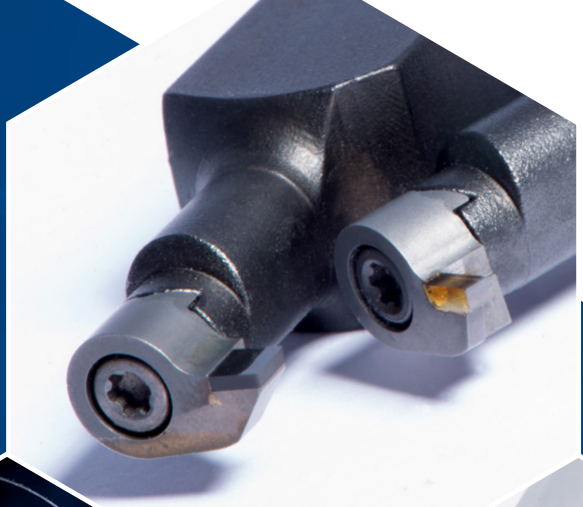
Diamond tools for demanding applications



DIATEC
Diamanttechnik GmbH

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DIATEC: Hi-precision special tools for turning and milling

In addition to an extensive program of standard tools, we offer special tools especially for applications in which high-gloss surfaces are required without post-processing.

DIATEC Diamanttechnik GmbH is a leading and recognized producer of high-precision diamond tools in the high-end sector. With the machines that we have developed and the most modern techniques, we mainly produce customized turning and milling tools with diamond (MCD), PCD and CBN edges. As an experienced producer, we make diamond tools with tolerances in the µm range and roughnesses in the nanometre range. With the gap-free polished diamond edges, surface roughnesses of 3 – 6 nanometres can be reached. These tools guarantee perfect results with excellent tool life.

Diamond milling tools for mirror finish surfaces

You can rely on our long-time experience in the construction and application of diamond milling tools. Custom-made DIATEC milling tools are used where the highest demands are made regarding the surface finish. With DIATEC tools, perfect mirror, sealing and sliding surfaces can be produced without any further polishing - even in difficult applications.

Special tools for milling

» mini milling cutters from Ø 0.10 mm
» engraving milling cutters from Ø 0.05 mm
» radius milling cutters from Ø 0.10 mm
» end milling cutters from Ø 0.10 mm
» single tooth milling cutters from Ø 0.10 mm
» face milling cutters from Ø 0.10 mm
» milling heads up to Ø 200 mm

Fields of application

» laser mirrors
» automobile headlights
» LED lamps
» acrylics with distortion-free reflecting surfaces
» mould making
» micromechanics
» jewelry and watches

Diamond turning tools for polish turning

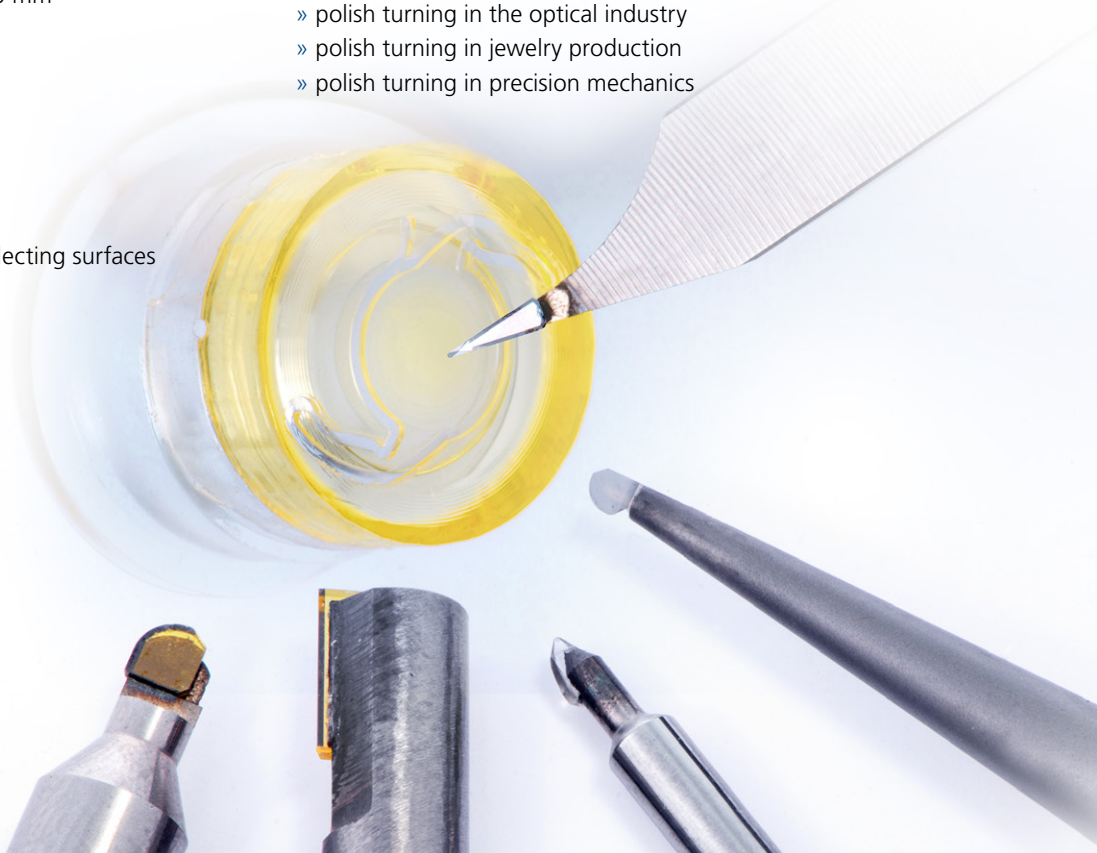
DIATEC turning tools made of monocrystalline diamond are used for the ultra-precision machining of watches in the optical industry, in the jewellery production and in precision mechanics. On vibration-free machines that are specifically produced for polish turning, surfaces with surface roughnesses in the nanometre range can be created that can be compared to a mirror.

Special tools for turning

» polish turning in the optical industry
» polish turning in jewelry production
» polish turning in precision mechanics

Fields of application

» polish turning in the optical industry
» polish turning in jewelry production
» polish turning in precision mechanics



Technology

1

Introduction to the world of ultra-hard cutting materials

Monocrystalline diamond

Monocrystalline diamond (DM or common name MCD) is the hardest of all materials and is mostly used for the finest work. Extremely accurate cuts with a radius smaller than 1 µm enable surface finish accuracies lower than RZ 0.02 µm. During chip removal, the cutting edge sharpness creates very low cutting pressure without any heat build-up. Therefore, the monocrystalline diamond has maximum wear resistance and consequently the tool has a long service life. If, on the other hand, fillers (e.g. Si, SiC or glass fiber) are included, the cutting edge geometry can be quickly destroyed due to a lack of toughness. A monocrystalline diamond consists of pure carbon and is thermally and chemically stable up to 650°.

As diamond monocrystalline-direction-dependent mechanical strength properties indicate, the diamonds have to be incorporated in such a way that maximum durability is achieved. Diamond tools are highly suitable for machining non-ferrous metal alloys, such as gold, platinum, brass and silver, as well as aluminum and solid plastics.

Polycrystalline diamond

Polycrystalline diamond (DP or workshop name PCD) is a cutting material on a cemented carbide core, onto which firstly a thin metal layer and then a 0.5 to 1.5 mm thick layer of synthetic diamond powder is sinter-fused. Because of the polycrystalline structure, DP is isotropic (direction-independent) and therefore its mechanical strength properties are not direction-dependent. Cutting speed is virtually half that of monocrystals, but the feed rate can be increased ten times. As opposed to monocrystalline diamonds, PCD has a higher level of durability, but lower wear resistance and poorer micro-cutting edge quality.

Chemical vapour deposition (CVD)

This high-tech cutting material for chip removal outclasses PCD in terms of wear resistance, durability and achievable surface quality.

Synthetic crystalline diamond deposits are isolated from a gas phase which generally consists of 99% vol. hydrogen and only about 1% vol. pure carbon source (methane, acetylene).

The gases are either activated thermally or with the aid of a plasma or laser unit. Amongst other things, the excess of hydrogen suppresses the bonding of sp-hybridized carbon species (graphite, amorphous carbon).

Highly abrasive materials can be cut with the turning, milling and drilling diamond tools manufactured in this way. These include electrode materials, hard coal, graphite and copper, modern lightweight materials such as aluminum-silicon alloys, metal-matrix composites, fiber-reinforced plastics and wooden materials.

Polycrystalline cubic boron nitride (BN or CBN)

Polycrystalline cubic boron nitride (BN or workshop name CBN) is mainly used for machining hard and abrasive ferrous materials with a hardness of up to 68 HRC, as, unlike the super-hard cutting materials DM and DP, it does not react with iron and has a heat resistance of up to 2000°C. BN is either manufactured as a coating of up to 1.5 mm in thickness by means of so-called high-pressure liquid phase sintering on carbide plates or as a solid body. As a rule, titanium nitride or titanium carbide are used as the binder phase.

The following overview can be used to select suitable cutting materials and cutting edge geometries. The combination of material group and application range indicate the appropriate cutting material.

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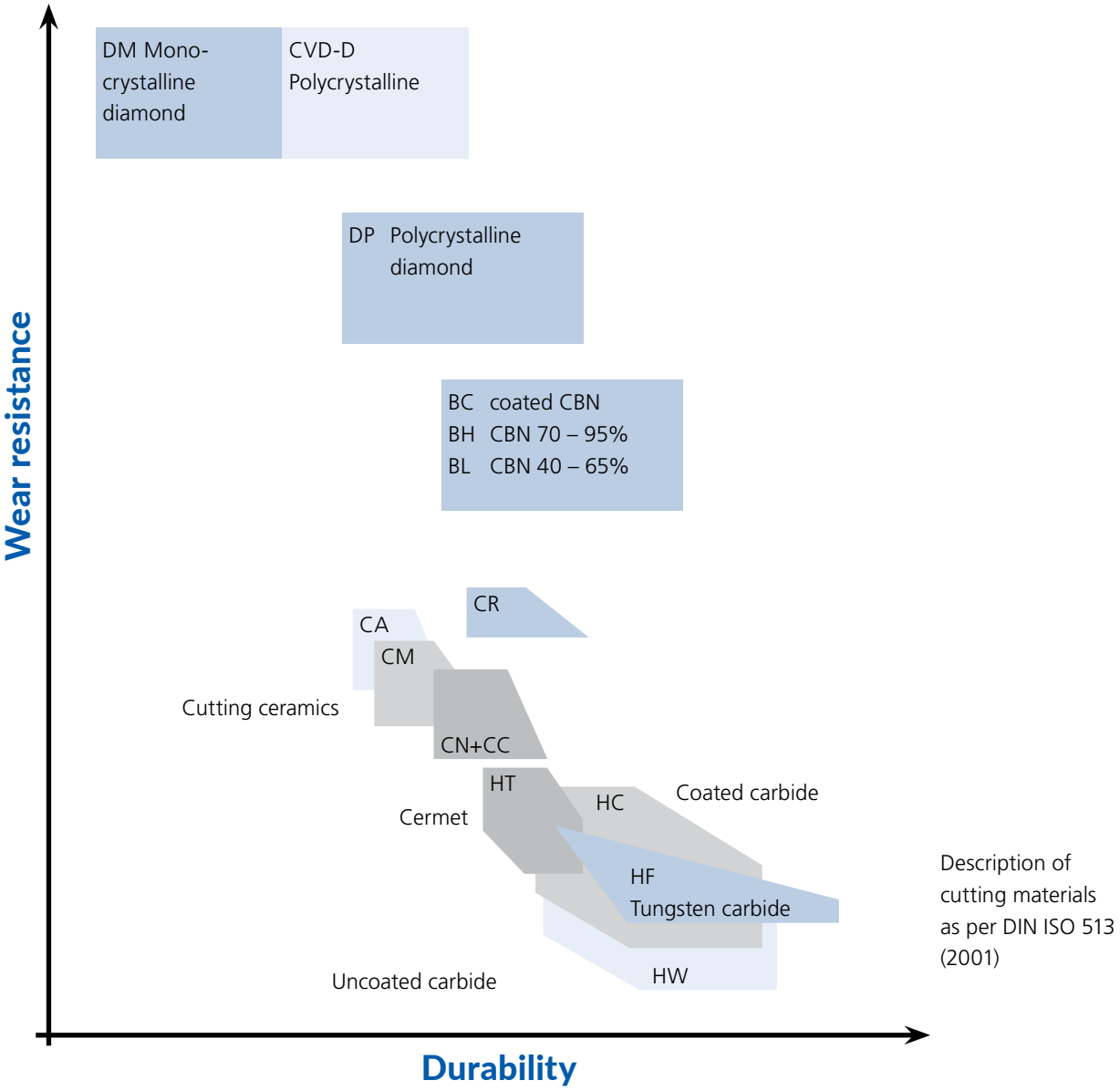
Cutting material groups

HW	Uncoated carbide, main component tungsten carbide (WC), grain size = 1 µm	**CC**	Cutting ceramic as above, but coated
HF	Uncoated carbide, main component tungsten carbide (WC), grain size = <1 µm	**DM**	Monocrystalline diamond
HT	Cermet, TiC/TiN basis	**CVD-D**	CVD diamond, polycrystalline
HC	Carbide/cermet, as above, but coated	**DP**	Polycrystalline diamond
CA	Cutting ceramic, main component aluminum oxide (AI2 O3)		
CM	Fused ceramic, main component aluminum oxide (AI2 O3) together with other components as oxides	**BL**	Cubic crystalline boron nitride with low **boron content** (CBN 40 – 65%)
CN	Silicon nitride ceramic, main component silicon nitride (Si3N4)	**BH**	Cubic crystalline boron nitride with high **boron content** (CBN 70 – 95 %)
CR	Cutting ceramic, main component aluminum oxide (AI2 O3)	**BC**	Cubic crystalline boron nitride as above, but coated (CBN 70 – 95 %)

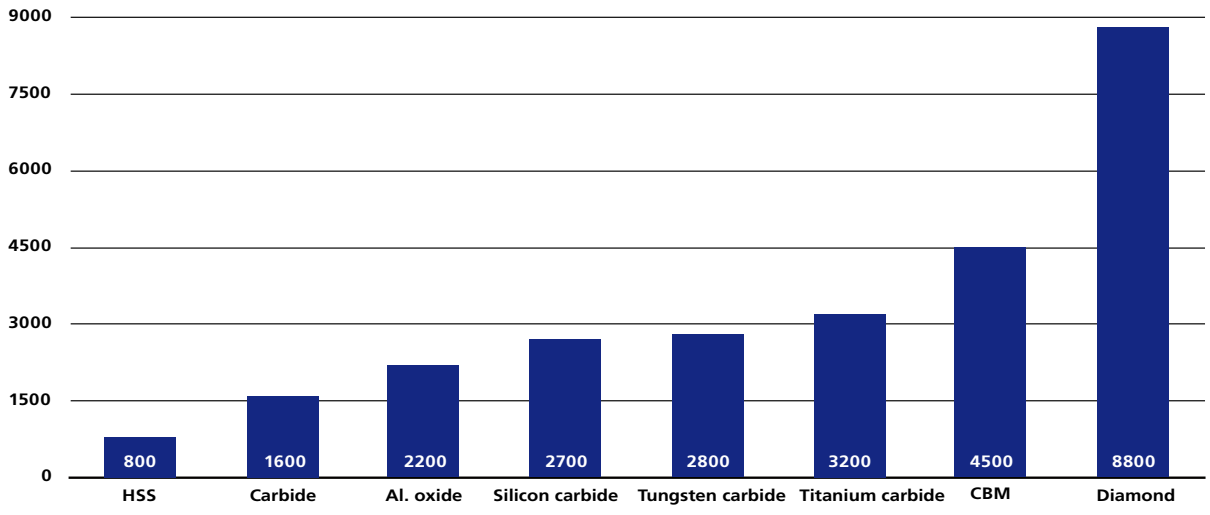


Description of cutting materials as per DIN ISO 513 (2001)

Selecting a cutting material: Description – Properties – Suitability

Types of diamond	ISO	Properties	Applications / workpiece materials
Dianat (natural diamond) Monosynt (synthetic monocrystalline diamond)	DM	Highest hardness, absolutely notch-free cutting edges, low fracture toughness.	Superfinishing of all NF metals (non-ferrous) and NF materials without abrasive fillers, plastics and acrylic glass.
Diavap	CVD-D	Without carbide base and without metallic binder phase, 99.9 % diamond, notch-free cutting edges, highest wear resistance, low fracture toughness.	NF metals Plastics with abrasive fillers Graphite Carbide Ceramic
Diasynt-U ultrafine grain	DP	Polycrystalline diamond with carbide base, ultrafine grain, good cutting sharpness and very low cutting pressure in case of tight tolerances. Good wear resistance and durability.	Finest coating of all NF materials with very low percentage of abrasive fillers.
Diasynt-F fine grain	DP	Polycrystalline diamond with carbide base, fine grain, good cutting sharpness and low cutting pressure in case of tight tolerances.	Polycrystalline diamond with carbide base, good wear resistance and good fracture toughness.
Diatsynt-G rough grain	DP	Polycrystalline diamond with carbide base, good wear resistance and good fracture toughness.	All NF metals and materials, high percentage of abrasive fillers from rough machining to finishing.
Cubor	CBN	High level of wear resistance, hot hardness, compression strength and durability.	Finishing hardened steels from 45 HRc to 70 HRc Sintered steels Gray cast iron / chilled cast iron Ni carbide superalloys.

Hardness comparison of various materials



Hardness specifications as per Knoop scale

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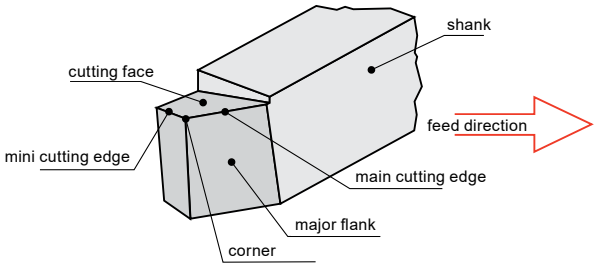
Cutting edge and selecting cutting edge geometry

By cutting edge, we understand a geometrically specified edge of a cutting tool that is used for machining a material. The precise shape of the cutting edge of a cutting tool is called its "cutting edge geometry". It is significantly responsible for the service life of a tool and determines the necessary sharpness. The manufacturing and maintenance (tool sharpening) of cutting edges is the responsibility of the diamond toolmaker.



Cutting edge geometry

Clearance angle

The clearance angle (symbol: α) on a tool cutting edge describes the angle of clearance between the tool and face being machined during chip removal. It is typically important for such jobs as turning and milling and reduces friction between the two parts. The clearance angle is always selected to be just large enough for the tool to cut sufficiently freely, depending on the material. A small angle is selected in the case of hard, short-chipping materials, such as high-alloy steels. A large clearance angle, on the other hand, is chosen for soft, formable materials such as plastics.
The clearance angle is formed by the cutting edge plane and flank and measured vertically to the main cutting edge. Together with the lip angle, it forms the cutting angle. The clearance angle, lip angle and chip angle always add up to 90°.

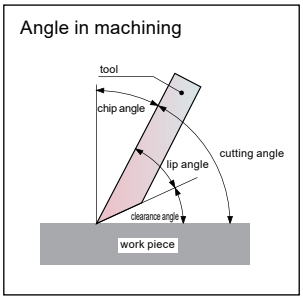
Lip angle

he lip angle (Symbol: β) is the angle of the cutting edge of a tool when removing material by means of machining. Together with the clearance angle, it forms the cutting angle. The clearance angle, lip angle and chip angle always add up to 90°.
Theoretically, the smallest possible lip angle, that is the "sharpest possible" tool, is optimal for chip removal, because the cutting forces are smallest here. However, the instability of the cutting edge which then occurs, low heat dissipation, as well as the unwanted build-up of chips when machining some materials means the lip angle selected always becomes a compromise between cutting ability and the stability of the cutting edge.

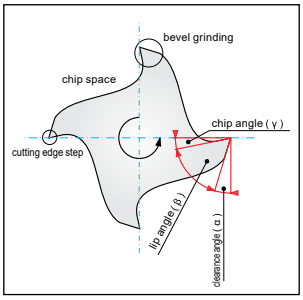
The cutting angle

The cutting angle of a tool cutting edge is the angle between the cutting face and workpiece during chip removal. The cutting angle is made up of the clearance angle and lip angle. The cutting angle and chip angle always add up to 90°.

The chip angle



The chip angle (symbol: γ) of a cutting edge influences the compression and discharge of the chips, as well as heat dissipation during chip removal. It is defined by the datum plane and cutting face.

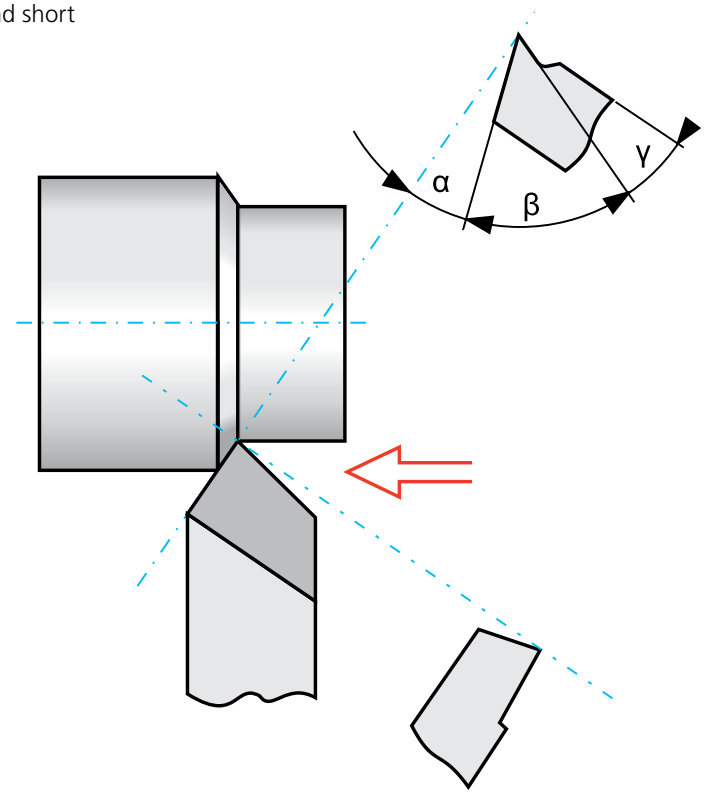


Positive chip angles under 90 degrees allowv the chips to slide more smoothly over the cutting wedge. Most of the heat is dissipated with the chips. This makes adhesion of the chips onto the cutting wedge difficult. The disadvantage of a positive chip angle is the production of long chips, which can however be broken by renewed diversion through the chip breaker. To increase the stability of the cutting edge when removing chips from hard materials, a smaller or even negative chip angle can be selected. In the case of a negative chip angle, we talk about "abrading" and in the case of a positive chip angle "cutting".

Selecting cutting edge geometry

It is crucial to select the optimal cutting edge geometry of tools to ensure long service life, good surface quality and short manufacturing times.

- **Clearance angle α**
  Reduction in friction
- **Lip angle β**
  JThe softer the material being machined, the smaller the lip angle that should be selected and the smaller the build-up of burrs, but the service life of the cutting edge will also be reduced.
- **Chip angle γ**
  The softer the material being machined, the larger the chip angle that should be selected. Hard or brittle materials, on the other hand, require no chip angle or even a negative one.



Durability comparison PCD vs. CVD

When using CVD, the durability (or service life) compared with PCD increases as follows:

Material	Durability longer
Aluminum	2 – 6 times
Copper/brass	2 – 6 times
CFK/GFK	3 – 6 times
Graphite	2 – 5 times
Glass reinforced plastics	2 – 10 times
Aluminum composites	2 – 7 times
Magnesium	2 – 6 times
Tungsten	2 – 4 times
Fiber composites	3 – 6 times
Titanium	2 – 5 times

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General cutting data for milling and turning

Dianat (natural diamond) and Diasynt (synthetic diamond, MCD)

- A positive chip angle of 10° – 15° minimizes a build-up of burrs in the case of soft, deformable materials and optimizes the chip removal process

Material ISO Code	Application	Cutting speed V (m/min)	Feed rate	Cutting depth
DM For the finest surface qualities and high gloss finishes	Aluminum alloy up to 6 % SiC	150 – 250	0.04 – 0.10	0.01 – 2.00
	Copper, zinc, brass	600	0.01 – 0.40	0.01 – 1.00
	Gold, silver	600	0.01 – 0.40	0.01 – 0.30
	Plastics, acrylic glass	1500	0.10 – 0.80	0.01 – 0.30

Diavap CVD diamond

Please note instructions before use

- For interrupted cut, roughly halve cutting data
- Intensive cooling with a light cutting fluid improves cutting performance significantly
- A positive chip angle of 10° – 15° minimizes the build-up of burrs in the case of soft, deformable materials and optimizes the chip removal process
- For the majority of applications, a neutral or slightly positive chip angle (5° – 8°) with a clearance angle of 10° – 13° can be used
- During chip removal from brittle or hard materials such as sintered carbide or ceramic materials, a negative chip angle of 3° – 5° is to be used

Material	Application	Cutting speed V (m/min) (m/min)	Feed rate	Cutting depth
CVD Offers best wear resistance	Aluminum/Al-Si alloys >13% Si>13% Si	Turning 300 – 700	0.10 – 0.40	0.10 – 4.00
	Metal matrix composites MMCs A1/10 % – 30 % SiC	Turning/milling 300 – 600	0.10 – 0.40	0.20 – 1.50
	Copper alloys (brass, bronze, copper)	Turning/milling 400 – 1200	0.05 – 0.30	0.20 – 1.50
	GFK/graphite	Turning/milling 300 – 1000	0.10 – 0.40	0.10 – 3.00
	Thermoplastic with carbon fiber, Teflon and glass (up to approx. 60 %)	Turning/milling 300 – 1000	0.10 – 0.40	0.10 – 3.00
	Tungsten	Turning 20 – 70	0.10 – 0.30	0.10 – 0.30

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Diasynt PCD

Please note instructions before use

- For interrupted cut, roughly halve cutting data
- Intensive cooling with a light cutting fluid improves cutting performance significantly
- A positive chip angle of 10° – 15° minimizes the build-up of burrs in the case of soft, deformable materials and optimizes the chip removal process
- For the majority of applications, a neutral or slightly positive chip angle (5° – 8°) with a clearance angle of 10° – 13° can be used
- During chip removal from brittle or hard materials such as sintered carbide or ceramic materials, a negative chip angle of 3° – 5° is to be used

Material	Application	Cutting speed V (m/min)	Feed rate	Cutting depth (mm)
DPF (fine grain) Polycrystalline diamond with carbide base, fine grain, good cutting sharpness and low cutting pressure with tight tolerances. Better wear resistance and durability.	Aluminum/Al-Si alloys 4 % – 8 %	Turning 900 – 3500	0.10 – 0.40	0.10 – 4.00
	Aluminum/Al-Si alloys 9 % – 14 %	Turning 600 – 2400 Milling 700 – 3000	0.10 – 0.40 0.10 – 0.30	0.10 – 4.00 0.10 – 3.00
	Aluminum/Al-Si alloys >13% Si	Turning 300 – 700 Milling 400 – 900	0.10 – 0.40 0.10 – 0.30	0.10 – 4.00 0.10 – 3.00
	Metal matrix composites MMCs A1/10 % – 30 % SiC	Turning/Milling 300 – 600	0.10 – 0.40	0.20 – 1.50
	Carbide <16 % Co unsintered	Turning 30 – 100	0.10 – 0.40	0.20 – 1.00
	Carbide <16 % Co sintered	Turning 20 – 40	0.10 – 0.25	0.10 – 0.50
	Ceramic unsintered	Turning 70 – 100	0.10 – 0.40	0.20 – 1.00
	Ceramic sintered	Turning 50 – 80	0.10 – 0.25	0.10 – 0.50

Material	Application	Cutting speed V (m/min)	Feed rate	Cutting depth (mm)
DPU (Ultrafine grain) Polycrystalline diamond with carbide base, ultra-fine grain, good cutting sharpness and low cutting pressure with tight tolerances. Better wear resistance and durability.	Magnesium alloys	Turning/Milling 800 – 4000	0.10 – 0.50	0.10 – 4.00
	Wrought aluminum alloys without Si	Turning 900 – 3500 Milling 1000 – 5000	0.10 – 0.40 0.10 – 0.30	0.10 – 4.00 0.10 – 3.00
	Copper alloys (brass, bronze, copper)	Turning/Milling 400 – 1300	0.03 – 0.30	0.05 – 2.00
	Platinum/gold	Turning 100 – 400 M 100 – 800	0.05 – 0.20 0.10 – 0.30	0.05 – 2.0 0.05 – 2.00

Milling tools:
You will find further information about cutting data in the Milling Tools chapter

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Selecting cutting data when turning

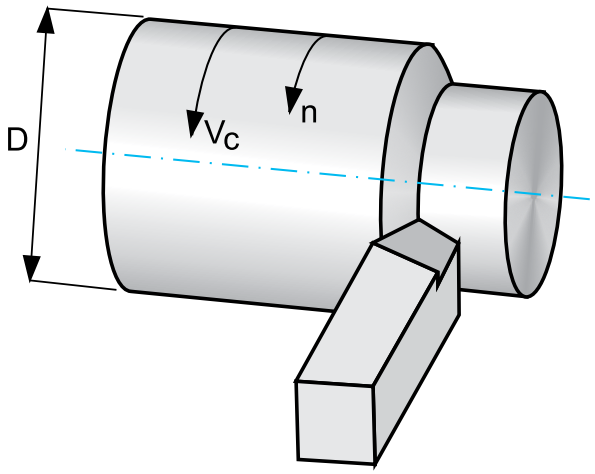
The cutting data that can be adjusted when turning are the cutting speed, feed rate and cutting depth. The following statuses can be achieved by optimizing these parameters:

- Optimal service life of the tool
- Improved chip formation
- Required surface quality
- Largest possible cutting volume
- Low cutting force

Cutting speed and rotational speed:
The choice of cutting speed depends on the material, tool and turning process. Guide values for the cutting speed can be taken from tables. The rotational speed is dependent on cutting speeds and the cutting diameter.

Feed rate:
The feed rate f is specified in millimeters per revolution. For reasons of economy, it should be set as large as possible during rough machining. It is limited by the performance of the lathe, possible loading of the cutting edge and the stability of the workpiece (danger of bending). When performing the finishing turning, a lower feed speed is mostly selected in order to achieve a higher surface quality.

Cutting depth:
During cylindrical turning the cutting depth is dependent on the setting of the turning tool, and during grooving the width of the cutting edge. During rough machining, the cutting depth selected should be as large as possible. During finish turning, the cutting depth corresponds to the material allowance.



Cutting speed [m/min]

D Diameter
n Rotational speed
V_c Cutting speed

$$V_c = \frac{D \times \pi \times n}{1000}$$

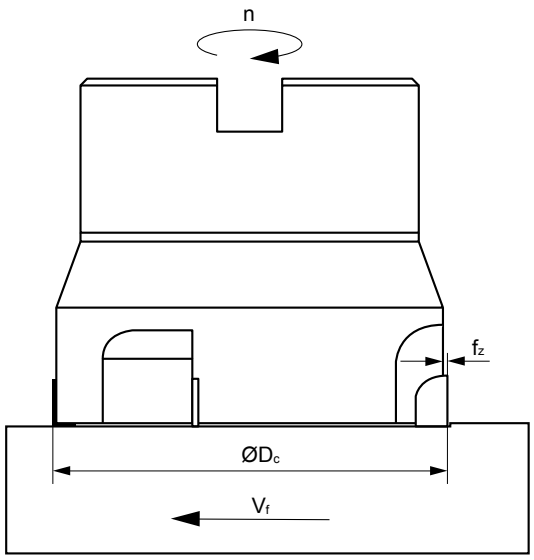
Rotational speed [rpm]

$$n = \frac{V_c \times 1000}{D \times \pi}$$

Selecting cutting data when milling

The cutting speed and feed rate overlap one another and lead to a continuous chip removal process.

D_c	Cutting diameter
V_c	Cutting speed
n	Rotational speed
V_f	Feed rate
f_n	Feed rate per revolution
f_z	Feed rate per tooth
Z_n	Number of cutting corners in tool
Z_c	Number of teeth



Cutting speed [m/min]

$$V_c = \frac{D_c \times \pi \times n}{1000}$$

Rotational speed [rpm]

$$n = \frac{V_c \times 1000}{D_c \times \pi}$$

Feed rate [mm/min]

$$V_f = f_z \times n \times z_n$$

Feed rate per revolution [mm/r]

$$f_n = \frac{V_f}{n}$$

Feed rate per tooth [mm/tooth]

$$f_z = \frac{V_f}{n \times z_c}$$

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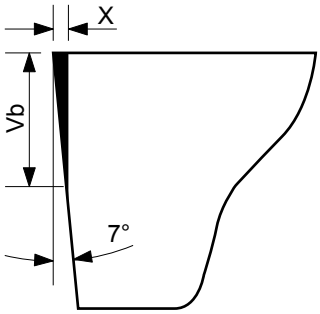
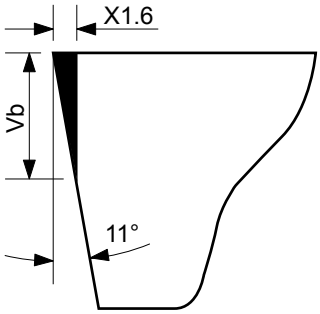
Flank wear of diamond cutting materials

Flank wear has a significant influence on the service life of most chip removal tools. In the case of diamond cutting edges little wear occurs, thus leading to high durability.

Diagram of wear in case of 7° and 11° clearance angle:



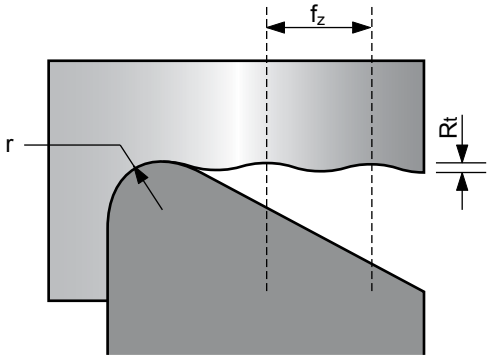


The width of wear marks Vb is achieved at 11° after approx. 1.6 times the use compared with the 7° version. Although flank wear plays less of a role in the case of diamond cutting materials when selecting the geometries, the following should still be observed:

The width of wear marks Vb is achieved at 11° after approx. 1.6 times the use compared with the 7° version. Although flank wear plays less of a role in the case of diamond cutting materials when selecting the geometries, the following should still be observed:

Surface quality:
depending on cutting radius and feed rate

Select the largest possible cutting radius in order to allow system stability, workpiece contour and chip control.



All values in µm

$$Rt = \frac{f_{z2}}{8 \times r}$$

$$r = \frac{f_{z2}}{8 \times Rt}$$

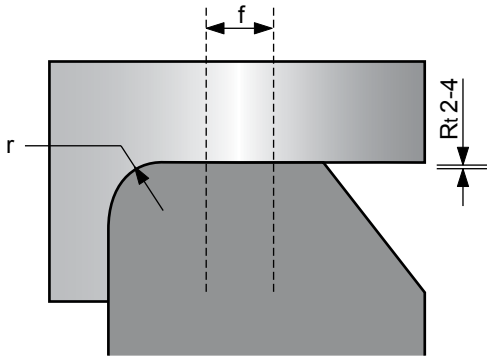
$$f = \sqrt{8 \times r \times Rt}$$

Surface		Corner radius Feed rate per revolution				
Ra	**Rt**	**r = 0.2**	**r = 0.4**	**r = 0.8**	**r = 1.2**	**r = 1.6**
0.6	1.6	f = 0.05	f = 0.07	f = 0.10	f = 0.12	f = 0.14
1.6	4	f = 0.08	f = 0.11	f = 0.15	f = 0.19	f = 0.23
3.2	10	f = 0.12	f = 0.17	f = 0.24	f = 0.29	f = 0.36
6.3	16	f = 0.16	f = 0.22	f = 0.30	f = 0.37	f = 0.45

Wiper geometries for high-performance chip removal

Productivity can be substantially increased and product quality significantly improved with these optimized cutting geometries in combination with lasered chip breakers.

1) 2 to 4-times higher feed rate = same surface quality
2) Same feed rate = 2 to 4-times better surface quality



A large number of cutting insert types with wiper geometry is available for high-performance chip removal during internal and external turning. They have a trailing edge between the line of tangency and lateral cutting edge which brings about a minor cutting edge with a 0° angle of attack.

Even with a 2 – 4 times higher feed rate, the same surface quality will be achieved. By reducing the machining time, optimal chip control and increasing durability, productivity can be increased and costs reduced.

When using wiper geometries please note:

The angle of attack must be maintained precisely as otherwise the desired trailing edge effect will not occur and a good surface finish will not be achieved:

CCGW / T	DCGW / T	EPGW / T
95°	93°	93°

It is important to note the cutting direction, as the wiper geometries depend on the trailing edge for direction. Only in this way can the desired surface quality and optimal flow of chips be achieved. When face turning, work from large to small diameter.

Due to the geometric design of the cutting edge the result will be contour deformation in the case of radii, bevels, chamfers and relief grooves.

Advantages of wiper geometries

- Better surface quality with same machining parameters
- Higher feed rates – rough machining and finishing possible with one cutting insert
- Better chip breaking thanks to higher feed rates

Higher feed rates reduce the intervention time per piece and therefore significantly improve the wear properties and durability.

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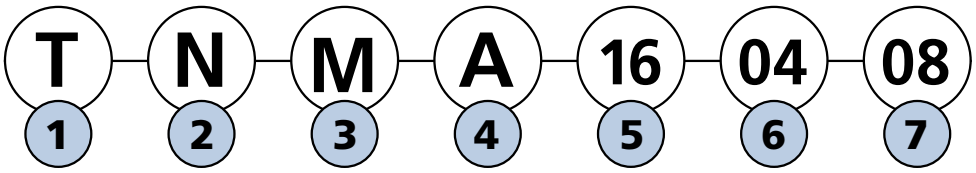
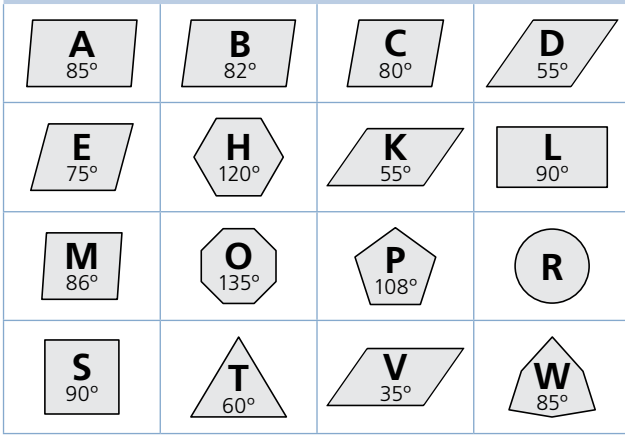
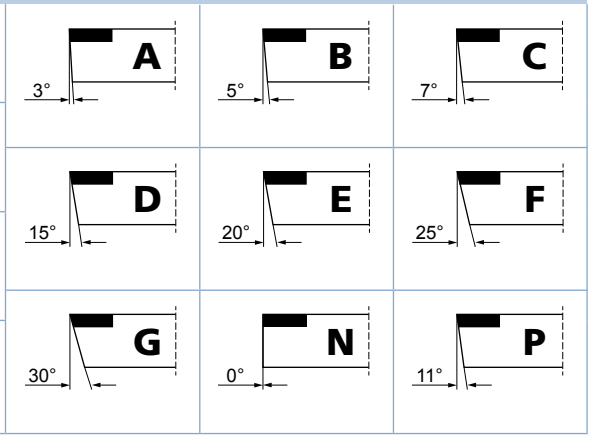
ISO-codes for indexable inserts



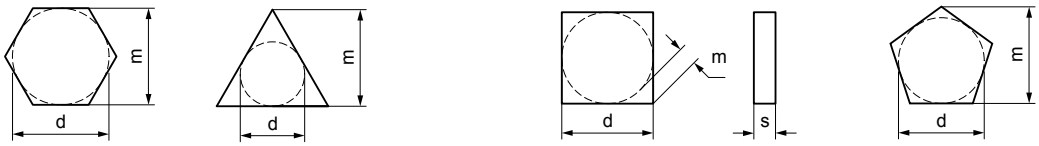
1 Basic shape



2 Clearance angle



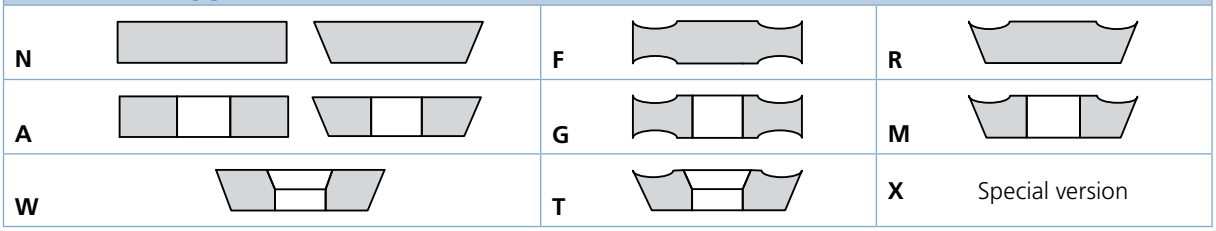
3 Tolerance in mm



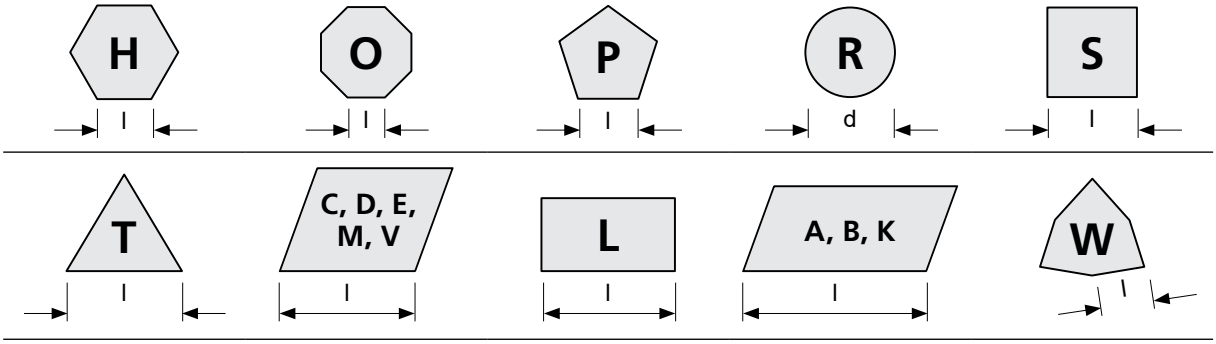
	m	s	d		m	s	d
A	±0.005	±0.025	±0.025	J	±0.005	±0.025	±0.05 – ±0.15
F	±0.005	±0.025	±0.013	K	±0.013	±0.025	±0.05 – ±0.15
C	±0.013	±0.025	±0.025	L	±0.025	±0.025	±0.05 – ±0.15
H	±0.013	±0.025	±0.013	M[1)]	±0.08 – ±0.20	±0.130	±0.05 – ±0.15
E	±0.005	±0.025	±0.025	N[1)]	±0.08 – ±0.20	±0.25	±0.05 – ±0.15
G	±0.025	±0.130	±0.025	U[1)]	±0.13 – ±0.38	±0.130	±0.08 – ±0.15

[1)] The precise tolerance depends on the size of the cutting insert.

4 Insert type



5 Cutting insert size



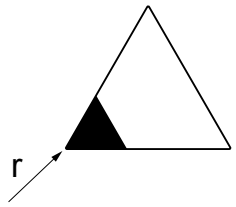
6 Thickness in mm

01 s = 1.59	
T1 s = 1.98	
02 s = 2.38	
03 s = 3.18	
T3 s = 3.97	
04 s = 4.76	
05 s = 5.56	
06 s = 6.35	

A zero is put in front of numbers under 10. Decimal places are not taken into account. (e.g.: 3.18 = 03)

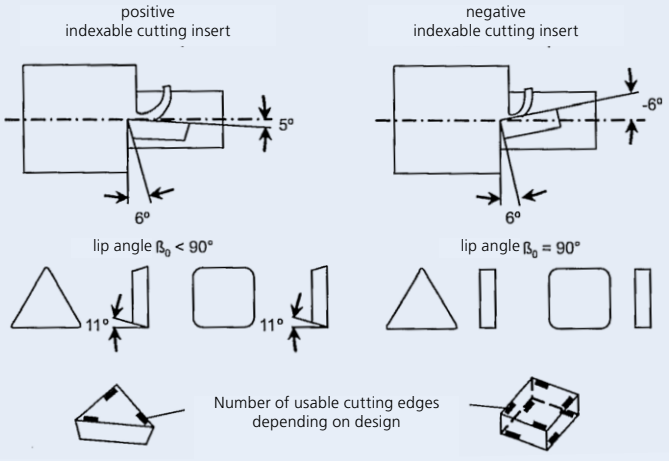
7 Cutting corner

1) Radius	
00 = sharp angle	
02 = 0.2	
04 = 0.4	
08 = 0.8	
12 = 1.2	
16 = 1.6	
00 = round insert (inches)	
M0 = round insert (metric)	
2) Milling geometry	
Angle of adjustment of main cutting edge to face cutting edge	Clearance angle of face cutting edge
A – 45°	A – 3°
D – 60°	D – 5°
E – 75°	E – 7°
F – 85°	F – 15°
P – 90°	P – 20°



Please note:

A distinction is made between positive and negative cutting inserts. The criterion for this is the size of the chip angle when clamped, in other words the machining position. If there is a positive chip angle, the insert is described as positive and with a negative chip angle it is negative insert (please see diagram on right). Positive cutting inserts only have usable cutting edges on the upper side. Indexable inserts for clamps with positive chip angles incorporated are provided with clearance angles. If, as shown in the drawing to the right, the clearance angle of the insert is 11° (lip angle ß = 79°) and the chip angle of the holder is +5, then the clearance angle when the tool is in use is 6°. Negative indexable cutting inserts have a lip angle of 90°, whereby there are cutting edges on both the upper and lower sides of the insert.



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Chip breakers: geometries and cutting data

Chip breaker geometry	Property	Application area
CB - P	Positive geometry	• Finishing with medium to high feed rates • Rough machining and finishing in one operation • Low cutting pressure for filigree components, very good surface finishes
CB - N	Negative geometry	• General chip removal, stable, sharp cutting edge • For large cutting depths and feed rates • Best surfaces due to negative bevel

Cutting data for 3D chip breakers								
Corner radius (mm)	CB -P [Positiv]				CB - N [Negativ]			
	ap min [mm]	ap max [mm]	f min [mm/U]	f max [mm/U]	ap min [mm]	ap max [mm]	f min [mm/U]	f max [mm/U]
0.2	0.08	1.00	0.02	0.10	0.20	2.80	0.08	0.10
0.4	0.15	1.50	0.04	0.20	0.50	2.80	0.12	0.20
0.8	0.20	2.00	0.08	0.40	0.70	2.80	0.25	0.40
1.2	0.30	2.50	0.12	0.60	0.90	2.80	0.30	0.60

Workpiece material	Chip breakers geometry	Cutting speed [m/min] Vc min.	Vc max.
Aluminum forged alloys	CB - P / CB - N	350	5‘000
Hypo eutectic aluminum	CB - P / CB - N	350	4‘000
Hyper eutectic aluminum	CB - P / CB - N	350	2‘000
Non-ferrous metals	CB - P / CB - N	280	2‘500
CFK and GFK	CB - P / CB - N	280	1‘200
Plastics, fiber reinforced composites	CB - P / CB - N	280	2‘000

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Monocrystalline diamond tools

2

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Introduction to diamond turning, milling and drilling tools

Introduction

Turning tools made of monocrystalline diamond are used for ultra precision machining jobs. With notch-free polished diamond cutting edges, roughness depths ranging between 3 and 6 nanometers can be achieved.

By using polish turning, workpieces made of such non-ferrous metals as gold, silver, platinum, brass, aluminum, copper and gunmetal, as well as plastics such as acrylic (PA) and polycarbonate (PC) can be given surfaces comparable with that of a mirror. Any subsequent finishing work involving grinding or polishing is no longer necessary. Contours and dimensions are maintained exactly, even when compared with polishing.

Using machines specially designed for polish turning and our tools, surfaces with a surface finish Rz under 0.1 µm can be produced. No turning marks are noticeable, even when highly magnified.
Vibration-free lathes are a prerequisite for the production of technically and visually high-quality surfaces, for example in laser mirrors with special requirements with regard to evenness, roughness depth and regularity.

Diamond tools can be used for the following processes with a rotatory main movement:

- Turning (internal and external turning, polish and cut-off turning)
- Milling
- Drilling

Illustrated on the following pages are various diamond shapes. We know from our many years of experience that, as a rule, diamond tools are custom products. We would be only too pleased to offer you information about the advantages of monocrystalline diamond tools and assist you in the development of a new tool. We can produce drawings for this purpose free-of-charge for you.

Please note:

- Diamond tools should be used exclusively in precision machines with good bearings. Only vibration-free working guarantees optimal results.
- If scratches appear on the workpiece because of fine breaks in the diamond cutting edge, the tool must be sharpened.
- The blunter the cutting edge, the greater the risk that the diamond will suddenly break, even if not impacted.
- The durability of diamonds depends on the type of alloy and surface of the workpiece, the cutting speed and feed depth of the tool. Therefore, no rule can be drawn up.
- Regular sharpening of a diamond tool by the manufacturer will lead to the optimal utilization of the diamond tool and significantly increase the service life of the diamonds.

Please note: Indexable inserts with monocrystalline diamonds are listed in Chapter 3.

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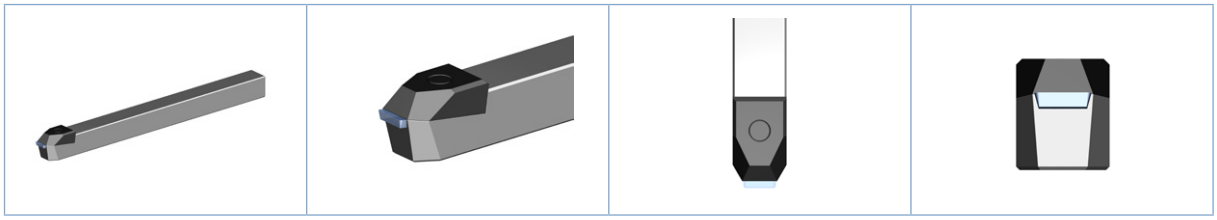
Standard diamond turning tools for polish turning

SANTRA external turning

Turning tools with SANTRA diamond cutting edges are molded and enable polish turning without leaving any feed marks. Apart from turning cylinder surfaces, SANTRA tools can also be used on the front edge, and as a drilling tool in certain cases.



Left-hand cutting version

Diamond cutting edge	Holder	Article No.
4	8x8x100	100.20.00749
4	10x10x100	100.20.00750
4	12x12x120	100.20.00751

Right-hand cutting version

Diamond cutting edge	Holder	Article No.
4	8x8x100	100.20.00754
4	10x10x100	100.20.00755
4	12x12x120	100.20.00756

Center-cutting version

Diamond cutting edge	Holder	Article No.
4	8x8x100	100.20.00759
4	10x10x100	100.20.00760
4	12x12x120	100.20.00761

Other dimensions and designs available on request.

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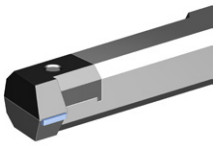
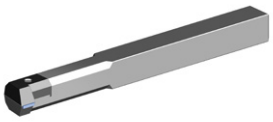
SANTRA internal turning

SANTRA diamond cutting edges can also be used for internal turning. We recommend this cutting edge only for machining relatively rough-walled workpieces and short drill holes.

Left-hand cutting version

Diamond cutting edge	Holder	Smallest drill hole Ø	Article No.
4	8x8x100	12	100.20.00769
4	10x10x100	14	100.20.00770
4	12x12x120	16	100.20.00771
4	16x16x160	20	100.20.00772
4	20x20x160	25	100.20.00773

Right-hand cutting version

Diamond cutting edge	Holder	Smallest drill hole Ø	Article No.
4	8x8x100	12	100.20.00779
4	10x10x100	14	100.20.00780
4	12x12x120	16	100.20.00781
4	16x16x160	20	100.20.00782
4	20x20x160	25	100.20.00783

Other dimensions and designs available on request.

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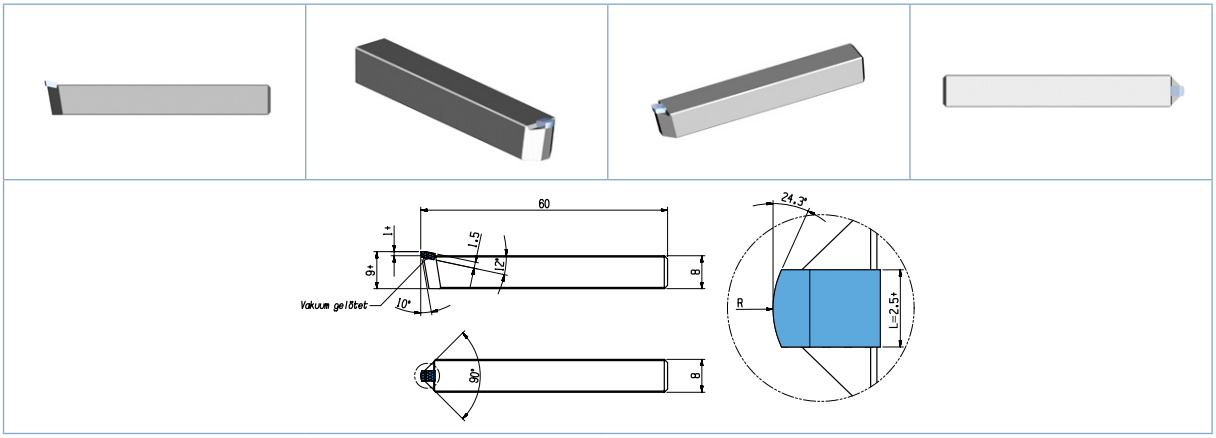
Diamond turning tools for the optical industry

Diamond turning tools are used in the optical industry for manufacturing reflective surfaces. Primarily laser, plastic and metal optics are machined with them.

Turning tool – solid carbide holder



Cutting edge width (L)	Radius (R)	Article No.
2.5	3	100.20.00815
2.5	5	100.20.00816
2.5	10	100.20.00817
2.5	20	100.20.00818
2.5	30	100.20.00819
2.5	50	100.20.00820
2.5	100	100.20.00821
2.5	200	100.20.00822

Other dimensions and designs available on request.

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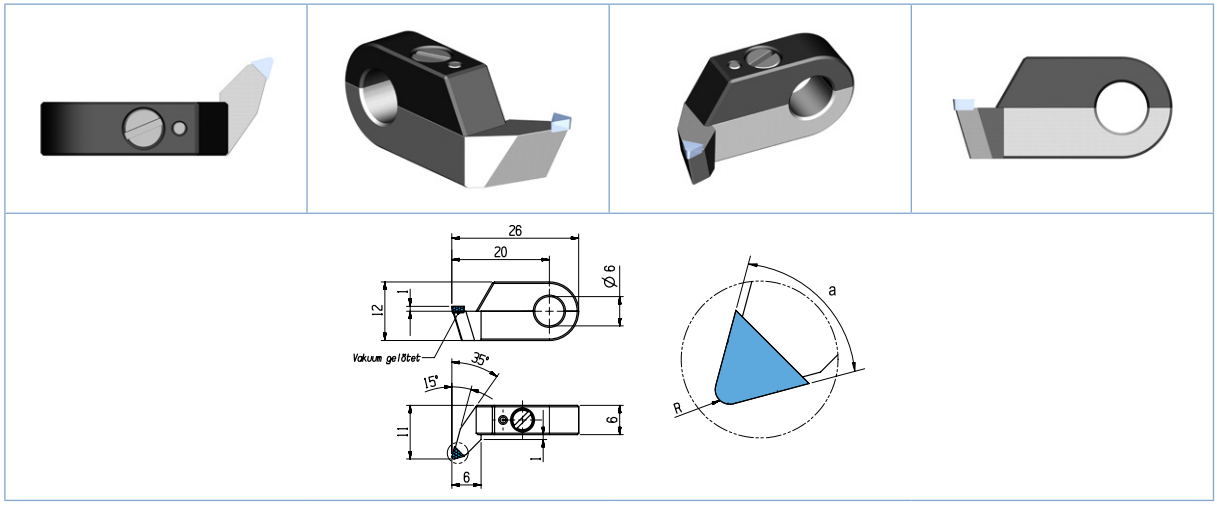
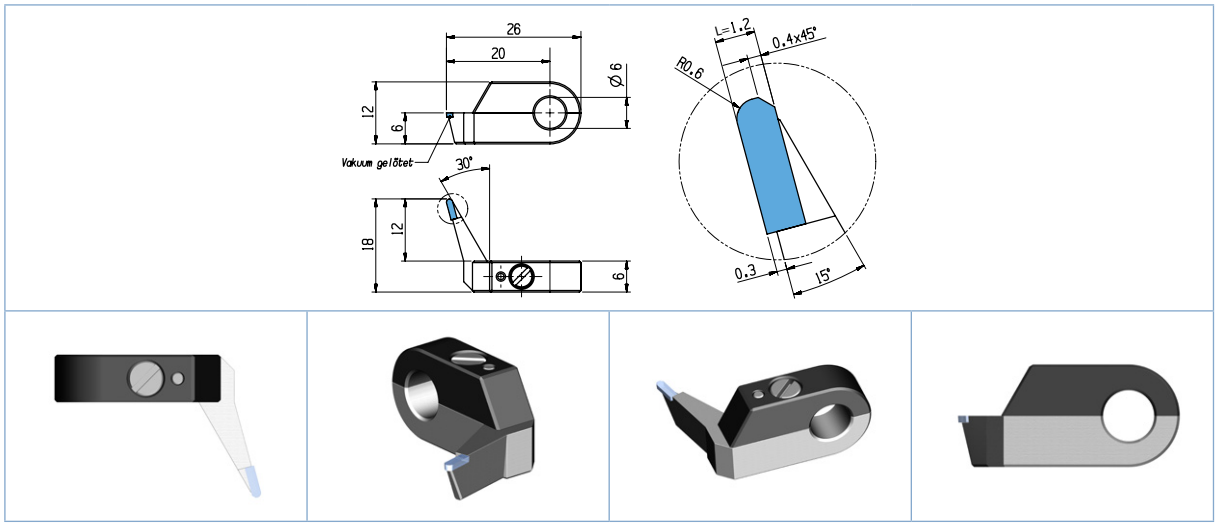
Fly cutting tool



Angle (a)	Radius (R)	Article No.
60°	0.05	100.20.00800
60°	0.2	100.20.00801
60°	0.5	100.20.00802
90°	0.05	100.20.00803
90°	0.2	100.20.00804
90°	0.5	100.20.00805

Other dimensions and designs available on request

Fly cutting tool



Cutting edge width (L)	Radius (R)	Article No.
1.2	0.6	100.20.00810

Other dimensions and designs available on request

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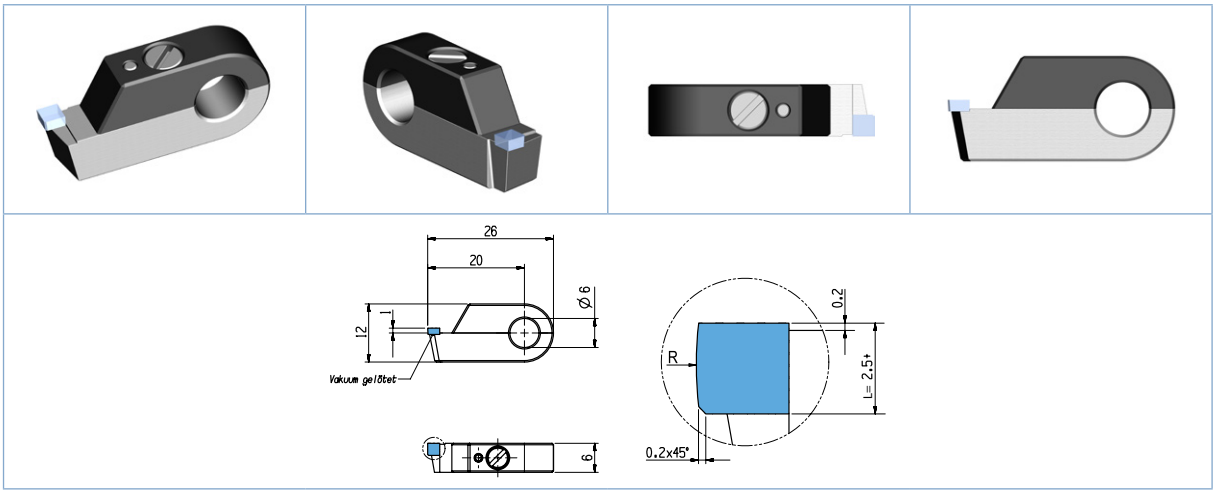
Fly Cutting Tools for the optical industry

Fly cutting tool – left-hand cutting



Cutting edge width (L)	Radius (R)	Article No.
2.5	5	100.20.00835
2.5	10	100.20.00836
2.5	20	100.20.00837
2.5	30	100.20.00838
2.5	50	100.20.00839
2.5	80	100.20.00840
2.5	100	100.20.00841
2.5	200	100.20.00842

Other dimensions and designs available on request

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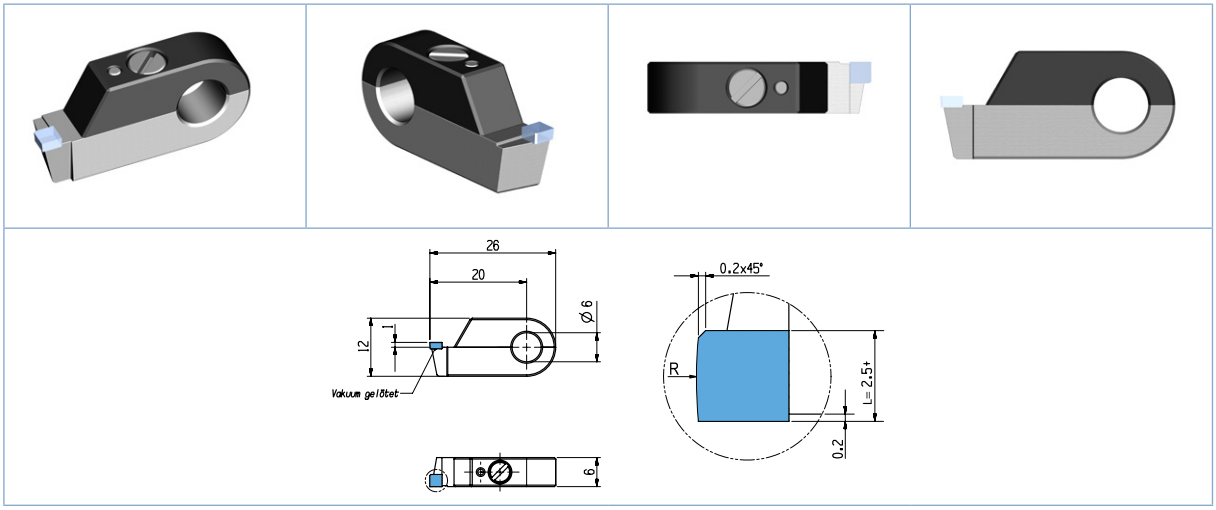
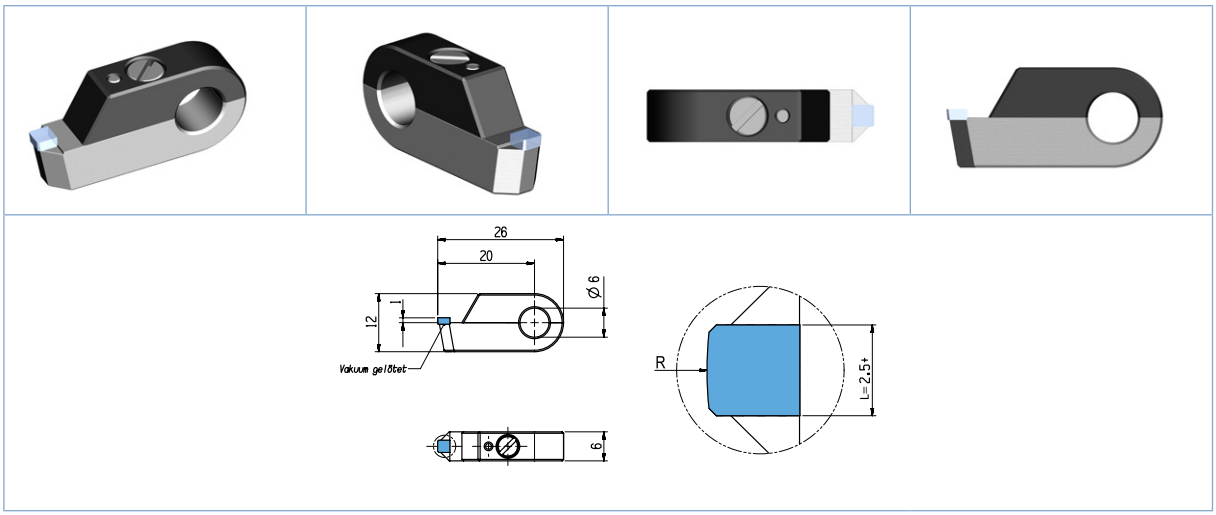
Fly cutting tool – right-hand cutting



Cutting edge width (L)	Radius (R)	Article No.
2.5	5	100.20.00820
2.5	10	100.20.00821
2.5	20	100.20.00822
2.5	30	100.20.00823
2.5	50	100.20.00824
2.5	80	100.20.00825
2.5	100	100.20.00826
2.5	200	100.20.00827

Fly cutting tool – center cutting



Cutting edge width (L)	Radius (R)	Article No.
2.5	5	100.20.00850
2.5	10	100.20.00851
2.5	20	100.20.00852
2.5	30	100.20.00853
2.5	50	100.20.00854
2.5	80	100.20.00855
2.5	100	100.20.00856
2.5	200	100.20.00857

Other dimensions and designs available on request

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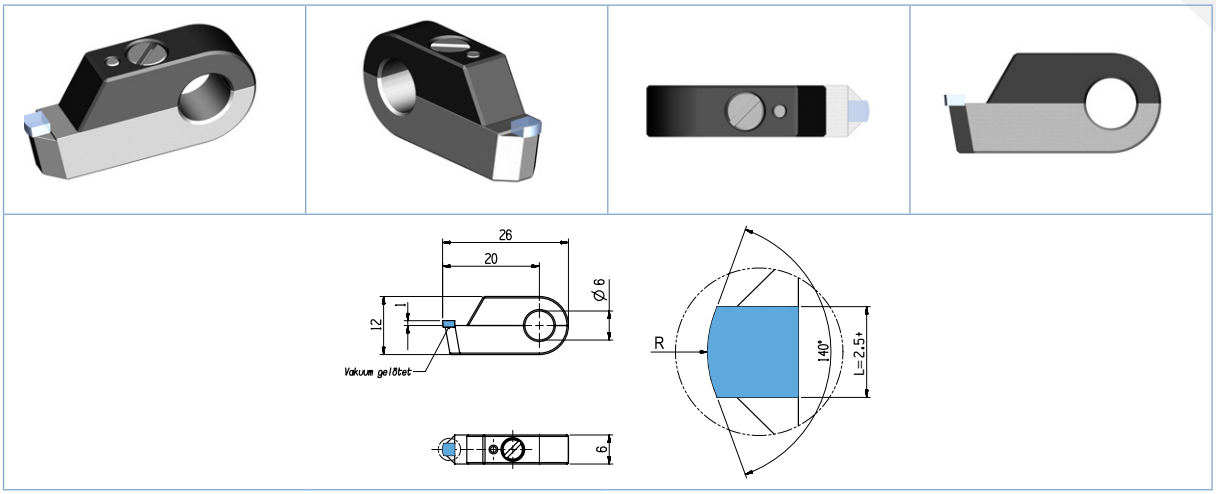
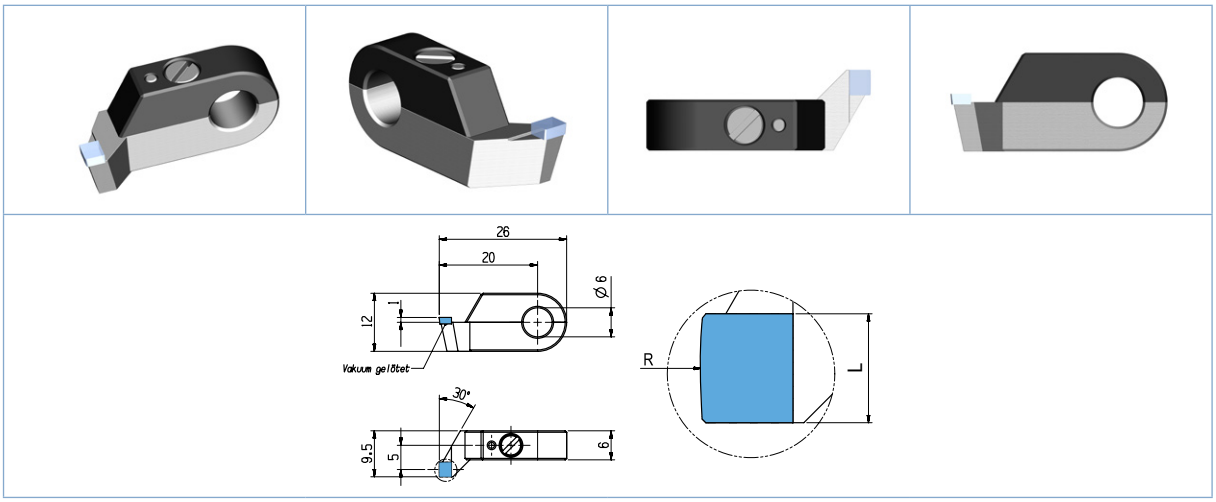
Fly cutting tool – center cutting



Cutting edge width (L)	Radius (R)	Article No.
2.5	2	100.20.00865
2.5	3	100.20.00866
2.5	5	100.20.00867
2.5	10	100.20.00868

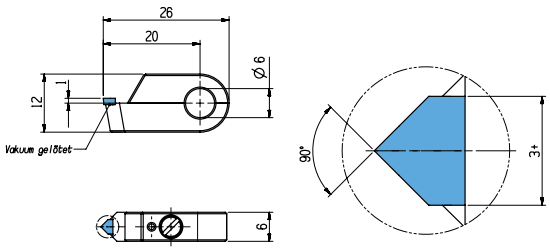
Fly cutting tool – right-hand cutting



Cutting edge width (L)	Radius (R)	Article No.
2.5	5	100.20.00875
2.5	10	100.20.00876
2.5	20	100.20.00877
2.5	30	100.20.00878
2.5	50	100.20.00879
2.5	80	100.20.00880
2.5	100	100.20.00881
2.5	200	100.20.00882
3.0	5	100.20.00883
3.0	10	100.20.00884
3.0	20	100.20.00885
3.0	30	100.20.00886

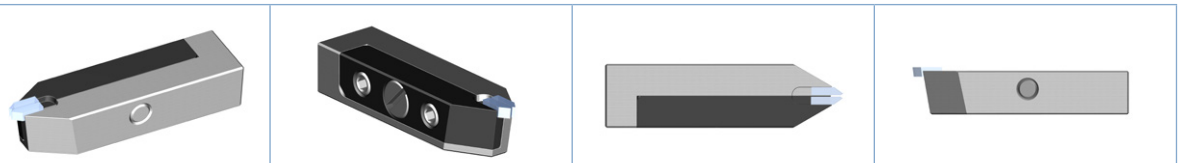
Other dimensions and designs available on request

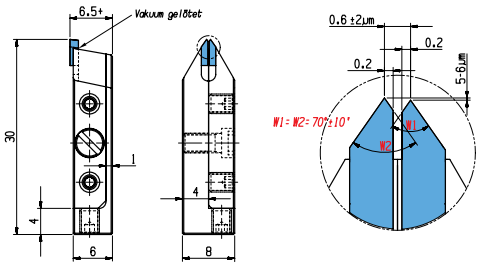
Fly cutting tool



Cutting edge width	Angle (a)	Standard tolerance	Article No.
3	90°	± 0.5°	100.20.00895

Special tool





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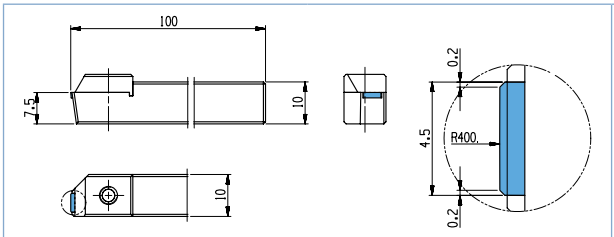
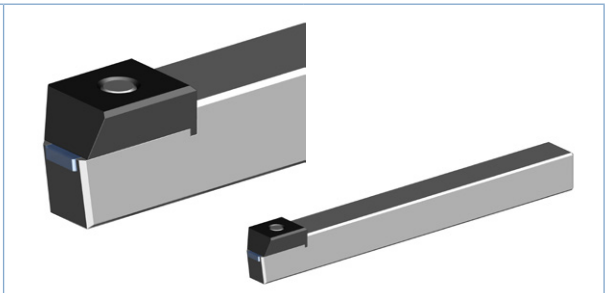
Turning diamonds for manufacturing wedding rings on Benzinger lathes

External machining

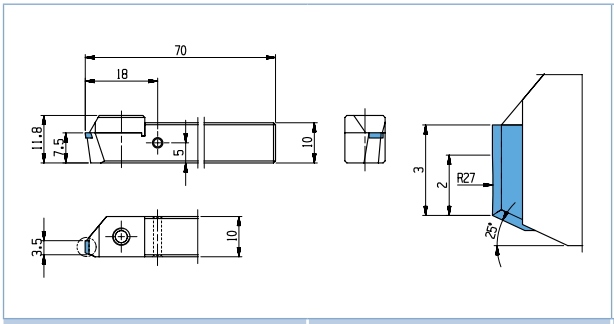
Plain turning diamonds TL 19

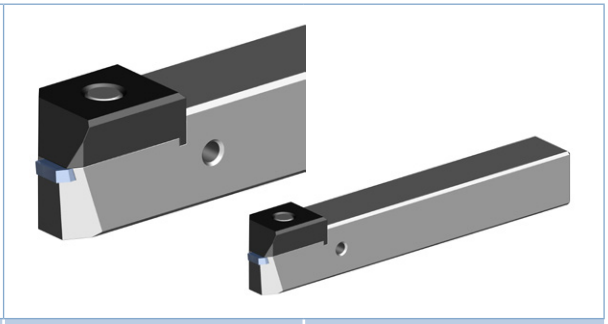




Cutting edge length	Radius	Shank	Article No.
4.5	400	10x10x100	100.20.00900

External radius turning diamonds TR 31

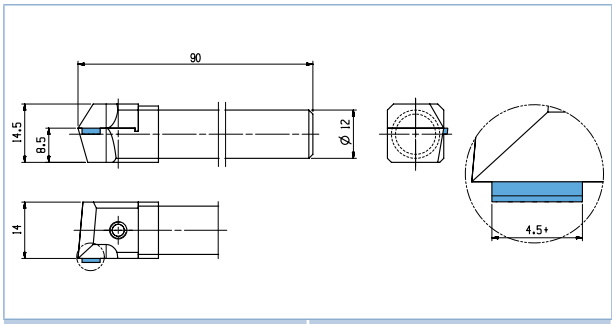


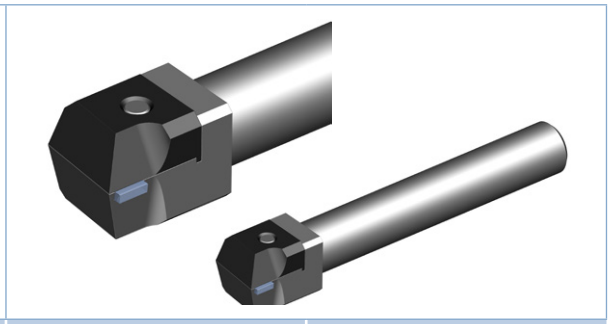


Cutting edge length	Radius	Shank	Article No.
3.5	27	10x10x70	100.20.00901

Other dimensions and designs available on request

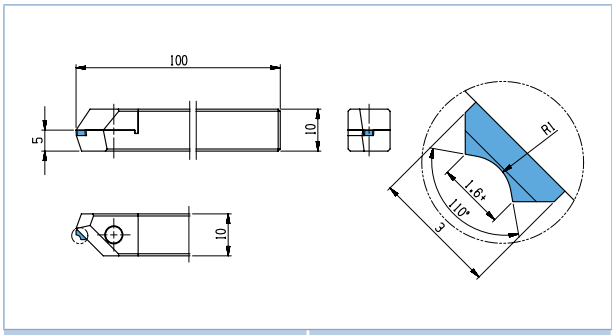
Side face turning diamonds FW-T0°

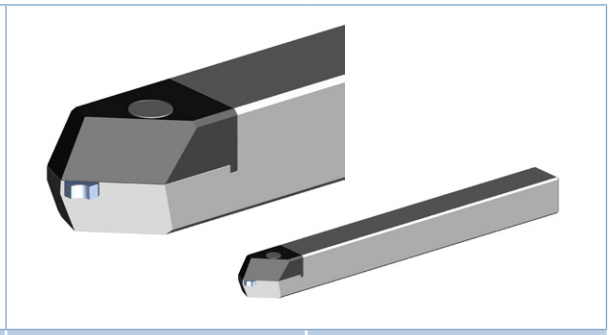




Cutting edge length	Radius	Shank	Article No.
4.5	180°	Ø 12 x 90	100.20.00902

External chamfer turning diamonds FW-TK45°

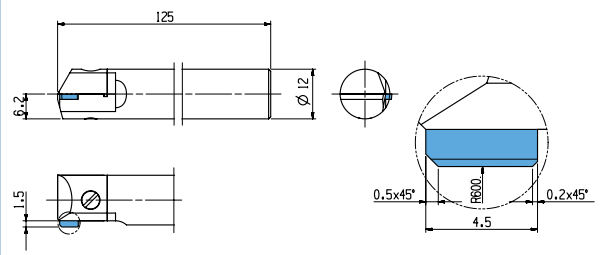


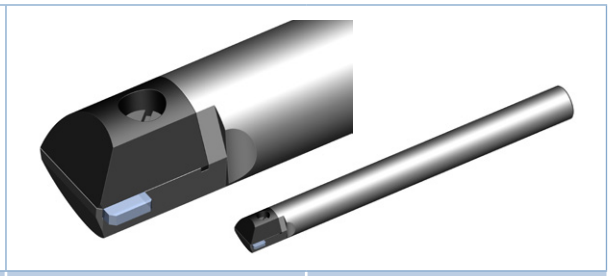


Cutting edge length	Radius	Shank	Article No.
3.0	1.0	10x10x100	100.20.00903

Internal machining

Internal plain turning diamonds T19





Cutting edge length	Radius	Shank	Article No.
4.5	400	Ø 12 x 125	100.20.00910

Other dimensions and designs available on request

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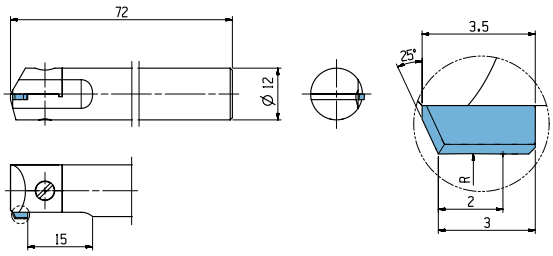
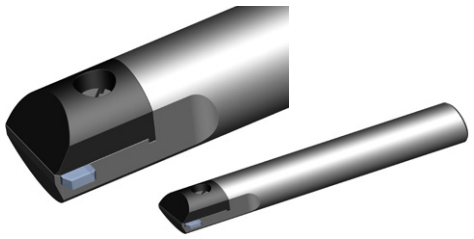
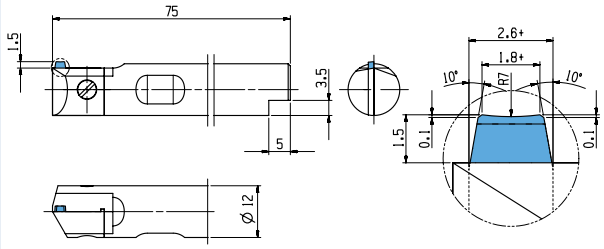
Internal radius turning diamonds T14

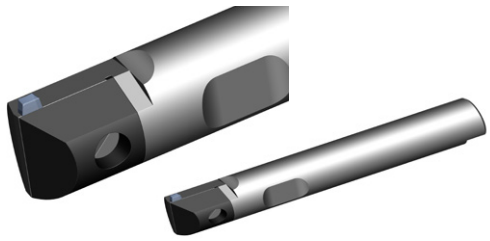




Cutting edge length	Radius	Shank	Article No.
3.50	50	Ø 12 x 72	100.20.00911
3.50	24	Ø 12 x 72	100.20.00912

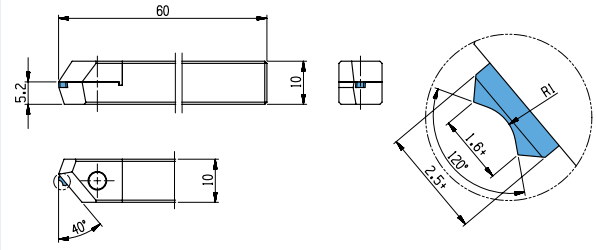
Internal radius turning diamonds (small radius support) KR8

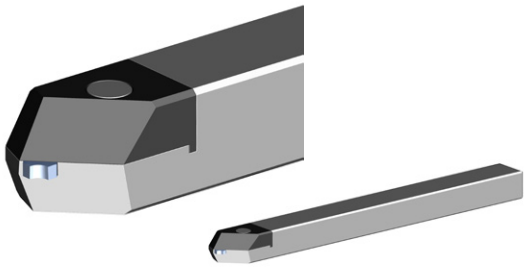




Cutting edge length	Radius	Shank	Article No.
2.50	7	Ø 12 x 75	100.20.00913

Internal chamfer turning diamonds FW-RK40°



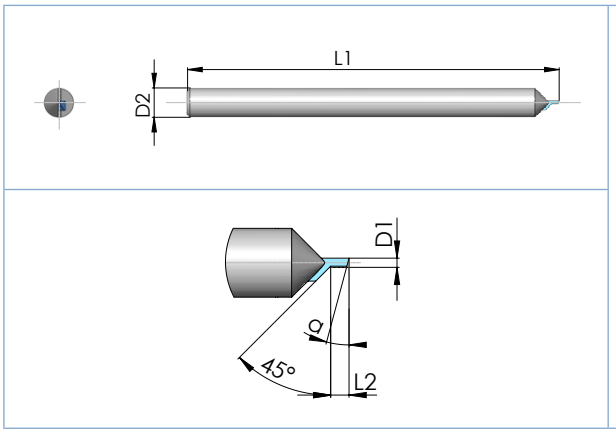


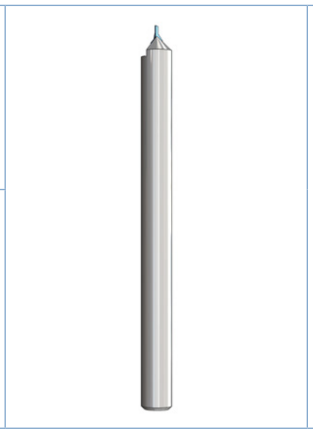
Cutting edge length	Radius	Shank	Article No.
3.0	1.0	10x10x60	100.20.00914

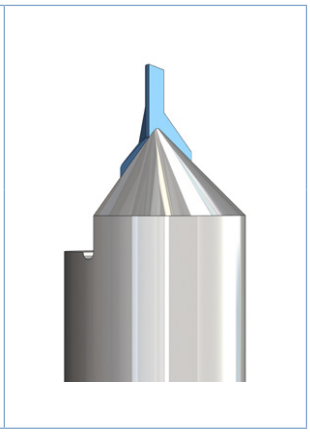
Other dimensions and designs available on request

Standard diamond milling tools

Minicutter







Minicutter angle (a) = 0°

D1	D2	L1	L2	Angle (a)	Article No.
0.10	3	40	0.10	0°	100.20.00001-0
0.20	3	40	0.20	0°	100.20.00002-0
0.30	3	40	0.30	0°	100.20.00003-0
0.40	3	40	0.40	0°	100.20.00004-0
0.50	3	40	0.50	0°	100.20.00005-0
0.60	3	40	0.60	0°	100.20.00006-0
0.80	3	40	0.80	0°	100.20.00007-0
0.90	3	40	0.90	0°	100.20.00008-0
1.00	3	40	1.00	0°	100.20.00009-0
1.20	3	40	1.20	0°	100.20.00010-0
1.30	3	40	1.30	0°	100.20.00011-0
1.40	3	40	1.40	0°	100.20.00012-0
1.50	3	40	1.50	0°	100.20.00013-0
1.60	3	40	1.60	0°	100.20.00014-0
1.70	3	40	1.70	0°	100.20.00015-0
1.80	3	40	1.80	0°	100.20.00016-0
1.90	3	40	1.90	0°	100.20.00017-0
2.00	3	40	2.00	0°	100.20.00018-0

Key

L1 = Total length
L2 = Cutting edge length
D1 = Cutting edge diameter Ø
D2 = Shank diameter Ø

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Minicutter angle (a) = 15°

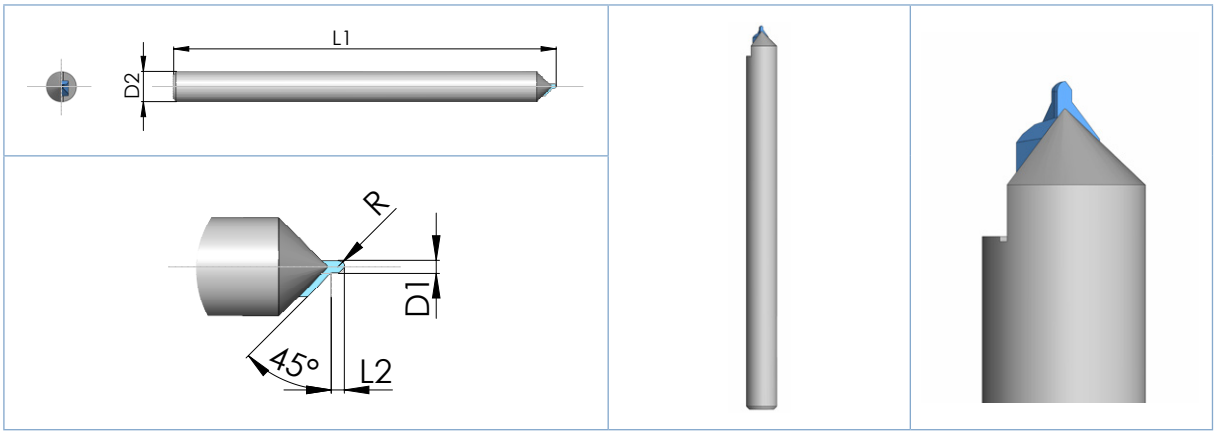
D1	D2	L1	L2	Angle (a)	Article No.
0.40	3	40	0.40	15°	100.20.00004-15
0.50	3	40	0.50	15°	100.20.00005-15
0.60	3	40	0.60	15°	100.20.00006-15
0.80	3	40	0.80	15°	100.20.00007-15
0.90	3	40	0.90	15°	100.20.00008-15
1.00	3	40	1.00	15°	100.20.00009-15
1.20	3	40	1.20	15°	100.20.00010-15
1.30	3	40	1.30	15°	100.20.00011-15
1.40	3	40	1.40	15°	100.20.00012-15
1.50	3	40	1.50	15°	100.20.00013-15
1.60	3	40	1.60	15°	100.20.00014-15
1.70	3	40	1.70	15°	100.20.00015-15
1.80	3	40	1.80	15°	100.20.00016-15
1.90	3	40	1.90	15°	100.20.00017-15
2.00	3	40	2.00	15°	100.20.00018-15

Minicutter angle (a) = 20°

D1	D2	L1	L2	Angle (a)	Article No.
0.40	3	40	0.40	20°	100.20.00004-20
0.50	3	40	0.50	20°	100.20.00005-20
0.60	3	40	0.60	20°	100.20.00006-20
0.80	3	40	0.80	20°	100.20.00007-20
0.90	3	40	0.90	20°	100.20.00008-20
1.00	3	40	1.00	20°	100.20.00009-20
1.20	3	40	1.20	20°	100.20.00010-20
1.30	3	40	1.30	20°	100.20.00011-20
1.40	3	40	1.40	20°	100.20.00012-20
1.50	3	40	1.50	20°	100.20.00013-20
1.60	3	40	1.60	20°	100.20.00014-20
1.70	3	40	1.70	20°	100.20.00015-20
1.80	3	40	1.80	20°	100.20.00016-20
1.90	3	40	1.90	20°	100.20.00017-20
2.00	3	40	2.00	20°	100.20.00018-20

Other dimensions and designs available on request

Minicutter with transverse radius (spherical cutter)



D1	D2	L1	L2	R	Article No.
0.10	3	40	0.1	0.05	100.20.00198
0.20	3	40	0.2	0.10	100.20.00199
0.30	3	40	0.3	0.15	100.20.00200
0.40	3	40	0.40	0.20	100.20.00201
0.50	3	40	0.50	0.25	100.20.00202
0.60	3	40	0.60	0.30	100.20.00203
0.80	3	40	0.80	0.40	100.20.00204
1.00	3	40	1.00	0.50	100.20.00205
1.20	3	40	1.20	0.60	100.20.00206
1.50	3	40	1.50	0.75	100.20.00207
1.60	3	40	1.60	0.80	100.20.00208
1.80	3	40	1.80	0.90	100.20.00209
2.00	3	40	2.00	1.00	100.20.00210

Key
L1 = Total length
L2 = Cutting edge length
L3 = Clearance
D1 = Cutting edge diameter Ø
D2 = Shank diameter Ø
R = Radius

Other dimensions and designs available on request

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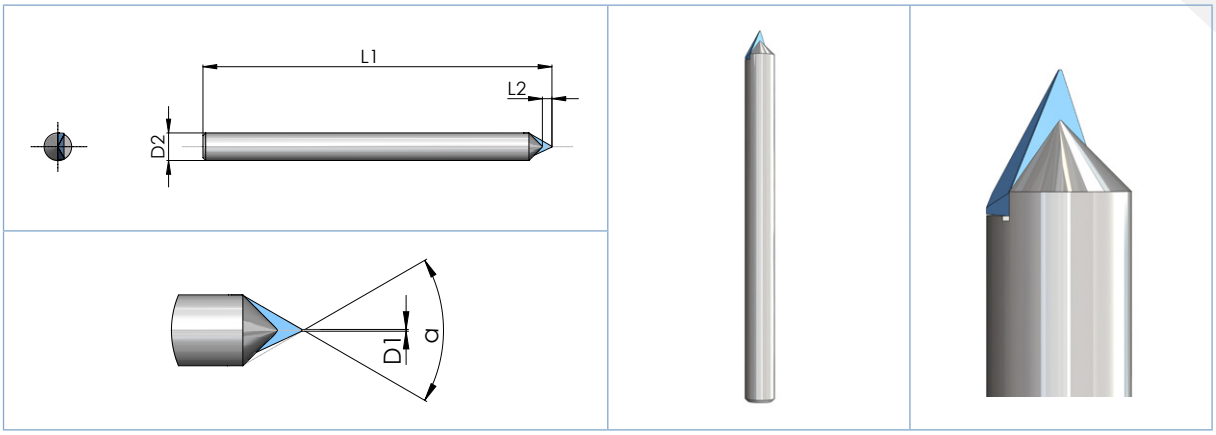
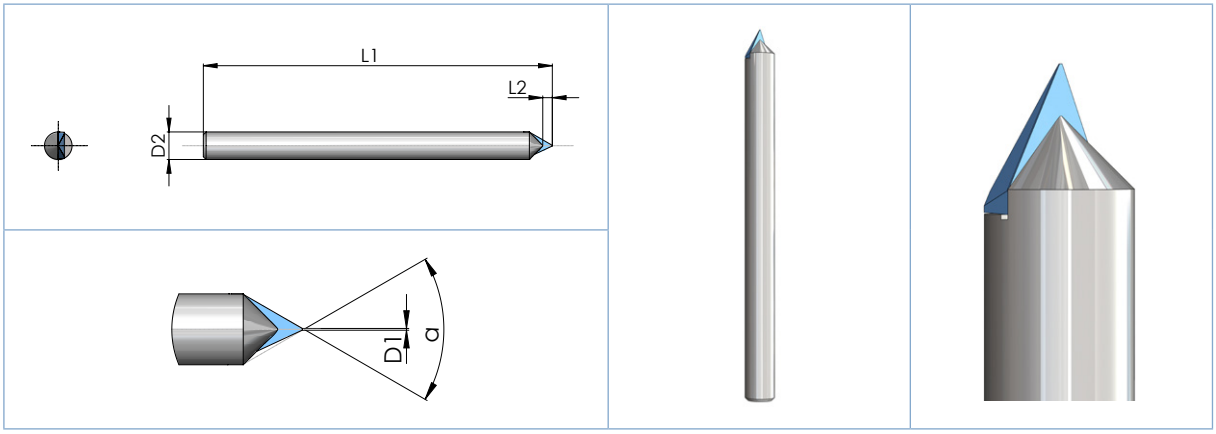
Diamond engraving milling cutter



D1	D2	L1	Angle (a)	Article No.
0.20	3.0	40	20°	100.20.00302
0.05	3.0	40	30°	100.20.00303
0.10	3.0	40	30°	100.20.00304
0.15	3.0	40	30°	100.20.00305
0.20	3.0	40	30°	100.20.00306
0.30	3.0	40	30°	100.20.00307
0.05	3.0	40	40°	100.20.00308
0.10	3.0	40	40°	100.20.00309
0.15	3.0	40	40°	100.20.00310
0.20	3.0	40	40°	100.20.00311
0.30	3.0	40	40°	100.20.00312
0.05	3.0	40	50°	100.20.00313
0.10	3.0	40	50°	100.20.00314
0.15	3.0	40	50°	100.20.00315
0.20	3.0	40	50°	100.20.00316
0.30	3.0	40	50°	100.20.00317
0.05	3.0	40	60°	100.20.00318
0.10	3.0	40	60°	100.20.00319
0.15	3.0	40	60°	100.20.00320
0.20	3.0	40	60°	100.20.00321
0.30	3.0	40	60°	100.20.00322
0.05	3.0	40	90°	100.20.00323
0.10	3.0	40	90°	100.20.00324
0.15	3.0	40	90°	100.20.00325
0.20	3.0	40	90°	100.20.00326
0.30	3.0	40	90°	100.20.00327
0.05	6.0	50	60°	100.20.00328
0.10	6.0	50	60°	100.20.00329
0.15	6.0	50	60°	100.20.00330
0.20	6.0	50	60°	100.20.00331
0.30	6.0	50	60°	100.20.00332
0.05	6.0	50	90°	100.20.00333
0.10	6.0	50	90°	100.20.00334
0.15	6.0	50	90°	100.20.00335
0.20	6.0	50	90°	100.20.00336
0.30	6.0	50	90°	100.20.00337

Other dimensions and designs available on request

Diamond engraving milling cutter



D1	D2	L1	Angle (a)	Article No.:
0.10	4	30	30°	100.20.01100
0.10	4	30	35°	100.20.01101
0.10	4	30	40°	100.20.01102
0.05	4	30	50°	100.20.01103
0.05	4	30	60°	100.20.01104
0.02	4	30	70°	100.20.01105
0.02	4	30	80°	100.20.01106
0.02	4	30	90°	100.20.01107
0.02	4	30	120°	100.20.01108
0.10	5	30	30°	100.20.01109
0.10	5	30	35°	100.20.01110
0.10	5	30	40°	100.20.01111
0.05	5	30	50°	100.20.01112
0.05	5	30	60°	100.20.01113
0.02	5	30	70°	100.20.01114
0.02	5	30	80°	100.20.01115
0.02	5	30	90°	100.20.01116
0.02	5	30	120°	100.20.01117
0.10	6	30	30°	100.20.01118
0.10	6	30	35°	100.20.01119
0.10	6	30	40°	100.20.01120
0.05	6	30	50°	100.20.01121
0.05	6	30	60°	100.20.01122
0.02	6	30	70°	100.20.01123
0.02	6	30	80°	100.20.01124
0.02	6	30	90°	100.20.01125
0.02	6	30	120°	100.20.01126

Other dimensions and designs available on request

Cutting data

Cutting data	Vc m/min
Brass	110-200
Gold	90-150
Aluminum	120-250
Silver	90-110
Platinum	70-90

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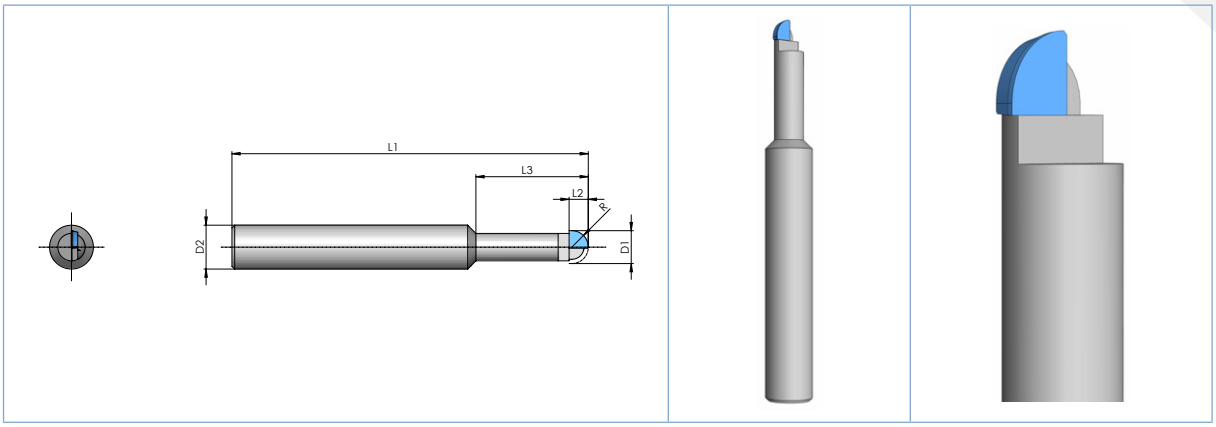
Diamond radius cutter

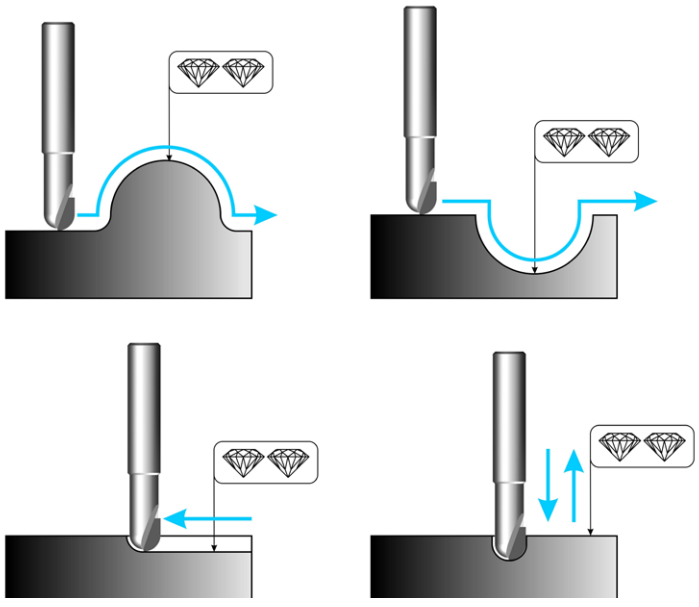


D1	D2	L1	L2	L3	R	Article No.
3	5	60	2.0	6	1.5	100.20.00402
4	6	65	2.5	8	2	100.20.00403
5	6	65	3.0	15	2.5	100.20.00404
6	8	65	3.5	20	3	100.20.00405
8	10	65	4.5	25	4	100.20.00406
10	12	75	5.5	35	5	100.20.00407

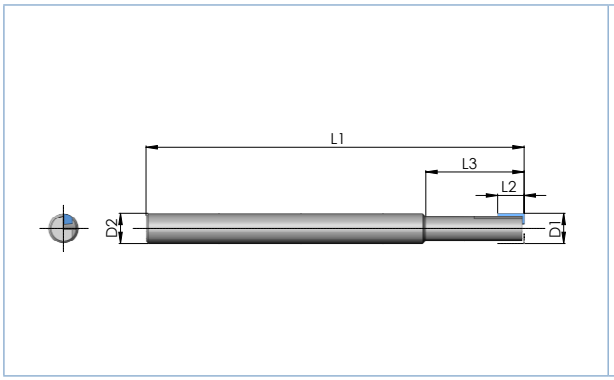
Key

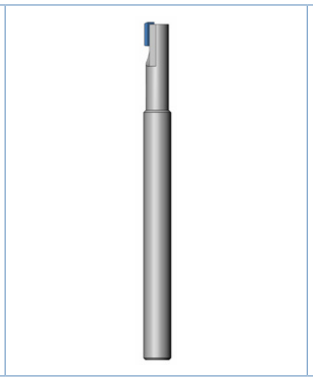
L1 = Total length
L2 = Cutting edge length
L3 = Clearance
D1 = Cutting edge diameter Ø
D2 = Shank diameter Ø
R = Radius

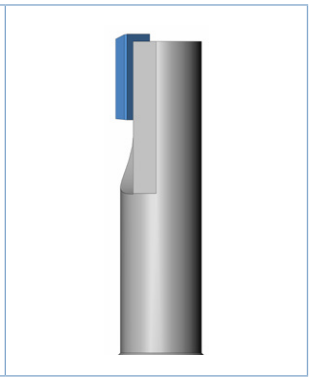
Other dimensions and designs available on request



Diamond end mill cutters / MCD end mill cutters







D1	D2	L1	L2	L3	Article No.
4.0	4.0	50	3.0	13	100.20.00600
4.0	4.0	50	4.0	13	100.20.00601
4.0	4.0	50	5.0	13	100.20.00602
4.0	4.0	50	6.0	13	100.20.00603
5.0	5.0	50	3.0	13	100.20.00604
5.0	5.0	50	4.0	13	100.20.00605
5.0	5.0	50	5.0	13	100.20.00606
5.0	5.0	50	6.0	13	100.20.00607
4.0	6.0	60	4.0	13	100.20.00608
4.0	6.0	60	5.0	13	100.20.00609
4.0	6.0	60	6.0	13	100.20.00610
6.0	6.0	60	4.0	13	100.20.00611
6.0	6.0	60	5.0	13	100.20.00612
6.0	6.0	60	6.0	26	100.20.00613
6.0	6.0	60	8.0	26	100.20.00614
6.0	8.0	60	6.0	26	100.20.00615
6.0	8.0	60	8.0	26	100.20.00616
6.0	8.0	60	10.0	26	100.20.00617
8.0	8.0	60	6.0	26	100.20.00618
8.0	8.0	60	8.0	26	100.20.00619
8.0	8.0	60	10.0	26	100.20.00620
8.0	8.0	60	11.0	26	100.20.00621
8.0	8.0	60	12.0	26	100.20.00622
8.0	8.0	65	6.0	26	100.20.00623
8.0	8.0	65	8.0	26	100.20.00624
8.0	8.0	65	10.0	26	100.20.00625
8.0	8.0	65	11.0	26	100.20.00626
10.0	10.0	65	8.0	26	100.20.00627
10.0	10.0	65	10.0	26	100.20.00628
10.0	10.0	65	11.0	26	100.20.00629
10.0	10.0	65	12.0	26	100.20.00630

Other dimensions and designs available on request

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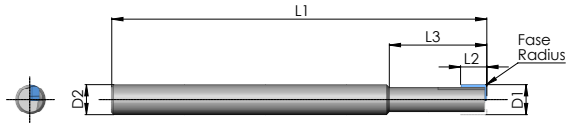
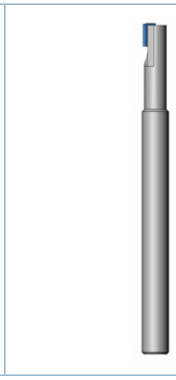
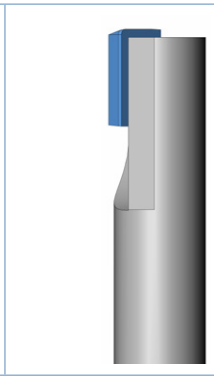
End mill cutter with bevel



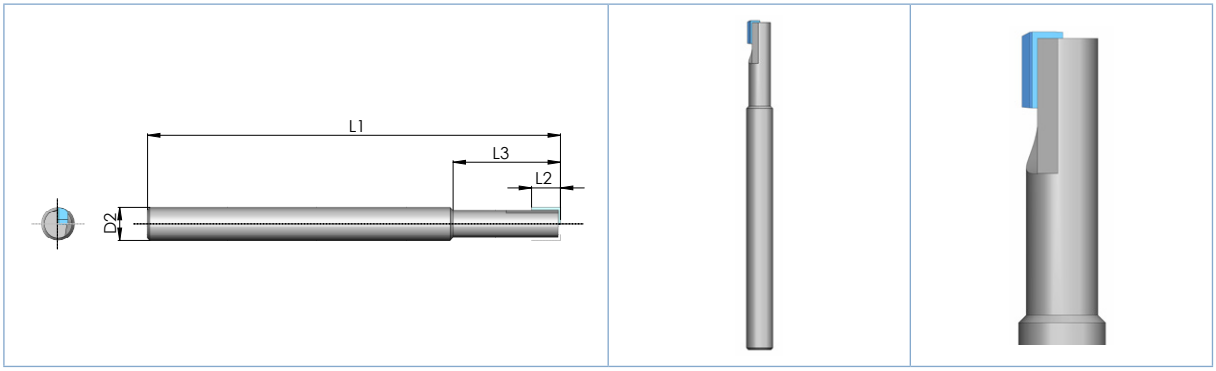




D1	D2	L1	L2	L3	Bestell-Nr.
4.0	4.0	50	3.0	13	100.20.00631
4.0	4.0	50	4.0	13	100.20.00632
4.0	4.0	50	5.0	13	100.20.00633
4.0	4.0	50	6.0	13	100.20.00634
5.0	5.0	50	3.0	13	100.20.00635
5.0	5.0	50	4.0	13	100.20.00636
5.0	5.0	50	5.0	13	100.20.00637
5.0	5.0	50	6.0	13	100.20.00638
4.0	6.0	60	4.0	13	100.20.00639
4.0	6.0	60	5.0	13	100.20.00640
4.0	6.0	60	6.0	13	100.20.00641
6.0	6.0	60	4.0	13	100.20.00642
6.0	6.0	60	5.0	13	100.20.00643
6.0	6.0	60	6.0	26	100.20.00644
6.0	6.0	60	8.0	26	100.20.00645
6.0	8.0	60	6.0	26	100.20.00646
6.0	8.0	60	8.0	26	100.20.00647
6.0	8.0	60	10.0	26	100.20.00648
8.0	8.0	60	6.0	26	100.20.00649
8.0	8.0	60	8.0	26	100.20.00650
8.0	8.0	60	10.0	26	100.20.00651
8.0	8.0	60	11.0	26	100.20.00652
8.0	8.0	60	12.0	26	100.20.00653
8.0	8.0	65	6.0	26	100.20.00654
8.0	8.0	65	8.0	26	100.20.00655
8.0	8.0	65	10.0	26	100.20.00656
8.0	8.0	65	11.0	26	100.20.00657
10.0	10.0	65	8.0	26	100.20.00658
10.0	10.0	65	10.0	26	100.20.00659
10.0	10.0	65	11.0	26	100.20.00660
10.0	10.0	65	12.0	26	100.20.00661

Other dimensions and designs available on request

MCD end mill cutter – center cutting



D1	D2	L1	L2	L3	Article No.
4.0	4.0	50	3.0	13	100.20.00661
4.0	4.0	50	4.0	13	100.20.00662
4.0	4.0	50	5.0	13	100.20.00663
4.0	4.0	50	6.0	13	100.20.00664
5.0	5.0	50	3.0	13	100.20.00665
5.0	5.0	50	4.0	13	100.20.00666
5.0	5.0	50	5.0	13	100.20.00667
5.0	5.0	50	6.0	13	100.20.00668
4.0	6.0	60	4.0	13	100.20.00669
4.0	6.0	60	5.0	13	100.20.00670
4.0	6.0	60	6.0	13	100.20.00671
6.0	6.0	60	4.0	13	100.20.00672
6.0	6.0	60	5.0	13	100.20.00673
6.0	6.0	60	6.0	26	100.20.00674
6.0	6.0	60	8.0	26	100.20.00675
6.0	8.0	60	6.0	26	100.20.00676
6.0	8.0	60	8.0	26	100.20.00677
6.0	8.0	60	10.0	26	100.20.00678

Other dimensions and designs available on request

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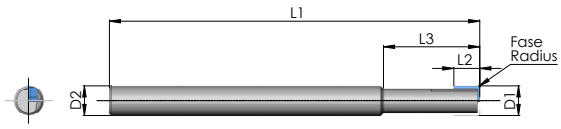
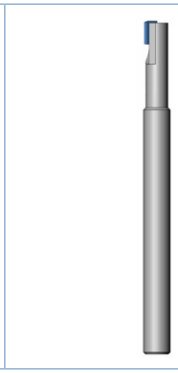
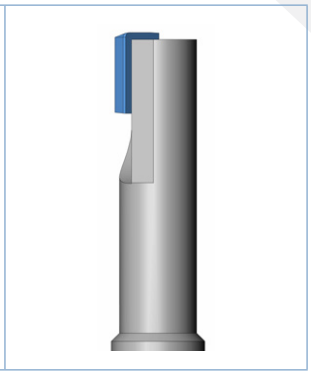
MCD end mill cutter with bevel, center cutting, corner radius







D1	D2	L1	L2	L3	Article No.
4.0	4.0	50	3.0	13	100.20.00679
4.0	4.0	50	4.0	13	100.20.00680
4.0	4.0	50	5.0	13	100.20.00681
4.0	4.0	50	6.0	13	100.20.00682
5.0	5.0	50	3.0	13	100.20.00683
5.0	5.0	50	4.0	13	100.20.00684
5.0	5.0	50	5.0	13	100.20.00685
5.0	5.0	50	6.0	13	100.20.00686
4.0	6.0	60	4.0	13	100.20.00687
4.0	6.0	60	5.0	13	100.20.00688
4.0	6.0	60	6.0	13	100.20.00689
6.0	6.0	60	4.0	13	100.20.00690
6.0	6.0	60	5.0	13	100.20.00691
6.0	6.0	60	6.0	26	100.20.00692
6.0	6.0	60	8.0	26	100.20.00693
6.0	8.0	60	6.0	26	100.20.00694
6.0	8.0	60	8.0	26	100.20.00695
6.0	8.0	60	10.0	26	100.20.00696

Other dimensions and designs available on request

Cutting Data

Recommended cutting data for diamond milling tools

$$n\ (tr/min) = \frac{Vc\ (m/min) \times 1000}{\pi \times Ø}$$

Vc = cutting speed m/min
n = rotational frequency r/min
π = 3.14
Ø = diameter

$$Vf\ (/min) = n\ (tr/min) \times fz \times z$$

vf = advance in mm/min
fz = advance per dent in mm (dent / turn)
z = number of dents
N = rotational frequency set in the machine tr/min

Recommended cutting data for monocrystalline diamond milling tools

Material to be machined	Vc m/min	Finishes a_p and a_e *
Copper alloy / Aluminum Bronze if chip removal difficult	300 – 700	0.05 – 0.08
Copper alloy / Aluminum Bronze if chip removal easy	400 – 800	0.05 – 0.08
Aluminum forged alloy / Magnesium alloy	500 – 2000	0.05 – 0.08
Aluminum – cast alloy	400 – 1200	0.05 – 0.08
Gold – Platinum – Silver	200 – 750	0.05 – 0.08
Plastic	500 – 1500	0.05 – 0.08

* a_p = Cutting depth / a_e = Cutting width

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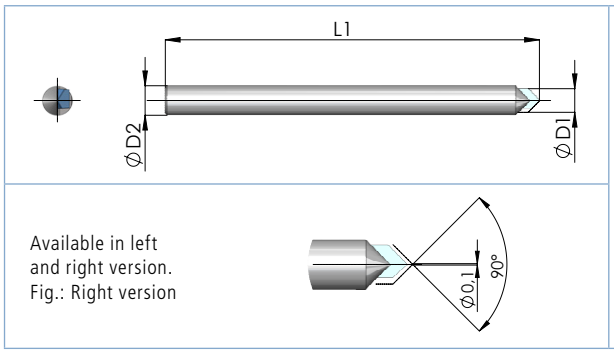
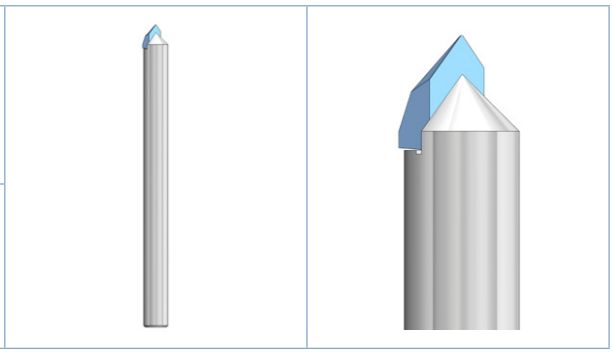
Standard diamond milling tools for the watchmaking industry

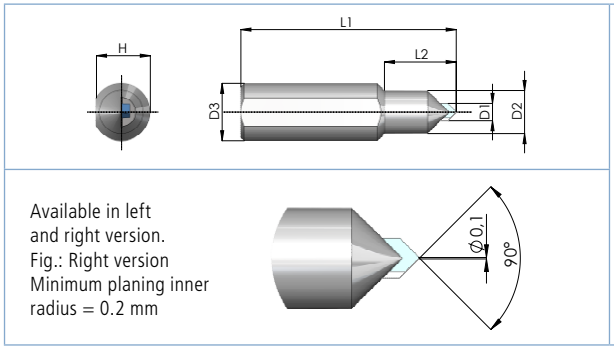
Chamfer tool (countersinking tool) – with carbide holder

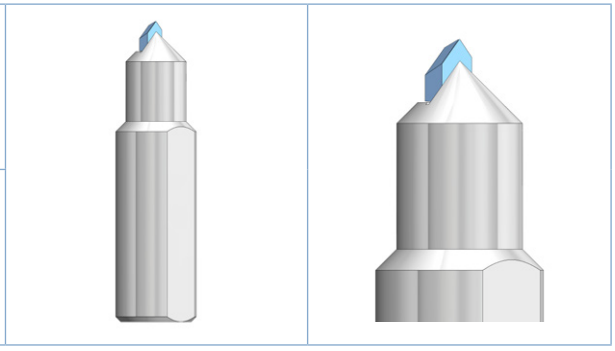




D1	D2	L1	Angle (a)	Article No. (right):
2	6	38	90°	100.20.01000
2	3	38	90°	100.20.01001

Diamond slicer





D1	D2	D3	L1	L2	H	Angle (a)	Article No. (right):
3	6	8	30	10	7.5	45°	100.20.01010
3	6	6	30	10	5.5	45°	100.20.01011
3	6	8	30	10	7.5	30°	100.20.01012
3	6	6	30	10	5.5	30°	100.20.01013

Cutting data

Material to be machined	Vc m/min
Brass	110-200
Gold	90-150
Aluminum	120-250
Silver	90-110
Platinum	70-90

Other dimensions and designs available on request

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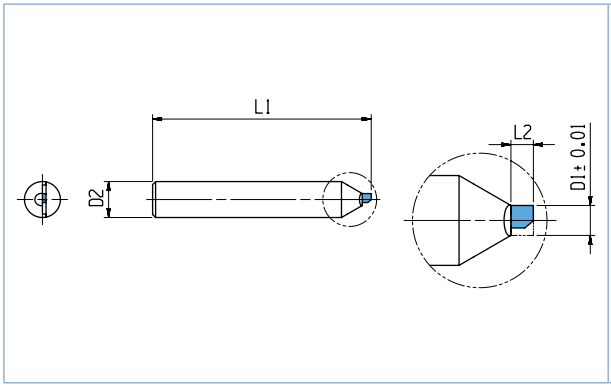
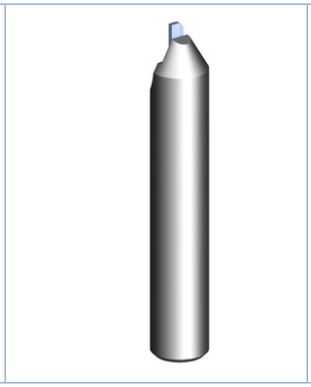
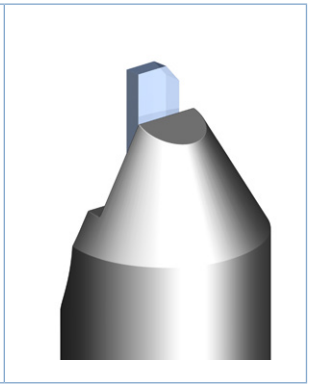
Single-tooth cutter







Ø D2	Ø D1	L1	L2	Article No.
6	0.30	38	0.3	100.20.01020
6	0.40	38	0.4	100.20.01021
6	0.50	38	0.5	100.20.01022
6	0.60	38	0.6	100.20.01023
6	0.80	38	0.7	100.20.01024
6	0.90	38	0.8	100.20.01025
6	1.00	38	1.0	100.20.01026
6	1.10	38	1.2	100.20.01027
6	1.20	38	1.2	100.20.01028
6	1.30	38	1.2	100.20.01029
6	1.40	38	1.3	100.20.01030
6	1.50	38	1.4	100.20.01031
6	1.60	38	1.4	100.20.01032
6	1.70	38	1.4	100.20.01033
6	1.80	38	1.4	100.20.01034
6	1.90	38	1.5	100.20.01035
6	2.00	38	2	100.20.01036
6	2.20	38	2	100.20.01037
6	2.50	38	2	100.20.01038
6	3.00	38	2	100.20.01039
6	3.50	38	2	100.20.01040
6	4.00	38	2	100.20.01041
6	5.00	38	2	100.20.01042
6	6.00	38	2	100.20.01043

Cutting data

Material to be machined	Vc m/min
Brass	110-200
Gold	90-150
Aluminum	120-250
Silver	90-110
Platinum	70-90

Other dimensions and designs available on request

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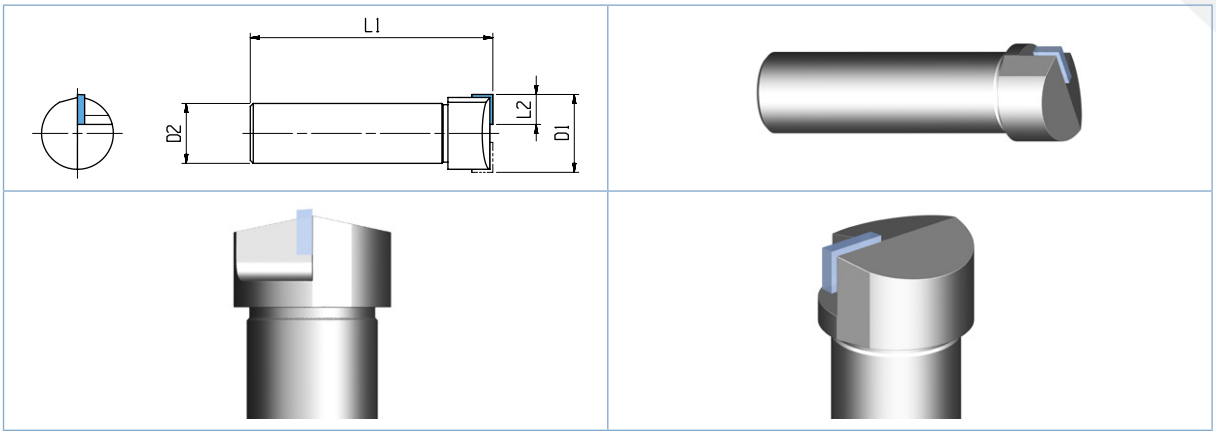
Face cutter



Carbide holder

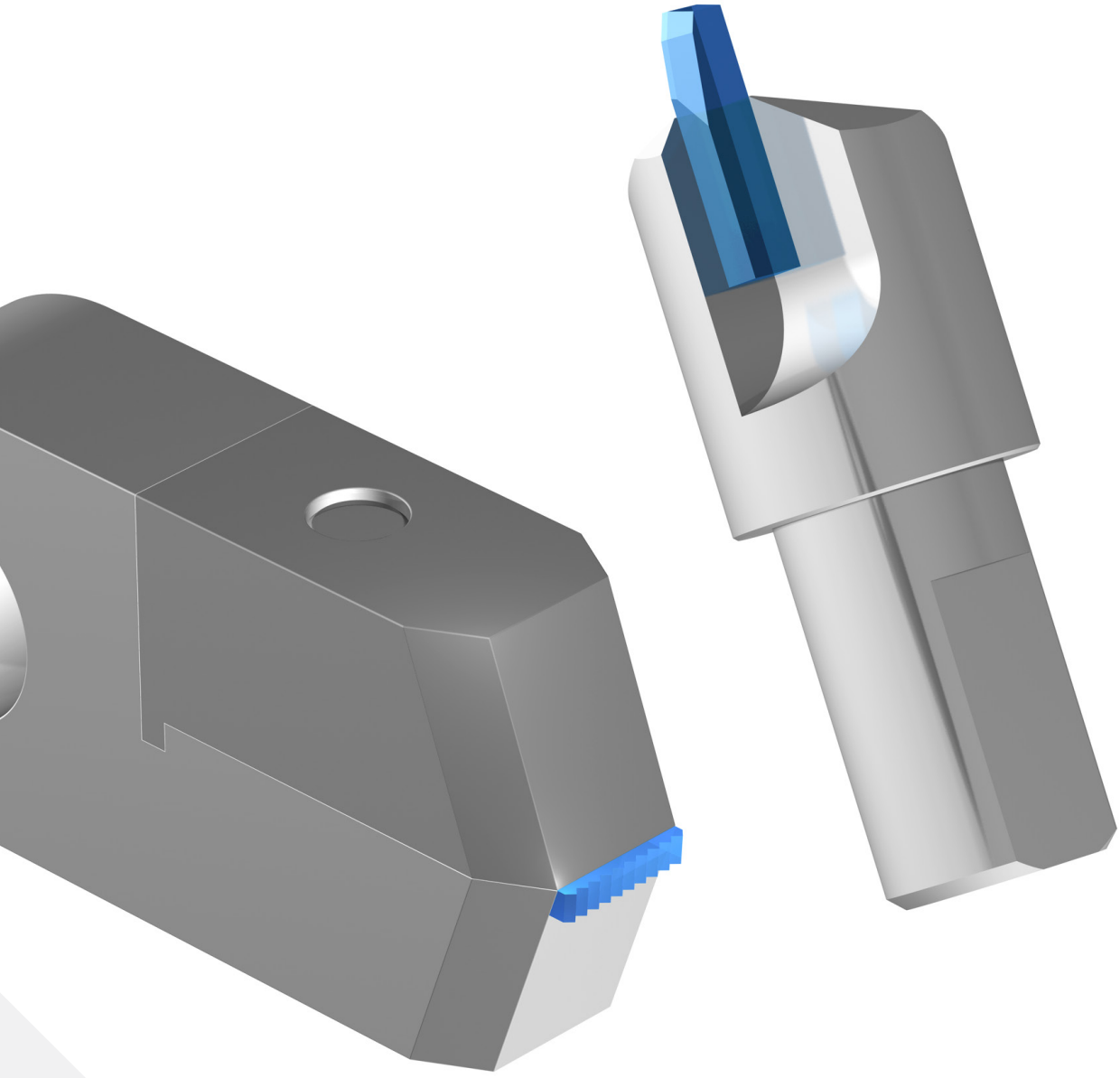
Ø D2	Ø D1	L1	L2	Article No.
3	4	32	2.0	100.20.01060
4	5	32	2.5	100.20.01061
5	6	32	3.0	100.20.01062
6	7	32	3.5	100.20.01063
6	8	32	4.0	100.20.01064
6	9	32	4.5	100.20.01065
6	10	32	5.0	100.20.01066
8	11	32	5.5	100.20.01067
8	12	32	6.0	100.20.01068

Other dimensions and designs available on request

Diamond tools: Special designs

Illustrated on the following pages are various cutting edge designs.

These illustrations should provide an overview of what geometries can be manufactured.



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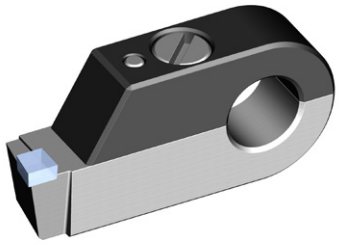
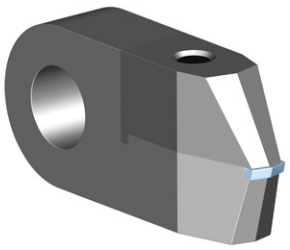
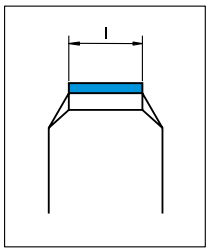
Diamond turning tool designs

High-vacuum soldered diamond tool

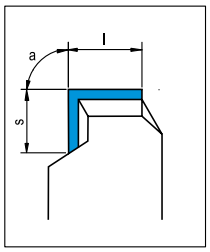


Diamond tool with screw

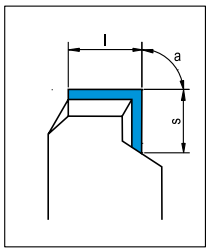




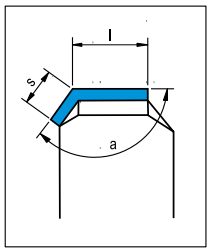
101



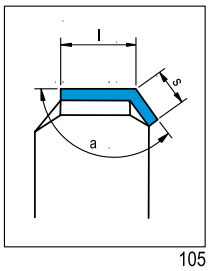
102



103



104



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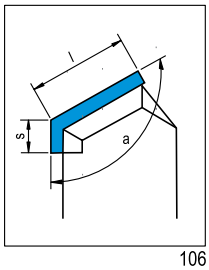
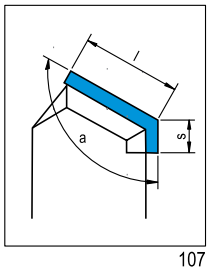


106



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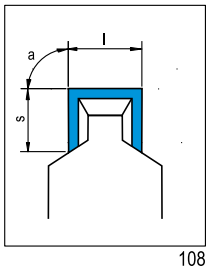

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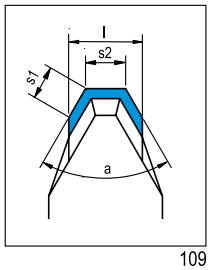
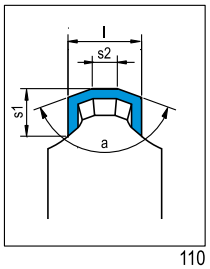
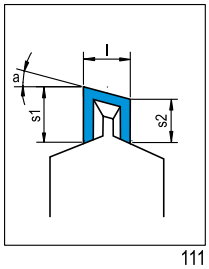


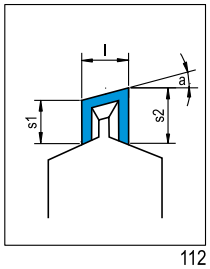
109



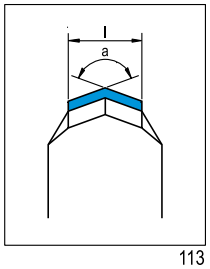
110



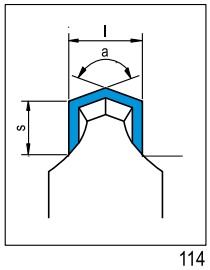
111



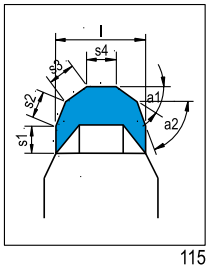
112



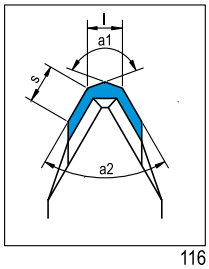
113



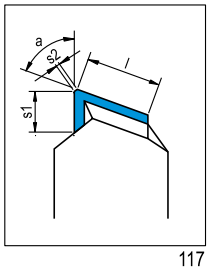
114



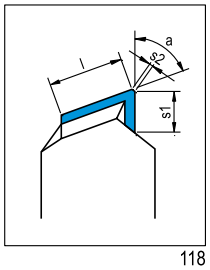
115



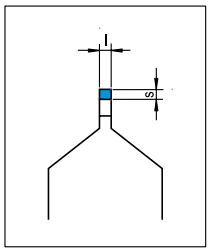
116



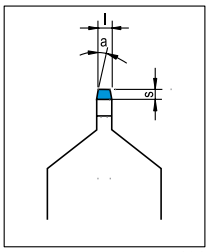
117



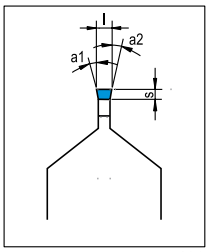
118



130



131



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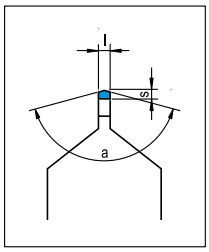

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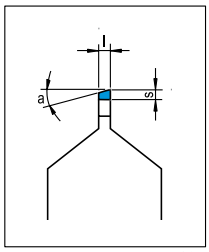

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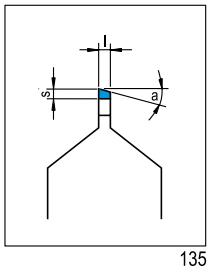

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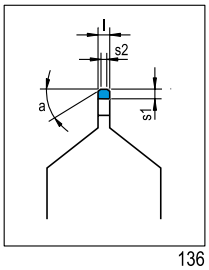

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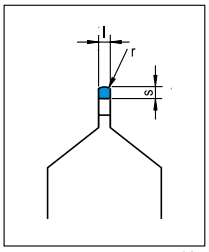

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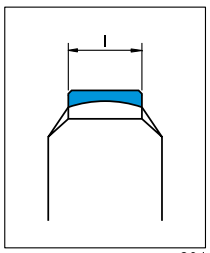

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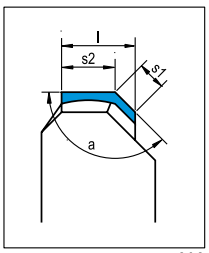

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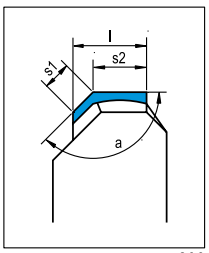

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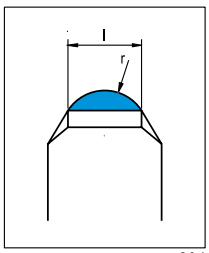

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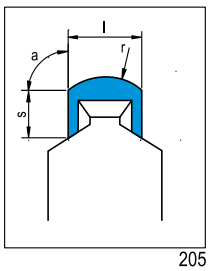

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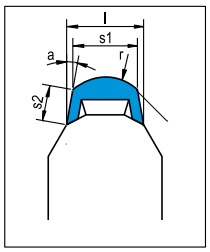

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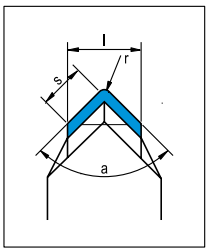

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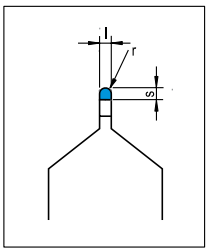

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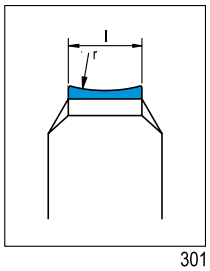

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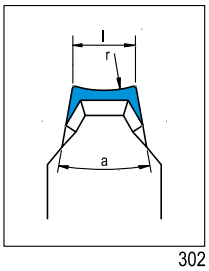

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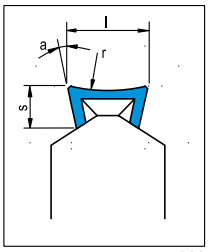

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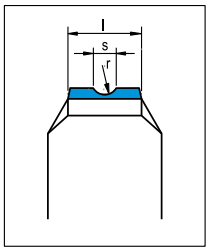

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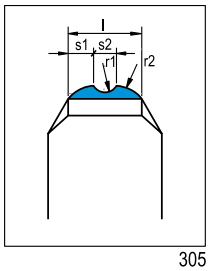

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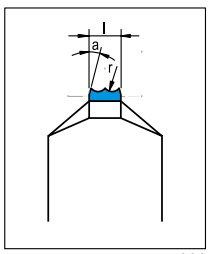

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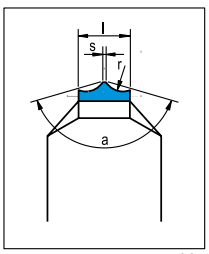

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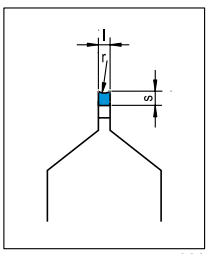

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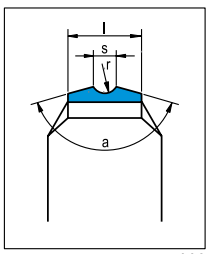

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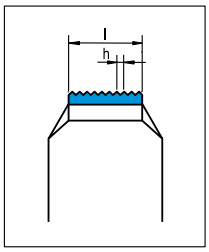

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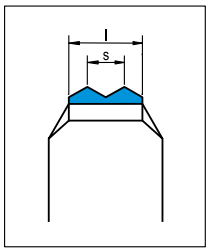

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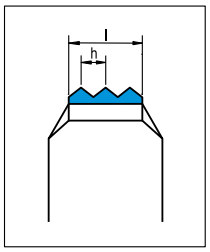

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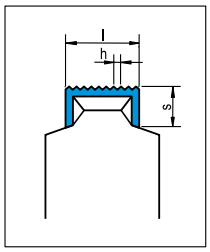

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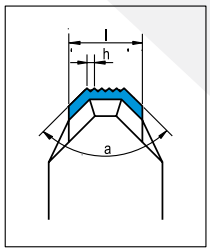

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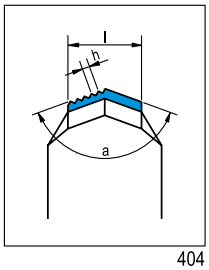

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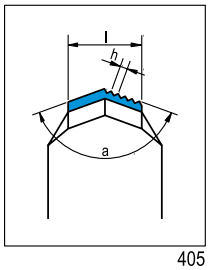

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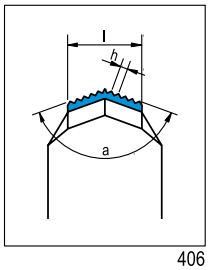

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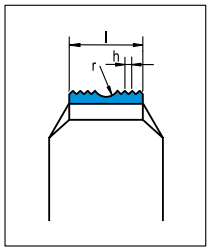

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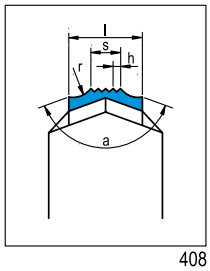

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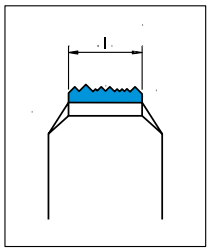

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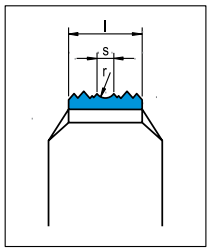

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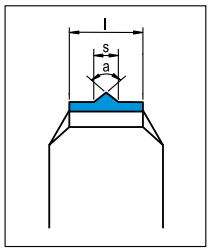

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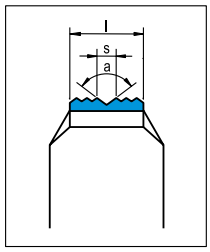

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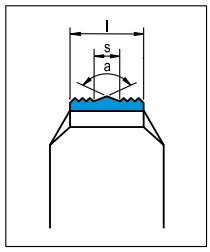

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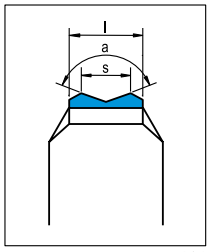

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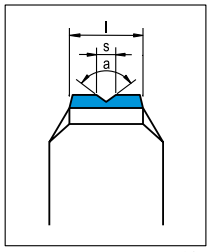

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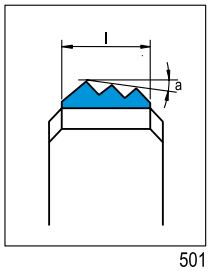

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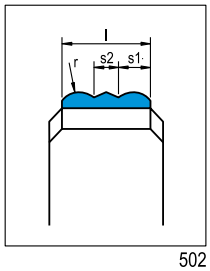

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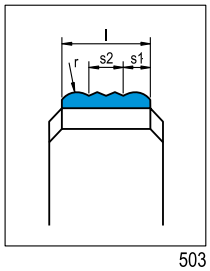

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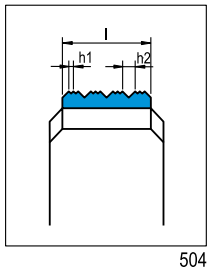

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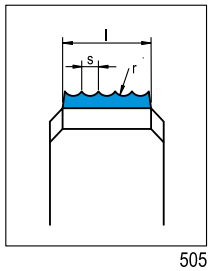

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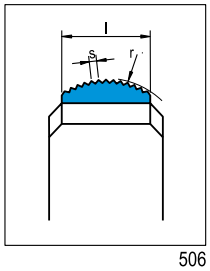

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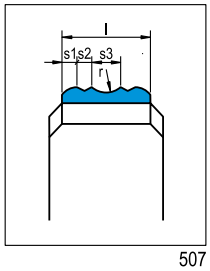

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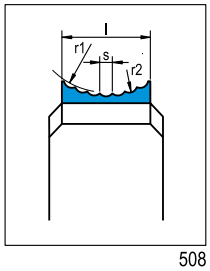

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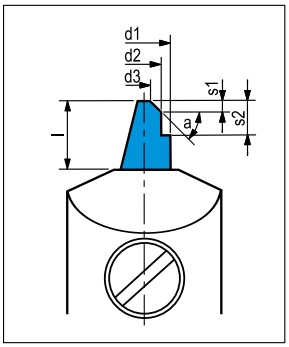
Diamond milling tool designs

High-vacuum soldered milling tool, milling tool with screw

High-vacuum soldered diamond tool

Diamond tool with screw



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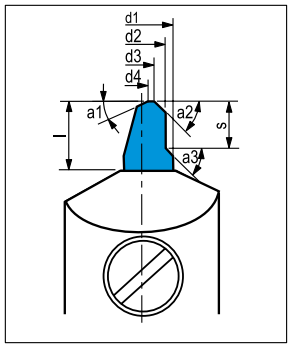

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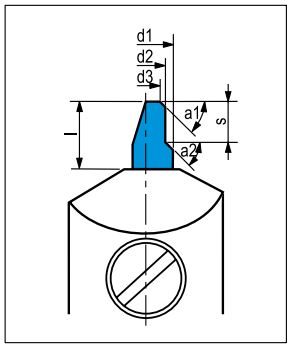

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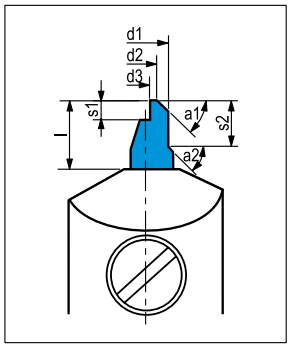

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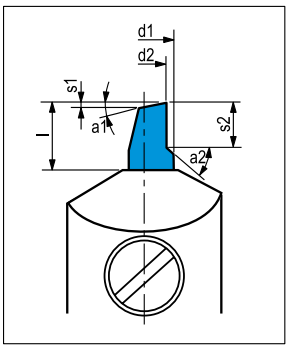

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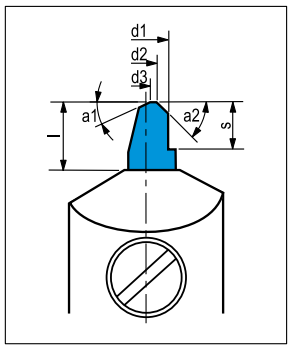

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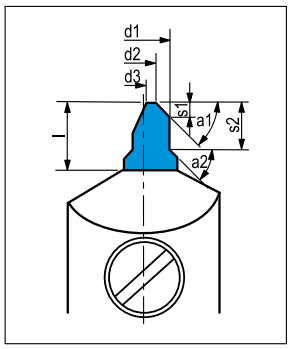

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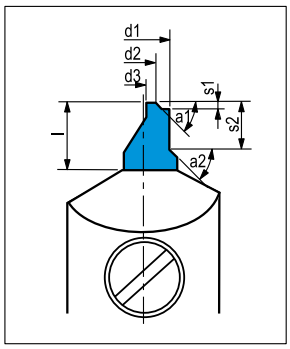

1013

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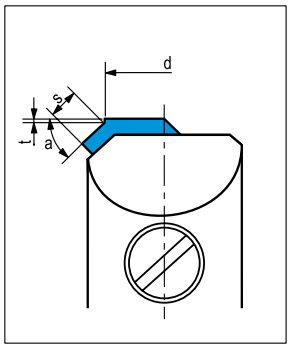

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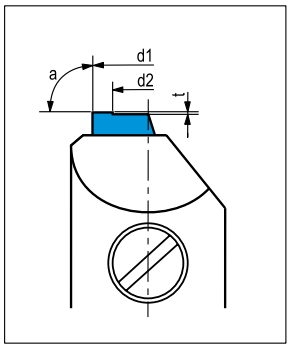

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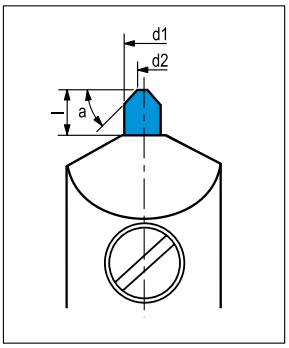

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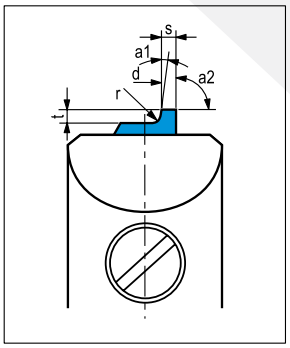

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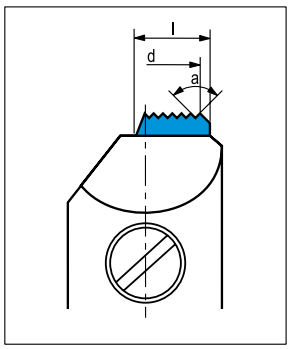

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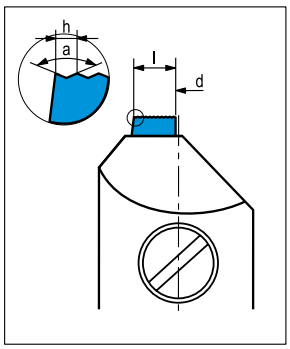

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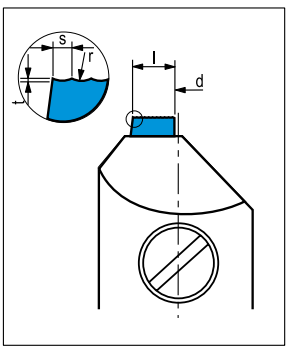

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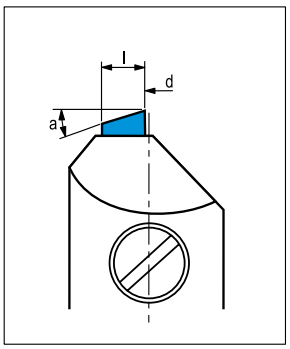

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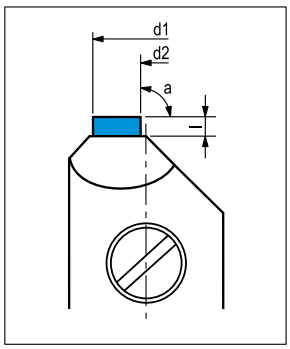

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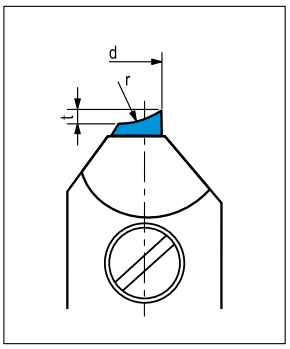

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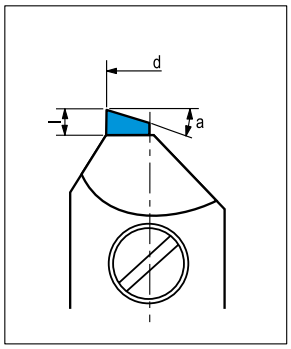

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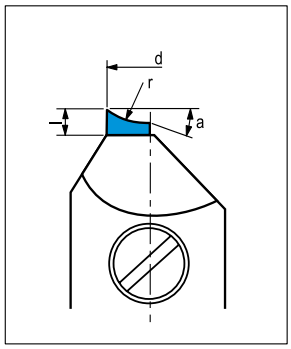

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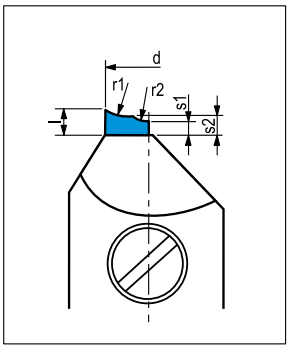

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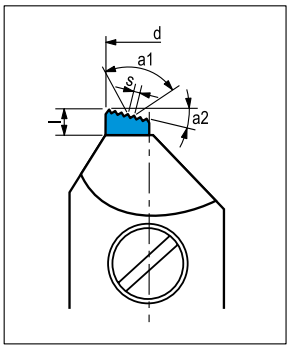

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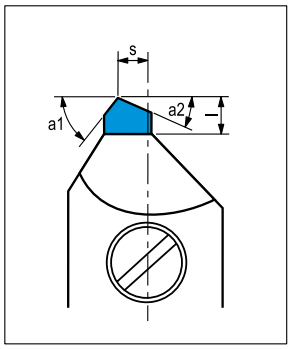

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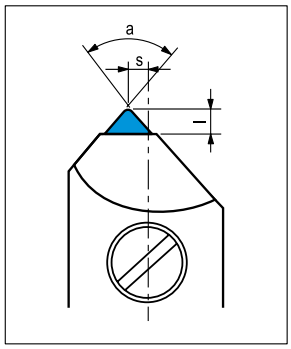

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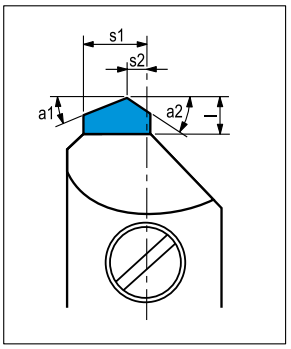

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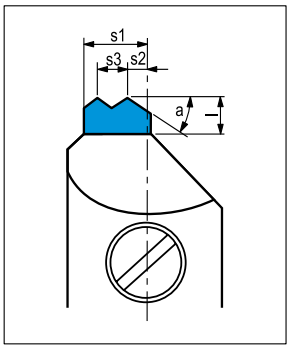

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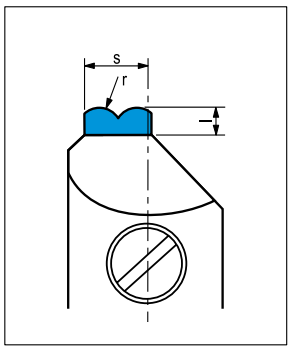

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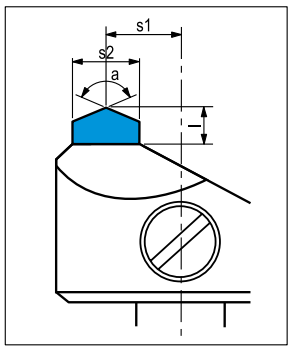

1125

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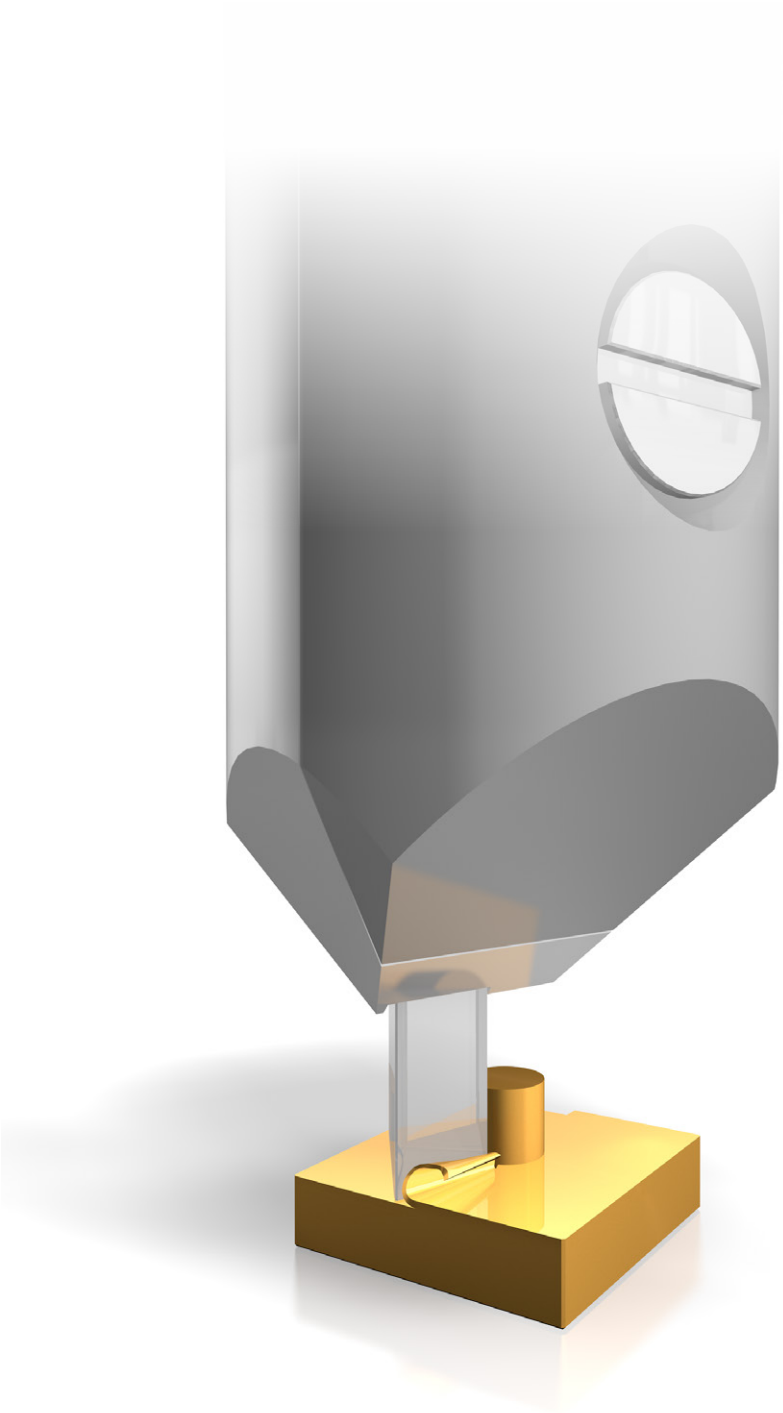
Diamond tools for machining appliques and dials

The most varied shapes and decorations can be produced with these tools. The feet on the bottom of the appliques are produced accurately on diamond milling machines centered on their diameter. **As a custom order, we can produce the smallest milling heads with several, precisely-centered, diamond cutting edges.**



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Holders for diamond turning, milling and drilling tools

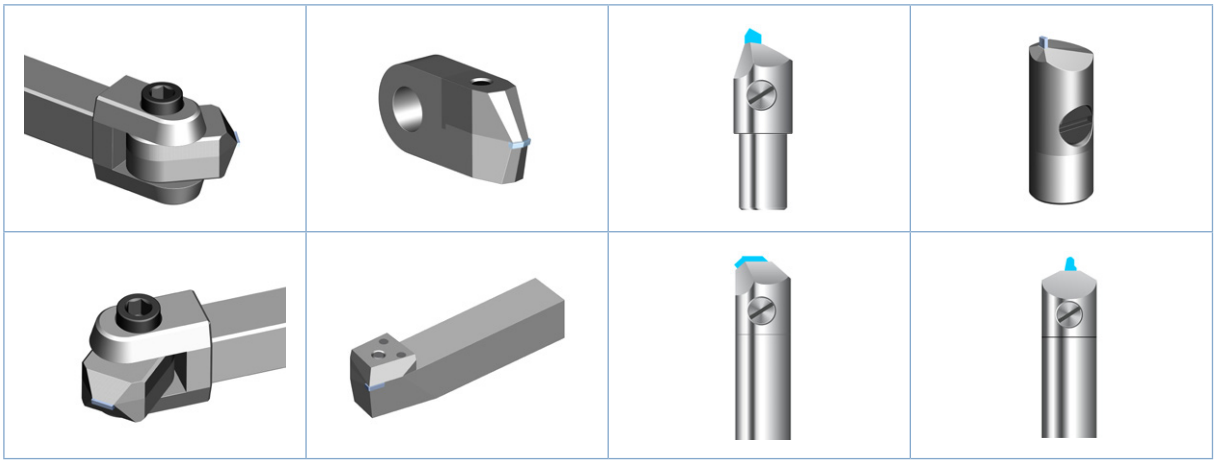
The holder is manufactured according to the customer's specification. Care should be taken that there is sufficient holder material available so that the diamond can be gripped perfectly. We are therefore more than willing to help design special holders.

Carbide or steel holders

If the application of a tool does not permit fixing the diamonds in the holder by means of a clamping arrangement, we recommend soldering the stone in a high vacuum. This means the holder can be much slimmer so it requires less space. As there is no top holding the diamonds in the fixing, optimal chip flow is guaranteed. With this procedure, the diamond is no longer protected so high vacuum soldered tools should be handled with great care. It should also be noted that repairing badly damaged tools that have been soldered in a high vacuum involves more work and is therefore more expensive. In the case of steel holders, thanks to the screw, the diamond can easily be removed and sharpened.

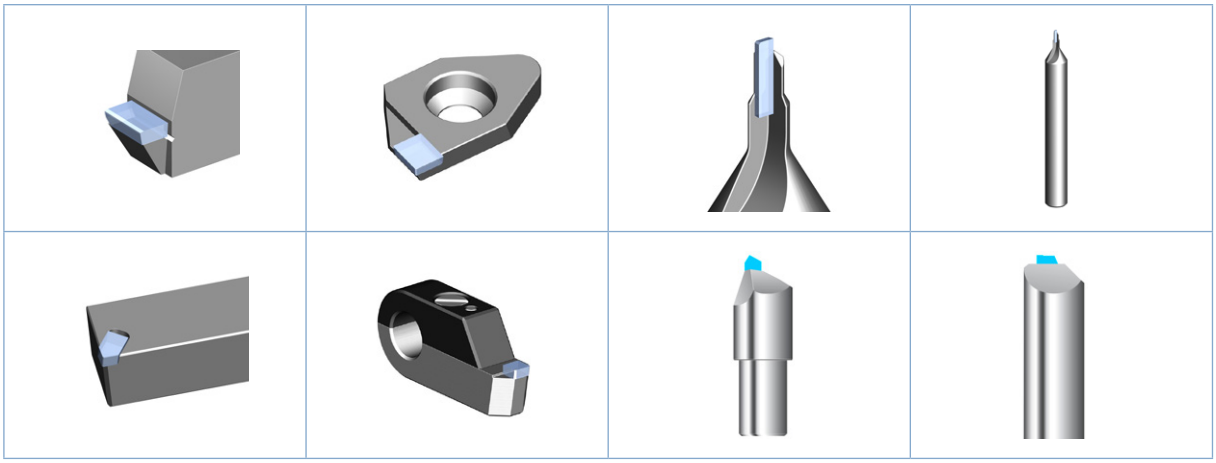
Turning tool holder with screw

Milling tool holder with screw



Turning tool holder without screw (high vacuum soldered)

Milling tool holder without screw (high vacuum soldered)



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Milling heads

Polishing milling tool

Dia.	Order Number		Insert	Order Number
40	600.040		PCD roughing insert	300.0400.R05E85°
50	600.050		Diamond finishing insert	100.0400.1000
60	600.060			
63	600.063			
80	600.080			
100	600.100			
125	600.125			

APKT Milling tool

Dia.	No. of teeth	Order Number		Inserts
40	6	500.PK40E-H		APKT 100305 PKD
50	7	500.PK50E-H		APKT 100305 CBN
63	8	500.PK63E-H		
80	11	500.PK80E-H		
100	13	500.PK100E-H		
125	16	500.PK125E-H		
160	20	500.PK160E-H		

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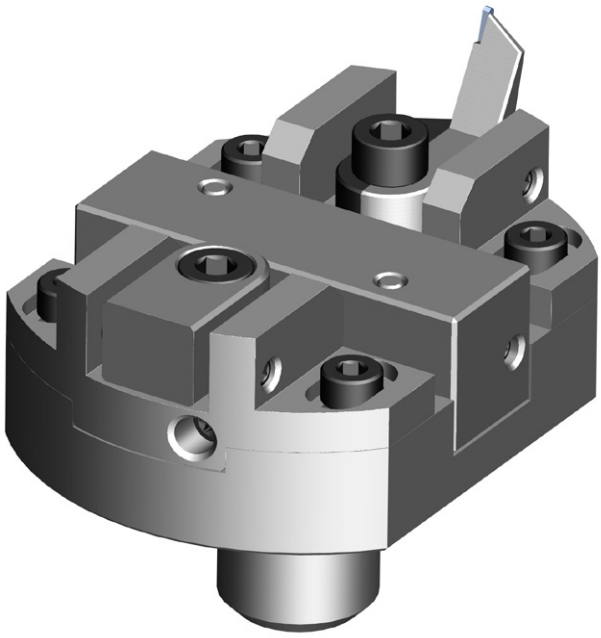
Special solutions custom made

In our highly equipped mechanical production facility, we can manufacture high-precision mounting systems according to customer requirements.

Please contact us!



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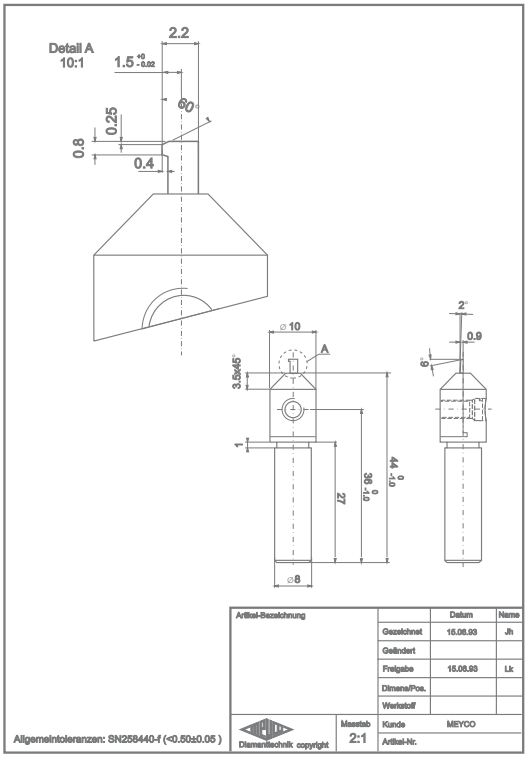
Support in the development of appropriate tools

Most of these diamond tools are manufactured according to customer specifications using technical drawings. If the customer does not have a drawing, we would be pleased to produce a manufacturing drawing based on a sketch free of charge. We use Unigraphics CAD software to do this. We can use this to present tools in a 3D animation.



Selection of diamonds
We used only homogeneously crystallized rough diamonds.

Sufficient "sharpening reserve" in the holder
Frequent sharpening can only be guaranteed if most of the diamond is in the holder.

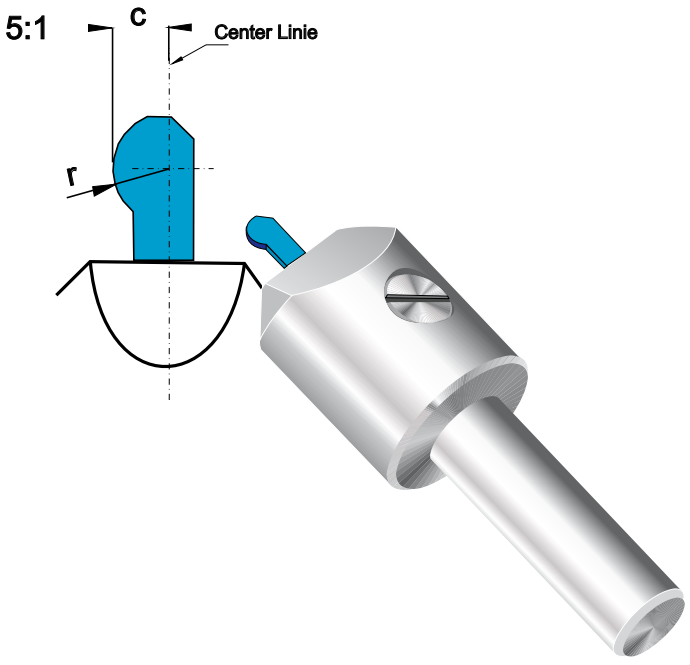
Profiles and radii in tight tolerance range thanks to in-house developed grinding machines
Thanks to precision grinding machines developed in-house and machining with Yag lasers, we can guarantee compliance with the tightest tolerances.

Cutting edges polished to a mirror finish
Thanks to the grinding machines we developed ourselves with optimal quiet running, we are able to achieve the finest, absolutely notch-free cutting edges.

Sharpening service
Valuable diamond tools have to be sharpened. The Meyco and Wirz sharpening service offers the following:

- Examination of damaged tool cutting edges under the microscope
- Preparing a quotation on request
- Sharpening diamond cutting edges
- Checking the fitting and holder
- Practical testing in a lathe or milling machine
- Checking all cutting angles and recording on file

We would also be happy to provide this service for tools made by other manufacturers.



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PCD, CVD and CBN diamond tools

3

PCD/CVD shank type tools for internal machining

Drilling data

Cutting speed: v_c [m/min]

Feed rate: f_n [mm/U]

Ingression: v_f [mm/min]

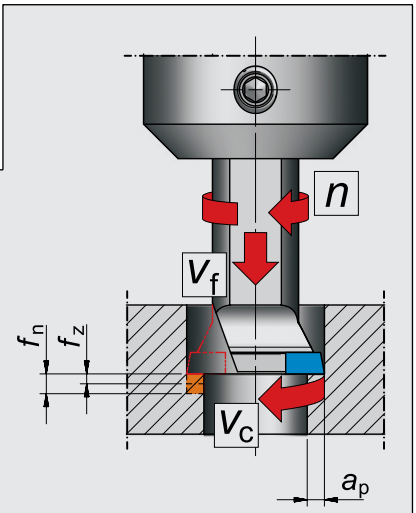
Cutting depth: a_p [mm]

Rotation speed: n [U/min]

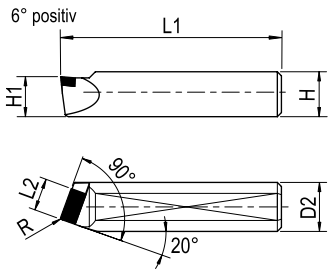
Diameter: D_c [mm]

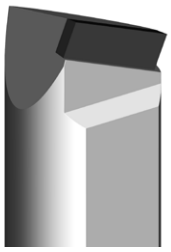
$$v_f = f_n \times n$$

$$v_c = \frac{\pi \times D_c \times n}{1000}$$



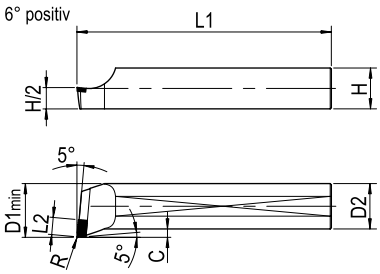
Drilling tool

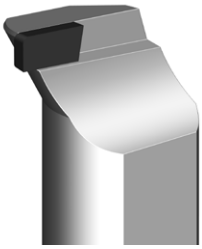




D2	L1	L2	H1	H	R	To match adaptor	PCD	CVD
8	35	5	6	7	0.4	970.20.00001	300.20.00001	200.20.00001
10	40	8	8	9	0.8	970.20.00002	300.20.00002	200.20.00002
12	55	8	10	11	0.8	970.20.00003	300.20.00003	200.20.00003
14	70	8	12	13	0.8	970.20.00004	300.20.00004	200.20.00004
16	90	8	14	15	0.8	970.20.00005	300.20.00005	200.20.00005

Internal edge cutter





H	D2	L1	L2	R	C	D1min	v	CVD
5	6	100	4	0.2	2	8	300.20.00010	200.20.00010
7	8	120	5	0.2	2	10	300.20.00011	200.20.00011
9	10	140	5	0.4	3	13	300.20.00012	200.20.00012
11	12	160	8	0.4	3	15	300.20.00013	200.20.00013
14	16	180	8	0.8	4	20	300.20.00014	200.20.00014
18	20	200	8	0.8	4	24	300.20.00015	200.20.00015
23	25	250	8	0.8	4	29	300.20.00016	200.20.00016

Tools can also be manufactured in CBN on request

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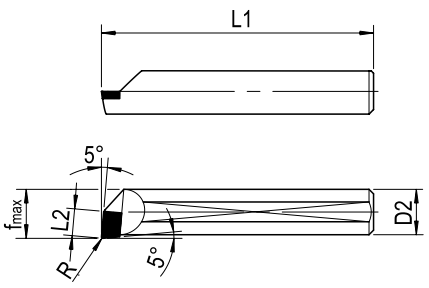
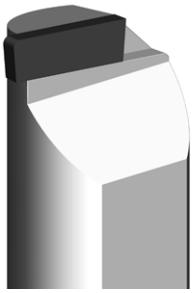
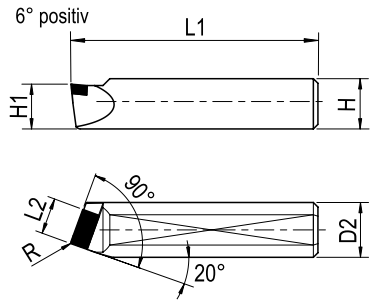
Internal edge cutter, carbide shank

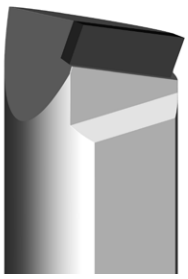




D2	L1	L2	fmax	R	To match adaptor	PCD	CVD
2	50	0.5	2.5	0.2	mit Spannzange	300.20.00020	200.20.00020
3	50	0.5	3.5	0.2	970.20.00020	300.20.00021	200.20.00021
4	60	4	4.7	0.2	970.20.00021	300.20.00022	200.20.00022
5	60	4	5.7	0.2	970.20.00022	300.20.00023	200.20.00023
6	80	5	7.0	0.2	970.20.00023	300.20.00024	200.20.00024
8	100	5	9.0	0.4	970.20.00024	300.20.00025	200.20.00025
10	100	8	11.0	0.4	970.20.00025	300.20.00026	200.20.00026
12	100	8	13.0	0.4	970.20.00026	300.20.00027	200.20.00027
16	150	10	17.0	0.4	mit Spannzange	300.20.00028	200.20.00028
20	150	10	21.0	0.4	mit Spannzange	300.20.00029	200.20.00029

Internal edge cutter – drill rod insert

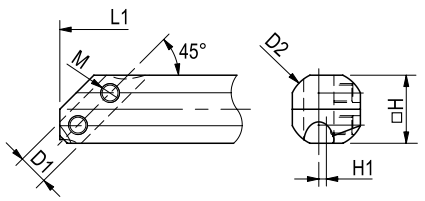




D2	L1	L2	H1	H	R	To match adaptor	PCD	CVD
8	35	5	6	7	0.4	970.20.00001	300.20.00040	200.20.00040
10	45	8	8	9	0.8	970.20.00002	300.20.00041	200.20.00041
12	55	8	10	11	0.8	970.20.00003	300.20.00042	200.20.00042
14	70	8	12	13	0.8	970.20.00004	300.20.00043	200.20.00043
16	90	8	14	15	0.8	970.20.00005	300.20.00044	200.20.00044

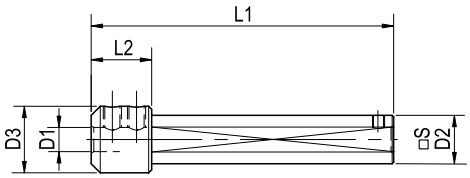
Tools can also be manufactured in CBN on request

Drill rod for drill rod insert



D2	To fit PCD/CVD drill rod insert	To fit PCD/CVD drill rod insert	H	L1	H1	M	D1	Article No.
20	300.20.00001	300.20.00040	18	200	2	5	6	970.20.00001
25	300.20.00002	300.20.00041	22	250	3	6	10	970.20.00002
32	300.20.00003	300.20.00042	28	300	4	8	12	970.20.00003
40	300.20.00004	300.20.00043	36	350	5	8	14	970.20.00004
50	300.20.00005	300.20.00044	45	400	6	8	16	970.20.00005

Clamp for internal turning tool



D1	To fit PCD/CVD drill rod insert	L1	L2	D3	S	D2	Article No.
3.0	300.20.00021	100	20	22	16	18	970.20.00020
4.0	300.20.00022	100	20	22	16	18	970.20.00021
5.0	300.20.00023	100	20	22	16	18	970.20.00022
6.0	300.20.00024	100	20	22	16	18	970.20.00023
8.0	300.20.00025	120	25	26	20	22	970.20.00024
10.0	300.20.00026	130	35	30	22	24	970.20.00025
12.0	300.20.00027	150	40	40	29	32	970.20.00026

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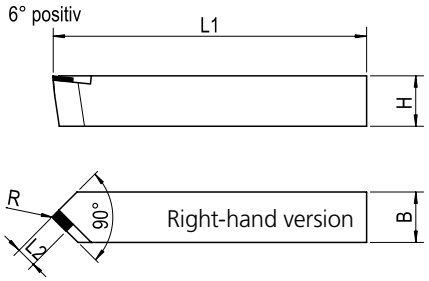
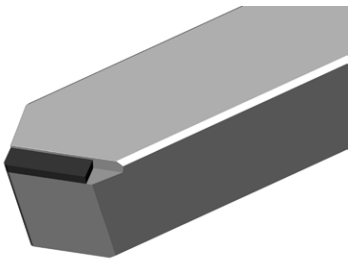
Shank tools for external machining

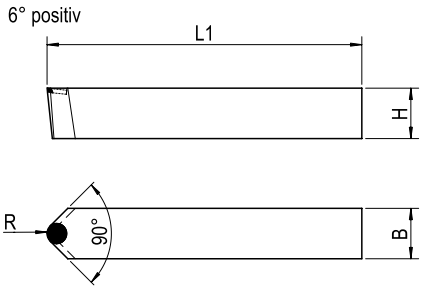
Longitudinal turning finishing cutter, centrical

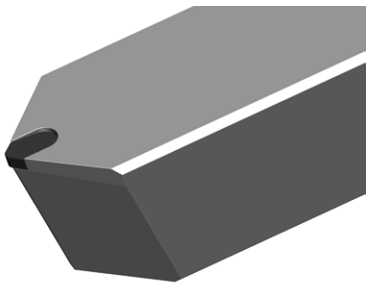




H	L1	B	L2	R	PCD	CVD
8	100	8	6	0.4	300.20.00049	200.20.00049
10	100	10	8	0.4	300.20.00050	200.20.00050
12	100	12	8	0.4	300.20.00051	200.20.00051
16	110	16	8	0.8	300.20.00052	200.20.00052
20	125	20	8	0.8	300.20.00053	200.20.00053
25	140	20	8	0.8	300.20.00054	200.20.00054
32	170	25	8	0.8	300.20.00055	200.20.00055

Radius cutter

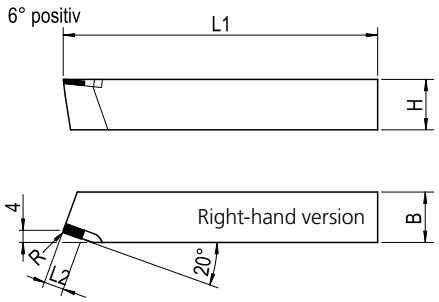


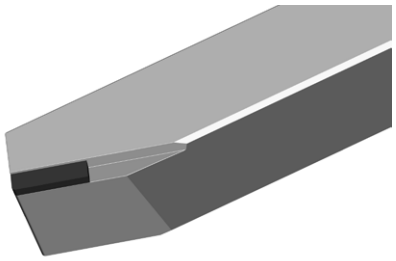


H	B	L1	R	PCD	CVD
8	8	100	4.0	300.20.00059	200.20.00059
10	10	100	4.0	300.20.00060	200.20.00060
12	12	100	4.0	300.20.00061	200.20.00061
16	16	110	4.0	300.20.00062	200.20.00062
20	20	125	4.0	300.20.00063	200.20.00063
25	20	140	4.0	300.20.00064	200.20.00064
32	32	170	4.0	300.20.00065	200.20.00065

Tools can also be manufactured in CBN on request

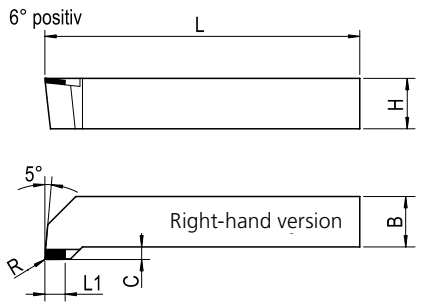
Finishing cutter

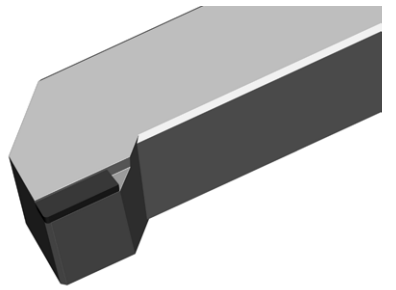




H	B	L1	L2	R	PCD	CVD
8	8	100	6	0.4	300.20.00072	200.20.00072
10	10	100	8	0.4	300.20.00066	200.20.00066
12	12	100	8	0.4	300.20.00067	200.20.00067
16	16	110	8	0.8	300.20.00068	200.20.00068
20	20	125	8	0.8	300.20.00069	200.20.00069
25	20	140	8	0.8	300.20.00070	200.20.00070
32	25	170	8	0.8	300.20.00071	200.20.00071

Offset cutting tool





H	B	L	l1-0.2	r	c	PCD	CVD
8	8	100	6	0.2	3	300.20.00079	200.20.00079
10	10	100	8	0.2	4	300.20.00080	200.20.00080
12	12	100	8	0.4	4	300.20.00081	200.20.00081
16	16	110	8	0.8	4	300.20.00082	200.20.00082
20	20	125	8	0.8	5	300.20.00083	200.20.00083
25	20	140	8	0.8	5	300.20.00084	200.20.00084
32	25	170	8	0.8	5	300.20.00085	200.20.00085

Tools can also be manufactured in CBN on request

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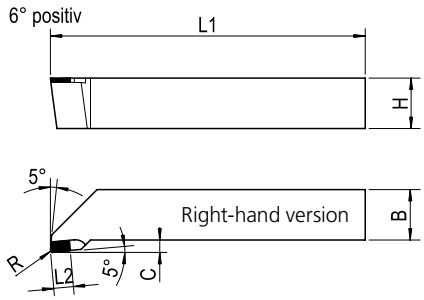
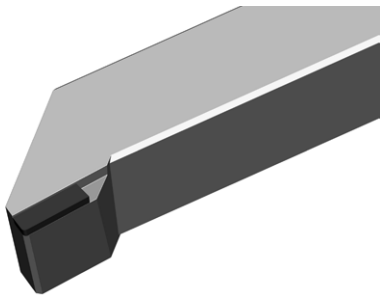
Shank tools for external machining

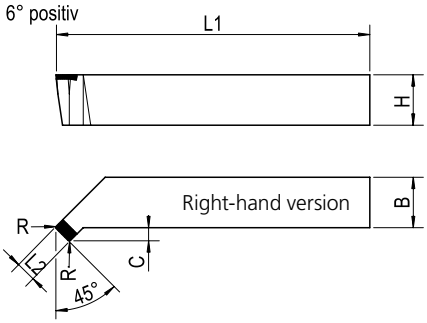
Edge cutting tool

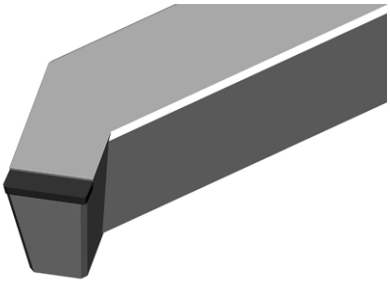




H	B	L1	L2	R	C	PCD	CVD
8	8	100	6	0.2	3	300.20.00089	200.20.00089
10	10	100	8	0.2	4	300.20.00090	200.20.00090
12	12	100	8	0.4	4	300.20.00091	200.20.00091
16	16	110	8	0.8	4	300.20.00092	200.20.00092
20	20	125	8	0.8	5	300.20.00093	200.20.00093
25	20	140	8	0.8	5	300.20.00094	200.20.00094
32	25	170	8	0.8	5	300.20.00095	200.20.00095

Smoothing cutter, curved



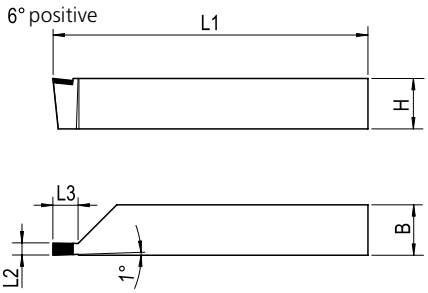


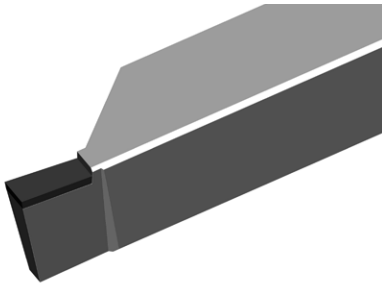
H	B	L1	L2	R	C	PCD	CVD
8	8	100	6	0.2	3	300.20.00099	200.20.00099
10	10	100	8	0.2	4	300.20.00100	200.20.00100
12	12	100	8	0.4	4	300.20.00101	200.20.00101
16	16	110	8	0.8	4	300.20.00102	200.20.00102
20	20	125	8	0.8	5	300.20.00103	200.20.00103
25	20	140	8	0.8	5	300.20.00104	200.20.00104
32	25	170	8	0.8	5	300.20.00105	200.20.00105

Tools can also be manufactured in CBN on request

Recessing tools

Recessing and cutting off





H	B	L1	L2	L3	PCD	CVD
8	8	100	bis 3.8	6	300.20.00...	200.20.00...
10	10	100	bis 3.8	8	300.20.00110	200.20.00110
12	12	100	bis 3.8	9	300.20.00111	200.20.00111
16	16	110	bis 7.8	10	300.20.00112	200.20.00112
20	20	125	3.8 – 7.8	12	300.20.00113	200.20.00113
25	25	140	3.8 – 7.8	15	300.20.00114	200.20.00114

Tools can also be manufactured in CBN on request

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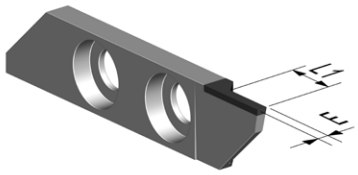
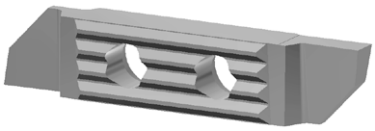
Custom products in PCD and CVD





Holder Applitec

Also available for supports Bimu, Kennametal etc.

Right-hand cutting

E	L1	Article No. PCD	Article No. CVD	MCD
0.7	4	300.20.01001	200.20.01001	100.20.01001-0
0.8	4	300.20.01002	200.20.01002	100.20.01002-0
0.9	4	300.20.01003	200.20.01003	100.20.01003-0
1.0	5	300.20.01004	200.20.01004	100.20.01004-0
1.1	5	300.20.01005	200.20.01005	100.20.01005-0
1.2	5	300.20.01006	200.20.01006	100.20.01006-0
1.3	5	300.20.01007	200.20.01007	100.20.01007-0
1.4	6	300.20.01008	200.20.01008	100.20.01008-0
1.5	6	300.20.01009	200.20.01009	100.20.01009-0
1.6	6	300.20.01010	200.20.01010	100.20.01010-0
1.7	6	300.20.01011	200.20.01011	100.20.01011-0
1.8	6	300.20.01012	200.20.01012	100.20.01012-0
1.9	7	300.20.01013	200.20.01013	100.20.01013-0

Left-hand cutting

E	L1	Article No. PCD	Article No. CVD	MCD
0.7	4	300.20.01020	200.20.01020	100.20.01020-0
0.8	4	300.20.01021	200.20.01021	100.20.01021-0
0.9	4	300.20.01022	200.20.01022	100.20.01022-0
1.0	5	300.20.01023	200.20.01023	100.20.01023-0
1.1	5	300.20.01024	200.20.01024	100.20.01024-0
1.2	5	300.20.01025	200.20.01025	100.20.01025-0
1.3	5	300.20.01026	200.20.01026	100.20.01026-0
1.4	6	300.20.01027	200.20.01027	100.20.01027-0
1.5	6	300.20.01028	200.20.01028	100.20.01028-0
1.6	6	300.20.01029	200.20.01029	100.20.01029-0
1.7	6	300.20.01030	200.20.01030	100.20.01030-0
1.8	6	300.20.01031	200.20.01031	100.20.01031-0
1.9	7	300.20.01032	200.20.01032	100.20.01032-0

Tools can also be manufactured in CBN on request

Indexable inserts in MCD, CVD, PCD and CBN

Overview of designs

CCGT	Positive
CCGT	Positive – Neutral – Wiper
CCGT	Positive – Neutral full cutting edge
CCGW	Neutral
CCGW	Neutral – Wiper
CCGW	
CCGW	Neutral – full cutting edge
CPGW	
DCGT	Positive – Neutral
DCGT	Neutral R/L Wiper 93°
DCGW	Neutral
DCGW	Neutral – R/L Wiper 93°
EPGT	Positive – Neutral
EPGW	Neutral
RPGW	Full face
RPGW	Full face
SCGT	Positive – Neutral
SCGT	Positive – Neutral full cutting edge
SCGW	Neutral
TCGT	Positive – Neutral
TCGT	Positive – Neutral
TCGW	Neutral
TCGW	Neutral – full cutting edge
TCGW	Full face
TPGW	
TPGN	
VBGT	Positive – Neutral
VBGT	Positive – R/L
VBGT	
VBGW	Neutral
VBGW	
VCGT	Positive – Neutral
VCGT	
VCGT	
VCGW	Neutral
VCGW	

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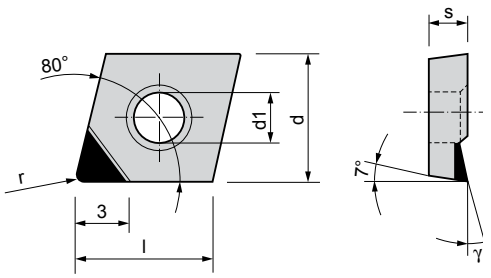
Indexable inserts

CCGT positive



Dimensions						Article No.	
l	d	s	d1	r	ISO Code	PCD (Diasynt)	CVD (Diavap)
6.45	6.35	2.38	2.8	0.1	CCGT060201W	300-CCGT060201W	200-CCGT060201W
6.45	6.35	2.38	2.8	0.2	CCGT060202W	300-CCGT060202W	200-CCGT060202W
6.45	6.35	2.38	2.8	0.4	CCGT060204W	300-CCGT060204W	200-CCGT060204W
9.67	9.52	3.97	4.4	0.1	CCGT09T301W	300-CCGT09T301W	200-CCGT09T301W
9.67	9.52	3.97	4.4	0.2	CCGT09T302W	300-CCGT09T302W	200-CCGT09T302W
9.67	9.52	3.97	4.4	0.4	CCGT09T304W	300-CCGT09T304W	200-CCGT09T304W
12.70	12.70	4.76	5.5	0.2	CCGT120402W	300-CCGT120402W	200-CCGT120402W
12.70	12.70	4.76	5.5	0.4	CCGT120404W	300-CCGT120404W	200-CCGT120404W

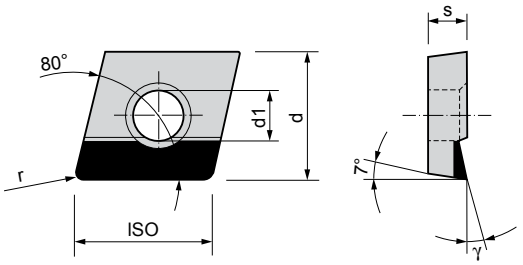
CCGT positive – Wiper

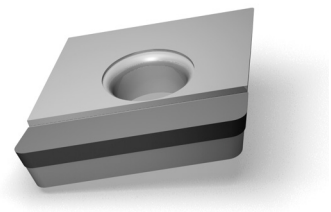
Dimensions						Article No.
l	d	s	d1	r	ISO Code	PCD (Diasynt)
6.45	6.35	2.38	2.8	0.1	CCGT060201W	300-CCGT060201W
6.45	6.35	2.38	2.8	0.2	CCGT060202W	300-CCGT060202W
6.45	6.35	2.38	2.8	0.4	CCGT060204W	300-CCGT060204W
9.67	9.52	3.97	4.4	0.1	CCGT09T301W	300-CCGT09T301W
9.67	9.52	3.97	4.4	0.2	CCGT09T302W	300-CCGT09T302W
9.67	9.52	3.97	4.4	0.4	CCGT09T304W	300-CCGT09T304W
12.70	12.70	4.76	5.5	0.2	CCGT120402W	300-CCGT120402W
12.70	12.70	4.76	5.5	0.4	CCGT120404W	300-CCGT120404W

Key:

CBN	Cubic boron nitride
PCD	Polycrystalline diamond
CVD	CVD diamond
MCD	Monocrystalline diamond

CCGT positive – full cutting edge





Dimensions						Article No.		
l	d	s	d1	r	ISO Code	CBN (Cubor)	PCD (Diasynt)	CVD (Diavap)
6.45	6.35	2.38	2.8	0.4	CCGT060204R/L-GS	400-CCGT060204R/L-GS	300-CCGT060204R/L-GS	200-CCGT060204R/L-GS
6.45	6.35	2.38	2.8	0.8	CCGT060208R/L-GS	400-CCGT060208R/L-GS	300-CCGT060208R/L-GS	200-CCGT060208R/L-GS
9.67	9.52	3.97	4.4	0.8	CCGT09T308R/LGS	400-CCGT09T308R/LGS	300-CCGT09T308R/LGS	200-CCGT09T308R/LGS
9.67	9.52	3.97	4.4	1.2	CCGT09T312R/L-GS	400-CCGT09T312R/L-GS	300-CCGT09T312R/L-GS	200-CCGT09T312R/L-GS
12.70	12.70	4.76	5.5	1.2	CCGT12041R/L-GS	400-CCGT12041R/L-GS	300-CCGT12041R/L-GS	200-CCGT12041R/L-GS

Key:

CBN	cubic boron nitride
PCD	polycrystalline diamond
CVD	CVD diamond
MCD	monocrystalline diamond

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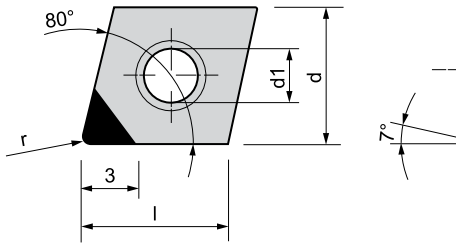
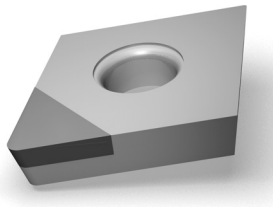
CCGW Neutral



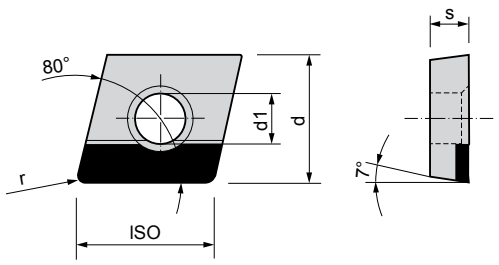


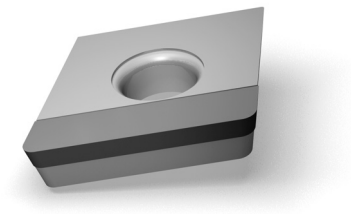
Abmessungen						Article No.			
l	d	s	d1	r	ISO Code	CBN (Cubor)	PCD (Diasynt)	CVD (Diavap)	MCD (Monosynt)
6.45	6.35	2.38	2.8	0.2	CCGW060202	400-CCGW060202	300-CCGW060202	200-CCGW060202	100-CCGW060202
6.45	6.35	2.38	2.8	0.4	CCGW060204	400-CCGW060204	300-CCGW060204	200-CCGW060204	100-CCGW060204
6.45	6.35	2.38	2.8	0.8	CCGW060208	400-CCGW060208	300-CCGW060208	200-CCGW060208	100-CCGW060208
9.67	9.52	3.97	4.4	0.2	CCGW09T302	400-CCGW09T302	300-CCGW09T302	200-CCGW09T302	100-CCGW09T302
9.67	9.52	3.97	4.4	0.4	CCGW09T304	400-CCGW09T304	300-CCGW09T304	200-CCGW09T304	100-CCGW09T304
9.67	9.52	3.97	4.4	0.8	CCGW09T308	400-CCGW09T308	300-CCGW09T308	200-CCGW09T308	100-CCGW09T308
12.70	12.70	4.76	5.5	0.4	CCGW120404	400-CCGW120404	300-CCGW120404	200-CCGW120404	100-CCGW120404
12.70	12.70	4.76	5.5	0.8	CCGW120408	400-CCGW120408	300-CCGW120408	200-CCGW120408	100-CCGW120408

CCGW Neutral – Wiper

Abmessungen						Article No.	
l	d	s	d1	r	ISO Code	PCD (Diasynt)	MCD (Monosynt)
6.45	6.35	2.38	2.8	0.1	CCGW060201W	300-CCGW060201W	100-CCGW060201W
6.45	6.35	2.38	2.8	0.2	CCGW060202W	300-CCGW060202W	100-CCGW060202W
6.45	6.35	2.38	2.8	0.4	CCGW060204W	300-CCGW060204W	100-CCGW060204W
9.67	9.52	3.97	4.4	0.1	CCGW09T301W	300-CCGW09T301W	100-CCGW09T301W
9.67	9.52	3.97	4.4	0.2	CCGW09T302W	300-CCGW09T302W	100-CCGW09T302W
9.67	9.52	3.97	4.4	0.4	CCGW09T304W	300-CCGW09T304W	100-CCGW09T304W
12.70	12.70	4.76	5.5	0.2	CCGW120402W	300-CCGW120402W	100-CCGW120402W
12.70	12.70	4.76	5.5	0.4	CCGW120404W	300-CCGW120404W	100-CCGW120404W

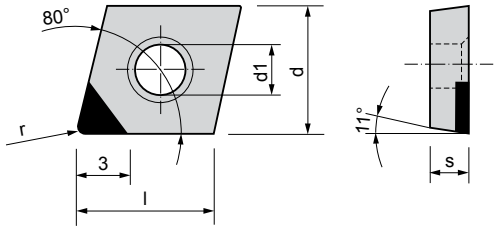
CCGW Neutral – Full cutting edge

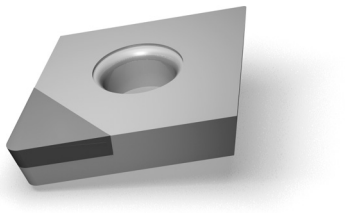




Dimensions						Article No.			
l	d	s	d1	r	ISO Code	CBN (Cubor)	PCD (Diasynt)	CVD (Diavap)	MCD (Monosynt)
6.45	6.35	2.38	2.8	0.4	CCGW060204R/L-GS	400-CCGW060204R/L-GS	300-CCGW060204R/L-GS	200-CCGW060204R/L-GS	100-CCGW060204R/L-GS
6.45	6.35	2.38	2.8	0.8	CCGW060208R/L-GS	400-CCGW060208R/L-GS	300-CCGW060208R/L-GS	200-CCGW060208R/L-GS	100-CCGW060208R/L-GS
9.67	9.52	3.97	4.4	0.4	CCGW09T304R/L-GS	400-CCGW09T304R/L-GS	300-CCGW09T304R/L-GS	200-CCGW09T304R/L-GS	100-CCGW09T304R/L-GS
9.67	9.52	3.97	4.4	0.8	CCGW09T308R/L-GS	400-CCGW09T308R/L-GS	300-CCGW09T308R/L-GS	200-CCGW09T308R/L-GS	100-CCGW09T308R/L-GS
9.67	9.52	3.97	4.4	1.2	CCGW09T312R/L-GS	400-CCGW09T312R/L-GS	300-CCGW09T312R/L-GS	200-CCGW09T312R/L-GS	100-CCGW09T312R/L-GS
12.7	12.7	4.76	5.5	0.4	CCGW120404R/L-GS	400-CCGW120404R/L-GS	300-CCGW120404R/L-GS	200-CCGW120404R/L-GS	

CPGW Neutral





Dimensions						Article No.			
l	d	s	d1	r	ISO Code	CBN (Cubor)	PCD (Diasynt)	CVD (Diavap)	MCD (Monosynt)
5.6	5.56	2.38	2.5	0.2	CPGW050202	400-CPGW050202	300-CPGW050202	200-CPGW050202	100-CPGW050202
5.6	5.56	2.38	2.5	0.4	CPGW050204	400-CPGW050204	300-CPGW050204	200-CPGW050204	100-CPGW050204
6.45	6.35	2.38	2.8	0.2	CPGW11T302	400-CPGW11T302	300-CPGW11T302	200-CPGW11T302	100-CPGW11T302
6.45	6.35	2.38	2.8	0.4	CPGW11T304	400-CPGW11T304	300-CPGW11T304	200-CPGW11T304	100-CPGW11T304

Key:

CBN	cubic boron nitride
PCD	polycrystalline diamond
CVD	CVD diamond
MCD	monocrystalline diamond

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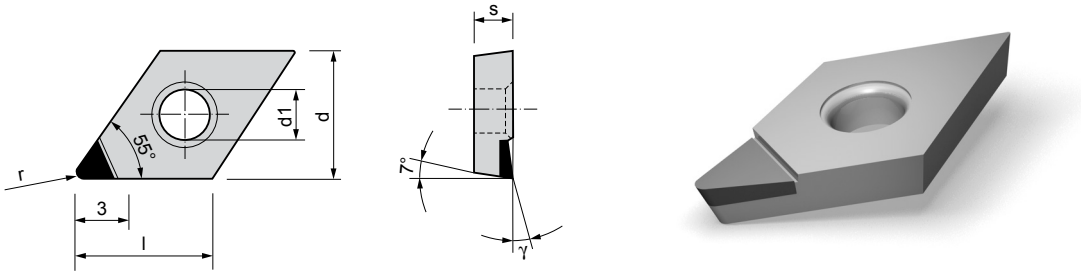
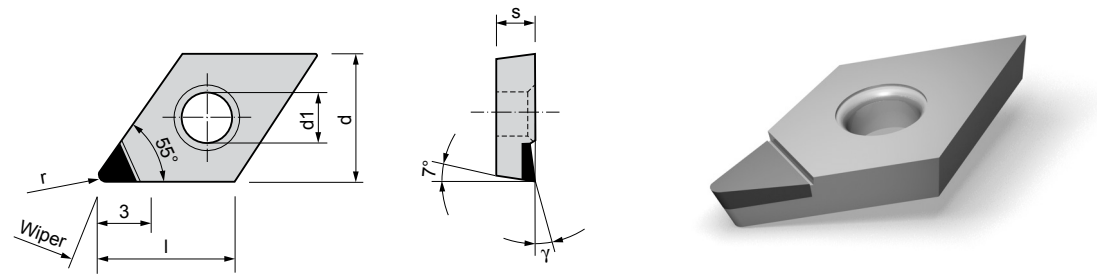
DCGT Positive



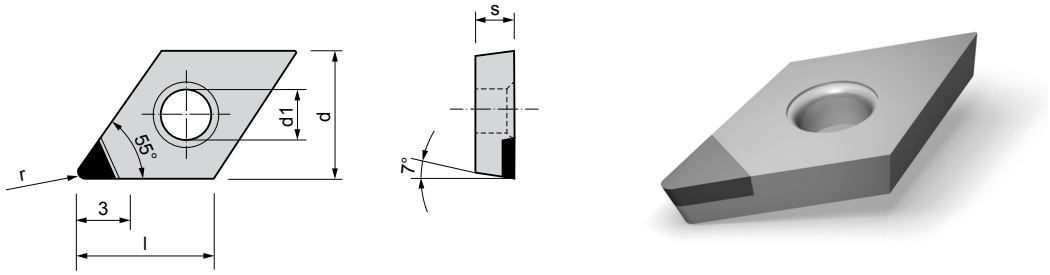
Dimensions						Article No.	
l	d	s	d1	r	ISO Code	PCD (Diasynt)	CVD (Diavap)
7.75	6.35	2.38	2.8	0.1	DCGT070201	300-DCGT070201	200-DCGT070201
7.75	6.35	2.38	2.8	0.2	DCGT070202	300-DCGT070202	200-DCGT070202
7.75	6.35	2.38	2.8	0.4	DCGT070204	300-DCGT070204	200-DCGT070204
7.75	6.35	2.38	2.8	0.8	DCGT070208	300-DCGT070208	200-DCGT070208
11.60	9.52	3.97	4.4	0.1	DCGT11T301	300-DCGT11T301	200-DCGT11T301
11.60	9.52	3.97	4.4	0.2	DCGT11T302	300-DCGT11T302	200-DCGT11T302
11.60	9.52	3.97	4.4	0.4	DCGT11T304	300-DCGT11T304	200-DCGT11T304
11.60	9.52	3.97	4.4	0.8	DCGT11T308	300-DCGT11T308	200-DCGT11T308
11.60	9.52	3.97	4.4	1.2	DCGT11T312	300-DCGT11T312	200-DCGT11T312

DCGT Positiv R/L – Wiper 93°



Dimensions						Article No.
l	d	s	d1	r	ISO Code	PCD (Diasynt)
7.75	6.35	2.38	2.8	0.1	DCGT070201R/LW	300-DCGT070201R/LW
7.75	6.35	2.38	2.8	0.2	DCGT070202R/L-W	300-DCGT070202R/L-W
7.75	6.35	2.38	2.8	0.4	DCGT070204R/L-W	300-DCGT070204R/L-W
11.60	9.52	3.97	4.4	0.1	DCGT11T301R/L-W	300-DCGT11T301R/L-W
11.60	9.52	3.97	4.4	0.2	DCGT11T302R/L-W	300-DCGT11T302R/L-W
11.60	9.52	3.97	4.4	0.4	DCGT11T304R/L-W	300-DCGT11T304R/L-W

DCGW Neutral



Dimensions						Article No.			
l	d	s	d1	r	ISO Code	CBN (Cubor)	PCD (Diasynt)	CVD (Diavap)	MCD (Monosynt)
7.75	6.35	2.38	2.8	0.1	DCGW070201	400-DCGW070201	300-DCGW070201	200-DCGW070201	100-DCGW070201
7.75	6.35	2.38	2.8	0.2	DCGW070202	400-DCGW070202	300-DCGW070202	200-DCGW070202	100-DCGW070202
7.75	6.35	2.38	2.8	0.4	DCGW070204	400-DCGW070204	300-DCGW070204	200-DCGW070204	100-DCGW070204
7.75	6.35	2.38	2.8	0.8	DCGW070208	400-DCGW070208	300-DCGW070208	200-DCGW070208	100-DCGW070208
11.60	9.52	3.97	4.4	0.1	DCGW11T301	400-DCGW11T301	300-DCGW11T301	200-DCGW11T301	100-DCGW11T301
11.60	9.52	3.97	4.4	0.2	DCGW11T302	400-DCGW11T302	300-DCGW11T302	200-DCGW11T302	100-DCGW11T302
11.60	9.52	3.97	4.4	0.4	DCGW11T304	400-DCGW11T304	300-DCGW11T304	200-DCGW11T304	100-DCGW11T304
11.60	9.52	3.97	4.4	0.8	DCGW11T308	400-DCGW11T308	300-DCGW11T308	200-DCGW11T308	100-DCGW11T308
11.60	9.52	3.97	4.4	1.2	DCGW11T312	400-DCGW11T312	300-DCGW11T312	200-DCGW11T312	100-DCGW11T312
15.50	12.70	4.76	5.5	0.4	DCGW150404	400-DCGW150404	300-DCGW150404	200-DCGW150404	100-DCGW150404
15.50	12.70	4.76	5.5	0.8	DCGW150408	400-DCGW150408	300-DCGW150408	200-DCGW150408	100-DCGW150408

DCGW Neutral – R/L Wiper 93°

Dimensions						Article No.	
l	d	s	d1	r	ISO Code	PCD (Diasynt)	MCD (Monosynt)
7.75	6.35	2.38	2.8	0.1	DCGW070201R/L-W	300-DCGW070201R/L-W	100-DCGW070201R/L-W
7.75	6.35	2.38	2.8	0.2	DCGW070202R/L-W	300-DCGW070202R/L-W	100-DCGW070202R/L-W
7.75	6.35	2.38	2.8	0.4	DCGW070204R/L-W	300-DCGW070204R/L-W	100-DCGW070204R/L-W
11.60	9.52	3.97	4.4	0.1	DCGW11T301R/L-W	300-DCGW11T301R/L-W	100-DCGW11T301R/L-W
11.60	9.52	3.97	4.4	0.2	DCGW11T302R/L-W	300-DCGW11T302R/L-W	100-DCGW11T302R/L-W
11.60	9.52	3.97	4.4	0.4	DCGW11T304R/L-W	300-DCGW11T304R/L-W	100-DCGW11T304R/L-W
11.60	9.52	3.97	4.4	0.8	DCGW11T308R/L-W	300-DCGW11T308R/L-W	100-DCGW11T308R/L-W

Key:

CBN	cubic boron nitride
PCD	polycrystalline diamond
CVD	CVD diamond
MCD	monocrystalline diamond

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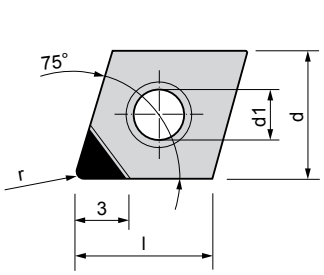
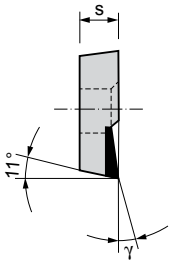
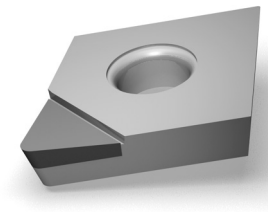
EPGT Positiv

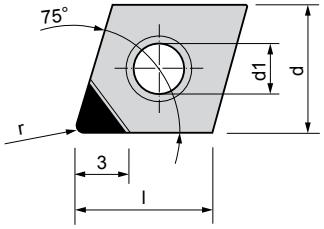


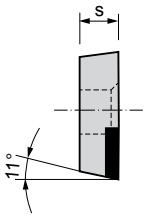


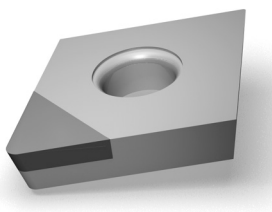


Dimensions						Article No.	
l	d	s	d1	r	ISO Code	PCD (Diasynt)	CVD (Diavap)
4.80	4.76	2.38	2.15	0.2	EPGT040202	300-EPGT040202	200-EPGT040202
4.80	4.76	2.38	2.15	0.4	EPGT040204	300-EPGT040204	200-EPGT040204
5.70	5.56	2.38	2.4	0.2	EPGT050202	300-EPGT050202	200-EPGT050202
5.70	5.56	2.38	2.4	0.4	EPGT050204	300-EPGT050204	200-EPGT050204
6.50	6.35	2.38	2.8	0.2	EPGT060202	300-EPGT060202	200-EPGT060202
6.50	6.35	2.38	2.8	0.4	EPGT060204	300-EPGT060204	200-EPGT060204
8.30	7.94	3.18	3.4	0.2	EPGT080302	300-EPGT080302	200-EPGT080302
8.30	7.94	3.18	3.4	0.4	EPGT080304	300-EPGT080304	200-EPGT080304
8.30	7.94	3.18	3.4	0.8	EPGT080308	300-EPGT080308	200-EPGT080308

EPGW Neutral

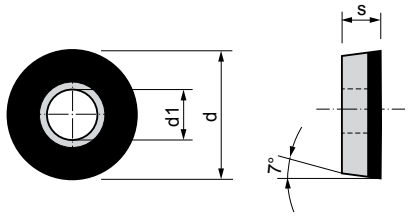


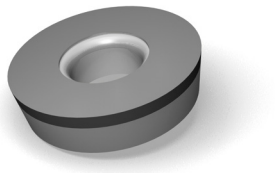




Dimensions						Article No.			
l	d	s	d1	r	ISO Code	CBN (Cubor)	PCD (Diasynt)	CVD (Diavap)	MCD (Monosynt)
4.80	4.76	2.38	2.15	0.2	EPGW040202	400-EPGW040202	300-EPGW040202	200-EPGW040202	100-EPGW040202
4.80	4.76	2.38	2.15	0.4	EPGW040204	400-EPGW040204	300-EPGW040204	200-EPGW040204	100-EPGW040204
5.70	5.56	2.38	2.4	0.2	EPGW050202	400-EPGW050202	300-EPGW050202	200-EPGW050202	100-EPGW050202
5.70	5.56	2.38	2.4	0.4	EPGW050204	400-EPGW050204	300-EPGW050204	200-EPGW050204	100-EPGW050204
6.50	6.35	2.38	2.8	0.2	EPGW060202	400-EPGW060202	300-EPGW060202	200-EPGW060202	100-EPGW060202
6.50	6.35	2.38	2.8	0.4	EPGW060204	400-EPGW060204	300-EPGW060204	200-EPGW060204	100-EPGW060204
8.30	7.94	3.18	3.4	0.2	EPGW080302	400-EPGW080302	300-EPGW080302	200-EPGW080302	100-EPGW080302
8.30	7.94	3.18	3.4	0.4	EPGW080304	400-EPGW080304	300-EPGW080304	200-EPGW080304	100-EPGW080304
8.30	7.94	3.18	3.4	0.8	EPGW080308	400-EPGW080308	300-EPGW080308	200-EPGW080308	100-EPGW080308

RPGW Full face



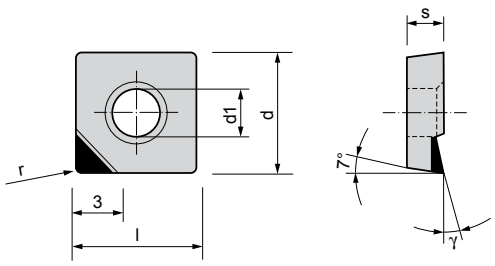


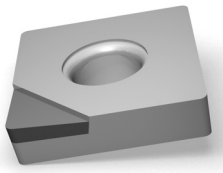
Dimensions				Article No.		
d	s	d1	ISO Code	CBN (Cubor)	PCD (Diasynt)	CVD (Diavap)
6.0	2.38	2.8	RCGW0602MO-VM	400-RCGW0602MO-VM	300-RCGW0602MO-VM	200-RCGW0602MO-VM
8.0	3.18	3.4	RCGW0803MO-VM	400-RCGW0803MO-VM	300-RCGW0803MO-VM	200-RCGW0803MO-VM
10.0	3.18	4.4	RCGW1003MO-VM	400-RCGW1003MO-VM	300-RCGW1003MO-VM	200-RCGW1003MO-VM
10.0	3.97	4.4	RCGW1002MO-VM	400-RCGW1002MO-VM	300-RCGW1002MO-VM	200-RCGW1002MO-VM
12.0	4.76	4.4	RCGW1204MO-VM	400-RCGW1204MO-VM	300-RCGW1204MO-VM	200-RCGW1204MO-VM

RPGW Full Face

Dimensions				Article No.		
d	s	d1	ISO Code	CBN (Cubor)	PCD (Diasynt)	CVD (Diavap)
8.0	2.38	3.4	RPGW0802MO-VM	400-RPGW0802MO-VM	300-RPGW0802MO-VM	200-RPGW0802MO-VM
10.0	3.18	4.4	RPGW1003MO-VM	400-RPGW1003MO-VM	300-RPGW1003MO-VM	200-RPGW1003MO-VM
12.0	4.75	4.5	RPGW1204MO-VM	400-RPGW1204MO-VM	300-RPGW1204MO-VM	200-RPGW1204MO-VM
12.7	4.76	5.5	RPGW120400-VM	400-RPGW120400-VM	300-RPGW120400-VM	200-RPGW120400-VM

SCGT Positiv





Dimensions						Article No.	
l	d	s	d1	r	ISO Code	PCD (Diasynt)	CVD (Diavap)
9.52	9.52	3.97	4.4	0.4	SCGT09T304	300-SCGT09T304	200-SCGT09T304
9.52	9.52	3.97	4.4	0.8	SCGT09T308	300-SCGT09T308	200-SCGT09T308
9.52	9.52	3.97	4.4	1.2	SCGT09T312	300-SCGT09T312	200-SCGT09T312
12.70	12.70	4.76	5.5	0.8	SCGT120408	300-SCGT120408	200-SCGT120408
12.70	12.70	4.76	5.5	1.2	SCGT120412	300-SCGT120412	200-SCGT120412

Key:

CBN	cubic boron nitride	CVD	CVD diamond
PCD	polycrystalline diamond	MCD	monocrystalline diamond

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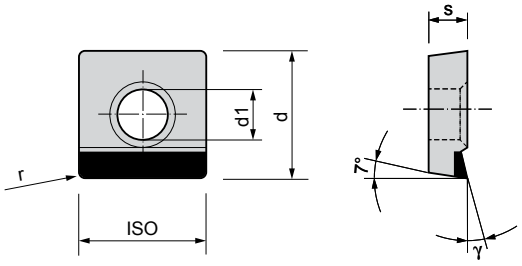
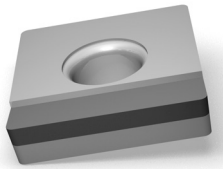
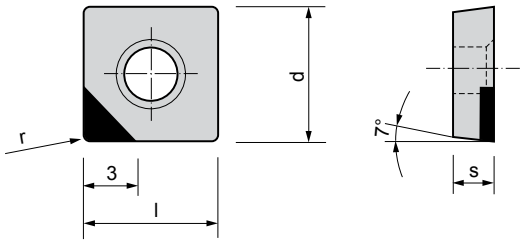
SCGT Positive / whole cutting edge

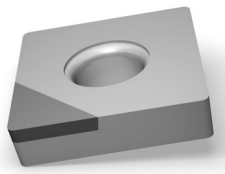




Dimensions						Article No.	
l	d	s	d1	r	ISO Code	PCD (Diasynt)	CVD (Diavap)
9.52	9.52	3.97	4.4	0.8	SCGT09T308-GS	300-SCGT09T308-GS	200-SCGT09T308-GS
9.52	9.52	3.97	4.4	1.2	SCGT09T312-GS	300-SCGT09T312-GS	200-SCGT09T312-GS
12.70	12.70	4.76	5.5	0.8	SCGT120408-GS	300-SCGT120408-GS	200-SCGT120408-GS
12.70	12.70	4.76	5.5	1.2	SCGT120412-GS	300-SCGT120412-GS	200-SCGT120412-GS

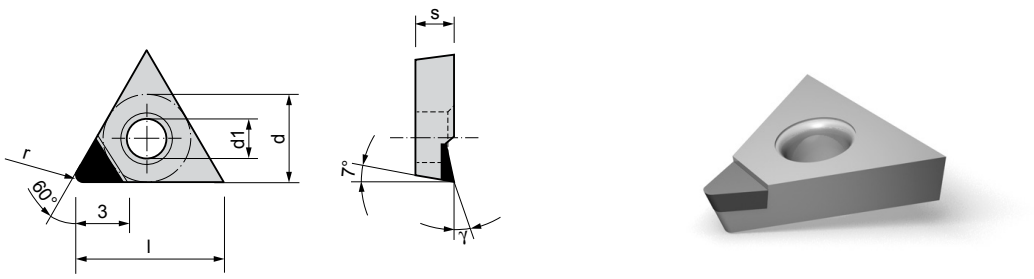
SCGW Neutral





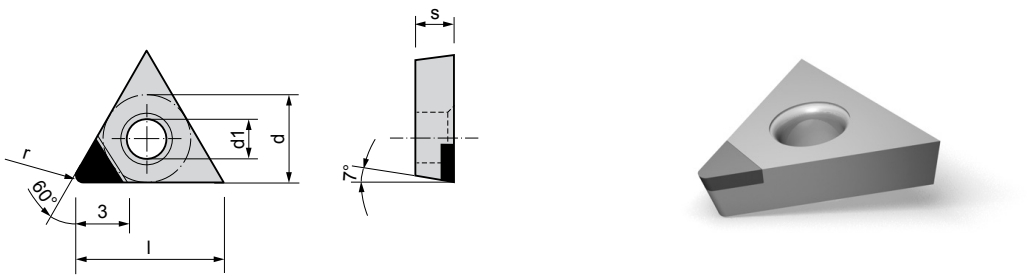
Dimensions						Article No.			
l	d	s	d1	r	ISO Code	CBN (Cubor)	PCD (Diasynt)	CVD (Diavap)	MCD (Monosynt)
9.52	9.52	3.97	4.4	0.4	SCGW09T304	400-SCGW09T304	300-SCGW09T304	200-SCGW09T304	100-SCGW09T304
9.52	9.52	3.97	4.4	0.8	SCGW09T308	400-SCGW09T308	300-SCGW09T308	200-SCGW09T308	100-SCGW09T308
9.52	9.52	3.97	4.4	1.2	SCGW09T312	400-SCGW09T312	300-SCGW09T312	200-SCGW09T312	100-SCGW09T312
12.70	12.70	4.76	5.5	0.4	SCGW120404	400-SCGW120404	300-SCGW120404	200-SCGW120404	100-SCGW120404
12.70	12.70	4.76	5.5	0.8	SCGW120408	400-SCGW120408	300-SCGW120408	200-SCGW120408	100-SCGW120408
12.70	12.70	4.76	5.5	1.2	SCGW120412	400-SCGW120412	300-SCGW120412	200-SCGW120412	100-SCGW120412

TCGT Positiv



Dimensions						Article No.	
l	d	s	d1	r	ISO Code	PCD (Diasynt)	CVD (Diavap)
9.6	5.56	2.38	2.5	0.2	TCGT 090202	300-TCGT 090202	200-TCGT 090202
9.6	5.56	2.38	2.5	0.4	TCGT 090204	300-TCGT 090204	200-TCGT 090204
9.6	5.56	2.38	2.5	0.8	TCGT 090208	300-TCGT 090208	200-TCGT 090208
11.0	6.35	2.38	2.8	0.2	TCGT110202	300-TCGT110202	200-TCGT110202
11.0	6.35	2.38	2.8	0.4	TCGT110204	300-TCGT110204	200-TCGT110204
11.0	6.35	2.38	2.8	0.8	TCGT110208	300-TCGT110208	200-TCGT110208
16.5	9.52	3.97	4.4	0.4	TCGT16T304	300-TCGT16T304	200-TCGT16T304
16.5	9.52	3.97	4.4	0.8	TCGT16T308	300-TCGT16T308	200-TCGT16T308

TCGW Neutral



Dimensions						Article No.			
l	d	s	d1	r	ISO Code	CBN (Cubor)	PCD (Diasynt)	CVD (Diavap)	MCD (Monosynt)
9.6	5.56	2.38	2.5	0.2	TCGW090202	400-TCGW090202	300-TCGW090202	200-TCGW090202	100-TCGW090202
9.6	5.56	2.38	2.5	0.4	TCGW090204	400-TCGW090204	300-TCGW090204	200-TCGW090204	100-TCGW090204
9.6	5.56	2.38	2.5	0.8	TCGW090208	400-TCGW090208	300-TCGW090208	200-TCGW090208	100-TCGW090208
11.0	6.35	2.38	2.8	0.2	TCGW110202	400-TCGW110202	300-TCGW110202	200-TCGW110202	100-TCGW110202
11.0	6.35	2.38	2.8	0.4	TCGW110204	400-TCGW110204	300-TCGW110204	200-TCGW110204	100-TCGW110204
11.0	6.35	2.38	2.8	0.8	TCGW110208	400-TCGW110208	300-TCGW110208	200-TCGW110208	100-TCGW110208
16.5	9.52	3.97	4.4	0.4	TCGW16T304	400-TCGW16T304	300-TCGW16T304	200-TCGW16T304	100-TCGW16T304
16.5	9.52	3.97	4.4	0.8	TCGW16T308	400-TCGW16T308	300-TCGW16T308	200-TCGW16T308	100-TCGW16T308
16.5	9.52	3.97	4.4	1.2	TCGW16T312	400-TCGW16T312	300-TCGW16T312	200-TCGW16T312	100-TCGW16T312

Key:

CBN	cubic boron nitride	CVD	CVD diamond
PCD	polycrystalline diamond	MCD	monocrystalline diamond

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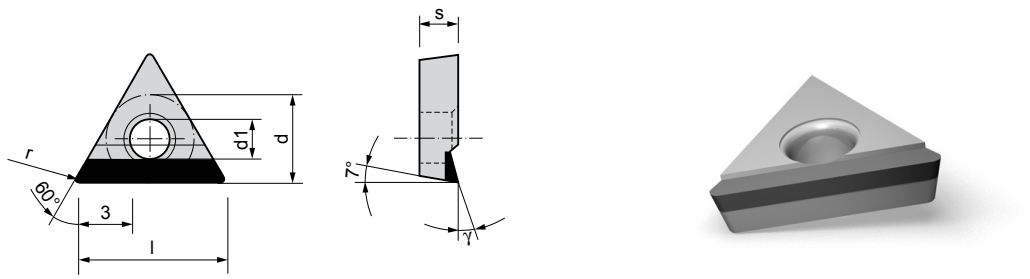
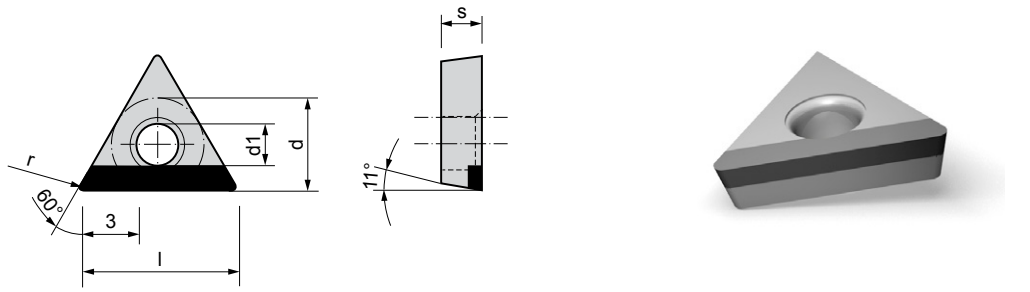
TCGT Positive / whole cutting edge



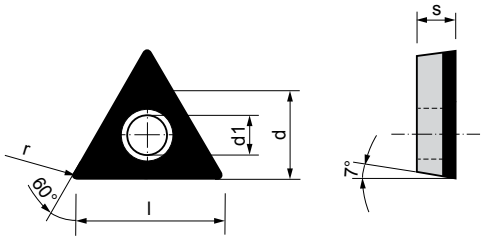
Dimensions						Article No.	
l	d	s	d1	r	ISO Code	PCD (Diasynt)	CVD (Diavap)
9.6	5.56	2.38	2.5	0.4	TCGT090204-GS	300-TCGT 090204-GS	200-TCGT 090204-GS
9.6	5.56	2.38	2.5	0.8	TCGT090208-GS	300-TCGT 090208-GS	200-TCGT 090208-GS
11.0	6.35	2.38	2.8	0.4	TCGT110204-GS	300-TCGT110204-GS	200-TCGT110204-GS
11.0	6.35	2.38	2.8	0.8	TCGT110208-GS	300-TCGT110208-GS	200-TCGT110208-GS
11.0	6.35	2.38	2.8	1.2	TCGT110212-GS	300TCGT110212-GS	200-TCGT110212-GS
16.5	9.52	3.97	4.4	0.4	TCGT16T304-GS	300-TCGT16T304-GS	200-TCGT16T304-GS
16.5	9.52	3.97	4.4	0.8	TCGT16T308-GS	300TCGT16T308-GS	200-TCGT16T308-GS
16.5	9.52	3.97	4.4	1.2	TCGT16T312-GS	300-TCGT16T312-GS	200-TCGT16T312-GS

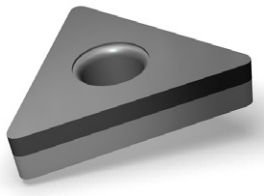
TCGW Neutral / whole cutting edge



Dimensions						Article No.			
l	d	s	d1	r	ISO Code	CBN (Cubor)	PCD (Diasynt)	CVD (Diavap)	MCD (Monosynt)
9.6	5.56	2.38	2.5	0.4	TCGW090204-GS	400-TCGW090204-GS	300-TCGW090204-GS	200-TCGW090204-GS	100-TCGW090204-GS
9.6	5.56	2.38	2.5	0.8	TCGW090208-GS	400-TCGW090208-GS	300-TCGW090208-GS	200-TCGW090208-GS	100-TCGW090208-GS
11.0	6.35	2.38	2.8	0.2	TCGW110202-GS	400-TCGW110202-GS	300-TCGW110202-GS	200-TCGW110202-GS	100-TCGW110202-GS
11.0	6.35	2.38	2.8	0.4	TCGW110204-GS	400-TCGW110204-GS	300-TCGW110204-GS	200-TCGW110204-GS	100-TCGW110204-GS
11.0	6.35	2.38	2.8	0.8	TCGW110208-GS	400-TCGW110208-GS	300-TCGW110208-GS	200-TCGW110208-GS	100-TCGW110208-GS
16.5	9.52	3.97	4.4	0.4	TCGW16T304-GS	400-TCGW16T304-GS	300-TCGW16T304-GS	200-TCGW16T304-GS	100-TCGW16T304-GS
16.5	9.52	3.97	4.4	0.8	TCGW16T308-GS	400-TCGW16T308-GS	300-TCGW16T308-GS	200-TCGW16T308-GS	100-TCGW16T308-GS
16.5	9.52	3.97	4.4	1.2	TCGW16T312-GS	400-TCGW16T312-GS	300-TCGW16T312-GS	200-TCGW16T312-GS	100-TCGW16T312-GS

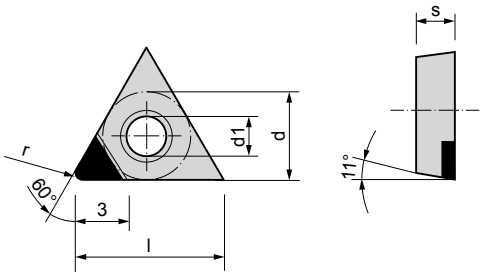
TCGW Full Face

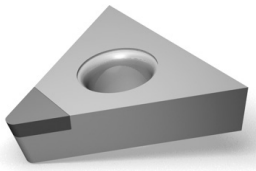




Dimensions						Article No.	
d	s	d1	r	ISO Code	CBN (Cubor)	PCD (Diasynt)	CVD (Diavap)
6.35	2.38	2.8	0.2	TCGW110202-VM	400-TCGW110202-VM	300-TCGW110202-VM	200-TCGW110202-VM
6.35	2.38	2.8	0.4	TCGW110204-VM	400-TCGW110204-VM	300-TCGW110204-VM	200-TCGW110204-VM
6.35	2.38	2.8	0.8	TCGW110208-VM	400-TCGW110208-VM	300-TCGW110208-VM	200-TCGW110208-VM

TPGW Neutral





Dimensions						Article No.			
l	d	s	d1	r	ISO Code	CBN (Cubor)	PCD (Diasynt)	CVD (Diavap)	MCD (Monosynt)
11.0	6.35	2.38	2.8	0.2	TPGW110202	400-TPGW110202	300-TPGW110202	200-TPGW110202	100-TPGW110202
11.0	6.35	2.38	2.8	0.4	TPGW110204	400-TPGW110204	300-TPGW110204	200-TPGW110204	100-TPGW110204
11.0	6.35	2.38	2.8	0.8	TPGW110208	400-TPGW110208	300-TPGW110208	200-TPGW110208	100-TPGW110208

Key:

CBN	cubic boron nitride
PCD	polycrystalline diamond
CVD	CVD diamond
MCD	monocrystalline diamond

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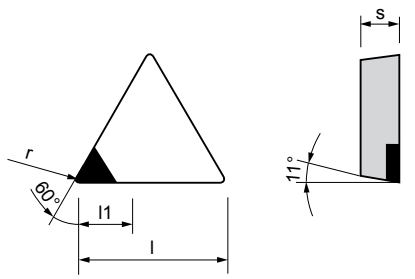
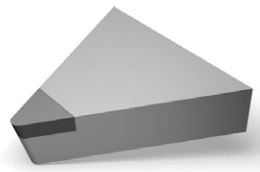
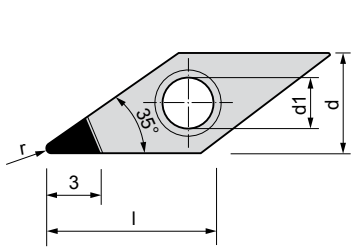
TPGN

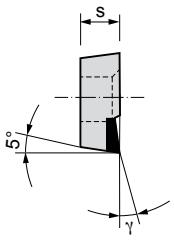


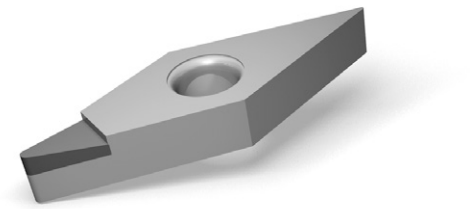


Dimensions					Article No.			
l	l1	s	r	ISO Code	CBN (Cubor)	PCD (Diasynt)	CVD (Diavap)	MCD (Monosynt)
11.0	3.4	3.18	0.2	TPGN110302	400-TPGN110302	300-TPGN110302	200-TPGN110302	100-TPGN110302
11.0	3.2	3.18	0.4	TPGN110304	400-TPGN110304	300-TPGN110304	200-TPGN110304	100-TPGN110304
11.0	3.0	3.18	0.8	TPGN110308	400-TPGN110308	300-TPGN110308	200-TPGN110308	100-TPGN110308
16.5	3.4	3.18	0.2	TPGN110302	400-TPGN110302	300-TPGN110302	200-TPGN110302	100-TPGN110302
16.5	6.5	3.18	0.2	TPGN110302	400-TPGN110302	300-TPGN110302	200-TPGN110302	100-TPGN110302
16.5	3.2	3.18	0.4	TPGN110304	400-TPGN110304	300-TPGN110304	200-TPGN110304	100-TPGN110304
16.5	6.3	3.18	0.4	TPGN110304	400-TPGN110304	300-TPGN110304	200-TPGN110304	100-TPGN110304
16.5	3.0	3.18	0.8	TPGN110308	400-TPGN110308	300-TPGN110308	200-TPGN110308	100-TPGN110308
16.5	6.0	3.18	0.8	TPGN110308	400-TPGN110308	300-TPGN110308	200-TPGN110308	100-TPGN110308

VBGT Positive

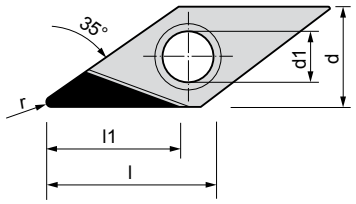


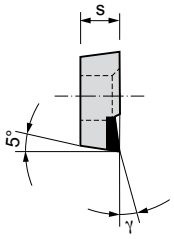


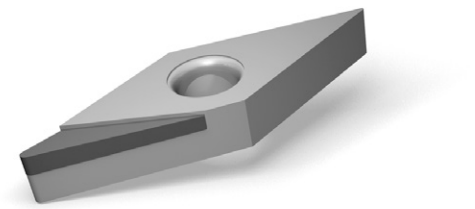


Dimensions						Article No.	
l	d	s	d1	r	ISO Code	PCD (Diasynt)	CVD (Diavap)
11.1	6.35	2.38	2.9	0.1	VBGT110201	300-VBGT110201	200-VBGT110201
11.1	6.35	2.38	2.9	0.2	VBGT110202	300-VBGT110202	200-VBGT110202
11.1	6.35	2.38	2.9	0.4	VBGT110204	300-VBGT110204	200-VBGT110204
11.1	6.35	2.38	2.9	0.8	VBGT110208	300-VBGT110208	200-VBGT110208
16.6	9.52	4.76	4.4	0.2	VBGT160402	300-VBGT160402	200-VBGT160402
16.6	9.52	4.76	4.4	0.4	VBGT160404	300-VBGT160404	200-VBGT160404
16.6	9.52	4.76	4.4	0.8	VBGT110208	300-VBGT110208	200-VBGT110208

VBGT Positive R/L







Dimensions							Article No.	
l	l1	d	s	d1	r	ISO Code	PCD (Diasynt)	CVD (Diavap)
11.0	6.5	6.35	2.38	2.9	0.4	VBGT110204R/L	300-VBGT110204R/L	200-VBGT110204R/L
11.0	6.0	6.35	2.38	2.9	0.8	VBGT110208R/L	300-VBGT110208R/L	200-VBGT110208R/L
16.5	7.5	9.52	4.76	4.4	0.4	VBGT160404R/L	300-VBGT160404R/L	200-VBGT160404R/L
16.5	7.0	9.52	4.76	4.4	0.8	VBGT160408R/L	300-VBGT160408R/L	200-VBGT160408R/L
16.5	7.0	9.52	4.76	4.4	1.2	VBGT160412R/L	300-VBGT160412R/L	200-VBGT160412R/L

Key:

CBN	cubic boron nitride
PCD	polycrystalline diamond
CVD	CVD diamond
MCD	monocrystalline diamond

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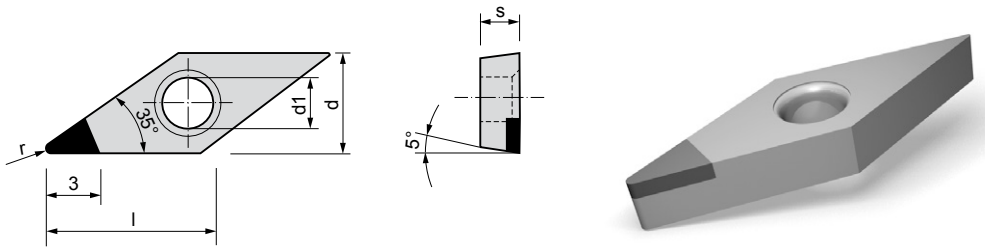
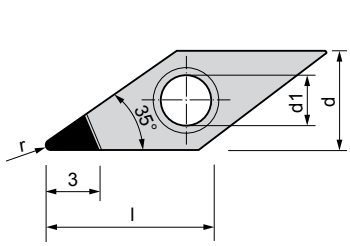
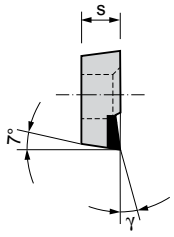
VBGW Neutral

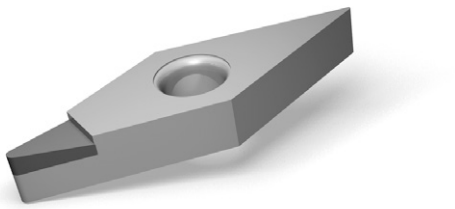


Dimensions						Article No.			
l	d	s	d1	r	ISO Code	CBN (Cubor)	PCD (Diasynt)	CVD (Diavap)	MCD (Monosynt)
11.1	6.35	2.38	2.9	0.1	VBGW110201	400-VBGW110201	300-VBGW110201	200-VBGW110201	100-VBGW110201
11.1	6.35	2.38	2.9	0.2	VBGW110202	400-VBGW110202	300-VBGW110202	200-VBGW110202	100-VBGW110202
11.1	6.35	2.38	2.9	0.4	VBGW110204	400-VBGW110204	300-VBGW110204	200-VBGW110204	100-VBGW110204
11.1	6.35	2.38	2.9	0.8	VBGW110208	400-VBGW110208	300-VBGW110208	200-VBGW110208	100-VBGW110208
16.6	9.52	4.76	4.4	0.2	VBGW160402	400-VBGW160402	300-VBGW160402	200-VBGW160402	100-VBGW160402
16.6	9.52	4.76	4.4	0.4	VBGW160404	400-VBGW160404	300-VBGW160404	200-VBGW160404	100-VBGW160404
16.6	9.52	4.76	4.4	0.8	VBGW160408	400-VBGW160408	300-VBGW160408	200-VBGW160408	100-VBGW160408

VCGT Positive

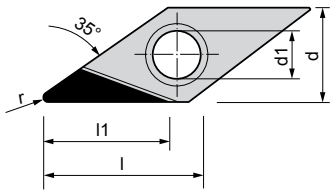


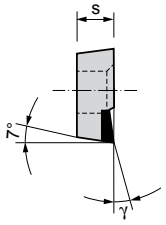


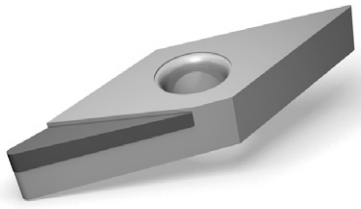


Dimensions						Article No.	
l	d	s	d1	r	ISO Code	PCD (Diasynt)	CVD (Diavap)
6.9	3.97	3.18	2.2	0.1	VCGT070301	300-VCGT070301	200-VCGT070301
6.9	3.97	3.18	2.2	0.2	VCGT070302	300-VCGT070302	200-VCGT070302
6.9	3.97	3.18	2.2	0.4	VCGT070304	300-VCGT070304	200-VCGT070304
11.1	6.35	3.18	2.9	0.1	VCGT110301	300-VCGT110301	200-VCGT110301
11.1	6.35	3.18	2.9	0.2	VCGT110302	300-VCGT110302	200-VCGT110302
11.1	6.35	3.18	2.9	0.4	VCGT110304	300-VCGT110304	200-VCGT110304
11.1	6.35	3.18	2.9	0.8	VCGT110308	300-VCGT110308	200-VCGT110308
13.3	7.94	3.18	3.4	0.2	VCGT130302	300-VCGT130302	200-VCGT130302
13.3	7.94	3.18	3.4	0.4	VCGT130304	300-VCGT130304	200-VCGT130304
16.6	9.52	4.76	4.4	0.1	VCGT160401	300-VCGT160401	200-VCGT160401
16.6	9.52	4.76	4.4	0.2	VCGT160402	300-VCGT160402	200-VCGT160402
16.6	9.52	4.76	4.4	0.4	VCGT160404	300-VCGT160404	200-VCGT160404
16.6	9.52	4.76	4.4	0.8	VCGT160408	300-VCGT160408	200-VCGT160408
16.6	9.52	4.76	4.4	1.2	VCGT160412	300-VCGT160412	200-VCGT160412

VCGT Positiv R/L







Dimensions						Article No.	
l	d	s	d1	r	ISO Code	PCD (Diasynt)	CVD (Diavap)
11.1	6.35	3.18	2.9	0.4	VCGT110304	300-VCGT110304R/L	200-VCGT110304R/L
11.1	6.35	3.18	2.9	0.8	VCGT110308	300-VCGT110308R/L	200-VCGT110308R/L
16.6	9.52	4.76	4.4	0.4	VCGT160404	300-VCGT160404R/L	200-VCGT160404R/L
16.6	9.52	4.76	4.4	0.8	VCGT160408	300-VCGT160408R/L	200-VCGT160408R/L
16.6	9.52	4.76	4.4	1.2	VCGT160412	300-VCGT160412R/L	200-VCGT160412R/L

Key:

CBN	cubic boron nitride	CVD	CVD diamond
PCD	polycrystalline diamond	MCD	monocrystalline diamond

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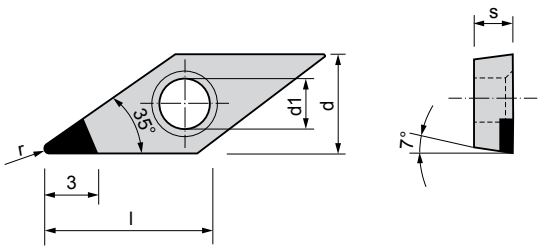
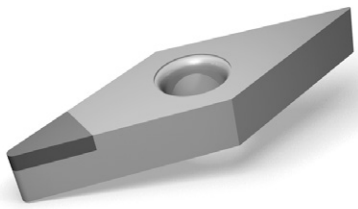
VCGW Neutral





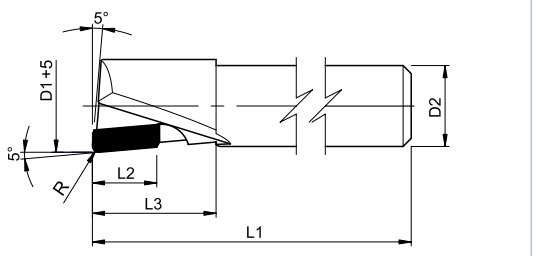
Dimensions						Article No.			
l	d	s	d1	r	ISO Code	CBN (Cubor)	PCD (Diasynt)	CVD (Diavap)	MCD (Monosynt)
6.9	3.97	3.18	2.2	0.1	VCGW070301	400-VCGW070301	300-VCGW070301	200-VCGW070301	100-VCGW070301
6.9	3.97	3.18	2.2	0.2	VCGW070302	400-VCGW070302	300-VCGW070302	200-VCGW070302	100-VCGW070302
6.9	3.97	3.18	2.2	0.4	VCGW070304	400-VCGW070304	300-VCGW070304	200-VCGW070304	100-VCGW070304
11.1	6.35	3.18	2.9	0.1	VCGW110301	400-VCGW110301	300-VCGW110301	200-VCGW110301	100-VCGW110301
11.1	6.35	3.18	2.9	0.2	VCGW110302	400-VCGW110302	300-VCGW110302	200-VCGW110302	100-VCGW110302
11.1	6.35	3.18	2.9	0.4	VCGW110304	400-VCGW110304	300-VCGW110304	200-VCGW110304	100-VCGW110304
11.1	6.35	3.18	2.9	0.8	VCGW110308	400-VCGW110308	300-VCGW110308	200-VCGW110308	100-VCGW110308
13.3	7.94	3.18	3.4	0.2	VCGW130302	400-VCGW130302	300-VCGW130302	200-VCGW130302	100-VCGW130302
13.3	7.94	3.18	3.4	0.4	VCGW130304	400-VCGW130304	300-VCGW130304	200-VCGW130304	100-VCGW130304
16.6	9.52	4.76	4.4	0.1	VCGW160401	400-VCGW160401	300-VCGW160401	200-VCGW160401	100-VCGW160401
16.6	9.52	4.76	4.4	0.2	VCGW160402	400-VCGW160402	300-VCGW160402	200-VCGW160402	100-VCGW160402
16.6	9.52	4.76	4.4	0.4	VCGW160404	400-VCGW160404	300-VCGW160404	200-VCGW160404	100-VCGW160404
16.6	9.52	4.76	4.4	0.8	VCGW160408	400-VCGW160408	300-VCGW160408	200-VCGW160408	100-VCGW160408
16.6	9.52	4.76	4.4	1.2	VCGW160412	400-VCGW160412	300-VCGW160412	200-VCGW160412	

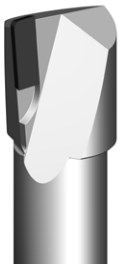
PCD and CVD Diamond milling tools

PCD diamond milling tools from Wirz Diamant AG are capable of achieving outstanding results in terms of service life and surface quality. The diamond inserts are soldered onto carbide shanks.

PCD end mill cutters

Steel shank: single cutting edge without center cut





Ø D1 + 0.5	Ø D2	L1	L2	L3	R	Article No.
6	6	60	4.5	-	0.4	300.20.01100
8	6	60	4.5	10	0.4	300.20.01101
10	8	60	4.5	10	0.4	300.20.01102
12	10	80	8	15	0.8	300.20.01103
14	10	80	8	15	0.8	300.20.01104
16	12	80	8	15	0.8	300.20.01105
18	14	100	8	20	0.8	300.20.01106
20	16	100	8	20	0.8	300.20.01107
25	20	100	8	20	0.8	300.20.01108

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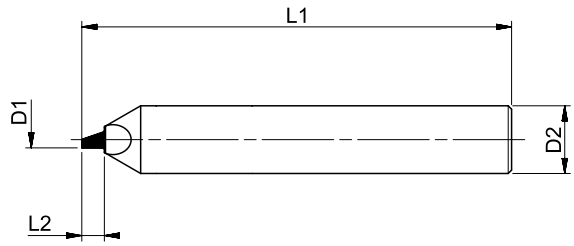
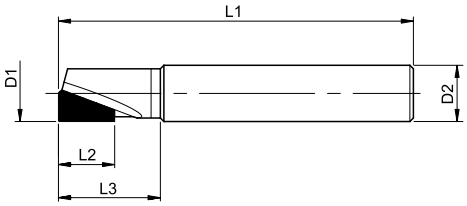
Carbide shank: single cutting, center cut



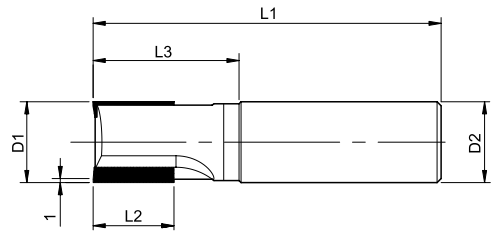
Ø D1 ± 0.02	Ø D2	L1	L2	L3	Article No.
1	6	50	3	3	300.20.01116
3.5	6	50	3.5	3.5	300.20.01117
2	6	50	4.5	4.5	300.20.01118
2.5	6	50	5.5	5.5	300.20.01119

Carbide shank: single cutting, center cut



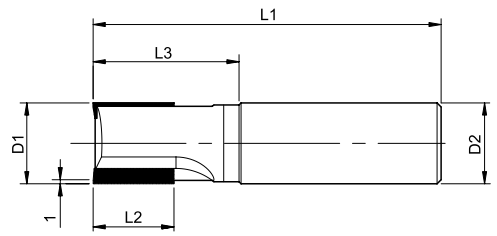
Ø D1 ± 0.02	Ø D2	L1	L2	L3	Article No.
3	6	50	6.5	6.5	300.20.01120
3.5	6	50	7	7	300.20.01121
4	6	50	4	4	300.20.01122
5	6	50	5	5	300.20.01123
6	6	50	6	6	300.20.01124
8	8	50	8	8	300.20.01125
10	10	60	10	10	300.20.01126
12	12	65	12	12	300.20.01127

Carbide shank: two cutting edges without center cut



Ø D1 ± 0.02	Ø D2	L1	L2	L3	Article No.
6	6	60	6	15	300.20.01135
8	8	65	8	20	300.20.01136
10	10	70	10	25	300.20.01137
12	12	70	12	25	300.20.01138
14	16	80	14	32	300.20.01139
16	16	80	16	32	300.20.01140
20	20	90	20	40	300.20.01141

Carbide shank: two cutting edges, center cut



Ø D1 ± 0.02	Ø D2	L1	L2	L3	Article No.
6	6	60	6	15	300.20.01150
8	8	65	8	20	300.20.01151
10	10	70	10	25	300.20.01152
12	12	70	12	25	300.20.01153
14	16	80	14	32	300.20.01154
16	16	80	16	32	300.20.01155
20	20	90	20	40	300.20.01156

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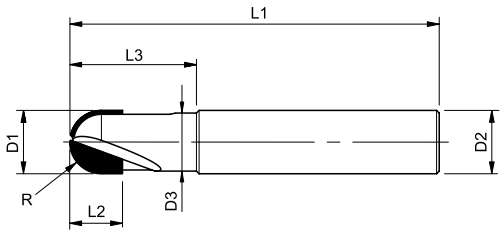
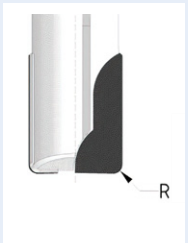
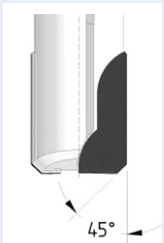
PCD 3D radius cutter: two cutting edges, center cut



Ø D1 ± 0.02	R+-0.005	Ø D2	D3	L3	L1	L2	Article No.
3	1.5	6	3	9	75	3	300.20.01210
3	1.5	6	3	15	75	3	300.20.01211
3	1.5	6	3	21	75	3	300.20.01212
4	2.0	6	4	12	75	4	300.20.01213
4	2.0	6	4	20	75	4	300.20.01214
4	2.0	6	4	28	75	4	300.20.01215
5	2.5	6	5	15	75	5	300.20.01216
5	2.5	6	5	25	75	5	300.20.01217
5	2.5	6	5	35	75	5	300.20.01218
6	3.0	6	6	18	100	6	300.20.01219
6	3.0	6	6	30	100	6	300.20.01220
6	3.0	6	6	42	100	6	300.20.01221
8	4.0	8	8	24	100	8	300.20.01222
8	4.0	8	8	40	100	8	300.20.01223
10	5.0	10	10	30	100	10	300.20.01224
10	5.0	10	10	50	100	10	300.20.01225
12	6.0	12	12	36	105	12	300.20.01226
12	6.0	12	12	60	105	12	300.20.01227

PCD-Special Cutters in 5 days!





Dia.-area (D): 4 - 20 mm **Cutting length:** 1xD - 1.5xD
Radius or bevel: 0 - 0.25xD **Sphere:** Full radius

Configuration in 5 steps:

1. Selection of the material to be machined

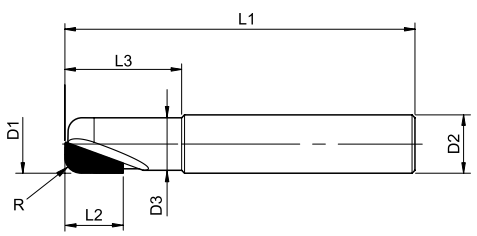
2. Selection of the cutter shape

3. Determination of dimensions

4. Finish of the drawing and laser marking

5. Quotation, order and status generation

PCD radius end mill cutter: single cutting edge, center cut



Ø D1 ± 0.02	R+-0.005			L3	D3	L1	L2	Article No.
3	0.3	-	-	9	2.5	75	2.5	300.20.01235
3	0.3	-	-	15	2.5	75	2.5	300.20.01236
3	0.3	0.5	-	21	2.5	75	2.5	300.20.01237
4	0.3	-	-	12	3.5	75	2.5	300.20.01238
4	0.3	-	-	20	3.5	75	2.5	300.20.01239
4	0.3	0.5	-	28	3.5	75	2.5	300.20.01240
5	0.3	-	-	15	4.4	75	3.0	300.20.01241
5	0.3	-	-	25	4.4	75	3.0	300.20.01242
5	0.3	0.5		35	4.4	75	3.0	300.20.01243
6	0.3	0.5	1.0	18	5.4	100	6.0	300.20.01244
6	0.3	0.5	1.0	30	5.4	100	6.0	300.20.01245
6	0.3	0.5	1.0	42	5.4	100	6.0	300.20.01246
8	0.3	0.5	1.0	24	7.2	100	7.0	300.20.01247
8	0.3	0.5	1.0	40	7.2	100	7.0	300.20.01248
10	-	0.5	1.0	30	9.0	100	8.0	300.20.01249
10	-	0.5	1.0	50	9.0	100	8.0	300.20.01250
12	-	0.5	1.0	36	11.0	105	9.0	300.20.01251
12	-	0.5	1.0	60	11.0	105	9.0	300.20.01252

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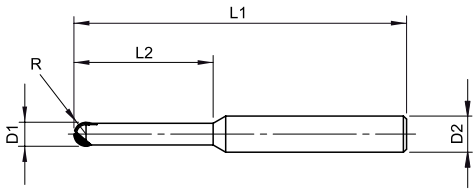
PCD spherical cutters

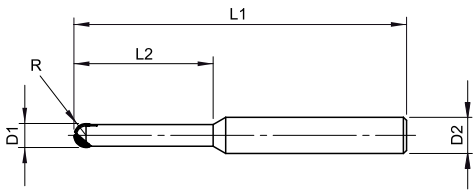
Spherical cutters are mostly used for machining ceramics, aluminum and graphite.

Spherical cutter – Center cut




Ø D1 ± 0.02	Ø D2	L1	L2	Z	Article No.
2 / 1	6	58	6	1	300.20.01260
2.5 / 1.25	6	58	6	1	300.20.01261
3 / 1.5	6	65	15	1	300.20.01262
3.5 / 1.75	6	65	15	1	300.20.01263
4 / 2	6	70	20	2	300.20.01264
5 / 2.5	6	80	25	2	300.20.01265
6 / 3	8	85	30	2	300.20.01266
8 / 4	8	90	35	2	300.20.01267

Spherical cutter – Center cut – Undercut




Ø D1 ± 0.02	Ø D2	L1	L2	Z	Article No.
2 / 1	6	94	11.5	1	300.20.01275
2.5 / 1.25	6	94	11.5	1	300.20.01276
3 / 1.5	6	94	14	1	300.20.01277
3.5 / 1.75	6	94	17.5	1	300.20.01278
4 / 2	6	94	23	2	300.20.01279
5 / 2.5	6	94	28	2	300.20.01280
6 / 3	8	100	32	2	300.20.01281
8 / 4	8	120	36.5	2	300.20.01282

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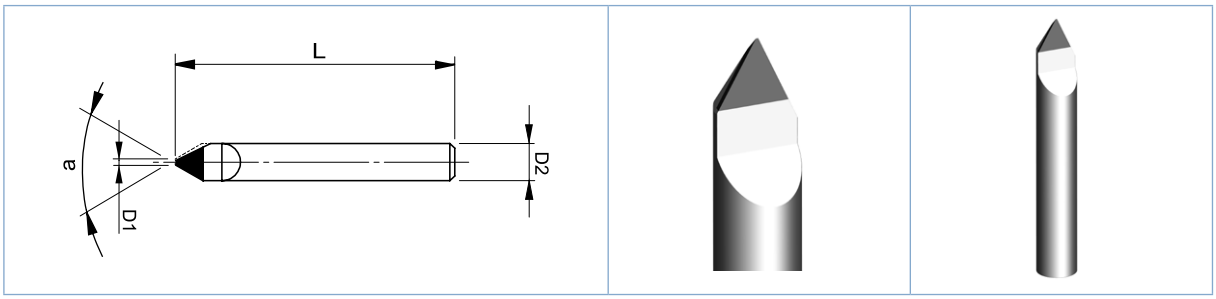
PCD & CVD engravers

Tungsten carbide shank – Preprofiled, ready relief ground, cutting direction: right handed



a (Angle)	Ø D1	Ø D2	L	Article No.. PCD	Article No. CVD
40°	0.10	3.0	40	300.20.01300	200.20.01300
40°	0.15	3.0	40	300.20.01301	200.20.01301
40°	0.10	6.0	40	300.20.01302	200.20.01302
40°	0.15	6.0	40	300.20.01303	200.20.01303
50°	0.05	3.0	40	300.20.01304	200.20.01304
50°	0.10	3.0	40	300.20.01305	200.20.01305
50°	0.15	3.0	40	300.20.01306	200.20.01306
50°	0.05	6.0	40	300.20.01307	200.20.01307
50°	0.10	6.0	40	300.20.01308	200.20.01308
50°	0.15	6.0	40	300.20.01309	200.20.01309
60°	0.05	3.0	40	300.20.01310	200.20.01310
60°	0.10	3.0	40	300.20.01311	200.20.01311
60°	0.15	3.0	40	300.20.01312	200.20.01312
60°	0.05	6.0	40	300.20.01313	200.20.01313
60°	0.10	6.0	40	300.20.01314	200.20.01314
60°	0.15	6.0	40	300.20.01315	200.20.01315
90°	0.10	3.0	40	300.20.01316	200.20.01316
90°	0.15	3.0	40	300.20.01317	200.20.01317
90°	0.10	6.0	40	300.20.01318	200.20.01318
90°	0.15	6.0	40	300.20.01319	200.20.01319

Other dimensions and designs available on request

Recommended cutting data

Material to be machined	Vc m/min
Brass	150 – 300
Copper	200 – 300
Gold	170 – 250
Aluminum	200 – 400
Platinum	130 – 200
Palladium	150 – 220
Carbon, PEEK	150 – 280

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CVD diamond milling tools

CVD properties and advantages compared with PCD:

- **Harder, more wear resistant,** depending on the material and application between 2 and 10 times longer service life compared with PCD
- **Pure diamond (no binder),** no microbreakages or chemical interaction
- **Maximum heat dissipation,** lowest cutting temperatures
- **Sharpest cutting edge,** reduced cutting force, improved finishing

Suitable for the following materials:

- **Aluminum with some silicon content**
- **GFK / CFK**
- **Platinum and gold**
- **Plastics**

Expected increases in service life PCD vs CVD diamond:

Aluminum	2-6 times
Copper/brass	2-6 times
CFK/ GFK	2-6 times
Graphite	2-5 times
Plastics with glass fiber	2-10 times
Aluminum composites	2-7 times
Magnesium	2-6 times
Tungsten	2-4 times
Fiber composites	3-6 times
Titanium	2-5 times

Recommended cutting data

Material	Cutting speed	Feed rate
Aluminum alloys < 1 %	150 – 6000	0.02 – 0.30
Aluminum alloys < 12 %	150 – 4000	0.02 – 0.25
Aluminum alloys > 12 %	150 – 2000	0.02 – 0.20
Magnesium	150 – 6000	0.02 – 0.25
Copper	150 – 5000	0.02 – 0.15
Brass	150 – 4000	0.02 – 0.20
Graphite	150 – 3000	0.02 – 0.20
GFK	150 – 3000	0.02 – 0.30
CFK	150 – 4000	0.02 – 0.30

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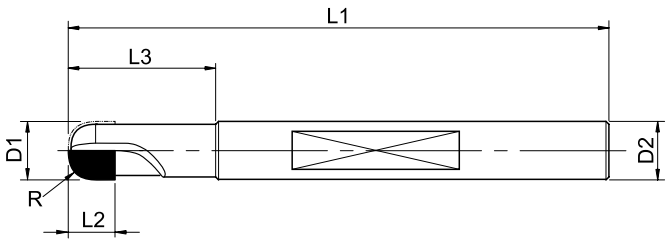
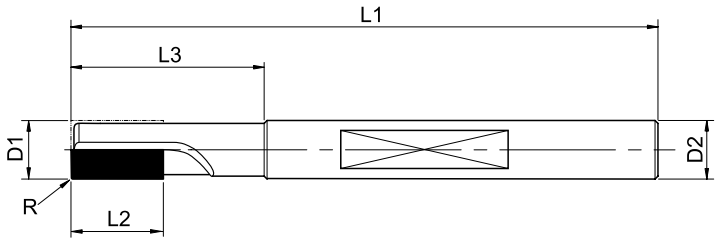
CVD diamond toroid end mill cutter



Ø D1 + 0.02	Ø D2	L1	L2	L3	R	CVD-thickness	Article No.
2	4	50	2.5	6	1	0.3	200.20.01400
2.5	4	50	3	8	1.25	0.3	200.20.01401
3	6	75	3	12	1.5	0.3	200.20.01402
4	6	75	4	18	2	0.5	200.20.01403
5	6	75	5	18	2.5	0.5	200.20.01404
6	6	100	6	26	3	0.8	200.20.01405
8	8	100	80	26	4	0.8	200.20.01406
10	10	100	10	26	5	0.8	200.20.01407
12	12	105	12	26	6	0.8	200.20.01408

CVD diamond radius end mill cutter



Ø D1	Ø D2	L1	L2	L3	R	CVD-thickness	Article No.
2.0	4	50	2.5	4	0.1	0.3	200.20.01415
2.5	4	50	5	5	0.1	0.3	200.20.01416
3.0	6	75	5	12	0.1	0.3	200.20.01417
4.0	6	75	5	10	0.1	0.5	200.20.01418
5.0	6	75	6	18	0.1	0.5	200.20.01419
6.0	6	100	8	20	0.2	0.8	200.20.01420
8.0	8	100	10	30	0.2	0.8	200.20.01421
10.0	10	105	12	30	0.2	0.8	200.20.01422
12.0	12	105	15	30	0.2	0.8	200.20.01423

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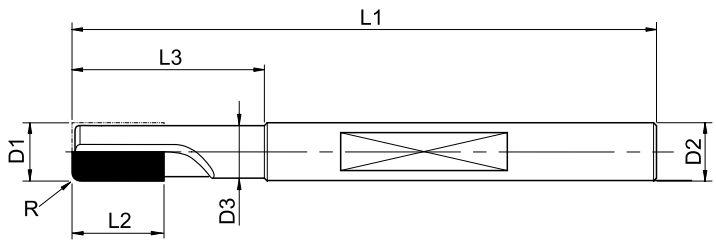
CVD diamond corner end mill cutter



Ø D1	Ø D2	L1	L2	L3	R	CVD-thickness	Article No.
3	6	75	3	16	0.3	0.3	200.20.01430
4	6	75	4	26	0.3	0.5	200.20.01431
5	6	75	5	18	0.3	0.5	200.20.01432
6	6	100	6	18	0.3	0.8	200.20.01433
6	6	100	6	18	0.5	0.8	200.20.01434
6	6	100	6	18	1	0.8	200.20.01435
8	8	100	7	24	0.3	0.8	200.20.01436
8	8	100	7	24	0.5	0.8	200.20.01437
8	8	100	7	24	1	0.8	200.20.01438
10	10	100	8	30	0.5	0.8	200.20.01439
10	10	100	8	30	1	0.8	200.20.01440
10	10	100	8	30	1.5	0.8	200.20.01441
12	12	100	10	35	0.5	0.8	200.20.01442
12	12	100	10	35	1	0.8	200.20.01443
12	12	100	10	35	1.5	0.8	200.20.01444

Other dimensions available on request

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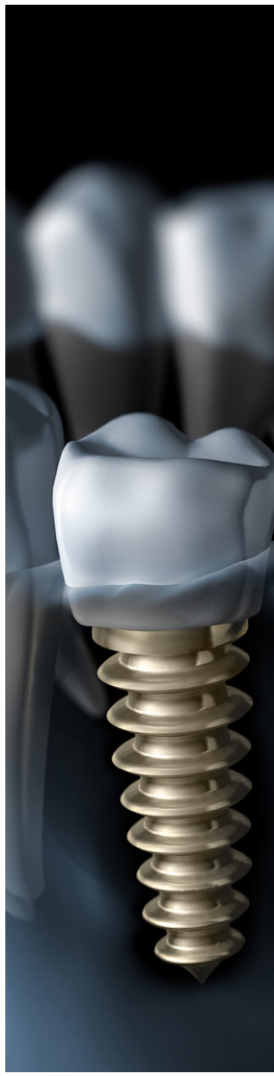
Solid carbide tools

Micro-milling machines for the jewelry, watchmaking, optical and medical engineering industries



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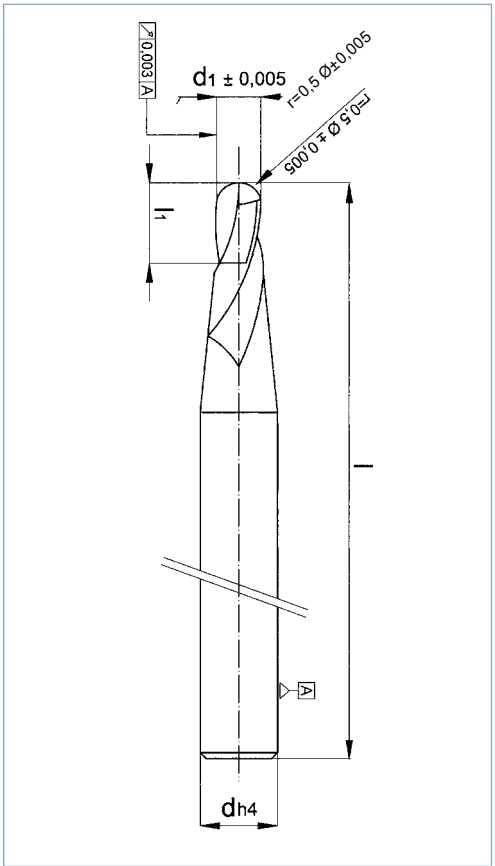
Solid carbide micro-radius cutters

Ideal for use of precision chucks thanks to highly accurate cylinder shank

Design: 2 cutting edges
Direction of cut: To right
Angle of twist: 30° right
Dimensional accuracy: Radius + 0.005 mm
True running accuracy: 0.003 mm

Article No.	D1	L1	D4	L
500.DIP703200006	0,06	0,12	3	38
500.DIP703200008	0,08	0,16	3	38
500.DIP703200010	0,10	0,20	3	38
500.DIP703200015	0,15	0,30	3	38
500.DIP703200020	0,20	0,30	3	38
500.DIP703200025	0,25	0,40	3	38
500.DIP703200030	0,30	0,50	3	38
500.DIP703200040	0,40	0,60	3	38
500.DIP703200050	0,50	0,80	3	38
500.DIP703200060	0,60	0,90	3	38
500.DIP703200070	0,70	1,10	3	38
500.DIP703200080	0,80	1,20	3	38
500.DIP703200090	0,90	1,40	3	38
500.DIP703200100	1,00	1,50	3	38
500.DIP703200110	1,10	1,70	3	38
500.DIP703200120	1,20	1,80	3	38
500.DIP703200130	1,30	1,90	3	38
500.DIP703200140	1,40	2,10	3	38
500.DIP703200150	1,50	2,30	3	38
500.DIP703200160	1,60	2,50	3	38
500.DIP703200170	1,70	2,50	3	38
500.DIP703200180	1,80	2,75	3	38
500.DIP703200190	1,90	2,75	3	38
500.DIP703200200	2,00	3,00	3	38



Intermediate sizes and sizes from Ø 2.0 mm can be found in our industrial catalog.
Our tools are supplied with finely ground cutting edges for a longer service life.
Carbide and geometry are specially developed for the HSC machining of gold, steel, titanium, aluminum, non-ferrous metals and plastics.

Coating on request.

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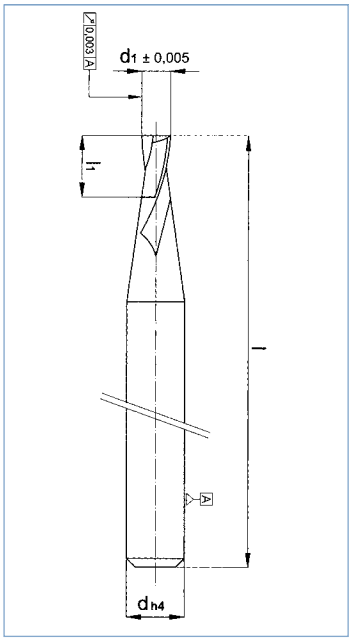
Carbide micro-end mill cutters

Ideal for use of precision chucks thanks to highly accurate cylinder shank



Design: 2 cutting edges
Direction of cut: To right
Angle of twist: 30° right
True running accuracy: 0.003 mm

Article No.	D1	L1	D4	L	Article No.	D1	L1	D4
500.DIP724200015	0,15	0,3	3	38	500.DIP724200090L	0,90	4,5	3
500.DIP724200020	0,20	0,4	3	38	500.DIP724200095	0,95	2,0	3
500.DIP724200025	0,25	0,6	3	38	500.DIP724200100	1,00	2,0	3
500.DIP724200030	0,30	0,6	3	38	500.DIP724200100L	1,00	5,0	3
500.DIP724200030L	0,30	1,0	3	38	500.DIP724200105	1,05	2,2	3
500.DIP724200035	0,35	0,8	3	38	500.DIP724200110	1,05	2,2	3
500.DIP724200040	0,40	0,8	3	38	500.DIP724200115	1,15	2,4	3
500.DIP724200040L	0,40	2,0	3	38	500.DIP724200120	1,20	2,4	3
500.DIP724200045	0,45	1,0	3	38	500.DIP724200120L	1,20	6,0	3
500.DIP724200050	0,50	1,0	3	38	500.DIP724200125	1,25	2,6	3
500.DIP724200050L	0,50	2,5	3	38	500.DIP724200130	1,30	2,6	3
500.DIP724200055	0,55	1,2	3	38	500.DIP724200135	1,35	2,8	3
500.DIP724200060	0,60	1,2	3	38	500.DIP724200140	1,40	2,8	3
500.DIP724200060L	0,60	3,0	3	38	500.DIP724200145	1,45	3,0	3
500.DIP724200065	0,65	1,4	3	38	500.DIP724200150	1,50	3,0	3
500.DIP724200070	0,70	1,4	3	38	500.DIP724200150L	1,50	7,0	3
500.DIP724200070L	0,70	3,5	3	38	500.DIP724200160	1,60	3,2	3
500.DIP724200075	0,75	1,6	3	38	500.DIP724200170	1,70	3,4	3
500.DIP724200080	0,80	1,6	3	38	500.DIP724200180	1,80	3,6	3
500.DIP724200080L	0,80	4,0	3	38	500.DIP724200190	1,90	4,0	3
500.DIP724200085	0,85	1,8	3	38	500.DIP724200200	2,00	6,0	3
500.DIP724200090	0,90	1,8	3	38				

Intermediate sizes and sizes from Ø 2.0 mm can be found in our industrial catalog.
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Carbide and geometry are specially developed for the HSC machining of gold, steel, titanium, aluminum, non-ferrous metals and plastics.

Coating on request.

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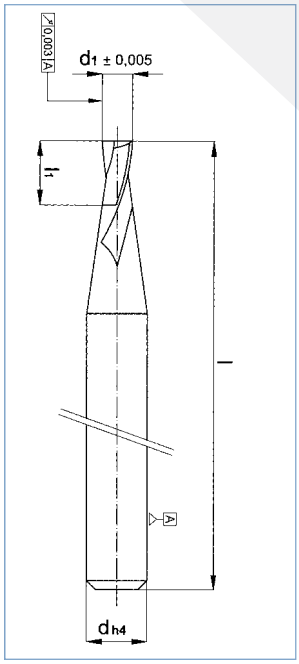
Carbide micro-end mill cutters short version

Ideal for use of precision chucks thanks to highly accurate cylinder shank



Design: 2 cutting edges
Direction of cut: To right
Angle of twist: 30° right
True running accuracy: 0.003 mm

Article No.	D1	L1	D4	L	Article No.	D1	L1	D4
500.DIP72400005	0,05	0,05	3	38	500.DIP72400090	0,90	0,90	3
500.DIP72400006	0,06	0,06	3	38	500.DIP72400095	0,95	0,95	3
500.DIP72400007	0,07	0,07	3	38	500.DIP72400100	1,00	1,00	3
500.DIP72400008	0,08	0,08	3	38	500.DIP72400105	1,05	1,05	3
500.DIP72400009	0,09	0,09	3	38	500.DIP72400110	1,10	1,10	3
500.DIP72400010	0,10	0,10	3	38	500.DIP72400115	1,15	1,15	3
500.DIP72400121	0,12	0,12	3	38	500.DIP72400120	1,20	1,20	3
500.DIP72400015	0,15	0,15	3	38	500.DIP72400125	1,25	1,25	3
500.DIP72400020	0,20	0,20	3	38	500.DIP72400130	1,30	1,30	3
500.DIP72400025	0,25	0,25	3	38	500.DIP72400135	1,35	1,35	3
500.DIP72400030	0,30	0,30	3	38	500.DIP72400140	1,40	1,40	3
500.DIP72400035	0,35	0,35	3	38	500.DIP72400145	1,45	1,45	3
500.DIP72400040	0,40	0,40	3	38	500.DIP72400150	1,50	1,50	3
500.DIP72400045	0,45	0,45	3	38	500.DIP72400160	1,60	1,60	3
500.DIP72400050	0,50	0,50	3	38	500.DIP72400165	1,65	1,65	3
500.DIP72400055	0,55	0,55	3	38	500.DIP72400170	1,70	1,70	3
500.DIP72400060	0,60	0,60	3	38	500.DIP72400175	1,75	1,75	3
500.DIP72400065	0,65	0,65	3	38	500.DIP72400180	1,80	1,80	3
500.DIP72400070	0,70	0,70	3	38	500.DIP72400185	1,85	1,85	3
500.DIP72400075	0,75	0,75	3	38	500.DIP72400190	1,90	1,90	3
500.DIP72400080	0,80	0,80	3	38	500.DIP72400195	1,95	1,95	3
500.DIP72400085	0,85	0,85	3	38	500.DIP72400200	2,00	2,00	3

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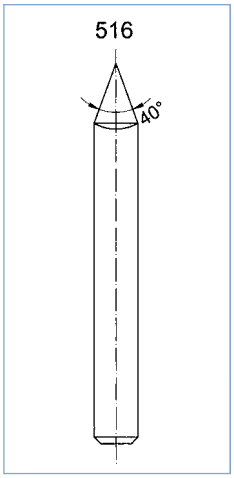
Coating on request.

Engravers

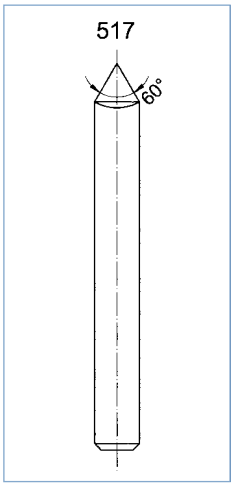
40° graver



Direction of cut: To right
Tip angle: 40°
Tip diameter: 0.2 + 0.05 mm

Article No.	D1	L1	Degree	D4	L
500.DIP70174005	0,05 0,01	6	40	3	38
500.DIP70174010	0,10 0,02	6	40	3	38

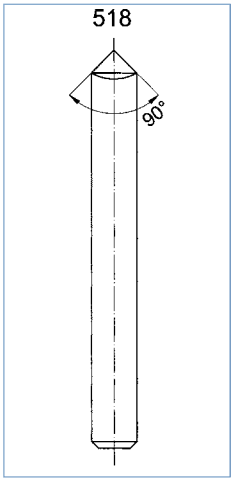
60° graver



Direction of cut: To right
Tip angle: 60°
Tip diameter: 0.2 + 0.05 mm

Article No.	D1	L1	Degree	D4	L
500.DIP70176005	0,05 0,01	6	60	3	38
500.DIP70176010	0,10 0,02	6	60	3	38

90° graver



Direction of cut: To right
Tip angle: 90°
Tip diameter: 0.2 + 0.05 mm

Article No.	D1	L1	Degree	D4	L
500.DIP70179005	0,05 0,01	6	90	3	38
500.DIP70179010	0,10 0,02	6	90	3	38

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Coating and Intermediate sizes on request.

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Precision since 2008

DIATEC was founded in 2008 as part of the Swiss Meyco Diamantwerkzeug group and therefore has access to the long-time experience and knowledge of experts from various disciplines.

Our customers

Among our customers are renowned companies from various industrial sectors, e. g.:

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» automotive industry
» electrical industry
» precision mechanics industry
» plastics processing industry
» medical technology
» optical industry
» jewelry and watchmaking industry
» production of writing utensils

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