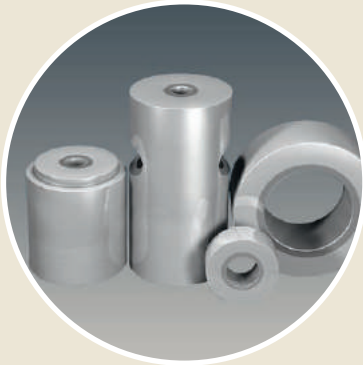
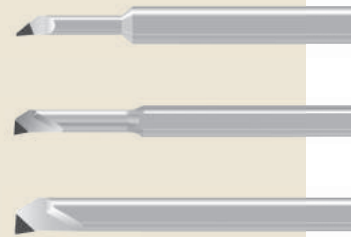




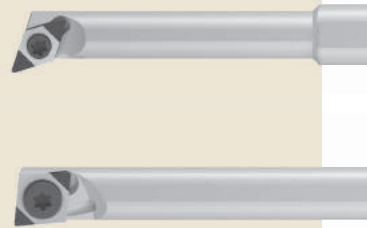
Precision Boring Tools | Mini-Inserts PCD, CVD-D, UltraDiamond, CBN



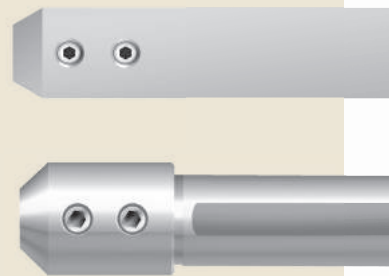
Die and Mold
Industry



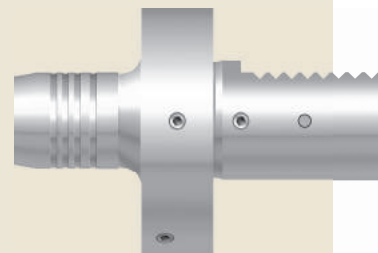
Automotive
Mechanical Engineering



Medical Technology
Micro Technology



Aerospace
Engineering





Welcome to DTS - Diamond Tooling Systems GmbH!

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

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

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

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

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

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

Overview

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E... SVXCR/L 5° / 140°	29
E... SVXCR/L 113° / 32°	30
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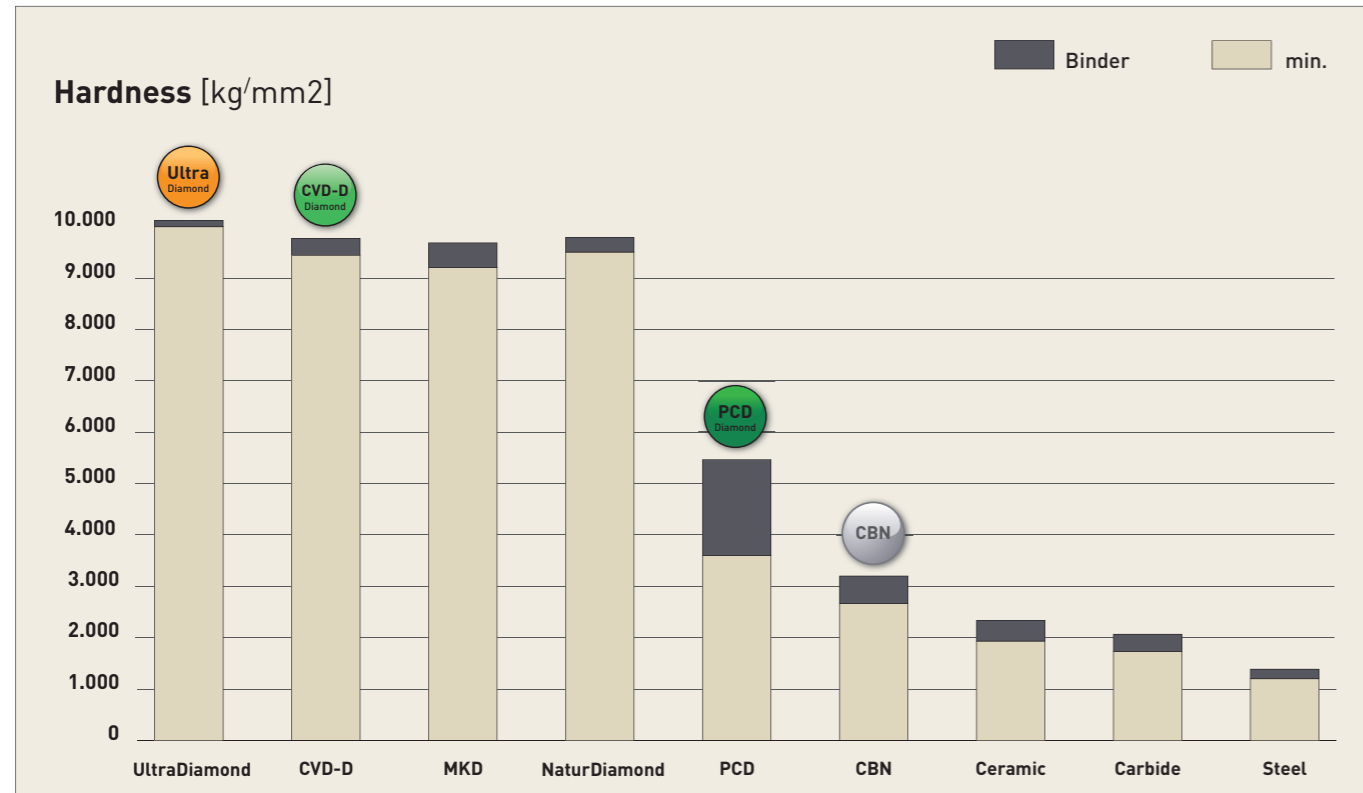


You can also order all our products quickly and easily at any time via our online shop.
www.Diamond-tools24.de

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 random orientation in a Metal matrix. It is produced by sintering selected Diamond particles at high pressure and high temperatures.

Graphite is used as a catalyst so that the PCD crystals grow together. PCD has high thermal conductivity and good heat dissipation from the cutting area. In addition, PCD has the highest bending strength of all cutting materials bending strength of all cutting materials.

PCD is very well suited for machining aluminium with a Si content of up to 10% and/or other abrasive fillers. The hot hardness is approx. 750°C, the areas of application are similar to those of CVD thick film Diamond, but the high efficiency of CVD thick film Diamond comes into its own with hard-brittle materials or aluminium with a Si content of 10% or more.

CVD thick film Diamond (CVD-D)

The star among Diamond Cutting Materials

For machining hard-brittle materials such as ceramics, glass, glass-ceramics, hard Metal, MMC and fibre composites such as CFK and GFK. 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, the binderless CVD-D is one of the hardest, artificially produced Diamond cutting materials.

CVD-D is characterised by high hardness and 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.

If CVD-D is used correctly, the service life can be increased by up to 10 times (and even more) compared to PCD!

Binderless Diamond (UltraDiamond)

The hardest single 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. Ceramics, glass, glass-ceramics and hard metals with low cobalt binder and nickel binder (<10%).

Polycrystalline Cubic Boron Nitride (CBN)

Chemically resistant and stable at high temperatures

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

Today, CBN is considered the second hardest material after Diamond cutting materials!

The applications of CBN are in the automotive industry, aerospace, tool and mould making and mechanical engineering. The wide spectrum as a cutting and abrasive material includes hardened Steels, Cast Iron, chilled Cast Iron, sintered materials, stellite, nickel and cobalt-based superalloys. In many applications, cubic boron nitride is preferred over Diamond cutting materials because it is absolutely stable in air at temperatures up to 1,400°C. Diamond, on the other hand, starts to decompose at a temperature of about 750°C.

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

Our cutting materials

and their main areas of application at a glance

We want to offer you the ideal solution for your application. Therefore, we also offer you a wide range of cutting materials on our internal turning tools.

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

PCD
Diamond

PCD

is ideally suited for the machining of *

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

CV-D
Diamond

CVD-D

is ideally suited for the machining of *

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

Ultra
Diamond

UltraDiamond

is ideally suited for the machining of *

Acryl (PMMA) | Glas, GlasCeramic | Carbide <12%Co | Ceramic

CBN-H

CBN-H

is ideally suited for the machining of *

Steels, hardened up to 72 HRC
Sintered Steels, hardened

continuous cut

light interrupted cut

heavy interrupted cut

CBN-K

CBN-K

is ideally suited for the machining of *

Grey Cast Iron (GG)
Ductile Cast Iron (GGG)

continuous cut

light interrupted cut

heavy interrupted cut

CBN-X

CBN-X

is ideally suited for the machining of*

HSS, Tool Steel
ASP, CPM and other PM Steels
Cold- and Warmarbeitsstähle
VHM-Steel-Verbindungen

continuous cut

light interrupted cut

heavy interrupted cut

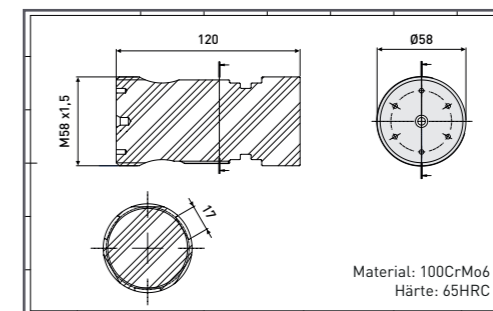
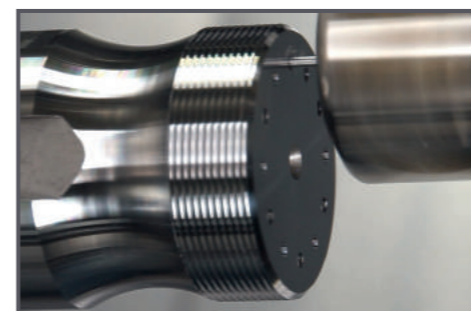
* You will find all other applications in the complete cutting material classification from Page 8.

Application examples

our cutting edges in use

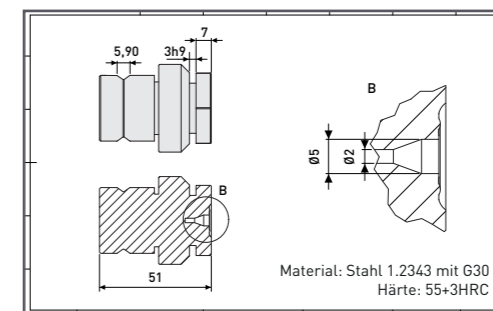
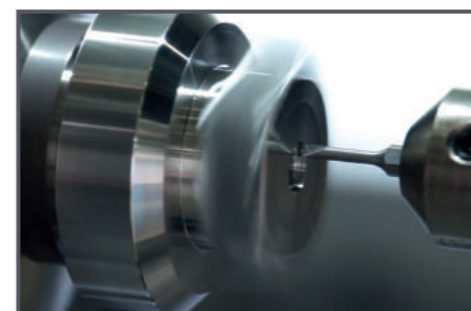
Not only theory - we would like to show you our tools in action. Below you will find a selection of our CBN application videos. Click on the QR code for more information and the video.

Also visit our YouTube Channel at dts-gmbh!



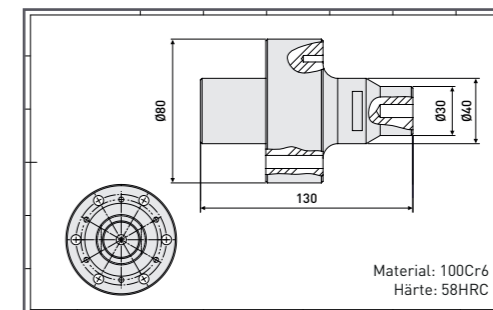
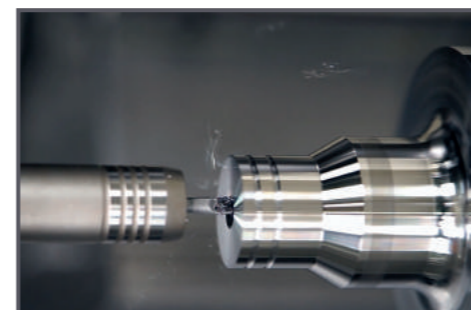
Hardspindles
100CrMo6 65HRC
Soldered Boring Bar

Here you can see the video!



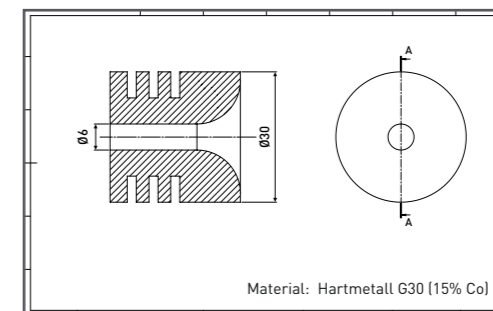
Internal boring
Carbide G30
Soldered Boring Bar

Here you can see the video!



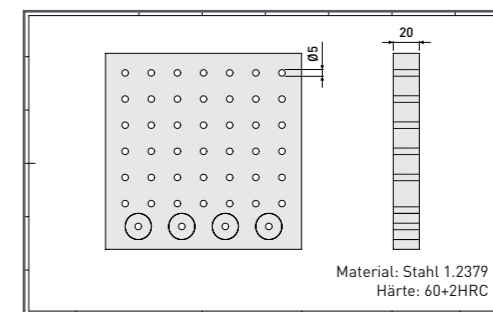
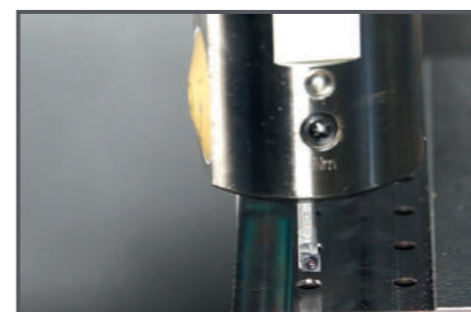
Internal boring
100Cr6 58HRC
MiniTool with CDGW 040102

Here you can see the video!



Internal boring
Carbide G30 (15% Co)
MiniTool with CDGW 040202

Here you can see the video!



Internal boring
Steel 1.2379 60+2HRC
MiniTool with CDGW 040102

Here you can see the video!

Cutting material allocation

DTS Boring Tools

1. Choice Alternative

DTS Diamond types

ISO	Materials	PCD	CVD-D	Ultra Diamond
H	Cold Work Steel, hardened to 72 HRC			
	PM- Steels (ASP, CPM, Vanadis, Böhler)			
	Steel, hardened to 72 HRC			
	Hot Work Steel, hardened to 72 HRC			
	Tool Steel, hardened to 72 HRC			
P	Sintered Steel			
	Sintered Steel, hardened			
K	Grey Cast Iron (GG)			
	Ductile Cast Iron (GGG)			
	Shell Chilled Cast Iron			
S	Ni-, Co-, Fe- u. Cr-Alloys			
	Titanium Alloys			
M	Stainless Steel, hardened			
N	Acryl (PMMA)		<input type="radio"/>	<input checked="" type="radio"/>
	Aluminium, < 10% Si	<input checked="" type="radio"/>	<input type="radio"/>	
	Aluminium, > 10% Si		<input checked="" type="radio"/>	<input type="radio"/>
	Glass, Glass Ceramics		<input type="radio"/>	<input checked="" type="radio"/>
	Carbide Green	<input checked="" type="radio"/>	<input type="radio"/>	
	Carbide G-Type, < 12% Co		<input type="radio"/>	<input checked="" type="radio"/>
	Carbide G-Type, > 10% Co		<input checked="" type="radio"/>	<input type="radio"/>
	Carbide K-Type, < 12% Co		<input type="radio"/>	<input checked="" type="radio"/>
	Carbide K-Type, > 10% Co		<input checked="" type="radio"/>	<input type="radio"/>
	Carbide with Ni-Binder			<input checked="" type="radio"/>
	Ceramic	<input checked="" type="radio"/>	<input type="radio"/>	
	Ceramic Green	<input checked="" type="radio"/>	<input type="radio"/>	
	Plastics		<input checked="" type="radio"/>	
	Copper, Copper Alloy	<input type="radio"/>	<input checked="" type="radio"/>	
	Magnesium	<input type="radio"/>	<input checked="" type="radio"/>	
	Brass	<input type="radio"/>	<input checked="" type="radio"/>	
	MMC		<input checked="" type="radio"/>	<input type="radio"/>
	PEEK	<input checked="" type="radio"/>	<input type="radio"/>	
	Silver, Gold, Platinum		<input checked="" type="radio"/>	<input type="radio"/>
	Composite Materials like CFK/GFK	<input type="radio"/>	<input checked="" type="radio"/>	
Tungsten Alloy	<input type="radio"/>	<input checked="" type="radio"/>		

DTS CBN types

CBN-P	CBN-K	CBN-S	CBN-H	CBN-X	Materials	ISO
			<input type="radio"/>	<input checked="" type="radio"/>	Cold Work Steel	H
			<input type="radio"/>	<input checked="" type="radio"/>	PM- Steels (ASP, CPM, Vanadis, Böhler)	
			<input checked="" type="radio"/>	<input type="radio"/>	Steel, hardened to 72 HRC	
			<input type="radio"/>	<input checked="" type="radio"/>	Hot Work Steel	
			<input type="radio"/>	<input checked="" type="radio"/>	Tool Steel, hardened to 72 HRC	
<input checked="" type="radio"/>				<input type="radio"/>	Sintered Steel	P
<input type="radio"/>			<input checked="" type="radio"/>	<input type="radio"/>	Sintered Steel, hardened	
	<input checked="" type="radio"/>	<input type="radio"/>			Grey Cast Iron (GG)	K
	<input checked="" type="radio"/>	<input type="radio"/>			Ductile Cast Iron (GGG)	
<input type="radio"/>			<input checked="" type="radio"/>		Shell Chilled Cast Iron	
		<input checked="" type="radio"/>		<input type="radio"/>	Ni-, Co-, Fe- u. Cr-Alloys	S
		<input checked="" type="radio"/>		<input type="radio"/>	Titanium Alloys	
			<input type="radio"/>	<input checked="" type="radio"/>	Stainless Steel, hardened	M
					Carbide, > 20% Co* * for the machining of Carbides we recommend the use of CVD-D Cutting edges see Catalogue 01	N

DTS cutting materials are successfully used in many industries:

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



The Material-Cutting Material combination you are looking for is not in the table?

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

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

Our Boring Tools at a Glance

for bore machining and spindling

For machining on turning and milling centres we offer you two systems for boring from $\varnothing 1.00\text{mm}$. You can choose between soldered tools and a system with carbide boring bar and indexable insert.

Brazed Precision Boring Tools

from Page 12

starting from $\varnothing 1,00\text{mm}$

- ✓ Eckenradius 0,10 - 0,40mm
- ✓ Carbideschaft
- ✓ to zu vier Bearbeitungstiefen je \varnothing für optimale Steifigkeit
- ✓ Easy alignment due to adjustment bevel and clamping surface



MiniTool - with multi-edged Insert

from Page 21

from $\varnothing 3,50\text{mm}$

- ✓ Corner Radius 0,10 - 0,40mm
- ✓ Low Vibration Carbide Design
- ✓ High efficiency due to multi-bladed WSPs
- ✓ Easy alignment due to adjustment bevel and clamping surface



CDGW ...
FullFace (Z1)



from Dmin 3,50

CDGW ...
Z2



from Dmin 4,80

DCGW ...
Z2



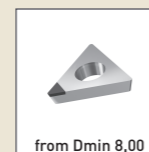
from Dmin 5,20

EPGW ...
Z2



from Dmin 8,00

TPGW ...
Z1



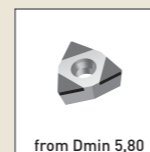
from Dmin 8,00

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



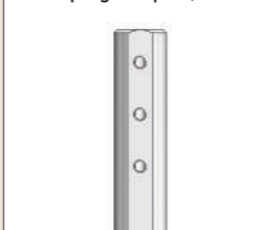
Clamping Adapter, round



Clamping Adapter, 4-sided



Clamping Adapter, round



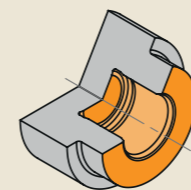
Applications

of our Precision Boring Tools

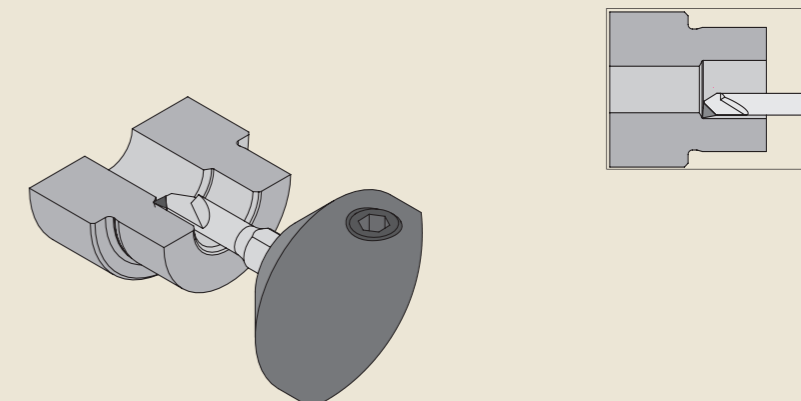
To adapt our boring tools perfectly to your application, we have two different types in our standard program. These enable you to use ultra hard cutting materials to reliably machine cylindrical and conical surfaces with radial transitions as well as flat surfaces.

Typ BS

starting from Dmin 1,00mm



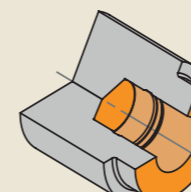
all areas marked in colour
Surfaces can be edited



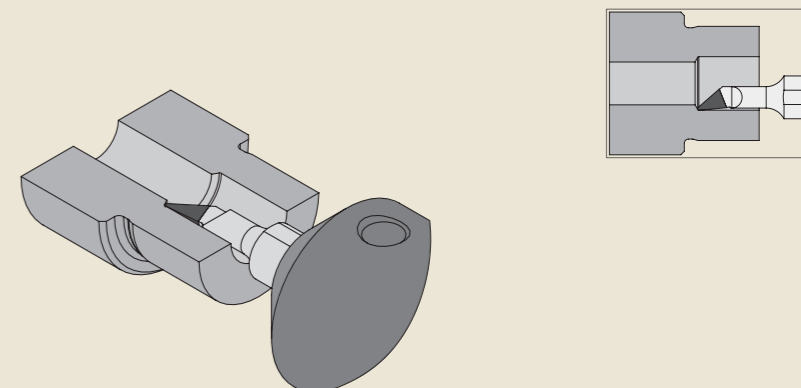
Robust system for turning contours in bores.

Typ BE

starting from Dmin 3,60mm



all areas marked in colour
Surfaces can be edited



For contour turning on the plane surface.

Precision Boring Tools

Brazed Cutting Edge for Internal Machining from Dmin 1.00 mm

Typ BS

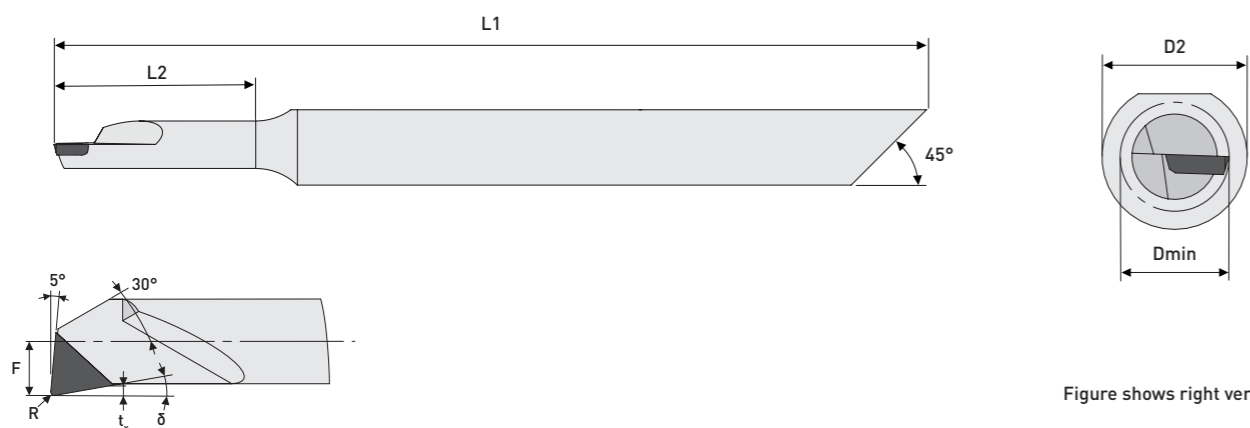


Figure shows right version

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

Dmin	F	L2	L1	R	D2	tx	δ	Version	PKD Diamant Item No.	CVD-D Diamant Item No.	CBN 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
3,00	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
	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	
3,50	1,50	10,00	78,00	0,10	4h6	0,33	10°	right		BS2050-1026	BS3550-1026
								left		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
3,50	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
3,50	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
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3,50	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
3,50	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:

- PKD 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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Precision Boring Tools

Brazed Cutting Edge for Internal Machining from Dmin 4,00 mm

Typ BS

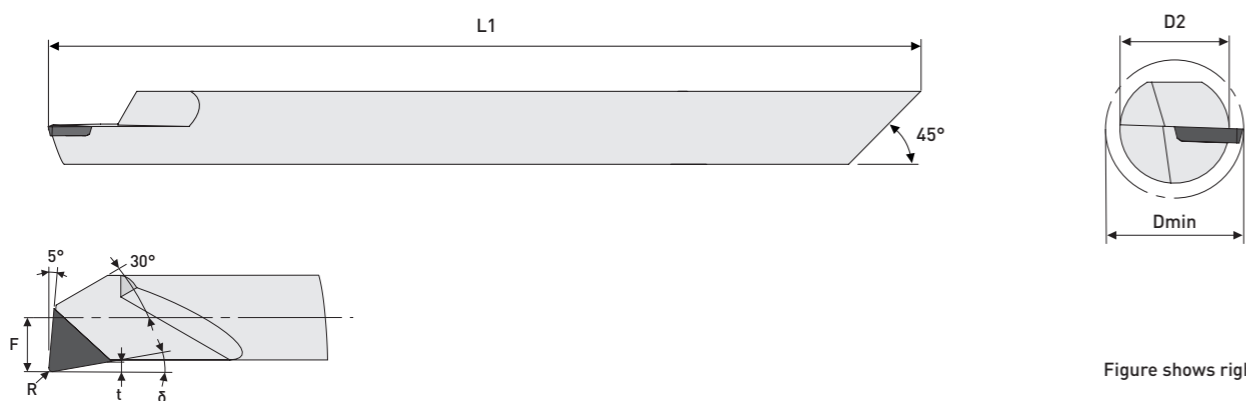


Figure shows right version

Dmin	F	L2	L1	R	D2	t _x	δ	Version	Material		
									PKD Diamant	CVD-D Diamant	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	t _x	δ	Version	Material		
									PKD Diamant	CVD-D Diamant	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:

- PKD** 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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Precision Boring Tools

Brazed cutting edge for Internal Machining from Dmin 3,60 mm

Typ BE

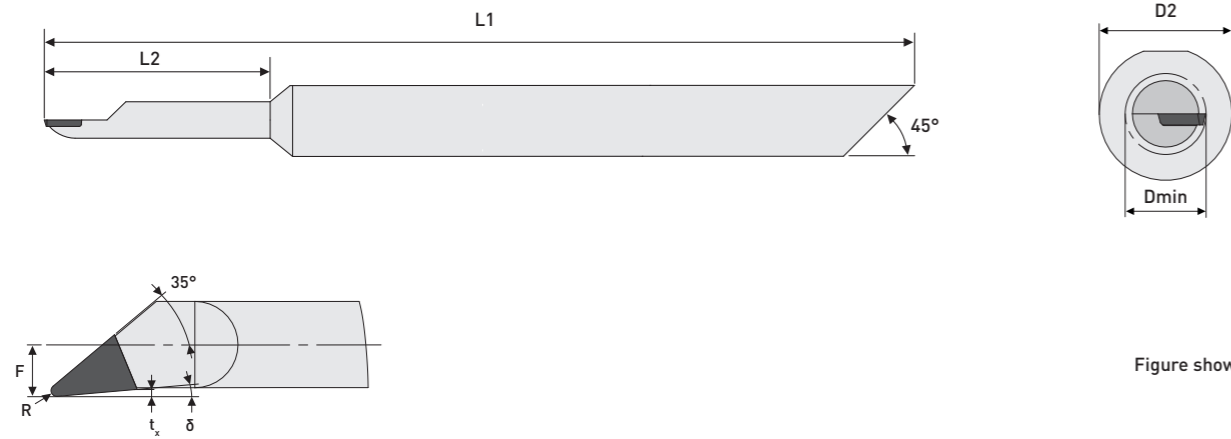


Figure shows right version



Dmin	F	L2	L1	R	D2	t _x	δ	Version	Item No.	Item No.	Item No.
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

A large grid area for taking notes, consisting of approximately 30 columns and 40 rows of small squares.

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 HM-shank	E HM-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 80°	D 55°	K 55°	R 360°	S 90°	T 60°	V 35°	W 80°
--------------	--------------	--------------	---------------	--------------	--------------	--------------	--------------

Approach angle

E 08 X S C L C R 06

F 90°	L 95°	P 117,5°	Q 107,5°	U 93°	W 62,5°
--------------	--------------	-----------------	-----------------	--------------	----------------

Insert clearance angle

E 08 X S C L C R 06

A 3°	B 5°	C 7°	D 15°	E 20°	F 25°	G 30°	H 0°	I 11°
-------------	-------------	-------------	--------------	--------------	--------------	--------------	-------------	--------------

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

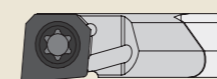
C	E	D	K	R	S	T	V	W
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MiniTools

Carbide Boring Bars and multi-bladed inserts tipped with Diamond or CBN

Boring Tools:

- ✓ 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
- ✓ Aluminium
- ✓ Glas and Glasceramic
- ✓ Carbide G-Grade
- ✓ Carbide K-Grade
- ✓ Carbide with Ni-Binder
- ✓ Ceramic Materials
- ✓ Copper Alloys
- ✓ MMC
- ✓ Other brittle non-ferrous materials
- ✓ Titanium (Finishing)
- ✓ Composite Materials like CFK / GFK

Application range: der CBN-Wendeplatten:

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



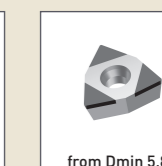
from Dmin 8,00

VCGW 05 ... Z2



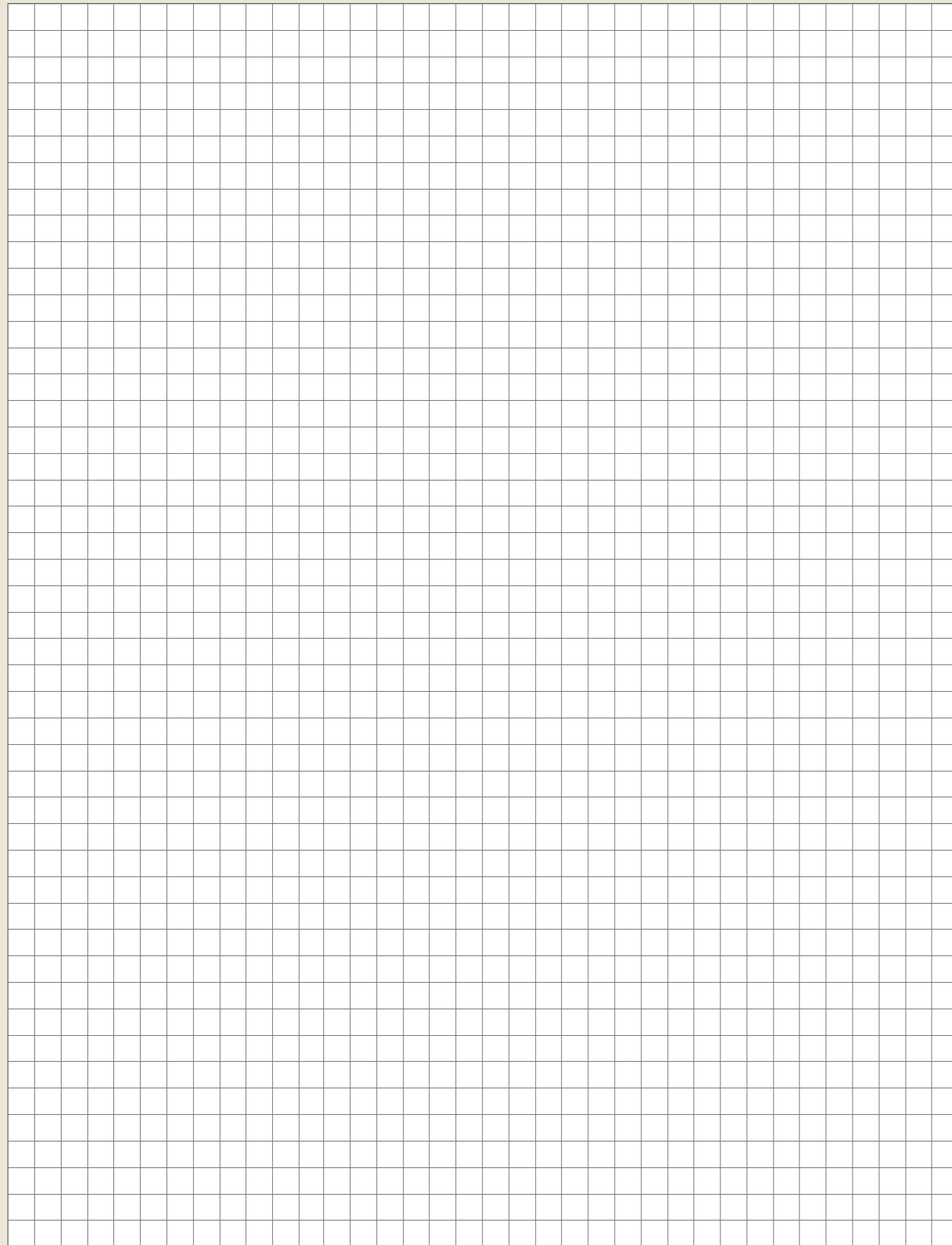
from Dmin 8,00

WCGW 02 ... Z3



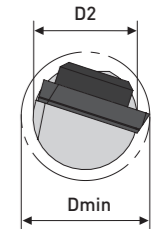
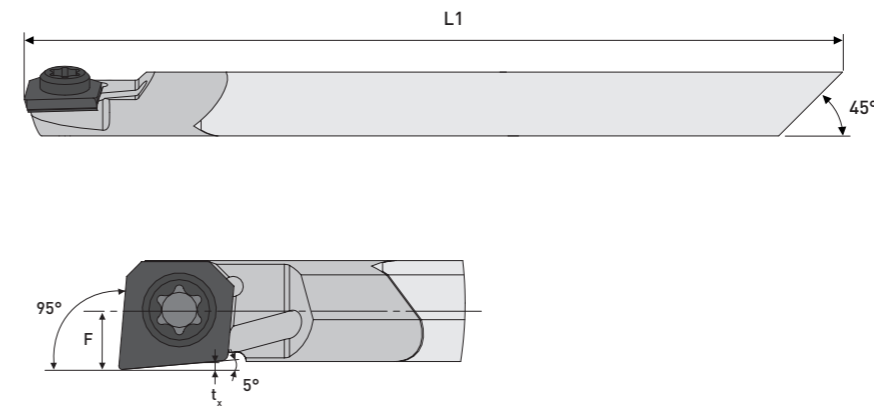
from Dmin 5,80

Inserts available with radii from 0.10 mm to 0.40 mm.



E... SCLDR/L 95°/5°

durchgehender Schaft | for Inserts CDGW 03...



Heavy Metal Version with Internal Cooling
Figure shows right version

Dmin	F	L2	L1	D2	t _x	Version	Iso Code	Item No.
3,50	1,75	-	80,00	3h6	0,20	right	E03X SCLDR 03	BW6060-0234
						left	E03X SCLDL 03	BW6060-0235

Matching clamping screw: 01-KL9060-0016
lockes rotor torque 0,30 Nm

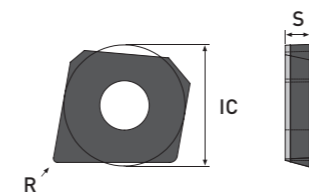


Figure shows right version FullFace

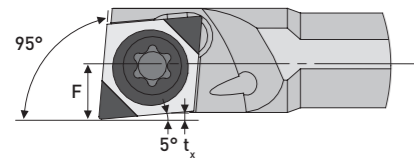
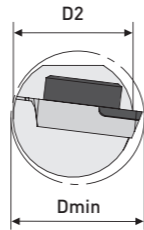
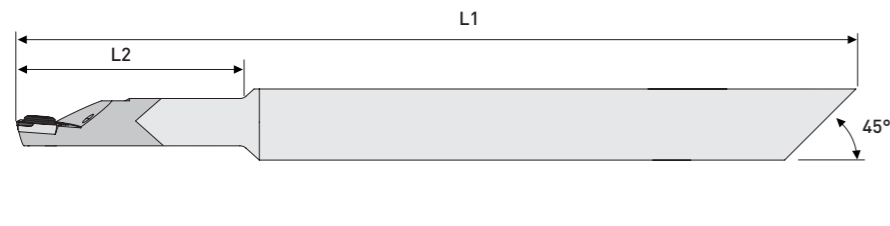
Iso Code	IC	S	R	CVD-D Diamant	Ultra Diamant	CBN-H	CBN-K	CBN-X
				Item No.	Item No.	Item No.	Item No.	Item No.
CDGW 03X101-Rechts	3,20	0,63	0,10	DP2030-0500	-	TI5030-0500	TI5530-0500	TI5930-0500
CDGW 03X102-Rechts	3,20	0,63	0,20	DP2030-0502	-	TI5030-0502	TI5530-0502	TI5930-0502
CDGW 03X101-Links	3,20	0,63	0,10	DP2030-0501	-	TI5030-0501	TI5530-0501	TI5930-0501
CDGW 03X102-Links	3,20	0,63	0,20	DP2030-0503	-	TI5030-0503	TI5530-0503	TI5930-0503

Application range:

- CVD-D Aluminium, Carbide >10%Co, Brass, Brass bleifrei, Graphit, Composite Materials (CFK, GFK, MMC), Titanium ...
- UltraDia. Acryl, Ceramic, Carbide <12%Co, Zirkon ...
- CBN-H Steel hardened to 72 HRC
- CBN-K Grey Cast Iron (GG), Ductile Cast Iron (GGG) ...
- CBN-X Tool Steel hardened, Stellite, Stainless Steel hardened, Powder Metallurgical Steels, hardened ...

E... SCLDR/L 95°/5°

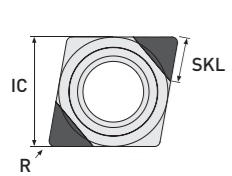
abgesetzter Schaft | for Inserts CDGW 0401...



Heavy Metal Version with Internal Cooling
Figure shows right version

Dmin	F	L2	L1	D2	tx	Version	Iso Code	Item No.
4,80	2,50	24,00	80,00	8h6	0,30	right	E0408X SCLDR 04	BW6060-0130
						left	E0408X SCLDL 04	BW6060-0131
5,80	2,90	21,50	100,00	8h6	0,40	right	E0508X SCLDR 04	BW6060-0132
						left	E0508X SCLDL 04	BW6060-0133
6,80	3,40	22,00	100,00	8h6	0,40	right	E0608X SCLDR 04	BW6060-0134
						left	E0608X SCLDL 04	BW6060-0135

Matching clamping screw: 01-BW9060-0011
lockes rotor torque 0,45 Nm



SKL 2,00 mm
2-edge tipped

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

Application range:

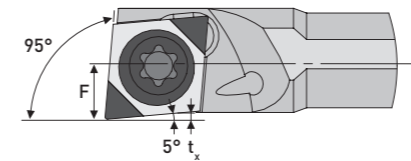
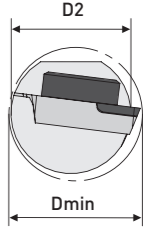
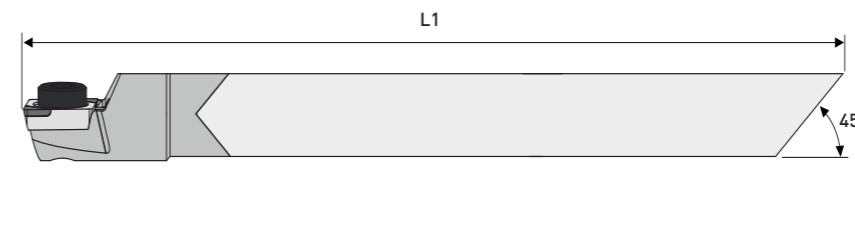
- CVD-D Aluminum, Brass, Brass lead-free, Composites (CFRP, GFRP, MMC), Graphite, Titanium ...
- UltraDia. Acrylic, Carbide < 10% Binder, Ceramics, Zirconium ...
- CBN-H Steel hardened up to 72 HRC
- CBN-K Tool Steel hardened up to 72 HRC, Tool Steel low alloy, Stellite, Powder Metallurgical Steel ...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

You will find suitable Clamping Adapters on page 36.

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

E... SCLDR/L 95°/5°

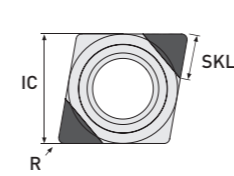
durchgehender Schaft | for Inserts CDGW 0401...



Heavy Metal Version with Internal Cooling
Figure shows right version

Dmin	F	L2	L1	D2	tx	Version	Iso Code	Item No.
4,80	2,50	-	80,00	4h6	0,30	right	E04X SCLDR 04	BW6060-0120
						left	E04X SCLDL 04	BW6060-0121
5,80	2,90	-	100,00	5h6	0,40	right	E05X SCLDR 04	BW6060-0122
						left	E05X SCLDL 04	BW6060-0123
6,80	3,40	-	100,00	6h6	0,40	right	E06X SCLDR 04	BW6060-0124
						left	E06X SCLDL 04	BW6060-0125

Matching clamping screw: 01-BW9060-0011
lockes rotor torque 0,45 Nm



SKL 2,00 mm
2-edge tipped

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



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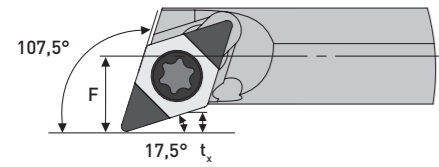
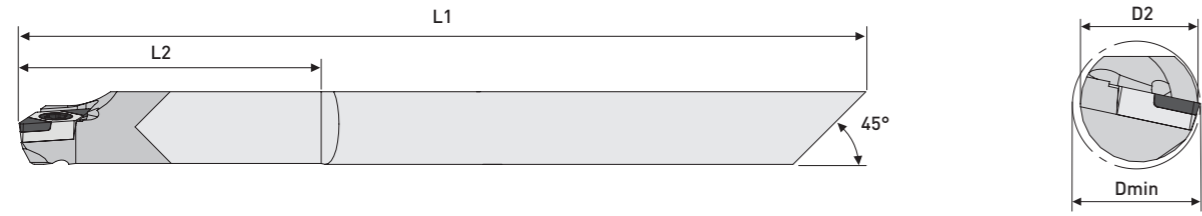


Scan me!

Subject to technical changes.

E... SDQCR/L 107,5°/17,5°

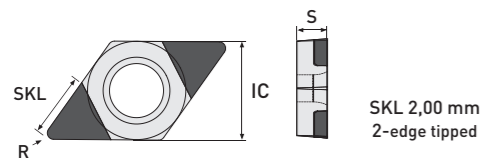
abgesetzter Schaft | for Inserts DCGW 04T0...



Heavy Metal Version with Internal Cooling
Figure shows right version

Dmin	F	L2	L1	D2	tx	Version	Iso Code	Item No.
5,20	3,00	25,00	100,00	5h6	0,90	right	E0405X SDQCR 04	BW6060-0166
						left	E0405X SDQCL 04	BW6060-0167

Matching clamping screw: 01-BW9060-0010
lockes rotor torque 0,45 Nm



Iso Code	IC	S	R	CVD-D Diamant	Ultra Diamant	CBN-H	CBN-K	CBN-X
DCGW 04T001	3,10	1,20	0,10	DP2010-0521	DP1110-1492	TI5010-1521	TI5510-2522	TI5910-2522
DCGW 04T002	3,10	1,20	0,20	DP2010-0522	DP1110-1494	TI5010-1522	TI5510-2524	TI5910-2524
DCGW 04T004	3,10	1,20	0,40	DP2010-0523	DP1110-1496	TI5010-1523	TI5510-2526	TI5910-2526

Application range:

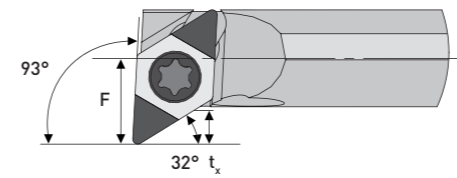
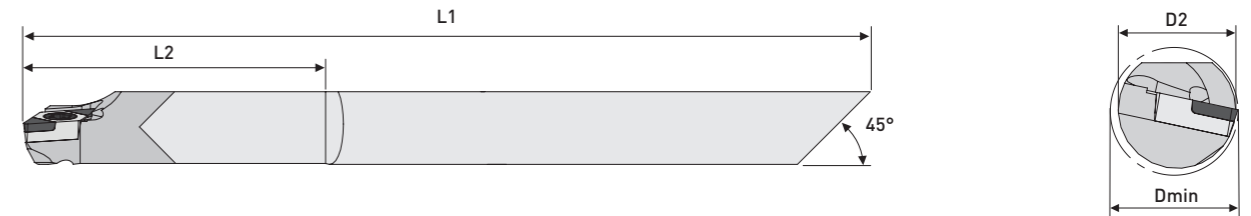
- CVD-D Aluminum, Brass, Brass lead-free, Composites (CFRP, GFRP, MMC), Graphite, Titanium ...
- UltraDia. Acrylic, Carbide < 10% Binder, Ceramics, Zirconium ...
- CBN-H Steel hardened up to 72 HRC
- CBN-K Tool Steel hardened up to 72 HRC, Tool Steel low alloy, Stellite, Powder Metallurgical Steel ...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

You will find suitable Clamping Adapters on page 36.

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

E... SDUCR/L 93°/32°

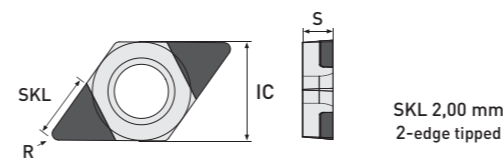
abgesetzter Schaft | for Inserts DCGW 04T0...



Heavy Metal Version with Internal Cooling
Figure shows right version

Dmin	F	L2	L1	D2	tx	Version	Iso Code	Item No.
5,80	3,50	25,00	100,00	5h6	1,40	right	E0405X SDUCR 04	BW6060-0160
						left	E0405X SDUCL 04	BW6060-0161

Matching clamping screw: 01-BW9060-0010
lockes rotor torque 0,45 Nm



Iso Code	IC	S	R	CVD-D Diamant	Ultra Diamant	CBN-H	CBN-K	CBN-X
DCGW 04T001	3,10	1,20	0,10	DP2010-0521	DP1110-1492	TI5010-1521	TI5510-2522	TI5910-2522
DCGW 04T002	3,10	1,20	0,20	DP2010-0522	DP1110-1494	TI5010-1522	TI5510-2524	TI5910-2524
DCGW 04T004	3,10	1,20	0,40	DP2010-0523	DP1110-1496	TI5010-1523	TI5510-2526	TI5910-2526

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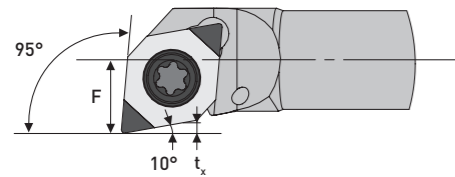
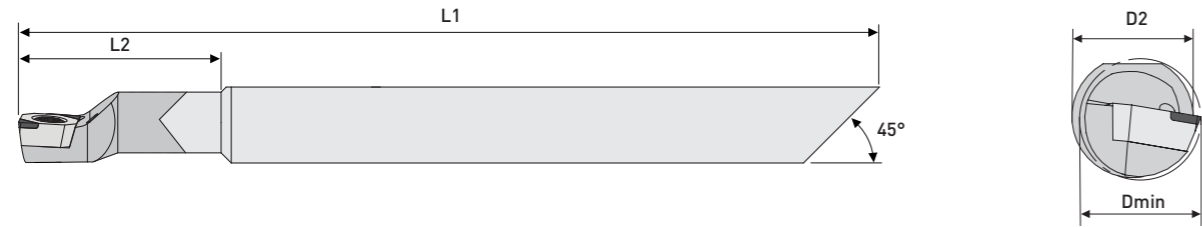


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Subject to technical changes.

E... SELPR/L 95°/10°

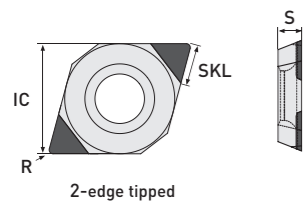
abgesetzter Schaft | for Inserts EPGW 0502...



Heavy Metal Version with Internal Cooling
Figure shows right version

Dmin	F	L2	L1	D2	tx	Version	Iso Code	Item No.
8,00	4,50	20,00	100,00	8h6	0,80	right	E0608X SELPR 05	BW6060-0150
						left	E0608X SELPL 05	BW6060-0151
11,00	6,00	33,00	100,00	10h6	0,80	right	E0810X SELPR 05	BW6060-0152
						left	E0810X SELPL 05	BW6060-0153

Matching clamping screw: 01-BW9060-0005
lockes rotor torque 0,45 Nm



Iso Code	IC	S	R	CVD-D Diamant	Ultra Diamant	CBN-H	CBN-K	CBN-X
				Item No.	Item No.	Item No.	Item No.	Item No.
EPGW 050201	5,56	2,38	0,10	DP2010-0531	DP1110-1400	TI5010-1531	TI5510-2550	TI5910-2550
EPGW 050202	5,56	2,38	0,20	DP2010-0532	DP1110-1402	TI5010-1532	TI5510-2552	TI5910-2552
EPGW 050204	5,56	2,38	0,40	DP2010-0533	DP1110-1404	TI5010-1533	TI5510-2554	TI5910-2554

Application range:

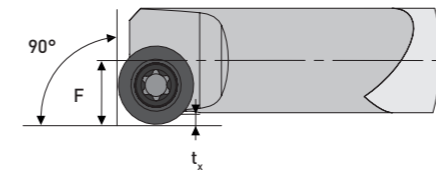
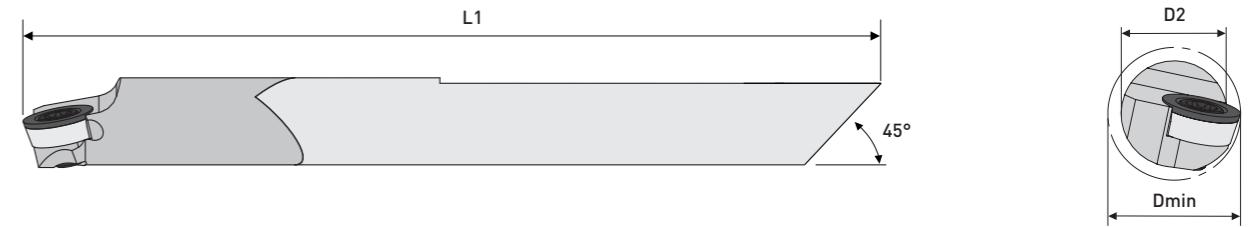
- CVD-D Aluminum, Brass, Brass lead-free, Composites (CFRP, GFRP, MMC), Graphite, Titanium ...
- UltraDia. Acrylic, Carbide < 10% Binder, Ceramics, Zirconium ...
- CBN-H Steel hardened up to 72 HRC
- CBN-K Tool Steel hardened up to 72 HRC, Tool Steel low alloy, Stellite, Powder Metallurgical Steel ...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

You will find suitable Clamping Adapters on page 36.

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

E... SRLCR/L 95°/10°

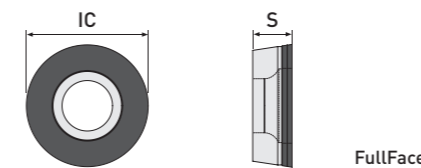
durchgehender Schaft | for Inserts RCGW 0602...



Heavy Metal Version with Internal Cooling
Figure shows right version

Dmin	F	L2	L1	D2	tx	Version	Iso Code	Item No.
10,00	5,00	-	125,00	8h6	1,00	right	E08X SRLCR 06	BW6060-1024
						left	E08X SRLCL 06	BW6060-1025

Matching clamping screw: 01-KL9060-0001
lockes rotor torque 1,00 Nm



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



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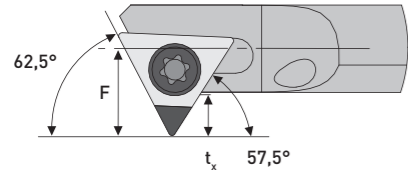
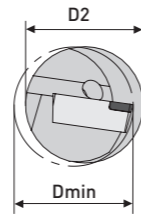
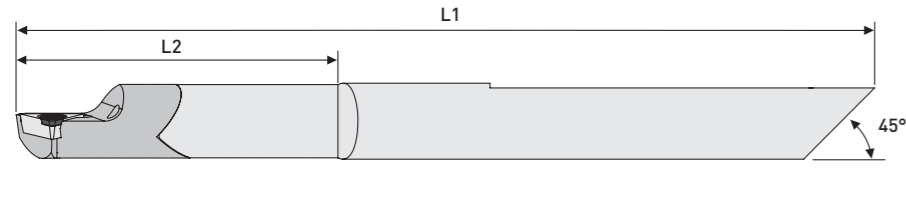


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Subject to technical changes.

E... STXPR/L 62,5°/57,5°

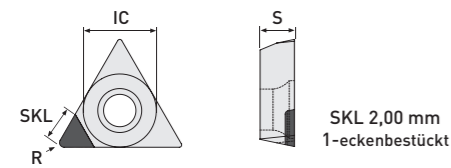
abgesetzter Schaft | for Inserts TPGW 06T1...



Heavy Metal version with internal cooling
Figure shows right version

Dmin	F	L2	L1	D2	tx	Version	Iso Code	Item No.
8,00	4,50	40,00	100,00	6h6	2,50	right	E06X STXPR 06	BW6060-0126
						left	E06X STXPL 06	BW6060-0127

Matching clamping screw: 01-BW9060-0126
lockes rotor torque 0,45 Nm



SKL 2,00 mm
1-eckenbestückt

Item No.	Item No.	Item No.	Item No.	Item No.
CVD-D Diamant	Ultra Diamant	CBN-H	CBN-K	CBN-X

Iso Code	IC	S	R	Item No.	Item No.	Item No.	Item No.	Item No.
TPGW 06T101	3,97	1,98	0,10	DP2010-0671	DP1110-1410	TI5010-0786	TI5510-0786	TI5910-0786
TPGW 06T102	3,97	1,98	0,20	DP2010-0672	DP1110-1412	TI5010-0787	TI5510-0787	TI5910-0787
TPGW 06T104	3,97	1,98	0,40	DP2010-0673	DP1110-1414	TI5010-0788	TI5510-0788	TI5910-0788

Application range:

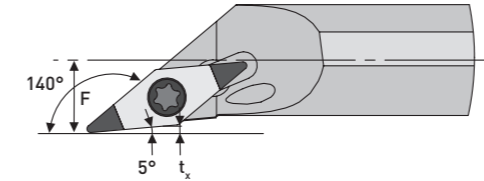
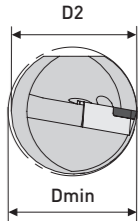
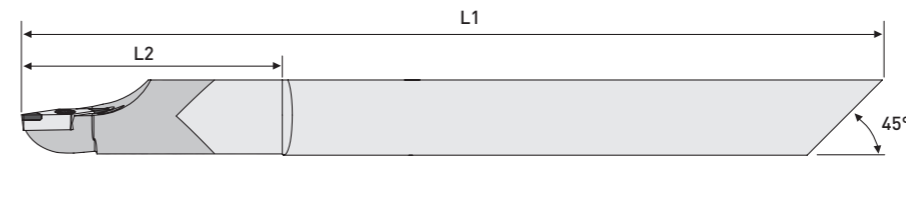
- CVD-D Aluminum, Brass, Brass lead-free, Composites (CFRP, GFRP, MMC), Graphite, Titanium ...
- UltraDia. Acrylic, Carbide < 10% Binder, Ceramics, Zirconium ...
- CBN-H Steel hardened up to 72 HRC
- CBN-K Tool Steel hardened up to 72 HRC, Tool Steel low alloy, Stellite, Powder Metallurgical Steel ...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

You will find suitable Clamping Adapters on page 36.

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

E... SVXCR/L 5°/140°

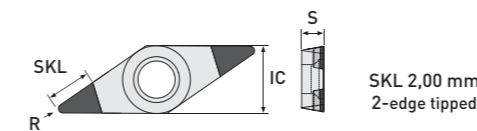
abgesetzter Schaft | for Inserts VCGW 0501...



Heavy Metal version with internal cooling
Figure shows right version

Dmin	F	L2	L1	D2	tx	Version	Iso Code	Item No.
8,00	3,00	26,00	80,00	8h6	0,40	right	E08X SVXCR 05 5°	BW6060-0180
						left	E08X SVXCL 05 5°	BW6060-0181

Matching clamping screw: 01-BW9060-0010
lockes rotor torque 0,45 Nm



SKL 2,00 mm
2-edge tipped

Item No.	Item No.	Item No.	Item No.	Item No.
CVD-D Diamant	Ultra Diamant	CBN-H	CBN-K	CBN-X

Iso Code	IC	S	R	Item No.	Item No.	Item No.	Item No.	Item No.
VCGW 050101	3,10	1,59	0,10	DP2010-0561	DP1110-1498	TI5010-1561	TI5510-2528	TI5910-2528
VCGW 050102	3,10	1,59	0,20	DP2010-0562	DP1110-1500	TI5010-1562	TI5510-2530	TI5910-2530
VCGW 050104	3,10	1,59	0,40	DP2010-0563	DP1110-1502	TI5010-1563	TI5510-2532	TI5910-2532



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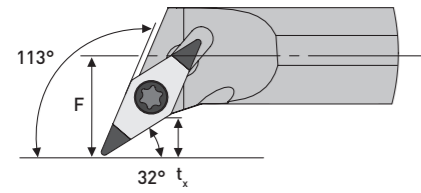
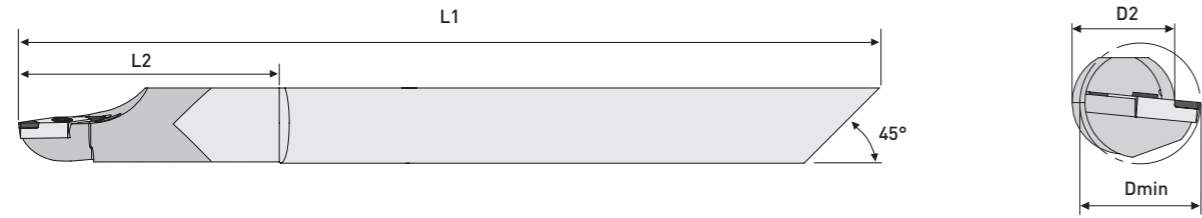


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Subject to technical changes.

E... SVXCR/L 113°/32°

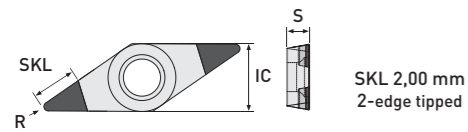
abgesetzter Schaft | for Inserts VCGW 0501...



Heavy Metal version with internal cooling
Figure shows right version

Dmin	F	L2	L1	D2	t _x	Version	Iso Code	Item No.
9,20	5,00	26,00	80,00	8h6	2,50	right	E08X SVXCR 05 113°	BW6060-0186
						left	E08X SVXCL 05 113°	BW6060-0187

Matching clamping screw: 01-BW9060-0010
lockes rotor torque 0,45 Nm



SKL 2,00 mm
2-edge tipped

	CVD-D Diamant	Ultra Diamant	CBN-H	CBN-K	CBN-X
Item No.	Item No.	Item No.	Item No.	Item No.	Item No.

Iso Code	IC	S	R	Item No.	Item No.	Item No.	Item No.	Item No.
VCGW 050101	3,10	1,59	0,10	DP2010-0561	DP1110-1498	TI5010-1561	TI5510-2528	TI5910-2528
VCGW 050102	3,10	1,59	0,20	DP2010-0562	DP1110-1500	TI5010-1562	TI5510-2530	TI5910-2530
VCGW 050104	3,10	1,59	0,40	DP2010-0563	DP1110-1502	TI5010-1563	TI5510-2532	TI5910-2532

Application range:

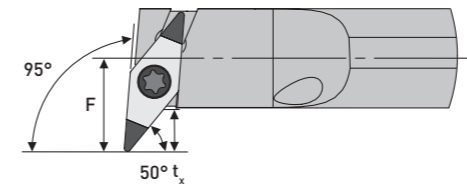
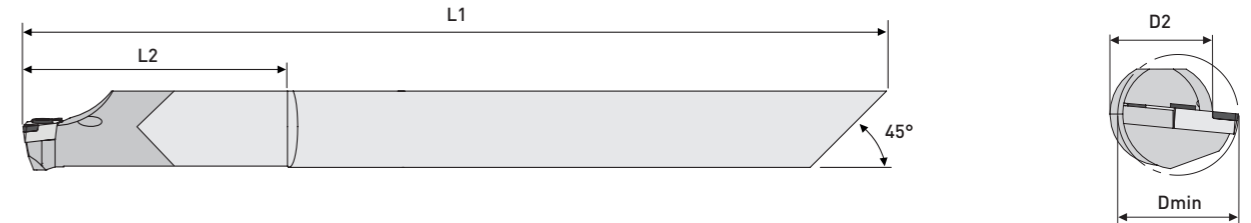
- CVD-D Aluminum, Brass, Brass lead-free, Composites (CFRP, GFRP, MMC), Graphite, Titanium ...
- UltraDia. Acrylic, Carbide < 10% Binder, Ceramics, Zirconium ...
- CBN-H Steel hardened up to 72 HRC
- CBN-K Tool Steel hardened up to 72 HRC, Tool Steel low alloy, Stellite, Powder Metallurgical Steel ...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

You will find suitable Clamping Adapters on page 36.

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

E... SVLCR/L 95°/50°

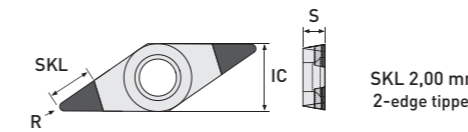
abgesetzter Schaft | for Inserts VCGW 0501...



Heavy Metal version with internal cooling
Figure shows right version

Dmin	F	L2	L1	D2	t _x	Version	Iso Code	Item No.
9,20	5,00	26,00	80,00	8h6	3,00	right	E08X SVLCR 05	BW6060-0190
						left	E08X SVLCL 05	BW6060-0191

Matching clamping screw: 01-BW9060-0010
lockes rotor torque 0,45 Nm



SKL 2,00 mm
2-edge tipped

	CVD-D Diamant	Ultra Diamant	CBN-H	CBN-K	CBN-X
Item No.	Item No.	Item No.	Item No.	Item No.	Item No.

Iso Code	IC	S	R	Item No.	Item No.	Item No.	Item No.	Item No.
VCGW 050101	3,10	1,59	0,10	DP2010-0561	DP1110-1498	TI5010-1561	TI5510-2528	TI5910-2528
VCGW 050102	3,10	1,59	0,20	DP2010-0562	DP1110-1500	TI5010-1562	TI5510-2530	TI5910-2530
VCGW 050104	3,10	1,59	0,40	DP2010-0563	DP1110-1502	TI5010-1563	TI5510-2532	TI5910-2532



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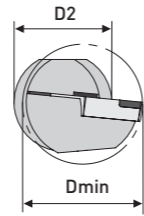
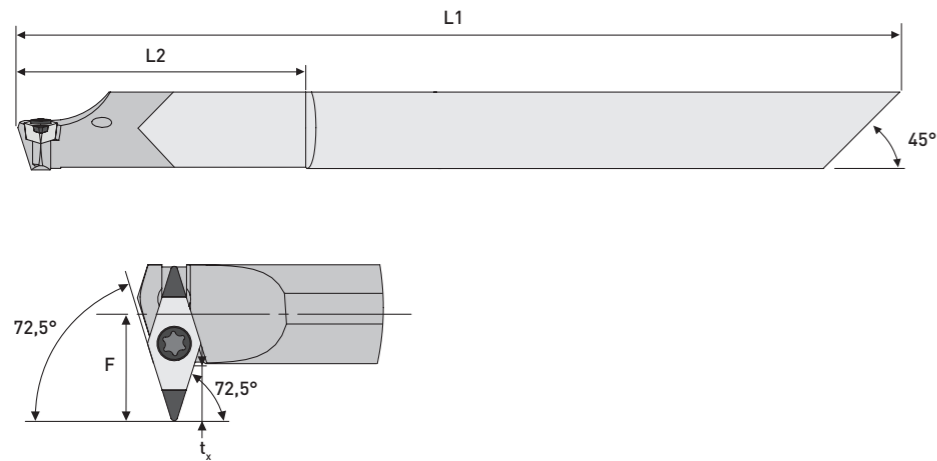


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Subject to technical changes.

E... SVVCR 72,5°/72,5°

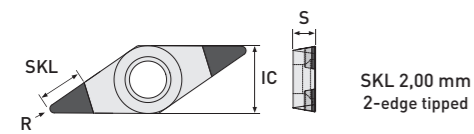
abgesetzter Schaft | for Inserts VCGW 0501...



Heavy Metal version with internal cooling
Figure shows right version

Dmin	F	L2	L1	D2	t _x	Version	Iso Code	Item No.
10,00	5,50	26,00	80,00	8h6	3,50	right	E08X SVVCR 05	BW6060-0196

Matching clamping screw: 01-BW9060-0010
lockes rotor torque 0,45 Nm



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

Application range:

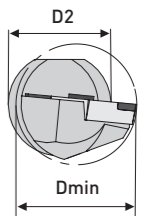
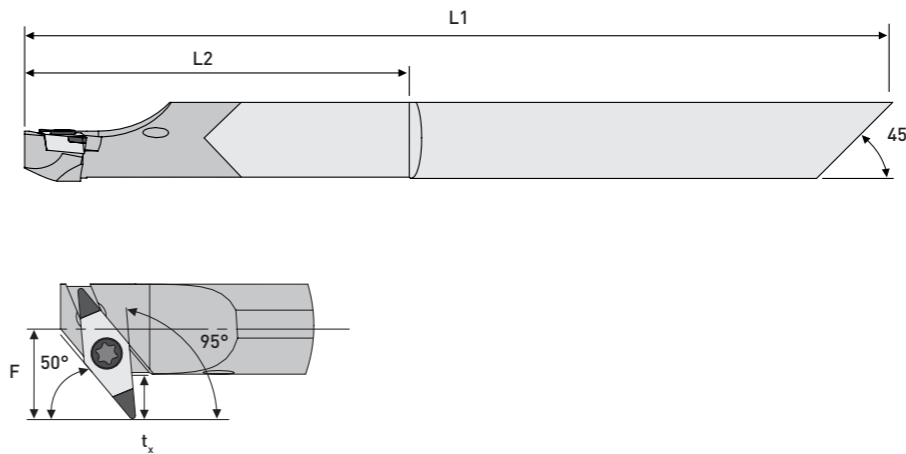
- CVD-D Aluminum, Brass, Brass lead-free, Composites (CFRP, GFRP, MMC), Graphite, Titanium ...
- UltraDia. Acrylic, Carbide < 10% Binder, Ceramics, Zirconium ...
- CBN-H Steel hardened up to 72 HRC
- CBN-K Tool Steel hardened up to 72 HRC, Tool Steel low alloy, Stellite, Powder Metallurgical Steel ...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

You will find suitable Clamping Adapters on page 36.

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

E... SVLXR/L 50°/95° EX

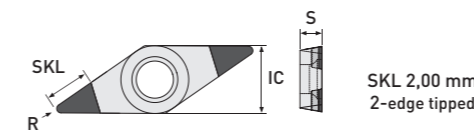
abgesetzter Schaft | for Inserts VCGW 0501...



Heavy Metal version with internal cooling
Figure shows right version

Dmin	F	L2	L1	D2	t _x	Version	Iso Code	Item No.
9,20	5,00	26,00	80,00	8h6	3,00	right	E08X SVLXR 05	BW6060-0200
						left	E08X SVLXR 05	BW6060-0201

Matching clamping screw: 01-BW9060-0010
lockes rotor torque 0,45 Nm



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



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Nutze die Vorteile!

- ✓ 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

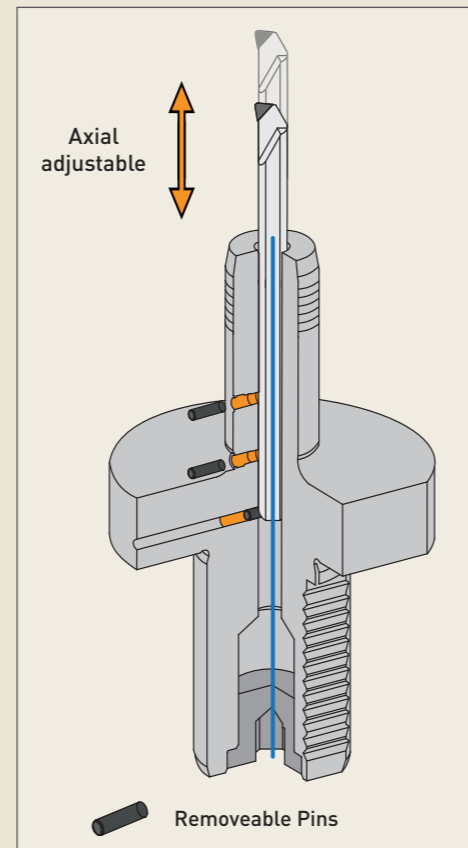
This gives you a very high repeat accuracy.



Cooling through the clamping surface

Hinweis

Never clamp the hydraulic expansion mount without the boring bar in place.



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

Ausspannlänge zu groß?

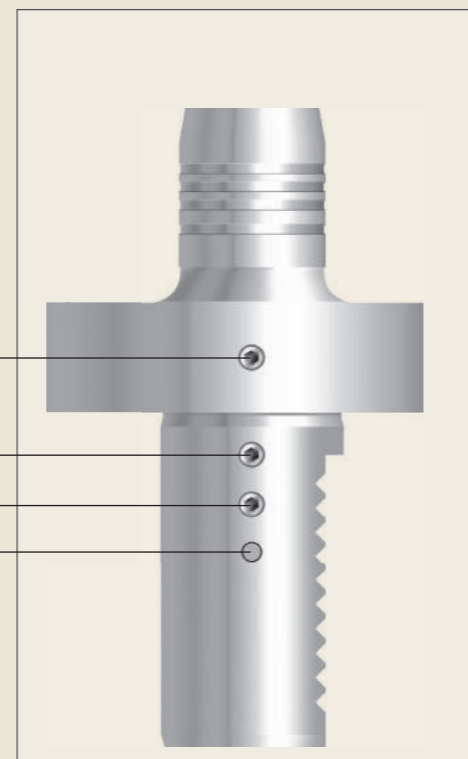
1. Loosen screw 4
2. Remove threaded pin 1 (if necessary 2 also)
3. Remove alignment pin
4. Insert threaded pin 1 (if necessary 2 also)
5. Repeat adjustment guide from point 2

4.) Clamping Screw, max. 10 Nm

1.) Alignment Pin, optional

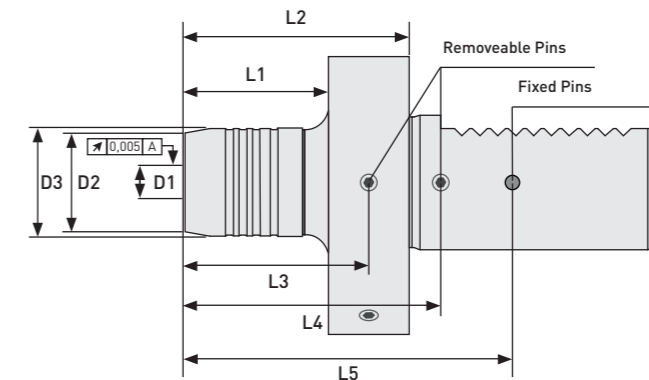
2.) Alignment Pin, optional

3.) Alignment Pin, fest verbaut



*Positioning of alignment pins may deviate due to manufacturing process

for brazed drilling tools and MiniTools



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
10,00	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 Systems

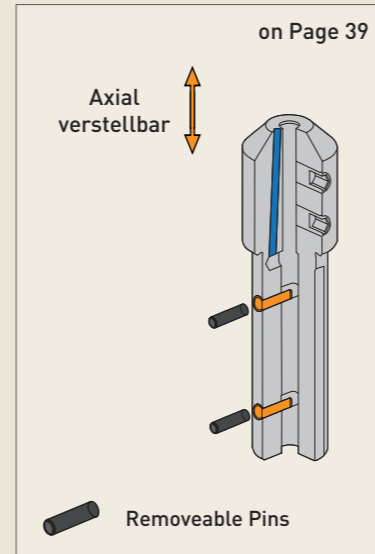
Clamping Adapter round or 4-sided

Take advantage!

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

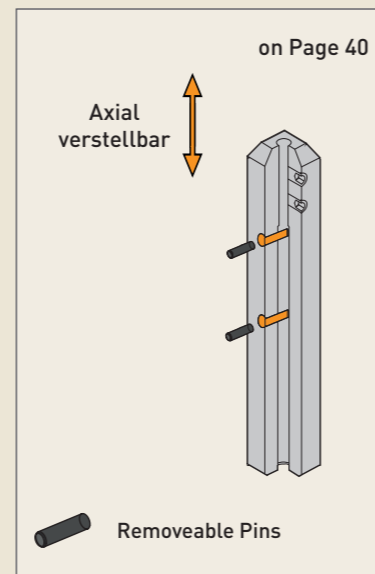
Functionality

- ✓ 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
- ✓ Mounting \emptyset 16h6 ground



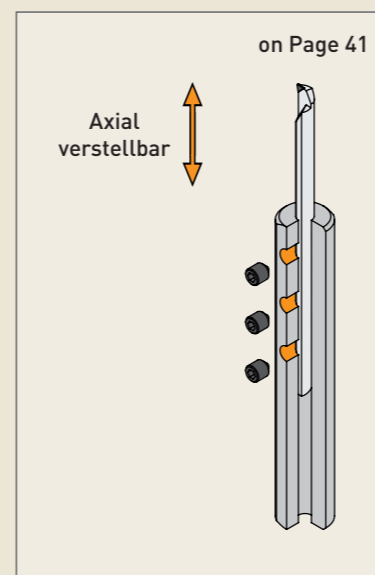
Functionality

- ✓ Ausrichtung der Spitzenhöhe durch die Querstifte am Halter and der Positionierung der 45° Justierschräge am Werkzeug
- ✓ Sichere, stabile Positionierung des Werkzeugs durch die 3-Punkt Fixierung
- ✓ 4-Kant geschliffen zum flexiblen Einsatz in fast allen Bearbeitungsmaschinen
- ✓ Allgemeine Kühlmittelzufuhr über die Spannfläche
- ✓ Auch für den Einsatz in konventionellen- and NC- Maschinen geeignet



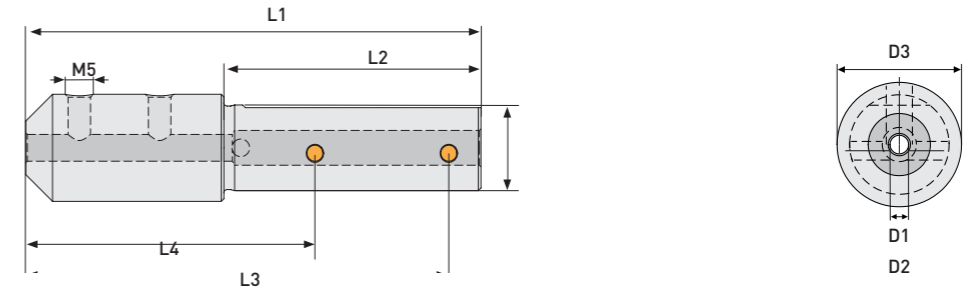
Functionality

- ✓ Spannadapter with durchgehendem Schaft
- ✓ Kompatibel zu Standard- Bohrstangen aufnahmen, D16,0mm
- ✓ Auch für den Einsatz in konventionellen- and NC- Maschinen geeignet
- ✓ Flexible Längeneinstellung
- ✓ Stabile Klemmung über 3 Schrauben
- ✓ Platzsparend and für kleine Maschinen geeignet



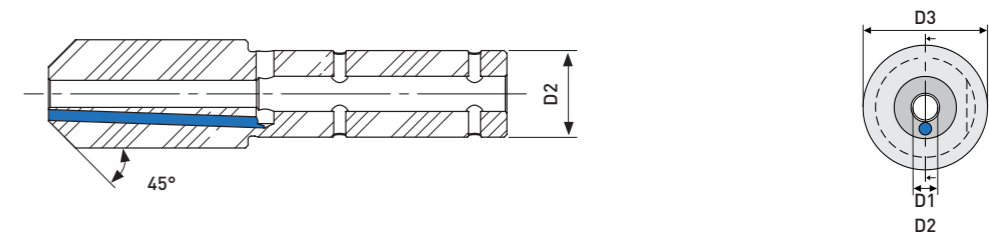
Clamping Adapter

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



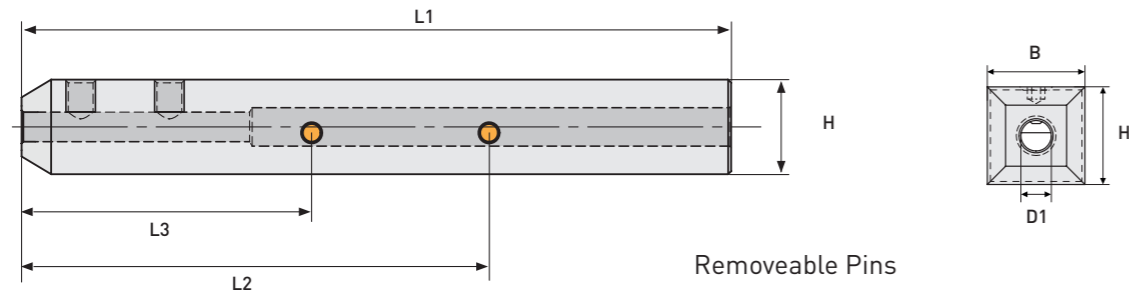
with internal cooling

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

Spare parts and torque wrench available on request.

Clamping Adapter

4-sided



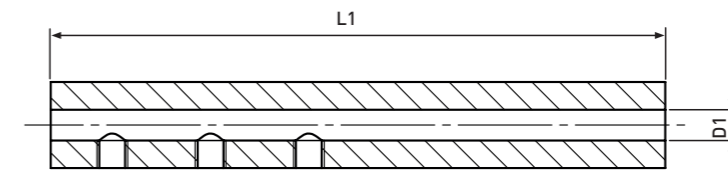
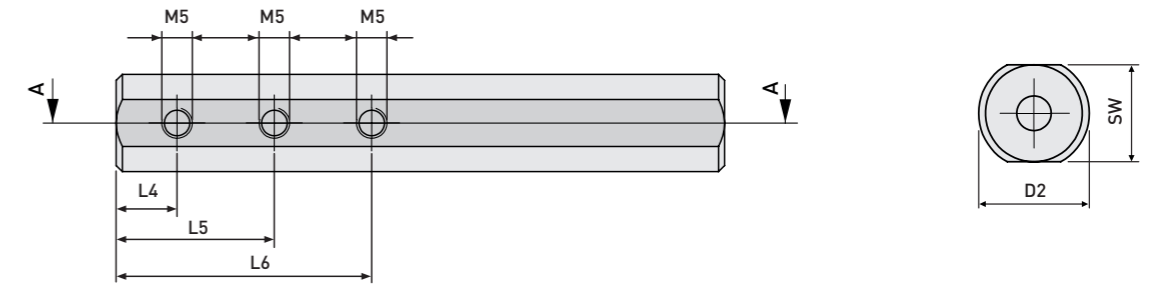
without internal cooling (light cooling through clamping surface)

D1	D2	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	BA7090-4160
	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	BA7090-4180
	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.

Bohrstangenaufnahmen

durchgehender Schaft



D1	D2	SW	L1	L4	L5	L6	Item No.
3,00	16h6	14,00	100,00	10,00	26,00	42,00	BA7090-5500
4,00	16h6	14,00	100,00	10,00	26,00	42,00	BA7090-5501
5,00	16h6	14,00	100,00	10,00	26,00	42,00	BA7090-5502
6,00	16h6	14,00	100,00	10,00	26,00	42,00	BA7090-5503
8,00	16h6	14,00	100,00	10,00	26,00	42,00	BA7090-5504

Material		PCD								
		n [U/min]			a _p [mm]			F [mm/U]		
		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
Acryl (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
CFK	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
GFK	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
Graphit	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
Carbide, Ceramic sintered, Ceramics Green	min.	on request								
	max.	on request								
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
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
Brass, Brass, bleifrei	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
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
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
Zink	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

Material		CVD-D									Cooling				
		n [U/min]			a _p [mm]			F [mm/U]			Dry	Air	Emulsion	Oil	MMS
		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					
Acryl (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	
CFK	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			
GFK	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	
Graphit	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				
Carbide, Ceramic sintered, Ceramics Green	min.	on request									on request				
	max.	on request									on request				
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	
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		
Brass, Brass, bleifrei	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	
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		
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		
Zink	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	

Material		CBN								
		n [U/min]			a _p [mm]			F [mm/U]		
		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
Steel hardened 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 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 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 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
Powder Metallurgical Steels, Hardened Cold and hot Work Steels, hardened	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
Tool Steel and HSS, 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
Ni-, Co-, Fe- u. 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
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
Carbide >20%Co	min.	on request								
	max.									
Carbide-Steel-Verbindung	min.	on request								
	max.									

Cooling recommended

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

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

Material	Cooling				
	Dry	Air	Emulsion	Oil	MMS
Steel hardened to 42 HRC		3. Choice	1. Choice	2. Choice	
Steel hardened to 52 HRC		3. Choice	1. Choice	2. Choice	
Steel hardened to 60 HRC		3. Choice	1. Choice	2. Choice	
Steel hardened to 68 HRC		3. Choice	1. Choice	2. Choice	
Powder Metallurgical Steels, Hardened Cold and hot Work Steels, hardened		3. Choice	1. Choice	2. Choice	
Tool Steel and HSS, hardened		3. Choice	1. Choice	2. Choice	
Ni-, Co-, Fe- u. Cr-Alloys		3. Choice	1. Choice		2. Choice
Titanium			1. Choice		2. Choice
Carbide >20%Co	on request				
Carbide-Steel Verbindung					



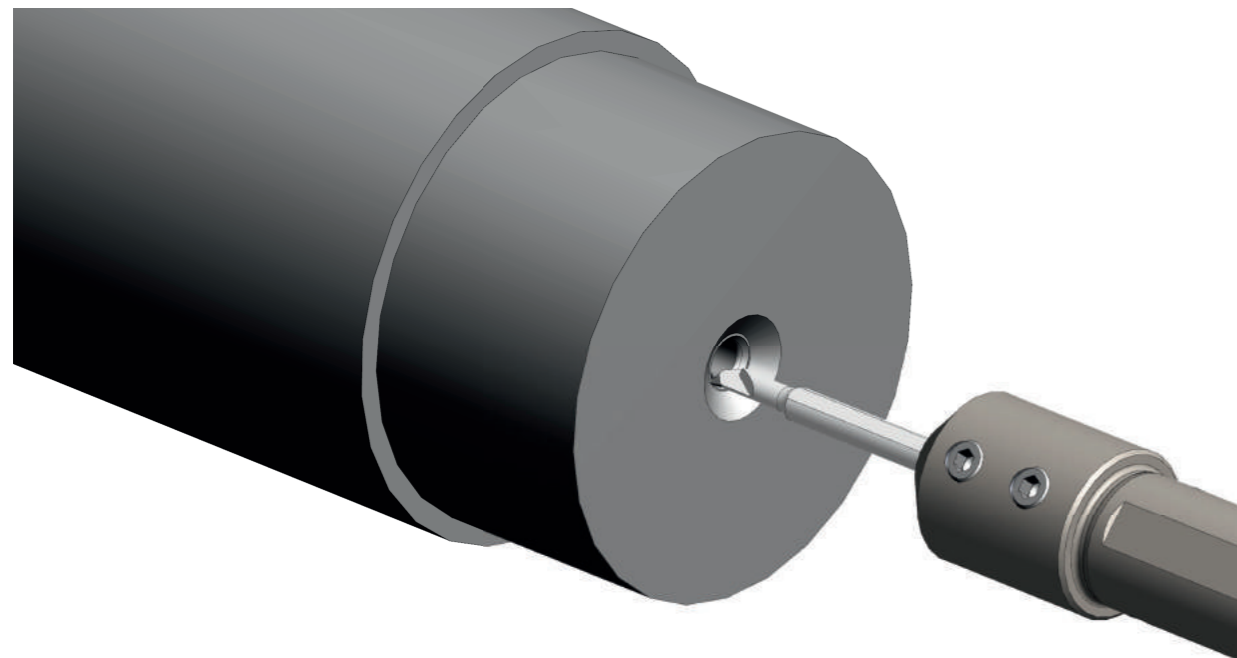
If you have any further technical questions, please do not hesitate to contact us
by phone or e-mail!

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Mail: info@Diamond-toolingsystems.com

Formulas

Turning



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

► Cutting speed

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

► Spindle speed

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

► Feed per revolution

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

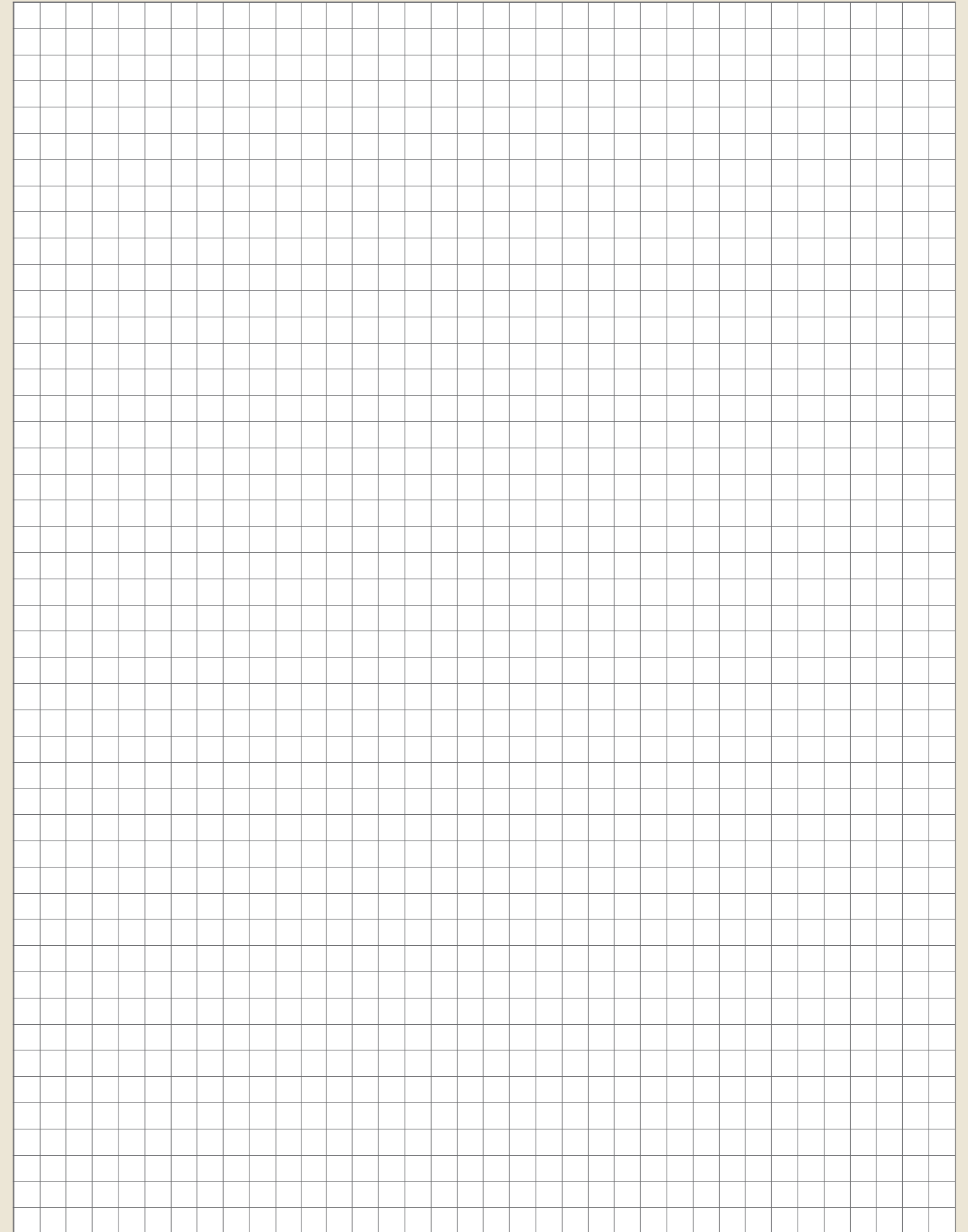
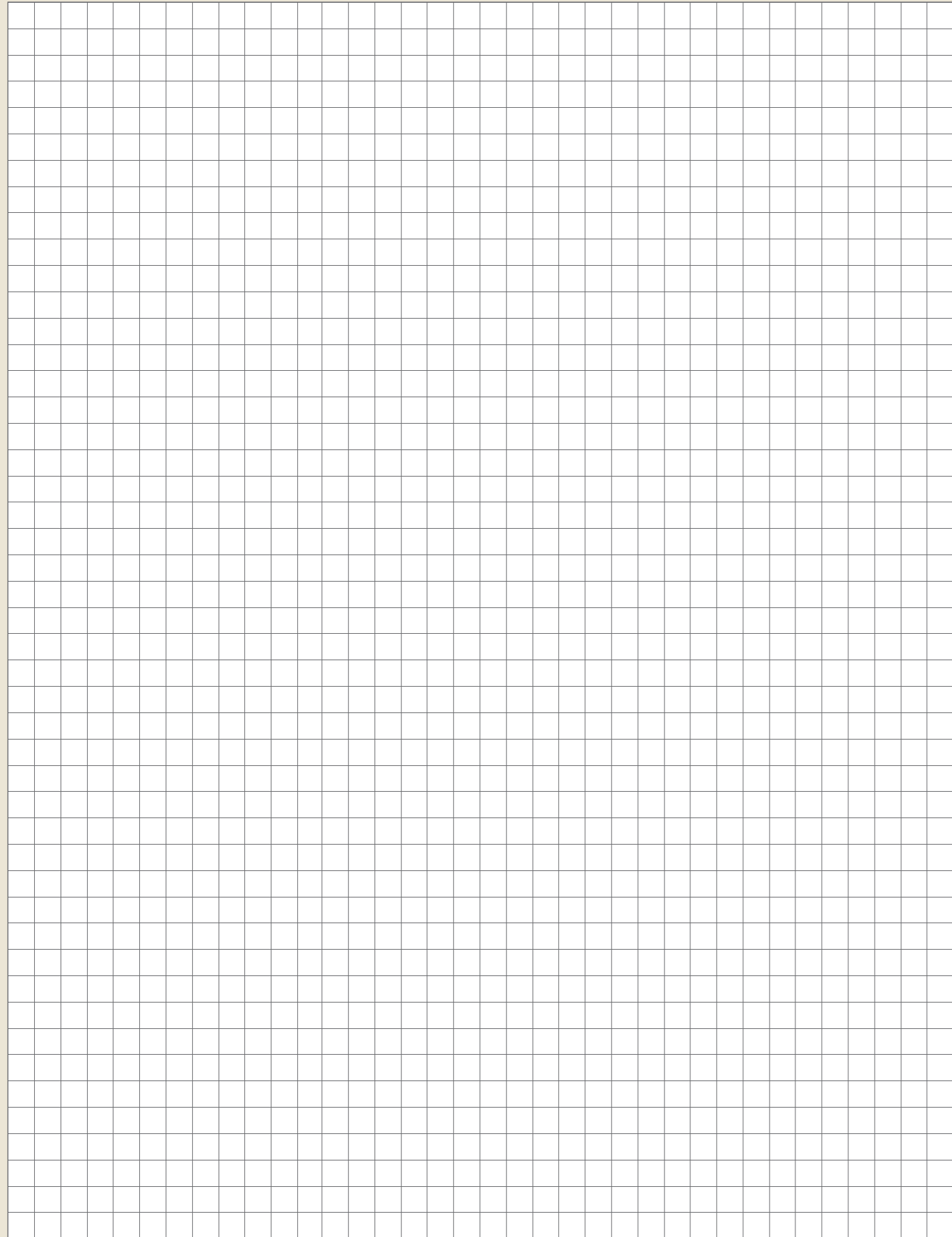
► Cutting time

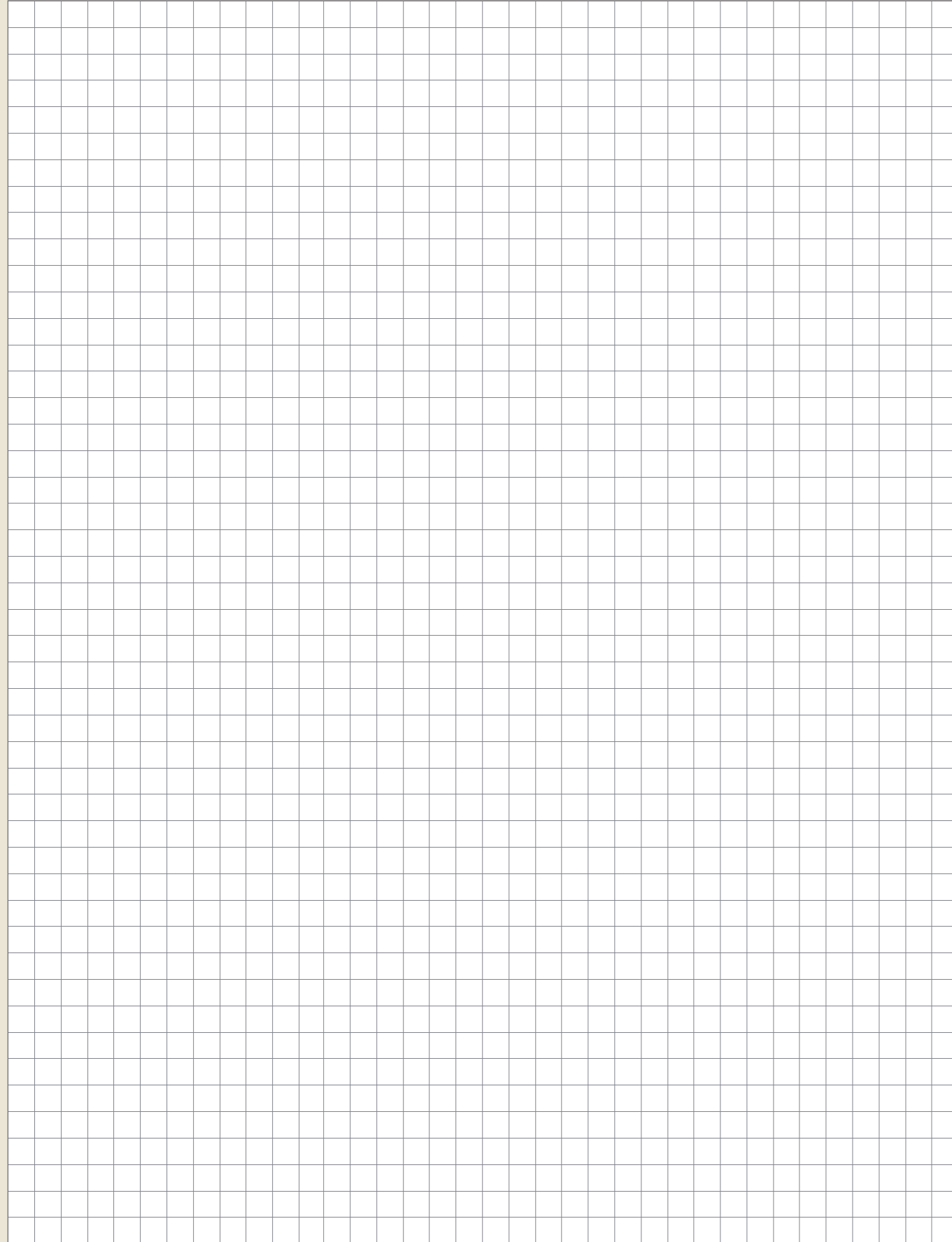
$$t_c = \frac{l_m}{f_n \times n} \quad [\text{min}]$$

► Stock removal rate

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

Your Notes





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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:

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



Instagram



YouTube



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DTS Shop



DTS Webseite



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