CERATIZIT GROUP

09\2020

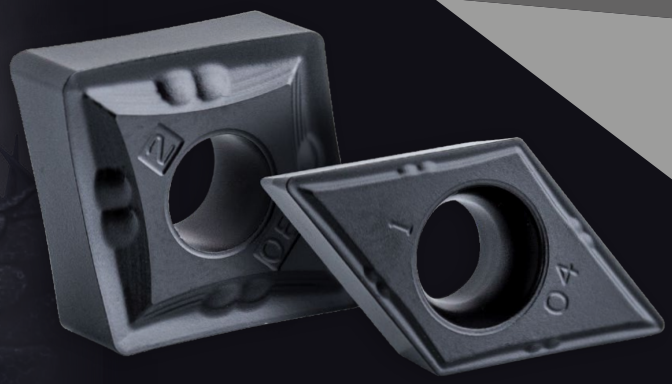
NEW DEVELOPMENTS AND PRODUCT ENHANCEMENTS

UP2DATE

STAINLESS STEEL TURNING!

DURABLE | RELIABLE | COMPLETE

New grades CTCM120 and CTCM130 with the innovative Dragonskin coating for the best performance



DRAGONSKIN by CERATIZIT

... AND SOME MORE DRAGONSKIN PRODUCTS

- WTX Feed BR
- New grade in indexable insert milling CTCM245
- MonsterMill PCR-ALU
- and much more

TEAM CUTTING TOOLS

CUTTING SOLUTIONS BY CERATIZIT · KOMET · WTX · KLENK

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

Tooling the Future

www.ceratizit.com

Welcome!

It couldn't be easier

Ordering via the Online Shop

http://cuttingtools.ceratizit.com

On-site technical support

Your Local Technical Sales Engineer

Your customer number

DRAGONSKIN

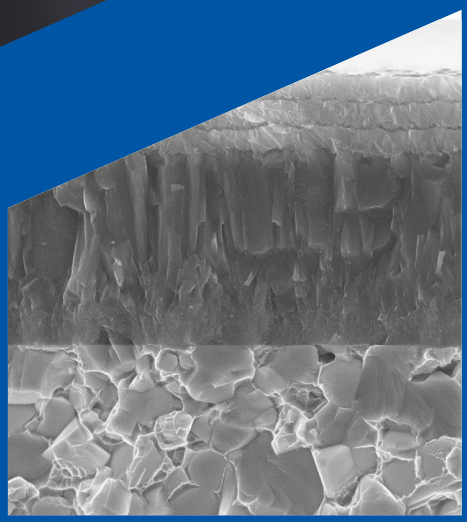
by CERATIZIT

Dragonskin –
The coatings for the highest performance

We have focused all our innovative strength and expert knowledge in powder metallurgy on one particular objective: developing a tool coating that allows you as a customer to achieve an unprecedented level of performance in machining. We have succeeded in our efforts with the Dragonskin coating technology.

This technology offers the highest degree of protection against external influences and effectively prevents premature tool wear. The virtually impenetrable layer has been specially developed for the toughest requirements and can cope with any machining task. The extremely hard surface also catches the eye with its exceptionally refined appearance.

The perfect combination of state-of-the-art high-performance substrates and advanced coating structure achieves high cutting speeds and increased process security. **Proven increase in performance of up to 80%** our advanced Dragonskin coating technology provides you with a significant competitive advantage.



The product category Dragonskin is intended to help make tools easily recognizable and quick to find using CERATIZIT's high-performance coating technology. All products that are marked with the Dragonskin icon represent unmatchable performance, maximum tool life and maximum process reliability.

Dragonskin Coating

Dragonskin products

Solid carbide drilling

24–27 WTX – Feed BR

28+29 WTX – short step drill

Turning Tools

66–83 CTCM120 and CTCM130 for stainless turning

Solid Carbide milling cutters

94–104 MonsterMill – plunge milling cutter with chip breaker

Milling tools with indexable inserts

114–127 Grade CTCM245

128–131 XDKT inserts for the MaxiMill 211-20 system

Machining without compromise

The new ISO-M grades for high performance turning in stainless materials are here

CUTTING SOLUTIONS BY CERATIZIT

Dragonskin – new grades with the high-performance coating technology from CERATIZIT

Always the right solution for machining austenitic, stainless steels. In addition to the established CTPM125, two new grades now round off our product range: the more wear-resistant CTCM120 and the tougher CTCM130. Thanks to the Dragonskin coating, both grades are high performers and process-secure.

NEW

CTCM120

- Wear-resistant grade for austenitic steels
- High cutting speeds
- For a smooth cut

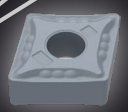
DRAGONSKIN

NEW

CTCM130

- Tough carbide grade for interrupted cuts
- Guaranteed process security
- For lower cutting speeds and unstable conditions

DRAGONSKIN



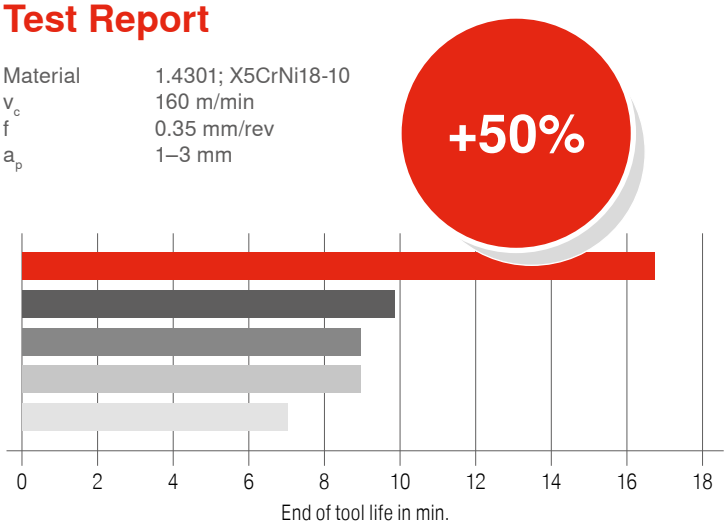
CTPM125

- Universal carbide grade
- Good balance between toughness and elevated-temperature resistance
- High level of reliability for machining austenitic or stainless steels

DRAGONSKIN

Test Report

Material	1.4301; X5CrNi18-10
v_c	160 m/min
f	0.35 mm/rev
a_p	1–3 mm



	End of tool life in min.
CTCM120	16,5
CTPM125	9,9
Competitor 1	8,8
Competitor 2	8,8
Competitor 3	7,7

This diagram illustrates the machining results produced by the new CVD-coated CTCM120 cutting material grade when turning austenitic, stainless steels. The new grades were developed specifically for these V2A (e.g. 1.4301) and V4A (1.4545) material groups, which are the most commonly used stainless steels. During this trial, the new grade was compared with the established CTPM125 and the benchmark and was taken through to the end of the tool life. The new development from CERATIZIT excelled with **over 50% longer tool life** than the competition.

> The different coating technologies for the grades (PVD and CVD) enable us to adapt perfectly to the pretreatment of the material to be machined.
>
> CERATIZIT Product Manager, Stefan Karl

We never stop developing new solutions – we are now offering a complete "stainless package"

Advantages/benefits

- **Three steps and three grades seamlessly cover all application ranges for the machining of austenitic, stainless steels**
  Clear, consistent range and easy selection of indexable insert
- **CTCM120 – highly wear-resistant grade for high cutting speeds**
  High cutting speed and longer service life increases productivity
- **CTPM125 – universal grade for all applications, including interrupted cuts**
  Universal application with high reliability and outstanding performance
- **CTCM130 – tough grade for interrupted cuts and difficult conditions**
  For maximum process security and reduction of the scrap rate

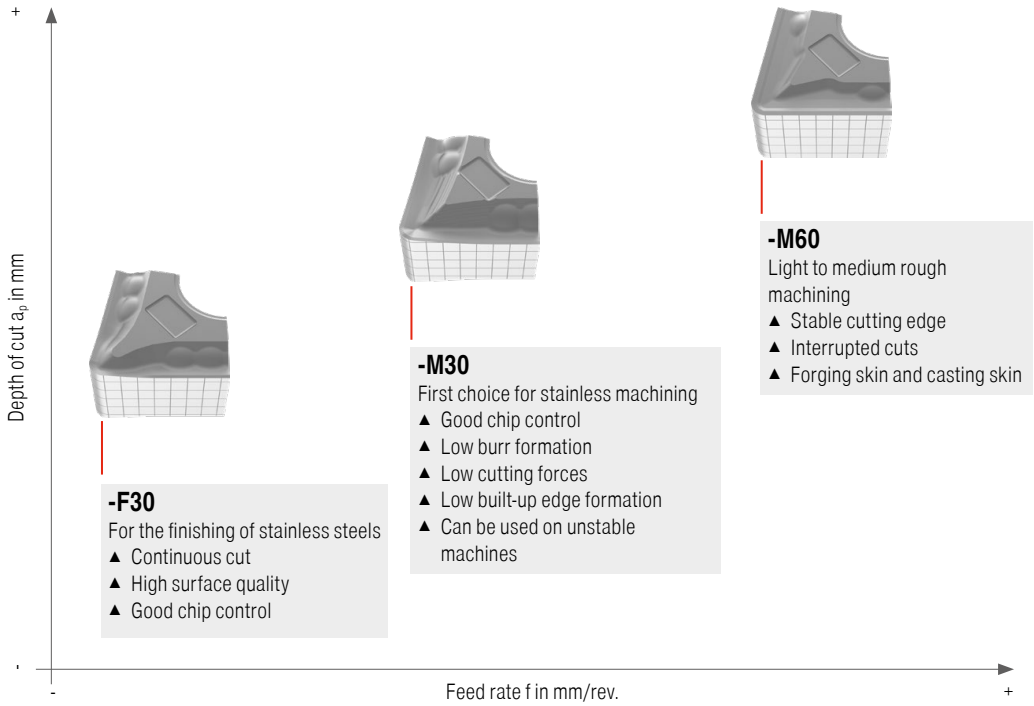
Further information on the product can be found on page 66–83

The product range

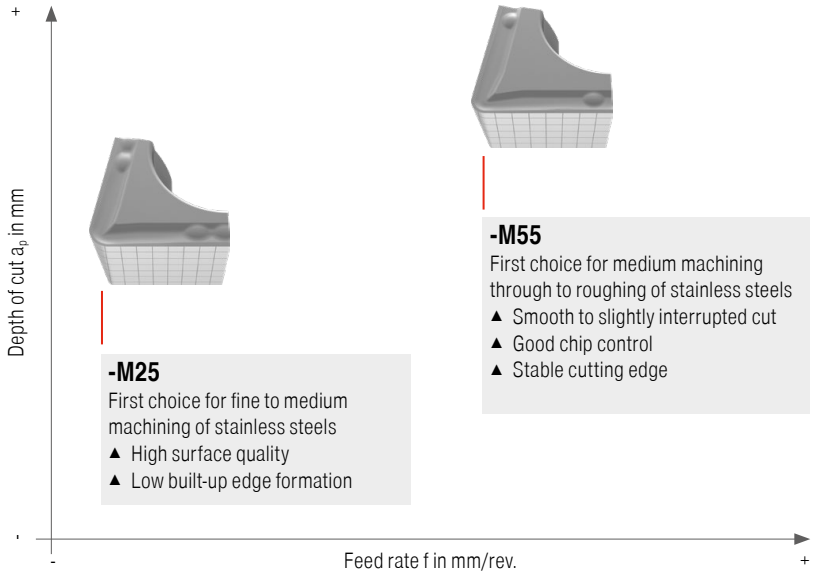
The complete range for austenitic, stainless steels is characterised not only by the precise coordination of the grades but also by the geometric consistency between the chip breakers.

You can choose between three (negative inserts) or two (positive inserts) chip breakers depending on your application. Available in all three grades!

Overview of chip breakers – negative inserts



Overview of chip breakers – positive inserts



Important information regarding the machining of stainless materials can be found on → page 82+83

CONCLUSION

We now have an all-round, harmonised product range for austenitic, stainless steels. Thanks to the geometric consistency across all three ISO M grades, the tool can be matched to the application in question perfectly in the form of an indexable insert.

WTX Feed BR

Drill reamer with 3 effective cutting edges makes for a short working process

Further information on the product can be found on page 24–27

Spot drilling, drilling and reaming to a tolerance of H7 in just one operation? The WTX Feed BR drill reamer enables you to do just that. With this exciting new development, we are once again responding to the main requirements presented to us by the machining market, namely to continuously streamline and improve our customers' production processes taking into account new materials and machining methods. Decades of experience in the development of maximum efficiency cutting tools have enabled us to develop a solid carbide drill reamer that is currently the only one of its kind. Three effective cutting edges shorten the working process significantly and ensure maximum accuracy and surface quality.

Features

- ▲ Increased cylindricity and improved roundness of the hole
- ▲ Significantly narrower tolerance field of the holes produced
- ▲ Higher cutting speeds thanks to the three effective cutting edges
- ▲ Improved centring and positioning properties
- ▲ Universal drill reamer
- ▲ Specially designed for steel and cast iron machining
- ▲ Lower cutting forces
- ▲ Good surface quality can be obtained

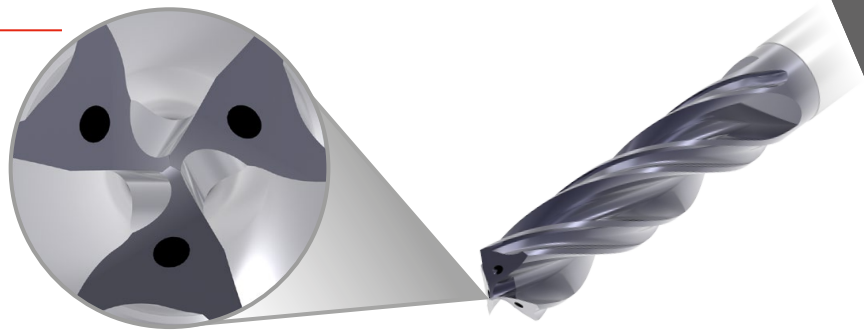
DRAGONSKIN

DPX14S – Dragonskin coating:

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

3 effective cutting edges increase cylindricity and improve the roundness of the holes

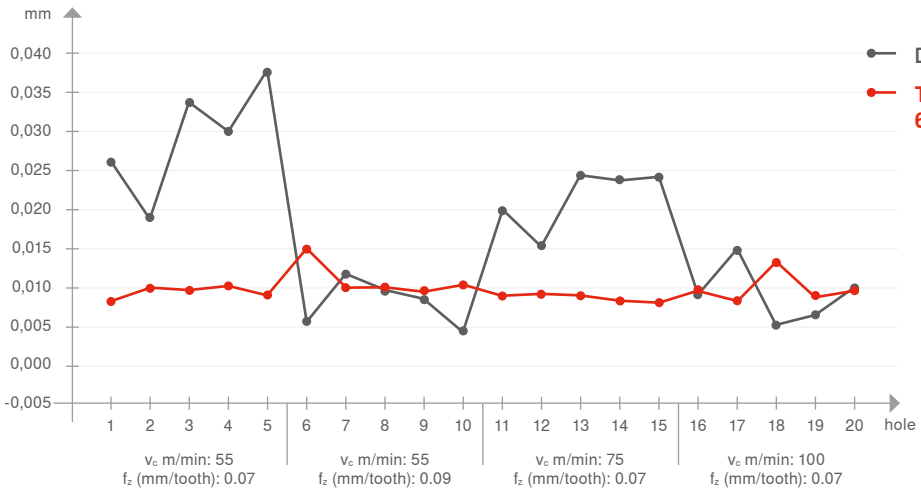
Very high wear resistance thanks to tried-and-tested Dragonskin coating



Suitable for universal use and, thanks to the new cutting edge geometry, can even be used with lower cutting forces

Drilling test in 42CRMOS4 – diameter deviation from measured tool Ø

Tool diameter: DC = 8.00 mm (8H7 hole)



Ø Reduced deviation of 0,013 mm

KUB Pentron CS

Drilling to Ø 96 mm – now anything is possible!

Cartridge solution with tried-and-tested SOGX indexable inserts

- A certain diameter range can be covered with a holder and a suitable internal cartridge
- The external cartridge must be adapted to the nominal outer diameter
- Existing SOGX indexable inserts from the standard portfolio
- Universal application, powerful, specialised

Modular System

- Process-secure, reliable
- Interchangeable
- Minimises tool costs

KOMET

Basic element

- Burnished, wear-resistant KUB Pentron base holder in the accustomed high quality from KOMET

ABS interface

- Improved force transmission for optimum machining results
- Greater degree of accuracy and higher cutting speeds
- Higher clamping force

Further information on the product can be found on page 30–34

THE ENTIRE KUB PENTRON FAMILY

CS

Drill with cartridge system

Process-secure, powerful and reliable system for creating large holes with a diameter of up to 96.00 mm. It has a modular design and consists of a base body, an internal cartridge and an external cartridge. A certain diameter range can already be covered with a holder and a suitable internal cartridge.

ABS

Drill with ABS connection

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

C

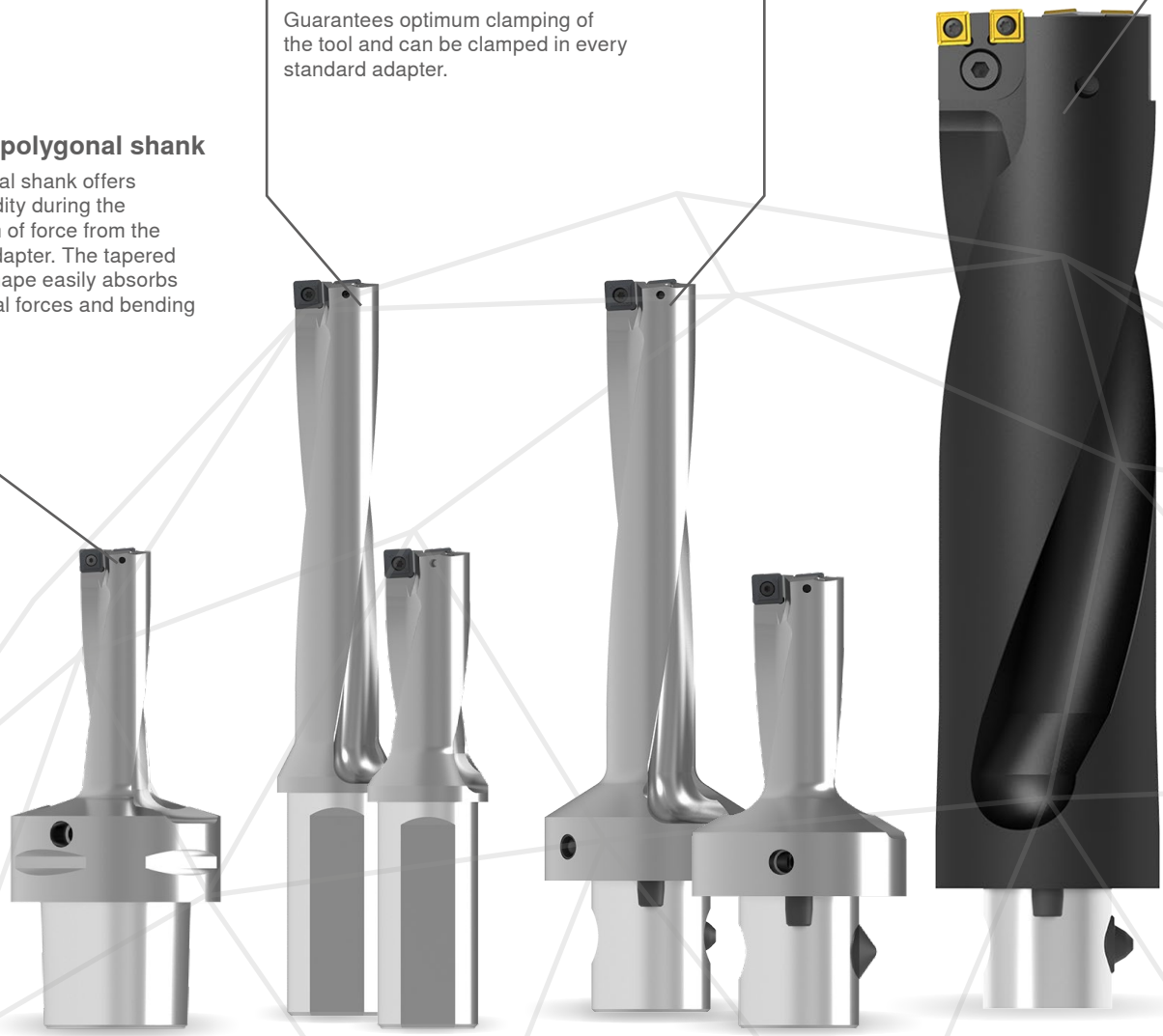
Cylindrical shank with clamping flat

Guarantees optimum clamping of the tool and can be clamped in every standard adapter.

PSC

Drill with polygonal shank

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



CTCM245

The new benchmark for machining high-alloy steels

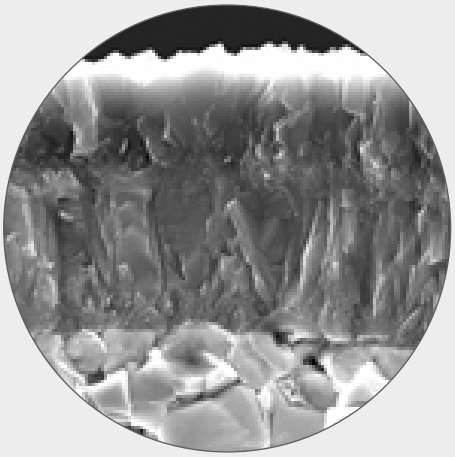
CUTTING SOLUTIONS BY CERATIZIT

The new CTCM245 grade features an optimised coating and substrate combination that has been specially developed for machining high-alloy steels. As a user, you benefit from high cutting speeds and excellent results in the dry machining of the following materials:

- Materials containing chromium (tool steels)
- Martensitic, stainless steels
- High-alloy, austenitic, stainless steels

The special properties of the grade make it suitable for dry machining, which means that thermal shocks can be effectively prevented. The CTCM245 also has a high temperature resistance, which means that higher cutting speeds are possible when machining high-alloy steels. Process security is also guaranteed. Thanks to state-of-the-art CVD technology, the grade also guarantees a seamless machining process. In application ranges that require secure processes, a long service life and strong performance, the CTCM245 impresses across the board.

Science and technology – an unbeatable combination that ensures optimum machining.



DRAGONSKIN

- Al_2O_3 coating for excellent temperature resistance (high thermal and chemical stability), reduces flank and crater wear.
- TiCN coating for a high degree of hardness and toughness reduces abrasive and flank wear.
- Compound layer to guarantee the effectiveness of the coating combination. Adverse effects caused by diffusion are prevented.
- Very tough substrate that guarantees a long service life and is extremely wear- and temperature-resistant. The extreme hardness also ensures a high resistance to breakage.

Competitor comparison

Face milling with button inserts

Material: 1.4301
Tool: RPHX 1204M6SN-M50 CTCM245
v_c: 235 m/min
f_z: 0,28 mm
a_p: 1,5 mm

CERATIZIT
Competitor

Number of finished components

Turbine blade machining

Material: St-17/13W
Tool: RPHX 1204M4SN-F50 CTCM245
v_c: 270 m/min
f_z: 0,33 mm
a_p: 2,0 mm
a_e: 40 mm

CERATIZIT
Competitor

Service life in min

A full understanding of the interaction between workpiece material, tool geometry, tool material and cutting parameters is essential when it comes to producing maximum power in demanding applications.

The CERATIZIT development team

Further information on the product can be found on page 114–127

KOMflex

Combined system with precision adjustment head and BLUM measuring probe technology

Unique, automated compensation system

System usage

- Compensation of cutting edge wear, e.g. in the case of steel
- Temperature compensation, e.g. in the case of aluminium

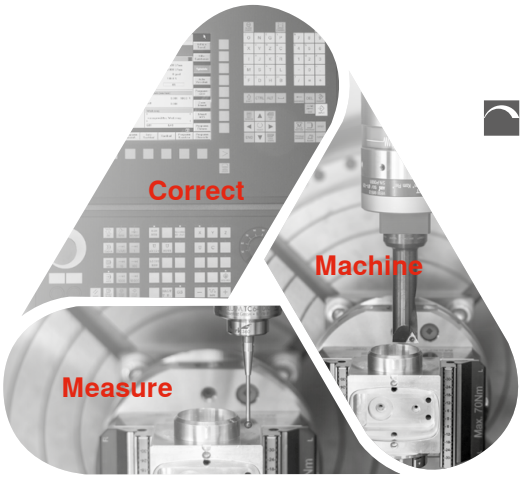
In conjunction with the BLUM measuring probe, the KOMflex enables automated diameter correction for precision holes in unmanned closed-loop operation. The KOMflex precision adjustment head communicates with the BLUM wireless machine equipment.

Advantages Benefits

- **Automated production of precision holes**
  Thanks to closed-loop operation, the KOMflex guarantees process-secure machining, even in the case of unmanned operations.
- **Significant time savings**
  Thanks to automated measurement with the BLUM measuring probe and correction with the precision adjustment head.
- **Ensures the defined quality requirements for the workpiece are met**
  Thanks to accurate movement of the precision adjustment head for µm-precise machining with closed-loop operation.

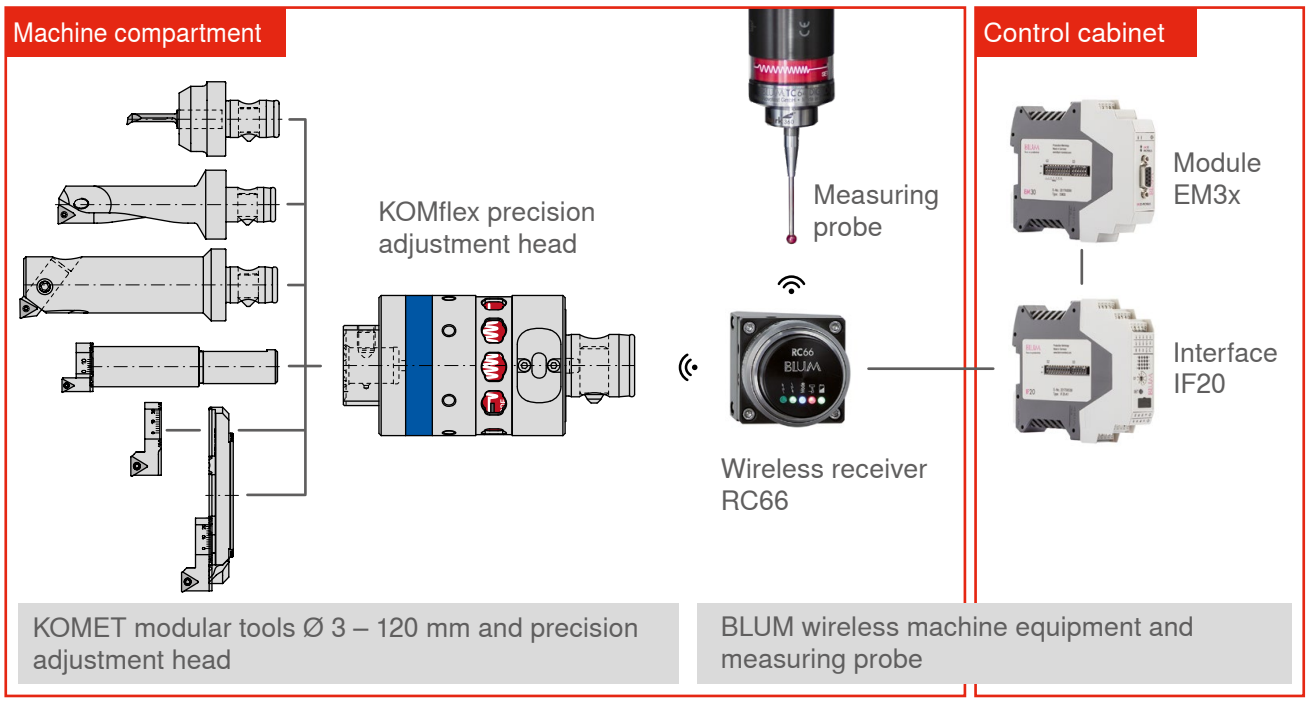
Technical data

Adjustment accuracy	1 µm in radius
Adjustment range	± 0,25 mm
Boring range	Ø 1 – 120 mm
Outer diameter	63 mm
Height	100 mm
Max. RPM	8,000 rpm in centre position
Combined tool interface	ABS 32 / dia. 16 mm / teeth
Interface	ABS 50



KOMET

Combines the production steps from machining to quality assurance in a closed-loop system



The ongoing automation of our production processes will enable us to continue to manufacture our products cost-effectively in future. The KOMflex is the ideal solution for closed-loop operation. This is where we need innovative, forward-thinking partners like CERATIZIT.

Michael Renz, Head of the Actuating Tools product line at KOMET Deutschland GmbH (left),
Alexander Schweiher, Senior Manager at Schweiher Werkzeugbau GmbH & Co. KG (right)

KOMlife

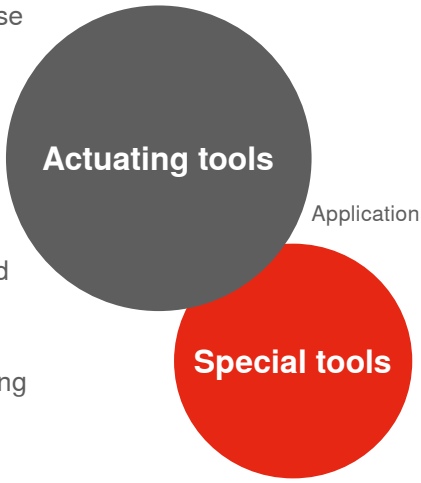
Autonomous acquisition of production data accurate to the second

KOMET

Autonomous acquisition and processing of production data directly on the respective tool

Advantages Benefits

- **Planned, preventative maintenance**
  Regular, advance maintenance planning can increase tool service life and ensure workpiece quality at all times.
- **Digital production data acquisition**
  Through a patented, dynamic QR code and the KOMlife app.
- **Assessment of tool use**
  Conclusions can be drawn about the status and load of the cutting edge by gathering data on tool use.
- **Not dependent on tool manufacturer**
  KOMlife can be easily integrated into new and existing linear and rotating systems, irrespective of the tool manufacturer.



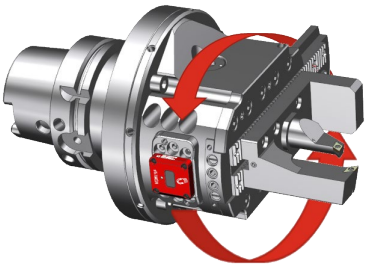
Technical data

Lithium battery	CR2032
Battery life	Approx. 2 years
Min. acceleration	1,5 g
Min. tool diameter	50 mm

KOMlife deactivated

Ergonomic display unit

- ▲ Number of operating hours
- ▲ Current status of the maintenance interval
- ▲ Dimensions: 30 x 30 x 11 mm

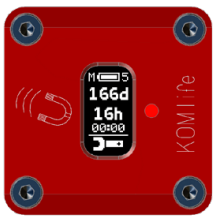


Tool rotates

Can be used with various tool systems

- ▲ With linear or rotary acceleration greater than 1.5 g
- ▲ Required installation space: 30.1 x 30.1 x 10 mm

KOMlife activated

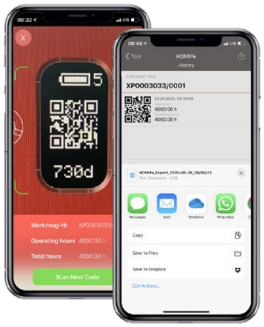


Maintenance interval reached

Customer-specific adaptation

- ▲ Adjustable maintenance interval depending on the application
- ▲ Visualisation of the necessary tool maintenance with a red, flashing LED

QR code screen



Digital display of production data

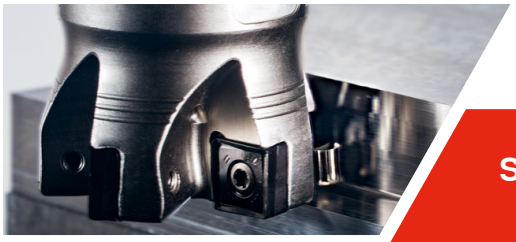
Patented, dynamic QR code

- ▲ Digital acquisition and export of production data via smartphone and KOMlife app
- ▲ Display of serial number and production data

Try me out with the KOMlife app!

Free KOMlife app in the App Store for iOS® devices

iOS is a registered trademark of Cisco Systems, Inc.
App Store is a trademark of Apple Inc.



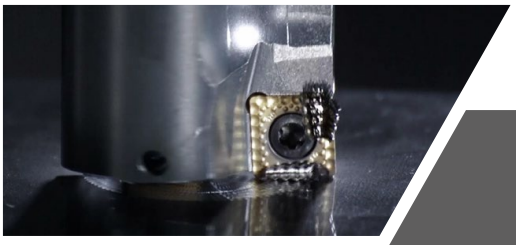
CUTTING SOLUTIONS BY CERATIZIT

SPECIALIST FOR INDEXABLE INSERT TOOLS FOR TURNING, MILLING AND GROOVING

Product Range:

- Turning Tools
- EcoCut Multifunction Tools and FreeTurn
- Grooving Tools
- Milling Tools with Indexable Inserts
- Tools made from ultra-hard cutting materials

The product brand CERATIZIT stands for high-quality indexable insert tools. The products are characterized by their high quality and contain the DNA of many years of experience in the development and production of carbide tools.



KOMET

THE QUALITY LABEL FOR EFFICIENT BORE PRODUCTION

Product Range:

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

High-precision drilling, reaming, countersinking and boring is a matter of expertise: efficient tooling solutions for drilling and mechatronic tools are therefore part of the KOMET brand name.

EXPERTS FOR ROTATING TOOLS, TOOL HOLDERS AND CLAMPING SOLUTIONS

Product Range:

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

WNT is synonymous with product diversity: solid carbide and HSS rotating tools, tool holders and efficient workholding solutions are all part of this brand.

CUTTING TOOLS FOR THE AEROSPACE INDUSTRY

Product Range:

- Solid Carbide Drilling for the Aerospace Industry

Solid carbide drills specially developed for the aerospace industry bear the product name KLENK. The highly specialized products are specifically designed for machining lightweight materials.

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Milling tools with indexable inserts

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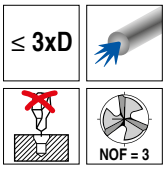
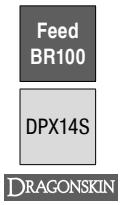
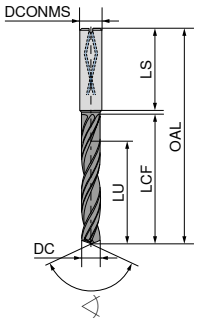
WTX – Drill-Reamer -1/100

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







140°
Solid carbide

NEW

DC ±0,003	DCONMS h6	OAL	LCF	LU	LS	Article no. 10 707 ...
mm	mm	mm	mm	mm	mm	
3,97	6	66	24	17	36	03970
3,98	6	66	24	17	36	03980
3,99	6	66	24	17	36	03990
4,00	6	66	24	17	36	04000
4,01	6	66	24	17	36	04010
4,02	6	66	24	17	36	04020
4,97	6	66	28	20	36	04970
4,98	6	66	28	20	36	04980
4,99	6	66	28	20	36	04990
5,00	6	66	28	20	36	05000
5,01	6	66	28	20	36	05010
5,02	6	66	28	20	36	05020
5,97	6	66	28	20	36	05970
5,98	6	66	28	20	36	05980
5,99	6	66	28	20	36	05990
6,00	6	66	28	20	36	06000
6,01	6	66	28	20	36	06010
6,02	6	66	28	20	36	06020
7,97	8	79	41	29	36	07970
7,98	8	79	41	29	36	07980
7,99	8	79	41	29	36	07990
8,00	8	79	41	29	36	08000
8,01	8	79	41	29	36	08010
8,02	8	79	41	29	36	08020
9,97	10	89	47	35	40	09970
9,98	10	89	47	35	40	09980
9,99	10	89	47	35	40	09990
10,00	10	89	47	35	40	10000
10,01	10	89	47	35	40	10010
10,02	10	89	47	35	40	10020
11,97	12	102	55	40	45	11970
11,98	12	102	55	40	45	11980
11,99	12	102	55	40	45	11990
12,00	12	102	55	40	45	12000
12,01	12	102	55	40	45	12010
12,02	12	102	55	40	45	12020

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	
Heat resistant alloys	

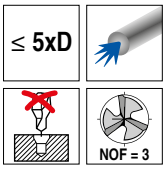
Tolerances
e.g. Ø 8 F7 = 8.02 mm

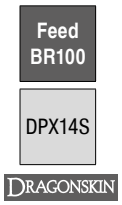
Ø 4	3,97	U 7	**X 7**			
	3,98	**N 10**	**N 11**	R 7		
	3,99	M 8	**N 7**	**N 8**	**N 9**	
	4,00	**J 7**	**J 8**	JS 7	JS 8	JS 9
	4,01	**G 7**	**H 8**			
	4,02	**F 8**	**H 9**			
Ø 5	4,97	U 7	**X 7**			
	4,98	**N 10**	**N 11**	R 7		
	4,99	M 8	**N 7**	**N 8**	**N 9**	
	5,00	**J 7**	**J 8**	**JS 7**	**JS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

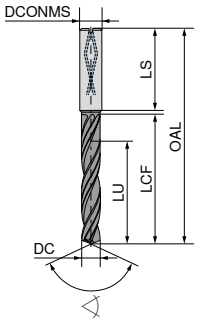
Tolerance classes written in standard print are not optimally positioned in the tolerance field.

WTX – Drill-Reamer -1/100

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







140°
Solid carbide

NEW

DC ±0,003	DCONMS h6	OAL	LCF	LU	LS	Article no. 10 713 ...
mm	mm	mm	mm	mm	mm	
3,97	6	74	36	29	36	03970
3,98	6	74	36	29	36	03980
3,99	6	74	36	29	36	03990
4,00	6	74	36	29	36	04000
4,01	6	74	36	29	36	04010
4,02	6	74	36	29	36	04020
4,97	6	82	44	35	36	04970
4,98	6	82	44	35	36	04980
4,99	6	82	44	35	36	04990
5,00	6	82	44	35	36	05000
5,01	6	82	44	35	36	05010
5,02	6	82	44	35	36	05020
5,97	6	82	44	35	36	05970
5,98	6	82	44	35	36	05980
5,99	6	82	44	35	36	05990
6,00	6	82	44	35	36	06000
6,01	6	82	44	35	36	06010
6,02	6	82	44	35	36	06020
7,97	8	91	53	43	36	07970
7,98	8	91	53	43	36	07980
7,99	8	91	53	43	36	07990
8,00	8	91	53	43	36	08000
8,01	8	91	53	43	36	08010
8,02	8	91	53	43	36	08020
9,97	10	103	61	49	40	09970
9,98	10	103	61	49	40	09980
9,99	10	103	61	49	40	09990
10,00	10	103	61	49	40	10000
10,01	10	103	61	49	40	10010
10,02	10	103	61	49	40	10020
11,97	12	118	71	56	45	11970
11,98	12	118	71	56	45	11980
11,99	12	118	71	56	45	11990
12,00	12	118	71	56	45	12000
12,01	12	118	71	56	45	12010
12,02	12	118	71	56	45	12020

Steel	●
Stainless steel	○
Cast iron	○
Non ferrous metals	
Heat resistant alloys	

Tolerances e.g. Ø 8 F7 = 8.02 mm						
Ø 4	3,97	U 7	**X 7**			
	3,98	**N 10**	**N 11**	R 7		
	3,99	M 8	**N 7**	**N 8**	**N 9**	
	4,00	**J 7**	**J 8**	JS 7	JS 8	JS 9
	4,01	**G 7**	**H 8**			
	4,02	**F 8**	**H 9**			
Ø 5	4,97	U 7	**X 7**			
	4,98	**N 10**	**N 11**	R 7		
	4,99	M 8	**N 7**	**N 8**	**N 9**	
	5,00	**J 7**	**J 8**	**JS 7**	**JS 8**	**JS 9**
	5,01	**G 7**	**H 8**			
	5,02	**F 8**	**H 9**			
Ø 6	5,97	U 7	**X 7**			
	5,98	**N 10**	**N 11**	R 7		
	5,99	M 8	**N 7**	**N 8**	**N 9**	
	6,00	**J 7**	**J 8**	**JS 7**	**JS 8**	**JS 9**
	6,01	**G 7**	**H 8**			
	6,02	**F 8**	**H 9**			
Ø 8	7,97	S 7	**U 7**			
	7,98	N 8	**N 10**	**N 11**	P 7	R 7
	7,99	K 8	M 6	M 7	**M 8**	N 9
	8,00	**J 7**	**J 8**	**JS 7**	**JS 8**	**JS 9**
	8,01	G 7	**H 8**			
	8,02	**F 7**	F 8	**H 9**		
Ø 10	9,97	S 7	**U 7**			
	9,98	N 8	**N 10**	**N 11**	P 7	R 7
	9,99	K 8	M 6	M 7	**M 8**	N 9
	10,00	**J 7**	**J 8**	**JS 7**	**JS 8**	**JS 9**
	10,01	G 7	**H 8**			
	10,02	**F 7**	F 8	H 9		
Ø 12	11,97	N 11	R 7	**S 7**		
	11,98	N 8	**N 9**	**N 10**	**P 7**	
	11,99	K 8	**M 6**	**M 7**	**M 8**	N 7
	12,00	**J 7**	**J 8**	**JS 7**	**JS 8**	
	12,01	G 6	**H 7**	H 8	**JS 9**	
	12,02	F 7				

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

WTX – Drill-Reamer

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

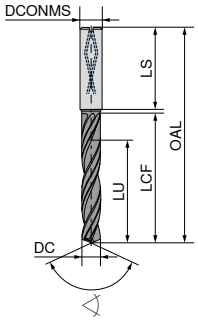
≤ 3xD

NOF = 3

Feed BR

DPX14S

DRAGONSKIN



HA

140°

Solid carbide

NEW

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	Article no. 10 711 ...
4	6	66	24	17	36	04000
5	6	66	28	20	36	05000
6	6	66	28	20	36	06000
8	8	79	41	29	36	08000
10	10	89	47	35	40	10000
12	12	102	55	40	45	12000
14	14	107	60	43	45	14000
16	16	115	65	45	48	16000

Steel	●
Stainless steel	○
Cast iron	○
Non ferrous metals	
Heat resistant alloys	

Special dimensions available upon request

WTX – Drill-Reamer

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

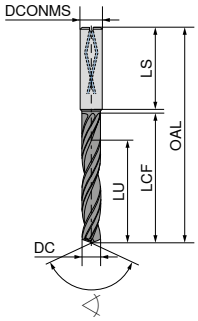
≤ 5xD

NOF = 3

Feed BR

DPX14S

DRAGONSKIN



HA

140°

Solid carbide

NEW

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	Article no. 10 719 ...
4	6	74	36	29	36	04000
5	6	82	44	35	36	05000
6	6	82	44	35	36	06000
8	8	91	53	43	36	08000
10	10	103	61	49	40	10000
12	12	118	71	56	45	12000
14	14	124	77	60	45	14000
16	16	133	83	63	48	16000
18	18	143	93	71	48	18000
20	20	153	101	77	50	20000

Steel	●
Stainless steel	○
Cast iron	○
Non ferrous metals	
Heat resistant alloys	

Special dimensions available upon request

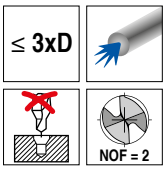
Cutting data approximate values

	Index	Material	Strength N/mm² / HB / HRC	v_c m/min IC	v_c m/min AK	v_c m/min MMS	Ø 4–5 f (mm/U)	Ø 5–6 f (mm/U)	Ø 6–8 f (mm/U)	Ø 8–12 f (mm/U)	Ø 12–16 f (mm/U)	Ø 16–20 f (mm/U)
P	1.1	General construction steel	< 800 N/mm²	**70**	65	65	0,17	0,21	0,26	0,33	0,40	0,48
	1.2	Free cutting steel	< 800 N/mm²	**70**	65	65	0,17	0,21	0,26	0,33	0,40	0,48
	1.3	Hardened steel, non alloyed	< 800 N/mm²	**70**	65	65	0,17	0,21	0,26	0,33	0,40	0,48
	1.4	Alloyed hardened steel	< 1000 N/mm²	**70**	60	60	0,21	0,25	0,31	0,39	0,48	0,57
	1.5	Tempering steel, unalloyed	< 850 N/mm²	**70**	65	65	0,17	0,21	0,26	0,33	0,40	0,48
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	**65**	55	55	0,22	0,27	0,33	0,41	0,51	0,60
	1.7	Tempering steel, alloyed	< 800 N/mm²	**70**	60	60	0,21	0,25	0,31	0,39	0,48	0,57
	1.8	Tempering steel, alloyed	< 1300 N/mm²	**50**	40	40	0,17	0,21	0,25	0,31	0,38	0,45
	1.9	Steel castings	< 850 N/mm²	**70**	60	60	0,21	0,25	0,31	0,39	0,48	0,57
	1.10	Nitriding steel	< 1000 N/mm²	**70**	60	60	0,21	0,25	0,31	0,39	0,48	0,57
	1.11	Nitriding steel	< 1200 N/mm²	**50**	40	40	0,17	0,21	0,25	0,31	0,38	0,45
	1.12	Roller bearing steel	< 1200 N/mm²	**55**	45	45	0,18	0,23	0,28	0,35	0,43	0,51
	1.13	Spring steel	< 1200 N/mm²	**40**	40	40	0,16	0,19	0,23	0,29	0,35	0,42
	1.14	High-speed steel	< 1300 N/mm²	**40**	40	40	0,16	0,19	0,23	0,29	0,35	0,42
	1.15	Cold working tool steel	< 1300 N/mm²	**40**	40	40	0,16	0,19	0,23	0,29	0,35	0,42
	1.16	Hot working tool steel	< 1300 N/mm²	**55**	45	45	0,18	0,23	0,28	0,35	0,43	0,51
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	40	25	25	0,09	0,11	0,14	0,17	0,21	0,25
	2.2	Stainless steel, ferritic	< 750 N/mm²	40	25	25	0,09	0,11	0,14	0,17	0,21	0,25
	2.3	Stainless steel, martensitic	< 900 N/mm²	40	25	25	0,09	0,11	0,14	0,17	0,21	0,25
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	40	25	25	0,09	0,11	0,14	0,17	0,21	0,25
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	35	20	20	0,08	0,10	0,12	0,15	0,18	0,22
	2.6	Stainless steel, austenitic	< 750 N/mm²	40	25	25	0,09	0,11	0,14	0,17	0,21	0,25
	2.7	Heat resistant steel	< 1100 N/mm²	35	20	20	0,08	0,10	0,12	0,15	0,18	0,22
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	**100**	70	70	0,25	0,32	0,41	0,53	0,66	0,80
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	**85**	65	65	0,22	0,27	0,34	0,43	0,53	0,63
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²	**135**	85	100	0,25	0,31	0,39	0,50	0,62	0,74
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²	**85**	65	65	0,22	0,27	0,34	0,43	0,53	0,63
	3.5	White malleable cast iron	270–450 N/mm²	**75**	70	70	0,24	0,29	0,37	0,46	0,57	0,68
	3.6	White malleable cast iron	500–650 N/mm²	**70**	60	60	0,20	0,24	0,30	0,37	0,45	0,54
	3.7	Black malleable cast iron	300–450 N/mm²	**75**	70	70	0,24	0,29	0,37	0,46	0,57	0,68
	3.8	Black malleable cast iron	500–800 N/mm²	**70**	60	60	0,20	0,24	0,30	0,37	0,45	0,54
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²									
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²									
	4.3	Aluminium alloy 0.5–10 % Si	< 400 N/mm²									
	4.4	Aluminium alloys 10–15 % Si	< 400 N/mm²									
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm²									
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²									
	4.7	Copper wrought alloys	< 700 N/mm²									
	4.8	Special copper alloys	< 200 HB									
	4.9	Special copper alloys	< 300 HB									
	4.10	Special copper alloys	> 300 HB									
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²									
	4.12	Long-chipping brass	< 600 N/mm²									
	4.13	Thermoplastics										
	4.14	Duroplastics										
	4.15	Fibre-reinforced plastics										
	4.16	Magnesium and magnesium alloys	< 850 N/mm²									
	4.17	Graphite										
	4.18	Tungsten and tungsten alloys										
	4.19	Molybdenum and molybdenum alloys										
S	5.1	Pure nickel										
	5.2	Nickel alloys										
	5.3	Nickel alloys	< 850 N/mm²									
	5.4	Nickel molybdenum alloys										
	5.5	Nickel-chromium alloys	< 1300 N/mm²									
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²									
	5.7	Heat resistant alloys	< 1300 N/mm²									
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²									
	5.9	Pure titanium	< 900 N/mm²									
	5.10	Titanium alloys	< 700 N/mm²									
	5.11	Titanium alloys	< 1200 N/mm²									
H	6.1	Tempered steel	< 45 HRC									
	6.2		46–55 HRC									
	6.3		56–60 HRC									
	6.4		61–65 HRC									
	6.5		65–70 HRC									

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

WTX – Short 90° step drill

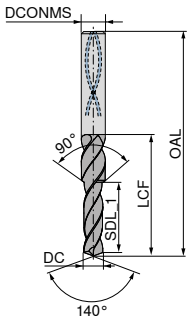
▲ for core hole plus countersink for thread cutting



SB

DPX74S

DRAGONSKIN



140°
Solid carbide

DC m7	DCONMS h6	OAL	SDL_1	LCF	NEW Article no. 10 783 ...
mm	mm	mm	mm	mm	
3,3	6	62	11,4	24	03300
4,2	6	66	13,6	28	04200
5,0	8	79	16,5	34	05000
6,8	10	89	21,0	47	06800
8,5	12	102	25,5	55	08500
10,2	14	107	30,0	60	10200
12,0	16	115	34,5	65	12000
14,0	18	123	38,5	73	14000

Steel	●
Stainless steel	
Cast iron	●
Non ferrous metals	
Heat resistant alloys	

Cutting data approximate values

	Index	Material	Strength N/mm² / HB / HRC	v_c m/min without through coolant	v_c m/min with through coolant	Ø 2-5 f (mm/U)	Ø 5-8 f (mm/U)	Ø 8-12 f (mm/U)	Ø 12-16 f (mm/U)
P	1.1	General construction steel	< 800 N/mm²	100	115	0,11	0,15	0,20	0,24
	1.2	Free cutting steel	< 800 N/mm²	120	138	0,19	0,25	0,32	0,38
	1.3	Hardened steel, non alloyed	< 800 N/mm²	100	115	0,14	0,20	0,25	0,30
	1.4	Alloyed hardened steel	< 1000 N/mm²	80	92	0,12	0,17	0,22	0,27
	1.5	Tempering steel, unalloyed	< 850 N/mm²	90	104	0,14	0,20	0,25	0,30
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	80	92	0,12	0,17	0,22	0,27
	1.7	Tempering steel, alloyed	< 800 N/mm²	80	92	0,12	0,17	0,22	0,27
	1.8	Tempering steel, alloyed	< 1300 N/mm²	60	69	0,10	0,14	0,18	0,22
	1.9	Steel castings	< 850 N/mm²	90	104	0,14	0,20	0,25	0,30
	1.10	Nitriding steel	< 1000 N/mm²	60	69	0,10	0,14	0,18	0,22
	1.11	Nitriding steel	< 1200 N/mm²	50	58	0,09	0,12	0,16	0,19
	1.12	Roller bearing steel	< 1200 N/mm²	60	69	0,10	0,14	0,18	0,22
	1.13	Spring steel	< 1200 N/mm²	60	69	0,10	0,14	0,18	0,22
	1.14	High-speed steel	< 1300 N/mm²	50	58	0,09	0,12	0,16	0,19
	1.15	Cold working tool steel	< 1300 N/mm²	50	58	0,10	0,14	0,18	0,22
	1.16	Hot working tool steel	< 1300 N/mm²	50	58	0,10	0,14	0,18	0,22
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²						
	2.2	Stainless steel, ferritic	< 750 N/mm²						
	2.3	Stainless steel, martensitic	< 900 N/mm²						
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²						
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²						
	2.6	Stainless steel, austenitic	< 750 N/mm²						
	2.7	Heat resistant steel	< 1100 N/mm²						
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	70	84	0,17	0,22	0,28	0,34
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	50	60	0,14	0,20	0,25	0,30
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²	60	72	0,19	0,25	0,32	0,38
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²	45	54	0,14	0,20	0,25	0,30
	3.5	White malleable cast iron	270–450 N/mm²	90	108	0,21	0,28	0,35	0,42
	3.6	White malleable cast iron	500–650 N/mm²	75	90	0,19	0,25	0,32	0,38
	3.7	Black malleable cast iron	300–450 N/mm²	90	108	0,19	0,25	0,32	0,38
	3.8	Black malleable cast iron	500–800 N/mm²	75	90	0,14	0,20	0,25	0,30
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²						
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²						
	4.3	Aluminium alloy 0.5–10 % Si	< 400 N/mm²						
	4.4	Aluminium alloys 10–15 % Si	< 400 N/mm²						
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm²						
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²						
	4.7	Copper wrought alloys	< 700 N/mm²						
	4.8	Special copper alloys	< 200 HB						
	4.9	Special copper alloys	< 300 HB						
	4.10	Special copper alloys	> 300 HB						
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	120		0,17	0,22	0,28	0,34
	4.12	Long-chipping brass	< 600 N/mm²	120		0,14	0,20	0,25	0,30
	4.13	Thermoplastics							
	4.14	Duroplastics							
	4.15	Fibre-reinforced plastics							
	4.16	Magnesium and magnesium alloys	< 850 N/mm²						
	4.17	Graphite		240		0,11	0,15	0,20	0,24
	4.18	Tungsten and tungsten alloys							
	4.19	Molybdenum and molybdenum alloys							
S	5.1	Pure nickel							
	5.2	Nickel alloys							
	5.3	Nickel alloys	< 850 N/mm²						
	5.4	Nickel molybdenum alloys							
	5.5	Nickel-chromium alloys	< 1300 N/mm²						
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²						
	5.7	Heat resistant alloys	< 1300 N/mm²						
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²						
	5.9	Pure titanium	< 900 N/mm²						
	5.10	Titanium alloys	< 700 N/mm²						
	5.11	Titanium alloys	< 1200 N/mm²						
H	6.1	Tempered steel	< 45 HRC						
	6.2		46–55 HRC						
	6.3		56–60 HRC						
	6.4		61–65 HRC						
	6.5		65–70 HRC						

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

Toolfinder

● = **Main Application**
○ = Extended application
- = Not possible

KUB Pentron cartridge drill

The final piece in the product portfolio

- ▲ Process-secure, reliable, modular system for creating large holes with a diameter of up to 96.00 mm
- ▲ Consists of a base body, an internal cartridge and an external cartridge
- ▲ Universal application, powerful, specialised
- ▲ A certain diameter range can be covered with a holder and a suitable internal cartridge

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

KUB Pentron

The specialist for large hole depths

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

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

Overview of the entire KUB Pentron family

KUB Pentron CS

Shank	ABS
Diameter	64–96
Lengths	3xD
Inserts	SOGX

KUB Pentron

Shank	ABS
Diameter	14–65
Lengths	2xD, 3xD, 4xD, 5xD
Inserts	SOGX

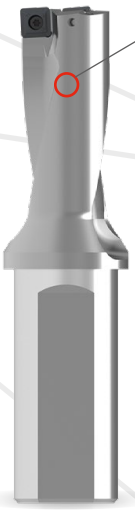
Shank	NEW	Page No.
ABS	Ø 64–96	32–34

Shank	Diameter	NEW	Page No.
ABS	Ø 14–46	Ø 47–65	35
ABS	Ø 30,5–46	Ø 47–65	36
ABS	Ø 30,5–46		Main catalogue + UP2DATE May
ABS	Ø 30,5–46		
PSC	Ø 14–30	Ø 30,5–37	37
C	Ø 30,5–45,5		Main catalogue + UP2DATE May
C	Ø 30,5–45,5		
C	Ø 30,5–45,5		
C	Ø 30,5–45,5		

Insert type		No. of cutting edges	Grade	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	hardened materials	Page No.
	SOGX	4	-01 BK8425	●	●	●				38+39
	SOGX	4	-03 BK8430	●	●	●				
	SOGX	4	-01 BK7935	●	●	○	○	●		
	SOGX	4	-01 BK6115	●		●			○	
	SOGX	4	-01 BK6425	●	●	○				
	SOGX	4	-01 BK7710				●	○		

KUB Pentron

Shank	PSC
Diameter	14–37
Lengths	3xD
Inserts	SOGX



KUB Pentron

Shank	C
Diameter	14–46
Lengths	2xD, 3xD, 4xD, 5xD
Inserts	SOGX

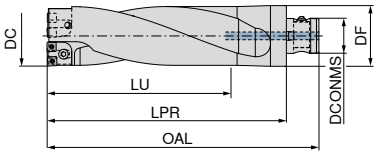
KUB Pentron CS – basic element

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

Scope of supply:
Cartridge drill incl. fixing screws

≤ 3xD

ABS



Designation	KOMET no.	DC mm	DF mm	OAL mm	DCONMS mm	LU mm	LPR mm	SZID	torque moment Nm	NEW Article no. 10 876 ...
KUB-P.GH-CS.1.3D.64-66.ABS80	U60 46400	64 - 66	80	271	46	198	241	1	17,29	64092
KUB-P.GH-CS.1.3D.67-69.ABS80	U60 46700	67 - 69	80	280	46	207	250	1	17,29	67092
KUB-P.GH-CS.2.3D.70-72.ABS80	U60 47000	70 - 72	80	289	46	216	259	2	17,29	70092
KUB-P.GH-CS.2.3D.73-75.ABS80	U60 47300	73 - 75	80	298	46	225	268	2	17,29	73092
KUB-P.GH-CS.3.3D.76-78.ABS80	U60 47600	76 - 78	80	307	46	234	277	3	42,07	76092
KUB-P.GH-CS.3.3D.79-81.ABS80	U60 47900	79 - 81	80	316	46	243	286	3	42,07	79092
KUB-P.GH-CS.3.3D.82-84.ABS80	U60 48200	82 - 84	80	325	46	252	295	3	42,07	82092
KUB-P.GH-CS.4.3D.85-87.ABS100	U60 58500	85 - 87	100	342	56	261	316	4	42,07	85091
KUB-P.GH-CS.4.3D.88-90.ABS100	U60 58800	88 - 90	100	351	56	270	325	4	42,07	88091
KUB-P.GH-CS.4.3D.91-93.ABS100	U60 59100	91 - 93	100	360	56	279	334	4	42,07	91091
KUB-P.GH-CS.4.3D.94-96.ABS100	U60 59400	94 - 96	100	369	56	288	343	4	42,07	94091

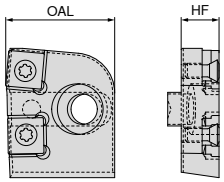
Fixing screw

Spare parts DC	Article no. 10 950 ...
64 - 66	16700
67 - 69	16700
70 - 72	16700
73 - 75	16700
76 - 78	16800
79 - 81	16800
82 - 84	16800
85 - 87	16900
88 - 90	16900
91 - 93	16900
94 - 96	16900

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

KUB Pentron CS – internal cartridge

Scope of supply:
Internal cartridge incl. clamping screws

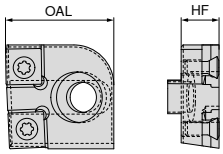


DC mm	KOMET no.	OAL mm	SZID	HF mm	torque moment Nm	Insert	NEW Article no. 10 877 ...
64 - 69	D60 06400	27,43	1	9	2,8	SOGX 100408	**16400**
70 - 75	D60 07000	29,41	2	10	2,8	SOGX 110408	**27000**
76 - 84	D60 07600	32,25	3	11	6,25	SOGX 120408	**37600**
85 - 96	D60 08500	35,34	4	12	6,25	SOGX 130508	**48500**

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

KUB Pentron CS – external cartridge

Scope of supply:
External cartridge incl. clamping screws



DC mm	KOMET no.	OAL mm	SZID	HF mm	torque moment Nm	Insert	NEW Article no. 10 878 ...
64	D60 16400	27,23	1	9	2,8	SOGX 100408	16400
65	D60 16500	27,23	1	9	2,8	SOGX 100408	16500
66	D60 16600	27,23	1	9	2,8	SOGX 100408	16600
67	D60 16700	27,23	1	9	2,8	SOGX 100408	16700
68	D60 16800	27,23	1	9	2,8	SOGX 100408	16800
69	D60 16900	27,23	1	9	2,8	SOGX 100408	16900
70	D60 17000	29,22	2	10	2,8	SOGX 110408	27000
71	D60 17100	29,22	2	10	2,8	SOGX 110408	27100
72	D60 17200	29,22	2	10	2,8	SOGX 110408	27200
73	D60 17300	29,22	2	10	2,8	SOGX 110408	27300
74	D60 17400	29,22	2	10	2,8	SOGX 110408	27400
75	D60 17500	29,22	2	10	2,8	SOGX 110408	27500
76	D60 17600	32,07	3	11	6,25	SOGX 120408	37600
77	D60 17700	32,07	3	11	6,25	SOGX 120408	37700
78	D60 17800	32,07	3	11	6,25	SOGX 120408	37800
79	D60 17900	32,07	3	11	6,25	SOGX 120408	37900
80	D60 18000	32,07	3	11	6,25	SOGX 120408	38000
81	D60 18100	32,07	3	11	6,25	SOGX 120408	38100
82	D60 18200	32,07	3	11	6,25	SOGX 120408	38200
83	D60 18300	32,07	3	11	6,25	SOGX 120408	38300
84	D60 18400	32,07	3	11	6,25	SOGX 120408	38400
85	D60 18500	35,14	4	12	6,25	SOGX 130508	48500
86	D60 18600	35,14	4	12	6,25	SOGX 130508	48600
87	D60 18700	35,14	4	12	6,25	SOGX 130508	48700
88	D60 18800	35,14	4	12	6,25	SOGX 130508	48800
89	D60 18900	35,14	4	12	6,25	SOGX 130508	48900
90	D60 19000	35,14	4	12	6,25	SOGX 130508	49000
91	D60 19100	35,14	4	12	6,25	SOGX 130508	49100
92	D60 19200	35,14	4	12	6,25	SOGX 130508	49200
93	D60 19300	35,14	4	12	6,25	SOGX 130508	49300
94	D60 19400	35,14	4	12	6,25	SOGX 130508	49400
95	D60 19500	35,14	4	12	6,25	SOGX 130508	49500
96	D60 19600	35,14	4	12	6,25	SOGX 130508	49600

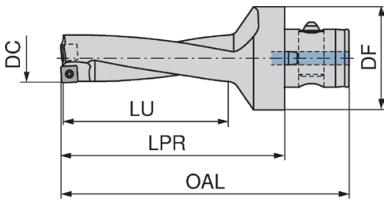
DC	Key D Article no. 80 950 ...	Clamping screw Article no. 10 950 ...
64 - 75	128	10300
76 - 96	129	10400

KUB Pentron

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 2xD

ABS



Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	NEW Article no. 10 872 ...
KUB-P.2D.470.R.08-ABS63	U42 64700	47	63	187	101	149	1,28	SOGX 080308	47096
KUB-P.2D.480.R.08-ABS63	U42 64800	48	63	189	105	151	1,28	SOGX 080308	48096
KUB-P.2D.490.R.08-ABS63	U42 64900	49	63	191	109	153	1,28	SOGX 080308	49096
KUB-P.2D.500.R.08-ABS63	U42 65000	50	63	193	113	155	1,28	SOGX 080308	50096
KUB-P.2D.510.R.08-ABS63	U42 65100	51	63	195	117	157	1,28	SOGX 080308	51096
KUB-P.2D.520.R.08-ABS63	U42 65200	52	63	197	121	159	1,28	SOGX 080308	52096
KUB-P.2D.530.R.10-ABS63	U42 65300	53	63	199	125	161	2,8	SOGX 100408	53096
KUB-P.2D.540.R.10-ABS63	U42 65400	54	63	201	129	163	2,8	SOGX 100408	54096
KUB-P.2D.550.R.10-ABS80	U42 75500	55	80	208	115	165	2,8	SOGX 100408	55098
KUB-P.2D.560.R.10-ABS80	U42 75600	56	80	210	117	167	2,8	SOGX 100408	56098
KUB-P.2D.570.R.10-ABS80	U42 75700	57	80	212	120	169	2,8	SOGX 100408	57098
KUB-P.2D.580.R.10-ABS80	U42 75800	58	80	214	124	171	2,8	SOGX 100408	58098
KUB-P.2D.590.R.10-ABS80	U42 75900	59	80	216	127	173	2,8	SOGX 100408	59098
KUB-P.2D.600.R.10-ABS80	U42 76000	60	80	218	125	175	2,8	SOGX 100408	60098
KUB-P.2D.610.R.10-ABS80	U42 76100	61	80	220	128	177	2,8	SOGX 100408	61098
KUB-P.2D.620.R.10-ABS80	U42 76200	62	80	222	132	179	2,8	SOGX 100408	62098
KUB-P.2D.630.R.10-ABS80	U42 76300	63	80	224	131	181	2,8	SOGX 100408	63098
KUB-P.2D.640.R.10-ABS80	U42 76400	64	80	226	135	183	2,8	SOGX 100408	64098
KUB-P.2D.650.R.10-ABS80	U42 76500	65	80	228	139	185	2,8	SOGX 100408	65098

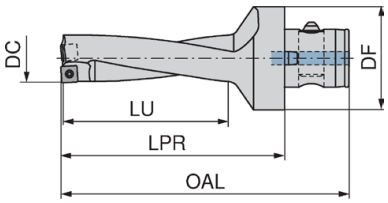
DC	Key D Article no. 80 950 ...	Clamping screw Article no. 10 950 ...
47 - 52	125	10800
53 - 65	125	10300

KUB Pentron

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 3xD

ABS



Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	NEW Article no. 10 873 ...
KUB-P.3D.470.R.08-ABS63	U43 64700	47	63	234	148	196	1,28	SOGX 080308	47096
KUB-P.3D.480.R.08-ABS63	U43 64800	48	63	237	153	199	1,28	SOGX 080308	48096
KUB-P.3D.490.R.08-ABS63	U43 64900	49	63	240	158	202	1,28	SOGX 080308	49096
KUB-P.3D.500.R.08-ABS63	U43 65000	50	63	243	163	205	1,28	SOGX 080308	50096
KUB-P.3D.510.R.08-ABS63	U43 65100	51	63	246	168	205	1,28	SOGX 080308	51096
KUB-P.3D.520.R.08-ABS63	U43 65200	52	63	249	173	211	1,28	SOGX 080308	52096
KUB-P.3D.530.R.10-ABS63	U43 65300	53	63	252	178	214	2,8	SOGX 100408	53096
KUB-P.3D.540.R.10-ABS63	U43 65400	54	63	255	182	217	2,8	SOGX 100408	54096
KUB-P.3D.550.R.10-ABS63	U43 75500	55	80	263	170	220	2,8	SOGX 100408	55098
KUB-P.3D.560.R.10-ABS63	U43 75600	56	80	266	173	223	2,8	SOGX 100408	56098
KUB-P.3D.570.R.10-ABS63	U43 75700	57	80	269	177	226	2,8	SOGX 100408	57098
KUB-P.3D.580.R.10-ABS63	U43 75800	58	80	272	182	229	2,8	SOGX 100408	58098
KUB-P.3D.590.R.10-ABS63	U43 75900	59	80	275	186	232	2,8	SOGX 100408	59098
KUB-P.3D.600.R.10-ABS63	U43 76000	60	80	278	185	235	2,8	SOGX 100408	60098
KUB-P.3D.610.R.10-ABS63	U43 76100	61	80	281	189	238	2,8	SOGX 100408	61098
KUB-P.3D.620.R.10-ABS63	U43 76200	62	80	284	194	241	2,8	SOGX 100408	62098
KUB-P.3D.630.R.10-ABS63	U43 76300	63	80	287	194	244	2,8	SOGX 100408	63098
KUB-P.3D.640.R.10-ABS63	U43 76400	64	80	290	199	247	2,8	SOGX 100408	64098
KUB-P.3D.650.R.10-ABS63	U43 76500	65	80	293	204	250	2,8	SOGX 100408	65098

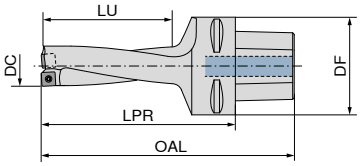
DC	Key D Article no. 80 950 ...	Clamping screw Article no. 10 950 ...
47 - 52	125	10800
53 - 65	125	10300

KUB Pentron

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 3xD

PSC

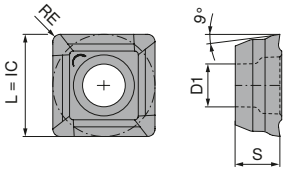


Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	NEW Article no. 10 873 ...
KUB-P.3D.305.R.10-PSC50	U40 63050	30,5	50	165	98	135	2,8	SOGX 100408	30555
KUB-P.3D.305.R.10-PSC63	U40 73050	30,5	63	177	98	139	2,8	SOGX 100408	30556
KUB-P.3D.310.R.10-PSC50	U40 63100	31,0	50	165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

DC	Key D Article no. 80 950 ...	Clamping screw Article no. 10 950 ...
30,5 - 37	128	10300

SOGX

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



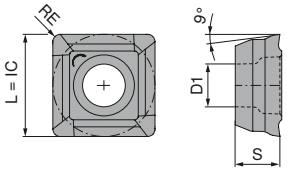
SOGX

ISO	KOMET no.	RE	-01 BK8425 SOGX NEW Article no. 10 820 ...	-03 BK8430 SOGX NEW Article no. 10 820 ...	-01 BK7935 SOGX NEW Article no. 10 820 ...
		mm			
040204	W80 10030.048430	0,4		00403	
040204	W80 10010.048425	0,4	30401		
040204	W80 10010.047935	0,4			50401
050204	W80 12030.048430	0,4		00503	
050204	W80 12010.048425	0,4	30501		
050204	W80 12010.047935	0,4			50501
060206	W80 18030.068430	0,6		00603	
060206	W80 18010.068425	0,6	30601		
060206	W80 18010.067935	0,6			50601
07T208	W80 20030.088430	0,8		00703	
07T208	W80 20010.088425	0,8	30701		
07T208	W80 20010.087935	0,8			50701
080308	W80 24030.088430	0,8		00803	
080308	W80 24010.088425	0,8	30801		
080308	W80 24010.087935	0,8			50801
09T308	W80 28030.088430	0,8		00903	
09T308	W80 28010.088425	0,8	30901		
09T308	W80 28010.087935	0,8			50901
100408	W80 32030.088430	0,8		01003	
100408	W80 32010.088425	0,8	31001		
100408	W80 32010.087935	0,8			51001
110408	W80 38030.088430	0,8		01103	
110408	W80 38010.088425	0,8	31101		
110408	W80 38010.087935	0,8			51101
120408	W80 42030.088430	0,8		01203	
120408	W80 42010.088425	0,8	31201		
120408	W80 42010.087935	0,8			51201
130508	W80 46030.088430	0,8		01303	
130508	W80 46010.088425	0,8	31301		
130508	W80 46010.087935	0,8			51301

Steel	●	●	●
Stainless steel	●	●	●
Cast iron	●	●	○
Non ferrous metals			○
Heat resistant alloys			●
Hardened materials			

SOGX

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



SOGX

ISO	KOMET no.	RE	-01 BK6115 SOGX NEW Article no. 10 820 ...	-01 BK6425 SOGX NEW Article no. 10 820 ...	-01 BK7710 SOGX NEW Article no. 10 820 ...
		mm			
040204	W80 10010.046425	0,4		60401	
040204	W80 10010.046115	0,4	40401		
040204	W80 10010.047710	0,4			90401
050204	W80 12010.046425	0,4		60501	
050204	W80 12010.046115	0,4	40501		
050204	W80 12010.047710	0,4			90501
060206	W80 18010.066425	0,6		60601	
060206	W80 18010.066115	0,6	40601		
060206	W80 18010.067710	0,6			90601
07T208	W80 20010.086425	0,8		60701	
07T208	W80 20010.086115	0,8	40701		
07T208	W80 20010.087710	0,8			90701
080308	W80 24010.086425	0,8		60801	
080308	W80 24010.086115	0,8	40801		
080308	W80 24010.087710	0,8			90801
09T308	W80 28010.086425	0,8		60901	
09T308	W80 28010.086115	0,8	40901		
09T308	W80 28010.087710	0,8			90901
100408	W80 32010.086425	0,8		61001	
100408	W80 32010.086115	0,8	41001		
100408	W80 32010.087710	0,8			91001
110408	W80 38010.086425	0,8		61101	
110408	W80 38010.086115	0,8	41101		
110408	W80 38010.087710	0,8			91101
120408	W80 42010.086425	0,8		61201	
120408	W80 42010.086115	0,8	41201		
120408	W80 42010.087710	0,8			91201
130508	W80 46010.086425	0,8		61301	
130508	W80 46010.086115	0,8	41301		
130508	W80 46010.087710	0,8			91301

Steel	●	●	
Stainless steel		●	
Cast iron	●	○	
Non ferrous metals			●
Heat resistant alloys			○
Hardened materials	○		

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

Cutting data standard values

	Index	Material	Strength N/mm² / HB / HRC	SOGX indexable inserts BK8425 v_c m/min	BK8430 v_c m/min	BK7935 v_c m/min	BK6115 v_c m/min	BK6425 v_c m/min	BK7710 v_c m/min
P	1.1	General construction steel	< 800 N/mm²	200–230	200–300	200–300	250–350	270–370	
	1.2	Free cutting steel	< 800 N/mm²	200–320	200–320	200–300	250–350	270–370	
	1.3	Hardened steel, non alloyed	< 800 N/mm²	250–300	250–300	250–300	250–300	250–320	
	1.4	Alloyed hardened steel	< 1000 N/mm²	250–300	250–300	250–300	250–300	250–320	
	1.5	Tempering steel, unalloyed	< 850 N/mm²	250–300	250–300	250–300	250–300	250–320	
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	140–220	140–220	120–200	200–280	220–300	
	1.7	Tempering steel, alloyed	< 800 N/mm²	140–220	140–220	120–200	200–280	220–300	
	1.8	Tempering steel, alloyed	< 1300 N/mm²	140–220	140–220	120–200	200–280	220–300	
	1.9	Steel castings	< 850 N/mm²	250–300	250–300	250–300	250–300	250–320	
	1.10	Nitriding steel	< 1000 N/mm²	140–220	140–220	120–200	200–280	220–300	
	1.11	Nitriding steel	< 1200 N/mm²	140–220	140–220	120–200	200–280	220–300	
	1.12	Roller bearing steel	< 1200 N/mm²	140–220	140–220	120–200	200–280	220–300	
	1.13	Spring steel	< 1200 N/mm²	140–220	140–220	120–200	200–280	220–300	
	1.14	High-speed steel	< 1300 N/mm²	140–220	140–220	120–200	70–110	220–300	
	1.15	Cold working tool steel	< 1300 N/mm²	120–200	120–200	100–180	170–230	190–250	
	1.16	Hot working tool steel	< 1300 N/mm²	120–200	120–200	100–180	170–230	190–250	
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	150–210	150–210	140–220		190–250	
	2.2	Stainless steel, ferritic	< 750 N/mm²	150–210	150–210	140–220		190–250	
	2.3	Stainless steel, martensitic	< 900 N/mm²	150–210	150–210	140–220		190–250	
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	120–200	120–200	120–200		170–230	
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	110–190	110–190	120–200		170–230	
	2.6	Stainless steel, austenitic	< 750 N/mm²	120–200	120–200	120–200		170–230	
	2.7	Heat resistant steel	< 1100 N/mm²	110–190	110–190	120–200		170–230	
K	3.1	Grey cast iron with lamellar graphite	100-350 N/mm²	120–200	140–220	110-190	160–320	150-250	
	3.2	Grey cast iron with lamellar graphite	300-500 N/mm²	90–150	140–220	110-190	160–320	150-250	
	3.3	Gray cast iron with spheroidal graphite	300-500 N/mm²	120–200	140–220	110-190	120–200	120-200	
	3.4	Gray cast iron with spheroidal graphite	500-900 N/mm²	110–170	120–180	80-140	100–180	90-150	
	3.5	White malleable cast iron	270-450 N/mm²	90–150	110–170	80-140	90–150	90-150	
	3.6	White malleable cast iron	500-650 N/mm²	90–150	110–170	80-140	90–150	90-150	
	3.7	Black malleable cast iron	300-450 N/mm²	90–150	110–170	80-140	90–150	90-150	
	3.8	Black malleable cast iron	500-800 N/mm²	90–150	110–170	80-140	90–150	90-150	
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²			300-500			
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²	200-400		300-500			250–450
	4.3	Aluminium alloy 0.5–10 % Si	< 400 N/mm²	300-500		180-320			300–700
	4.4	Aluminium alloys 10–15 % Si	< 400 N/mm²	180-320		150-250			210–350
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm²	150-250		150-250			140–300
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²			200-400			
	4.7	Copper wrought alloys	< 700 N/mm²	150-250		200-400			150–350
	4.8	Special copper alloys	< 200 HB	150-250		200-400			150–350
	4.9	Special copper alloys	< 300 HB	200-400		200-400			250–450
	4.10	Special copper alloys	> 300 HB			200-400			
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	200-400		200-400			250–450
	4.12	Long-chipping brass	< 600 N/mm²	200-400		200-400			250–450
	4.13	Thermoplastics							
	4.14	Duroplastics							
	4.15	Fibre-reinforced plastics							
	4.16	Magnesium and magnesium alloys	< 850 N/mm²						
	4.17	Graphite							
	4.18	Tungsten and tungsten alloys							
	4.19	Molybdenum and molybdenum alloys							
S	5.1	Pure nickel				20–80			
	5.2	Nickel alloys				20–80			
	5.3	Nickel alloys	< 850 N/mm²			20–80			
	5.4	Nickel molybdenum alloys				20–80			
	5.5	Nickel-chromium alloys	< 1300 N/mm²			20–80			
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²			20–80			
	5.7	Heat resistant alloys	< 1300 N/mm²			20–80			
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²			20–80			
	5.9	Pure titanium	< 900 N/mm²			40–100			
	5.10	Titanium alloys	< 700 N/mm²			40–80			
	5.11	Titanium alloys	< 1200 N/mm²			40–80			
H	6.1	Tempered steel	< 45 HRC	80-140			50-90		
	6.2		46-55 HRC	60-140			30-50		
	6.3		56-60 HRC	60-140					
	6.4		61-65 HRC						
	6.5		65-70 HRC						

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

KUB Pentron cartridge drill			
ABS			
Ø 64 -69 mm	Ø 70 – 75 mm	Ø 76 – 84 mm	Ø 85 – 96 mm
f in mm/rev.			
0,06-0,12	0,06-0,12	0,06-0,12	0,06-0,12
0,06-0,12	0,06-0,12	0,06-0,12	0,06-0,12
0,11-0,16	0,11-0,16	0,11-0,16	0,11-0,16
0,11-0,16	0,11-0,16	0,11-0,16	0,11-0,16
0,11-0,16	0,11-0,16	0,11-0,16	0,11-0,16
0,14-0,24	0,14-0,25	0,14-0,25	0,14-0,25
0,14-0,24	0,14-0,25	0,14-0,25	0,14-0,25
0,14-0,24	0,14-0,25	0,14-0,25	0,14-0,25
0,11-0,16	0,11-0,16	0,11-0,16	0,11-0,16
0,14-0,24	0,14-0,25	0,14-0,25	0,14-0,25
0,14-0,24	0,14-0,25	0,14-0,25	0,14-0,25
0,14-0,24	0,14-0,25	0,14-0,25	0,14-0,25
0,14-0,24	0,14-0,25	0,14-0,25	0,14-0,25
0,14-0,24	0,14-0,25	0,14-0,25	0,14-0,25
0,14-0,22	0,14-0,22	0,14-0,22	0,14-0,22
0,14-0,22	0,14-0,22	0,14-0,22	0,14-0,22
0,10-0,18	0,10-0,18	0,10-0,18	0,10-0,18
0,10-0,18	0,10-0,18	0,10-0,18	0,10-0,18
0,10-0,18	0,10-0,18	0,10-0,18	0,10-0,18
0,12-0,18	0,12-0,18	0,12-0,18	0,12-0,18
0,10-0,16	0,10-0,16	0,10-0,16	0,10-0,16
0,12-0,18	0,12-0,18	0,12-0,18	0,12-0,18
0,10-0,16	0,10-0,16	0,10-0,16	0,10-0,16
0,20-0,30	0,20-0,30	0,20-0,30	0,20-0,30
0,18-0,28	0,18-0,28	0,18-0,28	0,18-0,28
0,20-0,30	0,20-0,30	0,20-0,30	0,20-0,30
0,20-0,30	0,20-0,30	0,20-0,30	0,20-0,30
0,20-0,30	0,20-0,30	0,20-0,30	0,20-0,30
0,18-0,28	0,18-0,28	0,18-0,28	0,18-0,28
0,20-0,30	0,20-0,30	0,20-0,30	0,20-0,30
0,18-0,28	0,18-0,28	0,18-0,28	0,18-0,28
0,10-0,16	0,10-0,16	0,10-0,16	0,10-0,16
0,10-0,16	0,10-0,16	0,10-0,16	0,10-0,16
0,12-0,18	0,12-0,18	0,12-0,18	0,12-0,18
0,15-0,21	0,15-0,21	0,15-0,21	0,15-0,21
0,12-0,18	0,12-0,18	0,12-0,18	0,12-0,18
0,12-0,18	0,12-0,18	0,12-0,18	0,12-0,18
0,10-0,16	0,10-0,16	0,10-0,16	0,10-0,16
0,10-0,16	0,10-0,16	0,10-0,16	0,10-0,16
0,10-0,16	0,10-0,16	0,10-0,16	0,10-0,16
0,02-0,06	0,02-0,06	0,02-0,06	0,02-0,06
0,01-0,02	0,01-0,02	0,01-0,02	0,01-0,02
0,01-0,02	0,01-0,02	0,01-0,02	0,01-0,02

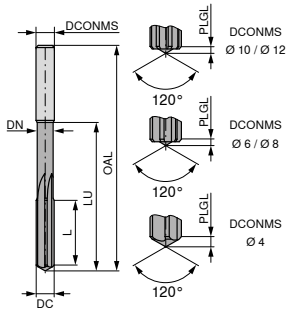
KUB Pentron – extension		
ABS	ABS	PSC
Ø 46 – 52 mm	Ø 53 – 65 mm	Ø 30–37 mm
f in mm/rev.		
0,14	0,14	0,06-0,12
0,20	0,20	0,06-0,12
0,16	0,16	0,11-0,16
0,20	0,20	0,11-0,16
0,20	0,20	0,11-0,16
0,20	0,20	0,14-0,24
0,20	0,20	0,14-0,24
0,18	0,18	0,14-0,24
0,20	0,20	0,11-0,16
0,20	0,20	0,14-0,24
0,20	0,20	0,14-0,24
0,18	0,18	0,14-0,24
0,16	0,16	0,14-0,24
0,14	0,16	0,14-0,24
0,18	0,18	0,14-0,22
0,18	0,18	0,14-0,22
0,14	0,14	0,10-0,18
0,16	0,16	0,10-0,18
0,14	0,14	0,10-0,18
0,15	0,15	0,12-0,18
0,16	0,16	0,10-0,16
0,15	0,15	0,12-0,18
0,12	0,12	0,10-0,16
0,30	0,30	0,20-0,30
0,20	0,20	0,20-0,30
0,20	0,20	0,20-0,30
0,22	0,22	0,20-0,30
0,22	0,22	0,20-0,30
0,22	0,25	0,20-0,30
0,22	0,22	0,20-0,30
0,22	0,25	0,20-0,30
0,12	0,12	0,10-0,18
0,12	0,12	0,10-0,18
0,18	0,18	0,10-0,18
0,18	0,18	0,10-0,18
0,20	0,20	0,10-0,18
0,20	0,20	0,10-0,18
0,22	0,22	0,10-0,18
0,22	0,22	0,10-0,18
0,15	0,15	0,10-0,18
0,15	0,15	0,10-0,18
0,16	0,16	0,10-0,18
0,16	0,16	0,10-0,18
		0,10-0,18
		0,05-0,12
		0,10-0,18
0,16	0,16	
0,08	0,08	0,05-0,12
0,10	0,10	0,05-0,12
0,10	0,10	0,05-0,12
0,10	0,10	0,05-0,12
0,10	0,10	0,05-0,12
0,10	0,10	0,05-0,12
0,08	0,08	0,05-0,12
0,08	0,08	0,05-0,12
0,08	0,08	0,05-0,12
0,10	0,10	0,07-0,15
0,10	0,10	0,07-0,15
0,10	0,10	0,02-0,06
0,10	0,10	0,01-0,02

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

NC machine reamers, sim. DIN 8093-A

NC100 H

TiAlSiN



HA
straight flute
◁ 45°
Solid carbide
Through hole + blind hole

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h5 mm	PLGL mm	NEW Article no. 40 435 ...
0,98	50	6	16	4	0,12	00980
0,99	50	6	16	4	0,12	00990
1,00	50	6	16	4	0,12	01000
1,01	50	6	16	4	0,12	01010
1,02	50	6	16	4	0,12	01020
1,03	50	6	16	4	0,12	01030
1,48	50	9	16	4	0,12	01480
1,49	50	9	16	4	0,12	01490
1,50	50	9	16	4	0,12	01500
1,51	50	9	16	4	0,12	01510
1,52	50	9	16	4	0,12	01520
1,60	50	10	16	4	0,12	01600
1,70	50	10	16	4	0,12	01700
1,80	50	11	16	4	0,12	01800
1,90	50	11	16	4	0,12	01900
1,97	50	12	16	4	0,30	01970
1,98	50	12	16	4	0,30	01980
1,99	50	12	16	4	0,30	01990
2,00	50	12	16	4	0,30	02000
2,01	50	12	16	4	0,30	02010
2,02	50	12	16	4	0,30	02020
2,03	50	12	16	4	0,30	02030
2,05	50	12	16	4	0,30	02050
2,10	50	12	16	4	0,30	02100
2,20	50	13	16	4	0,30	02200
2,30	50	13	16	4	0,30	02300
2,40	60	16	26	4	0,30	02400
2,50	60	16	26	4	0,30	02500
2,60	60	16	26	4	0,30	02600
2,70	64	17	30	4	0,30	02700
2,80	64	17	30	4	0,30	02800
2,90	64	17	30	4	0,30	02900
2,97	64	17	30	4	0,30	02970
2,98	64	17	30	4	0,30	02980
2,99	64	17	30	4	0,30	02990
3,00	64	17	30	4	0,30	03000
3,01	64	17	30	4	0,30	03010
3,02	64	17	30	4	0,30	03020
3,03	64	17	30	4	0,30	03030
3,05	68	18	34	4	0,30	03050
3,10	68	18	34	4	0,30	03100
3,20	68	18	34	4	0,30	03200
3,30	68	18	34	4	0,30	03300
3,40	74	20	40	4	0,30	03400
3,50	74	20	40	4	0,30	03500
3,60	74	20	40	4	0,30	03600
3,70	74	20	40	4	0,30	03700
3,80	77	21	43	4	0,40	03800
3,90	77	21	43	4	0,40	03900
3,97	77	21	43	4	0,40	03970
3,98	77	21	43	4	0,40	03980
3,99	77	21	43	4	0,40	03990
4,00	77	21	43	4	0,40	04000
4,01	77	21	43	4	0,40	04010
4,02	77	21	43	4	0,40	04020
4,03	77	21	43	4	0,40	04030
4,05	82	21	40	6	0,40	04050

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h5 mm	PLGL mm	NEW Article no. 40 435 ...
4,10	82	21	40	6	0,40	04100
4,20	82	21	40	6	0,40	04200
4,30	82	23	40	6	0,40	04300
4,40	82	23	40	6	0,40	04400
4,50	82	23	40	6	0,40	04500
4,60	82	23	40	6	0,40	04600
4,70	82	23	40	6	0,40	04700
4,80	93	26	51	6	0,50	04800
4,90	93	26	51	6	0,50	04900
4,97	93	26	51	6	0,50	04970
4,98	93	26	51	6	0,50	04980
4,99	93	26	51	6	0,50	04990
5,00	93	26	51	6	0,50	05000
5,01	93	26	51	6	0,50	05010
5,02	93	26	51	6	0,50	05020
5,03	93	26	51	6	0,50	05030
5,05	93	26	51	6	0,50	05050
5,10	93	26	51	6	0,50	05100
5,20	93	26	51	6	0,50	05200
5,30	93	26	51	6	0,50	05300
5,40	93	26	51	6	0,50	05400
5,50	93	26	51	6	0,50	05500
5,60	93	26	51	6	0,50	05600
5,70	93	26	51	6	0,50	05700
5,80	93	26	51	6	0,50	05800
5,90	93	26	51	6	0,50	05900
5,97	93	26	51	6	0,50	05970
5,98	93	26	51	6	0,50	05980
5,99	93	26	51	6	0,50	05990
6,00	93	26	51	6	0,50	06000

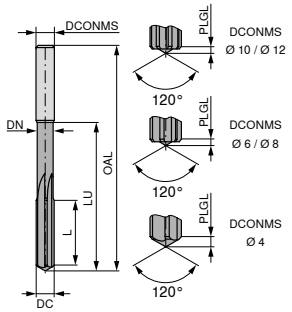
Steel	○
Stainless steel	○
Cast iron	○
Non ferrous metals	
Heat resistant alloys	
Hardened materials	●

This tool concept covers countless tolerances.
Tolerances that can be covered can be found in the table on
→ **Main catalogue page** 04/75
Intermediate dimensions available on request.

NC machine reamers, sim. DIN 8093-A

NC100 H

TiAlSiN



HA
straight flute
◁ 45°
Solid carbide
Through hole +
blind hole

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h5 mm	PLGL mm	NEW Article no. 40 435 ...
6,01	93	26	51	6	0,5	06010
6,02	93	26	51	6	0,5	06020
6,03	93	26	51	6	0,5	06030
6,05	101	26	59	8	0,5	06050
6,10	101	26	59	8	0,5	06100
6,20	101	26	59	8	0,5	06200
6,30	101	26	59	8	0,5	06300
6,40	101	26	59	8	0,5	06400
6,50	101	26	59	8	0,5	06500
6,60	101	26	59	8	0,5	06600
6,70	101	26	59	8	0,5	06700
6,80	109	31	67	8	0,6	06800
6,85	109	31	67	8	0,6	06850
6,90	109	31	67	8	0,6	06900
7,00	109	31	67	8	0,6	07000
7,10	109	31	67	8	0,6	07100
7,20	109	31	67	8	0,6	07200
7,30	109	31	67	8	0,6	07300
7,40	109	31	67	8	0,6	07400
7,50	109	31	67	8	0,6	07500
7,60	109	31	67	8	0,6	07600
7,70	117	33	75	8	0,6	07700
7,80	117	33	75	8	0,6	07800
7,90	117	33	75	8	0,6	07900
7,97	117	33	75	8	0,6	07970
7,98	117	33	75	8	0,6	07980
7,99	117	33	75	8	0,6	07990
8,00	117	33	75	8	0,6	08000
8,01	117	33	75	8	0,7	08010
8,02	117	33	75	8	0,7	08020
8,03	117	33	75	8	0,7	08030
8,05	117	33	71	10	0,7	08050
8,10	117	33	71	10	0,7	08100
8,20	117	33	71	10	0,7	08200
8,30	117	33	71	10	0,7	08300
8,40	117	33	71	10	0,7	08400
8,50	117	33	71	10	0,7	08500
8,60	117	33	71	10	0,7	08600
8,70	125	36	79	10	0,7	08700
8,80	125	36	79	10	0,7	08800
8,90	125	36	79	10	0,7	08900
9,00	125	36	79	10	0,7	09000
9,10	125	36	79	10	0,7	09100
9,20	125	36	79	10	0,7	09200
9,30	125	36	79	10	0,7	09300
9,40	125	36	79	10	0,7	09400
9,50	125	36	79	10	0,7	09500
9,60	125	36	79	10	0,7	09600
9,70	133	38	87	10	0,7	09700
9,80	133	38	87	10	0,7	09800
9,90	133	38	87	10	0,7	09900
9,97	133	41	87	10	0,7	09970
9,98	133	41	87	10	0,7	09980
9,99	133	41	87	10	0,7	09990
10,00	133	41	87	10	0,7	10000
10,01	133	41	87	10	0,7	10010
10,02	133	41	87	10	0,8	10020

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h5 mm	PLGL mm	NEW Article no. 40 435 ...
10,03	133	41	87	10	0,8	10030
10,04	133	41	87	10	0,8	10040
10,05	133	41	87	10	0,8	10050
11,17	150	44	99	12	0,8	11170
11,97	150	44	99	12	0,8	11970
11,98	150	44	99	12	0,8	11980
11,99	150	44	99	12	0,8	11990
12,00	150	44	99	12	0,8	12000
12,01	150	44	99	12	0,8	12010
12,02	150	44	99	12	0,8	12020
12,03	150	44	99	12	0,8	12030
12,04	150	44	99	12	0,8	12040
12,05	150	44	99	12	0,8	12050

Steel	○
Stainless steel	○
Cast iron	○
Non ferrous metals	
Heat resistant alloys	
Hardened materials	●

This tool concept covers countless tolerances.
Tolerances that can be covered can be found in the table on
→ **Main catalogue page** 04/75
Intermediate dimensions available on request.

Cutting data approximate values

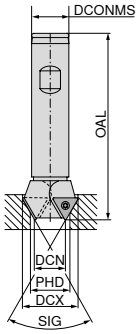
					TiAlSiN solid carbide reamer 40 435 ...,							
				v_c	≤ Ø 4		> Ø 4 ≤ Ø 8		> Ø 8 ≤ Ø 16		> Ø 16 ≤ Ø 20	
	Index	Material	Strength N/mm² / HB / HRC	m/min without through coolant	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
P	1.1	General construction steel	< 800 N/mm²	14	0,08	0,2	0,16	0,2	0,195	0,3	0,23	0,3
	1.2	Free cutting steel	< 800 N/mm²	19	0,08	0,2	0,16	0,2	0,195	0,3	0,23	0,3
	1.3	Hardened steel, non alloyed	< 800 N/mm²	16	0,1	0,2	0,2	0,2	0,238	0,3	0,275	0,3
	1.4	Alloyed hardened steel	< 1000 N/mm²	14	0,08	0,2	0,16	0,2	0,195	0,3	0,23	0,3
	1.5	Tempering steel, unalloyed	< 850 N/mm²	13	0,08	0,2	0,16	0,2	0,195	0,3	0,23	0,3
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	12	0,075	0,2	0,15	0,2	0,175	0,3	0,2	0,3
	1.7	Tempering steel, alloyed	< 800 N/mm²	13	0,08	0,2	0,16	0,2	0,195	0,3	0,23	0,3
	1.8	Tempering steel, alloyed	< 1300 N/mm²	11	0,063	0,2	0,125	0,2	0,15	0,3	0,175	0,3
	1.9	Steel castings	< 850 N/mm²	15	0,08	0,2	0,16	0,2	0,195	0,3	0,23	0,3
	1.10	Nitriding steel	< 1000 N/mm²	16	0,1	0,2	0,2	0,2	0,238	0,3	0,275	0,3
	1.11	Nitriding steel	< 1200 N/mm²	12	0,075	0,2	0,15	0,2	0,175	0,3	0,2	0,3
	1.12	Roller bearing steel	< 1200 N/mm²	11	0,063	0,2	0,125	0,2	0,15	0,3	0,175	0,3
	1.13	Spring steel	< 1200 N/mm²									
	1.14	High-speed steel	< 1300 N/mm²									
	1.15	Cold working tool steel	< 1300 N/mm²	9	0,063	0,2	0,125	0,2	0,15	0,3	0,175	0,3
	1.16	Hot working tool steel	< 1300 N/mm²	9	0,063	0,2	0,125	0,2	0,15	0,3	0,175	0,3
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	11	0,063	0,1	0,125	0,1	0,15	0,2	0,175	0,2
	2.2	Stainless steel, ferritic	< 750 N/mm²	11	0,063	0,1	0,125	0,1	0,15	0,2	0,175	0,2
	2.3	Stainless steel, martensitic	< 900 N/mm²	8	0,05	0,1	0,1	0,1	0,113	0,2	0,125	0,2
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	8	0,05	0,1	0,1	0,1	0,113	0,2	0,125	0,2
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	9	0,063	0,1	0,125	0,1	0,15	0,2	0,175	0,2
	2.6	Stainless steel, austenitic	< 750 N/mm²									
	2.7	Heat resistant steel	< 1100 N/mm²									
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	17	0,125	0,2	0,25	0,2	0,325	0,3	0,4	0,3
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	14	0,113	0,2	0,225	0,2	0,275	0,3	0,325	0,3
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²	17	0,113	0,2	0,225	0,2	0,275	0,3	0,325	0,3
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²	14	0,1	0,2	0,2	0,2	0,238	0,3	0,275	0,3
	3.5	White malleable cast iron	270–450 N/mm²	17	0,113	0,2	0,225	0,2	0,275	0,3	0,325	0,3
	3.6	White malleable cast iron	500–650 N/mm²	14	0,1	0,2	0,2	0,2	0,238	0,3	0,275	0,3
	3.7	Black malleable cast iron	300–450 N/mm²	17	0,113	0,2	0,225	0,2	0,275	0,3	0,325	0,3
	3.8	Black malleable cast iron	500–800 N/mm²	14	0,1	0,2	0,2	0,2	0,238	0,3	0,275	0,3
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²									
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²									
	4.3	Aluminium alloy 0.5–10 % Si	< 400 N/mm²									
	4.4	Aluminium alloys 10–15 % Si	< 400 N/mm²									
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm²									
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²									
	4.7	Copper wrought alloys	< 700 N/mm²									
	4.8	Special copper alloys	< 200 HB									
	4.9	Special copper alloys	< 300 HB									
	4.10	Special copper alloys	> 300 HB									
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²									
	4.12	Long-chipping brass	< 600 N/mm²									
	4.13	Thermoplastics										
	4.14	Duroplastics										
	4.15	Fibre-reinforced plastics										
	4.16	Magnesium and magnesium alloys	< 850 N/mm²									
	4.17	Graphite										
	4.18	Tungsten and tungsten alloys										
	4.19	Molybdenum and molybdenum alloys										
S	5.1	Pure nickel										
	5.2	Nickel alloys										
	5.3	Nickel alloys	< 850 N/mm²									
	5.4	Nickel molybdenum alloys										
	5.5	Nickel-chromium alloys	< 1300 N/mm²									
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²									
	5.7	Heat resistant alloys	< 1300 N/mm²									
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²									
	5.9	Pure titanium	< 900 N/mm²									
	5.10	Titanium alloys	< 700 N/mm²									
	5.11	Titanium alloys	< 1200 N/mm²									
H	6.1	Tempered steel	< 45 HRC	8	0,075	0,1	0,15	0,2	0,175	0,3	0,2	0,3
	6.2		46–55 HRC	8	0,063	0,1	0,125	0,2	0,15	0,3	0,175	0,3
	6.3		56–60 HRC	7	0,063	0,1	0,125	0,2	0,15	0,3	0,175	0,3
	6.4		61–65 HRC	5	0,05	0,1	0,1	0,2	0,113	0,3	0,125	0,3
	6.5		65–70 HRC									

Insert countersink 90°

Supply details:

Indexable insert countersink including clamping screws

WPS



B

NEW

DCX mm	DCN mm	PHD mm	ZEFP	DCONMS mm	OAL mm	Insert	Article no. 30 196 ...
19	7	9,5	2	16	100	TOHX 090204	**19000**
23	11	12,0	2	16	100	TOHX 090204	**23000**
26	11	12,0	1	16	100	TOHX 090204	**26000**
30	12	13,0	2	20	100	TOHX 140305	**30000**
34	16	17,0	2	20	100	TOHX 140305	**34000**
37	19	20,0	2	20	100	TOHX 140305	**37000**

TORX® Screws

Key D

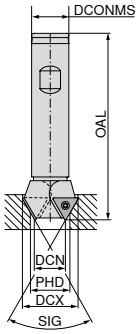
Spare parts		Article no. 62 950 ...		Article no. 80 950 ...
Insert				
TOHX 090204	M2,6x6,2 - 08IP	**09900**	T08 - IP	**125**
TOHX 140305	M3,5x7,3 - 10IP	**12600**	T10 - IP	**127**

Wendeplatten-Senker 60°

Supply details:

Indexable insert countersink including clamping screws

WPS



B

NEW

DCX	DCN	PHD	ZEFP	DCONMS	OAL	Insert	Article no. 30 197 ...
mm	mm	mm		mm	mm		
16,5	8,1	8,5	1	16	100	TOHX 090204	**16500**
20,0	11,6	12,0	2	16	100	TOHX 090204	**20000**
22,0	13,6	14,0	2	16	100	TOHX 140305	**22000**
23,5	15,1	15,5	2	16	100	TOHX 140305	**23500**
25,5	17,1	17,5	2	16	100	TOHX 140305	**25500**

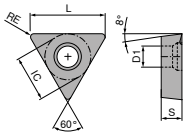
TORX® Screws

Key D

Spare parts		Article no. 62 950 ...		Article no. 80 950 ...
Insert				
TOHX 090204	M2,6x5,2 - 08IP	**12000**	T08 - IP	**125**
TOHX 140305	M2,6x5,2 - 08IP	**12000**	T08 - IP	**125**
TOHX 140305	M2,6x6,2 - 08IP	**09900**	T08 - IP	**125**

TOHX

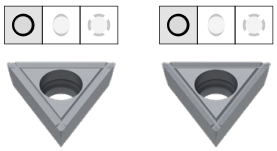
Designation	L	S	D1	IC
	mm	mm	mm	mm
090204EN	9,12	2,50	2,8	5,6
090204FN	9,12	2,50	2,8	5,6
140305EN	13,62	3,00	3,8	8,2
140305FN	13,62	3,00	3,8	8,2



TOHX

ISO	RE	-G06 BK8425	-U877 BK8425	-G12 BK8425
		F TOHX	F TOHX	F TOHX
		NEW Article no. 62 602 ...	NEW Article no. 62 604 ...	NEW Article no. 62 603 ...
	mm			
090204EN	0,4		31400	31400
140305EN	0,5	33000		
Steel		●	●	●
Stainless steel		●	●	●
Cast iron		●	●	●
Non ferrous metals				
Heat resistant alloys				
Hardened materials				

TOHX

ISO	RE	-U877 K10	-G12 K10
			
		F TOHX	F TOHX
		NEW Article no. 62 604 ...	NEW Article no. 62 603 ...
	mm		
090204EN	0,4	51400	
090204FN	0,4		51600
140305FN	0,5		52800
Steel			
Stainless steel			
Cast iron			
Non ferrous metals		●	●
Heat resistant alloys		●	●
Hardened materials			

Cutting data approximate values

					Insert countersink 60°/90° 30 196 ..., 30 197 ...		
					Tool diameter	Insert	
					Ø 16,5 - 37	BK8425	K10
	Index	Material	Strength N/mm² / HB / HRC	v_c m/min	(mm/U)	v_c m/min	v_c m/min
P	1.1	General construction steel	< 800 N/mm²	220	0,10	150–220	
	1.2	Free cutting steel	< 800 N/mm²	220	0,25	150–220	
	1.3	Hardened steel, non alloyed	< 800 N/mm²	220	0,15	150–220	
	1.4	Alloyed hardened steel	< 1000 N/mm²	180	0,20	150–220	
	1.5	Tempering steel, unalloyed	< 850 N/mm²	200	0,20	150–220	
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	180	0,20	150–220	
	1.7	Tempering steel, alloyed	< 800 N/mm²	180	0,20	150–220	
	1.8	Tempering steel, alloyed	< 1300 N/mm²	150	0,20	150–220	
	1.9	Steel castings	< 850 N/mm²	160	0,15	150–220	
	1.10	Nitriding steel	< 1000 N/mm²	180	0,15	150–220	
	1.11	Nitriding steel	< 1200 N/mm²	160	0,15	150–220	
	1.12	Roller bearing steel	< 1200 N/mm²	160	0,12	150–220	
	1.13	Spring steel	< 1200 N/mm²	150	0,12	150–220	
	1.14	High-speed steel	< 1300 N/mm²	120	0,10	60–120	
	1.15	Cold working tool steel	< 1300 N/mm²	120	0,12	60–120	
	1.16	Hot working tool steel	< 1300 N/mm²	140	0,10	100–150	
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	140	0,10	100–150	
	2.2	Stainless steel, ferritic	< 750 N/mm²	150	0,12	100–150	
	2.3	Stainless steel, martensitic	< 900 N/mm²	150	0,12	100–150	
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	120	0,12	100–120	
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	120	0,15	100–140	
	2.6	Stainless steel, austenitic	< 750 N/mm²	120	0,15	100–140	
	2.7	Heat resistant steel	< 1100 N/mm²	100	0,12	80–100	
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	180	0,35	120–180	
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	120	0,30	120–180	
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²	120	0,30	120–180	
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²	120	0,30	120–180	
	3.5	White malleable cast iron	270–450 N/mm²	120	0,20	120–180	
	3.6	White malleable cast iron	500–650 N/mm²	120	0,20	120–180	
	3.7	Black malleable cast iron	300–450 N/mm²	120	0,20	120–180	
	3.8	Black malleable cast iron	500–800 N/mm²	120	0,20	120–180	
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²	350	0,35		0–500
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²	350	0,35		0–500
	4.3	Aluminium alloy 0.5–10 % Si	< 400 N/mm²	250	0,20		0–500
	4.4	Aluminium alloys 10–15 % Si	< 400 N/mm²	150	0,30		0–500
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm²	200	0,25		0–500
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²	200	0,30		0–500
	4.7	Copper wrought alloys	< 700 N/mm²	200	0,30		0–500
	4.8	Special copper alloys	< 200 HB	250	0,30		0–500
	4.9	Special copper alloys	< 300 HB	250	0,30		0–500
	4.10	Special copper alloys	> 300 HB	200	0,30		0–500
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	250	0,20		0–500
	4.12	Long-chipping brass	< 600 N/mm²	250	0,30		0–500
	4.13	Thermoplastics		50	0,20		0–500
	4.14	Duroplastics		50	0,20		0–500
	4.15	Fibre-reinforced plastics		100	0,10		0–500
	4.16	Magnesium and magnesium alloys	< 850 N/mm²	150	0,25		0–500
	4.17	Graphite		150	0,20		0–500
	4.18	Tungsten and tungsten alloys					
	4.19	Molybdenum and molybdenum alloys					
S	5.1	Pure nickel		100	0,15		80–100
	5.2	Nickel alloys		100	0,15		80–100
	5.3	Nickel alloys	< 850 N/mm²	50	0,10		20–50
	5.4	Nickel molybdenum alloys		50	0,10		20–50
	5.5	Nickel-chromium alloys	< 1300 N/mm²	50	0,10		20–50
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²	50	0,10		20–50
	5.7	Heat resistant alloys	< 1300 N/mm²	50	0,08		20–50
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	50	0,08		20–50
	5.9	Pure titanium	< 900 N/mm²	30	0,15		15–30
	5.10	Titanium alloys	< 700 N/mm²	30	0,15		15–30
	5.11	Titanium alloys	< 1200 N/mm²	30	0,10		15–30
H	6.1		< 45 HRC	50	0,10		20–50
	6.2		46–55 HRC	50	0,06		20–50
	6.3	Tempered steel	56–60 HRC				
	6.4		61–65 HRC				
	6.5		65–70 HRC				

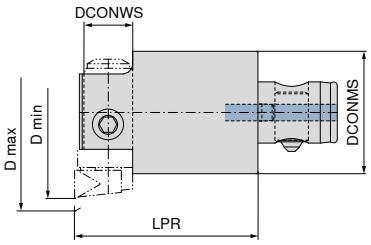
PROJECTS IN THE BEST OF HANDS

From conception to successful completion, we realize your application-specific projects

FF precision adjustment head

Scope of supply:
Head with clamping screw
without precision turning insert

ABS



NEW

D_{min} - D_{max} mm	KOMET no.	Adapter	DCONWS mm	DCONMS mm	LPR mm	Article no. 62 810 ...
29,5 - 36	B30 11010	ABS 25	10	25	50	**03690**
35,5 - 42	B30 11020	ABS 25	10	25	50	**04290**
39 - 45	B30 12010	ABS 32	12	32	60	**04589**
44 - 50	B30 12020	ABS 32	12	32	60	**05089**
47 - 57	B30 13010	ABS 40	16	40	60	**05788**
56 - 66	B30 13020	ABS 40	16	40	60	**06688**
58 - 71	B30 14010	ABS 50	20	50	70	**07197**
70 - 83	B30 14020	ABS 50	20	50	70	**08397**
79 - 94	B30 15010	ABS 63	25	63	70	**09496**
93 - 108	B30 15020	ABS 63	25	63	70	**10896**
100 - 121	B30 16010	ABS 80	32	80	90	**12192**
120 - 141	B30 16020	ABS 80	32	80	90	**14192**
138 - 159	B30 17010	ABS 100	32	100	90	**15991**
158 - 179	B30 17020	ABS 100	32	100	90	**17991**
178 - 199	B30 17030	ABS 100	32	100	90	**19991**

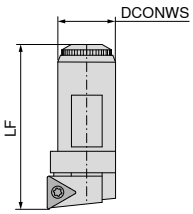
Clamping screw

Spare parts DCONWS		**Article no. 62 950 ...**
10	M6x6/SW3	**44700**
12	M8x10/SW4	**44800**
12	M8x8/SW4	**14700**
16	M10x10/SW5	**44900**
20	M12x12/SW6	**45000**
25	M16x16/SW8	**45100**
32	M20x20/SW10	**45200**
32	M20x30/SW10	**45300**

FF precision turning insert

Scope of supply:

Precision turning insert with WPL screw
Please order WPL separately



for	DCONWS mm	KOMET no.	LF mm	Insert	NEW Article no. 62 855 ...
62 810 0369 / 62 810 04290	10	M30 20011	28,5	T0.. 06T1	**03000**
62 810 04589 / 62 810 05089	12	M30 20021	37,5	T0.. 06T1	**03900**
62 810 05788 / 62 810 06688	16	M30 20031	45,0	T0.. 0902	**04700**
62 810 07197 / 62 810 08397	20	M30 20041	56,0	T0.. 0902	**05800**
62 810 09496 / 62 810 10896	25	M30 20051	77,5	T0.. 1403	**07900**
62 810 12192 / 62 810 14192	32	M30 20061	97,0	T0.. 1403	**10000**
62 810 15991 / 62 810 17991 / 62 810 19991	32	M30 20071	131,0	T0.. 1403	**13800**

TORX® Screws

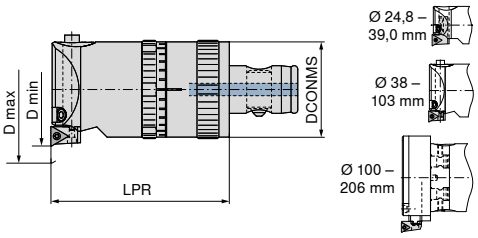
Spare parts DCONWS		**Article no. 62 950 ...**
10	M2x3,8/IP6	**12800**
12	M2x3,8/IP6	**12800**
16	M2,6x5,2 - 08IP	**12000**
20	M2,6x6,2 - 08IP	**09900**
25	M3,5x7,3 - 10IP	**12600**
32	M3,5x7,3 - 10IP	**12600**

MicroKom – M03Speed – precision adjustment head

Scope of supply:

Precision adjustment head with clamping screw
Please order insert holder and indexable insert separately

ABS



D_{min} - D_{max} mm	KOMET no.	Adapter	DCONMS mm	LPR mm	NEW Article no. 62 815 ...
24,8 - 33,0	M03 00115	ABS 25	25	50	**03390**
29 - 39	M03 00515	ABS 25	25	50	**03990**
38 - 50	M03 01025	ABS 32	32	60	**05089**
49 - 63	M03 01535	ABS 40	40	70	**06388**
62 - 80	M03 02045	ABS 50	50	75	**08097**
100 - 206	M03 20090	ABS 63	63	106	**20696** [1]
79 - 103	M03 02555	ABS 63	63	80	**10396**

1) can only be used with interchangeable bridge (Art. No. 62 865 ...)

DCONMS	TORX® Screws	Article no. 62 950 ...	Grub screw	Article no. 10 950 ...	Grubscrew	Article no. 10 950 ...
25					M4X0,5	**15600**
32	M3,5x7,3 - 10IP	**12600**			M4X0,5	**15600**
40	M3,5x7,3 - 10IP	**12600**			M5X0,5	**15700**
50	M3,5x7,3 - 10IP	**12600**			M5X0,5	**15700**
63	M5x9,4/IP6	**45400**				
63	M5x9,4/IP6	**45400**	M6x8 - SW3	**11300**		

A detailed operating manual is available for download in the online shop next to the product.

MicroKom – M03Speed – Insert holder

Scope of supply:
without inserts
incl. mounting screws

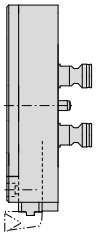
for	KOMET no.	Insert	NEW Article no. 62 864 ...
62 815 03990	M03 10021	T0.. 06T1	**03900**
62 815 06388 / 62 815 08097	M03 10033	T0.. 06T1	**05000**
62 815 03390	M03 10011	T0.. 06T1	**03300**
62 815 06388 / 62 815 08097	M03 10043	T0.. 0902	**08000**
62 815 20696	M03 10070	T0.. 0902	**20600**
62 815 10396	M03 10063	T0.. 0902	**10300**

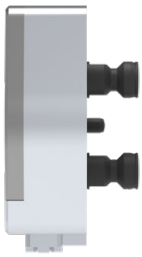
TORX® Screws

Spare parts Insert	Article no. 62 950 ...
T0.. 06T1	**09700**
T0.. 0902	**12000**

MicroKom – M03Speed – Interchangeable bridge

▲ for head 62 815 20696

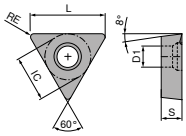




D_{min} - D_{max} mm	KOMET no.	NEW Article no. 62 865 ...
100 - 130	M03 20100	**13000**
128 - 168	M03 20110	**16800**
166 - 206	M03 20120	**20600**

TOHX / TOGX

Designation	L	S	D1	IC
	mm	mm	mm	mm
TOHX 06T1..	6,50	1,80	2,2	4,0
TOHX 0902..	9,12	2,50	2,8	5,6
TO.X 1403..	13,62	3,00	3,8	8,2

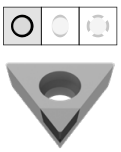


TOHX

ISO	KOMET no.	RE	BK8425	BK2710	BK7615
			F	F	F
			TOHX	TOHX	TOHX
			NEW	NEW	NEW
			Article no. 62 603 ...	Article no. 62 602 ...	Article no. 62 602 ...
		mm			
06T103EL	W30 04120.038425	0,3	**30200**		
090204EL	W30 14120.048425	0,4	**31800**		
090204EN	W30 14720.048425	0,4	**31400**		
140304EL	W30 26060.042710	0,4		**12600**	
140304EL	W30 26120.048425	0,4	**32600**		
140304EL	W30 26060.047615	0,4			**82600**

Steel	●	●	
Stainless steel	●	●	
Cast iron	●	●	●
Non ferrous metals			
Heat resistant alloys			
Hardened materials			

TOGX



ISO	KOMET no.	RE	CBN40
			F
			TOGX
			NEW
			Article no. 62 601 ...
		mm	
140304TN	W30 26990.0440	0,4	**62600**

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	
Heat resistant alloys	
Hardened materials	●

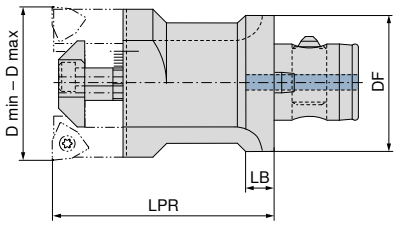
Further inserts can be found in the main catalogue → **Chapter 5 Spindle tools, Page 9–11.**

TwinKom – Base body

Scope of supply:

Clamping plate incl. adjustment and fixing screws
Order tool holder (+indexable insert) and indexable inserts separately

ABS



D_{min} - D_{max} mm	KOMET no.	DCONMS mm	Adapter	LPR mm	LB mm	long NEW Article no. 62 870 ...	short NEW Article no. 62 870 ...
24 - 32	G01 70552	25	ABS 25	45	6,0		**03290**
24 - 32	G01 71072	32	ABS 32	70	7,0	**13289**	
30 - 41	G01 70562	25	ABS 25	50			**04190**
30 - 41	G01 71132	32	ABS 32	85	7,5	**14189**	
39 - 53	G01 71022	32	ABS 32	60			**05389**
39 - 53	G01 71622	40	ABS 40	120	8,0	**15388**	
51 - 71	G01 71522	40	ABS 40	60			**07188**
51 - 71	G01 72122	50	ABS 50	135	10,0	**17197**	
64 - 91	G01 72022	50	ABS 50	70			**09197**
64 - 91	G01 72622	63	ABS 63	155	13,0	**19196**	
83 - 124	G01 72522	63	ABS 63	70			**12496**
83 - 124	G01 73122	80	ABS 80	155	16,5	**12592**	
109 - 167	G01 73032	80	ABS 80	90			**16792**
109 - 167	G01 73042	80	ABS 80	175		**16892**	

Spare parts

D_{min} - D_{max}	TwinKom clamping plate Article no. 62 950 ...	Grubscrew Article no. 10 950 ...	Fixing screw Article no. 10 950 ...	Fixing screw Article no. 10 950 ...
109 - 167	**47500**	M8X20.SW4 **16600**		
24 - 32	**46900**	M2,5X5.SW1,3 **16500**	M2x4,5 TX6 **15800**	
30 - 41	**47000**	M2,5X5.SW1,3 **16500**	M2,5x5,3 TX8 **15900**	
39 - 53	**47100**		M2,5x7 TX8 **16000**	
51 - 71	**47200**		M3,5x9,4 TX10 **16300**	
64 - 91	**47300**	M6X12 SW3 **16100**		M4,5x11,5 - T15 **13500**
83 - 124	**47400**	M6X20 SW3 **16200**		M5x12 - SW2,5 **11000**

Spare parts

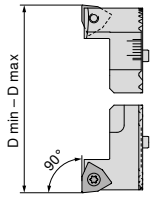
D_{min} - D_{max}	Cylindrical screw Article no. 62 950 ...	Adjustment pin Article no. 62 950 ...	Adjustment screw Article no. 10 950 ...
109 - 167	M5x16 **00000**	109-167 **46800**	
24 - 32	M3X16 **46000**	24-32 **46200**	
30 - 41	M4X20 **45500**	30-41 **46300**	
39 - 53	M5X25 **45600**	39-53 **46400**	M4x8 - SW2 **11100**
51 - 71	M6X30 **45700**	51-71 **46500**	M4x10 - SW2 **11200**
64 - 91	M8X35 **45800**	64-91 **46600**	
83 - 124	M8X45 **45900**	83-124 **46700**	

A detailed operating manual is available for download in the online shop next to the product.

TwinKom – Tool holder 90°

▲ Price per piece

Scope of supply:
including clamping screw
Order indexable inserts separately

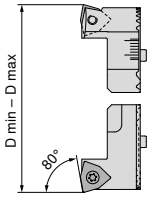


D_{min} - D_{max} mm	KOMET no.	Insert	NEW Article no. 62 871 ...
24 - 32	G03 70330	WO.X 0403	**03200**
30 - 41	G03 70141	WO.X 05T3	**04100**
39 - 53	G03 70230	WO.X 05T3	**05300**
51 - 71	G03 70240	WO.X 06T3	**07100**
64 - 91	G03 70250	WO.X 0804	**09100**
83 - 124	G03 70260	WO.X 1005	**12400**

TwinKom – Tool holder 80°

▲ Price per piece

Scope of supply:
including clamping screw
Order indexable inserts separately



D_{min} - D_{max} mm	KOMET no.	Insert	NEW Article no. 62 875 ...
24 - 32	G03 80310	WO.X 0403	**03200**
30 - 41	G03 80021	WO.X 05T3	**04100**
39 - 53	G03 80090	WO.X 05T3	**05300**
51 - 71	G03 80100	WO.X 06T3	**07100**
64 - 91	G03 80110	WO.X 0804	**09100**
83 - 124	G03 80120	WO.X 1005	**12400**

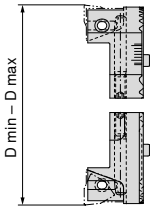
Clamping screw

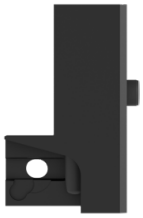
D_{min} - D_{max}	Article no. 10 950 ...
24 - 32	**10700**
30 - 41	**10500**
39 - 53	**10500**
51 - 71	**10600**
64 - 91	**12700**
83 - 124	**12700**

TwinKom – Basic tool holder, axially adjustable

▲ Price per piece

Scope of supply:
Order indexable insert seats and indexable inserts separately



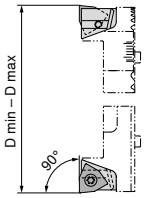


D_{min} - D_{max} mm	KOMET no.	NEW Article no. 62 872 ...
24 - 32	G03 70011	03200
30 - 41	G03 70021	04100
39 - 53	G03 70031	05300
51 - 71	G03 70041	07100
64 - 91	G03 70061	09100
83 - 124	G03 70071	12400
109 - 167	G03 70081	16700

TwinKom – Indexable insert, 90°

▲ axially adjustable

Scope of supply:
including clamping screw
Order indexable inserts separately

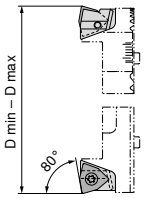


D_{min} - D_{max} mm	KOMET no.	Insert	NEW Article no. 62 873 ...
24 - 32	D54 60510	WO.X 0302	03200
30 - 41	D54 60520	WO.X 0403	04100
39 - 53	D54 60030	WO.X 05T3	05300
51 - 71	D54 60040	WO.X 06T3	07100
64 - 91	D54 60050	WO.X 0804	09100
83 - 167	D54 60060	WO.X 1005	12400

TwinKom – Indexable insert, 80°

▲ axially adjustable

Scope of supply:
including clamping screw
Order indexable inserts separately



D_{min} - D_{max} mm	KOMET no.	Insert	NEW Article no. 62 874 ...
24 - 32	D54 60610	WO.X 0302	03200
30 - 41	D54 60620	WO.X 0403	04100
39 - 53	D54 60130	WO.X 05T3	05300
51 - 71	D54 60140	WO.X 06T3	07100
64 - 91	D54 60150	WO.X 0804	09100
83 - 167	D54 60160	WO.X 1005	16700

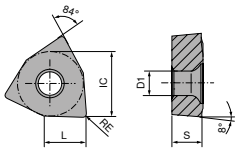
TwinKom – depths of cut

ap_{max}	P	M	K	N	S
WO.X 0302	1,5	1,0	1,5	2,0	
WO.X 0403	2,5	1,5	3,0	3,0	
WO.X 05T3	4,5	3,5	5,0	5,0	
WO.X 05T6	6,0	4,0	6,0	6,0	
WO.X 0804	7,5	6,0	7,5	7,5	
WO.X 1005	9,0	9,0	9,0	9,0	

Further cutting data can be found on → **pages 60+61**

WOEX / WOGX

Designation	L	S	D1	IC
	mm	mm	mm	mm
WOGX 0302..	3,2	2,30	2,30	5,00
WOGX 0403..	4,1	3,18	2,55	6,35
WO.X 05T3..	5,3	3,80	2,85	8,00
WO.X 06T3..	6,6	3,80	4,05	10,00
WO.X 0804..	7,9	4,80	4,90	12,00
WOEX 1005..	9,9	5,30	4,90	15,00



WOEX

ISO	KOMET no.	RE	BK6440	BK8425	BK6115
			WOEX	WOEX	WOEX
			NEW	NEW	NEW
			Article no. 10 821 ...	Article no. 10 821 ...	Article no. 10 821 ...
		mm			
030204	W29 10010.048425	0,4		30301	
030204	W29 10010.046115	0,4			40301
040304	W29 18010.046115	0,4			40401
040304	W29 18010.048425	0,4		30401	
05T304	W29 24010.048425	0,4		30501	
05T304	W29 24020.046440	0,4	25502		
05T304	W29 24010.046115	0,4			40501
06T304	W29 34010.048425	0,4		30601	
06T304	W29 34020.046440	0,4	25602		
06T304	W29 34010.046115	0,4			40601
080404	W29 42010.048425	0,4		30801	
080404	W29 42020.046440	0,4	25802		
080404	W29 42010.046115	0,4			40801
100504	W29 50010.048425	0,4		31001	
100504	W29 50020.046440	0,4	26002		
100504	W29 50010.046115	0,4			41001
Steel			●	●	●
Stainless steel			●	●	
Cast iron				●	●
Non ferrous metals					
Heat resistant alloys					
Hardened materials					○

WOGX

ISO	KOMET no.	RE	BK8430
			WOGX
			NEW
			Article no. 10 821 ...
		mm	
030204	W29 10150.048430	0,4	00315
040304	W29 18150.048430	0,4	00415
05T304	W29 24150.048430	0,4	00515
06T304	W29 34150.048430	0,4	00615
080404	W29 42150.048430	0,4	00815
Steel			●
Stainless steel			●
Cast iron			○
Non ferrous metals			○
Heat resistant alloys			○
Hardened materials			○

SpinTools – Digital Stick

- suitable for all SpinTools digital heads
- revised software for even more precise adjustment

Scope of supply:
incl. AAA Battery

NEW
Article no.
62 309 ...

00100

Cutting data standard values

	Index	Material	Strength N/mm² / HB / HRC	WOEX indexable inserts BK8425 v_c m/min	BK2710 v_c m/min	BK7615 v_c m/min	CBN40 v_c m/min	BK6440 v_c m/min	BK6115 v_c m/min	BK8430 v_c m/min
P	1.1	General construction steel	< 800 N/mm²	200–320	150–240			200	250–350	200
	1.2	Free cutting steel	< 800 N/mm²	200–320	150–240			180	250–350	180
	1.3	Hardened steel, non alloyed	< 800 N/mm²	250–300	150–240			200	250–300	200
	1.4	Alloyed hardened steel	< 1000 N/mm²	250–300	150–240			180	250–300	180
	1.5	Tempering steel, unalloyed	< 850 N/mm²	250–300	150–240			200	250–300	200
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	140–220	150–240			180	200–280	180
	1.7	Tempering steel, alloyed	< 800 N/mm²	140–220	150–240			180	200–280	180
	1.8	Tempering steel, alloyed	< 1300 N/mm²	140–220	150–240			180	200–280	180
	1.9	Steel castings	< 850 N/mm²	250–300	150–240			160	250–300	160
	1.10	Nitriding steel	< 1000 N/mm²	140–220	150–240			180	200–280	180
	1.11	Nitriding steel	< 1200 N/mm²	140–220	150–240			180	200–280	180
	1.12	Roller bearing steel	< 1200 N/mm²	140–220	150–240			180	200–280	180
	1.13	Spring steel	< 1200 N/mm²	140–220	150–240			180	200–280	180
	1.14	High-speed steel	< 1300 N/mm²	50–90	60–120			100	70–110	100
	1.15	Cold working tool steel	< 1300 N/mm²	120–200	60–150			140	170–230	140
	1.16	Hot working tool steel	< 1300 N/mm²	120–200	100–150			140	170–230	140
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	150–210	100–150			120		120
	2.2	Stainless steel, ferritic	< 750 N/mm²	150–210	100–150			120		120
	2.3	Stainless steel, martensitic	< 900 N/mm²	150–210	100–150			140		140
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	120–200	100–120			160		160
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	110–190	100–140			120		120
	2.6	Stainless steel, austenitic	< 750 N/mm²	120–200	100–140			120		120
	2.7	Heat resistant steel	< 1100 N/mm²	110–190	80–100			90		90
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	140–220	120–180	120–180			160–320	180
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	140–220	120–180	120–180			160–320	140
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²	140–220	120–180	120–180			120–200	140
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²	120–180	120–180	120–180			100–180	120
	3.5	White malleable cast iron	270–450 N/mm²	110–170	120–180	120–180			90–150	100
	3.6	White malleable cast iron	500–650 N/mm²	110–170	120–180	120–180			90–150	100
	3.7	Black malleable cast iron	300–450 N/mm²	110–170	120–180	120–180			90–150	100
	3.8	Black malleable cast iron	500–800 N/mm²	110–170	120–180	120–180			90–150	100
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²							250
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²							250
	4.3	Aluminium alloy 0.5–10 % Si	< 400 N/mm²							250
	4.4	Aluminium alloys 10–15 % Si	< 400 N/mm²							250
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm²							200
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²							250
	4.7	Copper wrought alloys	< 700 N/mm²							250
	4.8	Special copper alloys	< 200 HB							250
	4.9	Special copper alloys	< 300 HB							250
	4.10	Special copper alloys	> 300 HB							250
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²							250
	4.12	Long-chipping brass	< 600 N/mm²							250
	4.13	Thermoplastics								
	4.14	Duroplastics								
	4.15	Fibre-reinforced plastics								
	4.16	Magnesium and magnesium alloys	< 850 N/mm²							250
	4.17	Graphite								
	4.18	Tungsten and tungsten alloys								
	4.19	Molybdenum and molybdenum alloys								
S	5.1	Pure nickel								50
	5.2	Nickel alloys								50
	5.3	Nickel alloys	< 850 N/mm²							50
	5.4	Nickel molybdenum alloys								50
	5.5	Nickel-chromium alloys	< 1300 N/mm²							40
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²							50
	5.7	Heat resistant alloys	< 1300 N/mm²							50
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²							50
	5.9	Pure titanium	< 900 N/mm²							50
	5.10	Titanium alloys	< 700 N/mm²							50
	5.11	Titanium alloys	< 1200 N/mm²							50
H	6.1	Tempered steel	< 45 HRC				80		50–90	140
	6.2		46–55 HRC				60		30–50	
	6.3		56–60 HRC				60			
	6.4		61–65 HRC							
	6.5		65–70 HRC							

Index	FF system 62 810 ...				M03 system 62 815 ...					TwinKom G01 62 870 ...							
	v_c m/min	Ø 29,5–50 mm	Ø 47–83 mm	Ø 79–199 mm	v_c m/min	Ø 24,8–50 mm	Ø 38–63 mm	Ø 49–103 mm	Ø 62–206 mm	v_c m/min	Ø 24–32 mm	Ø 30–41 mm	Ø 39–53 mm	Ø 51–71 mm	Ø 64–91 mm	Ø 83–124 mm	Ø 109–167 mm
		f in mm/rev.				f in mm/rev.					f in mm/rev.						
1.1	200 – 300	0,08 – 0,1	0,1 – 0,15	0,15 – 0,2	200 – 300	0,08 – 0,1	0,08 – 0,1	0,1 – 0,15	0,1 – 0,15	140 – 200	0,1	0,12	0,15	0,2	0,25	0,3	0,3
1.2																	
1.3																	
1.4																	
1.5																	
1.6																	
1.7																	
1.8																	
1.9																	
1.10																	
1.11																	
1.12																	
1.13																	
1.14	120	0,06	0,08	0,08	120	0,06	0,06	0,08	0,08								
1.15	200	0,06	0,1	0,1	200	0,06	0,10	0,1	0,1	120	0,06	0,1	0,12	0,15	0,2	0,2	0,25
1.16																	
2.1	120 – 200	0,06 – 0,08	0,10	0,15	120 – 200	0,06 – 0,08	0,06 – 0,08	0,1	0,1	90 – 120	0,05 – 0,07	0,07 – 0,09	0,1 – 0,12	0,1 – 0,12	0,12 – 0,15	0,15 – 0,2	0,15 – 0,2
2.2																	
2.3																	
2.4																	
2.5																	
2.6																	
2.7																	
3.1	200 – 240	0,15	0,20	0,30	200 – 240	0,15	0,15	0,2	0,2	140 – 180	0,12	0,15	0,25	0,25	0,3	0,35	0,35
3.2																	
3.3	120 – 180	0,1	0,15	0,25	120 – 180	0,1	0,1	0,15	0,15	90 – 140	0,10 – 0,12	0,12 – 0,15	0,20 – 0,3	0,25 – 0,3	0,25 – 0,35	0,25 – 0,35	0,25 – 0,35
3.4																	
3.5																	
3.6																	
3.7																	
3.8																	
4.1	200 – 500	0,08 – 0,10	0,12 – 0,15	0,15 – 0,20	200 – 500	0,08 – 0,1	0,08 – 0,1	0,12 – 0,15	0,12 – 0,15	200 – 250	0,12	0,15	0,25	0,25	0,3	0,35	0,35
4.2																	
4.3																	
4.4																	
4.5																	
4.6																	
4.7																	
4.8																	
4.9																	
4.10																	
4.11																	
4.12																	
4.13																	
4.14																	
4.15																	
4.16																	
4.17																	
4.18																	
4.19																	
5.1	30 – 50	0,06	0,08	0,08	30 – 50	0,06	0,06	0,08	0,08	30 – 50	0,05	0,08	0,1	0,12	0,12	0,15	0,15
5.2																	
5.3																	
5.4																	
5.5																	
5.6																	
5.7																	
5.8																	
5.9																	
5.10																	
5.11																	
6.1	90 – 120	0,06 – 0,08	0,08	0,08	90 – 120	0,06 – 0,08	0,06 – 0,08	0,08	0,08								
6.2																	
6.3																	
6.4																	
6.5																	

Precision machining with depth of cut a_p = 0.1 – 0.2 mm (FF, M03Speed)
Depth of cut a_p for TwinKom see → **page 57**

Shank thread milling cutter with shank-end countersink

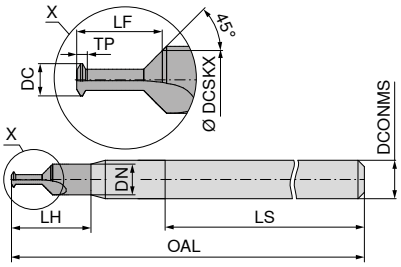
▲ Note: left-hand cutting

SFSE Micro

60°

M

Ti602



HA

Solid carbide

DC mm	Thread	KOMET no.	TP mm	OAL mm	DN mm	LS mm	LH mm	DCONMS h6 mm	DCSKX mm	LF mm	ZEFP	NEW Article no. 50 804 ...
0,75	M1	88977001000001	0,25	40	1,8	28	2,1	3	1,5	5,2	2	**01000**
1,10	M1,4	88977001000004	0,30	40	2,0	28	2,6	3	1,7	5,7	2	**01400**
1,25	M1,6	88977001000005	0,35	40	2,4	28	3,1	3	2,1	6,0	2	**01600**
1,60	M2	88977001000008	0,40	40	3,0	28	3,7	3	2,6		2	**02000**
1,75	M2,2	88977001000009	0,45	40	3,0	28	3,9	3	2,5		2	**02200**
2,05	M2,5	88977001000011	0,45	40	3,0	28	4,5	3	2,9		2	**02500**

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	
Heat resistant alloys	
Hardened materials	●

Cutting data approximate values

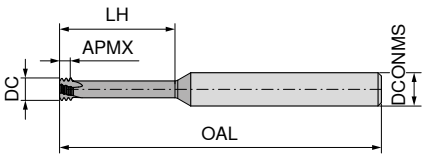
	Index	Material	Strength N/mm² / HB / HRC	V_c m/min without through coolant	SFSE Micro VHM 50 804... Ø 1-2,5 fz mm/tooth
P	1.1	General construction steel	< 800 N/mm²		
	1.2	Free cutting steel	< 800 N/mm²		
	1.3	Hardened steel, non alloyed	< 800 N/mm²		
	1.4	Alloyed hardened steel	< 1000 N/mm²		
	1.5	Tempering steel, unalloyed	< 850 N/mm²		
	1.6	Tempering steel, unalloyed	< 1000 N/mm²		
	1.7	Tempering steel, alloyed	< 800 N/mm²		
	1.8	Tempering steel, alloyed	< 1300 N/mm²		
	1.9	Steel castings	< 850 N/mm²		
	1.10	Nitriding steel	< 1000 N/mm²		
	1.11	Nitriding steel	< 1200 N/mm²		
	1.12	Roller bearing steel	< 1200 N/mm²		
	1.13	Spring steel	< 1200 N/mm²		
	1.14	High-speed steel	< 1300 N/mm²		
	1.15	Cold working tool steel	< 1300 N/mm²		
	1.16	Hot working tool steel	< 1300 N/mm²		
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²		
	2.2	Stainless steel, ferritic	< 750 N/mm²		
	2.3	Stainless steel, martensitic	< 900 N/mm²		
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²		
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²		
	2.6	Stainless steel, austenitic	< 750 N/mm²		
	2.7	Heat resistant steel	< 1100 N/mm²		
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²		
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²		
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²		
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²		
	3.5	White malleable cast iron	270–450 N/mm²		
	3.6	White malleable cast iron	500–650 N/mm²		
	3.7	Black malleable cast iron	300–450 N/mm²		
	3.8	Black malleable cast iron	500–800 N/mm²		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²		
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²		
	4.3	Aluminium alloy 0.5–10 % Si	< 400 N/mm²		
	4.4	Aluminium alloys 10–15 % Si	< 400 N/mm²		
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm²		
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²		
	4.7	Copper wrought alloys	< 700 N/mm²		
	4.8	Special copper alloys	< 200 HB		
	4.9	Special copper alloys	< 300 HB		
	4.10	Special copper alloys	> 300 HB		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²		
	4.12	Long-chipping brass	< 600 N/mm²		
	4.13	Thermoplastics			
	4.14	Duroplastics			
	4.15	Fibre-reinforced plastics			
	4.16	Magnesium and magnesium alloys	< 850 N/mm²		
	4.17	Graphite			
	4.18	Tungsten and tungsten alloys			
	4.19	Molybdenum and molybdenum alloys			
S	5.1	Pure nickel			
	5.2	Nickel alloys			
	5.3	Nickel alloys	< 850 N/mm²		
	5.4	Nickel molybdenum alloys			
	5.5	Nickel-chromium alloys	< 1300 N/mm²		
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²		
	5.7	Heat resistant alloys	< 1300 N/mm²		
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²		
	5.9	Pure titanium	< 900 N/mm²		
	5.10	Titanium alloys	< 700 N/mm²		
	5.11	Titanium alloys	< 1200 N/mm²		
H	6.1	Tempered steel	< 45 HRC		
	6.2		46–55 HRC	**30-50**	0,01-0,015
	6.3		56–60 HRC	**20-40**	0,01-0,015
	6.4		61–65 HRC		
	6.5		65–70 HRC		

Circular shank thread milling cutter

▲ Available on request from M1

SGF | IR/IL | ≤ 3xD | 60° | M

Ti600



HA

Solid carbide

DC mm	Thread	TP mm	OAL mm	APMX mm	LH mm	DCONMS h6 mm	ZEFP	NEW Article no. 50 802 ...
1,53	M2	0,40	39	0,80	6,0	3	3	02000
2,37	M3	0,50	58	1,35	9,5	6	3	03000
3,10	M4	0,70	58	1,95	12,5	6	3	04000
3,80	M5	0,80	58	2,30	16,0	6	3	05000
4,65	M6	1,00	58	2,70	20,0	6	3	06000
6,00	M8	1,25	58	3,20	24,0	6	3	08000
7,80	M10	1,50	64	3,80	31,5	8	3	10000
9,00	M12	1,75	73	4,55	37,8	10	3	12000

60° | M | ≤ 4xD

DC mm	Thread	TP mm	OAL mm	APMX mm	LH mm	DCONMS h6 mm	ZEFP	NEW Article no. 50 803 ...
1,53	M2	0,40	39	1,00	10,4	3	3	02000
2,40	M3	0,50	39	1,30	12,5	3	3	03000
3,10	M4	0,70	58	1,80	16,7	6	3	04000
4,00	M5	0,80	58	2,10	20,8	6	3	05000
4,80	M6	1,00	58	2,55	25,0	6	3	06000
6,40	M8	1,25	64	3,15	33,5	8	3	08000
8,00	M10	1,50	76	3,85	41,5	8	3	10000

Steel	●
Stainless steel	●
Cast iron	●
Non ferrous metals	●
Heat resistant alloys	●
Hardened materials	

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used.
Details on → **Page 72+73.**

Cutting data approximate values

	Index	Material	Strength N/mm² / HB / HRC	V_c m/min with through coolant	SGF solid carbide Ti600 50 802..., 50 803... Ø 1–2 f mm/tooth	Ø 3–5 f mm/tooth	Ø 6–8 f mm/tooth	Ø 9–12 f mm/tooth
P	1.1	General construction steel	< 800 N/mm²	60-120	0,04-0,05	0,07-0,11	0,13-0,15	0,16-0,17
	1.2	Free cutting steel	< 800 N/mm²	60-120	0,04-0,05	0,07-0,11	0,13-0,15	0,16-0,17
	1.3	Hardened steel, non alloyed	< 800 N/mm²	60-120	0,04-0,05	0,07-0,11	0,13-0,15	0,16-0,17
	1.4	Alloyed hardened steel	< 1000 N/mm²	60-120	0,04-0,05	0,07-0,11	0,13-0,15	0,16-0,17
	1.5	Tempering steel, unalloyed	< 850 N/mm²	60-120	0,04-0,05	0,07-0,11	0,13-0,15	0,16-0,17
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	60-120	0,04-0,05	0,07-0,11	0,13-0,15	0,16-0,17
	1.7	Tempering steel, alloyed	< 800 N/mm²	50-80	0,03-0,04	0,05-0,06	0,07-0,09	0,09-0,12
	1.8	Tempering steel, alloyed	< 1300 N/mm²	50-80	0,03-0,04	0,05-0,06	0,07-0,09	0,09-0,12
	1.9	Steel castings	< 850 N/mm²	70-90	0,03-0,04	0,05-0,07	0,07-0,08	0,09-0,12
	1.10	Nitriding steel	< 1000 N/mm²	60-120	0,04-0,05	0,07-0,11	0,13-0,15	0,16-0,17
	1.11	Nitriding steel	< 1200 N/mm²	60-120	0,04-0,05	0,07-0,11	0,13-0,15	0,16-0,17
	1.12	Roller bearing steel	< 1200 N/mm²	60-90	0,03-0,05	0,04-0,06	0,06-0,08	0,09-0,11
	1.13	Spring steel	< 1200 N/mm²	60-90	0,03-0,05	0,04-0,06	0,06-0,08	0,09-0,11
	1.14	High-speed steel	< 1300 N/mm²	50-80	0,03-0,04	0,07-0,08	0,03-0,04	0,09-0,12
	1.15	Cold working tool steel	< 1300 N/mm²	50-80	0,03-0,04	0,07-0,08	0,03-0,04	0,09-0,12
	1.16	Hot working tool steel	< 1300 N/mm²	50-80	0,03-0,04	0,07-0,08	0,03-0,04	0,09-0,12
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	70-100	0,02-0,03	0,04-0,06	0,06-0,08	0,09-0,11
	2.2	Stainless steel, ferritic	< 750 N/mm²	70-100	0,02-0,03	0,04-0,06	0,06-0,08	0,09-0,11
	2.3	Stainless steel, martensitic	< 900 N/mm²	70-100	0,02-0,03	0,04-0,06	0,06-0,08	0,09-0,11
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	70-100	0,02-0,03	0,04-0,06	0,06-0,08	0,09-0,11
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	60-90	0,02-0,03	0,04-0,06	0,06-0,08	0,09-0,11
	2.6	Stainless steel, austenitic	< 750 N/mm²	60-90	0,02-0,03	0,04-0,06	0,06-0,08	0,09-0,11
	2.7	Heat resistant steel	< 1100 N/mm²	70-90	0,03-0,04	0,05-0,06	0,07-0,08	0,09-0,12
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	40-80	0,04-0,05	0,07-0,11	0,13-0,15	0,16-0,17
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	40-80	0,04-0,05	0,07-0,11	0,13-0,15	0,16-0,17
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²	40-80	0,04-0,05	0,07-0,11	0,13-0,15	0,16-0,17
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²	40-80	0,04-0,05	0,07-0,11	0,13-0,15	0,16-0,17
	3.5	White malleable cast iron	270–450 N/mm²	40-80	0,04-0,05	0,07-0,11	0,13-0,15	0,16-0,17
	3.6	White malleable cast iron	500–650 N/mm²	40-80	0,04-0,05	0,07-0,11	0,13-0,15	0,16-0,17
	3.7	Black malleable cast iron	300–450 N/mm²	40-80	0,04-0,05	0,07-0,11	0,13-0,15	0,16-0,17
	3.8	Black malleable cast iron	500–800 N/mm²	40-80	0,04-0,05	0,07-0,11	0,13-0,15	0,16-0,17
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²	100-200	0,04-0,05	0,07-0,11	0,13-0,15	0,16-0,17
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²	100-200	0,04-0,05	0,07-0,11	0,13-0,15	0,16-0,17
	4.3	Aluminium alloy 0.5–10 % Si	< 400 N/mm²	100-200	0,04-0,05	0,07-0,11	0,13-0,15	0,16-0,17
	4.4	Aluminium alloys 10–15 % Si	< 400 N/mm²	100-200	0,04-0,05	0,07-0,11	0,13-0,15	0,16-0,17
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm²	60-140	0,03	0,04-0,06	0,07-0,09	0,09-0,11
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²	50-200	0,09-0,11	0,12-0,16	0,18-0,19	0,18-0,19
	4.7	Copper wrought alloys	< 700 N/mm²	50-200	0,09-0,11	0,12-0,16	0,18-0,19	0,18-0,19
	4.8	Special copper alloys	< 200 HB	50-200	0,09-0,11	0,12-0,16	0,18-0,19	0,18-0,19
	4.9	Special copper alloys	< 300 HB	50-200	0,09-0,11	0,12-0,16	0,18-0,19	0,18-0,19
	4.10	Special copper alloys	> 300 HB	50-200	0,09-0,11	0,12-0,16	0,18-0,19	0,18-0,19
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	50-200	0,09-0,11	0,12-0,16	0,18-0,19	0,18-0,19
	4.12	Long-chipping brass	< 600 N/mm²	50-200	0,09-0,11	0,12-0,16	0,18-0,19	0,18-0,19
	4.13	Thermoplastics		50-200	0,09-0,11	0,12-0,16	0,18-0,19	0,18-0,19
	4.14	Duroplastics		50-200	0,09-0,11	0,12-0,16	0,18-0,19	0,18-0,19
	4.15	Fibre-reinforced plastics		50-200	0,09-0,11	0,12-0,16	0,18-0,19	0,18-0,19
	4.16	Magnesium and magnesium alloys	< 850 N/mm²	50-200	0,09-0,11	0,12-0,16	0,18-0,19	0,18-0,19
	4.17	Graphite		50-200	0,09-0,11	0,12-0,16	0,18-0,19	0,18-0,19
	4.18	Tungsten and tungsten alloys		50-200	0,09-0,11	0,12-0,16	0,18-0,19	0,18-0,19
	4.19	Molybdenum and molybdenum alloys		50-200	0,09-0,11	0,12-0,16	0,18-0,19	0,18-0,19
S	5.1	Pure nickel		20-40	0,03	0,04-0,05	0,06	0,07
	5.2	Nickel alloys		20-40	0,03	0,04-0,05	0,06	0,07
	5.3	Nickel alloys	< 850 N/mm²	20-40	0,03	0,04-0,05	0,06	0,07
	5.4	Nickel molybdenum alloys		20-40	0,03	0,04-0,05	0,06	0,07
	5.5	Nickel-chromium alloys	< 1300 N/mm²	20-40	0,03	0,04-0,05	0,06	0,07
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²	20-40	0,03	0,04-0,05	0,06	0,07
	5.7	Heat resistant alloys	< 1300 N/mm²	20-40	0,03	0,04-0,05	0,06	0,07
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	20-40	0,03	0,04-0,05	0,06	0,07
	5.9	Pure titanium	< 900 N/mm²	20-40	0,03	0,04-0,05	0,06	0,07
	5.10	Titanium alloys	< 700 N/mm²	20-40	0,03	0,04-0,05	0,06	0,07
	5.11	Titanium alloys	< 1200 N/mm²	20-40	0,03	0,04-0,05	0,06	0,07
H	6.1	Tempered steel	< 45 HRC					
	6.2		46–55 HRC					
	6.3		56–60 HRC					
	6.4		61–65 HRC					
	6.5		65–70 HRC					

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CERATIZIT \ Performance

Premium quality tools for high performance.

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

Overview of inserts

Negative

			Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant S	Geometry CN..	DN..	SN..	TN..	VN..	WN..
Fine	-F30		o	●				67	68	69	70	71	72
Medium	-M30		o	●				67	68	69	70	71	72
	-M60		o	●				67	68	69	70		72

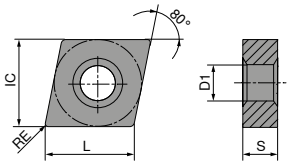
Positive

								Geometry CC..	DC..	SC..	TC..	VC..
Medium	-M25		o	●				73	74		76	77
	-M55		o	●				73	74	75	76	77

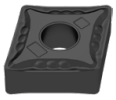
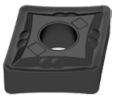
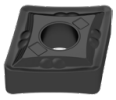
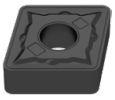
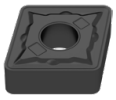
Matching tool holders and boring bars can be found in our main catalogue → **Chapter 9, Turning tools**

CNMG

Designation	L	S	D1	IC
	mm	mm	mm	mm
CNMG 1204..	12,9	4,76	5,16	12,7



CNMG

		-F30 CTCM120	-F30 CTCM130	-M30 CTCM120	-M30 CTCM130	-M60 CTCM120	-M60 CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		F	F	M	M	M	M
		CNMG	CNMG	CNMG	CNMG	CNMG	CNMG
		NEW	NEW	NEW	NEW	NEW	NEW
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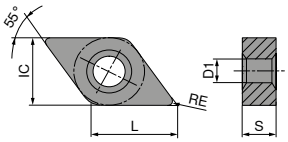
	mm						
120404EN	0,4	12800	32800				
120408EN	0,8	13000	33000	13000	33000	13000	33000
120412EN	1,2			13200	33200	13200	33200
120416EN	1,6			13400	33400	13400	33400
Steel		○	○	○	○	○	○
Stainless steel		●	●	●	●	●	●
Cast iron							
Non ferrous metals							
Heat resistant alloys							

DNMG

Designation	L	S	D1	IC
	mm	mm	mm	mm
DNMG 1104..	11,6	4,76	3,81	9,52
DNMG 1506..	15,5	6,35	5,16	12,70



DNMG

		-F30 CTCM120	-F30 CTCM130	-M30 CTCM120	-M30 CTCM130	-M60 CTCM120	-M60 CTCM130
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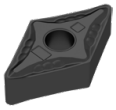
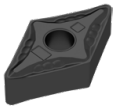
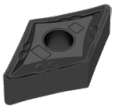
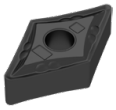
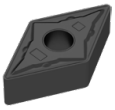
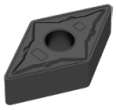
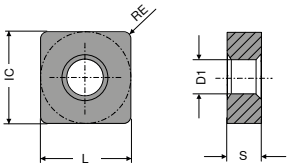
							
		F	F	M	M	M	M
		DNMG	DNMG	DNMG	DNMG	DNMG	DNMG
		NEW	NEW	NEW	NEW	NEW	NEW
ISO	RE	Article no. 75 013 ...	Article no. 75 013 ...	Article no. 75 014 ...	Article no. 75 014 ...	Article no. 75 015 ...	Article no. 75 015 ...
	mm						
110404EN	0,4	10400	30400				
110408EN	0,8	10600	30600	10600	30600		
110412EN	1,2			10800	30800		
150604EN	0,4	12800	32800				
150608EN	0,8	13000	33000	13000	33000	13000	33000
150612EN	1,2			13200	33200	13200	33200
Steel		○	○	○	○	○	○
Stainless steel		●	●	●	●	●	●
Cast iron							
Non ferrous metals							
Heat resistant alloys							

→ v_c Page 78–80

SNMG

Designation	L	S	D1	IC
	mm	mm	mm	mm
SNMG 1204..	12,7	4,76	5,16	12,7

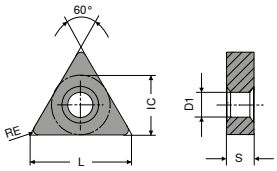


SNMG

		-F30 CTCM120	-F30 CTCM130	-M30 CTCM120	-M30 CTCM130	-M60 CTCM120	-M60 CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		F	F	M	M	M	M
		SNMG	SNMG	SNMG	SNMG	SNMG	SNMG
		NEW	NEW	NEW	NEW	NEW	NEW
ISO	RE	Article no. 75 016 ...	Article no. 75 016 ...	Article no. 75 017 ...	Article no. 75 017 ...	Article no. 75 018 ...	Article no. 75 018 ...
	mm						
120404EN	0,4	11600	31600				
120408EN	0,8	11800	31800	11800	31800	11800	31800
120412EN	1,2			12000	32000	12000	32000
120416EN	1,6					12200	32200
Steel		○	○	○	○	○	○
Stainless steel		●	●	●	●	●	●
Cast iron							
Non ferrous metals							
Heat resistant alloys							

TNMG

Designation	L	S	D1	IC
	mm	mm	mm	mm
TNMG 1604..	16,5	4,76	3,81	9,52

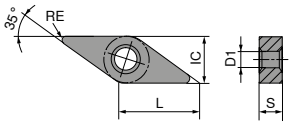


TNMG

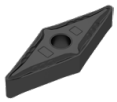
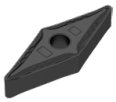
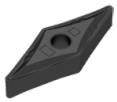
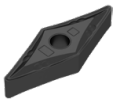
		-F30 CTCM120	-F30 CTCM130	-M30 CTCM120	-M30 CTCM130	-M60 CTCM130	-M60 CTCM120
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		F	F	M	M	M	M
		TNMG	TNMG	TNMG	TNMG	TNMG	TNMG
		NEW	NEW	NEW	NEW	NEW	NEW
ISO	RE	Article no. 75 019 ...	Article no. 75 019 ...	Article no. 75 020 ...	Article no. 75 020 ...	Article no. 75 021 ...	Article no. 75 021 ...
	mm						
160404EN	0,4	11600	31600				
160408EN	0,8	11800	31800	11800	31800	31800	11800
160412EN	1,2			12000	32000	32000	12000
Steel		○	○	○	○	○	○
Stainless steel		●	●	●	●	●	●
Cast iron							
Non ferrous metals							
Heat resistant alloys							

VNMG

Designation	L	S	D1	IC
	mm	mm	mm	mm
VNMG 1604..	16,6	4,76	3,81	9,52

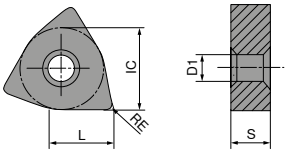


VNMG

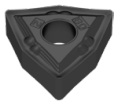
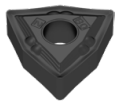
	-F30 CTCM120	-F30 CTCM130	-M30 CTCM120	-M30 CTCM130
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
				
	F	F	M	M
	VNMG	VNMG	VNMG	VNMG
	NEW	NEW	NEW	NEW
ISO / RE mm	Article no. 75 022 ...	Article no. 75 022 ...	Article no. 75 023 ...	Article no. 75 023 ...
160404EN / 0,4	11600	31600		
160408EN / 0,8	11800	31800	11800	31800
Steel	○	○	○	○
Stainless steel	●	●	●	●
Cast iron				
Non ferrous metals				
Heat resistant alloys				

WNMG

Designation	L	S	D1	IC
	mm	mm	mm	mm
WNMG 0604..	6,5	4,76	3,81	9,52
WNMG 0804..	8,6	4,76	5,16	12,70



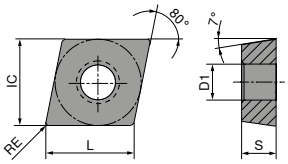
WNMG

		-F30 CTCM120	-F30 CTCM130	-M30 CTCM120	-M30 CTCM130	-M60 CTCM120	-M60 CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		F	F	M	M	M	M
		WNMG	WNMG	WNMG	WNMG	WNMG	WNMG
		NEW	NEW	NEW	NEW	NEW	NEW
ISO	RE	Article no. 75 024 ...	Article no. 75 024 ...	Article no. 75 025 ...	Article no. 75 025 ...	Article no. 75 026 ...	Article no. 75 026 ...
	mm						
060404EN	0,4	10400	30400				
060408EN	0,8	10600	30600	10600	30600	10600	30600
060412EN	1,2			10800	30800	10800	30800
080404EN	0,4	11600	31600				
080408EN	0,8	11800	31800	11800	31800	11800	31800
080412EN	1,2			12000	32000	12000	32000
Steel		○	○	○	○	○	○
Stainless steel		●	●	●	●	●	●
Cast iron							
Non ferrous metals							
Heat resistant alloys							

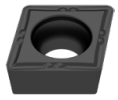
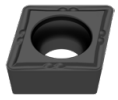
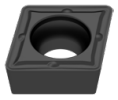
→ v_c Page 78–80

CCMT

Designation	L	S	D1	IC
	mm	mm	mm	mm
CCMT 0602..	6,4	2,38	2,8	6,35
CCMT 09T3..	9,7	3,97	4,4	9,52
CCMT 1204..	12,9	4,76	5,5	12,70

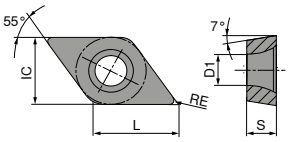


CCMT

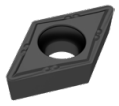
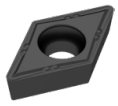
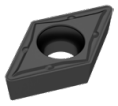
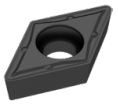
		-M25 CTCM120	-M25 CTCM130	-M55 CTCM120	-M55 CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		F	F	M	M
		CCMT	CCMT	CCMT	CCMT
		NEW	NEW	NEW	NEW
ISO	RE	Article no. 75 210 ...	Article no. 75 210 ...	Article no. 75 211 ...	Article no. 75 211 ...
	mm				
060204EN	0,4	10400	30400	10400	
09T304EN	0,4	11600	31600	11600	31600
09T308EN	0,8	11800	31800	11800	31800
120404EN	0,4			12800	32800
120408EN	0,8			13000	33000
Steel		○	○	○	○
Stainless steel		●	●	●	●
Cast iron					
Non ferrous metals					
Heat resistant alloys					

DCMT

Designation	L	S	D1	IC
	mm	mm	mm	mm
DCMT 0702..	7,75	2,38	2,8	6,35
DCMT 11T3..	11,60	3,97	4,4	9,52

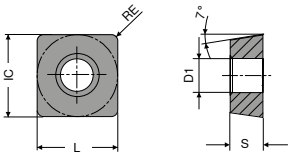


DCMT

		-M25 CTCM120	-M25 CTCM130	-M55 CTCM120	-M55 CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		F	F	M	M
		DCMT	DCMT	DCMT	DCMT
		NEW	NEW	NEW	NEW
ISO	RE	Article no. 75 213 ...	Article no. 75 213 ...	Article no. 75 214 ...	Article no. 75 214 ...
	mm				
070202EN	0,2	10200	30200		
070204EN	0,4	10400	30400	10400	30400
070208EN	0,8			10600	30600
11T302EN	0,2	11400	31400		
11T304EN	0,4	11600	31600	11600	31600
11T308EN	0,8	11800	31800	11800	31800
Steel		○	○	○	○
Stainless steel		●	●	●	●
Cast iron					
Non ferrous metals					
Heat resistant alloys					

SCMT

Designation	L	S	D1	IC
	mm	mm	mm	mm
SCMT 09T3..	9,52	3,97	4,4	9,52
SCMT 1204..	12,70	4,76	5,5	12,70

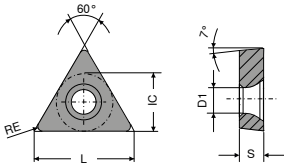


SCMT

ISO	RE	-M55 CTCM120	-M55 CTCM130
		DRAGONSKIN	DRAGONSKIN
		M	M
		SCMT	SCMT
		NEW	NEW
		Article no. 75 216 ...	Article no. 75 216 ...
	mm		
09T308EN	0,8	10600	30600
120408EN	0,8	11800	31800
Steel		○	○
Stainless steel		●	●
Cast iron			
Non ferrous metals			
Heat resistant alloys			

TCMT

Designation	L	S	D1	IC
	mm	mm	mm	mm
TCMT 0902..	9,6	2,38	2,5	5,56
TCMT 1102..	11,0	2,38	2,8	6,35
TCMT 16T3..	16,5	3,97	4,4	9,52

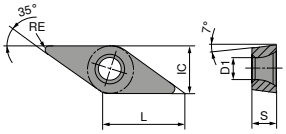


TCMT

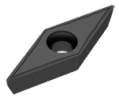
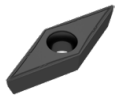
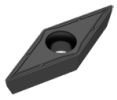
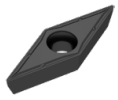
		-M25 CTCM120	-M25 CTCM130	-M55 CTCM120	-M55 CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		F	F	M	M
		TCMT	TCMT	TCMT	TCMT
		NEW	NEW	NEW	NEW
ISO	RE	Article no. 75 217 ...	Article no. 75 217 ...	Article no. 75 218 ...	Article no. 75 218 ...
	mm				
090204EN	0,4			10400	30400
110204EN	0,4	11600	31600	11600	31600
16T304EN	0,4	12800	32800		
16T308EN	0,8	13000	33000	13000	33000
Steel		○	○	○	○
Stainless steel		●	●	●	●
Cast iron					
Non ferrous metals					
Heat resistant alloys					

VCMT

Designation	L	S	D1	IC
	mm	mm	mm	mm
VCMT 1604..	16,6	4,76	4,4	9,52



VCMT

		-M25 CTCM120	-M25 CTCM130	-M55 CTCM120	-M55 CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		F	F	M	M
		VCMT	VCMT	VCMT	VCMT
		NEW	NEW	NEW	NEW
ISO	RE	Article no. 75 219 ...	Article no. 75 219 ...	Article no. 75 220 ...	Article no. 75 220 ...
	mm				
160404EN	0,4	12800	32800	12800	32800
160408EN	0,8	13000	33000	13000	33000
Steel		○	○	○	○
Stainless steel		●	●	●	●
Cast iron					
Non ferrous metals					
Heat resistant alloys					

Cutting data approximate values

				F		M	
				DRAGONSKIN CTCM120	DRAGONSKIN CTCM130	DRAGONSKIN CTCM120	DRAGONSKIN CTCM130
	Index	Material	Strength N/mm² / HB / HRC	v_c in m/min		v_c in m/min	
P	1.1	General construction steel	< 800 N/mm²	160–265	110–200	145–240	100–180
	1.2	Free cutting steel	< 800 N/mm²	160–265	110–200	145–240	100–180
	1.3	Hardened steel, non alloyed	< 800 N/mm²	160–265	110–200	145–240	100–180
	1.4	Alloyed hardened steel	< 1000 N/mm²	160–265	110–200	145–240	100–180
	1.5	Tempering steel, unalloyed	< 850 N/mm²	160–265	110–200	145–240	100–180
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	160–265	110–200	145–240	100–180
	1.7	Tempering steel, alloyed	< 800 N/mm²	160–265	110–200	145–240	100–180
	1.8	Tempering steel, alloyed	< 1300 N/mm²	160–265	110–200	145–240	100–180
	1.9	Steel castings	< 850 N/mm²	160–265	110–200	145–240	100–180
	1.10	Nitriding steel	< 1000 N/mm²	160–265	110–200	145–240	100–180
	1.11	Nitriding steel	< 1200 N/mm²	160–265	110–200	145–240	100–180
	1.12	Roller bearing steel	< 1200 N/mm²	160–265	110–200	145–240	100–180
	1.13	Spring steel	< 1200 N/mm²	160–265	110–200	145–240	100–180
	1.14	High-speed steel	< 1300 N/mm²	160–265	110–200	145–240	100–180
	1.15	Cold working tool steel	< 1300 N/mm²	160–265	110–200	145–240	100–180
	1.16	Hot working tool steel	< 1300 N/mm²	160–265	110–200	145–240	100–180
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	**110–210**	**80–160**	**100–190**	**70–140**
	2.2	Stainless steel, ferritic	< 750 N/mm²	**110–210**	**80–160**	**100–190**	**70–140**
	2.3	Stainless steel, martensitic	< 900 N/mm²	**110–210**	**80–160**	**100–190**	**70–140**
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	**110–210**	**80–160**	**100–190**	**70–140**
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	**55–155**	**40–110**	**50–140**	**35–100**
	2.6	Stainless steel, austenitic	< 750 N/mm²	**55–155**	**40–110**	**50–140**	**35–100**
	2.7	Heat resistant steel	< 1100 N/mm²	**55–155**	**40–110**	**50–140**	**35–100**
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²				
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²				
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²				
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²				
	3.5	White malleable cast iron	270–450 N/mm²				
	3.6	White malleable cast iron	500–650 N/mm²				
	3.7	Black malleable cast iron	300–450 N/mm²				
	3.8	Black malleable cast iron	500–800 N/mm²				
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²				
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²				
	4.3	Aluminium alloy 0.5–10 % Si	< 400 N/mm²				
	4.4	Aluminium alloys 10–15 % Si	< 400 N/mm²				
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm²				
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²				
	4.7	Copper wrought alloys	< 700 N/mm²				
	4.8	Special copper alloys	< 200 HB				
	4.9	Special copper alloys	< 300 HB				
	4.10	Special copper alloys	> 300 HB				
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²				
	4.12	Long-chipping brass	< 600 N/mm²				
	4.13	Thermoplastics					
	4.14	Duroplastics					
	4.15	Fibre-reinforced plastics					
	4.16	Magnesium and magnesium alloys	< 850 N/mm²				
	4.17	Graphite					
	4.18	Tungsten and tungsten alloys					
	4.19	Molybdenum and molybdenum alloys					
S	5.1	Pure nickel					
	5.2	Nickel alloys					
	5.3	Nickel alloys	< 850 N/mm²				
	5.4	Nickel molybdenum alloys					
	5.5	Nickel-chromium alloys	< 1300 N/mm²				
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²				
	5.7	Heat resistant alloys	< 1300 N/mm²				
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²				
	5.9	Pure titanium	< 900 N/mm²				
	5.10	Titanium alloys	< 700 N/mm²				
	5.11	Titanium alloys	< 1200 N/mm²				
H	6.1	Tempered steel	< 45 HRC				
	6.2		46–55 HRC				
	6.3		56–60 HRC				
	6.4		61–65 HRC				
	6.5		65–70 HRC				

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

Cutting data standard values for negative inserts

	-F30						-M30						-M60					
	f			a_p			f			a_p			f			a_p		
Designation	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
	mm/rev.			mm			mm/rev.			mm			mm/rev.			mm		
CN.. 090304																		
CN.. 090308																		
CN.. 120404	0,05	**0,15**	0,25	0,4	**1,0**	2,0												
CN.. 120408	0,10	**0,22**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**2,0**	4,5	0,25	**0,30**	0,50	1,5	**2,5**	6,0
CN.. 120412							0,20	**0,30**	0,50	1,2	**2,5**	5,0	0,30	**0,35**	0,55	2,0	**3,0**	6,0
CN.. 120416							0,25	**0,35**	0,55	1,6	**2,5**	5,0	0,30	**0,40**	0,60	2,0	**3,0**	6,0
CN.. 160608																		
CN.. 160612																		
CN.. 160616																		
CN.. 160624																		
CN.. 190608																		
CN.. 190612																		
CN.. 190616																		
CN.. 190624																		
CN.. 250924																		
DN.. 110402																		
DN.. 110404	0,05	**0,15**	0,25	0,4	**1,0**	2,0												
DN.. 110408	0,10	**0,20**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**2,0**	4,5						
DN.. 110412							0,20	**0,30**	0,50	1,2	**2,0**	4,5						
DN.. 150404																		
DN.. 150408																		
DN.. 150412																		
DN.. 150416																		
DN.. 150604	0,05	**0,15**	0,25	0,4	**1,0**	2,0												
DN.. 150608	0,10	**0,20**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**2,0**	5,5	0,25	**0,30**	0,45	1,5	**2,5**	6,0
DN.. 150612							0,20	**0,30**	0,50	1,2	**2,0**	5,5	0,30	**0,40**	0,55	1,5	**2,5**	6,0
DN.. 150616																		
SN.. 090308																		
SN.. 120404	0,10	**0,15**	0,30	0,4	**1,0**	2,0												
SN.. 120408	0,15	**0,20**	0,40	0,8	**1,5**	2,5	0,20	**0,25**	0,45	1,0	**2,0**	4,5	0,30	**0,35**	0,50	1,5	**2,0**	6,0
SN.. 120412							0,25	**0,30**	0,50	1,2	**2,0**	5,0	0,30	**0,40**	0,55	2,0	**2,5**	6,0
SN.. 120416													0,30	**0,40**	0,60	2,0	**2,5**	6,0
SN.. 150608																		
SN.. 150612																		
SN.. 150616																		
SN.. 190612																		
SN.. 190616																		
SN.. 190624																		
SN.. 250724																		
SN.. 250924																		
TN.. 110304																		
TN.. 110308																		
TN.. 160404	0,05	**0,15**	0,25	0,4	**1,0**	2,0												
TN.. 160408	0,10	**0,15**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**2,0**	4,5	0,25	**0,25**	0,45	1,5	**2,5**	5,0
TN.. 160412							0,20	**0,30**	0,50	1,2	**2,0**	4,5	0,30	**0,30**	0,55	2,0	**2,5**	5,5
TN.. 220404																		
TN.. 220408																		
TN.. 220412																		
TN.. 220416																		
VN.. 160404	0,08	**0,10**	0,20	0,4	**1,0**	2,0												
VN.. 160408	0,10	**0,15**	0,30	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**1,5**	4,0						
VN.. 160412																		
WN.. 060404	0,05	**0,15**	0,25	0,4	**1,0**	2,0												
WN.. 060408	0,10	**0,20**	0,30	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**1,5**	3,5	0,25	**0,30**	0,45	1,5	**2,0**	4,0
WN.. 060412							0,20	**0,30**	0,45	1,2	**1,5**	4,0	0,30	**0,35**	0,50	2,0	**2,5**	4,5
WN.. 080404	0,05	**0,15**	0,25	0,4	**1,0**	2,0												
WN.. 080408	0,10	**0,20**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**2,0**	4,5	0,25	**0,30**	0,50	1,5	**2,0**	5,0
WN.. 080412							0,20	**0,30**	0,50	1,2	**2,0**	5,0	0,30	**0,35**	0,55	2,0	**2,5**	5,5
WN.. 080416																		

Sharp ← → stable

The data shows reference values. An adjustment to the actual conditions may be required.

Cutting data values for positive inserts

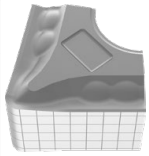
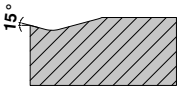
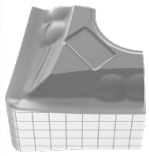
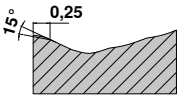
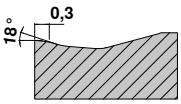
Designation	-M25						-M55					
	f			a_p			f			a_p		
	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.
	mm/rev.			mm			mm/rev.			mm		
CC.. 060200												
CC.. 060201												
CC.. 060202												
CC.. 060204	0,06	**0,13**	0,20	0,2	**1,1**	2,0	0,06	**0,13**	0,20	0,4	**1,5**	2,6
CC.. 060208												
CC.. 09T300												
CC.. 09T301												
CC.. 09T302												
CC.. 09T304	0,06	**0,14**	0,22	0,2	**1,2**	2,2	0,08	**0,16**	0,24	0,4	**1,7**	3,0
CC.. 09T308	0,10	**0,20**	0,30	0,4	**1,8**	3,2	0,12	**0,24**	0,35	0,8	**2,4**	4,0
CC.. 09T312												
CC.. 120402												
CC.. 120404							0,08	**0,18**	0,28	0,4	**2,2**	4,0
CC.. 120408							0,12	**0,26**	0,40	0,8	**2,8**	4,8
CC.. 120412												
DC.. 0702005												
DC.. 070201												
DC.. 0702015												
DC.. 070202	0,04	**0,09**	0,13	0,1	**0,9**	1,6						
DC.. 070204	0,06	**0,12**	0,18	0,2	**1,1**	2,0	0,06	**0,14**	0,22	0,4	**1,3**	2,2
DC.. 070208							0,08	**0,16**	0,24	0,8	**1,6**	2,4
DC.. 11T3005												
DC.. 11T301												
DC.. 11T3015												
DC.. 11T302	0,04	**0,10**	0,16	0,1	**1,1**	2,0						
DC.. 11T304	0,06	**0,14**	0,22	0,2	**1,2**	2,2	0,08	**0,16**	0,24	0,4	**1,7**	3,0
DC.. 11T308	0,10	**0,20**	0,30	0,4	**1,8**	3,2	0,12	**0,24**	0,35	0,8	**2,4**	4,0
DC.. 11T312												
RC.. 0602M0												
RC.. 0803M0												
RC.. 1003M0												
RC.. 1204M0												
RC.. 1606M0												
RC.. 2006M0												
RC.. 2507M0												
SC.. 09T304												
SC.. 09T308							0,12	**0,24**	0,35	0,8	**2,4**	4,0
SC.. 120408							0,12	**0,26**	0,40	0,8	**2,8**	4,8
SC.. 120412												
TC.. 090204							0,06	**0,12**	0,18	0,4	**1,3**	2,2
TC.. 110202												
TC.. 110204	0,06	**0,13**	0,20	0,2	**1,2**	2,2	0,06	**0,14**	0,22	0,4	**1,4**	2,4
TC.. 110208												
TC.. 16T302												
TC.. 16T304	0,06	**0,14**	0,22	0,2	**1,6**	3,0						
TC.. 16T308	0,10	**0,20**	0,30	0,4	**1,9**	3,4	0,12	**0,24**	0,35	0,8	**2,6**	4,4
TC.. 16T312												
TC.. 220408												
VC.. 1103005												
VC.. 110301												
VC.. 1103015												
VC.. 110302												
VC.. 110304												
VC.. 110308												
VC.. 160402												
VC.. 160404	0,06	**0,13**	0,20	0,2	**1,2**	2,2	0,08	**0,14**	0,20	0,4	**1,7**	3,0
VC.. 160408	0,10	**0,15**	0,25	0,4	**1,4**	3,0	0,12	**0,21**	0,30	0,8	**2,1**	3,4
VC.. 160412												
VC.. 220530												
WC.. 020102												
WC.. 020104												

Sharp ← → stable

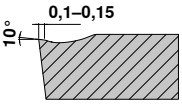
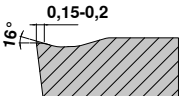
The data shows reference values. An adjustment to the actual conditions may be required.

Standard chip breakers / application notes

Negative

Negative	Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-F30 ▲ Finishing of stainless steels ▲ Continous cut ▲ High surface quality ▲ Good swarf control	 F	CTCM120 / CTCM130 **CTCM120 / CTCM130**	CTCM120 / CTCM130 **CTCM120 / CTCM130**	CTCM120 / CTCM130 CTCM120 **/ CTCM130**	 0,08–2,5	0,10–0,35	CN.. DN.. SN.. TN.. VN.. WN..
-M30 ▲ For medium machining of stainless steels ▲ Also by application on general steels and superalloys	 F M	CTCM120 / CTCM130 **CTCM120 / CTCM130**	CTCM120 / CTCM130 **CTCM120 / CTCM130**	CTCM120 / CTCM130 CTCM120 **/ CTCM130**	 1,00–4,50	0,15–0,40	CN.. DN.. SN.. TN.. VN.. WN..
-M60 ▲ Light to medium roughing ▲ Stable cutting edge ▲ Interrupted cut ▲ Forged skin and cast crust	 M R	CTCM120 / CTCM130 **CTCM120 / CTCM130**	CTCM120 / CTCM130 **CTCM120 / CTCM130**	CTCM120 / CTCM130 CTCM120 **/ CTCM130**	 1,50–6,00	0,25–0,50	CN.. DN.. SN.. TN.. WN..

Positive

Positive	Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-M25 ▲ First choice for medium machining of stainless steels ▲ High surface quality ▲ Little built-up edge	 F M	CTCM120 / CTCM130 **CTCM120 / CTCM130**	CTCM120 / CTCM130 **CTCM120 / CTCM130**	CTCM120 / CTCM130 CTCM120 **/ CTCM130**	 0,40–3,20	0,10–0,30	CC.. DC.. TC.. VC..
-M55 ▲ First choice for medium machining to roughing of stainless steels ▲ Smooth to lightly interrupted cut ▲ Good swarf control ▲ Stable cutting edge	 M	CTCM120 / CTCM130 **CTCM120 / CTCM130**	CTCM120 / CTCM130 **CTCM120 / CTCM130**	CTCM120 / CTCM130 CTCM120 **/ CTCM130**	 0,40–4,80	0,06–0,35	CC.. DC.. SC.. TC.. VC..

Grade description

CTCM120

- Carbide, Al_2O_3-coated
- ISO | P15 | **M20**
- Wear-resistant stainless turning grade for optimum performance with a smooth cut

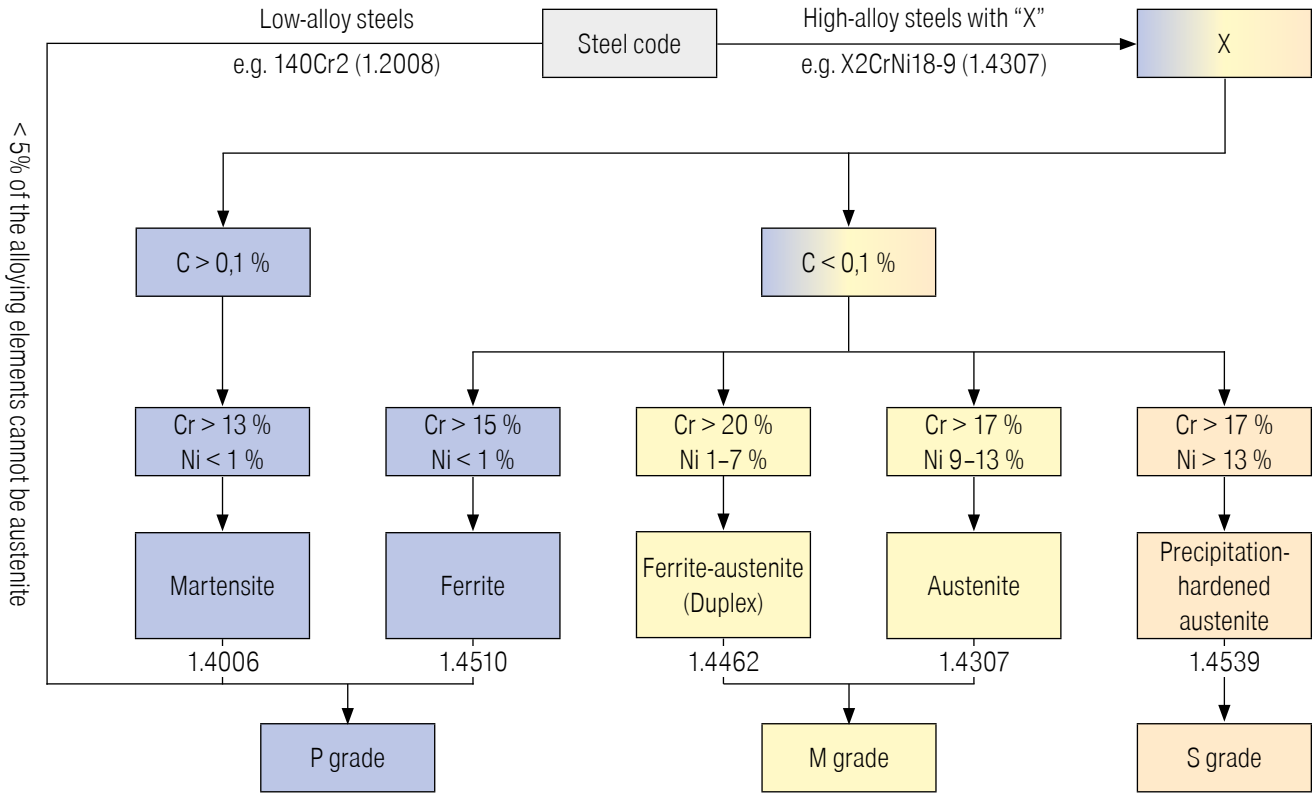
CTCM130

- Carbide, Al_2O_3-coated
- ISO | P25 | **M30**
- Tough stainless turning grade for rough machining with interrupted cut

Application tips for the machining of stainless steels

Machining the stainless steel material group cannot always be clearly assigned to one particular cutting material, particularly in the case of turning applications. Stainless steels are therefore classified into groups according to their chemical properties in order to assign a suitable cutting material.
In the current edition of DIN ISO 513, the microstructure of stainless steel is correlated with the special machining properties, which results in a classification into martensitic, ferritic and austenitic stainless steel. This is particularly significant in user groups ISO P and ISO M.

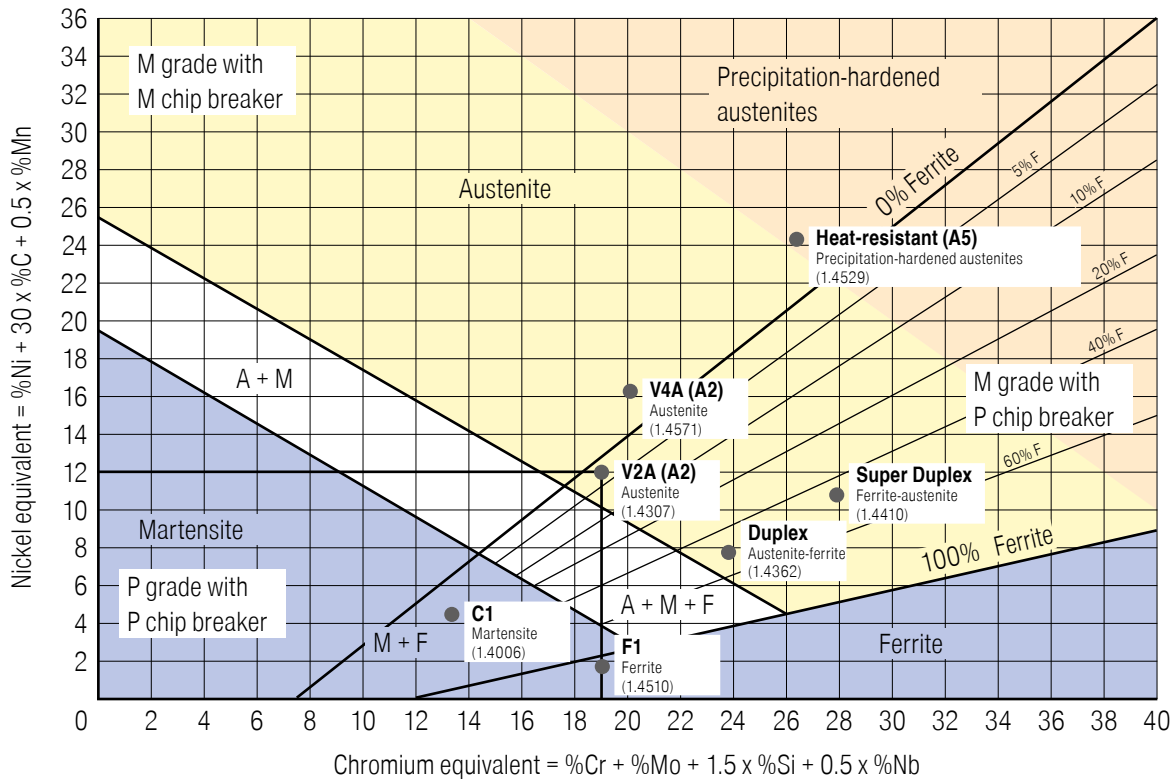
The correlation between the classification of stainless steels and the user groups for cutting materials is based on the following rule of thumb:



Material group	Code letter	Identification colour	Workpiece material
Steel	ISO P	Blue	All types of steel and cast steel, **with the exception of** stainless steel with austenitic structure
Stainless steel	ISO M	Yellow	Stainless austenitic and austenitic-ferritic steel and cast steel
Heat resistant alloys	ISO S	Orange (brown)	Heat-resistant special alloys based on iron, nickel and cobalt as well as titanium and titanium alloys

The Schaeffler diagram

By applying this information to the Schaeffler diagram, it is possible to clearly determine how the austenitic, ferritic and martensitic areas behave in relation to the chromium and nickel equivalents.



Example:

X2CrNi18-9 (1.4307) V2A

Alloying elements: C 0.02%; Cr 18%; Ni 9%; Mn 2%; Si 0.5%
Cr equivalent ~19%; Ni equivalent ~ 12%

→ Austenite → ISO M grade → M chip breaker

The Schaeffler diagram shows an overview of the limits of the respective microstructures with coloured areas in accordance with DIN ISO 513. The rule of thumb for classifying stainless steels can be used to quickly gain a rough overview of the cutting material grades required.
The Schaeffler diagram refers to the structural components and only applies to extremely fast cooling during the production of steels as well as stainless steel. In reality, the steels are heat-treated, which changes the structure.
Different cooling lubricant strategies must also be taken into account, as this has a significant impact on tool life and tool wear.

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CERATIZIT \ Standard

Quality tools for standard applications.

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

Overview of inserts

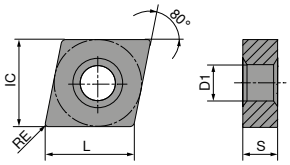
Negative			Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant S	Geometry CN..	Geometry DN..	Geometry VN..	Geometry WN..
Fine – Medium	-FMS		●	o	o			85	86	87	88
Medium – Rough	-MRS		●	o	o			85	86		88

Positive								Geometry CC..	Geometry DC..	Geometry VC..
Fine – Medium	-FMS		●	o	o			89	90	91
Medium – Rough	-MRS		●	o	o			89	90	91

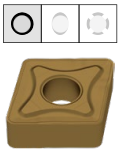
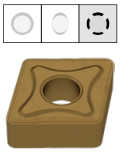
Matching tool holders and boring bars can be found in our main catalogue → **Chapter 9, Turning tools**

CNMG

Designation	L	S	D1	IC
	mm	mm	mm	mm
CNMG 1204..	12,9	4,76	5,16	12,70
CNMG 1606..	16,1	6,35	6,35	15,87
CNMG 1906..	19,3	6,35	7,94	19,05

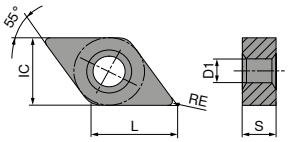


CNMG

		-FMS CT-P15	-FMS CT-P25	-MRS CT-P15	-MRS CT-P25	-MRS CT-P35
						
		F	F	M	M	M
		CNMG	CNMG	CNMG	CNMG	CNMG
		NEW	NEW	NEW	NEW	NEW
ISO	RE	Article no. 75 302 ...	Article no. 75 302 ...	Article no. 75 303 ...	Article no. 75 303 ...	Article no. 75 303 ...
	mm					
120404EN	0,4	02809	12809			
120408EN	0,8	03009	13009	03009	13009	23009
120412EN	1,2	03209	13209	03209	13209	23209
120416EN	1,6			03409	13409	23409
160612EN	1,2			04409	14409	24409
160616EN	1,6			04609	14609	24609
190612EN	1,2			05609	15609	25609
190616EN	1,6			05809	15809	25809
Steel		●	●	●	●	●
Stainless steel		○	○	○	○	○
Cast iron		○	○	○	○	
Non ferrous metals						
Heat resistant alloys						○

DNMG

Designation	L	S	D1	IC
	mm	mm	mm	mm
DNMG 1506..	15,5	6,35	5,16	12,7



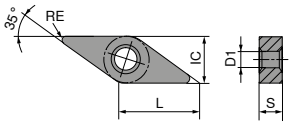
DNMG

ISO	RE	-FMS CT-P15	-FMS CT-P25	-MRS CT-P15	-MRS CT-P25	-MRS CT-P35
		F	F	M	M	M
		DNMG	DNMG	DNMG	DNMG	DNMG
		NEW	NEW	NEW	NEW	NEW
		Article no. 75 306 ...	Article no. 75 306 ...	Article no. 75 307 ...	Article no. 75 307 ...	Article no. 75 307 ...
	mm					
150604EN	0,4	02809	12809			
150608EN	0,8	03009	13009	03009	13009	23009
150612EN	1,2	03209	13209	03209	13209	23209
150616EN	1,6			03409	13409	23409
Steel		●	●	●	●	●
Stainless steel		○	○	○	○	○
Cast iron		○	○	○	○	
Non ferrous metals						
Heat resistant alloys						○

→ v_c Page 92

VNMG

Designation	L	S	D1	IC
	mm	mm	mm	mm
VNMG 1604..	16,6	4,76	3,81	9,52

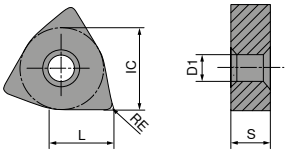


VNMG

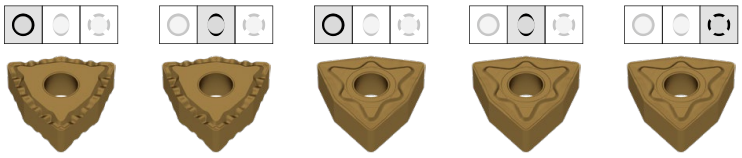
ISO	RE mm	-FMS CT-P15	-FMS CT-P25
		F VNMG	F VNMG
		NEW Article no. 75 310 ...	NEW Article no. 75 310 ...
160404EN	0,4	01609	11609
160408EN	0,8	01809	11809
Steel		●	●
Stainless steel		○	○
Cast iron		○	○
Non ferrous metals			
Heat resistant alloys			

WNMG

Designation	L	S	D1	IC
	mm	mm	mm	mm
WNMG 0804..	8,6	4,76	5,16	12,7



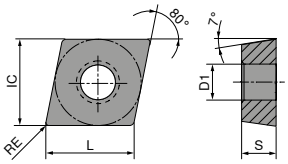
WNMG

		-FMS CT-P15	-FMS CT-P25	-MRS CT-P15	-MRS CT-P25	-MRS CT-P35
						
		F	F	M	M	M
		WNMG	WNMG	WNMG	WNMG	WNMG
		NEW	NEW	NEW	NEW	NEW
ISO	RE mm	Article no. 75 311 ...	Article no. 75 311 ...	Article no. 75 312 ...	Article no. 75 312 ...	Article no. 75 312 ...
080404EN	0,4	01609	11609			
080408EN	0,8	01809	11809	01809	11809	21809
080412EN	1,2	02009	12009	02009	12009	22009
Steel		●	●	●	●	●
Stainless steel		○	○	○	○	○
Cast iron		○	○	○	○	
Non ferrous metals						
Heat resistant alloys						○

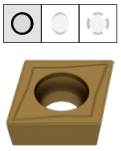
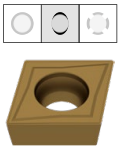
→ v_c Page 92

CCMT

Designation	L	S	D1	IC
	mm	mm	mm	mm
CCMT 09T3..	9,7	3,97	4,4	9,52
CCMT 1204..	12,9	4,76	5,5	12,70

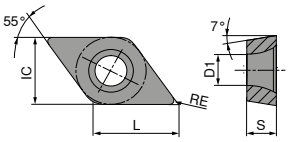


CCMT

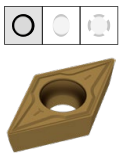
		-FMS CT-P15	-FMS CT-P25	-MRS CT-P15	-MRS CT-P25
					
		F	F	M	M
		CCMT	CCMT	CCMT	CCMT
		NEW	NEW	NEW	NEW
ISO	RE	Article no. 75 300 ...	Article no. 75 300 ...	Article no. 75 301 ...	Article no. 75 301 ...
	mm				
09T304EN	0,4	01609	11609	01609	11609
09T308EN	0,8	01809	11809	01809	11809
120404EN	0,4	02809	12809	02809	12809
120408EN	0,8	03009	13009	03009	13009
120412EN	1,2			03209	13209
Steel		●	●	●	●
Stainless steel		○	○	○	○
Cast iron		○	○	○	○
Non ferrous metals					
Heat resistant alloys					

DCMT

Designation	L	S	D1	IC
	mm	mm	mm	mm
DCMT 0702..	7,75	2,38	2,8	6,35
DCMT 11T3..	11,60	3,97	4,4	9,52



DCMT

ISO	RE	-FMS CT-P15	-FMS CT-P25	-MRS CT-P15	-MRS CT-P25
	mm				
					
		F	F	M	M
		DCMT	DCMT	DCMT	DCMT
		NEW	NEW	NEW	NEW
		Article no. 75 304 ...	Article no. 75 304 ...	Article no. 75 305 ...	Article no. 75 305 ...
070204EN	0,4	00409	10409	00409	10409
070208EN	0,8	00609	10609	00609	10609
11T304EN	0,4	01609	11609	01609	11609
11T308EN	0,8	01809	11809	01809	11809
Steel		●	●	●	●
Stainless steel		○	○	○	○
Cast iron		○	○	○	○
Non ferrous metals					
Heat resistant alloys					

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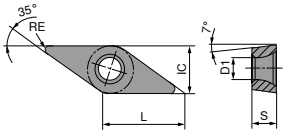
VCMT

Designation	L	S	D1	IC
	mm	mm	mm	mm
VCMT 1103..	11,1	3,18	2,9	6,35
VCMT 1604..	16,6	4,76	4,4	9,52



VCMT

ISO	RE	-FMS CT-P15	-FMS CT-P25	-MRS CT-P15	-MRS CT-P25
	mm	F	F	M	M
		VCMT	VCMT	VCMT	VCMT
		NEW	NEW	NEW	NEW
		Article no. 75 308 ...	Article no. 75 308 ...	Article no. 75 309 ...	Article no. 75 309 ...
110304EN	0,4	01609	11609		
160404EN	0,4	02809	12809	02809	12809
160408EN	0,8	03009	13009	03009	13009
Steel		●	●	●	●
Stainless steel		○	○	○	○
Cast iron		○	○	○	○
Non ferrous metals					
Heat resistant alloys					

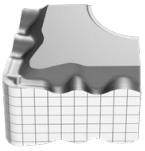
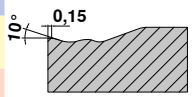
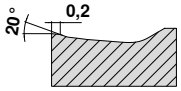
Cutting data approximate values

				F			M		
				CT-P15	CT-P25	CT-P35	CT-P15	CT-P25	CT-P35
	Index	Material	Strength N/mm² / HB / HRC	v_c in m/min			v_c in m/min		
P	1.1	General construction steel	< 800 N/mm²	260–310	210–250	180–210	250–300	200–240	170–200
	1.2	Free cutting steel	< 800 N/mm²	270–320	230–260	190–230	260–310	230–260	180–220
	1.3	Hardened steel, non alloyed	< 800 N/mm²	200–310	230–270	170–200	220–300	240–270	160–200
	1.4	Alloyed hardened steel	< 1000 N/mm²	240–280	200–250	180–210	240–290	190–230	160–190
	1.5	Tempering steel, unalloyed	< 850 N/mm²	230–270	210–240	160–190	230–280	200–230	150–180
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	200–240	200–230	180–210	210–260	190–220	160–200
	1.7	Tempering steel, alloyed	< 800 N/mm²	240–280	220–260	170–200	230–270	200–250	160–180
	1.8	Tempering steel, alloyed	< 1300 N/mm²	200–240	190–220	150–180	190–240	180–210	130–150
	1.9	Steel castings	< 850 N/mm²	210–270	170–210	170–190	200–250	160–190	150–170
	1.10	Nitriding steel	< 1000 N/mm²	210–250	180–220	150–180	190–230	180–210	140–170
	1.11	Nitriding steel	< 1200 N/mm²	200–240	170–210	140–170	180–240	180–220	130–160
	1.12	Roller bearing steel	< 1200 N/mm²	210–270	210–250	160–180	200–250	200–240	150–180
	1.13	Spring steel	< 1200 N/mm²	180–230	170–210	150–180	180–220	170–210	130–160
	1.14	High-speed steel	< 1300 N/mm²	180–220	180–210	130–160	170–210	160–190	120–140
	1.15	Cold working tool steel	< 1300 N/mm²	160–200	150–200	120–150	160–200	140–190	110–130
	1.16	Hot working tool steel	< 1300 N/mm²	150–210	140–190	130–160	130–180	130–200	110–130
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	200–250	200–250	160–190	200–250	210–260	150–190
	2.2	Stainless steel, ferritic	< 750 N/mm²	200–250	200–250	160–180	200–250	200–260	150–170
	2.3	Stainless steel, martensitic	< 900 N/mm²	190–230	190–230	140–170	190–230	190–240	120–150
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	180–220	190–220	120–180	180–220	190–220	110–170
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²			100–140			90–130
	2.6	Stainless steel, austenitic	< 750 N/mm²			60–80			60–75
	2.7	Heat resistant steel	< 1100 N/mm²			60–80			60–75
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	220–250	200–240		140–200	120–190	
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	200–240	190–220		160–210	150–180	
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²	170–220	170–210		150–1910	150–180	
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²	180–230	140–170		140–180	130–170	
	3.5	White malleable cast iron	270–450 N/mm²	260–300	240–270		190–240	160–210	
	3.6	White malleable cast iron	500–650 N/mm²	210–280	180–250		180–220	150–190	
	3.7	Black malleable cast iron	300–450 N/mm²	240–290	240–270		180–250	160–210	
	3.8	Black malleable cast iron	500–800 N/mm²	210–280	180–250		170–220	150–190	
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²						
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²						
	4.3	Aluminium alloy 0.5–10 % Si	< 400 N/mm²						
	4.4	Aluminium alloys 10–15 % Si	< 400 N/mm²						
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm²						
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²						
	4.7	Copper wrought alloys	< 700 N/mm²						
	4.8	Special copper alloys	< 200 HB						
	4.9	Special copper alloys	< 300 HB						
	4.10	Special copper alloys	> 300 HB						
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²						
	4.12	Long-chipping brass	< 600 N/mm²						
	4.13	Thermoplastics							
	4.14	Duroplastics							
	4.15	Fibre-reinforced plastics							
	4.16	Magnesium and magnesium alloys	< 850 N/mm²						
	4.17	Graphite							
	4.18	Tungsten and tungsten alloys							
	4.19	Molybdenum and molybdenum alloys							
S	5.1	Pure nickel							20–35
	5.2	Nickel alloys							20–35
	5.3	Nickel alloys	< 850 N/mm²						8–20
	5.4	Nickel molybdenum alloys							8–20
	5.5	Nickel-chromium alloys	< 1300 N/mm²						4–12
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²						4–12
	5.7	Heat resistant alloys	< 1300 N/mm²						4–12
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²						4–10
	5.9	Pure titanium	< 900 N/mm²						80–100
	5.10	Titanium alloys	< 700 N/mm²						15–30
	5.11	Titanium alloys	< 1200 N/mm²						15–30
H	6.1		< 45 HRC						
	6.2		46–55 HRC						
	6.3	Tempered steel	56–60 HRC						
	6.4		61–65 HRC						
	6.5		65–70 HRC						

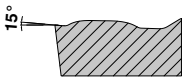
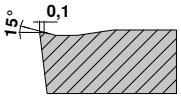
The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Standard chip breakers / application notes

Negative

	Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-FMS ▲ Finishing to medium machining ▲ very good chip control ▲ universal chip breaker ▲ low cutting forces	 F M	**CT-P15 / CT-P25** CT-P15 / CT-P25 **CT-P15** / CT-P25	CT-P15 / **CT-P25** CT-P25 CT-P15 / **CT-P25**	**CT-P25**	 0,40–3,00	0,10–0,30	CN.. DN.. VN.. WN..
-MRS ▲ medium to rough machining ▲ well suited for components with cast crust or forged skin ▲ works well with interrupted cuts	 M R	**CT-P15 / CT-P25 /** CT-P35 CT-P15 / CT-P25 **CT-P15** / CT-P25	**CT-P15 / CT-P25 / CT-P35** CT-P25 / CT-P35 CT-P15 / **CT-P25** / CT-P35	**CT-P25 / CT-P35** CT-P35 CT-P25 / CT-P35	 0,50–4,50	0,20–0,60	CN.. DN.. WN..

Positive

	Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-FMS ▲ Finishing to medium machining ▲ very good chip control ▲ universal chip breaker ▲ low cutting forces	 F M	**CT-P15 / CT-P25** CT-P15 / CT-P25 CT-P15 / **CT-P25**	CT-P15 / **CT-P25** CT-P15 / CT-P25 **CT-P25**	CT-P25	 0,10–2,00	0,05–0,20	CC.. DC.. VC..
-MRS ▲ light to medium roughing ▲ universal chip breaker ▲ stable cutting edge	 M R	**CT-P15 / CT-P25** CT-P15 / CT-P25 **CT-P15 / CT-P25**	**CT-P15 / CT-P25** CT-P15 / CT-P25 CT-P15 / **CT-P25**	CT-P15 / **CT-P25** CT-P25	 0,15–3,50	0,15–0,35	CC.. DC.. VC..

Grade description

CT-P15
- ▲ Carbide, coated
- ▲ ISO | **P15** | M10 | K25
- ▲ Wear-resistant standard steel grade for smooth cut

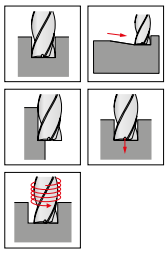
CT-P25
- ▲ Carbide, coated
- ▲ ISO | **P25** | M20 | K30
- ▲ Standard steel grade for universal steel machining

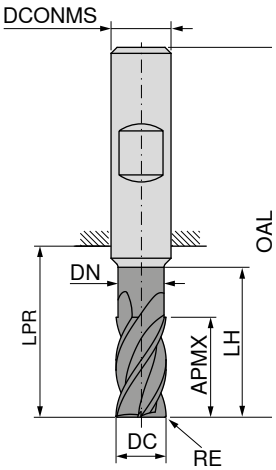
CT-P35
- ▲ Carbide, coated
- ▲ ISO | **P35** | M25
- ▲ Tough standard steel grade for interrupted cutting

MonsterMill – Plunge milling cutter with corner radius

- suitable for trochoidal milling
- Chip breaker 0.9 x DC

PCR UNI | λ_s=36° γ_s=10° | ZEFP | HPC





APA72S

DIN 6527

HB

NEW

DC f8 mm	RE ±0,03 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	Article no. 52 619 ...
5	0,20	17	4,8	24	26	62	6	4	05202
6	0,20	17	5,8	25	26	62	6	4	06202
8	0,20	24	7,7	30	32	68	8	4	08202
10	0,32	30	9,7	35	40	80	10	4	10203
12	0,32	36	11,6	45	48	93	12	4	12203
14	0,32	42	13,6	50	54	99	14	4	14203
16	0,32	48	15,5	56	60	108	16	4	16203
18	0,32	54	17,5	67	69	117	18	4	18203
20	0,50	60	19,5	70	76	126	20	4	20205

Steel	●
Stainless steel	○
Cast iron	●
Non ferrous metals	
Heat resistant alloys	
Hardened materials	

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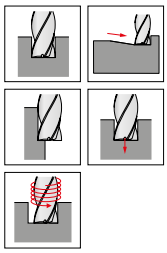
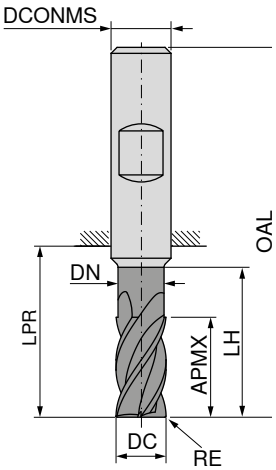
MonsterMill – Plunge milling cutter with corner radius

- suitable for trochoidal milling
- Chip breaker 0.9 x DC

PCR ALU | λ_s=36° γ_s=13° | ZEFP | HPC | DLC





DIN 6527

HB

DC f8 mm	RE ±0,03 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	NEW Article no. 52 618 ...
5	0,20	17	4,8	24	26	62	6	4	05202
6	0,20	18	5,8	25	26	62	6	4	06202
8	0,20	24	7,7	30	32	68	8	4	08202
10	0,32	30	9,7	35	40	80	10	4	10203
12	0,32	36	11,6	45	48	93	12	4	12203
14	0,32	42	13,6	50	54	99	14	4	14203
16	0,32	48	15,5	56	60	108	16	4	16203
18	0,32	54	17,5	67	69	117	18	4	18203
20	0,50	60	19,5	70	76	126	20	4	20205

Steel	
Stainless steel	
Cast iron	
Non ferrous metals	●
Heat resistant alloys	
Hardened materials	

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Material examples referring to the cutting data tables

	Index	Material	Strength N/mm² / HB / HRC	Material number	Material designation	Material number	Material designation	Material number	Material designation
P	1.1	General construction steel	< 800 N/mm²	1.0402	EN3B				
	1.2	Free cutting steel	< 800 N/mm²	1.0711	EN1A				
	1.3	Hardened steel, non alloyed	< 800 N/mm²	1.0401	EN32C				
	1.4	Alloyed hardened steel	< 1000 N/mm²	1.7325	25 CD4				
	1.5	Tempering steel, unalloyed	< 850 N/mm²	1.5752	EN36	1.0535	EN9		
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	1.6582	EN24				
	1.7	Tempering steel, alloyed	< 800 N/mm²	1.7225	EN19				
	1.8	Tempering steel, alloyed	< 1300 N/mm²	1.8515	EN40B				
	1.9	Steel castings	< 850 N/mm²	0.9650	G-X 260 Cr 27	1.6750	GS-20 NiCrMo 3.7	1.6582	GS-34 CrNiMo 6
	1.10	Nitriding steel	< 1000 N/mm²	1.8509	EN41B				
	1.11	Nitriding steel	< 1200 N/mm²	1.1186	EN8	1.1160	EN14A		
	1.12	Roller bearing steel	< 1200 N/mm²	1.3505	534A99				
	1.13	Spring steel	< 1200 N/mm²		EN45		EN47		EN43
	1.14	High-speed steel	< 1300 N/mm²	1.3343	M2	1.3249	M34		
	1.15	Cold working tool steel	< 1300 N/mm²	1.2379	D2	1.2311	P20		
	1.16	Hot working tool steel	< 1300 N/mm²	1.2344	H13				
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	1.4581	318				
	2.2	Stainless steel, ferritic	< 750 N/mm²	1.4000	403				
	2.3	Stainless steel, martensitic	< 900 N/mm²	1.4057	EN57				
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	1.4028	EN56B				
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	1.4542	17-4PH				
	2.6	Stainless steel, austenitic	< 750 N/mm²	1.4305	303	1.4401	316	1.4301	304
	2.7	Heat resistant steel	< 1100 N/mm²	1.4876	Incoloy 800				
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	0.6015	Grade 150	0.6020	Grade 220	0.6025	Grade 260
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	0.6030	Grade 300	0.6035	Grade 350	0.6040	Grade 400
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²	0.7040	SG 400-12	0.7043	SG 370-17	0.7050	SG 500-7
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²	0.7060	SG 600-3	0.7070	SG 700-2	0.7080	SG 800-2
	3.5	White malleable cast iron	270–450 N/mm²	0.8035	GTW-35	0.8045	GTW-45		
	3.6	White malleable cast iron	500–650 N/mm²	0.8055	GTW-55	0.8065	GTW-65		
	3.7	Black malleable cast iron	300–450 N/mm²	0.8135	GTS-35	0.8145	GTS-45		
	3.8	Black malleable cast iron	500–800 N/mm²	0.8155	GTS-55	0.8170	GTS-70		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²	3.0255	1050 A	3.0275	1070 A	3.0285	1080 A (A8)
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²	3.1325	2017 A (AU4G)	3.4335	7005 (AZ5G)	3.4365	7075 (AZ5GU)
	4.3	Aluminium alloy 0.5–10 % Si	< 400 N/mm²	3.2315	A- G S1	3.2373	A-S9 G	3.2151	A-S 6 U4
	4.4	Aluminium alloys 10–15 % Si	< 400 N/mm²	3.2581	A-S12	3.2583	A-S12 U		
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm²		A-S18	A-S17 U4			
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²	2.0040	Cu-c1	2.0060	Cu-a1	2.0090	Cu-b1
	4.7	Copper wrought alloys	< 700 N/mm²	2.1247	Cub2 (Berylium Copper)	2.0855	CuN2S (Nickel Copper)	2.1310	CU-Fe2P
	4.8	Special copper alloys	< 200 HB	2.0916	Cu-A5	2.1525	Cu-S3 M		Ampco 8 (Cu-A6Fe2)
	4.9	Special copper alloys	< 300 HB	2.0978	Cu-Al11 Fe5 Ni5)		Ampco 18 (Cu- A10 Fe3)		
	4.10	Special copper alloys	> 300 HB	2.1247	Cu Be2		Ampco M4		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	2.0331	Cu Zn36 Pb1,5	2.0380	Cu Zn39 Pb2 (Ms 56)	2.0410	Cu Zn44 Pb2
	4.12	Long-chipping brass	< 600 N/mm²	2.0335	Cu Zn 36 (Ms63)	2.1293	Cu Cr1 Zr		
	4.13	Thermoplastics		PE	PVC	PS	Polystyrene		Plexiglas
	4.14	Duroplastics		PF	Bakelite		Pertinax		
	4.15	Fibre-reinforced plastics			Carbon Fibre		Fibreglass		Aramid Fibre (Kevlar)
	4.16	Magnesium and magnesium alloys	< 850 N/mm²	3.5812	Mg A7 Z1	3.5662	Mg A9	3.5105	Mg Tr3 Z2 Zn 1
	4.17	Graphite			R8500X		R8650		Technograph 15
	4.18	Tungsten and tungsten alloys			W-Ni Fe (Densimet)		W- Ni Cu (Inermet)		Denal
	4.19	Molybdenum and molybdenum alloys			TZM		MHQ		Mo W
S	5.1	Pure nickel		2.4066	Ni99 (Nickel 200)	2.4068	Lc Ni99 (Nickel 201)		
	5.2	Nickel alloys		1.3912	Fe-Ni36 (Invar)	1.3917	Fe -Ni42 (N42)	1.3922	Fe-Ni48 (N48)
	5.3	Nickel alloys	< 850 N/mm²	2.4375	Ni Cu30 Al (Monel K500)	2.4360	Ni Cu30Fe (Monel 400)	2.4668	
	5.4	Nickel molybdenum alloys		2.4600	Ni Mo30Cr2 (Hastelloy B4)	2.4617	Ni Mo28 (Hastelloy B2)	2.4819	Ni Mo16Cr16 Hastell. C276
	5.5	Nickel-chromium alloys	< 1300 N/mm²	2.4951	Ni Cr20TiAl (Nimonic 80A)	2.4858	Ni Cr21Mo (Inconel 825)	2.4856	Ni Cr22Mo9Nb Inconel 625
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²	2.4964	Co Cr20 W15 Ni10		Co Cr20 Ni16 Mo7		Co Cr28 Mo 6
	5.7	Heat resistant alloys	< 1300 N/mm²	1.4718	Z45 C S 9-3	1.4747	Z80 CSN 20-02	1.4845	Z12 CN 25-20
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	2.4851	Ni Cr23Fe (Inconel 601)	2.4668	Ni Cr19NbMo (Inconel 718)	2.4602	Ni Cr21Mo14 Hastelloy C22
	5.9	Pure titanium	< 900 N/mm²	3.7025	T35 (Titanium Grade 1)	3.7034	T40 (Titanium Grade 2)	3.7064	T60 (Titanium Grade 4)
	5.10	Titanium alloys	< 700 N/mm²		T-A6-Nb7 (367)		T-A5-Sn2-Mo4-Cr4 (Ti17)		T-A3-V2,5 (Gr18)
	5.11	Titanium alloys	< 1200 N/mm²	3.7165	T-A6-V4 (Ta6V)		T-A4-3V-Mo2-Fe2 (SP700)		T-A5-Sn1-Zr1-V1-Mo (Gr32)
H	6.1	Tempered steel	< 45 HRC						
	6.2		46–55 HRC						
	6.3		56–60 HRC						
	6.4		61–65 HRC						
	6.5		65–70 HRC						

Cutting data standard values – MonsterMill – End mills – PCR UNI

	Type long		Ø DC = 5,0 mm			Ø DC = 5,7–6,0 mm			Ø DC = 6,7–7,0 mm			Ø DC = 7,7–8,0 mm			Ø DC = 8,7–9,0 mm			Ø DC = 9,7–10,0 mm			Ø DC = 11,7–12,0 mm		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
1.1	**220**	1,0	0,070	0,052	0,035	0,075	0,058	0,041	0,086	0,066	0,047	0,097	0,075	0,053	0,106	0,082	0,058	0,117	0,091	0,064	0,137	0,106	0,075
1.2	**220**	1,0	0,070	0,052	0,035	0,075	0,058	0,041	0,086	0,066	0,047	0,097	0,075	0,053	0,106	0,082	0,058	0,117	0,091	0,064	0,137	0,106	0,075
1.3	**220**	1,0	0,070	0,052	0,035	0,075	0,058	0,041	0,086	0,066	0,047	0,097	0,075	0,053	0,106	0,082	0,058	0,117	0,091	0,064	0,137	0,106	0,075
1.4	**200**	1,0	0,070	0,052	0,035	0,075	0,058	0,041	0,086	0,066	0,047	0,097	0,075	0,053	0,106	0,082	0,058	0,117	0,091	0,064	0,137	0,106	0,075
1.5	**220**	1,0	0,070	0,052	0,035	0,075	0,058	0,041	0,086	0,066	0,047	0,097	0,075	0,053	0,106	0,082	0,058	0,117	0,091	0,064	0,137	0,106	0,075
1.6	**180**	1,0	0,065	0,048	0,042	0,069	0,054	0,038	0,080	0,062	0,044	0,089	0,069	0,049	0,100	0,078	0,055	0,110	0,085	0,060	0,128	0,099	0,070
1.7	**200**	1,0	0,070	0,052	0,046	0,075	0,058	0,041	0,086	0,066	0,047	0,097	0,075	0,053	0,106	0,082	0,058	0,117	0,091	0,064	0,137	0,106	0,075
1.8	**140**	1,0	0,058	0,042	0,036	0,062	0,048	0,034	0,071	0,055	0,039	0,080	0,062	0,044	0,089	0,069	0,049	0,097	0,075	0,053	0,113	0,088	0,062
1.9	**135**	1,0	0,056	0,041	0,035	0,060	0,047	0,033	0,069	0,054	0,038	0,079	0,061	0,043	0,088	0,068	0,048	0,095	0,074	0,052	0,111	0,086	0,061
1.10	**200**	1,0	0,070	0,052	0,046	0,075	0,058	0,041	0,086	0,066	0,047	0,097	0,075	0,053	0,106	0,082	0,058	0,117	0,091	0,064	0,137	0,106	0,075
1.11	**140**	1,0	0,058	0,042	0,036	0,062	0,048	0,034	0,071	0,055	0,039	0,080	0,062	0,044	0,089	0,069	0,049	0,097	0,075	0,053	0,113	0,088	0,062
1.12	**130**	1,0	0,067	0,049	0,043	0,071	0,055	0,039	0,082	0,064	0,045	0,091	0,071	0,050	0,102	0,079	0,056	0,111	0,086	0,061	0,130	0,100	0,071
1.13	**110**	1,0	0,062	0,045	0,039	0,066	0,051	0,036	0,075	0,058	0,041	0,084	0,065	0,046	0,093	0,072	0,051	0,102	0,079	0,056	0,119	0,092	0,065
1.14	**110**	1,0	0,062	0,045	0,039	0,066	0,051	0,036	0,075	0,058	0,041	0,084	0,065	0,046	0,093	0,072	0,051	0,102	0,079	0,056	0,119	0,092	0,065
1.15	**110**	1,0	0,062	0,045	0,039	0,066	0,051	0,036	0,075	0,058	0,041	0,084	0,065	0,046	0,093	0,072	0,051	0,102	0,079	0,056	0,119	0,092	0,065
1.16	**130**	1,0	0,067	0,049	0,043	0,071	0,055	0,039	0,082	0,064	0,045	0,093	0,072	0,051	0,104	0,081	0,057	0,113	0,088	0,062	0,131	0,102	0,072
2.1	60	1,0	0,039	0,029	0,019	0,044	0,034	0,024	0,049	0,038	0,027	0,057	0,044	0,031	0,062	0,048	0,034	0,068	0,052	0,037	0,080	0,062	0,044
2.2	65	1,0	0,041	0,032	0,021	0,047	0,037	0,026	0,055	0,042	0,030	0,060	0,047	0,033	0,068	0,052	0,037	0,075	0,058	0,041	0,086	0,066	0,047
2.3	65	1,0	0,041	0,032	0,021	0,047	0,037	0,026	0,055	0,042	0,030	0,060	0,047	0,033	0,068	0,052	0,037	0,075	0,058	0,041	0,086	0,066	0,047
2.4	65	1,0	0,041	0,032	0,021	0,047	0,037	0,026	0,055	0,042	0,030	0,060	0,047	0,033	0,068	0,052	0,037	0,075	0,058	0,041	0,086	0,066	0,047
2.5	55	1,0	0,032	0,023	0,015	0,037	0,028	0,020	0,042	0,033	0,023	0,047	0,037	0,026	0,051	0,040	0,028	0,057	0,044	0,031	0,066	0,051	0,036
2.6	60	1,0	0,039	0,029	0,019	0,044	0,034	0,024	0,049	0,038	0,027	0,057	0,044	0,031	0,062	0,048	0,034	0,068	0,052	0,037	0,080	0,062	0,044
2.7	60	1,0	0,033	0,025	0,016	0,038	0,030	0,021	0,042	0,033	0,023	0,047	0,037	0,026	0,053	0,041	0,029	0,058	0,045	0,032	0,068	0,052	0,037
3.1	**240**	1,0	0,114	0,088	0,060	0,124	0,096	0,068	0,142	0,110	0,078	0,161	0,124	0,088	0,177	0,137	0,097	0,195	0,151	0,107	0,226	0,175	0,124
3.2	**180**	1,0	0,080	0,060	0,042	0,088	0,068	0,048	0,100	0,078	0,055	0,113	0,088	0,062	0,124	0,096	0,068	0,137	0,106	0,075	0,159	0,123	0,087
3.3	**220**	1,0	0,096	0,075	0,052	0,106	0,082	0,058	0,122	0,095	0,067	0,137	0,106	0,075	0,152	0,117	0,083	0,166	0,129	0,091	0,194	0,150	0,106
3.4	**180**	1,0	0,080	0,060	0,042	0,088	0,068	0,048	0,100	0,078	0,055	0,113	0,088	0,062	0,124	0,096	0,068	0,137	0,106	0,075	0,159	0,123	0,087
3.5	**160**	1,0	0,080	0,060	0,042	0,088	0,068	0,048	0,100	0,078	0,055	0,113	0,088	0,062	0,124	0,096	0,068	0,137	0,106	0,075	0,159	0,123	0,087
3.6	**150**	1,0	0,069	0,052	0,036	0,075	0,058	0,041	0,086	0,066	0,047	0,097	0,075	0,053	0,106	0,082	0,058	0,117	0,091	0,064	0,137	0,106	0,075
3.7	**160**	1,0	0,080	0,060	0,042	0,088	0,068	0,048	0,100	0,078	0,055	0,113	0,088	0,062	0,124	0,096	0,068	0,137	0,106	0,075	0,159	0,123	0,087
3.8	**150**	1,0	0,069	0,052	0,036	0,075	0,058	0,041	0,086	0,066	0,047	0,097	0,075	0,053	0,106	0,082	0,058	0,117	0,091	0,064	0,137	0,106	0,075
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With an a_p of 1.5 x DC the f_z should be multiplied by 0.75.

Continued on next page

Cutting data standard values – MonsterMill – End mills – PCR UNI

	Ø DC = 13,7–14,0 mm			Ø DC = 15,5–16,0 mm			Ø DC = 17,5–20,0 mm			Ramping	Helical milling			Drilling	● 1st choice		○ suitable
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	1,0 x DC		Hole diameter		1,0 x DC			
Index	f_z mm			f_z mm			f_z mm			Max. plunging angle	$\alpha_{R\,max.}$*	$D_{min.}$ DC x 1,5	$D_{max.}$ DC x 1,8	f_z Factor	Emulsion	Compressed air	MMS
1.1	0,153	0,119	0,084	0,170	0,132	0,093	0,186	0,144	0,102	45°	0,75xD	25°	16°	0,9	○	●	○
1.2	0,153	0,119	0,084	0,170	0,132	0,093	0,186	0,144	0,102	45°	0,75xD	25°	16°	0,9	○	●	○
1.3	0,153	0,119	0,084	0,170	0,132	0,093	0,186	0,144	0,102	45°	0,75xD	25°	16°	0,9	○	●	○
1.4	0,153	0,119	0,084	0,170	0,132	0,093	0,186	0,144	0,102	45°	0,75xD	25°	16°	0,9	○	●	○
1.5	0,153	0,119	0,084	0,170	0,132	0,093	0,186	0,144	0,102	45°	0,75xD	25°	16°	0,9	○	●	○
1.6	0,142	0,110	0,078	0,159	0,123	0,087	0,173	0,134	0,095	45°	0,75xD	25°	16°	0,8	○	●	○
1.7	0,153	0,119	0,084	0,170	0,132	0,093	0,186	0,144	0,102	45°	0,75xD	25°	16°	0,9	○	●	○
1.8	0,128	0,099	0,070	0,142	0,110	0,078	0,155	0,120	0,085	45°	0,75xD	25°	16°	0,7	●		○
1.9	0,126	0,098	0,069	0,141	0,109	0,077	0,153	0,119	0,084	45°	0,75xD	25°	16°	0,7	●		○
1.10	0,153	0,119	0,084	0,170	0,132	0,093	0,186	0,144	0,102	45°	0,75xD	25°	16°	0,9	○	●	○
1.11	0,128	0,099	0,070	0,142	0,110	0,078	0,155	0,120	0,085	45°	0,75xD	25°	16°	0,8	●		○
1.12	0,146	0,113	0,080	0,162	0,126	0,089	0,177	0,137	0,097	30°	0,5xD	18°	11°	0,8	○	●	○
1.13	0,133	0,103	0,073	0,148	0,115	0,081	0,161	0,124	0,088	30°	0,5xD	18°	11°	0,7	●		○
1.14	0,133	0,103	0,073	0,148	0,115	0,081	0,161	0,124	0,088	30°	0,5xD	18°	11°	0,7	●		○
1.15	0,133	0,103	0,073	0,148	0,115	0,081	0,161	0,124	0,088	30°	0,5xD	18°	11°	0,7	●		○
1.16	0,148	0,115	0,081	0,164	0,127	0,090	0,179	0,139	0,098	30°	0,5xD	18°	11°	0,7	○	●	○
2.1	0,089	0,069	0,049	0,099	0,076	0,054	0,108	0,083	0,059	15°	0,5xD	18°	11°		●		○
2.2	0,097	0,075	0,053	0,108	0,083	0,059	0,117	0,091	0,064	15°	0,5xD	18°	11°		●		○
2.3	0,097	0,075	0,053	0,108	0,083	0,059	0,117	0,091	0,064	15°	0,5xD	18°	11°		●		○
2.4	0,097	0,075	0,053	0,108	0,083	0,059	0,117	0,091	0,064	15°	0,5xD	18°	11°		●		○
2.5	0,075	0,058	0,041	0,082	0,064	0,045	0,089	0,069	0,049	15°	0,5xD	18°	11°		●		
2.6	0,089	0,069	0,049	0,099	0,076	0,054	0,108	0,083	0,059	15°	0,5xD	18°	11°		●		○
2.7	0,077	0,059	0,042	0,086	0,066	0,047	0,093	0,072	0,051	15°	0,5xD	18°	11°		●		
3.1	0,256	0,198	0,140	0,285	0,221	0,156	0,310	0,240	0,170	45°	0,75xD	25°	25°	0,8	○	●	○
3.2	0,179	0,139	0,098	0,199	0,154	0,109	0,217	0,168	0,119	45°	0,75xD	25°	25°	0,8	○	●	○
3.3	0,217	0,168	0,119	0,241	0,187	0,132	0,263	0,204	0,144	45°	0,75xD	25°	25°	0,8	○	●	○
3.4	0,179	0,139	0,098	0,199	0,154	0,109	0,217	0,168	0,119	45°	0,75xD	25°	25°	0,8	○	●	○
3.5	0,179	0,139	0,098	0,199	0,154	0,109	0,217	0,168	0,119	45°	0,75xD	25°	25°	0,8	○	●	○
3.6	0,153	0,119	0,084	0,170	0,132	0,093	0,186	0,144	0,102	45°	0,75xD	25°	25°	0,8	○	●	○
3.7	0,179	0,139	0,098	0,199	0,154	0,109	0,217	0,168	0,119	45°	0,75xD	25°	25°	0,8	○	●	○
3.8	0,153	0,119	0,084	0,170	0,132	0,093	0,186	0,144	0,102	45°	0,75xD	25°	25°	0,8	○	●	○
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* Width of cut per helical revolution

Cutting data for ramping and helical milling = 100 %
Multiply cutting data for drilling by the factor from the table

Cutting data standard values– MonsterMill – end mill – PCR UNI, trochoidal milling

Index	Type long	max. angle of engagement	Ø DC = 5 mm				Ø DC = 6 mm				Ø DC = 8 mm				Ø DC = 10 mm				Ø DC = 12 mm			
			a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m
	v_c m/min		f_z mm				f_z mm				f_z mm				f_z mm				f_z mm			
1.1	450	50°	0,100	0,080	0,060	0,033	0,120	0,096	0,072	0,040	0,160	0,128	0,096	0,053	0,200	0,160	0,120	0,066	0,240	0,192	0,144	0,079
1.2	450	50°	0,100	0,080	0,060	0,033	0,120	0,096	0,072	0,040	0,160	0,128	0,096	0,053	0,200	0,160	0,120	0,066	0,240	0,192	0,144	0,079
1.3	450	50°	0,100	0,080	0,060	0,033	0,120	0,096	0,072	0,040	0,160	0,128	0,096	0,053	0,200	0,160	0,120	0,066	0,240	0,192	0,144	0,079
1.4	410	45°	0,090	0,070	0,050	0,029	0,108	0,084	0,060	0,035	0,144	0,112	0,080	0,046	0,180	0,140	0,100	0,058	0,216	0,168	0,120	0,070
1.5	450	50°	0,100	0,080	0,060	0,033	0,120	0,096	0,072	0,040	0,160	0,128	0,096	0,053	0,200	0,160	0,120	0,066	0,240	0,192	0,144	0,079
1.6	390	45°	0,090	0,070	0,050	0,031	0,108	0,084	0,060	0,037	0,144	0,112	0,080	0,050	0,180	0,140	0,100	0,062	0,216	0,168	0,120	0,074
1.7	410	45°	0,090	0,070	0,050	0,029	0,108	0,084	0,060	0,035	0,144	0,112	0,080	0,046	0,180	0,140	0,100	0,058	0,216	0,168	0,120	0,070
1.8	330	40°	0,080	0,060	0,040	0,027	0,096	0,072	0,048	0,032	0,128	0,096	0,064	0,043	0,160	0,120	0,080	0,054	0,192	0,144	0,096	0,065
1.9	260	40°	0,090	0,070	0,050	0,027	0,108	0,084	0,060	0,032	0,144	0,112	0,080	0,043	0,180	0,140	0,100	0,054	0,216	0,168	0,120	0,054
1.10	410	45°	0,090	0,070	0,050	0,029	0,108	0,084	0,060	0,035	0,144	0,112	0,080	0,046	0,180	0,140	0,100	0,058	0,216	0,168	0,120	0,070
1.11	330	40°	0,080	0,060	0,040	0,027	0,096	0,072	0,048	0,032	0,128	0,096	0,064	0,043	0,160	0,120	0,080	0,054	0,192	0,144	0,096	0,065
1.12	295	40°	0,080	0,060	0,040	0,027	0,096	0,072	0,048	0,032	0,128	0,096	0,064	0,043	0,160	0,120	0,080	0,054	0,192	0,144	0,096	0,065
1.13	265	40°	0,070	0,050	0,030	0,026	0,084	0,060	0,036	0,031	0,112	0,080	0,048	0,042	0,140	0,100	0,060	0,052	0,168	0,120	0,072	0,062
1.14	265																					
1.15	265	40°	0,070	0,050	0,030	0,026	0,084	0,060	0,036	0,031	0,112	0,080	0,048	0,042	0,140	0,100	0,060	0,052	0,168	0,120	0,072	0,062
1.16	295	40°	0,080	0,060	0,040	0,027	0,096	0,072	0,048	0,032	0,128	0,096	0,064	0,043	0,160	0,120	0,080	0,054	0,192	0,144	0,096	0,065
2.1	180	35°	0,050	0,030		0,025	0,060	0,036		0,030	0,080	0,048		0,040	0,100	0,060		0,050	0,120	0,072		0,060
2.2	165	35°	0,060	0,040		0,027	0,072	0,048		0,032	0,096	0,064		0,043	0,120	0,080		0,054	0,144	0,096		0,065
2.3	165	35°	0,060	0,040		0,027	0,072	0,048		0,032	0,096	0,064		0,043	0,120	0,080		0,054	0,144	0,096		0,065
2.4	165	35°	0,060	0,040		0,027	0,072	0,048		0,032	0,096	0,064		0,043	0,120	0,080		0,054	0,144	0,096		0,065
2.5	145	35°	0,050	0,030		0,025	0,060	0,036		0,030	0,080	0,048		0,040	0,100	0,060		0,050	0,120	0,072		0,060
2.6	180	35°	0,050	0,030		0,025	0,060	0,036		0,030	0,080	0,048		0,040	0,100	0,060		0,050	0,120	0,072		0,060
2.7	150	35°	0,060	0,040		0,027	0,072	0,048		0,032	0,096	0,064		0,043	0,120	0,080		0,054	0,144	0,096		0,065
3.1	450	50°	0,130	0,115	0,100	0,033	0,156	0,138	0,120	0,040	0,208	0,184	0,160	0,053	0,260	0,230	0,200	0,066	0,312	0,276	0,240	0,079
3.2	370	50°	0,110	0,095	0,080	0,030	0,132	0,114	0,096	0,036	0,176	0,152	0,128	0,048	0,220	0,190	0,160	0,060	0,264	0,228	0,192	0,072
3.3	420	50°	0,120	0,105	0,090	0,032	0,144	0,126	0,108	0,038	0,192	0,168	0,144	0,051	0,240	0,210	0,180	0,064	0,288	0,252	0,216	0,077
3.4	370	50°	0,110	0,095	0,080	0,030	0,132	0,114	0,096	0,036	0,176	0,152	0,128	0,048	0,220	0,190	0,160	0,060	0,264	0,228	0,192	0,072
3.5	320	45°	0,110	0,095	0,080	0,030	0,132	0,114	0,096	0,036	0,176	0,152	0,128	0,048	0,220	0,190	0,160	0,060	0,264	0,228	0,192	0,072
3.6	275	45°	0,100	0,085	0,070	0,030	0,120	0,102	0,084	0,036	0,160	0,136	0,112	0,048	0,200	0,170	0,140	0,060	0,240	0,204	0,168	0,072
3.7	320	45°	0,110	0,095	0,080	0,030	0,132	0,114	0,096	0,036	0,176	0,152	0,128	0,048	0,220	0,190	0,160	0,060	0,264	0,228	0,192	0,072
3.8	275	45°	0,100	0,085	0,070	0,030	0,120	0,102	0,084	0,036	0,160	0,136	0,112	0,048	0,200	0,170	0,140	0,060	0,240	0,204	0,168	0,072
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Cutting depth corresponding to the cutting length

Continued on next page

Cutting data standard values– MonsterMill – end mill – PCR UNI, trochoidal milling

	Ø DC = 14 mm				Ø DC = 16 mm				Ø DC = 18 mm				Ø DC = 20 mm				● 1st choice		○ suitable
	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m			
Index	f_z mm				f_z mm				f_z mm				f_z mm				Emulsion	Compressed air	MMS
1.1	0,280	0,224	0,168	0,092	0,320	0,256	0,192	0,106	0,360	0,288	0,216	0,119	0,400	0,320	0,240	0,132	○	●	○
1.2	0,280	0,224	0,168	0,092	0,320	0,256	0,192	0,106	0,360	0,288	0,216	0,119	0,400	0,320	0,240	0,132	○	●	○
1.3	0,280	0,224	0,168	0,092	0,320	0,256	0,192	0,106	0,360	0,288	0,216	0,119	0,400	0,320	0,240	0,132	○	●	○
1.4	0,252	0,196	0,140	0,081	0,288	0,224	0,160	0,093	0,324	0,252	0,180	0,104	0,360	0,280	0,200	0,116	○	●	○
1.5	0,280	0,224	0,168	0,092	0,320	0,256	0,192	0,106	0,360	0,288	0,216	0,119	0,400	0,320	0,240	0,132	○	●	○
1.6	0,252	0,196	0,140	0,087	0,288	0,224	0,160	0,099	0,324	0,252	0,180	0,112	0,360	0,280	0,200	0,124	○	●	○
1.7	0,252	0,196	0,140	0,081	0,288	0,224	0,160	0,093	0,324	0,252	0,180	0,104	0,360	0,280	0,200	0,116	○	●	○
1.8	0,224	0,168	0,112	0,076	0,256	0,192	0,128	0,086	0,288	0,216	0,144	0,097	0,320	0,240	0,160	0,108	○	●	○
1.9	0,252	0,196	0,140	0,076	0,288	0,224	0,160	0,086	0,324	0,252	0,180	0,097	0,360	0,280	0,200	0,108	○	●	○
1.10	0,252	0,196	0,140	0,081	0,288	0,224	0,160	0,093	0,324	0,252	0,180	0,104	0,360	0,280	0,200	0,116	○	●	○
1.11	0,224	0,168	0,112	0,076	0,256	0,192	0,128	0,086	0,288	0,216	0,144	0,097	0,320	0,240	0,160	0,108	○	●	○
1.12	0,224	0,168	0,112	0,076	0,256	0,192	0,128	0,086	0,288	0,216	0,144	0,097	0,320	0,240	0,160	0,108	○	●	○
1.13	0,196	0,140	0,084	0,073	0,224	0,160	0,096	0,083	0,252	0,180	0,108	0,094	0,280	0,200	0,120	0,104	○	●	○
1.14																			
1.15	0,196	0,140	0,084	0,073	0,224	0,160	0,096	0,083	0,252	0,180	0,108	0,094	0,280	0,200	0,120	0,104	○	●	○
1.16	0,224	0,168	0,112	0,076	0,256	0,192	0,128	0,086	0,288	0,216	0,144	0,097	0,320	0,240	0,160	0,108	○	●	○
2.1	0,140	0,084		0,070	0,160	0,096		0,080	0,180	0,108		0,090	0,200	0,120		0,100	●		
2.2	0,168	0,112		0,076	0,192	0,128		0,086	0,216	0,144		0,097	0,240	0,160		0,108	●		
2.3	0,168	0,112		0,076	0,192	0,128		0,086	0,216	0,144		0,097	0,240	0,160		0,108	●		
2.4	0,168	0,112		0,076	0,192	0,128		0,086	0,216	0,144		0,097	0,240	0,160		0,108	●		
2.5	0,140	0,084		0,070	0,160	0,096		0,080	0,180	0,108		0,090	0,200	0,120		0,100	●		
2.6	0,140	0,084		0,070	0,160	0,096		0,080	0,180	0,108		0,090	0,200	0,120		0,100	●		
2.7	0,168	0,112		0,076	0,192	0,128		0,086	0,216	0,144		0,097	0,240	0,160		0,108	●		
3.1	0,364	0,322	0,280	0,092	0,416	0,368	0,320	0,106	0,468	0,414	0,360	0,119	0,520	0,460	0,400	0,132	○	●	○
3.2	0,308	0,266	0,224	0,084	0,352	0,304	0,256	0,096	0,396	0,342	0,288	0,108	0,440	0,380	0,320	0,120	○	●	○
3.3	0,336	0,294	0,252	0,090	0,384	0,336	0,288	0,102	0,432	0,378	0,324	0,115	0,480	0,420	0,360	0,128	○	●	○
3.4	0,308	0,266	0,224	0,084	0,352	0,304	0,256	0,096	0,396	0,342	0,288	0,108	0,440	0,380	0,320	0,120	○	●	○
3.5	0,308	0,266	0,224	0,084	0,352	0,304	0,256	0,096	0,396	0,342	0,288	0,108	0,440	0,380	0,320	0,120	○	●	○
3.6	0,280	0,238	0,196	0,084	0,320	0,272	0,224	0,096	0,360	0,306	0,252	0,108	0,400	0,340	0,280	0,120	○	●	○
3.7	0,308	0,266	0,224	0,084	0,352	0,304	0,256	0,096	0,396	0,342	0,288	0,108	0,440	0,380	0,320	0,120	○	●	○
3.8	0,280	0,238	0,196	0,084	0,320	0,272	0,224	0,096	0,360	0,306	0,252	0,108	0,400	0,340	0,280	0,120	○	●	○
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Cutting data standard values – MonsterMill – End mills – PCR ALU

	long		Ø DC = 5,0 mm			Ø DC = 5,7–7,0 mm			Ø DC = 7,7–8,0 mm			Ø DC = 8,7–10,0 mm			Ø DC =11,7–12,0 mm		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
1.1																	
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3.7																	
3.8																	
4.1	700	1	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060	0,130	0,097	0,065	0,140	0,104	0,070
4.2	700	1	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060	0,130	0,097	0,065	0,140	0,104	0,070
4.3	420	1	0,070	0,052	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060	0,140	0,104	0,070
4.4	420	1	0,070	0,052	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060	0,140	0,104	0,070
4.5	280	1	0,070	0,052	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060	0,140	0,104	0,070
4.6	200	1	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.7	180	1	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.8	175	1	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.9	175	1	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.10	175	1	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.11	280	1	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.12	210	1	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,120	0,089	0,060
4.13																	
4.14																	
4.15																	
4.16	220	1	0,07	0,052	0,035	0,08	0,06	0,04	0,1	0,075	0,05	0,12	0,089	0,06	0,14	0,104	0,07
4.17																	
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With an a_p of 1.5 x DC the f_z should be multiplied by 0.75.

Continued on next page

	Ø DC = 13,7–14,0 mm			Ø DC = 15,5–16,0 mm			Ø DC = 17,5–18,0 mm			Ø DC = 19,5–20,0 mm			Ramping	Helical milling			Drilling	● 1st choice		○ suitable
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	1,0 x DC		Hole diameter		1,0 x DC			
Index	f_z mm			f_z mm			f_z mm			f_z mm			Max. plunging angle	$\alpha_{R\,max.}$*	$D_{min.}$ DC x 1,5	$D_{max.}$ DC x 1,8	v_c Factor	Emulsion	Compressed air	MMS
1.1																				
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3.8																				
4.1	0,146	0,113	0,080	0,152	0,116	0,090	0,166	0,136	0,105	0,190	0,155	0,120	45°	0,75xD	25°	16°	0,75	●		○
4.2	0,146	0,113	0,080	0,152	0,116	0,090	0,166	0,136	0,105	0,190	0,155	0,120	45°	0,75xD	25°	16°	0,75	●		○
4.3	0,164	0,127	0,090	0,203	0,155	0,120	0,221	0,181	0,140	0,269	0,219	0,170	45°	0,75xD	25°	16°	0,75	●		○
4.4	0,164	0,127	0,090	0,203	0,155	0,120	0,221	0,181	0,140	0,269	0,219	0,170	45°	0,75xD	25°	16°	0,75	●		○
4.5	0,164	0,127	0,090	0,203	0,155	0,120	0,221	0,181	0,140	0,269	0,219	0,170	45°	0,75xD	25°	16°	0,7	●		○
4.6	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	45°	0,75xD	25°	16°	0,7	●		○
4.7	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	45°	0,75xD	25°	16°	0,7	●		○
4.8	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	45°	0,75xD	25°	16°	0,7	●		○
4.9	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	45°	0,75xD	25°	16°	0,7	●		○
4.10	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	45°	0,75xD	25°	16°	0,7	●		○
4.11	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	45°	0,75xD	25°	16°	0,7	●		○
4.12	0,128	0,099	0,070	0,135	0,103	0,080	0,158	0,129	0,100	0,190	0,155	0,120	45°	0,75xD	25°	16°	0,7	●		○
4.13																				
4.14																				
4.15																				
4.16	0,164	0,127	0,09	0,203	0,155	0,12	0,221	0,181	0,14	0,269	0,219	0,17	45°	0,75xD	25°	16°	0,7	●		○
4.17																				
4.18																				
4.19																				
5.1																				
5.2																				
5.3																				
5.4																				
5.5																				
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5.7																				
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5.9																				
5.10																				
5.11																				
6.1																				
6.2																				
6.3																				
6.4																				
6.5																				

* Width of cut per helical revolution

Cutting data for ramping and helical milling = 100 %
Multiply cutting data for drilling by the factor from the table

Cutting data standard values– MonsterMill – end mill – PCR ALU, trochoidal milling

Index	long v_c m/min	max. angle of engagement	Ø DC = 5 mm a_e 0,1 x DC f_z mm	Ø DC = 5 mm a_e 0,2 x DC f_z mm	Ø DC = 5 mm a_e 0,3 x DC f_z mm	Ø DC = 5 mm h_m	Ø DC = 6 mm a_e 0,1 x DC f_z mm	Ø DC = 6 mm a_e 0,2 x DC f_z mm	Ø DC = 6 mm a_e 0,3 x DC f_z mm	Ø DC = 6 mm h_m	Ø DC = 8 mm a_e 0,1 x DC f_z mm	Ø DC = 8 mm a_e 0,2 x DC f_z mm	Ø DC = 8 mm a_e 0,3 x DC f_z mm	Ø DC = 8 mm h_m	Ø DC = 10 mm a_e 0,1 x DC f_z mm	Ø DC = 10 mm a_e 0,2 x DC f_z mm	Ø DC = 10 mm a_e 0,3 x DC f_z mm	Ø DC = 10 mm h_m	Ø DC = 12 mm a_e 0,1 x DC f_z mm	Ø DC = 12 mm a_e 0,2 x DC f_z mm	Ø DC = 12 mm a_e 0,3 x DC f_z mm	Ø DC = 12 mm h_m
1.1																						
1.2																						
1.3																						
1.4																						
1.5																						
1.6																						
1.7																						
1.8																						
1.9																						
1.10																						
1.11																						
1.12																						
1.13																						
1.14																						
1.15																						
1.16																						
2.1																						
2.2																						
2.3																						
2.4																						
2.5																						
2.6																						
2.7																						
3.1																						
3.2																						
3.3																						
3.4																						
3.5																						
3.6																						
3.7																						
3.8																						
4.1	865	53°	0,070	0,040		0,055	0,084	0,048		0,066	0,112	0,064		0,088	0,140	0,080		0,110	0,168	0,096		0,132
4.2	865	53°	0,070	0,040		0,055	0,084	0,048		0,066	0,112	0,064		0,088	0,140	0,080		0,110	0,168	0,096		0,132
4.3	580	53°	0,075	0,045		0,070	0,090	0,054		0,084	0,120	0,072		0,112	0,150	0,090		0,140	0,180	0,108		0,168
4.4	460	53°	0,060	0,040		0,055	0,072	0,048		0,066	0,096	0,064		0,088	0,120	0,080		0,110	0,144	0,096		0,132
4.5	330	53°	0,055	0,040		0,050	0,066	0,048		0,060	0,088	0,064		0,080	0,110	0,080		0,100	0,132	0,096		0,120
4.6	330	53°	0,042	0,030		0,040	0,050	0,036		0,048	0,067	0,048		0,064	0,084	0,060		0,080	0,101	0,072		0,096
4.7	415	53°	0,028	0,020		0,024	0,033	0,024		0,029	0,044	0,032		0,038	0,055	0,040		0,048	0,066	0,048		0,058
4.8	250	53°	0,045	0,030		0,040	0,054	0,036		0,048	0,072	0,048		0,064	0,090	0,060		0,080	0,108	0,072		0,096
4.9	415	53°	0,028	0,020		0,024	0,033	0,024		0,029	0,044	0,032		0,038	0,055	0,040		0,048	0,066	0,048		0,058
4.10	415	53°	0,028	0,020		0,024	0,033	0,024		0,029	0,044	0,032		0,038	0,055	0,040		0,048	0,066	0,048		0,058
4.11	415	53°	0,028	0,020		0,024	0,033	0,024		0,029	0,044	0,032		0,038	0,055	0,040		0,048	0,066	0,048		0,058
4.12	400	53°	0,028	0,020		0,024	0,033	0,024		0,029	0,044	0,032		0,038	0,055	0,040		0,048	0,066	0,048		0,058
4.13																						
4.14																						
4.15																						
4.16	420	53°	0,028	0,020		0,024	0,033	0,024		0,029	0,044	0,032		0,038	0,055	0,040		0,048	0,066	0,048		0,058
4.17																						
4.18																						
4.19																						
5.1																						
5.2																						
5.3																						
5.4																						
5.5																						
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5.8																						
5.9																						
5.10																						
5.11																						
6.1																						
6.2																						
6.3																						
6.4																						
6.5																						

Cutting depth corresponding to the cutting length

Continued on next page

Cutting data standard values– MonsterMill – end mill – PCR ALU, trochoidal milling

	Ø DC = 14 mm				Ø DC = 16 mm				Ø DC = 18 mm				Ø DC = 20 mm				● 1st choice		○ suitable
	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m			
Index	f_z mm				f_z mm				f_z mm				f_z mm				Emulsion	Compressed air	MMS
1.1																			
1.2																			
1.3																			
1.4																			
1.5																			
1.6																			
1.7																			
1.8																			
1.9																			
1.10																			
1.11																			
1.12																			
1.13																			
1.14																			
1.15																			
1.16																			
2.1																			
2.2																			
2.3																			
2.4																			
2.5																			
2.6																			
2.7																			
3.1																			
3.2																			
3.3																			
3.4																			
3.5																			
3.6																			
3.7																			
3.8																			
4.1	0,196	0,112		0,154	0,224	0,128		0,176	0,252	0,144		0,198	0,280	0,160		0,220	●		○
4.2	0,196	0,112		0,154	0,224	0,128		0,176	0,252	0,144		0,198	0,280	0,160		0,220	●		○
4.3	0,210	0,126		0,196	0,240	0,144		0,224	0,270	0,162		0,252	0,300	0,180		0,280	●		○
4.4	0,168	0,112		0,154	0,192	0,128		0,176	0,216	0,144		0,198	0,240	0,160		0,220	●		○
4.5	0,154	0,112		0,140	0,176	0,128		0,160	0,198	0,144		0,180	0,220	0,160		0,200	●		○
4.6	0,118	0,084		0,112	0,134	0,096		0,128	0,151	0,108		0,144	0,168	0,120		0,160	●		○
4.7	0,077	0,056		0,067	0,088	0,064		0,077	0,099	0,072		0,086	0,110	0,080		0,096	●		○
4.8	0,126	0,084		0,112	0,144	0,096		0,128	0,162	0,108		0,144	0,180	0,120		0,160	●		○
4.9	0,077	0,056		0,067	0,088	0,064		0,077	0,099	0,072		0,086	0,110	0,080		0,096	●		○
4.10	0,077	0,056		0,067	0,088	0,064		0,077	0,099	0,072		0,086	0,110	0,080		0,096	●		○
4.11	0,077	0,056		0,067	0,088	0,064		0,077	0,099	0,072		0,086	0,110	0,080		0,096	●		○
4.12	0,077	0,056		0,067	0,088	0,064		0,077	0,099	0,072		0,086	0,110	0,080		0,096	●		○
4.13																			
4.14																			
4.15																			
4.16	0,077	0,056		0,067	0,088	0,064		0,077	0,099	0,072		0,086	0,110	0,080		0,096	●		○
4.17																			
4.18																			
4.19																			
5.1																			
5.2																			
5.3																			
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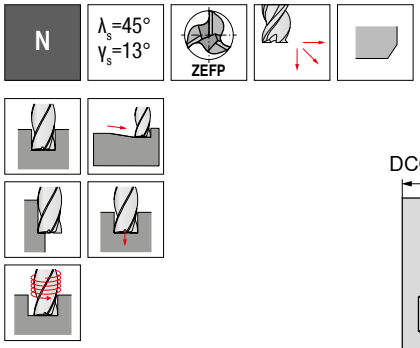
5.10																			
5.11																			
6.1																			
6.2																			
6.3																			
6.4																			
6.5																			

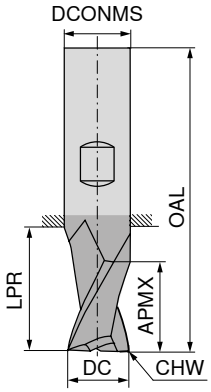
AUTOMOTIVE & MOTORS

Innovation drivers in machining:
Tool solutions for the mobility of tomorrow

Mini milling cutter

▲ Shank similar to DIN 6535





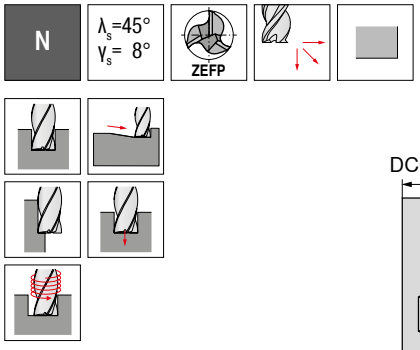
DC e8	CHW	APMX	LPR	OAL	DCONMS h5	ZEFP	Factory standard ~HA NEW Article no. 50 608 ...	Factory standard ~HA NEW Article no. 50 609 ...	Factory standard HB NEW Article no. 50 608 ...	Factory standard HB NEW Article no. 50 609 ...
mm	mm	mm	mm	mm	mm					
0,50	0,05	1,5	17	45	3	3	30500	30500		
1,00	0,05	2,0	12	45	6	3			01000	01000
1,00	0,05	2,0	17	45	3	3	31000	31000		
1,20	0,05	2,0	12	45	6	3			01200	01200
1,20	0,05	3,0	17	45	3	3	31200	31200		
1,50	0,05	3,0	12	45	6	3			01500	01500
1,50	0,05	3,0	17	45	3	3	31500	31500		
1,80	0,05	3,0	12	45	6	3			01800	01800
1,80	0,05	3,0	17	45	3	3	31800	31800		
2,00	0,05	4,0	13	45	6	3			020	02000
2,50	0,05	6,0	13	45	6	3			025	02500
2,80	0,05	6,0	13	45	6	3			02800	02800
3,00	0,10	6,0	13	45	6	3			030	03000
3,50	0,10	7,0	13	45	6	3			03500	03500
3,80	0,10	7,0	13	45	6	3			03800	03800
4,00	0,10	7,0	12	45	6	3			040	04000
4,50	0,10	8,0	11	45	6	3			04500	04500
4,80	0,10	8,0	11	45	6	3			04800	04800
5,00	0,10	8,0	11	45	6	3			050	05000
5,50	0,10	8,0	9	45	6	3			05500	05500
5,75	0,10	8,0	9	45	6	3			05700	05700
6,00	0,10	8,0	9	45	6	3			060	06000
6,70	0,10	10,0	19	55	8	3			06700	06700
7,00	0,10	12,0	19	55	8	3			070	07000
7,70	0,10	12,0	19	55	8	3			07700	07700
8,00	0,10	13,0	19	55	8	3			080	08000
8,70	0,10	14,0	17	55	10	3			08700	08700
9,00	0,10	16,0	17	55	10	3			09000	09000
9,70	0,10	16,0	17	55	10	3			09700	09700
10,00	0,10	16,0	17	55	10	3			100	10000

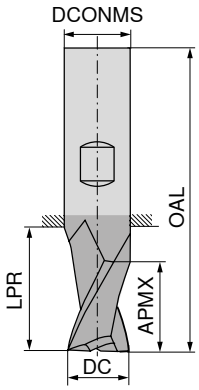
Steel		●		●
Stainless steel		●		●
Cast iron		●		●
Non ferrous metals	●	○	●	○
Heat resistant alloys	○	●	○	●
Hardened materials				

→ v_c/f_z Page 108–112

Mini milling cutter

▲ Shank similar to DIN 6535





DC e8	APMX	LPR	OAL	DCONMS h5	ZEFP	Factory standard ~HA NEW Article no. 50 664 ...	Factory standard ~HA NEW Article no. 50 691 ...	Factory standard HB NEW Article no. 50 664 ...	Factory standard HB NEW Article no. 50 691 ...
mm	mm	mm	mm	mm					
0,50	1,5	17	45	3	3	30500	30500		
1,00	2,0	12	45	6	3			01000	01000
1,00	2,0	17	45	3	3	31000	31000		
1,20	2,0	12	45	6	3			01200	01200
1,20	3,0	17	45	3	3	31200	31200		
1,50	3,0	12	45	6	3			01500	01500
1,50	3,0	17	45	3	3	31500	31500		
1,80	3,0	12	45	6	3			01800	01800
1,80	3,0	17	45	3	3	31800	31800		
2,00	4,0	13	45	6	3			02000	02000
2,50	6,0	13	45	6	3			02500	02500
2,80	6,0	13	45	6	3			02800	02800
3,00	6,0	13	45	6	3			03000	03000
3,50	7,0	13	45	6	3			03500	03500
3,80	7,0	13	45	6	3			03800	03800
4,00	7,0	12	45	6	3			04000	04000
4,50	8,0	11	45	6	3			04500	04500
4,80	8,0	11	45	6	3			04800	04800
5,00	8,0	11	45	6	3			05000	05000
5,50	8,0	9	45	6	3			05500	05500
5,75	8,0	9	45	6	3			05700	05700
6,00	8,0	9	45	6	3			06000	06000
6,70	10,0	19	55	8	3			06700	06700
7,00	12,0	19	55	8	3			07000	07000
7,70	12,0	19	55	8	3			07700	07700
8,00	13,0	19	55	8	3			08000	08000
8,70	14,0	17	55	10	3			08700	08700
9,00	16,0	17	55	10	3			09000	09000
9,70	16,0	17	55	10	3			09700	09700
10,00	16,0	17	55	10	3			10000	10000

Steel		●		●
Stainless steel		●		●
Cast iron		●		●
Non ferrous metals	●	○	●	○
Heat resistant alloys	○	●	○	●
Hardened materials				

→ v_c/f_z Page 108–112

Material examples referring to the cutting data tables

	Index	Material	Strength N/mm² / HB / HRC	Material number	Material designation	Material number	Material designation	Material number	Material designation
P	1.1	General construction steel	< 800 N/mm²	1.0402	EN3B				
	1.2	Free cutting steel	< 800 N/mm²	1.0711	EN1A				
	1.3	Hardened steel, non alloyed	< 800 N/mm²	1.0401	EN32C				
	1.4	Alloyed hardened steel	< 1000 N/mm²	1.7325	25 CD4				
	1.5	Tempering steel, unalloyed	< 850 N/mm²	1.5752	EN36	1.0535	EN9		
	1.6	Tempering steel, unalloyed	< 1000 N/mm²	1.6582	EN24				
	1.7	Tempering steel, alloyed	< 800 N/mm²	1.7225	EN19				
	1.8	Tempering steel, alloyed	< 1300 N/mm²	1.8515	EN40B				
	1.9	Steel castings	< 850 N/mm²	0.9650	G-X 260 Cr 27	1.6750	GS-20 NiCrMo 3.7	1.6582	GS-34 CrNiMo 6
	1.10	Nitriding steel	< 1000 N/mm²	1.8509	EN41B				
	1.11	Nitriding steel	< 1200 N/mm²	1.1186	EN8	1.1160	EN14A		
	1.12	Roller bearing steel	< 1200 N/mm²	1.3505	534A99				
	1.13	Spring steel	< 1200 N/mm²		EN45		EN47		EN43
	1.14	High-speed steel	< 1300 N/mm²	1.3343	M2	1.3249	M34		
	1.15	Cold working tool steel	< 1300 N/mm²	1.2379	D2	1.2311	P20		
	1.16	Hot working tool steel	< 1300 N/mm²	1.2344	H13				
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	1.4581	318				
	2.2	Stainless steel, ferritic	< 750 N/mm²	1.4000	403				
	2.3	Stainless steel, martensitic	< 900 N/mm²	1.4057	EN57				
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	1.4028	EN56B				
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	1.4542	17-4PH				
	2.6	Stainless steel, austenitic	< 750 N/mm²	1.4305	303	1.4401	316	1.4301	304
	2.7	Heat resistant steel	< 1100 N/mm²	1.4876	Incoloy 800				
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²	0.6015	Grade 150	0.6020	Grade 220	0.6025	Grade 260
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²	0.6030	Grade 300	0.6035	Grade 350	0.6040	Grade 400
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²	0.7040	SG 400-12	0.7043	SG 370-17	0.7050	SG 500-7
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²	0.7060	SG 600-3	0.7070	SG 700-2	0.7080	SG 800-2
	3.5	White malleable cast iron	270–450 N/mm²	0.8035	GTW-35	0.8045	GTW-45		
	3.6	White malleable cast iron	500–650 N/mm²	0.8055	GTW-55	0.8065	GTW-65		
	3.7	Black malleable cast iron	300–450 N/mm²	0.8135	GTS-35	0.8145	GTS-45		
	3.8	Black malleable cast iron	500–800 N/mm²	0.8155	GTS-55	0.8170	GTS-70		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²	3.0255	1050 A	3.0275	1070 A	3.0285	1080 A (A8)
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²	3.1325	2017 A (AU4G)	3.4335	7005 (AZ5G)	3.4365	7075 (AZ5GU)
	4.3	Aluminium alloy 0.5–10 % Si	< 400 N/mm²	3.2315	A- G S1	3.2373	A-S9 G	3.2151	A-S 6 U4
	4.4	Aluminium alloys 10–15 % Si	< 400 N/mm²	3.2581	A-S12	3.2583	A-S12 U		
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm²		A-S18	A-S17 U4			
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²	2.0040	Cu-c1	2.0060	Cu-a1	2.0090	Cu-b1
	4.7	Copper wrought alloys	< 700 N/mm²	2.1247	Cub2 (Berylium Copper)	2.0855	CuN2S (Nickel Copper)	2.1310	CU-Fe2P
	4.8	Special copper alloys	< 200 HB	2.0916	Cu-A5	2.1525	Cu-S3 M		Ampco 8 (Cu-A6Fe2)
	4.9	Special copper alloys	< 300 HB	2.0978	Cu-Al11 Fe5 Ni5)		Ampco 18 (Cu- A10 Fe3)		
	4.10	Special copper alloys	> 300 HB	2.1247	Cu Be2		Ampco M4		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²	2.0331	Cu Zn36 Pb1,5	2.0380	Cu Zn39 Pb2 (Ms 56)	2.0410	Cu Zn44 Pb2
	4.12	Long-chipping brass	< 600 N/mm²	2.0335	Cu Zn 36 (Ms63)	2.1293	Cu Cr1 Zr		
	4.13	Thermoplastics		PE	PVC	PS	Polystyrene		Plexiglas
	4.14	Duroplastics		PF	Bakelite		Pertinax		
	4.15	Fibre-reinforced plastics			Carbon Fibre		Fibreglass		Aramid Fibre (Kevlar)
	4.16	Magnesium and magnesium alloys	< 850 N/mm²	3.5812	Mg A7 Z1	3.5662	Mg A9	3.5105	Mg Tr3 Z2 Zn 1
	4.17	Graphite			R8500X		R8650		Technograph 15
	4.18	Tungsten and tungsten alloys			W-Ni Fe (Densimet)		W- Ni Cu (Inermet)		Denal
	4.19	Molybdenum and molybdenum alloys			TZM		MHQ		Mo W
S	5.1	Pure nickel		2.4066	Ni99 (Nickel 200)	2.4068	Lc Ni99 (Nickel 201)		
	5.2	Nickel alloys		1.3912	Fe-Ni36 (Invar)	1.3917	Fe -Ni42 (N42)	1.3922	Fe-Ni48 (N48)
	5.3	Nickel alloys	< 850 N/mm²	2.4375	Ni Cu30 Al (Monel K500)	2.4360	Ni Cu30Fe (Monel 400)	2.4668	
	5.4	Nickel molybdenum alloys		2.4600	Ni Mo30Cr2 (Hastelloy B4)	2.4617	Ni Mo28 (Hastelloy B2)	2.4819	Ni Mo16Cr16 Hastell. C276
	5.5	Nickel-chromium alloys	< 1300 N/mm²	2.4951	Ni Cr20TiAl (Nimonic 80A)	2.4858	Ni Cr21Mo (Inconel 825)	2.4856	Ni Cr22Mo9Nb Inconel 625
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²	2.4964	Co Cr20 W15 Ni10		Co Cr20 Ni16 Mo7		Co Cr28 Mo 6
	5.7	Heat resistant alloys	< 1300 N/mm²	1.4718	Z45 C S 9-3	1.4747	Z80 CSN 20-02	1.4845	Z12 CN 25-20
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²	2.4851	Ni Cr23Fe (Inconel 601)	2.4668	Ni Cr19NbMo (Inconel 718)	2.4602	Ni Cr21Mo14 Hastelloy C22
	5.9	Pure titanium	< 900 N/mm²	3.7025	T35 (Titanium Grade 1)	3.7034	T40 (Titanium Grade 2)	3.7064	T60 (Titanium Grade 4)
	5.10	Titanium alloys	< 700 N/mm²		T-A6-Nb7 (367)		T-A5-Sn2-Mo4-Cr4 (Ti17)		T-A3-V2,5 (Gr18)
	5.11	Titanium alloys	< 1200 N/mm²	3.7165	T-A6-V4 (Ta6V)		T-A4-3V-Mo2-Fe2 (SP700)		T-A5-Sn1-Zr1-V1-Mo (Gr32)
H	6.1	Tempered steel	< 45 HRC						
	6.2		46–55 HRC						
	6.3		56–60 HRC						
	6.4		61–65 HRC						
	6.5		65–70 HRC						

Cutting data standard values – mini milling cutter, uncoated

		Extra-short type	Ø DC = 0,5 mm			Ø DC = 1,0 mm			Ø DC = 1,2 mm			Ø DC = 1,5 mm			Ø DC = 1,8–2,0 mm			Ø DC = 2,5–3,0 mm		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
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4.1	**250**	1xDC	0,007	0,005	0,004	0,011	0,007	0,006	0,015	0,009	0,007	0,019	0,012	0,009	0,025	0,016	0,012	0,039	0,026	0,019
4.2	**250**	1xDC	0,007	0,005	0,004	0,011	0,007	0,006	0,015	0,009	0,007	0,019	0,012	0,009	0,025	0,016	0,012	0,039	0,026	0,019
4.3	**180**	1xDC	0,007	0,005	0,004	0,011	0,007	0,006	0,017	0,011	0,008	0,021	0,014	0,010	0,027	0,018	0,013	0,039	0,026	0,019
4.4	**150**	1xDC	0,007	0,005	0,004	0,011	0,007	0,006	0,017	0,011	0,008	0,021	0,014	0,010	0,027	0,018	0,013	0,039	0,026	0,019
4.5	**150**	1xDC	0,007	0,005	0,004	0,011	0,007	0,006	0,017	0,011	0,008	0,021	0,014	0,010	0,027	0,018	0,013	0,039	0,026	0,019
4.6	**140**	1xDC	0,004	0,003	0,002	0,007	0,005	0,004	0,010	0,007	0,005	0,015	0,009	0,007	0,021	0,014	0,010	0,031	0,020	0,015
4.7	**120**	1xDC	0,004	0,003	0,002	0,007	0,005	0,004	0,010	0,007	0,005	0,015	0,009	0,007	0,021	0,014	0,010	0,031	0,020	0,015
4.8	**140**	1xDC	0,004	0,003	0,002	0,007	0,005	0,004	0,010	0,007	0,005	0,015	0,009	0,007	0,021	0,014	0,010	0,031	0,020	0,015
4.9	**120**	1xDC	0,004	0,003	0,002	0,007	0,005	0,004	0,010	0,007	0,005	0,015	0,009	0,007	0,021	0,014	0,010	0,031	0,020	0,015
4.10	**120**	1xDC	0,004	0,003	0,002	0,007	0,005	0,004	0,010	0,007	0,005	0,015	0,009	0,007	0,021	0,014	0,010	0,031	0,020	0,015
4.11	**200**	1xDC	0,004	0,003	0,002	0,007	0,005	0,004	0,010	0,007	0,005	0,015	0,009	0,007	0,021	0,014	0,010	0,031	0,020	0,015
4.12	**150**	1xDC	0,004	0,003	0,002	0,007	0,005	0,004	0,010	0,007	0,005	0,015	0,009	0,007	0,021	0,014	0,010	0,031	0,020	0,015
4.13																				
4.14																				
4.15																				
4.16	**180**	1xDC	0,007	0,005	0,004	0,011	0,007	0,006	0,017	0,011	0,008	0,021	0,014	0,010	0,027	0,018	0,013	0,039	0,026	0,019
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5.9	50	0,5xDC	0,003	0,002	0,002	0,005	0,003	0,003	0,006	0,004	0,003	0,007	0,005	0,004	0,010	0,007	0,005	0,016	0,010	0,008
5.10	35	0,5xDC	0,003	0,002	0,002	0,005	0,003	0,003	0,006	0,004	0,003	0,007	0,005	0,004	0,010	0,007	0,005	0,016	0,010	0,008
5.11	20	0,5xDC	0,003	0,002	0,002	0,005	0,003	0,003	0,006	0,004	0,003	0,007	0,005	0,004	0,010	0,007	0,005	0,016	0,010	0,008
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Continued on next page

Cutting data standard values – mini milling cutter, uncoated

	Ø DC = 3,5–4,0 mm			Ø DC = 4,5–5,0 mm			Ø DC = 5,5–6,0 mm			Ø DC = 6,7–8,0 mm			Ø DC = 8,7–10,0 mm			● 1st choice		○ suitable
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
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3.7																		
3.8																		
4.1	0,052	0,034	0,025	0,066	0,043	0,032	0,079	0,051	0,038	0,108	0,070	0,052	0,135	0,088	0,065	●	○	○
4.2	0,052	0,034	0,025	0,066	0,043	0,032	0,079	0,051	0,038	0,108	0,070	0,052	0,135	0,088	0,065	●	○	○
4.3	0,050	0,032	0,024	0,062	0,041	0,030	0,073	0,047	0,035	0,097	0,063	0,047	0,120	0,078	0,058	●	○	○
4.4	0,050	0,032	0,024	0,062	0,041	0,030	0,073	0,047	0,035	0,097	0,063	0,047	0,120	0,078	0,058	●	○	○
4.5	0,050	0,032	0,024	0,062	0,041	0,030	0,073	0,047	0,035	0,097	0,063	0,047	0,120	0,078	0,058	●	○	○
4.6	0,041	0,027	0,020	0,052	0,034	0,025	0,062	0,041	0,030	0,083	0,054	0,040	0,104	0,068	0,050	●	○	○
4.7	0,041	0,027	0,020	0,052	0,034	0,025	0,062	0,041	0,030	0,083	0,054	0,040	0,104	0,068	0,050	●	○	○
4.8	0,041	0,027	0,020	0,052	0,034	0,025	0,062	0,041	0,030	0,083	0,054	0,040	0,104	0,068	0,050	●	○	○
4.9	0,041	0,027	0,020	0,052	0,034	0,025	0,062	0,041	0,030	0,083	0,054	0,040	0,104	0,068	0,050	●	○	○
4.10	0,041	0,027	0,020	0,052	0,034	0,025	0,062	0,041	0,030	0,083	0,054	0,040	0,104	0,068	0,050	●	○	○
4.11	0,041	0,027	0,020	0,052	0,034	0,025	0,062	0,041	0,030	0,083	0,054	0,040	0,104	0,068	0,050	●	○	○
4.12	0,041	0,027	0,020	0,052	0,034	0,025	0,062	0,041	0,030	0,083	0,054	0,040	0,104	0,068	0,050	●	○	○
4.13																		
4.14																		
4.15																		
4.16	0,050	0,032	0,024	0,062	0,041	0,030	0,073	0,047	0,035	0,097	0,063	0,047	0,120	0,078	0,058	●	○	○
4.17																		
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5.4																		
5.5																		
5.6																		
5.7																		
5.8																		
5.9	0,021	0,014	0,010	0,025	0,016	0,012	0,031	0,020	0,015	0,041	0,027	0,020	0,052	0,034	0,025	●	○	○
5.10	0,021	0,014	0,010	0,025	0,016	0,012	0,031	0,020	0,015	0,041	0,027	0,020	0,052	0,034	0,025	●	○	○
5.11	0,021	0,014	0,010	0,025	0,016	0,012	0,031	0,020	0,015	0,041	0,027	0,020	0,052	0,034	0,025	●	○	○
6.1																		
6.2																		
6.3																		
6.4																		
6.5																		

Cutting data standard values – mini milling cutter, coated

		Extra-short type	Ø DC = 0,5 mm			Ø DC = 1,0 mm			Ø DC = 1,2 mm			Ø DC = 1,5 mm			Ø DC = 1,8–2,0 mm			Ø DC = 2,5–3,0 mm		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
1.1	**100**	1xDC	0,017	0,011	0,008	0,021	0,014	0,010	0,023	0,015	0,011	0,025	0,016	0,012	0,029	0,019	0,014	0,037	0,024	0,018
1.2	**100**	1xDC	0,010	0,007	0,005	0,013	0,009	0,007	0,016	0,010	0,008	0,018	0,011	0,009	0,021	0,014	0,010	0,028	0,018	0,014
1.3	**110**	1xDC	0,010	0,007	0,005	0,013	0,009	0,007	0,016	0,010	0,008	0,018	0,011	0,009	0,021	0,014	0,010	0,028	0,018	0,014
1.4	**70**	1xDC	0,006	0,004	0,003	0,008	0,005	0,004	0,010	0,007	0,005	0,012	0,008	0,006	0,016	0,010	0,008	0,023	0,015	0,011
1.5	**90**	1xDC	0,006	0,004	0,003	0,008	0,005	0,004	0,010	0,007	0,005	0,012	0,008	0,006	0,016	0,010	0,008	0,023	0,015	0,011
1.6	**80**	1xDC	0,006	0,004	0,003	0,008	0,005	0,004	0,010	0,007	0,005	0,012	0,008	0,006	0,016	0,010	0,008	0,023	0,015	0,011
1.7	**80**	1xDC	0,006	0,004	0,003	0,008	0,005	0,004	0,010	0,007	0,005	0,012	0,008	0,006	0,016	0,010	0,008	0,023	0,015	0,011
1.8	**55**	1xDC	0,006	0,004	0,003	0,008	0,005	0,004	0,010	0,007	0,005	0,012	0,008	0,006	0,016	0,010	0,008	0,023	0,015	0,011
1.9	**90**	1xDC	0,017	0,011	0,008	0,021	0,014	0,010	0,023	0,015	0,011	0,025	0,016	0,012	0,029	0,019	0,014	0,037	0,024	0,018
1.10	**80**	1xDC	0,006	0,004	0,003	0,008	0,005	0,004	0,010	0,007	0,005	0,012	0,008	0,006	0,016	0,010	0,008	0,023	0,015	0,011
1.11	**55**	1xDC	0,006	0,004	0,003	0,008	0,005	0,004	0,010	0,007	0,005	0,012	0,008	0,006	0,016	0,010	0,008	0,023	0,015	0,011
1.12	**55**	1xDC	0,006	0,004	0,003	0,008	0,005	0,004	0,010	0,007	0,005	0,012	0,008	0,006	0,016	0,010	0,008	0,023	0,015	0,011
1.13																				
1.14																				
1.15																				
1.16																				
2.1	**60**	1xDC	0,003	0,002	0,002	0,005	0,003	0,003	0,006	0,004	0,003	0,007	0,005	0,004	0,010	0,007	0,005	0,016	0,010	0,008
2.2	**50**	1xDC	0,003	0,002	0,002	0,005	0,003	0,003	0,006	0,004	0,003	0,007	0,005	0,004	0,010	0,007	0,005	0,016	0,010	0,008
2.3	**40**	1xDC	0,003	0,002	0,002	0,005	0,003	0,003	0,006	0,004	0,003	0,007	0,005	0,004	0,010	0,007	0,005	0,016	0,010	0,008
2.4	**40**	1xDC	0,003	0,002	0,002	0,005	0,003	0,003	0,006	0,004	0,003	0,007	0,005	0,004	0,010	0,007	0,005	0,016	0,010	0,008
2.5	**50**	1xDC	0,003	0,002	0,002	0,005	0,003	0,003	0,006	0,004	0,003	0,007	0,005	0,004	0,010	0,007	0,005	0,016	0,010	0,008
2.6	**40**	1xDC	0,003	0,002	0,002	0,005	0,003	0,003	0,006	0,004	0,003	0,007	0,005	0,004	0,010	0,007	0,005	0,016	0,010	0,008
2.7	**30**	1xDC	0,003	0,002	0,002	0,005	0,003	0,003	0,006	0,004	0,003	0,007	0,005	0,004	0,010	0,007	0,005	0,016	0,010	0,008
3.1	**130**	1xDC	0,019	0,012	0,009	0,023	0,015	0,011	0,025	0,016	0,012	0,029	0,019	0,014	0,035	0,023	0,017	0,046	0,030	0,022
3.2	**120**	1xDC	0,019	0,012	0,009	0,023	0,015	0,011	0,025	0,016	0,012	0,029	0,019	0,014	0,035	0,023	0,017	0,046	0,030	0,022
3.3	**130**	1xDC	0,017	0,011	0,008	0,021	0,014	0,010	0,023	0,015	0,011	0,025	0,016	0,012	0,029	0,019	0,014	0,037	0,024	0,018
3.4	**120**	1xDC	0,017	0,011	0,008	0,021	0,014	0,010	0,023	0,015	0,011	0,025	0,016	0,012	0,029	0,019	0,014	0,037	0,024	0,018
3.5	**130**	1xDC	0,019	0,012	0,009	0,023	0,015	0,011	0,025	0,016	0,012	0,029	0,019	0,014	0,035	0,023	0,017	0,046	0,030	0,022
3.6	**120**	1xDC	0,019	0,012	0,009	0,023	0,015	0,011	0,025	0,016	0,012	0,029	0,019	0,014	0,035	0,023	0,017	0,046	0,030	0,022
3.7	**130**	1xDC	0,019	0,012	0,009	0,023	0,015	0,011	0,025	0,016	0,012	0,029	0,019	0,014	0,035	0,023	0,017	0,046	0,030	0,022
3.8	**120**	1xDC	0,019	0,012	0,009	0,023	0,015	0,011	0,025	0,016	0,012	0,029	0,019	0,014	0,035	0,023	0,017	0,046	0,030	0,022
4.1																				
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4.5																				
4.6	140	1xDC	0,004	0,003	0,002	0,007	0,005	0,004	0,010	0,007	0,005	0,015	0,009	0,007	0,021	0,014	0,010	0,031	0,020	0,015
4.7	120	1xDC	0,004	0,003	0,002	0,007	0,005	0,004	0,010	0,007	0,005	0,015	0,009	0,007	0,021	0,014	0,010	0,031	0,020	0,015
4.8	140	1xDC	0,004	0,003	0,002	0,007	0,005	0,004	0,010	0,007	0,005	0,015	0,009	0,007	0,021	0,014	0,010	0,031	0,020	0,015
4.9	120	1xDC	0,004	0,003	0,002	0,007	0,005	0,004	0,010	0,007	0,005	0,015	0,009	0,007	0,021	0,014	0,010	0,031	0,020	0,015
4.10	120	1xDC	0,004	0,003	0,002	0,007	0,005	0,004	0,010	0,007	0,005	0,015	0,009	0,007	0,021	0,014	0,010	0,031	0,020	0,015
4.11	200	1xDC	0,004	0,003	0,002	0,007	0,005	0,004	0,010	0,007	0,005	0,015	0,009	0,007	0,021	0,014	0,010	0,031	0,020	0,015
4.12	150	1xDC	0,004	0,003	0,002	0,007	0,005	0,004	0,010	0,007	0,005	0,015	0,009	0,007	0,021	0,014	0,010	0,031	0,020	0,015
4.13																				
4.14																				
4.15																				
4.16																				
4.17																				
4.18																				
4.19																				
5.1	**30**	0,5xDC	0,003	0,002	0,002	0,005	0,003	0,003	0,006	0,004	0,003	0,007	0,005	0,004	0,010	0,007	0,005	0,016	0,010	0,008
5.2	**30**	0,5xDC	0,003	0,002	0,002	0,005	0,003	0,003	0,006	0,004	0,003	0,007	0,005	0,004	0,010	0,007	0,005	0,016	0,010	0,008
5.3	**30**	0,5xDC	0,003	0,002	0,002	0,005	0,003	0,003	0,006	0,004	0,003	0,007	0,005	0,004	0,010	0,007	0,005	0,016	0,010	0,008
5.4	**30**	0,5xDC	0,003	0,002	0,002	0,005	0,003	0,003	0,006	0,004	0,003	0,007	0,005	0,004	0,010	0,007	0,005	0,016	0,010	0,008
5.5	**30**	0,5xDC	0,003	0,002	0,002	0,005	0,003	0,003	0,006	0,004	0,003	0,007	0,005	0,004	0,010	0,007	0,005	0,016	0,010	0,008
5.6	**30**	0,5xDC	0,003	0,002	0,002	0,005	0,003	0,003	0,006	0,004	0,003	0,007	0,005	0,004	0,010	0,007	0,005	0,016	0,010	0,008
5.7	**30**	0,5xDC	0,003	0,002	0,002	0,005	0,003	0,003	0,006	0,004	0,003	0,007	0,005	0,004	0,010	0,007	0,005	0,016	0,010	0,008
5.8	**30**	0,5xDC	0,003	0,002	0,002	0,005	0,003	0,003	0,006	0,004	0,003	0,007	0,005	0,004	0,010	0,007	0,005	0,016	0,010	0,008
5.9	**50**	0,5xDC	0,003	0,002	0,002	0,005	0,003	0,003	0,006	0,004	0,003	0,007	0,005	0,004	0,010	0,007	0,005	0,016	0,010	0,008
5.10	**35**	0,5xDC	0,003	0,002	0,002	0,005	0,003	0,003	0,006	0,004	0,003	0,007	0,005	0,004	0,010	0,007	0,005	0,016	0,010	0,008
5.11	**20**	0,5xDC	0,003	0,002	0,002	0,005	0,003	0,003	0,006	0,004	0,003	0,007	0,005	0,004	0,010	0,007	0,005	0,016	0,010	0,008
6.1																				
6.2																				
6.3																				
6.4																				
6.5																				

Continued on next page

Cutting data standard values – mini milling cutter, coated

	Ø DC = 3,5–4,0 mm			Ø DC = 4,5–5,0 mm			Ø DC = 5,5–6,0 mm			Ø DC = 6,7–8,0 mm			Ø DC = 8,7–10,0 mm			● 1st choice		○ suitable
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			Emulsion	Compressed air	MMS
1.1	0,044	0,028	0,021	0,052	0,034	0,025	0,060	0,039	0,029	0,075	0,049	0,036	0,089	0,058	0,043	○	●	○
1.2	0,035	0,023	0,017	0,041	0,027	0,020	0,050	0,032	0,024	0,062	0,041	0,030	0,077	0,050	0,037	○	●	○
1.3	0,035	0,023	0,017	0,041	0,027	0,020	0,050	0,032	0,024	0,062	0,041	0,030	0,077	0,050	0,037	○	●	○
1.4	0,029	0,019	0,014	0,035	0,023	0,017	0,041	0,027	0,020	0,056	0,036	0,027	0,068	0,045	0,033	○	●	○
1.5	0,029	0,019	0,014	0,035	0,023	0,017	0,041	0,027	0,020	0,056	0,036	0,027	0,068	0,045	0,033	○	●	○
1.6	0,029	0,019	0,014	0,035	0,023	0,017	0,041	0,027	0,020	0,056	0,036	0,027	0,068	0,045	0,033	○	●	○
1.7	0,029	0,019	0,014	0,035	0,023	0,017	0,041	0,027	0,020	0,056	0,036	0,027	0,068	0,045	0,033	○	●	○
1.8	0,029	0,019	0,014	0,035	0,023	0,017	0,041	0,027	0,020	0,056	0,036	0,027	0,068	0,045	0,033	○	●	○
1.9	0,044	0,028	0,021	0,052	0,034	0,025	0,060	0,039	0,029	0,075	0,049	0,036	0,089	0,058	0,043	○	●	○
1.10	0,029	0,019	0,014	0,035	0,023	0,017	0,041	0,027	0,020	0,056	0,036	0,027	0,068	0,045	0,033	○	●	○
1.11	0,029	0,019	0,014	0,035	0,023	0,017	0,041	0,027	0,020	0,056	0,036	0,027	0,068	0,045	0,033	○	●	○
1.12	0,029	0,019	0,014	0,035	0,023	0,017	0,041	0,027	0,020	0,056	0,036	0,027	0,068	0,045	0,033	○	●	○
1.13																		
1.14																		
1.15																		
1.16																		
2.1	0,021	0,014	0,010	0,025	0,016	0,012	0,031	0,020	0,015	0,041	0,027	0,020	0,052	0,034	0,025	●		○
2.2	0,021	0,014	0,010	0,025	0,016	0,012	0,031	0,020	0,015	0,041	0,027	0,020	0,052	0,034	0,025	●		○
2.3	0,021	0,014	0,010	0,025	0,016	0,012	0,031	0,020	0,015	0,041	0,027	0,020	0,052	0,034	0,025	●		○
2.4	0,021	0,014	0,010	0,025	0,016	0,012	0,031	0,020	0,015	0,041	0,027	0,020	0,052	0,034	0,025	●		○
2.5	0,021	0,014	0,010	0,025	0,016	0,012	0,031	0,020	0,015	0,041	0,027	0,020	0,052	0,034	0,025	●		○
2.6	0,021	0,014	0,010	0,025	0,016	0,012	0,031	0,020	0,015	0,041	0,027	0,020	0,052	0,034	0,025	●		○
2.7	0,021	0,014	0,010	0,025	0,016	0,012	0,031	0,020	0,015	0,041	0,027	0,020	0,052	0,034	0,025	●		○
3.1	0,058	0,038	0,028	0,070	0,046	0,034	0,081	0,053	0,039	0,104	0,068	0,050	0,124	0,081	0,060	○	●	○
3.2	0,058	0,038	0,028	0,070	0,046	0,034	0,081	0,053	0,039	0,104	0,068	0,050	0,124	0,081	0,060	○	●	○
3.3	0,044	0,028	0,021	0,052	0,034	0,025	0,060	0,039	0,029	0,075	0,049	0,036	0,089	0,058	0,043	○	●	○
3.4	0,044	0,028	0,021	0,052	0,034	0,025	0,060	0,039	0,029	0,075	0,049	0,036	0,089	0,058	0,043	○	●	○
3.5	0,058	0,038	0,028	0,070	0,046	0,034	0,081	0,053	0,039	0,104	0,068	0,050	0,124	0,081	0,060	○	●	○
3.6	0,058	0,038	0,028	0,070	0,046	0,034	0,081	0,053	0,039	0,104	0,068	0,050	0,124	0,081	0,060	○	●	○
3.7	0,058	0,038	0,028	0,070	0,046	0,034	0,081	0,053	0,039	0,104	0,068	0,050	0,124	0,081	0,060	○	●	○
3.8	0,058	0,038	0,028	0,070	0,046	0,034	0,081	0,053	0,039	0,104	0,068	0,050	0,124	0,081	0,060	○	●	○
4.1																		
4.2																		
4.3																		
4.4																		
4.5																		
4.6	0,041	0,027	0,020	0,052	0,034	0,025	0,062	0,041	0,030	0,083	0,054	0,040	0,104	0,068	0,050	●		○
4.7	0,041	0,027	0,020	0,052	0,034	0,025	0,062	0,041	0,030	0,083	0,054	0,040	0,104	0,068	0,050	●		○
4.8	0,041	0,027	0,020	0,052	0,034	0,025	0,062	0,041	0,030	0,083	0,054	0,040	0,104	0,068	0,050	●		○
4.9	0,041	0,027	0,020	0,052	0,034	0,025	0,062	0,041	0,030	0,083	0,054	0,040	0,104	0,068	0,050	●		○
4.10	0,041	0,027	0,020	0,052	0,034	0,025	0,062	0,041	0,030	0,083	0,054	0,040	0,104	0,068	0,050	●		○
4.11	0,041	0,027	0,020	0,052	0,034	0,025	0,062	0,041	0,030	0,083	0,054	0,040	0,104	0,068	0,050	●		○
4.12	0,041	0,027	0,020	0,052	0,034	0,025	0,062	0,041	0,030	0,083	0,054	0,040	0,104	0,068	0,050	●		○
4.13																		
4.14																		
4.15																		
4.16																		
4.17																		
4.18																		
4.19																		
5.1	0,021	0,014	0,010	0,025	0,016	0,012	0,031	0,020	0,015	0,041	0,027	0,020	0,052	0,034	0,025	●	○	○
5.2	0,021	0,014	0,010	0,025	0,016	0,012	0,031	0,020	0,015	0,041	0,027	0,020	0,052	0,034	0,025	●	○	○
5.3	0,021	0,014	0,010	0,025	0,016	0,012	0,031	0,020	0,015	0,041	0,027	0,020	0,052	0,034	0,025	●	○	○
5.4	0,021	0,014	0,010	0,025	0,016	0,012	0,031	0,020	0,015	0,041	0,027	0,020	0,052	0,034	0,025	●	○	○
5.5	0,021	0,014	0,010	0,025	0,016	0,012	0,031	0,020	0,015	0,041	0,027	0,020	0,052	0,034	0,025	●	○	○
5.6	0,021	0,014	0,010	0,025	0,016	0,012	0,031	0,020	0,015	0,041	0,027	0,020	0,052	0,034	0,025	●	○	○
5.7	0,021	0,014	0,010	0,025	0,016	0,012	0,031	0,020	0,015	0,041	0,027	0,020	0,052	0,034	0,025	●	○	○
5.8	0,021	0,014	0,010	0,025	0,016	0,012	0,031	0,020	0,015	0,041	0,027	0,020	0,052	0,034	0,025	●	○	○
5.9	0,021	0,014	0,010	0,025	0,016	0,012	0,031	0,020	0,015	0,041	0,027	0,020	0,052	0,034	0,025	●	○	○
5.10	0,021	0,014	0,010	0,025	0,016	0,012	0,031	0,020	0,015	0,041	0,027	0,020	0,052	0,034	0,025	●	○	○
5.11	0,021	0,014	0,010	0,025	0,016	0,012	0,031	0,020	0,015	0,041	0,027	0,020	0,052	0,034	0,025	●	○	○
6.1																		
6.2																		
6.3																		
6.4																		
6.5																		

FIT IN METAL CUTTING

With our practice-oriented training courses, you will leave the competition behind.

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Product range – face milling

MaxiMill 274 system 115+116

System MaxiMill 271 117

MaxiMill 273 system 118

MaxiMill 270 system 119

Product range – shoulder milling

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MaxiMill 211 system 121

MaxiMill 490 system 122

Product range – form cutting

MaxiMill HFC system 123+124

MaxiMill 251/251 RS system 125+126

Cutting Data 127

CERATIZIT \ Performance

Premium quality tools for high performance.

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

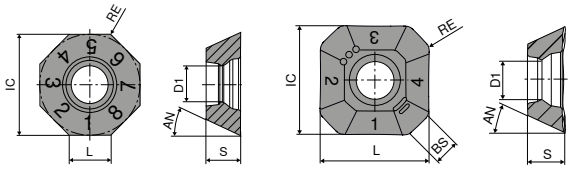
Grade description

CTCM245

- Carbide, TiCN-Al_2O_3 coated
- ISO **M45/P50**; S35
- Special grade for machining high-alloy steel materials

OFHW / OFHT / SFHT

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
OFHT 040305..	9,52	3,35	3,94	-	3,18
OFHT 050410..	12,70	4,80	4,50	-	4,76
OFHW 040302..	9,52	3,35	3,94	-	3,18
SFHT 0903AF..	9,80	3,35	9,00	2,25	3,50
SFHT 1204AF..	12,70	4,80	12,70	1,42	4,76



OF..
SF.T

OFHW

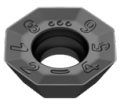
CTCM245

DRAGONSKIN

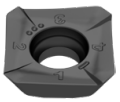
OFHW

ISO	RE	NEW Article no. 51 105 ...
	mm	
040302EN	0,2	**90201**
Steel		●
Stainless steel		●
Cast iron		
Non ferrous metals		
Heat resistant alloys		●
Hardened materials		

OFHT

		-F50 CTCM245	-F50 CTCM245
		DRAGONSKIN	DRAGONSKIN
		OFHT	 OFHT
ISO	RE	NEW Article no. 51 002 ...	NEW Article no. 51 002 ...
	mm		
040305SN	0,5		**90501**
050410SN	1,0	**91001**	
Steel		●	●
Stainless steel		●	●
Cast iron			
Non ferrous metals			
Heat resistant alloys		●	●
Hardened materials			

SFHT

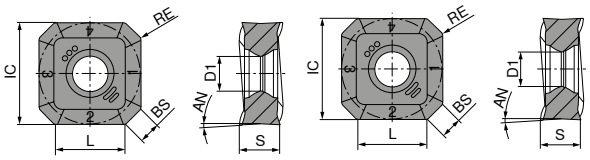
ISO	RE mm	-F50 CTCM245	-F50 CTCM245
		DRAGONSKIN	DRAGONSKIN
			
		SFHT	SFHT
		NEW	NEW
		Article no. 51 012 ...	Article no. 51 012 ...
0903AFSR	1		92001
1204AFSR	1	92501	
Steel		●	●
Stainless steel		●	●
Cast iron			
Non ferrous metals			
Heat resistant alloys		●	●
Hardened materials			

Milling guide

Matching milling cutters can be found in the main catalogue in Chapter 15 → **Milling tools with indexable inserts Page 15**

SAKU / SOHU

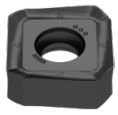
Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
SAKU 1706AB..	17,00	5,8	11,85	3,7	6,35
SOHU 1204AB..	13,36	4,4	8,80	1,7	5,00



SAKU

-F50
CTCM245

DRAGONSKIN



SAKU

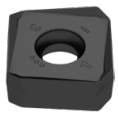
NEW

ISO	RE	Article no. 51 004 ...
	mm	
1706ABSR	0,8	**92001**
Steel		●
Stainless steel		●
Cast iron		
Non ferrous metals		
Heat resistant alloys		●
Hardened materials		

SOHU

-F50
CTCM245

DRAGONSKIN



SOHU

NEW

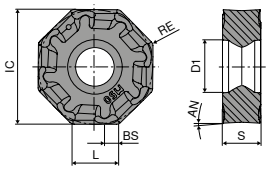
ISO	RE	Article no. 51 140 ...
	mm	
1204ABSR	0,8	**92001**
Steel		●
Stainless steel		●
Cast iron		
Non ferrous metals		
Heat resistant alloys		●
Hardened materials		

Milling guide

Matching milling cutters can be found in the main catalogue in Chapter 15 → **Milling tools with indexable inserts Page 25**

OAKU

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
OAKU 060508..	17,1	5,8	6	2	5,66



OAKU

OAKU

-F40
CTCM245

DRAGONSKIN

OAKU

ISO	RE	NEW Article no. 51 104 ...
	mm	
060508ER	0,8	**90801**

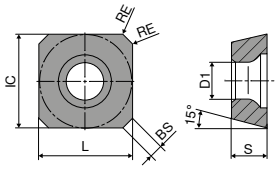
Steel	●
Stainless steel	●
Cast iron	
Non ferrous metals	
Heat resistant alloys	●
Hardened materials	

Milling guide

Matching milling cutters can be found in the main catalogue in Chapter 15 → **Milling tools with indexable inserts Page 28**

SDHT

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
SDHT 0903AE..	9,52	3,4	9,52	1,68	3,18
SDHT 1204AE..	12,70	5,5	12,70	1,74	4,76



SD..

SDHT

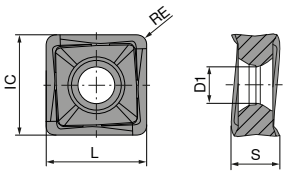
ISO	RE	-F50 CTCM245	-F50 CTCM245
		DRAGONSKIN	DRAGONSKIN
		SDHT	SDHT
		NEW	NEW
		Article no. 51 109 ...	Article no. 51 109 ...
	mm		
0903AESN	1		92001
1204AESN	1	92501	
Steel		●	●
Stainless steel		●	●
Cast iron			
Non ferrous metals			
Heat resistant alloys		●	●
Hardened materials			

Milling guide

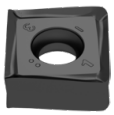
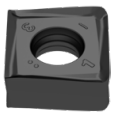
Matching milling cutters can be found in the main catalogue in Chapter 15 → **Milling tools with indexable inserts Page 33**

SNHU

Designation	IC	D1	L	S
	mm	mm	mm	mm
SNHU 09T308..	9,15	3,85	9,15	3,70
SNHU 120408..	12,20	4,40	12,20	5,00



SNHU

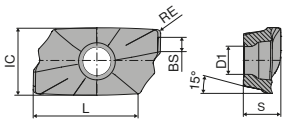
ISO	RE	-F40 CTCM245	-F40 CTCM245
		DRAGONSKIN	DRAGONSKIN
			
		SNHU	SNHU
		NEW	NEW
		Article no. 51 128 ...	Article no. 51 126 ...
	mm		
09T308ER	0,8		**90801**
120408ER	0,8	**90801**	
Steel		●	●
Stainless steel		●	●
Cast iron			
Non ferrous metals			
Heat resistant alloys		●	●
Hardened materials			

Milling guide

Matching milling cutters can be found in the main catalogue in Chapter 15 → **Milling tools with indexable inserts Page 51**

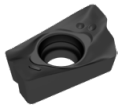
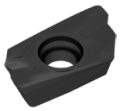
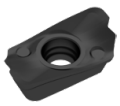
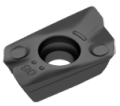
XDKT

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
XDKT 070304..	4,9	2,5	7,8	1,2	3,18
XDKT 070308..	4,9	2,5	7,8	1,2	3,18
XDKT 11T304..	6,8	2,8	10,6	1,8	3,80
XDKT 11T308..	6,8	2,8	10,6	1,4	3,80
XDKT 11T312..	6,8	2,8	10,6	1,4	3,80
XDKT 11T316..	6,8	2,8	10,6	1,4	3,80
XDKT 11T320..	6,8	2,8	10,6	1,4	3,80
XDKT 11T325..	6,8	2,8	10,6	1,4	3,80
XDKT 11T332..	6,8	2,8	10,6	0,8	3,80
XDKT 11T340..	6,8	2,8	10,6	-	3,80
XDKT 150508..	9,3	4,4	14,8	1,6	5,56
XDKT 150512..	9,3	4,4	14,8	1,6	5,56
XDKT 150516..	9,3	4,4	14,8	1,6	5,56
XDKT 150520..	9,3	4,4	14,8	1,6	5,56
XDKT 150525..	9,3	4,4	14,8	1,6	5,56
XDKT 150532..	9,3	4,4	14,8	1,9	5,56
XDKT 150540..	9,3	4,4	14,8	1,2	5,56
XDKT 150560..	9,3	4,4	14,8	-	5,56
XDKT 200708..	12,5	5,5	18,8	-	6,93
XDKT 200716..	12,5	5,5	18,8	1,56	6,89
XDKT 200732..	12,5	5,5	18,8	0,9	6,82
XDKT 200740..	12,5	5,5	18,8	2,2	6,80
XDKT 200760..	12,5	5,5	18,8	-	6,80



XDKT

XDKT

		-F40 CTCM245	-F40 CTCM245	-F40 CTCM245	-F40 CTCM245	-F50 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		XDKT	XDKT	XDKT	XDKT	XDKT
		NEW	NEW	NEW	NEW	NEW
ISO	RE	Article no. 51 112 ...	Article no. 51 114 ...	Article no. 51 113 ...	Article no. 51 127 ...	Article no. 51 034 ...
	mm					
070304ER	0,4	90401				
070308ER	0,8	90801				
11T304ER	0,4			90401		
11T308ER	0,8			90801		
11T308SR	0,8					90801
11T312ER	1,2			91201		
11T316ER	1,6			91601		
11T320ER	2,0			92001 1)		
11T325ER	2,5			92501 1)		
11T332ER	3,2			93201 1)		
11T340ER	4,0			94001 1)		
150508ER	0,8		90801			
150512ER	1,2		91201			
150516ER	1,6		91601			
150520ER	2,0		92001 1)			
150525ER	2,5		92501 1)			
150532ER	3,2		93201 1)			
150540ER	4,0		94001 1)			
150560ER	6,0		96001 1)			
200708ER	0,8				90801	
200716ER	1,6				91601	
200732ER	3,2				93201	
200740ER	4,0				94001	
200760ER	6,0				96001	
Steel		●	●	●	●	●
Stainless steel		●	●	●	●	●
Cast iron						
Non ferrous metals						
Heat resistant alloys		●	●	●	●	●
Hardened materials						

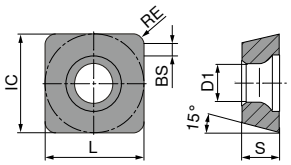
1) Insert radius >1.6 mm: Modify cutter body

Milling guide

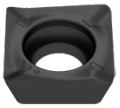
Matching milling cutters can be found in the main catalogue in Chapter 15 → **Milling tools with indexable inserts Page 57**

SDNT / SDMT

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
SDMT 120508..	12,70	5,5	12,70	3,0	5,00
SDNT 09T308..	9,52	4,4	9,52	2,5	3,97



SDNT / SDMT

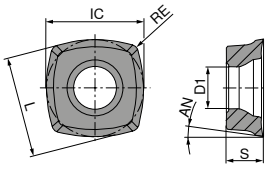
		-F50 CTCM245	-F50 CTCM245
		DRAGONSKIN	DRAGONSKIN
			
		SDNT	SDMT
		NEW	NEW
ISO	RE	**Article no. 51 111 ...**	**Article no. 51 110 ...**
	mm		
09T308ER	0,8	**90801**	
120508ER	0,8		**90801**
Steel		●	●
Stainless steel		●	●
Cast iron			
Non ferrous metals			
Heat resistant alloys		●	●
Hardened materials			

Milling guide

Matching milling cutters can be found in the main catalogue in Chapter 15 → **Milling tools with indexable inserts Page 74**

XPLX / XDLX / XOLX

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
XDLX 09T308..	9,52	4,4	9	1,9	3,97
XOLX 120410..	12,70	5,5	12	1,3	4,76
XOLX 190615..	19,14	6,0	19	-	6,35
XPLX 060305..	6,35	2,8	6	1	2,75



XPLX

-F40
CTCM245

DRAGONSKIN

XPLX

ISO	RE	NEW Article no. 51 116 ...
	mm	
060305ER	0,5	**90501**
Steel		●
Stainless steel		●
Cast iron		
Non ferrous metals		
Heat resistant alloys		●
Hardened materials		

XDLX

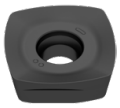
-M50
CTCM245

DRAGONSKIN

XDLX

ISO	RE	NEW Article no. 51 016 ...
	mm	
09T308SR	0,8	**90801**
Steel		●
Stainless steel		●
Cast iron		
Non ferrous metals		
Heat resistant alloys		●
Hardened materials		

XOLX

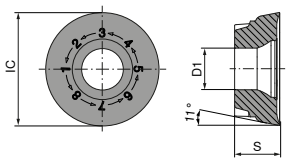
ISO	RE mm	-F40 CTCM245	-F40 CTCM245	-M50 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
				
		XOLX	XOLX	XOLX
		NEW	NEW	NEW
		Article no. 51 022 ...	Article no. 51 022 ...	Article no. 51 017 ...
120410ER	1,0		**91001**	
120410SR	1,0			**91001**
190615ER	1,5	**91501**		
Steel		●	●	●
Stainless steel		●	●	●
Cast iron				
Non ferrous metals				
Heat resistant alloys		●	●	●
Hardened materials				

Milling guide

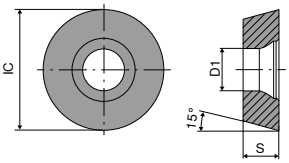
Matching milling cutters can be found in the main catalogue in Chapter 15 → **Milling tools with indexable inserts Page 97**

RDHX / RPHX / RPNX

Designation	IC	D1	S
	mm	mm	mm
RDHX 0802M0..	8	2,8	2,38
RDHX 0802M4..	8	2,8	2,38
RP.X 10T3M4..	10	3,4	3,97
RP.X 10T3M8..	10	3,4	3,97
RP.X 1204M4..	12	4,4	4,76
RP.X 1204M6..	12	4,4	4,76
RP.X 1204M8..	12	4,4	4,76
RP.X 1605M8..	16	5,5	5,56
RPNX 2006M8..	20	6,0	6,35



RP.X 10T3.. / RP.X 1204.. / RP.X 1605.. / RPNX 2006..



RDHX 0501.. / RDHX0802..

RDHX

-F50
CTCM245

DRAGONSKIN

RDHX

ISO	NEW Article no. 51 083 ...
0802M0SN	**92001**
0802M4SN	**92101**

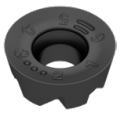
Steel	●
Stainless steel	●
Cast iron	
Non ferrous metals	
Heat resistant alloys	●
Hardened materials	

RPHX

ISO	-F50 CTCM245	-M50 CTCM245
	DRAGONSKIN RPHX	DRAGONSKIN RPHX
	NEW Article no. 51 051 ...	NEW Article no. 51 050 ...
10T3M4SN	92001 1)	92001 1)
10T3M8SN	92101	
1204M4SN	92501 1)	92501 1)
1204M6SN	92601	92601
1204M8SN		92701
1605M8SN	93001	
Steel	●	●
Stainless steel	●	●
Cast iron		
Non ferrous metals		
Heat resistant alloys	●	●
Hardened materials		

1) Insert with 4 indexes

RPNX

ISO	-F50 CTCM245	-M50 CTCM245
	DRAGONSKIN RPNX	DRAGONSKIN  RPNX
	NEW Article no. 51 055 ...	NEW Article no. 51 054 ...
10T3M4SN	92001 1)	
10T3M8SN	92101	
1204M4SN	92501 1)	
1204M6SN		92601
1204M8SN	92601	
1605M8SN	93001	
2006M8SN	93501	93501
Steel	●	●
Stainless steel	●	●
Cast iron		
Non ferrous metals		
Heat resistant alloys	●	●
Hardened materials		

1) Insert with 4 indexes

Milling guide

Matching milling cutters can be found in the main catalogue in Chapter 15 → **Milling tools with indexable inserts Page 106**

Cutting data standard values

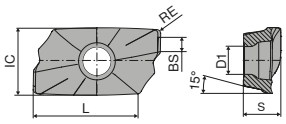
Cutting Material **hard** (v_c ↑) → **tough** (v_c ↓)

DRAGONSKIN

	Index	Material	Strength N/mm² / HB / HRC	CTCM245	
P	1.1	General construction steel	< 800 N/mm²		
	1.2	Free cutting steel	< 800 N/mm²		
	1.3	Hardened steel, non alloyed	< 800 N/mm²		
	1.4	Alloyed hardened steel	< 1000 N/mm²	250	
	1.5	Tempering steel, unalloyed	< 850 N/mm²		
	1.6	Tempering steel, unalloyed	< 1000 N/mm²		
	1.7	Tempering steel, alloyed	< 800 N/mm²	220	
	1.8	Tempering steel, alloyed	< 1300 N/mm²	180	
	1.9	Steel castings	< 850 N/mm²	250	
	1.10	Nitriding steel	< 1000 N/mm²	220	
	1.11	Nitriding steel	< 1200 N/mm²	180	
	1.12	Roller bearing steel	< 1200 N/mm²	250	
	1.13	Spring steel	< 1200 N/mm²	250	
	1.14	High-speed steel	< 1300 N/mm²	120	
	1.15	Cold working tool steel	< 1300 N/mm²	220	
	1.16	Hot working tool steel	< 1300 N/mm²	160	
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	240	
	2.2	Stainless steel, ferritic	< 750 N/mm²	240	
	2.3	Stainless steel, martensitic	< 900 N/mm²	260	
	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	280	
	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²	180	160
	2.6	Stainless steel, austenitic	< 750 N/mm²	200	180
	2.7	Heat resistant steel	< 1100 N/mm²	150	130
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²		
	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²		
	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²		
	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²		
	3.5	White malleable cast iron	270–450 N/mm²		
	3.6	White malleable cast iron	500–650 N/mm²		
	3.7	Black malleable cast iron	300–450 N/mm²		
	3.8	Black malleable cast iron	500–800 N/mm²		
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²		
	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²		
	4.3	Aluminium alloy 0.5–10 % Si	< 400 N/mm²		
	4.4	Aluminium alloys 10–15 % Si	< 400 N/mm²		
	4.5	Aluminum alloys > 15 % Si	< 400 N/mm²		
	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²		
	4.7	Copper wrought alloys	< 700 N/mm²		
	4.8	Special copper alloys	< 200 HB		
	4.9	Special copper alloys	< 300 HB		
	4.10	Special copper alloys	> 300 HB		
	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²		
	4.12	Long-chipping brass	< 600 N/mm²		
	4.13	Thermoplastics			
	4.14	Duroplastics			
	4.15	Fibre-reinforced plastics			
	4.16	Magnesium and magnesium alloys	< 850 N/mm²		
	4.17	Graphite			
	4.18	Tungsten and tungsten alloys			
	4.19	Molybdenum and molybdenum alloys			
S	5.1	Pure nickel			50
	5.2	Nickel alloys			40
	5.3	Nickel alloys	< 850 N/mm²		40
	5.4	Nickel molybdenum alloys			30
	5.5	Nickel-chromium alloys	< 1300 N/mm²		30
	5.6	Cobalt Chrome Alloys	< 1300 N/mm²		30
	5.7	Heat resistant alloys	< 1300 N/mm²		30
	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²		30
	5.9	Pure titanium	< 900 N/mm²		
	5.10	Titanium alloys	< 700 N/mm²		
	5.11	Titanium alloys	< 1200 N/mm²		
H	6.1	Tempered steel	< 45 HRC		
	6.2		46–55 HRC		
	6.3		56–60 HRC		
	6.4		61–65 HRC		
	6.5		65–70 HRC		

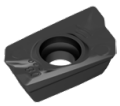
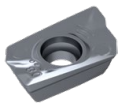
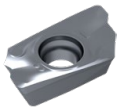
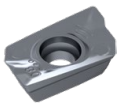
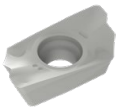
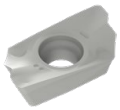
XDKT

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
XDKT 200708..	12,5	5,5	18,8	-	6,93
XDKT 200708..	12,5	5,5	18,8	2,66	6,93
XDKT 200716..	12,5	5,5	18,8	1,56	6,89
XDKT 200732..	12,5	5,5	18,8	0,9	6,82
XDKT 200740..	12,5	5,5	18,8	2,2	6,80
XDKT 200760..	12,5	5,5	18,8	-	6,80



XDKT

XDKT

ISO	RE	-M50 CTCP230	-M50 CTPP235	-F40 CTPM245	-M50 CTPK220	-F40 CTC5240	-F40 CTCS245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		XDKT	XDKT	XDKT	XDKT	XDKT	XDKT
		NEW	NEW	NEW	NEW	NEW	NEW
		Article no. 51 145 ...	Article no. 51 145 ...	Article no. 51 127 ...	Article no. 51 145 ...	Article no. 51 127 ...	Article no. 51 127 ...
	mm						
200708ER	0,8	00800	10800	45800	60800	15800	55800
200716ER	1,6	01600	11600	46600	61600	16600	56600
200732ER	3,2			48200		18200	58200
200740ER	4,0					19000	
200760ER	6,0					19200	
Steel		●	●	●	○		
Stainless steel		○	○	●			
Cast iron					●		
Non ferrous metals							
Heat resistant alloys						●	●
Hardened materials							

Milling guide

Matching milling cutters can be found in the main catalogue in Chapter 15 → **Milling tools with indexable inserts Page 72**

System MaxiMill 211-20

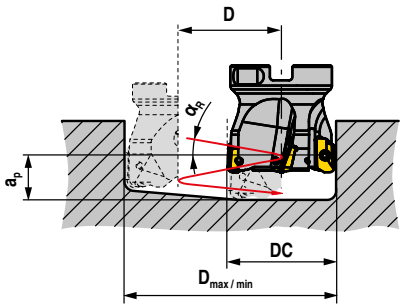
Cutting data recommendations/Technology data

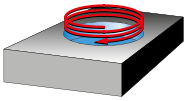
for standard inserts

Material	F			M			R		
	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm
Steel	50–280	0,1–0,3	18	50–280	0,1–0,3	18	50–280	0,1–0,3	18
Stainless steel	130–280	0,08–0,2	18	130–280	0,08–0,2	18	130–280	0,08–0,2	18
Cast iron	80–320	0,1–0,25	18	80–320	0,1–0,25	18	80–320	0,1–0,25	18
Non ferrous metals									
Heat resistant	30–80	0,08–0,2	18	30–80	0,08–0,2	18	30–80	0,08–0,2	18
hardened materials									

Machining strategy

Helical plunge milling

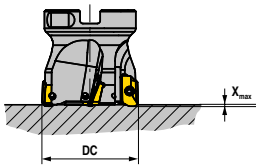


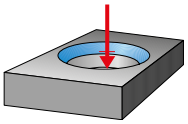


DC mm	D_{max} / RE 0,4 mm	D_{min} mm	$\alpha_{R\,max}$ °
63	124	107	2,2
80	158	143	1,7
100	198	183	1,3

a_p in mm $= D * \pi * \tan \alpha_R$

Axial plunging

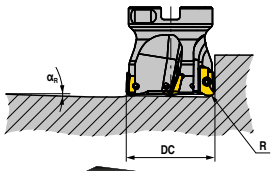


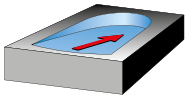


DC mm	X_{max} mm
63	2,0
80	2,0
100	2,0

$D_{max.}$ in mm = largest diameter for flat bottom hole
$D_{min.}$ in mm = smallest hole diameter for flat bottom surface

Angled ramping

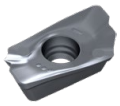




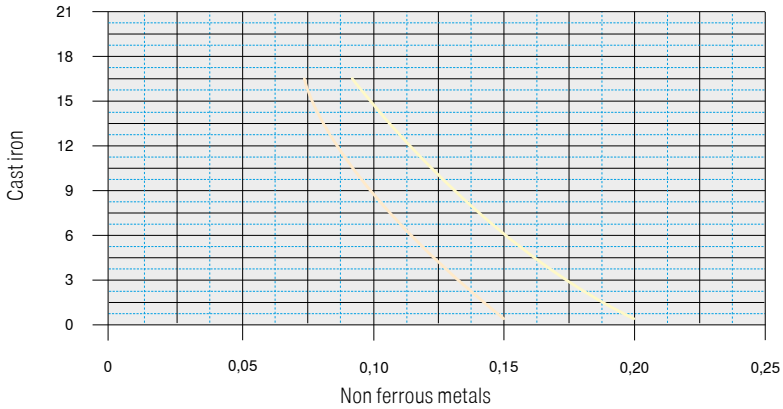
DC mm	α °
63	2,2
80	1,7
100	1,3

$D = D_{max} - DC / D_{min} - DC$

Starting Parameter



XDKT 20



Index	Material			Inserts		v_c in m/min	Cooling
1.15	Steel	1.2312	40CrMnMoS 8-6				
2.6	Stainless steel	1.4571	X6CrNiMoTi 1712 2	XDKT200708ER-F40	CTPM240	180	Dry
3.1	Cast iron	5.1301	EN-GJL-250 (GG25)				
5.8	Non ferrous metals	2.4856	Inconel 718	XDKT200708ER-F40	CTC5240	35	Emulsion

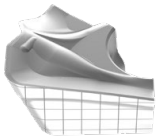
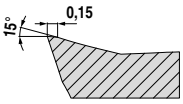
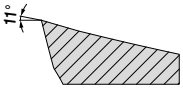
From v_c > 400 m/min, the tool must be balanced!

Cutting data standard values

	Index	Material	Strength N/mm² / HB / HRC	Cutting Material hard (v_c↑) → tough (v_c↓)											
				DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
				CTCP230		CTPP235		CTPM245		CTPK220		CTC5240		CTCS245	
P	1.1	General construction steel	< 800 N/mm²	**280**	170	**240**	140			300	180				
P	1.2	Free cutting steel	< 800 N/mm²	**230**	140	**190**	110			250	150				
P	1.3	Hardened steel, non alloyed	< 800 N/mm²	**280**	170	**240**	140			300	180				
P	1.4	Alloyed hardened steel	< 1000 N/mm²	**250**	150	**220**	130	**250**							
P	1.5	Tempering steel, unalloyed	< 850 N/mm²	**250**	150	**210**	130			270	160				
P	1.6	Tempering steel, unalloyed	< 1000 N/mm²	**250**	150	**210**	130			270	160				
P	1.7	Tempering steel, alloyed	< 800 N/mm²	**250**	150	**220**	130	**220**							
P	1.8	Tempering steel, alloyed	< 1300 N/mm²	**190**	110	**160**	100	**180**							
P	1.9	Steel castings	< 850 N/mm²	**230**	140	**200**	120	**250**		260	160				
P	1.10	Nitriding steel	< 1000 N/mm²	**250**	150	**220**	130	**220**							
P	1.11	Nitriding steel	< 1200 N/mm²	**140**	90	**120**	70	**180**							
P	1.12	Roller bearing steel	< 1200 N/mm²	**250**	150	**220**	130	**250**							
P	1.13	Spring steel	< 1200 N/mm²	**250**	150	**210**	130	**250**		270	160				
P	1.14	High-speed steel	< 1300 N/mm²	**100**	60	**90**	50	**120**							
P	1.15	Cold working tool steel	< 1300 N/mm²	**130**	80	**110**	70	**220**							
P	1.16	Hot working tool steel	< 1300 N/mm²	**130**	80	**110**	70	**160**							
M	2.1	Cast steel and sulphured stainless steel	< 850 N/mm²	90	60	80	50	**240**							
M	2.2	Stainless steel, ferritic	< 750 N/mm²	130	80	110	70	**240**							
M	2.3	Stainless steel, martensitic	< 900 N/mm²	90	60	80	50	**260**							
M	2.4	Stainless steel, ferritic / martensitic	<1100 N/mm²	130	80	110	70	**280**							
M	2.5	Stainless steel, austenitic / ferritic	< 850 N/mm²			190	110	**180**	160						
M	2.6	Stainless steel, austenitic	< 750 N/mm²			190	110	**200**	180						
M	2.7	Heat resistant steel	< 1100 N/mm²			190	110	**150**	130						
K	3.1	Grey cast iron with lamellar graphite	100–350 N/mm²							**320**	160				
K	3.2	Grey cast iron with lamellar graphite	300–500 N/mm²							**320**	160				
K	3.3	Gray cast iron with spheroidal graphite	300–500 N/mm²							**210**	130				
K	3.4	Gray cast iron with spheroidal graphite	500–900 N/mm²							**140**	80				
K	3.5	White malleable cast iron	270–450 N/mm²							**200**	120				
K	3.6	White malleable cast iron	500–650 N/mm²							**200**	120				
K	3.7	Black malleable cast iron	300–450 N/mm²							**170**	100				
K	3.8	Black malleable cast iron	500–800 N/mm²							**170**	100				
N	4.1	Aluminium (non alloyed, low alloyed)	< 350 N/mm²												
N	4.2	Aluminium alloys < 0.5 % Si	< 500 N/mm²												
N	4.3	Aluminium alloy 0.5–10 % Si	< 400 N/mm²												
N	4.4	Aluminium alloys 10–15 % Si	< 400 N/mm²												
N	4.5	Aluminum alloys > 15 % Si	< 400 N/mm²												
N	4.6	Copper (non alloyed, low alloyed)	< 350 N/mm²												
N	4.7	Copper wrought alloys	< 700 N/mm²												
N	4.8	Special copper alloys	< 200 HB												
N	4.9	Special copper alloys	< 300 HB												
N	4.10	Special copper alloys	> 300 HB												
N	4.11	Short-chipping brass, bronze, red bronze	< 600 N/mm²												
N	4.12	Long-chipping brass	< 600 N/mm²												
N	4.13	Thermoplastics													
N	4.14	Duroplastics													
N	4.15	Fibre-reinforced plastics													
N	4.16	Magnesium and magnesium alloys	< 850 N/mm²												
N	4.17	Graphite													
N	4.18	Tungsten and tungsten alloys													
N	4.19	Molybdenum and molybdenum alloys													
S	5.1	Pure nickel											**50**		**30–50**
S	5.2	Nickel alloys											**50**		**30–50**
S	5.3	Nickel alloys	< 850 N/mm²										**50**		**30–50**
S	5.4	Nickel molybdenum alloys											**40**		**30–50**
S	5.5	Nickel-chromium alloys	< 1300 N/mm²										**40**		**30–50**
S	5.6	Cobalt Chrome Alloys	< 1300 N/mm²										**40**		**30–50**
S	5.7	Heat resistant alloys	< 1300 N/mm²										**40**		**30–50**
S	5.8	Nickel-cobalt-chromium alloys	< 1400 N/mm²										**40**		**30–50**
S	5.9	Pure titanium	< 900 N/mm²										**90**		
S	5.10	Titanium alloys	< 700 N/mm²										**60**		
S	5.11	Titanium alloys	< 1200 N/mm²										**60**		
H	6.1	Tempered steel	< 45 HRC												
H	6.2		46–55 HRC												
H	6.3		56–60 HRC												
H	6.4		61–65 HRC												
H	6.5		65–70 HRC												

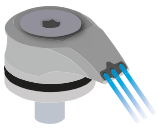
System MaxiMill 211-20

Chip Breakers Overview

	Model	Machining			Sectional illustration	f_z in mm
		fine	Medium	rough		
-M50 ▲ Universal Geometry ▲ Medium to heavy rough machining ▲ First choice for general steel materials			**CTCP230**/CTPP235	CTCP230/CTPP235		0,10–0,25
			CTPK220	**CTPK220**		
-F40 ▲ Positive Geometry ▲ Finishing and rough machining ▲ For unstable workholding ▲ For heat resistant materials, titanium and super alloys			CTPM245	**CTPM245**		0,05–0,15
		CTC5240/CTCS245	**CTC5240/CTCS245**	**CTC5240/CTCS245**		

Variable tool holder systems

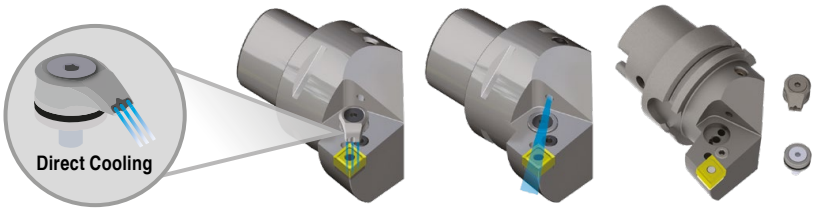
High-performance cooling



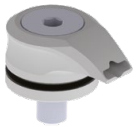
- For efficient turning
- Optimum cooling thanks to precisely aligned **direct cooling** nozzles
- Improved chip control
- Improved machining reliability
- Increased material removal
- Shorter machining times

Tool holder

All tool holders marked with **direct cooling** in the product tables can be equipped for high-performance cooling.



Using the DC kit blocks the other outlet of the coolant so that all of the pressure is concentrated through the DC kit.



The high-performance coolant set includes:

- Direct cooling nozzle
- O ring

Cooling and clamping systems

- Clamping system: The indexable insert is clamped by means of **type S** screw clamping.
- Cooling system: Tool holders for positive inserts have an aligned coolant nozzle.

- Clamping system: The indexable insert is clamped by means of **type D** double clamping.
- Cooling system: Tool holders with double clamping have an adjustable high-pressure cooling nozzle.

- Clamping system: The indexable insert is clamped by means of **type P** lever clamping.
- Cooling system: Tool holders with lever clamping have an aligned coolant nozzle.

Toolholder – PWLN 95°/80°

Scope of supply:
without high-performance coolant set

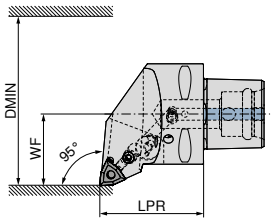


Diagram shows right hand version

ISO designation	Adapter	LPR mm	WF mm	DMIN mm	Insert	Direct cooling compatible	Left-hand NEW Article no. 84 653 ...	Right-hand NEW Article no. 84 652 ...
PSC40 PWLN R/L 50050-08	PSC 40	50	27	50	WN.. 0804	DC	00895	00895
PSC50 PWLN R/L 65060-08	PSC 50	60	35	65	WN.. 0804	DC	00894	00894
PSC63 PWLN R/L 80065-08	PSC 63	65	45	80	WN.. 0804	DC	00893	00893

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 143**.

Shim

Elbow lever screw

Lever

Carbide seat

Spare parts	Shim Article no. 84 950 ...		Elbow lever screw Article no. 84 950 ...	Lever Article no. 84 950 ...	Carbide seat Article no. 84 950 ...
Adapter					
PSC 40	29200	M8X1/L17 SW3	28700	28900	27700
PSC 50	29200	M8X1/L17 SW3	28700	28900	27700
PSC 63	29200	M8X1/L17 SW3	28700	28900	27700

Toolholder – SCLC 95°/80°

Scope of supply:
without high-performance coolant set

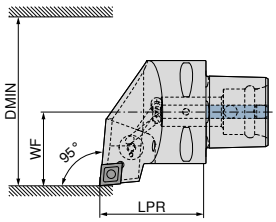


Diagram shows right hand version

ISO designation	Adapter	LPR mm	WF mm	DMIN mm	Insert	Direct cooling compatible	Left-hand NEW Article no. 84 655 ...	Right-hand NEW Article no. 84 654 ...
PSC40 SCLC R/L 50050-12	PSC 40	50	27	50	CC.. 1204	DC	01295	01295
PSC50 SCLC R/L 65060-12	PSC 50	60	35	65	CC.. 1204	DC	01294	01294
PSC63 SCLC R/L 80065-12	PSC 63	65	45	80	CC.. 1204	DC	01293	01293

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 143**.

Clamping screw

Spare parts	Clamping screw Article no. 84 950 ...
Adapter	
PSC 40	27500
PSC 50	27500
PSC 63	27500

Toolholder – PCLN 95°/80°

Scope of supply:
without high-performance coolant set

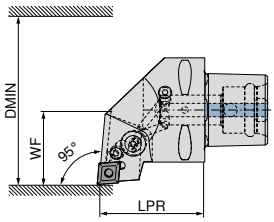
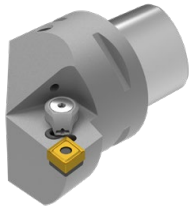


Diagram shows right hand version



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	Insert	Direct cooling compatible	Left-hand NEW Article no. 84 657 ...	Right-hand NEW Article no. 84 656 ...
PSC40 PCLN R/L 50050-12	PSC 40	50	27	50	CN.. 1204	DC	01295	01295
PSC50 PCLN R/L 65060-12	PSC 50	60	35	65	CN.. 1204	DC	01294	01294
PSC63 PCLN R/L 80065-12	PSC 63	65	45	80	CN.. 1204	DC	01293	01293

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 143**.

Shim

Elbow lever screw

Lever

Carbide seat

Spare parts	Shim Article no. 84 950 ...		Elbow lever screw Article no. 84 950 ...	Lever Article no. 84 950 ...	Carbide seat Article no. 84 950 ...
Adapter					
PSC 40	29200	M8X1/L17 SW3	28700	29000	27800
PSC 50	29200	M8X1/L17 SW3	28700	29000	27800
PSC 63	29200	M8X1/L17 SW3	28700	29000	27800

Toolholder – SDUC 93°/55°

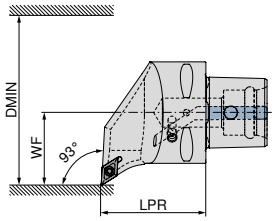
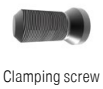


Diagram shows right hand version

ISO designation	Adapter	LPR mm	WF mm	DMIN mm	Insert	Left-hand NEW Article no. 84 659 ...	Right-hand NEW Article no. 84 658 ...
PSC40 SDUC R/L 50050-11	PSC 40	50	27	50	DC.. 11T3	01195	01195
PSC50 SDUC R/L 65060-11	PSC 50	60	35	65	DC.. 11T3	01194	01194
PSC63 SDUC R/L 80065-11	PSC 63	65	45	80	DC.. 11T3	01193	01193


Clamping screw

Spare parts	Clamping screw Article no. 84 950 ...
Adapter	
PSC 40	27600
PSC 50	27600
PSC 63	27600

Toolholder – PDUN 93°/55°

Scope of supply:
without high-performance coolant set

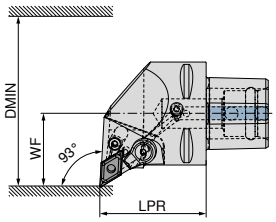
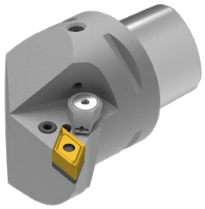


Diagram shows right hand version



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	Insert	Direct cooling compatible	Left-hand NEW Article no. 84 661 ...	Right-hand NEW Article no. 84 660 ...
PSC40 PDUN R/L 50050-15	PSC 40	50	27	50	DN.. 1506	DC	01595	01595
PSC50 PDUN R/L 65060-15	PSC 50	60	35	65	DN.. 1506	DC	01594	01594
PSC63 PDUN R/L 80065-15	PSC 63	65	45	80	DN.. 1506	DC	01593	01593

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 143**.

Shim

Elbow lever screw

Lever

Carbide seat

Spare parts	Shim Article no. 84 950 ...		Elbow lever screw Article no. 84 950 ...	Lever Article no. 84 950 ...	Carbide seat Article no. 84 950 ...
Adapter					
PSC 40	29200	M8X1/L17 SW3	28700	28900	27900
PSC 50	29200	M8X1/L17 SW3	28700	28900	27900
PSC 63	29200	M8X1/L17 SW3	28700	28900	27900

Toolholder – SDJC 93°/55°

Scope of supply:
without high-performance coolant set

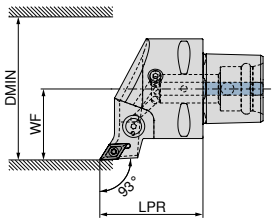


Diagram shows right hand version

ISO designation	Adapter	LPR mm	WF mm	DMIN mm	Insert	Direct cooling compatible	Left-hand NEW Article no. 84 663 ...	Right-hand NEW Article no. 84 662 ...
PSC40 SDJC R/L 50050-11	PSC 40	50	27	50	DC.. 11T3	DC	01195	01195
PSC50 SDJC R/L 65060-11	PSC 50	60	35	65	DC.. 11T3	DC	01194	01194
PSC63 SDJC R/L 80065-11	PSC 63	65	45	80	DC.. 11T3	DC	01193	01193

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 143**.

Clamping screw

Spare parts	Clamping screw Article no. 84 950 ...
Adapter	
PSC 40	27600
PSC 50	27600
PSC 63	27600

Toolholder – PDJN 93°/55°

Scope of supply:
without high-performance coolant set

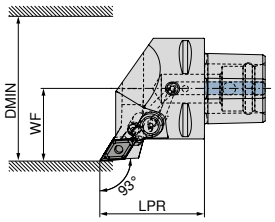
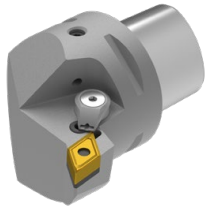


Diagram shows right hand version



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	Insert	Direct cooling compatible	Left-hand NEW Article no. 84 665 ...	Right-hand NEW Article no. 84 664 ...
PSC40 PDJN R/L 50050-15	PSC 40	50	27	50	DN.. 1506	DC	**01595**	**01595**
PSC50 PDJN R/L 65060-15	PSC 50	60	35	65	DN.. 1506	DC	**01594**	**01594**
PSC63 PDJN L 80065-15	PSC 63	65	45	80	DN.. 1506	DC	**01593**	
PSC63 PDJNR R 80065-15	PSC 63	65	45	80	DN.. 1506	DC		**01593**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 143**.

Spare parts	Shim Article no. 84 950 ...		Elbow lever screw Article no. 84 950 ...	Lever Article no. 84 950 ...	Carbide seat Article no. 84 950 ...
Adapter					
PSC 40	**29200**	M8X1/L17 SW3	**28700**	**28900**	**27900**
PSC 50	**29200**	M8X1/L17 SW3	**28700**	**28900**	**27900**
PSC 63	**29200**	M8X1/L17 SW3	**28700**	**28900**	**27900**

Toolholder – SDHC 107,5°/55°

Scope of supply:
without high-performance coolant set

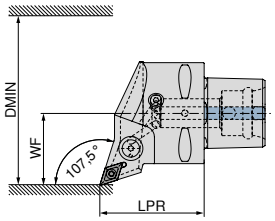


Diagram shows right hand version

ISO designation	Adapter	LPR mm	WF mm	DMIN mm	Insert	Direct cooling compatible	Left-hand NEW Article no. 84 667 ...	Right-hand NEW Article no. 84 666 ...
PSC40 SDHC R/L 50050-11	PSC 40	50	27	50	DC.. 11T3	DC	**01195**	**01195**
PSC50 SDHC R/L 65060-11	PSC 50	60	35	65	DC.. 11T3	DC	**01194**	**01194**
PSC63 SDHC R/L 80065-11	PSC 63	65	45	80	DC.. 11T3	DC	**01193**	**01193**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 143**.

Spare parts	Clamping screw Article no. 84 950 ...
Adapter	
PSC 40	**27600**
PSC 50	**27600**
PSC 63	**27600**

Toolholder – PDHN 107,5°/55°

Scope of supply:
without high-performance coolant set

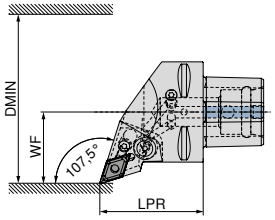
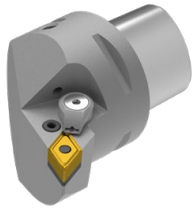


Diagram shows right hand version



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	Insert	Direct cooling compatible	Left-hand NEW Article no. 84 669 ...	Right-hand NEW Article no. 84 668 ...
PSC40 PDHN R/L 50050-15	PSC 40	50	27	50	DN.. 1506		01595	01595
PSC50 PDHN R/L 65060-15	PSC 50	60	35	65	DN.. 1506	DC	01594	01594
PSC63 PDHN R/L 80065-15	PSC 63	65	45	80	DN.. 1506	DC	01593	01593

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 143**.

Spare parts	Shim	Elbow lever screw	Lever	Carbide seat
	Article no. 84 950 ...	Article no. 84 950 ...	Article no. 84 950 ...	Article no. 84 950 ...
Adapter				
PSC 40	29200	M8X1/L17 SW3 28700	28900	27900
PSC 50	29200	M8X1/L17 SW3 28700	28900	27900
PSC 63	29200	M8X1/L17 SW3 28700	28900	27900

Toolholder – SVPC 117,5°/35°

Scope of supply:
without high-performance coolant set

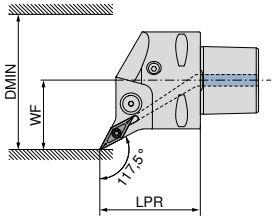


Diagram shows right hand version

ISO designation	Adapter	LPR mm	WF mm	DMIN mm	Insert	Direct cooling compatible	Left-hand NEW Article no. 84 671 ...	Right-hand NEW Article no. 84 670 ...
PSC40 SVPC R/L 50050-16	PSC 40	50	27	50	VC.. 1604	DC	01695	01695
PSC50 SVPC R/L 65060-16	PSC 50	60	35	65	VC.. 1604	DC	01694	01694
PSC63 SVPC R/L 80065-16	PSC 63	65	45	80	VC.. 1604	DC	01693	01693

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 143**.

Spare parts	Clamping screw
	Article no. 84 950 ...
Adapter	
PSC 40	27600
PSC 50	27600
PSC 63	27600

Toolholder – DVPN 117,5°/35°

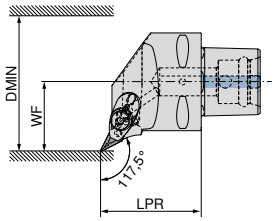


Diagram shows right hand version

ISO designation	Adapter	LPR mm	WF mm	DMIN mm	Insert	Left-hand NEW Article no. 84 673 ...	Right-hand NEW Article no. 84 672 ...
PSC40 DVPN R/L 50050-16	PSC 40	50	27	50	VN.. 1604	01695	01695
PSC50 DVPN R/L 65060-16	PSC 50	60	35	65	VN.. 1604	01694	01694
PSC63 DVPN R/L 80065-16	PSC 63	65	45	80	VN.. 1604	01693	01693

Clamping claw

Ring-shaped nozzle

Clamping Screw

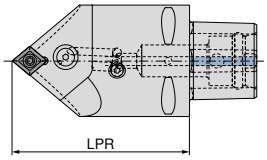
Clamping screw

Carbide seat

Spare parts Adapter	Article no. 84 950 ... Clamping claw	Article no. 84 950 ... Ring-shaped nozzle		Article no. 84 950 ... Clamping Screw	Article no. 84 950 ... Clamping screw	Article no. 84 950 ... Carbide seat
PSC 40	28500	28400	M6X28 SW4	28300	27600	28000
PSC 50	28500	28400	M6X28 SW4	28300	27600	28000
PSC 63	28500	28400	M6X28 SW4	28300	27600	28000

Toolholder –SCMC 50°/80°/50°

Scope of supply:
without high-performance coolant set



ISO designation	Adapter	LPR mm	Insert	Direct cooling compatible	Neutral NEW Article no. 84 674 ...
PSC63 SCMC N 0100-12	PSC 63	100	CC.. 1204	DC	01293
PSC63 SCMC N 0130-12	PSC 63	130	CC.. 1204	DC	11293

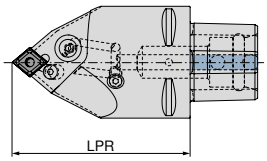
The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 143**.

Clamping screw

Spare parts Adapter	Article no. 84 950 ... Clamping screw
PSC 63	27500

Toolholder – PCMN 50°/80°/50°

Scope of supply:
without high-performance coolant set



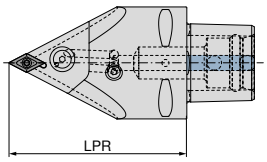
ISO designation	Adapter	LPR mm	Insert	Direct cooling compatible	Neutral NEW Article no. 84 675 ...
PSC63 PCMN N 0100-12	PSC 63	100	CN.. 1204	DC	**01293**
PSC63 PCMN N 0130-12	PSC 63	130	CN.. 1204	DC	**11293**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 143**.

Spare parts	Shim		Elbow lever screw	Lever	Carbide seat
	Article no. 84 950 ...		Article no. 84 950 ...	Article no. 84 950 ...	Article no. 84 950 ...
Adapter					
PSC 63	**29200**	M8X1/L17 SW3	**28700**	**29000**	**27800**

Toolholder – SDNC 62,5°/55°/62,5°

Scope of supply:
without high-performance coolant set



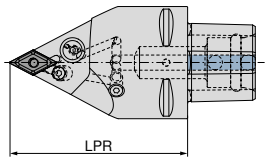
ISO designation	Adapter	LPR mm	Insert	Direct cooling compatible	Neutral NEW Article no. 84 677 ...
PSC63 SDNC N 0100-11	PSC 63	100	DC.. 11T3	DC	**01193**
PSC63 SDNC N 0130-11	PSC 63	130	DC.. 11T3	DC	**11193**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 143**.

Spare parts	Clamping claw	Ring-shaped nozzle		Clamping Screw	Clamping screw	Carbide seat
	Article no. 84 950 ...	Article no. 84 950 ...		Article no. 84 950 ...	Article no. 84 950 ...	Article no. 84 950 ...
Adapter						
PSC 63	**28600**	**28400**	M6X28 SW4	**28300**	**27500**	**27900**

Toolholder – PDNN 62,5°/55°/62,5°

Scope of supply:
without high-performance coolant set



ISO designation	Adapter	LPR mm	Insert	Direct cooling compatible	Neutral NEW Article no. 84 676 ...
PSC63 PDNN N 0100-15	PSC 63	100	DN.. 1506	DC	**01593**
PSC63 PDNN N 0130-15	PSC 63	130	DN.. 1506	DC	**11593**

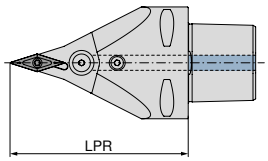
The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 143**.

Clamping screw

Spare parts	Article no. 84 950 ...
Adapter	
PSC 63	**27600**

Toolholder – SVVC 72,5°/35°/72,5°

Scope of supply:
without high-performance coolant set



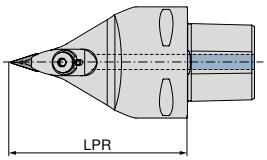
ISO designation	Adapter	LPR mm	Insert	Direct cooling compatible	Neutral NEW Article no. 84 678 ...
PSC63 SVVC N 0100-16	PSC 63	100	VC.. 1604	DC	**01693**
PSC63 SVVC N 0130-16	PSC 63	130	VC.. 1604	DC	**11693**

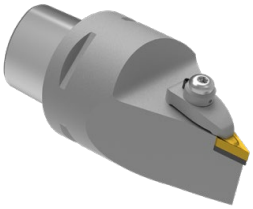
The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 143**.

Clamping screw

Spare parts	Article no. 84 950 ...
Adapter	
PSC 63	**27600**

Toolholder – DVVN 72,5°/35°/72,5°



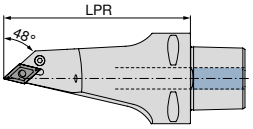


ISO designation	Adapter	LPR mm	Insert	Neutral NEW Article no. 84 679 ...
PSC63 DVVN N 0100-16	PSC 63	100	VN.. 1604	**01693**
PSC63 DVVN N 0130-16	PSC 63	130	VN.. 1604	**11693**

Spare parts	Clamping claw	Ring-shaped nozzle		Clamping Screw	Clamping screw	Carbide seat
	Article no. 84 950 ...	**Article no. 84 950 ...**		**Article no. 84 950 ...**	**Article no. 84 950 ...**	**Article no. 84 950 ...**
Adapter						
PSC 63	**28500**	**28400**	M6X28 SW4	**28300**	**27600**	**28000**

Toolholder – PDMN 48°/55°

Scope of supply:
without high-performance coolant set



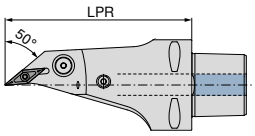
ISO designation	Adapter	LPR mm	Insert	Direct cooling compatible	Neutral NEW Article no. 84 680 ...
PSC63 PDMN L 0130-15	PSC 63	130	DN.. 1506	DC	**11593**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 143**.

Spare parts	Clamping screw
	Article no. 84 950 ...
Adapter	
PSC 63	**27600**

Toolholder – SVMC 50°/35°

Scope of supply:
without high-performance coolant set

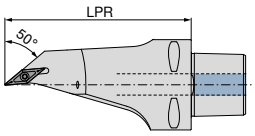


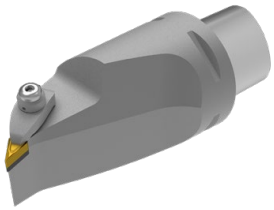
ISO designation	Adapter	LPR mm	Insert	Direct cooling compatible	Neutral NEW Article no. 84 681 ...
PSC63 SVMC L 0130-16	PSC 63	130	VC.. 1604	DC	**11693**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 143**.

Spare parts	Clamping screw Article no. 84 950 ...
Adapter	
PSC 63	**27600**

Toolholder – DVMN 50°/35°

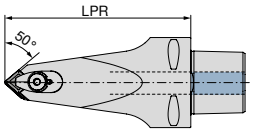


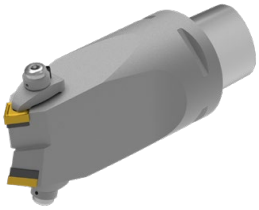


ISO designation	Adapter	LPR mm	Insert	Neutral NEW Article no. 84 682 ...
PSC63 DVMN L 0130-16	PSC 63	130	VN.. 1604	**01693**

Spare parts	Shim Article no. 84 950 ...		Elbow lever screw Article no. 84 950 ...	Lever Article no. 84 950 ...	Carbide seat Article no. 84 950 ...
Adapter					
PSC 63	**29300**	M6/ L14 SW2,5	**28800**	**29100**	**28100**

Toolholder DCMN – DDMN 50°/48°





ISO designation	Adapter	LPR mm	Insert	Neutral NEW Article no. 84 683 ...
PSC63 DCMN-DDMN L 0130-12/15	PSC 63	130	CN.. 1204 / DN.. 1506	**01293**

Spare parts	Clamping claw Article no. 84 950 ...	Ring-shaped nozzle Article no. 84 950 ...		Clamping Screw Article no. 84 950 ...	Clamping screw Article no. 84 950 ...	Carbide seat Article no. 84 950 ...
Adapter						
PSC 63	**28500**	**28400**	M6X28 SW4	**28300**	**27500**	**27800**

High-performance coolant set

▲ Using the DC kit blocks the other outlet of the coolant so that all of the pressure is concentrated through the DC kit.

Scope of supply:

Direct cooling nozzle and O-ring

	Article no. 84 950 ...
Coolant set	**27400**

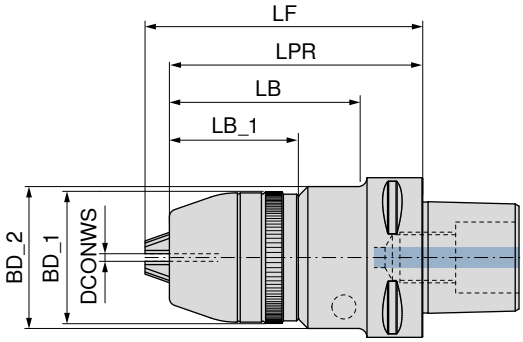
Short drill chuck

- ▲ Independent of direction of rotation
- ▲ Torque Moment = 12 Nm

Scope of supply:

Toolholder including clamping key SW4

NC 2010



AD
G 2,5 n_{max} 12000

Adapter	DCONWS	BD_1	BD_2	LB_1	LB	LPR	LF	NEW Article no. 84 111 ...
	mm	mm	mm	mm	mm	mm	mm	
PSC 40	0,5 - 13	49,5	56	50,9	79,0	109	100	**01395**
PSC 40	2,5 - 16	52,0	56	50,9	79,0	109	100	**01695**
PSC 50	0,5 - 13	49,5	56	50,9	79,0	109	100	**01394**
PSC 50	2,5 - 16	52,0	56	50,9	79,0	109	100	**01694**
PSC 63	0,5 - 13	49,5	56	50,9	74,5	109	100	**01393**
PSC 63	2,5 - 16	52,0	56	50,9	74,5	109	100	**01693**

Can be used with G 2.5 to 30,000 1/min by subsequent balancing !

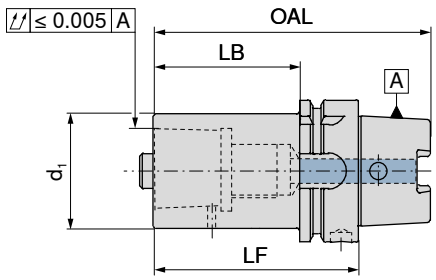
Accessories

Others
→ Chapter 17 in main catalogue

HSK-A/PSC adapter

▲ for mounting PSC adapters according to ISO 26623-1

Scope of supply:
with tightening screw



AD

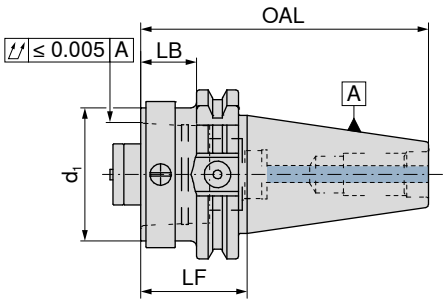
Adapter	d_1	OAL	LF	LB	NEW Article no. 84 013 ...
		mm	mm	mm	
HSK-A 63	PSC 32	107	70	49	**06387**
HSK-A 63	PSC 40	112	80	54	**06395**
HSK-A 63	PSC 50	122	90	64	**06394**
HSK-A 100	PSC 32	130	80	51	**10087**
HSK-A 100	PSC 40	140	90	61	**10095**
HSK-A 100	PSC 50	150	100	71	**10094**
HSK-A 100	PSC 63	160	110	81	**10093**
HSK-A 100	PSC 80	170	120	91	**10086**

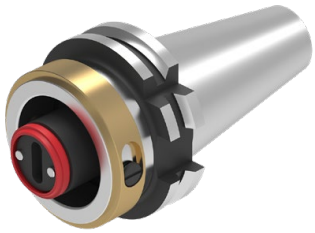
Spare parts DCONWS	Threaded ring **Article no. 84 950 ...**		tightening screw **Article no. 84 950 ...**
32	**127**	SW8	**122**
40	**128**	SW8	**123**
50	**129**	SW10	**124**
63	**130**	SW14	**126**
80	**130**	SW14	**126**

SK/HSK-A adapter

▲ for mounting HSK-A adapters according to ISO 12164

Scope of supply:
with clamping cartridge and cover ring





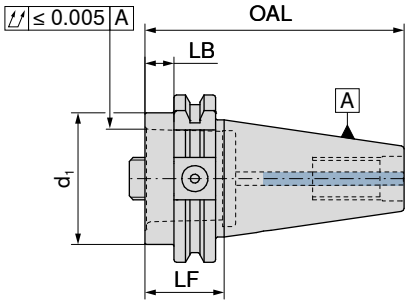
AD

Adapter	d_1	OAL	LB	LF	NEW Article no. 84 014 ...
		mm	mm	mm	
SK 40	HSK-A 32	108,40	20,9	40	**04060**
SK 40	HSK-A 40	108,40	20,9	40	**04059**
SK 40	HSK-A 50	108,40	20,9	40	**04058**
SK 40	HSK-A 63	148,40	60,9	80	**04057**
SK 50	HSK-A 100	201,75	80,9	100	**05055**
SK 50	HSK-A 32	141,75	20,9	40	**05060**
SK 50	HSK-A 40	141,75	20,9	40	**05059**
SK 50	HSK-A 50	141,75	20,9	40	**05058**
SK 50	HSK-A 63	141,75	20,9	40	**05057**

SK/PSC adapter

▲ for mounting PSC adapters according to ISO 26623-1

Scope of supply:
with tightening screw



AD

Adapter	d_1	OAL	LB	LF	NEW Article no. 84 015 ...
		mm	mm	mm	
SK 40	PSC 32	98,40	10,9	30	**04087**
SK 40	PSC 40	98,40	10,9	30	**04095**
SK 40	PSC 50	98,40	10,9	30	**04094**
SK 40	PSC 63	153,40	65,9	85	**04093**
SK 50	PSC 32	131,75	10,9	30	**05087**
SK 50	PSC 40	131,75	10,9	30	**05095**
SK 50	PSC 50	131,75	10,9	30	**05094**
SK 50	PSC 63	131,75	10,9	30	**05093**
SK 50	PSC 80	171,75	50,9	70	**05086**

Threaded ring

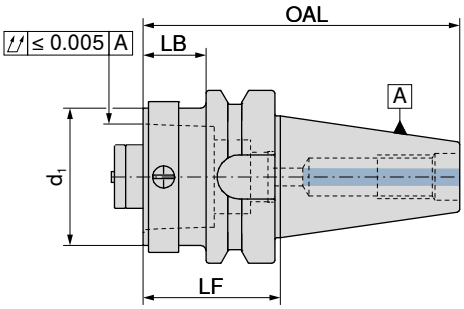
tightening screw

Spare parts DCONWS	Article no. 84 950 ...		Article no. 84 950 ...
32	**127**	SW8	**122**
40	**128**	SW8	**123**
50	**129**	SW10	**124**
63	**130**	SW14	**126**
80	**130**	SW14	**126**

BT/HSK-A adapter

▲ for mounting HSK-A adapters according to ISO 12164

Scope of supply:
with clamping cartridge and cover ring



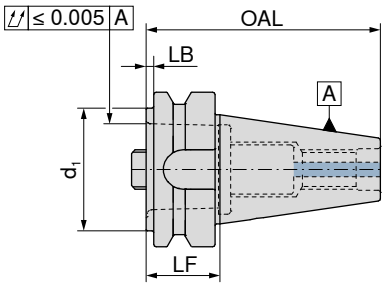
AD

Adapter	d_1	OAL mm	LB mm	LF mm	NEW Article no. 84 016 ...
BT 40	HSK-A 32	105,4	13	40	**04060**
BT 40	HSK-A 40	105,4	13	40	**04059**
BT 40	HSK-A 50	115,4	23	50	**04058**
BT 40	HSK-A 63	135,4	43	70	**04057**
BT 50	HSK-A 100	191,8	52	90	**05055**
BT 50	HSK-A 32	151,8	12	50	**05060**
BT 50	HSK-A 40	151,8	12	50	**05059**
BT 50	HSK-A 50	161,8	22	60	**05058**
BT 50	HSK-A 63	161,8	22	60	**05057**

BT/PSC adapter

▲ for mounting PSC adapters according to ISO 26623-1

Scope of supply:
with tightening screw



AD

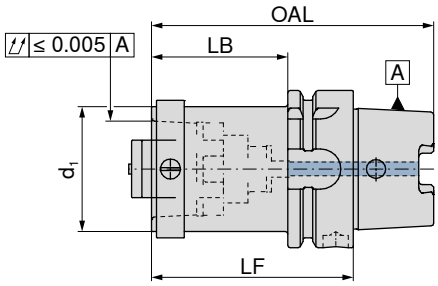
Adapter	d_1	OAL mm	LB mm	LF mm	NEW Article no. 84 017 ...
BT 40	PSC 32	95,4	3	30	**04087**
BT 40	PSC 40	95,4	3	30	**04095**
BT 40	PSC 50	95,4	3	30	**04094**
BT 40	PSC 63	150,4	58	85	**04093**
BT 50	PSC 32	141,8	2	40	**05087**
BT 50	PSC 40	141,8	2	40	**05095**
BT 50	PSC 50	141,8	2	40	**05094**
BT 50	PSC 63	141,8	2	40	**05093**
BT 50	PSC 80	171,8	32	70	**05086**

Spare parts DCONWS	Threaded ring Article no. 84 950 ...		tightening screw Article no. 84 950 ...
32	**127**	SW8	**122**
40	**128**	SW8	**123**
50	**129**	SW10	**124**
63	**130**	SW14	**126**
80	**130**	SW14	**126**

HSK-A reduction

▲ for mounting HSK-A adapters according to ISO 12164

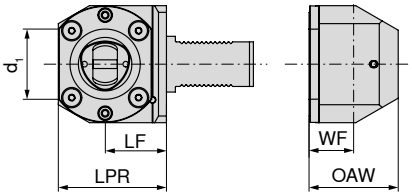
Scope of supply:
with clamping cartridge and cover ring



A

Adapter	d_1	OAL	LB	LF	NEW Article no. 84 040 ...
		mm	mm	mm	
HSK-A 63	HSK-A 40	112	54	80	**06359**
HSK-A 63	HSK-A 50	112	54	80	**06358**
HSK-A 100	HSK-A 50	130	51	80	**10058**
HSK-A 100	HSK-A 63	150	71	100	**10057**

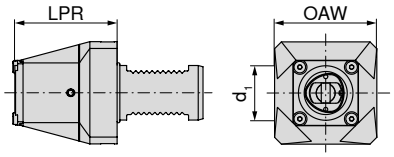
90° VDI to PSC adapter



Adapter	d_1	LPR	OAW	LF	WF	90° NEW Article no. 83 231 ...
		mm	mm	mm	mm	
VDI 30	PSC 40	65	56	41	21	**04027** [1]
VDI 40	PSC 40	75	86	51	30	**04026** [1]
VDI 40	PSC 50	85	80	53	40	**05026** [1]
VDI 40	PSC 63	95	80	53	40	**06326** [1]
VDI 50	PSC 50	85	80	53	40	**05025** [1]
VDI 50	PSC 63	97	80	55	40	**06325** [1]

1) Not ex-stock

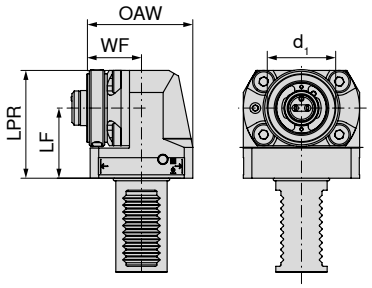
VDI to PSC adapter



Adapter	d_1	OAW	LPR	NEW Article no. 83 232 ...
		mm	mm	
VDI 30	PSC 40	60	70	**04027** [1]
VDI 40	PSC 40	75	75	**04026** [1]
VDI 40	PSC 50	82	85	**05026** [1]
VDI 40	PSC 63	105	90	**06326** [1]
VDI 50	PSC 50	91	85	**05025** [1]
VDI 50	PSC 63	105	100	**06325** [1]

1) Not ex-stock

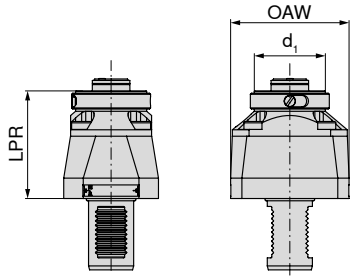
90° VDI to HSK-T adapter



Adapter	d_1	LPR	OAW	LF	WF	90° NEW Article no. 83 233 ...
		mm	mm	mm	mm	
VDI 30	HSK-T 40	65	60	41	25	**04027** [1]
VDI 40	HSK-T 40	75	90	51	34	**04026** [1]
VDI 40	HSK-T 63	90	85	53	45	**06326** [1]
VDI 50	HSK-T 63	97	85	55	45	**06325** [1]

1) Not ex-stock

VDI to HSK-T adapter

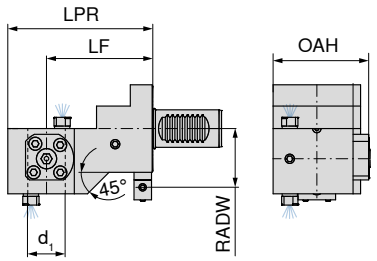


Adapter	d_1	LPR	OAW	NEW Article no. 83 234 ...
		mm	mm	
VDI 30	HSK-T 40	74	60	**04027** [1]
VDI 40	HSK-T 40	79	75	**04026** [1]
VDI 40	HSK-T 63	95	105	**06326** [1]
VDI 50	HSK-T 63	105	105	**06325** [1]

1) Not ex-stock

90° VDI to VDI adapter, double sided

▲ for rotating toolholder

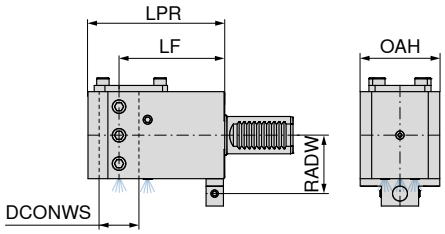


Adapter	d_1	LPR	LF	OAH	RADW	NEW Article no. 83 225 ...
		mm	mm	mm	mm	
VDI 25	VDI 20	104	75	67,5	40	**02028** [1]
VDI 25	VDI 25	104	75	38,0	40	**02528** [1]
VDI 30	VDI 30	116	85	76,5	47	**03027** [1]
VDI 30	VDI 30	131	100	76,5	47	**13027** [1]
VDI 40	VDI 40	133	100	89,0	56	**04026** [1]
VDI 40	VDI 40	153	120	89,0	56	**14026** [1]

1) Not ex-stock

Boring bar holder with through coolant

▲ doubles = reciprocally interlocked VDI shank
▲ external coolant supply available



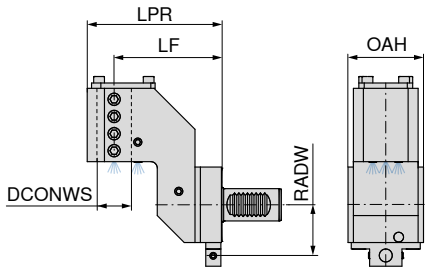
Adapter	DCONWS	LPR	LF	OAH	RADW	double NEW Article no. 83 228 ...
	mm	mm	mm	mm	mm	
VDI 25	25	100	75	60	40	**02528** [1]
VDI 30	32	110	85	64	47	**03227** [1]
VDI 30	32	125	100	64	47	**13227** [1]
VDI 40	40	130	100	76	56	**04026** [1]
VDI 40	40	152	120	76	56	**14026** [1]
VDI 50	50	155	120	98	64	**05025** [1]

1) Not ex-stock

With star turrets, there is the danger of a collision for failure to comply to the machine-default nominal maximum height (LPR).

Boring bar holder, with offset, with through coolant

- doubles = reciprocally interlocked VDI shank
- external coolant supply available



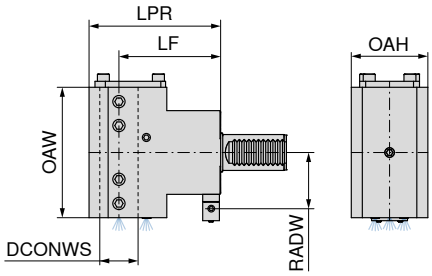
Adapter	DCONWS	LPR	LF	OAH	RADW	double NEW Article no. 83 229 ...
	mm	mm	mm	mm	mm	
VDI 25	25	99,5	75	30	40	**02528** [1]
VDI 30	32	125,0	100	70	47	**03227** [1]
VDI 40	40	133,0	100	85	56	**04026** [1]

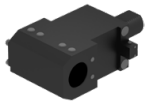
1) Not ex-stock

With star turrets, there is the danger of a collision for failure to comply to the machine-default nominal maximum height (LPR).

Double boring bar holder with through coolant

- doubles = reciprocally interlocked VDI shank
- for use of two boring bars for main and sub-spindle machining
- external coolant supply available





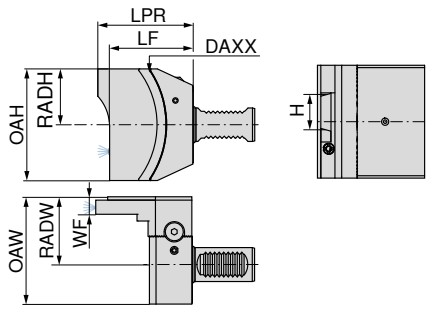
Adapter	DCONWS	LPR	LF	OAH	OAW	RADW	double NEW Article no. 83 230 ...
	mm	mm	mm	mm	mm	mm	
VDI 25	25	99,5	75	54	104	40	**02528** [1]
VDI 30	32	110,0	85	62	109	47	**03227** [1]
VDI 30	32	125,0	100	62	118	47	**13227** [1]
VDI 40	40	152,0	120	76	116	56	**04026** [1]

1) Not ex-stock

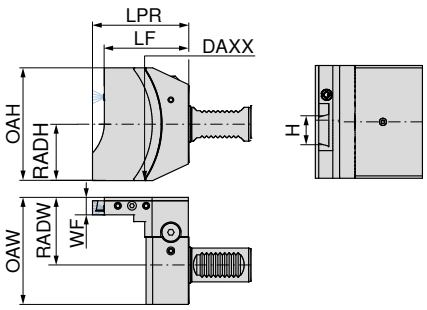
With star turrets, there is the danger of a collision for failure to comply to the machine-default nominal maximum height (LPR).

Parting blade holder

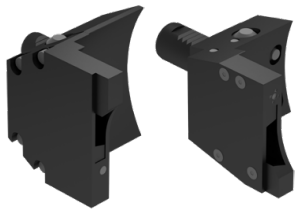
▲ doubles = reciprocally interlocked VDI shank



double – overhead



double



Adapter	LPR	LF	OAH	RADW	RADH	WF	DAXX	H	OAW	double – overhead NEW Article no. 83 227 ...	double NEW Article no. 83 226 ...
	mm	mm	mm	mm	mm	mm	mm	mm	mm		
VDI 20	85,5	75,0	94	60	47	15,5	176	26	85	**02629** [1]	**02629** [1]
VDI 25	85,2	74,7	73	43	39	15,5	176	32	72		**03228** [1]
VDI 25	85,2	74,7	73	43	39	15,5	176	26	72	**02628** [1]	**02628** [1]
VDI 30	85,5	75,0	100	60	50	15,5	176	32	95	**03227** [1]	**03227** [1]
VDI 30	85,5	75,0	100	60	50	15,5	176	26	95	**02627** [1]	**02627** [1]
VDI 40	88,5	78,0	100	60	50	15,5	176	32	95	**03226** [1]	**03226** [1]
VDI 40	88,5	78,0	100	60	50	15,5	176	26	95	**02626** [1]	**02626** [1]

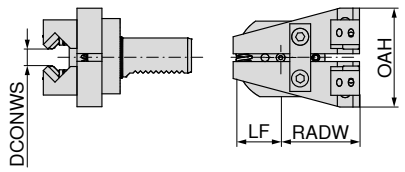
1) Not ex-stock

With star turrets, there is the danger of a collision for failure to comply to the machine-default nominal maximum height (LPR).

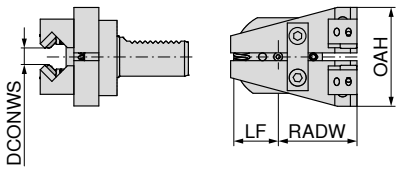
Bar pullers for disc turrets, radial

- Two adjustable, spring-mounted, replaceable grippers are fitted to the main body. Each of these is equipped with a carbide insert. The grippers are set to a slightly smaller diameter than the bar and then pressed onto the bar in an axial direction (x axis) by the tool turret.
- GA = Gripper set

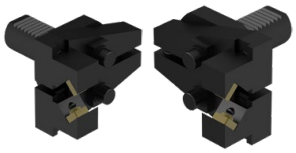
Scope of supply:
Bar puller incl. GA 1 for VDI 16, and GA 3 from VDI 20



left



right

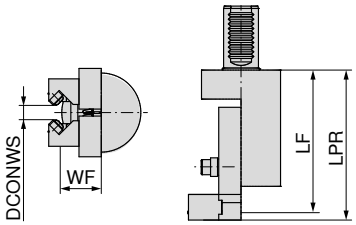


Adapter	DCONWS	LF	OAH	RADW	GA	Left-hand NEW Article no. 80 309 ...	Right-hand NEW Article no. 80 306 ...
	mm	mm	mm	mm			
VDI 16	2 - 22	28	74	35	1		**01600**
VDI 20	2 - 42	34	85	61	3		**02000**
VDI 30	2 - 42	34	105	61	3 - 4	**03000**	**03000**
VDI 40	2 - 65	34	125	61	3 - 4	**04000**	**04000**

Bar pullers for star turrets

- Two adjustable, spring-mounted, replaceable grippers are fitted to the main body. Each of these is equipped with a carbide insert. The grippers are set to a slightly smaller diameter than the bar and then pressed onto the bar in an axial direction (x axis) by the tool turret.
- 90° angle head
- GA = Gripper set

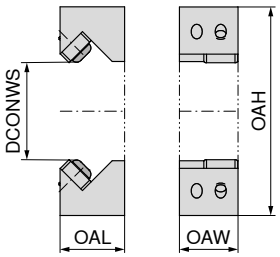
Scope of supply:
Bar puller with GA 3

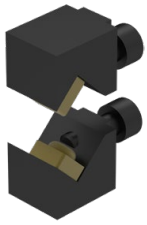


Adapter	DCONWS	LPR	LF	WF	GA	Left-hand NEW Article no. 80 310 ...
	mm	mm	mm	mm		
VDI 30	2 - 42	129	122,5	37,0	3 - 4	**03000**
VDI 40	2 - 65	149	142,5	41,5	3 - 4	**04000**

Gripper accessories

▲ For bar pullers 80 306 ... / 80 309 ... / 80 310 ...
▲ Price per pair

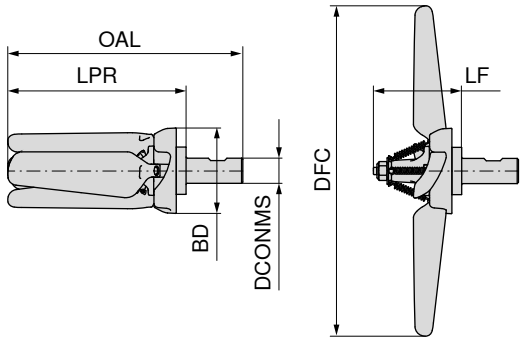




GA	DCONWS	OAL	OAW	OAH	NEW Article no. 80 312 ...
	mm	mm	mm	mm	
1	2 - 22	24,5	13	58	12200
3	2 - 42	26,0	22	86	14200
4	42 - 65	29,5	22	102	16500

Cleaning propeller

- Chip and emulsion removal or drying processes via the tool spindle
- Simple replacement of the rotor blades



IK central

NEW

DCONMS	OAL	LPR	LF	DFC	BD	RPMX	Article no. 80 399 ...
mm	mm	mm	mm	mm	mm	1/min.	
20	186,3	141,3	69,75	254	67,68	5000 - 8000	02000

Rotor blade

Rotor blade kit

for Article no.	Article no. 80 399 ...	Article no. 80 399 ...
80 399 02000	30100	30200

TorqueFix® key

- With fixed torque
- Ergonomic key handle, extremely easy to use thanks to compact design
- Specially designed for difficult to access screws and constricted openings
- Click signal when the set torque value is reached
- Standards: DIN EN ISO 6789
- Accuracy: ± 6%, traceable to national standards

Scope of supply:
incl. Plastic box and inspection report

TQX Nm	DRVS mm	NEW Article no. 80 392 ...
0,5	4	00500
0,6	4	00600
0,9	4	00900
1,1	4	01100
1,2	4	01200
1,4	4	01400
2,0	4	02000
2,5	4	02500
3,0	4	03000
3,8	4	03800
4,0	4	04000

Replaceable Blade for TORX®

- 75 mm long

TQX Nm	OAL mm	Size	DRVS mm	NEW Article no. 80 394 ...
0,6	75	T06	4	00600
0,9	75	T07	4	00700
1,3	75	T08	4	00800
2,5	75	T09	4	00900
3,8	75	T10	4	01000
5,5	75	T15	4	01500
8,0	75	T20	4	02000
8,0	75	T25	4	02500

Replaceable Blade for TORX PLUS®

- 75 mm long

TQX Nm	OAL mm	Size	DRVS mm	NEW Article no. 80 395 ...
0,8	75	T06-IP	4	00600
1,3	75	T07-IP	4	00700
2,0	75	T08-IP	4	00800
3,0	75	T09-IP	4	00900
4,5	75	T10-IP	4	01000
6,6	75	T15-IP	4	01500
8,0	75	T20-IP	4	02000
8,0	75	T25-IP	4	02500

Interchangeable blade for Allen keys

- 75 mm long

TQX Nm	OAL mm	Size	DRVS mm	NEW Article no. 80 393 ...
0,9	75	SW1,5	1,5	01500
1,8	75	SW2	2	02000
3,8	75	SW2,5	2,5	02500
5,5	75	SW3	3	03000
8,0	75	SW4	4	04000

Allen keys with cross handle – set

- 7-piece Allen key set in workbench stand

Size	NEW Article no. 80 397 ...
SW2, SW2,5, SW3, SW4, SW5, SW6, SW8	99900

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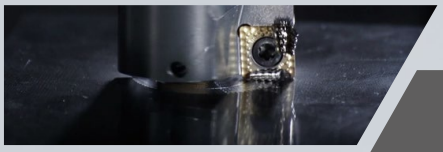
UNITED. EXPERIENCED. METAL CUTTING.

CUTTING SOLUTIONS BY CERATIZIT

SPECIALIST FOR INDEXABLE INSERT TOOLS FOR TURNING, MILLING AND GROOVING

The product brand CERATIZIT stands for high-quality indexable insert tools. The products are characterized by their high quality and contain the DNA of many years of experience in the development and production of carbide tools.



KOMET

THE QUALITY LABEL FOR EFFICIENT BORE PRODUCTION

High-precision drilling, reaming, countersinking and boring is a matter of expertise: efficient tooling solutions for drilling and mechatronic tools are therefore part of the KOMET brand name.

WNT

EXPERTS FOR ROTATING TOOLS, TOOL HOLDERS AND CLAMPING SOLUTIONS

WNT is synonymous with product diversity: solid carbide and HSS rotating tools, tool holders and efficient workholding solutions are all part of this brand.

KLENK

CUTTING TOOLS FOR THE AEROSPACE INDUSTRY

Solid carbide drills specially developed for the aerospace industry bear the product name KLENK. The highly specialized products are specifically designed for machining lightweight materials.

CERATIZIT GROUP

09/2020 - 94 221 00240