



ZCC Cutting Tools
Europe GmbH



ZCC Cutting Tools Europe GmbH

Product Innovations

09/2025

PANGU grades **PG8005, PG8020, PG8030, PG1110, PG1120** – LH chip breaker

F-QF chip breaker (YNT251D grade) – ISO tool holder with internal cooling – **zGroove Compact**

HG chip breaker – **EMP08** square shoulder milling system – **EMP10** square shoulder milling system

XMR13 high-feed milling system – **PGMS** series – **ZTE** indexable head drilling system

– EN –

The Company

Zhuzhou Cemented Carbide Cutting Tools Co., Ltd. (ZCC-CT), based in Zhuzhou, China, is the largest Chinese manufacturer of carbide tools. It is also a key company of China Tungsten High-Tech Material Co. Ltd. part of the China Minmetals Corporation.

Since its founding in 1953, ZCC Cutting Tools Co., Ltd. has grown to become one of the world's leading carbide manufacturers with more than 2,000 employees by using the latest technologies and employing highly skilled personnel. The company continuously modernises production technologies and expands its production capacities to enable the company's ongoing growth. As part of Minmetals Corporation, ZCC-CT is able to cover the entire value chain of modern carbide tool production itself, from raw material extraction through to the coated end product and all associated intermediate steps.

By drawing on the latest in European production technology, the company offers products that consistently meet the highest quality standards. Our extensive product range includes carbide/solid carbide, cermet, CBN, PCD and ceramic inserts, carbide tools, tool holders, milling bodies and the accompanying tool systems. All products are consistently produced to accepted international standards, including ISO, DIN, ANSI, JIS and BSI. In addition, ZCC-CT offers customised solutions and special carbide products built to individual specifications.

ZCC-CT invests heavily in research and development. The associated investments go beyond that of most competitors. ZCC Cutting Tools' excellently trained engineers, scientists and a competent, international team, research the necessary fundamentals. These form the basis for the ongoing development of new products and the improvement of existing ones.

The company continuously introduces improvements in quality to meet the customers' ever-increasing demands for new and innovative products and to maximise the benefit of each individual

customer. Both production and administration in China are subject to the ISO 9001:2008 standard, while environmental management is subject to the requirements set out in ISO 14001:2004.

The foundation of the European headquarters of ZCC-CT, ZCC Cutting Tools Europe GmbH and the European central warehouse, both located in Düsseldorf (Germany), dates back to 2003. Today, all European countries as well as the adjacent markets are served from there.

The quality management system of ZCC Cutting Tools Europe GmbH is certified in the area of 'distribution and logistics of metal-working tools' in accordance with ISO 9001:2008.

The Test and Demonstration Centre is available for optimizing customer processes according to individual requirements.

External sales staff and distribution partners in Europe work hand in hand to support customers across the region. Our friendly ZCC-CT application engineers are also available to support you with their expertise and experience by phone, e-mail or in person at your production facility.

The entire field and office sales force is available to answer enquiries from clients across Europe in their native language. Together with employees from the logistics team and with the help of a sophisticated service system, they ensure that all orders are delivered as quickly as possible to you. Branch offices in France and Great Britain add to additional regional proximity to customers.

ZCC Cutting Tools Europe GmbH and all of our employees are there for you and have your back as a competent partner for all matters concerning machining production. This is how we define 'your partner – your value'.



Member of Minmetals Group



This brochure will be presenting the following new products:

Product Innovations 09/2025

GENERAL TURNING		Page
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	 PG8030 grade – premium universal CVD grade for heat resistance	A13
	 PG1110 grade – premium heat-resistant PVD grade for turning applications	A14
	LH chip breaker – consistent results in the medium application range	A15
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PARTING & GROOVING		Page
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INDEXABLE MILLING		Page
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	XMR13 high-feed milling system – for maximum performance in terms of feed rate and efficiency	B60
SOLID CARBIDE MILLING		Page
	 PGMS series – the ideal choice for complex contours	B74
INDEXABLE HEAD DRILLING		Page
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A glimpse inside: Highlights from previous Product Innovations brochures

Product Innovations 03/2025

INDEXABLE MILLING

XMR12 high-feed milling system – Maximum chip removal rates coupled with minimum machining times

SOLID CARBIDE MILLING

XM-2C series – Flexible deburring cutter with interchangeable head

SOLID CARBIDE DRILLING

UL series – Solid carbide deep hole drills for difficult-to-machine materials



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Product Innovations 09/2024

GENERAL TURNING

QF chip breaker – Maximum chip control in finishing operations

INDEXABLE MILLING

SMP09 slot mill cutting system – Highly versatile tangential milling system

TOOL HOLDERS

zClamp Hydro hydraulic expansion chucks – Secure tool clamping for maximum process reliability



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Product Innovations 09/2023

GENERAL TURNING

XLR chip breaker – Roughing made easy

ONMX high feed turning system – New Octa insert and tool holder series for efficient turning applications

PNMX high feed turning system – New Penta insert and tool holder series for efficient turning applications

THREADING

zType threading tool holders with internal cooling – New series for high-quality results in threading operations

SOLID CARBIDE DRILLING

FD flat drills – 180° solid carbide drills for any application



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Product Innovations 03/2023

GENERAL TURNING

YBG205H grade – The perfect choice for high-temperature turning applications

PARTING & GROOVING

MU chip breaker – Universal tool that delivers optimum chip control

INDEXABLE MILLING

FME17 face milling system – Highly efficient universal tool for machining end faces and contours

EMP05 plunge milling system – Universal tool for any machining application

FMR06 round insert milling cutter – Maximum cutting performance

CSX1000 grade – High-performance grade for superalloys

APL chip breaker – Universal geometry



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Product Innovations 09/2022

GENERAL TURNING

XMH chip breaker – Semi-finishing made easy

THREADING

zType threading inserts – New series for high-quality results in threading operations

INDEXABLE MILLING

FMA12 face milling system – Now available in new ONHU09T5 insert size

EMP14 aluminium milling system – Precisely 90° for shoulder milling operations

FMR11 round insert milling cutter – Maximum cutting performance

SOLID CARBIDE MILLING

VPM series – Now also available as a torus milling cutter/with Weldon clamping surface



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Product Innovations 05/2022

GENERAL TURNING

miniTURN – New YPG202 grade for enhanced performance

INDEXABLE MILLING

YBG205H grade – Optimal for high-temperature applications

FMP06 – High-performance hard machining with 88° approach angle

FMA17 – Versatile milling system for efficient facing operations

FMP17 – Efficient universal tool for machining end faces and contours

FMR04 – Extension: Now with new inserts and chip breakers

SOLID CARBIDE MILLING

TM series – Expanded line with compact torus milling cutters from Ø1.0 mm

VPM series – High-speed full-slot milling

SOLID CARBIDE DRILLING

UD series – Extension: Now available in diameters from 1.0 mm with internal cooling



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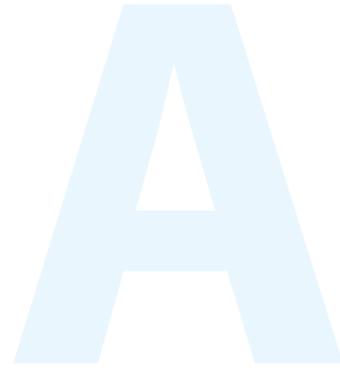


PANGU

PG8030 grade

General turning

ISO code – general turning inserts	A8–A9
ISO code – external tool holders	A10–A11
 PANGU PG8005 grade	A12
 PANGU PG8030 grade	A13
 PANGU PG1110 grade	A14
LH chip breaker	A15
F-QF chip breaker (YNT251D grade)	A16
ISO tool holders (internal cooling)	A17–A23
Recommended cutting data	A24–A26

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ISO standard

T N M G 22 04 08 (N) – DM

1 2 3 4 5 6 7 8 9

Insert shape		
A 	B 	C 
D 	E 	H 
K 	L 	M 
O 	P 	R 
S 	T 	V 
W 	Z Special	

Clearance angle	
A 	B 
C 	D 
E 	F 
G 	N 
P 	O Special

Tolerance class			
Code	I.C [mm]	m [mm]	S [mm]
A	±0,025	±0,005	±0,025
C	±0,025	±0,013	±0,025
E	±0,025	±0,025	±0,025
F	±0,013	±0,005	±0,025
G	±0,025	±0,025	±0,130
H	±0,013	±0,013	±0,025
J	±0,05–0,15	±0,005	±0,025
K	±0,05–0,15	±0,013	±0,025
L	±0,05–0,15	±0,025	±0,025
M	±0,05–0,15	±0,08–0,20	±0,130
N	±0,05–0,15	±0,08–0,20	±0,025
U	±0,08–0,25	±0,13–0,38	±0,130

1

2

3

Fastening features (metric)	
Insert shape	
A 	B 
C 	F 
G 	H 
J 	M 
N 	Q 
R 	T 
U 	W 
X Special	

4

Cutting edge length l [mm]								
I.C [mm]	Insert shape							
	C	D	R	S	T	V	W	K
3,97	06							
5,0	05							
5,56	09							
6,0	06							
6,35	06	07			11	11		
8,0	08							
9,525	09	11	09	09	16	16	06	16
10,0	10							
12,0	12							
12,7	12	15	12	12	22	22	08	
15,875	16		15	15	27			
16,0		19	16					
19,05	19		19	19	33			
20,0	20							
25,0	25	25	25					
25,4			25	25				
31,75			31					
32			32					

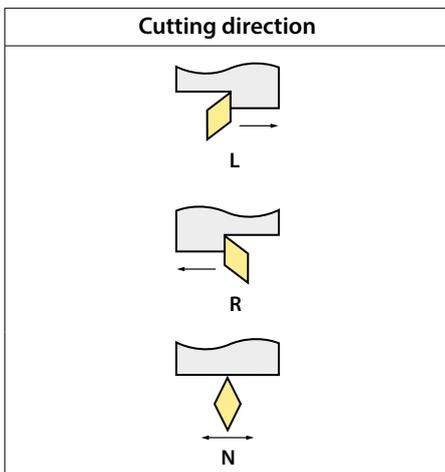
5

Insert thickness S [mm]			
Code	S	Code	S
00	0,79	T5	5,95
T0	0,99	06	6,35
01	1,59	T6	6,75
T1	1,98	07	7,94
02	2,38	09	9,52
T2	2,58	T9	9,72
03	3,18	11	11,11
T3	3,97	12	12,70
04	4,76		
T4	4,96		
05	5,56		

6

Nose radius r [mm]	
Code	r
00	–
02	0,2
04	0,4
08	0,8
12	1,2
16	1,6
20	2,0
24	2,4
32	3,2
X	Special
MO	Round inserts

7



8



9

ANSI standard



Inner circle		
Code	[mm]	Pouce
2	6.35	0.250
3	9.525	0.375
4	12.7	0.500
5	15.875	0.625
6	19.05	0.750
8	25.4	1.000

5

Insert thickness		
Code	[mm]	Pouce
2	3.18	0.125
3	4.76	0.187
4	6.35	0.250
5	7.94	0.313
6	9.52	0.375

6

Nose radius		
Code	[mm]	Pouce
0	0.2	0.008
1	0.4	0.016
2	0.8	0.031
3	1.2	0.047
4	1.6	0.063
5	2.0	0.079
6	2.4	0.094

7

P C L N L 25 25 M 12

1 2 3 4 5 6 7 8 9

A

Turning

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Clamping system			Insert shape	
Code	Description			
P	Lever lock clamping		C	
M	Wedge/pin lock clamping		D	
S	Screw-on clamping		R	
C/J	Wedge clamping		S	
D	Duel wedge clamping		T	
			V	
			W	
1			2	

Tool holder type and entering angle					Clearance angle	
					B	C
A	B	C	D	E		
					D	E
F	G	H	J	K		
					N	P
L	M	N	O	P		
						
Q	R	S	T	U		
						
V	W	X				
3					4	

Cutting direction	
	R
	L
	N

5

Shank height h [mm]	
	h
Code	h
12	12
16	16
20	20
25	25
32	32
40	40
50	50

6

Shank width b [mm]	
	b
Code	b
12	12
16	16
20	20
25	25
32	32
40	40
50	50

7

Holder length L [mm]	
	L
Code	L
H	100
K	125
M	150
P	170
Q	180
R	200
S	250
T	300

8

Cutting edge length l [mm]							
I.C [mm]	Insert shape						
	C	D	R	S	T	V	W
5,56	09						
6,35	06	07					11
9,525	09	11	09	09	16	16	06
12,7	12	15	12	12	22	22	08
15,875	16	19	15	15	27		
19,05	19	19		19	33		
25,4	25	25		25	44		
32	32						

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PG8005 grade

Premium grade for maximum wear resistance

YOUR BENEFITS

- High-performance coating (AlTiCNO-CVD) with ultra-smooth polished surface that **minimises friction**
- Ideal choice for difficult-to-machine materials such as superalloys and heat-resistant cast steel
- Minimum wear for a **long tool life**

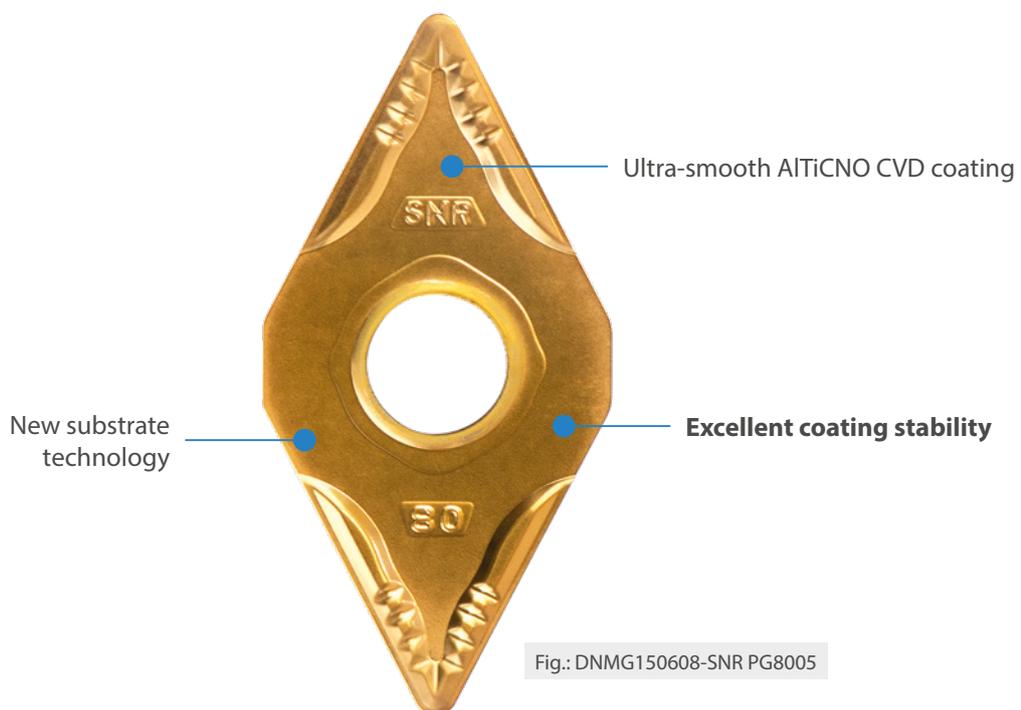


Fig.: DNMG150608-SNR PG8005

The following articles are currently available with the new PG8005 grade:

Article	Stock	Article	Stock
CNEG120404-NF PG8005	●	VCGT160408-SNR PG8005	●
CNEG120408-NF PG8005	●	VNEG160404-NF PG8005	●
CNMG120408-SNR PG8005	○	VNEG160408-NF PG8005	●
CNMG120408-XLR PG8005	●	VNEG160408-NGF PG8005	●
DNEG150604-NF PG8005	●	VNMG160408-SNR PG8005	○
DNEG150608-NF PG8005	●	WNMG080408-SNR PG8005	○
DNMG150608-SNR PG8005	○		
VBET160404-NF PG8005	●		
VBET160404-NGF PG8005	●		
VBET160408-NF PG8005	●		
VBET160408-NGF PG8005	●		
VBMT160408-SNR PG8005	●		
VCGT160404-NGF PG8005	●		

● Ex stock ○ On demand

PG8030 grade

Premium universal CVD grade with heat-resistant properties

YOUR BENEFITS

- Optimised for turning difficult-to-machine materials such as superalloys and heat-resistant cast steel
- **Reduces wear** thanks to mechanically robust substrate and thermally stable coating
- Premium coating technology (AlTiCNO-CVD) for **low wear** thanks to polished coating surface
- Ideal for continuous and interrupted cuts

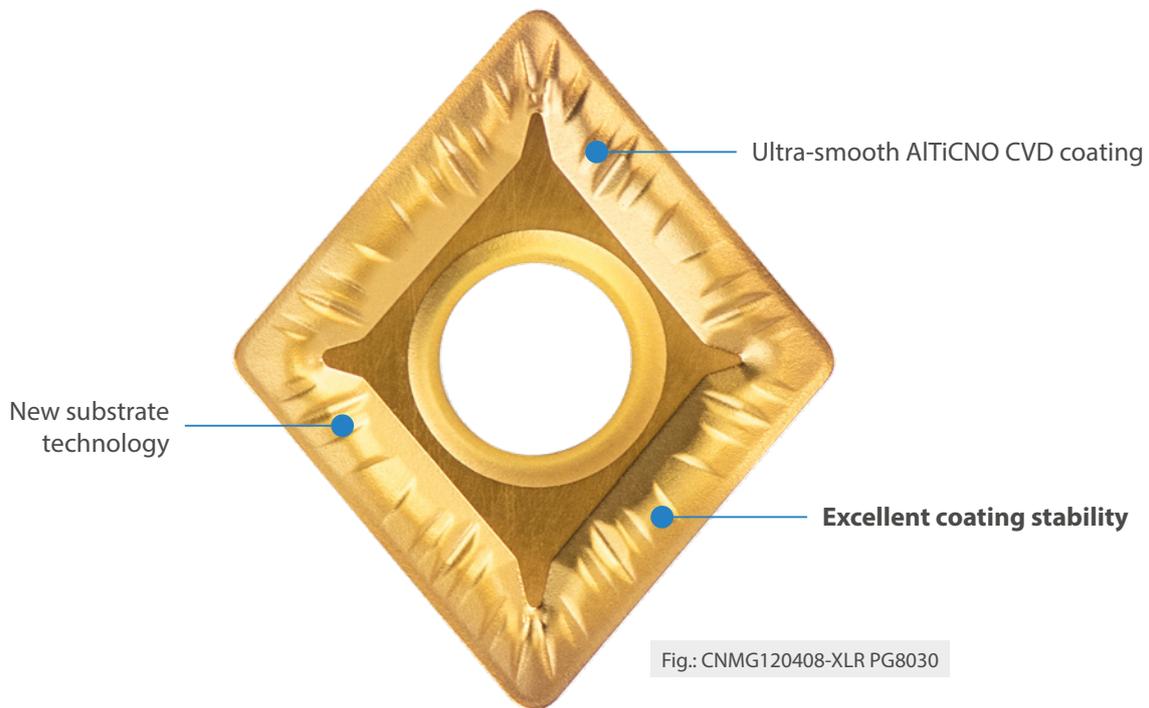


Fig.: CNMG120408-XLR PG8030

The following articles are currently available with the new PG8030 grade:

Article	Stock
CNMG120408-XLR PG8030	●
CNMG120412-XLR PG8030	●
CNMG120416-XLR PG8030	●
CNMG160612-XLR PG8030	●
CNMG190612-XLR PG8030	●
CNMG190616-XLR PG8030	●
CNMG190624-XLR PG8030	●
CNMM190616-XLR PG8030	○
CNMM190624-XLR PG8030	●
CNMM250924-XLR PG8030	○
DNMG150608-XLR PG8030	●
RCMT2507MO-GR PG8030	○
RCMT2507MO PG8030	○
RCMX3209MO-GR PG8030	○

● Ex stock ○ On demand

Article	Stock
SNMG190624-XLR PG8030	●
SNMM190616-XLR PG8030	○
SNMM190624 - XLR PG8030	○
SNMM250924-XLR PG8030	○
TNMG160408-XLR PG8030	●

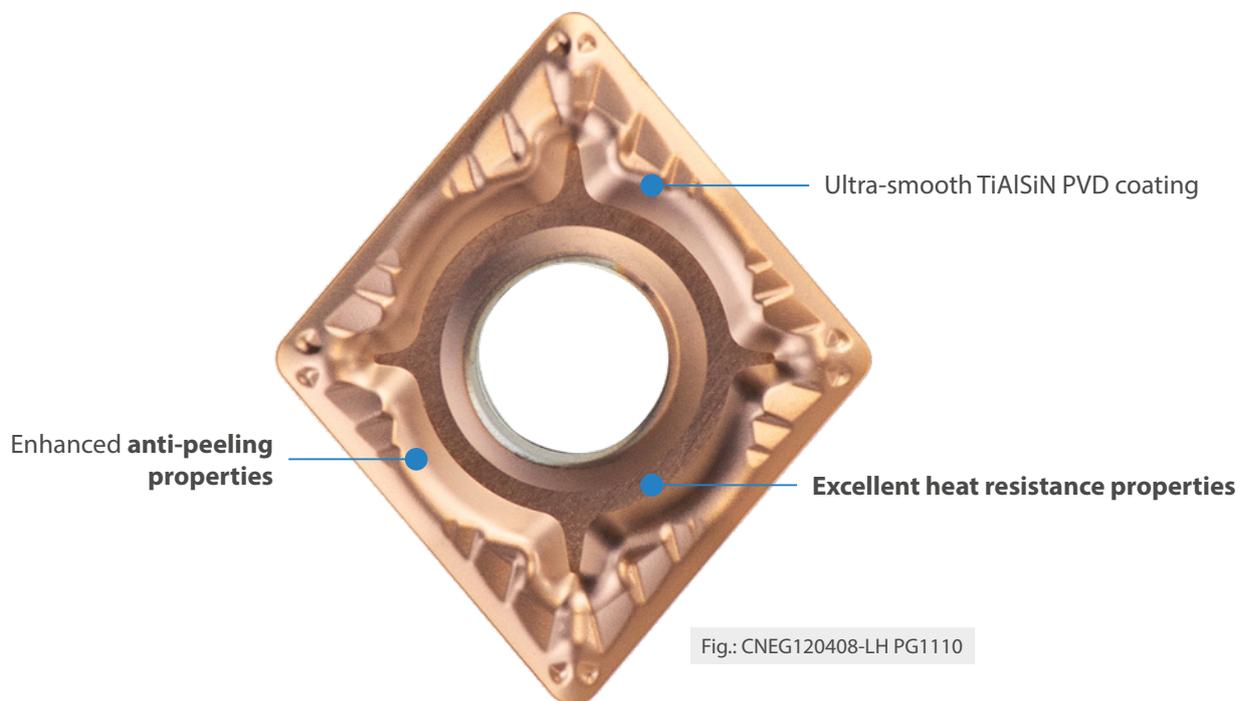
● Ex stock ○ On demand

PG1110 grade

Premium heat-resistant PVD grade for turning applications

YOUR BENEFITS

- Innovative coating concept (TiAlSiN-PVD) for **enhanced adhesion** and improved surface quality with a **low coefficient of friction**
- Ideal for use in combination with difficult-to-machine materials
- Maximum heat resistance for the **longest tool life possible**



The following articles are currently available with the new PG1110 grade:

Article	Stock	Article	Stock
CNEG120404-LH PG1110	●	VNEG160408-LH PG1110	●
CNEG120408-LH PG1110	●	WNEG080404-LH PG1110	●
CNEG120412-LH PG1110	●	WNEG080408-LH PG1110	●
CNEG120416-LH PG1110	●	WNEG080412-LH PG1110	●
CNEG160608-LH PG1110	●		
CNEG160612-LH PG1110	●		
CNEG160616-LH PG1110	●		
DNEG150604-LH PG1110	●		
DNEG150608-LH PG1110	●		
DNEG150612-LH PG1110	●		
DNEG150616-LH PG1110	○		
SNEG120408-LH PG1110	●		
SNEG120412-LH PG1110	●		
SNEG120416-LH PG1110	○		

● Ex stock ○ On demand

LH chip breaker

Consistent results in the medium application range

YOUR BENEFITS

- Controlled machining in a **wide range of applications**
- Top performance in applications involving non-ferrous metals and superalloys
- Large rake angle: **enhanced chip removal**; reliable results across a range of feed rates
- **Significant decrease in the formation of built-up edge** thanks to a polished top face

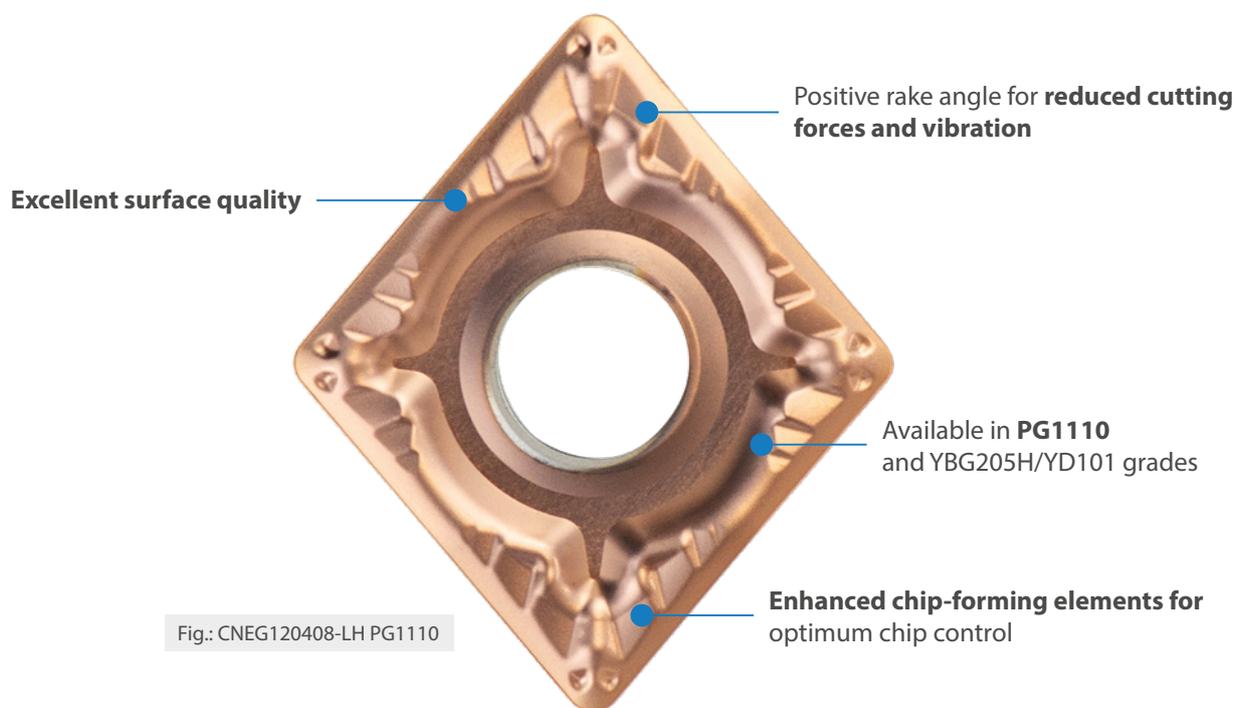


Fig.: CNEG120408-LH PG1110

Articles available at launch of the new LH chip breaker:

Article	Stock
CNEG120404-LH PG1110	●
CNEG120408-LH PG1110	●
CNEG120412-LH PG1110	●
CNEG120416-LH PG1110	●
CNEG160608-LH PG1110	●
CNEG160612-LH PG1110	●
CNEG160616-LH PG1110	●
DNEG150604-LH PG1110	●
DNEG150608-LH PG1110	●
DNEG150612-LH PG1110	●
DNEG150616-LH PG1110	●
SNEG120408-LH PG1110	●
SNEG120412-LH PG1110	●
SNEG120416-LH PG1110	●

● Ex stock ○ On demand

Article	Stock
VNEG160408-LH PG1110	●
WNEG080404-LH PG1110	●
WNEG080408-LH PG1110	●
WNEG080412-LH PG1110	●

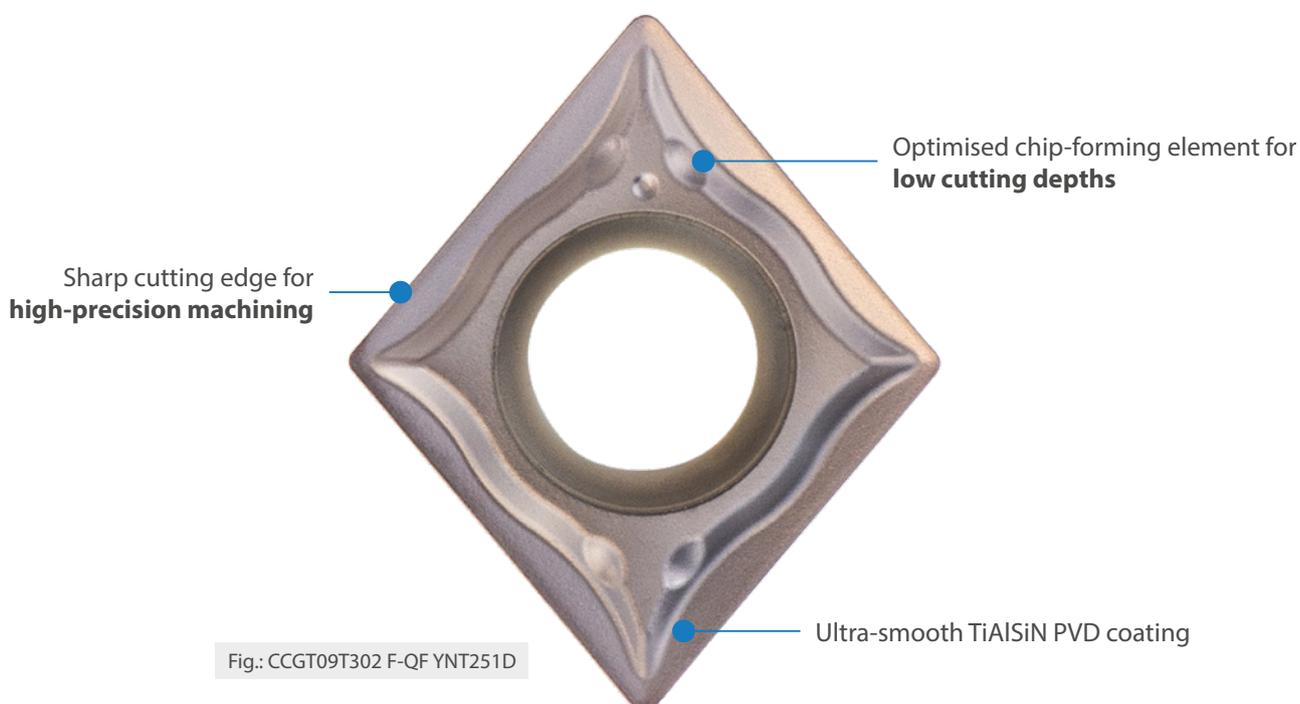
● Ex stock ○ On demand

F-QF chip breaker (YNT251D grade)

Premium tools for super-finishing applications

YOUR BENEFITS

- **Thinly coated** Cermet grade (TiAlN-PVD)
- Excellent Smooth surface properties for **optimum chip removal**
- For super-finishing applications with **high quality surface finish** involving low cutting depths and feed rates
- **Long tool life** in a wide range of applications



Articles available at launch of the new F-QF (YNT251D grade) chip breaker:

Article	Stock
CCGT060201F-QF YNT251D	●
CCGT060202F-QF YNT251D	●
CCGT060204F-QF YNT251D	●
CCGT09T301F-QF YNT251D	●
CCGT09T302F-QF YNT251D	●
CCGT09T304F-QF YNT251D	●
DCGT070201F-QF YNT251D	●
DCGT070202F-QF YNT251D	●
DCGT070204F-QF YNT251D	●
DCGT11T301F-QF YNT251D	●

● Ex stock ○ On demand

Article	Stock
DCGT11T302F-QF YNT251D	●
DCGT11T304F-QF YNT251D	●
DPGT11T301F-QF YNT251D	○
DPGT11T302F-QF YNT251D	○
VBGT110301F-QF YNT251D	●
VBGT110302F-QF YNT251D	●
VBGT110304F-QF YNT251D	●
VCGT110301F-QF YNT251D	●
VCGT110302F-QF YNT251D	●
VCGT110304F-QF YNT251D	●

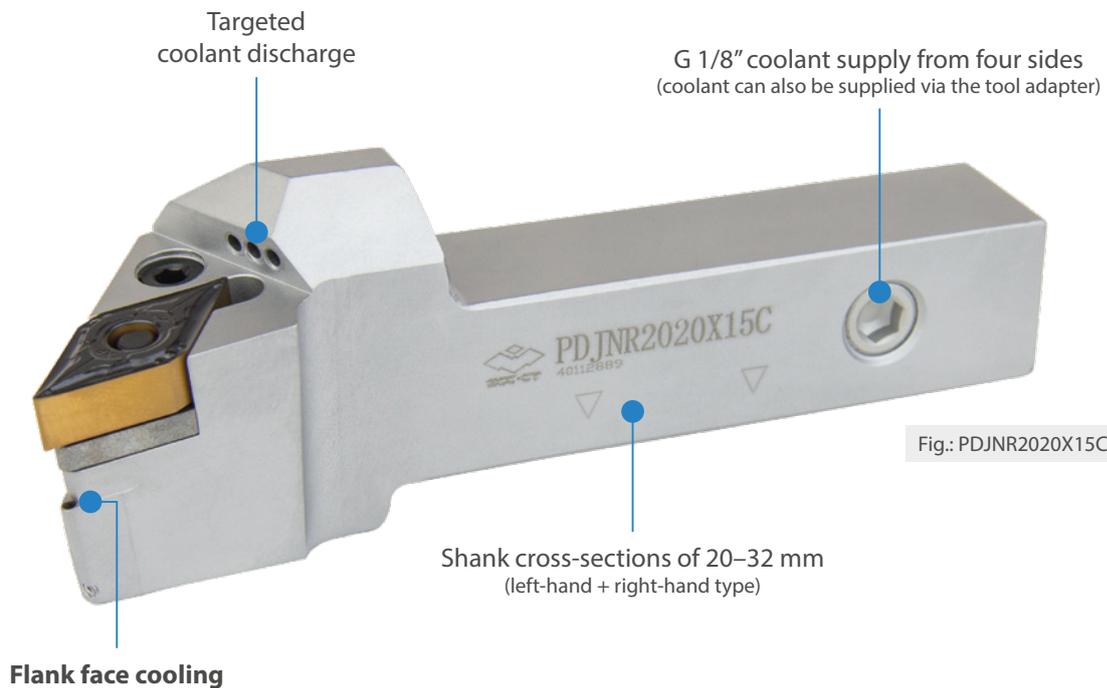
● Ex stock ○ On demand

ISO tool holders (internal cooling)

Optimum temperature control for consistent results every time

YOUR BENEFITS

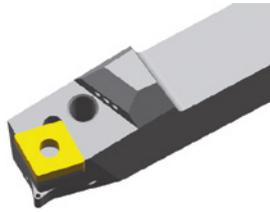
- Targeted supply of coolant and flank face cooling for **optimum chip removal** and a **long tool life**
- **Higher productivity** thanks to reduced machining temperatures
- Optimised shank lengths for **greater ease of use** with VDI tool holders with coolant delivery



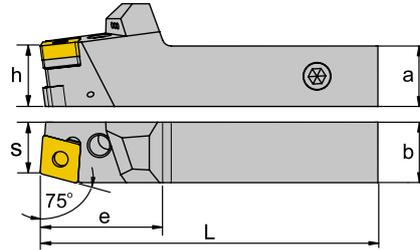
A

CN** holder (external) **P clamping**

PCBNR/LC Kr: 75°



Right hand style



Turning

B

Article	*	Stock		Dimensions [mm]							Insert
		R	L	a	b	L	h	s	e	M	
PCBNR/L2020X12C	*	●	●	20	20	112	20	17	42	G1/8	CN**1204**
PCBNR/L2525X12C	*	●	●	25	25	127	25	22	42	G1/8	CN**1204**
PCBNR/L2525X16C	*	●	●	25	25	132	25	22	47	G1/8	CN**1606**

Milling

● Ex stock ○ On demand

* With internal cooling

C

Spare parts

	Insert	CN**1204**	CN**1606**
	ØD	16-32	16-40
	Knee lever	L4	L5
	Screw	LEM8×21 (10,2 Nm)	LEM8×25 (10,2 Nm)
	Shim	C12AP	C16AP
	Shim pin	SP4	SP5
	Wrench	WH30L	WH30L

Drilling

D

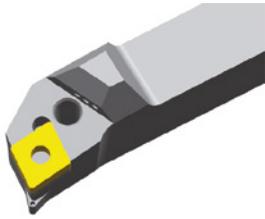
Technical Information

E

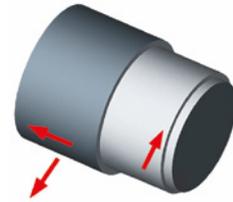
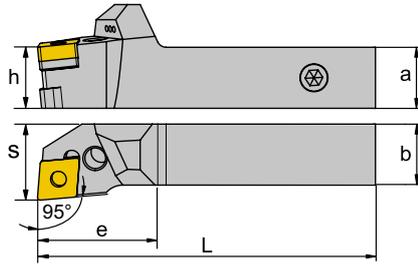
Index

CN** holder (external) **P clamping**

PCLNR/LC Kr: 95°



Right hand style



Article	*	Stock		Dimensions [mm]							Insert
		R	L	a	b	L	h	s	e	M	
PCLNR/L2020X12C	*	●	●	20	20	112	20	27	42	G1/8	CN**1204**
PCLNR/L2525K12C	*	●	●	25	25	125	25	32	40	G1/8	CN**1204**
PCLNR/L2525X16C	*	●	●	25	25	131	25	32	46	G1/8	CN**1606**
PCLNR/L3232X19C	*	●	●	32	32	153	32	40	53	G1/8	CN**1906**

● Ex stock ○ On demand

* With internal cooling

Spare parts

	Insert	CN**1204**	CN**1606**	CN**1906**
	ØD	16-32	16-40	25-40
	Knee lever	L4	L5	L6
	Screw	LEM8x21 (10,2 Nm)	LEM8x25 (10,2 Nm)	LEM10x27 (16,6 Nm)
	Shim	C12AP	C16AP	C19AP
	Shim pin	SP4	SP5	SP6
	Wrench	WH30L	WH30L	WH40L

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Turning

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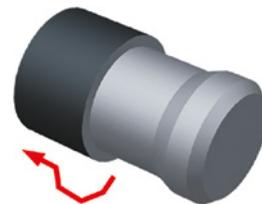
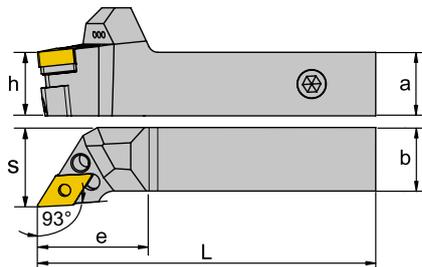
DN** holder (external)

P clamping

PDJNR/LC Kr: 93°



Right hand style



Turning

B

Milling

Article	*	Stock		Dimensions [mm]							Insert
		R	L	a	b	L	h	s	e	M	
PDJNR/L2020X11C	*	●	●	20	20	106	20	27	36	G1/8	DN**1104**
PDJNR/L2525X11C	*	●	●	25	25	121	25	32	36	G1/8	DN**1104**
PDJNR/L2020X15C	*	●	●	20	20	115	20	27	45	G1/8	DN**1506**
PDJNR/L2525X15C	*	●	●	25	25	128	25	32	43	G1/8	DN**1506**

● Ex stock ○ On demand

* With internal cooling

C

Drilling

Spare parts			
	Insert	DN**1104**	DN**1506**
	ØD	16-32	20-40
	Knee lever	L3	L4B
	Screw		LEM8x21 (10,2 Nm)
	Screw	LEM6x13,4A (7,0 Nm)	
	Shim	D11AP	D15AP
	Shim pin	SP3	SP4
	Wrench	WH25L	WH30L

D

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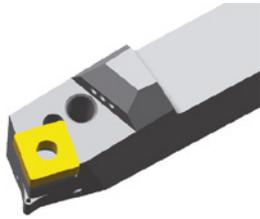
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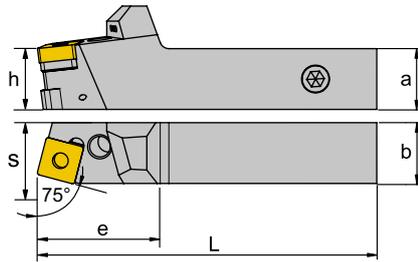
SN** holder (external)

P clamping

PSBNR/LC Kr: 75°



Right hand style



Article	*	Stock		Dimensions [mm]							Insert
		R	L	a	b	L	h	s	e	M	
PSBNR/L2020X12C	*	●	●	20	20	112	20	17	42	G1/8	SN**1204**
PSBNR/L2525X12C	*	●	●	25	25	127	25	22	42	G1/8	SN**1204**
PSBNR/L3232X19C	*	●	●	32	32	155	32	27	55	G1/8	SN**1906**

● Ex stock ○ On demand

* With internal cooling

Spare parts

	Insert	SN**1204**	SN**1906**
	ØD	20-40	25-40
	Knee lever	L4	L6
	Screw	LEM8×21 (10,2 Nm)	LEM10×27 (16,6 Nm)
	Shim	S12AP	S19AP
	Shim pin	SP4	SP6
	Wrench	WH30L	WH40L

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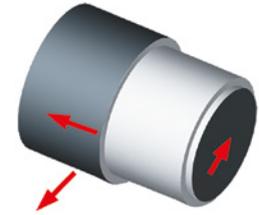
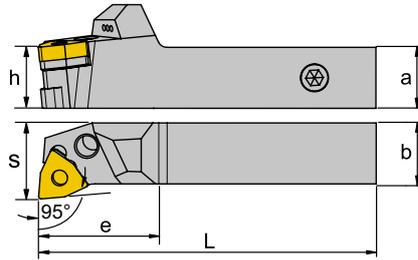
WN** holder (external)

P clamping

PWLNR/LC Kr: 95°



Right hand style



Turning

B

Article	*	Stock		Dimensions [mm]							Insert
		R	L	a	b	L	h	s	e	M	
PWLNR/L2020X08C	*	●	●	20	20	112	20	25	42	G1/8	WN**0804**
PWLNR/L2525X08C	*	●	●	25	25	127	25	31	42	G1/8	WN**0804**

● Ex stock ○ Oh demand

* With internal cooling

Milling

C

Spare parts		
	Insert	WN**0804**
	ØD	20-32
	Knee lever	L4
	Screw	LEM8x21 (10,2 Nm)
	Shim	W08AP
	Shim pin	SP4
	Wrench	WH30L

Drilling

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ISO tool holders (internal cooling)



PDJNL2525X15C
L100001 L10 201 400/200

Turning insert, negative

	Material group	Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed v_c [m/min]																	
						HC (CVD)																	
						PG1110 			PG8005 			PG8020 											
						Feed rate [mm]			Feed rate [mm]			Feed rate [mm]											
		0,1	0,3	0,6	0,1	0,3	0,6	0,1	0,3	0,6													
P	Unalloyed steel	approx. 0,15 % C	annealed	125	1																		
		approx. 0,45 % C	annealed	190	2																		
		approx. 0,45 % C	tempered	250	3																		
		approx. 0,75 % C	annealed	270	4																		
		approx. 0,75 % C	tempered	300	5																		
	Low-alloyed steel		annealed	180	6																		
			tempered	275	7																		
			tempered	300	8																		
			tempered	350	9																		
	High-alloyed steel and high-alloyed tool steel		annealed	200	10																		
			hardened and tempered	325	11																		
M	Stainless steel	ferritic/martensitic	annealed	200	12																		
		martensitic	tempered	240	13																		
		austenitic	quench hardened	180	14																		
		austenitic-ferritic		230	15																		
K	Grey cast iron	perlitic/ferritic		180	16																		
		perlitic (martensitic)		260	17																		
	Cast iron with spheroidal graphite	ferritic		160	18																		
		perlitic		250	19																		
	Malleable cast iron	ferritic		130	20																		
		perlitic		230	21																		
N	Aluminium wrought alloys	cannot be hardened		60	22																		
		hardenable	hardened	100	23																		
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	24																		
		≤ 12% Si, hardenable	hardened	90	25																		
		> 12% Si, cannot be hardened		130	26																		
	Copper and copper alloys (bronze/brass)	machining steel, PB> 1%			110	27																	
		CuZn, CuSnZn			90	28																	
	CuSn, Pb-free copper, electrolytic copper			100	29																		
S	Heat-resistant alloys	Fe-based alloys	annealed	200	30	70	55	-	80	60	-	60	40	-									
			hardened	280	31	65	45	-	70	50	-	50	30	-									
		Ni or Co bass	annealed	250	32	65	45	-	70	50	-	50	30	-									
			hardened	350	33	60	40	-	65	45	-	45	25	-									
		cast	320	34	60	40	-	65	45	-	45	25	-										
Titanium alloys	pure titanium		R _m 400	35	100	60	-	120	80	-	90	65	-										
	α and β alloys	hardened	R _m 1050	36	80	40	-	100	60	-	80	45	-										
H	Hardened steel		hardened and tempered	55 HRC	37																		
			hardened and tempered	60 HRC	38																		
	Hard cast iron		cast	400	39																		
	Hardened cast iron		hardened and tempered	55 HRC	40																		
X	Non-metallic materials	Thermoplastics			41																		
		Thermosetting plastics			42																		
		Plastic, glass-fibre reinforced GFRP			43																		
		Plastic, carbon fibre reinforced CFRP			44																		
		Graphite			45																		
		Wood			46																		

Note: The given cutting values are guide values, which were determined under ideal conditions. The values have to be adapted in individual cases. For examples of material for cutting tool groups view page D11.

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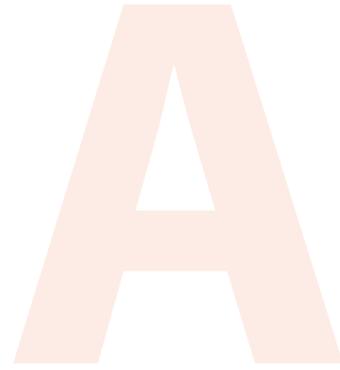


ZGROOVE
COMPACT

Modular grooving system

Modular grooving system

System code – inserts	A28
 PANGU PG1110 grade	A29
 PANGU PG1120 grade	A30
zGroove Compact	A31–A35
HG chip breaker	A36–A37
Recommended cutting data	A38–A40



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ZP G D 04 04 – H G

1 2 3 4 5 6 7

A

Turning

Application	
Code	Description
ZP	Parting
ZT	Grooving & turning
ZR	Form turning

Insert seat size [mm]	
Groove width	
Code	Description
B	2,0
E	2,5
F	3,0
G	4,0
H	5,0
K	6,0
L	8,0

B

Milling

1

2

C

Drilling

No. of cutting edges	
Code	Description
S	Single
D	Double

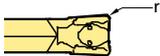
Insert thickness S [mm]	
Code	Description
	
02	2,0
025	2,5
03	3,0
04	4,0
05	5,0
06	6,0
08	8,0

3

4

D

Technical Information

Nose radius r [mm]	
Code	Description
	
02	0,2
03	0,3
04	0,4
08	0,8

Tolerance class [mm]	
Code	Description
M	±0,13
E	±0,025
H	±0,025

5

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Chip breaker	
Code	Description
G	General chip breaker
F	Special chip breaker
M	Straight edge

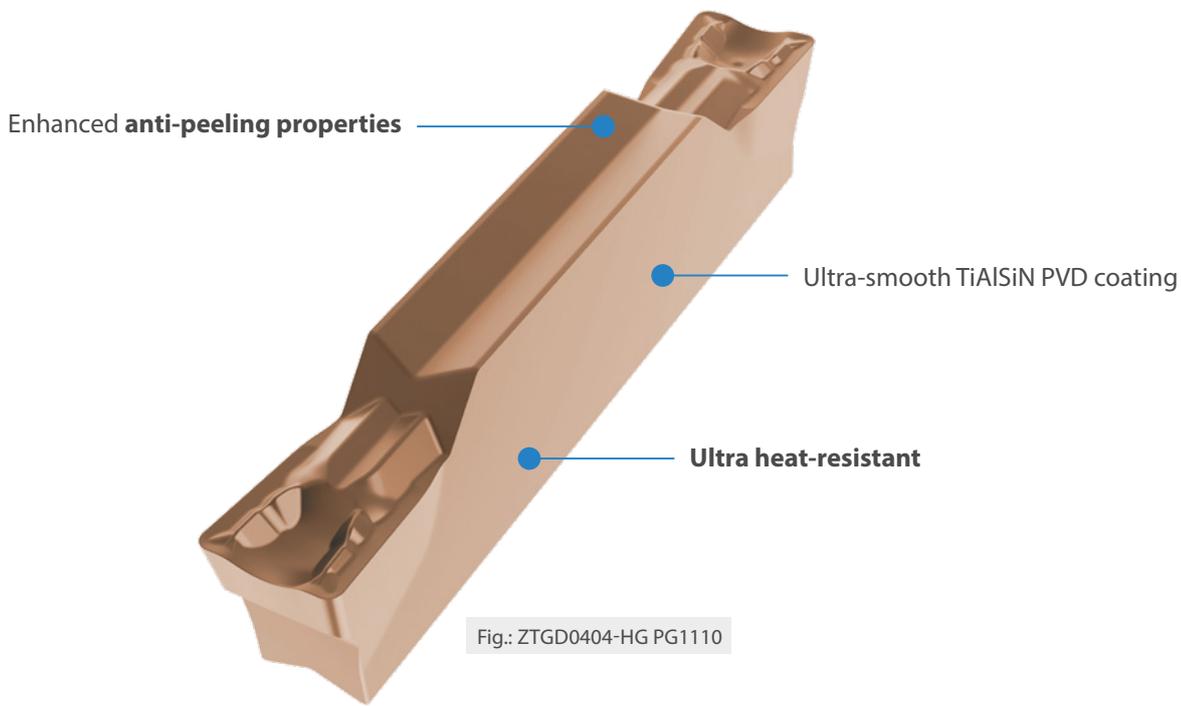
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PG1110 grade

Maximum resistance to wear when working with difficult-to-machine materials

YOUR BENEFITS

- Thermally stable TiAlSiN coating technology with **enhanced adhesion properties** and **ultra-smooth coating surface**
- **Longer tool life** thanks to hard substrate base
- Ideally suited for **mass production applications** with stable cutting conditions



The following articles are currently available with the new PG1110 grade:

Article	Stock
ZTBD02002-HG PG1110	●
ZTED02503-HG PG1110	●
ZTFD0303-HG PG1110	●
ZTGD0402-HG PG1110	●
ZTGD0404-HG PG1110	●
ZTHD0504-HG PG1110	●
ZTKD0608-HG PG1110	●

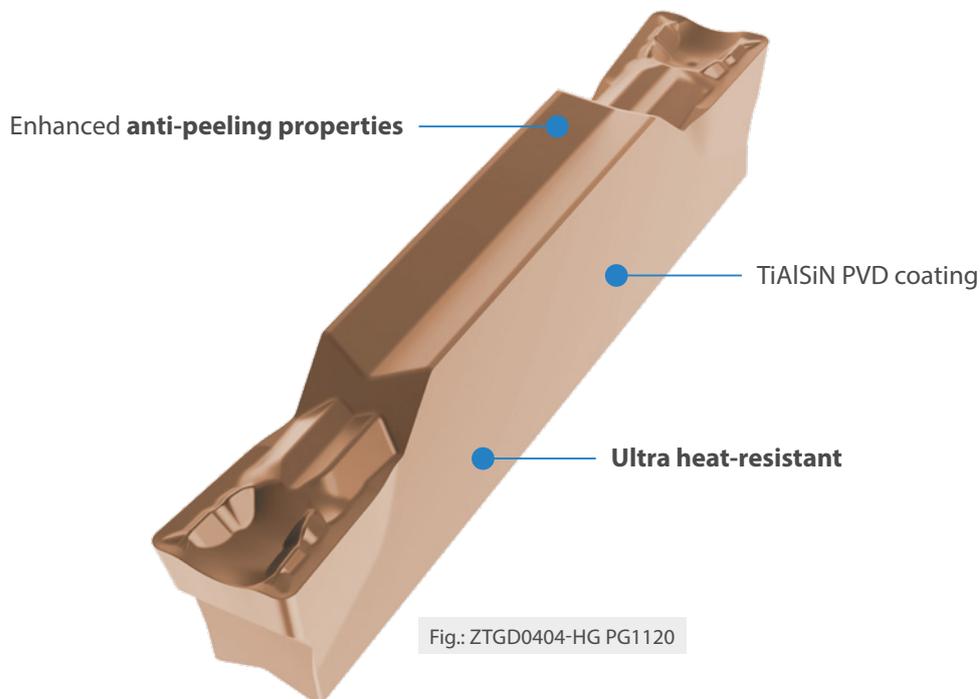
● Ex stock ○ On demand

PG1120 grade

Maximum reliability even when cutting conditions change

YOUR BENEFITS

- Well suited for machining alloyed steel, stainless steel and difficult-to-machine materials
- Suitable for parting and grooving applications under high thermal and mechanical loads
- Temperature-resistant TiAlSiN coating with **ultra-smooth surface** and **enhanced adhesion properties**
- **Reduced chipping on cutting edge** thanks to high fracture toughness



The following articles are currently available with the new **PG1120** grade:

Article	Stock
ZTBD02002-HG PG1120	●
ZTED02503-HG PG1120	●
ZTFD0303-HG PG1120	●
ZTGD0402-HG PG1120	●
ZTGD0404-HG PG1120	●
ZTHD0504-HG PG1120	●
ZTKD0608-HG PG1120	●

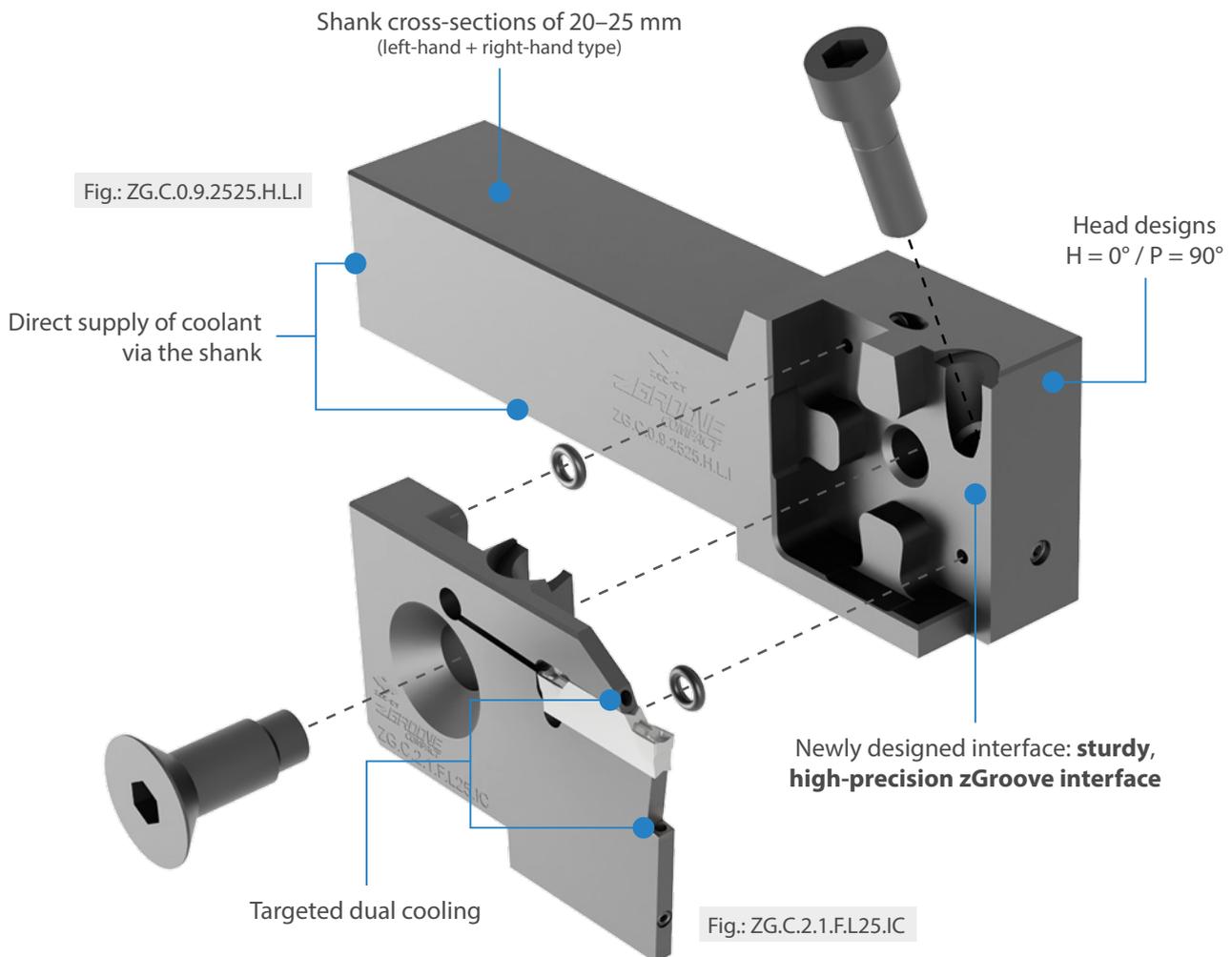
● Ex stock ○ On demand

ZGROOVE COMPACT

Compact design, easy to work with

YOUR BENEFITS

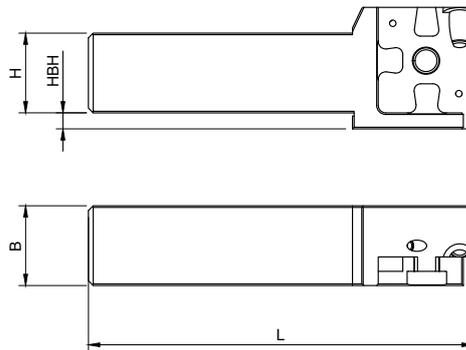
- Newly designed zGroove interface for **simple** and **precise change-over of any component**
- **Excellent chip removal** and **reduced machining temperatures** thanks to targeted dual cooling
- **Compatible with a wide range of machines** thanks to compact design
- Sturdy design for all parting and grooving/turning applications



Porte-outil zGroove Compact, H = 0°



Left hand style



Left hand style

Article	*	Stock	Dimensions [mm]				Primary cartridge
			H	B	L	HBH	
ZG.C.0.9.2020.H.L.I	*	●	20	20	108	10	ZG.C.2.**.L**.IC
ZG.C.0.9.2525.H.L.I	*	●	25	25	120	5	ZG.C.2.**.L**.IC

● Ex stock ○ On demand

Right hand style

Article	*	Stock	Dimensions [mm]				Primary cartridge
			H	B	L	HBH	
ZG.C.0.9.2020.H.R.I	*	●	20	20	108	10	ZG.C.2.**.R**.IC
ZG.C.0.9.2525.H.R.I	*	●	25	25	120	5	ZG.C.2.**.R**.IC

● Ex stock ○ On demand

Spare parts

		Article	Stock
	Screw (primary cartridge)	ZG.C.2.M8*16	●
	Screw (insert)	GB70-85-M6*20	●

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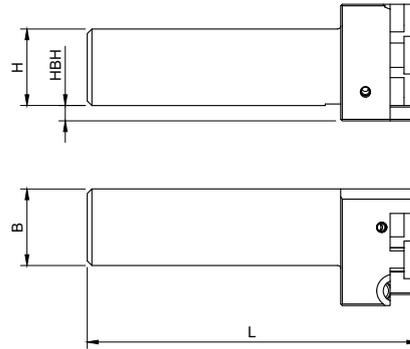
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Porte-outil zGroove Compact shank holder, P = 90°


Left hand style


Left hand style

Article	*	Stock	Dimensions [mm]				Primary cartridge
			H	B	L	HBH	
ZG.C.0.9.2020.P.LR.I	*	●	20	20	90	10	ZG.C.2.**.R**.IC
ZG.C.0.9.2525.P.LR.I	*	●	25	25	107	5	ZG.C.2.**.R**.IC

● Ex stock ○ On demand

Right hand style

Article	*	Stock	Dimensions [mm]				Primary cartridge
			H	B	L	HBH	
ZG.C.0.9.2020.P.RL.I	*	●	20	20	90	10	ZG.C.2.**.L**.IC
ZG.C.0.9.2525.P.RL.I	*	●	25	25	107	5	ZG.C.2.**.L**.IC

● Ex stock ○ On demand

Spare parts

		Article	Stock
	Screw (primary cartridge)	ZG.C.2.M8*16	●
	Screw (insert)	GB70-85-M6*20	●

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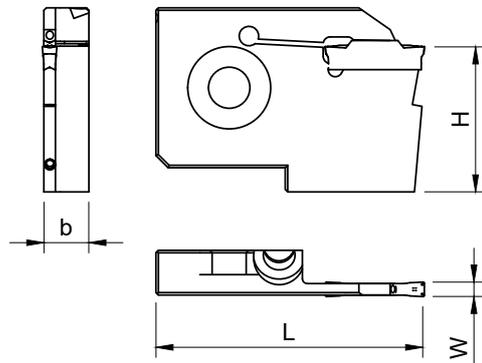
zGroove Compact primary cartridge (parting & grooving / turning)

A

Turning



Left hand style



B

Milling

Article	*	Stock		Dimensions [mm]					Insert 
		R	L	W	H	a _r max.	L	b	
ZG.C.2.1.B.L/R10.IC		●	●	2.0	30	10	45	9	Z*BD**
ZG.C.2.1.E.L/R15.IC		●	●	2.5	30	15	50	9	Z*ED**
ZG.C.2.1.F.L/R15.IC		●	●	3.0	30	15	55	9	Z*FD**
ZG.C.2.1.F.L/R25.IC		●	●	3.0	30	25	55	9	Z*FD**
ZG.C.2.1.G.L/R20.IC		●	●	4.0	30	20	55	9	Z*GD**
ZG.C.2.1.H.L/R25.IC		●	●	5.0	30	25	55	9	Z*HD**
ZG.C.2.1.K.L/R25.IC		●	●	6.0	30	25	55	9	Z*KD**
ZG.C.2.1.L.L/R30.IC		●	●	8.0	30	30	55	9	Z*LD**

● Ex stock ○ On demand

C

Drilling



Find all compatible grooving inserts on our website.

D

Technical Information

Also compatible with our new **HG chip breaker** (see page A36)

E

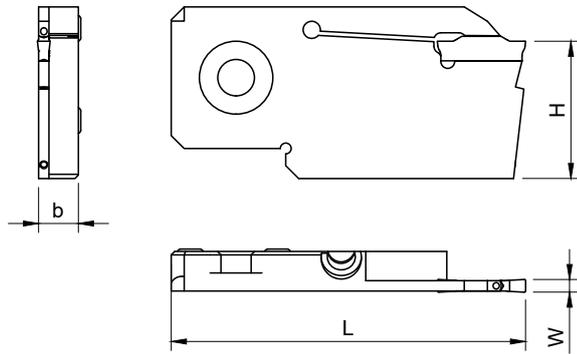
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Spare parts			
		Article	Stock
	Seal (primary cartridge)	ZG.C.S.3*1.5	●

zGroove Compact primary cartridge, reinforced (parting & grooving (ar max. 40 mm))



Left hand style



Article	*	Stock		Dimensions [mm]					Insert
		R	L	W	H	ar max.	L	b	
ZG.C.2.2.E.L/R42.IC	*	●	●	2.5	30	21	55	9	Z*ED**
ZG.C.2.2.F.L/R65.IC	*	●	●	3.0	30	32,5	68	9	Z*FD**
ZG.C.2.2.F.L/R80.IC	*	●	●	3.0	30	40	71	9	Z*FD**

● Ex stock ○ On demand



Find all compatible grooving inserts on our website.

Also compatible with our new **HG chip breaker** (see page A36)

Spare parts		Article	Stock
	Seal (primary cartridge)	ZG.C.S.3*1.5	●

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HG chip breaker

Specially designed for soft and difficult-to-machine materials

YOUR BENEFITS

- **Low cutting forces** thanks to a positive geometry and sharp cutting edge design
- Ideally suited for soft and ductile materials
- **Flexible** in any application (grooving/parting/ Groove-turning)
- **Less wear and tear** thanks to reduced surface contact
- During machining, the geometry creates a **virtually flat groove base**

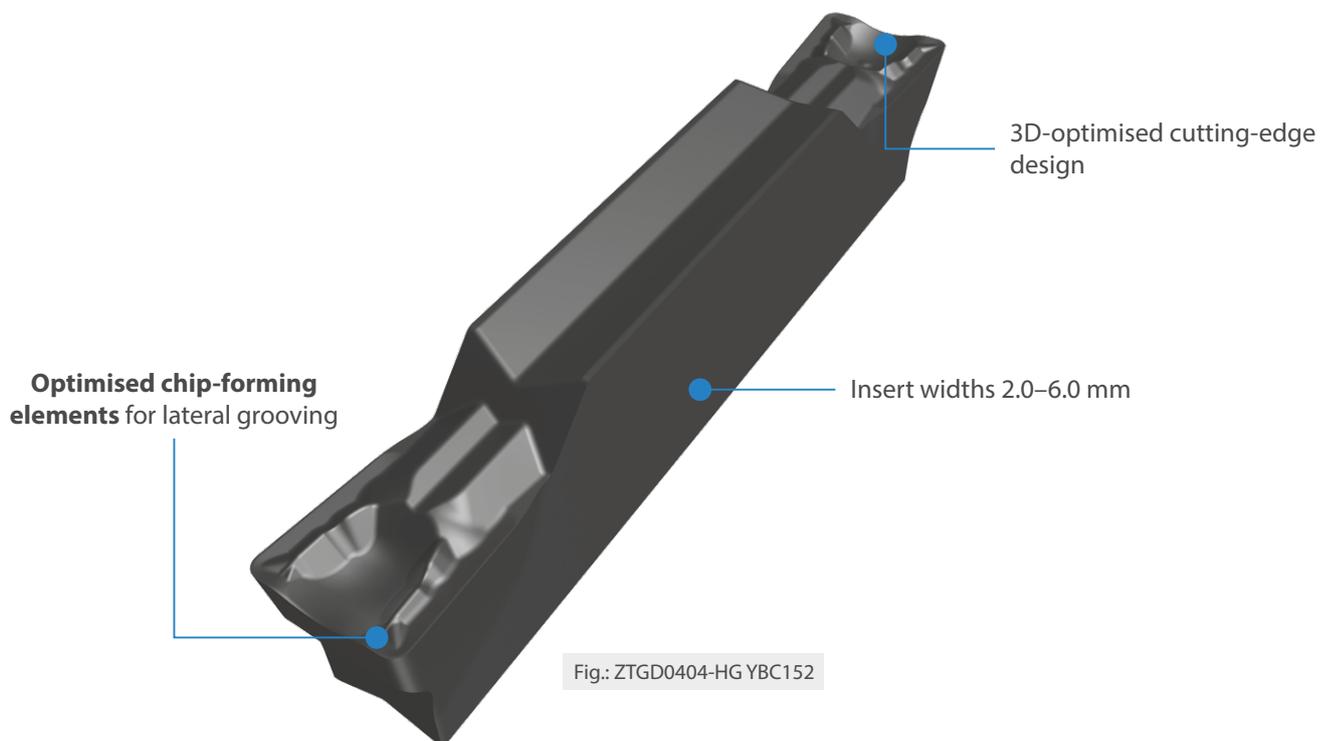
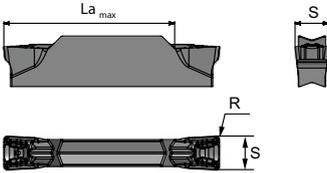


Fig.: ZTGD0404-HG YBC152

Chip breaker	Application	P	M	K	N	S	H	Feed	Cutting edge design
ZT****-HG	Parting & grooving ✓	✓	✓	✓	✓	✓	✓		
	Turning ✓								
✓ Very suitable	✓ Suitable								

-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

Parting inserts

Parting & grooving insert (double sided)									HC ¹ (CVD)	HC ¹ (PVD)	HW	
 <p>Double cutting edge</p>									P		  	
									M		 	
									K			
									N			
									S		  	
									H			
ISO	S ±0.1	R ±0.1	La _{max}	L	f ₁	f ₂	ap	YBC152	PG1110 PG1120 YBG205H			
	ZTBD02002-HG	2.0	0.2	13	16	0.04-0.12	0.05-0.15	0.30-1.00		  		
	ZTED02503-HG	2.5	0.3	17	20	0.04-0.16	0.06-0.18	0.40-1.50		  		
	ZTFD0303-HG	3.0	0.3	17	20	0.05-0.20	0.10-0.23	0.40-2.00		  		
	ZTGD0402-HG	4.0	0.2	22	25	0.08-0.25	0.12-0.28	0.30-3.00		  		
	ZTGD0404-HG	4.0	0.4	22	25	0.08-0.25	0.15-0.30	0.50-3.00		  		
	ZTHD0504-HG	5.0	0.4	22	25	0.10-0.28	0.18-0.35	0.50-3.50		  		
	ZTKD0608-HG	6.0	0.8	22	25	0.12-0.30	0.20-0.45	0.90-4.00		  		

● Ex stock ○ On demand

HC¹ Coated carbide
HW Uncoated carbide

f₁ Parting & grooving
f₂ Turning
ap Side turning

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Parting & grooving inserts

	Material group	Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed vc [m/min]			
						HC (CVD)		HC (PVD)	
						YBC152	YBC252	YBG102	YBG105
A Turning	P Unalloyed steel	approx. 0,15 % C	annealed	125	1		190		
		approx. 0,45 % C	annealed	190	2		175		
		approx. 0,45 % C	tempered	250	3		145		
		approx. 0,75 % C	annealed	270	4		140		
		approx. 0,75 % C	tempered	300	5		135		
	P Low-alloyed steel		annealed	180	6		170		
			tempered	275	7		125		
			tempered	300	8		115		
			tempered	350	9		105		
	P High-alloyed steel and high-alloyed tool steel		annealed	200	10		125		
			hardened and tempered	325	11		95		
M Milling	Stainless steel	ferritic/martensitic	annealed	200	12		165	165	170
		martensitic	tempered	240	13		135	135	140
		austenitic	quench hardened	180	14		155	155	160
		austenitic-ferritic		230	15		135	135	140
K	Grey cast iron	perlitic/ferritic		180	16		240		
		perlitic (martensitic)		260	17		185		
	Cast iron with spheroidal graphite	ferritic		160	18		220		
		perlitic		250	19		165		
	Malleable cast iron	ferritic		130	20		175		
		perlitic		230	21		165		
C Drilling	Aluminium wrought alloys	cannot be hardened		60	22				
		hardenable	hardened	100	23				
	N Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	24				
		≤ 12% Si, hardenable	hardened	90	25				
		> 12% Si, cannot be hardened		130	26				
	N Copper and copper alloys (bronze/brass)	machining steel, PB> 1%			110	27			
		CuZn, CuSnZn			90	28			
		CuSn, Pb-free copper, electrolytic copper			100	29			
D Technical Information	S Heat-resistant alloys	Fe-based alloys	annealed	200	30			95	100
			hardened	280	31			50	50
		Ni or Co bass	annealed	250	32			80	80
			hardened	350	33			70	70
	S Titanium alloys	pure titanium		R _m 400	35			145	150
		α and β alloys	hardened	R _m 1050	36			50	50
H	Hardened steel		hardened and tempered	55 HRC	37				
			hardened and tempered	60 HRC	38				
	Hard cast iron		cast	400	39				
X	Non-metallic materials		hardened and tempered	55 HRC	40				
		Thermoplasts			41				
		Thermosetting plastics			42				
		Plastic, glass-fibre reinforced GFRP			43				
		Plastic, carbon fibre reinforced CFRP			44				
		Graphite			45				
Wood			46						

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.
For examples of material for cutting tool groups view page D11.

A Turning
B Milling
C Drilling
D Technical Information
E Index



High-feed milling system XMR13

Indexable milling

System code – milling bodies	B42–B43
ISO-Code – inserts	B44–B45
 PANGU PG8020 grade	B46
 PANGU PG8030 grade	B47
EMP08 square shoulder milling system	B48–B53
EMP10 square shoulder milling system	B54–B59
XMR13 high-feed milling system	B60–B63
Recommended cutting data	B64–B72

B

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Turning

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S P K N 12 04 ED T21K R – DM

1 2 3 4 5 6 7 8 9 10

A

Turning

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Drilling

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Insert shape	
A 	C 
H 	L 
M 	O 
P 	R 
S 	T 
W 	X Special
Z Special	

Clearance angle	
B 	C 
D 	E 
F 	N 
P 	

Tolerance class			
			
Code	I.C [mm]	m [mm]	S [mm]
A	±0,025	±0,005	±0,025
C	±0,025	±0,013	±0,025
E	±0,025	±0,025	±0,025
F	±0,013	±0,005	±0,025
G	±0,025	±0,025	±0,130
H	±0,013	±0,013	±0,025
J	±0,05-0,13	±0,005	±0,025
K	±0,05-0,13	±0,013	±0,025
L	±0,05-0,13	±0,025	±0,025
M	±0,05-0,13	±0,08-0,18	±0,130
N	±0,05-0,13	±0,08-0,18	±0,025
U	±0,08-0,25	±0,13-0,38	±0,130

1

2

3

Fastening features (metric)	
Insert shape	
A 	B 
C 	F 
G 	H 
J 	M 
N 	Q 
R 	T 
U 	W 
X Special	

Cutting edge length l [mm]	
Insert shape	
	
A	C, M
	
H, O, P	L
	
R	S
	
T	W

4

5

Insert thickness S [mm]			
Code	S	Code	S
00	0,79	05	5,56
T0	0,99	T5	5,95
01	1,59	06	6,35
T1	1,98	T6	6,75
02	2,38	07	7,94
T2	2,58	09	9,52
03	3,18	T9	9,72
T3	3,97	11	11,11
04	4,76	12	12,70
T4	4,96		

6

Angle			
Code	Kr	Code	an
A	45°	A	3°
D	60°	B	5°
E	75°	C	7°
F	85°	D	15°
P	90°	E	20°
Z	Special	F	25°
		G	30°
		N	0°
		P	11°
		Z	Special

7

Chamfer							
Code	Type	Code	Angle	Code	Width [mm]	Code	Position
F		0	5°	0	0,10	K	
E		1	10°	1	0,15		
T		2	15°	2	0,20	P	
S		3	20°	3	0,25		
		4	25°	4	0,30	W	
		5	30°	5	0,35		
				6	0,40	-	
				7	0,45		

8

Cutting direction	
Code	Description
R	Right
L	Left
N	Right and left

9

Chip breakers

10

A

Turning

B

Milling

C

Drilling

D

Technical Information

E

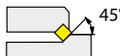
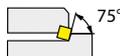
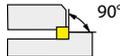
Index

FM A 12 050 – A22 O – N 06 – 04 (L) (AC)

1 2 3 4 5 6 7 8 9 10 11

Type	
Code	Description
BM	Profile milling
CM	Chamfer milling
EM	Square shoulder milling
FM	Face milling
HM	Helical milling
SM	Slot milling
TM	T-slot milling
XM	Special

1

Entering angle			
A		E	
D		P	
R			

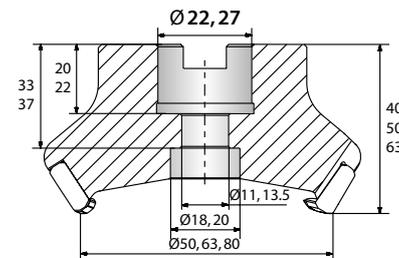
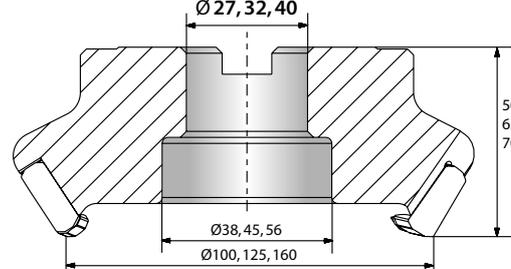
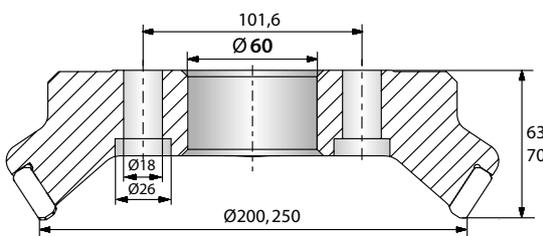
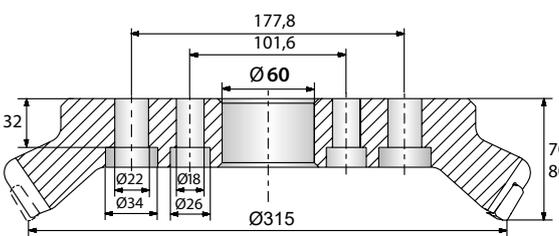
2

Serial number

3

Nominal diameter [mm]	
Code	Description
025	25
050	50
160	160
315	315
...	

4

Type and size of tool holders			
Code	Type	Code	Type
A	<p>Nominal diameter $\varnothing 50 - 80$ mm</p> 	B	<p>Nominal diameter $\varnothing 100 - 160$ mm</p> 
C	<p>Nominal diameter $\varnothing 200 - 250$ mm</p> 	D	<p>Nominal diameter $\varnothing 315$ mm</p> 
G	Straight shank	XP	Weldon shank
K	Bore with keyway		

5

With respect to mounting please adhere to the information provided by the tool holder manufacturer.

Insert shape	
A 	C 
H 	L 
M 	O 
P 	R 
S 	T 
W 	X Special
Z Special	

6

Clearance angle	
B 	C 
D 	E 
F 	N 
P 	

7

Cutting edge length l [mm]	
Insert shape	
	
A	C, M
	
H, O, P	L
	
R	S
	
T	W

8

Number of teeth

9

Cutting direction	
Code	Description
L	Left

10

Cooling	
Code	Description
C	Inner cooling
AC	Air cooling

11



Tools with B coupling and inner coolant supply require the following spare parts:



Spare parts (B coupling with inner coolant supply)					
		B27	B32	B40	B40
	∅	80	100	125	160
	Coolant clamp screw	LDB27C	LDB32C	LDB40C	LDB40C
	Coolant shower plate	B27-002-CP	B32-002-CP	B40-002-CP	B40-003-CP

When purchasing tools with inner coolant supply and B coupling these spare parts are included in delivery.

PG8020 grade

For high-performance finishing applications involving heat-resistant cast steel

YOUR BENEFITS

- **High-performance finish milling grade** for difficult-to-machine materials such as heat-resistant cast steel
- **Reduced wear and tear** and longer **tool life**
- High mechanical stability
- Ultra, thermally stable coating

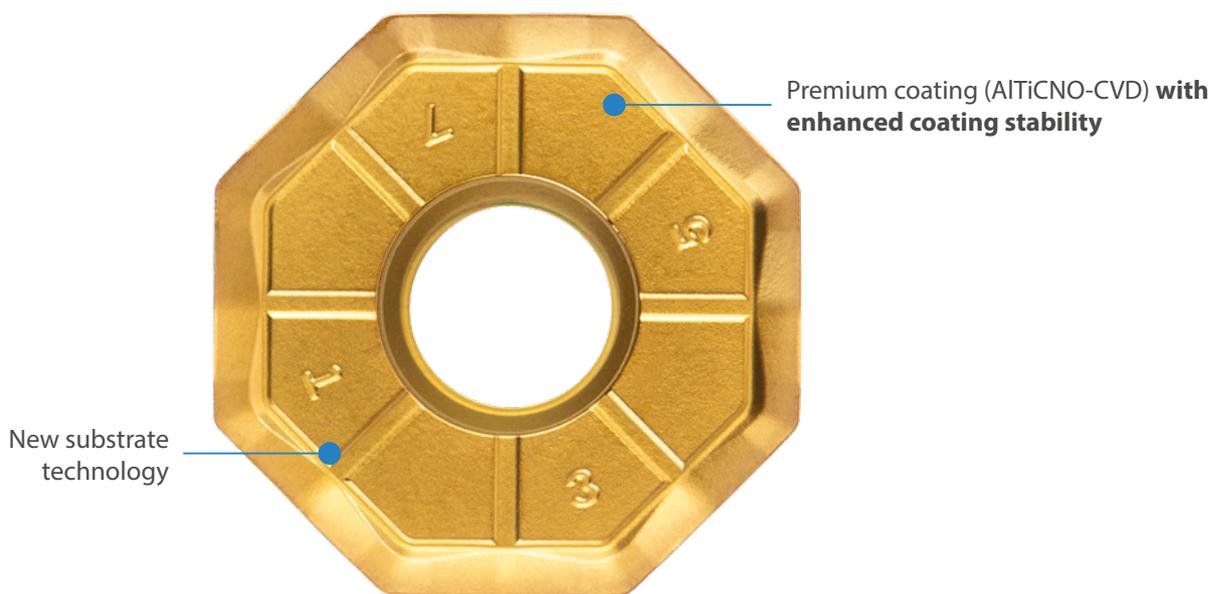


Fig.: ONHU09T508ANN-GM PG8020

The following articles are currently available with the new PG8020 grade:

Article	Stock	Milling system	Article	Stock	Milling system
LNKT120624PNR-GM PG8020	●	EMP09	SNMX120512-GH PG8020	●	FMA17/FMP17/FME17
LNKT120632PNR-GM PG8020	●	EMP09	SNMX120512-GL PG8020	●	FMA17/FMP17/FME17
ONMU060408-GH PG8020	●	FMA12	SNMX120512-GM PG8020	●	FMA17/FMP17/FME17
ONMU060408-GM PG8020	●	FMA12			
ONMU09T512-GH PG8020	●	FMA12			
ONMU09T512-GM PG8020	●	FMA12			
SDMT06T208-DM PG8020	●	XMR01			
SDMT06T208-NM PG8020	●	XMR01			
SDMT09T312-DM PG8020	●	XMR01			
SDMT09T312-NM PG8020	●	XMR01			
SDMT120412-DM PG8020	●	XMR01			
SDMT120412-NM PG8020	●	XMR01			
SNGX1205PNN-GH PG8020	●	FMP17			
SNGX1205PNN-GL PG8020	●	FMP17			
SNGX1205PNN-GM PG8020	●	FMP17			

● Ex stock ○ On demand

● Ex stock ○ On demand

PG8030 grade

Ultra-efficient milling grade for HRSA materials

YOUR BENEFITS

- **Ultra-efficient milling grade** for difficult-to-machine materials
- Ideal for materials such as heat-resistant cast steel and duplex Materials
- **Heat-resistant anti-peeling coating**, even under variable thermal loads
- **Maximum process reliability** thanks to improved impact and wear resistance

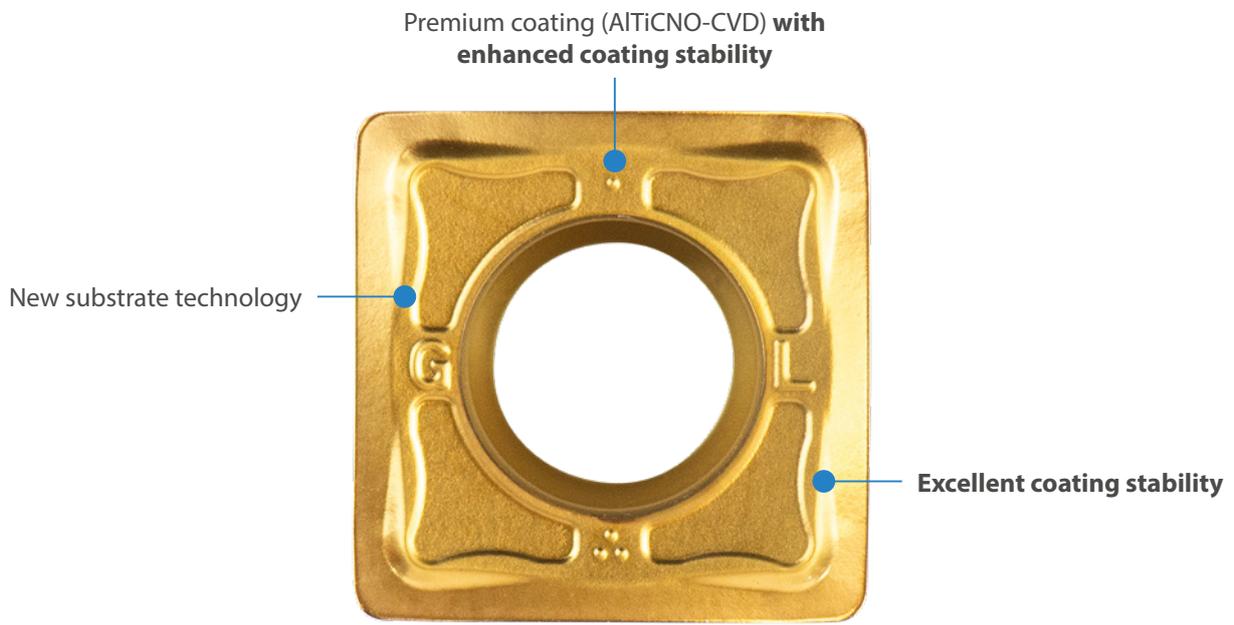


Fig.: SNGX1205PNN-GL PG8030

The following articles are currently available with the new **PG8030** grade:

Article	Stock	Milling system	Article	Stock	Milling system
ONMU060408-GH PG8030	●	FMA12	SNMX120512-GH PG8030	●	FMA17/FMP17/FME17
ONMU060408-GM PG8030	●	FMA12	SNMX120512-GL PG8030	●	FMA17/FMP17/FME17
ONMU09T512-GH PG8030	●	FMA12	SNMX120512-GM PG8030	●	FMA17/FMP17/FME17
ONMU09T512-GM PG8030	●	FMA12			
SDMT06T208-DM PG8030	●	XMR01			
SDMT06T208-NM PG8030	●	XMR01			
SDMT09T312-DM PG8030	●	XMR01			
SDMT09T312-NM PG8030	●	XMR01			
SDMT120412-DM PG8030	●	XMR01			
SDMT120412-NM PG8030	●	XMR01			
SNGX1205PNN-GH PG8030	●	FMP17			
SNGX1205PNN-GL PG8030	●	FMP17			
SNGX1205PNN-GM PG8030	●	FMP17			

● Ex stock ○ On demand

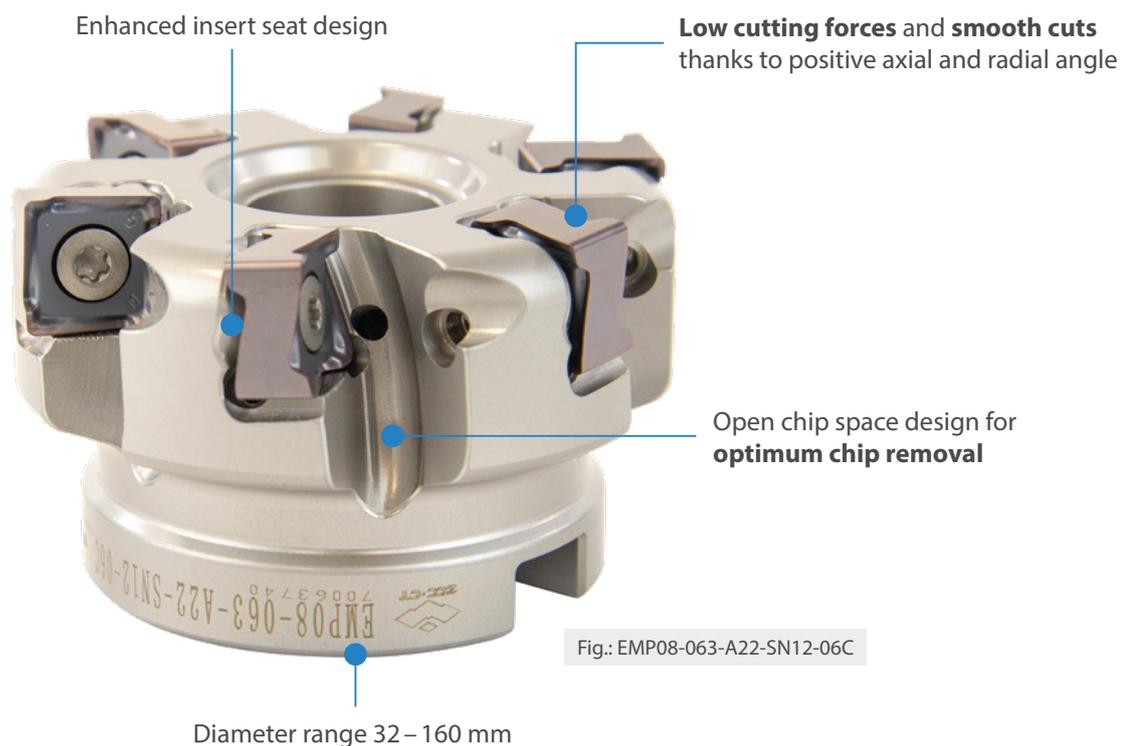
● Ex stock ○ On demand

EMP08 square shoulder milling system

Efficient and reliable 90° shoulder milling

YOUR BENEFITS

- **Maximum efficiency** thanks to eight-edged, double-sided inserts
- **Real 90° machining** thanks to complex contoured main cutting edge
- **Reliable results even when working** under difficult conditions thanks to optimised insert seat design
- **Universal tool** for large components with focus on **surface quality, reduction in cutting forces** and **process reliability**; ideal for **mass production applications**



The **maximum cutting depth** in 90° shoulder machining operations with EMP08-SNGY12** is **8.3 mm**. For **lower width of cuts**, a **radial offset** of at least **0.4 mm** is required to ensure flawless shoulder formation.

Insert grades

PANGU

PG8020	YBM253	YBD152	YBG205H	YB9320	YBS303
CVD S10-S20 M15-M35	CVD P20-P40 M15-M35	CVD K10-K25	PVD P10-P30 M20-M40	PVD P10-P30 M20-M40	PVD S20-S30 M20-M40

Chip breaker

SN*Y-GL



Finishing

SN*Y-GM



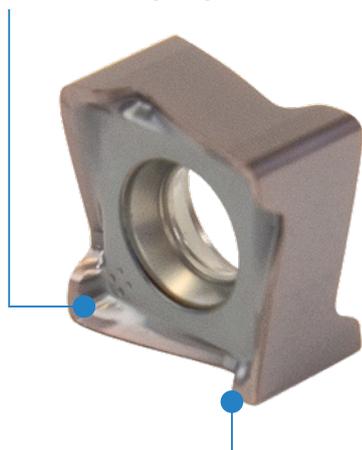
General machining

SN*Y-GH



High-feed machining

Complex chip former for **controlled chip removal** protects unused cutting edges



high-quality surface finish thanks to a large radius wiper

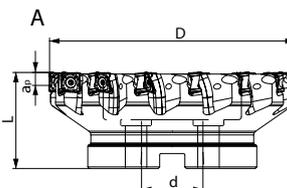
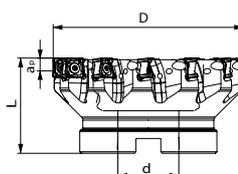
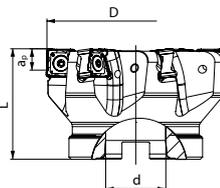
Low cutting forces thanks to positive cutting edge design



Fig.: SNGY12T508PNR-GM YBG205H

Square shoulder milling

EMP08 Kr: 90°



B

C

Article	*	Stock	Dimensions [mm]					Teeth	kg	Insert 
			ØD	ØD ₁	ød	L ₁	a _{p max}			
EMP08-050-A22-SN12-04C	*	●	50	40	22	40	8	4	0,25	SNGY12T508PNR**
EMP08-050-A22-SN12-05C	*	●	50	40	22	40	8	5	0,24	
EMP08-063-A22-SN12-05C	*	●	63	50	22	50	8	5	0,46	
EMP08-063-A22-SN12-06C	*	●	63	50	22	50	8	6	0,48	
EMP08-080-A27-SN12-06C	*	●	80	60	27	50	8	6	1,01	
EMP08-080-A27-SN12-08C	*	●	80	60	27	50	8	8	1,01	
EMP08-100-B32-SN12-08C	*	●	100	70	32	50	8	8	1,16	
EMP08-100-B32-SN12-10C	*	●	100	70	32	50	8	10	1,11	
EMP08-125-B40-SN12-10C	*	●	125	90	40	63	8	10	2,52	
EMP08-125-B40-SN12-12C	*	●	125	90	40	63	8	12	2,45	
EMP08-160-C40-SN12-12		●	160	110	40	63	8	12	4,14	
EMP08-160-C40-SN12-14		●	160	110	40	63	8	14	4,07	
EMP08-200-C60-SN12-14		●	200	137	60	63	8	14	6,04	
EMP08-200-C60-SN12-16		●	200	137	60	63	8	16	6,03	

● Ex stock ○ On demand

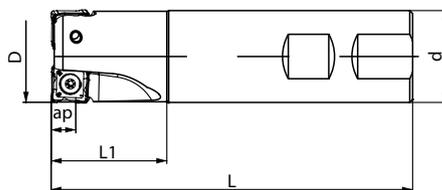
* With internal cooling

Spare parts

	Insert	SNGY12T5	
	ØD	32-200	
	Screw	IRM4x10 (3,4Nm)	
	Wrench (Insert)	WT15IP/WT15IS	

Square shoulder milling

EMP08 Kr: 90°



Article	*	Stock	Dimensions [mm]					Teeth	kg	Insert
			ØD	ød	L ₁	L	a _{p max}			
EMP08-032-XP32-SN12-02C	*	○	32	32	40	125	8	2	0,617	 SNGY12T508PNR**
EMP08-040-XP32-SN12-03C	*	●	40	32	45	125	8	3	0,678	
EMP08-040-XP32-SN12-04C	*	●	40	32	45	125	8	4	0,776	

● Ex stock ○ On demand

* With internal cooling

Spare parts		
	Insert ØD	SNGY12T5 32-200
	Screw	IRM4x10 (3,4Nm)
	Wrench (Insert)	WT15IP/ WT15IS



A

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Indexable milling Square shoulder milling

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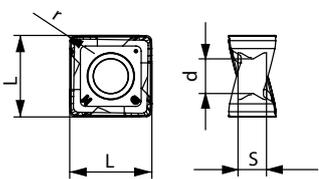
E

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-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

SNGY	L	I.C	S	d
12 T5	8,00	12,70	7,36	4,7

Milling Insert

SN** milling insert		HC ¹ (CVD)			HC ¹ (PVD)			HT	HC ²	HW
	P									
	M									
	K									
	N									
	S									
	H									

ISO		bs	r	PG8020 YBM253 YBD152	YBG205H YB9320 YBS303				
	SNGY12T508PNR-GL	1,2	0,8	● ● ●	● ● ●				
	SNGY12T508PNR-GM	1,2	0,8		● ●				
	SNGY12T508PNR-GH	1,2	0,8		● ●				

● Ex stock ○ On demand

HC¹ Coated carbide
 HT Uncoated cermet
 HC² Coated cermet
 HW Uncoated carbide



Square shoulder
milling system
EMP08

EMP10 square shoulder milling system

Maximum feed rates to boost your production

YOUR BENEFITS

- Eight-edged, tangentially mounted inserts for **maximum efficiency** and **cutting force absorption**
- **Real 90° shoulder machining** thanks to complex contoured main cutting edge
- **High per-tooth feed rates** thanks to tangentially mounted insert
- Smooth, easy cuts; ideal for interrupted cuts and variable cutting conditions
- **Maximum reliability** thanks to enhanced insert seat geometry
- For any application involving steel, cast iron, stainless steel and difficult-to-machine materials; ideal choice for **low-cost mass production applications**

High cutting performance thanks to tangentially mounted inserts

Enhanced insert seat design for superior load distribution

Heavy-duty milling body for maximum cutting rates coupled with High Performance reliability



Fig.: EMP10-050-A22-S013-05C

Diameter range 32 – 160 mm

Insert grades

YBM253	YBG205H	YB9320
CVD	PVD	PVD
P20-P40	P10-P30	P10-P30
M15-M35	M20-M40	M20-M40

Chip breaker

SOKX-GM



General machining

Eight usable cutting edges for **maximum efficiency**



Dual rake angle design for **smooth cuts with high cutting edge stability**

Complex contoured main cutting edge for **high-precision 90° shoulder machining operations**

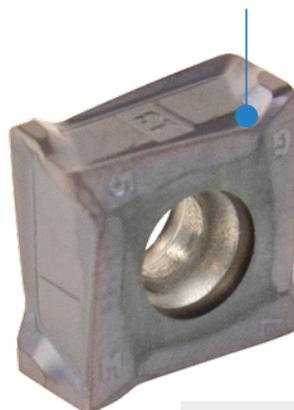
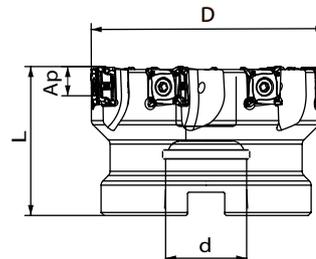
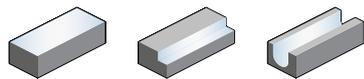


Fig.: SOKX130608PNR-GM YGB205H

Square shouler milling

EMP10 Kr: 90°



Article	*	Stock	Dimensions [mm]				Teeth	kg	Insert
			ØD	ød	L ₁	a _{p max}			
EMP10-040-A16-SO13-03C	*	○	40	16	40	8	3	0,25	
EMP10-040-A16-SO13-04C	*	●	40	16	40	8	4	0,21	
EMP10-040-A16-SO13-05C	*	○	40	16	40	8	5	0,20	
EMP10-050-A22-SO13-04C	*	●	50	22	40	8	4	0,35	
EMP10-050-A22-SO13-05C	*	●	50	22	40	8	5	0,32	
EMP10-050-A22-SO13-06C	*	●	50	22	40	8	6	0,32	
EMP10-063-A22-SO13-06C	*	●	63	22	40	8	6	0,56	
EMP10-063-A22-SO13-07C	*	○	63	22	40	8	7	0,56	
EMP10-063-A22-SO13-08C	*	○	63	22	40	8	8	0,57	
EMP10-080-A27-SO13-06C	*	○	80	27	50	8	6	1,17	
EMP10-080-A27-SO13-07C	*	●	80	27	50	8	7	1,19	
EMP10-080-A27-SO13-09C	*	○	80	27	50	8	9	1,18	
EMP10-100-B32-SO13-08C	*	○	100	32	50	8	8	1,64	
EMP10-100-B32-SO13-12C	*	○	100	32	50	8	12	1,66	
EMP10-125-B40-SO13-10C	*	○	125	40	63	8	10	3,21	
EMP10-125-B40-SO13-15C	*	○	125	40	63	8	15	3,23	
EMP10-160-B40-SO13-12C	*	○	160	40	63	8	12	6,2	
EMP10-160-B40-SO13-18C	*	○	160	40	63	8	18	6,21	

SOKX130608PNR-GM

● Ex stock ○ On demand

* With internal cooling

Spare parts

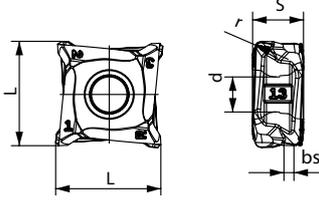
	Insert	SOKX1306
	ØD	40-160
	Screw	I60M4*12 (3,4Nm)
	Wrench (insert)	WT15IS



-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

SOKX	L	I.W	S	d
13 06	8,00	12,70	7,36	4,7

Milling insert

SO** milling insert				HC ¹ (CVD)		HC ¹ (PVD)		HT	HC ²	HW
	P									
	M									
	K									
	N									
	S									
	H									
ISO	bs	r	YBM253		YBG205H YB9320					
 SOKX130608PNR-GM	1,35	0,8	●		● ●					

● Ex stock ○ On demand

HC¹ Coated carbide
 HT Uncoated cermet
 HC² Coated cermet
 HW Uncoated carbide

A

Turning

B

Milling

C

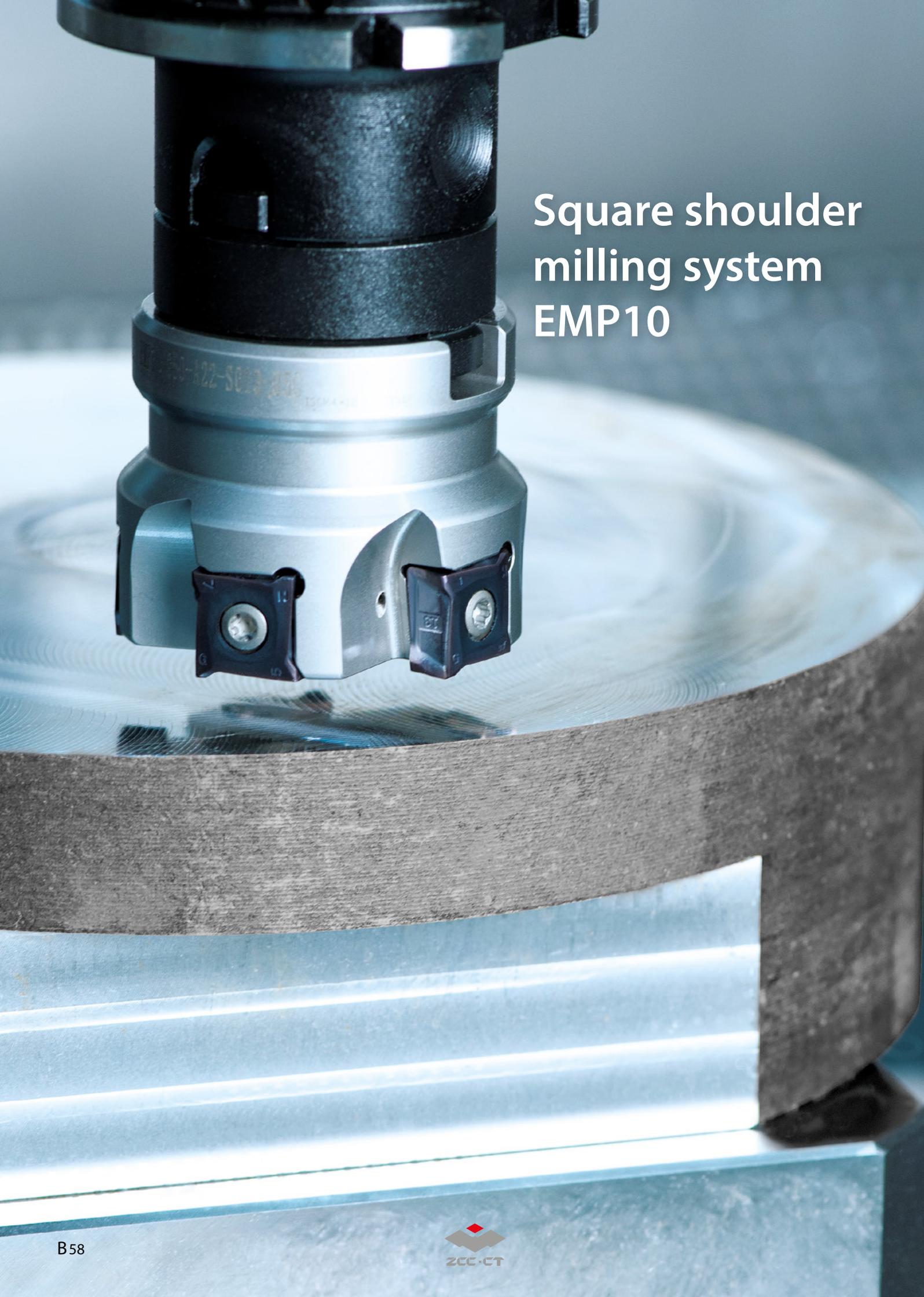
Drilling

D

Technical Information

E

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A close-up photograph of a square shoulder milling system, model EMP10, in operation. The tool is a complex, multi-part assembly with a black upper section and a silver lower section. It is mounted on a rotating table, which is shown in motion, creating a blurred circular pattern. The tool is cutting a metal workpiece, which is also shown in motion, creating a blurred surface. The background is a soft, out-of-focus blue-grey color.

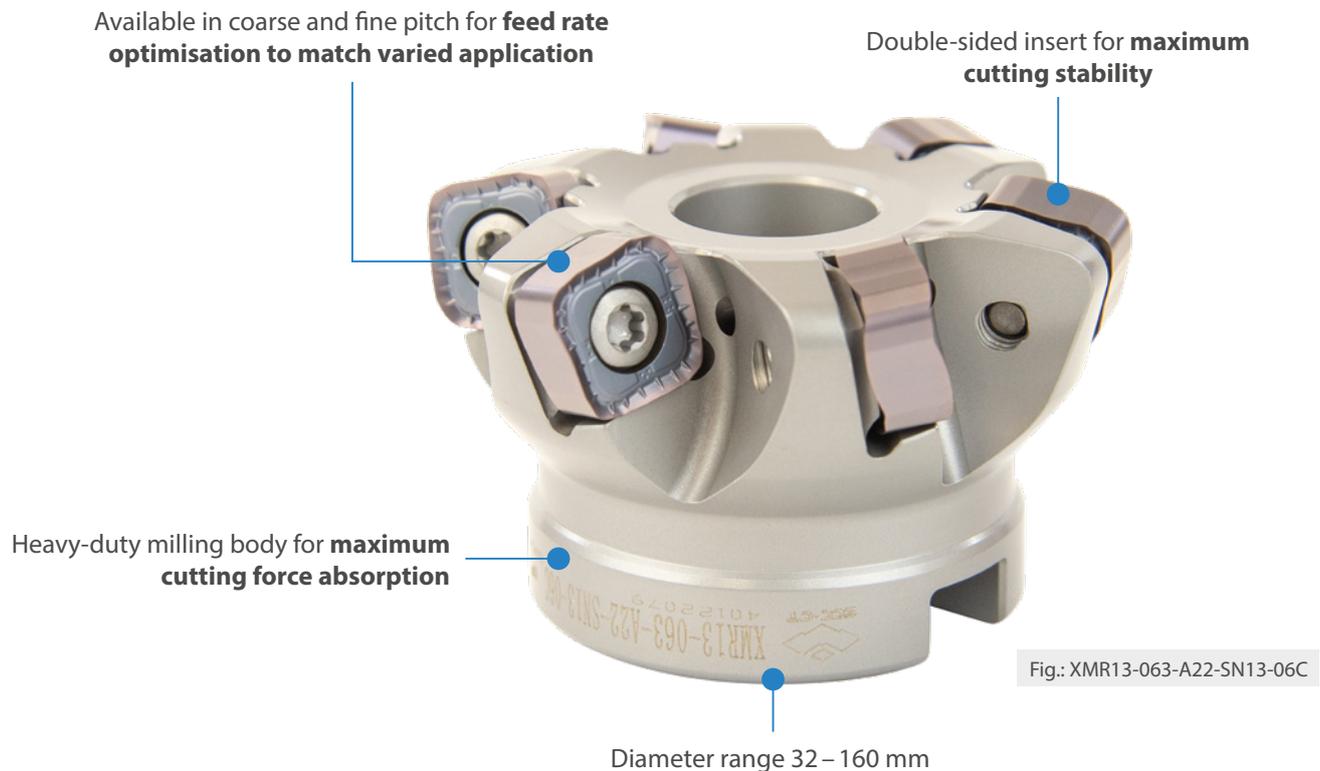
Square shoulder milling system EMP10

XMR13 high-feed milling system

For maximum performance in terms of feed rate and efficiency

YOUR BENEFITS

- Eight-edged, double-sided inserts for **maximum efficiency**
- Enhanced 3D contour of the cutting edge **decreases cutting forces** and **increases process reliability**
- Steady, even increase in cutting force when entering the material serves **to protect the cutting edge**
- Constant cutting forces during operation for **smooth** and **reliable machining**
- **High quality chip control** in steel, tool steel and cast iron



Insert grades

YBM253	YBC302	YBG205H	YB9320	YBS303
CVD	CVD	PVD	PVD	PVD
P20-P40	P20-P40	P10-P30	P10-P30	S20-S30
M15-M35		M20-M40	M20-M40	M20-M40

Chip breaker

SNMU-GL



Universal geometry

SNMU-GM



General machining

Eight usable cutting edges for **maximum efficiency**



Wiper geometry designed to deliver **high quality surface quality**

Enhanced 3D contour



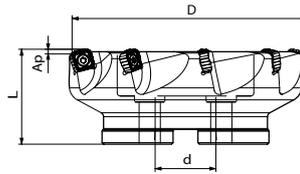
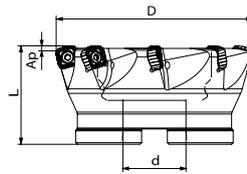
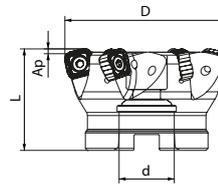
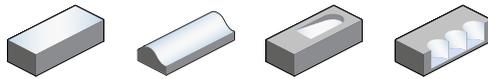
Fig.: SNMU130520-GL YBG205H

High-feed milling

A

Turning

XMR13 Kr: 15°



B

Milling

Article	*	Stock	Dimensions [mm]				Teeth	Coupling	kg	Insert
			ØD	ød	L	ap max				
XMR13-050-A22-SN13-04C	*	●	50	22	40	1,9	4	A	0,5	 SNMU130520**
XMR13-063-A22-SN13-05C	*	●	63	22	40	1,9	5	A	0,8	
XMR13-063-A22-SN13-07C	*	●	63	22	40	1,9	7	A	1,0	
XMR13-080-A27-SN13-06C	*	●	80	27	50	1,9	6	A	1,0	
XMR13-080-A27-SN13-08C	*	●	80	27	50	1,9	8	A	1,5	
XMR13-100-B32-SN13-07C	*	●	100	32	50	1,9	7	B	1,5	
XMR13-100-B32-SN13-10C	*	●	100	32	50	1,9	10	B	2,0	
XMR13-125-B32-SN13-08C	*	●	125	32	63	1,9	8	B	3,0	
XMR13-160-C40-SN13-09	*	●	160	40	63	1,9	9	C	5,0	

● Ex stock ○ On demand

* With internal cooling

C

Drilling

D

Technical Information

Spare parts		
	Insert	SNMU1305
	ØD	50-160
	Screw	I60M5X13 (3,5Nm)
	Wrench (insert)	WT20IT



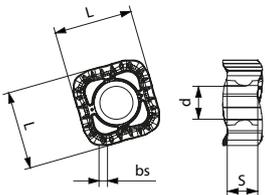
E

Index

- Ideal machining conditions
- ⊗ Normal machining conditions
- ⊗ Unfavourable machining conditions

SNMU	L	I.C	S	d
13 05	13,50	13,50	5,28	5,7

Milling insert

SN** milling insert			HC ¹ (CVD)		HC ¹ (PVD)		HT	HC ²	HW
	P	⊗ ⊗			⊗ ⊗				
	M	⊗			⊗ ⊗ ⊗				
	K								
	N								
	S					⊗			
	H								
ISO	bs	r	YBM253 YBC302		YBG205H YB9320 YBS303				
	SNMU130520-GL	1,5	2,0		● ● ○				
	SNMU130520-GM	1,5	2,0	● ○	● ○ ●				

● Ex stock ○ On demand

HC¹ Coated carbide
 HT Uncoated cermet
 HC² Coated cermet
 HW Uncoated carbide

A

Turning

B

Milling

C

Drilling

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Technical Information

E

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Indexable milling – group 2 (FMA01/02/03/04, FME02/03/17, FMP01/02, EMP01/02/03/04/05/08/10/14)

	Material group	Composition / structure / heat treatment		Machining group	Starting values for cutting speed v_c [m/min]								
					HC (CVD)								
					YBC302		YBC401		YBD152		YBD252		
					a_e / D		a_e / D		a_e / D		a_e / D		
					1/1 3/4	1/5	1/1 3/4	1/5	1/1 3/4	1/5	1/1 3/4	1/5	
P	Unalloyed steel	approx. 0,15 % C	annealed	125	1	245	285	210	245				
		approx. 0,45 % C	annealed	190	2	210	245	180	210				
		approx. 0,45 % C	tempered	250	3	200	230	170	200				
		approx. 0,75 % C	annealed	270	4	175	200	150	175				
		approx. 0,75 % C	tempered	300	5	160	190	140	160				
P	Low-alloyed steel		annealed	180	6	210	245	180	210				
			tempered	275	7	175	200	150	175				
			tempered	300	8	160	190	140	160				
			tempered	350	9	135	160	120	135				
P	High-alloyed steel and high-alloyed tool steel		annealed	200	10	125	145	105	125				
			hardened and tempered	325	11	90	100	75	90				
M	Stainless steel	ferritic/martensitic	annealed	200	12								
			martensitic	tempered	240	13							
			austenitic	quench hardened	180	14							
			austenitic-ferritic		230	15							
K	Grey cast iron	perlitic/ferritic		180	16				315	365	270	315	
			perlitic (martensitic)	260	17				185	215	160	190	
	Cast iron with spheroidal graphite	ferritic		160	18				215	250	185	215	
			perlitic	250	19				145	170	125	145	
K	Malleable cast iron	ferritic		130	20				260	300	225	260	
			perlitic	230	21				175	205	150	175	
N	Aluminium wrought alloys	cannot be hardened		60	22								
			hardenable	hardened	100	23							
	Cast aluminium alloys	$\leq 12\% \text{ Si}$, cannot be hardened		75	24								
			$\leq 12\% \text{ Si}$, hardenable	hardened	90	25							
			$> 12\% \text{ Si}$, cannot be hardened		130	26							
	Copper and copper alloys (bronze/brass)	machining steel, PB > 1%		110	27								
		CuZn, CuSnZn	90	28									
		CuSn, Pb-free copper, electrolytic copper	100	29									
S	Heat-resistant alloys	Fe-based alloys	annealed	200	30								
				hardened	280	31							
		Ni or Co base	annealed	250	32								
				hardened	350	33							
		cast	320	34									
Titanium alloys	pure titanium		R_m 400	35									
		α and β alloys	hardened	R_m 1050	36								
H	Hardened steel			hardened and tempered	55 HRC	37							
				hardened and tempered	60 HRC	38							
	Hard cast iron			cast	400	39							
	Hardened cast iron			hardened and tempered	55 HRC	40							
X	Non-metallic materials	Thermoplasts			41								
		Thermosetting plastics			42								
		Plastic, glass-fibre reinforced GFRP			43								
		Plastic, carbon fibre reinforced CFRP			44								
		Graphite			45								
		Wood			46								

Note: The given cutting values are guide values, which were determined under ideal conditions.
 The values have to be adapted in individual cases.
 Feed rate recommendations on page B38–B43.

Starting values for cutting speed v_c [m/min]																					
HC (CVD)				HC (PVD)												HW					
YBM253		PG8020		YBG101		YBG102		YBG152		YB9320		YBG205(H)		YBG252		YBG302		YD101		YD201	
a_e / D		a_e / D		a_e / D		a_e / D		a_e / D		a_e / D		a_e / D		a_e / D		a_e / D		a_e / D		a_e / D	
1/1 3/4	1/5	1/1 3/4	1/5	1/1 3/4	1/5	1/1 3/4	1/5	1/1 3/4	1/5	1/1 3/4	1/5	1/1 3/4	1/5	1/1 3/4	1/5	1/1 3/4	1/5	1/1 3/4	1/5	1/1 3/4	1/5
245	285					255	295	240	280	230	265	220	255	215	250	210	245				
210	245					220	255	205	240	200	230	190	220	185	215	180	210				
200	230					205	240	195	225	185	215	180	205	175	200	170	200				
175	200					180	210	170	200	165	190	155	180	155	175	150	175				
160	190					170	195	160	185	150	175	145	170	140	165	140	160				
210	245					220	255	205	240	200	230	190	220	185	215	180	210				
175	200					180	210	170	200	165	190	155	180	155	175	150	175				
160	190					170	195	160	185	150	175	145	170	140	165	140	160				
135	160					145	165	135	155	130	150	125	145	120	140	120	135				
125	145					130	150	120	140	115	135	110	130	110	125	105	125				
90	100					90	105	85	100	85	95	80	90	80	90	75	90				
125	145	145	165			130	150	120	140	115	135	110	130	110	125	105	125				
105	120	120	137			110	125	105	120	100	115	95	110	95	105	90	105				
130	155	150	171			140	160	130	150	125	145	120	140	115	135	115	130				
105	120	120	137			110	125	105	120	100	115	95	110	95	105	90	105				
						285	330	265	305	255	295	245	285	240	280	235	275				
						170	195	160	185	150	175	145	170	140	165	140	160				
						195	225	180	210	175	200	165	195	165	190	160	185				
						130	150	120	140	115	135	110	130	110	125	105	125				
						230	270	220	255	210	240	200	230	195	225	190	225				
						155	180	145	170	140	160	135	155	130	150	130	150				
						1505	1735											1205	1390	1040	1200
						1225	1420											980	1140	850	980
						540	620											435	500	375	435
						435	505											350	405	300	350
						220	255											180	205	155	180
						170	195											140	160	120	140
						210	245											170	200	150	170
						385	445											310	360	265	310
		75	86			75	85	70	80	65	75	65	75	65	75	60	70				
		52	59			50	55	50	55	45	50	45	50	45	50	40	45				
		63	72			60	70	55	65	55	65	50	55	50	55	50	55				
		35	40			35	40	35	40	30	35	30	35	30	35	30	35				
		75	86			45	50	45	50	40	45	40	45	40	45	40	45				
		75	86			75	85	70	80	65	75	65	75	65	75	60	70				
		75	86			75	85	70	80	65	75	65	75	65	75	60	70				

- HC Coated carbide
- HT Uncoated carbide, primary component (TiC) or (TiN), cermet
- HW Uncoated carbide, primary component (WC)
- BL Cubic boron nitride with low BN content
- BH Cubic boron nitride with high BN content
- CN Si3N4 ceramic
- CM Mixed ceramic
- HC₁ Coated cermet
- BC CBN with coating
- CC Coated cutting ceramic
- CR Cutting ceramic, primary component aluminium oxide (Al₂O₃), reinforced
- DP Polycrystalline diamond

A

Turning

B

Milling

C

Drilling

D

Technical Information

E

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Indexable milling – group 7 (XMR01, XMR12, XMR13, XMP01, QCH)

	Material group	Composition / structure / heat treatment		Machining group	Starting values for cutting speed v_c [m/min]									
					HC (CVD)									
					YBC302			YBD152						
					a_e / D			a_e / D						
					1/1 3/4	1/5	1/20	1/1 3/4	1/5	1/20				
P	Unalloyed steel	approx. 0,15 % C	annealed	125	1	260	300	390						
		approx. 0,45 % C	annealed	190	2	225	255	335						
		approx. 0,45 % C	tempered	250	3	210	240	315						
		approx. 0,75 % C	annealed	270	4	185	210	275						
		approx. 0,75 % C	tempered	300	5	170	195	255						
	Low-alloyed steel		annealed	180	6	225	255	335						
			tempered	275	7	185	210	275						
			tempered	300	8	170	195	255						
			tempered	350	9	145	165	215						
	High-alloyed steel and high-alloyed tool steel		annealed	200	10	130	150	195						
		hardened and tempered	325	11	95	105	140							
M	Stainless steel	ferritic/martensitic	annealed	200	12									
			martensitic	tempered	240	13								
			austenitic	quench hardened	180	14								
			austenitic-ferritic		230	15								
K	Grey cast iron	perlitic/ferritic		180	16				335	390	510			
			perlitic (martensitic)		260	17			200	230	300			
	Cast iron with spheroidal graphite	ferritic		160	18				225	260	340			
			perlitic		250	19			150	175	230			
	Malleable cast iron	ferritic		130	20				275	320	420			
			perlitic		230	21			185	215	280			
N	Aluminium wrought alloys	cannot be hardened		60	22									
		hardenable	hardened	100	23									
	Cast aluminium alloys	$\leq 12\% \text{ Si}$, cannot be hardened			75	24								
		$\leq 12\% \text{ Si}$, hardenable	hardened		90	25								
		$> 12\% \text{ Si}$, cannot be hardened			130	26								
	Copper and copper alloys (bronze/brass)	machining steel, PB > 1%			110	27								
		CuZn, CuSnZn			90	28								
CuSn, Pb-free copper, electrolytic copper			100	29										
S	Heat-resistant alloys	Fe-based alloys	annealed	200	30									
			hardened	280	31									
		Ni or Co base	annealed	250	32									
			hardened	350	33									
		cast	320	34										
Titanium alloys	pure titanium		R_m 400	35										
	α and β alloys	hardened		R_m 1050	36									
H	Hardened steel		hardened and tempered	55 HRC	37									
			hardened and tempered	60 HRC	38									
	Hard cast iron		cast	400	39									
	Hardened cast iron		hardened and tempered	55 HRC	40									
X	Non-metallic materials	Thermoplasts			41									
		Thermosetting plastics			42									
		Plastic, glass-fibre reinforced GFRP			43									
		Plastic, carbon fibre reinforced CFRP			44									
		Graphite			45									
		Wood			46									

Note: The given cutting values are guide values, which were determined under ideal conditions.
 The values have to be adapted in individual cases.
 Feed rate recommendations on page B38–B43.

Starting values for cutting speed v_c [m/min]																							
HC (CVD)									HC (PVD)														
YBD252			YBM253			YBG102			YBG152			YB9320			YBG205(H)			YBG212					
a_e / D			a_e / D			a_e / D			a_e / D			a_e / D			a_e / D			a_e / D					
1/1 3/4	1/5	1/20	1/1 3/4	1/5	1/20	1/1 3/4	1/5	1/20	1/1 3/4	1/5	1/20	1/1 3/4	1/5	1/20	1/1 3/4	1/5	1/20	1/1 3/4	1/5	1/20			
						260	300	390	270	315	410	255	295	385	245	285	375	235	275	360	240	280	365
						225	255	335	230	270	355	220	255	335	210	245	320	200	235	310	205	240	315
						210	240	315	220	255	335	205	240	315	200	230	300	190	220	290	195	225	295
						185	210	275	190	225	295	180	210	275	175	200	260	165	195	255	170	200	260
						170	195	255	180	205	270	170	195	255	160	190	250	155	180	235	160	185	245
						225	255	335	230	270	355	220	255	335	210	245	320	200	235	310	205	240	315
						185	210	275	190	225	295	180	210	275	175	200	260	165	195	255	170	200	260
						170	195	255	180	205	270	170	195	255	160	190	250	155	180	235	160	185	245
						145	165	215	150	175	230	145	165	215	135	160	210	130	155	205	135	155	205
						130	150	195	135	160	210	130	150	195	125	145	190	120	140	185	120	140	185
						95	105	140	95	115	150	90	105	140	90	100	130	85	100	130	85	100	130
						130	150	195	135	160	205	130	150	195	125	145	190	120	140	180	120	140	185
						110	130	165	115	135	175	110	125	165	105	120	160	100	120	155	105	120	155
						140	160	210	145	170	220	140	160	205	130	155	200	125	150	195	130	150	195
						110	130	165	115	135	175	110	125	165	105	120	160	100	120	155	105	120	155
	290	335	440						300	345	450	285	330	430	270	315	410	260	300	390	265	305	400
	170	195	255						180	205	270	170	195	255	160	190	250	155	180	235	160	185	245
	195	225	295						205	240	315	195	225	295	185	215	280	180	210	275	180	210	275
	130	150	195						135	160	210	130	150	195	125	145	190	120	140	185	120	140	185
	235	270	355						245	285	375	230	270	355	225	260	340	215	250	325	220	255	335
	160	180	235						165	190	250	155	180	235	150	175	230	145	165	215	145	170	225

- HC Coated carbide
- HT Uncoated carbide, primary component (TiC) or (TiN), cermet
- HW Uncoated carbide, primary component (WC)
- BL Cubic boron nitride with low BN content
- BH Cubic boron nitride with high BN content
- CN Si3N4 ceramic
- CM Mixed ceramic
- HC₁ Coated cermet
- BC CBN with coating
- CC Coated cutting ceramic
- CR Cutting ceramic, primary component aluminium oxide (Al₂O₃), reinforced
- DP Polycrystalline diamond

A

Turning

B

Milling

C

Drilling

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Recommended feed rate

Indexable milling – group 2 (FMA01/02/03/04, FME02/03/17, FMP01/02, EMP01/02/03/04/05/08/10/14)

Material group		Feed rate per cutting edge [mm]																	
		FMA01 FMA02			FMA03			FMA03			FMA04			FMA04			FMA04		
		SEET12			SEKN12			SEKN15			OFKT05			OFKR07			ODHT06		
		Application																	
		F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R
P	Unalloyed steel	0,15	0,20	0,25		0,18			0,20		0,20	0,25		0,20	0,25		0,20	0,25	
	Low-alloyed steel	0,14	0,19	0,23		0,17			0,19		0,19	0,23		0,19	0,23		0,19	0,23	
	High-alloyed steel and high-alloyed tool steel	0,13	0,18	0,22		0,16			0,18		0,18	0,22		0,18	0,22		0,18	0,22	
M	Stainless steel	0,11	0,14	0,18		0,13			0,14		0,14	0,18		0,14	0,18		0,14	0,18	
K	Grey cast iron	0,17	0,22	0,28		0,20			0,22		0,22	0,28		0,22	0,28		0,22	0,28	
	Cast iron with spheroidal graphite	0,15	0,20	0,25		0,18			0,20		0,20	0,25		0,20	0,25		0,20	0,25	
	Malleable cast iron	0,15	0,20	0,25		0,18			0,20		0,20	0,25		0,20	0,25		0,20	0,25	
N	Aluminium wrought alloys	0,13	0,17	0,21							0,17	0,21		0,17	0,21		0,17	0,21	
	Aluminum cast alloys	0,13	0,17	0,21							0,17	0,21		0,17	0,21		0,17	0,21	
	Copper and copper alloys (bronze/brass)	0,11	0,15	0,19							0,15	0,19		0,15	0,19		0,15	0,19	
S	Heat-resistant alloys	0,11	0,14	0,18							0,14	0,18		0,14	0,18		0,14	0,18	
	Titanium alloys	0,11	0,14	0,18							0,14	0,18		0,14	0,18		0,14	0,18	
H	Hardened steel																		
	Hard cast iron																		
	Hardened cast iron																		
X	Non-metallic materials																		

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.

Indexable milling – group 2 (FMA01/02/03/04, FME02/03/17, FMP01/02, EMP01/02/03/04/05/08/10/14)

Material group		Feed rate per cutting edge [mm]																	
		EMP03 EMP04			EMP05			EMP08			EMP10			EMP14					
		APKT11			ADKT**			SNGY			SOKX			VPGT22					
		Application																	
		F	M	R	F	M	R	F	M	R	F	M	R	F	M	R			
P	Unalloyed steel	0,12	0,17	0,23	0,10	0,15	0,20	0,12	0,2	–	0,12	0,2	–						
	Low-alloyed steel	0,11	0,16	0,21	0,09	0,14	0,19	0,1	0,14	–	0,1	0,14	–						
	High-alloyed steel and high-alloyed tool steel	0,10	0,15	0,20	0,09	0,13	0,18	0,1	0,14	–	0,1	0,14	–						
M	Stainless steel	0,08	0,12	0,16	0,07	0,11	0,14	0,1	0,14	–	0,1	0,14	–						
K	Grey cast iron	0,13	0,19	0,25	0,11	0,17	0,22	0,1	0,2	–	0,1	0,2	–						
	Cast iron with spheroidal graphite	0,12	0,17	0,23	0,10	0,15	0,20	0,1	0,2	–	0,1	0,2	–						
	Malleable cast iron	0,12	0,17	0,23	0,10	0,15	0,20	0,1	0,2	–	0,1	0,2	–						
N	Aluminium wrought alloys	0,10	0,15	0,20	0,09	0,13	0,17							0,05	0,2	0,3			
	Aluminum cast alloys	0,10	0,15	0,20	0,09	0,13	0,17							0,05	0,2	0,3			
	Copper and copper alloys (bronze/brass)	0,09	0,13	0,18	0,08	0,11	0,15							0,05	0,2	0,3			
S	Heat-resistant alloys																		
	Titanium alloys																		
H	Hardened steel																		
	Hard cast iron																		
	Hardened cast iron																		
X	Non-metallic materials																		

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.

Recommended feed rate

Indexable milling – group7 (XMR01, XMR12, XMR13, XMP01, QCH)

Material group	Feed rate per cutting edge [mm]								
	XMR01 face milling			XMR01 plunge milling			XMR01 circular milling		
	SDMT/WPGT			SDMT/WPGT			SDMT/WPGT		
	Tool diameter [mm]								
	20–25	30–50	63–160	20–25	30–50	63–160	20–25	30–50	63–160
P Unalloyed steel	1,00	1,20	2,00	0,20	0,25	0,30	0,80	0,96	1,40
	0,93	1,12	1,86	0,19	0,23	0,28	0,74	0,89	1,30
	0,70	0,84	1,40	0,18	0,22	0,26	0,70	0,84	1,23
M Stainless steel	0,50	0,60	1,00	0,14	0,18	0,21	0,56	0,67	0,98
K Grey cast iron	0,90	1,08	1,80	0,22	0,28	0,33	0,88	1,06	1,54
	0,90	1,08	1,80	0,20	0,25	0,30	0,80	0,96	1,40
	1,00	1,20	2,00	0,20	0,25	0,30	0,80	0,96	1,40
N Aluminium wrought alloys									
S Heat-resistant alloys									
H Hardened steel									
X Non-metallic materials									

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.

Indexable milling – group7 (XMR01, XMR12, XMR13, XMP01, QCH)

Material group	Feed rate per cutting edge [mm]							
	XMP01	QCH						
	CNE	ZOHX	RD*	APKT	WPGT	SDMT	XPHT	ENMX
	Tool diameter [mm]							
	80–400	16–32	15–32	16–40	20–42	20–40	16–32	16–40
P Unalloyed steel	0,20	0,20	0,20	0,15	1,00	1,00	0,20	1,00
	0,20	0,19	0,19	0,14	0,93	0,93	0,19	0,93
	0,20	0,18	0,18	0,13	0,70	0,70	0,18	0,70
M Stainless steel	0,20	0,14	0,14	0,11	0,50	0,50	0,14	0,50
K Grey cast iron	0,20	0,22	0,22	0,17	0,90	0,90	0,22	0,90
	0,20	0,20	0,20	0,15	0,90	0,90	0,20	0,90
	0,20	0,20	0,20	0,15	1,00	1,00	0,20	1,00
N Aluminium wrought alloys				0,13				
				0,13				
				0,11				
S Heat-resistant alloys								
H Hardened steel								
X Non-metallic materials								

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.



PGMS series

Solid carbide milling

 PANGU PGMS series

B74

B

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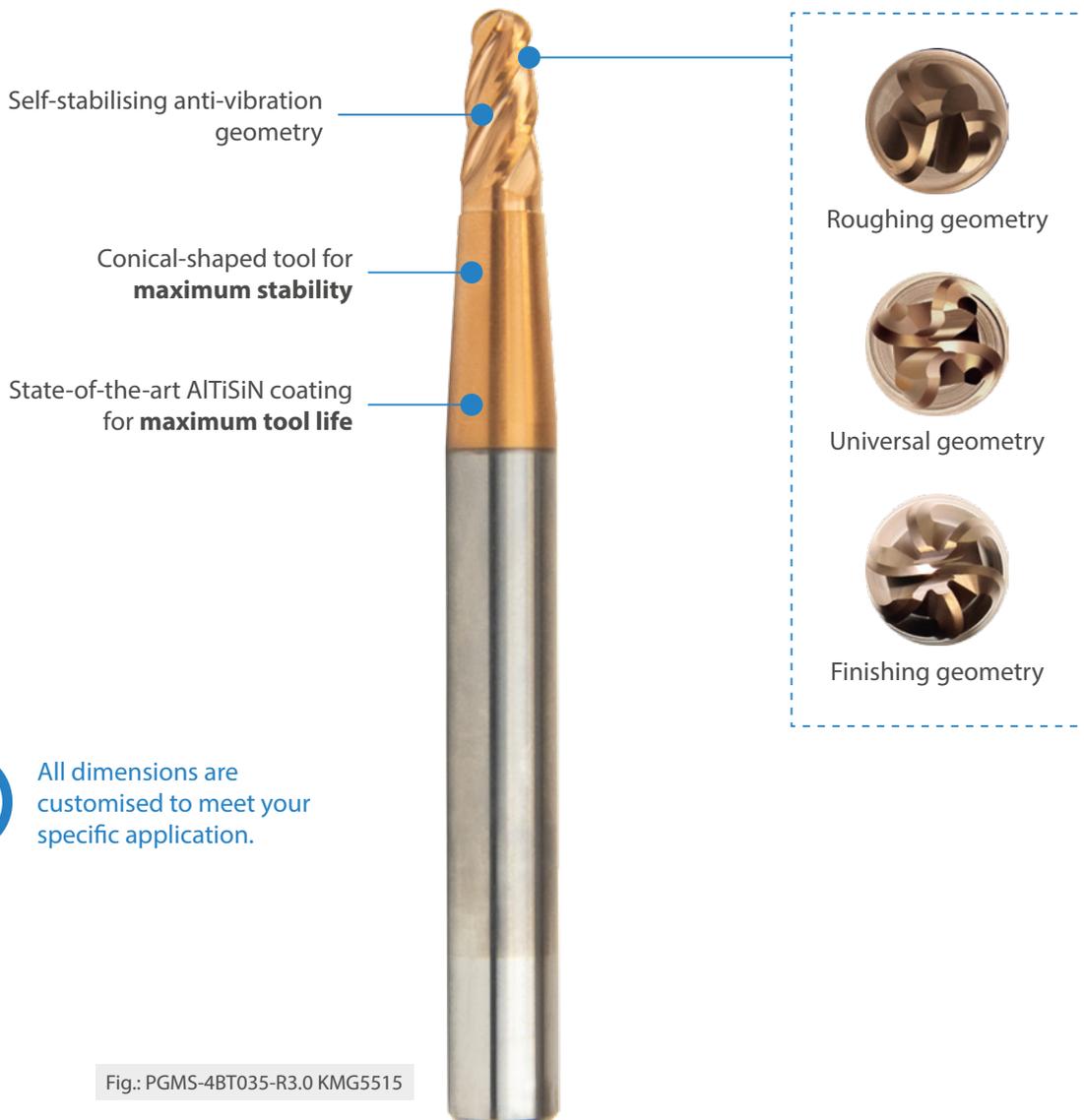
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PGMS series

The ideal choice for complex contours

YOUR BENEFITS

- **Higher productivity** thanks to conical cutting edge
- **Flawless surface quality** made possible by low-vibration machining
- **Shorter process times** thanks to enhanced tool geometry
- **Extremely long tool life** when machining HRSA and titanium thanks to customised cutting edge geometry



Indexable head drilling

System code – drilling bodies	C76
System code – drill heads	C77
ZTE indexable head drilling system	C78–C95
Recommended cutting data	C96–C99



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ZTE 03 – ED160 – XP 20 C

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A

Turning

Type	
Code	Description
ZTE	Indexable head drills

L/D relation	
Code	Description
015	1,5xD
03	3xD
05	5xD
08	8xD

B

Milling

1

2

Diameter [mm]	
Code	Description
ED160	16–16,9
...	

Shank type	
Code	Description
G	Straight shank
XP	Weldon shank

3

4

C

Drilling

Coupling size [mm]

Cooling	
Code	Description
C	Internal cooling, normal spiral
HC	Internal cooling, low spiral

5

4

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EDR 1600 – 065 – UD**1****2****3****4**

Type	
Code	Description
EDR	Drill heads

1

Diameter [mm]	
Code	Description
1600	16

2

Coupling size [mm]	
Code	Description
065	65
...	

3

Code	Description
UD	Steel, difficult-to-machine materials
KD	Cast Iron
PD	Pilot drill

4**A**

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ZTE indexable head drilling system

Consistent drilling results coupled with high material removal rates

YOUR BENEFITS

- **Maximum productivity** at high feed rates and speeds
- **Low cutting forces** and **stable drilling processes** in steel and cast iron thanks to optimised geometries and grades
- **Less time** and **effort required to replace drill heads**; high change-over accuracy
- No pilot holes required up to 5xD with zero impact on **performance** and **tool life**
- Innovative interface with higher clamping force for **reliable clamping during drilling operations**



Chip breaker



Deep-hole drilling with ZTE08 (8xD)

i From a drilling depth of **8xD** we recommend drilling a **pilot hole**.

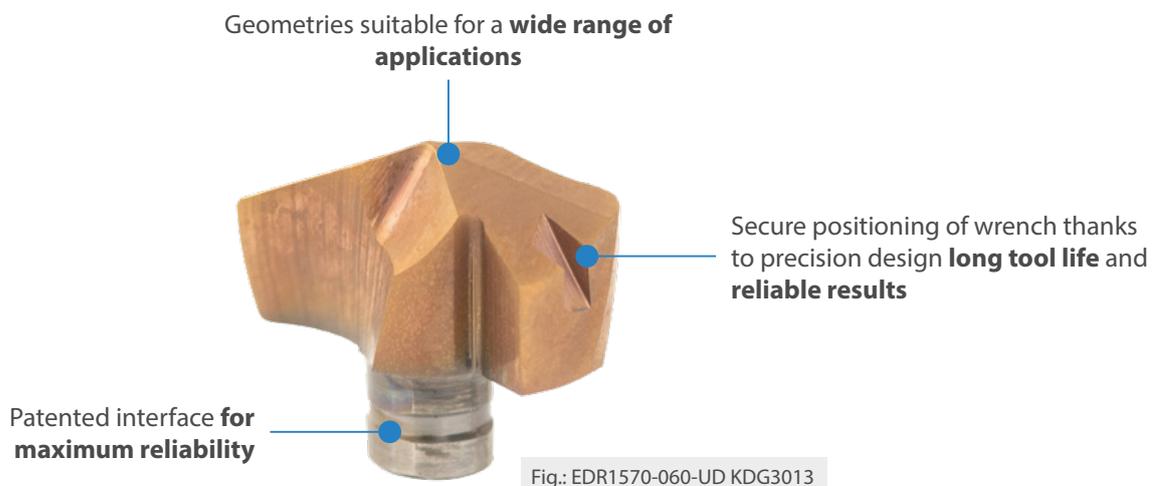
Example: Drilling a 8xD deep hole with a diameter of 18.0 mm in steel

Pilot hole drilling

- ZTE015-ED180-XP25C + EDR1800-075-PD (Ø18.03/point angle: 150°)
- Refer to table for cutting parameters (see C96–C97), drilling depth: 1.0–1.5xD
- Make sure there are no chips in the hole after removing the pilot drill.

Deep-hole drilling

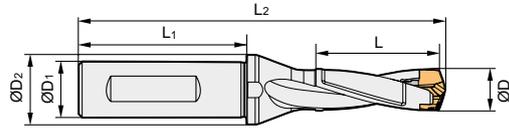
- ZTE08-ED180-XP25C + EDR1800-075-UD
- Enter the drill into the pilot hole at a lower feed rate and cutting speed.
- Stop feeding approx. 2–3 mm before you reach the bottom of the entry hole and activate internal cooling.
- Increase the cutting speed (see table) and then start at the specified feed rate.
- If necessary, reduce the feed rate if drilling cross-holes.
- After reaching the drilling depth, reduce the cutting speed and feed rate. exit the drill from the hole.
- When drilling through holes, only allow half of the drill head to exit the hole. This is to avoid damaging the drill when retracting.



A

Indexable head drills

ZTE015



Turning

B

Article	*	Stock	Dimensions [mm]						Wrench	Drill head
			ØD	ØD1	ØD2	L1	L2	L		
ZTE015-ED120-XP16C	*	•	12-12.9	16	20	48	84,50	18,0	ZTK12-15.9	EDR12**
ZTE015-ED130-XP16C	*	•	13-13.9	16	20	48	86,00	19,5	ZTK12-15.9	EDR13**
ZTE015-ED140-XP16C	*	•	14-14.9	16	25	48	92,50	21,0	ZTK12-15.9	EDR14**
ZTE015-ED150-XP20C	*	•	15-15.9	20	25	50	94,00	22,5	ZTK12-15.9	EDR15**
ZTE015-ED160-XP20C	*	•	16-16.9	20	25	50	95,50	24,0	ZTK16-20.9	EDR16**
ZTE015-ED170-XP20C	*	•	17-17.9	20	25	50	97,00	25,5	ZTK16-20.9	EDR17**
ZTE015-ED180-XP25C	*	•	18-18.9	25	32	56	106,50	27,0	ZTK16-20.9	EDR18**
ZTE015-ED190-XP25C	*	•	19-19.9	25	32	56	108,00	28,5	ZTK16-20.9	EDR19**
ZTE015-ED200-XP25C	*	•	20-20.9	25	32	56	109,50	30,0	ZTK16-20.9	EDR20**
ZTE015-ED210-XP25C	*	•	21-21.9	25	32	56	111,00	31,5	ZTK21-25.9	EDR21**
ZTE015-ED220-XP25C	*	•	22-22.9	25	32	56	112,50	33,0	ZTK21-25.9	EDR22**
ZTE015-ED230-XP32C	*	•	23-23.9	32	42	60	126,00	34,5	ZTK21-25.9	EDR23**
ZTE015-ED240-XP32C	*	•	24-24.9	32	42	60	127,50	36,0	ZTK21-25.9	EDR24**
ZTE015-ED250-XP32C	*	•	25-25.9	32	42	60	129,00	37,5	ZTK21-25.9	EDR25**

• Ex stock ◦ On demand

* Internal cooling

C

Drilling

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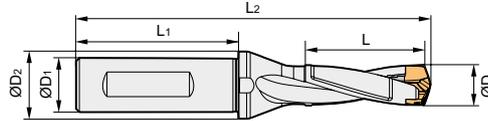
Spare parts				
	Drill head	EDR1200-1590	EDR1600-2090	EDR2100-2590
	Wrench	ZTK12-15,9	ZTK16-20,9	ZTK21-25,9

E

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Indexable head drills

ZTE03



Article	*	Stock	Dimensions [mm]						Wrench	Drill head
			ØD	ØD1	ØD2	L1	L2	L		
ZTE03-ED120-XP16C	*	•	12-12.4	16	20	48	104,0	36,0	ZTK12-15.9	EDR12**
ZTE03-ED125-XP16C	*	•	12.5-12.9	16	20	48	105,5	37,0	ZTK12-15.9	EDR12**
ZTE03-ED130-XP16C	*	•	13-13.4	16	20	48	107,0	39,0	ZTK12-15.9	EDR13**
ZTE03-ED135-XP16C	*	•	13.5-13.9	16	20	48	108,5	41,0	ZTK12-15.9	EDR13**
ZTE03-ED140-XP16C	*	•	14-14.4	16	20	50	115,0	42,0	ZTK12-15.9	EDR14**
ZTE03-ED145-XP16C	*	•	14,5-14.9	16	20	50	116,5	44,0	ZTK12-15.9	EDR14**
ZTE03-ED150-XP20C	*	•	15-15.9	20	25	50	118,0	45,0	ZTK12-15.9	EDR15**
ZTE03-ED160-XP20C	*	•	16-16.9	20	25	50	121,0	48,0	ZTK16-20.9	EDR16**
ZTE03-ED170-XP20C	*	•	17-17.9	20	25	50	124,0	51,0	ZTK16-20.9	EDR17**
ZTE03-ED180-XP25C	*	•	18-18.9	25	32	56	135,0	54,0	ZTK16-20.9	EDR18**
ZTE03-ED190-XP25C	*	•	19-19.9	25	32	56	138,0	57,0	ZTK16-20.9	EDR19**
ZTE03-ED200-XP25C	*	•	20-20.9	25	32	56	141,0	60,0	ZTK16-20.9	EDR20**
ZTE03-ED210-XP25C	*	•	21-21.9	25	32	56	144,0	63,0	ZTK21-25.9	EDR21**
ZTE03-ED220-XP25C	*	•	22-22.9	25	32	56	147,0	66,0	ZTK21-25.9	EDR22**
ZTE03-ED230-XP32C	*	•	23.23.9	32	42	60	162,0	69,0	ZTK21-25.9	EDR23**
ZTE03-ED240-XP32C	*	•	24-24.9	32	42	60	165,0	72,0	ZTK21-25.9	EDR24**
ZTE03-ED250-XP32C	*	•	25-25.9	32	42	60	168,0	75,0	ZTK21-25.9	EDR25**

• Ex stock ◦ On demand

* Internal cooling

Spare parts				
	Drill head	EDR1200-1590	EDR1600-2090	EDR2100-2590
	Wrench	ZTK12-15,9	ZTK16-20,9	ZTK21-25,9

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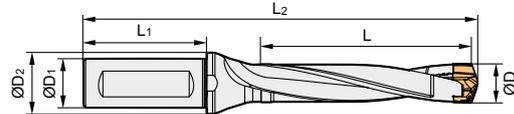
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A

Indexable head drills

ZTE05



Turning

B

Article	*	Stock	Dimensions [mm]						Wrench	Drill head
			ØD	ØD1	ØD2	L1	L2	L		
ZTE05-ED120-XP16C	*	•	12-12.4	16	20	48	130,0	60,0	ZTK12-15.9	EDR12**
ZTE05-ED125-XP16C	*	•	12,5-12.9	16	20	48	132,5	62,0	ZTK12-15.9	EDR12**
ZTE05-ED130-XP16C	*	•	13-13.4	16	20	48	135,0	65,0	ZTK12-15.9	EDR13**
ZTE05-ED135-XP16C	*	•	13,5-13.9	16	20	48	137,5	68,0	ZTK12-15.9	EDR13**
ZTE05-ED140-XP16C	*	•	14-14.9	20	25	50	145,0	70,0	ZTK12-15.9	EDR14**
ZTE05-ED145-XP16C	*	•	14-14.10	20	25	50	147,5	73,0	ZTK12-15.9	EDR14**
ZTE05-ED150-XP20C	*	•	15-15.9	20	25	50	150,0	75,0	ZTK12-15.9	EDR15**
ZTE05-ED160-XP20C	*	•	16-16.9	20	25	50	155,0	80,0	ZTK16-20.9	EDR16**
ZTE05-ED170-XP20C	*	•	17-17.9	20	25	50	160,0	85,0	ZTK16-20.9	EDR17**
ZTE05-ED180-XP25C	*	•	18-18.9	25	32	56	173,0	90,0	ZTK16-20.9	EDR18**
ZTE05-ED190-XP25C	*	•	19-19.9	25	32	56	178,0	95,0	ZTK16-20.9	EDR19**
ZTE05-ED200-XP25C	*	•	20-20.9	25	32	56	183,0	100,0	ZTK16-20.9	EDR20**
ZTE05-ED210-XP25C	*	•	21-21.9	25	32	56	188,0	105,0	ZTK21-25.9	EDR21**
ZTE05-ED220-XP25C	*	•	22-22.9	25	32	56	193,0	110,0	ZTK21-25.9	EDR22**
ZTE05-ED230-XP32C	*	•	23.23.9	32	42	60	210,0	115,0	ZTK21-25.9	EDR23**
ZTE05-ED240-XP32C	*	•	24-24.9	32	42	60	215,0	120,0	ZTK21-25.9	EDR24**
ZTE05-ED250-XP32C	*	•	25-25.9	32	42	60	220,0	125,0	ZTK21-25.9	EDR25**

Milling

C

Drilling

• Ex stock ◦ On demand

* Internal cooling

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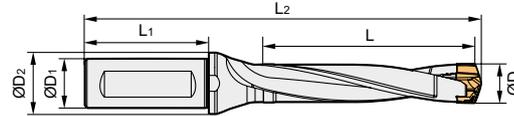
Spare parts				
	Drill head	EDR1200-1590	EDR1600-2090	EDR2100-2590
	Wrench	ZTK12-15,9	ZTK16-20,9	ZTK21-25,9

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Indexable head drills

ZTE08



Article	*	Stock	Dimensions [mm]						Wrench	Drill head
			ØD	ØD1	ØD2	L1	L2	L		
ZTE08-ED120-XP16C	*	○	12-12.4	16	20	48	169,0	96,0	ZTK12-15.9	EDR12**
ZTE08-ED125-XP16C	*	○	12,5-12.9	16	20	48	173,0	99,5	ZTK12-15.9	EDR12**
ZTE08-ED130-XP16C	*	○	13-13.4	16	20	48	177,0	104,0	ZTK12-15.9	EDR13**
ZTE08-ED135-XP16C	*	○	13,5-13.9	16	20	48	181,0	108,5	ZTK12-15.9	EDR13**
ZTE08-ED140-XP16C	*	○	14-14.4	20	25	50	190,0	112,0	ZTK12-15.9	EDR14**
ZTE08-ED145-XP16C	*	○	14,5-14.9	20	25	50	194,0	116,5	ZTK12-15.9	EDR14**
ZTE08-ED150-XP20C	*	○	15-15.9	20	25	50	198,0	120,0	ZTK12-15.9	EDR15**
ZTE08-ED160-XP20C	*	○	16-16.9	20	25	50	206,0	128,0	ZTK16-20.9	EDR16**
ZTE08-ED170-XP20C	*	○	17-17.9	20	25	50	214,0	136,0	ZTK16-20.9	EDR17**
ZTE08-ED180-XP25C	*	○	18-18.9	25	32	56	230,0	144,0	ZTK16-20.9	EDR18**
ZTE08-ED190-XP25C	*	○	19-19.9	25	32	56	238,0	152,0	ZTK16-20.9	EDR19**
ZTE08-ED200-XP25C	*	○	20-20.9	25	32	56	246,0	160,0	ZTK16-20.9	EDR20**
ZTE08-ED210-XP25C	*	○	21-21.9	25	32	56	254,0	168,0	ZTK21-25.9	EDR21**
ZTE08-ED220-XP25C	*	○	22-22.9	25	32	56	262,0	176,0	ZTK21-25.9	EDR22**
ZTE08-ED230-XP32C	*	○	23.23.9	32	42	60	282,0	184,0	ZTK21-25.9	EDR23**
ZTE08-ED240-XP32C	*	○	24-24.9	32	42	60	290,0	192,0	ZTK21-25.9	EDR24**
ZTE08-ED250-XP32C	*	○	25-25.9	32	42	60	298,0	200,0	ZTK21-25.9	EDR25**

● Ex stock ○ On demand

* Internal cooling

Spare parts				
	Drill head	EDR1200-1590	EDR1600-2090	EDR2100-2590
	Wrench	ZTK12-15,9	ZTK16-20,9	ZTK21-25,9

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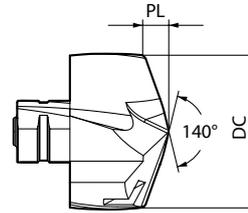
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Drill heads

Turning

EDR-UD



B

Milling

Article	Dimensions [mm]		Grade	Drilling body	Wrench
	PL	Dc	KDG3013		
EDR1200-045-UD	2,18	12,00	●	ZTE015-ED120-** ZTE03-ED120-** ZTE05-ED120-** ZTE08-ED120-**	ZTK12-15.9
EDR1210-045-UD	2,20	12,10	○		
EDR1220-045-UD	2,22	12,20	○		
EDR1230-045-UD	2,24	12,30	○		
EDR1240-045-UD	2,26	12,40	○		
EDR1250-045-UD	2,27	12,50	●		
EDR1260-045-UD	2,29	12,60	○		
EDR1270-045-UD	2,31	12,70	○		
EDR1280-045-UD	2,33	12,80	●		
EDR1290-045-UD	2,35	12,90	○		
EDR1300-050-UD	2,36	13,00	●		
EDR1310-050-UD	2,38	13,10	●		
EDR1320-050-UD	2,40	13,20	○		
EDR1330-050-UD	2,42	13,30	○		
EDR1340-050-UD	2,44	13,40	●		
EDR1350-050-UD	2,46	13,50	●		
EDR1360-050-UD	2,47	13,60	○		
EDR1370-050-UD	2,49	13,70	○		
EDR1380-050-UD	2,51	13,80	○		
EDR1390-050-UD	2,53	13,90	○		
EDR1400-055-UD	2,55	14,00	●		
EDR1410-055-UD	2,56	14,10	○		
EDR1420-055-UD	2,58	14,20	○		
EDR1430-055-UD	2,60	14,30	○		
EDR1440-055-UD	2,62	14,40	○		
EDR1450-055-UD	2,64	14,50	●		
EDR1460-055-UD	2,66	14,60	○		
EDR1470-055-UD	2,67	14,70	○		
EDR1480-055-UD	2,69	14,80	○		
EDR1490-055-UD	2,71	14,90	○		
EDR1500-060-UD	2,73	15,00	●		
EDR1510-060-UD	2,75	15,10	●		
EDR1520-060-UD	2,76	15,20	○		
EDR1530-060-UD	2,78	15,30	●		
EDR1540-060-UD	2,80	15,40	○		
EDR1550-060-UD	2,82	15,50	●		
EDR1560-060-UD	2,84	15,60	○		
EDR1570-060-UD	2,86	15,70	●		
EDR1580-060-UD	2,87	15,80	○		
EDR1590-060-UD	2,89	15,90	○		

● Ex stock ○ On demand

C

Drilling

D

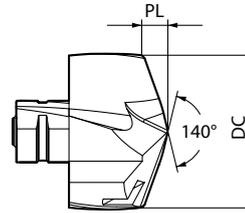
Technical Information

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Drill heads

EDR-UD



Article	Dimensions [mm]		Grade	Drilling body	Wrench
	PL	Dc	KDG3013		
EDR1600-065-UD	2,91	16,00	●	ZTE015-ED160-** ZTE03-ED160-** ZTE05-ED160-** ZTE08-ED160-**	ZTK16-20.9
EDR1610-065-UD	2,93	16,10	○		
EDR1620-065-UD	2,95	16,20	○		
EDR1630-065-UD	2,96	16,30	●		
EDR1640-065-UD	2,98	16,40	○		
EDR1650-065-UD	3,00	16,50	●		
EDR1660-065-UD	3,02	16,60	○		
EDR1670-065-UD	3,04	16,70	○		
EDR1680-065-UD	3,06	16,80	○		
EDR1690-065-UD	3,07	16,90	●		
EDR1700-070-UD	3,09	17,00	●	ZTE015-ED170-** ZTE03-ED170-** ZTE05-ED170-** ZTE08-ED170-**	
EDR1710-070-UD	3,11	17,10	○		
EDR1720-070-UD	3,13	17,20	○		
EDR1730-070-UD	3,15	17,30	●		
EDR1740-070-UD	3,16	17,40	○		
EDR1750-070-UD	3,18	17,50	●		
EDR1760-070-UD	3,20	17,60	○		
EDR1770-070-UD	3,22	17,70	○		
EDR1780-070-UD	3,24	17,80	○		
EDR1790-070-UD	3,26	17,90	○		
EDR1800-075-UD	3,27	18,00	●	ZTE015-ED180-** ZTE03-ED180-** ZTE05-ED180-** ZTE08-ED180-**	
EDR1810-075-UD	3,29	18,10	○		
EDR1820-075-UD	3,31	18,20	○		
EDR1830-075-UD	3,33	18,30	○		
EDR1840-075-UD	3,35	18,40	○		
EDR1850-075-UD	3,36	18,50	●		
EDR1860-075-UD	3,38	18,60	○		
EDR1870-075-UD	3,40	18,70	○		
EDR1880-075-UD	3,42	18,80	○		
EDR1890-075-UD	3,44	18,90	●		
EDR1900-080-UD	3,46	19,00	●	ZTE015-ED190-** ZTE03-ED190-** ZTE05-ED190-** ZTE08-ED190-**	
EDR1910-080-UD	3,47	19,10	○		
EDR1920-080-UD	3,49	19,20	○		
EDR1930-080-UD	3,51	19,30	●		
EDR1940-080-UD	3,53	19,40	○		
EDR1950-080-UD	3,55	19,50	●		
EDR1960-080-UD	3,56	19,60	○		
EDR1970-080-UD	3,58	19,70	○		
EDR1980-080-UD	3,60	19,80	○		
EDR1990-080-UD	3,62	19,90	○		

● Ex stock ○ On demand

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Turning

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Milling

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Drilling

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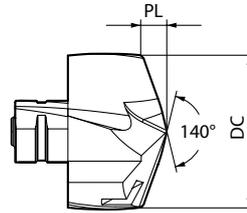
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Drill heads

Turning

EDR-UD



B

Milling

Article	Dimensions [mm]		Grade	Drilling body	Wrench
	PL	Dc	KDG3013		
EDR2000-085-UD	3,64	20,00	●	ZTE015-ED200-** ZTE03-ED200-** ZTE05-ED200-** ZTK08-ED200-**	ZTK16-20.9
EDR2010-085-UD	3,66	20,10	○		
EDR2020-085-UD	3,67	20,20	○		
EDR2030-085-UD	3,69	20,30	○		
EDR2040-085-UD	3,71	20,40	○		
EDR2050-085-UD	3,73	20,50	●		
EDR2060-085-UD	3,75	20,60	○		
EDR2070-085-UD	3,77	20,70	○		
EDR2080-085-UD	3,78	20,80	○		
EDR2090-085-UD	3,80	20,90	○		
EDR2100-090-UD	3,82	21,00	●	ZTE015-ED210-** ZTE03-ED210-** ZTE05-ED210-** ZTE08-ED210-**	ZTK16-20.9
EDR2110-090-UD	3,84	21,10	○		
EDR2120-090-UD	3,86	21,20	○		
EDR2130-090-UD	3,88	21,30	●		
EDR2140-090-UD	3,89	21,40	○		
EDR2150-090-UD	3,91	21,50	●		
EDR2160-090-UD	3,93	21,60	○		
EDR2170-090-UD	3,95	21,70	○		
EDR2800-090-UD	3,97	21,80	○		
EDR2190-090-UD	3,98	21,90	○		
EDR2200-095-UD	4,00	22,00	●	ZTE015-ED220-** ZTE03-ED220-** ZTE05-ED220-** ZTE08-ED220-**	ZTK21-25.9
EDR2210-095-UD	4,02	22,10	○		
EDR2220-095-UD	4,04	22,20	○		
EDR2230-095-UD	4,06	22,30	○		
EDR2240-095-UD	4,08	22,40	○		
EDR2250-095-UD	4,09	22,50	●		
EDR2260-095-UD	4,11	22,60	○		
EDR2270-095-UD	4,13	22,70	○		
EDR2280-095-UD	4,15	22,80	○		
EDR2290-095-UD	4,17	22,90	○		
EDR2300-100-UD	4,18	23,00	●	ZTE015-ED230-** ZTE03-ED230-** ZTE05-ED230-** ZTE08-ED230-**	ZTK21-25.9
EDR2310-100-UD	4,20	23,10	○		
EDR2320-100-UD	4,22	23,20	○		
EDR2330-100-UD	4,24	23,30	●		
EDR2340-100-UD	4,26	23,40	○		
EDR2350-100-UD	4,27	23,50	●		
EDR2360-100-UD	4,29	23,60	○		
EDR2370-100-UD	4,31	23,70	○		
EDR2380-100-UD	4,33	23,80	○		
EDR2390-100-UD	4,35	23,90	○		

● Ex stock ○ On demand

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Drilling

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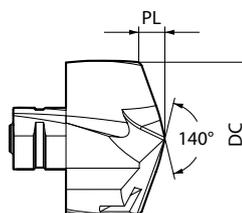
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Drill heads

EDR-UD



Article	Dimensions [mm]		Grade	Drilling body	Wrench	
	Pl	Dc	KDG3013			
EDR2400-110-UD	4,37	24,00	●	ZTE015-ED240-** ZTE03-ED240-** ZTE05-ED240-** ZTE08-ED240-**	ZTK21-25.9	
EDR2410-110-UD	4,38	24,10	○			
EDR2420-110-UD	4,40	24,20	○			
EDR2430-110-UD	4,42	24,30	○			
EDR2440-110-UD	4,44	24,40	○			
EDR2450-110-UD	4,46	24,50	●			
EDR2460-110-UD	4,48	24,60	○			
EDR2470-110-UD	4,49	24,70	○			
EDR2480-110-UD	4,51	24,80	○			
EDR2490-110-UD	4,53	24,90	○			
EDR2500-115-UD	4,55	25,00	●			ZTE015-ED250-** ZTE03-ED250-** ZTE05-ED250-** ZTE08-ED250-**
EDR2510-115-UD	4,57	25,10	○			
EDR2520-115-UD	4,58	25,20	○			
EDR2530-115-UD	4,60	25,30	○			
EDR2540-115-UD	4,62	25,40	○			
EDR2550-115-UD	4,64	25,50	●			
EDR2560-115-UD	4,66	25,60	○			
EDR2570-115-UD	4,68	25,70	○			
EDR2580-115-UD	4,69	25,80	○			
EDR2590-115-UD	4,70	25,90	○			

● Ex stock ○ On demand

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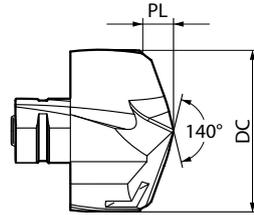
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Drill heads

Turning

EDR-KD



B

Milling

Article	Dimensions [mm]		Grade	Drilling body	Wrench
	Pl	Dc	KDG303		
EDR1200-045-KD	2,18	12,00	●	ZTE015-ED120-** ZTE03-ED120-** ZTE05-ED120-** ZTE08-ED120-**	ZTK12-15.9
EDR1210-045-KD	2,20	12,10	○		
EDR1220-045-KD	2,22	12,20	○		
EDR1230-045-KD	2,24	12,30	○		
EDR1240-045-KD	2,26	12,40	○		
EDR1250-045-KD	2,27	12,50	●		
EDR1260-045-KD	2,29	12,60	○		
EDR1270-045-KD	2,31	12,70	○		
EDR1280-045-KD	2,33	12,80	●		
EDR1290-045-KD	2,35	12,90	○		
EDR1300-050-KD	2,36	13,00	●		
EDR1310-050-KD	2,38	13,10	●		
EDR1320-050-KD	2,40	13,20	○		
EDR1330-050-KD	2,42	13,30	○		
EDR1340-050-KD	2,44	13,40	●		
EDR1350-050-KD	2,46	13,50	●		
EDR1360-050-KD	2,47	13,60	○		
EDR1370-050-KD	2,49	13,70	○		
EDR1380-050-KD	2,51	13,80	○		
EDR1390-050-KD	2,53	13,90	○		
EDR1400-055-KD	2,55	14,00	●		
EDR1410-055-KD	2,56	14,10	○		
EDR1420-055-KD	2,58	14,20	○		
EDR1430-055-KD	2,60	14,30	○		
EDR1440-055-KD	2,62	14,40	○		
EDR1450-055-KD	2,64	14,50	●		
EDR1460-055-KD	2,66	14,60	○		
EDR1470-055-KD	2,67	14,70	○		
EDR1480-055-KD	2,69	14,80	○		
EDR1490-055-KD	2,71	14,90	○		
EDR1500-060-KD	2,73	15,00	●		
EDR1510-060-KD	2,75	15,10	●		
EDR1520-060-KD	2,76	15,20	○		
EDR1530-060-KD	2,78	15,30	●		
EDR1540-060-KD	2,80	15,40	○		
EDR1550-060-KD	2,82	15,50	●		
EDR1560-060-KD	2,84	15,60	○		
EDR1570-060-KD	2,86	15,70	●		
EDR1580-060-KD	2,87	15,80	○		
EDR1590-060-KD	2,89	15,90	○		

● Ex stock ○ On demand

C

Drilling

D

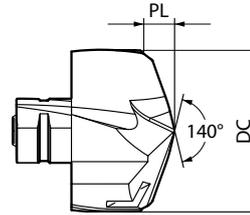
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Drill heads

EDR-KD



Article	Dimensions [mm]		Grade	Drilling body	Wrench
	Pl	Dc	KDG303		
EDR1600-065-KD	2,91	16,00	●	ZTE015-ED160-** ZTE03-ED160-** ZTE05-ED160-** ZTE08-ED160-**	ZTK16-20.9
EDR1610-065-KD	2,93	16,10	○		
EDR1620-065-KD	2,95	16,20	○		
EDR1630-065-KD	2,96	16,30	●		
EDR1640-065-KD	2,98	16,40	○		
EDR1650-065-KD	3,00	16,50	●		
EDR1660-065-KD	3,02	16,60	○		
EDR1670-065-KD	3,04	16,70	○		
EDR1680-065-KD	3,06	16,80	○		
EDR1690-065-KD	3,07	16,90	●		
EDR1700-070-KD	3,09	17,00	●	ZTE015-ED170-** ZTE03-ED170-** ZTE05-ED170-** ZTE08-ED170-**	
EDR1710-070-KD	3,11	17,10	○		
EDR1720-070-KD	3,13	17,20	○		
EDR1730-070-KD	3,15	17,30	●		
EDR1740-070-KD	3,16	17,40	○		
EDR1750-070-KD	3,18	17,50	●		
EDR1760-070-KD	3,20	17,60	○		
EDR1770-070-KD	3,22	17,70	○		
EDR1780-070-KD	3,24	17,80	○		
EDR1790-070-KD	3,26	17,90	○		
EDR1800-075-KD	3,27	18,00	●	ZTE015-ED180-** ZTE03-ED180-** ZTE05-ED180-** ZTE08-ED180-**	
EDR1810-075-KD	3,29	18,10	○		
EDR1820-075-KD	3,31	18,20	○		
EDR1830-075-KD	3,33	18,30	○		
EDR1840-075-KD	3,35	18,40	○		
EDR1850-075-KD	3,36	18,50	●		
EDR1860-075-KD	3,38	18,60	○		
EDR1870-075-KD	3,40	18,70	○		
EDR1880-075-KD	3,42	18,80	○		
EDR1890-075-KD	3,44	18,90	●		
EDR1900-080-KD	3,46	19,00	●	ZTE015-ED190-** ZTE03-ED190-** ZTE05-ED190-** ZTE08-ED190-**	
EDR1910-080-KD	3,47	19,10	○		
EDR1920-080-KD	3,49	19,20	○		
EDR1930-080-KD	3,51	19,30	●		
EDR1940-080-KD	3,53	19,40	○		
EDR1950-080-KD	3,55	19,50	●		
EDR1960-080-KD	3,56	19,60	○		
EDR1970-080-KD	3,58	19,70	○		
EDR1980-080-KD	3,60	19,80	○		
EDR1990-080-KD	3,62	19,90	○		

● Ex stock ○ On demand

A

Turning

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Milling

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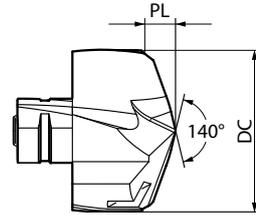
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Drill heads

Turning

EDR-KD



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Milling

Article	Dimensions [mm]		Grade	Drilling body	Wrench
	Pl	Dc	KDG303		
EDR2000-085-KD	3,64	20,00	●	ZTE015-ED200-** ZTE03-ED200-** ZTE05-ED200-** ZTK08-ED200-**	ZTK16-20.9
EDR2010-085-KD	3,66	20,10	○		
EDR2020-085-KD	3,67	20,20	○		
EDR2030-085-KD	3,69	20,30	○		
EDR2040-085-KD	3,71	20,40	○		
EDR2050-085-KD	3,73	20,50	●		
EDR2060-085-KD	3,75	20,60	○		
EDR2070-085-KD	3,77	20,70	○		
EDR2080-085-KD	3,78	20,80	○		
EDR2090-085-KD	3,80	20,90	○		
EDR2100-090-KD	3,82	21,00	●	ZTE015-ED210-** ZTE03-ED210-** ZTE05-ED210-** ZTE08-ED210-**	ZTK16-20.9
EDR2110-090-KD	3,84	21,10	○		
EDR2120-090-KD	3,86	21,20	○		
EDR2130-090-KD	3,88	21,30	●		
EDR2140-090-KD	3,89	21,40	○		
EDR2150-090-KD	3,91	21,50	●		
EDR2160-090-KD	3,93	21,60	○		
EDR2170-090-KD	3,95	21,70	○		
EDR2800-090-KD	3,97	21,80	○		
EDR2190-090-KD	3,98	21,90	○		
EDR2200-095-KD	4,00	22,00	●	ZTE015-ED220-** ZTE03-ED220-** ZTE05-ED220-** ZTE08-ED220-**	ZTK21-25.9
EDR2210-095-KD	4,02	22,10	○		
EDR2220-095-KD	4,04	22,20	○		
EDR2230-095-KD	4,06	22,30	○		
EDR2240-095-KD	4,08	22,40	○		
EDR2250-095-KD	4,09	22,50	●		
EDR2260-095-KD	4,11	22,60	○		
EDR2270-095-KD	4,13	22,70	○		
EDR2280-095-KD	4,15	22,80	○		
EDR2290-095-KD	4,17	22,90	○		
EDR2300-100-KD	4,18	23,00	●	ZTE015-ED230-** ZTE03-ED230-** ZTE05-ED230-** ZTE08-ED230-**	ZTK21-25.9
EDR2310-100-KD	4,20	23,10	○		
EDR2320-100-KD	4,22	23,20	○		
EDR2330-100-KD	4,24	23,30	●		
EDR2340-100-KD	4,26	23,40	○		
EDR2350-100-KD	4,27	23,50	●		
EDR2360-100-KD	4,29	23,60	○		
EDR2370-100-KD	4,31	23,70	○		
EDR2380-100-KD	4,33	23,80	○		
EDR2390-100-KD	4,35	23,90	○		

● Ex stock ○ On demand

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Drilling

D

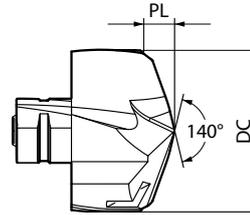
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Drill heads

EDR-KD



Article	Dimensions [mm]		Grade	Drilling body	Wrench
	Pl	Dc	KDG303		
EDR2400-110-KD	4,37	24,00	●	ZTE015-ED240-** ZTE03-ED240-** ZTE05-ED240-** ZTE08-ED240-**	ZTK21-25.9
EDR2410-110-KD	4,38	24,10	○		
EDR2420-110-KD	4,40	24,20	○		
EDR2430-110-KD	4,42	24,30	○		
EDR2440-110-KD	4,44	24,40	○		
EDR2450-110-KD	4,46	24,50	●		
EDR2460-110-KD	4,48	24,60	○		
EDR2470-110-KD	4,49	24,70	○		
EDR2480-110-KD	4,51	24,80	○		
EDR2490-110-KD	4,53	24,90	○		
EDR2500-115-KD	4,55	25,00	●	ZTE015-ED250-** ZTE03-ED250-** ZTE05-ED250-** ZTE08-ED250-**	ZTK21-25.9
EDR2510-115-KD	4,57	25,10	○		
EDR2520-115-KD	4,58	25,20	○		
EDR2530-115-KD	4,60	25,30	○		
EDR2540-115-KD	4,62	25,40	○		
EDR2550-115-KD	4,64	25,50	●		
EDR2560-115-KD	4,66	25,60	○		
EDR2570-115-KD	4,68	25,70	○		
EDR2580-115-KD	4,69	25,80	○		
EDR2590-115-KD	4,70	25,90	○		

● Ex stock ○ On demand

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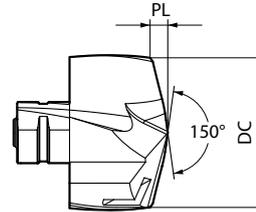
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Drill heads

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EDR-PD



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Milling

Article	Dimensions [mm]		Grade	Drilling body	Wrench
	Pl	Dc	KDG3013		
EDR1200-045-PD	1,61	12,03	●	ZTE015-ED120-**	ZTK12-15.9
EDR1210-045-PD	1,63	12,13	○		
EDR1220-045-PD	1,64	12,23	○		
EDR1230-045-PD	1,65	12,33	○		
EDR1240-045-PD	1,67	12,43	○		
EDR1250-045-PD	1,68	12,53	●	ZTE015-ED120-**	
EDR1260-045-PD	1,69	12,63	○		
EDR1270-045-PD	1,71	12,73	○		
EDR1280-045-PD	1,72	12,83	○		
EDR1290-045-PD	1,73	12,93	○		
EDR1300-050-PD	1,75	13,03	●	ZTE015-ED130-**	
EDR1310-050-PD	1,76	13,13	○		
EDR1320-050-PD	1,77	13,23	○		
EDR1330-050-PD	1,79	13,33	○		
EDR1340-050-PD	1,80	13,43	○		
EDR1350-050-PD	1,81	13,53	●	ZTE015-ED130-**	
EDR1360-050-PD	1,83	13,63	○		
EDR1370-050-PD	1,84	13,73	○		
EDR1380-050-PD	1,85	13,83	○		
EDR1390-050-PD	1,87	13,93	○		
EDR1400-055-PD	1,88	14,03	●	ZTE015-ED140-**	
EDR1410-055-PD	1,89	14,13	○		
EDR1420-055-PD	1,91	14,23	○		
EDR1430-055-PD	1,92	14,33	○		
EDR1440-055-PD	1,93	14,43	○		
EDR1450-055-PD	1,95	14,53	●	ZTE015-ED140-**	
EDR1460-055-PD	1,96	14,63	○		
EDR1470-055-PD	1,97	14,73	○		
EDR1480-055-PD	1,99	14,83	○		
EDR1490-055-PD	2,00	14,93	○		
EDR1500-060-PD	2,01	15,03	●	ZTE015-ED150-**	
EDR1510-060-PD	2,03	15,13	○		
EDR1520-060-PD	2,04	15,23	○		
EDR1530-060-PD	2,05	15,33	○		
EDR1540-060-PD	2,07	15,43	○		
EDR1550-060-PD	2,08	15,53	●		
EDR1560-060-PD	2,09	15,63	○		
EDR1570-060-PD	2,11	15,73	○		
EDR1580-060-PD	2,12	15,83	○		
EDR1590-060-PD	2,13	15,93	○		

● Ex stock ○ On demand

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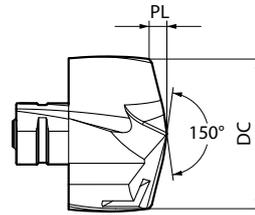
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EDR-PD



Article	Dimensions [mm]		Grade	Drilling body	Wrench
	Pl	Dc	KDG3013		
EDR1600-065-PD	2,15	16,03	●	ZTE015-ED160-**	ZTK16-20.9
EDR1610-065-PD	2,16	16,13	○		
EDR1620-065-PD	2,17	16,23	○		
EDR1630-065-PD	2,19	16,33	○		
EDR1640-065-PD	2,20	16,43	○		
EDR1650-065-PD	2,21	16,53	●		
EDR1660-065-PD	2,23	16,63	○		
EDR1670-065-PD	2,24	16,73	○		
EDR1680-065-PD	2,25	16,83	○		
EDR1690-065-PD	2,27	16,93	○		
EDR1700-070-PD	2,28	17,03	●	ZTE015-ED170-**	
EDR1710-070-PD	2,30	17,13	○		
EDR1720-070-PD	2,31	17,23	○		
EDR1730-070-PD	2,32	17,33	○		
EDR1740-070-PD	2,34	17,43	○		
EDR1750-070-PD	2,35	17,53	●		
EDR1760-070-PD	2,36	17,63	○		
EDR1770-070-PD	2,38	17,73	○		
EDR1780-070-PD	2,39	17,83	○		
EDR1790-070-PD	2,40	17,93	○		
EDR1800-075-PD	2,42	18,03	●	ZTE015-ED180-**	
EDR1810-075-PD	2,43	18,13	○		
EDR1820-075-PD	2,44	18,23	○		
EDR1830-075-PD	2,46	18,33	○		
EDR1840-075-PD	2,47	18,43	○		
EDR1850-075-PD	2,48	18,53	●		
EDR1860-075-PD	2,50	18,63	○		
EDR1870-075-PD	2,51	18,73	○		
EDR1880-075-PD	2,52	18,83	○		
EDR1890-075-PD	2,54	18,93	○		
EDR1900-080-PD	2,55	19,03	●	ZTE015-ED190-**	
EDR1910-080-PD	2,56	19,13	○		
EDR1920-080-PD	2,58	19,23	○		
EDR1930-080-PD	2,59	19,33	●		
EDR1940-080-PD	2,60	19,43	○		
EDR1950-080-PD	2,62	19,53	●		
EDR1960-080-PD	2,63	19,63	○		
EDR1970-080-PD	2,64	19,73	○		
EDR1980-080-PD	2,66	19,83	○		
EDR1990-080-PD	2,67	19,93	○		

● Ex stock ○ On demand

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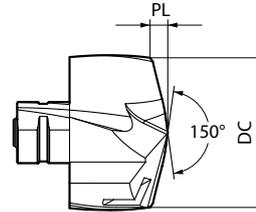
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Article	Dimensions [mm]		Grade	Drilling body	Wrench
	PI	Dc	KDG3013		
EDR2000-085-PD	2,68	20,03	●	ZTE015-ED200-**	ZTK16-20.9
EDR2010-085-PD	2,70	20,13	○		
EDR2020-085-PD	2,71	20,23	○		
EDR2030-085-PD	2,72	20,33	○		
EDR2040-085-PD	2,74	20,43	○		
EDR2050-085-PD	2,75	20,53	●		
EDR2060-085-PD	2,76	20,63	○		
EDR2070-085-PD	2,78	20,73	○		
EDR2080-085-PD	2,79	20,83	○		
EDR2090-085-PD	2,80	20,93	○		
EDR2100-090-PD	2,82	21,03	●	ZTE015-ED210-**	
EDR2110-090-PD	2,83	21,13	○		
EDR2120-090-PD	2,84	21,23	○		
EDR2130-090-PD	2,86	21,33	○		
EDR2140-090-PD	2,87	21,43	○		
EDR2150-090-PD	2,88	21,53	●		
EDR2160-090-PD	2,90	21,63	○		
EDR2170-090-PD	2,91	21,73	○		
EDR2180-090-PD	2,92	21,83	○		
EDR2190-090-PD	2,94	21,93	○		
EDR2200-095-PD	2,95	22,03	●	ZTE015-ED220-**	ZTK21-25.9
EDR2210-095-PD	2,96	22,13	○		
EDR2220-095-PD	2,98	22,23	○		
EDR2230-095-PD	2,99	22,33	○		
EDR2240-095-PD	3,01	22,43	○		
EDR2250-095-PD	3,02	22,53	●		
EDR2260-095-PD	3,03	22,63	○		
EDR2270-095-PD	3,05	22,73	○		
EDR2280-095-PD	3,06	22,83	○		
EDR2290-095-PD	3,07	22,93	○		
EDR2300-100-PD	3,09	23,03	●	ZTE015-ED230-**	
EDR2310-100-PD	3,10	23,13	●		
EDR2320-100-PD	3,11	23,23	○		
EDR2330-100-PD	3,13	23,33	●		
EDR2340-100-PD	3,14	23,43	○		
EDR2350-100-PD	3,15	23,53	●		
EDR2360-100-PD	3,17	23,63	○		
EDR2370-100-PD	3,18	23,73	●		
EDR2380-100-PD	3,19	23,83	○		
EDR2390-100-PD	3,21	23,93	○		

● Ex stock ○ On demand

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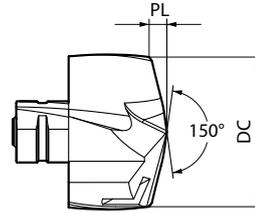
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For more information on using the **PD geometry** (recommended: pilot hole from 8xD), please refer to page C79.

Drill heads

EDR-PD



Article	Dimensions [mm]		Grade	Drilling body	Wrench
	Pl	Dc	KDG3013		
EDR2400-110-PD	3,22	24,03	●	ZTE015-ED240-**	ZTK21-25.9
EDR2410-110-PD	3,23	24,13	○		
EDR2420-110-PD	3,25	24,23	○		
EDR2430-110-PD	3,26	24,33	○		
EDR2440-110-PD	3,27	24,43	○		
EDR2450-110-PD	3,29	24,53	●		
EDR2460-110-PD	3,30	24,63	○		
EDR2470-110-PD	3,31	24,73	○		
EDR2480-110-PD	3,33	24,83	○		
EDR2490-110-PD	3,34	24,93	○		
EDR2500-115-PD	3,35	25,03	●	ZTE015-ED250-**	
EDR2510-115-PD	3,37	25,13	○		
EDR2520-115-PD	3,38	25,23	○		
EDR2530-115-PD	3,39	25,33	○		
EDR2540-115-PD	3,41	25,43	○		
EDR2550-115-PD	3,42	25,53	●		
EDR2560-115-PD	3,43	25,63	○		
EDR2570-115-PD	3,45	25,73	○		
EDR2580-115-PD	3,46	25,83	○		
EDR2590-115-PD	3,47	25,93	○		

● Ex stock ○ On demand

For more information on using the **PD geometry** (recommended: pilot hole from 8xD), please refer to page C79.

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Indexable head drills

Material group	Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed v_c [m/min]						
					Ø 12-25,9		Ø 12-25,9		Ø 12-25,9		
					1,5-3xD (GD)		5xD (GD)		8xD (GD)		
					KDG3013		KDG3013		KDG3013		
				Vc [m/min]	f-group	Vc [m/min]	f-group	Vc [m/min]	f-group		
P Unalloyed steel	approx. 0,15 % C	annealed	125	1	130	18	100	17	80	16	
	approx. 0,45 % C	annealed	190	2	110	18	90	17	70	16	
	approx. 0,45 % C	tempered	250	3	100	18	80	17	60	16	
	approx. 0,75 % C	annealed	270	4	85	18	70	17	50	16	
	approx. 0,75 % C	tempered	300	5	75	18	60	17	45	16	
P Low-alloyed steel		annealed	180	6	110	18	90	17	70	16	
		tempered	275	7	85	18	70	17	50	16	
		tempered	300	8	75	18	60	17	45	16	
		tempered	350	9	65	18	50	17	40	16	
P High-alloyed steel and high-alloyed tool steel		annealed	200	10	100	18	80	17	60	16	
		hardened and tempered	325	11	75	18	60	17	45	16	
M Stainless steel	ferritic/martensitic	annealed	200	12	60	18	50	17	40	16	
	martensitic	tempered	240	13	35	18	30	17	25	16	
	austenitic	quench hardened	180	14	40	18	30	17	25	16	
	austenitic-ferritic		230	15	35	18	30	17	25	16	
K Grey cast iron	perlitic/ferritic		180	16	125	18	100	17	75	16	
	perlitic (martensitic)		260	17	100	18	80	17	60	16	
K Cast iron with spheroidal graphite	ferritic		160	18	110	18	90	17	60	16	
	perlitic		250	19	70	18	60	17	40	16	
K Malleable cast iron	ferritic		130	20	120	18	100	17	70	16	
	perlitic		230	21	70	18	60	17	40	16	
N Aluminium wrought alloys	cannot be hardened		60	22	180	18	140	17	110	16	
	hardenable	hardened	100	23	180	18	140	17	110	16	
	Cast aluminium alloys	≤ 12% Si, cannot be hardened		75	24	180	18	145	17	110	16
		≤ 12% Si, hardenable	hardened	90	25	180	18	145	17	110	16
		> 12% Si, cannot be hardened		130	26	180	18	145	17	110	16
N Copper and copper alloys (bronze/brass)	machining steel, PB> 1%		110	27	-	-	-	-	-	-	
	CuZn, CuSnZn		90	28	-	-	-	-	-	-	
	CuSn, Pb-free copper, electrolytic copper		100	29	-	-	-	-	-	-	
S Heat-resistant alloys	Fe-based alloys	annealed	200	30	-	-	-	-	-	-	
		hardened	280	31	-	-	-	-	-	-	
	Ni or Co bass	annealed	250	32	-	-	-	-	-	-	
		hardened	350	33	-	-	-	-	-	-	
		cast	320	34	-	-	-	-	-	-	
Titanium alloys	pure titanium	R_m 400	35	-	-	-	-	-	-		
	α and β alloys	hardened	R_m 1050	36	-	-	-	-	-		
H Hardened steel		hardened and tempered	55 HRC	37	60	16	50	16	40	16	
		hardened and tempered	60 HRC	38	-	-	-	-	-	-	
H Hard cast iron		cast	400	39	-	-	-	-	-	-	
H Hardened cast iron		hardened and tempered	55 HRC	40	50	16	40	16	30	16	
X Non-metallic materials	Thermoplasts			41	-	-	-	-	-	-	
	Thermosetting plastics			42	-	-	-	-	-	-	
	Plastic, glass-fibre reinforced GFRP			43	-	-	-	-	-	-	
	Plastic, carbon fibre reinforced CFRP			44	-	-	-	-	-	-	
	Graphite			45	-	-	-	-	-	-	
X Wood				46	-	-	-	-	-	-	

Note: The given cutting values are guide values, which were determined under ideal conditions.
 The values have to be adapted in individual cases.
 With hole depths of 5xD adjust the cutting data accordingly to the application.
 f-group = feed rate recommendations on page C148.
 For examples of material for cutting tool groups view page D11.

Starting values for cutting speed v_c [m/min]															
Ø 12-25,9		Ø 12-25,9		Ø 12-25,9		Ø 12-25,9									
1,5-3xD (KD)		5xD (KD)		8xD (KD)		1,5-3xD (PD)									
KDG303		KDG303		KDG303		KDG3013									
v_c [m/min]	f-group	v_c [m/min]	f-group	v_c [m/min]	f-group	v_c [m/min]	f-group								
130	18	100	17	80	16	130	18								
110	18	90	17	70	16	110	18								
100	18	80	17	60	16	100	18								
85	18	70	17	50	16	85	18								
75	18	60	17	45	16	75	18								
110	18	90	17	70	16	110	18								
85	18	70	17	50	16	85	18								
75	18	60	17	45	16	75	18								
65	18	50	17	40	16	65	18								
100	18	80	17	60	16	100	18								
75	18	60	17	45	16	75	18								
-	-	-	-	-	-	60	18								
-	-	-	-	-	-	35	18								
-	-	-	-	-	-	40	18								
-	-	-	-	-	-	35	18								
125	18	100	17	75	16	125	18								
100	18	80	17	60	16	100	18								
110	18	90	17	60	16	110	18								
70	18	60	17	40	16	70	18								
120	18	100	17	70	16	120	18								
70	18	60	17	40	16	70	18								
-	-	-	-	-	-	180	18								
-	-	-	-	-	-	180	18								
-	-	-	-	-	-	180	18								
-	-	-	-	-	-	180	18								
-	-	-	-	-	-	180	18								
-	-	-	-	-	-	-	-								
-	-	-	-	-	-	-	-								
-	-	-	-	-	-	-	-								
-	-	-	-	-	-	-	-								
-	-	-	-	-	-	-	-								
-	-	-	-	-	-	-	-								
60	16	50	16	40	16	60	16								
-	-	-	-	-	-	-	-								
-	-	-	-	-	-	-	-								
50	16	40	16	30	16	50	16								
-	-	-	-	-	-	-	-								
-	-	-	-	-	-	-	-								
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-	-	-	-	-	-	-	-								
-	-	-	-	-	-	-	-								
-	-	-	-	-	-	-	-								
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Recommended feed rate

Indexable head drills

f-group	Feed rate [mm]													
	Ø12	Ø13	Ø14	Ø15	Ø16	Ø17	Ø18	Ø19	Ø20	Ø21	Ø22	Ø23	Ø24	Ø25
16	0,15	0,155	0,16	0,17	0,175	0,18	0,19	0,195	0,2	0,21	0,22	0,225	0,23	0,24
17	0,19	0,2	0,21	0,22	0,225	0,23	0,24	0,25	0,26	0,27	0,28	0,29	0,3	0,31
18	0,21	0,22	0,23	0,24	0,25	0,26	0,27	0,28	0,29	0,3	0,31	0,32	0,33	0,34

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.

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ZTE indexable head drilling system



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