FreeTurn	10 / 18
74 002 ...	EcoCut and FreeTurn	10 / 19
74 003 ...	EcoCut and FreeTurn	10 / 17
74 503 ...	Turning Tools	9 / 23
74 504 ...	Turning Tools	9 / 23
74 506 ...	Turning Tools	9 / 23
74 507 ...	Turning Tools	9 / 38
74 508 ...	Turning Tools	9 / 38
74 511 ...	Turning Tools	9 / 38
74 512 ...	Turning Tools	9 / 38
74 515 ...	Turning Tools	9 / 37
74 516 ...	Turning Tools	9 / 37
74 519 ...	Turning Tools	9 / 39
74 522 ...	Turning Tools	9 / 53
74 525 ...	Turning Tools	9 / 67
74 528 ...	Turning Tools	9 / 75
74 529 ...	Turning Tools	9 / 75
74 532 ...	Turning Tools	9 / 44
74 533 ...	Turning Tools	9 / 44
74 536 ...	Turning Tools	9 / 77
74 537 ...	Turning Tools	9 / 77
74 540 ...	Turning Tools	9 / 98
74 541 ...	Turning Tools	9 / 98
74 542 ...	Turning Tools	9 / 98
74 543 ...	Turning Tools	9 / 126
74 544 ...	Turning Tools	9 / 126
74 546 ...	Turning Tools	9 / 126
74 548 ...	Turning Tools	9 / 141
74 551 ...	Turning Tools	9 / 141
74 552 ...	Turning Tools	9 / 141
74 553 ...	Turning Tools	9 / 179
74 554 ...	Turning Tools	9 / 179
74 555 ...	Turning Tools	9 / 179
74 556 ...	Turning Tools	9 / 179
74 557 ...	Turning Tools	9 / 178
74 558 ...	Turning Tools	9 / 178
74 560 ...	Turning Tools	9 / 180
74 563 ...	Turning Tools	9 / 104
74 564 ...	Turning Tools	9 / 104
74 565 ...	Turning Tools	9 / 133
74 566 ...	Turning Tools	9 / 133
74 567 ...	Turning Tools	9 / 184
74 568 ...	Turning Tools	9 / 184
74 580 ...	Grooving Tools	11 / 96
74 581 ...	Grooving Tools	11 / 96
74 582 ...	Grooving Tools	11 / 96
74 583 ...	Grooving Tools	11 / 96
74 590 ...	EcoCut and FreeTurn	10 / 13
74 591 ...	EcoCut and FreeTurn	10 / 13
74 600 ...	Turning Tools	9 / 37
74 700 ...	EcoCut and FreeTurn	10 / 20
74 701 ...	EcoCut and FreeTurn	10 / 23
75 003 ...	Turning Tools	9 / 13
75 004 ...	Turning Tools	9 / 30
75 005 ...	Turning Tools	9 / 48
75 006 ...	Turning Tools	9 / 57
75 008 ...	Turning Tools	9 / 71
75 009 ...	Turning Tools	9 / 63
75 010 ...	Turning Tools	9 / 13
75 011 ...	Turning Tools	9 / 13
75 012 ...	Turning Tools	9 / 13
75 013 ...	Turning Tools	9 / 30
75 014 ...	Turning Tools	9 / 30
75 015 ...	Turning Tools	9 / 30
75 016 ...	Turning Tools	9 / 48
75 017 ...	Turning Tools	9 / 48
75 018 ...	Turning Tools	9 / 48
75 019 ...	Turning Tools	9 / 57
75 020 ...	Turning Tools	9 / 57
75 021 ...	Turning Tools	9 / 57
75 022 ...	Turning Tools	9 / 62
75 023 ...	Turning Tools	9 / 63
75 024 ...	Turning Tools	9 / 71
75 025 ...	Turning Tools	9 / 71
75 026 ...	Turning Tools	9 / 71
75 210 ...	Turning Tools	9 / 80
75 211 ...	Turning Tools	9 / 80
75 213 ...	Turning Tools	9 / 106
75 214 ...	Turning Tools	9 / 106
75 216 ...	Turning Tools	9 / 143
75 217 ...	Turning Tools	9 / 153
75 218 ...	Turning Tools	9 / 153
75 219 ...	Turning Tools	9 / 165
75 220 ...	Turning Tools	9 / 165
75 300 ...	Turning Tools	9 / 82
75 301 ...	Turning Tools	9 / 82
75 302 ...	Turning Tools	9 / 14
75 303 ...	Turning Tools	9 / 14
75 304 ...	Turning Tools	9 / 109
75 305 ...	Turning Tools	9 / 109
75 306 ...	Turning Tools	9 / 31
75 307 ...	Turning Tools	9 / 31
75 308 ...	Turning Tools	9 / 167
75 309 ...	Turning Tools	9 / 167
75 310 ...	Turning Tools	9 / 64

Article No.	Designation	Page(s)
75 311 ...	Turning Tools	9 / 72
75 312 ...	Turning Tools	9 / 72
76 000 ...	Turning Tools	9 / 62
76 001 ...	Turning Tools	9 / 62
76 101 ...	Turning Tools	9 / 9
76 102 ...	Turning Tools	9 / 27
76 110 ...	Turning Tools	9 / 9
76 114 ...	Turning Tools	9 / 11
76 115 ...	Turning Tools	9 / 12
76 116 ...	Turning Tools	9 / 46
76 119 ...	Turning Tools	9 / 11
76 128 ...	Turning Tools	9 / 47
76 129 ...	Turning Tools	9 / 47
76 130 ...	Turning Tools	9 / 48
76 131 ...	Turning Tools	9 / 62
76 132 ...	Turning Tools	9 / 9
76 133 ...	Turning Tools	9 / 12
76 134 ...	Turning Tools	9 / 27
76 135 ...	Turning Tools	9 / 10
76 136 ...	Turning Tools	9 / 29
76 137 ...	Turning Tools	9 / 45
76 138 ...	Turning Tools	9 / 55
76 139 ...	Turning Tools	9 / 70
76 140 ...	Turning Tools	9 / 45
76 142 ...	Turning Tools	9 / 56
76 146 ...	Turning Tools	9 / 55
76 149 ...	Turning Tools	9 / 55
76 152 ...	Turning Tools	9 / 56
76 153 ...	Turning Tools	9 / 28
76 154 ...	Turning Tools	9 / 56
76 155 ...	Turning Tools	9 / 56
76 156 ...	Turning Tools	9 / 62
76 157 ...	Turning Tools	9 / 69
76 165 ...	Turning Tools	9 / 29
76 166 ...	Turning Tools	9 / 30
76 171 ...	Turning Tools	9 / 69
76 177 ...	Turning Tools	9 / 69
76 182 ...	Turning Tools	9 / 142
76 194 ...	Turning Tools	9 / 79
76 195 ...	Turning Tools	9 / 106
76 196 ...	Turning Tools	9 / 10
76 197 ...	Turning Tools	9 / 29
76 198 ...	Turning Tools	9 / 70
76 225 ...	Turning Tools	9 / 46
76 245 ...	Turning Tools	9 / 105
76 246 ...	Turning Tools	9 / 105
76 247 ...	Turning Tools	9 / 78
76 248 ...	Turning Tools	9 / 78
76 249 ...	Turning Tools	9 / 79
76 250 ...	Turning Tools	9 / 79
76 251 ...	Turning Tools	9 / 78
76 252 ...	Reaming and Countersinking	4 / 54
76 252 ...	Turning Tools	9 / 79
76 253 ...	Turning Tools	9 / 79
76 254 ...	Turning Tools	9 / 108
76 255 ...	Turning Tools	9 / 166
76 256 ...	Turning Tools	9 / 105
76 257 ...	Turning Tools	9 / 105
76 258 ...	Turning Tools	9 / 106
76 259 ...	Turning Tools	9 / 105
76 260 ...	Turning Tools	9 / 142
76 261 ...	Turning Tools	9 / 142
76 262 ...	Turning Tools	9 / 134
76 263 ...	Turning Tools	9 / 29
76 264 ...	Turning Tools	9 / 134
76 265 ...	Turning Tools	9 / 105
76 266 ...	Turning Tools	9 / 152
76 267 ...	Turning Tools	9 / 142
76 268 ...	Turning Tools	9 / 142
76 269 ...	Turning Tools	9 / 142
76 270 ...	Turning Tools	9 / 153
76 272 ...	Turning Tools	9 / 152
76 273 ...	Turning Tools	9 / 70
76 274 ...	Turning Tools	9 / 153
76 275 ...	Turning Tools	9 / 152
76 276 ...	Turning Tools	9 / 164
76 277 ...	Turning Tools	9 / 164
76 278 ...	Turning Tools	9 / 165
76 279 ...	Turning Tools	9 / 164
76 284 ...	Turning Tools	9 / 153
76 285 ...	Turning Tools	9 / 164
76 288 ...	Turning Tools	9 / 165
76 290 ...	Turning Tools	9 / 10
76 291 ...	Turning Tools	9 / 28
76 292 ...	Turning Tools	9 / 164
76 294 ...	Turning Tools	9 / 62
76 295 ...	Turning Tools	9 / 70
80 950 ...	Milling tools with indexable inserts	15 / 137
84 050 ...	Solid Carbide milling cutters	14 / 185
84 051 ...	Solid Carbide milling cutters	14 / 185
84 052 ...	Solid Carbide milling cutters	14 / 186
84 053 ...	Solid Carbide milling cutters	14 / 187
84 143 ...	Turning Tools	9 / 193
84 144 ...	Turning Tools	9 / 193
84 145 ...	Turning Tools	9 / 194
84 146 ...	Turning Tools	9 / 194
84 147 ...	Turning Tools	9 / 193
84 148 ...	Turning Tools	9 / 193
84 159 ...	Turning Tools	9 / 191
84 160 ...	Turning Tools	9 / 191
84 161 ...	Turning Tools	9 / 191
84 162 ...	Turning Tools	9 / 191
84 163 ...	Turning Tools	9 / 192
84 164 ...	Turning Tools	9 / 192
84 165 ...	Turning Tools	9 / 192
84 166 ...	Turning Tools	9 / 192
84 167 ...	Turning Tools	9 / 195
84 168 ...	Turning Tools	9 / 195
84 190 ...	Thread turning	8 / 32
84 191 ...	Thread turning	8 / 32
84 192 ...	Turning Tools	9 / 189
84 193 ...	Turning Tools	9 / 190
84 194 ...	Turning Tools	9 / 188
84 195 ...	Turning Tools	9 / 188
84 196 ...	Thread turning	8 / 35
84 197 ...	Thread turning	8 / 35
84 210 ...	Indexable insert drilling	3 / 57
84 652 ...	Turning Tools	9 / 75
84 653 ...	Turning Tools	9 / 75
84 654 ...	Turning Tools	9 / 99
84 655 ...	Turning Tools	9 / 99
84 656 ...	Turning Tools	9 / 24
84 657 ...	Turning Tools	9 / 24
84 658 ...	Turning Tools	9 / 127
84 659 ...	Turning Tools	9 / 127
84 660 ...	Turning Tools	9 / 39
84 661 ...	Turning Tools	9 / 39
84 662 ...	Turning Tools	9 / 127
84 663 ...	Turning Tools	9 / 127
84 664 ...	Turning Tools	9 / 40
84 665 ...	Turning Tools	9 / 40
84 666 ...	Turning Tools	9 / 128
84 667 ...	Turning Tools	9 / 128
84 668 ...	Turning Tools	9 / 40
84 669 ...	Turning Tools	9 / 40
84 670 ...	Turning Tools	9 / 180
84 671 ...	Turning Tools	9 / 180
84 672 ...	Turning Tools	9 / 67
84 673 ...	Turning Tools	9 / 67
84 674 ...	Turning Tools	9 / 99
84 675 ...	Turning Tools	9 / 24
84 676 ...	Turning Tools	9 / 41
84 677 ...	Turning Tools	9 / 128
84 678 ...	Turning Tools	9 / 181
84 679 ...	Turning Tools	9 / 68
84 680 ...	Turning Tools	9 / 41
84 681 ...	Turning Tools	9 / 181
84 682 ...	Turning Tools	9 / 68
84 683 ...	Turning Tools	9 / 42
84 950 ...	Turning Tools	9 / 42

ISO designation system

ISO attribute	Feature Description
A	
ADJRG	Adjustment range
ADJRGR	Adjustment range radial
ALP	Clearance angle axial
AN	Clearance angle major
APMX	Depth of cut maximum
B	
B	Shank width
BD	Body diameter
BD_1	Body diameter, 1st cutting step
BD_2	Body diameter, 2nd cutting step
BD_3	Body diameter, 3rd cutting step
BD_4	Body diameter, 4th cutting step
BDRED	Body diameter, reduced
BDX	Body diameter maximum
BHTA	Body half taper angle
BN	Face land width
BS	Wiper edge length
BTED	Body taper end diameter
C	
CDX	Cutting depth maximum
CF	Central flat
CHW	Corner chamfer width
CHWTL	Flank chamfer width left hand
CLDIS_1	centre line distance 1
CLDIS_2	centre line distance 2
CLDIS_3	centre line distance 3
CND	Coolant entry diameter
CNT	Coolant entry, thread size
CODX	Parting off diameter, max.
CRE	Spot radius
CRKS	Pull stud thread size
CW	Cutting width
CXD	Coolant exit diameter
D	
D1	Fixing hole diameter
DAXN	Axial groove outside diameter minimum
DAXX	Axial groove outside diameter maximum
DC	Cutting diameter
DC_1	Cutting diameter, 1st cutting step
DC_2	Cutting diameter, 2nd cutting step
DCD	Cutting diameter drilling part
DCINTF	Interference cutting diameter
DCN	Cutting diameter minimum
DCONMS	Mounting spigot diameter
DCONWS	Connection diameter workpiece side
DCONWS_1	Connection diameter workpiece side 1
DCONWS_2	Connection diameter workpiece side 2
DCSKX	Countersunk diameter, max
DCX	Cutting diameter maximum
DF	Flange diameter
DFC	Functional diameter
DHUB	Hub diameter
DLN	Diameter lock nut
DMIN	Minimum bore diameter
DN	Neck Diameter
DRVS	Drive size

ISO attribute	Feature Description
G	
GAN	Insert rake angle
GB	Face land angle
H	
H	Shank height
HDD	Head diameter
HDW	head width
HF	Functional height
HLN	Lock nut height
HSUP	Support height
I	
IC	Inscribed circle diameter
IH	Insert hand
INSL	Insert length
K	
KAPR	Tool cutting edge angle
KCH	Corner chamfer angle
L	
L	Cutting edge length
L_1	Cutting edge length 1
L_2	Cutting edge length 2
L_3	Cutting edge length 3
LB	Body length
LB_1	Body length 1
LB_2	Body length 2
LCF	Length chip flute
LCOL	Collet length
LDRED	Reduced body diameter length
LE	Cutting edge effective length
LF	Functional length
LF_1	Functional length 1
LF_2	Functional length 2
LF_3	Functional length 3
LFSF	Distance to face
LH	Head length
LPCON	Connection protruding length
LPR	Protruding length
LS	Shank length
LSC	Clamping length machine side
LSCN	Clamping length minimum machine side
LSCX	Clamping length maximum machine side
LTA	length tool assembly
LU	Usable length
LUX	Usable length maximum
M	
MXC_R	Clamping force maximum
N	
NOF	Flute count
NT	Tooth count
O	
OAH	Overall height
OAL	Overall length
OAW	Overall width

Continued on next page

ISO designation system

ISO attribute	Feature Description
P	
PDPT	Profile depth insert
PDX	Profile distance ex
PDY	Profile distance ey
PHD	Premachined hole diameter
PL	Point length
PLGL	Plug length
PNA	Profile included angle
PRFA	Profile angle
PRFRAD	Profile radius
PRFRAD1	Profile radius 1
PRFRAD2	Profile radius 2
PRFRAD3	Profile radius 3
PSIR	Tool lead angle
R	
RA	Relief angle
RADH	Radial height
RADW	Radial width
RADWOF	Radial offset width
RAR	Relief angle rh
RCSK	Radius countersunk
RE	Corner radius
RE_1	Corner radius 1
RE_2	Corner radius 2
RE_3	Corner radius 3
REL	Corner radius left hand
RETL	Flank radius left hand
RETR	Flank radius right hand
RPMX	Rotational speed maximum
S	
S	Insert thickness
S1	Insert thickness total
SD	Step distance
SDL	Step diameter length
SDL_1	Step diameter length 1
SDL_2	Step diameter length 2
SZID	nominal size
T	
THID	Thread designation inside
THL	Thread cutting part length
THOD	Thread designation outside
THSZMS	Connection thread nominal size
THSZWS	Connection thread nominal size workpiece side
TP	Thread pitch
TPI	Threads per inch
TQX	Torque maximum
W	
W1	Insert width
WF	Functional width
WF2	Functional width 2
WT	Weight of item
Z	
ZEFP	Peripheral effective cutting edge count
ZNF	Face mounted insert count
ZNP	Peripheral mounted insert count



Find out more at:
cutting.tools/int/en/dragonskin

CERATIZIT
GROUP