



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.

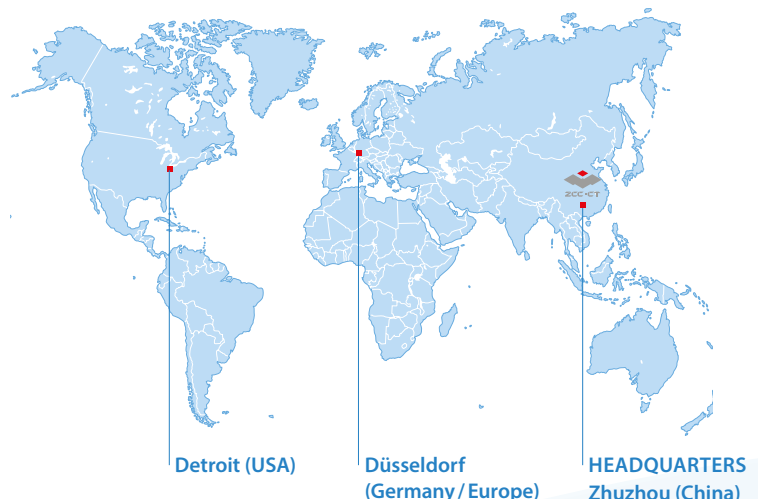
External sales staff and distribution partners in Europe work hand in hand to support customers across the region. Our friendly ZCC-CT application engineers are also available to support you with their expertise and experience by phone, e-mail or in person at your production facility.

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
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PARTING & GROOVING		Page
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	 PG1120 grade – maximum reliability even if cutting conditions change	A30
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INDEXABLE MILLING		Page
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	EMP10 square shoulder milling system – maximum feed rates to boost your production	B54
	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
	ZTE indexable head drilling system – reliable drilling results with high material removal rates	C78

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



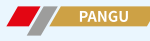
General turning

ISO code – general turning inserts

A8–A9

ISO code – external tool holders

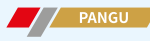
A10–A11

 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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B

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C

Drilling

D

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Information

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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	

1

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

2

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

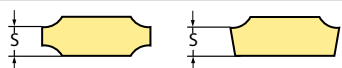
3

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

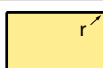
4

Cutting edge length l [mm]							
I.C [mm]	Insert shape						
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						

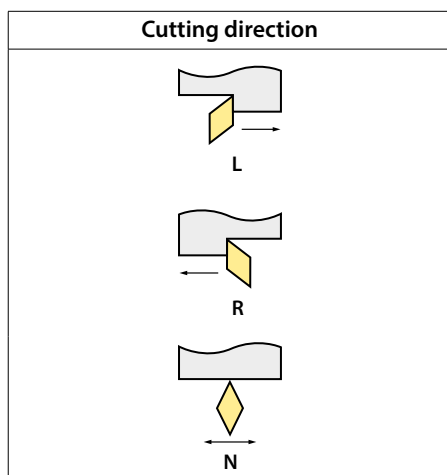
5

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		

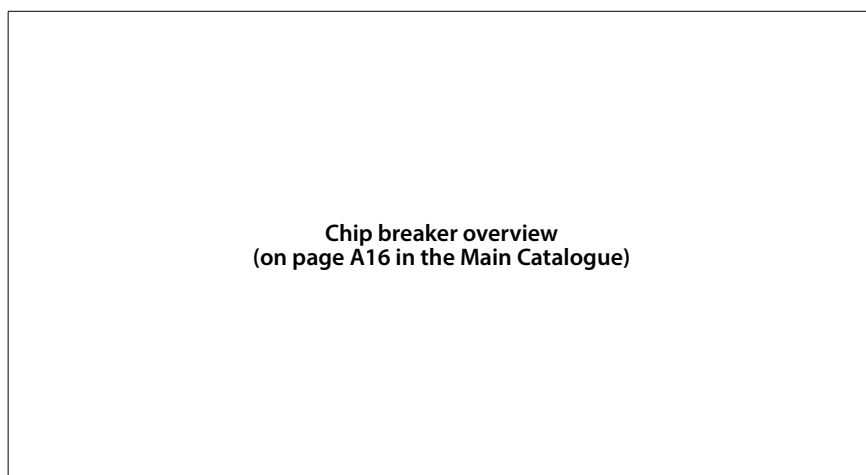
6

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

T	N	M	G	4	3	2	(N)	–	DM
1	2	3	4	5	6	7	8		9

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

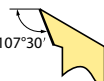
Nose radius		
Code	[mm]	Pouce
0	0.2	0.008
1	0.4	0.016
2	0.8	0.031
3	1.2	0.047
4	1.6	0.063
5	2.0	0.079
6	2.4	0.094

7

P C L N L 25 25 M 12

1 2 3 4 5 6 7 8 9

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	Dual wedge clamping		T	
			V	
			W	
1			2	

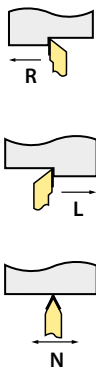
Tool holder type and entering angle				
				
A	B	C	D	E
				
F	G	H	J	K
				
L	M	N	O	P
				
Q	R	S	T	U
				
V	W	X		

Clearance angle	
B 	C 
D 	E 
N 	P 

3

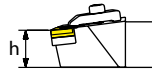
4

Cutting direction



5

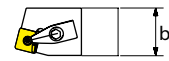
Shank height h [mm]



Code	h
12	12
16	16
20	20
25	25
32	32
40	40
50	50

6

Shank width b [mm]



Code	b
12	12
16	16
20	20
25	25
32	32
40	40
50	50

7

Holder length L [mm]



Code	L
H	100
K	125
M	150
P	170
Q	180
R	200
S	250
T	300

8

Cutting edge length l [mm]

Insert shape

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						

9

A

Turning

B

Milling

C

Drilling

D

Technical
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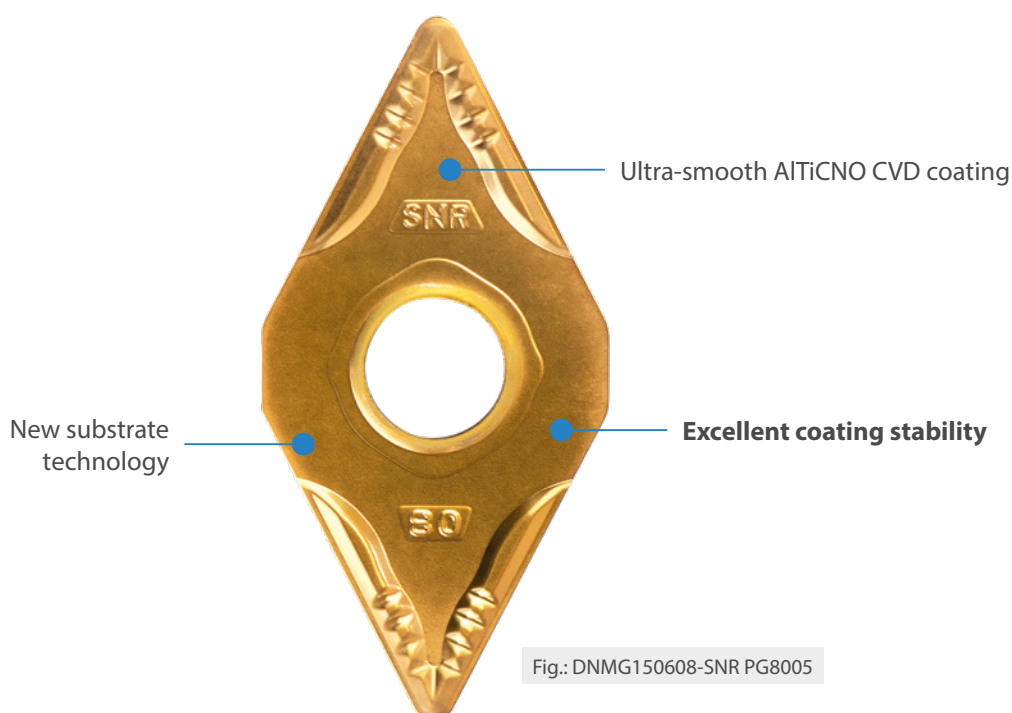
Index

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**



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

Article	Stock
CNEG120404-NF PG8005	●
CNEG120408-NF PG8005	●
CNMG120408-SNR PG8005	○
CNMG120408-XLR PG8005	●
DNEG150604-NF PG8005	●
DNEG150608-NF 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

Article	Stock
VCGT160408-SNR PG8005	●
VNEG160404-NF PG8005	●
VNEG160408-NF PG8005	●
VNEG160408-NGF PG8005	●
VNMG160408-SNR PG8005	○
WNMG080408-SNR PG8005	○

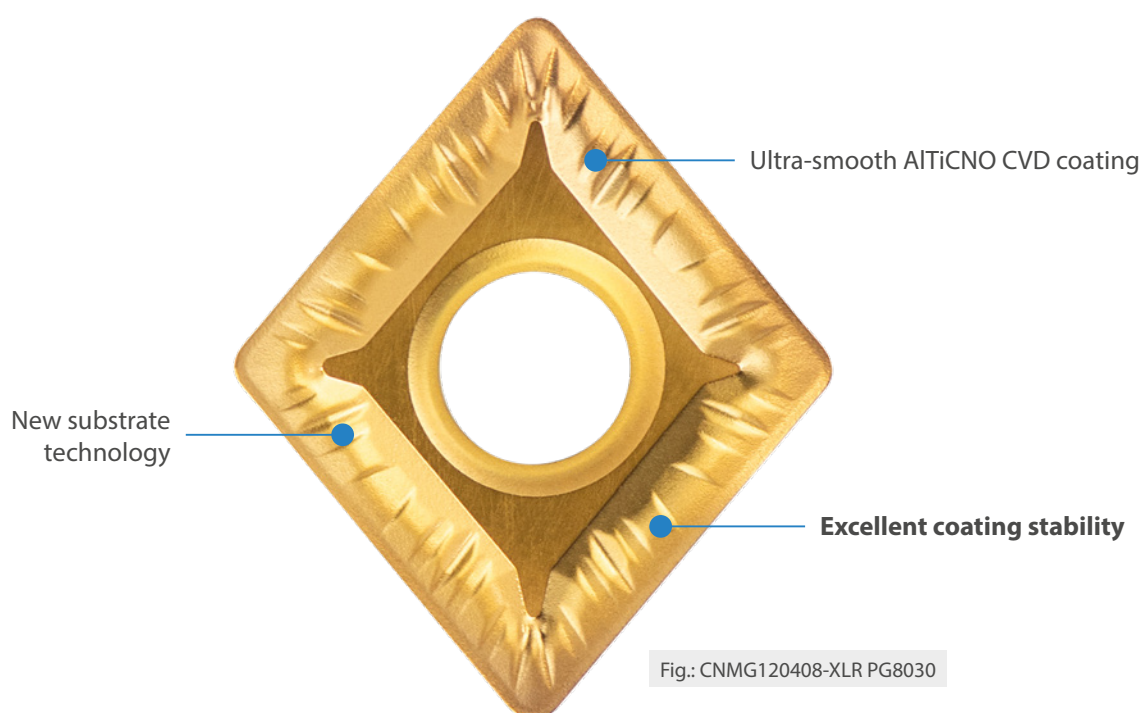
● Ex stock ○ On demand

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



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	●

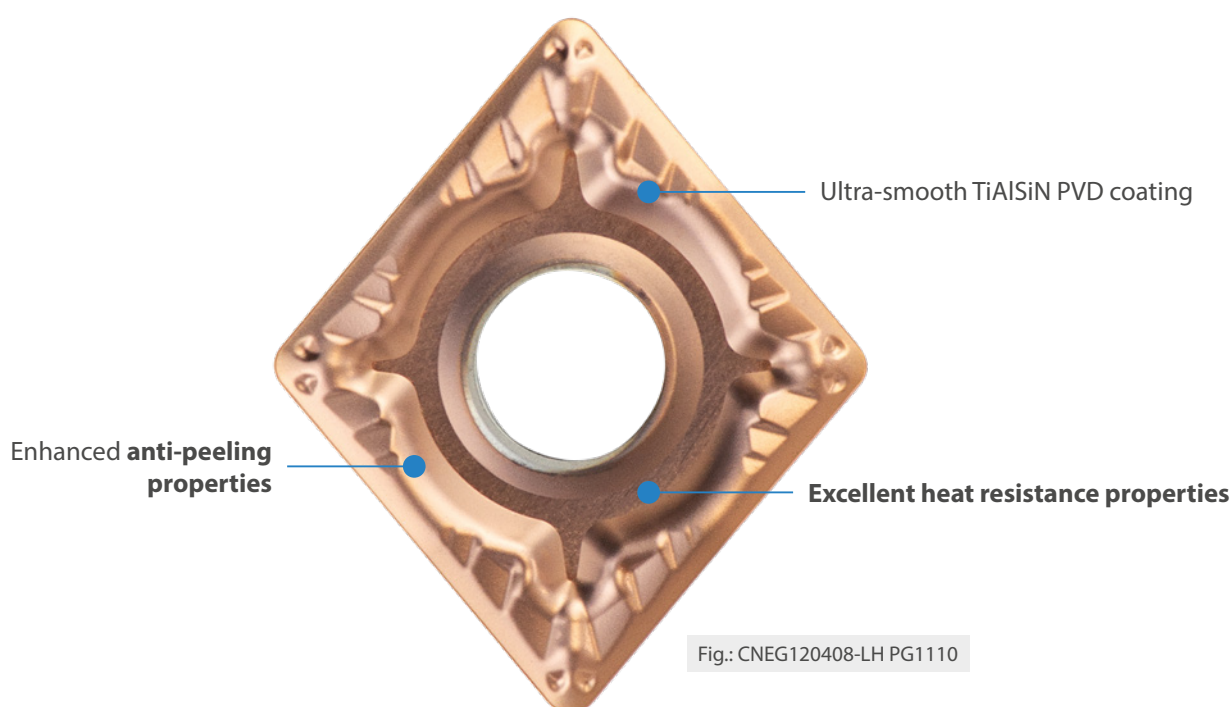
● Ex stock ○ On demand

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
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	●

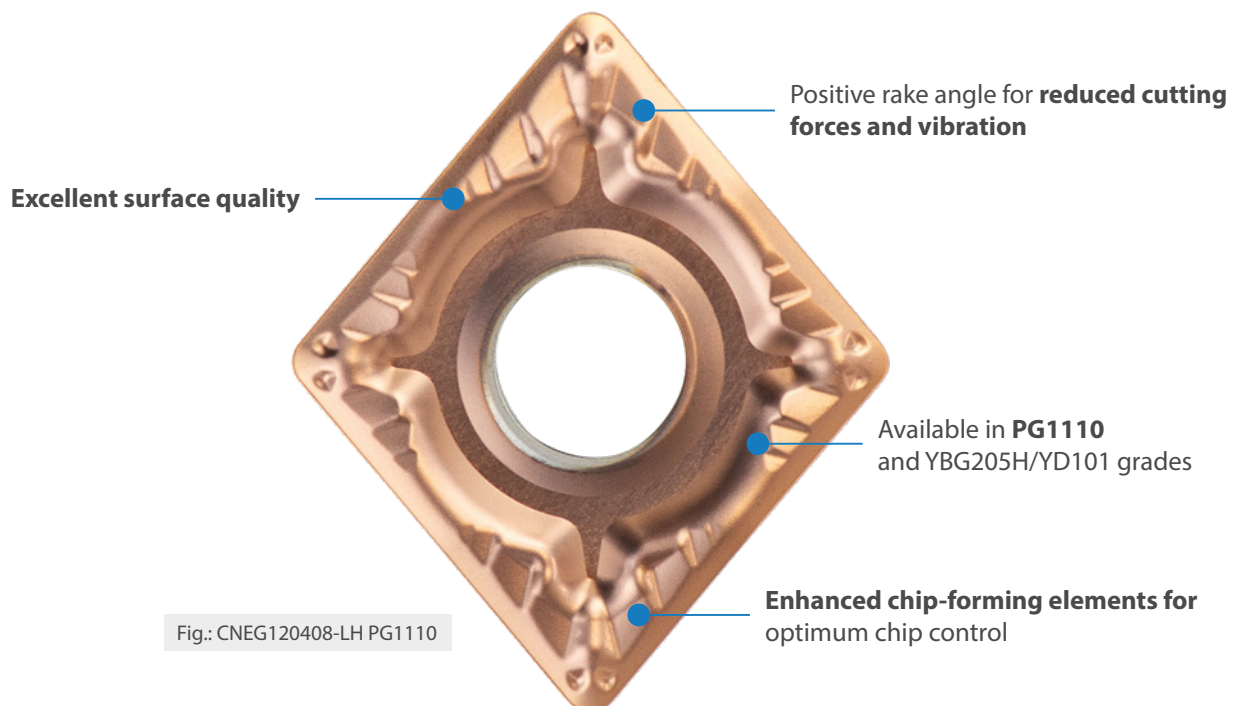
● Ex stock ○ On demand

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



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	●

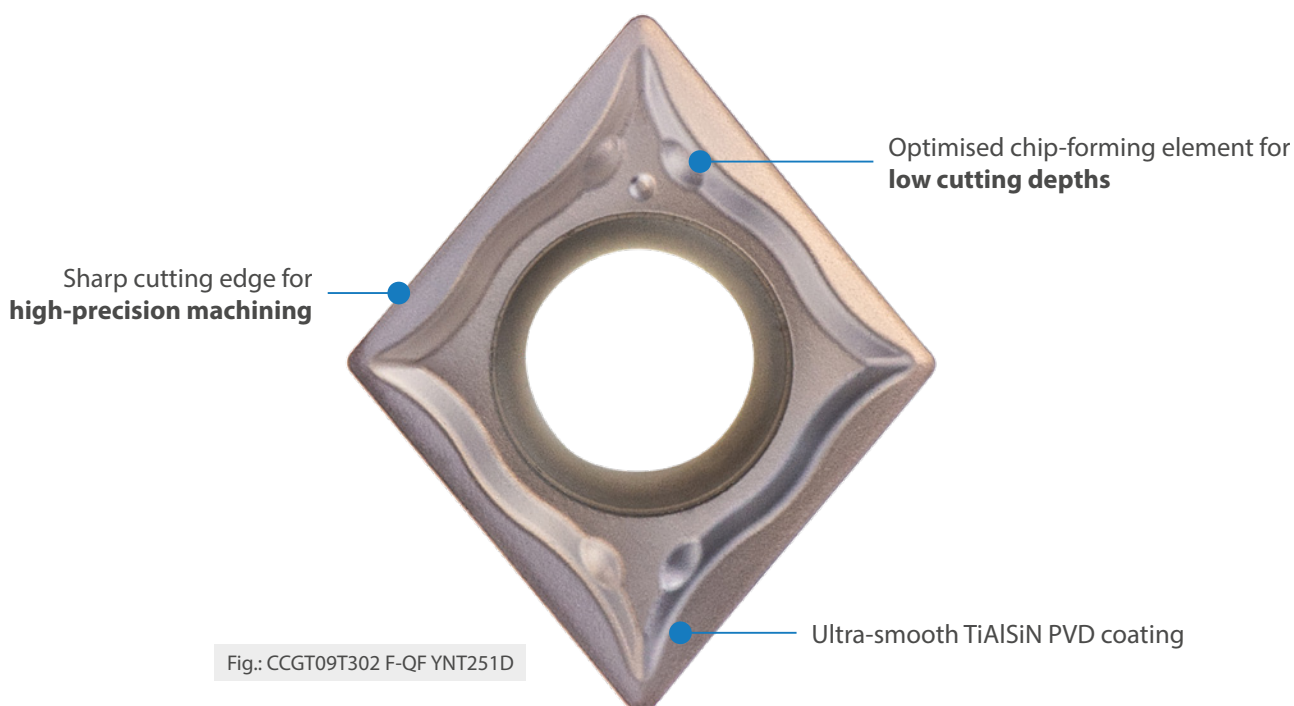
● Ex stock ○ On demand

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	●

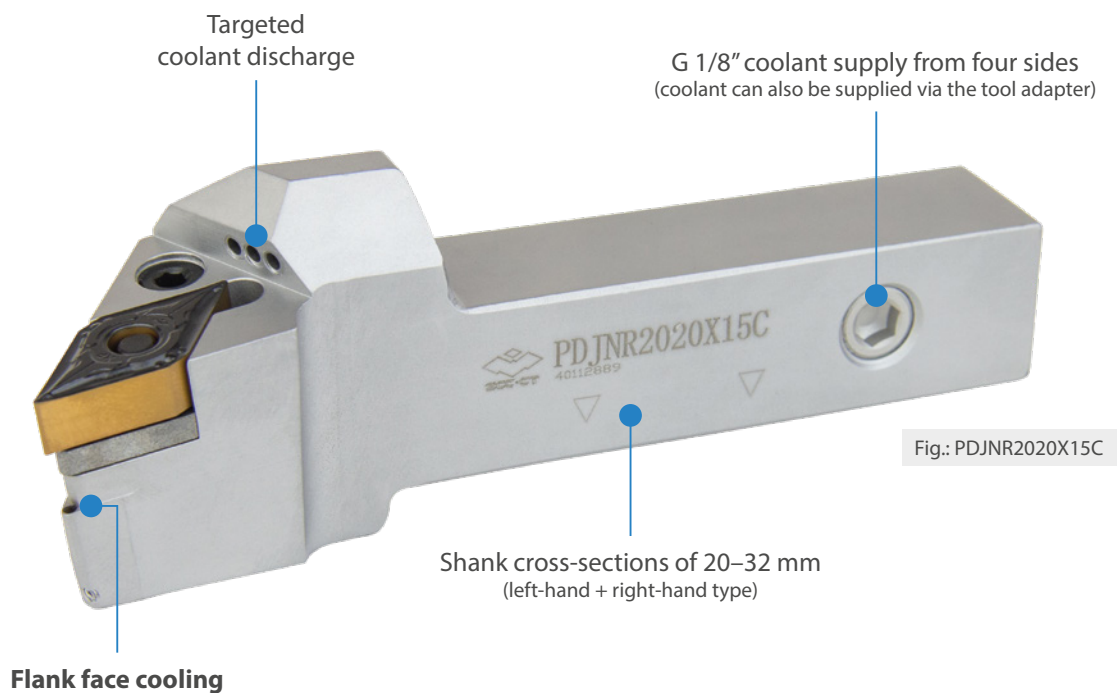
● Ex stock ○ On demand

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

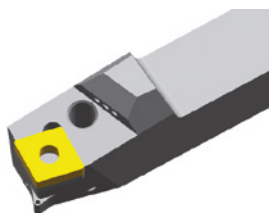


A

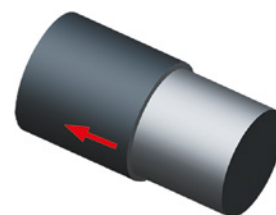
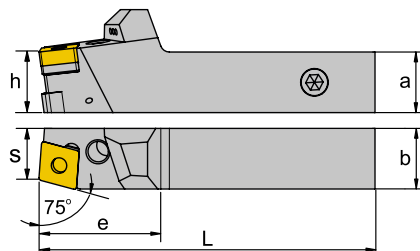
CN** holder (external)

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**	

● Ex stock ○ On demand

* With internal cooling

Milling

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

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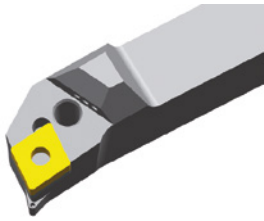
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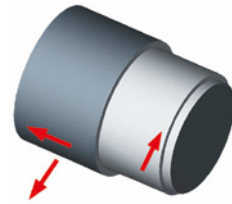
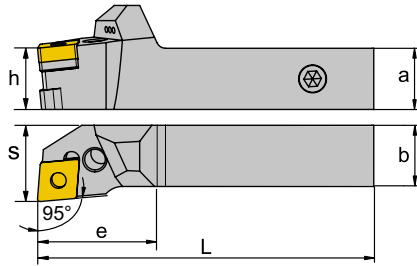
CN** holder (external)

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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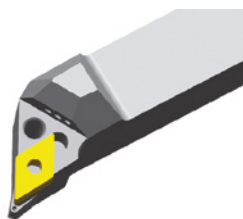
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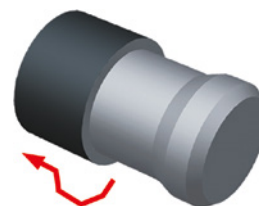
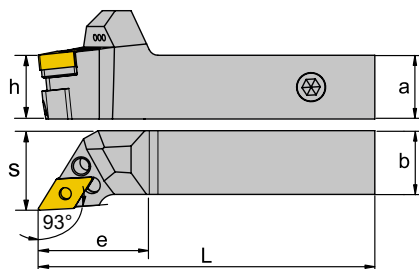
DN** holder (external)

P clamping

PDJNR/LC Kr: 93°



Right hand style



Turning

B

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

Milling

C

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

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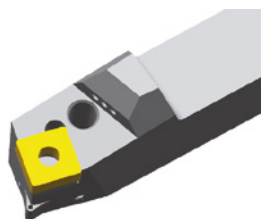
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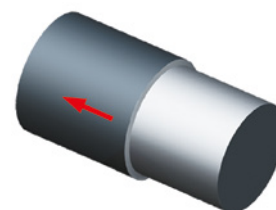
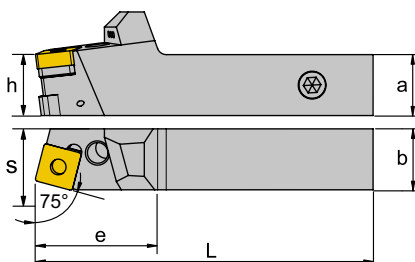
SN** holder (external)

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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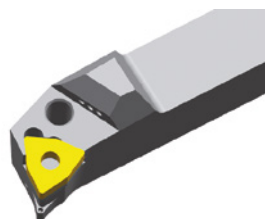
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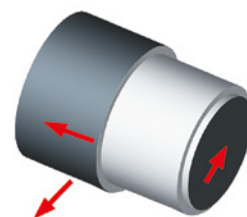
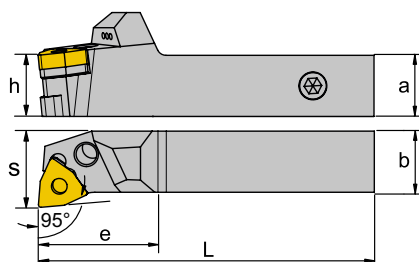
WN** holder (external)

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)



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												
P	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	–			
	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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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	Si ₃ N ₄ ceramic
CM	Mixed ceramic
HC ₁	Coated cermet
BC	CBN with coating
CC	Coated cutting ceramic
CR	Cutting ceramic, primary component aluminium oxide (Al ₂ O ₃), reinforced
DP	Polycrystalline diamond



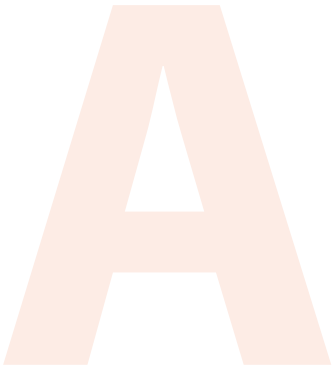
The image shows a close-up of a ZGroove Compact modular grooving system mounted on a lathe. The system consists of several dark grey metal components. A prominent part is a sliding block with a circular locking mechanism labeled 'Lock' and '253126'. Below it, a smaller component is marked 'ZG.C.2.2.F.R65 IC'. Another part of the system is labeled 'NG 0.9.2525.H.R.1' and '253117'. The background is a blurred view of the lathe's internal components, including a large metal chuck or headstock.

ZGROOVE COMPACT

Modular grooving system

Modular grooving system

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



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Application

Code	Description
ZP	Parting
ZT	Grooving & turning
ZR	Form turning

1

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

2

No. of cutting edges

Code	Description
S	Single
D	Double

3

Insert thickness S [mm]

	
Code	S
02	2,0
025	2,5
03	3,0
04	4,0
05	5,0
06	6,0
08	8,0

4

Nose radius r [mm]

	
Code	r
02	0,2
03	0,3
04	0,4
08	0,8

5

Tolerance class [mm]

Code	Description
M	±0,13
E	±0,025
H	±0,025

6

Chip breaker

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

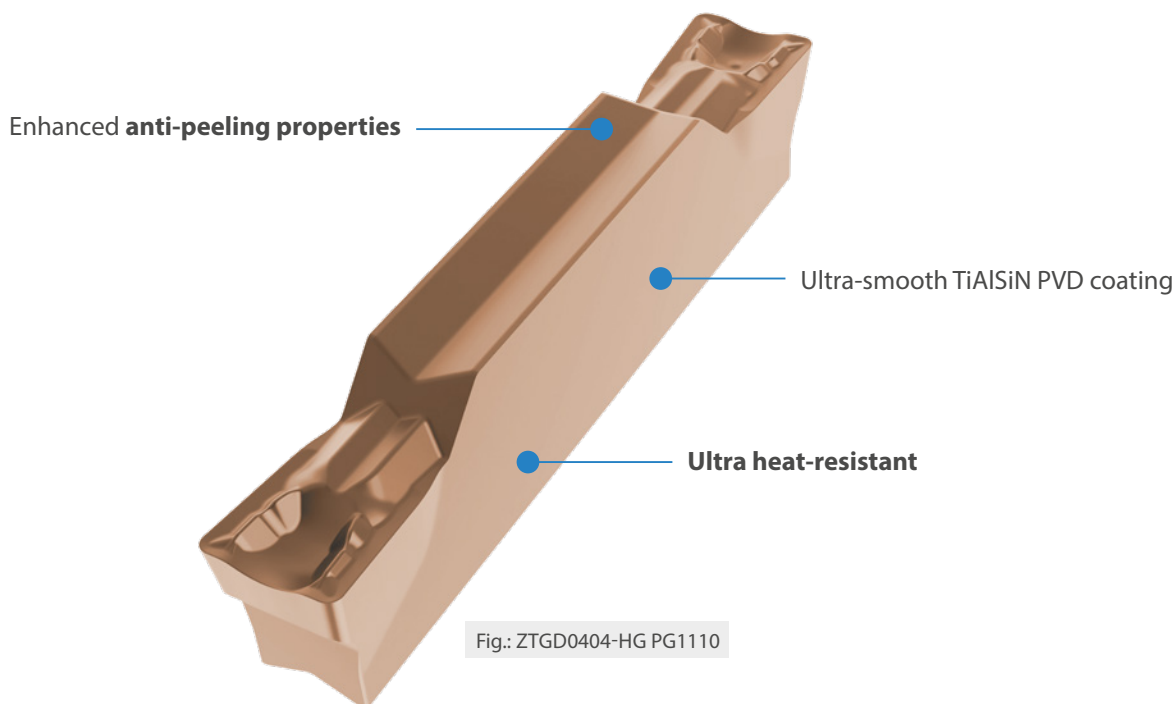
7

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

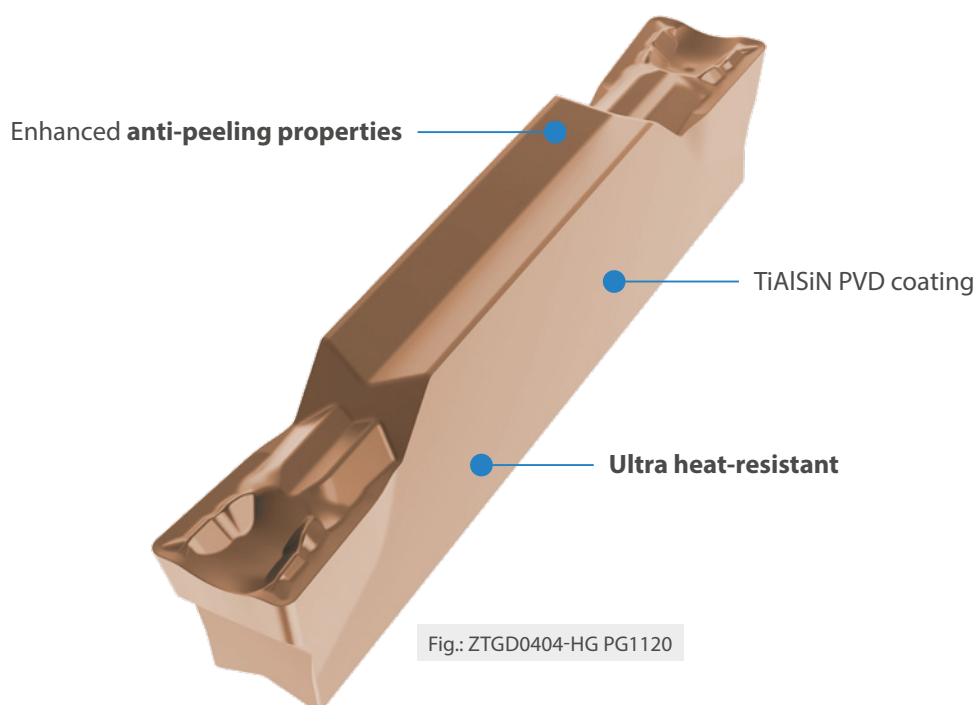


Fig.: ZTGD0404-HG PG1120

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	●

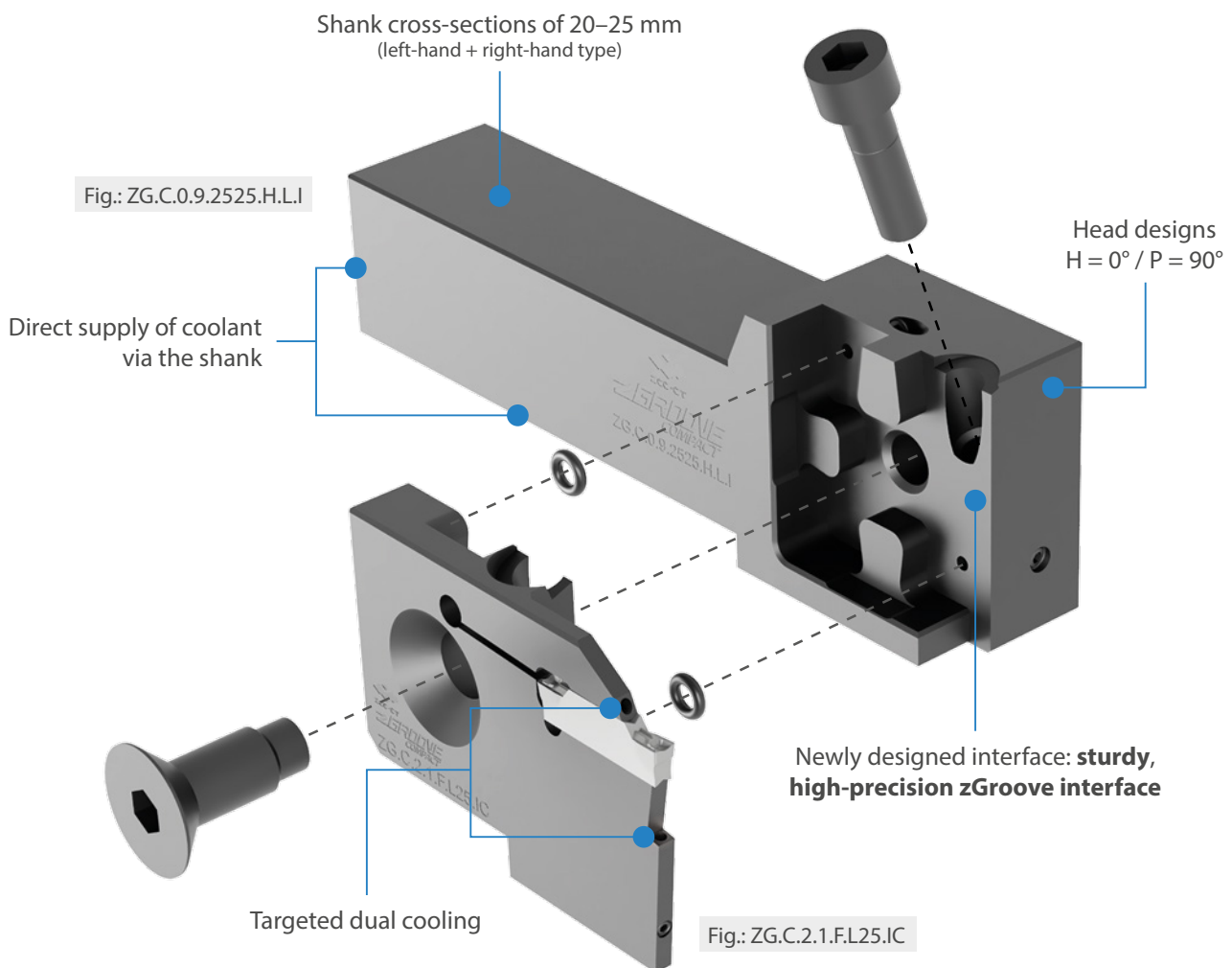
● Ex stock ○ On demand

ZGROOVE COMPACT

Compact design, easy to work with

YOUR BENEFITS

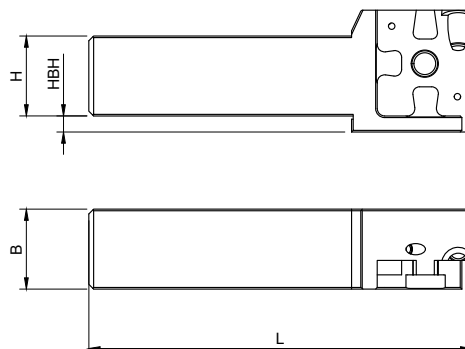
- Newly designed zGroove interface for **simple** and **precise change-over of any component**
- **Excellent chip removal** and **reduced machining temperatures** thanks to targeted dual cooling
- **Compatible with a wide range of machines** thanks to compact design
- Sturdy design for all parting and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

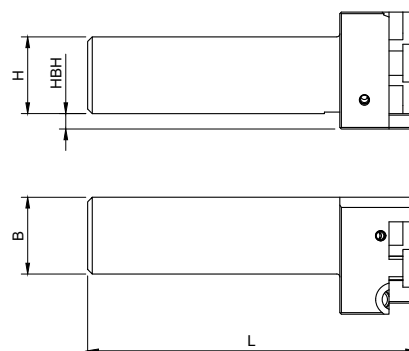
Spare parts

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

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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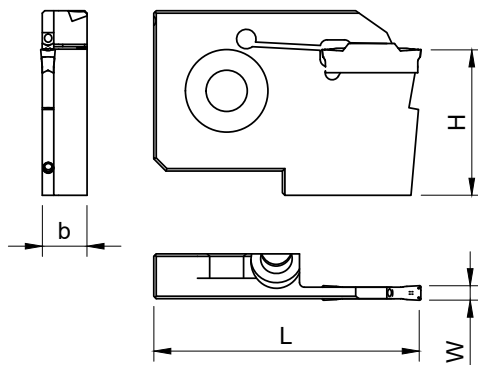
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zGroove Compact primary cartridge (parting & grooving / turning)



Left hand style



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



Find all compatible grooving inserts on our website.

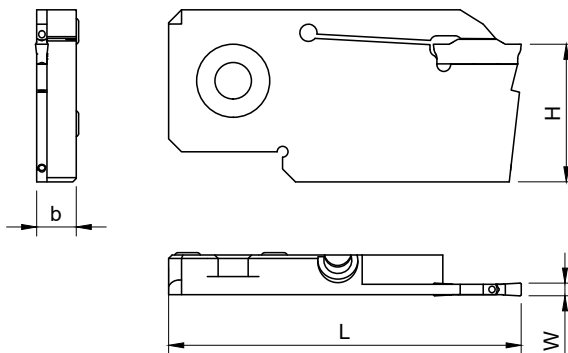
Also compatible with our new **HG chip breaker** (see page A36)

Spare parts			
	Article	Stock	
	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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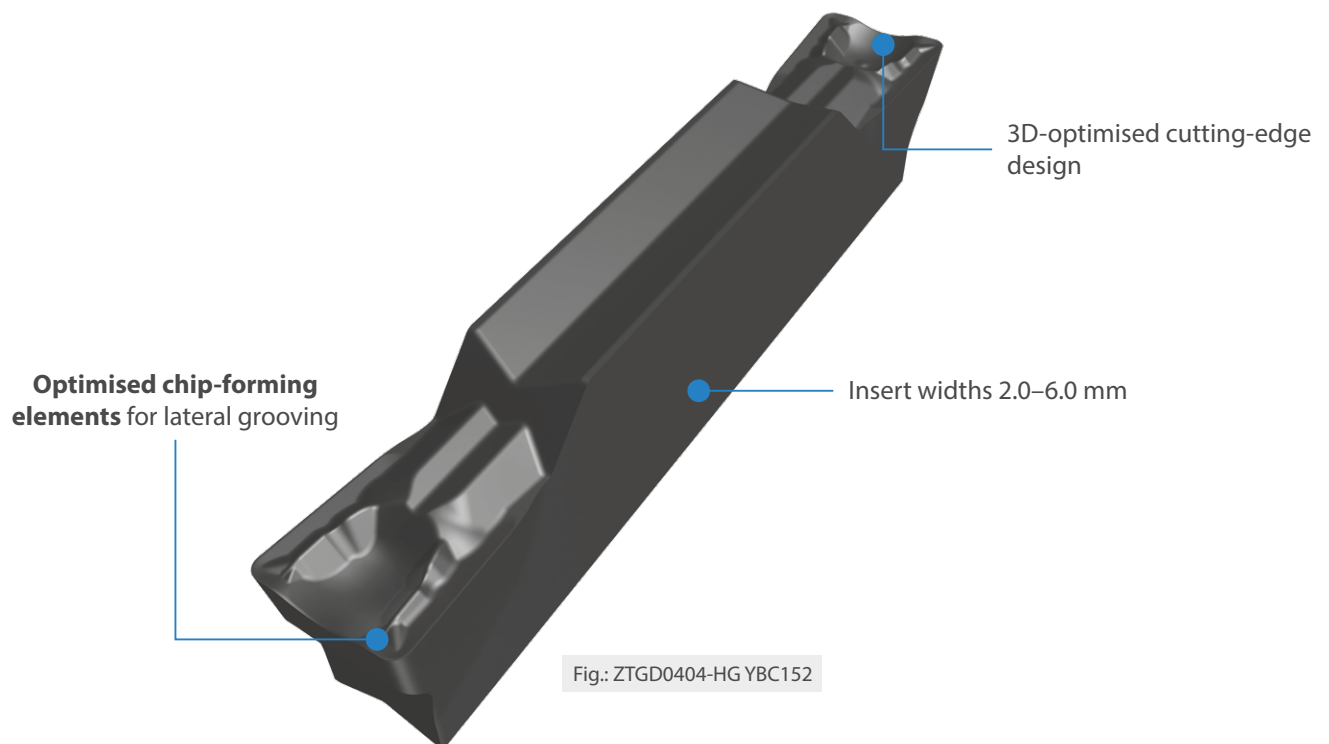
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HG chip breaker

Specially designed for soft and difficult-to-machine materials

YOUR BENEFITS

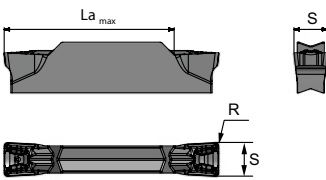
- **Low cutting forces** thanks to a positive geometry and sharp cutting edge design
- Ideally suited for soft and ductile materials
- **Flexible** in any application (grooving/parting/ Groove-turning)
- **Less wear and tear** thanks to reduced surface contact
- During machining, the geometry creates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



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

Parting inserts

-  Ideal machining conditions
 Normal machining conditions
 Unfavourable machining conditions

Parting & grooving insert (double sided)									HC ¹ (CVD)	HC ¹ (PVD)	HW
										 	
Double cutting edge											
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	
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			
	Low-alloyed steel		annealed	180	6		170			
			tempered	275	7		125			
			tempered	300	8		115			
			tempered	350	9		105			
High-alloyed steel and high-alloyed tool steel		annealed	200	10		125				
		hardened and tempered	325	11		95				
M	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			
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			95	100	
			hardened	280	31			50	50	
		Ni or Co bass	annealed	250	32			80	80	
			hardened	350	33			70	70	
			cast	320	34			70	70	
	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					
		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.
For examples of material for cutting tool groups view page D11.

HC	Coated carbide
HW	Uncoated carbide, main component (WC)

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A close-up photograph of a high-feed milling system, model XMR13, in operation. The system features a black and silver spindle assembly with a multi-fluted milling head. The head is equipped with several cutting inserts, some of which are highlighted in red. The tool is positioned over a large, cylindrical workpiece that has been partially machined, showing concentric circular patterns on its top surface. The workpiece is mounted on a thick, rectangular metal base. The background is a blurred industrial setting.

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

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S P K N 12 04 ED T21K R – DM

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

1

Clearance angle	
B	C
D	E
F	N
P	

2

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

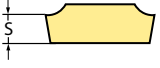
3

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

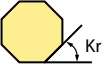
4

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

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	P	
T		2	15°	2	0,20	W	
S		3	20°	3	0,25	-	
		4	25°	4	0,30		
		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

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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	45°
E	75°
D	60°
P	90°
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	Nominal diameter Ø50 – 80 mm	B	Nominal diameter Ø100 – 160 mm
C	Nominal diameter Ø200 – 250 mm	D	Nominal diameter Ø315 mm
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:



Coolant clamp screw



Coolant shower plate



Spare parts (B coupling with inner coolant supply)					
	Ø	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

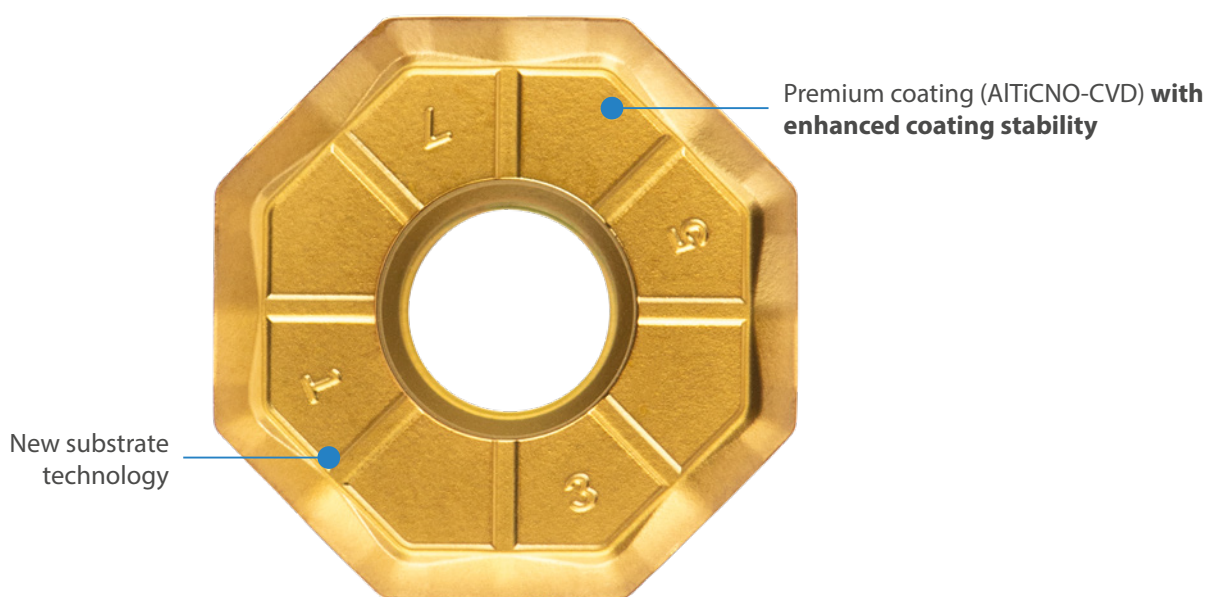


Fig.: ONHU09T508ANN-GM PG8020

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

Article	Stock	Milling system
LNKT120624PNR-GM PG8020	●	EMP09
LNKT120632PNR-GM PG8020	●	EMP09
ONMU060408-GH PG8020	●	FMA12
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

Article	Stock	Milling system
SNMX120512-GH PG8020	●	FMA17/FMP17/FME17
SNMX120512-GL PG8020	●	FMA17/FMP17/FME17
SNMX120512-GM PG8020	●	FMA17/FMP17/FME17

● 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

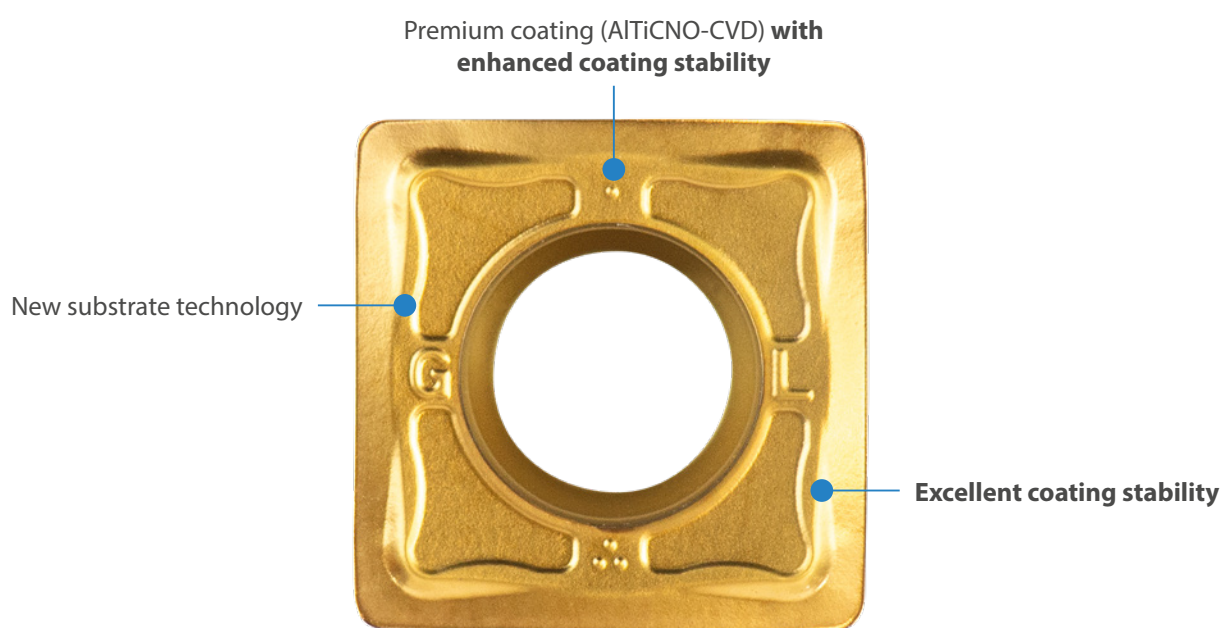


Fig.: SNGX1205PNN-GL PG8030

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

Article	Stock	Milling system
ONMU060408-GH PG8030	●	FMA12
ONMU060408-GM PG8030	●	FMA12
ONMU09T512-GH PG8030	●	FMA12
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

Article	Stock	Milling system
SNMX120512-GH PG8030	●	FMA17/FMP17/FME17
SNMX120512-GL PG8030	●	FMA17/FMP17/FME17
SNMX120512-GM PG8030	●	FMA17/FMP17/FME17

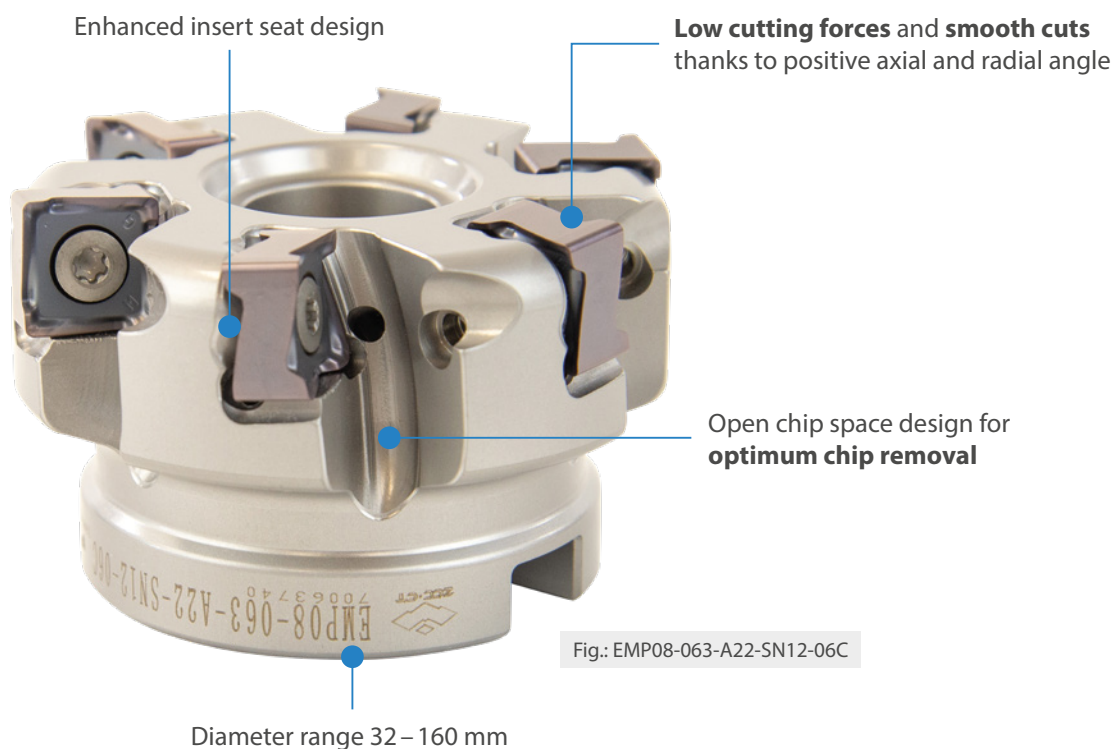
● Ex stock ○ On demand

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



PG8020

CVD
S10–S20
M15–M35

YBM253

CVD
P20–P40
M15–M35

YBD152

CVD
K10–K25

YBG205H

PVD
P10–P30
M20–M40

YB9320

PVD
P10–P30
M20–M40

YBS303

PVD
S20–S30
M20–M40

Chip breaker

SN*Y-GL



Finishing

SN*Y-GM



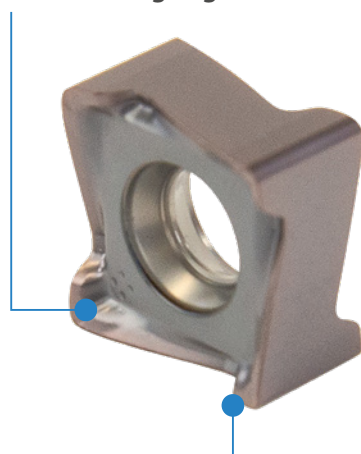
General machining

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

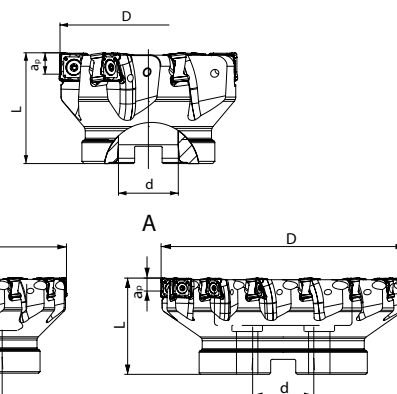
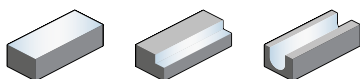
Low cutting forces thanks to positive cutting edge design



Fig.: SNGY12T508PNR-GM YBG205H

Square shoulder milling

EMP08 Kr: 90°



B

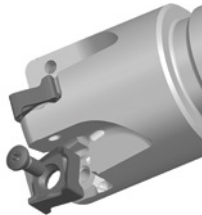
C

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

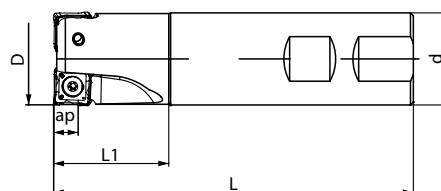
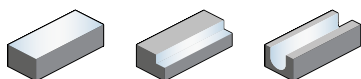
* With internal cooling

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

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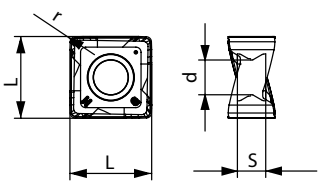
A

Turning

Milling Insert

-  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

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

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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

CVD
P20–P40
M15–M35

YBG205H

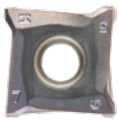
PVD
P10–P30
M20–M40

YB9320

PVD
P10–P30
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**

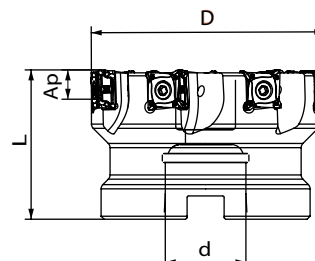
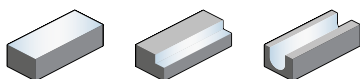
Complex contoured main cutting
edge for **high-precision 90° shoulder
machining operations**



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



Milling insert

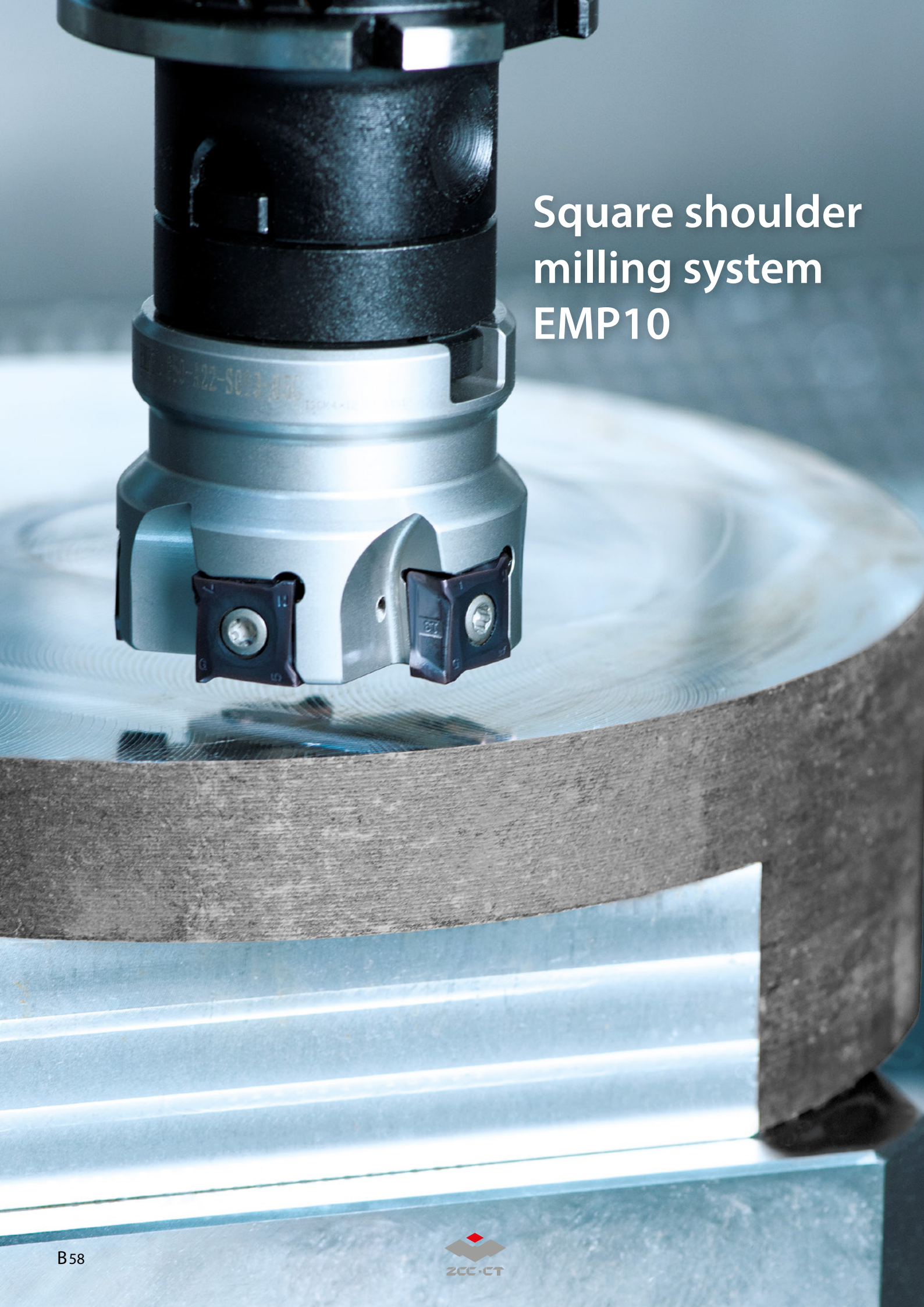
-  Ideal machining conditions
-  Normal machining conditions
-  Unfavourable machining conditions

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

[illegible]

● Ex stock ○ On demand

HC ¹	Coated carbide
HT	Uncoated cermet
HC ²	Coated cermet
HW	Uncoated carbide



Square shoulder milling system EMP10

Notes

A

Turning

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Milling

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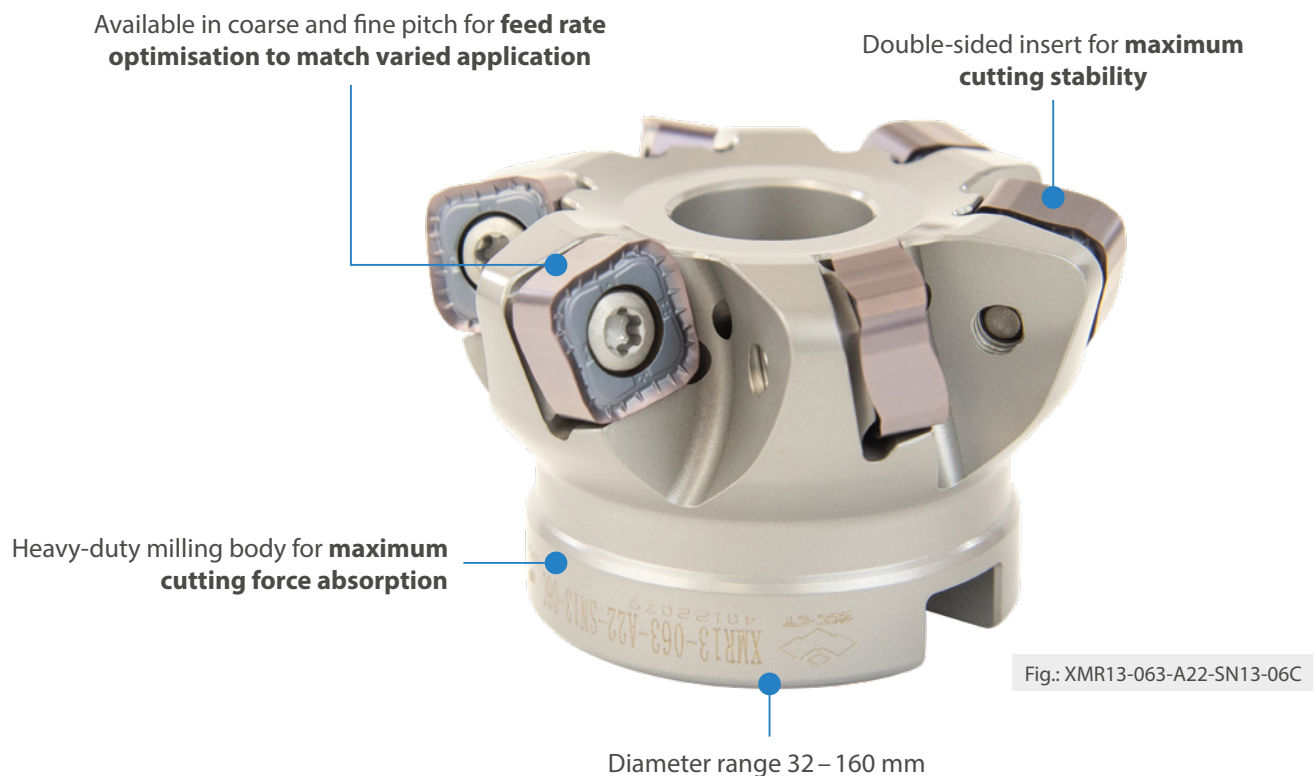
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XMR13 high-feed milling system

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

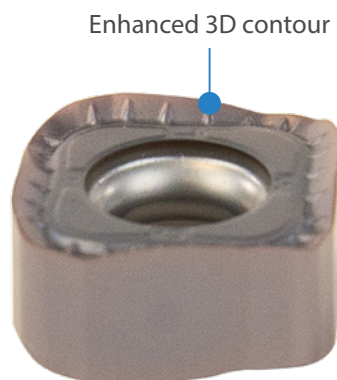
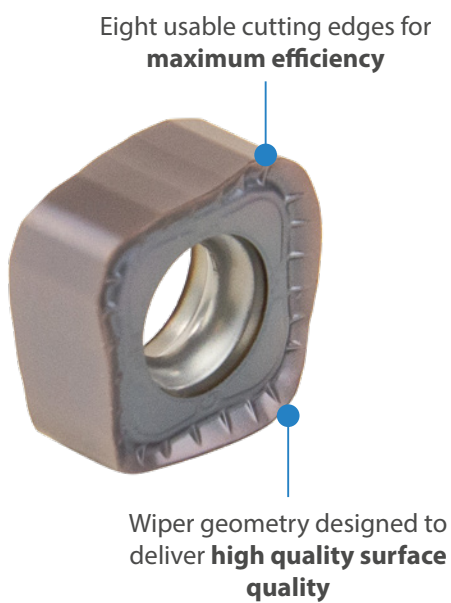
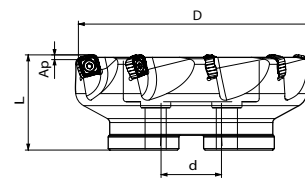
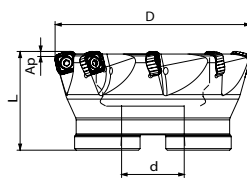
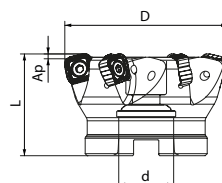
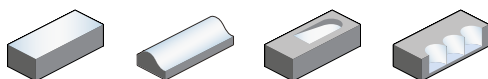


Fig.: SNMU130520-GL YBG205H

High-feed milling

XMR13 Kr: 15°



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

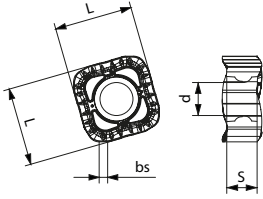
* With internal cooling

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

Milling insert

- 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

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

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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	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				
	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
	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 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								
			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.

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	Si ₃ N ₄ ceramic
CM	Mixed ceramic
HC ₁	Coated cermet
BC	CBN with coating
CC	Coated cutting ceramic
CR	Cutting ceramic, primary component aluminium oxide (Al ₂ O ₃), reinforced
DP	Polycrystalline diamond

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	Si ₃ N ₄ ceramic
CM	Mixed ceramic
HC ₁	Coated cermet
BC	CBN with coating
CC	Coated cutting ceramic
CR	Cutting ceramic, primary component aluminium oxide (Al ₂ O ₃), reinforced
DP	Polycrystalline diamond

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
A Turning	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			
B Milling	P 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			
C Drilling	M Stainless steel	ferritic/martensitic	annealed	200	12						
		martensitic	tempered	240	13						
		austenitic	quench hardened	180	14						
		austenitic-ferritic		230	15						
	K Cast iron with spheroidal graphite	perlitic/ferritic		180	16				335	390	510
		perlitic (martensitic)		260	17				200	230	300
		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
D Technical Information	N Aluminium wrought alloys	cannot be hardened		60	22						
		hardenable	hardened	100	23						
	N 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						
	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						
E Index	S 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					
	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						
	X 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.

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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.

A

Turning

B

Milling

C

Drilling

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Technical Information

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[illegible]

F	Finishing
M	Medium machining
R	Roughing

[illegible]

F	Finishing
M	Medium machining
R	Roughing

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	
	Low-alloyed steel	0,93	1,12	1,86	0,19	0,23	0,28	0,74	0,89	1,30	
	High-alloyed steel and high-alloyed tool steel	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	
	Cast iron with spheroidal graphite	0,90	1,08	1,80	0,20	0,25	0,30	0,80	0,96	1,40	
	Malleable cast iron	1,00	1,20	2,00	0,20	0,25	0,30	0,80	0,96	1,40	
N	Aluminium wrought alloys										
	Aluminum cast alloys										
	Copper and copper alloys (bronze/brass)										
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.

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

Material group	Feed rate per cutting edge [mm]							
	XMP01	QCH	QCH	QCH	QCH	QCH	QCH	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
Low-alloyed steel	0,20	0,19	0,19	0,14	0,93	0,93	0,19	0,93
High-alloyed steel and high-alloyed tool steel	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
Cast iron with spheroidal graphite	0,20	0,20	0,20	0,15	0,90	0,90	0,20	0,90
Malleable cast iron	0,20	0,20	0,20	0,15	1,00	1,00	0,20	1,00
N Aluminium wrought alloys				0,13				
Aluminum cast alloys				0,13				
Copper and copper alloys (bronze/brass)				0,11				
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.



PGMS series

Solid carbide milling

 PANGU PGMS series

B74

B

A

Turning

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Technical
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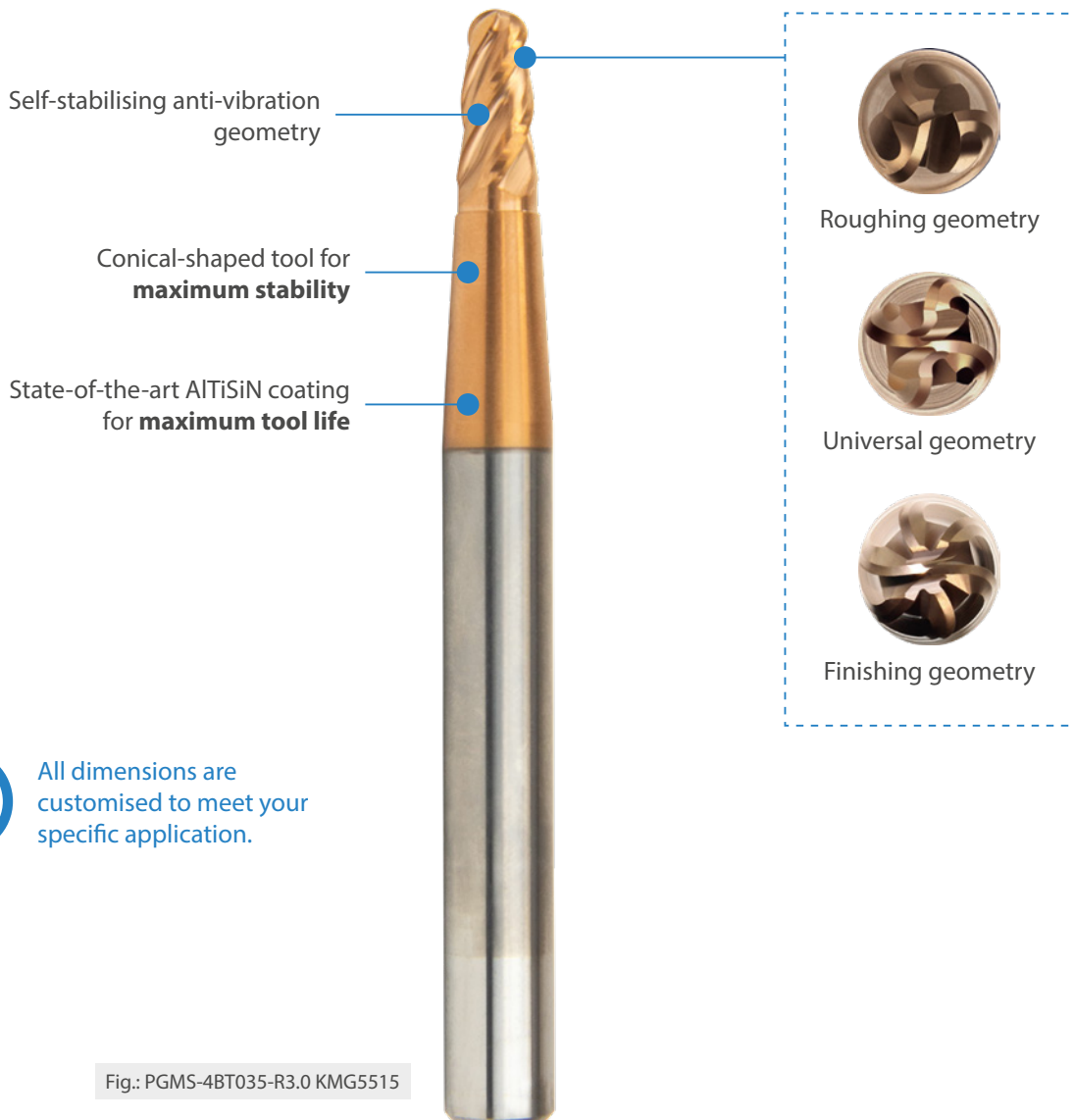
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The ideal choice for complex contours

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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2

3

4

5

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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]

5

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

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

-UD



General machining

-KD



Cast iron machining

Coming soon

-PD



Pilot hole

Deep-hole drilling with ZTE08 (8xD)

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

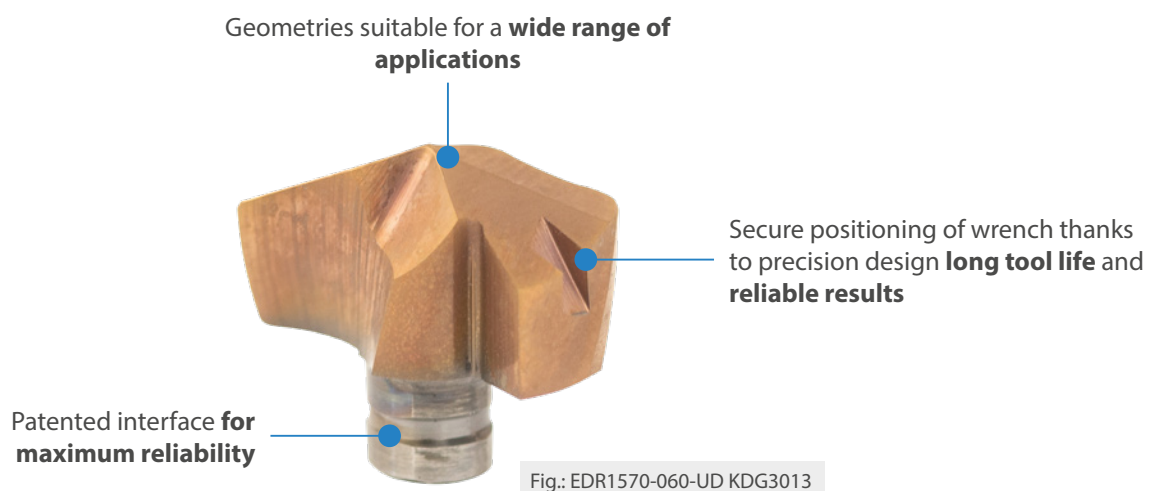
Example: Drilling a 8xD deep hole with a diameter of 18.0 mm in steel

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

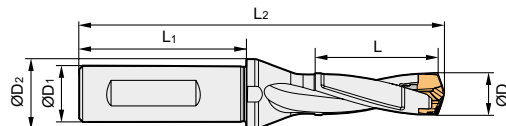
- ZTE08-ED180-XP25C + EDR1800-075-UD
- Enter the drill into the pilot hole at a lower feed rate and cutting speed.
- Stop feeding approx. 2–3 mm before you reach the bottom of the entry hole and activate internal cooling.
- Increase the cutting speed (see table) and then start at the specified feed rate.
- 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



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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

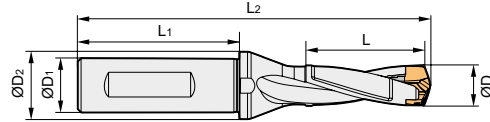
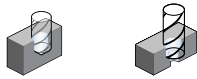
* Internal cooling

Spare parts

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

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

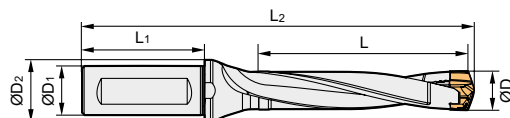
* Internal cooling

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

A

Indexable head drills

ZTE05



Turning

B

Milling

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**

• Ex stock ◯ On demand

* Internal cooling

C

Drilling

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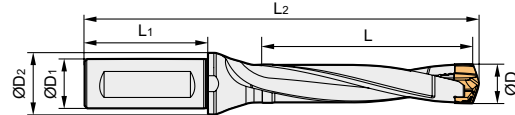
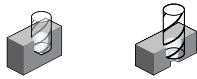
Spare parts				
	Drill head	EDR1200-1590	EDR1600-2090	EDR2100-2590
	Wrench	ZTK12-15,9	ZTK16-20,9	ZTK21-25,9

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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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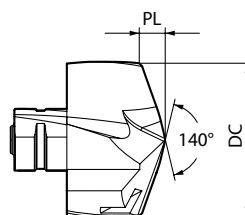
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Drill heads

EDR-UD



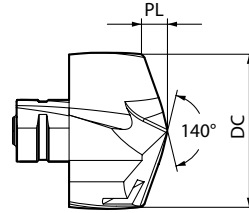
Article	Dimensions [mm]		Grade	Drilling body	Wrench
	PL	Dc	KDG3013		
EDR1200-045-UD	2,18	12,00	●	ZTE015-ED120-** ZTE03-ED120-** ZTE05-ED120-** ZTE08-ED120-**	
EDR1210-045-UD	2,20	12,10	○		
EDR1220-045-UD	2,22	12,20	○		
EDR1230-045-UD	2,24	12,30	○		
EDR1240-045-UD	2,26	12,40	○	ZTE015-ED125-** ZTE03-ED125-** ZTE05-ED125-** ZTE08-ED125-**	
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	●	ZTE015-ED130-** ZTE03-ED130-** ZTE05-ED130-** ZTE08-ED130-**	
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	○	ZTE015-ED135-** ZTE03-ED135-** ZTE05-ED135-** ZTE08-ED135-**	
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	○	ZTE015-ED140-** ZTE03-ED140-** ZTE05-ED140-** ZTE08-ED140-**	
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	●	ZTE015-ED145-** ZTE03-ED145-** ZTE05-ED145-** ZTE08-ED145-**	
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	○	ZTE015-ED150-** ZTE03-ED150-** ZTE05-ED150-** ZTE08-ED150-**	
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	○	ZTE015-ED155-** ZTE03-ED155-** ZTE05-ED155-** ZTE08-ED155-**	
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	○	ZTE015-ED160-** ZTE03-ED160-** ZTE05-ED160-** ZTE08-ED160-**	
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	○	ZTE015-ED165-** ZTE03-ED165-** ZTE05-ED165-** ZTE08-ED165-**	
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

ZTK12-15.9

Drill heads

EDR-UD

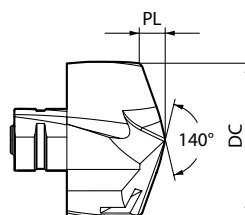


Article	Dimensions [mm]		Grade	Drilling body	Wrench
	PL	Dc	KDG3013		
EDR1600-065-UD	2,91	16,00	●	ZTE015-ED160-** ZTE03-ED160-** ZTE05-ED160-** ZTE08-ED160-**	ZTK16-20.9
EDR1610-065-UD	2,93	16,10	○		
EDR1620-065-UD	2,95	16,20	○		
EDR1630-065-UD	2,96	16,30	●		
EDR1640-065-UD	2,98	16,40	○		
EDR1650-065-UD	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

Drill heads

EDR-UD

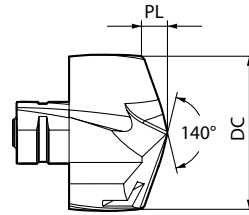


Article	Dimensions [mm]		Grade	Drilling body	Wrench
	PL	Dc	KDG3013		
EDR2000-085-UD	3,64	20,00	●	ZTE015-ED200-** ZTE03-ED200-** ZTE05-ED200-** ZTK08-ED200-**	ZTK16-20.9
EDR2010-085-UD	3,66	20,10	○		
EDR2020-085-UD	3,67	20,20	○		
EDR2030-085-UD	3,69	20,30	○		
EDR2040-085-UD	3,71	20,40	○		
EDR2050-085-UD	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	○	ZTE015-ED210-** ZTE03-ED210-** ZTE05-ED210-** ZTE08-ED210-**	
EDR2100-090-UD	3,82	21,00	●		
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	○	ZTE015-ED220-** ZTE03-ED220-** ZTE05-ED220-** ZTE08-ED220-**	ZTK21-25.9
EDR2190-090-UD	3,98	21,90	○		
EDR2200-095-UD	4,00	22,00	●		
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	○	ZTE015-ED230-** ZTE03-ED230-** ZTE05-ED230-** ZTE08-ED230-**	
EDR2280-095-UD	4,15	22,80	○		
EDR2290-095-UD	4,17	22,90	○		
EDR2300-100-UD	4,18	23,00	●		
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

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

A

Turning

B

Milling

C

Drilling

D

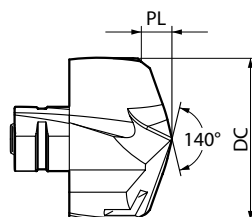
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Drill heads

EDR-KD

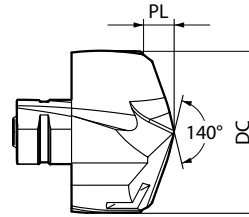


Article	Dimensions [mm]		Grade	Drilling body	Wrench
	Pl	Dc	KDG303		
EDR1200-045-KD	2,18	12,00	●	ZTE015-ED120-** ZTE03-ED120-** ZTE05-ED120-** ZTE08-ED120-**	
EDR1210-045-KD	2,20	12,10	○		
EDR1220-045-KD	2,22	12,20	○		
EDR1230-045-KD	2,24	12,30	○		
EDR1240-045-KD	2,26	12,40	○	ZTE015-ED125-** ZTE03-ED125-** ZTE05-ED125-** ZTE08-ED125-**	
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	●	ZTE015-ED130-** ZTE03-ED130-** ZTE05-ED130-** ZTE08-ED130-**	
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	○	ZTE015-ED130-** ZTE03-ED135-** ZTE05-ED135-** ZTE08-ED135-**	
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	○	ZTE015-ED140-** ZTE03-ED140-** ZTE05-ED140-** ZTE08-ED140-**	
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	●	ZTE015-ED140-** ZTE03-ED145-** ZTE05-ED145-** ZTE08-ED145-**	
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	○	ZTE015-ED150-** ZTE03-ED150-** ZTE05-ED150-** ZTE08-ED150-**	
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	○	ZTE015-ED150-** ZTE03-ED150-** ZTE05-ED150-** ZTE08-ED150-**	
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	○	ZTE015-ED150-** ZTE03-ED150-** ZTE05-ED150-** ZTE08-ED150-**	
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	○	ZTE015-ED150-** ZTE03-ED150-** ZTE05-ED150-** ZTE08-ED150-**	
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

Drill heads

EDR-KD

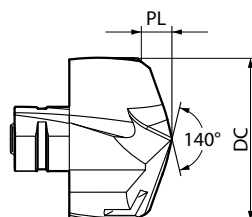


Article	Dimensions [mm]		Grade	Drilling body	Wrench
	PI	Dc	KDG303		
EDR1600-065-KD	2,91	16,00	●	ZTE015-ED160-** ZTE03-ED160-** ZTE05-ED160-** ZTE08-ED160-**	ZTK16-20.9
EDR1610-065-KD	2,93	16,10	○		
EDR1620-065-KD	2,95	16,20	○		
EDR1630-065-KD	2.96	16,30	●		
EDR1640-065-KD	2,98	16,40	○		
EDR1650-065-KD	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

Drill heads

EDR-KD

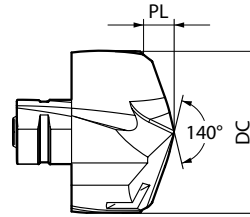


Article	Dimensions [mm]		Grade	Drilling body	Wrench
	Pl	Dc	KDG303		
EDR2000-085-KD	3,64	20,00	●	ZTE015-ED200-** ZTE03-ED200-** ZTE05-ED200-** ZTK08-ED200-**	ZTK16-20.9
EDR2010-085-KD	3,66	20,10	○		
EDR2020-085-KD	3,67	20,20	○		
EDR2030-085-KD	3,69	20,30	○		
EDR2040-085-KD	3,71	20,40	○		
EDR2050-085-KD	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	○	ZTE015-ED210-** ZTE03-ED210-** ZTE05-ED210-** ZTE08-ED210-**	
EDR2100-090-KD	3,82	21,00	●		
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	○	ZTE015-ED220-** ZTE03-ED220-** ZTE05-ED220-** ZTE08-ED220-**	ZTK21-25.9
EDR2190-090-KD	3,98	21,90	○		
EDR2200-095-KD	4,00	22,00	●		
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	○	ZTE015-ED230-** ZTE03-ED230-** ZTE05-ED230-** ZTE08-ED230-**	
EDR2280-095-KD	4,15	22,80	○		
EDR2290-095-KD	4,17	22,90	○		
EDR2300-100-KD	4,18	23,00	●		
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

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-**	
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

A

Turning

B

Milling

C

Drilling

D

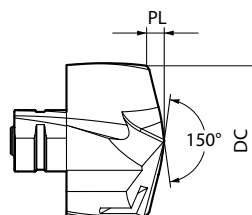
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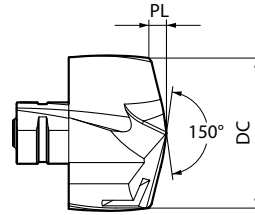


Article	Dimensions [mm]		Grade	Drilling body	Wrench
	Pl	Dc	KDG3013		
EDR1200-045-PD	1,61	12,03	●	ZTE015-ED120-**	ZTK12-15.9
EDR1210-045-PD	1,63	12,13	○		
EDR1220-045-PD	1,64	12,23	○		
EDR1230-045-PD	1,65	12,33	○		
EDR1240-045-PD	1,67	12,43	○		
EDR1250-045-PD	1,68	12,53	●	ZTE015-ED120-**	
EDR1260-045-PD	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

Drill heads

EDR-PD

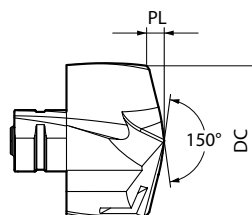


Article	Dimensions [mm]		Grade	Drilling body	Wrench
	PI	Dc	KDG3013		
EDR1600-065-PD	2,15	16,03	●	ZTE015-ED160-**	ZTK16-20.9
EDR1610-065-PD	2,16	16,13	○		
EDR1620-065-PD	2,17	16,23	○		
EDR1630-065-PD	2,19	16,33	○		
EDR1640-065-PD	2,20	16,43	○		
EDR1650-065-PD	2,21	16,53	●		
EDR1660-065-PD	2,23	16,63	○		
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	○		
DR1930-080-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

Drill heads

EDR-PD



Article	Dimensions [mm]		Grade	Drilling body	Wrench
	Pl	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	○		

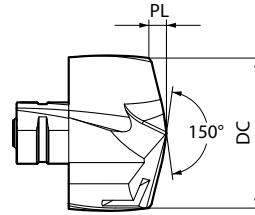
● Ex stock ○ On demand



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
	PI	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.

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	
	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	
	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	
	Cast iron with spheroidal graphite	ferritic		160	18	110	18	90	17	60	16	
		perlitic		250	19	70	18	60	17	40	16	
	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	
	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	–	–	–	–	–	–	
	Hard cast iron		cast	400	39	–	–	–	–	–	–	
	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	–	–	–	–	–	–	
		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								
-	-	-	-	-	-	-	-								
-	-	-	-	-	-	-	-								
-	-	-	-	-	-	-	-								
-	-	-	-	-	-	-	-								
-	-	-	-	-	-	-	-								

A

Turning

B

Milling

C

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E

Index

A

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.

B

Milling

C

Drilling

D

Technical
Information

E

Index

ZTE indexable head drilling system



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