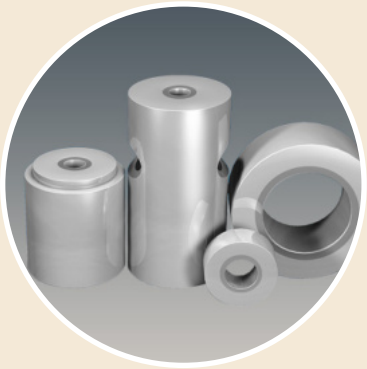
Diamond Tooling Systems

DTS GmbH

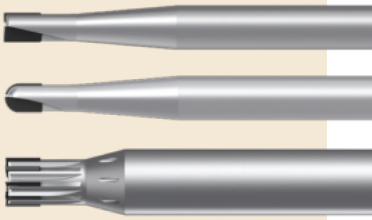
End Mills Ø 0,20 - 20,00 mm
PCD, CVD-D, UltraDiamond, CBN

PCD Diamond | CVD-D Diamond | Ultra Diamond | CBN-H | CBN-K | CBN-X



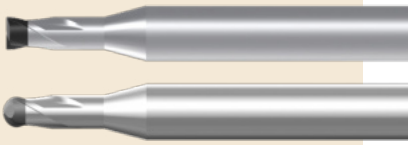
Die and Mold

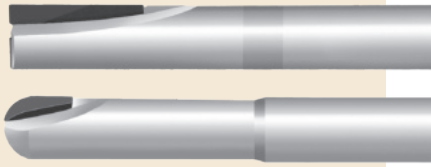
Industry

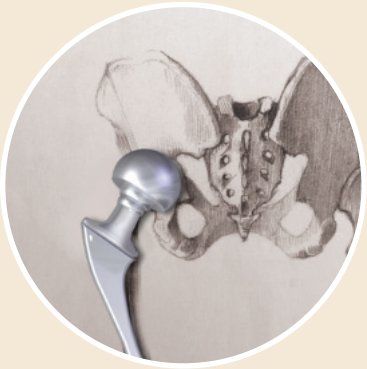


Automotive

Mechanical Engineering

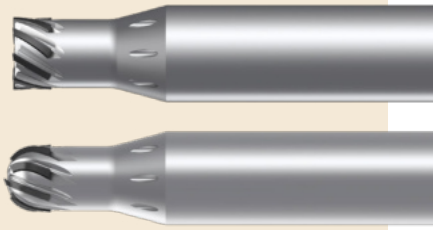






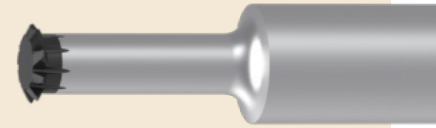
Medical Technology

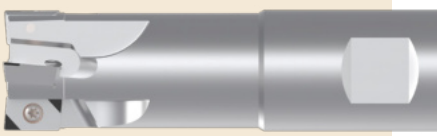
Micro Technology



Aerospace

Engineering





About us

Diamond Tooling Systems DTS GmbH

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

Contents

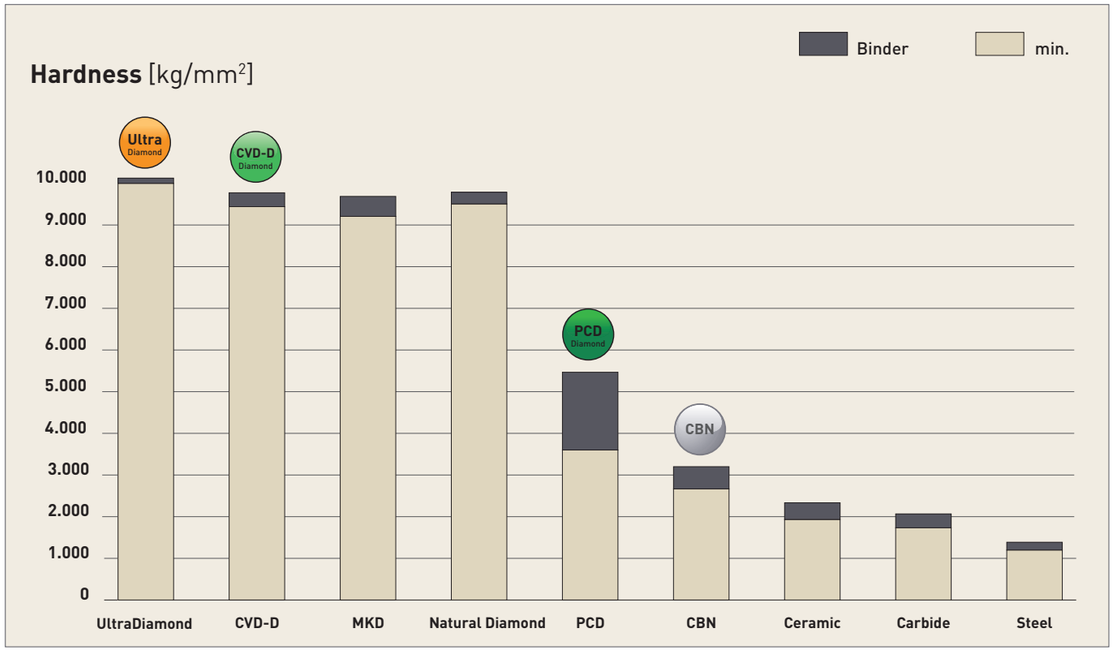
our end mills

Diamond Tooling Systems
DTS GmbH

PASSION FOR DIAMOND...

Ultra-hard 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 PCD 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 cutting materials

and their main areas of application at a glance

Our wide range of cutting materials allows us to offer the ideal solution for your applications.

Below you will find an overview of the different cutting materials.

PCD Diamond

PCD Diamond

is ideally suited for the machining of*

Aluminum <10% Si | Brass | Ceramic green compact | Copper | Copper Alloy | Graphite | Magnesium | PEEK | Tungsten Alloy

CVD-D Diamond

CVD-D Diamond

is ideally suited for the machining of*

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

Ultra Diamond

UltraDiamond

is ideally suited for the machining of*

Acrylic (PMMA) | Carbide <12%Co | Ceramic | Glass, Glass Ceramic

CBN-H

CBN-H

is ideally suited for the machining of*

Steels, hardened up to 72 HRC
Sintered steels, hardened

- continuous cut
- light interrupted cut
- heavy interrupted cut

CBN-K

CBN-K

is ideally suited for the machining of*

Grey cast iron (GG)
Ductile cast iron (GGG)

- continuous cut
- light interrupted cut
- heavy interrupted cut

CBN-X

CBN-X

is ideally suited for the machining of*

HSS, Tool steel
ASP, CPM and other PM steels
Cold and Hot work steels
Solid carbide steel joints

- continuous cut
- light interrupted cut
- heavy interrupted cut

*all other applications can be found in the complete cutting material assignment from page 8

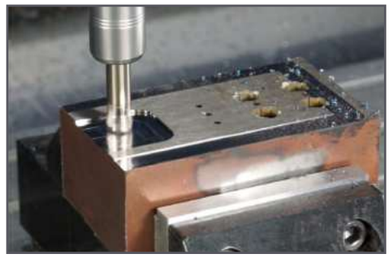
Application examples

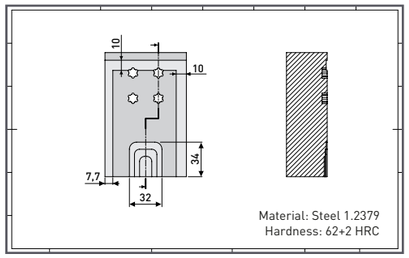
our end mills in use

Diamond Tooling Systems
DTS GmbH

Not only theory - we would like to show you our tools in action. Below you will find a selection of our CBN application videos. Click on the QR code for more information and the video.

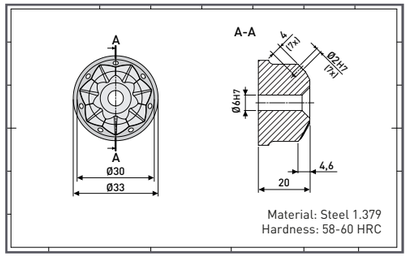
Also visit our YouTube Chan**nel at dts-gmbh!**





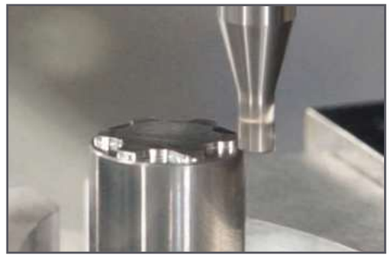
Milling
Steel 1.2379 62+2HRC
WSP-Milling cutter Ø10

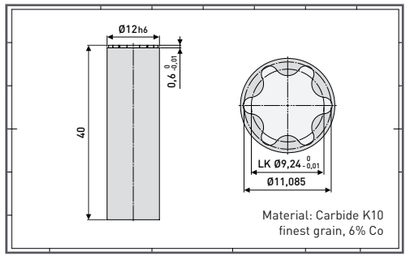
Here you can see the video!



Milling
Steel 1.2379 58-60HRC
CBN Ball nose end mill
Ø1,50

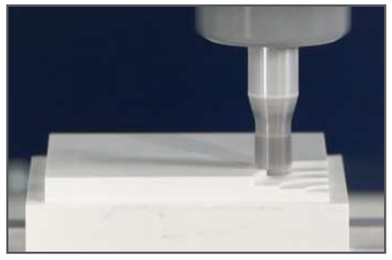
Here you can see the video!

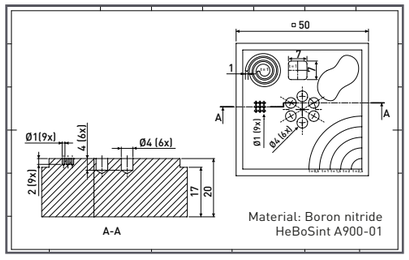




Milling
Carbide K10
Multi tooth cutter Ø3,00

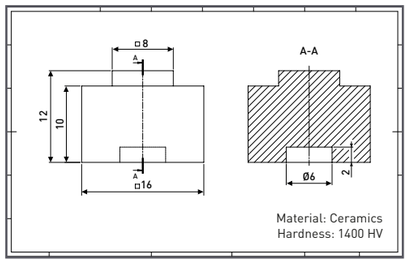
Here you can see the video!





Milling
Bornitrid HeBoSint
Multi tooth cutter Ø6,00

Here you can see the video!



Milling
Ceramic
Multi tooth cutter Ø6,00

Here you can see the video!

Our cutting material assignment

about the materials

Diamond Tooling Systems
DTS GmbH

1. Choice ● Alternative ○

DTS cutting materials are successfully used in many industries:

- Mechanical Engineering
- Die and Mold Industry
- Automotive
- Aerospace
- Medical Technology
- Optical Industry
- Ceramic Industry

ISO	Materials	DTS Diamond Types: PCD	CVD-D	Ultra Diamond	CBN Types: CBN-K	CBN-H	CBN-X	Materials	ISO
H	**Cold Work Steel,** hardened to 72 HRC					○	●	**Sintered Steel**	H
	PM- Steels (ASP, CPM, Vanadis, Böhler)					○	●	**Sintered Steel,** hardened	
	Steel, hardened to 72 HRC					●	○	**Steel,** hardened to 72 HRC	
	Hot Work Steel, hardened to 72 HRC					○	●	**Hot Work Steel**, hardened to 72 HRC	
	Tool Steel, hardened to 72 HRC					○	●	**Tool Steel,** hardened to 72 HRC	
P	**Sintered Steel**						●	**Sintered Steel**	P
	Sintered Steel, hardened					●	○	**Sintered Steel,** hardened	
K	**Grey Cast Iron (GG)**				●	●		**Grey Cast Iron (GG)**	K
	Ductile Cast Iron (GGG)				●	●		**Ductile Cast Iron (GGG)**	
	Shell Chilled Cast Iron					●	○	**Shell Chilled Cast Iron**	
M	**Stainless Steel,** hardened					○	●	**Stainless Steel,** hardened	M
N	**Acrylic (PMMA)**		○	●					N
	Aluminum, < 10% Si	●	○						
	Aluminum, > 10% Si		●	○					
	Glass, Glass Ceramic		○	●					
	Ceramics Green Body	●	○						
	Carbide G-Grade, < 12% Co		○	●	○		●	**Carbide,** > 20% Co*	
	Carbide G-Grade, > 10% Co		●	○				* for the machining of carbide	
	Carbide K-Grade, < 12% Co		○	●				we recommend the use of	
	Carbide K-Grade, > 10% Co		●	○				CVD-D cutting edges	
	Carbide with Ni-Binder			●					
	Ceramic	●	○	○					
	Ceramics Green Body	●	○						
	Plastics		●						
	Copper, Copper Alloys	○	●						
	Magnesium	○	●						
	Brass	○	●						
	MMC		●	○					
	PEEK	●	○						
	Gold, Silver, Platinum		●	○					
	Titanium	○	●						
	Composites as CFRP/GFRP	○	●						
	Tungsten Alloy	○	●						

The cutting material combination you are looking for is not in the table?

Our consultants and application engineers are available by phone or e-mail:

Tel.: +49(0)6301 32011-0
Mail: info@diamond-toolingsystems.com

The machining of brittle-hard materials

Application and explanation of brittle-hard materials

Brittle-Hard Materials

High brittleness is usually found in materials with high hardness, such as Diamond, carbides, nitrides, salts and ceramics. In contrast, ductile materials - mostly metals and plastics - have a comparatively high plastic deformability until they finally break.

Brittleness is a material property that describes the failure or fracture behavior. A brittle material can only be plastically deformed to a small extent and is therefore characterized by low ductility. Brittle fracture occurs at low elongation and usually close to the yield point.

With DTS tools you can economically machine almost all brittle-hard materials.

- Mould and Tool Making → Components made of Carbide or Ceramic
- Medical Industry → Ceramicen im Dentalbereich
- Glass Industry → Technical and optical Glass
- Jewellery Industry → Elements for Jewellery and Watches
- Electrical Industry → Components made of Glass Fibre Reinforced Materials

Application range:

PCD	Acrylic, Glass Materials, Carbide, Ceramics, PEEK, Composites (CFRP, GFRP, MMC), sintered ceramic materials, all highly abrasive difficult-to-machine materials ...
CVD-D	Carbide >8% Co, Composites (GFRP,CFRP), Aluminum >10% Si, Copper, Graphite, Intermetallic, MMC (=Metal Matrix Composite),Titanium (Finishing) ...
UltraDia.	Carbide <10% Co, Carbide with Ni Binder, Glass Materials, highly abrasive materials, sintered ceramic materials ...

You will find further application ranges in the detailed overview from page 8.

Solid Corner end mills - SD-Line

PCD tipped - for machining brittle-hard materials

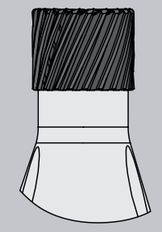
Diamond Tooling Systems
DTS GmbH

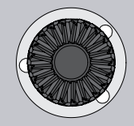
Solid PCD cutting edge - twisted

Example:
Ø3,00 mm with 25 teeth

3D lasered multi tooth cutter

with 3x internal cooling





Z25

Diameter

Ø0,40 mm – 6,00 mm

Teeth Count

from 3 teeth up to 55 teeth

Advantages of the system:

- ✓ precise
- ✓ lasered cutting edges
- ✓ smooth running
- ✓ with internal cooling
- ✓ very high feed rates possible
- ✓ for roughing and finishing

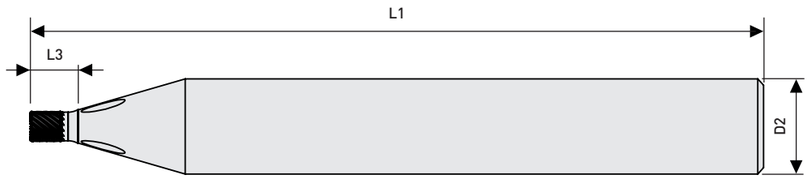
Application range:

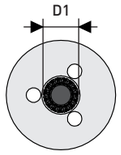
- Ceramics
- Glass
- Glass Ceramic
- Carbide
- Aluminum with high Si-content
- GFRP / CFRP / MMC

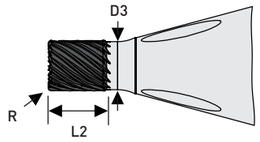
Ø2,80 mm
Z23
with 3x internal cooling

Solid Corner end mills - SD-Line

Diamond tipped - with helix | Ø0,40 - 2,00







Diameter tolerance: ± 0,010 mm
Radius tolerance: ± 0,004 mm
Length tolerance: ± 1,00 mm
with 3x internal cooling

PCD Diamond

D1	L1	L2	L3	Teeth Count Z	R	D2	D3	Item No.
0,40	40,00	1,50	2,00	3	0,05	6h5	0,35	FS1040-0530
0,50	40,00	1,50	2,00	5	0,05	6h5	0,45	FS1040-0540
0,60	40,00	1,50	2,00	9	0,05	6h5	0,55	FS1040-0550
0,70	40,00	1,50	2,00	9	0,05	6h5	0,65	FS1040-0560
0,80	40,00	1,50	2,00	9	0,05	6h5	0,70	FS1040-0570
0,90	40,00	1,50	2,00	9	0,05	6h5	0,80	FS1040-0580
1,00	40,00	2,00	2,50	9	0,10	6h5	0,90	FS1040-0590
1,10	40,00	2,00	2,50	11	0,10	6h5	1,00	FS1040-0600
1,20	40,00	2,00	2,50	11	0,10	6h5	1,10	FS1040-0610
1,30	40,00	2,00	2,50	11	0,10	6h5	1,20	FS1040-0620
1,40	40,00	2,00	2,50	13	0,10	6h5	1,30	FS1040-0630
1,50	40,00	2,00	2,50	13	0,10	6h5	1,40	FS1040-0640
1,60	40,00	2,00	2,50	13	0,10	6h5	1,50	FS1040-0650
1,70	40,00	2,00	2,50	15	0,10	6h5	1,60	FS1040-0660
1,80	40,00	2,00	2,50	15	0,10	6h5	1,70	FS1040-0670
1,90	40,00	2,00	2,50	15	0,10	6h5	1,80	FS1040-0680
2,00	40,00	2,00	2,50	15	0,10	6h5	1,90	FS1040-0690

Application range:

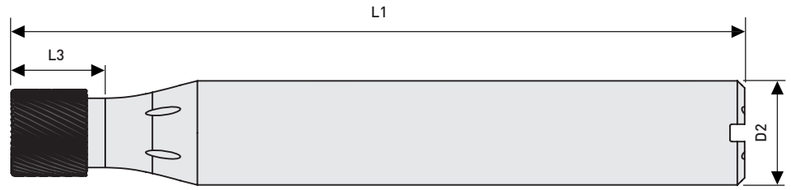
- **PCD** Acrylic, Glass Materials, Carbide, Ceramics, PEEK, Composites (CFRP, GFRP, MMC), sintered ceramic materials, all highly abrasive difficult-to-machine materials ...

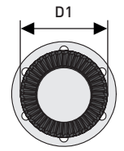
You will find further application ranges in the detailed overview from page 8.

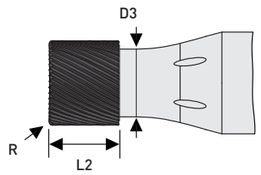
Solid Corner end mills - SD-Line

Diamond tipped - with helix | Ø2,10 - 6,00

Diamond Tooling Systems
DTS GmbH







Diameter tolerance: ± 0,010 mm
Radius tolerance: ± 0,004 mm
Length tolerance: ± 1,00 mm
with 3x internal cooling

PCD Diamond

D1	L1	L2	L3	Teeth Count Z	R	D2	D3	Item No.
2,10	40,00	2,00	3,00	15	0,10	6h5	2,00	FS1040-0700
2,20	40,00	2,00	3,00	15	0,10	6h5	2,10	FS1040-0710
2,30	40,00	2,00	3,00	15	0,10	6h5	2,20	FS1040-0720
2,40	40,00	2,00	3,00	17	0,10	6h5	2,30	FS1040-0730
2,50	40,00	2,00	3,00	17	0,20	6h5	2,40	FS1040-0740
2,60	40,00	2,00	3,00	17	0,20	6h5	2,50	FS1040-0750
2,70	40,00	2,00	3,00	23	0,20	6h5	2,60	FS1040-0760
2,80	40,00	2,00	3,00	23	0,20	6h5	2,70	FS1040-0770
2,90	40,00	2,00	3,00	25	0,20	6h5	2,80	FS1040-0780
3,00	40,00	2,00	3,50	25	0,20	6h5	2,90	FS1040-0790
3,10	40,00	3,00	3,50	25	0,20	6h5	3,00	FS1040-0800
3,20	40,00	3,00	3,50	25	0,20	6h5	3,10	FS1040-0810
3,30	40,00	3,00	3,50	25	0,20	6h5	3,20	FS1040-0820
3,40	40,00	3,00	3,50	25	0,20	6h5	3,30	FS1040-0830
3,50	40,00	3,00	3,50	25	0,20	6h5	3,40	FS1040-0840
4,00	40,00	4,00	6,00	29	0,20	6h5	3,90	FS1040-0850
5,00	40,00	4,00	6,00	41	0,20	6h5	4,90	FS1040-0870
6,00	40,00	4,00	6,00	55	0,20	6h5	5,90	FS1040-0890

Other diameters and cutting materials on request.

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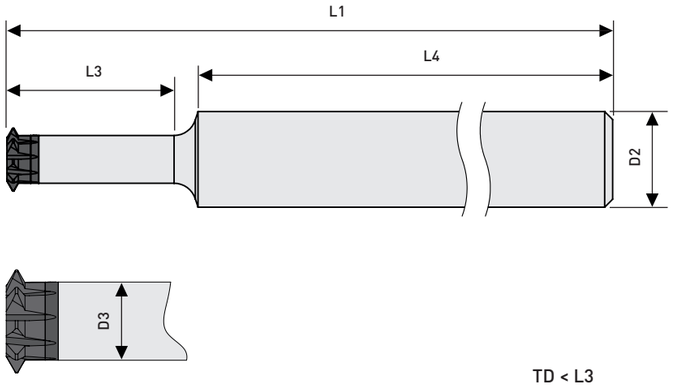
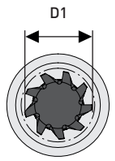
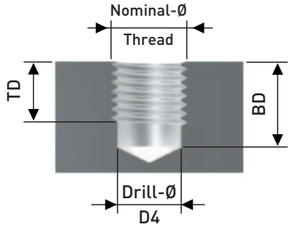
Thread milling cutter - GW-Line

Solid diamond tipped | M3 up to M6







TD < L3
TD = Thread depth
BD = Bore depth

M	P	D1	D2	D3	D4	L1	L3	L4
M3	**0,50**	**2,35**	6h5	1,50	2,50	40,00	7,50	28,00
M4	**0,70**	**3,15**	6h5	2,10	3,30	40,00	8,50	28,00
M5	**0,80**	**4,05**	6h5	3,00	4,20	40,00	10,50	28,00
M6	**1,00**	**4,85**	6h5	3,40	5,00	50,00	12,50	32,00

M	PCD Diamond Item No.	CVD-D Diamond Item No.	CBN-H Item No.	CBN-X Item No.
M3				
M4				
M5				
M6				

on request

Application range:

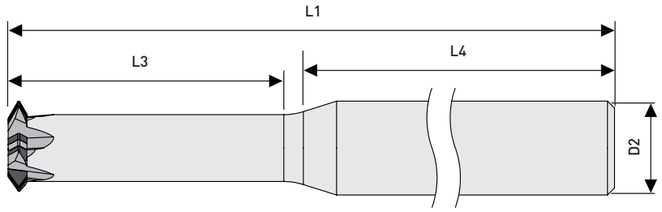
- **PCD** Aluminum < 10% Si, Brass, Graphite coarse-grained, Plastics, Zinc ...
- **CVD-D** Aluminum > 10% Si, carbides, GRP, CFRP, fine-grained graphite, copper, glass materials, Titanium (Finishing) ...
- **CBN-H** General hardened Steels to 72 HRC ...
- **CBN-X** Tool Steels to 72 HRC, Stellite, Powder Metallurgy Steels, Stainless Steel Hardened, Ni, Co, Fe, and Cr Alloys ...

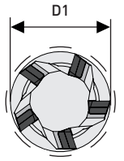
You will find further application ranges in the detailed overview from page 8.

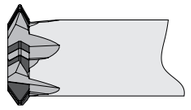
Thread milling cutter - GW-Line

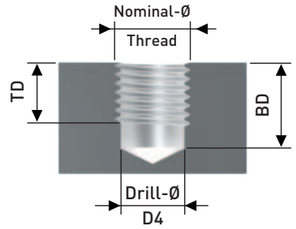
Diamond tipped | M8 up to M12

Diamond Tooling Systems
DTS GmbH









TD < L3
TD = Thread depth
BD = Bore depth

M	P	D1	D2	D4	L1	L3	L4
M8	**1,25**	**6,65**	8h5	6,80	50,00	16,50	31,00
M10	**1,50**	**8,00**	10h5	8,50	50,00	23,50	42,00
M12	**1,75**	**9,70**	10h5	10,20	70,00	23,50	42,00

M	PCD Diamond Item No.	CVD-D Diamond Item No.	CBN-H Item No.	CBN-X Item No.
M8				
M10				
M12				

on request

Process description:

1. Positioning in the bore center as starting point
2. Radial infeed through a retracting movement to the thread depth
3. Circular milling of the thread, step by step to the final thread depth, then return to the center of the hole
4. Return to the starting position and end of the machining process machining process

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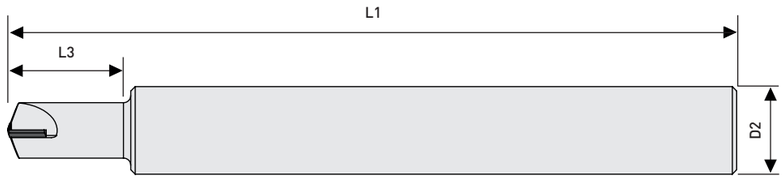
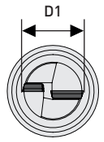
Subject to technical changes.

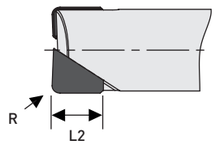
Corner end mills - STPlus-Line

Diamond tipped - for machining brittle-hard materials | Ø0,90 - 5,00





over center



Radius tolerance: ± 0,004 mm
Length tolerance: ± 1,00 mm
Carbide shank

D1	L1	L2	L3	Teeth Count Z	R	D2	CVD-D Diamond Item No.	Ultra Diamond Item No.
0,90	50,00	2,00	2,00	1	0,020	6h5	FS2050-8500	FS1150-8500
1,00	50,00	2,00	2,50	1	0,050	6h5	FS2050-8502	FS1150-8502
	50,00	2,00	2,50	1	0,100	6h5	FS2050-8504	FS1150-8504
	50,00	2,00	4,50	1	0,050	6h5	FS2050-8506	FS1150-8506
1,50	50,00	2,00	3,00	2	0,050	6h5	FS2050-8508	FS1150-8508
	50,00	2,00	3,00	2	0,100	6h5	FS2050-8510	FS1150-8510
2,00	50,00	2,00	4,00	2	0,100	6h5	FS2050-8512	FS1150-8512
	50,00	2,00	4,00	2	0,200	6h5	FS2050-8514	FS1150-8514
3,00	50,00	2,50	6,00	2	0,100	6h5	FS2050-8516	FS1150-8516
	50,00	2,50	6,00	2	0,300	6h5	FS2050-8518	FS1150-8518
4,00	50,00	2,50	8,00	2	0,100	6h5	FS2050-8520	
	50,00	2,50	8,00	2	0,300	6h5	FS2050-8522	
5,00	50,00	3,00	10,00	2	0,200	6h5	FS2050-8524	
	50,00	3,00	10,00	2	0,500	6h5	FS2050-8526	

on request

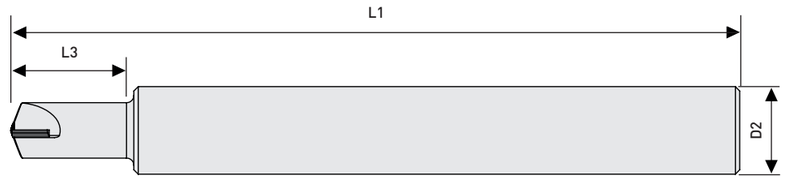
Application range:

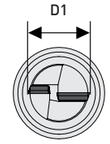
- **CVD-D** Carbide >8% Co, Composites (GFRP,CFRP), Aluminum >10% Si, Copper, Graphite, Intermetallic, MMC (=Metal Matrix Composite),Titanium (Finishing) ...
- **UltraDia.** Carbide <10% Co, Carbide with Ni Binder, Glass Materials, highly abrasive materials, sintered ceramic materials ...

You will find further application ranges in the detailed overview from page 8.

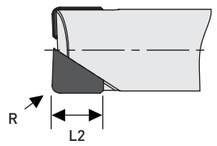
Corner end mills - STPlus-Line

Diamond tipped - for machining brittle-hard materials | Ø6,00 - 12,00





over center



Radius tolerance: ± 0,004 mm
Length tolerance: ± 1,00 mm
Carbide shank

D1	L1	L2	L3	Teeth Count Z	R	D2	CVD-D Diamond Item No.	Ultra Diamond Item No.
6,00	50,00	3,00	15,00	2	0,200	6h5	FS2050-8528	
	50,00	3,00	15,00	2	0,300	6h5	FS2050-8530	
	50,00	3,00	15,00	2	0,500	6h5	FS2050-8532	
8,00	60,00	4,00	20,00	2	0,300	8h5	FS2050-8534	
	60,00	4,00	20,00	2	0,500	8h5	FS2050-8536	
10,00	60,00	5,00	25,00	2	0,300	10h5	FS2050-8538	
	60,00	5,00	25,00	2	0,800	10h5	FS2050-8540	
12,00	70,00	5,00	25,00	2	1,000	12h5	FS2050-8542	

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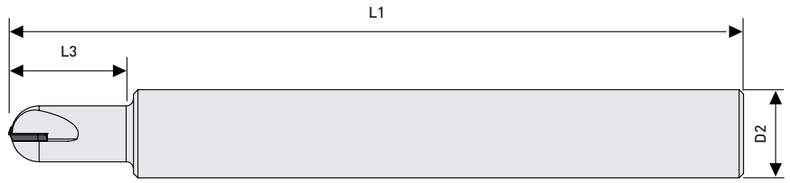
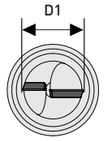
Subject to technical changes.

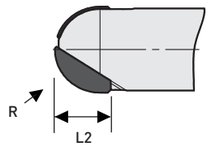
Ball nose end mills - STPlus-Line

Diamond tipped - for machining brittle-hard materials | Ø0,90 - 6,00





over center



Radius tolerance: ± 0,004 mm
Length tolerance: ± 1,00 mm
Carbide shank

D1	L1	L2	L3	Teeth Count Z	R	D2	CVD-D Diamond Item No.	Ultra Diamond Item No.
0,90	50,00	2,00	2,00	1	0,450	6h5	FS2050-9500	FS1150-9500
1,00	50,00	2,00	2,50	1	0,500	6h5	FS2050-9502	FS1150-9502
	50,00	2,00	3,50	1	0,500	6h5	FS2050-9504	FS1150-9504
	50,00	2,00	4,50	1	0,500	6h5	FS2050-9506	FS1150-9506
1,50	50,00	2,00	3,00	2	0,750	6h5	FS2050-9508	FS1150-9508
	50,00	2,00	5,00	2	0,750	6h5	FS2050-9510	FS1150-9510
2,00	50,00	2,00	4,00	2	1,000	6h5	FS2050-9512	FS1150-9512
	50,00	2,00	8,00	2	1,000	6h5	FS2050-9514	FS1150-9514
3,00	50,00	2,50	6,00	2	1,500	6h5	FS2050-9516	FS1150-9516
	50,00	2,50	12,00	2	1,500	6h5	FS2050-9518	FS1150-9518
4,00	50,00	2,50	8,00	2	2,000	6h5	FS2050-9520	
	50,00	2,50	16,00	2	2,000	6h5	FS2050-9522	
5,00	50,00	3,00	10,00	2	2,500	6h5	FS2050-9524	
	50,00	3,00	20,00	2	2,500	6h5	FS2050-9526	
6,00	50,00	3,00	12,00	2	3,000	6h5	FS2050-9528	
	50,00	3,00	24,00	2	3,000	6h5	FS2050-9530	

on request

Application range:

- **CVD-D** Carbide >8% Co, Composites (GFRP,CFRP), Aluminum >10% Si, Copper, Graphite, Intermetallic, MMC (=Metal Matrix Composite),Titanium (Finishing) ...
- **UltraDia.** Carbide <10% Co, Carbide with Ni Binder, Glass Materials, highly abrasive materials, sintered ceramic materials ...

You will find further application ranges in the detailed overview from page 8.

Your notes

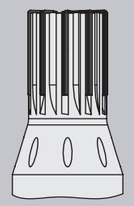
Diamond Tooling Systems
DTS GmbH

Multi-Tooth - Corner and ball nose end mills - MZ-Line

CVD-D tipped - for machining brittle-hard materials

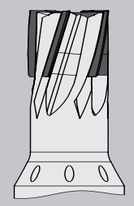
DTS multi-tooth end mills

straight grooved **CVD-D cutting edge corner** twisted



up to Z14

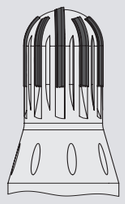
Ø1,00 mm – 10,00 mm



up to Z8

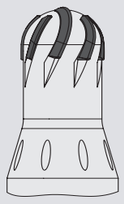
Ø2,00 mm – 10,00 mm

straight grooved **CVD-D cutting edge radius** twisted



up to Z9

Ø1,00 mm – 6,00 mm



up to Z8

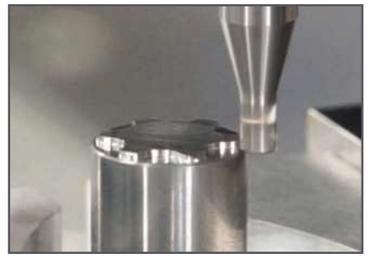
Ø2,00 mm – 6,00 mm

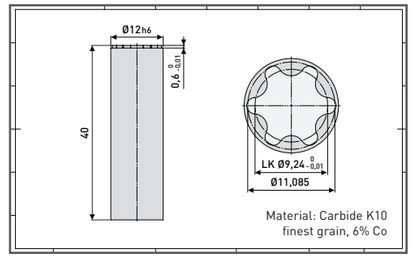
Application range:

- Ceramics
- Glass
- Glass Ceramic
- Carbide
- Aluminum with high Si content
- GFRP / CFRP / MMC
- Other high hardness and brittle materials

all multi tooth cutter with internal cooling

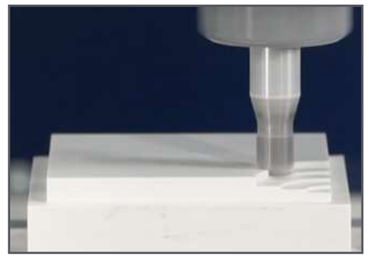
CVD-D cutting edge straight grooved	CVD-D cutting edge twist angle
Benefits of the system: ✓ Robust ✓ Precise ✓ Smooth running ✓ With internal cooling ✓ Very high feed rates possbile ✓ For roughing and finishing ✓ Cutting edge over center ✓ Plunging possible	**Benefits of the system:** ✓ Robust ✓ Precise ✓ Low cutting pressure ✓ Low cutting pressure ✓ With internal cooling ✓ Very high feed rates possbile ✓ For roughing and finishing ✓ Cutting edge over center ✓ Helix milling and plunging possible

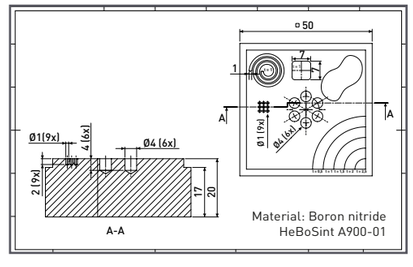




Milling
Carbide K10
Multi Tooth cutter Ø3,00

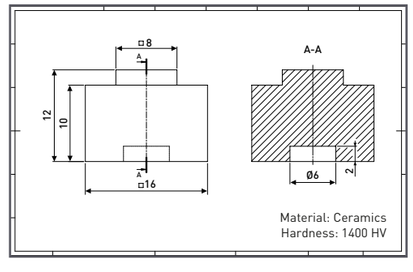
Here you can see the video!





Milling
Bornitrid HeBoSint
Multi Tooth cutter Ø6,00

Here you can see the video!

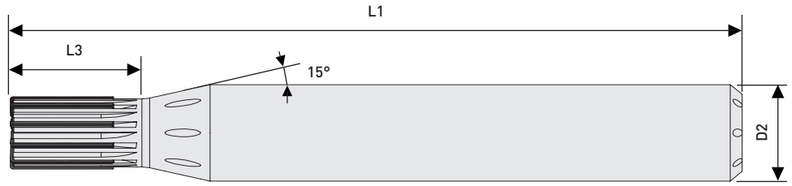


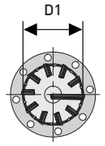
Milling
Ceramic
Multi Tooth cutter Ø6,00

Here you can see the video!

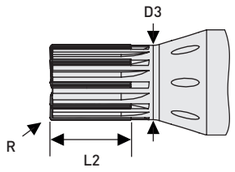
Multi-Tooth - Corner end mills - MZ-Line

CVD-D tipped - for machining brittle-hard materials | Ø1,00 - 10,00





over center



Radius tolerance: ± 0,004 mm
Length tolerance: ± 1,00 mm
Carbide shank
with internal cooling

D1	L1	L2	L3	Teeth Count Z	R	D2	D3	Item No.
1,00	45,00	3,00	3,00	1	0,030	6h5	0,85	FS2050-4500
1,50	45,00	3,00	3,00	2	0,030	6h5	1,35	FS2050-4502
2,00	45,00	3,00	3,00	3	0,030	6h5	1,85	FS2050-4505
3,00	50,00	3,00	4,50	5	0,050	6h5	2,75	FS2050-4515
	50,00	3,00	4,50	5	0,100	6h5	2,75	FS2050-4520
4,00	50,00	4,00	6,00	6	0,050	6h5	3,75	FS2050-4525
	50,00	4,00	6,00	6	0,100	6h5	3,75	FS2050-4530
5,00	50,00	5,00	7,50	7	0,050	8h5	4,70	FS2050-4535
	50,00	5,00	7,50	7	0,100	8h5	4,70	FS2050-4540
6,00	50,00	4,00	9,00	9	0,050	8h5	5,65	FS2050-4545
	50,00	4,00	9,00	9	0,150	8h5	5,65	FS2050-4550
8,00	60,00	6,00	12,00	12	0,100	12h5	7,60	FS2050-4555
	60,00	6,00	12,00	12	0,200	12h5	7,60	FS2050-4560
10,00	70,00	8,00	15,00	14	0,100	12h5	9,55	FS2050-4565
	70,00	8,00	15,00	14	0,200	12h5	9,55	FS2050-4570

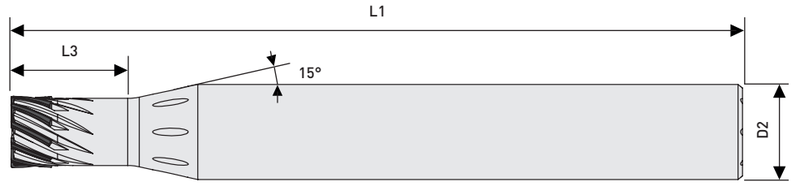
Application range:

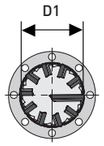
- **CVD-D** Carbide, GRP, CFRP, Aluminum >10% Si, Plastics in general, Sandwich Materials, Copper, Graphite, Glass Materials, Titanium (Finishing) ...

You will find further application ranges in the detailed overview from page 8.

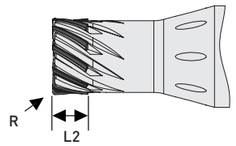
Multi-Tooth - Corner end mills - MZ-Line

CVD-D tipped - with angel of twist for machining brittle-hard materials | Ø2,00 - 10,00





over center



Radius tolerance: ± 0,004 mm
Length tolerance: ± 1,00 mm
Carbide shank
with internal cooling

D1	L1	L2	L3	Teeth Count Z	R	D2	Item No.
2,00	50,00	1,90	4,50	3	0,050	6h5	FS2050-4695
3,00	50,00	1,90	4,50	5	0,050	6h5	FS2050-4700
	50,00	1,90	4,50	5	0,100	6h5	FS2050-4705
4,00	50,00	2,50	6,00	5	0,050	6h5	FS2050-4710
	50,00	2,50	6,00	5	0,100	6h5	FS2050-4715
5,00	50,00	3,00	7,50	6	0,050	8h5	FS2050-4720
	50,00	3,00	7,50	6	0,100	8h5	FS2050-4725
	70,00	9,00	20,00	5	0,050	8h5	FS2050-4727
	70,00	9,00	20,00	5	0,100	8h5	FS2050-4728
6,00	50,00	3,00	8,00	8	0,050	8h5	FS2050-4730
	50,00	3,00	8,00	8	0,150	8h5	FS2050-4735
	70,00	9,00	20,00	5	0,050	8h5	FS2050-4737
	70,00	9,00	20,00	5	0,150	8h5	FS2050-4738
8,00	70,00	12,00	20,00	7	0,100	12h5	FS2050-4742
	70,00	12,00	20,00	7	0,200	12h5	FS2050-4743
10,00	70,00	15,00	20,00	7	0,100	12h5	FS2050-4752
	70,00	15,00	20,00	7	0,200	12h5	FS2050-4753

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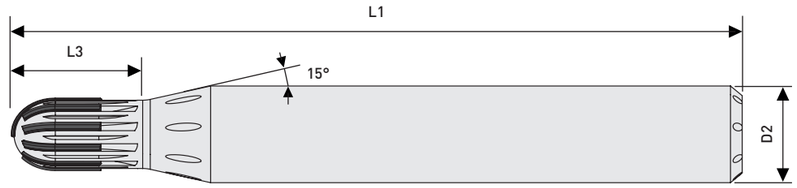
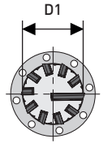
Subject to technical changes.

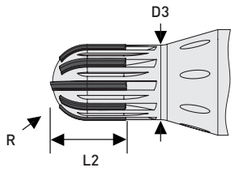
Mehrzahn - Ball nose end mills - MZ-Line

CVD-D tipped - for machining brittle-hard materials | Ø1,00 - 6,00





over center



Radius tolerance: ± 0,004 mm
Length tolerance: ± 1,00 mm
Carbide shank
with internal cooling

D1	L1	L2	L3	Teeth Count Z	R	D2	D3	CVD-D Diamond Item No.
1,00	45,00	3,00	3,00	1	0,500	6h5	0,85	FS2050-5500
1,50	45,00	3,00	3,00	2	0,750	6h5	1,35	FS2050-5502
2,00	45,00	3,00	3,00	3	1,000	6h5	1,85	FS2050-5505
3,00	50,00	3,00	4,50	5	1,500	6h5	2,75	FS2050-5520
4,00	50,00	4,00	6,00	6	2,000	6h5	3,75	FS2050-5530
5,00	50,00	5,00	7,50	7	2,500	8h5	4,70	FS2050-5540
6,00	50,00	6,00	9,00	9	3,000	8h5	5,65	FS2050-5550

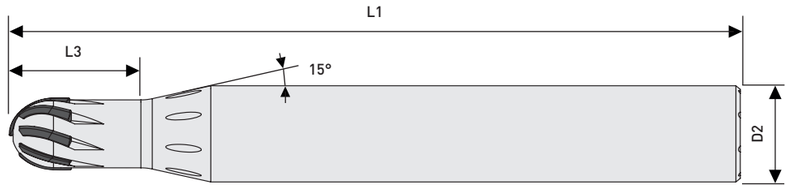
Application range:

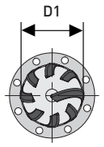
- **CVD-D** Carbide, GRP, CFRP, Aluminum >10% Si, Plastics in general, Sandwich Materials, Copper, Graphite, Glass Materials, Titanium (Finishing) ...

You will find further application ranges in the detailed overview from page 8.

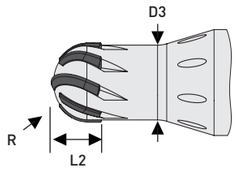
Mehrzahn - Ball nose end mills - MZ-Line

CVD-D tipped - with angel of twist for machining brittle-hard materials | Ø2,00 - 6,00





over center



Radius tolerance: ± 0,004 mm
Length tolerance: ± 1,00 mm
Carbide shank
with internal cooling

D1	L1	L2	L3	Teeth Count Z	R	D2	D3	CVD-D Diamond Item No.
2,00	50,00	1,20	4,50	2	1,000	6h5	1,75	FS2050-5700
3,00	50,00	1,90	4,50	4	1,500	6h5	2,75	FS2050-5720
4,00	50,00	2,50	6,00	5	2,000	6h5	3,75	FS2050-5730
5,00	50,00	3,00	7,50	6	2,500	8h5	4,70	FS2050-5740
6,00	50,00	4,00	9,00	8	3,000	8h5	5,65	FS2050-5750

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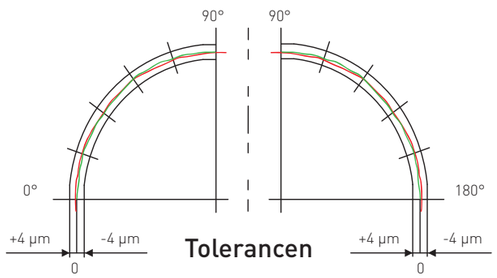
Corner and ball nose end mills - ST-Line

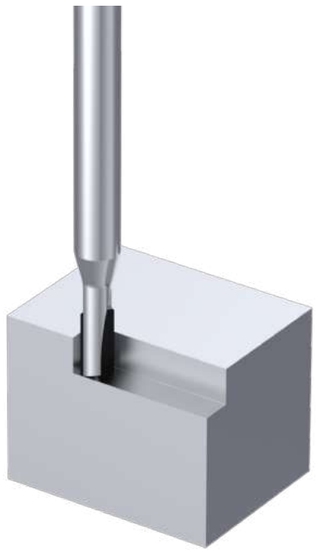
Diamond tipped

Milling tools play a central role in machining technology by removing material from the workpiece in a targeted manner. The milling cutter rotates around its own axis and can either be guided along the workpiece or the workpiece moves along the milling tool. These flexible application options make milling cutters indispensable, especially when inserting grooves or guides. In contrast to drills, milling cutters not only work along the axis of rotation, but also allow precise cutting in oblique or vertical directions - perfect for complex machining processes.
Our corner and radius shank milling cutters, tipped with diamond, are used in series production and for milling brittle-hard materials.

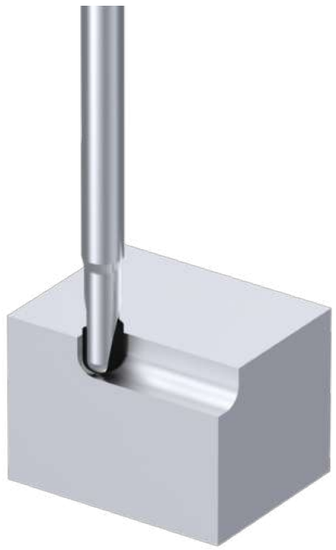
Areas of application include:

- Milling of aluminum
- Milling of zinc
- Milling of brass
- Ceramic components
- Carbide components
- Components with the highest surface quality requirements
- Components with very tight tolerances
- Wherever very high tool life is required
- Abrasive materials



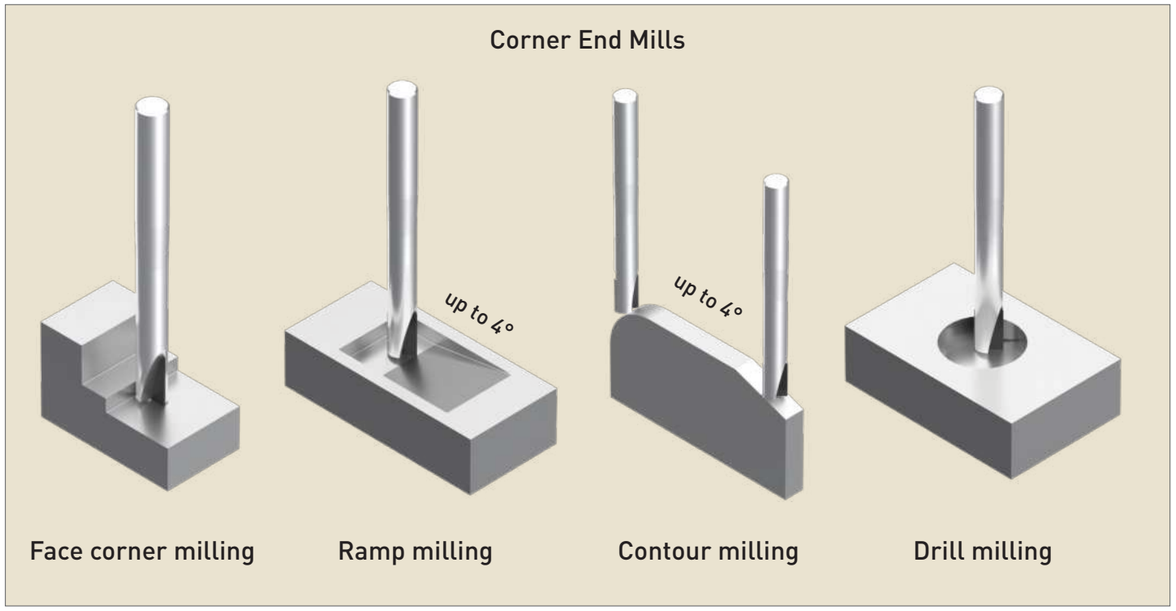


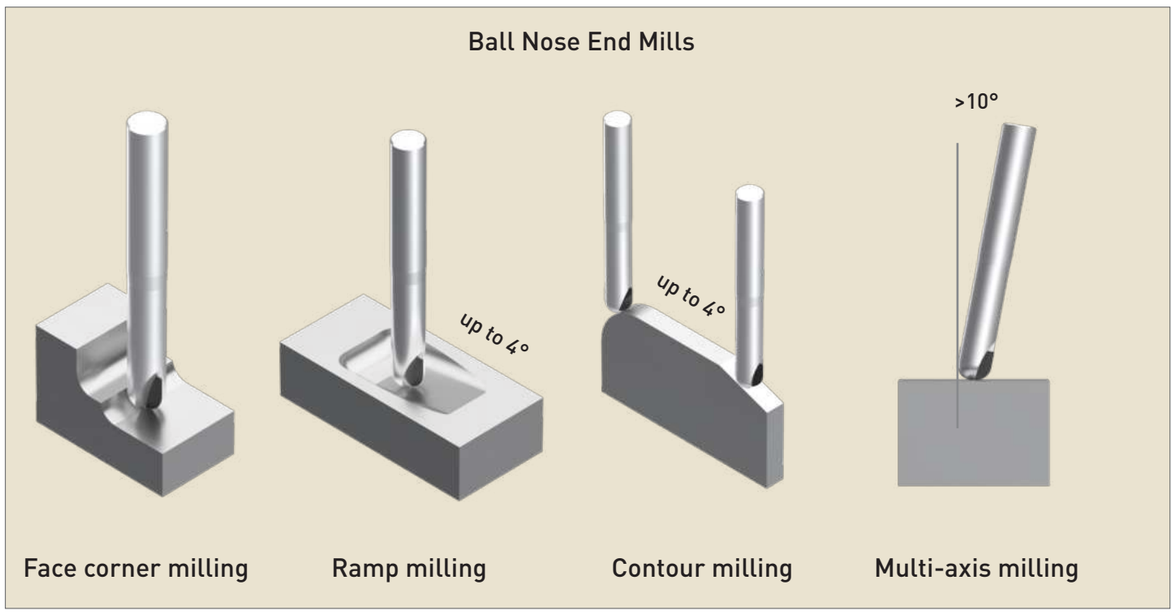
Corner End Mills



Ball Nose End Mills

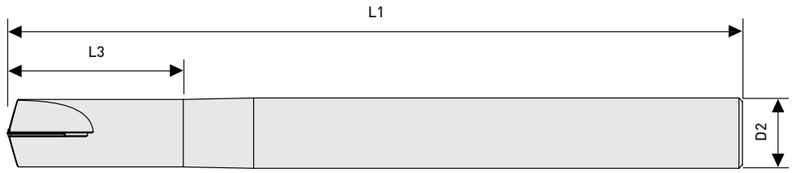
Machining options

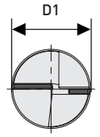




Corner end mills - ST-Line

Diamond edge-tipped - PCD and CVD-D for general machining | Ø1,00 - 5,00





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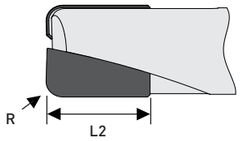

Radius tolerance: ± 0,004 mm
Length tolerance: ± 1,00 mm
Ramp angle: up to 4°
Carbide shank

D1	L1	L2	L3	Teeth Count Z	R	D2	PCD Diamond Item No.	CVD-D Diamond Item No.
1,00	38,00	3,00	4,00	1	0,050	4h5	FS1050-4009	FS2050-4009
	50,00	3,00	4,00	1	0,050	4h5	FS1050-4010	FS2050-4010
	50,00	2,00	5,00	1	0,100	6h5		FS2050-4011
	50,00	2,00	10,00	1	0,100	6h5		FS2050-4012
	50,00	2,00	20,00	1	0,100	6h5		FS2050-4013
1,50	38,00	2,00	3,00	2	0,005	4h5		FS2050-4018
	38,00	3,00	4,00	2	0,050	4h5	FS1050-4019	FS2050-4019
	50,00	3,00	4,00	2	0,050	4h5	FS1050-4020	FS2050-4020
	50,00	2,00	5,00	2	0,150	6h5		FS2050-4021
	50,00	2,00	10,00	2	0,150	6h5		FS2050-4022
	50,00	2,00	20,00	2	0,150	6h5		FS2050-4023
2,00	38,00	2,00	3,00	2	0,005	4h5		FS2050-4027
	38,00	4,00	6,00	2	0,005	4h5		FS2050-4028
	38,00	3,00	6,00	2	0,050	4h5	FS1050-4029	FS2050-4029
	50,00	3,00	5,00	2	0,100	4h5	FS1050-4030	FS2050-4030
	50,00	3,50	8,00	2	0,100	4h5	FS1050-4040	FS2050-4040
	50,00	3,00	5,00	2	0,150	6h5		FS2050-4041
	50,00	3,00	10,00	2	0,150	6h5		FS2050-4042
	50,00	3,00	20,00	2	0,150	6h5		FS2050-4043
2,50	38,00	5,00	7,00	2	0,005	4h5		FS2050-4048
	38,00	4,00	6,00	2	0,100	4h5	FS1050-4049	FS2050-4049
	50,00	4,00	6,00	2	0,100	4h5	FS1050-4050	FS2050-4050
	50,00	4,00	10,00	2	0,100	4h5	FS1050-4060	FS2050-4060
3,00	38,00	3,00	5,00	2	0,005	4h5		FS2050-4068
	38,00	6,00	9,00	2	0,005	4h5		FS2050-4069
	50,00	5,00	8,00	2	0,100	6h5	FS1050-4070	FS2050-4070
	50,00	5,00	8,00	2	0,200	6h5	FS1050-4071	FS2050-4071
	50,00	5,00	8,00	2	0,500	6h5	FS1050-4072	FS2050-4072
	60,00	5,00	12,00	2	0,100	6h5	FS1050-4080	FS2050-4080
	75,00	4,00	10,00	2	0,300	6h5		FS2050-4081
	75,00	4,00	15,00	2	0,300	6h5		FS2050-4082
	75,00	4,00	20,00	2	0,300	6h5		FS2050-4083
4,00	38,00	6,00	10,00	2	0,010	4h5		FS2050-4089
	60,00	5,00	10,00	2	0,100	6h5	FS1050-4090	FS2050-4090
	60,00	5,00	10,00	2	0,300	6h5	FS1050-4091	FS2050-4091
	60,00	5,00	10,00	2	0,500	6h5	FS1050-4092	FS2050-4092
	65,00	5,00	16,00	2	0,100	6h5	FS1050-4100	FS2050-4100
	75,00	5,00	10,00	2	0,300	6h5		FS2050-4101
	75,00	5,00	20,00	2	0,300	6h5		FS2050-4102
	75,00	5,00	30,00	2	0,300	6h5		FS2050-4103
5,00	50,00	6,00	12,00	2	0,010	6h5		FS2050-4109
	60,00	6,00	12,00	2	0,200	6h5	FS1050-4110	FS2050-4110
	60,00	6,00	12,00	2	0,500	6h5	FS1050-4111	FS2050-4111
	70,00	6,00	16,00	2	0,200	6h5	FS1050-4120	FS2050-4120
	80,00	6,00	25,00	2	0,200	6h5	FS1050-4130	FS2050-4130
	75,00	6,00	15,00	2	0,500	6h5		FS2050-4131
	75,00	6,00	25,00	2	0,500	6h5		FS2050-4132
	75,00	6,00	35,00	2	0,500	6h5		FS2050-4133

on request

Application range:

- **PCD** Aluminum <10% Si, Graphite, Brass, Copper alloys, Bronze, Ceramics green body, Titanium (Roughing)
- **CVD-D** Aluminum >10% Si, cFRP/MQL, GFRP, Fine graphite, Glass materials, Carbide >10% Co, Copper, Titanium (Finishing)...

You will find further application ranges in the detailed overview from page 8.

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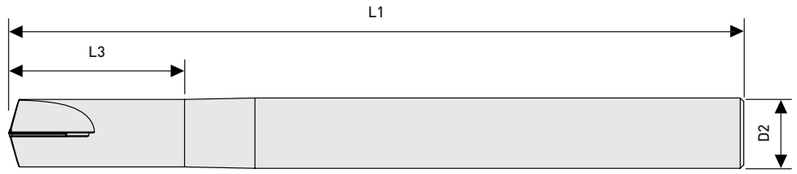
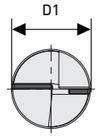
Corner end mills - ST-Line

Diamond edge-tipped - PCD and CVD-D for general machining | Ø6,00 - 20,00





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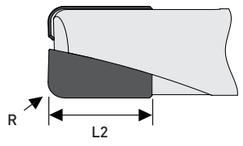

Radius tolerance: ± 0,004 mm
Length tolerance: ± 1,00 mm
Ramp angle: up to 4°
Carbide shank

D1	L1	L2	L3	Teeth Count Z	R	D2	PCD Diamond Item No.	CVD-D Diamond Item No.
6,00	50,00	8,00	15,00	2	0,010	6h5	☎	FS2050-4139
	65,00	6,00	15,00	2	0,200	6h5	FS1050-4140	FS2050-4140
	65,00	6,00	15,00	2	0,500	6h5	FS1050-4141	FS2050-4141
	65,00	6,00	15,00	2	1,000	6h5	FS1050-4142	FS2050-4142
	75,00	8,00	20,00	2	0,200	6h5	FS1050-4150	FS2050-4150
	85,00	10,00	30,00	2	0,200	6h5	FS1050-4160	FS2050-4160
	100,00	6,00	20,00	2	0,300	6h5		FS2050-4161
	100,00	6,00	30,00	2	0,300	6h5	☎	FS2050-4162
	100,00	6,00	40,00	2	0,300	6h5		FS2050-4163
8,00	70,00	8,00	20,00	2	0,300	8h5	FS1050-4170	FS2050-4170
	70,00	8,00	20,00	2	0,500	8h5	FS1050-4171	FS2050-4171
	70,00	8,00	20,00	2	1,000	8h5	FS1050-4172	FS2050-4172
	85,00	16,00	40,00	2	0,300	8h5	FS1050-4180	FS2050-4180
	100,00	7,00	25,00	2	1,000	8h5		FS2050-4181
	100,00	7,00	40,00	2	1,000	8h5	☎	FS2050-4182
	100,00	7,00	60,00	2	1,000	8h5		FS2050-4183
10,00	75,00	8,00	25,00	2	0,300	10h5	FS1050-4189	FS2050-4189
	75,00	8,00	25,00	2	0,500	10h5	FS1050-4190	FS2050-4190
	75,00	8,00	25,00	2	1,000	10h5	FS1050-4191	FS2050-4191
	105,00	16,00	50,00	2	0,300	10h5	FS1050-4192	FS2050-4192
	105,00	16,00	50,00	2	0,500	10h5	FS1050-4193	FS2050-4193
	105,00	16,00	50,00	2	1,000	10h5	FS1050-4200	FS2050-4200
12,00	80,00	8,00	30,00	2	0,500	12h5	FS1050-4210	FS2050-4210
	80,00	8,00	30,00	2	1,000	12h5	FS1050-4211	FS2050-4211
	105,00	16,00	60,00	2	0,500	12h5	FS1050-4212	FS2050-4212
	105,00	16,00	60,00	2	1,000	12h5	FS1050-4220	FS2050-4220
16,00	105,00	20,00	30,00	2	0,500	16h5	FS1050-4229	FS2050-4229
	105,00	20,00	30,00	2	1,000	16h5	FS1050-4230	FS2050-4230
20,00	105,00	20,00	30,00	2	1,000	20h5	FS1050-4240	FS2050-4240

☎ on request

Application range:

- **PCD** Aluminum <10% Si, Graphite, Brass, Copper alloys, Bronze, Ceramics green body, Titanium (Roughing)
- **CVD-D** Aluminum >10% Si, cFRP/MQL, GFRP, Fine graphite, Glass materials, Carbide >10% Co, Copper, Titanium (Finishing)...

You will find further application ranges in the detailed overview from page 8.

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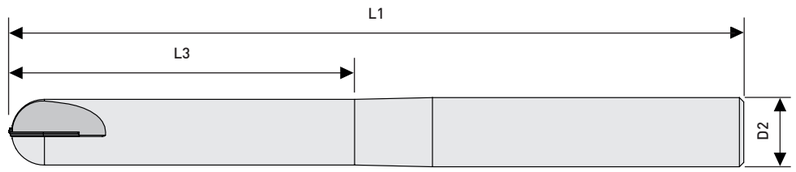
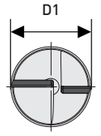
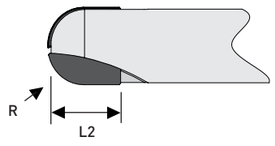
Ball nose end mills - ST-Line

Diamond edge-tipped - PCD and CVD-D for general machining | Ø1,00 - 5,00





over center



Radius tolerance: ± 0,004 mm
Length tolerance: ± 1,00 mm
Ramp angle: up to 4°
Carbide shank

D1	L1	L2	L3	Teeth Count Z	R	D2	PCD Diamond Item No.	CVD-D Diamond Item No.
1,00	32,00	1,50	4,00	1	0,500	3h5	FS1050-5009	FS2050-5009
	50,00	3,00	4,00	1	0,500	4h5	FS1050-5010	FS2050-5010
	50,00	2,00	5,00	1	0,500	6h5		FS2050-5011
	50,00	2,00	10,00	1	0,500	6h5	☎	FS2050-5012
	50,00	2,00	20,00	1	0,500	6h5		FS2050-5013
1,50	32,00	2,00	5,00	2	0,750	3h5	FS1050-5019	FS2050-5019
	50,00	3,00	5,00	2	0,750	4h5	FS1050-5020	FS2050-5020
	50,00	2,00	5,00	2	0,750	6h5		FS2050-5021
	50,00	2,00	15,00	2	0,750	6h5	☎	FS2050-5022
	50,00	2,00	20,00	2	0,750	6h5		FS2050-5023
2,00	32,00	3,00	5,00	2	1,000	4h5	FS1050-5028	FS2050-5028
	32,00	3,00	8,00	2	1,000	4h5	FS1050-5029	FS2050-5029
	50,00	3,00	5,00	2	1,000	4h5	FS1050-5030	FS2050-5030
	50,00	3,00	8,00	2	1,000	4h5	FS1050-5040	FS2050-5040
	50,00	3,00	5,00	2	1,000	6h5		FS2050-5041
	50,00	3,00	15,00	2	1,000	6h5	☎	FS2050-5042
	50,00	3,00	20,00	2	1,000	6h5		FS2050-5043
2,50	32,00	3,00	6,00	2	1,250	3h5	FS1050-5048	FS2050-5048
	32,00	3,00	10,00	2	1,250	3h5	FS1050-5049	FS2050-5049
	50,00	3,00	6,00	2	1,250	4h5	FS1050-5050	FS2050-5050
	50,00	3,00	10,00	2	1,250	4h5	FS1050-5060	FS2050-5060
3,00	32,00	4,00	6,00	2	1,500	3h5	FS1050-5068	FS2050-5068
	32,00	4,00	9,00	2	1,500	3h5	FS1050-5069	FS2050-5069
	50,00	5,00	8,00	2	1,500	6h5	FS1050-5070	FS2050-5070
	60,00	5,00	12,00	2	1,500	6h5	FS1050-5080	FS2050-5080
	50,00	4,00	10,00	2	1,500	6h5		FS2050-5081
	50,00	4,00	15,00	2	1,500	6h5	☎	FS2050-5082
	50,00	4,00	20,00	2	1,500	6h5		FS2050-5083
4,00	38,00	5,00	7,00	2	2,000	4h5	FS1050-5088	FS2050-5088
	38,00	5,00	10,00	2	2,000	4h5	FS1050-5089	FS2050-5089
	60,00	5,00	10,00	2	2,000	6h5	FS1050-5090	FS2050-5090
	65,00	5,00	16,00	2	2,000	6h5	FS1050-5100	FS2050-5100
	75,00	5,00	10,00	2	2,000	6h5		FS2050-5101
	75,00	5,00	20,00	2	2,000	6h5	☎	FS2050-5102
	75,00	5,00	30,00	2	2,000	6h5		FS2050-5103
5,00	50,00	6,00	12,00	2	2,500	6h5	FS1050-5108	FS2050-5108
	50,00	6,00	16,00	2	2,500	6h5	FS1050-5109	FS2050-5109
	60,00	6,00	12,00	2	2,500	6h5	FS1050-5110	FS2050-5110
	70,00	6,00	16,00	2	2,500	6h5	FS1050-5120	FS2050-5120
	75,00	6,00	15,00	2	2,500	6h5		FS2050-5121
	75,00	6,00	25,00	2	2,500	6h5	☎	FS2050-5122
	75,00	6,00	35,00	2	2,500	6h5		FS2050-5123

☎ on request

Application range:

- **PCD** Aluminum <10% Si, Graphite, Brass, Copper alloys, Bronze, Ceramics green body, Titanium (Roughing)
- **CVD-D** Aluminum >10% Si, cFRP/MQL, GFRP, Fine graphite, Glass materials, Carbide >10% Co, Copper, Titanium (Finishing)...

You will find further application ranges in the detailed overview from page 8.

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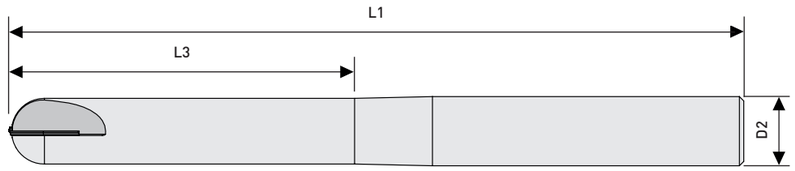
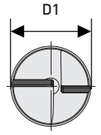
Scan me!

Subject to technical changes.

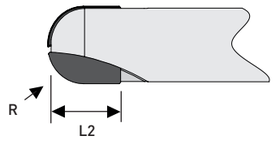
Ball nose end mills - ST-Line

Diamond edge-tipped - PCD and CVD-D for general machining | Ø6,00 - 12,00





over center



Radius tolerance: ± 0,004 mm
Length tolerance: ± 1,00 mm
Ramp angle: up to 4°
Carbide shank

D1	L1	L2	L3	Teeth Count Z	R	D2	PCD Diamond Item No.	CVD-D Diamond Item No.
6,00	50,00	6,00	15,00	2	3,000	6h5	FS1050-5128	FS2050-5128
	50,00	6,00	20,00	2	3,000	6h5	FS1050-5129	FS2050-5129
	65,00	6,00	15,00	2	3,000	6h5	FS1050-5130	FS2050-5130
	75,00	6,00	20,00	2	3,000	6h5	FS1050-5140	FS2050-5140
	100,00	6,00	20,00	2	3,000	6h5		FS2050-5141
	100,00	6,00	30,00	2	3,000	6h5	✆	FS2050-5142
	100,00	6,00	40,00	2	3,000	6h5		FS2050-5143
8,00	63,00	8,00	20,00	2	4,000	8h5	FS1050-5149	FS2050-5149
	70,00	8,00	20,00	2	4,000	8h5	FS1050-5150	FS2050-5150
	85,00	8,00	40,00	2	4,000	8h5	FS1050-5160	FS2050-5160
	100,00	7,00	25,00	2	4,000	8h5		FS2050-5161
	100,00	7,00	40,00	2	4,000	8h5	✆	FS2050-5162
	100,00	7,00	60,00	2	4,000	8h5		FS2050-5163
10,00	75,00	10,00	25,00	2	5,000	10h5	FS1050-5170	FS2050-5170
	90,00	10,00	40,00	2	5,000	10h5	FS1050-5180	FS2050-5180
12,00	85,00	12,00	30,00	2	6,000	12h5	FS1050-5190	FS2050-5190
	100,00	12,00	45,00	2	6,000	12h5	FS1050-5200	FS2050-5200

✆ on request

Application range:

- **PCD** Aluminum <10% Si, Graphite, Brass, Copper alloys, Bronze, Ceramics green body, Titanium (Roughing)
- **CVD-D** Aluminum >10% Si, cFRP/MQL, GFRP, Fine graphite, Glass materials, Carbide >10% Co, Copper, Titanium (Finishing)...

You will find further application ranges in the detailed overview from page 8.

Your notes

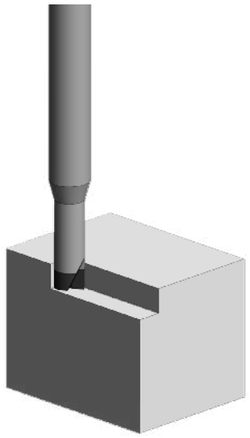
Diamond Tooling Systems
DTS GmbH

Solid CBN corner end mills - CBN-Line

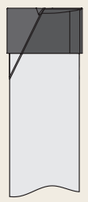
Our CBN Corner End Mills are used for the milling of hardened materials.

Application range for example:

- Steel, hardened up to 72HRC
- Tool Steel hardened
- PM Steel, hardened up to 72HRC
- Components with the highest surface requirements
- Components with very low tolerances



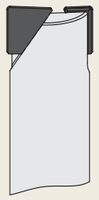
CBN corner end mills and their advantages at a glance:



Solid CBN cutting edge, brazed, straight-toothed

- ✓ Best surface finish when finishing
- ✓ Very good heat dissipation
- ✓ Very stable
- ✓ Highest speeds possible
- ✓ From Ø 0.30 mm to Ø 6.00 mm

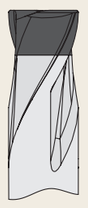
from page 38



CBN cutting edge, corner-tipped, straight-toothed

- ✓ Best surfaces
- ✓ Good heat dissipation
- ✓ High speeds possible
- ✓ From Ø 6,00 mm to Ø 12,00 mm

from page 40



Solid CBN cutting edge, brazed with helix

- ✓ Best surfaces
- ✓ Ideally suited for roughing and finishing
- ✓ Very good heat dissipation
- ✓ Very stable
- ✓ Highest speeds possible
- ✓ From Ø 0,30 mm to Ø 6,00 mm

from page 41

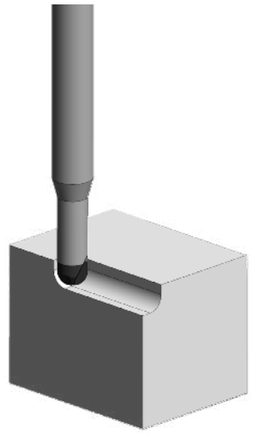
Solid CBN ball nose end mills - CBN-Line

Diamond Tooling Systems
DTS GmbH

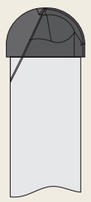
Our CBN Ball Nose End Mills is used for milling hardened materials.

Application range for example:

- Steel, hardened up to 72HRC
- Tool Steel hardened
- PM Steel, hardened up to 72HRC
- Components with the highest surface requirements
- Components with very low tolerances



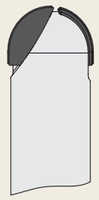
CBN ball nose end mills and their advantages at a glance:



Solid CBN cutting edge, brazed, straight-toothed

- ✓ Best surface finish when finishing
- ✓ Very good heat dissipation
- ✓ Very stable
- ✓ Highest speeds possible
- ✓ From Ø 0,20 mm to Ø 6,00 mm

from page 44



CBN cutting edge, corner-tipped, straight-toothed

- ✓ Best surfaces
- ✓ Good heat dissipation
- ✓ High speeds possible
- ✓ From Ø 6,00 mm to Ø 12,00 mm

from page 45

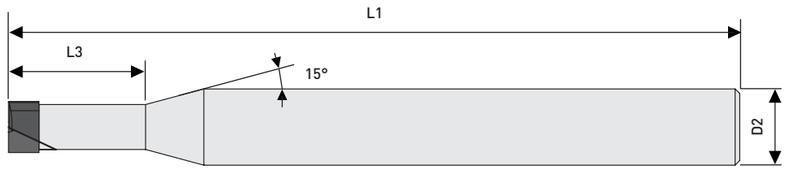
Solid CBN cutting edge, brazed with helix

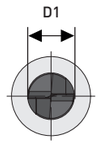
- ✓ Best surfaces
- ✓ Ideally suited for roughing and finishing
- ✓ Very good heat dissipation
- ✓ Very stable
- ✓ Highest speeds possible
- ✓ From Ø 0,20 mm to Ø 6,00 mm

from page 46

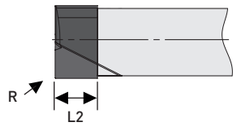
Corner end mills - CBN-Line

Solid CBN tipped | Ø0,30 - 6,00





over center



Edge tolerance: - 0,010
Radius tolerance: ± 0,005
Shank tolerance: - 0,003mm
Carbide shank

CBN

D1	L1	L2	L3	Teeth Count Z	R	D2	Item No.
0,30	48,00	0,30	0,90	2	0,03	4h5	FS5940-0204
	48,00	0,30	0,90	2	0,05	4h5	FS5940-0210
0,40	48,00	0,40	1,20	2	0,03	4h5	FS5940-0216
	48,00	0,40	1,20	2	0,05	4h5	FS5940-0222
0,50	48,00	0,50	1,50	2	0,03	4h5	FS5940-0236
	48,00	0,50	1,50	2	0,05	4h5	FS5940-0246
1,00	48,00	1,00	2,00	2	0,03	4h5	FS5940-0262
	48,00	1,00	2,00	2	0,05	4h5	FS5940-0276
	48,00	1,00	2,00	2	0,10	4h5	FS5940-0290
	48,00	1,00	2,00	2	0,20	4h5	FS5940-0304
1,50	48,00	1,50	4,50	2	0,03	4h5	FS5940-0318
	48,00	1,50	4,50	2	0,05	4h5	FS5940-0322
2,00	48,00	1,50	6,00	2	0,03	4h5	FS5940-0334
	48,00	1,50	6,00	2	0,05	4h5	FS5940-0338
	48,00	1,50	6,00	2	0,10	4h5	FS5940-0342
	48,00	1,50	6,00	2	0,20	4h5	FS5940-0346
	48,00	1,50	6,00	2	0,30	4h5	FS5940-0350

CBN

D1	L1	L2	L3	Teeth Count Z	R	D2	Item No.
3,00	48,00	2,00	9,00	2	0,20	6h5	FS5940-0020
	48,00	2,00	9,00	2	0,30	6h5	FS5940-0022
	48,00	2,00	9,00	2	0,40	6h5	FS5940-0024
4,00	48,00	2,00	12,00	2	0,03	6h5	FS5940-0026
	48,00	2,00	12,00	2	0,20	6h5	FS5940-0028
	48,00	2,00	12,00	2	0,30	6h5	FS5940-0030
	48,00	2,00	12,00	2	0,50	6h5	FS5940-0032
6,00	58,00	2,00	20,00	2	0,03	6h5	FS5940-0042
	58,00	2,00	20,00	2	0,20	6h5	FS5940-0044
	58,00	2,00	20,00	2	0,30	6h5	FS5940-0046
	58,00	2,00	20,00	2	0,50	6h5	FS5940-0048

Application range

- **CBN** Steel hardened to 72HRC, Tool Steel hardened to 72HRC, VHM >20%Co, Stellite, Inconel, Cast, Titanium, difficult to machine steel ...

You will find further application ranges in the detailed overview from page 8.

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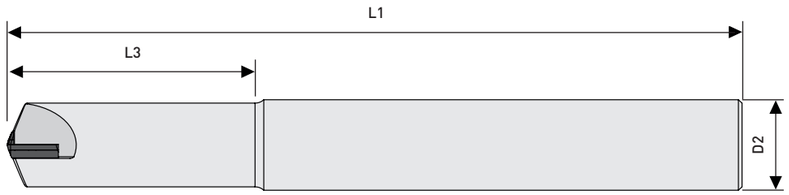
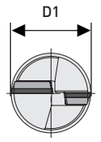
Subject to technical changes.

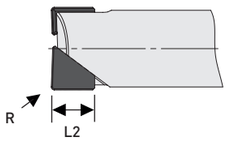
Corner end mills - CBN-Line

CBN edge-tipped | Ø4,00 - 12,00





over center



Edge tolerance: - 0,010
Radius tolerance: ± 0,005
Shank tolerance: - 0,003mm
Carbide shank

D1	L1	L2	L3	Teeth Count Z	R	D2	CBN Item No.
4,00	50,00	6,00	11,00	2	0,500	6h5	FS5950-0034
	50,00	6,00	11,00	2	1,000	6h5	FS5950-0035
5,00	57,00	6,00	21,00	2	0,500	6h5	FS5950-0036
	57,00	6,00	21,00	2	1,000	6h5	FS5950-0037
6,00	50,00	7,00	11,00	2	0,500	6h5	FS5950-0038
	50,00	7,00	11,00	2	1,000	6h5	FS5950-0039
	50,00	4,00	15,00	2	0,200	6h5	FS5950-0045
	50,00	4,00	15,00	2	0,300	6h5	FS5950-0046
8,00	60,00	4,00	20,00	2	0,300	8h5	FS5950-0050
	60,00	4,00	20,00	2	0,500	8h5	FS5950-0051
10,00	60,00	5,00	25,00	2	0,300	10h5	FS5950-0052
	60,00	5,00	25,00	2	0,800	10h5	FS5950-0053
12,00	70,00	5,00	25,00	2	1,000	12h5	FS5950-0054

Application range

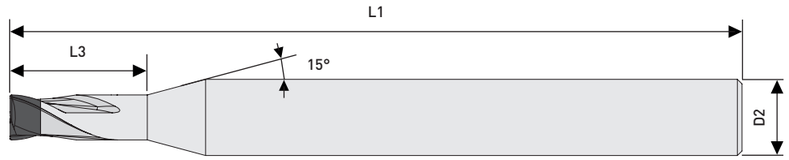
- **CBN** Steel hardened to 72HRC, Tool Steel hardened to 72HRC, VHM >20%Co, Stellite, Inconel, Cast, Titanium, difficult to machine steel ...

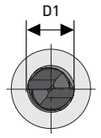
You will find further application ranges in the detailed overview from page 8.

Corner end mills - CBN-Line

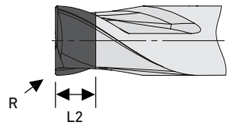
Solid CBN tipped - with angel of twist | Ø0,30 - 0,50

Diamond Tooling Systems
DTS GmbH





over center



Edge tolerance: - 0,010
Radius tolerance: ± 0,005
Shank tolerance: - 0,003mm
Carbide shank

D1	L1	L2	L3	Teeth Count Z	R	D2	CBN Item No.
0,30	48,00	0,30	0,90	2	0,03	4h5	FS5940-2202
	48,00	0,30	0,90	2	0,05	4h5	FS5940-2206
	48,00	0,50	1,00	3	0,02	4h5	FS5940-2210
	48,00	0,50	1,00	3	0,05	4h5	FS5940-2214
0,40	48,00	0,40	1,20	2	0,03	4h5	FS5940-2218
	48,00	0,40	1,20	2	0,10	4h5	FS9540-2222
	48,00	0,50	1,20	3	0,05	4h5	FS5940-2226
	48,00	0,50	1,20	3	0,05	4h5	FS5940-2230
0,50	48,00	0,50	1,50	2	0,03	4h5	FS5940-2234
	48,00	0,50	1,50	2	0,10	4h5	FS5940-2238
	48,00	0,50	1,50	3	0,02	4h5	FS5940-2242
	48,00	0,50	1,50	3	0,10	4h5	FS5940-2246
0,60	48,00	0,60	1,80	3	0,02	4h5	FS5940-2250
	48,00	0,60	1,80	3	0,10	4h5	FS5940-2254
0,70	48,00	0,70	2,10	3	0,02	4h5	FS5940-2258
	48,00	0,70	2,10	3	0,10	4h5	FS5940-2262

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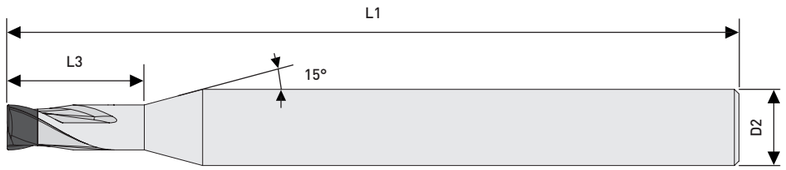
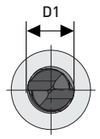
Subject to technical changes.

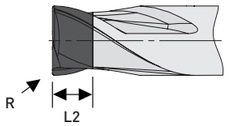
Corner end mills - CBN-Line

Solid CBN tipped - with angel of twist | Ø0,70 - 6,00





over center



Edge tolerance: - 0,010
Radius tolerance: ± 0,005
Shank tolerance: - 0,003mm
Carbide shank

CBN

D1	L1	L2	L3	Teeth Count Z	R	D2	Item No.
0,80	48,00	0,80	2,40	3	0,02	4h5	FS5940-2266
	48,00	0,80	2,40	3	0,10	4h5	FS5940-2270
0,90	48,00	0,90	2,70	3	0,02	4h5	FS5940-2274
	48,00	0,90	2,70	3	0,10	4h5	FS5940-2278
1,00	48,00	1,00	3,00	2	0,03	4h5	FS5940-2282
	48,00	1,00	3,00	2	0,10	4h5	FS5940-2294
	48,00	1,00	3,00	2	0,20	4h5	FS5940-2306
	48,00	1,00	3,00	3	0,02	4h5	FS5940-2316
	48,00	1,00	3,00	3	0,10	4h5	FS5940-2328
1,50	48,00	1,50	4,50	2	0,03	4h5	FS5940-2340
	48,00	1,50	4,50	2	0,10	4h5	FS5940-2344
	48,00	1,50	4,50	2	0,20	4h5	FS5940-2348
	48,00	1,50	4,50	3	0,02	4h5	FS5940-2350
	48,00	1,50	9,00	3	0,10	4h5	FS5940-2356
2,00	48,00	1,50	6,00	2	0,03	4h5	FS5940-2358
	48,00	1,50	6,00	2	0,10	4h5	FS5940-2362
	48,00	1,50	6,00	2	0,20	4h5	FS5940-2366
	48,00	1,50	6,00	2	0,30	4h5	FS5940-2370

CBN

D1	L1	L2	L3	Teeth Count Z	R	D2	Item No.
2,00	48,00	1,50	6,00	3	0,02	4h5	FS5940-2372
	48,00	1,50	6,00	3	0,10	4h5	FS5940-2376
3,00	48,00	2,00	9,00	2	0,20	6h5	FS5940-2020
	48,00	2,00	9,00	2	0,30	6h5	FS5940-2022
	48,00	2,00	9,00	2	0,50	6h5	FS5940-2024
	48,00	1,50	9,00	3	0,02	6h5	FS5940-2026
	48,00	1,50	9,00	3	0,10	6h5	FS5940-2030
	48,00	1,50	9,00	3	0,20	6h5	FS5940-2034
	48,00	1,50	9,00	3	0,50	6h5	FS5940-2038
4,00	48,00	2,00	12,00	2	0,03	6h5	FS5940-2042
	48,00	2,00	12,00	2	0,10	6h5	FS5940-2044
	48,00	2,00	12,00	2	0,20	6h5	FS5940-2046
	48,00	2,00	12,00	2	0,30	6h5	FS5940-2048
	48,00	2,00	12,00	2	0,50	6h5	FS5940-2050
	58,00	2,00	20,00	3	0,05	6h5	FS5940-2052
	58,00	2,00	20,00	3	0,10	6h5	FS5940-2054
	58,00	2,00	20,00	3	0,20	6h5	FS5940-2056
	58,00	2,00	20,00	3	0,50	6h5	FS5940-2058
6,00	58,00	2,00	20,00	2	0,03	6h5	FS5940-2078
	58,00	2,00	20,00	2	0,10	6h5	FS5940-2080
	58,00	2,00	20,00	2	0,20	6h5	FS5940-2082
	58,00	2,00	20,00	2	0,30	6h5	FS5940-2084
	58,00	2,00	20,00	2	0,50	6h5	FS5940-2086
	68,00	2,00	30,00	3	0,05	6h5	FS5940-2088
	68,00	2,00	30,00	3	0,10	6h5	FS5940-2090
	68,00	2,00	30,00	3	0,20	6h5	FS5940-2092
	68,00	2,00	30,00	3	0,50	6h5	FS5940-2094

Application range

- **CBN** Steel hardened to 72HRC, Tool Steel hardened to 72HRC, VHM >20%Co, Stellite, Inconel, Cast, Titanium, difficult to machine steel ...

You will find further application ranges in the detailed overview from page 8.

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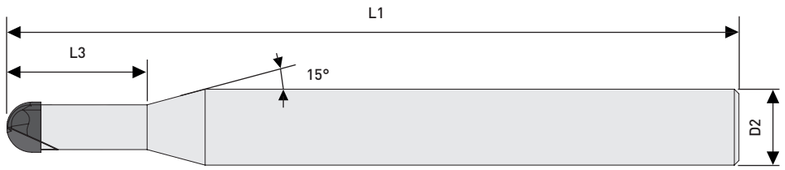
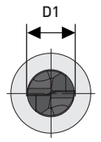
Subject to technical changes.

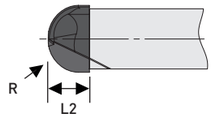
Ball nose end mills - CBN-Line

Solid CBN tipped | Ø0,20 - 6,00





over center



Edge tolerance: - 0,010
Radius tolerance: ± 0,005
Shank tolerance: - 0,003mm
Carbide shank

D1	L1	L2	L3	Teeth Count Z	R	D2	Item No.
0,20	48,00	0,20	0,60	2	0,10	4h5	FS5940-1202
0,30	48,00	0,30	0,90	2	0,10	4h5	FS5940-1206
0,40	48,00	0,40	1,20	2	0,20	4h5	FS5940-1210
0,50	48,00	0,50	1,50	2	0,25	4h5	FS5940-1214
0,60	48,00	0,60	1,80	2	0,30	4h5	FS5940-1218
0,80	48,00	0,80	2,40	2	0,40	4h5	FS5940-1222
1,00	48,00	1,00	3,00	2	0,50	4h5	FS5940-1226
1,50	48,00	1,50	4,50	2	0,75	4h5	FS5940-1238
2,00	48,00	1,50	6,00	2	1,00	4h5	FS5940-1250
3,00	48,00	2,00	9,00	2	1,50	6h5	FS5940-1028
4,00	48,00	2,50	12,00	2	2,00	6h5	FS5940-1030
6,00	48,00	3,50	20,00	2	3,00	6h5	FS5940-1034

Application range

- **CBN** Steel hardened to 72HRC, Tool Steel hardened to 72HRC, VHM >20%Co, Stellite, Inconel, Cast, Titanium, difficult to machine steel ...

You will find further application ranges in the detailed overview from page 8.

Ball nose end mill - CBN-Line

CBN edge-tipped | Ø6,00 - 12,00

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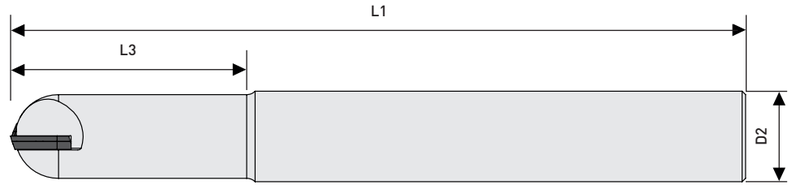
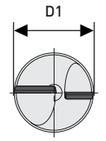
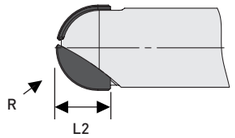




over center



Edge tolerance: - 0,010
Radius tolerance: ± 0,005
Shank tolerance: - 0,003mm
Carbide shank

D1	L1	L2	L3	Teeth Count Z	R	D2	Item No.
6,00	50,00	4,00	12,00	2	3,00	6h5	FS5950-1035
8,00	63,00	5,00	20,00	2	4,00	8h5	FS5950-1036
10,00	90,00	6,00	25,00	2	5,00	10h5	FS5950-1038
12,00	85,00	7,00	30,00	2	6,00	12h5	FS5950-1040

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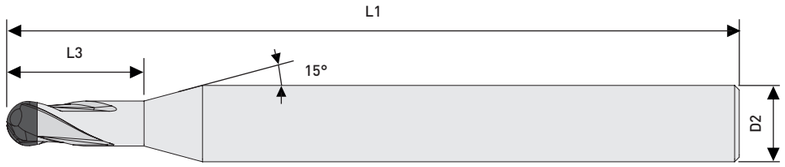
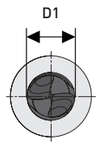
Subject to technical changes.

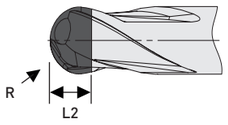
Ball nose end mills - CBN-Line

Solid CBN tipped - with angel of twist | Ø0,20 - 6,00





over center



Edge tolerance: - 0,010
Radius tolerance: ± 0,005
Shank tolerance: - 0,003mm
Carbide shank

CBN

D1	L1	L2	L3	Teeth Count Z	R	D2	Item No.
0,20	48,00	0,20	0,60	2	0,10	4h5	FS5940-3202
0,30	48,00	0,30	0,90	2	0,15	4h5	FS5940-3206
0,40	48,00	0,40	1,20	2	0,20	4h5	FS5940-3210
0,50	48,00	0,50	1,50	2	0,25	4h5	FS5940-3214
0,60	48,00	0,60	1,80	2	0,30	4h5	FS5940-3218
0,80	48,00	0,80	2,40	2	0,40	4h5	FS5940-3222
1,00	48,00	1,00	3,00	2	0,50	4h5	FS5940-3226
1,50	48,00	1,50	4,50	2	0,75	4h5	FS5940-3246
2,00	48,00	2,00	6,00	2	1,00	4h5	FS5940-3258
1,00	48,00	1,00	2,00	3	0,50	6h5	FS5940-3016
1,50	48,00	1,50	3,00	3	0,75	6h5	FS5940-3024
2,00	48,00	1,50	4,00	3	1,00	6h5	FS5940-3032
3,00	48,00	2,00	9,00	2	1,50	6h5	FS5940-3034
3,00	48,00	2,00	6,00	3	1,50	6h5	FS5940-3036
4,00	48,00	2,50	12,00	2	2,00	6h5	FS5940-3038
6,00	58,00	3,50	20,00	2	3,00	6h5	FS5940-3042

Application range

- **CBN** Steel hardened to 72HRC, Tool Steel hardened to 72HRC, VHM >20%Co, Stellite, Inconel, Cast, Titanium, difficult to machine steel ...

You will find further application ranges in the detailed overview from page 8.

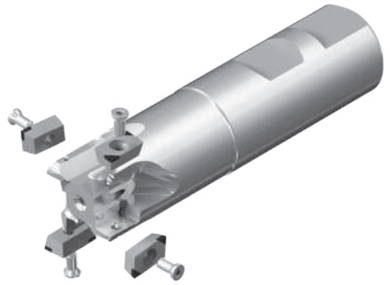
Your notes

Diamond Tooling Systems
DTS GmbH

End Mills with indexable inserts

for PCD, CVD-D and CBN

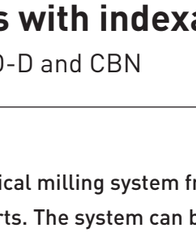
Highly economical milling system from Ø 10,00 - 25,00 mm, developed for use with diamond and CBN indexable inserts. The system can be clamped in collet, weldon and, above all, hydraulic expansion weldon holders.



Due to multiple cutting edges, the inserts are particularly economical in use.

Short and long cutting edges available

AOEX 04...



AOEX 07...

Corner Radius:

- R 0,2 mm
- R 0,5 mm
- R 0,4 mm
- R 0,8 mm
- R 1,0 mm
- R 1,2 mm
- R 1,6 mm
- R 2,0 mm
- Special versions possible

Available cutting materials for the machining of...

PCD Diamond
Aluminum, Brass
Carbide, Copper
Ceramic,
Other non-ferrous material

CVD-D Diamond
Plastics, Carbide
GFRP / CFRP
Other non-ferrous material

CBN-H
Steel, hardened

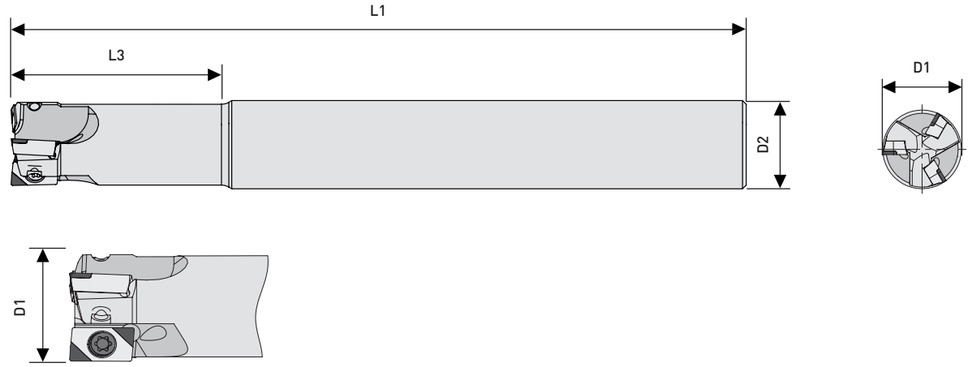
CBN-K
Grey Cast Iron
Ductile Cast Iron

CBN-X
Tool Steel, hardened
Carbide/Steel-Composite
Stellite, Inconel
Ni-, Co-, Fe- and Cr-Alloys

Face and corner end mills

for milling inserts AOEX 04 | Ø10,00 - 14,00

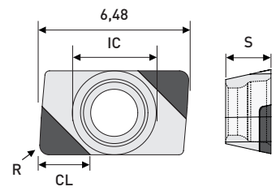
Diamond Tooling Systems
DTS GmbH



D1	D2	L1	L3	Teeth Count Z	n max	Item No.
10,00	10h6	100,00	28,00	2	36.000	FW7060-0050
12,00	12h6	100,00	30,00	3	36.000	FW7060-0055
14,00	12h6	120,00	32,00	3	36.000	FW7060-0060

Tightening torque max. 1,20 Nm

	Clamping screw	01-SP9090-0186
	Clamping key	01-SP9091-0090



IC 3,65 mm
2-edge-tipped

ISO Code	CL	S	R	PCD Diamond Item No.	CVD-D Diamond Item No.	CBN-H Item No.	CBN-K Item No.	CBN-X Item No.
AOEX 040202	2,00	2,38	0,20	MI1010-0020	MI2010-0020	MI5010-0020	MI5510-0020	MI5910-0020
AOEX 040204	2,00	2,38	0,40	MI1010-0025	MI2010-0025	MI5010-0025	MI5510-0025	MI5910-0025
AOEX 040205	2,00	2,38	0,50	MI1010-0026	MI2010-0026	MI5010-0026	MI5510-0026	MI5910-0026
AOEX 040208	2,00	2,38	0,80	MI1010-0030	MI2010-0030	MI5010-0030	MI5510-0030	MI5910-0030
AOEX 040210	2,00	2,38	1,00	MI1010-0031	MI2010-0031	MI5010-0031	MI5510-0031	MI5910-0031

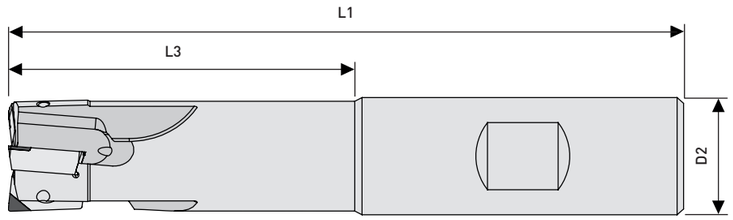
Application range:

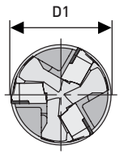
- **PCD** Aluminum < 10% Si, Brass, Graphite coarse-grained, Plastics, Zinc ...
- **CVD-D** Aluminum > 10% Si, carbides, GRP, CFRP, fine-grained graphite, copper, glass materials, Titanium (Finishing) ...
- **CBN-H** General hardened Steels to 72 HRC ...
- **CBN-K** Grey Cast Iron (GG), Ductile Cast Iron (GGG) ...
- **CBN-X** Tool Steels to 72 HRC, Stellite, Powder Metallurgy Steels, Stainless Steel Hardened, Ni, Co, Fe, and Cr Alloys ...

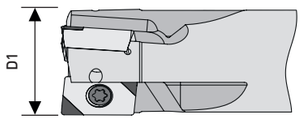
Subject to technical changes.

Face and corner end mills 90°

for milling inserts AOEX | Ø16,00 - 25,00







90° up to 7mm
with internal cooling

D1	D2	L1	L3	Z	n max	Item No.
16,00	16h6	80,00	30,00	2	32.000	FW7060-0100
	16h6	90,00	40,00	2	32.000	FW7060-0105
20,00	20h6	95,00	40,00	3	28.000	FW7060-0110
	20h6	105,00	50,00	3	28.000	FW7060-0115
25,00	25h6	110,00	50,00	3	24.000	FW7060-0120
	25h6	135,00	75,00	3	24.000	FW7060-0125
	25h6	110,00	50,00	4	24.000	FW7060-0130
	25h6	135,00	75,00	4	24.000	FW7060-0135

Tightening torque max. 1,20 Nm

	Clamping screw	01-SP9090-0255
	Clamping key	01-SP9091-0110

Application range:

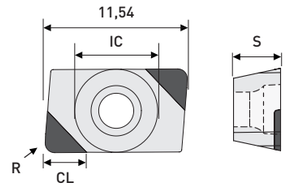
- **PCD** Aluminum < 10% Si, Brass, Graphite coarse-grained, Plastics, Zinc ...
- **CVD-D** Aluminum > 10% Si, carbides, GRP, CFRP, fine-grained graphite, copper, glass materials, Titanium (Finishing) ...
- **CBN-H** General hardened Steels to 72 HRC ...
- **CBN-K** Grey Cast Iron (GG), Ductile Cast Iron (GGG) ...
- **CBN-X** Tool Steels to 72 HRC, Stellite, Powder Metallurgy Steels, Stainless Steel Hardened, Ni, Co, Fe, and Cr Alloys ...

You will find further application ranges in the detailed overview from page 8.

AOEX milling inserts

Diamond Tooling Systems
DTS GmbH

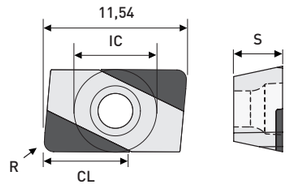
for face and corner milling



IC 7,00 mm
2-edge-tipped

ISO Code	CL	S	R	PCD Diamond Item No.	CVD-D Diamond Item No.	CBN-H Item No.	CBN-K Item No.	CBN-X Item No.
AOEX 07T302	3,00	3,97	0,20	MI1010-0050	MI2010-0050	MI5010-0050	MI5510-0050	MI5910-0050
AOEX 07T304	3,00	3,97	0,40	MI1010-0055	MI2010-0055	MI5010-0055	MI5510-0055	MI5910-0055
AOEX 07T305	3,00	3,97	0,50	MI1010-0056	MI2010-0056	MI5010-0056	MI5510-0056	MI5910-0056
AOEX 07T308	3,00	3,97	0,80	MI1010-0060	MI2010-0060	MI5010-0060	MI5510-0060	MI5910-0060
AOEX 07T310	3,00	3,97	1,00	MI1010-0061	MI2010-0061	MI5010-0061	MI5510-0061	MI5910-0061
AOEX 07T312	3,00	3,97	1,20	MI1010-0064	MI2010-0064	MI5010-0064	MI5510-0064	MI5910-0064
AOEX 07T316	3,00	3,97	1,60	MI1010-0065	MI2010-0065	MI5010-0065	MI5510-0065	MI5910-0065
AOEX 07T320	3,00	3,97	2,00	MI1010-0066	MI2010-0066	MI5010-0066	MI5510-0066	MI5910-0066
Wide finishing insert	**CL**	**S**	**R**					
AOEX 07T302-W	3,00	3,97	0,20	MI1010-0070	MI2010-0070	MI5010-0070	MI5510-0070	MI5910-0070
AOEX 07T304-W	3,00	3,97	0,40	MI1010-0075	MI2010-0075	MI5010-0075	MI5510-0075	MI5910-0075
AOEX 07T308-W	3,00	3,97	0,80	MI1010-0080	MI2010-0080	MI5010-0080	MI5510-0080	MI5910-0080

for face and corner milling



IC 7,00 mm
2-edge-tipped

ISO Code	CL	S	R	PCD Diamond Item No.	CVD-D Diamond Item No.	CBN-H Item No.	CBN-K Item No.	CBN-X Item No.
AOEX 07T302	7,00	3,97	0,20	MI1025-0050	MI2025-0050	MI5025-0050	MI5525-0050	MI5925-0050
AOEX 07T304	7,00	3,97	0,40	MI1025-0055	MI2025-0055	MI5025-0055	MI5525-0055	MI5925-0055
AOEX 07T308	7,00	3,97	0,80	MI1025-0060	MI2025-0060	MI5025-0060	MI5525-0060	MI5925-0060
AOEX 07T312	7,00	3,97	1,20	MI1025-0064	MI2025-0064	MI5025-0064	MI5525-0064	MI5925-0064
AOEX 07T316	7,00	3,97	1,60	MI1025-0065	MI2025-0065	MI5025-0065	MI5525-0065	MI5925-0065
AOEX 07T320	7,00	3,97	2,00				MI5525-0070	MI5925-0070

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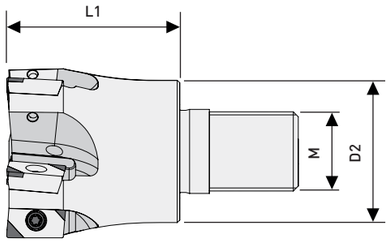
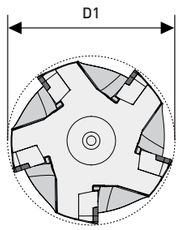
Subject to technical changes.

Screw-in milling cutter 90°

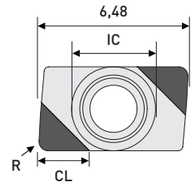
for face and corner milling for milling inserts AOEX 90° | Ø10,00 - 42,00





with internal cooling

D1	D2	L1	Thread M	Teeth Count Z	for AOEX...	Item No.
10,00	9,80	18,00	M6	2	0402	FW7060-0510
16,00	15,40	23,00	M10	2	07T3	FW7060-0520
20,00	17,80	30,00	M10	3	07T3	FW7060-0525
35,00	28,80	43,00	M16	5	07T3	FW7060-0530
42,00	28,80	43,00	M16	6	07T3	FW7060-0535



IC 3,65 mm
2-edge-tipped

ISO Code	CL	S	R	PCD Diamond Item No.	CVD-D Diamond Item No.	CBN-H Item No.	CBN-K Item No.	CBN-X Item No.
AOEX 040202	2,00	2,38	0,20	MI1010-0020	MI2010-0020	MI5010-0020	MI5510-0020	MI5910-0020
AOEX 040204	2,00	2,38	0,40	MI1010-0025	MI2010-0025	MI5010-0025	MI5510-0025	MI5910-0025
AOEX 040205	2,00	2,38	0,50	MI1010-0026	MI2010-0026	MI5010-0026	MI5510-0026	MI5910-0026
AOEX 040208	2,00	2,38	0,80	MI1010-0030	MI2010-0030	MI5010-0030	MI5510-0030	MI5910-0030
AOEX 040210	2,00	2,38	1,00	MI1010-0031	MI2010-0031	MI5010-0031	MI5510-0031	MI5910-0031

Application range:

- **PCD** Aluminum < 10% Si, Brass, Graphite coarse-grained, Plastics, Zinc ...
- **CVD-D** Aluminum > 10% Si, carbides, GRP, CFRP, fine-grained graphite, copper, glass materials, Titanium (Finishing) ...
- **CBN-H** General hardened Steels to 72 HRC ...
- **CBN-K** Grey Cast Iron (GG), Ductile Cast Iron (GGG) ...
- **CBN-X** Tool Steels to 72 HRC, Stellite, Powder Metallurgy Steels, Stainless Steel Hardened, Ni, Co, Fe, and Cr Alloys ...

You will find further application ranges in the detailed overview from page 8.

AOEX milling inserts

for screw-in milling cutter 90°

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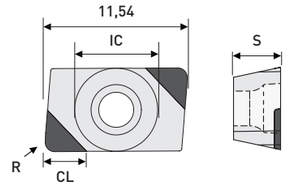
DTS GmbH

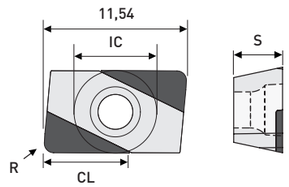
for face and corner milling



IC 7,00 mm
2-edge-tipped

ISO Code	CL	S	R	PCD Diamond Item No.	CVD-D Diamond Item No.	CBN-H Item No.	CBN-K Item No.	CBN-X Item No.
AOEX 07T302	3,00	3,97	0,20	MI1010-0050	MI2010-0050	MI5010-0050	MI5510-0050	MI5910-0050
AOEX 07T304	3,00	3,97	0,40	MI1010-0055	MI2010-0055	MI5010-0055	MI5510-0055	MI5910-0055
AOEX 07T305	3,00	3,97	0,50	MI1010-0056	MI2010-0056	MI5010-0056	MI5510-0056	MI5910-0056
AOEX 07T308	3,00	3,97	0,80	MI1010-0060	MI2010-0060	MI5010-0060	MI5510-0060	MI5910-0060
AOEX 07T310	3,00	3,97	1,00	MI1010-0061	MI2010-0061	MI5010-0061	MI5510-0061	MI5910-0061
AOEX 07T312	3,00	3,97	1,20	MI1010-0064	MI2010-0064	MI5010-0064	MI5510-0064	MI5910-0064
AOEX 07T316	3,00	3,97	1,60	MI1010-0065	MI2010-0065	MI5010-0065	MI5510-0065	MI5910-0065
AOEX 07T320	3,00	3,97	2,00	MI1010-0066	MI2010-0066	MI5010-0066	MI5510-0066	MI5910-0066
Wide finishing insert	**CL**	**S**	**R**					
AOEX 07T302-W	3,00	3,97	0,20	MI1010-0070	MI2010-0070	MI5010-0070	MI5510-0070	MI5910-0070
AOEX 07T304-W	3,00	3,97	0,40	MI1010-0075	MI2010-0075	MI5010-0075	MI5510-0075	MI5910-0075
AOEX 07T308-W	3,00	3,97	0,80	MI1010-0080	MI2010-0080	MI5010-0080	MI5510-0080	MI5910-0080

for face and corner milling



IC 7,00 mm
2-edge-tipped

ISO Code	CL	S	R	PCD Diamond Item No.	CVD-D Diamond Item No.	CBN-H Item No.	CBN-K Item No.	CBN-X Item No.
AOEX 07T302	7,00	3,97	0,20	MI1025-0050	MI2025-0050	MI5025-0050	MI5525-0050	MI5925-0050
AOEX 07T304	7,00	3,97	0,40	MI1025-0055	MI2025-0055	MI5025-0055	MI5525-0055	MI5925-0055
AOEX 07T308	7,00	3,97	0,80	MI1025-0060	MI2025-0060	MI5025-0060	MI5525-0060	MI5925-0060
AOEX 07T312	7,00	3,97	1,20	MI1025-0064	MI2025-0064	MI5025-0064	MI5525-0064	MI5925-0064
AOEX 07T316	7,00	3,97	1,60	MI1025-0065	MI2025-0065	MI5025-0065	MI5525-0065	MI5925-0065
AOEX 07T320	7,00	3,97	2,00				MI5525-0070	MI5925-0070

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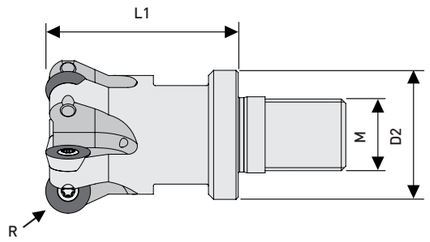
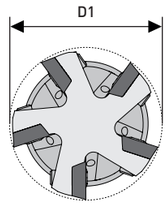
Screw-in milling cutter for copy milling

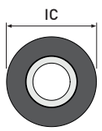
for milling inserts RDHX | Ø16,00 - 42,00

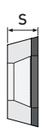




with internal cooling

D1	D2	L1	Thread M	R	Teeth Count Z	for RDHX...	Item No.
16,00	15,40	23,00	M10	3,50	2	0702M0	FW7060-0220
20,00	17,80	30,00	M10	3,50	4	0702M0	FW7060-0225
25,00	20,80	35,00	M12	3,50	5	0702M0	FW7060-0230
35,00	28,80	43,00	M16	3,50	6	0702M0	FW7060-0235
20,00	17,80	30,00	M10	5,00	2	1003M0	FW7060-0240
25,00	20,80	35,00	M12	5,00	3	1003M0	FW7060-0245
30,00	28,80	43,00	M16	5,00	4	1003M0	FW7060-0250
35,00	28,80	43,00	M16	5,00	5	1003M0	FW7060-0255
42,00	28,80	43,00	M16	5,00	5	1003M0	FW7060-0260
24,00	20,80	35,00	M12	6,00	2	12T3M0	FW7060-0265
35,00	28,80	43,00	M16	6,00	4	12T3M0	FW7060-0270
42,00	28,80	43,00	M16	6,00	5	12T3M0	FW7060-0275





FullFace

ISO Code	IC	S	R	PCD Diamond Item No.	CVD-D Diamond Item No.	CBN-H Item No.	CBN-K Item No.	CBN-X Item No.
RDHX 0702M0	7,00	2,38	M0	DP1030-0007	DP2030-0007	MI5030-0135	MI5530-0137	MI5930-0137
RDHX 1003M0	10,00	3,18	M0	DP1030-0008	DP2030-0008	MI5030-0140	MI5530-0142	MI5930-0142
RDHX 12T3M0	12,00	3,97	M0	DP1030-0009	DP2030-0009	MI5030-0145	MI5530-0147	MI5930-0147

Application range:

- **PCD** Aluminum < 10% Si, Brass, Graphite coarse-grained, Plastics, Zinc ...
- **CVD-D** Aluminum > 10% Si, carbides, GRP, CFRP, fine-grained graphite, copper, glass materials, Titanium (Finishing) ...
- **CBN-H** General hardened Steels to 72 HRC ...
- **CBN-K** Grey Cast Iron (GG), Ductile Cast Iron (GGG) ...
- **CBN-X** Tool Steels to 72 HRC, Stellite, Powder Metallurgy Steels, Stainless Steel Hardened, Ni, Co, Fe, and Cr Alloys ...

You will find further application ranges in the detailed overview from page 8.

VHM-Extensions for screw-in milling cutters

conical | with internal cooling

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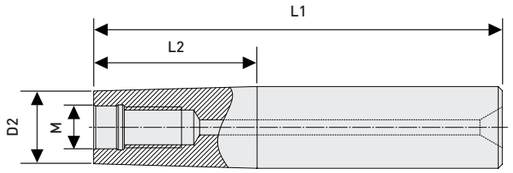
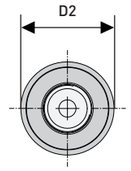
DTS GmbH

conical





with internal cooling

D1	D2	L1	L2	Thread M	Item No.
15,40	20,00	100,00	40,00	M10	WA6090-0175
	20,00	120,00	60,00	M10	WA6090-0180
	20,00	140,00	80,00	M10	WA6090-0185
	20,00	160,00	100,00	M10	WA6090-0190
	20,00	180,00	120,00	M10	WA6090-0195
	20,00	205,00	140,00	M10	WA6090-0200
17,80	20,00	100,00	40,00	M10	WA6090-0205
	20,00	120,00	60,00	M10	WA6090-0210
	20,00	140,00	80,00	M10	WA6090-0215
	20,00	160,00	100,00	M10	WA6090-0220
	20,00	180,00	120,00	M10	WA6090-0225
	20,00	205,00	140,00	M10	WA6090-0230
20,80	25,00	105,00	40,00	M12	WA6090-0235
	25,00	125,00	60,00	M12	WA6090-0240
	25,00	145,00	80,00	M12	WA6090-0245
	25,00	165,00	100,00	M12	WA6090-0250
	25,00	185,00	120,00	M12	WA6090-0255
	25,00	205,00	140,00	M12	WA6090-0260

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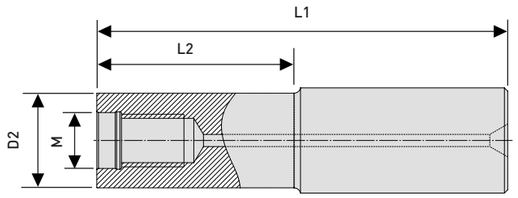
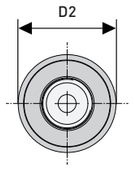
VHM-Extensions for screw-in milling cutters

cylindrical | with internal cooling

cylindrical





with internal cooling

D1	D2	L1	L2	Thread M	Item No.
9,80	10,00	70,00	20,00	M6	WA6090-0005
	10,00	90,00	40,00	M6	WA6090-0010
	10,00	110,00	60,00	M6	WA6090-0015
	10,00	150,00	100,00	M6	WA6090-0020
15,40	16,00	80,00	80,00	M10	WA6090-0100
	16,00	100,00	40,00	M10	WA6090-0105
	16,00	120,00	60,00	M10	WA6090-0110
	16,00	140,00	80,00	M10	WA6090-0115
	16,00	160,00	100,00	M10	WA6090-0120
17,80	20,00	80,00	20,00	M10	WA6090-0125
	20,00	100,00	40,00	M10	WA6090-0130
	20,00	120,00	60,00	M10	WA6090-0135
	20,00	140,00	80,00	M10	WA6090-0140
	20,00	160,00	100,00	M10	WA6090-0145
20,80	25,00	140,00	80,00	M12	WA6090-0150
	20,00	160,00	100,00	M12	WA6090-0155
	20,00	180,00	120,00	M12	WA6090-0160
	20,00	205,00	140,00	M12	WA6090-0165
	20,00	100,00	40,00	M12	WA6090-0170
28,80	20,00	120,00	60,00	M16	WA6090-0265
	20,00	140,00	80,00	M16	WA6090-0270
	20,00	160,00	100,00	M16	WA6090-0275
	20,00	180,00	120,00	M16	WA6090-0280
	20,00	205,00	140,00	M16	WA6090-0285
	25,00	105,00	40,00	M16	WA6090-0290

Clamping chuck available on request.

Application range:

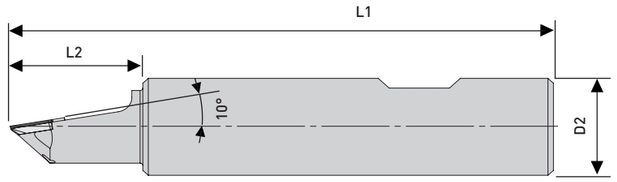
- **PCD** Aluminum < 10% Si, Brass, Graphite coarse-grained, Plastics, Zinc ...
- **CVD-D** Aluminum > 10% Si, carbides, GRP, CFRP, fine-grained graphite, copper, glass materials, Titanium (Finishing) ...
- **CBN-H** General hardened Steels to 72 HRC ...
- **CBN-K** Grey Cast Iron (GG), Ductile Cast Iron (GGG) ...
- **CBN-X** Tool Steels to 72 HRC, Stellite, Powder Metallurgy Steels, Stainless Steel Hardened, Ni, Co, Fe, and Cr Alloys ...

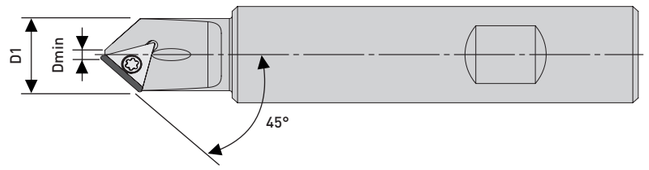
You will find further application ranges in the detailed overview from page 8.

Chamfer shank cutter 45°

for milling inserts TXGW

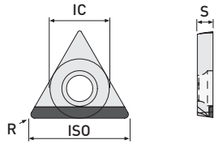
Diamond Tooling Systems
DTS GmbH





Steel shank with weldon surface
with internal cooling

Dmin	D1	D2	L1	L2	Item No.
1,95	15,20	20h6	99,00	24,00	FW8560-0200
				Clamping screw	01-KL9060-0260
				Clamping key	01-KL9090-0003



entire edge

ISO Code	IC	S	R	PCD Diamond Item No.	CVD-D Diamond Item No.	CBN-H Item No.	CBN-K Item No.	CBN-X Item No.
TXGW 11T104	6,35	1,98	0,40	MI1020-0105	MI2020-0105	MI5020-0105	MI5520-0105	MI5920-0105

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Cutting parameters

for our end mills - PCD corner end mills

Diamond Tooling Systems
DTS GmbH

Material	PCD Corner End Mills											
	Ø1,00 - 2,50						Ø3,00 - 5,00					
	n [min⁻¹]		F_z [mm]		a_p [mm]		n [min⁻¹]		F_z [mm]		a_p [mm]	
	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
Acrylic (PMMA)	12.000	96.000	0,002	0,02	0,01	0,60	8.000	96.000	0,002	0,03	0,01	1,50
Al Si <6%, Zinc	10.000	96.000	0,002	0,025	0,01	0,60	8.000	96.000	0,002	0,08	0,01	1,50
AlSi >6 - 12%	9.000	96.000	0,002	0,015	0,01	0,60	8.000	96.000	0,002	0,06	0,01	1,50
AlSi >10%	8.000	80.000	0,002	0,012	0,01	0,50	6.000	72.000	0,002	0,05	0,01	1,00
Gold, Silver, Platinum	18.000	96.000	0,002	0,02	0,01	0,60	12.000	96.000	0,002	0,05	0,01	1,50
Graphit	24.000	96.000	0,002	0,02	0,01	0,60	18.000	96.000	0,002	0,03	0,01	1,50
Copper	18.000	96.000	0,002	0,02	0,01	0,60	12.000	96.000	0,002	0,05	0,01	1,50
Laminates	30.000	80.000	0,002	0,01	0,01	0,50	21.600	56.000	0,006	0,03	0,01	1,20
Brass	18.000	96.000	0,002	0,02	0,01	0,50	12.000	96.000	0,002	0,05	0,01	1,00
PA66- Gf/GF30	18.000	96.000	0,002	0,02	0,01	0,60	15.000	80.000	0,002	0,03	0,01	1,50
PEEK	18.000	80.000	0,002	0,015	0,01	0,50	15.000	96.000	0,002	0,03	0,01	1,50
PTFE, POM	22.000	96.000	0,002	0,02	0,01	0,60	18.000	96.000	0,002	0,035	0,01	1,50
Titanium	15.000	48.000	0,002	0,01	0,01	0,10	12.000	24.000	0,003	0,01	0,01	0,30
Composite materials (CFRP,GFRP)	30.000	80.000	0,002	0,01	0,01	0,50	20.000	64.000	0,006	0,03	0,01	1,20
Tungsten Copper	14.000	80.000	0,002	0,012	0,01	0,30	10.000	80.000	0,002	0,03	0,01	1,00
Zirconium	on request											

Material	PCD Corner End Mills												Cooling				
	Ø6,00 - 10,00						Ø12,00 - 20,00										
	n [min⁻¹]		F_z [mm]		a_p [mm]		n [min⁻¹]		F_z [mm]		a_p [mm]						
	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	Dry	Air	Emulsion	Oil	MQL
Acrylic (PMMA)	5.000	64.000	0,002	0,10	0,01	3,00	4.000	32.000	0,002	0,18	0,01	12,00		2. Choice	1. Choice		
Al Si <6%, Zinc	6.000	72.000	0,002	0,15	0,01	3,00	8.000	48.000	0,002	0,20	0,01	12,00			1. Choice	3. Choice	2. Choice
AlSi >6 - 12%	5.000	64.000	0,002	0,12	0,01	3,00	5.000	40.000	0,002	0,20	0,01	12,00			1. Choice	3. Choice	2. Choice
AlSi >10%	5.000	36.000	0,002	0,10	0,01	2,00	5.000	24.000	0,002	0,18	0,01	6,00			1. Choice	3. Choice	2. Choice
Gold, Silver, Platinum	7.000	72.000	0,002	0,08	0,01	3,00	5.000	64.000	0,002	0,12	0,01	12,00			1. Choice	3. Choice	2. Choice
Graphit	15.000	80.000	0,002	0,12	0,01	3,00	12.000	64.000	0,002	0,15	0,01	12,00		1. Choice	2. Choice		
Copper	7.000	72.000	0,002	0,08	0,01	3,00	5.000	64.000	0,002	0,10	0,01	12,00			1. Choice	3. Choice	2. Choice
Laminates	18.000	48.000	0,03	0,10	0,03	3,00	6.000	28.000	0,05	0,20	0,03	15,00	2. Choice	1. Choice			
Brass	7.000	72.000	0,002	0,08	0,01	3,00	5.000	64.000	0,002	0,12	0,01	12,00			1. Choice	3. Choice	2. Choice
PA66- Gf/GF30	12.000	48.000	0,002	0,08	0,01	3,00	9.600	24.000	0,002	0,15	0,01	12,00		2. Choice	1. Choice		
PEEK	12.000	56.000	0,002	0,06	0,01	3,00	12.000	28.000	0,002	0,12	0,01	12,00		2. Choice	1. Choice		
PTFE, POM	14.000	56.000	0,002	0,08	0,01	3,00	14.400	28.000	0,002	0,18	0,01	12,00		2. Choice	1. Choice		
Titanium	10.000	17.600	0,004	0,10	0,01	1,00	4.800	9.600	0,004	0,18	0,01	2,00		3. Choice	1. Choice		2. Choice
Composite materials (CFRP,GFRP)	20.000	48.000	0,03	0,10	0,03	3,00	6.000	28.000	0,05	0,20	0,03	15,00		1. Choice	2. Choice		
Tungsten Copper	6.000	64.000	0,002	0,06	0,01	2,00	4.000	48.000	0,002	0,10	0,01	6,00			1. Choice	3. Choice	2. Choice
Zirconium	on request												on request				

on request

If you have any further technical questions, please do not hesitate to contact us by phone or e-mail!

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Subject to technical changes.

Cutting parameters

for our end mills - PCD ball nose end mills

Diamond Tooling Systems
DTS GmbH

Material	PCD Ball Nose End Mills											
	Ø1,00 - 2,50						Ø3,00 - 5,00					
	n [min⁻¹]		F_z [mm]		a_p [mm]		n [min⁻¹]		F_z [mm]		a_p [mm]	
	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
Acrylic (PMMA)	18.000	96.000	0,002	0,02	0,01	0,40	16.000	96.000	0,002	0,03	0,01	1,50
Al Si <6%, Zinc	20.000	96.000	0,002	0,025	0,01	0,40	16.000	96.000	0,002	0,08	0,01	1,50
AlSi >6 - 12%	20.000	96.000	0,002	0,015	0,01	0,40	15.000	96.000	0,002	0,06	0,01	1,50
AlSi >10%	18.000	80.000	0,002	0,012	0,01	0,25	12.000	72.000	0,002	0,05	0,01	1,00
Gold, Silver, Platinum	18.000	96.000	0,002	0,02	0,01	0,40	12.000	96.000	0,002	0,05	0,01	1,50
Graphit	24.000	96.000	0,002	0,02	0,01	0,40	18.000	96.000	0,002	0,03	0,01	5,00
Copper	18.000	96.000	0,002	0,02	0,01	0,40	12.000	96.000	0,002	0,05	0,01	1,50
Laminates	30.000	80.000	0,002	0,01	0,01	0,40	22.000	56.000	0,006	0,03	0,01	5,00
Brass	18.000	96.000	0,002	0,02	0,01	0,40	12.000	96.000	0,002	0,05	0,01	1,50
PA66- Gf/GF30	18.000	96.000	0,002	0,02	0,01	0,30	15.000	80.000	0,002	0,03	0,01	1,00
PEEK	18.000	80.000	0,002	0,015	0,01	0,40	15.000	96.000	0,002	0,03	0,01	1,50
PTFE, POM	22.000	96.000	0,002	0,02	0,01	0,40	18.000	96.000	0,002	0,035	0,01	1,50
Titanium	15.000	48.000	0,002	0,01	0,01	0,20	12.000	24.000	0,003	0,01	0,01	0,30
Composite materials (CFRP,GFRP)	30.000	80.000	0,002	0,01	0,01	0,40	22.000	64.000	0,006	0,03	0,01	2,00
Tungsten Copper	15.000	80.000	0,002	0,012	0,01	0,25	10.000	80.000	0,002	0,03	0,01	1,00
Zirconium	on request											

Material	PCD Ball Nose End Mills												Cooling				
	Ø6,00 - 10,00						Ø12,00 - 20,00										
	n [min⁻¹]		F_z [mm]		a_p [mm]		n [min⁻¹]		F_z [mm]		a_p [mm]						
	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	Dry	Air	Emulsion	Oil	MQL
Acrylic (PMMA)	15.000	64.000	0,002	0,10	0,01	2,00	12.000	32.000	0,002	0,18	0,01	4,00		2. Choice	1. Choice		
Al Si <6%, Zinc	14.000	72.000	0,002	0,15	0,01	3,00	8.000	48.000	0,002	0,20	0,01	5,00			1. Choice	3. Choice	2. Choice
AlSi >6 - 12%	12.000	64.000	0,002	0,12	0,01	3,00	6.000	40.000	0,002	0,20	0,01	5,00			1. Choice	3. Choice	2. Choice
AlSi >10%	10.000	36.000	0,002	0,10	0,01	2,00	5.000	24.000	0,002	0,18	0,01	3,00			1. Choice	3. Choice	2. Choice
Gold, Silver, Platinum	8.000	72.000	0,002	0,08	0,01	3,00	5.000	64.000	0,002	0,12	0,01	3,00			1. Choice	3. Choice	2. Choice
Graphit	15.000	80.000	0,002	0,12	0,01	3,00	12.000	64.000	0,002	0,15	0,01	4,00		1. Choice	2. Choice		
Copper	8.000	72.000	0,002	0,08	0,01	3,00	5.000	64.000	0,002	0,10	0,01	3,00			1. Choice	3. Choice	2. Choice
Laminates	20.000	48.000	0,03	0,10	0,03	1,00	6.000	28.000	0,05	0,20	0,03	2,00	2. Choice	1. Choice			
Brass	8.000	72.000	0,002	0,08	0,01	3,00	5.000	64.000	0,002	0,12	0,01	3,00			1. Choice	3. Choice	2. Choice
PA66- Gf/GF30	12.000	48.000	0,002	0,08	0,01	1,00	10.000	24.000	0,002	0,15	0,01	3,00		2. Choice	1. Choice		
PEEK	12.000	56.000	0,002	0,06	0,01	2,00	12.000	28.000	0,002	0,12	0,01	4,00		2. Choice	1. Choice		
PTFE, POM	15.000	56.000	0,002	0,08	0,01	2,00	15.000	28.000	0,002	0,18	0,01	4,00		2. Choice	1. Choice		
Titanium	10.000	18.000	0,004	0,10	0,01	0,80	5.000	10.000	0,004	0,18	0,01	1,00		3. Choice	1. Choice		2. Choice
Composite materials (CFRP,GFRP)	20.000	48.000	0,03	0,10	0,03	3,00	6.000	28.000	0,05	0,20	0,03	4,00		1. Choice	2. Choice		
Tungsten Copper	6.000	64.000	0,002	0,06	0,01	1,00	4.000	48.000	0,002	0,10	0,01	2,00			1. Choice	3. Choice	2. Choice
Zirconium	on request												on request				

on request

If you have any further technical questions, please do not hesitate to contact us by phone or e-mail!

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Subject to technical changes.

Cutting parameters

for our end mills - CVD-D corner end mills

Diamond Tooling Systems
DTS GmbH

Material	CVD-D Corner End Mills											
	Ø0,90 - 2,50						Ø3,00 - 5,00					
	n [min⁻¹]		F_z [mm]		a_p [mm]		n [min⁻¹]		F_z [mm]		a_p [mm]	
	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
Acrylic (PMMA)	18.000	120.000	0,002	0,02	0,01	0,60	16.000	120.000	0,002	0,03	0,01	1,50
Al Si <6%, Zinc	20.000	120.000	0,002	0,025	0,01	0,60	16.000	120.000	0,002	0,08	0,01	1,50
AlSi >6 - 12%	20.000	120.000	0,002	0,015	0,01	0,60	15.000	120.000	0,002	0,06	0,01	1,50
AlSi >10%	18.000	100.000	0,002	0,012	0,01	0,50	12.000	90.000	0,002	0,05	0,01	1,00
Gold, Silver, Platinum	15.000	120.000	0,002	0,02	0,01	0,60	10.000	120.000	0,002	0,05	0,01	1,50
Graphit	20.000	120.000	0,002	0,02	0,01	0,60	15.000	120.000	0,002	0,03	0,01	1,50
Carbide	☎											
Copper	15.000	120.000	0,002	0,02	0,01	0,60	10.000	120.000	0,002	0,05	0,01	1,50
Laminates	25.000	100.000	0,002	0,01	0,01	0,50	18.000	70.000	0,006	0,03	0,01	1,20
Brass	15.000	120.000	0,002	0,02	0,01	0,50	10.000	120.000	0,002	0,05	0,01	1,00
PA66- Gf/GF30	15.000	120.000	0,002	0,02	0,01	0,60	12.000	100.000	0,002	0,03	0,01	1,50
PEEK	15.000	100.000	0,002	0,015	0,01	0,50	12.000	120.000	0,002	0,03	0,01	1,50
PTFE, POM	18.000	120.000	0,002	0,02	0,01	0,6	15.000	120.000	0,002	0,035	0,01	1,5
Titanium	12.000	60.000	0,002	0,01	0,01	0,10	10.000	30.000	0,003	0,01	0,01	0,30
Composite materials (CFRP,GFRP)	25.000	100.000	0,002	0,01	0,01	0,50	18.000	80.000	0,006	0,03	0,01	1,20
Tungsten Copper	12.000	100.000	0,002	0,012	0,01	0,30	8.000	100.000	0,002	0,03	0,01	1,00
Zirconium	☎											

Material	CVD-D Corner End Mills												Cooling				
	Ø6,00 - 10,00						Ø12,00 - 20,00										
	n [min⁻¹]		F_z [mm]		a_p [mm]		n [min⁻¹]		F_z [mm]		a_p [mm]						
	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	Dry	Air	Emulsion	Oil	MQL
Acrylic (PMMA)	12.000	80.000	0,002	0,10	0,01	3,00	10.000	40.000	0,002	0,18	0,01	12,00		2. Choice	1. Choice		
Al Si <6%, Zinc	14.000	90.000	0,002	0,15	0,01	3,00	8.000	60.000	0,002	0,20	0,01	12,00			1. Choice	3. Choice	2. Choice
AlSi >6 - 12%	12.000	80.000	0,002	0,12	0,01	3,00	6.000	50.000	0,002	0,2	0,01	12,00			1. Choice	3. Choice	2. Choice
AlSi >10%	10.000	45.000	0,002	0,10	0,01	2,00	5.000	30.000	0,002	0,18	0,01	6,00			1. Choice	3. Choice	2. Choice
Gold, Silver, Platinum	6.000	90.000	0,002	0,08	0,01	3,00	4.000	80.000	0,002	0,12	0,01	12,00			1. Choice	3. Choice	2. Choice
Graphit	12.000	100.000	0,002	0,12	0,01	3,00	10.000	80.000	0,002	0,15	0,01	12,00		1. Choice	2. Choice		
Carbide	☎												☎				
Copper	6.000	90.000	0,002	0,08	0,01	3,00	4.000	80.000	0,002	0,1	0,01	12,00			1. Choice	3. Choice	2. Choice
Laminates	16.000	60.000	0,03	0,10	0,03	3,00	5.000	35.000	0,05	0,2	0,03	15,00	2. Choice	1. Choice			
Brass	6.000	90.000	0,002	0,08	0,01	3,00	4.000	80.000	0,002	0,12	0,01	12,00			1. Choice	3. Choice	2. Choice
PA66- Gf/GF30	10.000	60.000	0,002	0,08	0,01	3,00	8.000	30.000	0,002	0,15	0,01	12,00		2. Choice	1. Choice		
PEEK	10.000	70.000	0,002	0,06	0,01	3,00	10.000	35.000	0,002	0,12	0,01	12,00		2. Choice	1. Choice		
PTFE, POM	12.000	70.000	0,002	0,08	0,01	3,00	12.000	35.000	0,002	0,18	0,01	12,00		2. Choice	1. Choice		
Titanium	8.000	22.000	0,004	0,10	0,01	1,00	4.000	12.000	0,004	0,18	0,01	2,00		3. Choice	1. Choice		2. Choice
Composite materials (CFRP,GFRP)	16.000	60.000	0,03	0,10	0,03	3,00	5.000	35.000	0,05	0,2	0,03	15,00		1. Choice	2. Choice		
Tungsten Copper	5.000	80.000	0,002	0,06	0,01	2,00	3.000	60.000	0,002	0,1	0,01	6,00			1. Choice	3. Choice	2. Choice
Zirconium	☎												☎				

☎ on request

Subject to technical changes.

Cutting parameters

for our end mills - CVD-D ball nose end mills

Diamond Tooling Systems
DTS GmbH

Material	CVD-D Ball Nose End Mills											
	Ø0,90 - 2,50						Ø3,00 - 5,00					
	n [min⁻¹]		F_z [mm]		a_p [mm]		n [min⁻¹]		F_z [mm]		a_p [mm]	
	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
Acrylic (PMMA)	18.000	120.000	0,002	0,02	0,01	0,40	16.000	120.000	0,002	0,03	0,01	1,50
Al Si <6%, Zinc	20.000	120.000	0,002	0,025	0,01	0,40	16.000	120.000	0,002	0,08	0,01	1,50
AlSi >6 - 12%	20.000	120.000	0,002	0,015	0,01	0,40	15.000	120.000	0,002	0,06	0,01	1,50
AlSi >10%	18.000	100.000	0,002	0,012	0,01	0,25	12.000	90.000	0,002	0,05	0,01	1,00
Gold, Silver, Platinum	15.000	120.000	0,002	0,02	0,01	0,40	10.000	120.000	0,002	0,05	0,01	1,50
Graphit	20.000	120.000	0,002	0,02	0,01	0,40	15.000	120.000	0,002	0,03	0,01	5,00
Carbide	☎											
Copper	15.000	120.000	0,002	0,02	0,01	0,40	10.000	120.000	0,002	0,05	0,01	1,50
Laminates	25.000	100.000	0,002	0,01	0,01	0,40	18.000	70.000	0,006	0,03	0,01	5,00
Brass	15.000	120.000	0,002	0,02	0,01	0,40	10.000	120.000	0,002	0,05	0,01	1,50
PA66- Gf/GF30	15.000	120.000	0,002	0,02	0,01	0,30	12.000	100.000	0,002	0,03	0,01	1,00
PEEK	15.000	100.000	0,002	0,015	0,01	0,40	12.000	120.000	0,002	0,03	0,01	1,50
PTFE, POM	18.000	120.000	0,002	0,02	0,01	0,40	15.000	120.000	0,002	0,035	0,01	1,50
Titanium	12.000	60.000	0,002	0,01	0,01	0,20	10.000	30.000	0,003	0,01	0,01	0,30
Composite materials (CFRP,GFRP)	25.000	100.000	0,002	0,01	0,01	0,40	18.000	80.000	0,006	0,03	0,01	2,00
Tungsten Copper	12.000	100.000	0,002	0,012	0,01	0,25	8.000	100.000	0,002	0,03	0,01	1,00
Zirconium	☎											

Material	CVD-D Ball Nose End Mills												Cooling				
	Ø6,00 - 10,00						Ø12,00 - 20,00										
	n [min⁻¹]		F_z [mm]		a_p [mm]		n [min⁻¹]		F_z [mm]		a_p [mm]						
	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	Dry	Air	Emulsion	Oil	MQL
Acrylic (PMMA)	12.000	80.000	0,002	0,10	0,01	2,00	10.000	40.000	0,002	0,18	0,01	4,00		2. Choice	1. Choice		
Al Si <6%, Zinc	14.000	90.000	0,002	0,15	0,01	3,00	8.000	60.000	0,002	0,20	0,01	5,00			1. Choice	3. Choice	2. Choice
AlSi >6 - 12%	12.000	80.000	0,002	0,12	0,01	3,00	6.000	50.000	0,002	0,20	0,01	5,00			1. Choice	3. Choice	2. Choice
AlSi >10%	10.000	45.000	0,002	0,10	0,01	2,00	5.000	30.000	0,002	0,18	0,01	3,00			1. Choice	3. Choice	2. Choice
Gold, Silver, Platinum	6.000	90.000	0,002	0,08	0,01	3,00	4.000	80.000	0,002	0,12	0,01	3,00			1. Choice	3. Choice	2. Choice
Graphit	12.000	100.000	0,002	0,12	0,01	3,00	10.000	80.000	0,002	0,15	0,01	4,00		1. Choice	2. Choice		
Carbide	☎												☎				
Copper	6.000	90.000	0,002	0,08	0,01	3,00	4.000	80.000	0,002	0,10	0,01	3,00			1. Choice	3. Choice	2. Choice
Laminates	16.000	60.000	0,03	0,10	0,03	1,00	5.000	35.000	0,05	0,20	0,03	2,00	2. Choice	1. Choice			
Brass	6.000	90.000	0,002	0,08	0,01	3,00	4.000	80.000	0,002	0,12	0,01	3,00			1. Choice	3. Choice	2. Choice
PA66- Gf/GF30	10.000	60.000	0,002	0,08	0,01	1,00	8.000	30.000	0,002	0,15	0,01	3,00		2. Choice	1. Choice		
PEEK	10.000	70.000	0,002	0,06	0,01	2,00	10.000	35.000	0,002	0,12	0,01	4,00		2. Choice	1. Choice		
PTFE, POM	12.000	70.000	0,002	0,08	0,01	2,00	12.000	35.000	0,002	0,18	0,01	4,00		2. Choice	1. Choice		
Titanium	8.000	22.000	0,004	0,10	0,01	0,80	4.000	12.000	0,004	0,18	0,01	1,00		3. Choice	1. Choice		2. Choice
Composite materials (CFRP,GFRP)	16.000	60.000	0,03	0,10	0,03	3,00	5.000	35.000	0,05	0,20	0,03	4,00		1. Choice	2. Choice		
Tungsten Copper	5.000	80.000	0,002	0,06	0,01	1,00	3.000	60.000	0,002	0,10	0,01	2,00			1. Choice	3. Choice	2. Choice
Zirconium	☎												☎				

☎ on request

Subject to technical changes.

Cutting parameters

for our end mills - UltraDiamond corner end mills

Diamond Tooling Systems
DTS GmbH

Material	UltraDiamant Corner End Mills											
	Ø0,90 - 1,50						Ø2,00 - 3,00					
	n [min⁻¹]		F_z [mm]		a_p [mm]		n [min⁻¹]		F_z [mm]		a_p [mm]	
	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
Acrylic (PMMA)	15.000	120.000	0,002	0,02	0,01	0,30	12.000	120.000	0,002	0,03	0,01	0,50
Gold, Silver	15.000	120.000	0,002	0,02	0,01	0,10	10.000	120.000	0,002	0,05	0,01	0,30
Carbide <10% Co												
Carbide nickel binder												
Platinum	15.000	120.000	0,002	0,02	0,01	0,10	10.000	120.000	0,002	0,05	0,01	0,30
Titanium	12.000	60.000	0,002	0,01	0,01	0,10	10.000	30.000	0,003	0,01	0,01	0,20
Tungsten Copper	12.000	100.000	0,002	0,012	0,01	0,10	8.000	100.000	0,002	0,03	0,01	0,30
Zirconium												

UltraDiamant Corner End Mills												Cooling				
												Dry	Air	Emulsion	Oil	MQL
														1. Choice	2. Choice	3.Choice
														1. Choice	2. Choice	3.Choice
														1. Choice	2. Choice	3.Choice
														1. Choice		2. Choice
														1. Choice	2. Choice	3.Choice

on request

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

Subject to technical changes.

Cutting parameters

for our end mills - UltraDiamond ball nose end mills

Diamond Tooling Systems
DTS GmbH

Material	UltraDiamant Ball Nose End Mills											
	Ø0,90 - 1,50						Ø2,00 - 3,00					
	n [min⁻¹]		F_z [mm]		a_p [mm]		n [min⁻¹]		F_z [mm]		a_p [mm]	
	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
Acrylic (PMMA)	15.000	120.000	0,002	0,02	0,01	0,20	12.000	120.000	0,002	0,03	0,01	0,50
Gold, Silver	15.000	120.000	0,002	0,02	0,01	0,08	10.000	120.000	0,002	0,05	0,01	0,20
Carbide <10% Co												
Carbide nickel binder												
Platinum	15.000	120.000	0,002	0,02	0,01	0,08	10.000	120.000	0,002	0,05	0,01	0,20
Titanium	12.000	60.000	0,002	0,01	0,01	0,05	10.000	30.000	0,003	0,01	0,01	0,10
Tungsten Copper	12.000	100.000	0,002	0,012	0,01	0,08	8.000	100.000	0,002	0,03	0,01	0,20
Zirconium												

UltraDiamant Ball Nose End Mills												Cooling				
												Dry	Air	Emulsion	Oil	MQL
														1. Choice	2. Choice	3.Choice
														1. Choice	2. Choice	3.Choice
														1. Choice	2. Choice	3.Choice
														1. Choice		2. Choice
														1. Choice	2. Choice	3.Choice

on request

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Subject to technical changes.

Cutting parameters

for our end mills - CBN Corner End Mills

Cooling

1.Choice: Air | 2.Choice: Cooling Emulsion

Diamond Tooling Systems
DTS GmbH

		CBN Corner End Mills															
		Steel up to 55HRC								Steel and Tool Steel up to 60HRC							
		n [min⁻¹]		V_f [mm/min]		a_p [mm]		a_e [mm]		n [min⁻¹]		V_f [mm/min]		a_p [mm]		a_e [mm]	
Ø	z	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
0,3	2	35.000	60.000	180	440	0,002	0,005	0,02	0,03	35.000	60.000	100	320	0,002	0,005	0,02	0,03
0,4	2	32.000	55.000	300	550	0,002	0,005	0,03	0,04	32.000	55.000	150	420	0,002	0,005	0,03	0,04
0,5	3	32.000	55.000	500	850	0,003	0,011	0,03	0,07	32.000	55.000	500	720	0,003	0,011	0,03	0,07
1,0	2	30.000	45.000	700	1.100	0,005	0,032	0,05	0,35	30.000	45.000	700	1.050	0,005	0,032	0,05	0,35
1,5	3	28.000	35.000	700	1.100	0,01	0,032	0,05	0,50	28.000	35.000	700	1050	0,01	0,032	0,05	0,50
2,0	2	19.000	23.000	700	1.100	0,01	0,042	0,10	0,60	19.000	23.000	700	1.050	0,01	0,042	0,10	0,60
3,0	3	14.000	18.000	700	1.100	0,01	0,042	0,10	0,80	14.000	18.000	700	1.050	0,01	0,042	0,10	0,80
4,0	2	11.000	13.000	800	1.150	0,02	0,055	0,20	1,00	11.000	13.000	800	1.150	0,02	0,055	0,20	1,00
5,0	3	11.000	13.000	800	1.150	0,02	0,055	0,20	1,50	11.000	13.000	800	1.150	0,02	0,055	0,20	1,50
6,0	2	9.000	12.000	900	1.250	0,02	0,06	0,20	3,00	9.000	12.000	900	1.250	0,02	0,06	0,20	3,00
8,0	2	7.000	12000	600	2.000	0,04	0,08	0,20	4,00	7.000	12.000	600	1.100	0,04	0,08	0,20	4,00
10,0	2	5.000	10.000	400	2.400	0,05	0,10	0,20	5,00	5.000	10.000	400	900	0,05	0,10	0,20	5,00
12,0	2	4.000	9.000	240	2.160	0,05	0,20	0,20	6,00	4.000	9.000	240	700	0,05	0,20	0,2	6,00
12,0	3	2.000	9.000	240	3.200	0,05	0,30	0,20	12,00	2.000	9.000	240	3.200	0,05	0,30	0,20	12,00
14,0	3	2.000	8.000	240	2.800	0,05	0,30	0,20	14,00	2.000	8.000	240	2.800	0,05	0,30	0,20	14,00
16,0	2	1.500	7.000	120	1.600	0,05	0,50	0,20	16,00	1.500	7.000	120	1.600	0,05	0,50	0,20	16,00
20,0	3	1.400	6.000	160	2.100	0,05	0,50	0,20	20,00	1.400	6.000	160	2.100	0,05	0,50	0,20	20,00
25,0	3	1.000	4.500	120	1.600	0,05	0,50	0,20	25,00	1.000	4.500	120	1.600	0,05	0,50	0,20	25,00
25,0	4	1.000	4.500	160	2.100	0,05	0,50	0,20	25,00	1.000	4.500	160	2.100	0,05	0,50	0,20	25,00

	CBN Corner End Mills															
	Steel and Tool Steel up to 68HRC								Carbide							
	n [min⁻¹]		V_f [mm/min]		a_p [mm]		a_e [mm]		n [min⁻¹]		V_f [mm/min]		a_p [mm]		a_e [mm]	
	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
	35.000	60.000	80	270	0,001	0,003	0,02	0,03								
	32.000	55.000	120	320	0,002	0,005	0,03	0,04								
	32.000	55.000	400	620	0,002	0,005	0,03	0,07								
	30.000	45.000	500	850	0,003	0,012	0,05	0,35								
	28.000	35.000	600	900	0,008	0,022	0,05	0,50								
	19.000	23.000	600	930	0,008	0,022	0,10	0,60								
	14.000	18.000	600	950	0,01	0,032	0,10	0,80								
	11.000	13.000	700	1.050	0,01	0,032	0,20	1,00								
	11.000	13.000	700	1.050	0,015	0,035	0,20	1,50								
	9.000	12.000	800	1.150	0,015	0,035	0,20	3,00								
	6.000	10.000	500	1.000	0,03	0,08	0,20	4,00								
	5.000	8.000	400	900	0,04	0,10	0,20	5,00								
	3.000	6.000	250	650	0,05	0,18	0,20	6,00								
	3.000	6.000	240	1.800	0,05	0,20	0,20	12,00								
	2.000	5.000	240	1.500	0,05	0,20	0,20	14,00								
	1.500	4.000	120	800	0,05	0,25	0,20	16,00								
	1.400	3.500	160	1.000	0,05	0,30	0,20	20,00								
	1.000	3000	120	900	0,05	0,30	0,20	25,00								
	1.000	3.000	160	1. 200	0,05	0,30	0,20	25,00								

on request

Subject to technical changes.

Cutting parameters

for our end mills - CBN Corner End Mills with helix

Cooling

1.Choice: Air | 2.Choice: Cooling Emulsion

Diamond Tooling Systems
DTS GmbH

CBN Corner End Mills Helix

		Steel up to 55HRC								Steel and Tool Steel up to 60HRC							
		n [min⁻¹]		V_f [mm/min]		a_p [mm]		a_e [mm]		n [min⁻¹]		V_f [mm/min]		a_p [mm]		a_e [mm]	
Ø	z	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
0,3	2	35.000	60.000	180	440	0,003	0,016	0,02	0,03	35.000	60.000	100	320	0,003	0,016	0,02	0,03
0,3	3	32.000	60.000	180	550	0,003	0,016	0,02	0,03	32.000	60.000	100	380	0,003	0,016	0,02	0,03
0,4	2	32.000	55.000	300	550	0,005	0,022	0,03	0,04	32.000	55.000	150	420	0,005	0,022	0,03	0,04
0,4	3	30.000	55.000	300	630	0,005	0,022	0,03	0,04	30.000	55.000	160	530	0,005	0,022	0,03	0,04
0,5	2	45.000	55.000	500	750	0,005	0,022	0,03	0,07	45.000	55.000	500	750	0,005	0,022	0,03	0,07
0,5	3	45.000	55.000	500	850	0,005	0,022	0,03	0,07	45.000	55.000	500	850	0,005	0,022	0,03	0,07
0,6	3	45.000	55.000	500	850	0,005	0,022	0,03	0,07	45.000	55.000	500	850	0,005	0,022	0,03	0,07
0,7	3	42.000	48.000	500	850	0,005	0,022	0,03	0,07	42.000	48.000	500	850	0,005	0,022	0,03	0,07
0,8	3	42.000	48.000	500	880	0,005	0,022	0,04	0,08	42.000	48.000	500	880	0,005	0,022	0,04	0,08
0,9	3	42.000	48.000	500	880	0,008	0,035	0,04	0,08	42.000	48.000	500	880	0,008	0,035	0,04	0,08
1,0	2	38.000	45.000	700	1.100	0,01	0,042	0,05	0,35	38.000	45.000	700	1.050	0,01	0,042	0,05	0,35
1,0	3	38.000	45.000	700	1.100	0,01	0,042	0,05	0,35	38.000	45.000	700	1.050	0,01	0,042	0,05	0,35
1,5	2	28.000	35.000	700	1.100	0,02	0,065	0,05	0,50	28.000	35.000	700	1.050	0,02	0,065	0,05	0,50
1,5	3	28.000	35.000	700	1.100	0,02	0,065	0,05	0,50	28.000	35.000	700	1.050	0,02	0,065	0,05	0,50
2,0	2	19.000	23.000	700	1.100	0,03	0,16	0,10	0,60	19.000	23.000	700	1.050	0,03	0,16	0,10	0,6
2,0	3	19.000	23.000	700	1.100	0,03	0,16	0,10	0,60	19.000	23.000	700	1.050	0,03	0,16	0,10	0,60
3,0	2	14.000	18.000	700	1.100	0,03	0,16	0,10	0,80	14.000	18.000	700	1.050	0,03	0,16	0,10	0,80
3,0	3	14.000	18.000	700	1100	0,03	0,16	0,10	0,80	14.000	18.000	700	1.050	0,03	0,16	0,10	0,80
4,0	2	11.000	13.000	800	1.150	0,05	0,25	0,20	1,00	11.000	13.000	800	1.200	0,05	0,25	0,20	1,00
4,0	3	11.000	1.3000	800	1.150	0,05	0,25	0,20	1,00	11.000	13.000	800	1.200	0,05	0,25	0,20	1,00
5,0	2	11.000	13.000	800	1.150	0,05	0,25	0,20	1,50	11.000	13.000	800	1.200	0,05	0,25	0,20	1,50
5,0	3	11.000	13.000	800	1.150	0,05	0,25	0,20	1,50	11.000	13.000	800	1.200	0,05	0,25	0,20	1,50
6,0	2	9.000	12.000	900	1.300	0,05	0,25	0,20	2,00	9.000	12.000	900	1.300	0,05	0,25	0,20	2,00
6,0	3	9.000	12.000	900	1.300	0,05	0,25	0,20	2,00	9.000	12.000	900	1.300	0,05	0,25	0,20	2,00

CBN Corner End Mills Helix

		Steel and Tool Steel up to 68HRC								Carbide							
		n [min⁻¹]		V_f [mm/min]		a_p [mm]		a_e [mm]		n [min⁻¹]		V_f [mm/min]		a_p [mm]		a_e [mm]	
Ø	z	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
0,3	2	35.000	60.000	80	270	0,002	0,011	0,02	0,03								
0,3	3	32.000	60.000	80	330	0,002	0,011	0,02	0,03								
0,4	2	32.000	55.000	120	330	0,003	0,016	0,03	0,04								
0,4	3	30.000	55.000	120	380	0,003	0,016	0,03	0,04								
0,5	2	45.000	55.000	400	650	0,003	0,016	0,03	0,07								
0,5	3	45.000	55.000	400	780	0,003	0,016	0,03	0,07								
0,6	3	45.000	55.000	400	780	0,006	0,022	0,03	0,07								
0,7	3	42.000	48.000	400	780	0,006	0,022	0,03	0,07								
0,8	3	42.000	48.000	500	850	0,006	0,022	0,04	0,08								
0,9	3	42.000	48.000	500	850	0,006	0,032	0,04	0,08								
1,0	2	38.000	45.000	500	850	0,01	0,042	0,05	0,35								
1,0	3	38.000	45.000	500	950	0,01	0,042	0,05	0,35								
1,5	2	28.000	35.000	600	950	0,02	0,064	0,05	0,50								
1,5	3	28.000	35.000	600	1.100	0,02	0,064	0,05	0,50								
2,0	2	19.000	23.000	600	930	0,035	0,12	0,10	0,60								
2,0	3	19.000	23.000	600	1.100	0,035	0,12	0,10	0,60								
3,0	2	14.000	18.000	600	940	0,04	0,12	0,10	0,80								
3,0	3	14.000	18.000	600	1.100	0,04	0,12	0,10	0,80								
4,0	2	11.000	13.000	700	1.100	0,06	0,22	0,20	1,00								
4,0	3	11.000	13.000	700	1.100	0,06	0,22	0,20	1,00								
5,0	2	11.000	13.000	700	1.100	0,06	0,22	0,20	1,50								
5,0	3	11.000	13.000	700	1.150	0,06	0,22	0,20	1,50								
6,0	2	9.000	12.000	800	1.200	0,06	0,25	0,20	2,00								
6,0	3	9.000	12.000	800	1.200	0,06	0,25	0,20	2,00								

on request

Cutting parameters

for our end mills - CBN ball nose end mills

Cooling

1.Choice: Air | 2.Choice: Cooling Emulsion

Diamond Tooling Systems
DTS GmbH

		CBN Ball Nose End Mills															
		Steel up to 55HRC								Steel and Tool Steel up to 60HRC							
		n [min⁻¹]		V_f [mm/min]		a_p [mm]		a_e [mm]		n [min⁻¹]		V_f [mm/min]		a_p [mm]		a_e [mm]	
Ø	z	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
0,2	2	35.000	60.000	130	330	0,002	0,005	0,003	0,005	35.000	60.000	100	210	0,002	0,005	0,003	0,005
0,3	2	32.000	60.000	270	630	0,002	0,005	0,003	0,006	32.000	60.000	150	360	0,002	0,005	0,003	0,006
0,4	2	32.000	55.000	400	930	0,002	0,006	0,004	0,01	32.000	55.000	300	660	0,002	0,006	0,004	0,01
0,5	2	30.000	55.000	500	1.100	0,003	0,01	0,005	0,012	30.000	55.000	400	920	0,003	0,01	0,005	0,012
0,6	2	38.000	45.000	800	1.350	0,003	0,012	0,005	0,022	38.000	45.000	700	1.150	0,003	0,012	0,005	0,022
0,8	2	38.000	45.000	800	1.350	0,003	0,012	0,005	0,032	38.000	45.000	700	1.150	0,003	0,012	0,005	0,032
1,0	2	32.000	38.000	1.000	1.650	0,006	0,032	0,005	0,032	32.000	38.000	1050	1.650	0,005	0,02	0,005	0,032
1,2	2	32.000	38.000	1.000	1.650	0,006	0,032	0,006	0,034	32.000	38.000	950	1.550	0,006	0,022	0,006	0,034
1,4	2	28.000	32.000	1.100	1.850	0,006	0,032	0,006	0,035	28.000	32.000	1.100	1.650	0,007	0,022	0,006	0,035
1,5	2	28.000	32.000	1.100	1.850	0,006	0,032	0,006	0,035	28.000	32.000	1.100	1.650	0,008	0,03	0,006	0,035
1,6	2	24.000	28.000	1.100	1.850	0,006	0,035	0,006	0,035	24.000	28.000	1.100	1.650	0,008	0,032	0,006	0,035
1,8	2	24.000	28.000	1.200	2.100	0,006	0,035	0,006	0,035	24.000	28.000	1.200	1.850	0,01	0,032	0,006	0,035
2,0	2	20.000	22.000	1.300	2.100	0,01	0,042	0,008	0,05	20.000	22.000	1.300	2.100	0,01	0,04	0,008	0,05
3,0	2	14.000	16.000	1.100	1.550	0,01	0,042	0,01	0,055	14.000	16.000	1.100	1.600	0,01	0,042	0,01	0,055
4,0	2	11.000	15.000	1.000	1.300	0,02	0,055	0,02	0,075	11.000	15.000	900	1.250	0,018	0,05	0,02	0,075
5,0	2	11.000	15.000	1.000	1.300	0,02	0,055	0,02	0,075	11.000	15.000	900	1.250	0,018	0,052	0,02	0,075
6,0	2	9.000	12.000	1.000	1.300	0,02	0,06	0,05	0,10	9.000	12.000	900	1.300	0,02	0,055	0,05	0,10
8,0	2	7.000	11.000	700	1.100	0,03	0,12	0,05	0,15	7.000	10.000	700	1.100	0,03	0,12	0,05	0,15
10,0	2	6.000	10.000	500	900	0,03	0,18	0,06	0,20	5.000	8.000	500	900	0,03	0,18	0,06	0,20
12,0	2	4.000	8.000	400	700	0,05	0,25	0,08	0,25	4.000	6.000	400	700	0,05	0,25	0,08	0,25

		CBN Ball Nose End Mills															
		Steel and Tool Steel up to 68HRC								Carbide							
		n [min⁻¹]		V_f [mm/min]		a_p [mm]		a_e [mm]		n [min⁻¹]		V_f [mm/min]		a_p [mm]		a_e [mm]	
Ø	z	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
0,2	2	35.000	60.000	50	160	0,001	0,003	0,003	0,005								
0,3	2	32.000	60.000	80	260	0,001	0,003	0,003	0,006								
0,4	2	32.000	55.000	150	420	0,002	0,005	0,004	0,01								
0,5	2	30.000	55.000	200	620	0,002	0,005	0,005	0,012								
0,6	2	38.000	45.000	400	780	0,003	0,01	0,005	0,022								
0,8	2	38.000	45.000	400	780	0,003	0,012	0,005	0,032								
1,0	2	32.000	38.000	500	1.250	0,005	0,022	0,005	0,032								
1,2	2	32.000	38.000	500	1.050	0,005	0,022	0,006	0,034								
1,4	2	28.000	32.000	650	1.150	0,006	0,022	0,006	0,035								
1,5	2	28.000	32.000	650	1.150	0,006	0,022	0,006	0,035								
1,6	2	24.000	28.000	650	1.150	0,006	0,025	0,006	0,035								
1,8	2	24.000	28.000	800	1.350	0,006	0,025	0,006	0,035								
2,0	2	20.000	22.000	800	1.350	0,006	0,025	0,008	0,05								
3,0	2	14.000	16.000	700	1.050	0,01	0,03	0,01	0,055								
4,0	2	11.000	15.000	500	850	0,01	0,04	0,02	0,075								
5,0	2	11.000	15.000	500	850	0,015	0,04	0,02	0,075								
6,0	2	9.000	12.000	500	900	0,015	0,045	0,05	0,10								
8,0	2	6.000	9.000	500	1.000	0,02	0,05	0,05	0,15								
10,0	2	5.000	8.000	400	900	0,05	0,08	0,06	0,20								
12,0	2	3.000	5.500	250	650	0,05	0,10	0,08	0,25								

on request

Cutting parameters

for our end mills - CBN ball nose end mills with helix

Cooling

1.Choice: Air | 2.Choice: Cooling Emulsion

Diamond Tooling Systems
DTS GmbH

		CBN Ball Nose End Mills Helix															
		Steel up to 55HRC								Steel and Tool Steel up to 60HRC							
		n [min⁻¹]		V_f [mm/min]		a_p [mm]		a_e [mm]		n [min⁻¹]		V_f [mm/min]		a_p [mm]		a_e [mm]	
Ø	Z	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
0,3	2	35.000	60.000	180	440	0,003	0,016	0,02	0,03	35.000	60.000	100	320	0,003	0,016	0,02	0,03
0,3	3	32.000	60.000	180	550	0,003	0,016	0,02	0,03	32.000	60.000	100	380	0,003	0,016	0,02	0,03
0,4	2	32.000	55.000	300	550	0,005	0,022	0,03	0,04	32.000	55.000	150	420	0,005	0,022	0,03	0,04
0,4	3	30.000	55.000	300	630	0,005	0,022	0,03	0,04	30.000	55.000	160	530	0,005	0,022	0,03	0,04
0,5	2	45.000	55.000	500	750	0,005	0,022	0,03	0,07	45.000	55.000	500	750	0,005	0,022	0,03	0,07
0,5	3	45.000	55.000	500	850	0,005	0,022	0,03	0,07	45.000	55.000	500	850	0,005	0,022	0,03	0,07
0,6	3	45.000	55.000	500	850	0,005	0,022	0,03	0,07	45.000	55.000	500	850	0,005	0,022	0,03	0,07
0,7	3	42.000	48.000	500	850	0,005	0,022	0,03	0,07	42.000	48.000	500	850	0,005	0,022	0,03	0,07
0,8	3	42.000	48.000	500	880	0,005	0,022	0,04	0,08	42.000	48.000	500	880	0,005	0,022	0,04	0,08
0,9	3	42.000	48.000	500	880	0,008	0,035	0,04	0,08	42.000	48.000	500	880	0,008	0,035	0,04	0,08
1,0	2	38.000	45.000	700	1100	0,01	0,042	0,05	0,35	38.000	45.000	700	1.050	0,01	0,042	0,05	0,35
1,0	3	38.000	45.000	700	1100	0,01	0,042	0,05	0,35	38.000	45.000	700	1.050	0,01	0,042	0,05	0,35
1,5	2	28.000	35.000	700	1.100	0,02	0,065	0,05	0,50	28.000	35.000	700	1.050	0,02	0,065	0,05	0,50
1,5	3	28.000	35.000	700	1.100	0,02	0,065	0,05	0,50	28.000	35.000	700	1.050	0,02	0,065	0,05	0,50
2,0	2	19.000	23.000	700	1.100	0,03	0,16	0,10	0,60	19.000	23.000	700	1.050	0,03	0,16	0,10	0,6
2,0	3	19.000	23.000	700	1.100	0,03	0,16	0,10	0,60	19.000	23.000	700	1.050	0,03	0,16	0,10	0,60
3,0	2	14.000	18.000	700	1.100	0,03	0,16	0,10	0,80	14.000	18..000	700	1.050	0,03	0,16	0,10	0,80
3,0	3	14.000	18.000	700	1.100	0,03	0,16	0,10	0,80	14.000	18.000	700	1.050	0,03	0,16	0,10	0,80
4,0	2	11.000	13.000	800	1.150	0,05	0,25	0,20	1,00	11.000	13.000	800	1.200	0,05	0,25	0,20	1,00
4,0	3	11.000	13.000	800	1.150	0,05	0,25	0,20	1,00	11.000	13.000	800	1.200	0,05	0,25	0,20	1,00
5,0	2	11.000	13.000	800	1.150	0,05	0,25	0,20	1,50	11.000	13.000	800	1.200	0,05	0,25	0,20	1,50
5,0	3	11.000	13.000	800	1.150	0,05	0,25	0,20	1,50	11.000	13.000	800	1.200	0,05	0,25	0,20	1,50
6,0	2	9.000	12.000	900	1.300	0,05	0,25	0,20	2,00	9.000	12.000	900	1.300	0,05	0,25	0,20	2,00
6,0	3	9.000	12.000	900	1.300	0,05	0,25	0,20	2,00	9.000	12.000	900	1.300	0,05	0,25	0,20	2,00

		CBN Ball Nose End Mills Helix															
		Steel and Tool Steel up to 68HRC								Carbide							
		n [min⁻¹]		V_f [mm/min]		a_p [mm]		a_e [mm]		n [min⁻¹]		V_f [mm/min]		a_p [mm]		a_e [mm]	
Ø	Z	min.	max.	min	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
0,3	2	35.000	60.000	80	270	0,002	0,011	0,02	0,03								
0,3	3	32.000	60.000	80	330	0,002	0,011	0,02	0,03								
0,4	2	32.000	55.000	120	330	0,003	0,016	0,03	0,04								
0,4	3	30.000	55.000	120	380	0,003	0,016	0,03	0,04								
0,5	2	45.000	55.000	400	650	0,003	0,016	0,03	0,07								
0,5	3	45.000	55.000	400	780	0,003	0,016	0,03	0,07								
0,6	3	45.000	55.000	400	780	0,006	0,022	0,03	0,07								
0,7	3	42.000	48.000	400	780	0,006	0,022	0,03	0,07								
0,8	3	42.000	48.000	500	850	0,006	0,022	0,04	0,08								
0,9	3	42.000	48.000	500	850	0,006	0,032	0,04	0,08								
1,0	2	38.000	45.000	500	850	0,01	0,042	0,05	0,35								
1,0	3	38.000	45.000	500	950	0,01	0,042	0,05	0,35								
1,5	2	28.000	35.000	600	950	0,02	0,064	0,05	0,50								
1,5	3	28.000	35.000	600	1.100	0,02	0,064	0,05	0,50								
2,0	2	19.000	23.000	600	930	0,035	0,12	0,10	0,60								
2,0	3	19.000	23.000	600	1.100	0,035	0,12	0,10	0,60								
3,0	2	14.000	18.000	600	940	0,04	0,12	0,10	0,80								
3,0	3	14.000	18.000	600	1.100	0,04	0,12	0,10	0,80								
4,0	2	11.000	13.000	700	1.100	0,06	0,22	0,20	1,00								
4,0	3	11.000	13.000	700	1.100	0,06	0,22	0,20	1,00								
5,0	2	11.000	13.000	700	1.100	0,06	0,22	0,20	1,50								
5,0	3	11.000	13.000	700	1.150	0,06	0,22	0,20	1,50								
6,0	2	9.000	12.000	800	1.200	0,06	0,25	0,20	2,00								
6,0	3	9.000	12.000	800	1.200	0,06	0,25	0,20	2,00								

on request

Cutting parameters

for our insert and weldon end mills - PCD / CVD-D

Diamond Tooling Systems
DTS GmbH

Material	Insert Milling Cutter / Weldon End Mills											
	PCD						CVD-D					
	V_c [m/min]		a_p [mm]		F_z [mm]		V_c [m/min]		a_p [mm]		F_z [mm]	
	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
Acrylic (PMMA)							100	5.000	0,01	5,00*	0,01	0,20
Aluminum <10%Si	300	3.000	0,01	6,00*	0,005	0,30						
Aluminum >10%Si							200	5.000	0,01	5,00*	0,01	0,20
CFRP / MMC (carbon fiber/aluminum composite)							100	900	0,01	6,50*	0,05	0,30
GFRP							100	900	0,01	6,50*	0,01	0,30
Gold, Silver, Platinum							100	3.000	0,01	5,00*	0,01	0,20
Graphit, grobkörnig	100	1.500	0,01	6,50*	0,01	0,30						
Graphit, feinkörnig							80	2.000	0,01	6,50*	0,01	0,30
Carbide												
Copper							150	2.000	0,01	4,00*	0,01	0,20
Laminates							80	1.600	0,01	6,60*	0,01	0,30
Brass							150	5.000	0,01	5,00*	0,01	0,20
PTFE, POM	150	5.000	0,01	6,50*	0,01	0,30						
Titanium							50	220	0,01	2,00	0,01	0,16
Tungsten Copper							150	1.800	0,01	4,00*	0,01	0,18
Zirconium												

* Dependent on the cutting edge length

Insert Milling Cutter / Weldon End Mills													Cooling				
													Dry	Air	Emulsion	Oil	MQL
															1. Choice	2. Choice	3. Choice
															1. Choice	2. Choice	3. Choice
															1. Choice	2. Choice	3. Choice
													3. Choice	1. Choice	2. Choice		
													2. Choice	1. Choice	1. Choice		
													1. Choice	2. Choice	3. Choice		
													2. Choice	1. Choice			
															1. Choice	2. Choice	3. Choice
													3. Choice	1. Choice	2. Choice		
															1. Choice	2. Choice	3. Choice
															1. Choice		
															1. Choice	2. Choice	3. Choice
															1. Choice	2. Choice	3. Choice

on request

If you have any further technical questions, please do not hesitate to contact us by phone or e-mail!

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Subject to technical changes.

Cutting parameters

for our insert and weldon end mills - CBN

Diamond Tooling Systems
DTS GmbH

Material	Insert Milling Cutter / Weldon End Mills											
	CBN-H						CBN-X					
	V_c [m/min]		a_p [mm]		F_z [mm]		V_c [m/min]		a_p [mm]		F_z [mm]	
	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
Grey Cast Iron (GG)												
Carbide-Steel-Composite	on request											
Ductile Cast Iron (GGG)												
Steel up to 55 HRC	80	400	0,01	1,00	0,005	0,20						
Steel up to 60 HRC	80	360	0,01	0,80	0,008	0,18						
Steel up to 72 HRC	80	340	0,01	0,50	0,006	0,15						
Tool Steel up to 72HRC							60	360	0,01	0,60	0,005	0,15

Material	Insert Milling Cutter / Weldon End Mills												Cooling				
	CBN-K																
	V_c [m/min]		a_p [mm]		F_z [mm]												
	min.	max.	min.	max.	min.	max.							Dry	Air	Emulsion	Oil	MQL
Grey Cast Iron (GG)	300	2.000	0,01	2,00	0,01	0,40							3. Choice	1. Choice	2. Choice		
Carbide-Steel-Composite													on request				
Ductile Cast Iron (GGG)	200	1.200	0,01	2,00	0,01	0,30							3. Choice	1. Choice	2. Choice		
Steel up to 55 HRC													2. Choice	1. Choice			3. Choice
Steel up to 60 HRC													2. Choice	1. Choice			3. Choice
Steel up to 72 HRC													2. Choice	1. Choice			3. Choice
Tool Steel up to 72HRC													2. Choice	1. Choice			3. Choice

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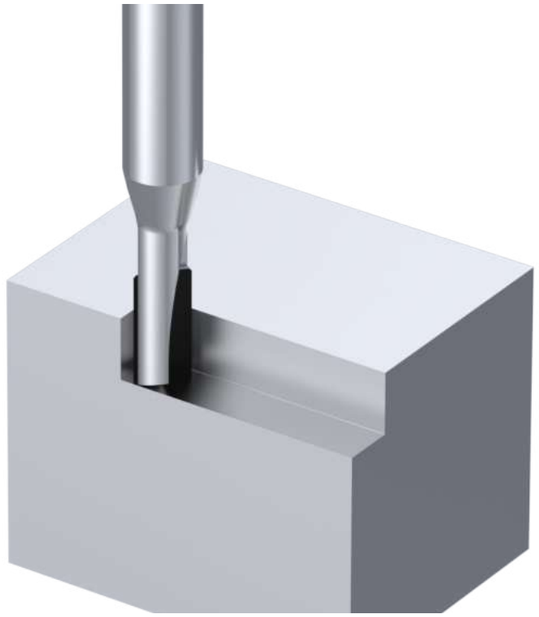
Subject to technical changes.

Formulas

Milling



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^3/min
a_p	Cutting depth	mm
a_e	Cutting width	mm

▶ Cutting speed

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

▶ Spindle speed

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

▶ Feed per tooth

$$f_z = \frac{V_f}{n \times Z} \quad [mm/Z]$$

▶ Feed per revolution

$$V_f = n \times Z \times f_z \quad [mm/min]$$

▶ Machine performance

$$P = \frac{a_p \times a_e \times V_f}{1800} \quad [kW]$$

▶ Stock removal rate

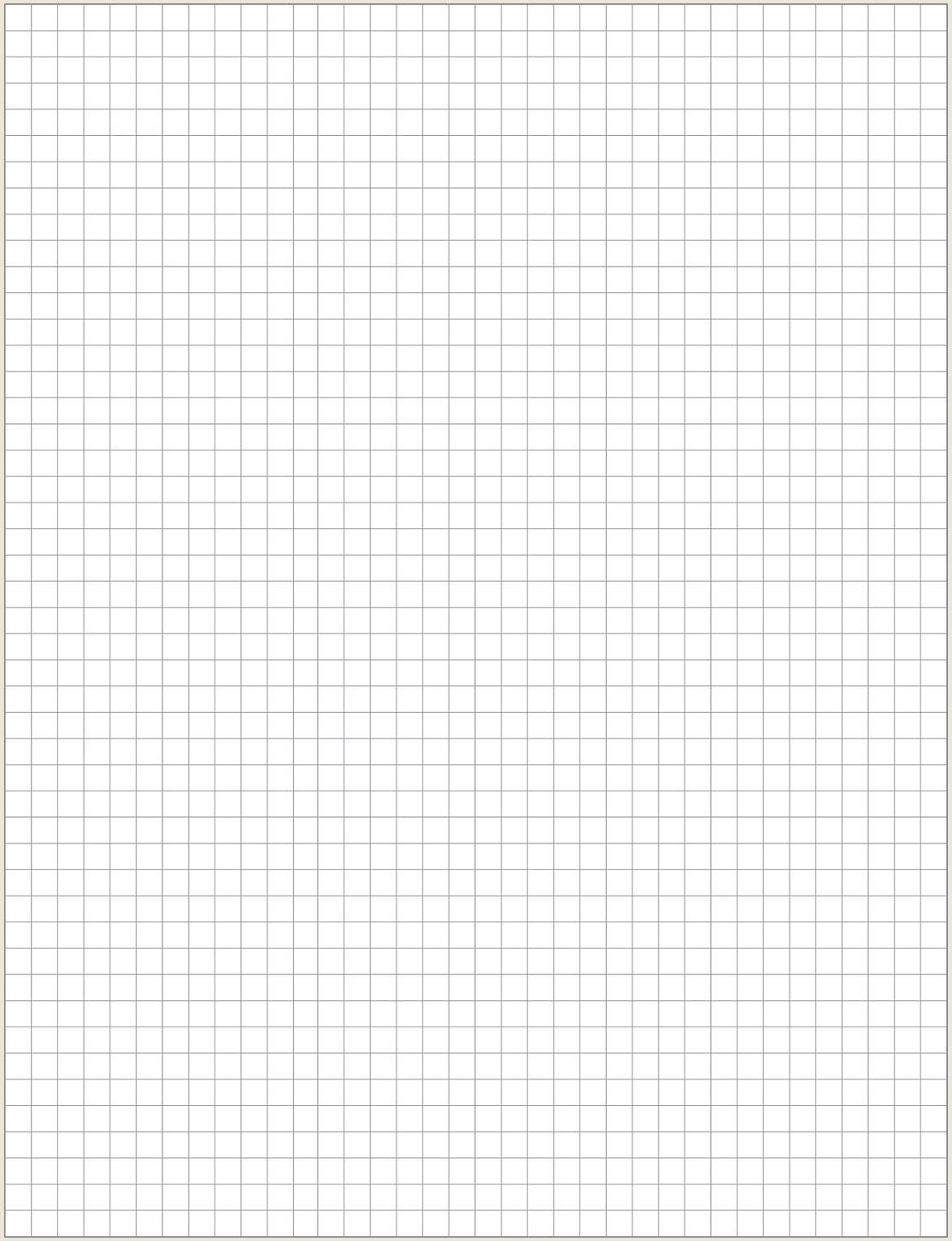
$$Q = \frac{a_p \times a_e \times V_f}{1000} \quad [cm^3/min]$$

Your notes

Diamond Tooling Systems

DTS GmbH

Your notes



Copyright and Safety Instructions

Diamond Tooling Systems
DTS GmbH

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We reserve the right to make production-related technical changes and changes to the delivery program. The cutting values given are guide values which must be adjusted according to the process environment.

Safety Instructions:

- DTS tools equipped with ultra-hard cutting edges are very sharp laser cut tools.
- Careful handling of the tools during unpacking and their use is recommended.
- Wearing protective gloves reduces the risk of injury.
- Material chipping and tool breakage may occur during machining, wearing safety glasses is recommended.
- Balanced holders are recommended for speeds above 10,000 rpm.
- We do not accept any responsibility for tools that have been modified, reground or used incorrectly and beyond their normal service life.
- Protective goggles are recommended when using DTS tools, sparks may also occur, make sure that no fire can occur.

Diamond Tooling Systems

DTS GmbH

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PASSION FOR DIAMOND

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