

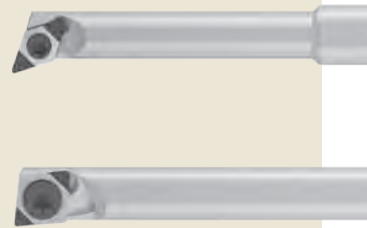
Boring Bars
PCD, CVD-D, UltraDiamond, CBN



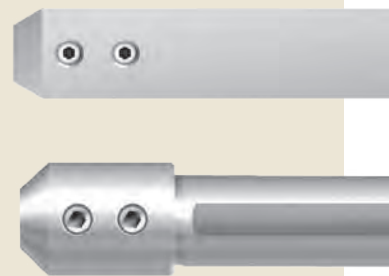
Tool and
Mold Forming



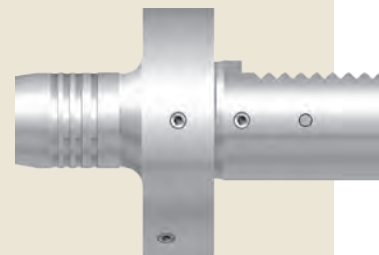
Automotive
Mechanical Engineering



Medical Technology
Microtechnology



Aerospace

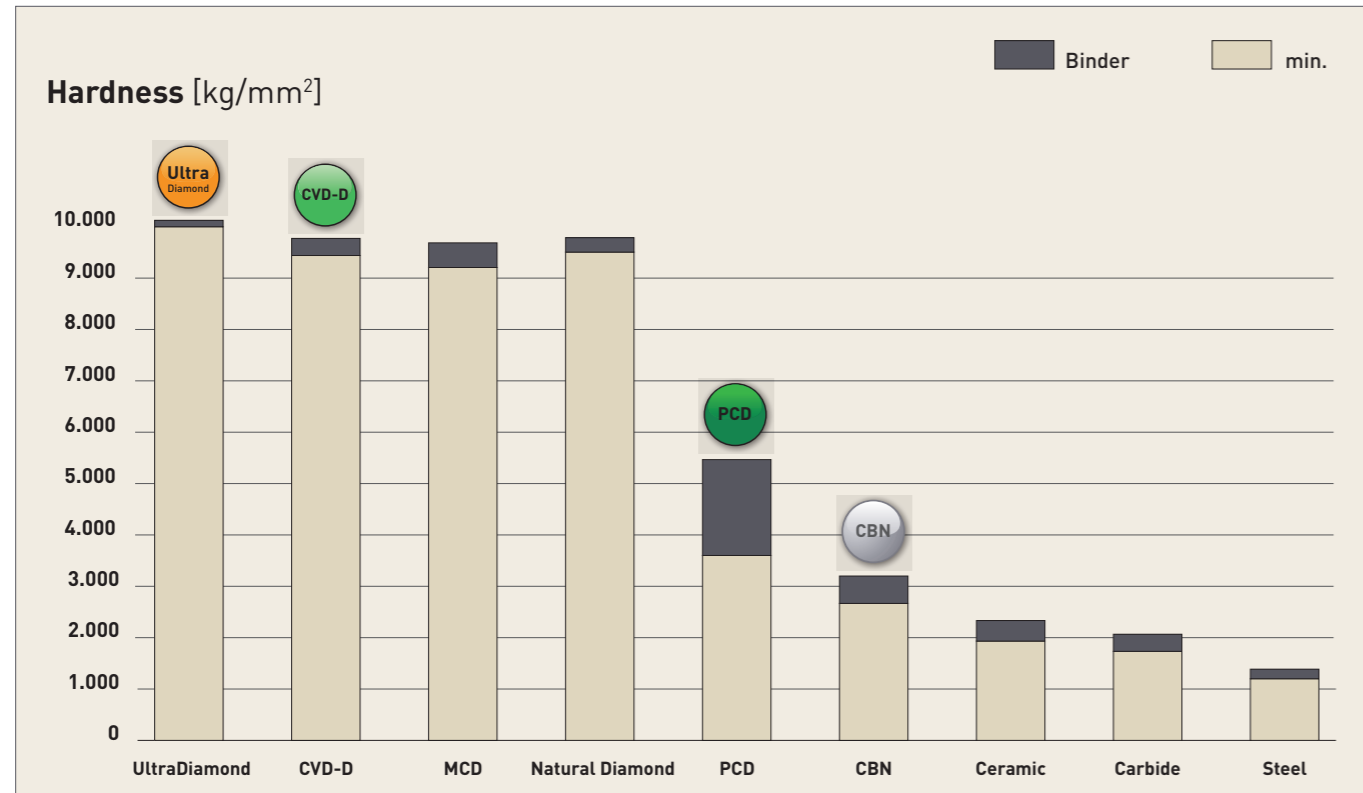


PASSION FOR DIAMOND...

ultrahard cutting materials at a glance



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



Polycrystalline diamond (PCD)

The well-known Standard Diamond

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

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

PCD is very well suited for machining aluminum with a Si content of up to 12% and/or other abrasive fillers. The thermal hardness is about 750°C. The areas of application are like those of CVD thick-film diamond, but CVD thick film has a higher cost effectiveness with hard-brittle materials or aluminum from a Si content of 12%.

CVD-Thickfilm Diamond (CVD-D)

The Star among Diamond Cutting Materials

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

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

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

Binderless Diamond (UltraDiamond)

The hardest Mono Crystal

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

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

Polycrystalline Cubic Boron Nitride (CBN)

Chemically resistant and stable at high temperatures

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

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

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

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

Our Cutting Material Assignment

about the materials

Benefit from over 25 years of application experience with ultra-hard cutting materials.

In the table you will find our cutting material recommendation for each material.

Green ✓

First choice

Orange ✓

Possible alternative

| ISO | Material | PCD | CVD-D | Ultra Diamond | CBN-H | CBN-X | CBN-K |
|-----|--------------------------------------|-----|-------|---------------|-------|-------|-------|
| H | Powder metallurgical Steel, hardened | | | | ✓ | ✓ | |
| | Special Alloys (ASP,CPM,Hardox) | | | | ✓ | ✓ | |
| | Steel, hardened up to 72 HRC | | | | ✓ | ✓ | |
| | Tool Steel, hardened up to 72 HRC | | | | ✓ | ✓ | |
| P | Sintered Steel | | | | | ✓ | ✓ |
| | Sintered Steel, hardened | | | | ✓ | ✓ | |
| K | Grey Cast Iron (GCI) | | | | | | ✓ |
| | Ductile Cast Iron (DCI) | | | | | ✓ | ✓ |
| | Shell Chilled Cast Iron | | | | ✓ | ✓ | |
| S | Ni-, Co-, Fe- and Cr-Alloys | | | | ✓ | ✓ | |
| | Titanium Alloys | | | | ✓ | ✓ | |
| M | Stainless Steel, hardened | | | | ✓ | ✓ | |
| N | Acrylic (PMMA) | | ✓ | ✓ | | | |
| | Aluminum, < 10% Si | ✓ | ✓ | | | | |
| | Aluminum, > 10% Si | | ✓ | ✓ | | | |
| | Brass | ✓ | ✓ | | | | |
| | Carbide G-Grade, < 15% Co | | ✓ | ✓ | | | |
| | Carbide G-Grade, > 15% Co | | ✓ | | | | |
| | Carbide K-Grade, < 15% Co | | ✓ | ✓ | | | |
| | Carbide K-Grade, > 15% Co | | ✓ | | | | |



You cannot find your material in the table?

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

Phone: 888.554.7264

Mail: sales@ranitool.com

| ISO | Material | PCD | CVD-D | Ultra Diamond | CBN-H | CBN-X | CBN-K |
|-----|-----------------------------|-----|-------|---------------|-------|-------|-------|
| N | Carbide (Green) | ✓ | | | | | |
| | Carbide with Ni Binder | | | ✓ | | | |
| | Ceramics | | ✓ | ✓ | | | |
| | Ceramics (Green) | ✓ | | | | | |
| | Composite such as CFRP/GFRP | ✓ | ✓ | | | | |
| | Copper, Copper Alloys | ✓ | ✓ | | | | |
| | Glass, Glass Ceramic | | ✓ | ✓ | | | |
| | Graphite | ✓ | ✓ | | | | |
| | Magnesium | ✓ | ✓ | | | | |
| | MMC | | ✓ | ✓ | | | |
| | Plastics | | ✓ | | | | |
| | PEEK | ✓ | ✓ | | | | |
| | Silver, Gold, Platinum | | ✓ | ✓ | ✓ | | |
| | Tungsten alloy | ✓ | ✓ | | | | |
| | Zirconium | | ✓ | ✓ | ✓ | | |



Special tools on request for you!
Please send inquiries to sales@ranitool.com



All our products are also available in the online shop.
Visit us at ranitool.com

Our Boring Tools at a Glance

for bore machining and spindling

For the machining on turning and milling centers we offer you two systems for boring starting from $\varnothing 1,00\text{mm}$. You can choose between soldered tools and a system with carbide boring bars and indexable inserts.

Brazed Precision Boring Tools

from page 12

starting from $\varnothing 1,00\text{mm}/.040''$

- ✓ Corner Radius 0,10 - 0,40mm (.004" - .016")
- ✓ Carbide Shank
- ✓ Up to four machining depths per \varnothing for optimum rigidity
- ✓ Easy alignment due to adjustment bevel and clamping surface



Typ BS

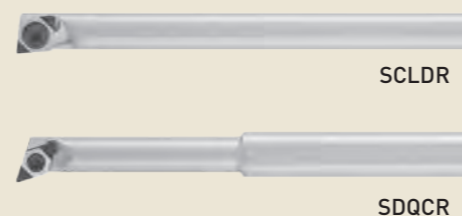
Typ BE

MiniTool – with multi-edged Insert

from page 20

starting from $\varnothing 3,50\text{mm} / .138''$

- ✓ Corner Radius 0,10 - 0,40mm (.004" - .016")
- ✓ Low Vibration Carbide Design
- ✓ High efficiency due to multi-edged inserts
- ✓ Easy alignment due to adjustment bevel and clamping surface



SCLDR

SDQCR

CDGW ...
FullFace (Z1)



from Dmin 3,50

CDGW ...
Z2



from Dmin 4,80

DCGW ...
Z2



from Dmin 5,20

EPGW ...
Z2



from Dmin 8,00

TPGW ...
Z1



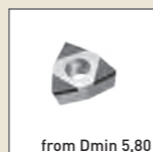
from Dmin 8,00

VCGW ...
Z2



from Dmin 8,00

WCGW ...
Z3



from Dmin 5,80

Matching Clamping Adapter

from page 36

- ✓ Boring Bar adjustable in length
- ✓ Exact positioning of the cutting edge



Cooling through the clamping surface of the tool possible for all holders.

Hydraulic Chuck



Clamping Adapter, round



Clamping Adapter, 4-sided



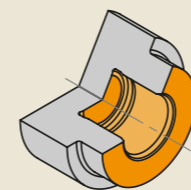
Application Possibilities

of our Precision Boring Tools

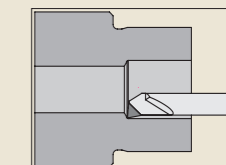
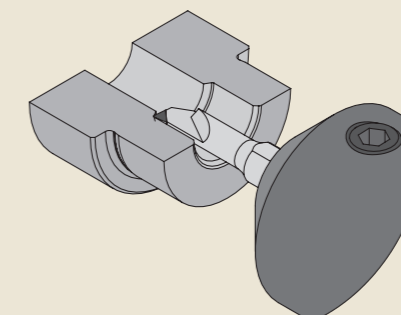
To adapt our boring tools perfectly to your application, we have two different types in our standard program. These enable you to use ultra hard cutting materials to reliably machine cylindrical and conical surfaces with radial transitions as well as flat surfaces.

Type BS

starting from Dmin 1,00mm



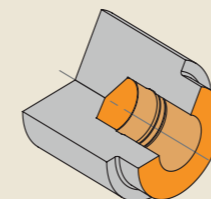
all colored surfaces can be machined



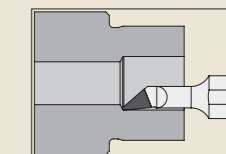
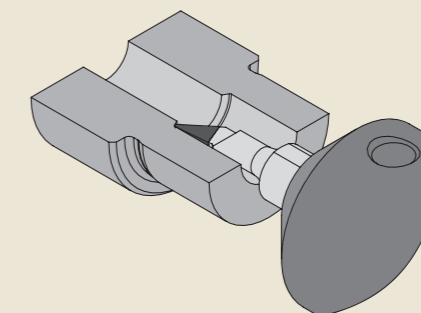
Robust system for turning contours in bores.

Type BE

starting from Dmin 3,60mm



all colored surfaces can be machined



For contour turning on the plane surface.

Boring Bars

for internal machining from Dmin 1,00 mm

Type BS

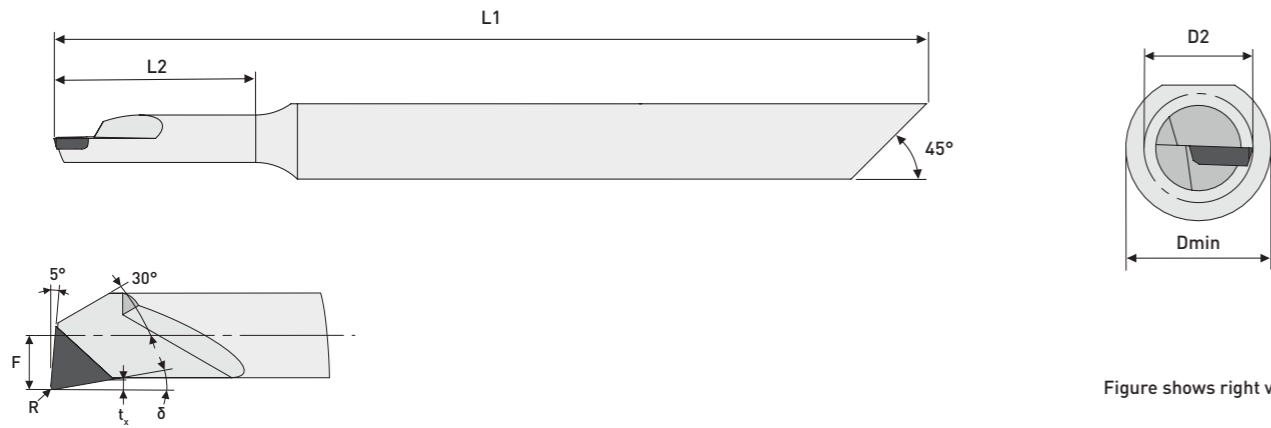


Figure shows right version



| Dmin | F | L2 | L1 | R | D2 | tx | δ | Version | Item No. | Item No. | Item No. |
|------|------|-------|-------|------|-----|------|----|---------|-------------|-------------|-------------|
| 1,00 | 0,50 | 3,00 | 72,00 | 0,10 | 4h6 | 0,05 | 2° | right | | BS2050-1002 | BS3550-1002 |
| | | | | | | | | left | | BS2050-1003 | BS3550-1003 |
| | 0,50 | 10,00 | 80,00 | 0,10 | 4h6 | 0,05 | 2° | right | BS1050-0000 | BS2050-0000 | BS3550-0000 |
| | | | | | | | | left | BS1050-0001 | BS2050-0001 | BS3550-0001 |
| 1,50 | 0,75 | 3,00 | 71,00 | 0,10 | 4h6 | 0,15 | 2° | right | | BS2050-1007 | BS3550-1007 |
| | | | | | | | | left | | BS2050-1008 | BS3550-1008 |
| | 0,75 | 6,00 | 74,00 | 0,10 | 4h6 | 0,15 | 2° | right | | BS2050-1005 | BS3550-1005 |
| | | | | | | | | left | | BS2050-1006 | BS3550-1006 |
| | 0,75 | 15,00 | 80,00 | 0,10 | 4h6 | 0,15 | 2° | right | BS1050-0005 | BS2050-0005 | BS3550-0005 |
| | | | | | | | | left | BS1050-0006 | BS2050-0006 | BS3550-0006 |
| 2,00 | 1,00 | 6,00 | 74,00 | 0,10 | 4h6 | 0,17 | 2° | right | | BS2050-1012 | BS3550-1012 |
| | | | | | | | | left | | BS2050-1013 | BS3550-1013 |
| | 1,00 | 6,00 | 74,00 | 0,20 | 4h6 | 0,17 | 2° | right | | BS2050-2012 | BS3550-2012 |
| | | | | | | | | left | | BS2050-2013 | BS3550-2013 |
| | 1,00 | 10,00 | 80,00 | 0,10 | 4h6 | 0,17 | 2° | right | BS1050-0010 | BS2050-0010 | BS3550-0010 |
| | | | | | | | | left | BS1050-0011 | BS2050-0011 | BS3550-0011 |

| Dmin | F | L2 | L1 | R | D2 | tx | δ | Version | Item No. | Item No. | Item No. |
|------|------|-------|-------|------|-----|------|-----|---------|-------------|-------------|-------------|
| 2,50 | 1,25 | 6,00 | 74,00 | 0,10 | 4h6 | 0,25 | 10° | right | | BS2050-1022 | BS3550-1022 |
| | | | | | | | | left | | BS2050-1023 | BS3550-1023 |
| | 1,25 | 6,00 | 74,00 | 0,20 | 4h6 | 0,25 | 10° | right | | BS2050-2022 | BS3550-2022 |
| | | | | | | | | left | | BS2050-2023 | BS3550-2023 |
| | 1,25 | 10,00 | 80,00 | 0,10 | 4h6 | 0,25 | 10° | right | BS1050-0020 | BS2050-0020 | BS3550-0020 |
| | | | | | | | | left | BS1050-0021 | BS2050-0021 | BS3550-0021 |
| 3,00 | 1,50 | 6,00 | 74,00 | 0,10 | 4h6 | 0,33 | 10° | right | | BS2050-1028 | BS3550-1028 |
| | | | | | | | | left | | BS2050-1029 | BS3550-1029 |
| | 1,50 | 6,00 | 74,00 | 0,20 | 4h6 | 0,33 | 10° | right | | BS2050-2028 | BS3550-2028 |
| | | | | | | | | left | | BS2050-2029 | BS3550-2029 |
| | 1,50 | 10,00 | 78,00 | 0,10 | 4h6 | 0,33 | 10° | right | BS1050-1026 | BS2050-1026 | BS3550-1026 |
| | | | | | | | | left | BS1050-1027 | BS2050-1027 | BS3550-1027 |
| | 1,50 | 10,00 | 78,00 | 0,20 | 4h6 | 0,33 | 10° | right | BS1050-2026 | BS2050-2026 | BS3550-2026 |
| | | | | | | | | left | BS1050-2027 | BS2050-2027 | BS3550-2027 |
| | 1,50 | 15,00 | 83,00 | 0,10 | 4h6 | 0,33 | 10° | right | BS1050-1024 | BS2050-1024 | BS3550-1024 |
| | | | | | | | | left | BS1050-1025 | BS2050-1025 | BS3550-1025 |
| | 1,50 | 15,00 | 83,00 | 0,20 | 4h6 | 0,33 | 10° | right | BS1050-2024 | BS2050-2024 | BS3550-2024 |
| | | | | | | | | left | BS1050-2025 | BS2050-2025 | BS3550-2025 |
| 3,50 | 1,75 | 6,00 | 74,00 | 0,10 | 4h6 | 0,35 | 10° | right | | BS2050-1032 | BS3550-1032 |
| | | | | | | | | left | | BS2050-1033 | BS3550-1033 |
| | 1,75 | 6,00 | 74,00 | 0,20 | 4h6 | 0,35 | 10° | right | | BS2050-2032 | BS3550-2032 |
| | | | | | | | | left | | BS2050-2033 | BS3550-2033 |
| | 1,75 | 10,00 | 78,00 | 0,10 | 4h6 | 0,35 | 10° | right | | BS2050-1034 | BS3550-1034 |
| | | | | | | | | left | | BS2050-1035 | BS3550-1035 |
| | 1,75 | 10,00 | 78,00 | 0,20 | 4h6 | 0,35 | 10° | right | | BS2050-2034 | BS3550-2034 |
| | | | | | | | | left | | BS2050-2035 | BS3550-2035 |
| | 1,75 | 15,00 | 80,00 | 0,10 | 4h6 | 0,35 | 10° | right | BS1050-0030 | BS2050-0030 | BS3550-0030 |
| | | | | | | | | left | BS1050-0031 | BS2050-0031 | BS3550-0031 |
| | 1,75 | 15,00 | 83,00 | 0,20 | 4h6 | 0,35 | 10° | right | BS1050-2030 | BS2050-2030 | BS3550-2030 |
| | | | | | | | | left | BS1050-2031 | BS2050-2031 | BS3550-2031 |
| | 1,75 | 21,00 | 89,00 | 0,10 | 4h6 | 0,35 | 10° | right | BS1050-1036 | BS2050-1036 | BS3550-1036 |
| | | | | | | | | left | BS1050-1037 | BS2050-1037 | BS3550-1037 |
| | 1,75 | 21,00 | 89,00 | 0,20 | 4h6 | 0,35 | 10° | right | BS1050-2036 | BS2050-2036 | BS3550-2036 |
| | | | | | | | | left | BS1050-2037 | BS2050-2037 | BS3550-2037 |

Application range:

- PCD** Aluminum <10% Si, Brass, Brass lead-free, Graphite, Titanium (Roughing) ...
- CVD-D** Acrylic, Aluminum >10% Si, Carbide, Ceramics, Composites (CFRP, GFRP, MMC), Copper, Plastics, PEEK, Titanium (Finishing) ...
- CBN** Steel hardened up to 72 HRC, Tool Steel up to 72 HRC, powder metallurgical Steel ...



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Subject to technical changes.

Boring Bars

for internal machining from Dmin 4,00 mm

Type BS

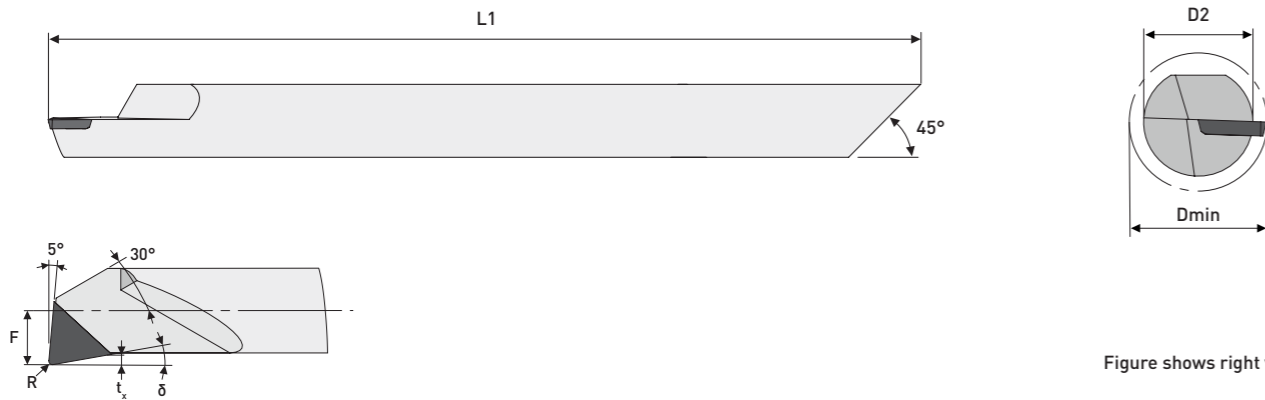


Figure shows right version

| Dmin | F | L2 | L1 | R | D2 | tx | δ | Version | PCD | CVD-D | CBN |
|------|------|-------|-------|------|-----|------|-----|---------|-------------|-------------|-------------|
| | | | | | | | | | Item No. | Item No. | Item No. |
| 4,00 | 2,00 | 10,00 | 78,00 | 0,10 | 4h6 | 0,30 | 10° | right | | BS2050-1132 | BS3550-1132 |
| | | | | | | | | left | | BS2050-1133 | BS3550-1133 |
| | 2,00 | 10,00 | 78,00 | 0,20 | 4h6 | 0,30 | 10° | right | | BS2050-2132 | BS3550-2132 |
| | | | | | | | | left | | BS2050-2133 | BS3550-2133 |
| | 2,00 | 15,00 | 80,00 | 0,10 | 4h6 | 0,30 | 10° | right | BS1050-1140 | BS2050-1140 | BS3550-1140 |
| | | | | | | | | left | BS1050-1141 | BS2050-1141 | BS3550-1141 |
| | 2,00 | 15,00 | 83,00 | 0,20 | 4h6 | 0,30 | 10° | right | BS1050-2130 | BS2050-2130 | BS3550-2130 |
| | | | | | | | | left | BS1050-2131 | BS2050-2131 | BS3550-2131 |
| | 2,00 | 21,00 | 89,00 | 0,10 | 4h6 | 0,30 | 10° | right | BS1050-1134 | BS2050-1134 | BS3550-1038 |
| | | | | | | | | left | BS1050-1135 | BS2050-1135 | BS3550-1039 |
| | 2,00 | 21,00 | 89,00 | 0,20 | 4h6 | 0,30 | 10° | right | BS1050-2134 | BS2050-2134 | BS3550-2038 |
| | | | | | | | | left | BS1050-2135 | BS2050-2135 | BS3550-2039 |
| 4,50 | 2,25 | - | 78,00 | 0,10 | 4h6 | 0,25 | 10° | right | | BS2050-1230 | BS3550-1240 |
| | | | | | | | | left | | BS2050-1231 | BS3550-1241 |
| | 2,25 | - | 78,00 | 0,20 | 4h6 | 0,25 | 10° | right | | BS2050-2230 | BS3550-2240 |
| | | | | | | | | left | | BS2050-2231 | BS3550-2241 |
| | 2,25 | - | 83,00 | 0,10 | 4h6 | 0,25 | 10° | right | BS1050-1232 | BS2050-1232 | BS3550-1242 |
| | | | | | | | | left | BS1050-1233 | BS2050-1233 | BS3550-1243 |
| | 2,25 | - | 83,00 | 0,20 | 4h6 | 0,25 | 10° | right | BS1050-2232 | BS2050-2232 | BS3550-2242 |
| | | | | | | | | left | BS1050-2233 | BS2050-2233 | BS3550-2243 |
| | 2,25 | - | 89,00 | 0,10 | 4h6 | 0,25 | 10° | right | | BS2050-1234 | BS3550-1244 |
| | | | | | | | | left | | BS2050-1235 | BS3550-1245 |
| | 2,25 | - | 89,00 | 0,20 | 4h6 | 0,25 | 10° | right | | BS2050-2234 | BS3550-2244 |
| | | | | | | | | left | | BS2050-2235 | BS3550-2245 |

| Dmin | F | L2 | L1 | R | D2 | tx | δ | Version | PCD | CVD-D | CBN | |
|------|------|------|--------|--------|------|------|------|---------|-------------|-------------|-------------|-------------|
| | | | | | | | | | Item No. | Item No. | Item No. | |
| 5,00 | 2,50 | - | 80,00 | 0,10 | 4h6 | 0,50 | 10° | right | | BS2050-1240 | BS3550-1040 | |
| | | | | | | | | left | | BS2050-1241 | BS3550-1041 | |
| | 2,50 | - | 80,00 | 0,20 | 4h6 | 0,50 | 10° | right | BS1050-2040 | BS2050-2040 | BS3550-2040 | |
| | | | | | | | | left | BS1050-2041 | BS2050-2041 | BS3550-2041 | |
| | 2,50 | - | 80,00 | 0,40 | 4h6 | 0,50 | 10° | right | BS1050-4040 | BS2050-4040 | BS3550-4040 | |
| | | | | | | | | left | BS1050-4041 | BS2050-4041 | BS3550-4041 | |
| 6,00 | 3,00 | - | 100,00 | 0,10 | 5h6 | 0,50 | 10° | right | | BS2050-1050 | BS3550-1050 | |
| | | | | | | | | left | | BS2050-1051 | BS3550-1051 | |
| | 3,00 | - | 100,00 | 0,20 | 5h6 | 0,50 | 10° | right | BS1050-2050 | BS2050-2050 | BS3550-2050 | |
| | | | | | | | | left | BS1050-2051 | BS2050-2051 | BS3550-2051 | |
| | 3,00 | - | 100,00 | 0,40 | 5h6 | 0,50 | 10° | right | BS1050-4050 | BS2050-4050 | BS3550-4050 | |
| | | | | | | | | left | BS1050-4051 | BS2050-4051 | BS3550-4051 | |
| 7,00 | 3,50 | - | 100,00 | 0,20 | 6h6 | 0,50 | 10° | right | BS1050-2060 | BS2050-2060 | BS3550-2060 | |
| | | | | | | | | left | BS1050-2061 | BS2050-2061 | BS3550-2061 | |
| | 3,50 | - | 100,00 | 0,40 | 6h6 | 0,50 | 10° | right | BS1050-4060 | BS2050-4060 | BS3550-4060 | |
| | | | | | | | | left | BS1050-4061 | BS2050-4061 | BS3550-4061 | |
| | 9,00 | 4,50 | - | 100,00 | 0,20 | 8h6 | 0,50 | 10° | right | BS1050-2080 | BS2050-2080 | BS3550-2080 |
| | | | | | | | | | left | BS1050-2081 | BS2050-2081 | BS3550-2081 |
| 4,50 | | - | 100,00 | 0,40 | 8h6 | 0,50 | 10° | right | BS1050-4080 | BS2050-4080 | BS3550-4080 | |
| | | | | | | | | left | BS1050-4081 | BS2050-4081 | BS3550-4081 | |

Application range:

- PCD** Aluminum <10% Si, Brass, Brass lead-free, Graphite, Titanium (Roughing) ...
- CVD-D** Acrylic, Aluminum >10% Si, Carbide, Ceramics, Composites (CFRP, GFRP, MMC), Copper, Plastics, PEEK, Titanium (Finishing) ...
- CBN** Steel hardened up to 72 HRC, Tool Steel up to 72 HRC, powder metallurgical Steel ...



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Boring Bars

for internal machining from Dmin 3,60 mm

Type BE

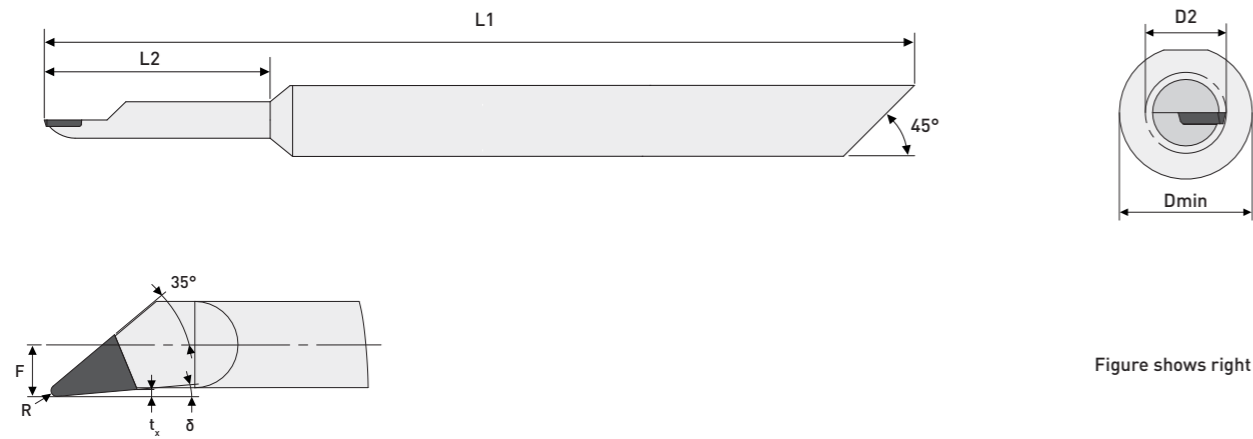


Figure shows right version



| Dmin | F | L2 | L1 | R | D2 | tx | δ | Version | Item No. (PCD) | Item No. (CVD-D) | Item No. (CBN) |
|------|------|-------|--------|------|-----|------|----|---------|----------------|------------------|----------------|
| 3,60 | 1,80 | 10,00 | 100,00 | 0,20 | 6h6 | 0,30 | 5° | right | BE2050-2130 | BE3550-2130 | |
| | | | | | | | | left | BE2050-2131 | BE3550-2131 | |
| | 1,80 | 18,00 | 100,00 | 0,20 | 6h6 | 0,30 | 5° | right | BE2050-2030 | BE3550-2030 | |
| | | | | | | | | left | BE2050-2031 | BE3550-2031 | |
| 7,00 | 3,50 | - | 100,00 | 0,20 | 6h6 | 0,50 | 5° | right | BE2050-2060 | BE3550-2060 | |
| | | | | | | | | left | BE2050-2061 | BE3550-2061 | |
| | 3,50 | - | 100,00 | 0,40 | 6h6 | 0,50 | 5° | right | BE2050-4060 | BE3550-4060 | |
| | | | | | | | | left | BE2050-4061 | BE3550-4061 | |

Your Notes

Application range:


- **PCD** Aluminum <10% Si, Brass, Brass lead-free, Graphite, Titanium (Roughing) ...
- **CVD-D** Acrylic, Aluminum >10% Si, Carbide, Ceramics, Composites (CFRP, GFRP, MMC), Copper, Plastics, PEEK, Titanium (Finishing) ...
- **CBN** Steel hardened up to 72 HRC, Tool Steel up to 72 HRC, powder metallurgical Steel ...

ISO Code


Shank specification E 08 X S C L C R 06

| | | | |
|--|------------------------|--|----------------------|
| A Steel shank with internal cooling | C Carbide shank | E Carbide shank with internal cooling | S Steel shank |
|--|------------------------|--|----------------------|


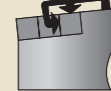



Shank diameter [mm] E 08 X S C L C R 06

| | | | | | |
|---|------------|------------|------------|------------|------------|
|  | 08 = 8 mm | 12 = 12 mm | 20 = 20 mm | 32 = 32 mm | 50 = 50 mm |
| | 10 = 10 mm | 16 = 16 mm | 25 = 25 mm | 40 = 40 mm | 60 = 60 mm |









Tool length L1 [mm] E 08 X S C L C R 06

| | | | | | | |
|---|-------------------|-------------------|-------------------|-------------------|-------------------|--------------------|
|  | F = 80 mm | L = 140 mm | P = 170 mm | S = 250 mm | V = 400 mm | X = Special |
| | H = 100 mm | M = 150 mm | Q = 180 mm | T = 300 mm | W = 450 mm | |
| | K = 125 mm | N = 160 mm | R = 200 mm | U = 350 mm | Y = 500 mm | |

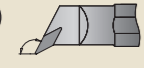



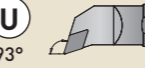
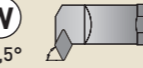
Clamping system E 08 X S C L C R 06

| | | | | |
|---|---|---|--|---|
| C  | D  | M  | P  | S  |
|---|---|---|--|---|

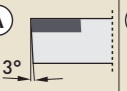
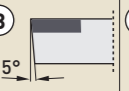

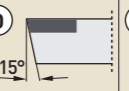
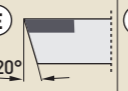
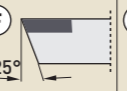
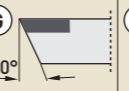
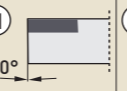
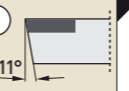
Insert shape E 08 X S C L C R 06

| | | | | | | | |
|--|--|--|--|--|---|--|--|
| C  | D  | K  | R  | S  | T  | V  | W  |
|--|--|--|--|--|---|--|--|

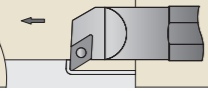

Approach angle E 08 X S C L C R 06

| | | | | | |
|--|--|--|--|---|--|
| F  | L  | P  | Q  | U  | W  |
|--|--|--|--|---|--|

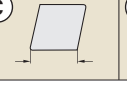
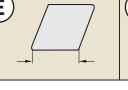
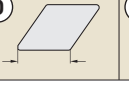
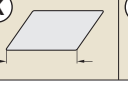
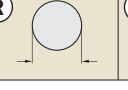
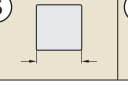

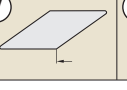

Insert clearance angle E 08 X S C L C R 06

| | | | | | | | | |
|--|--|--|--|--|--|---|--|--|
| A  | B  | C  | D  | E  | F  | G  | H  | I  |
|--|--|--|--|--|--|---|--|--|

Hand of tool E 08 X S C L C R 06

| | |
|--|--|
| R  | L  |
|--|--|

Cutting edge length [mm] E 08 X S C L C R 06

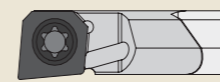
| | | | | | | | | |
|--|--|--|--|--|--|---|--|--|
| C  | E  | D  | K  | R  | S  | T  | V  | W  |
|--|--|--|--|--|--|---|--|--|

MiniTools

equipped with multi-edged Diamond or CBN inserts

Boring Tools with Carbide Tool Holders for Mini Inserts :

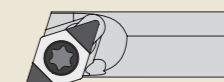
- ✓ Highly economical due to multi-edged inserts
- ✓ Starting from bore Ø 3,5mm
- ✓ Low vibration carbide design
- ✓ With inner cooling
- ✓ For internal turning on lathes
- ✓ For spindle turning on milling machines



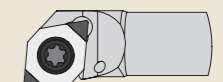
E-SCLDR/L



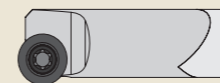
E-SCLDR/L



E-SDQCR/L



E-SELPR/L



E-SRLCR/L



E-SVLXR/L



E... STXPR/L



E-SWUCR/L

Large selection of multi-edged indexable inserts!

Application range of our diamond indexable inserts:

- ✓ All abrasive non-ferrous materials
- ✓ Aluminum
- ✓ Carbide G-Grade
- ✓ Carbide K-Grade
- ✓ Carbide with Ni Binder
- ✓ Ceramic Materials
- ✓ Composite such as CFRP / GFRP
- ✓ Copper Alloys
- ✓ Glass and Glass Ceramic
- ✓ MMC
- ✓ Other brittle non-ferrous materials
- ✓ Titanium (Finishing)

Application range of our CBN indexable inserts:

- ✓ Cast Iron
- ✓ Special Alloys such as ASP, CPM, Hardox
- ✓ Steel hardened up to 72 HRC
- ✓ Stellite
- ✓ Tool Steel up to 72 HRC

CDGW 03 ...
FullFace (Z1)



from Dmin 3,50

CDGW 04 ...
Z2



from Dmin 4,80

DCGW 05 ...
Z2



from Dmin 5,20

EPGW 05 ...
Z2



from Dmin 8,00

TPGW 06 ...
Z1



from Dmin 8,00

VCGW 05 ...
Z2



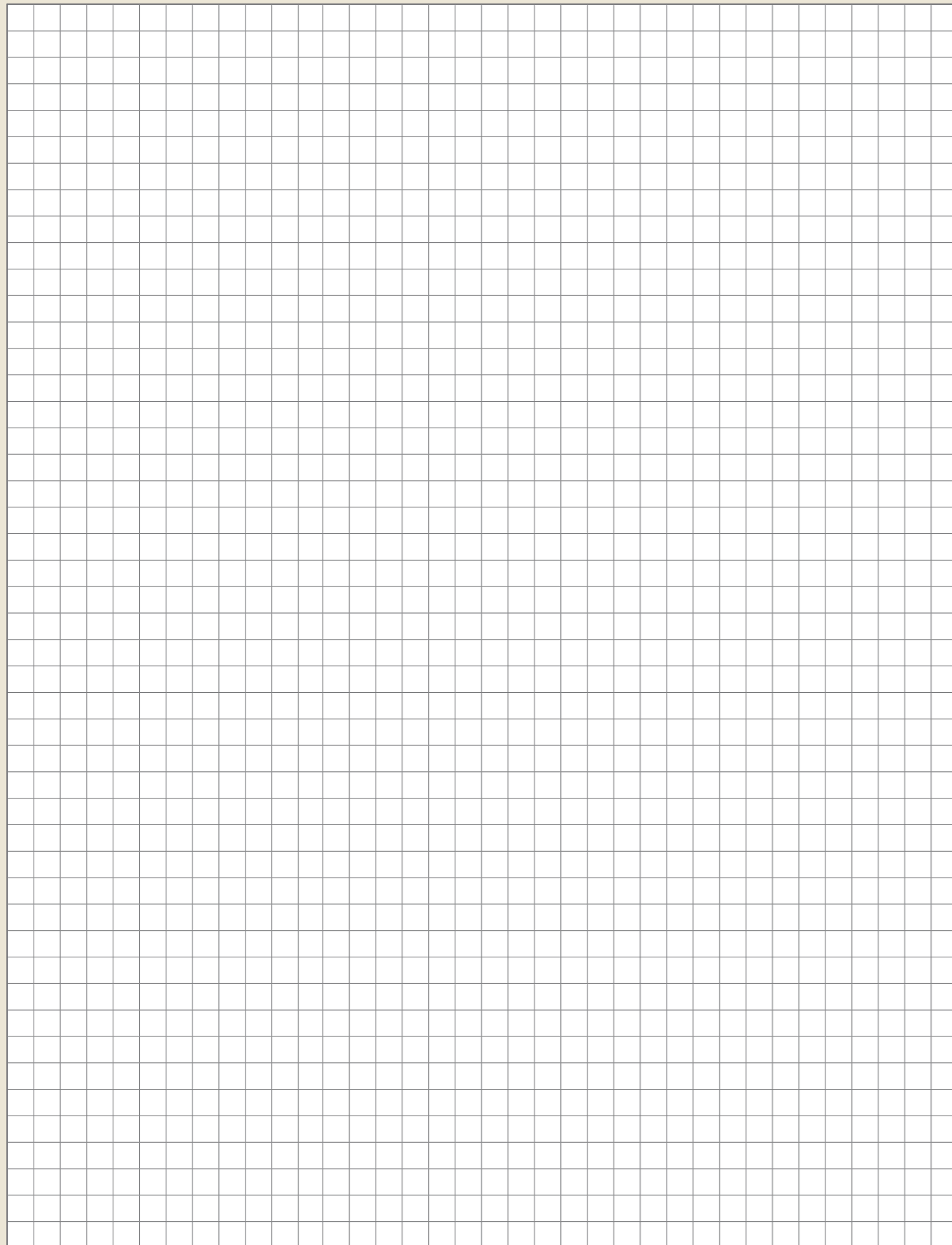
from Dmin 8,00

WCGW 02 ...
Z3



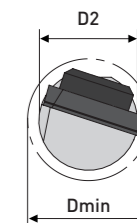
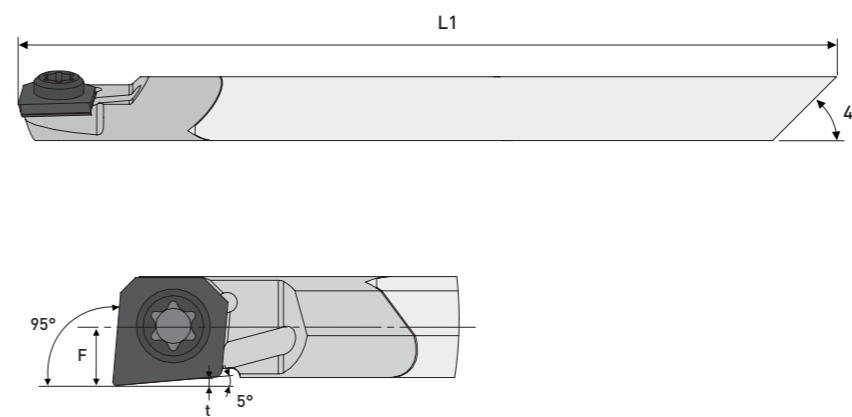
from Dmin 5,80

Inserts available with radii from 0.10 mm to 0.40 mm.



E... SCLDR/L 95°/5°

for inserts CDGW 03...



Carbide Tool Holder
Figure shows right version

| Dmin | F | L2 | L1 | D2 | t _x | Version | ISO Code ^{New} | Item No. |
|------|------|----|-------|------|----------------|---------|-------------------------|-------------|
| 3,50 | 1,75 | - | 80,00 | 3,00 | 0,20 | right | E03X SCLDR 03 | BW6060-0234 |
| | | | | | | left | E03X SCLDL 03 | BW6060-0235 |

Matching clamping screw: 01-KL9060-0016

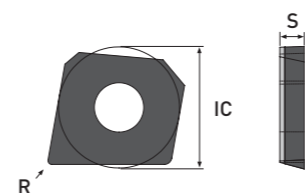


Figure shows right version FullFace

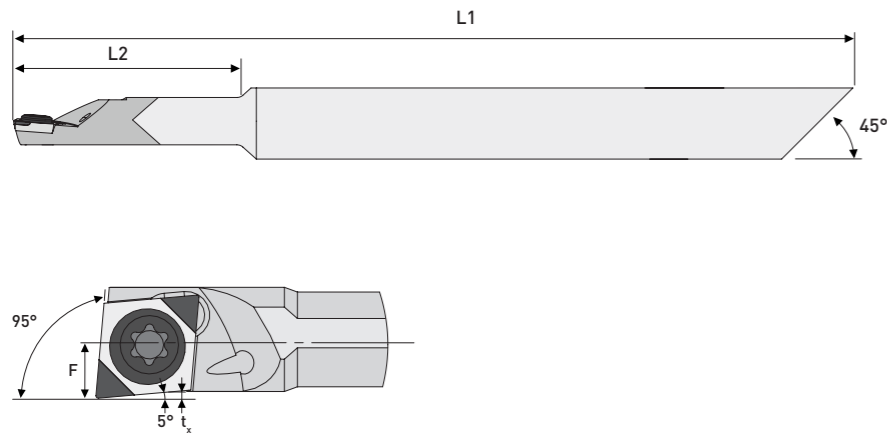
| ISO Code | IC | S | R | CVD-D ^{New} Item No. | Ultra Diamond Item No. | CBN-H ^{New} Item No. | CBN-X ^{New} Item No. | CBN-K ^{New} Item No. |
|-------------------|------|------|------|----------------------------------|---------------------------|----------------------------------|----------------------------------|----------------------------------|
| CDGW 03X101-Right | 3,20 | 0,63 | 0,10 | DP2030-0500 | - | TI5030-0500 | TI5930-0500 | TI5530-0500 |
| CDGW 03X102-Right | 3,20 | 0,63 | 0,20 | DP2030-0502 | - | TI5030-0502 | TI5930-0502 | TI5530-0502 |
| CDGW 03X101-Left | 3,20 | 0,63 | 0,10 | DP2030-0501 | - | TI5030-0501 | TI5930-0501 | TI5530-0501 |
| CDGW 03X102-Left | 3,20 | 0,63 | 0,20 | DP2030-0503 | - | TI5030-0503 | TI5930-0503 | TI5530-0503 |

Application range:

- CVD-D Aluminum, Brass, Brass lead-free, Composites (CFRP, GFRP, MMC), Graphite, Titanium ...
- U-Diamond Acrylic, Carbide < 10% Binder, Ceramics, Zirconium ...
- CBN-H Steel hardened up to 72 HRC
- CBN-X Tool Steel hardened up to 72 HRC, Tool Steel low alloy, Stellite, powder metallurgical Steel ...
- CBN-K Grey Cast Iron (GCI), Ductile Cast Iron (DCI) ...

E... SCLDR/L 95°/5°

for inserts CDGW 0401...



Carbide Tool Holder
Figure shows right version

| Dmin | F | L2 | L1 | D2 | tx | Version | ISO Code | Item No. |
|------|------|-------|--------|------|------|---------|-----------------|-------------|
| 4,80 | 2,50 | 24,00 | 80,00 | 8,00 | 0,30 | right | E0408X SCLDR 04 | BW6060-0130 |
| | | | | | | left | E0408X SCLDL 04 | BW6060-0131 |
| 5,80 | 2,90 | 21,50 | 100,00 | 8,00 | 0,40 | right | E0508X SCLDR 04 | BW6060-0132 |
| | | | | | | left | E0508X SCLDL 04 | BW6060-0133 |
| 6,80 | 3,40 | 22,00 | 100,00 | 8,00 | 0,40 | right | E0608X SCLDR 04 | BW6060-0134 |
| | | | | | | left | E0608X SCLDL 04 | BW6060-0135 |

Matching clamping screw: 01-BW9060-0011

CL 2,00 mm
2-edge tipped

| ISO Code | IC | S | R | CVD-D Item No. | Ultra Diamond Item No. New | CBN-H Item No. | CBN-X Item No. New | CBN-K Item No. New |
|-------------|------|------|------|-------------------|---|-------------------|------------------------------------|------------------------------------|
| CDGW 040101 | 3,97 | 1,00 | 0,10 | DP2010-0511 | DP1110-1480 | TI5010-1511 | TI5910-2510 | TI5510-2510 |
| CDGW 040102 | 3,97 | 1,00 | 0,20 | DP2010-0512 | DP1110-1482 | TI5010-1512 | TI5910-2512 | TI5510-2512 |
| CDGW 040104 | 3,97 | 1,00 | 0,40 | DP2010-0513 | DP1110-1484 | TI5010-1513 | TI5910-2514 | TI5510-2514 |

Application range:

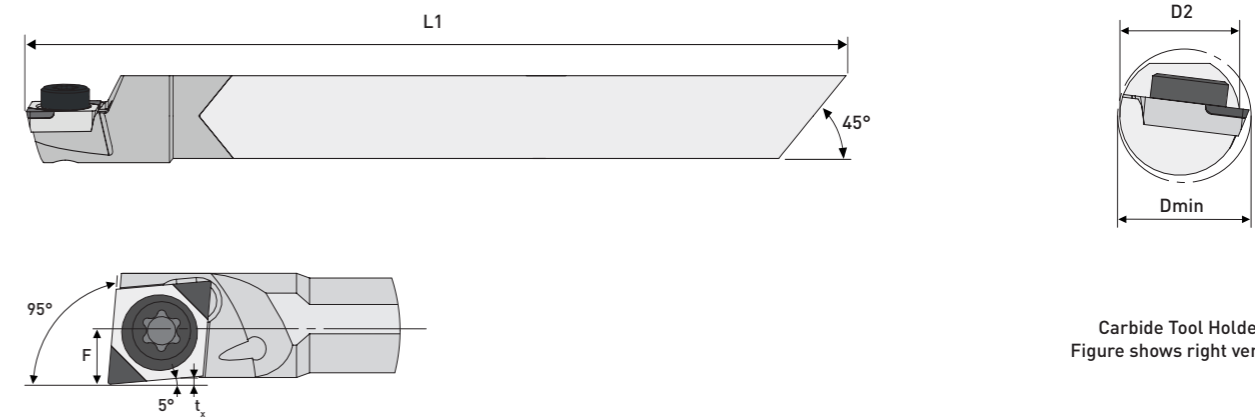
- CVD-D Aluminum, Brass, Brass lead-free, Composites (CFRP, GFRP, MMC), Graphite, Titanium ...
- U-Diamond Acrylic, Carbide < 10% Binder, Ceramics, Zirconium ...
- CBN-H Steel hardened up to 72 HRC
- CBN-X Tool Steel hardened up to 72 HRC, Tool Steel low alloy, Stellite, powder metallurgical Steel ...
- CBN-K Grey Cast Iron (GCI), Ductile Cast Iron (DCI) ...

Suitable clamping adapters can be found from page 36 onwards.

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

E... SCLDR/L 95°/5°

for inserts CDGW 0401...



Carbide Tool Holder
Figure shows right version

| Dmin | F | L2 | L1 | D2 | tx | Version | ISO Code | Item No. |
|------|------|----|--------|------|------|---------|---------------|-------------|
| 4,80 | 2,50 | - | 80,00 | 4,00 | 0,30 | right | E04X SCLDR 04 | BW6060-0120 |
| | | | | | | left | E04X SCLDL 04 | BW6060-0121 |
| 5,80 | 2,90 | - | 100,00 | 5,00 | 0,40 | right | E05X SCLDR 04 | BW6060-0122 |
| | | | | | | left | E05X SCLDL 04 | BW6060-0123 |
| 6,80 | 3,40 | - | 100,00 | 6,00 | 0,40 | right | E06X SCLDR 04 | BW6060-0124 |
| | | | | | | left | E06X SCLDL 04 | BW6060-0125 |

Matching clamping screw: 01-BW9060-0011

CL 2,00 mm
2-edge tipped

| ISO Code | IC | S | R | CVD-D Item No. | Ultra Diamond Item No. New | CBN-H Item No. | CBN-X Item No. New | CBN-K Item No. New |
|-------------|------|------|------|-------------------|---|-------------------|------------------------------------|------------------------------------|
| CDGW 040101 | 3,97 | 1,00 | 0,10 | DP2010-0511 | DP1110-1480 | TI5010-1511 | TI5910-2510 | TI5510-2510 |
| CDGW 040102 | 3,97 | 1,00 | 0,20 | DP2010-0512 | DP1110-1482 | TI5010-1512 | TI5910-2512 | TI5510-2512 |
| CDGW 040104 | 3,97 | 1,00 | 0,40 | DP2010-0513 | DP1110-1484 | TI5010-1513 | TI5910-2514 | TI5510-2514 |

Special tools on request for you!
Please send inquiries to sales@ranitool.com

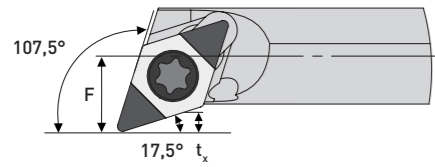
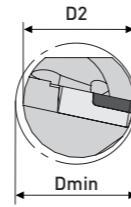
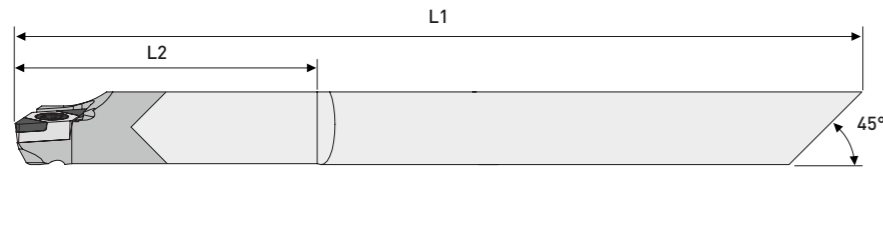
All our products are also available in the online shop.
Visit us at ranitool.com

You can find our complete holder program in our tool holder catalog or in our online shop.

Subject to technical changes.

E... SDQCR/L 107,5°/17,5°

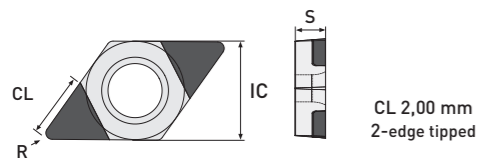
for inserts DCGW 04T0...



Carbide Tool Holder
Figure shows right version

| Dmin | F | L2 | L1 | D2 | tx | Version | ISO Code | Item No. |
|------|------|-------|--------|------|------|---------|-----------------|-------------|
| 5,20 | 3,00 | 25,00 | 100,00 | 5,00 | 1,10 | right | E0405X SDQCR 04 | BW6060-0166 |
| | | | | | | left | E0405X SDQCL 04 | BW6060-0167 |

Matching clamping screw: 01-BW9060-0010



CL 2,00 mm
2-edge tipped

| ISO Code | IC | S | R | CVD-D | Ultra Diamond | CBN-H | CBN-X | CBN-K |
|-------------|------|------|------|-------------|-----------------------------|-------------|-----------------------------|-----------------------------|
| | | | | Item No. | Item No. <small>New</small> | Item No. | Item No. <small>New</small> | Item No. <small>New</small> |
| DCGW 04T001 | 3,10 | 1,20 | 0,10 | DP2010-0521 | DP1110-1492 | TI5010-1521 | TI5910-2522 | TI5510-2522 |
| DCGW 04T002 | 3,10 | 1,20 | 0,20 | DP2010-0522 | DP1110-1494 | TI5010-1522 | TI5910-2524 | TI5510-2524 |
| DCGW 04T004 | 3,10 | 1,20 | 0,40 | DP2010-0523 | DP1110-1496 | TI5010-1523 | TI5910-2526 | TI5510-2526 |

Application range:

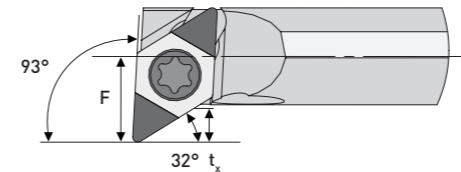
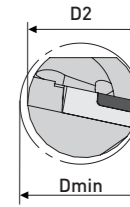
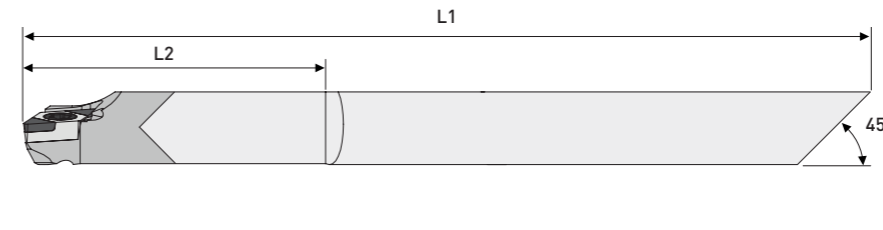
- CVD-D Aluminum, Brass, Brass lead-free, Composites (CFRP, GFRP, MMC), Graphite, Titanium ...
- U-Diamond Acrylic, Carbide < 10% Binder, Ceramics, Zirconium ...
- CBN-H Steel hardened up to 72 HRC
- CBN-X Tool Steel hardened up to 72 HRC, Tool Steel low alloy, Stellite, powder metallurgical Steel ...
- CBN-K Grey Cast Iron (GCI), Ductile Cast Iron (DCI) ...

Suitable clamping adapters can be found from page 36 onwards.

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

E... SDUCR/L 93°/32°

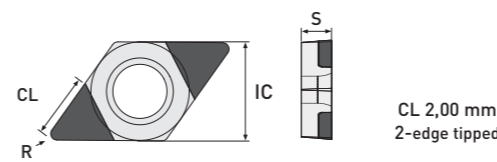
for inserts DCGW 04T0...



Carbide Tool Holder
Figure shows right version

| Dmin | F | L2 | L1 | D2 | tx | Version | ISO Code | Item No. |
|------|------|-------|--------|------|------|---------|-----------------|-------------|
| 5,60 | 3,00 | 25,00 | 100,00 | 5,00 | 1,50 | right | E0405X SDUCR 04 | BW6060-0160 |
| | | | | | | left | E0405X SDUCL 04 | BW6060-0161 |

Matching clamping screw: 01-BW9060-0010



CL 2,00 mm
2-edge tipped

| ISO Code | IC | S | R | CVD-D | Ultra Diamond | CBN-H | CBN-X | CBN-K |
|-------------|------|------|------|-------------|-----------------------------|-------------|-----------------------------|-----------------------------|
| | | | | Item No. | Item No. <small>New</small> | Item No. | Item No. <small>New</small> | Item No. <small>New</small> |
| DCGW 04T001 | 3,10 | 1,20 | 0,10 | DP2010-0521 | DP1110-1492 | TI5010-1521 | TI5910-2522 | TI5510-2522 |
| DCGW 04T002 | 3,10 | 1,20 | 0,20 | DP2010-0522 | DP1110-1494 | TI5010-1522 | TI5910-2524 | TI5510-2524 |
| DCGW 04T004 | 3,10 | 1,20 | 0,40 | DP2010-0523 | DP1110-1496 | TI5010-1523 | TI5910-2526 | TI5510-2526 |



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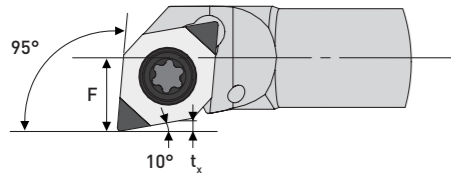
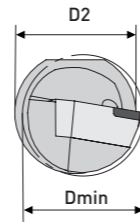
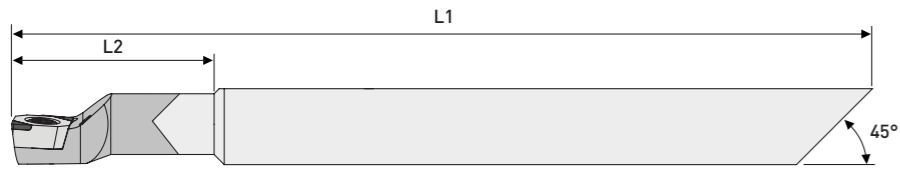
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Subject to technical changes.

E... SELPR/L 95°/10°

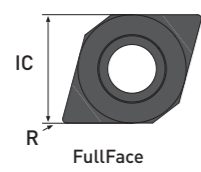
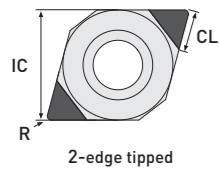
for inserts EPGW 0502...



Carbide Tool Holder
Figure shows right version

| Dmin | F | L2 | L1 | D2 | tx | Version | ISO Code | Item No. |
|-------|------|-------|--------|-------|------|---------|-----------------|-------------|
| 8,00 | 4,50 | 20,00 | 100,00 | 8,00 | 0,80 | right | E0608X SELPR 05 | BW6060-0150 |
| | | | | | | left | E0608X SELPL 05 | BW6060-0151 |
| 11,00 | 6,00 | 33,00 | 100,00 | 10,00 | 0,80 | right | E0810X SELPR 05 | BW6060-0152 |
| | | | | | | left | E0810X SELPL 05 | BW6060-0153 |

Matching clamping screw: 01-BW9060-0005



| ISO Code | IC | S | R | CVD-D | Ultra Diamond | CBN-H | CBN-X | CBN-K |
|----------------|------|------|------|-------------|-----------------------------|-------------|-----------------------------|-----------------------------|
| | | | | Item No. | Item No. <small>New</small> | Item No. | Item No. <small>New</small> | Item No. <small>New</small> |
| EPGW 050201 | 5,56 | 2,38 | 0,10 | DP2010-0531 | DP1110-1400 | TI5010-1531 | TI5910-2550 | TI5510-2550 |
| EPGW 050202 | 5,56 | 2,38 | 0,20 | DP2010-0532 | DP1110-1402 | TI5010-1532 | TI5910-2552 | TI5510-2552 |
| EPGW 050204 | 5,56 | 2,38 | 0,40 | DP2010-0533 | DP1110-1404 | TI5010-1533 | TI5910-2554 | TI5510-2554 |
| EPGW 050201 FF | 5,56 | 2,38 | 0,10 | | | TI5030-0081 | TI5930-0081 | TI5530-0081 |
| EPGW 050202 FF | 5,56 | 2,38 | 0,20 | | | TI5030-0082 | TI5930-0082 | TI5530-0082 |
| EPGW 050204 FF | 5,56 | 2,38 | 0,40 | | | TI5030-0083 | TI5930-0083 | TI5530-0083 |

Application range:

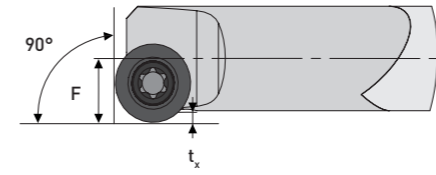
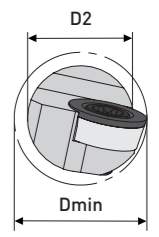
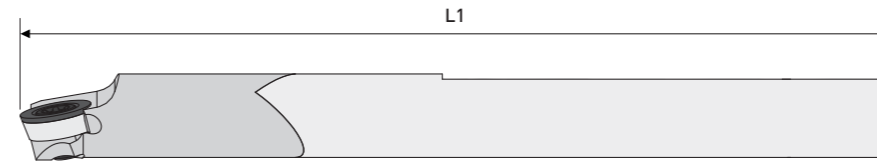
- CVD-D** Aluminum, Brass, Brass lead-free, Composites (CFRP, GFRP, MMC), Graphite, Titanium ...
- U-Diamond** Acrylic, Carbide < 10% Binder, Ceramics, Zirconium ...
- CBN-H** Steel hardened up to 72 HRC
- CBN-X** Tool Steel hardened up to 72 HRC, Tool Steel low alloy, Stellite, powder metallurgical Steel ...
- CBN-K** Grey Cast Iron (GCI), Ductile Cast Iron (DCI) ...

Suitable clamping adapters can be found from page 36 onwards.

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

E... SRLCR/L 95°/10°

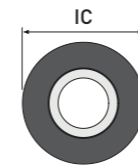
for inserts RCGW 0602...



Carbide Tool Holder
Figure shows right version

| Dmin | F | L2 | L1 | D2 | tx | Version | ISO Code | Item No. |
|-------|------|----|--------|------|------|---------|---------------|-------------|
| 10,00 | 5,00 | - | 125,00 | 8,00 | 1,00 | right | E08X SRLCR 06 | BW6060-1024 |
| | | | | | | left | E08X SRLCL 06 | BW6060-1025 |

Matching clamping screw: 01-BW9060-0005



FullFace

| ISO Code | IC | S | R | CVD-D | Ultra Diamond | CBN-H | CBN-X | CBN-K |
|----------------|------|------|---|-------------|---------------|-------------|-------------|-------------|
| | | | | Item No. | Item No. | Item No. | Item No. | Item No. |
| RCGW 0602M0 FF | 6,00 | 2,38 | - | DP1030-0001 | DP2030-0001 | TI5030-0100 | TI5930-0102 | TI5530-0102 |



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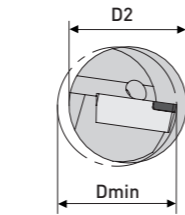
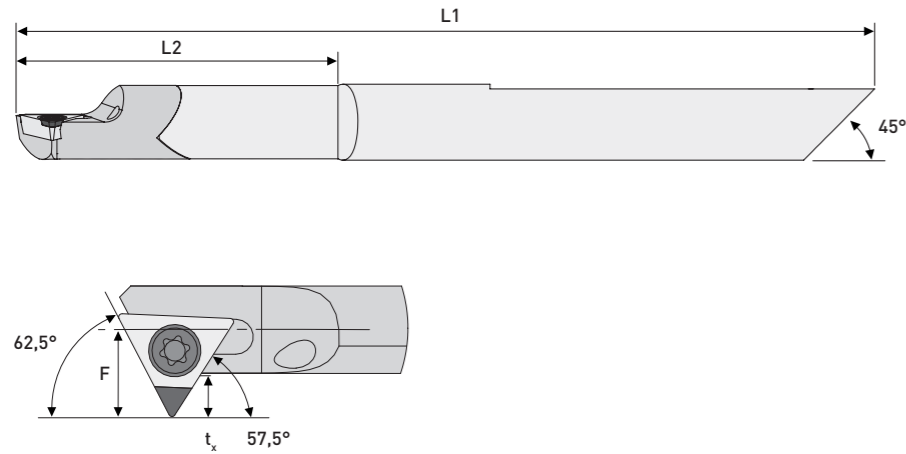
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Subject to technical changes.

E... STXPR/L 62,5°/57,5°

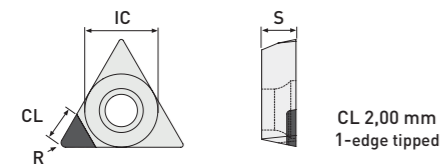
for inserts TPGW 06T1...



Carbide Tool Holder
Figure shows right version

| Dmin | F | L2 | L1 | D2 | t _x | Version | ISO Code | Item No. |
|------|------|-------|--------|------|----------------|---------|---------------|-------------|
| 8,00 | 4,50 | 40,00 | 100,00 | 6,00 | 2,50 | right | E06X STXPR 06 | BW6060-0126 |
| | | | | | | left | E06X STXPL 06 | BW6060-0127 |

Matching clamping screw: 01-BW9060-0126

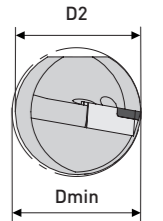
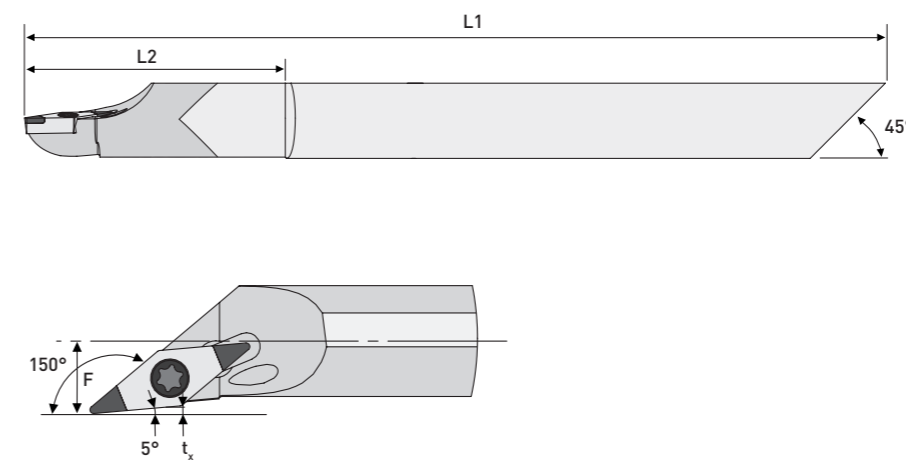


CL 2,00 mm
1-edge tipped

| ISO Code | IC | S | R | CVD-D | Ultra Diamond | CBN-H | CBN-X | CBN-K |
|-------------|------|------|------|-------------|-----------------------------|-------------|-----------------------------|-----------------------------|
| | | | | Item No. | Item No. <small>New</small> | Item No. | Item No. <small>New</small> | Item No. <small>New</small> |
| TPGW 06T101 | 3,97 | 1,98 | 0,10 | DP2010-0671 | DP1110-1410 | TI5010-0786 | TI5910-0786 | TI5510-0786 |
| TPGW 06T102 | 3,97 | 1,98 | 0,20 | DP2010-0672 | DP1110-1412 | TI5010-0787 | TI5910-0787 | TI5510-0787 |
| TPGW 06T104 | 3,97 | 1,98 | 0,40 | DP2010-0673 | DP1110-1414 | TI5010-0788 | TI5910-0788 | TI5510-0788 |

E... SVXCR/L 5°/150°

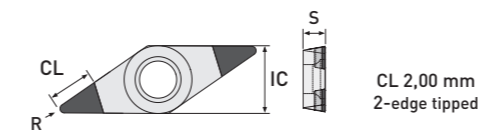
for inserts VCGW 0501...



Carbide Tool Holder
Figure shows right version

| Dmin | F | L2 | L1 | D2 | t _x | Version | ISO Code | Item No. |
|------|------|-------|-------|------|----------------|---------|------------------|-------------|
| 8,00 | 3,00 | 26,00 | 80,00 | 8,00 | 0,40 | right | E08X SVXCR 05 5° | BW6060-0180 |
| | | | | | | left | E08X SVXCL 05 5° | BW6060-0181 |

Matching clamping screw: 01-BW9060-0002



CL 2,00 mm
2-edge tipped

| ISO Code | IC | S | R | CVD-D | Ultra Diamond | CBN-H | CBN-X | CBN-K |
|-------------|------|------|------|-------------|-----------------------------|-------------|-----------------------------|-----------------------------|
| | | | | Item No. | Item No. <small>New</small> | Item No. | Item No. <small>New</small> | Item No. <small>New</small> |
| VCGW 050101 | 3,10 | 1,59 | 0,10 | DP2010-0561 | DP1110-1498 | TI5010-1561 | TI5910-2528 | TI5510-2528 |
| VCGW 050102 | 3,10 | 1,59 | 0,20 | DP2010-0562 | DP1110-1500 | TI5010-1562 | TI5910-2530 | TI5510-2530 |
| VCGW 050104 | 3,10 | 1,59 | 0,40 | DP2010-0563 | DP1110-1502 | TI5010-1563 | TI5910-2532 | TI5510-2532 |

Application range:

- CVD-D Aluminum, Brass, Brass lead-free, Composites (CFRP, GFRP, MMC), Graphite, Titanium ...
- U-Diamond Acrylic, Carbide < 10% Binder, Ceramics, Zirconium ...
- CBN-H Steel hardened up to 72 HRC
- CBN-X Tool Steel hardened up to 72 HRC, Tool Steel low alloy, Stellite, powder metallurgical Steel ...
- CBN-K Grey Cast Iron (GCI), Ductile Cast Iron (DCI) ...

Suitable clamping adapters can be found from page 36 onwards.

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



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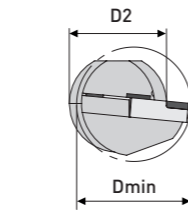
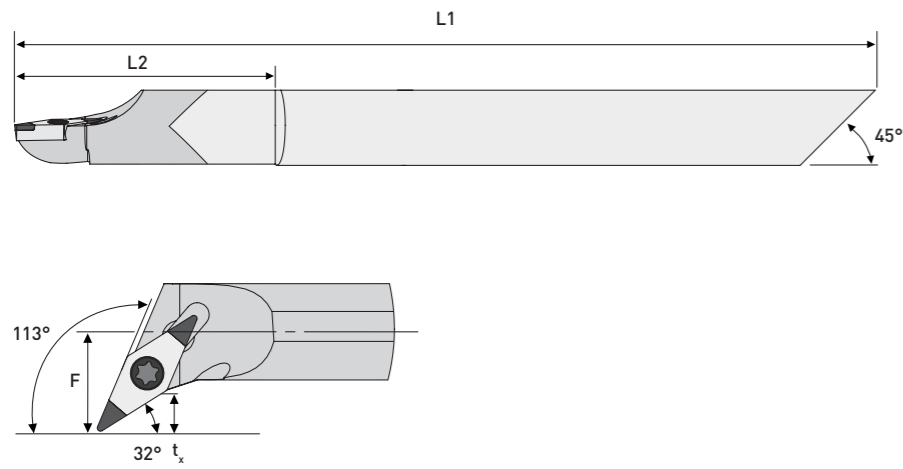
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Subject to technical changes.

E... SVXCR/L 113°/32°

for inserts VCGW 0501...



Carbide Tool Holder
Figure shows right version

| Dmin | F | L2 | L1 | D2 | t _x | Version | ISO Code | Item No. |
|------|------|-------|-------|------|----------------|---------|--------------------|-------------|
| 9,20 | 5,00 | 26,00 | 80,00 | 8,00 | 2,50 | right | E08X SVXCR 05 113° | BW6060-0186 |
| | | | | | | left | E08X SVXCL 05 113° | BW6060-0187 |

Matching clamping screw: 01-BW9060-0002

CL 2,00 mm
2-edge tipped

| ISO Code | IC | S | R | CVD-D Item No. | Ultra Diamond Item No. <small>New</small> | CBN-H Item No. | CBN-X Item No. <small>New</small> | CBN-K Item No. <small>New</small> |
|-------------|------|------|------|-------------------|---|-------------------|--------------------------------------|--------------------------------------|
| VCGW 050101 | 3,10 | 1,59 | 0,10 | DP2010-0561 | DP1110-1498 | TI5010-1561 | TI5910-2528 | TI5510-2528 |
| VCGW 050102 | 3,10 | 1,59 | 0,20 | DP2010-0562 | DP1110-1500 | TI5010-1562 | TI5910-2530 | TI5510-2530 |
| VCGW 050104 | 3,10 | 1,59 | 0,40 | DP2010-0563 | DP1110-1502 | TI5010-1563 | TI5910-2532 | TI5510-2532 |

Application range:

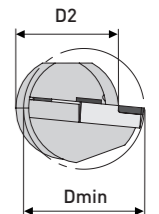
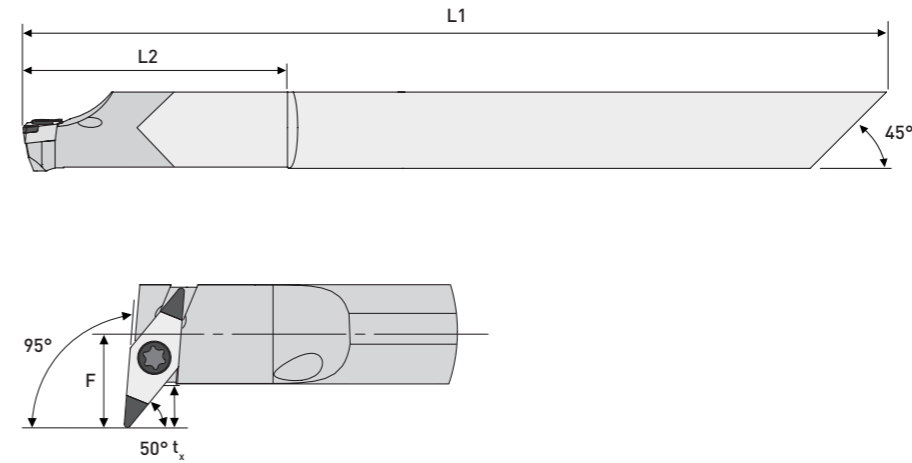
- CVD-D Aluminum, Brass, Brass lead-free, Composites (CFRP, GFRP, MMC), Graphite, Titanium ...
- U-Diamond Acrylic, Carbide < 10% Binder, Ceramics, Zirconium ...
- CBN-H Steel hardened up to 72 HRC
- CBN-X Tool Steel hardened up to 72 HRC, Tool Steel low alloy, Stellite, powder metallurgical Steel ...
- CBN-K Grey Cast Iron (GCI), Ductile Cast Iron (DCI) ...

Suitable clamping adapters can be found from page 36 onwards.

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

E... SVLCR/L 95°/50°

for inserts VCGW 0501...



Carbide Tool Holder
Figure shows right version

| Dmin | F | L2 | L1 | D2 | t _x | Version | ISO Code | Item No. |
|------|------|-------|-------|------|----------------|---------|---------------|-------------|
| 9,20 | 5,00 | 26,00 | 80,00 | 8,00 | 3,00 | right | E08X SVLCR 05 | BW6060-0190 |
| | | | | | | left | E08X SVLCL 05 | BW6060-0191 |

Matching clamping screw: 01-BW9060-0002

CL 2,00 mm
2-edge tipped

| ISO Code | IC | S | R | CVD-D Item No. | Ultra Diamond Item No. <small>New</small> | CBN-H Item No. | CBN-X Item No. <small>New</small> | CBN-K Item No. <small>New</small> |
|-------------|------|------|------|-------------------|---|-------------------|--------------------------------------|--------------------------------------|
| VCGW 050101 | 3,10 | 1,59 | 0,10 | DP2010-0561 | DP1110-1498 | TI5010-1561 | TI5910-2528 | TI5510-2528 |
| VCGW 050102 | 3,10 | 1,59 | 0,20 | DP2010-0562 | DP1110-1500 | TI5010-1562 | TI5910-2530 | TI5510-2530 |
| VCGW 050104 | 3,10 | 1,59 | 0,40 | DP2010-0563 | DP1110-1502 | TI5010-1563 | TI5910-2532 | TI5510-2532 |



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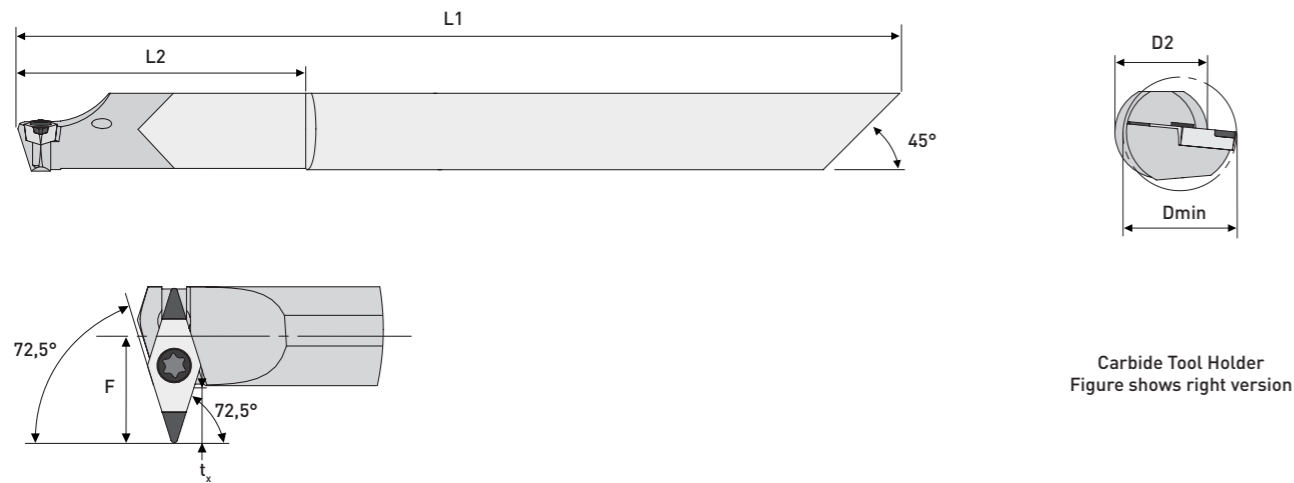
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E... SVVCR 72,5°/72,5°

for inserts VCGW 0501...



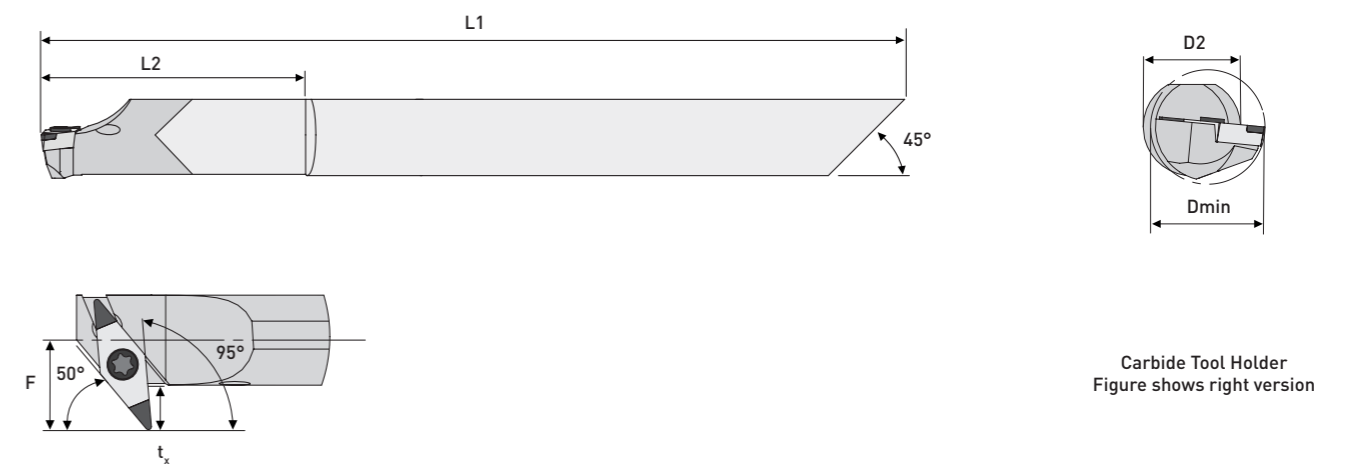
| Dmin | F | L2 | L1 | D2 | t _x | Version | ISO Code | Item No. |
|-------|------|-------|-------|------|----------------|---------|---------------|-------------|
| 10,00 | 5,50 | 26,00 | 80,00 | 8,00 | 3,50 | right | E08X SVVCR 05 | BW6060-0196 |

Matching clamping screw: 01-BW9060-0002

| ISO Code | IC | S | R | CVD-D | Ultra Diamond | CBN-H | CBN-X | CBN-K |
|-------------|------|------|------|-------------|-----------------------------|-------------|-----------------------------|-----------------------------|
| | | | | Item No. | Item No. <small>New</small> | Item No. | Item No. <small>New</small> | Item No. <small>New</small> |
| VCGW 050101 | 3,10 | 1,59 | 0,10 | DP2010-0561 | DP1110-1498 | TI5010-1561 | TI5910-2528 | TI5510-2528 |
| VCGW 050102 | 3,10 | 1,59 | 0,20 | DP2010-0562 | DP1110-1500 | TI5010-1562 | TI5910-2530 | TI5510-2530 |
| VCGW 050104 | 3,10 | 1,59 | 0,40 | DP2010-0563 | DP1110-1502 | TI5010-1563 | TI5910-2532 | TI5510-2532 |

E... SVLXR/L 50°/95° EX

for inserts VCGW 0501...



| Dmin | F | L2 | L1 | D2 | t _x | Version | ISO Code | Item No. |
|------|------|-------|-------|------|----------------|---------|---------------|-------------|
| 9,20 | 5,00 | 26,00 | 80,00 | 8,00 | 3,00 | right | E08X SVLXR 05 | BW6060-0200 |
| | | | | | | left | E08X SVLXL 05 | BW6060-0201 |

Matching clamping screw: 01-BW9060-0002

| ISO Code | IC | S | R | CVD-D | Ultra Diamond | CBN-H | CBN-X | CBN-K |
|-------------|------|------|------|-------------|-----------------------------|-------------|-----------------------------|-----------------------------|
| | | | | Item No. | Item No. <small>New</small> | Item No. | Item No. <small>New</small> | Item No. <small>New</small> |
| VCGW 050101 | 3,10 | 1,59 | 0,10 | DP2010-0561 | DP1110-1498 | TI5010-1561 | TI5910-2528 | TI5510-2528 |
| VCGW 050102 | 3,10 | 1,59 | 0,20 | DP2010-0562 | DP1110-1500 | TI5010-1562 | TI5910-2530 | TI5510-2530 |
| VCGW 050104 | 3,10 | 1,59 | 0,40 | DP2010-0563 | DP1110-1502 | TI5010-1563 | TI5910-2532 | TI5510-2532 |

Application range:

- CVD-D Aluminum, Brass, Brass lead-free, Composites (CFRP, GFRP, MMC), Graphite, Titanium ...
- U-Diamond Acrylic, Carbide < 10% Binder, Ceramics, Zirconium ...
- CBN-H Steel hardened up to 72 HRC
- CBN-X Tool Steel hardened up to 72 HRC, Tool Steel low alloy, Stellite, powder metallurgical Steel ...
- CBN-K Grey Cast Iron (GCI), Ductile Cast Iron (DCI) ...

Suitable clamping adapters can be found from page 36 onwards.

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



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Clamping Systems

Hydraulic Expansion Chuck

Take advantage!

- ✓ High damping
- ✓ Tool life increase up to approximately 30%
- ✓ Automatic cutting edge adjustment
- ✓ Excellent surface quality
- ✓ High dimensional stability
- ✓ Easy and quick change of the boring bar

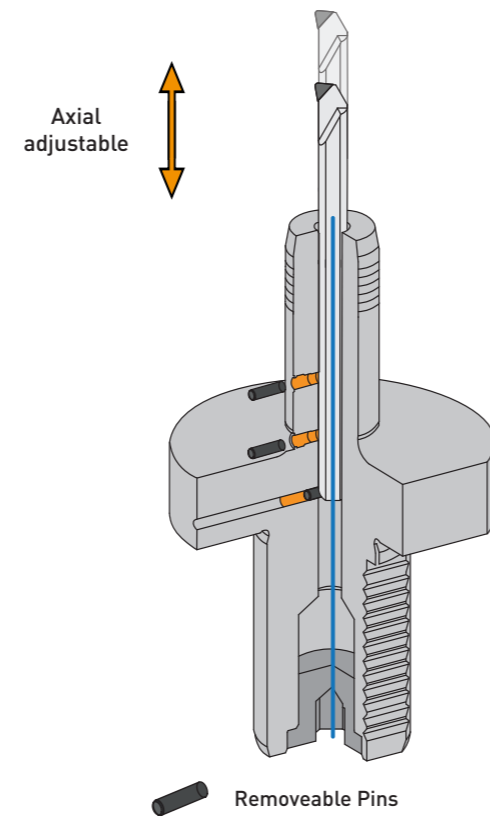
Functionality

Automatic adjustment of center height through pin, resulting in a very high repeat accuracy

This gives you a very high repeat accuracy.



Cooling through the clamping surface



Adjustment Guide

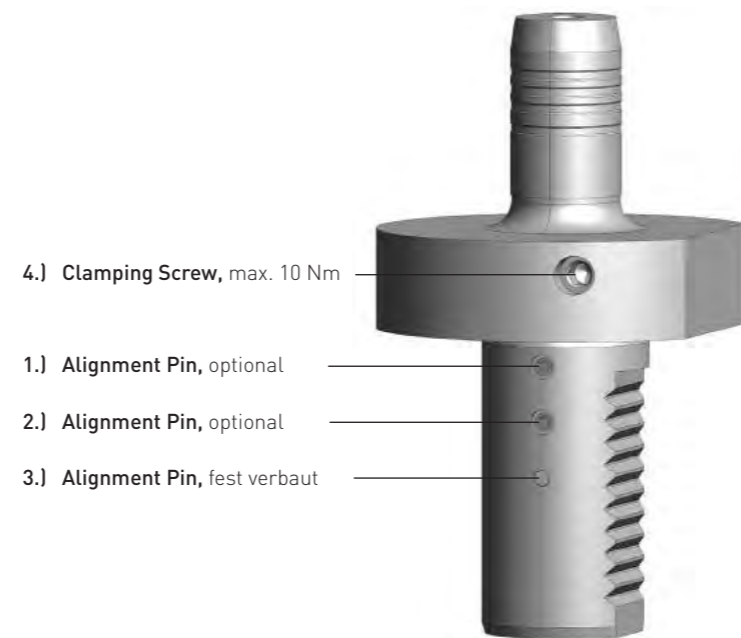
for tool change

1. Loosen screw 4
2. Insert boring bar
3. Turn tool slightly at stop until resistance is felt
4. Tighten screw 4 with max. 10Nm

-> Tool ready for use

Extended length too long?

1. Loosen screw 4
2. Remove threaded pin 1 (if necessary 2 also)
3. Remove alignment pin
4. Insert threaded pin 1 (if necessary 2 also)
5. Repeat adjustment guide from point 2



*Positioning of alignment pins may deviate due to manufacturing process

Clamping Systems

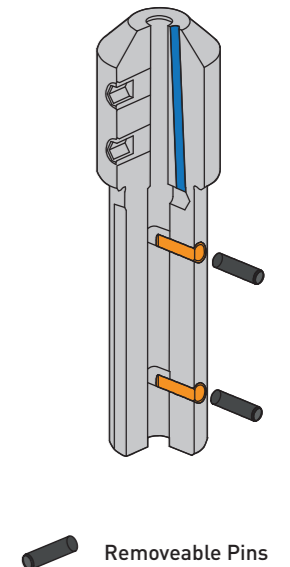
Clamping Adapter round or 4-sided

Take advantage!

- ✓ Excellent surface quality
- ✓ High dimensional stability
- ✓ High repeat accuracy

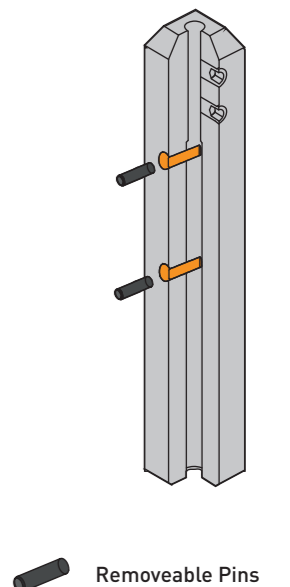
Functionality

- ✓ Automatic adjustment of center height through pin and 45° bevel on the tool
- ✓ Safe and stable positioning of the tool due to the 3-point fixing system
- ✓ Defined coolant supply
- ✓ Adapter with shank tolerance $\varnothing 16h6$



Functionality

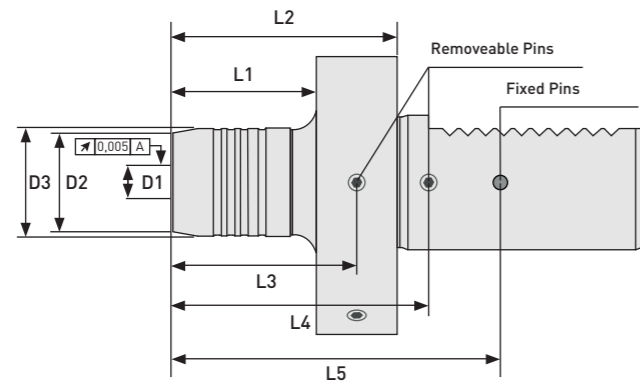
- ✓ Automatic adjustment of center height through pin and 45° bevel on the tool
- ✓ Safe and stable positioning of the tool due to the 3-point fixing system
- ✓ Grinded 4-sided for flexible use in almost all processing machines
- ✓ General coolant supply through clamping surface



Hydraulic Expansion Chuck

with VDI

for brazed boring tools



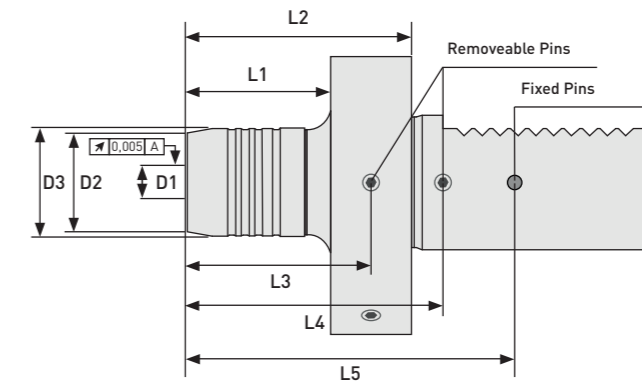
| D1 | VDI | D2 | D3 | L1 | L2 | L3 | L4 | L5 | Item No. |
|------|-----|-------|-------|-------|-------|-------|-------|-------|-------------|
| 4,00 | 16 | 18,00 | 20,00 | 33,00 | 58,00 | 46,00 | 54,00 | 62,00 | BA7090-2040 |
| | 20 | 18,00 | 20,00 | 32,00 | 50,00 | 46,00 | 54,00 | 62,00 | BA7090-2240 |
| | 25 | 18,00 | 20,00 | 32,00 | 50,00 | 46,00 | 54,00 | 62,00 | BA7090-2245 |
| | 30 | 18,00 | 20,00 | 32,00 | 50,00 | 46,00 | 54,00 | 62,00 | BA7090-2340 |
| | 40 | 18,00 | 20,00 | 58,00 | 76,00 | 46,00 | 54,00 | 62,00 | BA7090-2440 |
| 5,00 | 16 | 18,00 | 20,00 | 51,00 | 76,00 | 62,00 | 72,00 | 82,00 | BA7090-2050 |
| | 20 | 18,00 | 20,00 | 48,00 | 66,00 | 62,00 | 72,00 | 82,00 | BA7090-2250 |
| | 25 | 18,00 | 20,00 | 48,00 | 66,00 | 62,00 | 72,00 | 82,00 | BA7090-2255 |
| | 30 | 18,00 | 20,00 | 38,00 | 56,00 | 62,00 | 72,00 | 82,00 | BA7090-2350 |
| | 40 | 18,00 | 20,00 | 56,00 | 76,00 | 62,00 | 72,00 | 82,00 | BA7090-2450 |
| 6,00 | 16 | 18,00 | 20,00 | 45,00 | 71,00 | 55,00 | 67,00 | 79,00 | BA7090-2060 |
| | 20 | 18,00 | 20,00 | 42,00 | 60,00 | 55,00 | 67,00 | 79,00 | BA7090-2260 |
| | 25 | 18,00 | 20,00 | 42,00 | 60,00 | 55,00 | 67,00 | 79,00 | BA7090-2265 |
| | 30 | 18,00 | 20,00 | 42,00 | 60,00 | 55,00 | 67,00 | 79,00 | BA7090-2360 |
| | 40 | 18,00 | 20,00 | 58,00 | 76,00 | 55,00 | 67,00 | 79,00 | BA7090-2460 |
| 8,00 | 16 | 22,00 | 24,00 | 37,00 | 62,00 | 41,00 | 57,00 | 73,00 | BA7090-2080 |
| | 20 | 22,00 | 24,00 | 35,00 | 53,00 | 41,00 | 57,00 | 73,00 | BA7090-2280 |
| | 25 | 22,00 | 24,00 | 34,00 | 52,00 | 41,00 | 57,00 | 73,00 | BA7090-2285 |
| | 30 | 22,00 | 24,00 | 32,00 | 50,00 | 41,00 | 57,00 | 73,00 | BA7090-2380 |
| | 40 | 22,00 | 24,00 | 60,00 | 80,00 | 41,00 | 57,00 | 73,00 | BA7090-2480 |

Spare parts and torque wrench available on request.

Hydraulic Expansion Chuck

with VDI

for boring tools with indexable inserts

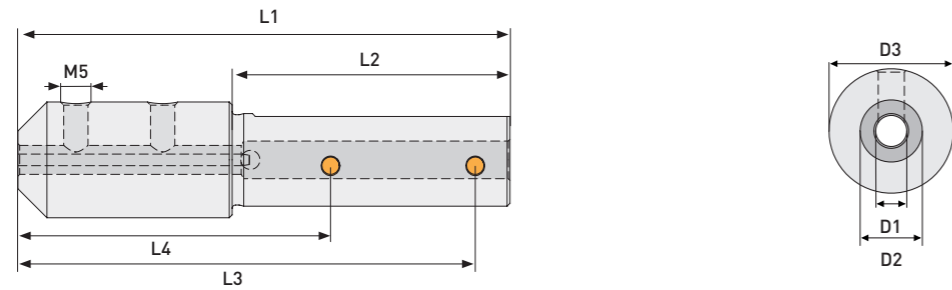


| D1 | VDI | D2 | D3 | L1 | L2 | L3 | L4 | L5 | Item No. |
|-------|-----|-------|-------|-------|--------|-------|-------|--------|-------------|
| 4,00 | 16 | 18,00 | 20,00 | 40,00 | 65,00 | 52,00 | 60,00 | 68,00 | BA7090-3140 |
| | 20 | 18,00 | 20,00 | 30,00 | 48,00 | 52,00 | 60,00 | 68,00 | BA7090-3240 |
| 5,00 | 16 | 18,00 | 20,00 | 51,00 | 76,00 | 62,00 | 72,00 | 82,00 | BA7090-3150 |
| | 20 | 18,00 | 20,00 | 48,00 | 66,00 | 62,00 | 72,00 | 82,00 | BA7090-3250 |
| 6,00 | 16 | 18,00 | 20,00 | 45,00 | 71,00 | 55,00 | 67,00 | 79,00 | BA7090-3160 |
| | 20 | 18,00 | 20,00 | 42,00 | 60,00 | 55,00 | 67,00 | 79,00 | BA7090-3260 |
| 8,00 | 16 | 22,00 | 24,00 | 37,00 | 62,00 | 41,00 | 57,00 | 73,00 | BA7090-3180 |
| | 16 | 22,00 | 24,00 | 17,00 | 42,00 | 22,00 | 38,00 | 54,00 | BA7090-3181 |
| | 16 | 22,00 | 24,00 | 62,00 | 87,00 | 67,00 | 83,00 | 99,00 | BA7090-3182 |
| | 20 | 22,00 | 24,00 | 27,00 | 45,00 | 22,00 | 38,00 | 54,00 | BA7090-3280 |
| | 20 | 22,00 | 24,00 | 35,00 | 53,00 | 51,00 | 57,00 | 73,00 | BA7090-3281 |
| 10,00 | 20 | 22,00 | 24,00 | 57,00 | 75,00 | 67,00 | 83,00 | 99,00 | BA7090-3282 |
| | 20 | 24,00 | 26,00 | 87,00 | 105,00 | 77,00 | 97,00 | 117,00 | BA7090-3911 |
| | 25 | 24,00 | 26,00 | 72,00 | 90,00 | 77,00 | 97,00 | 117,00 | BA7090-3913 |
| | 30 | 26,00 | 28,00 | 32,00 | 50,00 | 37,00 | 57,00 | 77,00 | BA7090-3915 |
| | 40 | 24,00 | 26,00 | 65,00 | 85,00 | 77,00 | 97,00 | 117,00 | BA7090-3917 |

Spare parts and torque wrench available on request.

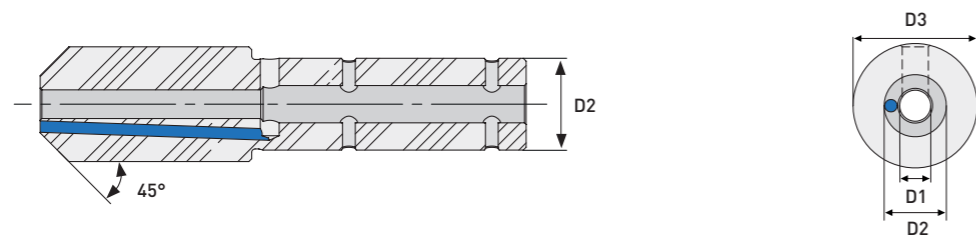
Clamping Adapter


optional with or without internal cooling



without internal cooling (light cooling through clamping surface)

| D1 | D2 | D3 | L1 | L2 | L3 | L4 | Item No. |
|-----|------|-------|-------|-------|-------|-------|-------------|
| 3G6 | 16h6 | 20,00 | 75,00 | 48,00 | 64,00 | 34,00 | BA7090-0000 |
| 4G6 | 16h6 | 20,00 | 75,00 | 48,00 | 64,00 | 34,00 | BA7090-0001 |
| 5G6 | 16h6 | 20,00 | 85,00 | 48,00 | 79,00 | 49,00 | BA7090-0002 |
| 6G6 | 16h6 | 20,00 | 84,00 | 48,00 | 78,00 | 48,00 | BA7090-0003 |
| 8G6 | 16h6 | 20,00 | 82,00 | 48,00 | 77,00 | 47,00 | BA7090-0004 |



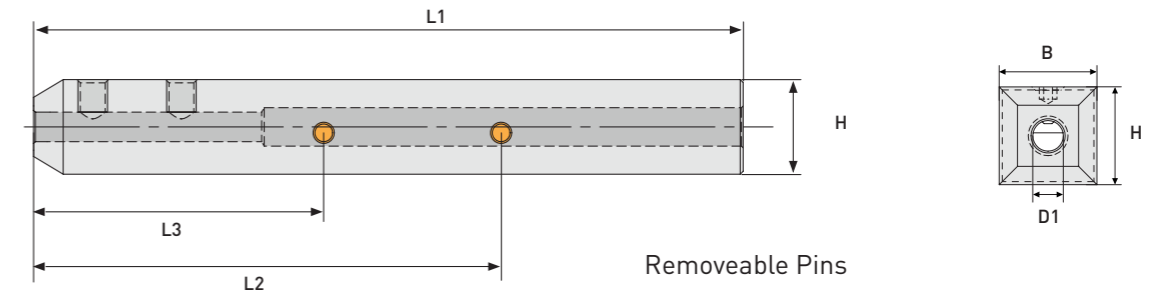
 with internal cooling

| D1 | D2 | D3 | L1 | L2 | L3 | L4 | Version | Item No. |
|-----|------|-------|-------|-------|-------|-------|---------|-------------|
| 4G6 | 16h6 | 20,00 | 75,00 | 48,00 | 64,00 | 39,00 | R | BA7090-1001 |
| | | | | | | | L | BA7090-2001 |
| 5G6 | 16h6 | 20,00 | 85,00 | 48,00 | 79,00 | 54,00 | R | BA7090-1002 |
| | | | | | | | L | BA7090-2002 |
| 6G6 | 16h6 | 20,00 | 84,00 | 48,00 | 78,00 | 53,00 | R | BA7090-1003 |
| | | | | | | | L | BA7090-2003 |
| 8G6 | 16h6 | 20,00 | 82,00 | 48,00 | 77,00 | 52,00 | R | BA7090-1004 |
| | | | | | | | L | BA7090-2004 |

Spare parts and torque wrench available on request.

Clamping Adapter

4-sided



without internal cooling (light cooling through clamping surface)

| D1 | HxB | L1 | L2 | L3 | Item No. |
|-----|-------|--------|--------|-------|-------------|
| 4G6 | 12x12 | 120,00 | 64,06 | 39,06 | BA7090-4040 |
| | 16x16 | 120,00 | 64,06 | 39,06 | BA7090-4140 |
| | 20x20 | 120,00 | 64,06 | 39,06 | BA7090-4240 |
| | 25x25 | 120,00 | 64,06 | 39,06 | BA7090-4340 |
| 5G6 | 12x12 | 120,00 | 79,06 | 49,06 | BA7090-4050 |
| | 16x16 | 120,00 | 79,06 | 49,06 | BA7090-4150 |
| | 20x20 | 120,00 | 79,06 | 49,06 | BA7090-4250 |
| | 25x25 | 120,00 | 79,06 | 49,06 | BA7090-4350 |
| | 6G6 | 16x16 | 120,00 | 78,06 | 48,06 |
| 6G6 | 20x20 | 120,00 | 78,06 | 48,06 | BA7090-4260 |
| | 25x25 | 120,00 | 78,06 | 48,06 | BA7090-4360 |
| | 8G6 | 16x16 | 120,00 | 77,06 | 47,06 |
| 8G6 | 20x20 | 120,00 | 77,06 | 47,06 | BA7090-4280 |
| | 25x25 | 120,00 | 77,06 | 47,06 | BA7090-4380 |

Spare parts and torque wrench available on request.

Cutting Parameters

for our Boring Tools

Vc X 3.28 = SFM
 ap / 25.4 = DOC inches
 F / 25.4 = inch per revolution

| Material | | PCD | | | | | | | | |
|--------------------------|------|-------------|----------|-----------|---------------------|----------|-----------|------------|----------|-----------|
| | | n [rev/min] | | | a _p [mm] | | | F [mm/rev] | | |
| | | Ø1,0-3,5 | Ø4,0-6,0 | Ø7,0-10,0 | Ø1,0-3,5 | Ø4,0-6,0 | Ø7,0-10,0 | Ø1,0-3,5 | Ø4,0-6,0 | Ø7,0-10,0 |
| Acrylic (PMMA) | min. | 5.000 | 4.500 | 3.500 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 |
| | max. | 20.000 | 20.000 | 20.000 | 0,05 | 0,80 | 2,00 | 0,05 | 0,10 | 0,12 |
| Al Si <10% | min. | 5.000 | 4.000 | 3.000 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 |
| | max. | 20.000 | 20.000 | 20.000 | 0,30 | 1,50 | 2,50 | 0,05 | 0,10 | 0,18 |
| Al Si >10% | min. | 5.000 | 5.000 | 3.000 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 |
| | max. | 20.000 | 20.000 | 20.000 | 0,20 | 1,00 | 2,00 | 0,05 | 0,10 | 0,18 |
| Brass, Brass, lead-free | min. | 4.000 | 3.500 | 2.500 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 |
| | max. | 15.000 | 15.000 | 15.000 | 0,30 | 1,50 | 2,50 | 0,05 | 0,10 | 0,18 |
| Carbide, Ceramics, Green | min. | on request | | | | | | | | |
| | max. | on request | | | | | | | | |
| CFRP | min. | 5.000 | 3.000 | 2.000 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 |
| | max. | 15.000 | 12.000 | 10.000 | 0,10 | 0,50 | 2,00 | 0,05 | 0,10 | 0,15 |
| Copper | min. | 4.000 | 3.500 | 3.000 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 |
| | max. | 20.000 | 20.000 | 20.000 | 0,10 | 0,50 | 1,00 | 0,05 | 0,10 | 0,15 |
| GFRP | min. | 5.000 | 4.000 | 3.500 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 |
| | max. | 15.000 | 15.000 | 12.000 | 0,05 | 0,50 | 1,00 | 0,05 | 0,10 | 0,12 |
| Gold, Silver, Platinum | min. | 4.000 | 3.000 | 2.000 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 |
| | max. | 15.000 | 15.000 | 15.000 | 0,10 | 0,50 | 1,00 | 0,05 | 0,10 | 0,15 |
| Graphite | min. | 3.000 | 2.500 | 2.000 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 |
| | max. | 15.000 | 16.000 | 12.000 | 0,10 | 0,50 | 2,50 | 0,05 | 0,15 | 0,2 |
| MMC | min. | 5.000 | 3.000 | 2.000 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 |
| | max. | 15.000 | 12.000 | 10.000 | 0,10 | 0,50 | 2,00 | 0,05 | 0,10 | 0,15 |
| Plastics | min. | 4.000 | 3.500 | 3.000 | 0,02 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 |
| | max. | 18.000 | 15.000 | 15.000 | 0,10 | 1,00 | 2,50 | 0,05 | 0,10 | 0,20 |
| Titanium | min. | 4.000 | 3.500 | 2.000 | 0,010 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 |
| | max. | 10.000 | 8.000 | 6.000 | 0,025 | 0,05 | 0,10 | 0,05 | 0,06 | 0,08 |
| Zirconium | min. | 5.000 | 4.000 | 3.000 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 |
| | max. | 20.000 | 20.000 | 20.000 | 0,30 | 1,50 | 2,50 | 0,05 | 0,10 | 0,2 |

Vc X 3.28 = SFM
 ap / 25.4 = DOC inches
 F / 25.4 = inch per revolution

| Material | | CVD-D | | | | | | | | | Cooling | | | | |
|--------------------------|------|-------------|----------|-----------|---------------------|----------|-----------|------------|----------|-----------|------------|-----------|-----------|-----------|-----|
| | | n [rev/min] | | | a _p [mm] | | | F [mm/rev] | | | Dry | Air | Emulsion | Oil | MQL |
| | | Ø1,0-3,5 | Ø4,0-6,0 | Ø7,0-10,0 | Ø1,0-3,5 | Ø4,0-6,0 | Ø7,0-10,0 | Ø1,0-3,5 | Ø4,0-6,0 | Ø7,0-10,0 | | | | | |
| Acrylic (PMMA) | min. | 4000 | 3500 | 2500 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | | 2. Choice | 1. Choice | | |
| | max. | 30000 | 25000 | 22000 | 0,05 | 0,80 | 2,00 | 0,05 | 0,10 | 0,12 | | 2. Choice | 1. Choice | | |
| Al Si <10% | min. | 4500 | 4000 | 2000 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | | | 1. Choice | 2. Choice | |
| | max. | 30000 | 30000 | 30000 | 0,30 | 1,50 | 2,50 | 0,05 | 0,10 | 0,18 | | | 1. Choice | 2. Choice | |
| Al Si >10% | min. | 4500 | 4000 | 2000 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | | | 1. Choice | 2. Choice | |
| | max. | 30000 | 30000 | 30000 | 0,20 | 1,00 | 2,00 | 0,05 | 0,10 | 0,18 | | | 1. Choice | 2. Choice | |
| Brass, Brass, lead-free | min. | 3000 | 2500 | 1500 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | | | 1. Choice | 1. Choice | |
| | max. | 20000 | 20000 | 18000 | 0,30 | 1,50 | 2,50 | 0,05 | 0,10 | 0,18 | | | 1. Choice | 1. Choice | |
| Carbide, Ceramics, Green | min. | on request | | | | | | | | | on request | | | | |
| | max. | on request | | | | | | | | | on request | | | | |
| CFRP | min. | 4000 | 3000 | 1000 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | | 1. Choice | | | |
| | max. | 20000 | 18000 | 15000 | 0,10 | 0,50 | 2,00 | 0,05 | 0,10 | 0,15 | | 1. Choice | | | |
| Copper | min. | 3000 | 2500 | 2000 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | | | 1. Choice | 2. Choice | |
| | max. | 30000 | 25000 | 20000 | 0,10 | 0,50 | 1,00 | 0,05 | 0,10 | 0,15 | | | 1. Choice | 2. Choice | |
| GFRP | min. | 4000 | 3000 | 1500 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | | | 1. Choice | | |
| | max. | 20000 | 20000 | 18000 | 0,05 | 0,50 | 1,00 | 0,05 | 0,10 | 0,12 | | | 1. Choice | | |
| Gold, Silver, Platinum | min. | 3000 | 2500 | 1000 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | | | 1. Choice | 2. Choice | |
| | max. | 20000 | 20000 | 18000 | 0,10 | 0,50 | 1,00 | 0,05 | 0,10 | 0,15 | | | 1. Choice | 2. Choice | |
| Graphite | min. | 2000 | 1500 | 1000 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 1. Choice | | | | |
| | max. | 20000 | 18000 | 15000 | 0,10 | 0,50 | 2,50 | 0,05 | 0,15 | 0,20 | 1. Choice | | | | |
| MMC | min. | 4000 | 3000 | 1000 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | | | 1. Choice | | |
| | max. | 20000 | 15000 | 15000 | 0,10 | 0,50 | 2,00 | 0,05 | 0,10 | 0,15 | | | 1. Choice | | |
| Plastics | min. | 3000 | 2500 | 2000 | 0,02 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | | | 1. Choice | | |
| | max. | 20000 | 20000 | 18000 | 0,10 | 1,00 | 2,50 | 0,05 | 0,10 | 0,20 | | | 1. Choice | | |
| Titanium | min. | 3500 | 2000 | 1200 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | | | 1. Choice | | |
| | max. | 12000 | 8000 | 6000 | 0,025 | 0,05 | 0,10 | 0,05 | 0,06 | 0,08 | | | 1. Choice | | |
| Zirconium | min. | 4000 | 3000 | 2000 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | | | 1. Choice | 2. Choice | |
| | max. | 30000 | 30000 | 30000 | 0,30 | 1,50 | 2,50 | 0,05 | 0,10 | 0,20 | | | 1. Choice | 2. Choice | |

Cutting Parameters

for our Boring Tools

Vc X 3.28 = SFM
 ap / 25.4 = DOC inches
 F / 25.4 = inch per revolution

| Material | | CBN | | | | | | | | |
|-----------------------------------|------|----------------|----------|-----------|------------------------|----------|-----------|---------------|----------|-----------|
| | | n [rev/min] | | | a _p [mm] | | | F [mm/rev] | | |
| | | Ø1,0-3,5 | Ø4,0-6,0 | Ø7,0-10,0 | Ø1,0-3,5 | Ø4,0-6,0 | Ø7,0-10,0 | Ø1,0-3,5 | Ø4,0-6,0 | Ø7,0-10,0 |
| Carbide >20%Co | min. | on request | | | | | | | | |
| | max. | | | | | | | | | |
| Carbide-Steel Composite | min. | on request | | | | | | | | |
| | max. | | | | | | | | | |
| Ni-, Co-, Fe- and Cr-Alloys | min. | 2.000 | 1.500 | 1.000 | 0,02 | 0,025 | 0,025 | 0,01 | 0,02 | 0,03 |
| | max. | 8.000 | 6.000 | 5.000 | 0,05 | 0,30 | 0,5 | 0,05 | 0,10 | 0,20 |
| Steel hardened up to 42 HRC | min. | 3.000 | 3.000 | 2.000 | 0,01 | 0,01 | 0,01 | 0,004 | 0,005 | 0,005 |
| | max. | 12.000 | 10.000 | 8.000 | 0,025 | 0,20 | 0,50 | 0,008 | 0,08 | 0,18 |
| Steel hardened up to 52 HRC | min. | 3.000 | 3.000 | 2.000 | 0,01 | 0,01 | 0,01 | 0,004 | 0,005 | 0,005 |
| | max. | 12.000 | 10.000 | 8.000 | 0,025 | 0,20 | 0,50 | 0,008 | 0,08 | 0,18 |
| Steel hardened up to 60 HRC | min. | 3.000 | 2.500 | 2.000 | 0,01 | 0,01 | 0,01 | 0,004 | 0,005 | 0,005 |
| | max. | 10.000 | 8.000 | 8.000 | 0,025 | 0,20 | 0,50 | 0,008 | 0,10 | 0,18 |
| Steel hardened up to 68 HRC | min. | 2.500 | 2.000 | 1.500 | 0,01 | 0,01 | 0,01 | 0,004 | 0,005 | 0,005 |
| | max. | 8.000 | 6.000 | 6.000 | 0,025 | 0,15 | 0,3 | 0,03 | 0,12 | 0,15 |
| Special Alloys (ASP, CPM, HARDOX) | min. | 2.000 | 2.000 | 1.500 | 0,01 | 0,01 | 0,01 | 0,004 | 0,005 | 0,005 |
| | max. | 8.000 | 6.000 | 6.000 | 0,025 | 0,015 | 0,30 | 0,03 | 0,12 | 0,15 |
| Titanium | min. | 2.000 | 1.500 | 1.000 | 0,01 | 0,03 | 0,05 | 0,01 | 0,02 | 0,03 |
| | max. | 10.000 | 8.000 | 6.000 | 0,015 | 0,15 | 0,25 | 0,05 | 0,06 | 0,08 |
| Tool Steel, hardened | min. | 2.000 | 2.200 | 2.500 | 0,02 | 0,02 | 0,02 | 0,01 | 0,02 | 0,03 |
| | max. | 8.000 | 6.000 | 6.000 | 0,05 | 0,30 | 0,40 | 0,05 | 0,10 | 0,20 |

Cooling recommended

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

Here you will find our recommendation:

When machining interrupted cuts, we recommend dry machining or cooling by air.

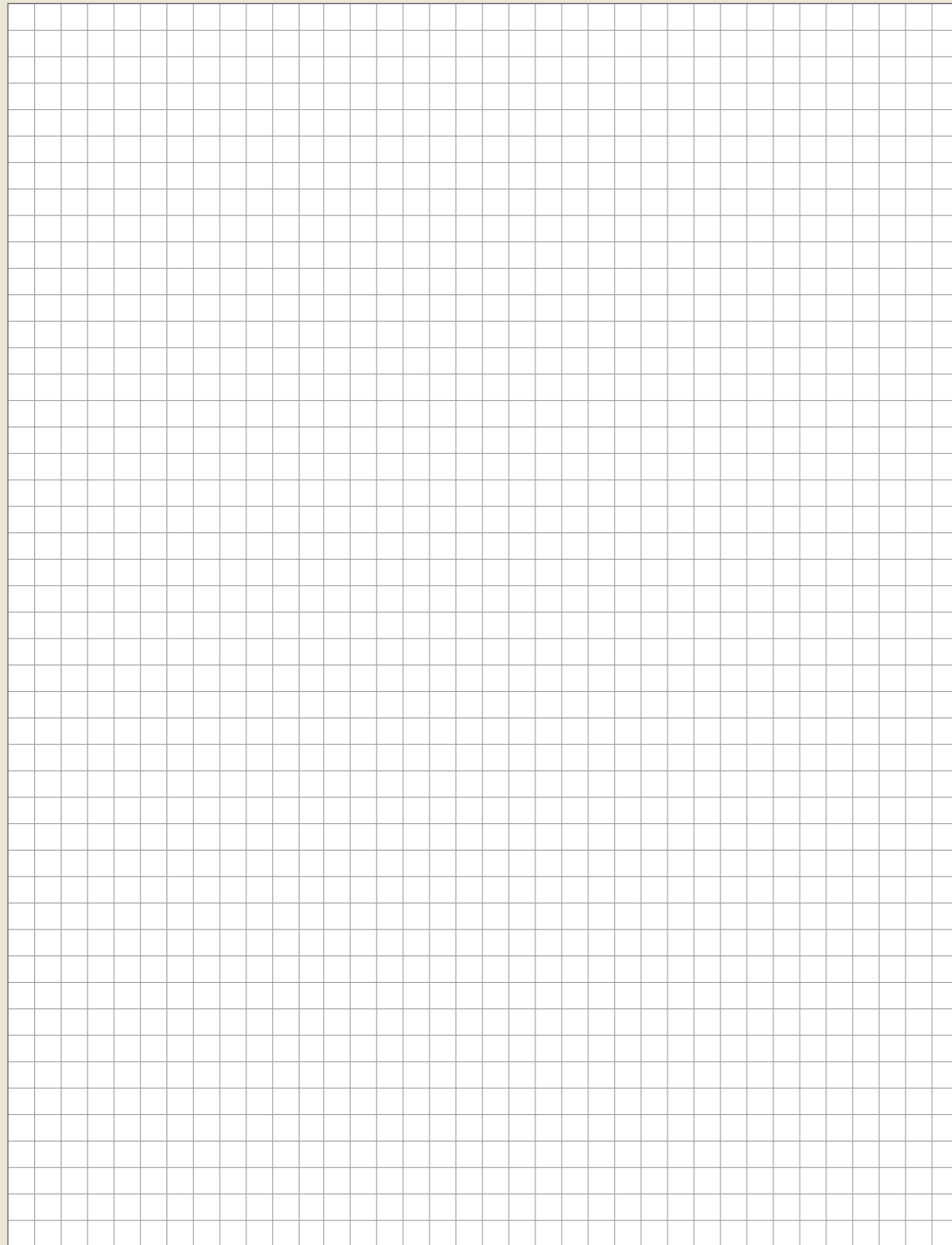
| Material | Cooling | | | | |
|-----------------------------------|------------|-----------|-----------|-----------|-----------|
| | Dry | Air | Emulsion | Oil | MQL |
| Carbide >20%Co | on request | | | | |
| Carbide-Steel Composite | | | | | |
| Ni-, Co-, Fe- and Cr-Alloys | | 3. Choice | 1. Choice | | 2. Choice |
| Steel hardened up to 42 HRC | | 3. Choice | 1. Choice | 2. Choice | |
| Steel hardened up to 52 HRC | | 3. Choice | 1. Choice | 2. Choice | |
| Steel hardened up to 60 HRC | | 3. Choice | 1. Choice | 2. Choice | |
| Steel hardened up to 68 HRC | | 3. Choice | 1. Choice | 2. Choice | |
| Special Alloys (ASP, CPM, HARDOX) | | 3. Choice | 1. Choice | 2. Choice | |
| Titanium | | | 1. Choice | | 2. Choice |
| Tool Steel hardened | | 3. Choice | 1. Choice | 2. Choice | |



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

Phone: 888.554.7264

Mail: sales@ranitool.com



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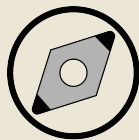
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All rights are reserved. Errors, misprints or printing errors do not entitle to claims. The pictorial and graphic representation of our tools do not necessarily have to correspond to the actual tool in all details.

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

Safety Instructions:

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



DTS GmbH

Diamond Tooling Systems
PASSION FOR DIAMOND



Rani Tool Corp.

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E-mail: sales@ranitool.com • www.ranitool.com