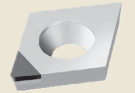




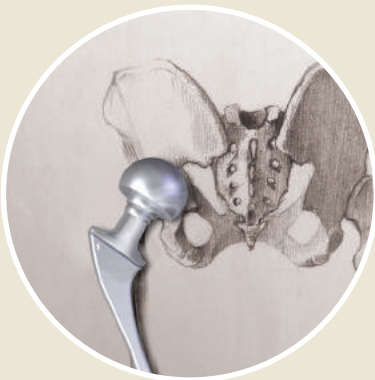
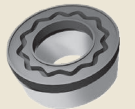
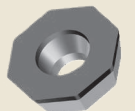
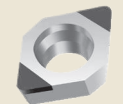
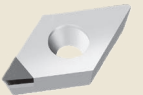
# Diamond Indexable Inserts



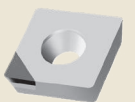
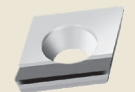
Tool and  
Mold Forming



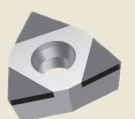
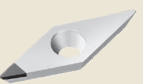
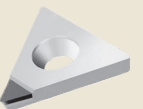
Automotive  
Mechanical Engineering



Medical Technology  
Microtechnology



Aerospace



## About us

Diamond Tooling Systems



### Welcome to DTS - Diamond Tooling Systems GmbH!

Based in Kaiserslautern - Germany - we have specialized in the development, production and distribution of precision tools equipped with ultrahard cutting materials, such as PCD (polycrystalline diamond), CVD-D (CVD thickfilm diamond), UltraDiamond (monocrystalline binderless diamond) and CBN (cubic boron nitride). As a leading manufacturer for tools with lasered cutting edges, we offer machining solutions in the areas of turning, milling, grooving, drilling, reaming, threading, and tool holding.

To be able to economically process ultra-hard cutting materials such as PCD, CVD-D and CBN on precision tools we realized early on that we would have to move away from the traditional production technology of „grinding“ to new technologies such as the „laser removal process“. This decision has contributed to the fact that our customers regard us, DTS GmbH, as the pioneer and leading manufacturer of lasered tools for machining.

Ultra-hard high-performance cutting materials have a key function in metal-cutting manufacturing. Precision tools equipped with ultra-hard cutting materials are products that require a great deal of explanation. The economical use of the cutting materials is only ensured if the machining process and the cutting material are coordinated with each other.

This is exactly where we at DTS - Diamond Tooling Systems GmbH - step in: Tools and processes are subjected to a comprehensive analysis by our experienced application engineers. Subsequently, the new process optimization is presented to the customer and in the next step, it is implemented in their production. Only in that way is it possible to exploit the optimum potential of our high-tech cutting materials.

Our experienced application engineers are also available to advise you during ongoing production. This close cooperation and mutual trust is the basis of our success.

**With more than 25 years of optimization experience in the processing industry, this is where we see our strength!**

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Diamond Indexable Inserts



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### Technical Attachment

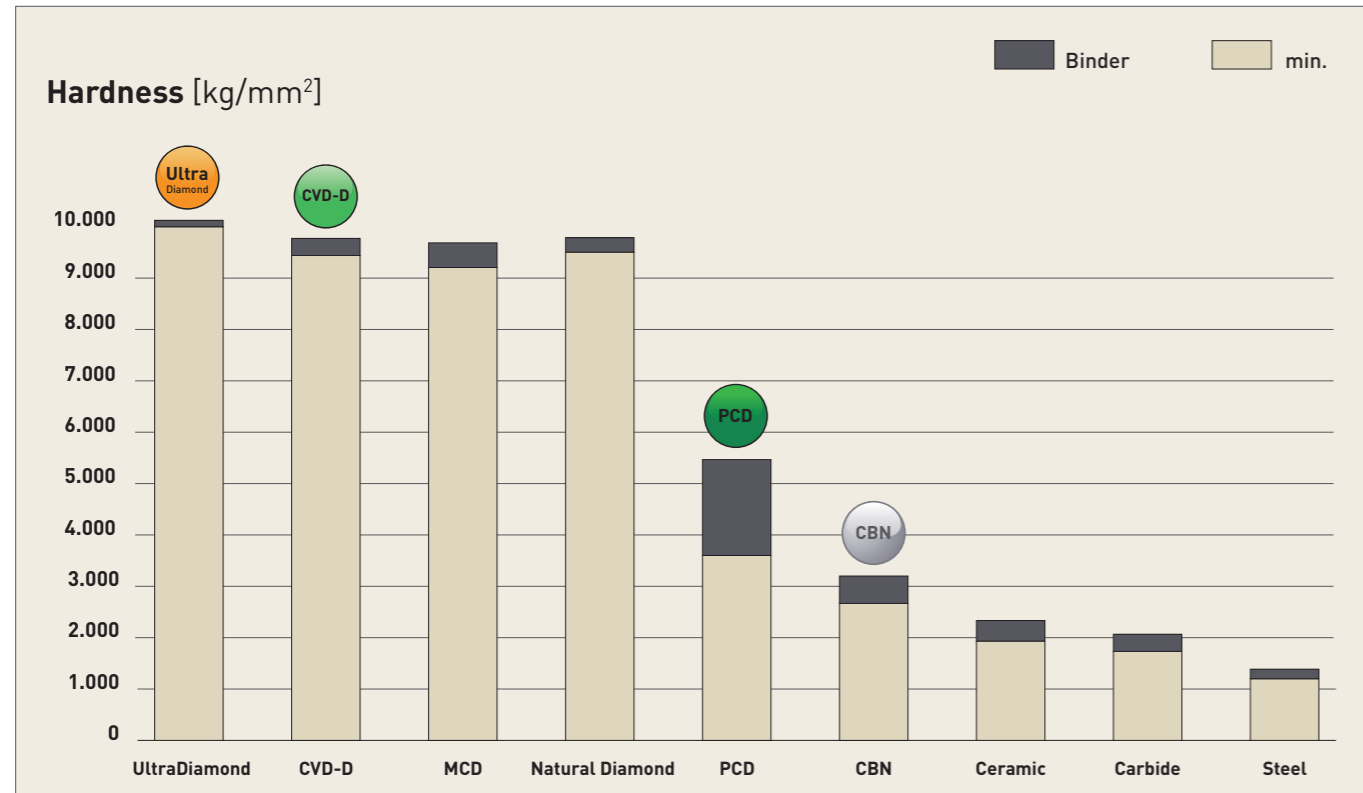
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# PASSION FOR DIAMOND...

ultrahard cutting materials at a glance



... is not just a slogan for us - we live this passion in our daily dealings with our customers and we are your partner when it comes to diamond or CBN tools.



## Polycrystalline diamond (PCD)

The well-known Standard Diamond

PCD is a synthetically produced, extremely tough, intergrown mass of diamond particles with a random orientation in a metal matrix. It is produced by sintering selected diamond particles under high pressure and high temperatures.

Graphite serves as a catalyst allowing the PDC crystals to intergrow. PCD has a high thermal conductivity and good heat dissipation away from the cutting edge. In addition, PCD has the highest bending fracture strength of all cutting materials.

PCD is very well suited for machining aluminum with a Si content of up to 10% and/or other abrasive fillers. The thermal hardness is about 750°C. The areas of application are like those of CVD thick-film diamond, but CVD thick film has a higher cost effectiveness with hard-brittle materials or aluminum from a Si content of 10%.

## CVD-Thickfilm Diamond (CVD-D)

The Star among Diamond Cutting Materials

For the machining of hard-brittle materials such as Ceramics, glass, glass-Ceramics, tungsten Carbide, MMC and fiber-reinforced composites such as CFRP and GFRP. Due to the lack of a bonding matrix, the diamond content is much higher than with PCD. In the group of ultra-hard cutting materials, binderless CVD-D is one of the hardest man-made diamond cutting materials.

CVD-D is characterized by high hardness as well as high wear resistance. These properties make CVD-D the perfect cutting material for machining abrasive materials. Compared to PCD, which is damaged by the abrasive particles due to its soft metallic binder phase, the CVD-D cutting edge remains stable due to its binderless anchoring in the diamond matrix.

With the correct use of CVD-D, the tool life can be increased by up to 10 times (and even more) compared to PCD!

## Binderless Diamond (UltraDiamond)

The hardest Mono Crystal

Single-crystal elements are laser-cut from diamond blanks in a defined orientation using laser segmentation technology. This new technology makes it possible, in addition to polycrystalline cutting materials such as PCD and CVD-D, to also braze a monocrystal (UltraDiamond) under high vacuum on any tool carrier. Compared to PCD, the tool life can be increased by approx. 15 to 25 times and compared to CVD-D by approx. 2 to 5 times.

The areas of application are similar to PCD and CVD-D, but this monocrystalline cutting material offers a further significant increase in tool life in all applications where PCD and CVD-D reach the limits of economic viability. The UltraDiamond cutting material makes economical machining of very hard, highly brittle materials such as Ceramics, glass, glass-Ceramics and hard metals with low cobalt binder and nickel binder (<10%) possible.

## Polycrystalline Cubic Boron Nitride (CBN)

Chemically resistant and stable at high temperatures

of up to 1,400°C. Boron nitride powder is the starting point for the production of CBN, which has been available since the end of the 1960s. It is produced under high pressure and at temperatures of over 1,500°C and the many different substrates are specifically adapted to the final application.

CBN is now considered the second hardest material after diamond cutting materials!

The applications of CBN take place in the automotive industry, aerospace, tool and die and mold making as well as in mechanical engineering. The wide range as cutting and abrasive material includes hardened steels, cast irons, chilled cast iron, sintered materials, stellites, nickel- and cobalt-based superalloys. In many applications, cubic boron nitride is preferred to diamond cutting materials because it is absolutely stable in air at temperatures up to 1,400°C. Diamond, on the other hand, begins to decompose at a temperature of approx. 750°C.


Compared to PCD, CBN is also characterized by its chemical resistance to ferrous materials.

## Our Diamond-Grades

and their main applications at a glance

We want to offer you the ideal solution for your application. Therefore, we have developed three main diamond groups, specially adapted to the requirements of the different materials.




Below you will find an overview of the different groups.




**PCD**

**PCD**  
is ideally suited for the machining of \*

**Aluminum <10% Si | Brass | Copper, Copper Alloys | Graphite | Magnesium | PEEK | Tungsten alloy**




-  continuous cut
-  light interrupted cut
-  heavy interrupted cut




**CVD-D**

**CVD-D**  
is ideally suited for the machining of \*

**Acrylic (PMMA) | Aluminum >10% Si | Carbide | Ceramics | Composites (GFRP/CFRP) | Copper, Copper Alloys | Glass, Glass Ceramic | Magnesium | Plastic | Silver, Gold, Platinum | Titanium | Zirconium**




-  continuous cut
-  light interrupted cut
-  heavy interrupted cut



**UltraDiamond**

**UltraDiamond**  
is ideally suited for the machining of \*

**Acrylic (PMMA) | Carbide | Ceramic | Glass, Glass Ceramic**

-  continuous cut
-  light interrupted cut
-  heavy interrupted cut

\* all other applications can be found in the complete cutting material assignment on page 7

## Our Cutting Material Assignment

about the materials



You cannot find your material in the table?

We are glad to help you by phone or by mail!

Phone: +49 (0) 6301 32011-0

Mail: [info@diamond-toolingsystems.com](mailto:info@diamond-toolingsystems.com)

Green ✓

First choice

Orange ✓

Possible alternative

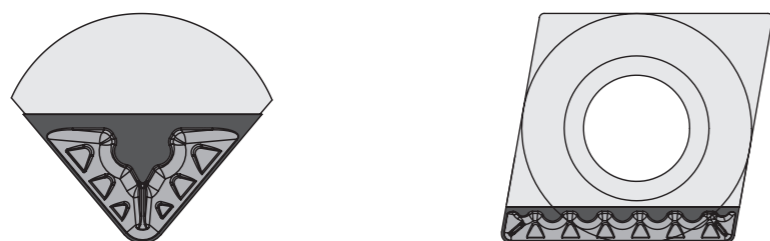
ISO	Material	PCD	CVD-D	Ultra Diamond
S	Titanium (Roughing)	✓		
	Titanium (Finishing)		✓	
N	Acrylic (PMMA)		✓	✓
	Aluminum, < 10% Si	✓	✓	
	Aluminum, > 10% Si		✓	✓
	Brass	✓	✓	
	Carbide G-Grade, < 15% Co		✓	✓
	Carbide G-Grade, > 15% Co		✓	
	Carbide K-Grade, < 15% Co		✓	✓
	Carbide K-Grade, > 15% Co		✓	
	Carbide (Green)	✓		
	Carbide with Ni Binder			✓
	Ceramics		✓	✓
	Ceramics (Green)	✓		
	Composite such as CFRP/GFRP	✓	✓	
	Copper, Copper Alloys	✓	✓	
	Glass, Glass Ceramic		✓	✓
	Graphite	✓	✓	
	Magnesium	✓	✓	
	MMC		✓	✓
	Plastics		✓	
	PEEK	✓	✓	
Silver, Gold, Platinum		✓	✓	
Tungsten alloy	✓	✓		
Zirconium		✓	✓	

## 3D - Lasered Micro Chip Breaker

for optimized chip control

Diamond tools are the first choice for the machining of aluminum (<Si1) and magnesium Alloys, lead-free Brass, and a wide variety of plastic composites. However, these long-chipping materials are often plagued by chip problems.

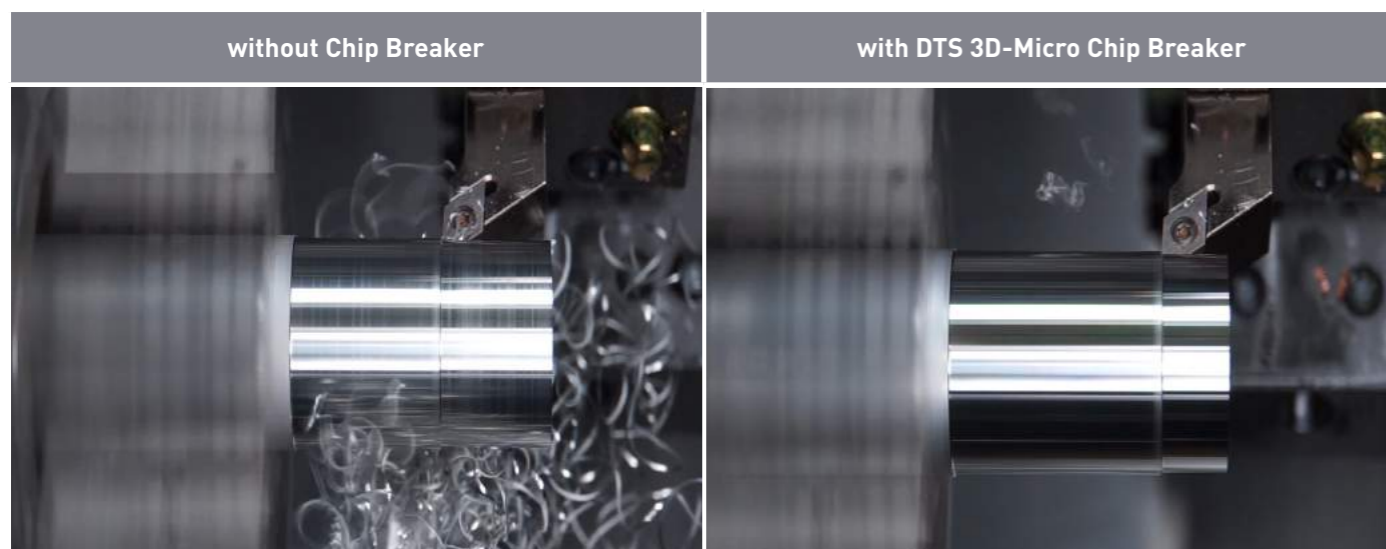
Our laser technology allows us to introduce 3D micro chip grooves into a wide variety of PCD, CVD-D and CBN tools. This special laser ablation process allows more complex chipbreaker shapes and achieve excellent chip control.



A lasered 3D micro chip breaker enables controlled chip breakage in most long-chipping materials. In addition, the chipbreaker minimizes cutting pressure, allowing for the machining of thin-walled components.

For controlled chip breaking, we offer you two different 3D-Micro chip grooves:

- Chip Breaker-F (sharp cutting edge for finishing cuts)
- Chip Breaker-R (stable cutting edge for roughing cuts)



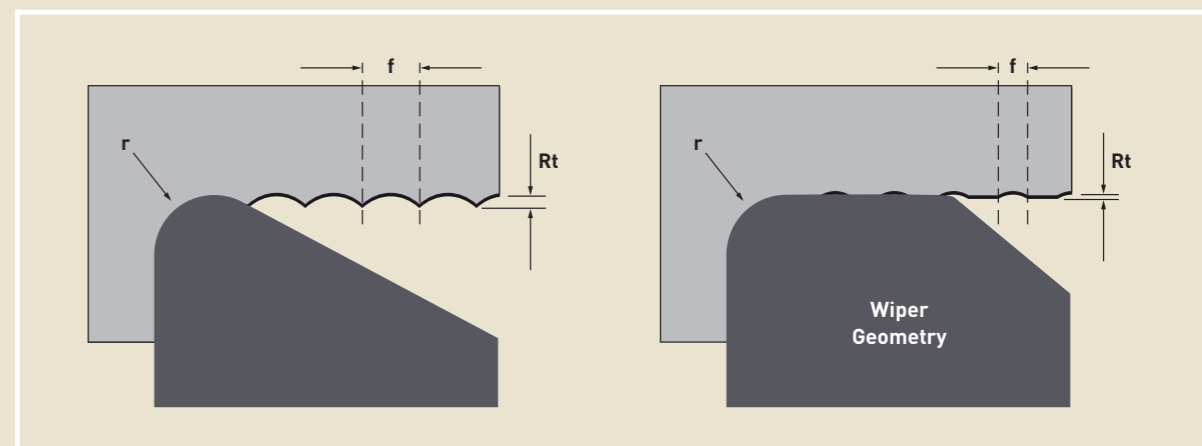
Material: AlSi1

Material: AlSi1

## Wiper Indexable Inserts

Functionality

### Wiper Indexable Inserts:



### Advantages when using Wiper Geometries

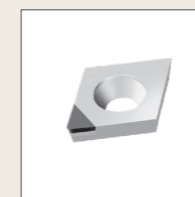
By using the same feed rate a 2-4 times better surface quality can be obtained or with a 2-4 times higher feed rate the same surface quality can be reached.

To get the wiper geometry into cutting condition please use the following lead angles at the machine:

**C and W Type: 95°**

**D Type: 93°**

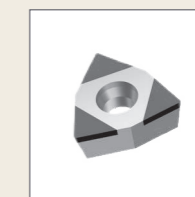
CCGW ...  
(Z1)



DCGW ...  
(Z1)



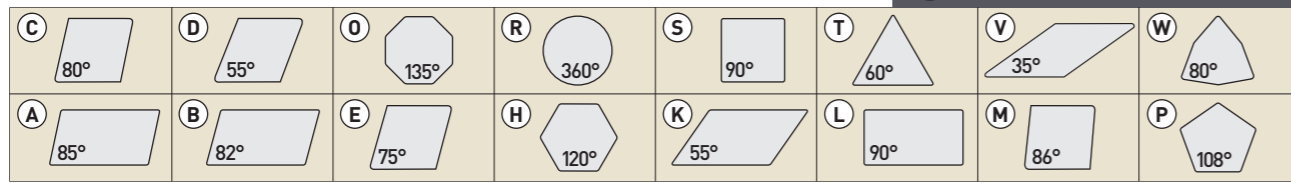
WCGW ...  
(Z3)





## Shape

T N G A 16 04 08



## Clearance

T N G A 16 04 08



## Tolerance [mm]

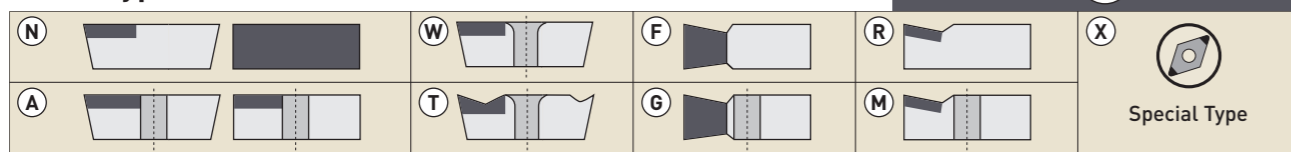
T N G A 16 04 08

	m	s	d		m	s	d
A	±0,005	±0,025	±0,025	J	±0,005	±0,025	±0,05 → ±0,15
F	±0,005	±0,025	±0,013	K	±0,013	±0,025	±0,05 → ±0,15
C	±0,013	±0,025	±0,025	L	±0,025	±0,025	±0,05 → ±0,15
H	±0,013	±0,025	±0,013	M	±0,08 → ±0,20	±0,130	±0,05 → ±0,15
E	±0,025	±0,025	±0,025	N	±0,08 → ±0,20	±0,25	±0,05 → ±0,15
G	±0,025	±0,130	±0,025	U	±0,13 → ±0,38	±0,130	±0,08 → ±0,15

\*[M, N, U] The exact tolerance depends on the size of the insert.

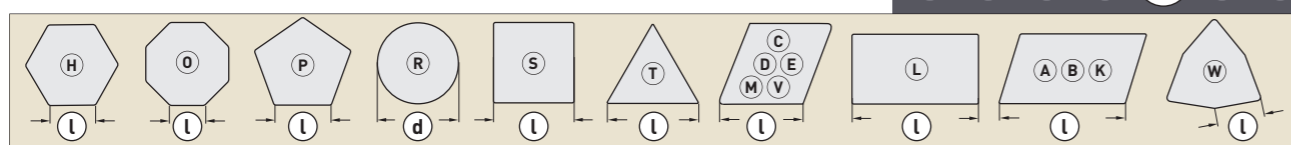
## Insert Type

T N G A 16 04 08



## Insert size [mm]

T N G A 16 04 08



## Insert size [mm]

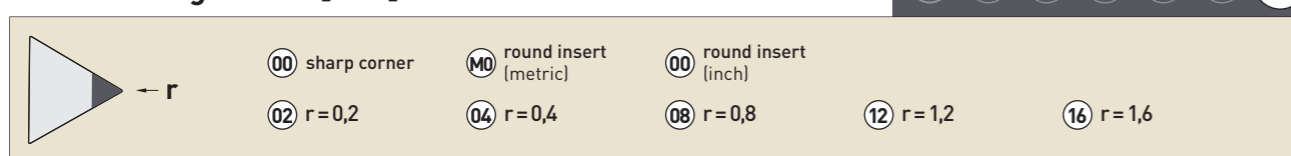
T N G A 16 04 08

01	S = 1,59	T1	S = 1,98	02	S = 2,38	03	S = 3,18	T3	S = 3,97	04	S = 4,76	05	S = 5,56	06	S = 6,35
----	----------	----	----------	----	----------	----	----------	----	----------	----	----------	----	----------	----	----------

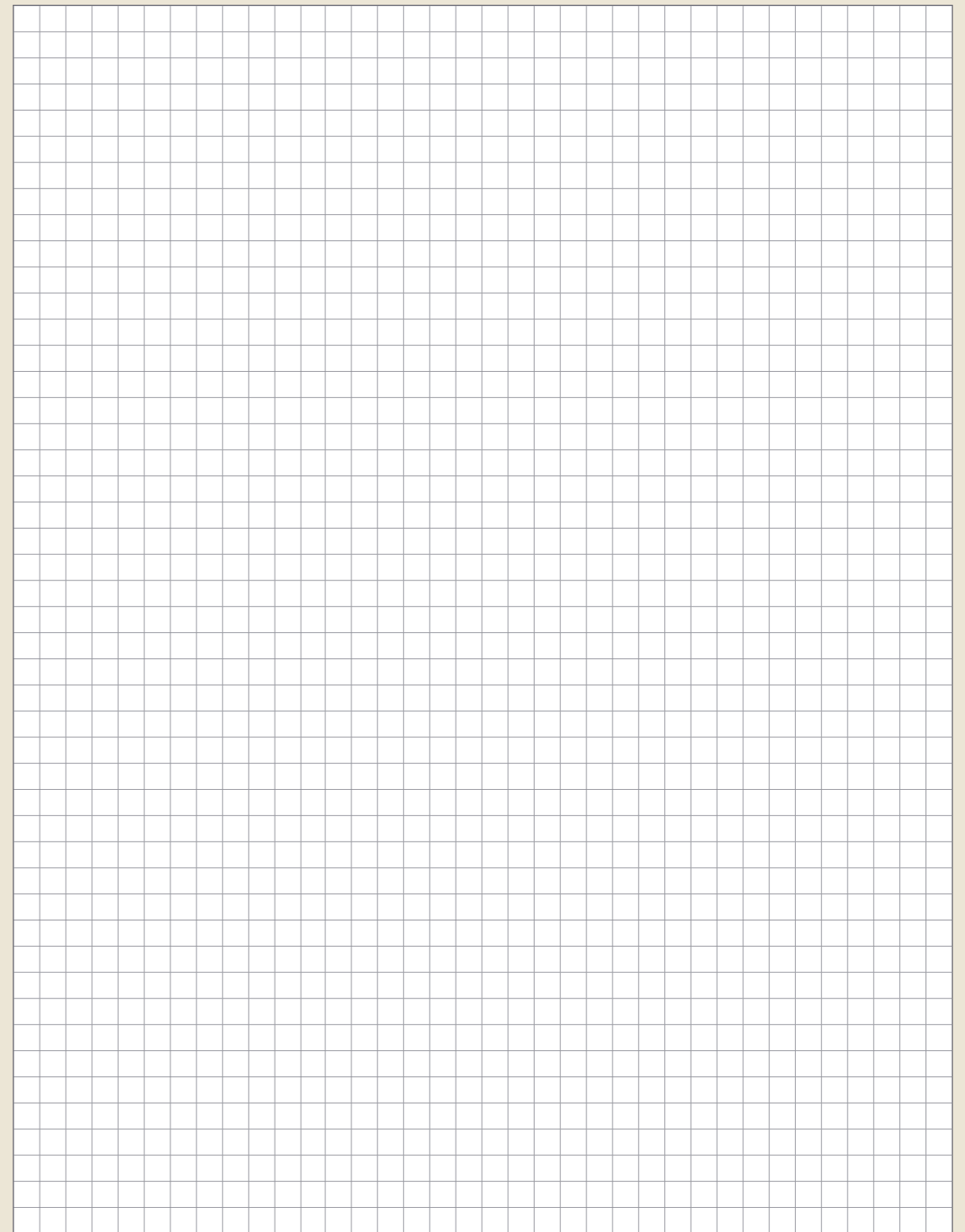
By numbers below 10 a 0 is added in at the front. Decimals remain unconsidered (for example: 4,76 = 04)

## Corner configuration [mm]

T N G A 16 04 08

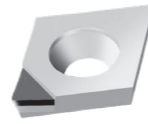


# Your Notes

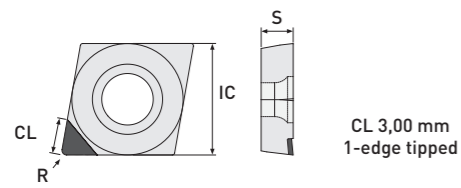


# CCGT - Positive Rake Angle

edge tipped



## FN - positive rake angle



CL 3,00 mm  
1-edge tipped



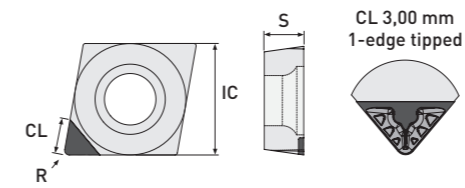
	ISO Code	IC	S	R	PCD	CVD-D	Ultra Diamond	Version
					Item No.	Item No.	Item No.	
Standard	CCGT 060202	6,35	2,38	0,20	DP1010-0001	DP2010-0001		1-edge tipped
	CCGT 060204	6,35	2,38	0,40	DP1010-0002	DP2010-0002		1-edge tipped
	CCGT 060208	6,35	2,38	0,80	DP1010-0003	DP2010-0003		1-edge tipped
	CCGT 09T302	9,525	3,97	0,20	DP1010-0004	DP2010-0004		1-edge tipped
	CCGT 09T304	9,525	3,97	0,40	DP1010-0005	DP2010-0005		1-edge tipped
	CCGT 09T308	9,525	3,97	0,80	DP1010-0006	DP2010-0006		1-edge tipped
	CCGT 09T312	9,525	3,97	1,20	DP1010-0007	DP2010-0007		1-edge tipped
	CCGT 120402	12,70	4,76	0,20	DP1010-0008	DP2010-0008		1-edge tipped
	CCGT 120404	12,70	4,76	0,40	DP1010-0009	DP2010-0009		1-edge tipped
	CCGT 120408	12,70	4,76	0,80	DP1010-0010	DP2010-0010		1-edge tipped

# CCGT - Chip Breaker

edge tipped



## FN - Chip breaker for finishing (SPL-F) or roughing (SPL-R)



CL 3,00 mm  
1-edge tipped



	ISO Code	IC	S	R	PCD	CVD-D	PCD	CVD-D	Version
					Item No.	Item No.	Item No.	Item No.	
Standard	CCGT 060202	6,35	2,38	0,20	DP1011-0001	DP2011-0001	DP1012-0001	DP2012-0001	1-edge tipped
	CCGT 060204	6,35	2,38	0,40	DP1011-0002	DP2011-0002	DP1012-0002	DP2012-0002	1-edge tipped
	CCGT 060208	6,35	2,38	0,80	DP1011-0003	DP2011-0003	DP1012-0003	DP2012-0003	1-edge tipped
	CCGT 09T302	9,525	3,97	0,20	DP1011-0004	DP2011-0004	DP1012-0004	DP2012-0004	1-edge tipped
	CCGT 09T304	9,525	3,97	0,40	DP1011-0005	DP2011-0005	DP1012-0005	DP2012-0005	1-edge tipped
	CCGT 09T308	9,525	3,97	0,80	DP1011-0006	DP2011-0006	DP1012-0006	DP2012-0006	1-edge tipped
	CCGT 120402	12,70	4,76	0,20	DP1011-0458	DP2011-0458	DP1012-0458	DP2012-0458	1-edge tipped
	CCGT 120404	12,70	4,76	0,40	DP1011-0008	DP2011-0008	DP1012-0008	DP2012-0008	1-edge tipped
	CCGT 120408	12,70	4,76	0,80	DP1011-0009	DP2011-0009	DP1012-0009	DP2012-0009	1-edge tipped
	Wiper	CCGT 060202 R/L-W	6,35	2,38	0,20	DP1011-0011		DP1012-0011	
CCGT 060204 R/L-W		6,35	2,38	0,40	DP1011-0012		DP1012-0012		1-edge tipped
CCGT 09T302 R/L-W		9,525	3,97	0,20	DP1011-0014		DP1012-0014		1-edge tipped
CCGT 09T304 R/L-W		9,525	3,97	0,40	DP1011-0015		DP1012-0015		1-edge tipped
CCGT 09T308 R/L-W		9,525	3,97	0,80	DP1011-0016		DP1012-0016		1-edge tipped
CCGT 120402 R/L-W		12,70	4,76	0,20	DP1011-0018		DP1012-0018		1-edge tipped
CCGT 120404 R/L-W		12,70	4,76	0,40	DP1011-0019		DP1012-0019		1-edge tipped
CCGT 120408 R/L-W		12,70	4,76	0,80	DP1011-0020		DP1012-0020		1-edge tipped

### Application range:

- PCD** Aluminum <10% Si, Brass, Brass lead-free, Graphite coarse-grained, Titanium (Roughing) ...
- CVD-D** Acrylic, Aluminum >10% Si, Carbide, Ceramics, Composites (CFRP, GFRP, MMC), Copper, Plastics, PEEK, Titanium (Finishing) ...
- Ultra-Dia.** Carbide <10% Co, Carbide with Nickel Binder, Glass Materials, Sintered Ceramic Materials, highly abrasive materials ...

You will find further application ranges in the detailed overview on page 7.



Special tools on request for you!  
Please send inquiries to [info@diamond-toolingsystems.com](mailto:info@diamond-toolingsystems.com)

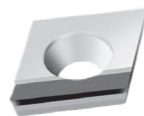


All our products are also available in the online shop.  
Visit us at [diamond-tools24.com](http://diamond-tools24.com)

Subject to technical changes.

# CCGT - Positive Rake Angle

entire edge



right version - positive rake angle

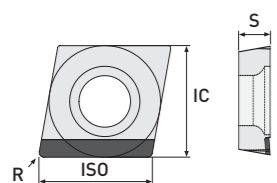


Figure shows right version entire edge

	ISO Code	IC	S	R	Material			Version
					PCD Item No.	CVD-D Item No.	Ultra Diamond Item No.	
Standard - right version	CCGT 060202 R-GS	6,35	2,38	0,20	DP1020-0055	DP2020-0055		entire edge
	CCGT 060204 R-GS	6,35	2,38	0,40	DP1020-0001	DP2020-0001		entire edge
	CCGT 060208 R-GS	6,35	2,38	0,80	DP1020-0002	DP2020-0002		entire edge
	CCGT 09T304 R-GS	9,525	3,97	0,40	DP1020-0056	DP2020-0056		entire edge
	CCGT 09T308 R-GS	9,525	3,97	0,80	DP1020-0003	DP2020-0003		entire edge
	CCGT 09T312 R-GS	9,525	3,97	1,20	DP1020-0004	DP2020-0004		entire edge
	CCGT 120404 R-GS	12,70	4,76	0,40	DP1020-0057	DP2020-0057		entire edge
	CCGT 120408 R-GS	12,70	4,76	0,80	DP1020-0005	DP2020-0005		entire edge

left version - positive rake angle

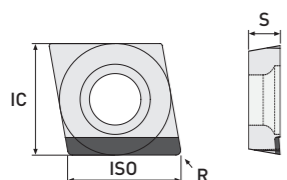


Figure shows left version entire edge

	ISO Code	IC	S	R	Material			Version
					PCD Item No.	CVD-D Item No.	Ultra Diamond Item No.	
Standard - left version	CCGT 060202 L-GS	6,35	2,38	0,20	DP1020-0058	DP2020-0058		entire edge
	CCGT 060204 L-GS	6,35	2,38	0,40	DP1020-0045	DP2020-0045		entire edge
	CCGT 060208 L-GS	6,35	2,38	0,80	DP1020-0046	DP2020-0046		entire edge
	CCGT 09T304 L-GS	9,525	3,97	0,40	DP1020-0059	DP2020-0059		entire edge
	CCGT 09T308 L-GS	9,525	3,97	0,80	DP1020-0047	DP2020-0047		entire edge
	CCGT 09T312 L-GS	9,525	3,97	1,20	DP1020-0048	DP2020-0048		entire edge
	CCGT 120404 L-GS	12,70	4,76	0,40	DP1020-0060	DP2020-0060		entire edge
	CCGT 120408 L-GS	12,70	4,76	0,80	DP1020-0049	DP2020-0049		entire edge

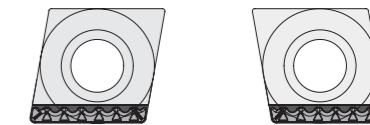
### Application range:

- PCD** Aluminum <10% Si, Brass, Brass lead-free, Graphite coarse-grained, Titanium (Roughing) ...
- CVD-D** Acrylic, Aluminum >10% Si, Carbide, Ceramics, Composites (CFRP, GFRP, MMC), Copper, Plastics, PEEK, Titanium (Finishing) ...
- Ultra-Dia.** Carbide <10% Co, Carbide with Nickel Binder, Glass Materials, sintered Ceramic Materials, highly abrasive materials ...

You will find further application ranges in the detailed overview on page 7.

# CCGT - Chip Breaker

entire edge



right version - FN - Chip breaker for finishing (SPL-F) or roughing (SPL-R)

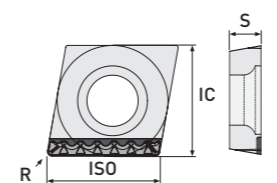


Figure shows right version entire edge

	ISO Code	IC	S	R	PCD Item No.		CVD-D Item No.		Version
					SPL-F (Finishing)	SPL-R (Roughing)	SPL-F (Finishing)	SPL-R (Roughing)	
Standard - right version	CCGT 060202 R-GS	6,35	2,38	0,20	DP1021-0032	DP2021-0032	DP1022-0032	DP2022-0032	entire edge
	CCGT 060204 R-GS	6,35	2,38	0,40	DP1021-0001	DP2021-0001	DP1022-0001	DP2022-0001	entire edge
	CCGT 060208 R-GS	6,35	2,38	0,80	DP1021-0002	DP2021-0002	DP1022-0002	DP2022-0002	entire edge
	CCGT 09T304 R-GS	9,525	3,97	0,40	DP1021-0033	DP2021-0033	DP1022-0033	DP2022-0033	entire edge
	CCGT 09T308 R-GS	9,525	3,97	0,80	DP1021-0003	DP2021-0003	DP1022-0003	DP2022-0003	entire edge
	CCGT 120404 R-GS	12,70	4,76	0,40	DP1021-0034	DP2021-0034	DP1022-0034	DP2022-0034	entire edge
	CCGT 120408 R-GS	12,70	4,76	0,80	DP1021-0005	DP2021-0005	DP1022-0005	DP2022-0005	entire edge

left version - FN - Chip breaker for finishing (SPL-F) or roughing (SPL-R)

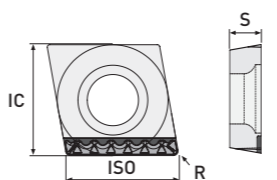


Figure shows left version entire edge

	ISO Code	IC	S	R	PCD Item No.		CVD-D Item No.		Version
					SPL-F (Finishing)	SPL-R (Roughing)	SPL-F (Finishing)	SPL-R (Roughing)	
Standard - left version	CCGT 060202 L-GS	6,35	2,38	0,20	DP1021-0035	DP2021-0035	DP1022-0035	DP2022-0035	entire edge
	CCGT 060204 L-GS	6,35	2,38	0,40	DP1021-0031	DP2021-0031	DP1022-0031	DP2022-0031	entire edge
	CCGT 060208 L-GS	6,35	2,38	0,80	DP1021-0027	DP2021-0027	DP1022-0027	DP2022-0027	entire edge
	CCGT 09T304 L-GS	9,525	3,97	0,40	DP1021-0036	DP2021-0036	DP1022-0036	DP2022-0036	entire edge
	CCGT 09T308 L-GS	9,525	3,97	0,80	DP1021-0028	DP2021-0028	DP1022-0028	DP2022-0028	entire edge
	CCGT 120404 L-GS	12,70	4,76	0,40	DP1021-0037	DP2021-0037	DP1022-0037	DP2022-0037	entire edge
	CCGT 120408 L-GS	12,70	4,76	0,80	DP1021-0030	DP2021-0030	DP1022-0030	DP2022-0030	entire edge



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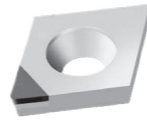
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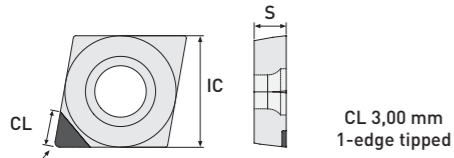


# CCGW

edge tipped



## FN - neutral



	ISO Code	IC	S	R	Material			Version
					PCD Item No.	CVD-D Item No.	Ultra Diamond Item No.	
Standard	CCGW 060201	6,35	2,38	0,10		DP2010-0591	DP1110-0591	1-edge tipped
	CCGW 060202	6,35	2,38	0,20	DP1010-0021	DP2010-0021	DP1110-0021	1-edge tipped
	CCGW 060204	6,35	2,38	0,40	DP1010-0022	DP2010-0022	DP1110-0022	1-edge tipped
	CCGW 060208	6,35	2,38	0,80	DP1010-0023	DP2010-0023	DP1110-0023	1-edge tipped
	CCGW 09T302	9,525	3,97	0,20	DP1010-0024	DP2010-0024		1-edge tipped
	CCGW 09T304	9,525	3,97	0,40	DP1010-0025	DP2010-0025		1-edge tipped
	CCGW 09T308	9,525	3,97	0,80	DP1010-0026	DP2010-0026		1-edge tipped
	CCGW 09T312	9,525	3,97	1,20	DP1010-0027	DP2010-0027		1-edge tipped
	CCGW 120402	12,70	4,76	0,20	DP1010-0700	DP2010-0129		1-edge tipped
	CCGW 120404	12,70	4,76	0,40	DP1010-0028	DP2010-0028		1-edge tipped
	CCGW 120408	12,70	4,76	0,80	DP1010-0029	DP2010-0029		1-edge tipped
	CCGW 120412	12,70	4,76	1,20	DP1010-0030	DP2010-0030		1-edge tipped
Wiper	CCGW 060202 R/L-W	6,35	2,38	0,20	DP1010-0031	DP2010-0031		1-edge tipped
	CCGW 060204 R/L-W	6,35	2,38	0,40	DP1010-0032	DP2010-0032		1-edge tipped
	CCGW 09T302 R/L-W	9,525	3,97	0,20	DP1010-0034	DP2010-0034		1-edge tipped
	CCGW 09T304 R/L-W	9,525	3,97	0,40	DP1010-0035	DP2010-0035		1-edge tipped
	CCGW 09T308 R/L-W	9,525	3,97	0,80	DP1010-0036	DP1010-0036		1-edge tipped
	CCGW 120402 R/L-W	12,70	4,76	0,20	DP1010-0038	DP2010-0038		1-edge tipped
	CCGW120404 R/L-W	12,70	4,76	0,40	DP1010-0039	DP2010-0039		1-edge tipped
	CCGW 120408 R/L-W	12,70	4,76	0,80	DP1010-0040	DP2010-0040		1-edge tipped

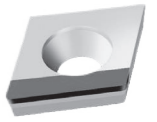
### Application range:

- PCD** Aluminum <10% Si, Brass, Brass lead-free, Graphite coarse-grained, Titanium (Roughing) ...
- CVD-D** Acrylic, Aluminum >10% Si, Carbide, Ceramics, Composites (CFRP, GFRP, MMC), Copper, Plastics, PEEK, Titanium (Finishing) ...
- Ultra-Dia.** Carbide <10% Co, Carbide with Nickel Binder, Glass Materials, sintered Ceramic Materials, highly abrasive materials ...

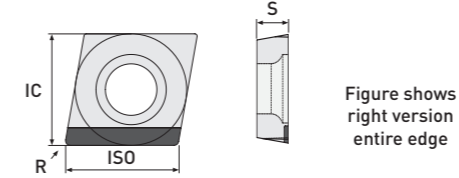
You will find further application ranges in the detailed overview on page 7.

# CCGW

entire edge | right and left version

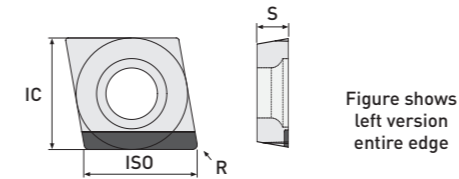


## right version - neutral



	ISO Code	IC	S	R	Material			Version
					PCD Item No.	CVD-D Item No.	Ultra Diamond Item No.	
Standard - right version	CCGW 060202 R-GS	6,35	2,38	0,20	DP1020-0061	DP2020-0061		entire edge
	CCGW 060204 R-GS	6,35	2,38	0,40	DP1020-0006	DP2020-0006		entire edge
	CCGW 060208 R-GS	6,35	2,38	0,80	DP1020-0007	DP2020-0007		entire edge
	CCGW 09T304 R-GS	9,525	3,97	0,40	DP1020-0062	DP2020-0062		entire edge
	CCGW 09T308 R-GS	9,525	3,97	0,80	DP1020-0008	DP2020-0008		entire edge
	CCGW 09T312 R-GS	9,525	3,97	1,20	DP1020-0009	DP2020-0009		entire edge
	CCGW 120404 R-GS	12,70	4,76	0,40	DP1020-0063	DP2020-0063		entire edge
	CCGW 120408 R-GS	12,70	4,76	0,80	DP1020-0010	DP2020-0010		entire edge

## left version - neutral



	ISO Code	IC	S	R	Material			Version
					PCD Item No.	CVD-D Item No.	Ultra Diamond Item No.	
Standard - left version	CCGW 060202 L-GS	6,35	2,38	0,20	DP1020-0064	DP2020-0064		entire edge
	CCGW 060204 L-GS	6,35	2,38	0,40	DP1020-0050	DP2020-0050		entire edge
	CCGW 060208 L-GS	6,35	2,38	0,80	DP1020-0051	DP2020-0051		entire edge
	CCGW 09T304 L-GS	9,525	3,97	0,40	DP1020-0065	DP2020-0065		entire edge
	CCGW 09T308 L-GS	9,525	3,97	0,80	DP1020-0052	DP2020-0052		entire edge
	CCGW 09T312 L-GS	9,525	3,97	1,20	DP1020-0053	DP2020-0053		entire edge
	CCGW 120404 L-GS	12,70	4,76	0,40	DP1020-0066	DP2020-0066		entire edge
	CCGW 120408 L-GS	12,70	4,76	0,80	DP1020-0054	DP2020-0054		entire edge



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# CDGW

FullFace | edge tipped



## FullFace | right and left version

MiniTools	Links	ISO Code	IC	S	R	PCD	CVD-D	Ultra Diamond	Version	
						Item No.	Item No. <small>New</small>	Item No.		
Rechts	<small>New</small>	CDGW 03X101-R	3,20	0,63	0,10				DP2030-0500	FullFace (Z1)
		CDGW 03X102-R	3,20	0,63	0,20				DP2030-0502	FullFace (Z1)
		CDGW 03X101-L	3,20	0,63	0,10				DP2030-0501	FullFace (Z1)
		CDGW 03X102-L	3,20	0,63	0,20				DP2030-0503	FullFace (Z1)

! You will find the matching boring bar holder in our boring bar catalog [03] on page 21.

## FN - neutral

MiniTools	ISO Code	IC	S	R	PCD	CVD-D	Ultra Diamond	Version	
					Item No.	Item No.	Item No. <small>New</small>		
	CDGW 040101	3,97	1,00	0,10				DP2010-0511 DP1110-1480	2-edge tipped
	CDGW 040102	3,97	1,00	0,20				DP2010-0512 DP1110-1482	2-edge tipped
	CDGW 040104	3,97	1,00	0,40				DP2010-0513 DP1110-1484	2-edge tipped

! You will find the matching boring bar holder in our boring bar catalog [03] on page 22.

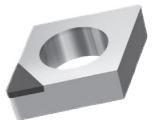
### Application range:

- PCD** Aluminum <10% Si, Brass, Brass lead-free, Graphite coarse-grained, Titanium (Roughing) ...
- CVD-D** Acrylic, Aluminum >10% Si, Carbide, Ceramics, Composites (CFRP, GFRP, MMC), Copper, Plastics, PEEK, Titanium (Finishing) ...
- Ultra-Dia.** Carbide <10% Co, Carbide with Nickel Binder, Glass Materials, sintered Ceramic Materials, highly abrasive materials ...

You will find further application ranges in the detailed overview on page 7.

# CNGA

edge tipped



## FN - neutral

Standard	ISO Code	IC	S	R	PCD	CVD-D	Ultra Diamond	Version	
					Item No.	Item No.	Item No.		
	CNGA 120404	12,70	4,76	0,40				DP2010-0173	1-edge tipped
	CNGA 120408	12,70	4,76	0,80				DP2010-0174	1-edge tipped
	CNGA 120412	12,70	4,76	1,20				DP2010-0175	1-edge tipped



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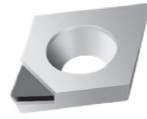


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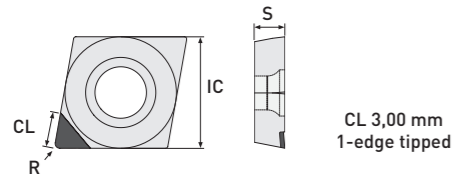
Subject to technical changes.

# CPGT - Positive Rake Angle

edge tipped



## FN - positive rake angle



Standard	ISO Code	IC	S	R	PCD	CVD-D	Ultra Diamond	Version
					Item No.	Item No.	Item No.	
	CPGT 060202	6,35	2,38	0,20	DP1010-0201	DP2010-0201		1-edge tipped
	CPGT 060204	6,35	2,38	0,40	DP1010-0202	DP2010-0202		1-edge tipped
	CPGT 060208	6,35	2,38	0,80	DP1010-0203	DP2010-0203		1-edge tipped

### Application range:

- **PCD** Aluminum <10% Si, Brass, Brass lead-free, Graphite coarse-grained, Titanium (Roughing) ...
- **CVD-D** Acrylic, Aluminum >10% Si, Carbide, Ceramics, Composites (CFRP, GFRP, MMC), Copper, Plastics, PEEK, Titanium (Finishing) ...
- **Ultra-Dia.** Carbide <10% Co, Carbide with Nickel Binder, Glass Materials, sintered Ceramic Materials, highly abrasive materials ...

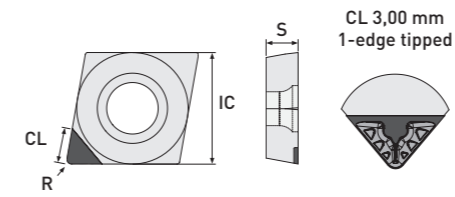
You will find further application ranges in the detailed overview on page 7.

# CPGT - Chip Breaker

edge tipped



## FN - neutral - FN - Chip breaker for finishing (SPL-F) or roughing (SPL-R)



Standard	ISO Code	IC	S	R	PCD	CVD-D	PCD	CVD-D	Version
					Item No.	Item No.	Item No.	Item No.	
					SPL-F (Finishing)		SPL-R (Roughing)		
	CPGT 060202	6,35	2,38	0,20	DP1011-0251	DP2011-0251	DP1012-0251	DP2012-0251	1-edge tipped
	CPGT 060204	6,35	2,38	0,40	DP1011-0252	DP2011-0252	DP1012-0252	DP2012-0252	1-edge tipped
	CPGT 060208	6,35	2,38	0,80	DP1011-0253	DP2011-0253	DP1012-0253	DP2012-0253	1-edge tipped
	CPGT 09T302	9,525	3,97	0,20	DP1011-0254	DP2011-0254	DP1012-0254	DP2012-0254	1-edge tipped
	CPGT 09T304	9,525	3,97	0,40	DP1011-0255	DP2011-0255	DP1012-0255	DP2012-0255	1-edge tipped
	CPGT 09T308	9,525	3,97	0,80	DP1011-0256	DP2011-0256	DP1012-0256	DP2012-0256	1-edge tipped
	CPGT 120404	12,70	4,76	0,40	DP1011-0257	DP2011-0257	DP1012-0257	DP2012-0257	1-edge tipped
	CPGT 120408	12,70	4,76	0,80	DP1011-0258	DP2011-0258	DP1012-0258	DP2012-0258	1-edge tipped

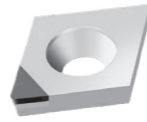


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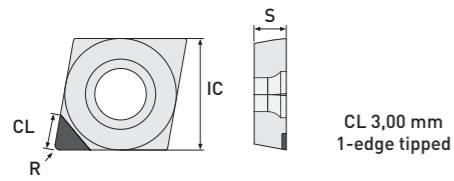


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**FN - neutral**



CL 3,00 mm  
1-edge tipped



Standard	ISO Code	IC	S	R	Item No. (PCD)	Item No. (CVD-D)	Item No. (Ultra Diamond)	Version
	CPGW 060201	6,35	2,38	0,10		DP2010-0595		1-edge tipped
CPGW 060202	6,35	2,38	0,20		DP1010-0251	DP2010-0251	1-edge tipped	
CPGW 060204	6,35	2,38	0,40		DP1010-0252	DP2010-0252	1-edge tipped	
CPGW 060208	6,35	2,38	0,80		DP1010-0253	DP2010-0253	1-edge tipped	
CPGW 09T301	9,525	3,97	0,10			DP2010-0596	1-edge tipped	
CPGW 09T302	9,525	3,97	0,20		DP1010-0254	DP2010-0254	1-edge tipped	
CPGW 09T304	9,525	3,97	0,40		DP1010-0255	DP2010-0255	1-edge tipped	
CPGW 09T308	9,525	3,97	0,80		DP1010-0256	DP2010-0256	1-edge tipped	
CPGW 120404	12,70	4,76	0,40		DP1010-0257	DP2010-0257	1-edge tipped	
CPGW 120408	12,70	4,76	0,80		DP1010-0258	DP2010-0258	1-edge tipped	
CPGW 120412	12,70	4,76	1,20		DP1010-0259	DP2010-0259	1-edge tipped	

**Application range:**

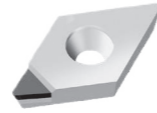
- **PCD** Aluminum <10% Si, Brass, Brass lead-free, Graphite coarse-grained, Titanium (Roughing) ...
- **CVD-D** Acrylic, Aluminum >10% Si, Carbide, Ceramics, Composites (CFRP, GFRP, MMC), Copper, Plastics, PEEK, Titanium (Finishing) ...
- **Ultra-Dia.** Carbide <10% Co, Carbide with Nickel Binder, Glass Materials, sintered Ceramic Materials, highly abrasive materials ...

You will find further application ranges in the detailed overview on page 7.

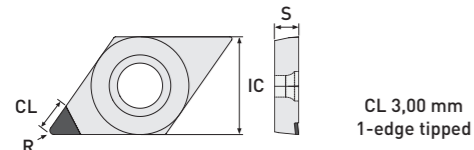
**Your Notes**

# DCGT - Positive Rake Angle

edge tipped



FN - positive rake angle



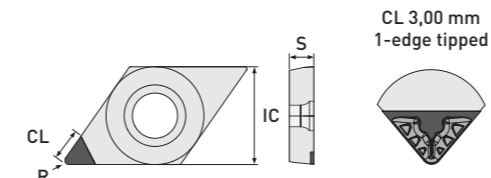
	ISO Code	IC	S	R	Material			Version
					Item No.	Item No.	Item No.	
Standard	DCGT 070201	6,35	2,38	0,10	PCD	CVD-D	Ultra Diamond	1-edge tipped
	DCGT 070202	6,35	2,38	0,20				1-edge tipped
	DCGT 070204	6,35	2,38	0,40				1-edge tipped
	DCGT 070208	6,35	2,38	0,80				1-edge tipped
	DCGT 11T301	9,525	3,97	0,10				1-edge tipped
	DCGT 11T302	9,525	3,97	0,20				1-edge tipped
	DCGT 11T304	9,525	3,97	0,40				1-edge tipped
	DCGT 11T308	9,525	3,97	0,80				1-edge tipped
	DCGT 11T312	9,525	3,97	1,20				1-edge tipped

# DCGT - Chip Breaker

edge tipped



FN - neutral - FN - Chip breaker for finishing (SPL-F) or roughing (SPL-R)



	ISO Code	IC	S	R	Material		Application		Version
					Item No.	Item No.	Item No.	Item No.	
Standard	DCGT 070202	6,35	2,38	0,20	PCD	CVD-D	SPL-F (Finishing)	SPL-R (Roughing)	1-edge tipped
	DCGT 070204	6,35	2,38	0,40					1-edge tipped
	DCGT 070208	6,35	2,38	0,80					1-edge tipped
	DCGT 11T302	9,525	3,97	0,20					1-edge tipped
	DCGT 11T304	9,525	3,97	0,40					1-edge tipped
	DCGT 11T308	9,525	3,97	0,80					1-edge tipped
	Wiper	DCGT 070202 R/L W*	6,35	2,38	0,20				
DCGT 070204 R/L W*		6,35	2,38	0,40					1-edge tipped
DCGT 070208 R/L W*		6,35	2,38	0,80					1-edge tipped
DCGT 11T302 R/L W*		9,525	3,97	0,20					1-edge tipped
DCGT 11T304 R/L W*		9,525	3,97	0,40					1-edge tipped
DCGT 11T308 R/L W*		9,525	3,97	0,80					1-edge tipped

\* for lengthwise turning

### Application range:

- PCD** Aluminum <10% Si, Brass, Brass lead-free, Graphite coarse-grained, Titanium (Roughing) ...
- CVD-D** Acrylic, Aluminum >10% Si, Carbide, Ceramics, Composites (CFRP, GFRP, MMC), Copper, Plastics, PEEK, Titanium (Finishing) ...
- Ultra-Dia.** Carbide <10% Co, Carbide with Nickel Binder, Glass Materials, sintered Ceramic Materials, highly abrasive materials ...

You will find further application ranges in the detailed overview on page 7.



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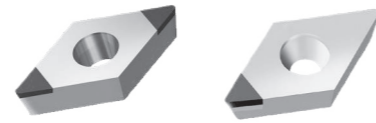
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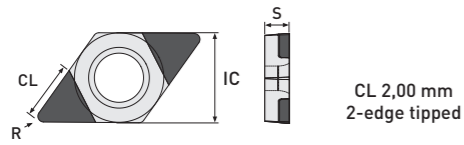


# DCGW

edge tipped

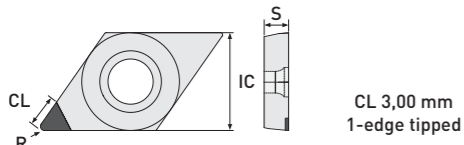


## FN - neutral



	ISO Code	IC	S	R	Material			Version
					Item No. (PCD)	Item No. (CVD-D)	Item No. (Ultra Diamond)	
MiniTools	DCGW 04T001	3,10	1,20	0,10		DP2010-0521	DP1110-1492	2-edge tipped
	DCGW 04T002	3,10	1,20	0,20		DP2010-0522	DP1110-1494	2-edge tipped
	DCGW 04T004	3,10	1,20	0,40		DP2010-0523	DP1110-1496	2-edge tipped

! You will find the matching boring bar holder in our boring bar catalog (03) on page 24.



	ISO Code	IC	S	R	Material			Version
					Item No. (PCD)	Item No. (CVD-D)	Item No. (Ultra Diamond)	
Standard	DCGW 070201	6,35	2,38	0,10	DP1010-0603	DP2010-0603	DP1110-0603	1-edge tipped
	DCGW 070202	6,35	2,38	0,20	DP1010-0056	DP2010-0056	DP1110-0056	1-edge tipped
	DCGW 070204	6,35	2,38	0,40	DP1010-0057	DP2010-0057	DP1110-0057	1-edge tipped
	DCGW 070208	6,35	2,38	0,80	DP1010-0058	DP2010-0058	DP1110-0058	1-edge tipped
	DCGW 11T301	9,525	3,97	0,10	DP1010-0604	DP2010-0604	DP1110-0604	1-edge tipped
	DCGW 11T302	9,525	3,97	0,20	DP1010-0059	DP2010-0059	DP1110-0059	1-edge tipped
	DCGW 11T304	9,525	3,97	0,40	DP1010-0060	DP2010-0060	DP1110-0060	1-edge tipped
	DCGW 11T308	9,525	3,97	0,80	DP1010-0061	DP2010-0061	DP1110-0061	1-edge tipped
	DCGW 11T312	9,525	3,97	1,20	DP1010-0062	DP2010-0062	DP1110-0062	1-edge tipped
	DCGW 11T320	9,525	3,97	2,00			DP1110-0133	1-edge tipped
Wiper	DCGW 070202 R/L W	6,35	2,38	0,20	DP1010-0063	DP2010-0063		1-edge tipped
	DCGW 070204 R/L W	6,35	2,38	0,40	DP1010-0064	DP2010-0064		1-edge tipped
	DCGW 070208 R/L W	6,35	2,38	0,80	DP1010-0128	DP2010-0130		1-edge tipped
	DCGW 11T302 R/L W	9,525	3,97	0,20	DP1010-0065	DP2010-0065		1-edge tipped
	DCGW 11T304 R/L W	9,525	3,97	0,40	DP1010-0066	DP2010-0066		1-edge tipped
	DCGW 11T308 R/L W	9,525	3,97	0,80	DP1010-0129	DP2010-0131		1-edge tipped

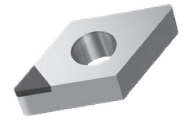
### Application range:

- PCD** Aluminum <10% Si, Brass, Brass lead-free, Graphite coarse-grained, Titanium (Roughing) ...
- CVD-D** Acrylic, Aluminum >10% Si, Carbide, Ceramics, Composites (CFRP, GFRP, MMC), Copper, Plastics, PEEK, Titanium (Finishing) ...
- Ultra-Dia.** Carbide <10% Co, Carbide with Nickel Binder, Glass Materials, sintered Ceramic Materials, highly abrasive materials ...

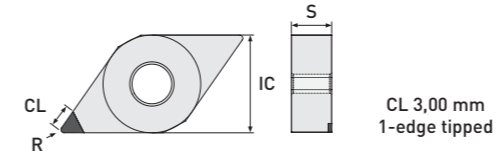
You will find further application ranges in the detailed overview on page 7.

# DNGA

edge tipped



## FN - neutral



	ISO Code	IC	S	R	Material			Version
					Item No. (PCD)	Item No. (CVD-D)	Item No. (Ultra Diamond)	
Standard	DNGA 150602	12,70	6,35	0,20		DP2010-0282		1-edge tipped
	DNGA 150604	12,70	6,35	0,40		DP2010-0283		1-edge tipped
	DNGA 150608	12,70	6,35	0,80		DP2010-0284		1-edge tipped



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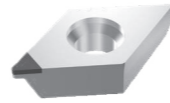


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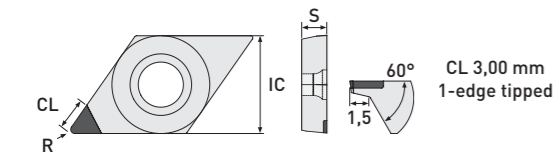
Subject to technical changes.

# DXGW

edge tipped



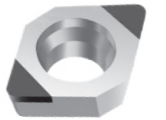
FN - neutral



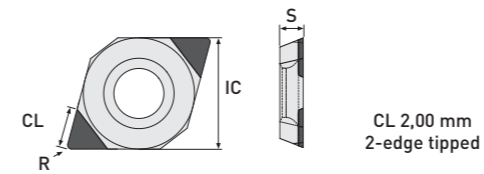
	ISO Code	IC	S	R	PCD	CVD-D	Ultra Diamond	Version
					Item No.	Item No.	Item No.	
DTS - Specials	DXGW 11T301	9,525	3,97	0,10		DP2010-0300		1-edge tipped
	DXGW 11T302	9,525	3,97	0,20		DP2010-0301		1-edge tipped
	DXGW 11T304	9,525	3,97	0,40		DP2010-0302		1-edge tipped
	DXGW 11T308	9,525	3,97	0,80		DP2010-0303		1-edge tipped

# EPGW

edge tipped



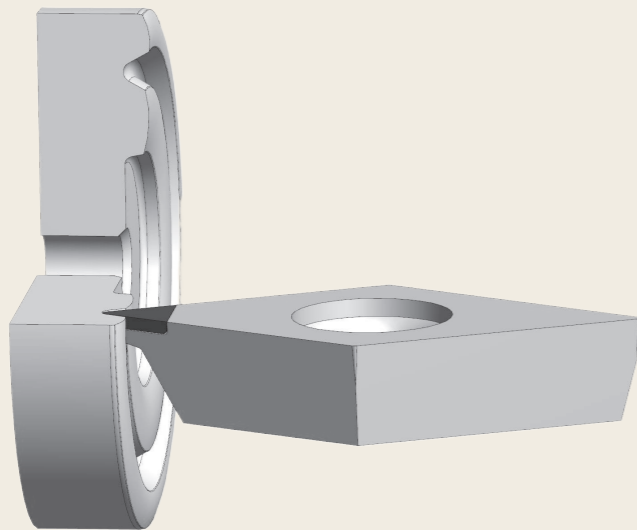
FN - neutral



	ISO Code	IC	S	R	PCD	CVD-D	Ultra Diamond	Version
					Item No.	Item No.	Item No. <small>New</small>	
MiniTools	EPGW 050201	5,56	2,38	0,10		DP2010-0531	DP1110-1400	2-edge tipped
	EPGW 050202	5,56	2,38	0,20		DP2010-0532	DP1110-1402	2-edge tipped
	EPGW 050204	5,56	2,38	0,40		DP2010-0533	DP1110-1404	2-edge tipped

! You will find the matching boring bar holder in our boring bar catalog (03) on page 26.

## DTS-Specials Face / Axial Machining



### Application range:

- **PCD** Aluminum <10% Si, Brass, Brass lead-free, Graphite coarse-grained, Titanium (Roughing) ...
- **CVD-D** Acrylic, Aluminum >10% Si, Carbide, Ceramics, Composites (CFRP, GFRP, MMC), Copper, Plastics, PEEK, Titanium (Finishing) ...
- **Ultra-Dia.** Carbide <10% Co, Carbide with Nickel Binder, Glass Materials, sintered Ceramic Materials, highly abrasive materials ...

You will find further application ranges in the detailed overview on page 7.



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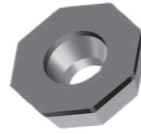


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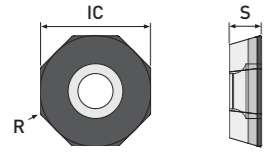
Subject to technical changes.

# ODGW

FullFace



## FN - FullFace



	ISO Code	IC	S	R	FullFace			Version
					Item No. (PCD)	Item No. (CVD-D)	Item No. (Ultra Diamond)	
Standard	ODGW 05T302 FF	12,70	3,97	0,20	MI1030-0100	MI2030-0100		FullFace (Z8)
	ODGW 05T304 FF	12,70	3,97	0,40	MI1030-0102	MI2030-0102		FullFace (Z8)
	ODGW 05T308 FF	12,70	3,97	0,80	MI1030-0104	MI2030-0104		FullFace (Z8)

### ! Turning and milling inserts (8-edged)

You can find suitable milling heads in our milling systems with indexable inserts catalog (05).  
You can find suitable external clamp holders in our online shop.

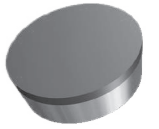
#### Application range:

- PCD** Aluminum <10% Si, Brass, Brass lead-free, Graphite coarse-grained, Titanium (Roughing) ...
- CVD-D** Acrylic, Aluminum >10% Si, Carbide, Ceramics, Composites (CFRP, GFRP, MMC), Copper, Plastics, PEEK, Titanium (Finishing) ...
- Ultra-Dia.** Carbide <10% Co, Carbide with Nickel Binder, Glass Materials, sintered Ceramic Materials, highly abrasive materials ...

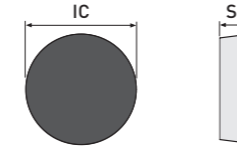
You will find further application ranges in the detailed overview on page 7.

# RBGN

FullFace



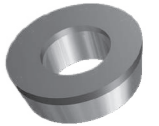
## FN - FullFace



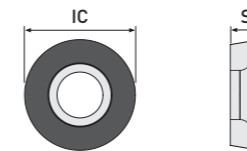
	ISO Code	IC	S	R	FullFace			Version
					Item No. (PCD)	Item No. (CVD-D)	Item No. (Ultra Diamond)	
Standard	RBGN 0602M0 FF	6,00	2,38	-	DP1030-0090	DP2030-0090		FullFace
	RBGN 0803M0 FF	8,00	3,18	-	DP1030-0092	DP2030-0092		FullFace
	RBGN 1003M0 FF	10,00	3,18	-	DP1030-0094	DP2030-0094		FullFace
	RBGN 1203M0 FF	12,00	3,18	-	DP1030-0096	DP2030-0096		FullFace

# RCGW

FullFace



## FN - FullFace



	ISO Code	IC	S	R	FullFace			Version
					Item No. (PCD)	Item No. (CVD-D)	Item No. (Ultra Diamond)	
Standard	RCGW 0602M0 FF	6,00	2,38	-	DP1030-0001	DP2030-0001		FullFace
	RCGW 0803M0 FF	8,00	3,18	-	DP1030-0002	DP2030-0002		FullFace
	RCGW 1003M0 FF	10,00	3,18	-	DP1030-0003	DP2030-0003		FullFace
	RCGW 10T3M0 FF	10,00	3,97	-	DP1030-0004	DP2030-0004		FullFace
	RCGW 1204M0 FF	12,00	4,76	-	DP1030-0005	DP2030-0005		FullFace



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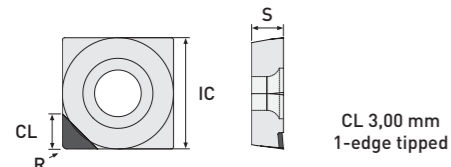
Subject to technical changes.

## SCGT - Positive Rake Angle

edge tipped



FN - positive rake angle



CL 3,00 mm  
1-edge tipped

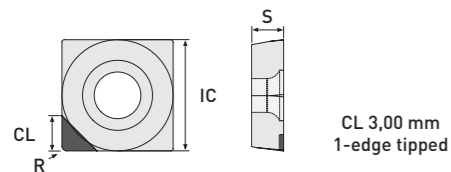
	ISO Code	IC	S	R	PCD	CVD-D	Ultra Diamond	Version
					Item No.	Item No.	Item No.	
Standard	SCGT 09T302	9,525	3,97	0,20	DP1010-0067	DP2010-0067		1-edge tipped
	SCGT 09T304	9,525	3,97	0,40	DP1010-0068	DP2010-0068		1-edge tipped
	SCGT 09T308	9,525	3,97	0,80	DP1010-0069	DP2010-0069		1-edge tipped
	SCGT 09T312	9,525	3,97	1,20	DP1010-0070	DP2010-0070		1-edge tipped
	SCGT 120404	12,70	4,76	0,40	DP1010-0130	DP2010-0132		1-edge tipped
	SCGT 120408	12,70	4,76	0,80	DP1010-0071	DP2010-0071		1-edge tipped
	SCGT 120412	12,70	4,76	1,20	DP1010-0072	DP2010-0072		1-edge tipped

## SCGW

edge tipped



FN - neutral



CL 3,00 mm  
1-edge tipped

	ISO Code	IC	S	R	PCD	CVD-D	Ultra Diamond	Version
					Item No.	Item No.	Item No.	
Standard	SCGW 09T302	9,525	3,97	0,20	DP1010-0073	DP2010-0073		1-edge tipped
	SCGW 09T304	9,525	3,97	0,40	DP1010-0074	DP2010-0074		1-edge tipped
	SCGW 09T308	9,525	3,97	0,80	DP1010-0075	DP2010-0075		1-edge tipped
	SCGW 09T312	9,525	3,97	1,20	DP1010-0076	DP2010-0076		1-edge tipped
	SCGW 120404	12,70	4,76	0,40	DP1010-0077	DP2010-0077		1-edge tipped
	SCGW 120408	12,70	4,76	0,80	DP1010-0078	DP2010-0078		1-edge tipped
	SCGW 120412	12,70	4,76	1,20	DP1010-0079	DP2010-0079		1-edge tipped

### Application range:

- PCD Aluminum <10% Si, Brass, Brass lead-free, Graphite coarse-grained, Titanium (Roughing) ...
- CVD-D Acrylic, Aluminum >10% Si, Carbide, Ceramics, Composites (CFRP, GFRP, MMC), Copper, Plastics, PEEK, Titanium (Finishing) ...
- Ultra-Dia. Carbide <10% Co, Carbide with Nickel Binder, Glass Materials, sintered Ceramic Materials, highly abrasive materials ...

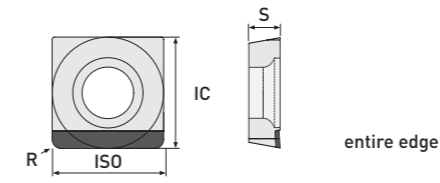
You will find further application ranges in the detailed overview on page 7.

## SCGT - Positive Rake Angle

entire edge



FN - positive rake angle

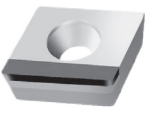


entire edge

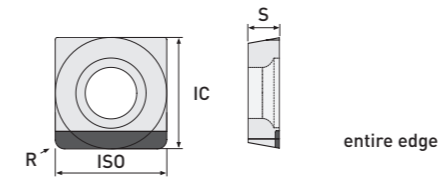
	ISO Code	IC	S	R	PCD	CVD-D	Ultra Diamond	Version
					Item No.	Item No.	Item No.	
Standard	SCGT 09T304 GS	9,525	3,97	0,40	DP1020-0067	DP2020-0067		entire edge
	SCGT 09T308 GS	9,525	3,97	0,80	DP1020-0011	DP2020-0011		entire edge
	SCGT 09T312 GS	9,525	3,97	1,20	DP1020-0012	DP2020-0012		entire edge
	SCGT 120404 GS	12,70	4,76	0,40	DP1020-0068	DP2020-0068		entire edge
	SCGT 120408 GS	12,70	4,76	0,80	DP1020-0013	DP2020-0013		entire edge
	SCGT 120412 GS	12,70	4,76	1,20	DP1020-0014	DP2020-0014		entire edge

## SCGW

entire edge



FN - neutral



entire edge

	ISO Code	IC	S	R	PCD	CVD-D	Ultra Diamond	Version
					Item No.	Item No.	Item No.	
Standard	SCGW 09T304 GS	9,525	3,97	0,40	DP1020-0015	DP2020-0015		entire edge
	SCGW 09T308 GS	9,525	3,97	0,80	DP1020-0016	DP2020-0016		entire edge
	SCGW 09T312 GS	9,525	3,97	1,20	DP1020-0017	DP2020-0017		entire edge
	SCGW 120404 GS	12,70	4,76	0,40	DP1020-0018	DP2020-0018		entire edge
	SCGW 120408 GS	12,70	4,76	0,80	DP1020-0019	DP2020-0019		entire edge
	SCGW 120412 GS	12,70	4,76	1,20	DP1020-0020	DP2020-0020		entire edge



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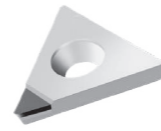


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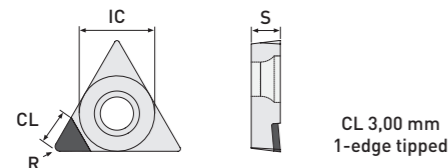
Subject to technical changes.

# TCGT - Positive Rake Angle

edge tipped



FN - positive rake angle



Standard	ISO Code	IC	S	R	PCD	CVD-D	Ultra Diamond	Version
					Item No.	Item No.	Item No.	
	TCGT 090202	5,56	2,38	0,20	DP1010-0080	DP2010-0080		1-edge tipped
	TCGT 090204	5,56	2,38	0,40	DP1010-0081	DP2010-0081		1-edge tipped
	TCGT 090208	5,56	2,38	0,80	DP1010-0082	DP2010-0082		1-edge tipped
	TCGT 110202	6,35	2,38	0,20	DP1010-0083	DP2010-0083		1-edge tipped
	TCGT 110204	6,35	2,38	0,40	DP1010-0084	DP2010-0084		1-edge tipped
	TCGT 110208	6,35	2,38	0,80	DP1010-0085	DP2010-0085		1-edge tipped
	TCGT 16T302	9,525	3,97	0,20	DP1010-0086	DP2010-0086		1-edge tipped
	TCGT 16T304	9,525	3,97	0,40	DP1010-0087	DP2010-0087		1-edge tipped
	TCGT 16T308	9,525	3,97	0,80	DP1010-0088	DP2010-0088		1-edge tipped
	TCGT 16T312	9,525	3,97	1,20	DP1010-0089	DP2010-0089		1-edge tipped

### Application range:

- PCD** Aluminum <10% Si, Brass, Brass lead-free, Graphite coarse-grained, Titanium (Roughing) ...
- CVD-D** Acrylic, Aluminum >10% Si, Carbide, Ceramics, Composites (CFRP, GFRP, MMC), Copper, Plastics, PEEK, Titanium (Finishing) ...
- Ultra-Dia.** Carbide <10% Co, Carbide with Nickel Binder, Glass Materials, sintered Ceramic Materials, highly abrasive materials ...

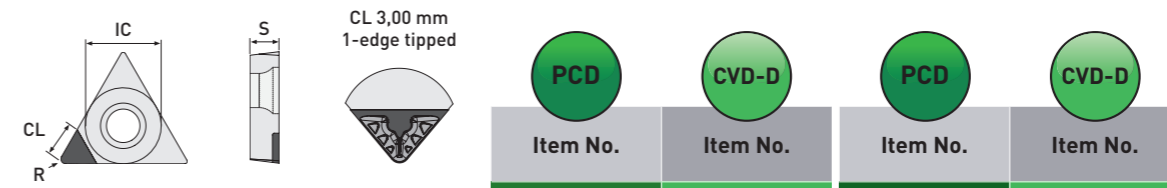
You will find further application ranges in the detailed overview on page 7.

# TCGT - Chip Breaker

edge tipped



FN - neutral - FN - Chip breaker for finishing (SPL-F) or roughing (SPL-R)



Standard	ISO Code	IC	S	R	PCD	CVD-D	PCD	CVD-D	Version
					Item No.	Item No.	Item No.	Item No.	
	TCGT 090202	5,56	2,38	0,20	DP1011-0040		DP1012-0040		1-edge tipped
	TCGT 090204	5,56	2,38	0,40	DP1011-0041		DP1012-0041		1-edge tipped
	TCGT 090208	5,56	2,38	0,80	DP1011-0042		DP1012-0042		1-edge tipped
	TCGT 110202	6,35	2,38	0,20	DP1011-0043		DP1012-0043		1-edge tipped
	TCGT 110204	6,35	2,38	0,40	DP1011-0044		DP1012-0044		1-edge tipped
	TCGT 110208	6,35	2,38	0,80	DP1011-0045		DP1012-0045		1-edge tipped
	TCGT 16T302	9,525	3,97	0,20	DP1011-0046		DP1012-0046		1-edge tipped
	TCGT 16T304	9,525	3,97	0,40	DP1011-0047		DP1012-0047		1-edge tipped
	TCGT 16T308	9,525	3,97	0,80	DP1011-0048		DP1012-0048		1-edge tipped



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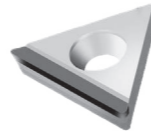
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Subject to technical changes.

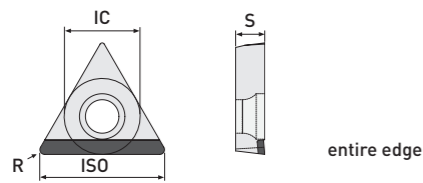


# TCGT - Positive Rake Angle

entire edge



## FN - positive rake angle



Standard	ISO Code	IC	S	R	PCD	CVD-D	Ultra Diamond	Version
					Item No.	Item No.	Item No.	
	TCGT 090202 GS	5,56	2,38	0,20	DP1020-0069	DP2020-0069		entire edge
	TCGT 090204 GS	5,56	2,38	0,40	DP1020-0021	DP2020-0021		entire edge
	TCGT 090208 GS	5,56	2,38	0,80	DP1020-0022	DP2020-0022		entire edge
	TCGT 110202 GS	6,35	2,38	0,20	DP1020-0070	DP2020-0070		entire edge
	TCGT 110204 GS	6,35	2,38	0,40	DP1020-0023	DP2020-0023		entire edge
	TCGT 110208 GS	6,35	2,38	0,80	DP1020-0024	DP2020-0024		entire edge
	TCGT 110212 GS	6,35	2,38	1,20	DP1020-0025	DP2020-0025		entire edge
	TCGT 16T302 GS	9,525	3,97	0,20	DP1020-0071	DP2020-0071		entire edge
	TCGT 16T304 GS	9,525	3,97	0,40	DP1020-0027	DP2020-0027		entire edge
	TCGT 16T308 GS	9,525	3,97	0,80	DP1020-0028	DP2020-0028		entire edge
	TCGT 16T312 GS	9,525	3,97	1,20	DP1020-0029	DP2020-0029		entire edge

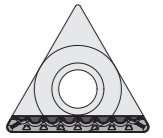
### Application range:

- PCD** Aluminum <10% Si, Brass, Brass lead-free, Graphite coarse-grained, Titanium (Roughing) ...
- CVD-D** Acrylic, Aluminum >10% Si, Carbide, Ceramics, Composites (CFRP, GFRP, MMC), Copper, Plastics, PEEK, Titanium (Finishing) ...
- Ultra-Dia.** Carbide <10% Co, Carbide with Nickel Binder, Glass Materials, sintered Ceramic Materials, highly abrasive materials ...

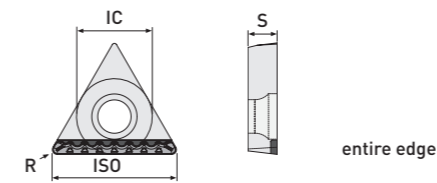
You will find further application ranges in the detailed overview on page 7.

# TCGT - Chip Breaker

entire edge



## FN - neutral - FN - Chip breaker for finishing (SPL-F) or roughing (SPL-R)



Standard	ISO Code	IC	S	R	PCD	CVD-D	PCD	CVD-D	Version
					Item No.	Item No.	Item No.	Item No.	
					SPL-F (Finishing)		SPL-R (Roughing)		
	TCGT 090202 GS	5,56	2,38	0,20	DP1021-0038		DP1022-0038		entire edge
	TCGT 090204 GS	5,56	2,38	0,40	DP1021-0012		DP1022-0012		entire edge
	TCGT 090208 GS	5,56	2,38	0,80	DP1021-0013		DP1022-0013		entire edge
	TCGT 110202 GS	6,35	2,38	0,20	DP1021-0039		DP1022-0039		entire edge
	TCGT 110204 GS	6,35	2,38	0,40	DP1021-0014		DP1022-0014		entire edge
	TCGT 110208 GS	6,35	2,38	0,80	DP1021-0015		DP1022-0015		entire edge
	TCGT 16T302 GS	9,525	3,97	0,20	DP1021-0040		DP1022-0040		entire edge
	TCGT 16T304 GS	9,525	3,97	0,40	DP1021-0018		DP1022-0018		entire edge
	TCGT 16T308 GS	9,525	3,97	0,80	DP1021-0019		DP1022-0019		entire edge

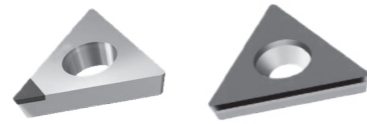


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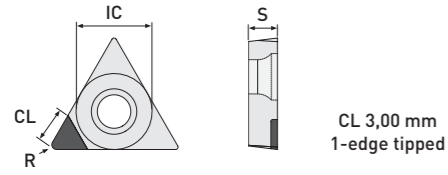


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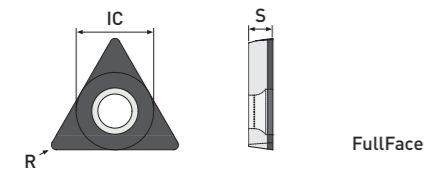


FN - neutral



ISO Code	IC	S	R	PCD	CVD-D	Ultra Diamond	Version
				Item No.	Item No.	Item No.	
TCGW 090201	5,56	2,38	0,10	DP1010-0613	DP2010-0613		1-edge tipped
TCGW 090202	5,56	2,38	0,20	DP1010-0090	DP2010-0090		1-edge tipped
TCGW 090204	5,56	2,38	0,40	DP1010-0091	DP2010-0091		1-edge tipped
TCGW 090208	5,56	2,38	0,80	DP1010-0092	DP2010-0092		1-edge tipped
TCGW 110201	6,35	2,38	0,10	DP1010-0614	DP2010-0614		1-edge tipped
TCGW 110202	6,35	2,38	0,20	DP1010-0093	DP2010-0093		1-edge tipped
TCGW 110204	6,35	2,38	0,40	DP1010-0094	DP2010-0094		1-edge tipped
TCGW 110208	6,35	2,38	0,80	DP1010-0095	DP2010-0095		1-edge tipped
TCGW 16T302	9,525	3,97	0,20	DP1010-0096	DP2010-0096		1-edge tipped
TCGW 16T304	9,525	3,97	0,40	DP1010-0097	DP2010-0097		1-edge tipped
TCGW 16T308	9,525	3,97	0,80	DP1010-0098	DP2010-0098		1-edge tipped
TCGW 16T312	9,525	3,97	1,20	DP1010-0099	DP2010-0099		1-edge tipped

FN - FullFace

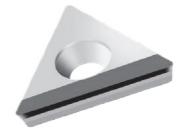


ISO Code	IC	S	R	PCD	CVD-D	Ultra Diamond	Version
				Item No.	Item No.	Item No.	
TCGW 090202 FF	5,56	2,38	0,20	DP1030-0030	DP2030-0030		FullFace
TCGW 090204 FF	5,56	2,38	0,40	DP1030-0031	DP2030-0031		FullFace
TCGW 090208 FF	5,56	2,38	0,80	DP1030-0032	DP2030-0032		FullFace
TCGW 110202 FF	6,35	2,38	0,20	DP1030-0010	DP2030-0010		FullFace
TCGW 110204 FF	6,35	2,38	0,40	DP1030-0011	DP2030-0011		FullFace
TCGW 110208 FF	6,35	2,38	0,80	DP1030-0012	DP2030-0012		FullFace

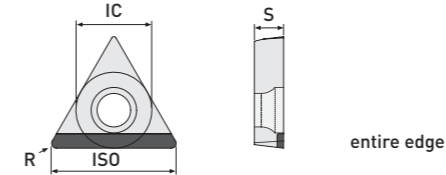
Application range:

- PCD Aluminum <10% Si, Brass, Brass lead-free, Graphite coarse-grained, Titanium (Roughing) ...
- CVD-D Acrylic, Aluminum >10% Si, Carbide, Ceramics, Composites (CFRP, GFRP, MMC), Copper, Plastics, PEEK, Titanium (Finishing) ...
- Ultra-Dia. Carbide <10% Co, Carbide with Nickel Binder, Glass Materials, sintered Ceramic Materials, highly abrasive materials ...

You will find further application ranges in the detailed overview on page 7.



FN - neutral



ISO Code	IC	S	R	PCD	CVD-D	Ultra Diamond	Version
				Item No.	Item No.	Item No.	
TCGW 090202 GS	5,56	2,38	0,20	DP1020-0072	DP2020-0072		entire edge
TCGW 090204 GS	5,56	2,38	0,40	DP1020-0030	DP2020-0030		entire edge
TCGW 090208 GS	5,56	2,38	0,80	DP1020-0031	DP2020-0031		entire edge
TCGW 110202 GS	6,35	2,38	0,20	DP1020-0073	DP2020-0073		entire edge
TCGW 110204 GS	6,35	2,38	0,40	DP1020-0032	DP2020-0032		entire edge
TCGW 110208 GS	6,35	2,38	0,80	DP1020-0033	DP2020-0033		entire edge
TCGW 110212 GS	6,35	2,38	1,20	DP1020-0034	DP2020-0034		entire edge
TCGW 16T302 GS	9,525	3,97	0,20	DP1020-0074	DP2020-0074		entire edge
TCGW 16T304 GS	9,525	3,97	0,40	DP1020-0036	DP2020-0036		entire edge
TCGW 16T308 GS	9,525	3,97	0,80	DP1020-0037	DP2020-0037		entire edge
TCGW 16T312 GS	9,525	3,97	1,20	DP1020-0038	DP2020-0038		entire edge



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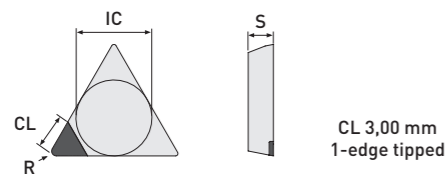
Subject to technical changes.

# TPGN

edge tipped



FN - neutral



Standard	ISO Code	IC	S	R	PCD	CVD-D	Ultra Diamond	Version
					Item No.	Item No.	Item No.	
	TPGN 090204	5,56	2,38	0,40	DP1010-0100	DP2010-0100		1-edge tipped
	TPGN 090208	5,56	2,38	0,80	DP1010-0101	DP2010-0101		1-edge tipped
	TPGN 110204	6,35	2,38	0,40	DP1010-0102	DP2010-0102		1-edge tipped
	TPGN 110208	6,35	2,38	0,80	DP1010-0103	DP2010-0103		1-edge tipped
	TPGN 110302	6,35	3,18	0,20	DP1010-0104	DP2010-0104		1-edge tipped
	TPGN 110304	6,35	3,18	0,40	DP1010-0105	DP2010-0105		1-edge tipped
	TPGN 110308	6,35	3,18	0,80	DP1010-0106	DP2010-0106		1-edge tipped
	TPGN 160304	9,525	3,18	0,40	DP1010-0107	DP2010-0107		1-edge tipped
	TPGN 160308	9,525	3,18	0,80	DP1010-0108	DP2010-0108		1-edge tipped
	TPGN 160312	9,525	3,18	1,20	DP1010-0109	DP2010-0109		1-edge tipped

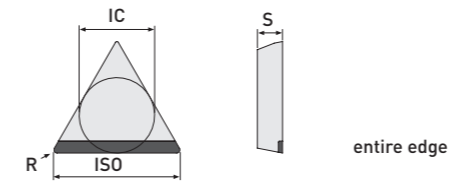
Standard

# TPGN

entire edge



FN - neutral

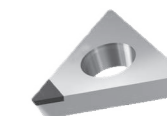


Standard	ISO Code	IC	S	R	PCD	CVD-D	Ultra Diamond	Version
					Item No.	Item No.	Item No.	
	TPGN 110304 GS	6,35	3,18	0,40	DP1020-0039	DP2020-0039		entire edge
	TPGN 110308 GS	6,35	3,18	0,80	DP1020-0040	DP2020-0040		entire edge
	TPGN 110312 GS	6,35	3,18	1,20	DP1010-0041	DP2010-0041		entire edge
	TPGN 160304 GS	9,525	3,18	0,40	DP1020-0042	DP2020-0042		entire edge
	TPGN 160308 GS	9,525	3,18	0,80	DP1020-0043	DP2020-0043		entire edge
	TPGN 160312 GS	9,525	3,18	1,20	DP1020-0044	DP2020-0044		entire edge

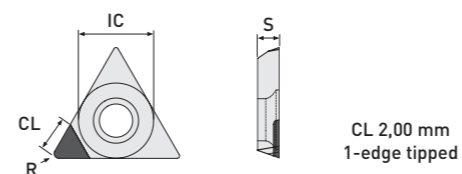
Standard

# TPGW

edge tipped



FN - neutral



MiniTools	ISO Code	IC	S	R	PCD	CVD-D	Ultra Diamond	Version
					Item No.	Item No.	Item No. <small>New</small>	
	TPGW 06T101	3,97	1,98	0,10		DP2010-0671	DP1110-1410	1-edge tipped
	TPGW 06T102	3,97	1,98	0,20		DP2010-0672	DP1110-1412	1-edge tipped
	TPGW 06T104	3,97	1,98	0,40		DP2010-0673	DP1110-1414	1-edge tipped

! You will find the matching boring bar holder in our boring bar catalog [03] on page 27.

### Application range:

- PCD** Aluminum <10% Si, Brass, Brass lead-free, Graphite coarse-grained, Titanium (Roughing) ...
- CVD-D** Acrylic, Aluminum >10% Si, Carbide, Ceramics, Composites (CFRP, GFRP, MMC), Copper, Plastics, PEEK, Titanium (Finishing) ...
- Ultra-Dia.** Carbide <10% Co, Carbide with Nickel Binder, Glass Materials, sintered Ceramic Materials, highly abrasive materials ...

You will find further application ranges in the detailed overview on page 7.



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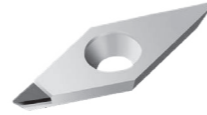


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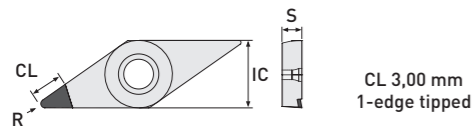
Subject to technical changes.

# VBGT - Positive Rake Angle

edge tipped



## FN - positive rake angle



	ISO Code	IC	S	R	Material			Version
					PCD Item No.	CVD-D Item No.	Ultra Diamond Item No.	
Standard	VBGT 110201	6,35	2,38	0,10	DP1010-0605	DP2010-0605		1-edge tipped
	VBGT 110202	6,35	2,38	0,20	DP1010-0401	DP2010-0401		1-edge tipped
	VBGT 110204	6,35	2,38	0,40	DP1010-0402	DP2010-0402		1-edge tipped
	VBGT 110208	6,35	2,38	0,80	DP1010-0403	DP2010-0403		1-edge tipped
	VBGT 160401	9,525	4,76	0,10	DP1010-0606	DP2010-0606		1-edge tipped
	VBGT 160402	9,525	4,76	0,20	DP1010-0404	DP2010-0404		1-edge tipped
	VBGT 160404	9,525	4,76	0,40	DP1010-0405	DP2010-0405		1-edge tipped
	VBGT 160408	9,525	4,76	0,80	DP1010-0406	DP2010-0406		1-edge tipped
	VBGT 160412	9,525	4,76	1,20	DP1010-0407	DP2010-0407		1-edge tipped

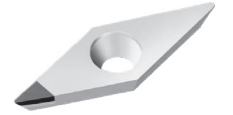
### Application range:

- PCD** Aluminum <10% Si, Brass, Brass lead-free, Graphite coarse-grained, Titanium (Roughing) ...
- CVD-D** Acrylic, Aluminum >10% Si, Carbide, Ceramics, Composites (CFRP, GFRP, MMC), Copper, Plastics, PEEK, Titanium (Finishing) ...
- Ultra-Dia.** Carbide <10% Co, Carbide with Nickel Binder, Glass Materials, sintered Ceramic Materials, highly abrasive materials ...

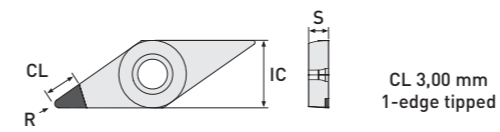
You will find further application ranges in the detailed overview on page 7.

# VBGW

edge tipped



## FN - neutral



	ISO Code	IC	S	R	Material			Version
					PCD Item No.	CVD-D Item No.	Ultra Diamond Item No.	
Standard	VBGW 110201	6,35	2,38	0,10	DP1010-0607	DP2010-0607		1-edge tipped
	VBGW 110202	6,35	2,38	0,20	DP1010-0451	DP2010-0451		1-edge tipped
	VBGW 110204	6,35	2,38	0,40	DP1010-0452	DP2010-0452		1-edge tipped
	VBGW 110208	6,35	2,38	0,80	DP1010-0453	DP2010-0453		1-edge tipped
	VBGW 160401	9,525	4,76	0,10	DP1010-0608	DP2010-0608		1-edge tipped
	VBGW 160402	9,525	4,76	0,20	DP1010-0454	DP2010-0454		1-edge tipped
	VBGW 160404	9,525	4,76	0,40	DP1010-0455	DP2010-0455		1-edge tipped
	VBGW 160408	9,525	4,76	0,80	DP1010-0456	DP2010-0456		1-edge tipped
	VBGW 160412	9,525	4,76	1,20	DP1010-0457	DP2010-0457		1-edge tipped



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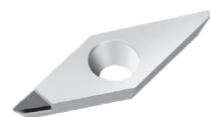


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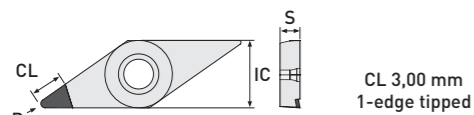
Subject to technical changes.

# VCGT - Positive Rake Angle

edge tipped



FN - positive rake angle



Standard	ISO Code	IC	S	R	PCD	CVD-D	Ultra Diamond	Version
					Item No.	Item No.	Item No.	
	VCGT 070201	3,97	2,38	0,10	DP1010-0131	DP2010-0133		1-edge tipped
	VCGT 070202	3,97	2,38	0,20	DP1010-0119	DP2010-0119		1-edge tipped
	VCGT 070204	3,97	2,38	0,40	DP1010-0120	DP2010-0120		1-edge tipped
	VCGT 070208	3,97	2,38	0,80	DP1010-0132	DP2010-0134		1-edge tipped
	VCGT 110301	6,35	3,18	0,10	DP1010-0609	DP2010-0609		1-edge tipped
	VCGT 110302	6,35	3,18	0,20	DP1010-0121	DP2010-0121		1-edge tipped
	VCGT 110304	6,35	3,18	0,40	DP1010-0122	DP2010-0122		1-edge tipped
	VCGT 110308	6,35	3,18	0,80	DP1010-0123	DP2010-0123		1-edge tipped
	VCGT 160401	9,525	4,76	0,10	DP1010-0610	DP2010-0610		1-edge tipped
	VCGT 160402	9,525	4,76	0,20	DP1010-0124	DP2010-0124		1-edge tipped
	VCGT 160404	9,525	4,76	0,40	DP1010-0125	DP2010-0125		1-edge tipped
	VCGT 160408	9,525	4,76	0,80	DP1010-0126	DP2010-0126		1-edge tipped
	VCGT 160412	9,525	4,76	1,20	DP1010-0127	DP2010-0127		1-edge tipped

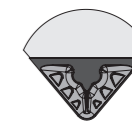
**Application range:**

- PCD** Aluminum <10% Si, Brass, Brass lead-free, Graphite coarse-grained, Titanium (Roughing) ...
- CVD-D** Acrylic, Aluminum >10% Si, Carbide, Ceramics, Composites (CFRP, GFRP, MMC), Copper, Plastics, PEEK, Titanium (Finishing) ...
- Ultra-Dia.** Carbide <10% Co, Carbide with Nickel Binder, Glass Materials, sintered Ceramic Materials, highly abrasive materials ...

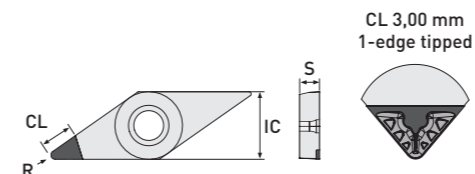
You will find further application ranges in the detailed overview on page 7.

# VCGT - Chip Breaker

edge tipped



FN - neutral - FN - Chip breaker for finishing (SPL-F) or roughing (SPL-R)



Standard	ISO Code	IC	S	R	PCD	CVD-D	PCD	CVD-D	Version
					Item No.	Item No.	Item No.	Item No.	
					SPL-F (Finishing)		SPL-R (Roughing)		
	VCGT 070202	3,97	2,38	0,20	DP1011-0060	DP2011-0060	DP1012-0060	DP2012-0060	1-edge tipped
	VCGT 070204	3,97	2,38	0,40	DP1011-0061	DP2011-0061	DP1012-0061	DP2012-0061	1-edge tipped
	VCGT 070208	3,97	2,38	0,80	DP1011-0075	DP2011-0075	DP1012-0075	DP2012-0075	1-edge tipped
	VCGT 110302	6,35	3,18	0,20	DP1011-0062	DP2011-0062	DP1012-0062	DP2012-0062	1-edge tipped
	VCGT 110304	6,35	3,18	0,40	DP1011-0063	DP2011-0063	DP1012-0063	DP2012-0063	1-edge tipped
	VCGT 110308	6,35	3,18	0,80	DP1011-0064	DP2011-0064	DP1012-0064	DP2012-0064	1-edge tipped
	VCGT 160402	9,525	4,76	0,20	DP1011-0065	DP2011-0065	DP1012-0065	DP2012-0065	1-edge tipped
	VCGT 160404	9,525	4,76	0,40	DP1011-0066	DP2011-0066	DP1012-0066	DP2012-0066	1-edge tipped
	VCGT 160408	9,525	4,76	0,80	DP1011-0067	DP2011-0067	DP1012-0067	DP2012-0067	1-edge tipped



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Subject to technical changes.



# VCGW

edge tipped



FN - neutral

	ISO Code	IC	S	R	PCD	CVD-D	Ultra Diamond	Version
					Item No.	Item No.	Item No. <small>New</small>	
MiniTools	VCGW 050101	3,10	1,59	0,10		DP2010-0561	DP1110-1498	2-edge tipped
	VCGW 050102	3,10	1,59	0,20		DP2010-0562	DP1110-1500	2-edge tipped
	VCGW 050104	3,10	1,59	0,40		DP2010-0563	DP1110-1502	2-edge tipped

! You will find the matching boring bar holder in our boring bar catalog [03] on page 28.

	ISO Code	IC	S	R	PCD	CVD-D	Ultra Diamond	Version
					Item No.	Item No.	Item No.	
Standard	VCGW 070201	3,97	2,38	0,10		DP1010-0135	DP2010-0135	1-edge tipped
	VCGW 070202	3,97	2,38	0,20		DP1010-0110	DP2010-0110	1-edge tipped
	VCGW 070204	3,97	2,38	0,40		DP1010-0111	DP2010-0111	1-edge tipped
	VCGW 070208	3,97	2,38	0,80		DP1010-0136	DP2010-0136	1-edge tipped
	VCGW 110301	6,35	3,18	0,10		DP1010-0611	DP2010-0611	1-edge tipped
	VCGW 110302	6,35	3,18	0,20		DP1010-0112	DP2010-0112	1-edge tipped
	VCGW 110304	6,35	3,18	0,40		DP1010-0113	DP2010-0113	1-edge tipped
	VCGW 110308	6,35	3,18	0,80		DP1010-0114	DP2010-0114	1-edge tipped
	VCGW 160401	9,525	4,76	0,10		DP1010-0612	DP2010-0612	1-edge tipped
	VCGW 160402	9,525	4,76	0,20		DP1010-0115	DP2010-0115	1-edge tipped
	VCGW 160404	9,525	4,76	0,40		DP1010-0116	DP2010-0116	1-edge tipped
	VCGW 160408	9,525	4,76	0,80		DP1010-0117	DP2010-0117	1-edge tipped
	VCGW 160412	9,525	4,76	1,20		DP1010-0118	DP2010-0118	1-edge tipped

### Application range:

- PCD** Aluminum <10% Si, Brass, Brass lead-free, Graphite coarse-grained, Titanium (Roughing) ...
- CVD-D** Acrylic, Aluminum >10% Si, Carbide, Ceramics, Composites (CFRP, GFRP, MMC), Copper, Plastics, PEEK, Titanium (Finishing) ...
- Ultra-Dia.** Carbide <10% Co, Carbide with Nickel Binder, Glass Materials, sintered Ceramic Materials, highly abrasive materials ...

You will find further application ranges in the detailed overview on page 7.

# VXGW

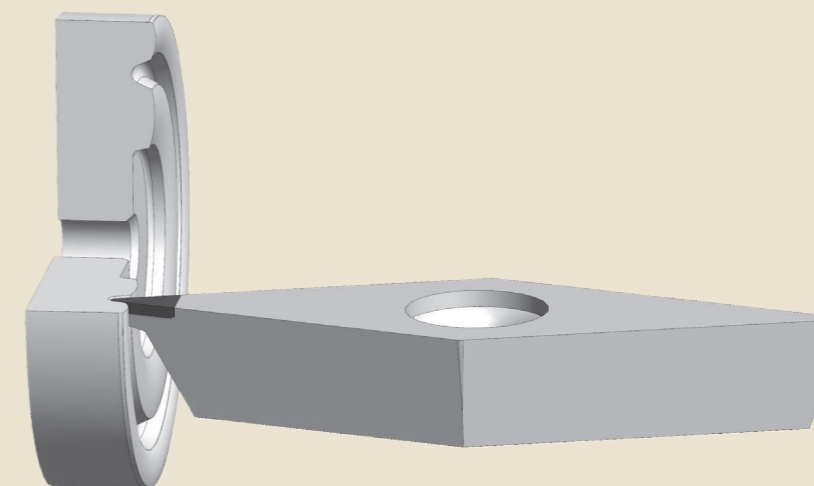
edge tipped



FN - neutral

	ISO Code	IC	S	R	PCD	CVD-D	Ultra Diamond	Version
					Item No.	Item No.	Item No.	
DTS - Specials	VXGW 160401	9,525	4,76	0,10		DP2010-0310		1-edge tipped
	VXGW 160402	9,525	4,76	0,20		DP2010-0311		1-edge tipped
	VXGW 160404	9,525	4,76	0,40		DP2010-0312		1-edge tipped
	VXGW 160408	9,525	4,76	0,80		DP2010-0313		1-edge tipped

## DTS-Specials Face / Axial Machining

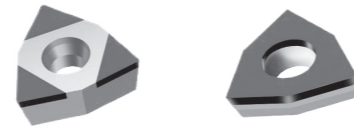


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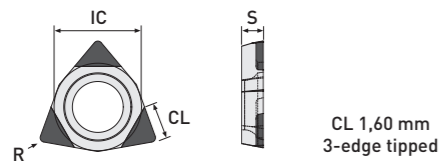


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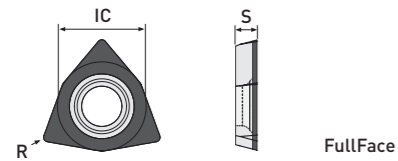
**FN - neutral**



MiniTools	ISO Code	IC	S	R	PCD	CVD-D	Ultra Diamond	Version
					Item No.	Item No.	Item No. <small>New</small>	
	WCGW 020101	3,97	1,59	0,10		DP2010-0571	DP1110-1504	3-eckenbestückt
	WCGW 020102	3,97	1,59	0,20		DP2010-0572	DP1110-1506	3-eckenbestückt
	WCGW 020104	3,97	1,59	0,40		DP2010-0573	DP1110-1508	3-eckenbestückt

! You will find the matching boring bar holder in our boring bar catalog (03) on page 33.

**FN - FullFace**



MiniTools	ISO Code	IC	S	R	PCD	CVD-D	Ultra Diamond	Version
					Item No.	Item No.	Item No.	
	WCGW 020101 FF	3,97	1,59	0,10		DP2030-0117		FullFace
	WCGW 020102 FF	3,97	1,59	0,20		DP2030-0113		FullFace
	WCGW 020104 FF	3,97	1,59	0,40		DP2030-0114		FullFace

! You will find the matching boring bar holder in our boring bar catalog (03) on page 33.

**Application range:**

- **PCD** Aluminum <10% Si, Brass, Brass lead-free, Graphite coarse-grained, Titanium (Roughing) ...
- **CVD-D** Acrylic, Aluminum >10% Si, Carbide, Ceramics, Composites (CFRP, GFRP, MMC), Copper, Plastics, PEEK, Titanium (Finishing) ...
- **Ultra-Dia.** Carbide <10% Co, Carbide with Nickel Binder, Glass Materials, sintered Ceramic Materials, highly abrasive materials ...

You will find further application ranges in the detailed overview on page 7.

**Your Notes**

# Cutting Parameters

for our diamond indexable inserts

Material	Diamond Indexable Inserts											
	PCD						CVD-D					
	$V_c$ [m/min]		$a_p$ [mm]		F [mm/rev]		$V_c$ [m/min]		$a_p$ [mm]		F [mm/rev]	
	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
Acrylic (PMMA)	100	2.000	0,01	2,80	0,01	0,40	200	5.000	0,01	2,60	0,01	0,50
Al Si <10%	300	3.000	0,01	2,80	0,01	0,50	200	5.000	0,01	2,80	0,01	0,60
Al Si >10%							150	4.000	0,01	2,80	0,01	0,40
Brass, Brass lead-free	120	2.000	0,01	2,60	0,01	0,40	80	3.000	0,01	2,60	0,01	0,50
Carbide G-Grade <15% Co	on request											
Carbide G-Grade >15% Co												
Carbide K-Grade <15% Co												
Carbide K-Grade >15% Co												
Carbide with Ni Binder												
Ceramics, Zirconium												
Composites GFRP/CFRP / MMC							80	3.000	0,01	2,60	0,01	0,50
Copper, Copper alloy	100	2.000	0,01	2,60	0,01	0,40	60	3.500	0,01	2,60	0,005	0,60
Glass, Glass Ceramics	on request											
Gold, Silver, Platinum							80	3.000	0,01	2,60	0,01	0,50
Graphite	150	1.000	0,01	2,80	0,02	0,50	80	1.500	0,01	2,80	0,01	0,60
Magnesium	200	3.000	0,01	2,80	0,01	0,30	80	4.500	0,01	2,60	0,01	0,40
Plastics							100	1.500	0,01	2,80	0,01	0,60
PEEK	80	3.000	0,01	2,60	0,01	0,50						
Titanium	80	150	0,01	0,50	0,01	0,30	100	200	0,01	0,50	0,01	0,40
Tungsten Copper							40	1.200	0,01	2,00	0,01	0,30

Diamond Indexable Inserts											
UltraDiamond						Cooling					
$V_c$ [m/min]		$a_p$ [mm]		F [mm/rev]		Dry	Air	Emulsion	Oil	MQL	
min.	max.	min.	max.	min.	max.						
80	5.000	0,01	2,60	0,005	0,50	5. Choice	4. Choice	1. Choice	2. Choice	3. Choice	
						5. Choice	4. Choice	1. Choice	2. Choice	3. Choice	
								1. Choice	2. Choice	3. Choice	
						5. Choice	4. Choice	1. Choice	2. Choice	3. Choice	
on request						on request					
						4. Choice	1. Choice	2. Choice		3. Choice	
							4. Choice	1. Choice	2. Choice	3. Choice	
on request						on request					
							3. Choice	1. Choice		2. Choice	
						2. Choice	1. Choice				
							4. Choice	1. Choice	2. Choice	3. Choice	
							3. Choice	1. Choice		2. Choice	
							4. Choice	1. Choice	2. Choice	3. Choice	
							4. Choice	1. Choice	2. Choice	3. Choice	
							3. Choice	1. Choice		2. Choice	

# Cutting Parameters

for our diamond indexable inserts with chip breaker

		Chip Breaker											
		Chip breaker F (Finishing chip breaker)						Chip breaker R (Roughing chip breaker)					
		$V_c$ [m/min]		$a_p$ [mm]		F [mm/rev]		$V_c$ [m/min]		$a_p$ [mm]		F [mm/rev]	
Material	R	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
		AlSi <3%	0,2	100	800	0,01	2,80	0,02	0,10	100	800	0,05	2,00
0,4	100		800	0,01	2,80	0,04	0,20	100	800	0,06	2,50	0,03	0,20
0,8	100		800	0,01	2,80	0,05	0,40	100	800	0,08	2,80	0,06	0,40
1,2	100		800	0,01	2,80	0,05	0,40	100	800	0,10	2,80	0,08	0,60
AlSi <12%	0,2	80	600	0,01	2,00	0,02	0,10	80	800	0,10	2,50	0,08	0,10
	0,4	80	600	0,01	2,50	0,04	0,20	80	800	0,12	2,50	0,10	0,20
	0,8	80	600	0,01	2,50	0,05	0,40	80	800	0,15	2,80	0,15	0,40
	1,2	80	600	0,01	2,80	0,05	0,60	80	800	0,20	2,80	0,20	0,60
Brass lead-free	0,2	80	600	0,01	2,00	0,02	0,10	80	600	0,10	2,80	0,05	0,10
	0,4	80	800	0,01	2,50	0,04	0,20	80	800	0,12	2,80	0,07	0,20
	0,8	80	800	0,01	2,80	0,05	0,40	80	800	0,15	2,80	0,07	0,40
	1,2	80	800	0,01	2,80	0,05	0,60	80	800	0,20	2,80	0,12	0,60
Copper, Bronze	0,2	80	600	0,01	2,00	0,02	0,10	80	600	0,12	2,80	0,08	0,10
	0,4	80	600	0,01	2,50	0,04	0,20	80	600	0,15	2,80	0,10	0,20
	0,8	80	600	0,01	2,50	0,05	0,40	80	600	0,15	2,80	0,20	0,40
	1,2	80	600	0,01	2,80	0,05	0,60	80	600	0,20	2,80	0,25	0,60
MMC	0,2	100	500	0,01	2,80	0,02	0,10	100	500	0,08	2,80	0,05	0,10
	0,4	100	500	0,01	2,80	0,04	0,20	100	500	0,10	2,80	0,06	0,20
	0,8	100	500	0,01	2,80	0,05	0,40	100	500	0,20	2,80	0,10	0,40
	1,2	100	500	0,01	2,80	0,05	0,60	100	500	0,25	2,80	0,15	0,60

## Cooling recommended

In machining with diamond inserts, proper cooling is a key to successful machining.

Here you will find our recommendation:

Material	Cooling				
	Dry	Air	Emulsion	Oil	MQL
AlSi <3%			1. Choice	2. Choice	3. Choice
AlSi <12%			1. Choice	2. Choice	3. Choice
Brass lead-free	5.Choice	4.Choice	1. Choice	2. Choice	3. Choice
Copper, Bronze			1. Choice	2. Choice	3. Choice
MMC		2.Choice	1.Choice		



If you have any further technical questions, please do not hesitate to contact us

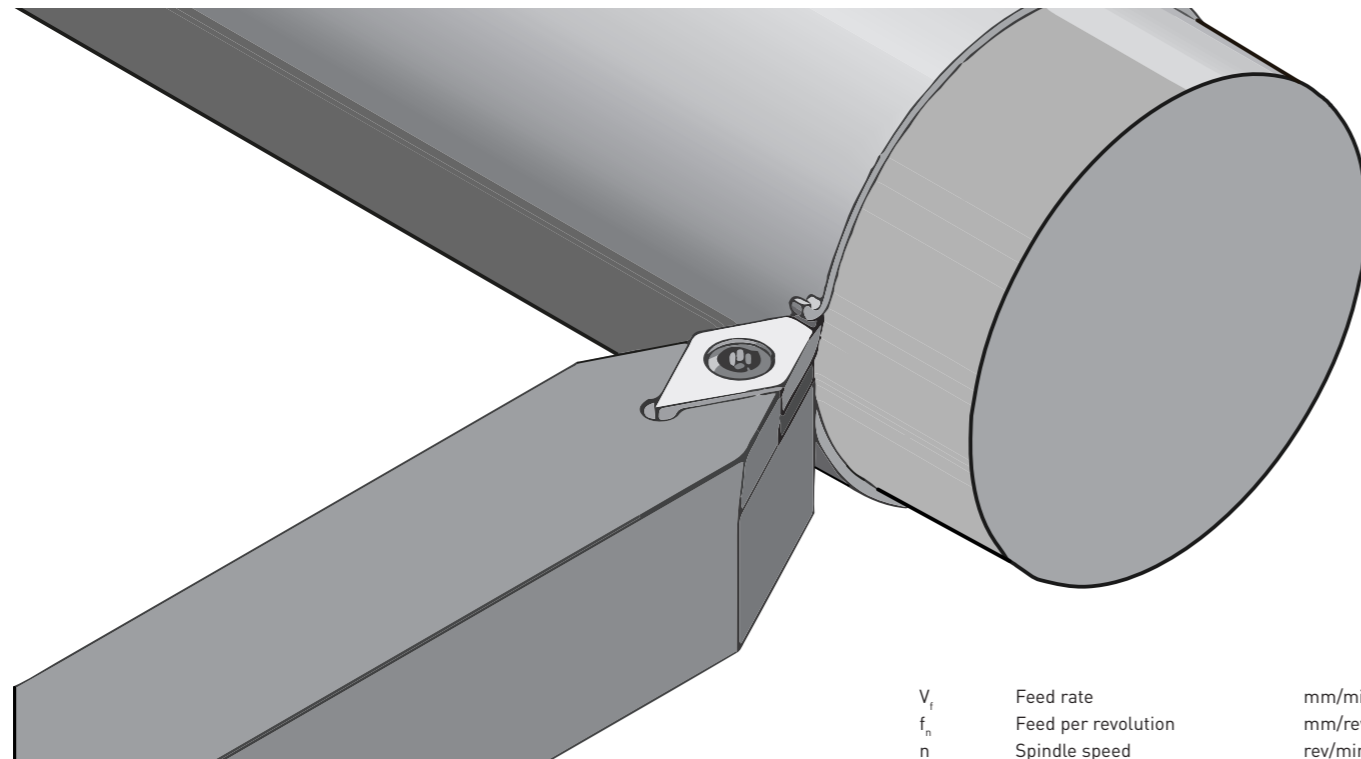
by phone or e-mail!

Phone: +49(0)6301 32011-0

Mail: [info@diamond-toolingsystems.com](mailto:info@diamond-toolingsystems.com)

# Formulas

Turning



$V_f$	Feed rate	mm/min
$f_n$	Feed per revolution	mm/rev
$n$	Spindle speed	rev/min
$v_c$	Cutting speed	m/min
$D_c$	Cutter diameter	mm
$t_c$	Cutting Time	min
$l_m$	Cutting length	mm
$Q$	Stock removal rate	cm <sup>3</sup> /min
$a_p$	Cutting depth	mm

## ▶ Cutting speed

$$V_c = \frac{D_c \times \pi \times n}{1000} \quad [\text{m/min}]$$

## ▶ Spindle speed

$$n = \frac{v_c \times 1000}{\pi \times D_c} \quad [\text{rev/min}]$$

## ▶ Feed per revolution

$$f_n = \frac{V_f}{n} \quad [\text{mm/rev}]$$

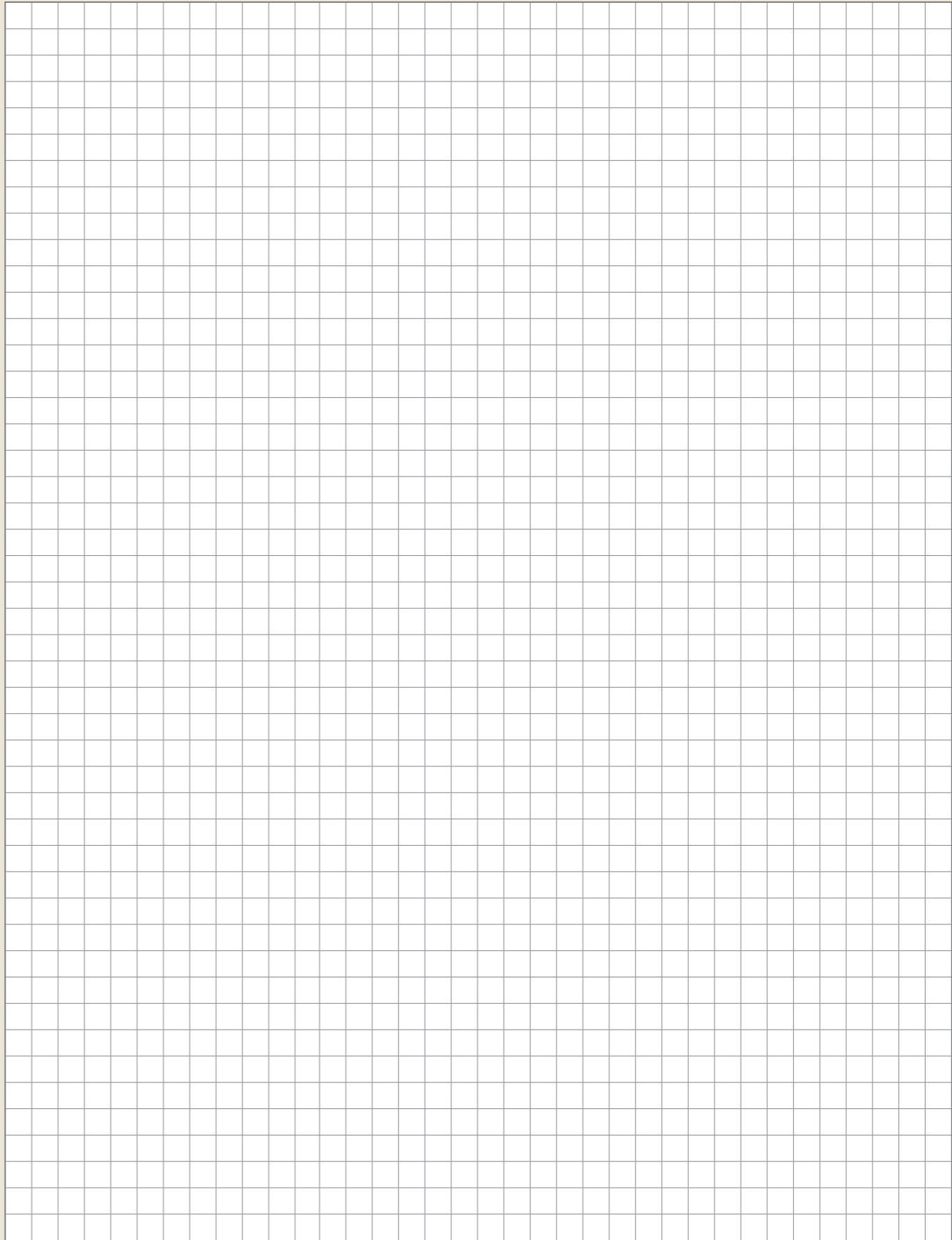
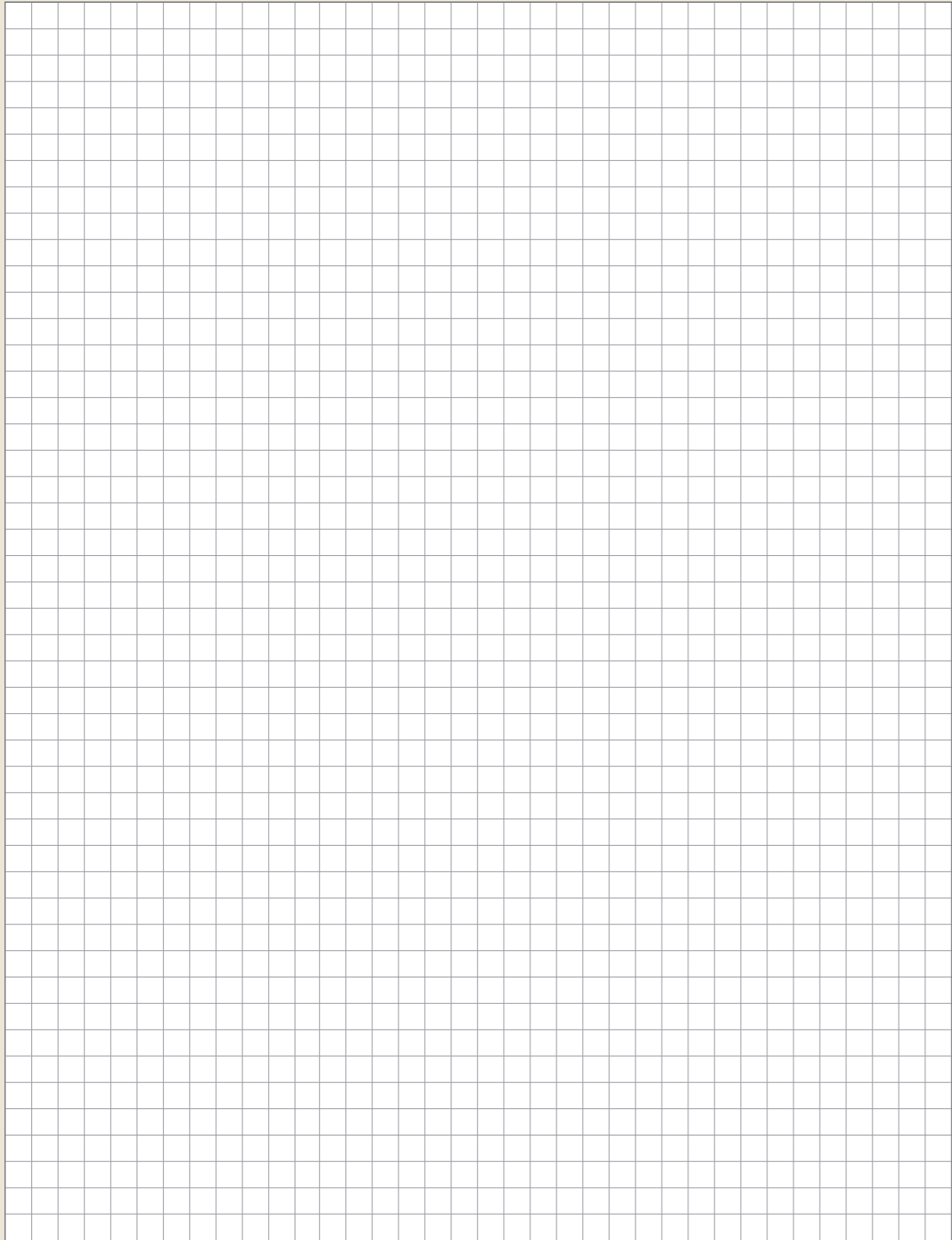
## ▶ Cutting time

$$t_c = \frac{l_m}{f_n \times n} \quad [\text{min}]$$

## ▶ Stock removal rate

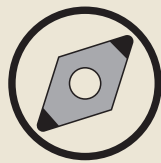
$$Q = v_c \times a_p \times f_n \quad [\text{cm}^3/\text{min}]$$

# Your Notes









**PASSION FOR DIAMOND**



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