ZCC Cutting Tools
Europe GmbH



Product Innovations

09/2026

PG9005, PG9020/PG9025, PG1030 PANGU grades – **YCB8 series**, **YCB226, YZB227** CBN grades
YCD821 PCD grade – **zTurn Poly** PSC tool holders – **zGroove Compact** turning and grooving system
EMP11 square shoulder milling system – **PGMS** series – **UL** series

– 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.

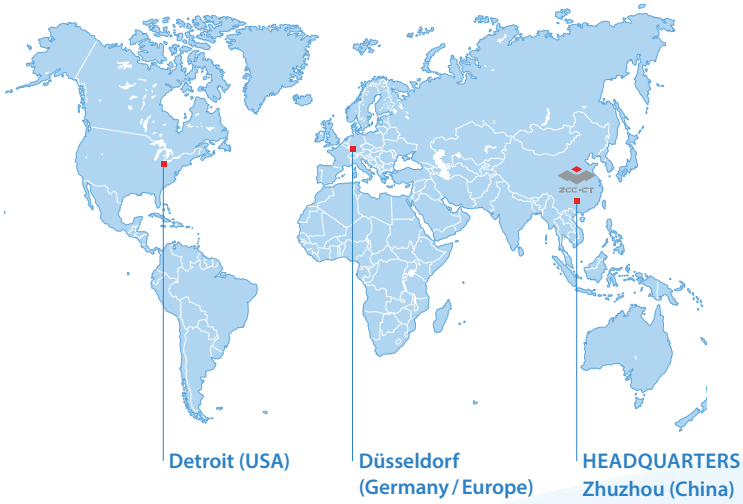
External sales staff and distribution partners in Europe work hand in hand to support customers across the region. Our friendly ZCC-CT application engineers are also available to support you with their expertise and experience by phone, e-mail or in person at your production facility.

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 09/2026

GENERAL TURNING		Page
	PANGU **PG9005 grade** – Premium PVD grade for hardened and difficult-to-machine materials	A8
	**YCB8 grades** – Coated CBN series for hardened steel	A20
	**YCB226 grade** – Uncoated CBN grade for cast iron and sintered alloys	A23
	**YZB227 grade** – Uncoated solid CBN grade for rough machining of castings	A24
	**YCD821 grade** – Uncoated PCD grade for non-ferrous metals	A42
	**zTurn Poly** – PSC tool holders for great precision and stability	A66

PARTING & GROOVING		Page
	**zGroove Compact** – Extension: Now also available for axial machining	A76
	**zGroove Compact** – Extension: Now also available as a parting-off solution for CNC production lathes	A82

INDEXABLE MILLING		Page
	PANGU **PG9005 grade** – Premium PVD grade for finishing and for hardened materials	B88
	PANGU **PG9020 / PG9025 grades** – Two high-performance milling grades	B90
	**EMP11 square shoulder milling system** – A cost-effective all-rounder for small parts production	B92

SOLID CARBIDE MILLING		Page
	PANGU **PGMS** series – Extension: Now also available as a barrel cutter	B105

INDEXABLE DRILLS		Page
	PANGU **PG1030 grade** – High-performance grade for drilling in steel	C109

SOLID CARBIDE DRILLS		Page
	UL series – Extension: Now also available with 8xD effective length	C114

A glimpse inside: Highlights from previous Product Innovations brochures

Product Innovations 09/2025

GENERAL TURNING

PG8005 grade – premium grade for maximum wear resistance
PG8030 grade – premium universal CVD grade for heat resistance
PG1110 grade – premium heat-resistant PVD grade for turning applications
LH chip breaker – consistent results in the medium application range
F-QF chip breaker (YNT251D grade) – premium combination for super-finishing
ISO tool holder (internal cooling) – optimum temperature control for consistent results every time

PARTING & GROOVING

PG1110 grade – maximum wear resistance when machining difficult-to-machine materials
PG1120 grade – maximum reliability even if cutting conditions change
zGroove Compact – compact design, easy to work with
HG chip breaker – specially designed for soft and difficult-to-machine materials

INDEXABLE MILLING

PG8020 grade – for high-performance finishing applications involving heat-resistant cast steel
PG8030 grade – ultra-efficient milling grade for HRSA materials
EMP08 square shoulder milling system – efficient and reliable 90° shoulder milling
EMP10 square shoulder milling system – maximum feed rates to boost your production
XMR13 high-feed milling system – for maximum performance in terms of feed rate and efficiency

SOLID CARBIDE MILLING

PGMS series – the ideal choice for complex contours

INDEXABLE HEAD DRILLING

ZTE indexable head drilling system – reliable drilling results with high material removal rates

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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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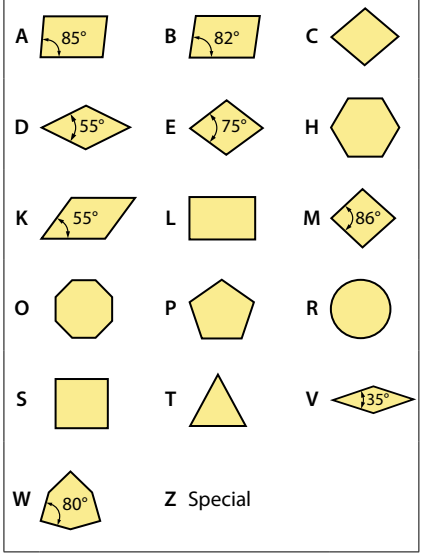
General turning

ISO code – general turning inserts	**A6–A7**
PANGU PG9005 grade	**A8–A17**
ISO code – PCBN & PCD inserts	**A18–A19**
YCB8 grades	**A20–A41**
YCB226 grade	**A23–A41**
YZB227 grade	**A24–A41**
YCD821 grade	**A42–A61**
Recommended cutting data	**A62–A63**
ISO code – PSC tool holders	**A64–A65**
zTurn Poly	**A66–A74**

ISO standard

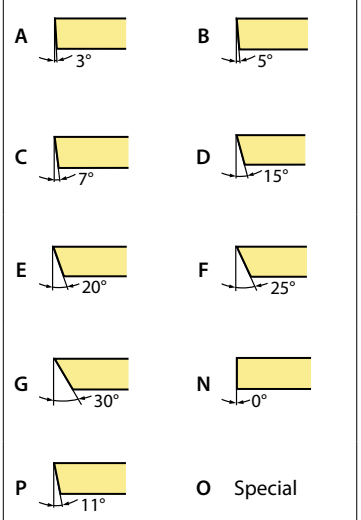
T	N	M	G	22	04	08	(N)	–	DM
1	2	3	4	5	6	7	8		9

Insert shape



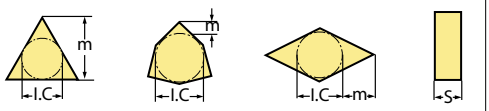
1

Clearance angle



2

Tolerance class

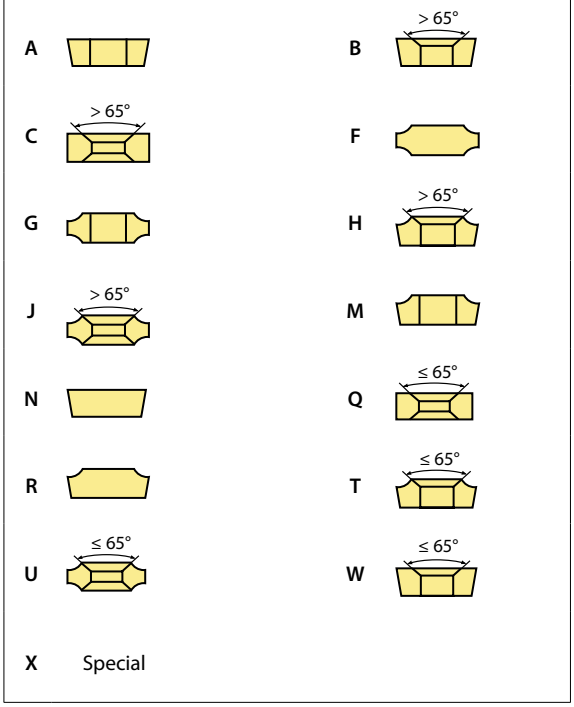


Code	I.C [mm]	m [mm]	S [mm]
A	±0,025	±0,005	±0,025
C	±0,025	±0,013	±0,025
E	±0,025	±0,025	±0,025
F	±0,013	±0,005	±0,025
G	±0,025	±0,025	±0,130
H	±0,013	±0,013	±0,025
J	±0,05–0,15	±0,005	±0,025
K	±0,05–0,15	±0,013	±0,025
L	±0,05–0,15	±0,025	±0,025
M	±0,05–0,15	±0,08–0,20	±0,130
N	±0,05–0,15	±0,08–0,20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

3

Fastening features (metric)

Insert shape

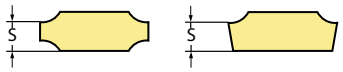


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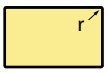
Cutting edge length l [mm]

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

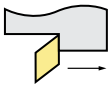
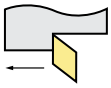
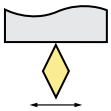
5

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

6

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

7

Cutting direction
 **L**
 **R**
 **N**

8

Chip breaker overview (on page A16)

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

PG9005 grade

Premium PVD grade for hardened and difficult-to-machine materials

YOUR BENEFITS

– Delivers **sufficient tool life** in the hardness range of 50 to 62 HRC and **significantly reduces the cost per component**
– Ideal for use in combination with difficult-to-machine materials
– Maximum heat resistance for the **longest tool life possible**

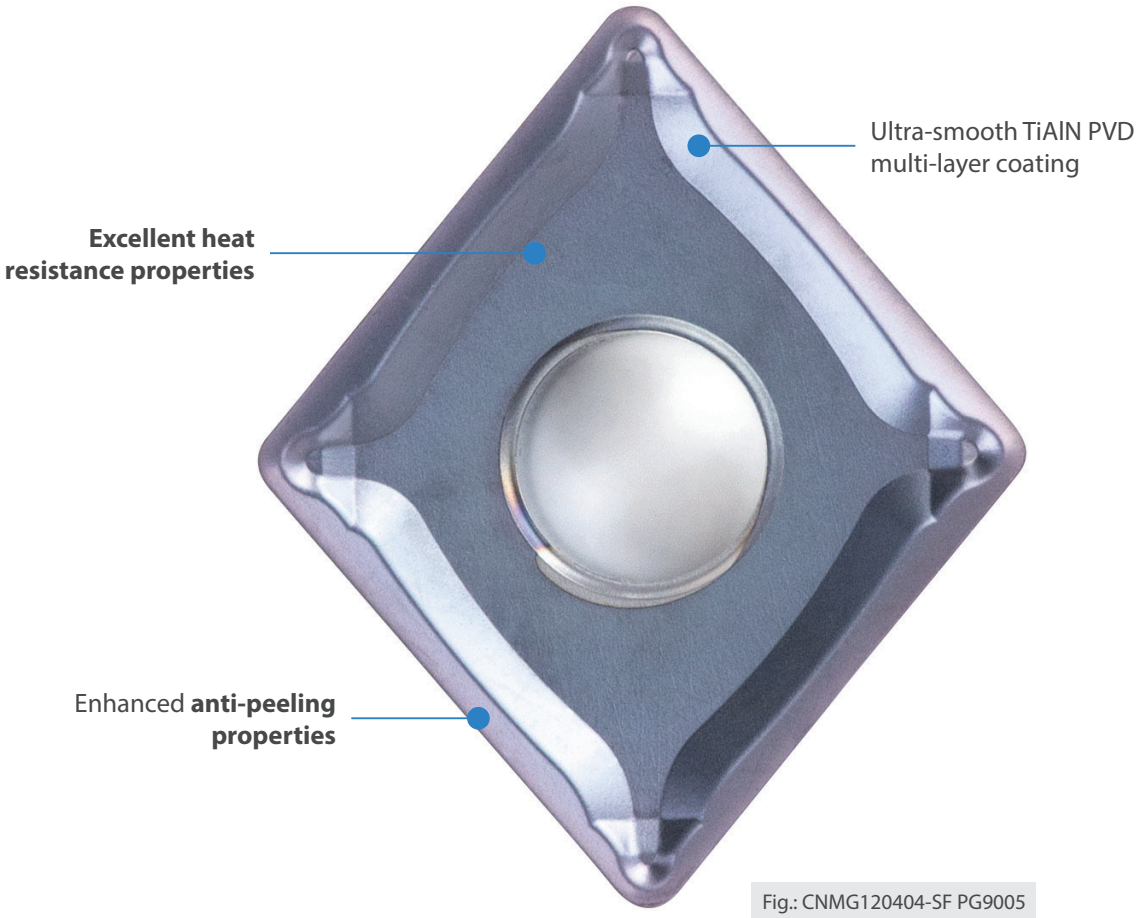
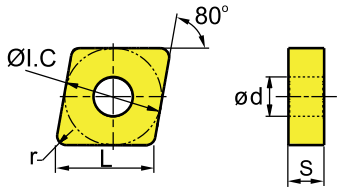


Fig.: CNMG120404-SF PG9005

Turning inserts

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

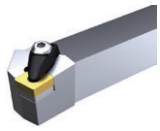
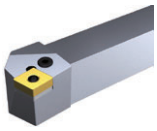
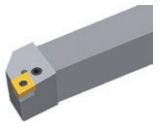
CNMG	L	I.C	S	d
12 04	12,9	12,7	4,76	5,16

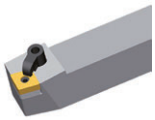
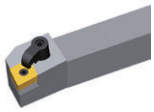
CN** negative insert						HC¹ (CVD)	HC¹ (PVD)	HT	HC²	HW
					P					
					M					
					K					
					N					
					S		○			
					H		○			
ISO		r	a_p	f			PG9005			
SF  Finishing	**CNMG120404-SF**	0,4	0.1-1.5	0.05-0.30			●			
	CNMG120408-SF	0,8	0.1-1.5	0.10-0.35			●			
	CNMG120412-SF	1,2	0.1-1.5	0.15-0.35			○			

● Ex stock ○ On demand

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

Tool holders

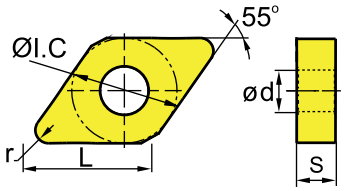
DCKNR/L	DCLNR/L	PCBNR/L	PCBNR/LC	PCKNR/L	PCLNR/LC	PCLNR/L
Kr: 75°	Kr: 95°	Kr: 75°	Kr: 75°	Kr: 75°	Kr: 95°	Kr: 95°
						

MCBNR/L	MCLNR/L	S***-PCLNR/L
Kr: 75°	Kr: 95°	Kr: 95°
		

Turning inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

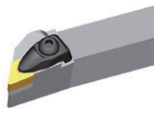
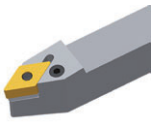
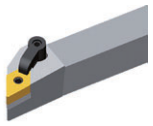
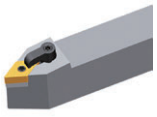
DNMG	L	I.C	S	d
15 06	15,5	12,7	6,35	5,16

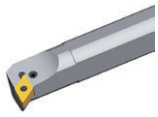
DN** negative insert						HC¹ (CVD)	HC¹ (PVD)	HT	HC²	HW
					P					
					M					
					K					
					N					
					S		○			
					H		○			
ISO		r	a_p	f			PG9005			
SF	**DNMG150604-SF**	0,4	0.05-0.50	0.05-0.25			●			
	**DNMG150608-SF**	0,8	0.05-0.50	0.10-0.35			●			
Finishing										

● Ex stock ○ On demand

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

Tool holders

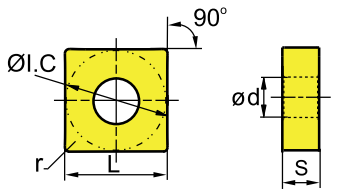
DDJNR/L	PDJNR/LC	PDJNR/L	PDNNR/L	MDJNR/L	MDPNN	S***-PDSNR/L
Kr: 93°	Kr: 93°	Kr: 93°	Kr: 63°	Kr: 93°	Kr: 62°30'	Kr: 62°30'
						

A***-PDUNR/L
Kr: 93°


Turning inserts

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

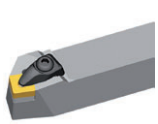
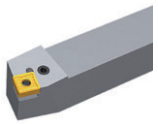
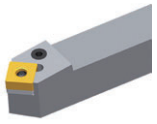
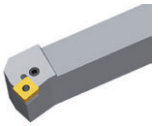
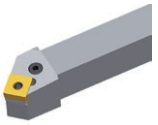
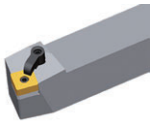
SNMG	L	I.C	S	d
12 04	12,7	12,7	4,76	5,16

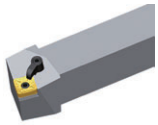
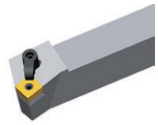
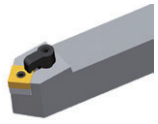
SN** negative insert					HC[1] (CVD)	HC[1] (PVD)	HT	HC[2]	HW
				P					
				M					
				K					
				N					
				S		○			
				H		○			
ISO		r	a_p	f		PG9005			
SF	**SNMG120404-SF**	0,4	0.05-0.50	0.05-0.20		●			
	**SNMG120408-SF**	0,8	0.05-0.50	0.10-0.35		●			
Finishing									

● Ex stock ○ On demand

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

Tool holders

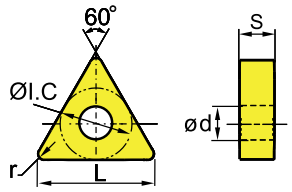
DSBNR/L	PSBNR/LC	PSBNR/L	PSDNN	PSKNR/L	PSSNR/L	MSBNR/L
Kr: 75°	Kr: 75°	Kr: 75°	Kr: 45°	Kr: 75°	Kr: 45°	Kr: 75°
						

MSRNR/L	MSKNR/L	MSDNN	S***-PSKNR/L
Kr: 75°	Kr: 75°	Kr: 45°	Kr: 75°
			

Turning inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

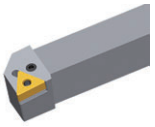
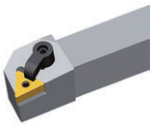
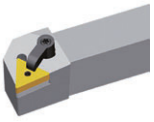
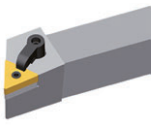
TN**	L	I.C	S	d
16 04	16,5	9,525	4,76	3,81

TN** negative insert						HC¹ (CVD)	HC¹ (PVD)	HT	HC²	HW
					P					
					M					
					K					
					N					
					S		○			
					H		○			
	ISO		r	a_p	f		PG9005			
SF	**TNMG160404-SF**		0,4	0.05-1.00	0.05-0.30		○			
	**TNMG160408-SF**		0,8	0.05-1.00	0.10-0.35		●			
Finishing										

● Ex stock ○ On demand

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

Tool holders

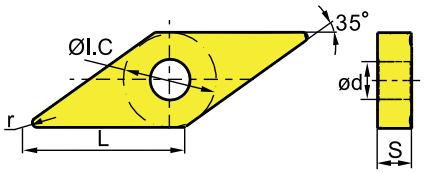
DTGNR/L	PTFNR/L	PTTNR/L	PTGNR/L	MTGNR/L	MTJNR/L	MTJNR/L
Kr: 91°	Kr: 91°	Kr: 60°	Kr: 90°	Kr: 90°	Kr: 93°	Kr: 93°
						

MTFNR/L	S***-PTFNR/L
Kr: 91°	Kr: 90°
	

Turning inserts

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

VN**	L	I.C	S	d
16 04	16,6	9,525	4,76	3,81

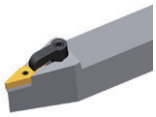
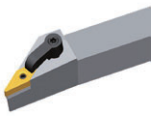


VN** negative insert						HC¹ (CVD)	HC¹ (PVD)	HT	HC²	HW
					P					
					M					
					K					
					N					
					S		○			
					H		○			
ISO		r	a_p	f			PG9005			
SF	**VNMG160404-SF**	0,4	0.05-3.00	0.05-0.20			●			
	VNMG160408-SF	0,8	0.05-3.00	0.10-0.30			●			
Finishing										

● Ex stock ○ On demand

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

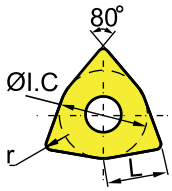
Tool holders

DVVNN	DVJNR/L	MVVNN	MVJNR/L
Kr: 72°30'	Kr: 93°	Kr: 72°30'	Kr: 93°
			

Turning inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

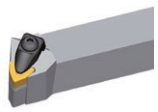
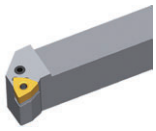
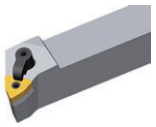
WN**	L	I.C	S	d
08 04	8,7	12,7	4,76	5,16

WN** negative insert						HC¹ (CVD)	HC¹ (PVD)	HT	HC²	HW
					P					
					M					
					K					
					N					
					S		○			
					H		○			
ISO		r	a_p	f			PG9005			
SF  Finishing	**WNMG080404-SF**	0,4	0.1-1.5	0.05-0.30			●			
	WNMG080408-SF	0,8	0.1-1.5	0.10-0.35			●			
	WNMG080408-SF	1,2	0.1-1.5	0.15-0.35			○			

● Ex stock ○ On demand

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

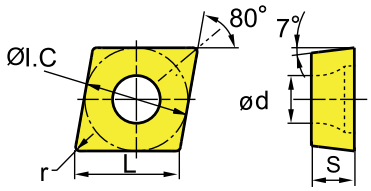
Tool holders

DWLNR/L	PWLNR/LC	PWLNR/L	MWLNR/L	S***-PWLNR/L
Kr: 95°	Kr: 95°	Kr: 95°	Kr: 95°	Kr: 95°
				

Turning inserts

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

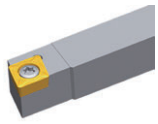
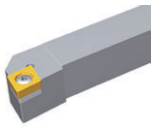
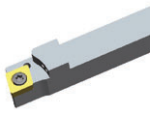
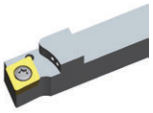
CCGT	L	I.C	S	d
06 02	6,4	6,35	2,38	2,8
09 T3	9,7	9,525	3,97	4,4

CC** positive insert					HC[1] (CVD)	HC[1] (PVD)	HT	HC[2]	HW
									
					P				
					M				
					K				
					N				
					S	○			
					H	○			
	ISO		r	a_p	f	PG9005			
SF	**CCGT060204-SF**		0,4	0.05-2.00	0.05-0.35	●			
	CCGT09T304-SF		0,4	0.05-2.00	0.05-0.35	●			
Finishing									

● Ex stock ○ On demand

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

Tool holders

SCACR/L	SCLCR/L	SCACR/L-SC	SCLCR/L-SC	A***-SCLCR/L	S***-SCFCR/L	S***-SCLCR
Kr: 90°	Kr: 95°	Kr: 90°	Kr: 95°	Kr: 95°	Kr: 90°	Kr: 95°
						

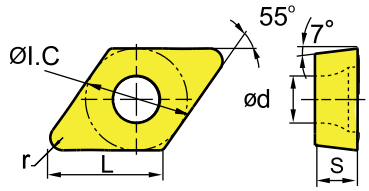
E***-SCLCR/L
Kr: 95°


Turning inserts

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

DCGT	L	I.C	S	d
11 T3	11,6	9,525	3,97	4,4

DC** positive insert



	HC¹ (CVD)	HC¹ (PVD)	HT	HC²	HW
P					
M					
K					
N					
S		○			
H		○			

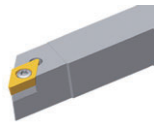
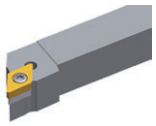
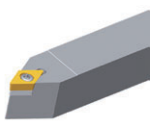
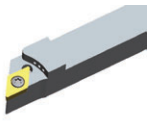
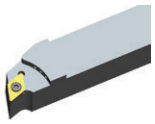
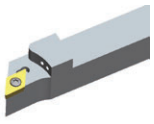
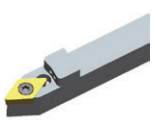
	ISO	r	a_p	f	HC¹ (CVD)	HC¹ (PVD)	HT	HC²	HW
SF	**DCGT11T304-SF**	0,4	0.05-2.00	0.05-0.20		●			
	DCGT11T308-SF	0,8	0.05-2.00	0.05-0.30		●			
Finishing									

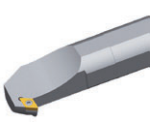


● Ex stock ○ On demand

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

Tool holders

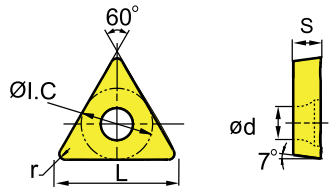
SDACR/L	SDJCR/L	SDNCN	SDACR/L-SC	SDHCR/L-SC	SDJCR/L-SC	SDNCN-SC
Kr: 90°	Kr: 93°	Kr: 62°30'	Kr: 90°	Kr: 107°30'	Kr: 93°	Kr: 62°30'
						

S***-SDQCR/L	A***-SDUCR/L	S***-SDZCR/L	E***-SDUCR/L	E***-SDQCR/L
Kr: 107°30'	Kr: 93°	Kr: 85°	Kr: 93°	Kr: 107°30'
				

Turning inserts

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

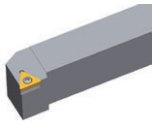
TCGT	L	I.C	S	d
11 03	11	6,35	3,18	2,8

TC** positive insert					HC[1] (CVD)	HC[1] (PVD)	HT	HC[2]	HW
				P					
				M					
				K					
				N					
				S		○			
				H		○			
ISO		r	a_p	f					
SF	**TCGT110304-SF**	0,4	0.05-2.00	0.1-0.30		○			
	**TCGT110308-SF**	0,8	0.05-2.00	0.1-0.35		●			
Finishing									

● Ex stock ○ On demand

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

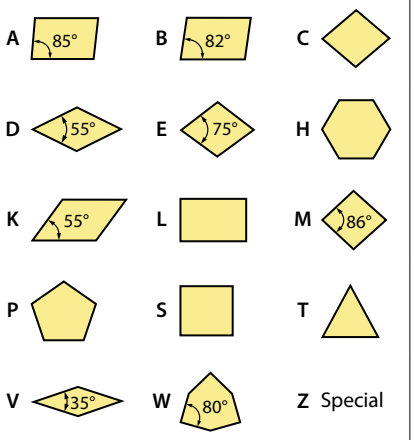
Tool holders

STGCR/L	E***-STFCR/L
Kr: 91°	Kr: 90°
	

General turning ISO code – PCBN & PCD inserts

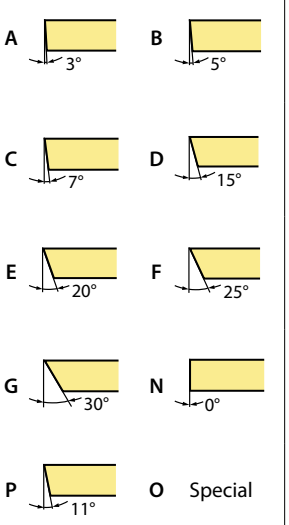
C	N	G	A	12	04	08	T	020	20	–	2	(W)
1	2	3	4	5	6	7	8	9	10		11	12

Insert shape



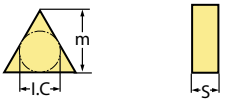
1

Clearance angle



2

Tolerance class

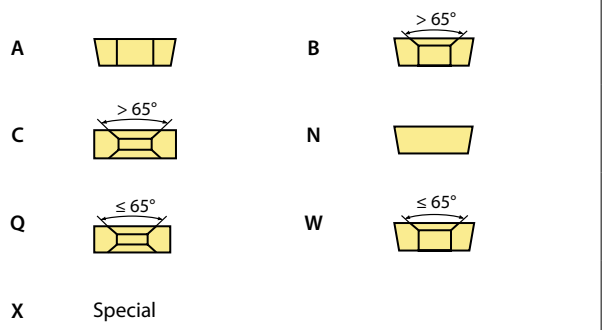


Code	I.C [mm]	m [mm]	S [mm]
A	±0,025	±0,005	±0,025
C	±0,025	±0,013	±0,025
E	±0,025	±0,025	±0,025
F	±0,013	±0,005	±0,025
G	±0,025	±0,025	±0,130
H	±0,013	±0,013	±0,025
J	±0,05–0,15	±0,005	±0,025
K	±0,05–0,15	±0,013	±0,025
L	±0,05–0,15	±0,025	±0,025
M	±0,05–0,15	±0,08–0,20	±0,130
N	±0,05–0,15	±0,08–0,20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

3

Fastening features (metric)

Insert shape



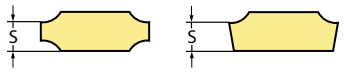
4

Cutting edge length l [mm]

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

5

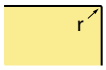
Insert thickness S [mm]



Code	S	Code	S
02	2,38	**06**	6,35
T2	2,58	**T6**	6,75
03	3,18	**07**	7,94
T3	3,97	**09**	9,52
04	4,76	**T9**	9,72
T4	4,96	**11**	11,11
05	5,56	**12**	12,70
T5	5,95		

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

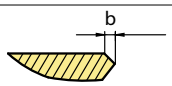
7

Cutting edge profile

Code	Cutting edge	Insert shape
E	Rounding	
F	Sharp edge	
T	Chamfer	
S	Chamfer + Rounding	

8

Chamfer width b [mm]



Code	b
010	0,10
015	0,15
020	0,20
025	0,25
030	0,30
035	0,35
040	0,40
045	0,45
050	0,50
100	1,00
200	2,00

9

Chamfer angle α



Code	α
05	5°
10	10°
15	15°
20	20°
25	25°
30	30°

10

Cutting edges

Code	Form
1	
2	
3	
4	

11

Extra

Code	Description
W	Wiper
HS	Full face single brazed CBN insert
M	Solid CBN with clamping dimple
CM	Chip breaker (CBN)
CL	Chip breaker (CBN)
CS	Chip breaker (CBN)
MED	Chip breaker, fine – medium (PCD)
L (L/R)	Full-edge tipped (PCD)

12

YCB8 grades

Coated CBN series for hardened steel

YOUR BENEFITS

– The latest CBN materials and coating processes for **long tool life**
– High-precision manufacturing for **stable and reliable processes**
– A wide range of cost-effective inserts
– Ideal for **mass production**
– **Versatile hard turning applications**

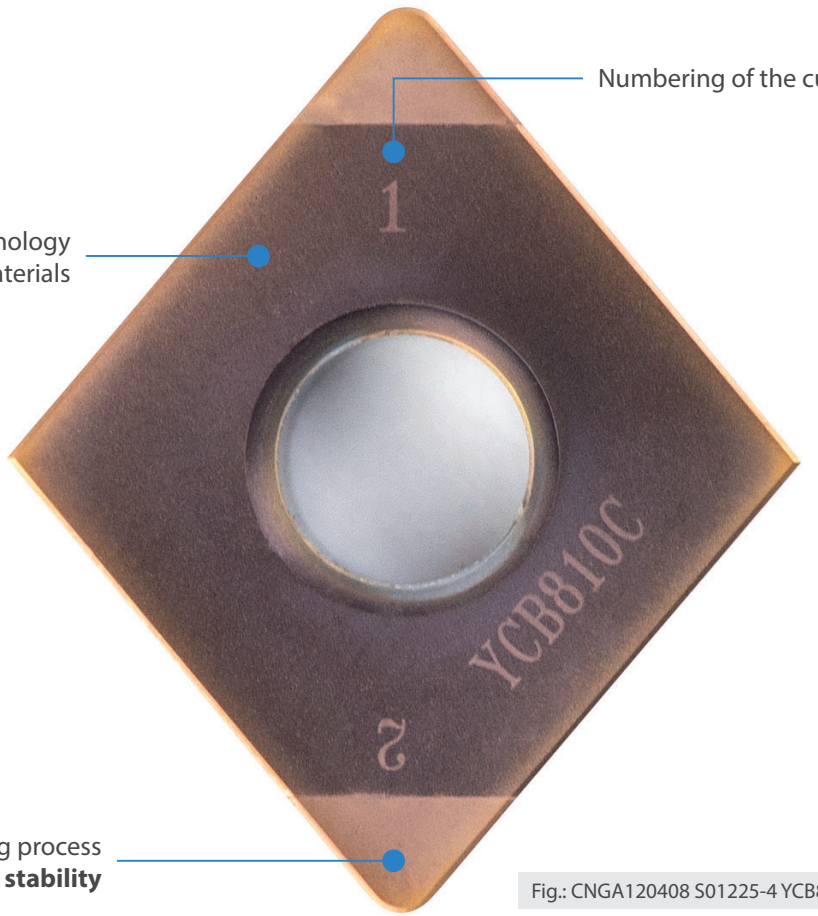
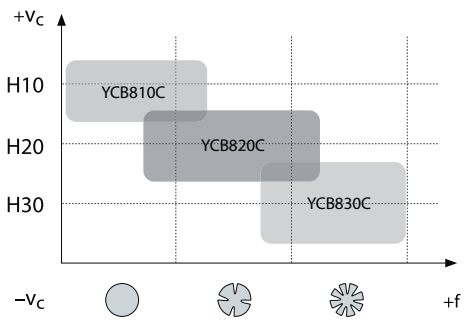


Fig.: CNGA120408 S01225-4 YCB810C

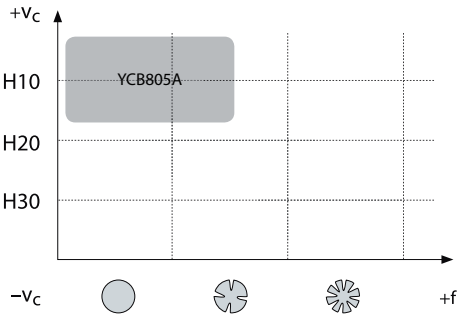
Grades



YCB810C (wear-resistant)
– High-speed machining
– Smooth cut to slightly interrupted cut

YCB820C (all-rounder)
– Smooth cut to medium-length interrupted cut
– For a wide range of applications

YCB830C (robust)
– For unstable conditions and heavily interrupted cuts
– A good balance between wear resistance and toughness



YCB805A (specialist)
– High-precision grade for smooth cutting
– For good surface quality and tolerances

Chamfer designs

The design of the cutting edge is crucial to the Tool life and performance of the cutting insert. Our 'standard version' covers a wide range of applications. In all other cases, we can offer an optimised edge design to achieve the best possible result.

Standard

S01225

S01225
– A range of products for a wide variety of applications

Optional

E

E
– Rounded cutting edges for minimised cutting forces and vibrations
– Good tolerance and surface quality

S00515

S00515
– Minimal edge preparation for low cutting forces (to prevent burr formation)
– Also ideal for internal machining

S01835

S01835
– Large-edge preparation for heavily interrupted cuts or unstable conditions

Chip breakers

-CM



– General machining of surface layers (hard-soft machining)
– Reliable chip breaking prevents chip build-up

Feed rate f = 0.1–0.3 mm
Depth of cut a_p = 0.15–0.4 mm

-CL



– Easy machining in hardened edge zones with a cutting depth of less than 0.3 mm
– For medium allowances

Feed rate f = 0.1–0.25 mm
Depth of cut a_p = 0.1–0.3 mm

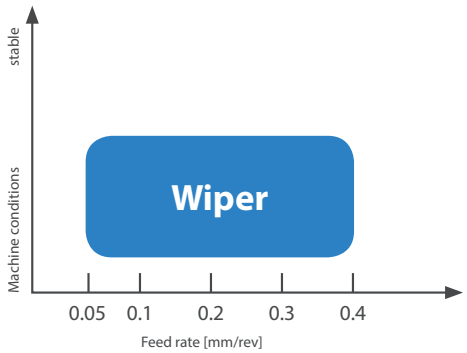
-CS



– Fine machining with low cutting forces and to minimise vibrations when machining hard and soft materials
– For minimal allowances

Feed rate f = 0.06–0.2 mm
Depth of cut a_p = 0.06–0.2 mm

CBN with wiper chamfer



Two ways to optimise the machining process:

– Achieving a **better surface quality** at the same feed rate as with conventional indexable inserts
– Increased efficiency thanks to **higher feed rates** whilst maintaining the same surface quality as with conventional indexable inserts.

Suitable for use under stable machine conditions and for machining without contouring.

YCB226 grade

Uncoated CBN grade for cast iron and sintered alloys

YOUR BENEFITS

– The latest-generation grade with a high CBN content for long tool life
– Grade with **high wear resistance** for abrasive materials
– A wide range of cost-effective inserts



Fig.: CNGA120408 T01215-4 YCB226

YZB227 grade

Uncoated solid CBN grade for rough machining of castings

YOUR BENEFITS

– Solid CBN grade for rough machining at **high cutting speeds**
– Grade with **high wear resistance** for abrasive materials
– **Economical** under unstable conditions for **high removal rates** and **interrupted cutting**
– For **high process reliability** in high-speed machining at speeds of up to v_c 1400 m/min

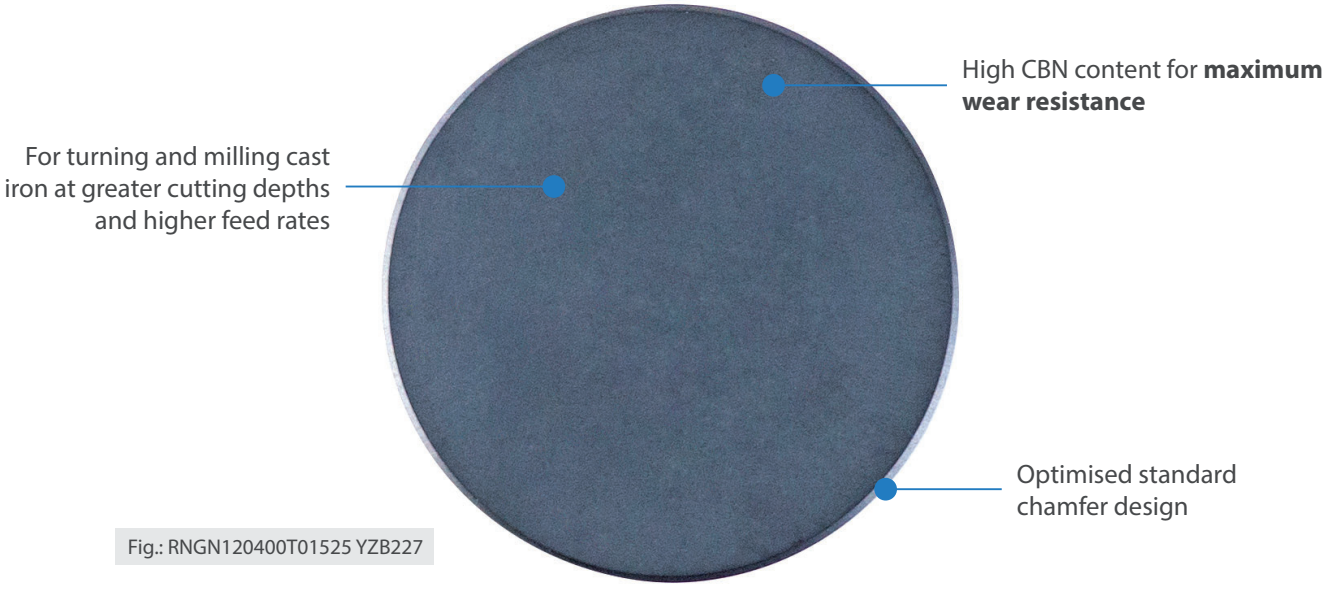
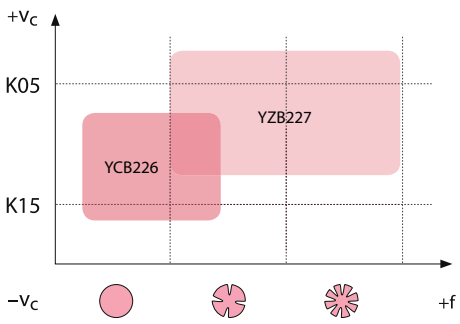


Fig.: RNGN120400T01525 YZB227

Grades



YCB226 (soldered, uncoated)
– Fine to semi-finishing of cast materials
– Good wear resistance and thermal conductivity

YZB227 (uncoated)
– Semi-finishing of grey cast iron, ductile cast iron and Ni/Cr-based alloys, including with a slightly interrupted cut
– Good wear resistance and thermal conductivity

Chamfer designs

The design of the cutting edge is crucial to the Tool life and performance of the cutting insert. Our 'standard version' covers a wide range of applications. In all other cases, we can offer an optimised edge design to achieve the best possible result.

Standard

T01525

T01525
– For YZB227 inserts
– A range of products for a wide variety of applications

T01215

T01215
– For YCB226 inserts
– A range of products for a wide variety of applications

Optional

Other cutting edge designs, such as E-chamfers for easier cutting and improved surface finish, or S-chamfer variants for greater stability, are available on demand.



Clamping groove

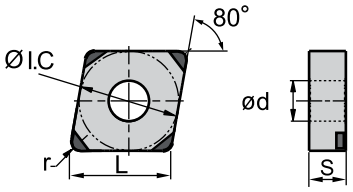
Optionally available with a clamping groove for greater stability at very high cutting speeds. Other shapes are available on demand.

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

CNGA	L	I.C	S	d
12 04	12,9	12,7	4,76	5,5

Turning inserts (CBN)

CN** negative insert

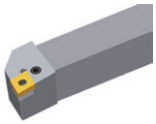
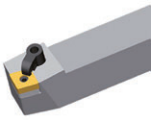
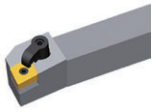


		ISO	r	a_p	f	BC (CBN) YCB805A	YCB810C	YCB820C	YCB830C	BH (CBN) YCB226
P										
M										
K										○
N										
S										
H						○	○	◍	◍	
		CNGA120402S01225-4	0,2	0,05-0,2	0,02-0,1	○	○			
		CNGA120404S01225-4	0,4	0,05-0,3	0,04-0,2	○	●	○		
		CNGA120408S01225-4	0,8	0,1-0,5	0,08-0,4	●	●	●	●	
		CNGA120412S01225-4	1,2	0,12-0,6	0,12-0,6	●	●	●	●	
		**CNGA120416S01225-4**	1,6	0,15-0,7	0,12-0,7	○	○	○	○	
		CNGA120408T01215-4	0,8	0,1-0,5	0,08-0,4					●
		CNGA120412T01215-4	1,2	0,12-0,6	0,12-0,6					●
		CNGA120416T01215-4	1,6	0,15-0,7	0,12-0,7					○
		CNGA120408S01215-4W	0,8	0,06-0,3	0,08-0,4	○	○	○	○	
		CNGA120412S01215-4W	1,2	0,08-0,35	0,08-0,4	○	○	○	○	
		**CNGA120404S00535-4 CL**	0,4	0,1-0,25	0,1-0,3		○	○		
		CNGA120408S00535-4 CL	0,8	0,1-0,25	0,1-0,3		○	○		
		**CNGA120404S01235-4 CM**	0,4	0,15-0,4	0,1-0,3		○	○		
		CNGA120408S01235-4 CM	0,8	0,15-0,4	0,1-0,3		○	○		

● Ex stock ○ On demand

BC CBN with coating
BH CBN with a high CBN content

Tool holders

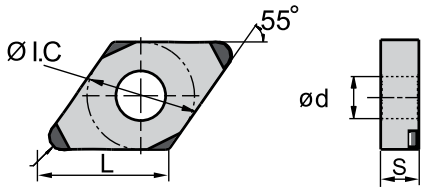
DCLNR/L	PCBNR/L	PCLNR/L	MCBNR/L	MCLNR/L	S***-PCLNR/L
Kr: 95°	Kr: 75°	Kr: 95°	Kr: 75°	Kr: 95°	Kr: 95°
					

Turning inserts (CBN)

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

DNGA	L	I.C	S	d
11 04	11,6	9,525	4,76	3,81
15 06	15,5	12,7	6,35	5,16

DN** negative insert

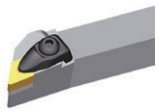
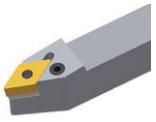
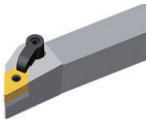
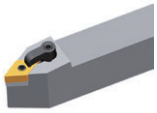
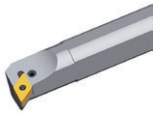


	ISO	r	a_p	f	BC (CBN) YCB805A	YCB810C	YCB820C	YCB830C	BH (CBN) YCB226
P									
M									
K									○
N									
S									
H					○	○	◎	◉	
	**DNGA110404S01225-4**	0,4	0,05-0,3	0,04-0,2		○	○		
	DNGA110408S01225-4	0,8	0,1-0,5	0,08-0,4	○	○	○		
	DNGA150604S01225-4	0,4	0,05-0,3	0,04-0,2	○	○	○		
	DNGA150608S01225-4	0,8	0,1-0,5	0,08-0,4	●	●	●	●	
	DNGA150612S01225-4	1,2	0,12-0,6	0,12-0,6	○	●	●	●	
	DNGA150608T01215-4	0,8	0,1-0,5	0,08-0,4					●
	DNGA150612T01215-4	1,2	0,12-0,6	0,12-0,6					●
	DNGA150608S01215-4W	0,8	0,06-0,3	0,08-0,4	○	○	○		
	DNGA150612S01215-4W	1,2	0,08-0,35	0,08-0,4	○	○	○		
	**DNGA150604S00535-4 CL**	0,4	0,1-0,25	0,1-0,3		○	○		
	DNGA150608S00535-4 CL	0,8	0,1-0,25	0,1-0,3		○	○		
	**DNGA150604S01235-4 CM**	0,4	0,15-0,4	0,1-0,3		○	○		
	DNGA150608S01235-4 CM	0,8	0,15-0,4	0,1-0,3		○	○		

● Ex stock ○ On demand

BC CBN with coating
BH CBN with a high CBN content

Tool holders

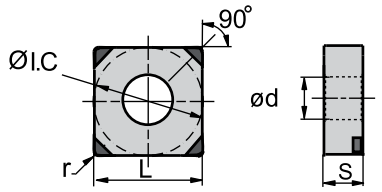
DDJNR/L	PDJNR/L	PDNNR/L	MDJNR/L	MDPNN	S***-PDSNR/L	S***-PDUNR/L
Kr: 93°	Kr: 93°	Kr: 63°	Kr: 93°	Kr: 62°30'	Kr: 62°30'	Kr: 93°
						

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

SNGA	L	I.C	S	d
12 04	12,7	12,7	4,76	5,16

Turning inserts (CBN)

SN** negative insert



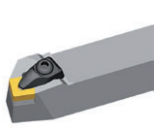
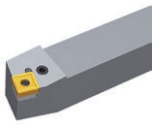
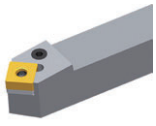
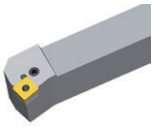
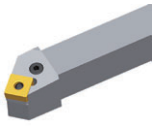
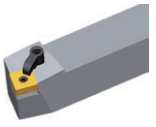
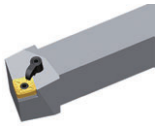
	BC (CBN)	BH (CBN)
P		
M		
K		●
N		
S		
H	○ ○ ⊛ ⊛	

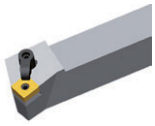
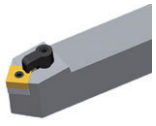
	ISO	r	a_p	f	YCB805A	YCB810C	YCB820C	YCB830C	YCB226
	**SNGA120408S01225-4**	0,8	0,1-0,5	0,08-0,4		○	○	○	
	SNGA120412S01225-4	1,2	0,12-0,6	0,12-0,6		○	○	○	
	SNGA120408T01215-4	0,8	0,1-0,5	0,08-0,4					○
	SNGA120412T01215-4	1,2	0,12-0,6	0,12-0,6					○

● Ex stock ○ On demand

BC CBN with coating
BH CBN with a high CBN content

Tool holders

DSBNR/L	PSBNR/L	PSDNN	PSKNR/L	PSSNR/L	MSBNR/L	MSRNR/L
Kr: 75°	Kr: 75°	Kr: 45°	Kr: 75°	Kr: 45°	Kr: 75°	Kr: 75°
						

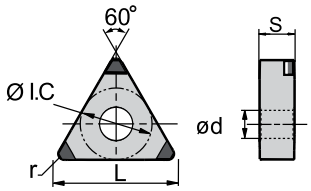
MSKNR/L	MSDNN	S***-PSKNR/L
Kr: 75°	Kr: 45°	Kr: 75°
		

Turning inserts (CBN)

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

TNGA	L	I.C	S	d
16 04	16,5	12,7	4,76	5,5

TN** negative insert

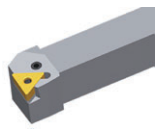
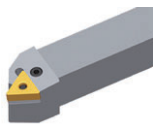
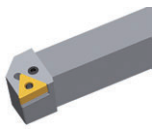
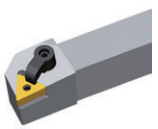
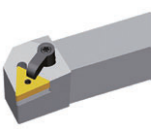
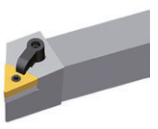


	ISO	r	a_p	f	BC (CBN) YCB805A	YCB810C	YCB820C	YCB830C	BH (CBN) YCB226
P									
M									
K									○
N									
S									
H					○	○	◌	◌	
	**TNGA160404S01225-3**	0,4	0,05-0,3	0,04-0,2		○	○		
	TNGA160408S01225-3	0,8	0,1-0,5	0,08-0,4	○	●	●	○	
	TNGA160412S01225-3	1,2	0,12-0,6	0,12-0,6	○	●	●	○	
	TNGA160408T01215-3	0,8	0,1-0,5	0,08-0,4					○
	TNGA160412T01215-3	1,2	0,12-0,6	0,12-0,6					○
	**TNGA160404S00535-3 CL**	0,4	0,1-0,25	0,1-0,3		○	○		
	TNGA160408S00535-3 CL	0,8	0,1-0,25	0,1-0,3		○	○		
	**TNGA160404S01235-3 CM**	0,4	0,15-0,4	0,1-0,3		○	○		
	TNGA160408S01235-3 CM	0,8	0,15-0,4	0,1-0,3		○	○		

● Ex stock ○ On demand

BC CBN with coating
BH CBN with a high CBN content

Tool holders

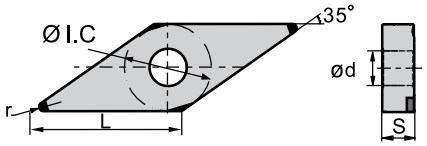
DTGNR/L	PTFNR/L	PTTNR/L	PTGNR/L	MTGNR/L	MTJNR/L	MTJNR/L-Z
Kr: 91°	Kr: 91°	Kr: 60°	Kr: 90°	Kr: 90°	Kr: 93°	Kr: 93°
						

MTFNR/L	S***-PTFNR/L
Kr: 91°	Kr: 90°
	

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

VNGA	L	I.C	S	d
16 04	16,5	12,7	4,76	5,5

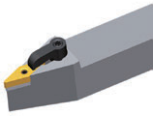
Turning inserts (CBN)

VN** negative insert						BC (CBN)				BH (CBN)
					P					
					M					
					K					●
					N					
					S					
					H	○	○	◌	◌	
	ISO		r	a_p	f	YCB805A	YCB810C	YCB820C	YCB830C	YCB226
	**VNGA160404S01225-4**		0,4	0,05-0,3	0,04-0,2		●	●		
	VNGA160408S01225-4		0,8	0,1-0,5	0,08-0,4	○	●	●	○	
	VNGA160412S01225-4		1,2	0,12-0,6	0,12-0,6		●	●	○	
	VNGA160408T01215-4		0,8	0,1-0,5	0,08-0,4					○
	VNGA160412T01215-4		1,2	0,12-0,6	0,12-0,6					○
	**VNGA160404S00535-4 CL**		0,4	0,1-0,25	0,1-0,3		○	○		
	VNGA160408S00535-4 CL		0,8	0,1-0,25	0,1-0,3		○	○		

● Ex stock ○ On demand

BC CBN with coating
BH CBN with a high CBN content

Tool holders

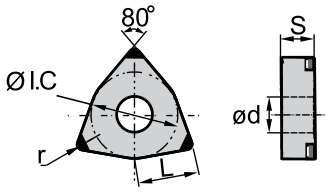
DVVNN	DVJNR/L	MVVNN	MVJNR/L
Kr: 72°30'	Kr: 93°	Kr: 72°30'	Kr: 93°
			

Turning inserts (CBN)

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

WNGA	L	I.C	S	d
08 04	8,69	12,7	4,76	5,16

WN** negative insert



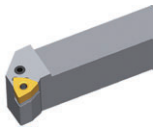
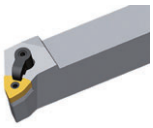
	BC (CBN)												BH (CBN)											
P																								
M																								
K													●											
N																								
S																								
H	○	○	◌	◌																				

	ISO	r	a_p	f	YCB805A	YCB810C	YCB820C	YCB830C	YCB226
	**WNGA080404S01225-3**	0,4	0,05-0,3	0,04-0,2		○	○		
	WNGA080408S01225-3	0,8	0,1-0,5	0,08-0,4	○	○	○	○	
	WNGA080412S01225-3	1,2	0,12-0,6	0,12-0,6	○	○	○	○	
	WNGA080416S01225-3	1,6	0,15-0,7	0,12-0,7	○	○	○	○	
	WNGA080408T01215-3	0,8	0,1-0,5	0,08-0,4					○
	WNGA080412T01215-3	1,2	0,12-0,6	0,12-0,6					○
	WNGA080416T01215-3	1,6	0,15-0,7	0,12-0,7					○

● Ex stock ○ On demand

BC CBN with coating
BH CBN with a high CBN content

Tool holders

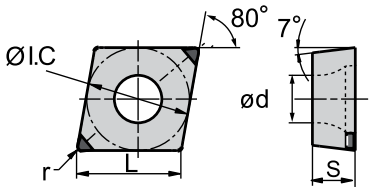
DWLNR/L	PWLNR/L	MWLNR/L	S***-PWLNR/L
Kr: 95°	Kr: 95°	Kr: 95°	Kr: 95°
			

Turning inserts (CBN)

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

CCGW	L	I.C	S	d
06 02	6,4	6,35	2,38	2,8
09 T3	9,7	9,525	3,97	4,4
12 04	12,9	12,7	4,76	5,5

CC** negative insert



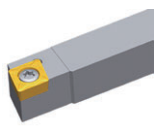
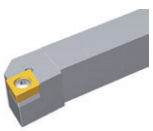
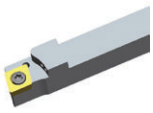
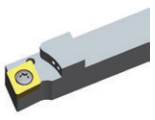
	BC (CBN)	BH (CBN)
P		
M		
K		○
N		
S		
H	○ ○ ◐ ◉	

	ISO	r	a_p	f	YCB805A	YCB810C	YCB820C	YCB830C	YCB226
	CCGW060202S01225-2	0,2	0,05-0,2	0,02-0,1		○			
	CCGW060204S01225-2	0,4	0,05-0,3	0,04-0,2		●	○		
	CCGW060208S01225-2	0,8	0,1-0,5	0,08-0,4		●	●		
	CCGW060204T01215-2	0,4	0,05-0,3	0,04-0,2					○
	CCGW060208T01215-2	0,8	0,1-0,5	0,08-0,4					○
	**CCGW09T302S01225-2**	0,2	0,05-0,2	0,02-0,1		○			
	CCGW09T304S01225-2	0,4	0,05-0,3	0,04-0,2	○	●	●		
	CCGW09T308S01225-2	0,8	0,1-0,5	0,08-0,4	○	●	●	○	
	CCGW09T304T01215-2	0,4	0,05-0,3	0,04-0,2					●
	CCGW09T308T01215-2	0,8	0,1-0,5	0,08-0,4					●
	CCGW09T304S01215-2W	0,4	0,05-0,3	0,07-0,35		○	○		
	CCGW09T308S01215-2W	0,8	0,06-0,3	0,08-0,4	○	○	○		
	**CCGW09T304E-2 CS**	0,4	0,08-0,2	0,08-0,2		○			
	CCGW09T308E-2 CS	0,8	0,08-0,2	0,08-0,2		○			
	**CCGW09T304S00535-2 CL**	0,4	0,1-0,25	0,1-0,3		○	○		
	CCGW09T308S00535-2 CL	0,8	0,1-0,25	0,1-0,3		○	○		

● Ex stock ○ On demand

BC CBN with coating
BH CBN with a high CBN content

Tool holders

SCACR/L	SCLCR/L	SCACR/L-SC	SCLCR/L-SC	A***-SCLCR/L	S***-SCFCR/L	S***-SCLCR
Kr: 90°	Kr: 95°	Kr: 90°	Kr: 95°	Kr: 95°	Kr: 90°	Kr: 95°
						

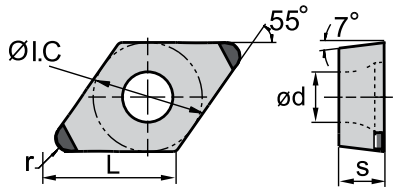
E***-SCLCR/L
Kr: 95°


Turning inserts (CBN)

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

DCGW	L	I.C	S	d
07 02	7,8	6,35	2,38	2,8
11 T3	11,6	9,525	3,97	4,4

DC** negative insert



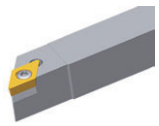
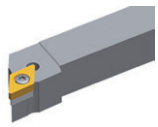
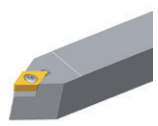
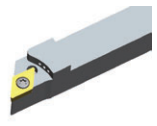
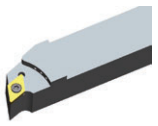
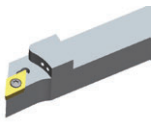
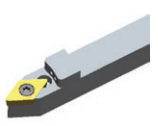
	BC (CBN)												BH (CBN)											
P																								
M																								
K													○											
N																								
S																								
H	○	○	◌	◌																				

	ISO	r	a_p	f	YCB805A	YCB810C	YCB820C	YCB830C	YCB226
	DCGW070202S01225-2	0,2	0,05-0,2	0,02-0,10		○			
	DCGW070204S01225-2	0,4	0,05-0,3	0,04-0,20	○	○	○		
	DCGW070208S01225-2	0,8	0,1-0,5	0,08-0,40	○	○	○		
	DCGW11T302S01225-2	0,2	0,05-0,2	0,02-0,10		○			
	DCGW11T304S01225-2	0,4	0,05-0,3	0,04-0,20	○	●	●	○	
	DCGW11T308S01225-2	0,8	0,1-0,5	0,08-0,40	○	●	●	○	
	DCGW11T312S01225-2	1,2	0,12-0,6	0,12-0,6	○	○	○	○	
	**DCGW11T304T01215-2**	0,4	0,05-0,3	0,04-0,20					○
	DCGW11T308T01215-2	0,8	0,1-0,5	0,08-0,40					●
	DCGW11T312T01215-2	1,2	0,12-0,6	0,12-0,6					●
	DCGW11T304S01215-2W	0,4	0,05-0,3	0,07-0,25	○	○	○		
	DCGW11T308S01215-2W	0,8	0,06-0,3	0,08-0,30	○	●	○		
	DCGW11T304E-2 CS	0,4	0,08-0,2	0,08-0,2		○			
	DCGW11T308E-2 CS	0,8	0,08-0,2	0,08-0,2		○			
	DCGW11T304S00535-2 CL	0,4	0,1-0,25	0,1-0,3					
	DCGW11T308S00535-2 CL	0,8	0,08-0,4	0,08-0,50	○	○	○		

● Ex stock ○ On demand

BC CBN with coating
BH CBN with a high CBN content

Tool holders

SDACR/L	SDJCR/L	SDNCN	SDACR/L-SC	SDHCR/L-SC	SDJCR/L-SC	SDNCN-SC
Kr: 90°	Kr: 93°	Kr: 62°30'	Kr: 90°	Kr: 107°30'	Kr: 93°	Kr: 62°30'
						

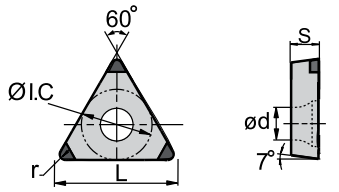
S***-SDQCR/L	A***-SDUCR/L	S***-SDZCR/L	E***-SDQCR/L
Kr: 107°30'	Kr: 93°	Kr: 85°	Kr: 107°30'
			

Turning inserts (CBN)

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

TCGW	L	I.C	S	d
11 02	11	6,35	2,38	2,5
16 T3	16,5	9,525	3,97	4,4

TC** negative insert



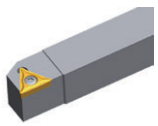
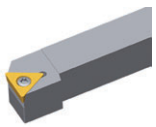
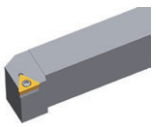
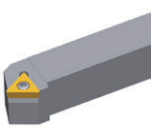
	BC (CBN)	BH (CBN)
P		
M		
K		●
N		
S		
H	○ ○ ⊛ ⊛	

	ISO	r	a_p	f	YCB805A	YCB810C	YCB820C	YCB830C	YCB226
	**TCGW110204S01225-3**	0,4	0,05-0,3	0,04-0,20		○	○		
	TCGW110208S01225-3	0,8	0,1-0,5	0,08-0,40		○	○		
	TCGW16T304S01225-3	0,4	0,05-0,3	0,04-0,20		○	○		
	TCGW16T308S01225-3	0,8	0,1-0,5	0,08-0,40		○	○	○	
	TCGW16T304T01215-3	0,4	0,05-0,3	0,04-0,20					○
	TCGW16T308T01215-3	0,8	0,1-0,5	0,08-0,40					○

● Ex stock ○ On demand

BC CBN with coating
BH CBN with a high CBN content

Tool holders

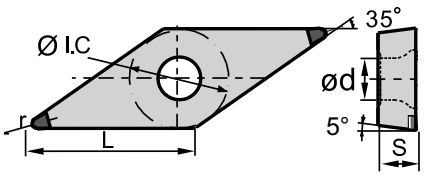
STACR/L	STFCR/L	STGCR/L	STTCR/L	S***-STFCR/L	E***-STFCR/L
Kr: 90°	Kr: 91°	Kr: 91°	Kr: 60°	Kr: 91°	Kr: 90°
					

Turning inserts (CBN)

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

VBGW	L	I.C	S	d
16 04	16,6	9,525	4,76	4,4

VB** negative insert



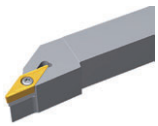
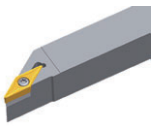
	BC (CBN)	BH (CBN)
P		
M		
K		○
N		
S		
H	○ ○ ◎ ◉	

	ISO	r	a_p	f	YCB805A	YCB810C	YCB820C	YCB830C	YCB226
	**VBGW160402S01225-2**	0,2	0,05-0,2	0,02-0,10	○	●	○		
	VBGW160404S01225-2	0,4	0,05-0,3	0,04-0,20	○	●	●		
	VBGW160408S01225-2	0,8	0,1-0,5	0,08-0,4	○	●	●		
	VBGW160404T01215-2	0,4	0,05-0,3	0,04-0,20					○
	VBGW160408T01215-2	0,8	0,1-0,5	0,08-0,4					○

● Ex stock ○ On demand

BC CBN with coating
BH CBN with a high CBN content

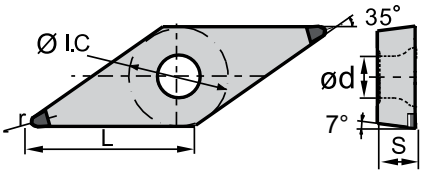
Tool holders

SVJBR/L	SVABR/L	SVVBN	S***-SVQBR/L	S***-SVUBR/L	S***-SVXBR/L
Kr: 93°	Kr: 90°	Kr: 72°30'	Kr: 107°30'	Kr: 93°	Kr: 93°
					

Turning inserts (CBN)

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

VCGW	L	I.C	S	d
16 04	16,6	9,525	4,76	4,4

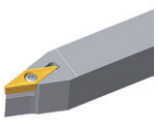
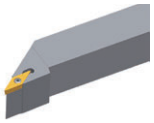
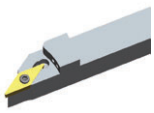
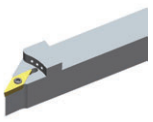


	ISO	r	a_p	f	YCB805A	YCB810C	YCB820C	YCB830C	YCB226
P									
M									
K									●
N									
S									
H					○	○	◌	◌	
	**VCGW160404S01225-2**	0,4	0,05-0,3	0,04-0,20		○	○		
	VCGW160408S01225-2	0,8	0,1-0,5	0,08-0,4		○	○		

● Ex stock ○ On demand

BC CBN with coating
BH CBN with a high CBN content

Tool holders

SVVCN	SVJCR/L	SVACR/L-SC	SVJCR/L-SC	S***-SVQCR/L	S***-SVUCR/L	C***-SVQCR/L
Kr: 72°30'	Kr: 93°	Kr: 90°	Kr: 93°	Kr: 107°30'	Kr: 93°	Kr: 107°30'
						

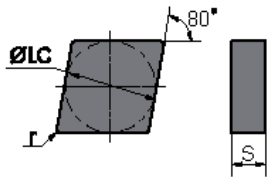
C***-SVUCR/L
Kr: 93°


Turning inserts (CBN)

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

CNGN	L	I.C	S
09 03	9,7	9,525	3,18
12 04	12,9	12,7	4,76

CN** negative insert



	ISO	r	a_p	f	BC (CBN)	BH (CBN)
						YZB227
P						
M						
K						⊛
N						
S						
H						
	**CNGN090308T01525**	0,8	0,5-2,0	0,3-5,0		○
	CNGN090312T01525	1,2	0,5-2,0	0,3-5,0		○
	CNGN120408T01525	0,8	0,5-2,0	0,3-5,0		○
	CNGN120412T01525	1,2	0,5-2,0	0,3-5,0		●
	CNGN120416T01525	1,6	0,5-2,0	0,3-5,0		●
	**CNGA120408T01525-M**	0,8	0,5-2,0	0,3-5,0		○
	CNGA120412T01525-M	1,2	0,5-2,0	0,3-5,0		○
	CNGA120416T01525-M	1,6	0,5-2,0	0,3-5,0		○

● Ex stock ○ On demand

BC CBN with coating
BH CBN with a high CBN content

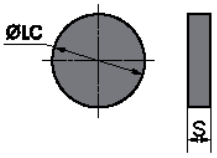
Tool holder
CCLNR/L
Kr: 95°



Turning inserts (CBN)

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

RNGN	I.C	S
09 03	9,525	3,18
12 04	12,7	4,76

RN** negative insert				BC (CBN)	BH (CBN)
			P		
			M		
			K		⊛
			N		
			S		
			H		
ISO		a_p	f		YZB227
	**RNGN090300T01525**	0,5-2,0	0,3-5,0		○
	RNGN120400T01525	0,5-2,0	0,3-5,0		●
	**RNGN120400T01525-M**	0,5-2,0	0,3-5,0		●

● Ex stock ○ On demand

BC CBN with coating
BH CBN with a high CBN content

Tool holder
CRDNN

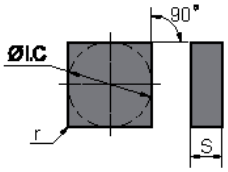


Turning inserts (CBN)

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

SNGN	L	I.C	S
09 04	9,525	9,525	3,18
12 04	12,7	12,7	4,76

SN** negative insert

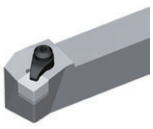
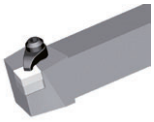
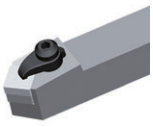


	ISO	r	a_p	f	BC (CBN) YZB227	BH (CBN)
P						
M						
K						⊛
N						
S						
H						
	**SNGN090412T01525**	1,2	0,5-2,0	0,3-5,0	○	
	SNGN090416T01525	1,6	0,5-2,0	0,3-5,0	○	
	SNGN120408T01525	0,8	0,5-2,0	0,3-5,0	○	
	SNGN120412T01525	1,2	0,5-2,0	0,3-5,0	○	
	SNGN120416T01525	1,6	0,5-2,0	0,3-5,0	○	
	**SNGN120412T01525-M**	1,2	0,5-2,0	0,3-5,0	○	
	SNGN120416T01525-M	1,6	0,5-2,0	0,3-5,0	●	

● Ex stock ○ On demand

BC CBN with coating
BH CBN with a high CBN content

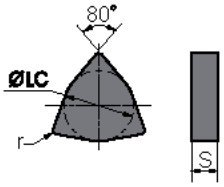
Tool holders

CSKNR/L	CSRNR/L	CSDNN
Kr: 75°	Kr: 75°	Kr: 45°
		

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

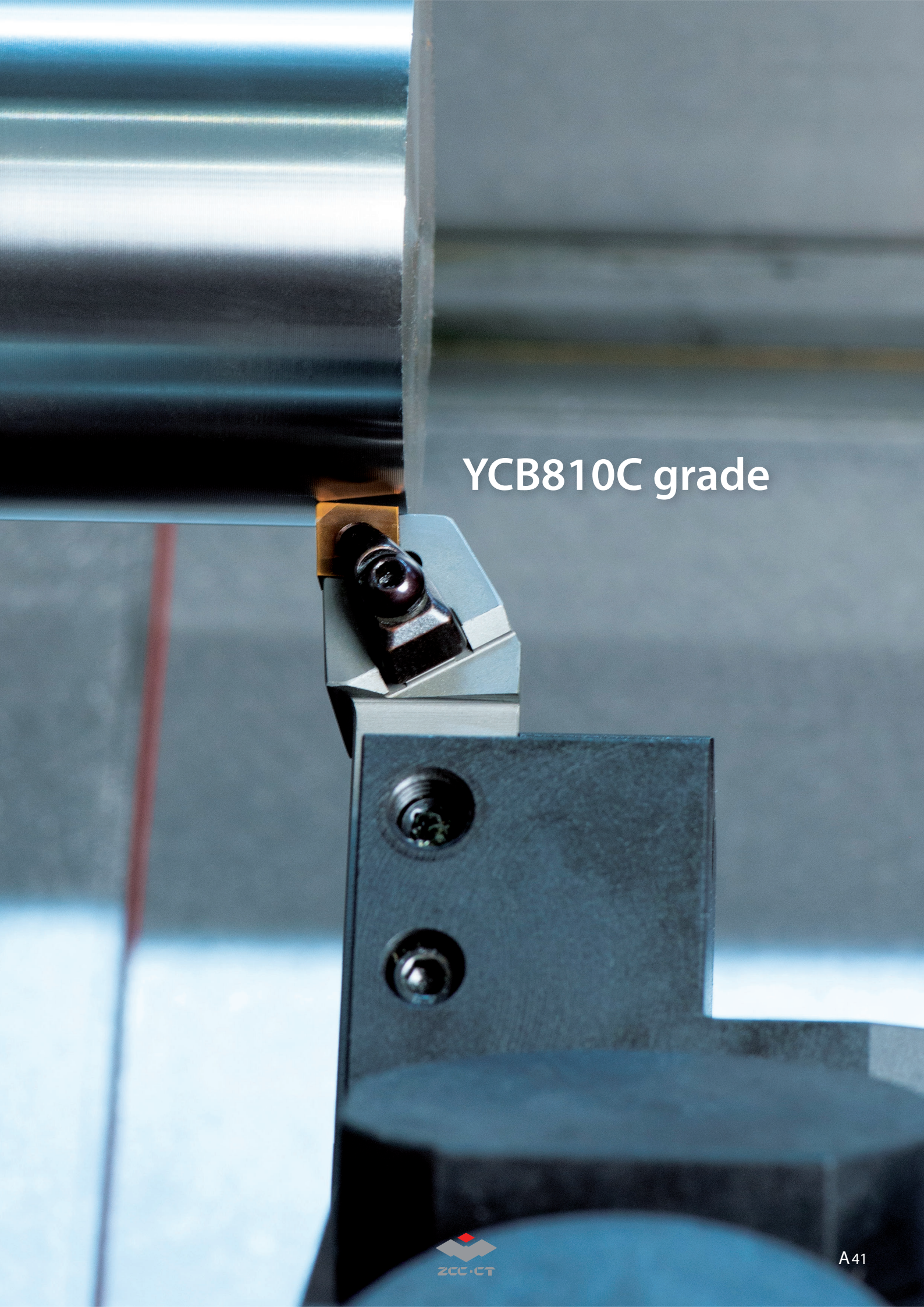
WNGN	L	I.C	S
08 04	8,69	12,7	4,76

Turning inserts (CBN)

WN** negative insert						BC (CBN)	BH (CBN)
					P		
					M		
					K		✲
					N		
					S		
					H		
	ISO	r	a_p	f			YZB227
	**WNGN080408T01525**	0,8	0,5-2,0	0,3-5,0			○
	WNGN080412T01525	1,2	0,5-2,0	0,3-5,0			○
	WNGN080416T01525	1,6	0,5-2,0	0,3-5,0			○
	**WNGN080416T01525-M**	1,6	0,5-2,0	0,3-5,0			○

● Ex stock ○ On demand

BC CBN with coating
BH CBN with a high CBN content


YCB810C grade

YCD821 grade

Uncoated PCD grade for non-ferrous metals

YOUR BENEFITS

– The latest generation of PCD materials for **long tool life**
– High-precision manufacturing for **stable processes** and **good surface finishes**
– Efficient and cost-effective high-speed machining
– State-of-the-art manufacturing technologies for **maximum precision**

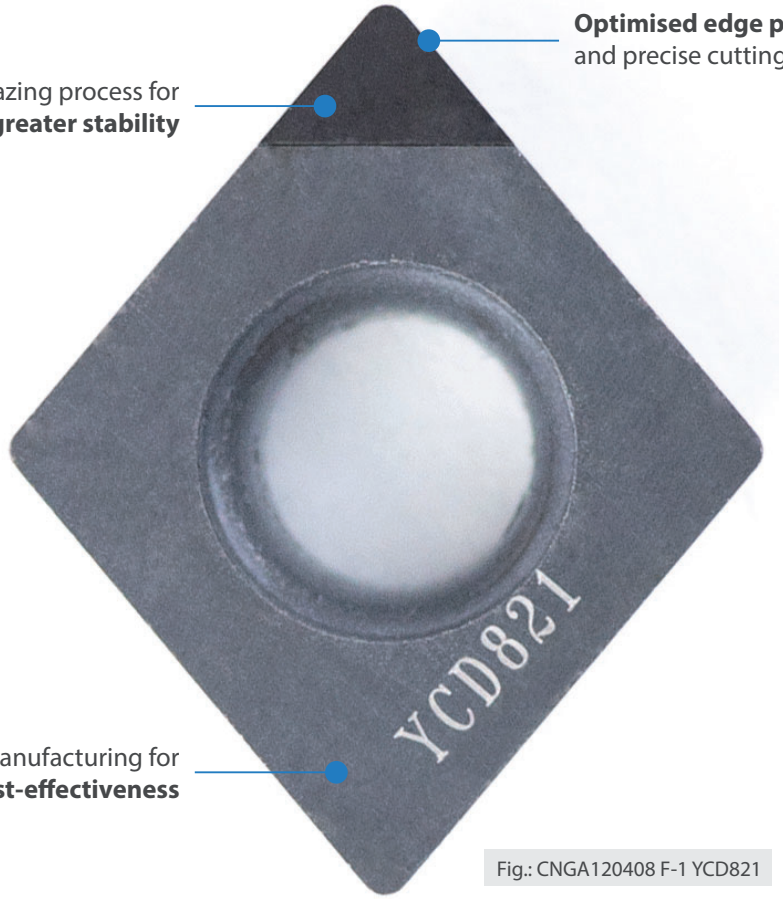
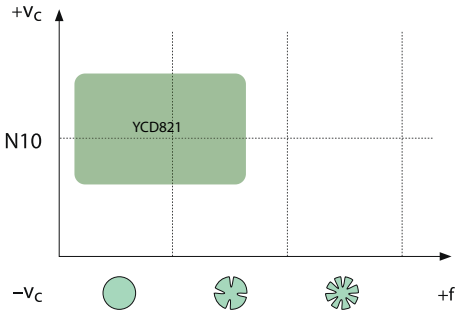


Fig.: CNGA120408 F-1 YCD821

Grades



YCD821 (all-rounder):
– For the super finishing of aluminium alloys containing less than 12 % Si, composite materials, copper and magnesium
– Good wear resistance across a wide range of applications
– Suitable for turning and milling operations

Chamfer designs

The design of the cutting edge is crucial to the Tool life and performance of the cutting insert. Our 'standard version' covers a wide range of applications. In all other cases, we can offer an optimised edge design to achieve the best possible result.

Standard

F

F
For PCD inserts with a sharp cutting edge

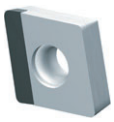
Insert variants

PKD Blank 0°



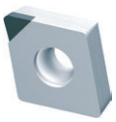
For general applications

PKD Blank 0°



Blade assembly for large cutting depths

PKD Blank 7°



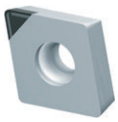
Reduced cutting pressure due to a positive rake angle

PKD Blank 7°



Blade assembly for large cutting depths and reduced cutting pressure

PKD Blank 0°



Laser-etched chip-forming step for high process reliability and effective chip formation

As well as the standard corner design, versions with a wiper chamfer or full-surface covering are also available on demand.



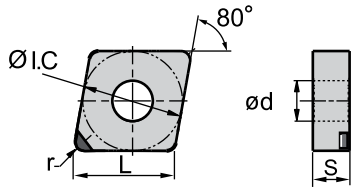
MED: Special process using a laser-cut chip-breaking step
The laser-cut chip-breaking step gives the standard 0° brazed PCD blank a positive rake angle. This reduces the cutting forces and has a positive effect on chip formation. At the same time, the basic stability is maintained. Recommended for use with aluminium alloys, copper alloys, magnesium alloys, plastics or fibre-reinforced composites.

Turning inserts (PCD)

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

CNGA	L	I.C	S	d
12 04	12,9	12,7	4,76	5,5

CN** negative insert



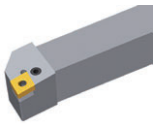
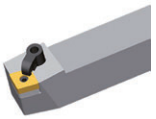
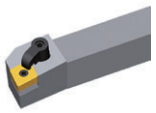
	P	M	K	N	S	H
DP				○		

	ISO	r	a_p	f	YCD821
	**CNGA120402F-1**	0,2	0,08-0,5	0,05-0,15	○
	CNGA120404F-1	0,4	0,08-0,5	0,05-0,2	○
	CNGA120408F-1	0,8	0,08-0,5	0,05-0,25	○

● Ex stock ○ On demand

DP Polycrystalline diamond

Tool holders

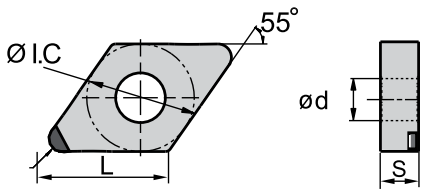
DCLNR/L	PCBNR/L	PCLNR/L	MCBNR/L	MCLNR/L	S***-PCLNR/L
Kr: 95°	Kr: 75°	Kr: 95°	Kr: 75°	Kr: 95°	Kr: 95°
					

Turning inserts (PCD)

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

DNGA	L	I.C	S	d
15 06	15,5	12,7	6,35	5,16

DN** negative insert



P	
M	
K	
N	○
S	
H	

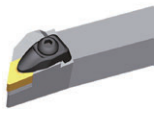
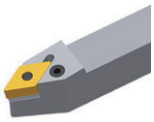
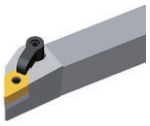
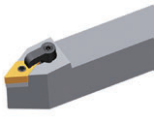
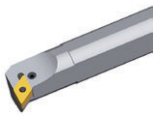
DP

	ISO	r	a_p	f	YCD821
	**DNGA150602 F-1**	0,2	0,08-0,5	0,05-0,15	○
	DNGA150604 F-1	0,4	0,08-0,5	0,05-0,2	○
	DNGA150608 F-1	0,8	0,08-0,5	0,05-0,25	○

● Ex stock ○ On demand

DP Polycrystalline diamond

Tool holders

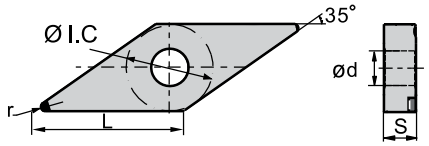
DDJNR/L	PDJNR/L	PDNNR/L	MDJNR/L	MDPNN	S***-PDSNR/L	S***-PDUNR/L
Kr: 93°	Kr: 93°	Kr: 63°	Kr: 93°	Kr: 62°30'	Kr: 62°30'	Kr: 93°
						

Turning inserts (PCD)

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

VNGA	L	I.C	S	d
16 04	16,6	9,525	4,76	3,81

VN** negative insert



DP

P
M
K
N
S
H

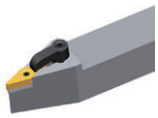
ISO	r	a_p	f	YCD821
VNGA160402F-1	0,2	0,08-0,5	0,05-0,15	○
VNGA160404F-1	0,4	0,08-0,5	0,05-0,2	○



● Ex stock ○ On demand

DP Polycrystalline diamond

Tool holders

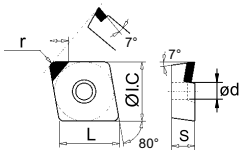
DVVNN	DVJNR/L	MVVNN	MVJNR/L
Kr: 72°30'	Kr: 93°	Kr: 72°30'	Kr: 93°
			

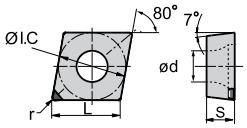
Turning inserts (PCD)

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

CCGT	L	I.C	S	d
06 02	6,4	6,35	2,38	2,8
09 T3	9,7	9,525	3,97	4,4
12 04	12,9	12,7	4,76	5,5

CC** positive insert





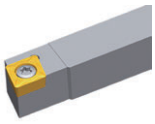
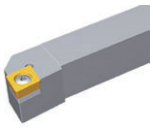
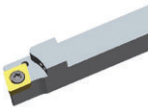
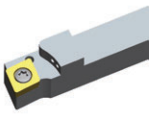
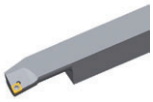
MED

	ISO	r	a_p	f	YCD821
	**CCGT060202F-1**	0,2	0,08-0,5	0,05-0,15	○
	CCGT060204F-1	0,4	0,08-0,5	0,05-0,2	○
	CCGT060208F-1	0,8	0,08-0,5	0,05-0,25	○
	CCGT09T302F-1	0,2	0,08-0,5	0,05-0,15	○
	CCGT09T304F-1	0,4	0,08-0,5	0,05-0,2	●
	CCGT09T308F-1	0,8	0,08-0,5	0,05-0,25	●
	CCGT120402F-1	0,2	0,08-0,5	0,05-0,15	○
	CCGT120404F-1	0,4	0,08-0,5	0,05-0,2	○
	CCGT120408F-1	0,8	0,08-0,5	0,05-0,25	○
	**CCGT060204F-1 MED**	0,4	0,08-0,5	0,05-0,2	○
	CCGT060208F-1 MED	0,8	0,08-0,5	0,05-0,25	○
	CCGT09T302F-1 MED	0,2	0,08-0,5	0,05-0,15	○
	CCGT09T304F-1 MED	0,4	0,08-0,5	0,05-0,2	○
	CCGT09T308F-1 MED	0,8	0,08-0,5	0,05-0,25	○

● Ex stock ○ On demand

DP Polycrystalline diamond

Tool holders

SCACR/L	SCLCR/L	SCACR/L-SC	SCLCR/L-SC	A***-SCLCR/L	S***-SCFCR/L	S***-SCLCR
Kr: 90°	Kr: 95°	Kr: 90°	Kr: 95°	Kr: 95°	Kr: 90°	Kr: 95°
						

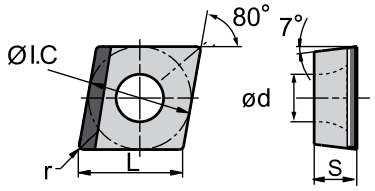
E***-SCLCR/L
Kr: 95°


Turning inserts (PCD)

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

CCGT	L	I.C	S	d
09 T3	9,7	9,525	3,97	4,4
12 04	12,9	12,7	4,76	5,56

CC** positive insert



DP

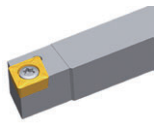
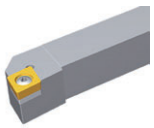
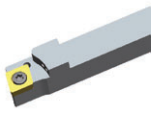
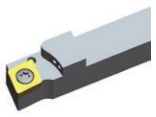
P
M
K
N
S
H

	ISO	r	a_p	f	YCD821
	**CCGT09T308LL**	0,8	0,1-8,0	0,05-0,3	○
	CCGT09T308LR	0,8	0,1-8,0	0,05-0,3	○
	CCGT120404LL	0,4	0,1-10,0	0,05-0,3	○
	CCGT120404LR	0,4	0,1-10,0	0,05-0,3	○
	CCGT120408LL	0,8	0,1-10,0	0,05-0,3	○
	CCGT120408LR	0,8	0,1-10,0	0,05-0,3	○

● Ex stock ○ On demand

DP Polycrystalline diamond

Tool holders

SCACR/L	SCLCR/L	SCACR/L-SC	SCLCR/L-SC	A***-SCLCR/L	S***-SCFCR/L	S***-SCLCR
Kr: 90°	Kr: 95°	Kr: 90°	Kr: 95°	Kr: 95°	Kr: 90°	Kr: 95°
						

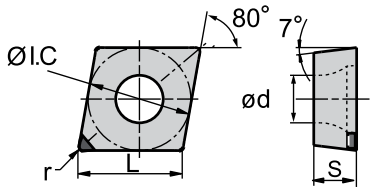
E***-SCLCR/L
Kr: 95°


Turning inserts (PCD)

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

CCGW	L	I.C	S	d
06 02	6,4	6,35	2,38	2,8
09 T3	9,7	9,525	3,97	4,4
12 04	12,9	12,7	4,76	5,5

CC** positive insert

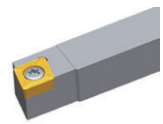
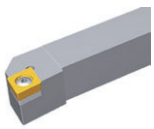
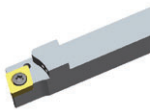
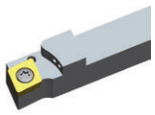
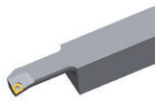


	ISO	r	a_p	f	YCD821
	**CCGW060202F-1**	0,2	0,08-0,5	0,05-0,15	○
	CCGW060204F-1	0,4	0,08-0,5	0,05-0,2	○
	CCGW060208F-1	0,8	0,08-0,5	0,05-0,25	○
	CCGW09T304F-1	0,4	0,08-0,5	0,05-0,2	●
	CCGW09T308F-1	0,8	0,08-0,5	0,05-0,25	●
	CCGW120404F-1	0,4	0,08-0,5	0,05-0,2	○
	CCGW120408F-1	0,8	0,08-0,5	0,05-0,25	○

● Ex stock ○ On demand

DP Polycrystalline diamond

Tool holders

SCACR/L	SCLCR/L	SCACR/L-SC	SCLCR/L-SC	A***-SCLCR/L	S***-SCFCR/L	S***-SCLCR
Kr: 90°	Kr: 95°	Kr: 90°	Kr: 95°	Kr: 95°	Kr: 90°	Kr: 95°
						

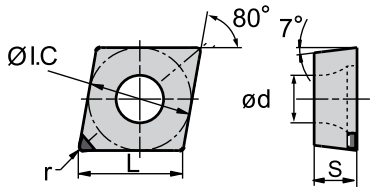
E***-SCLCR/L
Kr: 95°


Turning inserts (PCD)

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

CCGW	L	I.C	S	d
06 02	6,4	6,35	2,38	2,8
09 T3	9,7	9,525	3,97	4,4
12 04	12,9	12,7	4,76	5,5

CC** positive insert



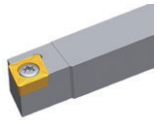
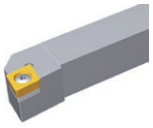
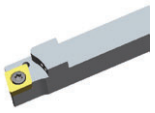
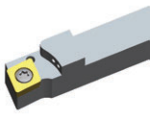
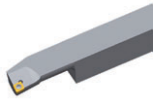
	DP
P	
M	
K	
N	○
S	
H	

	ISO	r	a_p	f	YCD821
	**CCGW09T304LL**	0,4	0,1-8,0	0,05-0,3	○
	CCGW09T304LR	0,4	0,1-8,0	0,05-0,3	○
	CCGW09T308LL	0,8	0,1-8,0	0,05-0,3	●
	CCGW09T308LR	0,8	0,1-8,0	0,05-0,3	●
	CCGW120404LL	0,4	0,1-10,0	0,05-0,3	○
	CCGW120404LR	0,4	0,1-10,0	0,05-0,3	○
	CCGW120408LL	0,8	0,1-10,0	0,05-0,3	○
	CCGW120408LR	0,8	0,1-10,0	0,05-0,3	○

● Ex stock ○ On demand

DP Polycrystalline diamond

Tool holders

SCACR/L	SCLCR/L	SCACR/L-SC	SCLCR/L-SC	A***-SCLCR/L	S***-SCFCR/L	S***-SCLCR
Kr: 90°	Kr: 95°	Kr: 90°	Kr: 95°	Kr: 95°	Kr: 90°	Kr: 95°
						

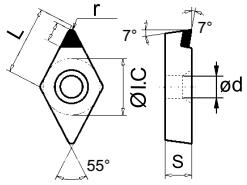
E***-SCLCR/L
Kr: 95°


Turning inserts (PCD)

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

DCGT	L	I.C	S	d
07 02	7,8	6,35	2,38	2,8
11 T3	11,6	9,525	3,97	4,4

DC** positive insert



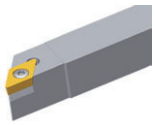
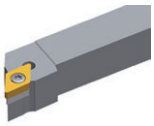
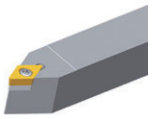
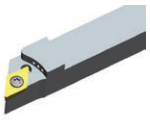
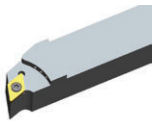
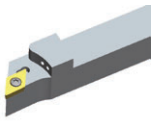
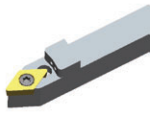
DP

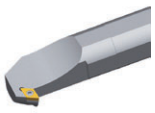
	ISO	r	a_p	f	YCD821
P					
M					
K					
N					○
S					
H					
	**DCGT070202F-1**	0,2	0,08-0,5	0,05-0,15	○
	DCGT070204F-1	0,4	0,08-0,5	0,05-0,2	○
	DCGT11T302F-1	0,2	0,08-0,5	0,05-0,15	●
	DCGT11T304F-1	0,4	0,08-0,5	0,05-0,2	●
	DCGT11T308F-1	0,8	0,08-0,5	0,05-0,25	●

● Ex stock ○ On demand

DP Polycrystalline diamond

Tool holders

SDACR/L	SDJCR/L	SDNCN	SDACR/L-SC	SDHCR/L-SC	SDJCR/L-SC	SDNCN-SC
Kr: 90°	Kr: 93°	Kr: 62°30'	Kr: 90°	Kr: 107°30'	Kr: 93°	Kr: 62°30'
						

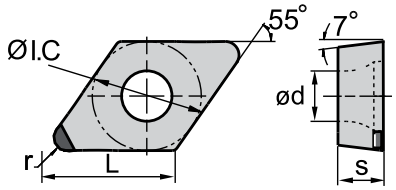
S***-SDQCR/L	A***-SDUCR/L	S***-SDZCR/L	E***-SDQCR/L
Kr: 107°30'	Kr: 93°	Kr: 85°	Kr: 107°30'
			

Turning inserts (PCD)

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

DCGT	L	I.C	S	d
07 02	7,8	6,35	2,38	2,8
11 T3	11,6	9,525	3,97	4,4

DC** positive insert

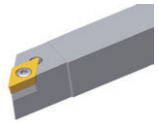
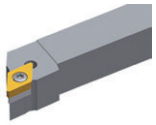
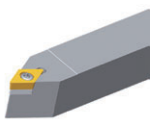
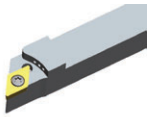
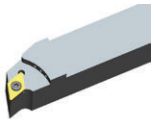
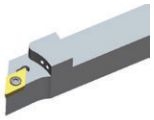
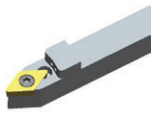


					DP
					YCD821
P					
M					
K					
N					○
S					
H					
	ISO	r	a_p	f	
	**DCGT070202F-1 MED**	0,2	0,08-0,5	0,05-0,15	○
	DCGT070204F-1 MED	0,4	0,08-0,5	0,05-0,2	○
	DCGT070208F-1 MED	0,8	0,08-0,5	0,05-0,25	○
	**DCGT11T302F-1 MED**	0,2	0,08-0,5	0,05-0,15	○
	DCGT11T304F-1 MED	0,4	0,08-0,5	0,05-0,2	○
	DCGT11T308F-1 MED	0,8	0,08-0,5	0,05-0,25	○

● Ex stock ○ On demand

DP Polycrystalline diamond

Tool holders

SDACR/L	SDJCR/L	SDNCN	SDACR/L-SC	SDHCR/L-SC	SDJCR/L-SC	SDNCN-SC
Kr: 90°	Kr: 93°	Kr: 62°30'	Kr: 90°	Kr: 107°30'	Kr: 93°	Kr: 62°30'
						

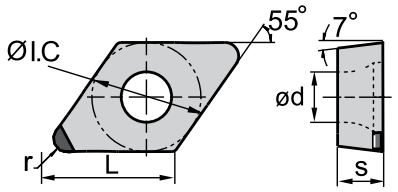
S***-SDQCR/L	A***-SDUCR/L	S***-SDZCR/L	E***-SDQCR/L
Kr: 107°30'	Kr: 93°	Kr: 85°	Kr: 107°30'
			

Turning inserts (PCD)

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

DCGW	L	I.C	S	d
07 02	7,8	6,35	2,38	2,8
11 T3	11,6	9,525	3,97	4,4

DC** positive insert

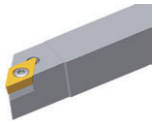
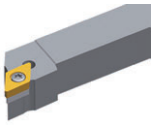
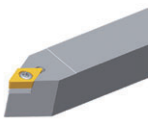
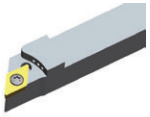
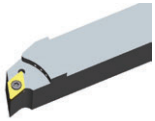
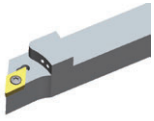
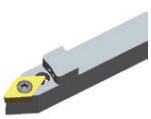


					DP
					YCD821
P					
M					
K					
N					○
S					
H					
	ISO	r	a_p	f	
	**DCGW070202F-1**	0,2	0,08-0,5	0,05-0,15	○
	DCGW070204F-1	0,4	0,08-0,5	0,05-0,2	●
	DCGW070208F-1	0,8	0,08-0,5	0,05-0,25	●
	DCGW11T302F-1	0,2	0,08-0,5	0,05-0,15	●
	DCGW11T304F-1	0,4	0,08-0,5	0,05-0,2	●
	DCGW11T308F-1	0,8	0,08-0,5	0,05-0,25	●

● Ex stock ○ On demand

DP Polycrystalline diamond

Tool holders

SDACR/L	SDJCR/L	SDNCN	SDACR/L-SC	SDHCR/L-SC	SDJCR/L-SC	SDNCN-SC
Kr: 90°	Kr: 93°	Kr: 62°30'	Kr: 90°	Kr: 107°30'	Kr: 93°	Kr: 62°30'
						

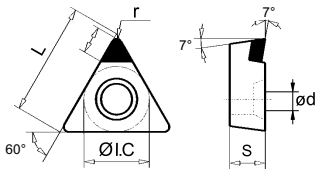
S***-SDQCR/L	A***-SDUCR/L	S***-SDZCR/L	E***-SDQCR/L
Kr: 107°30'	Kr: 93°	Kr: 85°	Kr: 107°30'
			

Turning inserts (PCD)

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

TCGT	L	I.C	S	d
11 02	11	6,35	2,38	2,5
16 T3	16,5	9,525	3,97	4,4

TC** positive insert



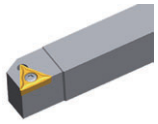
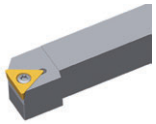
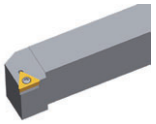
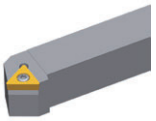
	DP
P	
M	
K	
N	○
S	
H	

	ISO	r	a_p	f	YCD821
	**TCGT110202F-1**	0,2	0,08-0,5	0,05-0,15	○
	TCGT110204F-1	0,4	0,08-0,5	0,05-0,2	○
	TCGT110208F-1	0,8	0,08-0,5	0,05-0,25	○
	TCGT16T302F-1	0,2	0,08-0,5	0,05-0,15	○
	TCGT16T304F-1	0,4	0,08-0,5	0,05-0,2	○
	TCGT16T308F-1	0,8	0,08-0,5	0,05-0,25	○

● Ex stock ○ On demand

DP Polycrystalline diamond

Tool holders

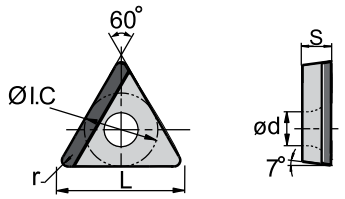
STACR/L	**STFCR/L**	**STGCR/L**	**STTCR/L**	**S***-STFCR/L**	**E***-STFCR/L**
Kr: 90°	Kr: 91°	Kr: 91°	Kr: 60°	Kr: 91°	Kr: 90°
					

Turning inserts (PCD)

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

TCGT	L	I.C	S	d
11 02	11	6,35	2,38	2,8
16 T3	16,5	9,525	3,97	4,4

TC** positive insert



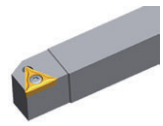
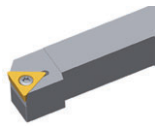
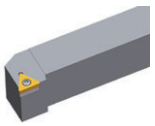
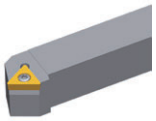
	DP
P	
M	
K	
N	○
S	
H	

	ISO	r	a_p	f	YCD821
	**TCGT110202L**	0,2	0,08-0,50	0,05-0,15	○
	TCGT110204L	0,4	0,08-0,50	0,05-0,20	○
	TCGT110208L	0,8	0,08-0,50	0,05-0,25	○
	TCGT16T302L	0,2	0,08-0,50	0,05-0,15	○
	TCGT16T304L	0,4	0,08-0,50	0,05-0,20	○
	TCGT16T308L	0,8	0,08-0,50	0,05-0,25	○

● Ex stock ○ On demand

DP Polycrystalline diamond

Tool holders

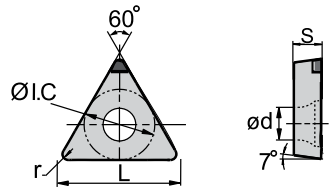
STACR/L	STFCR/L	STGCR/L	STTCR/L	S***-STFCR/L	E***-STFCR/L
Kr: 90°	Kr: 91°	Kr: 91°	Kr: 60°	Kr: 91°	Kr: 90°
					

Turning inserts (PCD)

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

TCGW	L	I.C	S	d
11 02	11	6,35	2,38	2,5
16 T3	16,5	9,525	3,97	4,4

TC** positive insert



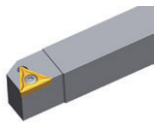
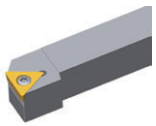
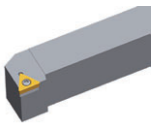
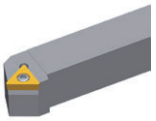
	DP
P	
M	
K	
N	○
S	
H	

	ISO	r	a_p	f	YCD821
	**TCGW110202F-1**	0,2	0,08-0,5	0,05-0,15	○
	TCGW110204F-1	0,4	0,08-0,5	0,05-0,2	○
	TCGW110208F-1	0,8	0,08-0,5	0,05-0,25	○
	TCGW16T304F-1	0,4	0,08-0,5	0,05-0,2	●
	TCGW16T308F-1	0,8	0,08-0,5	0,05-0,25	●
	TCGW16T312F-1	1,2	0,08-0,5	0,05-0,25	○

● Ex stock ○ On demand

DP Polycrystalline diamond

Tool holders

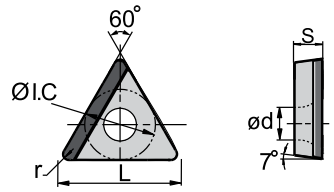
STACR/L	STFCR/L	STGCR/L	STTCR/L	S***-STFCR/L	E***-STFCR/L
Kr: 90°	Kr: 91°	Kr: 91°	Kr: 60°	Kr: 91°	Kr: 90°
					

Turning inserts (PCD)

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

TCGW	L	I.C	S	d
11 02	11	6,35	2,38	2,5
16 T3	16,5	9,525	3,97	4,4

TC** positive insert



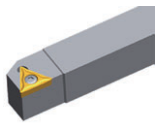
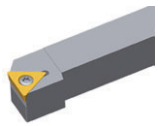
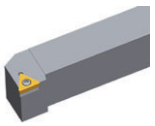
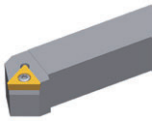
	DP
P	
M	
K	
N	○
S	
H	

	ISO	r	a_p	f	YCD821
	**TCGW110202L**	0,2	0,1-10,0	0,05-0,3	○
	TCGW110204L	0,4	0,1-10,0	0,05-0,3	○
	TCGW110208L	0,8	0,1-10,0	0,05-0,3	○
	TCGW16T302L	0,2	0,1-12,0	0,05-0,3	○
	TCGW16T304L	0,4	0,1-12,0	0,05-0,3	○
	TCGW16T308L	0,8	0,1-12,0	0,05-0,3	○

● Ex stock ○ On demand

DP Polycrystalline diamond

Tool holders

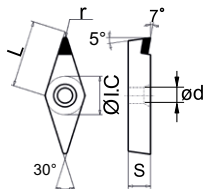
STACR/L	STFCR/L	STGCR/L	STTCR/L	S***-STFCR/L	E***-STFCR/L
Kr: 90°	Kr: 91°	Kr: 91°	Kr: 60°	Kr: 91°	Kr: 90°
					

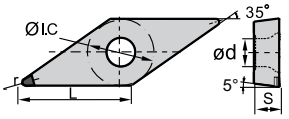
Turning inserts (PCD)

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

VBGT	L	I.C	S	d
11 03	11	6,35	3,18	2,8
16 04	16,6	9,525	4,76	4,4

VB** positive insert





MED

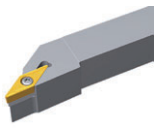
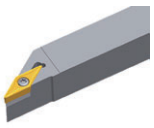
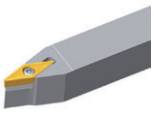
	DP
P	
M	
K	
N	○
S	
H	

	ISO	r	a_p	f	YCD821
	**VBGT110302F-1**	0,2	0,08-0,5	0,05-0,15	○
	VBGT110304F-1	0,4	0,08-0,5	0,05-0,2	○
	VBGT110308F-1	0,8	0,08-0,5	0,05-0,25	○
	VBGT160402F-1	0,2	0,08-0,5	0,05-0,15	○
	VBGT160404F-1	0,4	0,08-0,5	0,05-0,2	●
	VBGT160408F-1	0,8	0,08-0,5	0,05-0,25	●
	**VBGT160404F-1 MED**	0,4	0,08-0,5	0,05-0,2	○
	VBGT160408F-1 MED	0,8	0,08-0,5	0,05-0,25	○

● Ex stock ○ On demand

DP Polycrystalline diamond

Tool holders

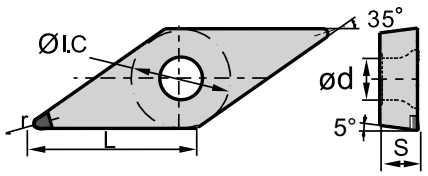
SVJBR/L	SVABR/L	SVVBN	S***-SVQBR/L	S***-SVUBR/L	S***-SVXBR/L
Kr: 93°	Kr: 90°	Kr: 72°30'	Kr: 107°30'	Kr: 93°	Kr: 93°
					

Turning inserts (PCD)

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

VBGW	L	I.C	S	d
11 03	11	6,35	3,18	2,8
16 04	16,6	9,525	4,76	4,4

VB** positive insert



DP

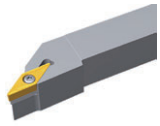
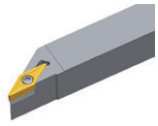
P
M
K
N ○
S
H

ISO		r	a_p	f	YCD821
	**VBGW110302F-1**	0,2	0,08-0,5	0,05-0,15	○
	VBGW110304F-1	0,4	0,08-0,5	0,05-0,2	○
	VBGW160402F-1	0,2	0,08-0,5	0,05-0,15	○
	VBGW160404F-1	0,4	0,08-0,5	0,05-0,2	○
	VBGW160408F-1	0,8	0,08-0,5	0,05-0,25	○

● Ex stock ○ On demand

DP Polycrystalline diamond

Tool holders

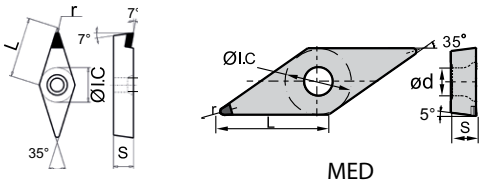
SVJBR/L	SVABR/L	SVVBN	S***-SVQBR/L	S***-SVUBR/L	S***-SVXBR/L
Kr: 93°	Kr: 90°	Kr: 72°30'	Kr: 107°30'	Kr: 93°	Kr: 93°
					

Turning inserts (PCD)

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

VCGT	L	I.C	S	d
11 03	11	6,35	3,18	2,8
16 04	16,6	9,525	4,76	4,4

VC** positive insert

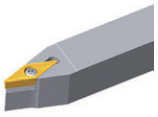
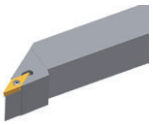
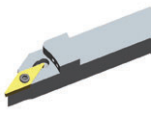
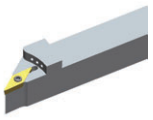


MED

	ISO	r	a_p	f	YCD821
	VCGT110302F-1	0,2	0,08-0,5	0,05-0,15	○
	VCGT110304F-1	0,4	0,08-0,5	0,05-0,2	○
	VCGT160402F-1	0,2	0,08-0,5	0,05-0,15	○
	VCGT160404F-1	0,4	0,08-0,5	0,05-0,2	●
	VCGT160408F-1	0,8	0,08-0,5	0,05-0,25	○
	VCGT110302F-1 MED	0,2	0,08-0,5	0,05-0,15	○
	VCGT110304F-1 MED	0,4	0,08-0,5	0,05-0,2	○
	VCGT160404F-1 MED	0,4	0,08-0,5	0,05-0,2	○
	VCGT160408F-1 MED	0,8	0,08-0,5	0,05-0,25	○

● Ex stock ○ On demand DP Polycrystalline diamond

Tool holders

SVVCN	SVJCR/L	SVACR/L-SC	SVJCR/L-SC	S***-SVQCR/L	S***-SVUCR/L	C***-SVQCR/L
Kr: 72°30'	Kr: 93°	Kr: 90°	Kr: 93°	Kr: 107°30'	Kr: 93°	Kr: 107°30'
						

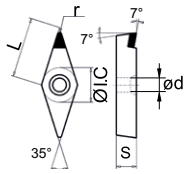
C***-SVUCR/L
Kr: 93°


Turning inserts (PCD)

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

VCGT	L	I.C	S	d
11 03	11	6,35	3,18	2,8
16 04	16,6	9,525	4,76	4,4

VC** positive insert



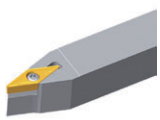
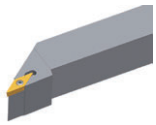
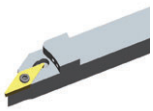
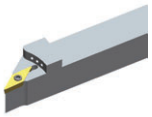
					DP
					P
					M
					K
					N ○
					S
					H

	ISO	r	a_p	f	YCD821
	**VCGW110302F-1**	0,2	0,08-0,5	0,05-0,15	○
	VCGW110304F-1	0,4	0,08-0,5	0,05-0,2	○
	VCGW110308F-1	0,8	0,08-0,5	0,05-0,25	○
	VCGW160404F-1	0,4	0,08-0,5	0,05-0,2	●
	VCGW160408F-1	0,8	0,08-0,5	0,05-0,25	●

● Ex stock ○ On demand

DP Polycrystalline diamond

Tool holders

SVVCN	SVJCR/L	SVACR/L-SC	SVJCR/L-SC	S***-SVQCR/L	S***-SVUCR/L	C***-SVQCR/L
Kr: 72°30'	Kr: 93°	Kr: 90°	Kr: 93°	Kr: 107°30'	Kr: 93°	Kr: 107°30'
						

C***-SVUCR/L
Kr: 93°


Turning inserts

Material group		Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed v_c [m/min]								
						BC								
						YCB805C			YCB810C			YCB820C		
						Feed rate [mm]			Feed rate [mm]			Feed rate [mm]		
						0,05	0,2	0,35	0,1	0,2	0,3	0,1	0,2	0,3
P	Unalloyed steel	approx. 0,15 % C	annealed	125	1									
		approx. 0,45 % C	annealed	190	2									
		approx. 0,45 % C	tempered	250	3									
		approx. 0,75 % C	annealed	270	4									
		approx. 0,75 % C	tempered	300	5									
	Low-alloyed steel		annealed	180	6									
			tempered	275	7									
			tempered	300	8									
			tempered	350	9									
	High-alloyed steel and high-alloyed tool steel		annealed	200	10									
			hardened and tempered	325	11									
M	Stainless steel	ferritic/martensitic	annealed	200	12									
		martensitic	tempered	240	13									
		austenitic	quench hardened	180	14									
		austenitic-ferritic		230	15									
K	Grey cast iron	perlitic/ferritic		180	16									
		perlitic (martensitic)		260	17									
	Cast iron with spheroidal graphite	ferritic		160	18									
		perlitic		250	19									
	Malleable cast iron	ferritic		130	20									
		perlitic		230	21									
N	Aluminium wrought alloys	cannot be hardened		60	22									
		hardenable	hardened	100	23									
	Cast aluminium alloys	≤ 12 % Si, cannot be hardened		75	24									
		≤ 12 % Si, hardenable	hardened	90	25									
		> 12 % Si, cannot be hardened		130	26									
	Copper and copper alloys (bronze/brass)	machining steel, PB> 1%		110	27									
		CuZn, CuSnZn		90	28									
		CuSn, Pb-free copper, electrolytic copper		100	29									
S	Heat-resistant alloys	Fe-based alloys	annealed	200	30									
			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	240	180	140	240	180	140	220	170	130
			hardened and tempered	60 HRC	38	220	180	140	220	180	140	200	160	120
	Hard cast iron		cast	400	39	250	150	100	250	150	100	200	150	100
	Hardened cast iron		hardened and tempered	55 HRC	40	200	150	100	200	150	100	200	150	100
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.

	Starting values for cutting speed v_c [m/min]																								
	BC			BH						DP			HC												
	YCB830C			YCB226			YZB227			YCD821			PG9005												
	Feed rate [mm]			Feed rate [mm]			Feed rate [mm]			Feed rate [mm]			Feed rate [mm]			Feed rate [mm]			Feed rate [mm]			Feed rate [mm]		
	0,1	0,2	0,3	0,1	0,2	0,3	0,1	0,3	0,5	0,1	0,2	0,3	0,08	0,15	0,3	0,1	0,3	0,5	0,1	0,3	0,5	0,1	0,3	0,5
				1500	980	400	1500	950	400															
				1250	800	320	1250	780	320															
				–	–	–	–	–	–															
				300	200	100	500	300	100															
				–	–	–	–	–	–															
				300	200	100	500	300	100															
										2500	2000	250												
										2500	2000	250												
										2500	2000	250												
										2500	2000	250												
										1000	800	100												
										650	530	70												
										650	530	70												
										400	330	40												
													80	60	–									
													70	50	–									
													70	50	–									
													65	45	–									
													65	45	–									
													120	60	–									
													100	60	–									
	160	120	100										80	70	–									
	150	120	100										70	60	–									
	180	120	100										–	–	–									
	150	120	100										80	70	–									

HC Coated carbide
HT Uncoated carbide, primary component (TiC) or (TiN), cermet
HW Uncoated carbide, primary component (WC)
BL Cubic boron nitride with low BN content
BH Cubic boron nitride with high BN content
CN Si3N4 ceramic
CM Mixed ceramic
HC_1 Coated cermet
BC CBN with coating
CC Coated cutting ceramic
CR Cutting ceramic, primary component aluminium oxide (Al_2O_3), reinforced
DP Polycrystalline diamond

PSC	50	P	C	L	N	L	22	045	12	IC
1	2	3	4	5	6	7	8	9	10	11

Interface

Code	Description
PSC	Polygonal shank DIN ISO26623-1

1

Interface size d_1 [mm]

Code	Description
32	32
40	40
50	50
63	63

2

Clamping system

Code	Description
P	Knee lever clamping
S	Screw clamping

3

Insert shape

C D (55°) R S T V (35°) W (80°)

4

Tool holder type and entering angle

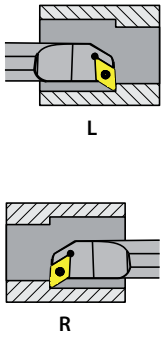
A (90°) B (75°) C (90°) D (45°) E (60°)
F (90°) G (90°) H (107°30′) J (93°) K (75°)
L (95°, 95°) M (50°) N (63°) O (117°30′) P (62°30′)
Q (107°30′) R (75°) S (45°) T (60°) U (90°)
V (72°30′) W (60°) X (120°)

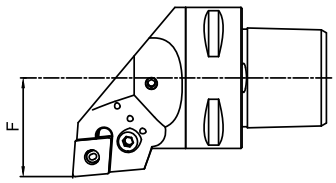
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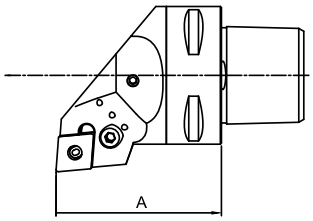
Clearance angle

B (5°) C (7°) D (15°) E (20°) N (0°) P (11°)

6

Cutting direction

7

Dimension F

8

Dimension A

9

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

10

High-pressure cooling
11

ZTURN POLY

PSC tool holders for great precision and stability

YOUR BENEFITS

– The form-fit, self-centring polygonal shank absorbs high bending moments and **minimises vibrations** thanks to its rigidity
– Enables **quick tool changes with maximum repeatability**
– Minimised downtime whilst increasing machine utilisation thanks to faster set-up times
– **Versatile use** on CNC lathes and multi-tasking turning/milling centres
– Efficient high-pressure cooling for **lower temperatures** during machining



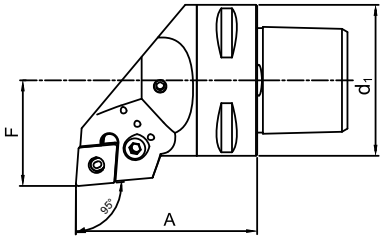
Fig.: PSC63.PCLNL.45065.12IC

CN** holder (external) P clamping

PCLN/L Kr: 95°



Right hand type



Article	✲	Stock		Dimensions [mm]			Insert
		R	L	d_1	F	A	
PSC32.PCLNL.22045.12IC	✲	○	●	32	22	45	CN**1204**
PSC40.PCLNL.27050.12IC	✲	○	●	40	27	50	CN**1204**
PSC50.PCLNL.35060.12IC	✲	○	●	50	35	60	CN**1204**
PSC63.PCLNL.45065.12IC	✲	○	●	63	45	65	CN**1204**

● Ex stock ○ On demand

✲ With internal cooling

Spare parts

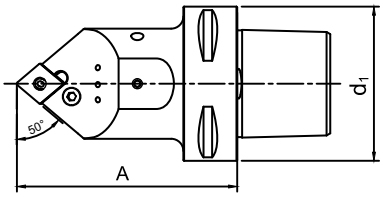
	Insert	CN**1204**
	Knee lever	L4
	Screw	LEM8x21 (10.2 Nm)
	Shim	C12AP
	Shim pin (shim)	SP4
	Wrench	WH30L

CN** holder (external) P clamping

PCMNN Kr: 50°



Neutral version



Article	✻	Stock	Dimensions [mm]		Insert
		N	d_1	A	
PSC63.PCMNN.00090.12IC	✻	●	63	90	CN**1204**

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

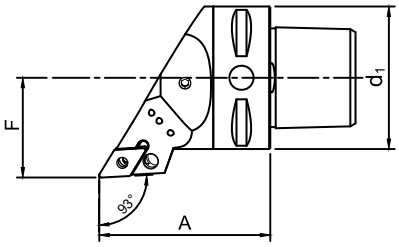
	Insert	CN**1204**
	Knee lever	L4
	Screw	LEM8x21 (10.2 Nm)
	Shim	C12AP
	Shim pin	SP4
	Wrench	WH30L

DN** holder (external) P clamping

PDJNR/L Kr: 93°



Right hand type



Article	✲	Stock R	Stock L	Dimensions [mm] d_1	F	A	Insert
PSC40.PDJNR.27050.11IC	✲	●		40	27	50	DN**1104**
PSC50.PDJNL.35060.11IC	✲		●	50	35	60	DN**1104**
PSC50.PDJNR.35060.11IC	✲	●		50	35	60	DN**1104**

● Ex stock ○ On demand

✲ With internal cooling

Spare parts

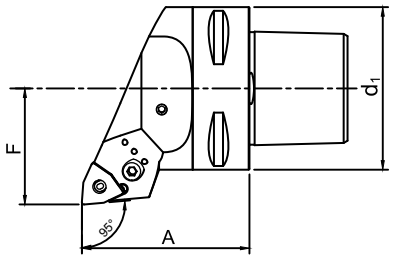
	Insert	**DN**1104****
	Knee lever	L3
	Screw	LEM6x13.4A (7 Nm)
	Shim	D11AP
	Shim pin	SP3
	Wrench	WH25L

WN** holder (external) P clamping

PWLNR/L Kr: 95°



Right hand type



Article	✲	Stock R	Stock L	Dimensions [mm] d_1	Dimensions [mm] F	Dimensions [mm] A	Insert
PSC63.PWLNL.45065.08IC	✲		●	63	45	65	WN**0804**
PSC63.PWLNR.45065.08IC	✲	●		63	45	65	WN**0804**

● Ex stock ○ On demand

✲ With internal cooling

Spare parts

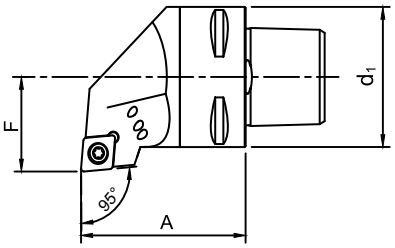
	Insert	WN**0804**
	Knee lever	L4
	Screw	LEM8x21 (10.2 Nm)
	Shim	W08AP
	Shim pin	SP4
	Wrench	WH30L

CC** holder (external) S clamping

SCLCR/L Kr: 95°



Right hand type



Article	✻	Stock R	Stock L	Dimensions [mm] d_1	F	A	Insert
PSC32.SCLCL.22045.09IC	✻		●	32	22	45	CC**09T3**
PSC32.SCLCR.22045.09IC	✻	●		32	22	45	CC**09T3**
PSC40.SCLCL.27050.09IC	✻		●	40	27	50	CC**09T3**
PSC40.SCLCR.27050.09IC	✻	●		40	27	50	CC**09T3**

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

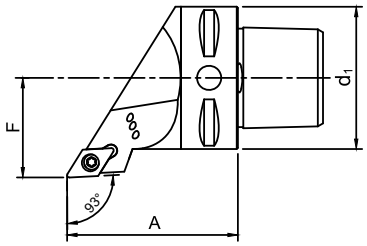
	Insert	CC**09T3**
	Screw	I60M3.5x8 (2.7Nm)
	Wrench	WT15IP

DC** holder (external) P clamping

SDJCR/L Kr: 93°



Right hand type



	✲	Stock R	Stock L	Dimensions [mm] d_1	F	A	Insert
PSC40.SDJCR.27050.11IC	✲	●		40	27	50	DC**11T3**
PSC50.SDJCL.35060.11IC	✲		●	50	35	60	DC**11T3**
PSC50.SDJCR.35060.11IC	✲	●		50	35	60	DC**11T3**
PSC63.SDJCL.45065.11IC	✲		●	63	45	65	DC**11T3**
PSC63.SDJCR.45065.11IC	✲	●		63	45	65	DC**11T3**

● Ex stock ○ On demand

✲ With internal cooling

Spare parts

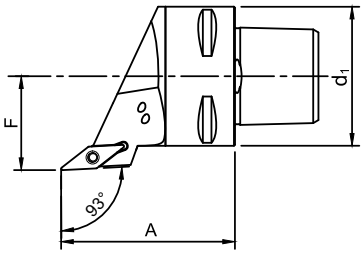
	Insert	DC**11T3**
	Screw	I60M3.5x12 (2.7Nm)
	Screw (Shim)	SM5x8.65XA
	Shim	D11BS
	Wrench (Insert)	WT15IP
	Wrench (Shim)	WH35L

VC** holder (external) S clamping

SVJCR/L Kr: 93°



Right hand type



Article	✲	Stock		Dimensions [mm]			Insert
		R	L	d_1	F	A	
PSC40.SVJCL.27050.11IC	✲		●	40	27	50	VC**1103**
PSC40.SVJCR.27050.11IC	✲	●		40	27	50	VC**1103**
PSC50.SVJCL.35060.11IC	✲		●	50	35	60	VC**1103**
PSC50.SVJCR.35060.11IC	✲	●		50	35	60	VC**1103**

● Ex stock ○ On demand

✲ With internal cooling

Spare parts

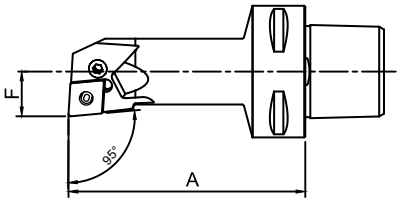
	Insert	**VC**1103****
	Screw	I60M2.5x6.5 (1.0Nm)
	Wrench	WT07IP

CN** holder (internal) P clamping

PCLNR/L Kr: 93°



Right hand type



Article	✻	Stock R	Stock L	Dimensions [mm] d_1	Dimensions [mm] F	Dimensions [mm] A	Insert
PSC50.PCLNR.17090.12IC	✻	●		50	17	90	CN**1204**
PSC63.PCLNL.17100.12IC	✻		●	63	17	100	CN**1204**
PSC63.PCLNR.17100.12IC	✻	●		63	17	100	CN**1204**

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

	Insert	CN**1204**
	Knee lever	L4A
	Screw	LEM6x13.4A (7Nm)
	Wrench	WH25L

Modular grooving system

zGroove Compact – axial machining **A76–A81**

zGroove Compact – parting-off solution for CNC production lathes **A82**

A

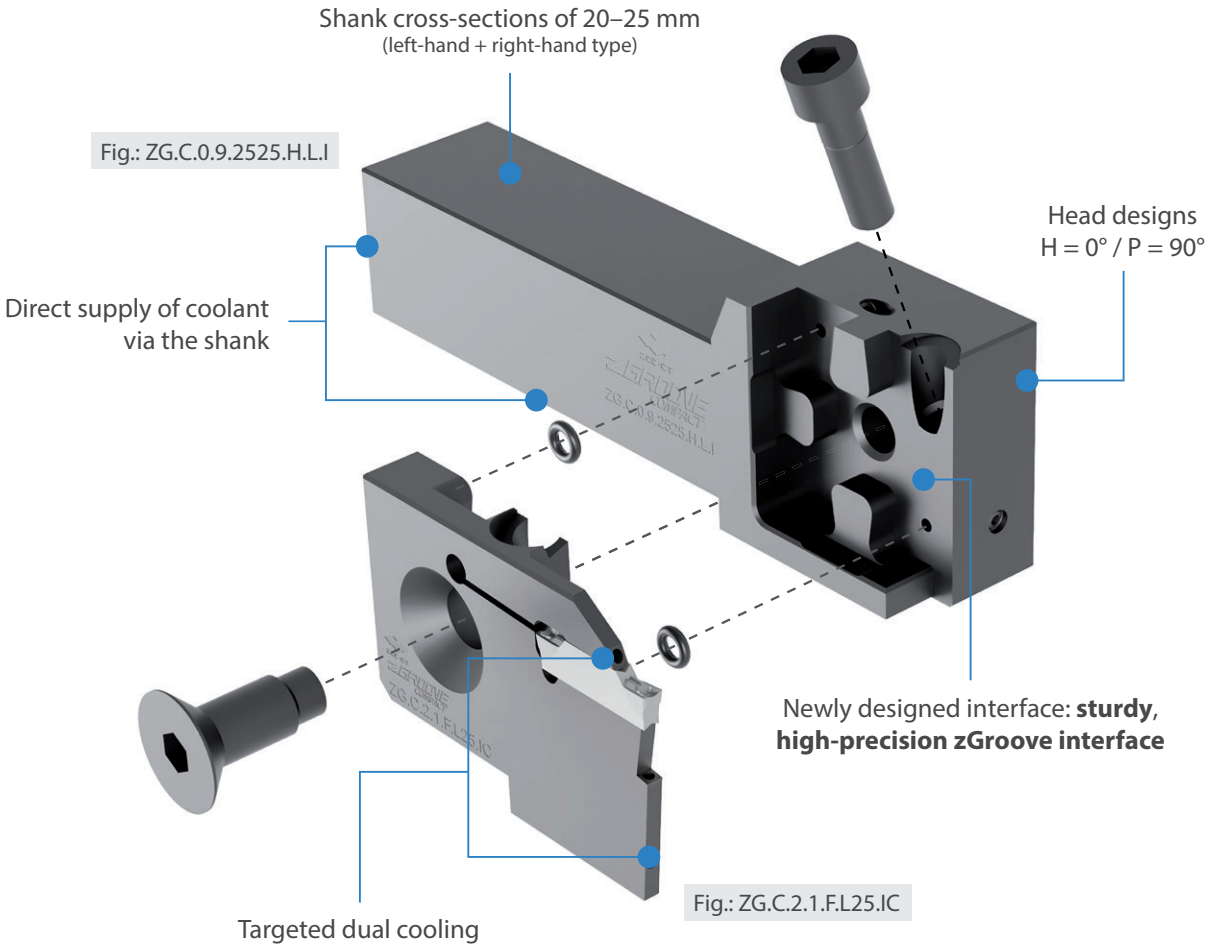
zGROOVE® COMPACT

Compact design, easy to work with

Now also available for axial machining New

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 cooling
– **Compatible with a wide range of machines** thanks to compact design
– Sturdy design for all parting and grooving/turning applications



NEW: Type for axial machining

– These types are compatible with all zGroove Compact shank holders
– Targeted coolant delivery to the cutting zone
– It is also possible to groove along a stud
– Axial cutting depths of 10.0–22.0 mm
– Diameter range: Ø 44.0–815.0 mm
– Groove widths: 3.0–6.0 mm

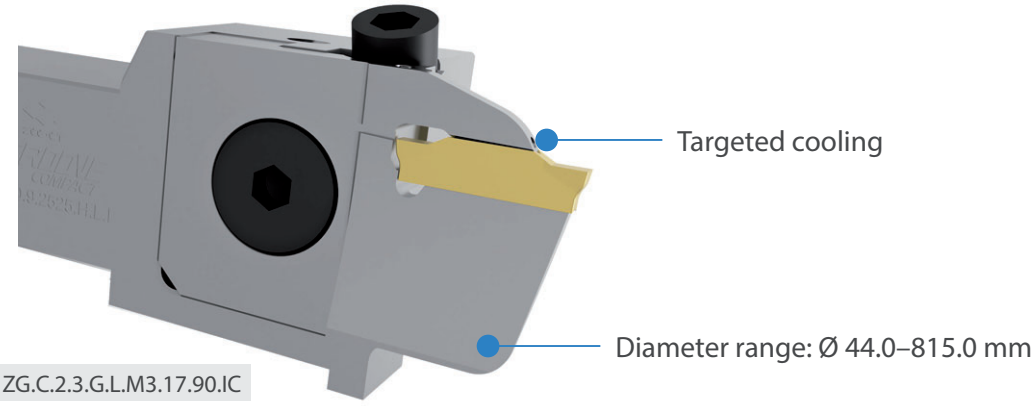


Fig.: ZG.C.2.3.G.L.M3.17.90.IC

Type for radial machining

– These types are compatible with all zGroove Compact shank holders
– Targeted dual cooling
– Radial cutting depths of 10.0–30.0 mm
– Parting-off with a reinforced primary cartridge up to Ø 80 mm
– Groove widths: 1.5–8.0 mm

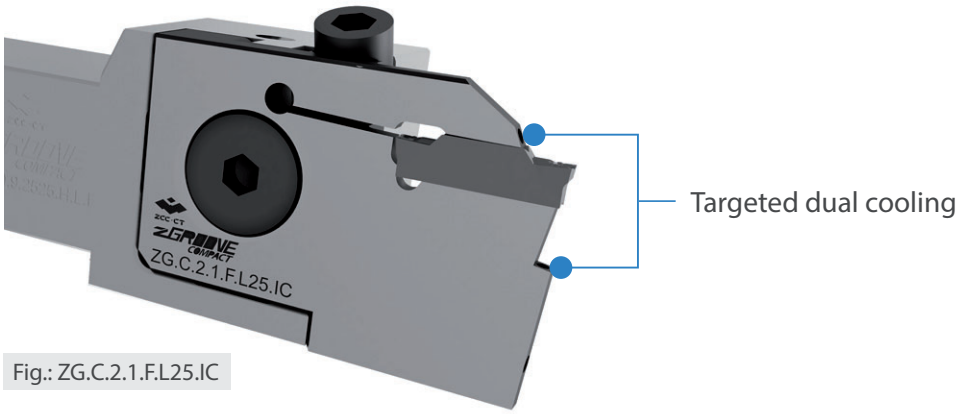
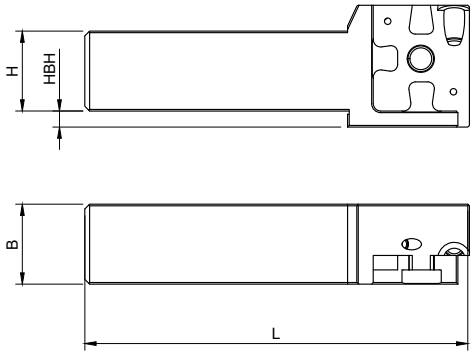


Fig.: ZG.C.2.1.F.L25.IC

zGroove Compact shank holder, 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

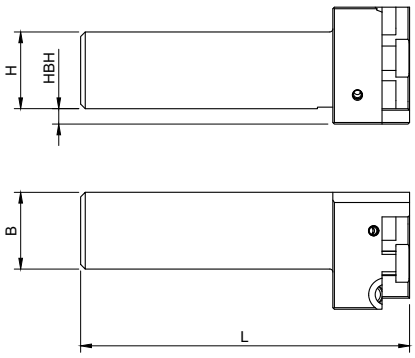
Spare parts

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

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

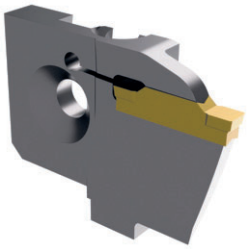
Article	✻	Stock	Dimensions [mm]				Primary cartridge
			H	B	L	HBH	
ZG.C.0.9.2020.P.RL.I	✻	●	20	20	90	10	ZG.C.2.*.*.L**.IC
ZG.C.0.9.2525.P.RL.I	✻	●	25	25	107	5	ZG.C.2.*.*.L**.IC

● Ex stock ○ On demand

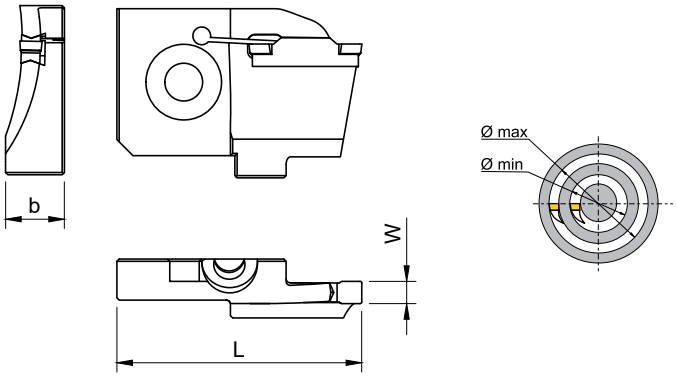
Spare parts

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

zGroove Compact primary cartridge (grooving / axial turning)



Left hand style



Article	*	Stock R	Stock L	Dimensions [mm] W	Spindle rotation direction	a_r max.	ØD (min-max)	L	b	Insert
ZG.C.2.3.F.R.M4.10.44.IC	*	●		3.0	M4 (CCW)	10	44-65	50	13,2	Z*F*030*-**
ZG.C.2.3.F.L.M3.10.44.IC	*		●	3.0	M3 (CW)	10	44-65	50	13,2	Z*F*030*-**
ZG.C.2.3.G.R.M4.17.48.IC	*	●		4.0	M4 (CCW)	17	48-62	55	13,2	Z*G*040*-**
ZG.C.2.3.G.L.M3.17.48.IC	*		●	4.0	M3 (CW)	17	48-62	55	13,2	Z*G*040*-**
ZG.C.2.3.G.R.M4.17.62.IC	*	●		4.0	M4 (CCW)	17	62-90	55	13,2	Z*G*040*-**
ZG.C.2.3.G.L.M3.17.62.IC	*		●	4.0	M3 (CW)	17	62-90	55	13,2	Z*G*040*-**
ZG.C.2.3.G.R.M4.17.90.IC	*	●		4.0	M4 (CCW)	17	90-177	55	13,2	Z*G*040*-**
ZG.C.2.3.G.L.M3.17.90.IC	*		●	4.0	M3 (CW)	17	90-177	55	13,2	Z*G*040*-**
ZG.C.2.3.H.R.M4.17.48.IC	*	●		5.0	M4 (CCW)	17	48-68	55	13,2	Z*H*050*-**
ZG.C.2.3.H.L.M3.17.48.IC	*		●	5.0	M3 (CW)	17	48-68	55	13,2	Z*H*050*-**
ZG.C.2.3.H.R.M4.17.90.IC	*	●		5.0	M4 (CCW)	17	90-135	55	13,2	Z*H*050*-**
ZG.C.2.3.H.L.M3.17.90.IC	*		●	5.0	M3 (CW)	17	90-135	55	13,2	Z*H*050*-**
ZG.C.2.3.H.R.M4.22.215.IC	*	●		5.0	M4 (CCW)	22	215-815	55	10,7	Z*H*050*-**
ZG.C.2.3.H.L.M3.22.215.IC	*		●	5.0	M3 (CW)	22	215-815	55	10,7	Z*H*050*-**
ZG.C.2.3.K.R.M4.22.100.IC	*	●		6.0	M4 (CCW)	22	100-200	55	13,2	Z*K*060*-**
ZG.C.2.3.K.L.M3.22.100.IC	*		●	6.0	M3 (CW)	22	100-200	55	13,2	Z*K*060*-**

● Ex stock ○ On demand

Find all compatible grooving inserts on our website.

Spare parts

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



zGroove Compact

Parting-off solution for
CNC production lathes

ZGROOVE® COMPACT

Compact design, easy to work with

Now also available as a parting-off solution for CNC production lathes New

YOUR BENEFITS

– Modular 3-component system: Base holders, intermediate holders and primary cassettes can be combined as required
– Slim design in the part-off zone for **minimum spindle clearance**
– Cutting depth and width can be flexibly adjusted by changing the adapter
– Centre height manually adjustable, even without a Y-axis
– **Coolant supply directly via the turret**, with no hoses at all
– Base holders for star and disc turrets **– the right interface for every situation**
– Parting off to the centre for bar passages up to Ø80 mm

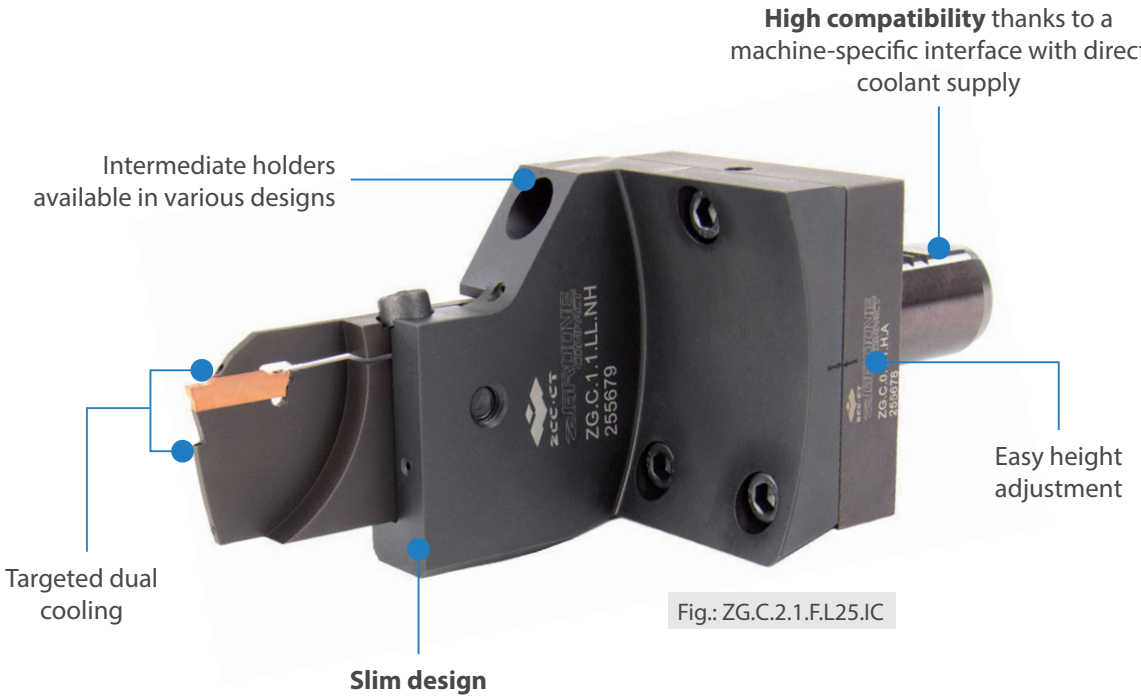


Fig.: ZG.C.2.1.F.L25.IC

VDI base holders for disc and star turrets from VDI25 to VDI50, as well as some PSC and BMT types, are already available. Further models available on demand. Please do get in touch with us to discuss your bespoke solution!

Indexable milling

ISO code – inserts	**B84–85**
System code – milling bodies	**B86–B87**
PANGU PG9005 grade	**B88–B89**
PANGU PG9020 / PG9025 grades	**B90–B91**
EMP11 square shoulder milling system	**B92–B97**
Recommended cutting data	**B98–B101**

B

Indexable milling ISO code – inserts

S	P	K	N	12	04	ED	T21K	R	–	DM
1	2	3	4	5	6	7	8	9		10

Insert shape

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

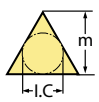
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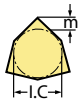
Clearance angle

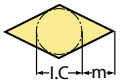
B		C	
D		E	
F		N	
P		O	Special

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	±0,05–0,13	±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
	W

5

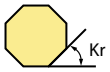
Insert thickness S [mm]



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

7

Chamfer

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

8

Cutting direction

Code	Description
R	Right
L	Left
N	Right and left

9

Chip breaker overview
(on page B26)

10

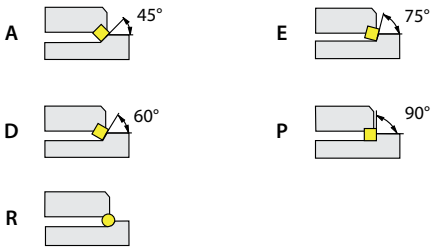
Indexable milling System code – milling bodies

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



2

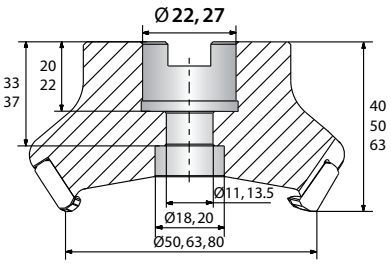
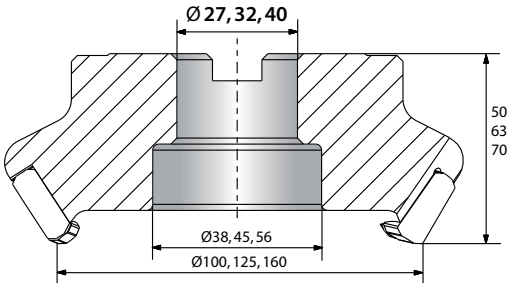
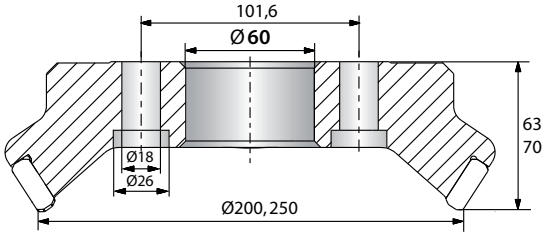
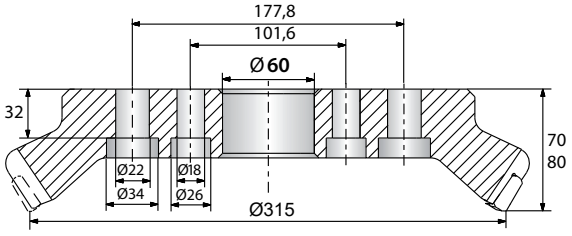
Serial number

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	5°	C	7°
D	15°	E	20°
F	25°	N	0°
P	11°		

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

With inner 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)

		B27	B32	B40	B40
	Ø	**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.

PG9005 grade

Premium PVD grade for finishing and for hardened materials

YOUR BENEFITS

– **Specially developed** for finishing operations and the machining of hard materials
– An ultra-fine, homogeneous substrate for **high wear resistance** and **longTool life**
– Suitable for milling materials up to **58 HRC**
– High dimensional accuracy for **excellent surface quality**



Fig.: ZOHX2005-HM PG9005

Articles available with the new PG9005 grade:

Article	Stock	Milling system
APKT070204-APF PG9005	●	EMP01/02
APKT070204-APM PG9005	●	EMP01/02
APKT11T304-APF PG9005	●	EMP01/02
APKT11T304-APM PG9005	●	EMP01/02
APKT11T308-APF PG9005	●	EMP01/02
APKT11T308-APM PG9005	●	EMP01/02
APKT11T312-APM PG9005	●	EMP01/02
APKT11T316-APM PG9005	●	EMP01/02
APKT11T320-APM PG9005	●	EMP01/02
APKT160408-APF PG9005	●	EMP01/02

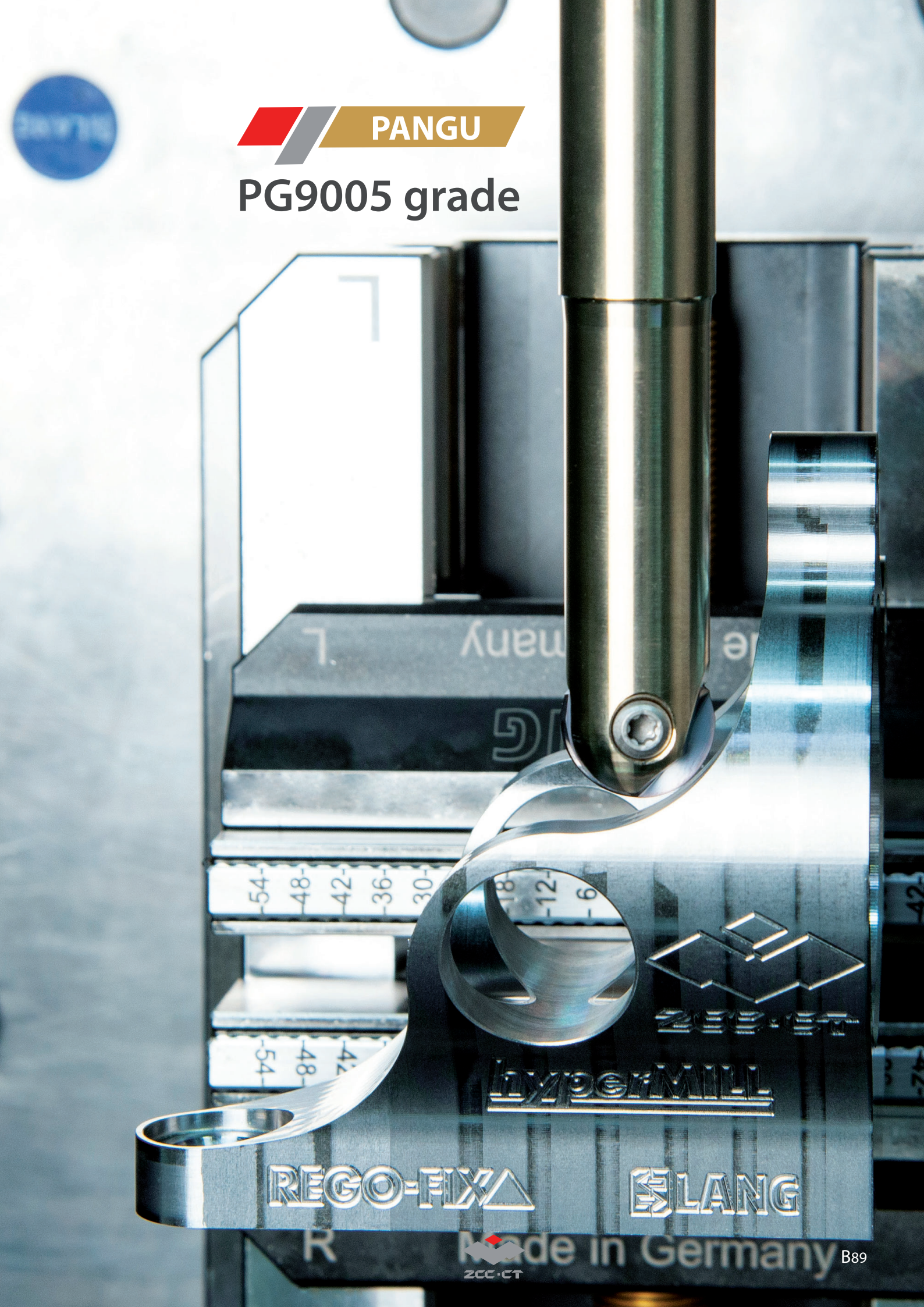
● Ex stock ○ On demand

Article	Stock	Milling system
APKT160408-APM PG9005	●	EMP01/02
APKT160416-APM PG9005	●	EMP01/02
APKT160420-APM PG9005	●	EMP01/02
APKT160424-APM PG9005	●	EMP01/02
APKT160430-APM PG9005	●	EMP01/02
RCKT1204MO-NM PG9005	●	FMR02
ZOHX1203-HM PG9005	●	BMR04
ZOHX1604-HM PG9005	●	BMR04
ZOHX2005-HM PG9005	●	BMR04
ZOHX2506-HM PG9005	●	BMR04
ZOHX3007-HM PG9005	●	BMR04

● Ex stock ○ On demand

PANGU

PG9005 grade



PG9020/PG9025 grades

PANGU

Two high-performance milling grades

YOUR BENEFITS

– High-performance coating for **reduction of diffusion wear** and **crater formation**
– Enables **high cutting speeds** even with materials that are difficult to machine
– Low internal coating stress for **greater edge stability**

PG9020
– High process reliability during roughing and finishing
– Supports higher cutting speeds

PG9025
– With **high toughness**, particularly suitable for machining involving interrupted cuts
– Optimised for the cost-effective machining of stainless steel materials

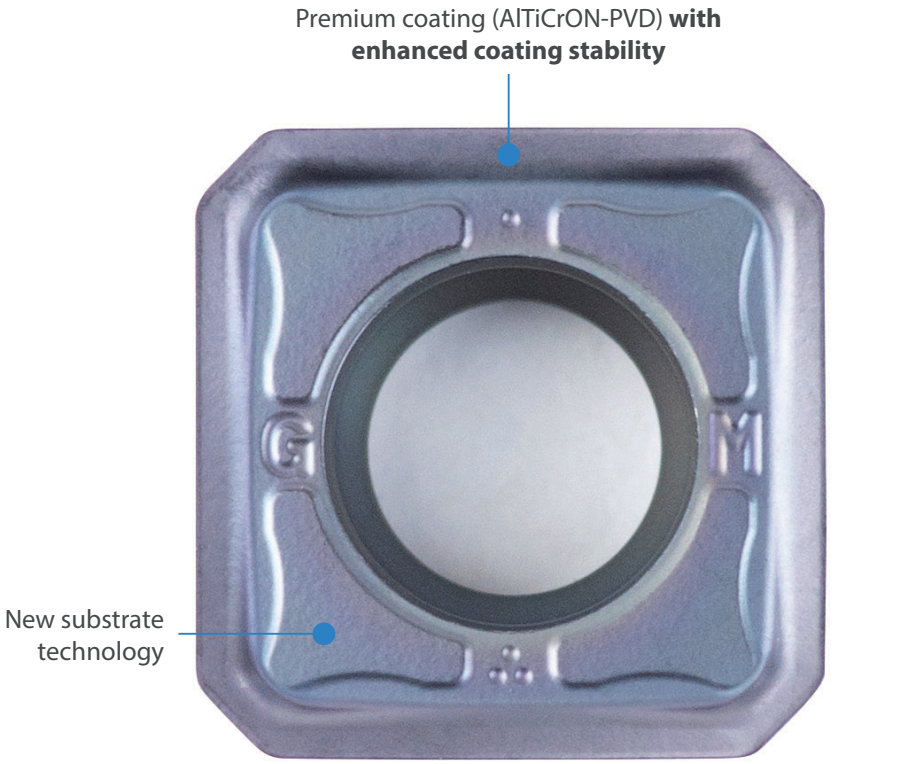


Fig.: SNMX1205ANN-GM PG9025

Items available with the new **PG9020 and PG9025 grades:**

Article	Stock	Milling system
APKT11T304-APM PG9020	●	EMP01/02
APKT11T308-APM PG9020	●	EMP01/02
APKT11T312-APM PG9020	●	EMP01/02
APKT11T316-APM PG9020	●	EMP01/02
APKT11T320-APM PG9020	●	EMP01/02
APKT160408-APM PG9020	●	EMP01/02
APKT160412-APM PG9020	●	EMP01/02
APKT160416-APM PG9020	●	EMP01/02
APKT160420-APM PG9020	●	EMP01/02
APKT160424-APM PG9020	●	EMP01/02
APKT160430-APM PG9020	●	EMP01/02
ONMU060408-GM PG9020	●	FMA12
ONMU09T512-GM PG9020	○	FMA12
RDMT10T3MO-MM PG9020	●	FMR11
RDMT1204MO-MM PG9020	●	FMR11
RPMT10T3MO-MM PG9020	●	FMR11
RPMT1204MO-MM PG9020	●	FMR11
SDMT06T208-NL PG9020	●	XMR01
SDMT06T208-NM PG9020	●	XMR01
SDMT09T312-NL PG9020	●	XMR01
SDMT09T312-NM PG9020	●	XMR01
SDMT120412-NL PG9020	●	XMR01
SDMT120412-NM PG9020	●	XMR01
SNGX1205ANN-GM PG9020	●	FMA17
SNGX1205ENN-GM PG9020	●	FME17
SNGX1205PNN-GM PG9020	●	FMP17
SNMX120512-GH PG9020	●	FM*17
SNMX120512-GM PG9020	●	FM*17
SNMX120512-GR PG9020	●	FM*17
SNMX1205ANN-GM PG9020	●	FMA17
SNMX1205ANN-GR PG9020	○	FMA17
SNMX1205ENN-GR PG9020	○	FME17
SNMX1205PNN-GR PG9020	○	FMP17

● Ex stock ○ On demand

Article	Stock	Milling system
APKT11T304-APM PG9025	●	EMP01/02
APKT11T308-APM PG9025	●	EMP01/02
APKT11T312-APM PG9025	●	EMP01/02
APKT11T316-APM PG9025	●	EMP01/02
APKT11T320-APM PG9025	●	EMP01/02
APKT160408-APM PG9025	●	EMP01/02
APKT160412-APM PG9025	●	EMP01/02
APKT160416-APM PG9025	●	EMP01/02
APKT160420-APM PG9025	●	EMP01/02
APKT160424-APM PG9025	●	EMP01/02
APKT160430-ANL PG9025	●	EMP01/02
APKT160430-APM PG9025	●	EMP01/02
ONMU060408-GM PG9025	○	FMA12
ONMU060408-GR PG9025	○	FMA12
ONMU09T512-GM PG9025	●	FMA12
RDMT10T3MO-MM PG9025	●	FMR11
RDMT1204MO-MM PG9025	●	FMR11
RPMT10T3MO-MM PG9025	○	FMR11
RPMT1204MO-MM PG9025	○	FMR11
RPMT1605MO-MM PG9025	○	FMR11
SDMT06T208-NL PG9025	●	XMR01
SDMT06T208-NM PG9025	●	XMR01
SDMT09T312-NL PG9025	●	XMR01
SDMT09T312-NM PG9025	●	XMR01
SDMT120412-NL PG9025	●	XMR01
SDMT120412-NM PG9025	●	XMR01
SNGX1205ANN-GM PG9025	●	FMA17
SNGX1205ENN-GM PG9025	●	FME17
SNGX1205PNN-GM PG9025	●	FMP17
SNMX120512-GH PG9025	●	FM*17
SNMX120512-GM PG9025	●	FM*17
SNMX120512-GR PG9025	●	FM*17
SNMX1205ANN-GM PG9025	●	FMA17
SNMX1205ANN-GR PG9025	●	FMA17
SNMX1205ENN-GR PG9025	●	FME17
SNMX1205PNN-GR PG9025	●	FMP17

● Ex stock ○ On demand

EMP11 square shoulder milling system

A cost-effective all-rounder for small parts production

YOUR BENEFITS

– An ideal alternative to solid carbide end mills due to the small size of the indexable inserts
– V-shaped insert underside for **optimum self-alignment and stability**
– A larger core diameter **improves the tool's rigidity and stability**
– Various chip breaker designs for precise shoulder machining or high-feed strategies
– Wide range of applications for steel, stainless materials and cast materials



Fig.: EMP11-014-G14-CV06-05-40-90

Insert grades

YBG205H	YBD252
PVD	*CVD*
P10 – P30	*K20 – K35*
M20 – M40	

Chip breaker

CVMX-PNR-GM	CVMX-XR-GM
	
General machining (Square shoulder milling)	General machining (High-feed milling)

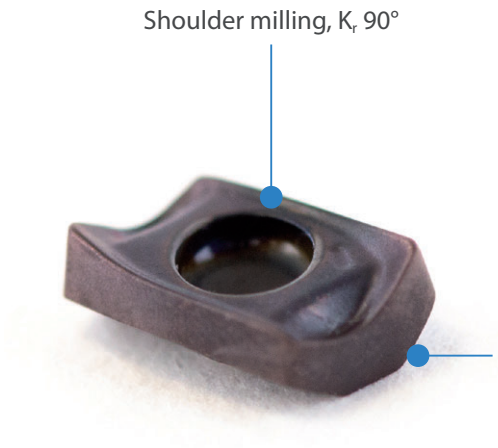


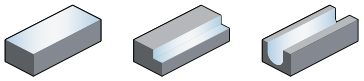
Fig.: CVMX060204PNR-GM YBG205H



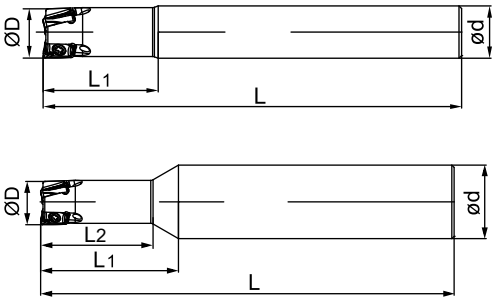
Fig.: CVMX0602-XR-GM YBG205H

Square shoulder milling

EMP11 Kr: 90°







Article	✻	Stock	Dimensions [mm]						Teeth	kg	Insert
			ØD	ød	L_1	L_2	L	$a_{p\,max}$			
EMP11-006-G06-CV06-01C-S	✻	●	6	6	12		60	5,00	1		CVMX0602**
EMP11-008-G08-CV06-02C-S	✻	○	8	8	12		60	5,00	2		
EMP11-008-G08-CV06-02C-M	✻	●	8	8	22		75	5,00	2		
EMP11-008-G12-CV06-02C-L	✻	○	8	12	27	20	80	5,00	2		
EMP11-010-G10-CV06-02C-S	✻	●	10	10	15		75	5,00	2		
EMP11-010-G10-CV06-03C-S	✻	○	10	10	15		75	5,00	3		
EMP11-010-G10-CV06-03C-M	✻	●	10	10	22		80	5,00	3		
EMP11-010-G16-CV06-03C-L	✻	●	10	16	30	24	90	5,00	3		
EMP11-012-G12-CV06-03C-S	✻	○	12	12	15		75	5,00	3		
EMP11-012-G12-CV06-04C-S	✻	○	12	12	15		75	5,00	4		
EMP11-012-G12-CV06-04C-M	✻	●	12	12	22		80	5,00	4		
EMP11-012-G12-CV06-04C-L	✻	○	12	12	30		100	5,00	4		
EMP11-014-G14-CV06-04C-S	✻	●	14	14	15		75	5,00	4		
EMP11-014-G14-CV06-05C-S	✻	○	14	14	15		75	5,00	5		
EMP11-014-G14-CV06-05C-M	✻	●	14	14	22		90	5,00	5		
EMP11-014-G14-CV06-05C-L	✻	●	14	14	35		120	5,00	5		
EMP11-016-G16-CV06-05C-S	✻	○	16	16	25		100	5,00	5		
EMP11-016-G16-CV06-06C-S	✻	○	16	16	25		100	5,00	6		
EMP11-016-G16-CV06-06C-M	✻	●	16	16	30		120	5,00	6		
EMP11-016-G16-CV06-06C-L	✻	○	16	16	40		140	5,00	6		

● Ex stock ○ On demand

✻ With internal cooling

Spare parts

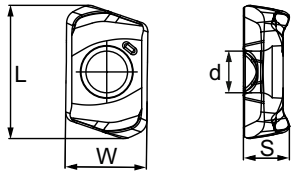
	Insert	**CVMX0602****
	ØD	**6–16**
	Screw	I60M1.8*3.3TT (0,4 Nm)
	Wrench (Insert)	WT06IP



Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

CVMX	L	W	S	d
06 02	6,70	4,10	2,30	2,00

Milling Insert

CV** milling insert			HC¹ (CVD)	HC¹ (PVD)	HT	HC²	HW
	P			⊛			
	M			⊛			
	K		⊛				
	N			⊛			
	S			⊛			
	H						
ISO	bs	r	YBD252	YBG205H			
CVMX0602XR-GM			●	●			

● Ex stock ○ On demand

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

Programming radius

Insert	approx. R [mm]	Residual material
CVMX0602XR-GM	1.0 mm	0.12
CVMX0602XR-GM	1.2 mm	0.07

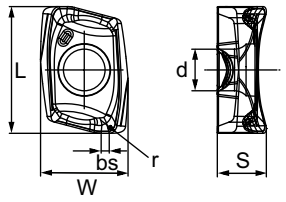
Application range

a_p [mm]	f_z [mm]
0.5	0.5–1.2

Ideal machining conditions
Normal machining conditions
Unfavourable machining conditions

CVMX	L	W	S	d
06 02	6,40	4,40	2,50	2,00

Milling Insert

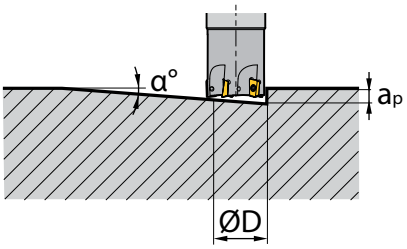
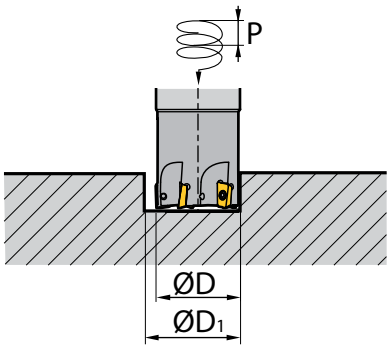
CV** milling insert			HC¹ (CVD)	HC¹ (PVD)	HT	HC²	HW
	P			⊛			
	M			⊛			
	K		⊛				
	N			⊛			
	S			⊛			
	H						
ISO	bs	r	YBD252	YBG205H			
CVMX060204PNR-GM	0,5	0,4	●	●			

● Ex stock ○ On demand

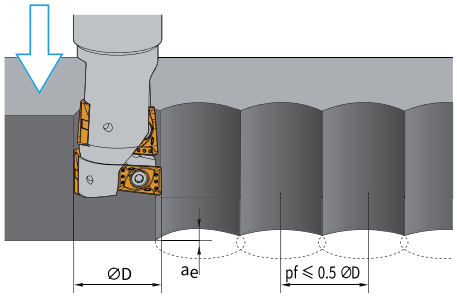
HC¹ Coated carbide
HT Uncoated cermet
HC² Coated cermet
HW Uncoated carbide

Technical information

Insert CVMX

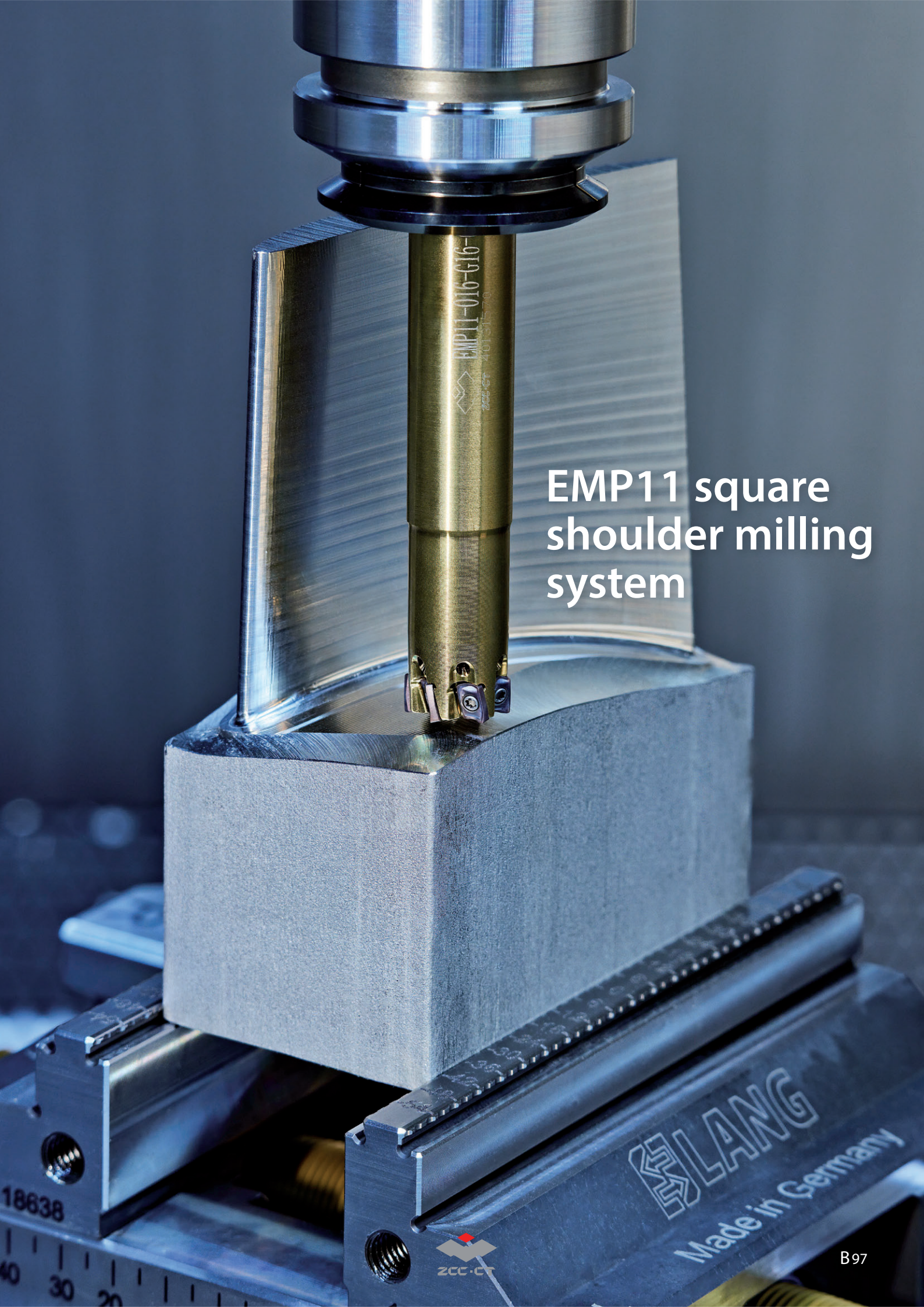
		Plunging / Ramping		Circular milling	
		 $L_m = \frac{a_p}{\tan_\alpha}$ α : Ramp angle		 $P = \tan_\alpha \times \pi \times D_1$ α : Helix angle	
Insert	Diameter ØD [mm]	Max. cutting depth a_p [mm]	Max. ramp angle α°	Min. diameter $ØD_1$ [mm]	Max. diameter [mm]
CVMX0602 XR-GM	8	0,5	1,0	12	14
	10	0,5	0,7	16	18
	12	0,5	0,55	20	22
	14	0,5	0,45	24	26
	16	0.6	0,5	28	30
CVMX060204 PNR-GM	8	5	2,0	14	15
	10	5	1,6	18	19
	12	5	1,3	22	23
	14	5	1,1	26	27
	16	5	0,9	30	31

Plunging



a_e max 1,5 mm

Reduce the feed rate when plunging and circular milling.
For drilling operations (axial) set the feed rate under 0.2 mm.
„Attention" – drilling can form long chips.



EMP11 square shoulder milling system

Indexable milling – group 2 (FMA01/02/03/04, FME02/03/17, FMP01/02, EMP01/02/03/04/05/11/14)

Material group		Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed v_c [m/min]							
						HC (CVD)							
						YBC302		YBC401		YBD152		YBD252	
						a_e / D		a_e / D		a_e / D		a_e / D	
						1/1 | 3/4	1/5	1/1 | 3/4	1/5	1/1 | 3/4	1/5	1/1 | 3/4	1/5
P	Unalloyed steel	approx. 0,15 % C	annealed	125	1	245	285	210	245				
		approx. 0,45 % C	annealed	190	2	210	245	180	210				
		approx. 0,45 % C	tempered	250	3	200	230	170	200				
		approx. 0,75 % C	annealed	270	4	175	200	150	175				
		approx. 0,75 % C	tempered	300	5	160	190	140	160				
	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	≤ 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								
			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 B338.
For examples of material for cutting tool groups view page D11.

	Starting values for cutting speed v_c [m/min]																							
	HC (CVD)		HC (PVD)														HW				HT			
	YBM253		YBG101		YBG102		YBG152		YB9320		YBG205(H)		YBG252		YBG302		YD101		YD201		YNG151			
	a_e / D		a_e / D		a_e / D		a_e / D		a_e / D		a_e / D		a_e / D		a_e / D		a_e / D		a_e / D		a_e / D			
	1/1 | 3/4	1/5	1/1 | 3/4	1/5	1/1 | 3/4	1/5	1/1 | 3/4	1/5	1/1 | 3/4	1/5	1/1 | 3/4	1/5	1/1 | 3/4	1/5	1/1 | 3/4	1/5	1/1 | 3/4	1/5	1/1 | 3/4	1/5	1/1 | 3/4	1/5	
	245	285			255	295	240	280	230	265	220	255	215	250	210	245					270	315		
	210	245			220	255	205	240	200	230	190	220	185	215	180	210					235	270		
	200	230			205	240	195	225	185	215	180	205	175	200	170	200					220	255		
	175	200			180	210	170	200	165	190	155	180	155	175	150	175					195	220		
	160	190			170	195	160	185	150	175	145	170	140	165	140	160					180	210		
	210	245			220	255	205	240	200	230	190	220	185	215	180	210					235	270		
	175	200			180	210	170	200	165	190	155	180	155	175	150	175					195	220		
	160	190			170	195	160	185	150	175	145	170	140	165	140	160					180	210		
	135	160			145	165	135	155	130	150	125	145	120	140	120	135					150	180		
	125	145			130	150	120	140	115	135	110	130	110	125	105	125					140	160		
	90	100			90	105	85	100	85	95	80	90	80	90	75	90					100	110		
	125	145			130	150	120	140	115	135	110	130	110	125	105	125					135	160		
	105	120			110	125	105	120	100	115	95	110	95	105	90	105					115	135		
	130	155			140	160	130	150	125	145	120	140	115	135	115	130					145	170		
	105	120			110	125	105	120	100	115	95	110	95	105	90	105					115	135		
					285	330	265	305	255	295	245	285	240	280	235	275								
					170	195	160	185	150	175	145	170	140	165	140	160								
					195	225	180	210	175	200	165	195	165	190	160	185								
					130	150	120	140	115	135	110	130	110	125	105	125								
					230	270	220	255	210	240	200	230	195	225	190	225								
					155	180	145	170	140	160	135	155	130	150	130	150								
			1505	1735													1205	1390	1040	1200				
			1225	1420													980	1140	850	980				
			540	620													435	500	375	435				
			435	505													350	405	300	350				
			220	255													180	205	155	180				
			170	195													140	160	120	140				
			210	245													170	200	150	170				
			385	445													310	360	265	310				
					75	85	70	80	65	75	65	75	65	75	60	70								
					50	55	50	55	45	50	45	50	45	50	40	45								
					60	70	55	65	55	65	50	55	50	55	50	55								
					35	40	35	40	30	35	30	35	30	35	30	35								
					45	50	45	50	40	45	40	45	40	45	40	45								
					75	85	70	80	65	75	65	75	65	75	60	70								
					75	85	70	80	65	75	65	75	65	75	60	70								

HC Coated carbide
HT Uncoated carbide, primary component (TiC) or (TiN), cermet
HW Uncoated carbide, primary component (WC)
BL Cubic boron nitride with low BN content
BH Cubic boron nitride with high BN content
CN Si3N4 ceramic
CM Mixed ceramic
HC_1 Coated cermet
BC CBN with coating
CC Coated cutting ceramic
CR Cutting ceramic, primary component aluminium oxide (Al_2O_3), reinforced
DP Polycrystalline diamond

Recommended feed rate

Indexable milling – group 2 (FMA01/02/03/04, FME02/03/17, FMP01/02, EMP01/02/03/04/05/11/14)

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.

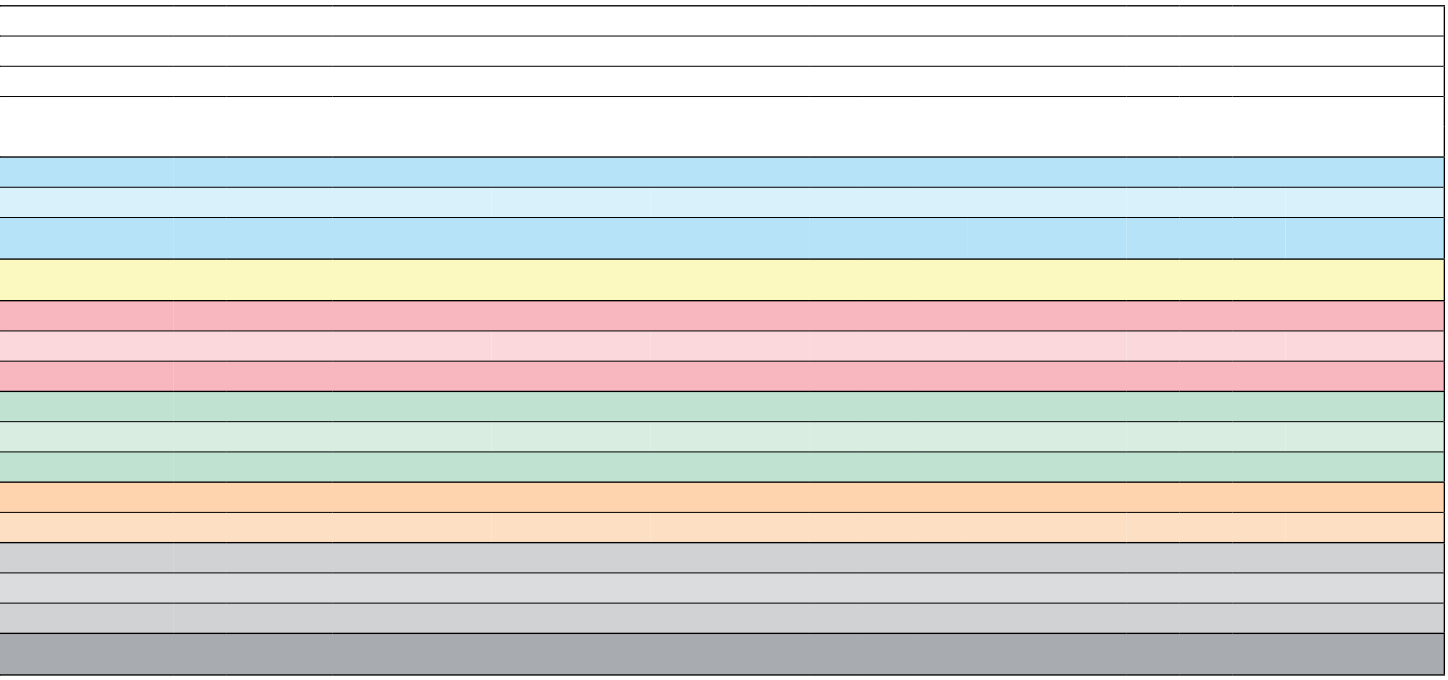
Indexable milling – group 2 (FMA01/02/03/04, FME02/03/17, FMP01/02, EMP01/02/03/04/05/11/14)

Material group		Feed rate per cutting edge [mm]																	
		EMP03 | EMP04			EMP05			EMP11			EMP14								
		APKT11			ADKT**			CVMX060204-PNR			VPGT22								
		Application																	
		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										
	Low-alloyed steel	0,11	0,16	0,21	0,09	0,14	0,19		0,11										
	High-alloyed steel and high-alloyed tool steel	0,10	0,15	0,20	0,09	0,13	0,18		0,10										
M	Stainless steel	0,08	0,12	0,16	0,07	0,11	0,14		0,08										
K	Grey cast iron	0,13	0,19	0,25	0,11	0,17	0,22		0,13										
	Cast iron with spheroidal graphite	0,12	0,17	0,23	0,10	0,15	0,20		0,12										
	Malleable cast iron	0,12	0,17	0,23	0,10	0,15	0,20		0,12										
N	Aluminium wrought alloys	0,10	0,15	0,20	0,09	0,13	0,17		0,10		0,05	0,2	0,3						
	Aluminum cast alloys	0,10	0,15	0,20	0,09	0,13	0,17		0,10		0,05	0,2	0,3						
	Copper and copper alloys (bronze/brass)	0,09	0,13	0,18	0,08	0,11	0,15		0,09		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.

	Feed rate per cutting edge [mm]																							
	FME02			FME03			FME03			FME17			FMP01			FMP02			EMP01 | EMP02			EMP01 | EMP02		
	SPK*12			SPK*12			SPK*15			SNGX1205ENN**			TPKN22			SEET12			APKT11			APKT16		
	Application																							
	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R	F	M	R
		0,20			0,19			0,20		0,20	0,25			0,20		0,15	0,20	0,25	0,10	0,15	0,20	0,12	0,17	0,23
		0,19			0,17			0,19		0,19	0,23			0,19		0,14	0,19	0,23	0,09	0,14	0,19	0,11	0,16	0,21
		0,18			0,16			0,18		0,18	0,22			0,18		0,13	0,18	0,22	0,09	0,13	0,18	0,10	0,15	0,20
		0,14			0,13			0,14		0,14	0,18			0,14		0,11	0,14	0,18	0,07	0,11	0,14	0,08	0,12	0,16
		0,22			0,20			0,22		0,22	0,28			0,22		0,17	0,22	0,28	0,11	0,17	0,22	0,13	0,19	0,25
		0,20			0,19			0,20		0,20	0,25			0,20		0,15	0,20	0,25	0,10	0,15	0,20	0,12	0,17	0,23
		0,20			0,19			0,20		0,20	0,25			0,20		0,15	0,20	0,25	0,10	0,15	0,20	0,12	0,17	0,23
										0,17	0,21					0,13	0,17	0,21	0,09	0,13	0,17	0,10	0,15	0,20
										0,17	0,21					0,13	0,17	0,21	0,09	0,13	0,17	0,10	0,15	0,20
										0,15	0,19					0,11	0,15	0,19	0,08	0,11	0,15	0,09	0,13	0,18
										0,14	0,18													
										0,14	0,18													

F Finishing
M Medium machining
R Roughing



F Finishing
M Medium machining
R Roughing


PANGU
PGMS series

Solid carbide milling

System code – PGMS series **B104**

PANGU PGMS series **B105–B106**

B

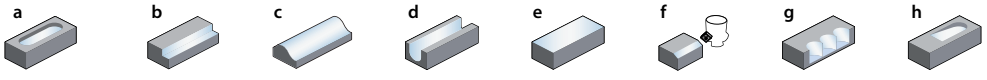
Solid carbide milling

System code – PGMS series

PGMS	–	4	BC	15	–	(D12.0)	R150
1		2	3	4		5	6

Series	Number of teeth	Cutting edge type	
		Code	Description
		BT	Tapered ball end mill
		BC	Conical barrel cutter
1	2	3	

Cutting angle	Shank diametre [mm]	Radius [mm]
4	5	6



a Groove milling b Square shoulder milling c Profile milling d Slot milling e Face milling f Chamfer milling g Plunge milling h Circular milling/Ramping

PGMS series

The ideal choice for complex contours

Now also available as a barrel cutter New

YOUR BENEFITS

– **Greater flexibility** thanks to conical barrel cutters
– Curved cutting edge for time savings of **up to 90 % compared with ball nose cutters**
– **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

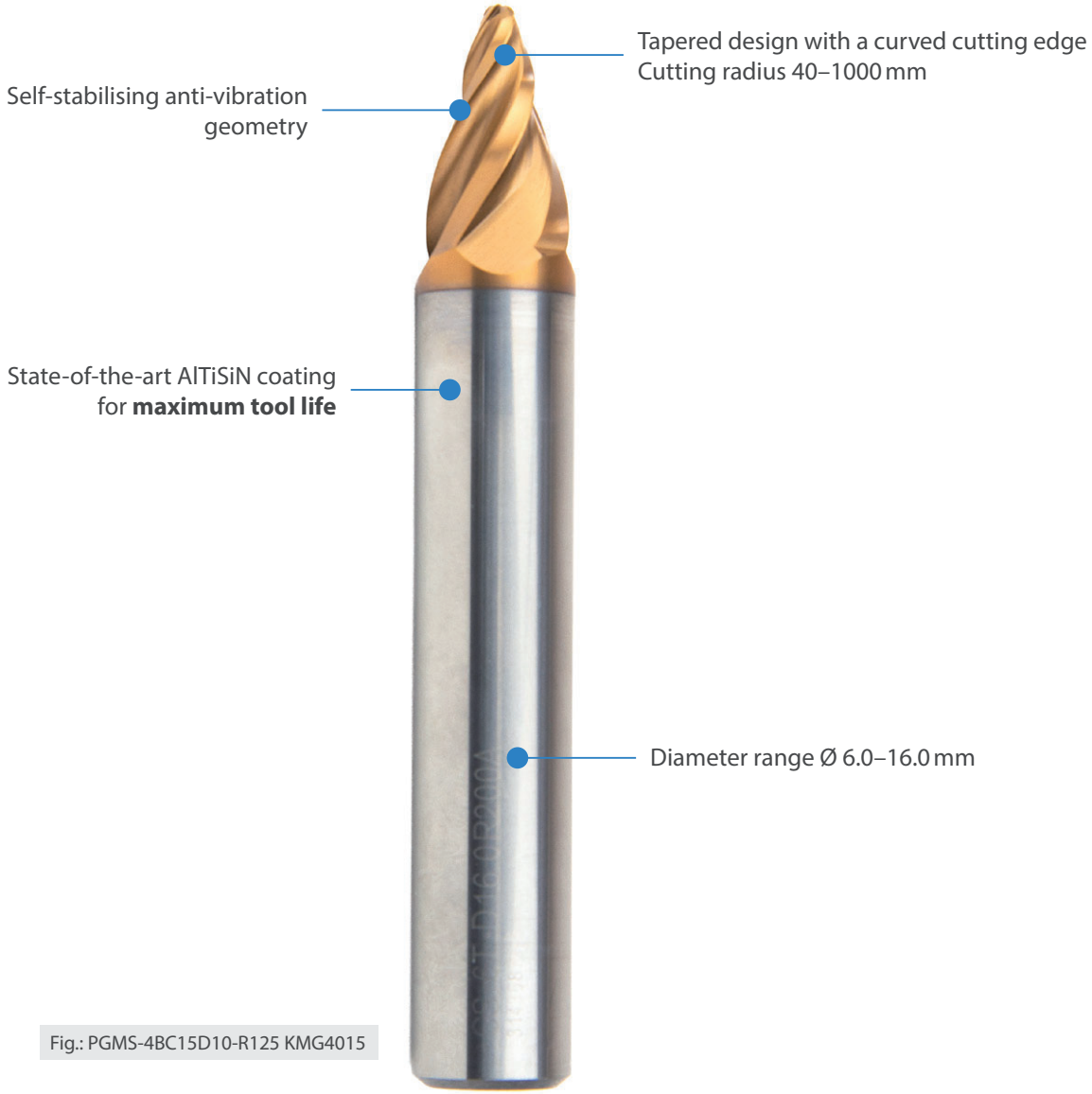
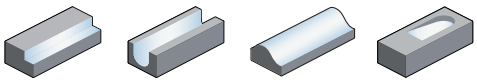


Fig.: PGMS-4BC15D10-R125 KMG4015

Barrel cutters

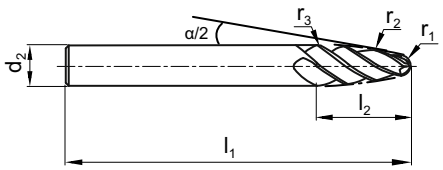
High-performance machining



PGMS-4BC

– Straight shank
– Centre cutting
– Conical cutter





Article	✻	Dimensions [mm]								Grade
		d_2 (h_5)	α/2	r_1	r_2	r_3	l_1	l_2	z	KMG4015
PGMS-4BC15D6-R40		6	15°	1,0	40	3	55	8	4	●
PGMS-4BC15D6-R80		6	15°	1,0	80	3	55	8	4	○
PGMS-4BC15D6-R150		6	15°	1,0	150	3	55	8	4	●
PGMS-4BC15D8-R50		8	15°	1,0	50	4	64	12	4	●
PGMS-4BC15D8-R100		8	15°	1,0	100	4	64	12	4	○
PGMS-4BC15D8-R250		8	15°	1,0	250	4	64	12	4	●
PGMS-4BC15D10-R65		10	15°	1,0	65	5	80	16	4	●
PGMS-4BC15D10-R125		10	15°	1,0	125	5	80	16	4	○
PGMS-4BC15D10-R300		10	15°	1,0	300	5	80	16	4	●
PGMS-4BC15D12-R70		12	15°	1,5	70	6	90	18	4	●
PGMS-4BC15D12-R150		12	15°	1,5	150	6	90	18	4	○
PGMS-4BC15D12-R300		12	15°	1,5	300	6	90	18	4	●
PGMS-4BC15D16-R75		16	15°	2,0	75	8	108	24	4	●
PGMS-4BC15D16-R200		16	15°	2,0	200	8	108	25	4	○
PGMS-4BC15D16-R500		16	15°	2,0	500	8	108	25	4	●
PGMS-4BC15D16-R1000		16	15°	2,0	1000	8	108	25	4	●

● Ex stock ○ On demand
✻ With inner cooling

Application fields

P	M	K	N	S	H
✔	✔	✔	✔	✔	

✔ Very suitable
✔ Suitable

Indexable drilling

ISO code – Inserts **C108**

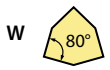
PANGU PG1030 grade **C109–C110**

C

Indexable drills ISO code – inserts

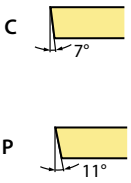
W	C	M	X	08	04	12	R	–	PG
1	2	3	4	5	6	7	8		9

Insert shape



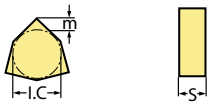
1

Clearance angle



2

Tolerance class



Code	I.C [mm]	m [mm]	S [mm]
G	±0,025	±0,025	±0,130
M	±0,05–0,13	±0,08–0,18	±0,130

3

Fastening features (metric)

Insert shape



T

X Special

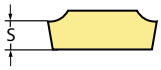
4

Cutting edge length l [mm]

I.C [mm]	Insert shape	
	 S	 W
3,8		**03**
4,3		**04**
5,4		**05**
6,35	**06**	
6,5		**06**
8,0		**08**
8,7	**08**	
9,252	**09**	
12,7	**12**	

5

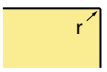
Insert thickness S [mm]



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

Nose radius r [mm]



Code	r
04	0,4
08	0,8
12	1,2

7

Rotation direction

Code	Description
R	Right
L	Left

8

Chip breaker overview (on page C3)

9

PG1030 grade

High-performance grade for drilling in steel

YOUR BENEFITS

– New grade with **double the tool life** when machining steel compared with older grades
– An outstanding combination of **high wear resistance**, **excellent toughness** and **high thermal resistance**
– For greater process reliability and **longer tool life**

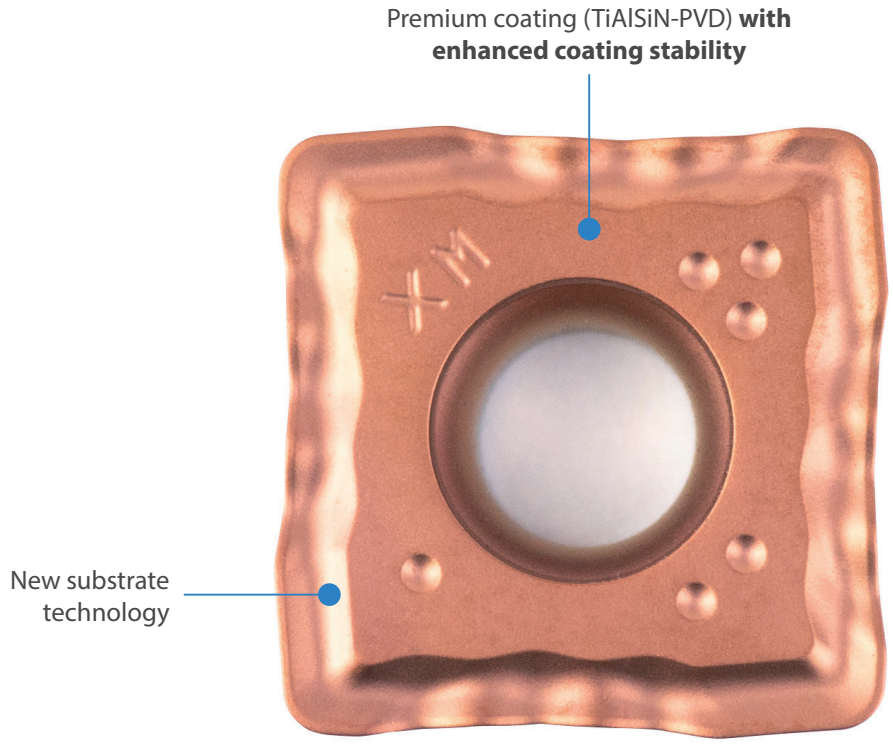
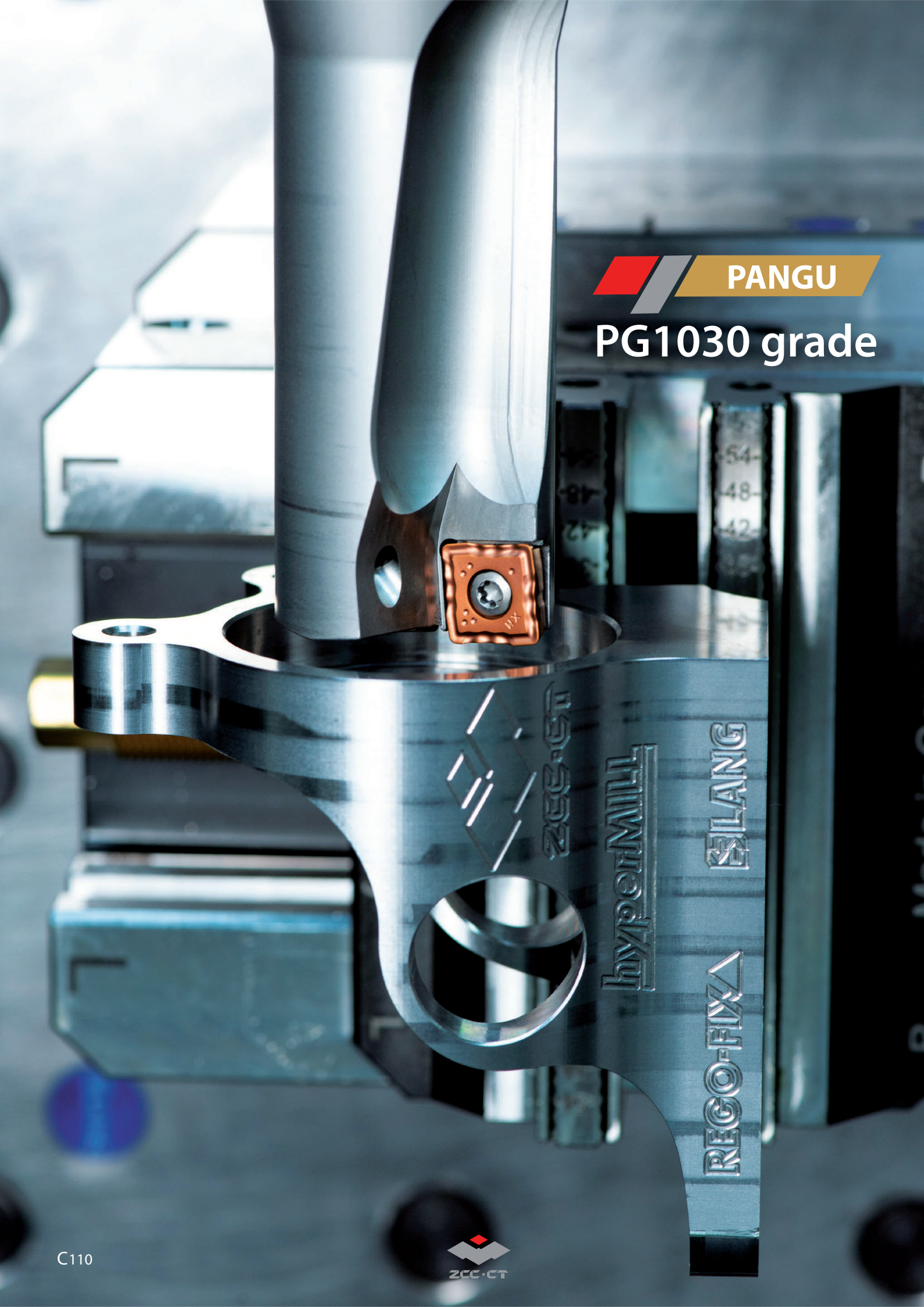


Fig.: SPMX140512-XM PG1030

Articles available with the new PG1030 grade:

Article	Stock	Drilling system
SPMX050204-XM PG1030	●	ZSD
SPMX060204-LM PG1030	●	ZSD
SPMX060204-XM PG1030	●	ZSD
SPMX07T308-XM PG1030	●	ZSD
SPMX090408-XM PG1030	●	ZSD
SPMX110408-XM PG1030	○	ZSD
SPMX140512-XM PG1030	○	ZSD

● Ex stock ○ On demand


PANGU
PG1030 grade
ZCC-CT
hyperMILL
REGO-FIX
ELANG

Solid carbide drills

System code – solid carbide drills **C112–C113**

UL series **C114–C119**

C

Solid carbide drills

System code – solid carbide drills

1	5	3	6	SU	05	(C)	–	0850	(S)
1	2	3	4	5	6	7		8	9

Type	
Code	Description
1	Drills

1

Shank type	
Code	Description
1	Straight shank
2	Square shank DIN 10
3	Double flattened straight shank DIN 1809
5	Straight shank DIN 6535 HA
6	Weldon shank DIN 6535 HB
7	Whistle Notch shank DIN 6535 HE
9	Morse taper shank

2

Drill type	
Code	Description
0	Twist drill
3	Universal twist drill
4	NC tapping device
5	Step drill
6	Three-lips drill
7	Straight flute drill
8	Deep hole drill

3

Tool length	
Code	Description
1	DIN 338
2	DIN 1897
3	QJ/ZZQ(TO)01.001.002
4	DIN 6537 K
5	DIN 6539
6	DIN 6537 L
7	Factory standard ZCC-C
8	Factory standard ZCC-D
9	Factory standard ZCC-E

4

Application	
Code	Description
UD	Twist drills for tough materials
UL	Deep hole drills for difficult-to-machine materials
GD	Twist drills for high feeds
SU	Twist drill for general machining
SL	Twist drill for deep hole drilling
SP	Pilot drill
SH	Twist drill for hardened materials
SC	Twist drill for non-ferrous metals and cast iron

5

L/D relation		Angle	
Drill		NC tapping device	
Code	Description	Code	Description
03	3 x D	**90**	90°
05	5 x D	**120**	120°
08	8 x D		
10	10 x D		
12	12 x D		
15	15 x D		
20	20 x D		
30	30 x D		

6

With inner cooling

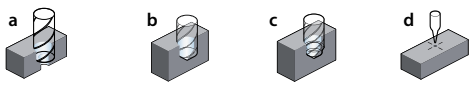
7

Bore diameter [mm]	
Code	Description
0200	2,0
0850	8,5
1800	18,0
...	

8

Shank diameter [mm]	
Code	Description
S	4,0

9



a Boring **b** Drilling **c** Profile drilling **d** Centering

UL series

Solid carbide deep hole drills for difficult-to-machine materials

Now also available with 8xD effective length New

YOUR BENEFITS

– **Reduced cutting forces** thanks to new cutting edge design
– Larger clearance angle **for higher productivity**
– Enhanced chip breaking for **optimal process reliability**
– **Enhanced tool guidance** thank to four support chamfers

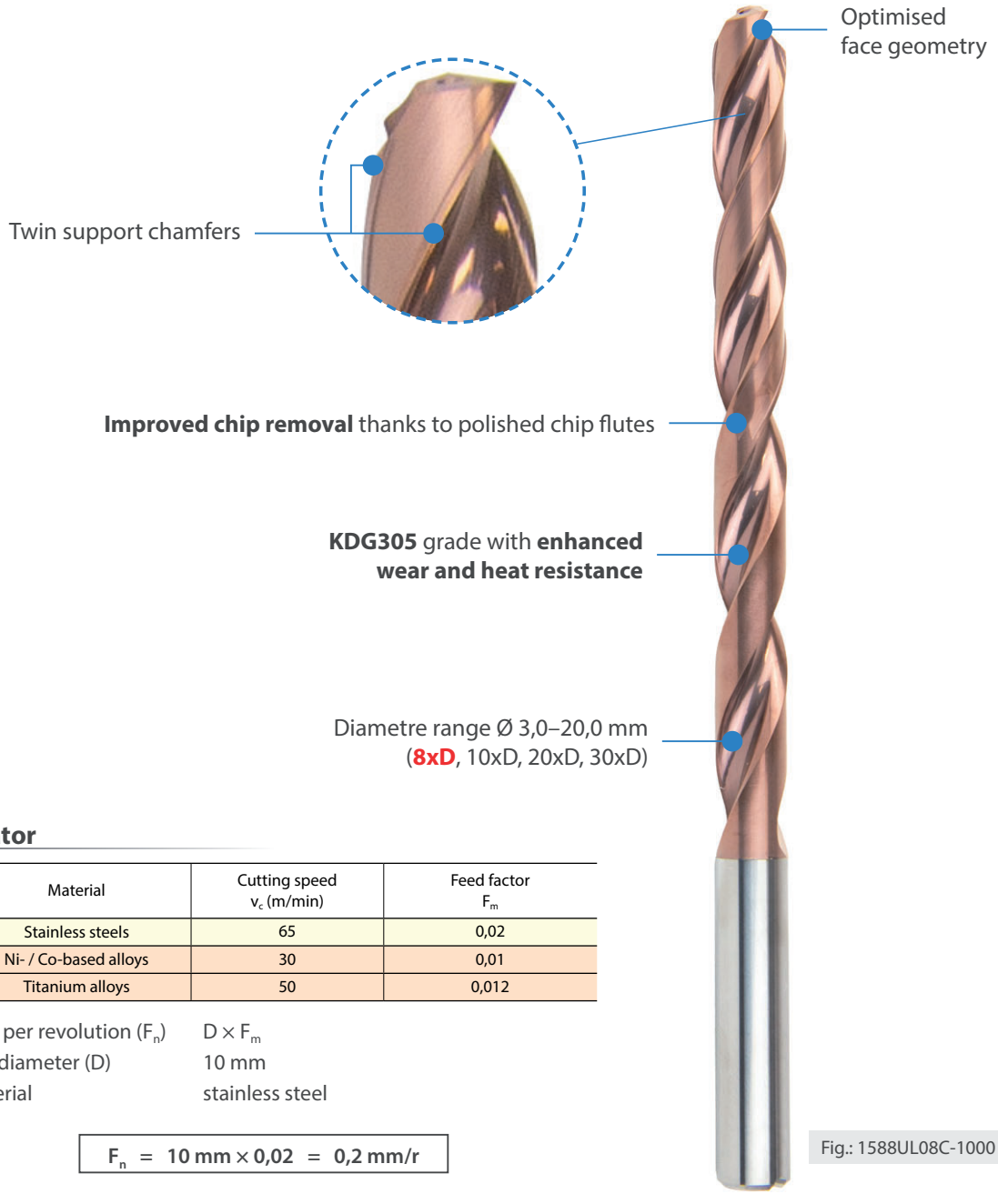


Fig.: 1588UL08C-1000 KDG305

Feed calculator

ISO group	Material	Cutting speed v_c (m/min)	Feed factor F_m
M	Stainless steels	65	0,02
S	Ni- / Co-based alloys	30	0,01
S	Titanium alloys	50	0,012

Formula: feed per revolution (F_n) $D \times F_m$
Example: drill diameter (D) 10 mm
material stainless steel

$F_n = 10\ mm \times 0{,}02 = 0{,}2\ mm/r$

UL drill 08xD

General machining

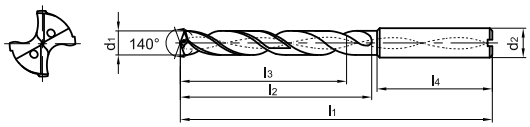
1538UL08C



– Type of shank: DIN 6535HA
– Coolant exit, axial concentric



Internal cooling



Article	✻	Dimensions [mm]						Grade
		d_1 (m7)	d_2 (h6)	l_1	l_2	l_3	l_4	KDG305
1538UL08C-0300	✻	3	6	72	34	29	36	●
1538UL08C-0310	✻	3,1	6	72	34	29	36	○
1538UL08C-03175	✻	3,175	6	72	34	29	36	○
1538UL08C-0320	✻	3,2	6	72	34	29	36	●
1538UL08C-0330	✻	3,3	6	72	34	29	36	●
1538UL08C-0340	✻	3,4	6	72	34	29	36	●
1538UL08C-0350	✻	3,5	6	72	34	29	36	●
1538UL08C-0360	✻	3,6	6	72	34	29	36	○
1538UL08C-0370	✻	3,7	6	72	34	29	36	○
1538UL08C-0380	✻	3,8	6	81	43	36	36	○
1538UL08C-0390	✻	3,9	6	81	43	36	36	○
1538UL08C-0400	✻	4	6	81	43	36	36	●
1538UL08C-0410	✻	4,1	6	81	43	36	36	○
1538UL08C-0420	✻	4,2	6	81	43	36	36	●
1538UL08C-0430	✻	4,3	6	81	43	36	36	●
1538UL08C-0440	✻	4,4	6	81	43	36	36	○
1538UL08C-0450	✻	4,5	6	81	43	36	36	●
1538UL08C-0460	✻	4,6	6	81	43	36	36	○
1538UL08C-0470	✻	4,7	6	81	43	36	36	○
1538UL08C-0480	✻	4,8	6	95	57	48	36	●
1538UL08C-0490	✻	4,9	6	95	57	48	36	○
1538UL08C-0500	✻	5	6	95	57	48	36	●
1538UL08C-0510	✻	5,1	6	95	57	48	36	●
1538UL08C-0520	✻	5,2	6	95	57	48	36	●
1538UL08C-0530	✻	5,3	6	95	57	48	36	●
1538UL08C-0540	✻	5,4	6	95	57	48	36	○
1538UL08C-0550	✻	5,5	6	95	57	48	36	●
1538UL08C-0560	✻	5,6	6	95	57	48	36	○
1538UL08C-0570	✻	5,7	6	95	57	48	36	○
1538UL08C-0580	✻	5,8	6	95	57	48	36	●
1538UL08C-0590	✻	5,9	6	95	57	48	36	○
1538UL08C-0600	✻	6	6	95	57	48	36	●
1538UL08C-0610	✻	6,1	8	114	76	66	36	○
1538UL08C-0620	✻	6,2	8	114	76	66	36	○
1538UL08C-0630	✻	6,3	8	114	76	66	36	○
1538UL08C-0635	✻	6,35	8	114	76	66	36	○
1538UL08C-0640	✻	6,4	8	114	76	66	36	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

P	M	K	N	S	H
✔	✔			✔	

✔ Very suitable
✔ Suitable

UL drill 08xD

General machining

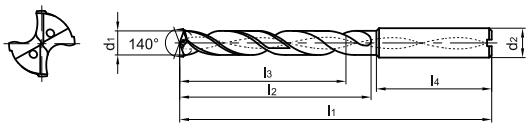
1538UL08C



– Type of shank: DIN 6535HA
– Coolant exit, axial concentric



Internal cooling



Article	✻	Dimensions [mm]						Grade
		d_1 (m7)	d_2 (h6)	l_1	l_2	l_3	l_4	KDG305
1538UL08C-0650		6,5	8	114	76	66	36	●
1538UL08C-0660		6,6	8	114	76	66	36	○
1538UL08C-0670		6,7	8	114	76	66	36	○
1538UL08C-0680		6,8	8	114	76	66	36	●
1538UL08C-0690		6,9	8	114	76	66	36	●
1538UL08C-0700		7	8	116	76	66	36	●
1538UL08C-0710		7,1	8	116	76	66	36	○
1538UL08C-0720		7,2	8	116	76	66	36	○
1538UL08C-0730		7,3	8	116	76	66	36	○
1538UL08C-0740		7,4	8	116	76	66	36	○
1538UL08C-0750		7,5	8	116	76	66	36	●
1538UL08C-0760		7,6	8	116	76	66	36	○
1538UL08C-0770		7,7	8	116	76	66	36	○
1538UL08C-0780		7,8	8	116	76	66	36	●
1538UL08C-0790		7,9	8	116	76	66	36	○
1538UL08C-0800		8	8	116	76	66	36	●
1538UL08C-0810		8,1	10	142	95	83	40	●
1538UL08C-0820		8,2	10	142	95	83	40	○
1538UL08C-0830		8,3	10	142	95	83	40	○
1538UL08C-0840		8,4	10	142	95	83	40	○
1538UL08C-0850		8,5	10	142	95	83	40	●
1538UL08C-0860		8,6	10	142	95	83	40	○
1538UL08C-0870		8,7	10	142	95	83	40	○
1538UL08C-0880		8,8	10	142	95	83	40	●
1538UL08C-0890		8,9	10	142	95	83	40	○
1538UL08C-0900		9	10	142	95	83	40	●
1538UL08C-0910		9,1	10	142	95	83	40	○
1538UL08C-0920		9,2	10	142	95	83	40	○
1538UL08C-0930		9,3	10	142	95	83	40	○
1538UL08C-0940		9,4	10	142	95	83	40	○
1538UL08C-0950		9,5	10	142	95	83	40	●
1538UL08C-0960		9,6	10	142	95	83	40	○
1538UL08C-0970		9,7	10	142	95	83	40	○
1538UL08C-0980		9,8	10	142	95	83	40	○
1538UL08C-0990		9,9	10	142	95	83	40	○
1538UL08C-1000		10	10	142	95	83	40	●
1538UL08C-1010		10,1	12	162	114	99	45	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

P	M	K	N	S	H
✔	✔			✔	

✔ Very suitable
✔ Suitable

UL drill 08xD

General machining

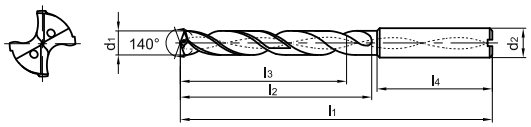
1538UL08C



– Type of shank: DIN 6535HA
– Coolant exit, axial concentric



Internal cooling



Article	✻	Dimensions [mm]						Grade
		d_1 (m7)	d_2 (h6)	l_1	l_2	l_3	l_4	KDG305
1538UL08C-1020		10,2	12	162	114	99	45	●
1538UL08C-1030		10,3	12	162	114	99	45	○
1538UL08C-1040		10,4	12	162	114	99	45	○
1538UL08C-1050		10,5	12	162	114	99	45	●
1538UL08C-1060		10,6	12	162	114	99	45	○
1538UL08C-1070		10,7	12	162	114	99	45	○
1538UL08C-1080		10,8	12	162	114	99	45	○
1538UL08C-1090		10,9	12	162	114	99	45	○
1538UL08C-1100		11	12	162	114	99	45	●
1538UL08C-1110		11,1	12	162	114	99	45	○
1538UL08C-1120		11,2	12	162	114	99	45	○
1538UL08C-1130		11,3	12	162	114	99	45	○
1538UL08C-1140		11,4	12	162	114	99	45	○
1538UL08C-1150		11,5	12	162	114	99	45	●
1538UL08C-1160		11,6	12	162	114	99	45	○
1538UL08C-1170		11,7	12	162	114	99	45	○
1538UL08C-1180		11,8	12	162	114	99	45	○
1538UL08C-1190		11,9	12	162	114	99	45	○
1538UL08C-1200		12	12	162	114	99	45	●
1538UL08C-1250		12,5	14	178	133	116	45	○
1538UL08C-1300		13	14	178	133	116	45	●
1538UL08C-1350		13,5	14	178	133	116	45	○
1538UL08C-1400		14	14	178	133	116	45	●
1538UL08C-1450		14,5	16	204	152	132	48	○
1538UL08C-1500		15	16	204	152	132	48	●
1538UL08C-1550		15,5	16	204	152	132	48	○
1538UL08C-1600		16	16	204	152	132	48	●
1538UL08C-1650		16,5	18	223	171	149	48	○
1538UL08C-1700		17	18	223	171	149	48	○
1538UL08C-1750		17,5	18	223	171	149	48	○
1538UL08C-1800		18	18	223	171	149	48	○
1538UL08C-1850		18,5	20	244	190	160	50	○
1538UL08C-1900		19	20	244	190	160	50	○
1538UL08C-1950		19,5	20	244	190	160	50	○
1538UL08C-2000		20	20	244	190	160	50	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

P	M	K	N	S	H
✔	✔			✔	

✔ Very suitable
✔ Suitable


UL series
hyperMILL
REGO-FIX
LANG
R
Made in Germany
R

Notes

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European Headquarters
ZCC Cutting Tools Europe GmbH
www.zccct-europe.com
Wanheimer Str. 57, 40472 Düsseldorf, Germany
Tel.: +49 (0)211-989240-0
Fax: +49 (0)211-989240-111
E-mail: info@zccct-europe.com

Branch Office France
ZCC Cutting Tools Europe GmbH
Succursale Française
www.zccct-europe.com
14, Allée Charles Pathé, 18000 Bourges, France
Tel.: +33 (0)2 45 41 01 40
Fax: +33 (0)800 74 27 27
E-mail: ventes@zccct-europe.com

Branch Office Italy
ZCC Cutting Tools Europe GmbH
Italy Branch
www.zccct-europe.com
Via Giuseppe di Vittorio 24
20068 Peschiera Borromeo (Milano), Italia
Tel.: +49 (0) 211-989240-390
E-mail: infoit@zccct-europe.com

Branch Office UK
ZCC Cutting Tools Europe GmbH
UK Division
www.zccct-europe.com
4200 Waterside Centre, Solihull Parkway,
Birmingham Business Park.
Birmingham, West Midlands, B37 7YN, UK
Tel.: +49 (0) 211-989240-360
E-mail: infouk@zccct-europe.com

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