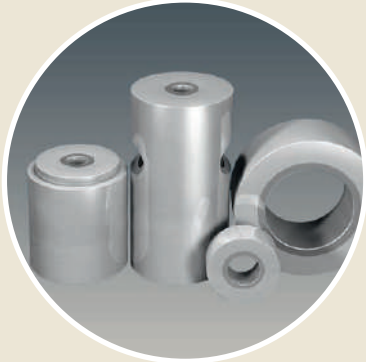
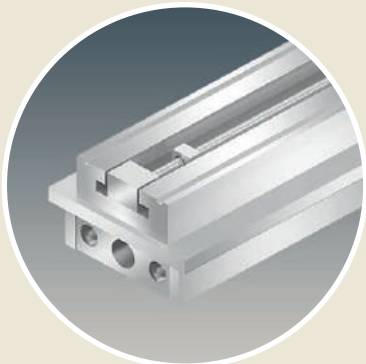


**Milling Cutter Systems with Milling Inserts**  
PCD, CVD-D, CBN



Die and Mold  
Industry



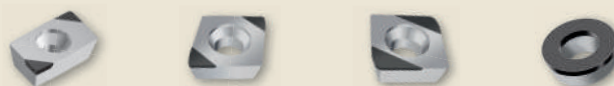
Automotive  
Mechanical Engineering



Medical Technology  
Micro Technology



Aerospace  
Engineering



## About us

DTS GmbH - Diamond Tooling Systems



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

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

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

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

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

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

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

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Our Milling Cutter Systems with indexable inserts

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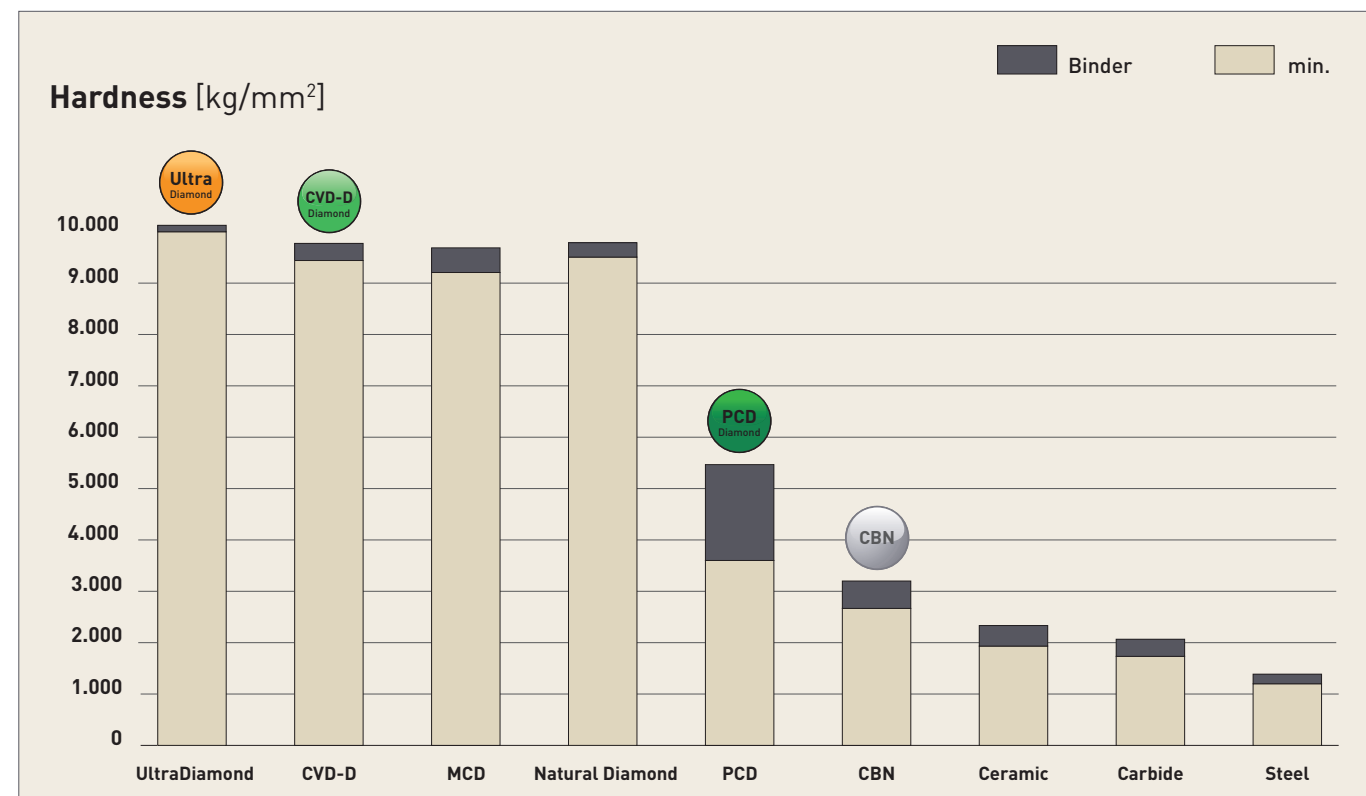
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## PASSION FOR DIAMOND...

ultrahard cutting materials at a glance

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



### Polycrystalline diamond (PCD)

The well-known Standard Diamond

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

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

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

### CVD-Thickfilm Diamond (CVD-D)

The Star among Diamond Cutting Materials

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

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

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

### Binderless Diamond (UltraDiamond)

The hardest Mono Crystal

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

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

### Polycrystalline Cubic Boron Nitride (CBN)

Chemically resistant and stable at high temperatures

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

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

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

# Our Cutting Materials

and their main areas of application at a glance

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

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

**PCD Diamond**  
is ideally suited for the machining of\*  
Aluminum <10% Si | Brass | Ceramic green compact | Copper | Copper Alloy | Graphite | Magnesium | PEEK | Tungsten Alloy

**CVD-D Diamond**  
is ideally suited for the machining of\*  
Acrylic (PMMA) | Aluminum >10% Si | Carbide >10%Co | Ceramic | Copper, Copper Alloys | Composites (CFRP, GFRP) | Glass, GlassCeramic | Magnesium | Plastics | Silver, Gold, Platinum | Titanium | Zirconium

**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**  
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**  
is ideally suited for the machining of\*  
HSS, Tool steel  
ASP, CPM and other PM steels  
Cold and Hot work steels  
Solid carbide steel joints

- continuous cut
- light interrupted cut
- heavy interrupted cut

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

## Your notes



# Our Cutting Materials Assignment

about the materials

1. Choice  Alternative

### DTS Diamond Grades

DTS cutting materials are successfully used in many industries:

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

ISO	Materials	PKD	CVD-D	Ultra Diamond
H	Cold Work Steel, hardened to 72 HRC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	PM- Steels (ASP, CPM, Vanadis, Böhler)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Steel, hardened to 72 HRC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Hot Work Steel, hardened to 72 HRC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Tool Steel, hardened to 72 HRC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
P	Sintered Steel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Sintered Steel, hardened	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
K	Grey Cast Iron (GG)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Ductile Cast Iron (GGG)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Shell Chilled Cast Iron	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
M	Stainless Steel, hardened	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
N	Acrylic (PMMA)	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
	Aluminum, < 10% Si	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Aluminum, > 10% Si	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
	Brass	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
	Carbide	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
	Ceramics	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Ceramics Green Body	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Composites as CFK/GFK	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
	Copper, Copper Alloys	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
	Glass, Glass Ceramic	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
	Gold, Silver, Platinum	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
	Magnesium	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
	MMC	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
	PEEK	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Plastics	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Tungsten Alloy	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	

### DTS CBN Grades

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

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

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

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

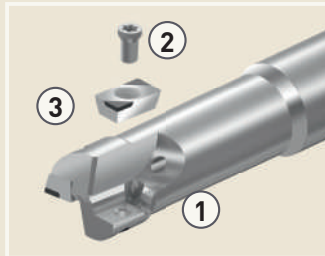
Highest economic efficiency due to the use of multi-edged Milling Inserts

High stability and smooth running

Corrosion resistant carriers

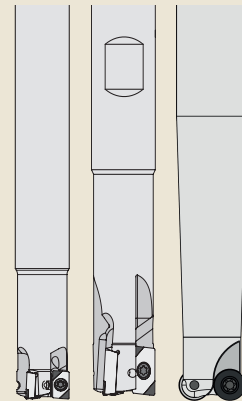
Can be used with PCD, CVD-D and CBN cutting edges

## End Mills and Weldon End Mills Diameter 10,00 up to 25,00mm



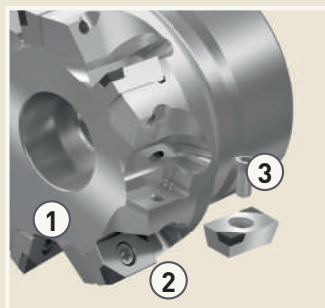
for AOEX or RDHX inserts

- End Mills Ø10,00-14,00 with 2 or 3 cutting inserts AOEX 04
- Weldon End Mills Ø16,00-25,00 with 2-4 cutting inserts AOEX 07
- Copy End Mills Ø15,00 and 20,00 with 2 cutting inserts RDHX07|10



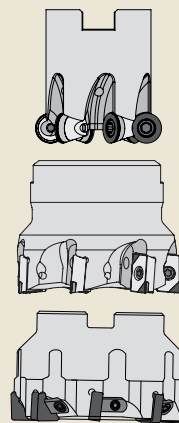
- 1 Precision machined base body
- 2 Screw for changing the milling insert
- 3 Milling Insert

## Face and Shoulder Cutter Diameter 32,00 up to 160,00mm

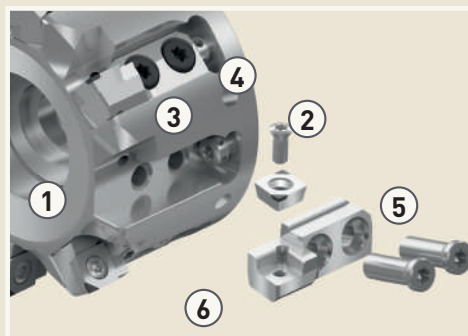


for AOEX, RDHX and SNGN inserts

- Face and Shoulder Cutters Ø32,00-100,00 with AOEX 07 inserts
- Face, Corner and Copy End Mills Ø42,00-80,00 with RDHX 10|12 inserts
- Face Milling Cutter Ø40,00-160,00 with inserts SNGN 12

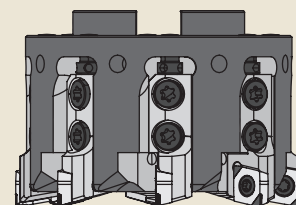


## Cassette Milling Systems Diameter 50,00 up to 400,00mm



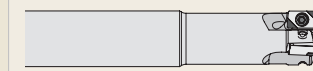
with  $\mu$  precisely adjustable cassettes for CPGW, SPGW or RPGW inserts

- 1 Precision machined base body
- 2 Screw for changing the milling insert
- 3 Screw for height adjustment
- 4 Balancing screw
- 5 Screw for the cartridge
- 6 Cartridges

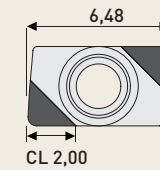


Base body in steel or aluminum

### Face and Corner Milling with AOEX 04



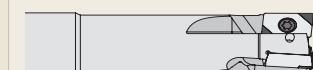
End Mills  
Ø10 - Ø14



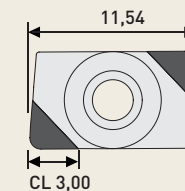
AOEX 04:

- R0,20
- R0,40
- R0,50
- R0,80
- R1,00

### Face and Corner Milling with AOEX 07

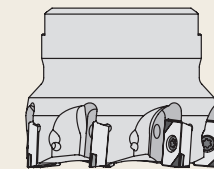


Weldon Shank Cutter  
Ø16 - Ø25

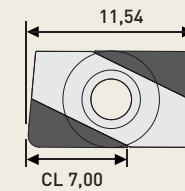


AOEX 07:

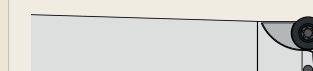
- R0,20
- R0,40
- R0,50
- R0,80
- R1,00
- R1,20
- R1,60



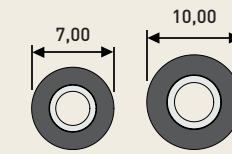
Shoulder End Mills  
Ø32 - Ø100



### Face and Shoulder End Mills with RDHX 07|10|12

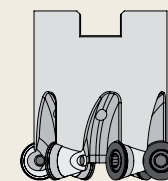


Face Milling Cutters  
Ø15 - Ø20

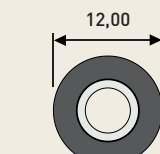


RDHX:

- R3,50 (07)
- R5,00 (10)
- R6,00 (12)

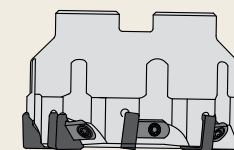


Shoulder End Mills  
Ø42 - Ø80

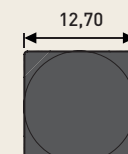


FullFace

### Face Milling Cutter with Solid CBN SNGN 09|12



Face Milling Cutters  
Ø40 - Ø160



SNGN 09|12:

- R0,40
- R0,80
- R1,20
- R1,60

Select the appropriate cutting material for cutting the material used:

You can find our cutting material assignments from page 8.





## End Mill Systems

for milling inserts

Our face and corner end mills have been specially designed for economical use with diamond and CBN inserts. You have the possibility to realize a high chip removal. Furthermore, you can be very flexible between the cutting materials PCD, CVD-D, and CBN due to the indexable insert solution. This highly economical solution is available from stock from  $\varnothing 10.00 - 25.00$  mm.



### Especially suitable for the following industries:

- Tool and Mold Forming
- General Mechanical Engineering
- Automotive
- Aerospace Industry
- Optical Industry
- Ceramic Industry

### Suitable for these materials:

- Aluminum up to 28% Si
- Steel hardenend
- Glass and Glass Ceramic
- Graphite
- Cast Iron
- Hard Metals
- Ceramics
- Brass- and Bronze Alloys
- Tool Steels
- Zircon

## Milling Cutter Systems

for milling inserts

Our face and shoulder cutters have been specially designed for economical use with diamond and CBN inserts. You have the possibility to realize a high chip removal. Furthermore you can be very flexible due to the indexable insert solution, with a cutting edge length of 3mm and 7mm. You can easily switch between the cutting materials PCD, CVD-D and CBN. This highly economical solution is available from from stock from  $\varnothing 32,00 - 100,00$  mm.



### Especially suitable for the following industries:

- Tool and Mold Forming
- General Mechanical Engineering
- Automotive
- Aerospace Industry
- Optical Industry
- Ceramic Industry

### Suitable for these materials:

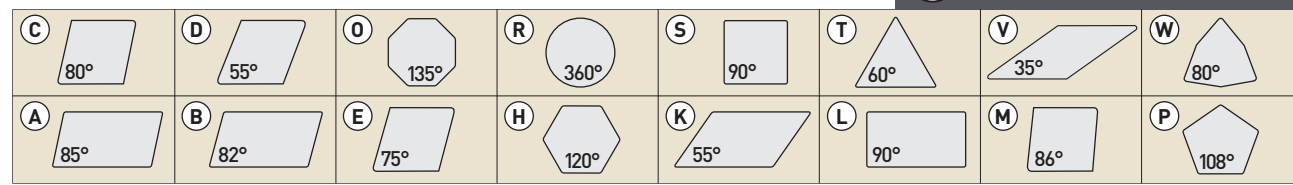
- Aluminum up to 28% Si
- Steel hardenend
- Glass and Glass Ceramic
- Graphite
- Cast Iron
- Hard Metals
- Ceramics
- Brass- and Bronze Alloys
- Tool Steels
- Zircon



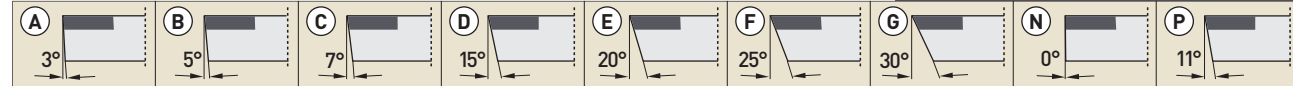
# ISO Code

Diamond Indexable Inserts

## Shape T N G A 16 04 08



## Clearance T N G A 16 04 08

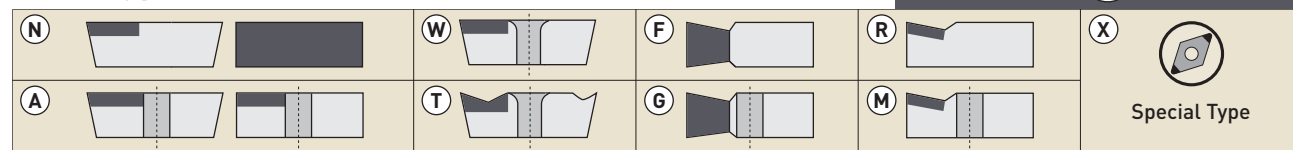


## Tolerance [mm] T N G A 16 04 08

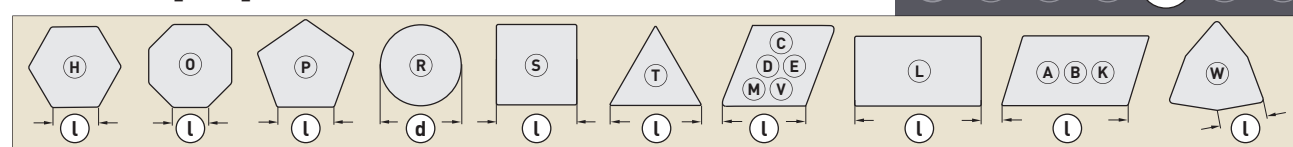
	m	s	d		m	s	d
A	±0,005	±0,025	±0,025	J	±0,005	±0,025	±0,05 → ±0,15
F	±0,005	±0,025	±0,013	K	±0,013	±0,025	±0,05 → ±0,15
C	±0,013	±0,025	±0,025	L	±0,025	±0,025	±0,05 → ±0,15
H	±0,013	±0,025	±0,013	M	±0,08 → ±0,20	±0,130	±0,05 → ±0,15
E	±0,025	±0,025	±0,025	N	±0,08 → ±0,20	±0,25	±0,05 → ±0,15
G	±0,025	±0,130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

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

## Insert Type T N G A 16 04 08



## Insert size [mm] T N G A 16 04 08

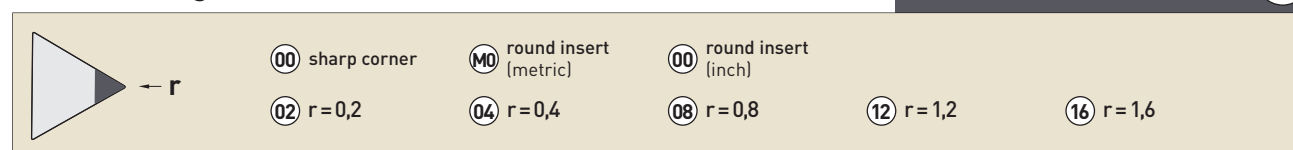


## Insert size [mm] T N G A 16 04 08

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

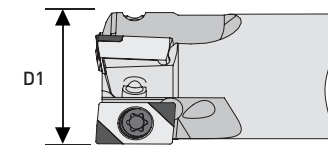
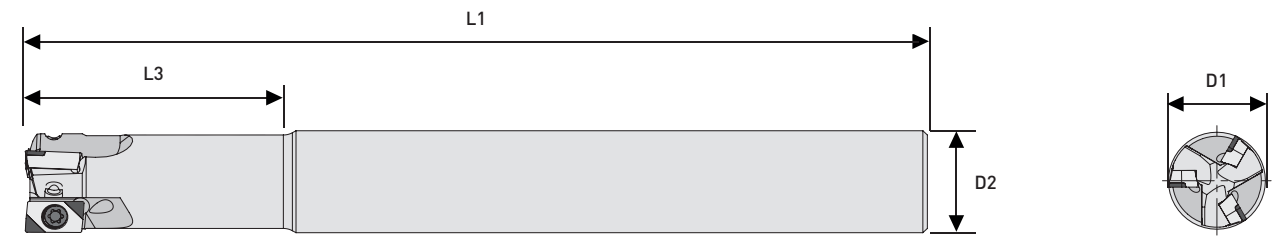
By numbers below 10 a 0 is added in at the front. Decimals remain unconsidered (for example: 4,76 = 04)

## Corner configuration [mm] T N G A 16 04 08

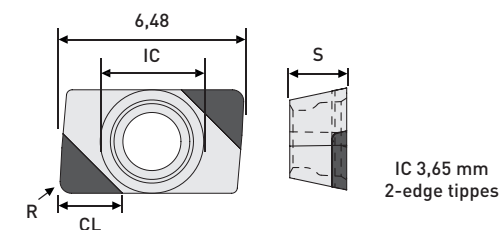


# Face and Corner End Mills

for milling inserts AOEX | Ø 10,00 – 14,00mm



D1	D2	L1	L3	Z	n max	Item No.	Clamping Screw	Clamping Key
10,00	10h6	100,00	28,00	2	36.000	FW7060-0050	01-SP9090-0186	01-SP9091-0090
12,00	12h6	100,00	30,00	3	36.000	FW7060-0055	01-SP9090-0188	01-SP9091-0090
14,00	12h6	120,00	32,00	3	36.000	FW7060-0060	01-SP9090-0188	01-SP9091-0090



IC 3,65 mm  
2-edge tipless

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

Also available with UltraDiamond on request

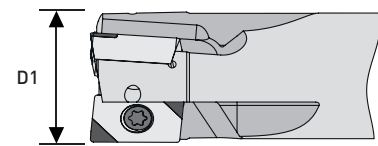
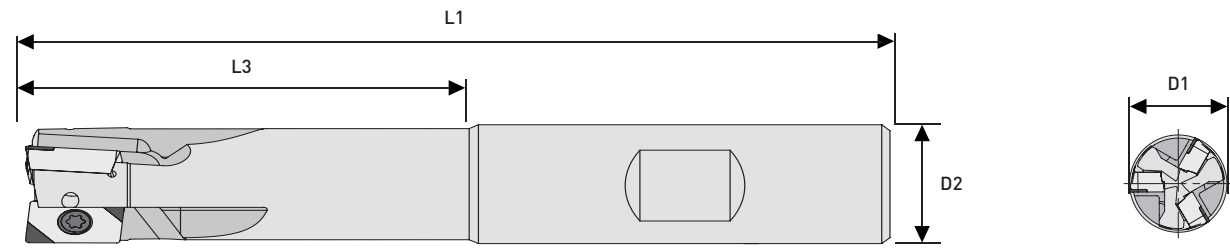
### Application range:

- PCD** Aluminum < 10% Si, Brass, Graphite coarse-grained, Plastics, Zinc ...
- CVD-D** Aluminum > 10% Si, Carbide > 8% Co, Copper, GFRP, CFRP, Glass materials, Graphite fine-grained, Titanium (Finishing) ...
- CBN-H** General hardened steels up to 72 HRC ...
- CBN-K** Grey cast iron (GG), Ductile cast iron (GGG) ...
- CBN-X** Tool steel up to 72 HRC, Stellite, powder metallurgical Steel, Stainless Steel hardened, Ni-, Co-, Fe- and Cr-Alloys ...

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

# Face and Corner End Mills 90°

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



Cylindric shaft with weldon  
with internal cooling  
90° up to 7mm  
Tightening torque 1,20 Nm

D1	D2	L1	L3	Z	n max	Item No.
16,00	16h6	80,00	30,00	2	32.000	FW7060-0100
	16h6	90,00	40,00	2	32.000	FW7060-0105
20,00	20h6	95,00	40,00	3	28.000	FW7060-0110
	20h6	105,00	50,00	3	28.000	FW7060-0115
25,00	25h6	110,00	50,00	3	24.000	FW7060-0120
	25h6	135,00	75,00	3	24.000	FW7060-0125
	25h6	110,00	50,00	4	24.000	FW7060-0130
	25h6	135,00	75,00	4	24.000	FW7060-0135
					Clamping Screw	01-SP9090-0255
					Clamping Key	01-SP9091-0110

### Application range:

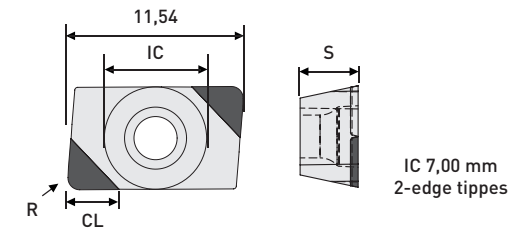
- **PCD** Aluminum < 10% Si, Brass, Graphite coarse-grained, Plastics, Zinc ...
- **CVD-D** Aluminum > 10% Si, Carbide > 8% Co, Copper, GFRP, CFRP, Glass materials, Graphite fine-grained, Titanium (Finishing) ...
- **CBN-H** General hardened steels up to 72 HRC ...
- **CBN-K** Grey cast iron (GG), Ductile cast iron (GGG) ...
- **CBN-X** Tool steel up to 72 HRC, Stellite, powder metallurgical Steel, Stainless Steel hardened, Ni-, Co-, Fe- and Cr-Alloys ...

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

# AOEX Milling Inserts

for our face and corner end mills 90°

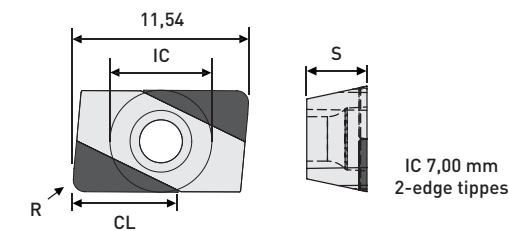
for face and 90° shoulder milling



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

Also available with UltraDiamond on request

for face and 90° shoulder milling



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



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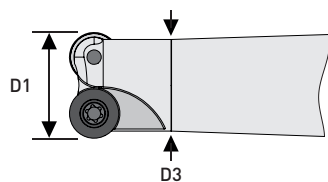
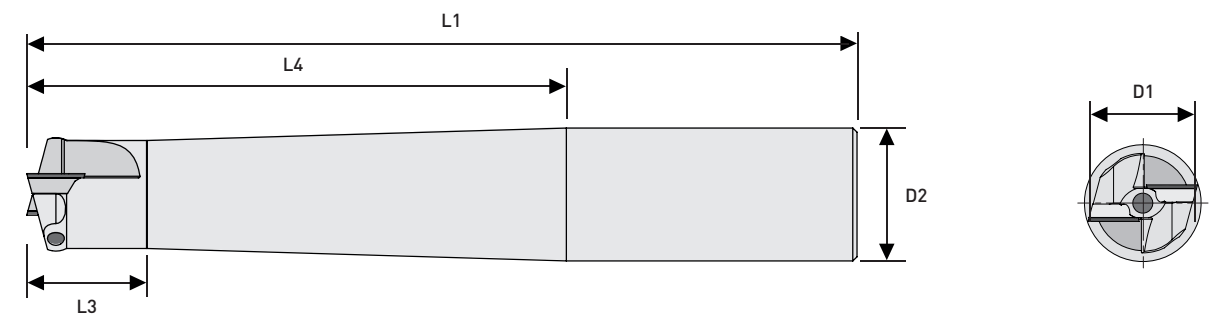


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Subject to technical changes.

# End Mills for Indexable Inserts

for milling inserts RDHX | Ø15,00 - 20,00



Tightening torque 1,20 Nm

D1	D2	D3	L1	L3	L4	Z	β	für RDHX...	Art.-Nr.	
15,00	16h6	13,00	88,00	-	40,00	2	20°	0702M0	FW7060-6050	
	16h6	13,00	108,00	20,00	60,00	2	20°	0702M0	FW7060-6055	
	20h6	13,00	130,00	20,00	80,00	2	20°	0702M0	FW7060-6060	
	20h6	13,00	150,00	20,00	100,00	2	20°	0702M0	FW7060-6065	
	25h6	13,00	176,00	20,00	120,00	2	20°	0702M0	FW7060-6070	
									Clamping Screw	01-FW7090-0059
									Clamping Key	01-KL9090-0002
20,00	20h6	18,00	90,00	20,00	40,00	2	20°	1003M0	FW7060-6100	
	20h6	18,00	110,00	20,00	60,00	2	20°	1003M0	FW7060-6105	
	25h6	18,00	136,00	20,00	80,00	2	20°	1003M0	FW7060-6110	
	25h6	18,00	156,00	20,00	100,00	2	20°	1003M0	FW7060-6115	
	25h6	18,00	176,00	20,00	120,00	2	20°	1003M0	FW7060-6120	
									Clamping Screw	01-FW7090-0065
									Clamping Key	01-KL9090-0007

### Application range:

- **PCD** Aluminum < 10% Si, Brass, Graphite coarse-grained, Plastics, Zinc ...
- **CVD-D** Aluminum > 10% Si, Carbide > 8% Co, Copper, GFRP, CFRP, Glass materials, Graphite fine-grained, Titanium (Finishing) ...
- **CBN-H** General hardened steels up to 72 HRC ...
- **CBN-K** Grey cast iron (GG), Ductile cast iron (GGG) ...
- **CBN-X** Tool steel up to 72 HRC, Stellite, powder metallurgical Steel, Stainless Steel hardened, Ni-, Co-, Fe- and Cr-Alloys ...

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

# RDHX Milling Inserts

for our End Mills

### for End Mill D1 Ø15

ISO Code	IC	S	R	PCD Diamond Item No.	CVD-D Diamond Item No.	CBN-H Item No.	CBN-K Item No.	CBN-X Item No.
<b>RDHX 0702M0</b>	7,00	2,38	M0	DP1030-0007	DP2030-0007	MI5030-0135	MI5530-0137	MI5930-0137

### for End Mill D1 Ø20

ISO Code	IC	S	R	PCD Diamond Item No.	CVD-D Diamond Item No.	CBN-H Item No.	CBN-K Item No.	CBN-X Item No.
<b>RDHX 1003M0</b>	10,00	3,18	M0	DP1030-0008	DP2030-0008	MI5030-0140	MI5530-0142	MI5930-0142

### Ramp angle β

(look at the table on page 20)

**Hint:**  
Screw-in milling heads for RDHX inserts and carbide extensions can be found in our webshop.

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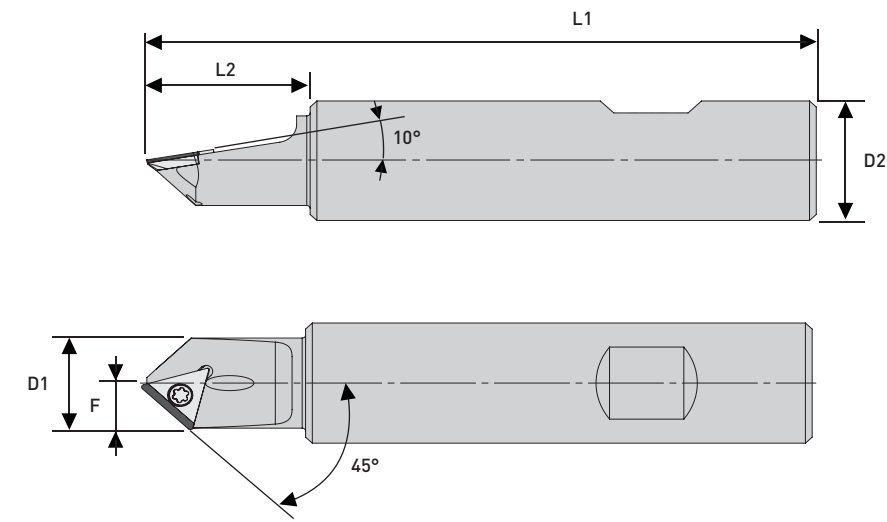
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Subject to technical changes.

# End Mill for Chamfering 45°

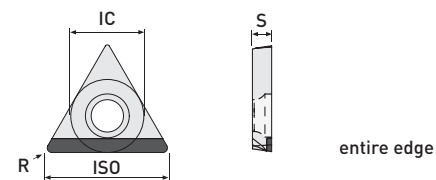
for indexable inserts TXGW

## Your notes



Steel Shank with Weldon surface with internal cooling

Dmin	D1	D2	L1	L2	F	Item No.
1,95	15,20	20h6	99,00	24,00	7,70	FW8560-0200
Clamping Screw						01-KL9060-0260
Clamping Key						01-KL9090-0003



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

Special geometries on request

### Application range:

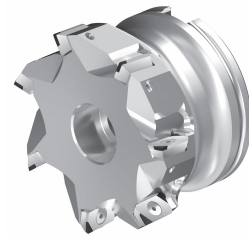
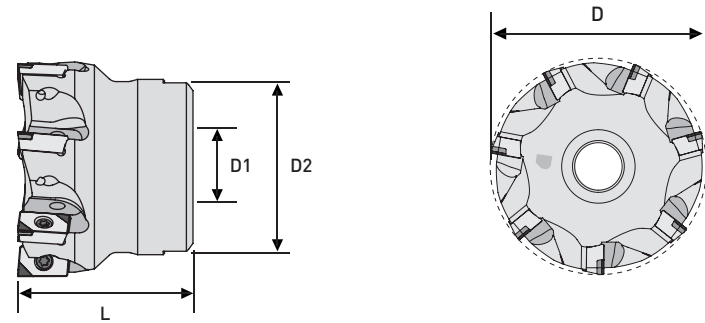
- **PCD** Aluminum < 10% Si, Plastics, Graphite coarse-grained, Brass, Zinc ...
- **CVD-D** Aluminum > 10% Si, Carbide, GFK, CFK, Graphite fine-grained, Copper, Glass materials, Titanium (Finishing) ...
- **CBN-H** General hardened steels up to 72 HRC ...
- **CBN-K** Grey cast iron (GG), Ductile iron (GGG) ...
- **CBN-X** Tool steels up to 72 HRC, Stellite, powder metallurgical steels, Stainless steel hardened, Ni, Co, Fe, u. Cr-Alloys ...

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



# Face and Shoulder Cutters 90°

for milling inserts AOEX | Ø32,00 - 100,00



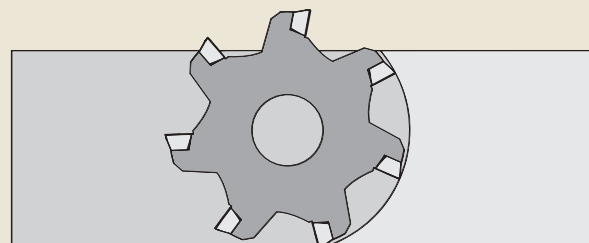
Steel base body with IC  
Cutting edge setting 5° 90°  
cutting up to 7mm  
Tightening torque 1,20 Nm

Including base body | Excluding milling inserts and chuck

D	D1	D2	L	Z	n max	Item No.	Clamping Screw	Clamping Key
32,00	16,00	30,00	32	4	24.000	FW7060-4990	01-SP9090-0255	01-SP9091-0110
32,00	16,00	30,00	32	5	24.000	FW7060-5000	01-SP9090-0255	01-SP9091-0110
40,00	22,00	38,00	40	5	20.000	FW7060-5010	01-SP9090-0255	01-SP9091-0110
40,00	22,00	38,00	40	6	20.000	FW7060-5020	01-SP9090-0255	01-SP9091-0110
50,00	22,00	40,00	40	5	18.000	FW7060-5030	01-SP9090-0255	01-SP9091-0110
50,00	22,00	40,00	40	7	18.000	FW7060-5040	01-SP9090-0255	01-SP9091-0110
63,00	27,00	48,00	50	7	16.000	FW7060-5050	01-SP9090-0255	01-SP9091-0110
63,00	27,00	48,00	50	9	16.000	FW7060-5060	01-SP9090-0255	01-SP9091-0110
80,00	27,00	60,00	50	11	12.000	FW7060-5070	01-SP9090-0255	01-SP9091-0110
100,00	32,00	80,00	55	14	10.000	FW7060-5080	01-SP9090-0255	01-SP9091-0110

On request also available with special diameter.

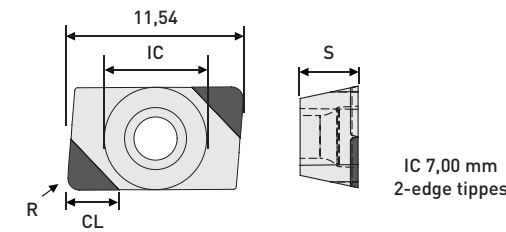
Milling Tool diameter should be 20-30% larger than the workpiece width.



# AOEX Milling Inserts

for face and shoulder milling 90°

for face and 90° shoulder milling



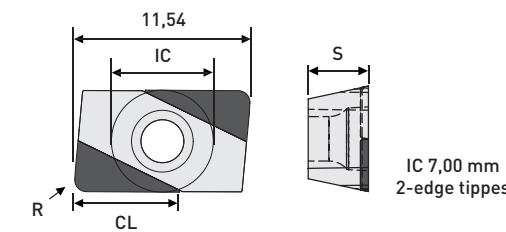
Iso Code	CL	S	R	PCD Diamond	CVD-D Diamond	CBN-H	CBN-K	CBN-X
				Item No.	Item No.	Item No.	Item No.	Item No.
AOEX 07T302	3,00	3,97	0,20	MI1010-0050	MI2010-0050	MI5010-0050	MI5510-0050	MI5910-0050
AOEX 07T304	3,00	3,97	0,40	MI1010-0055	MI2010-0055	MI5010-0055	MI5510-0055	MI5910-0055
AOEX 07T305	3,00	3,97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

Wide finishing Milling Insert

AOEX 07T302-W	3,00	3,97	0,20	MI1010-0070				MI5910-0070
AOEX 07T304-W	3,00	3,97	0,40	MI1010-0075				MI5910-0075

Also available with all cutting materials on request

for face and 90° shoulder milling



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



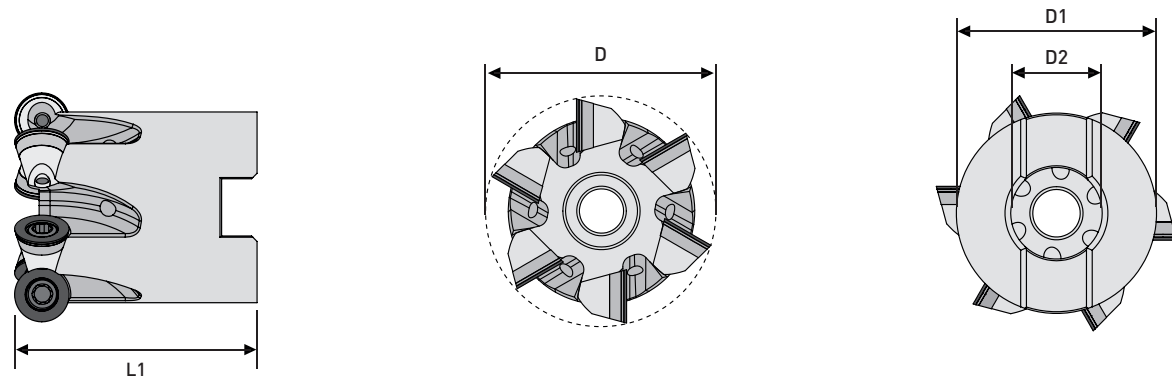
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# Face Milling Cutters 90°

for milling inserts RDHX | Ø42,00 - 80,00



with internal cooling  
Tightening torque 1,20 Nm

Including base body | Excluding milling inserts and chuck

D	D1	D2	L1	Z	β	for RDHX...	Item No.	Clamping Screw
42,00	35,00	16,00	44,00	6	-	RDHX 1003M0	FW7060-5930	01-FW7090-0065
52,00	40,00	22,00	50,00	5	5,7°	RDHX 12T3M0	FW7060-5945	01-FW7090-0065
66,00	48,00	27,00	50,00	6	4,1°	RDHX 12T3M0	FW7060-5950	01-FW7090-0065
80,00	60,00	27,00	50,00	7	3,2°	RDHX 12T3M0	FW7060-5955	01-FW7090-0065

Also available with special diameter on request.

# RDHX Milling Inserts

for our face milling cutter

for Face Milling Cutter D1 Ø42

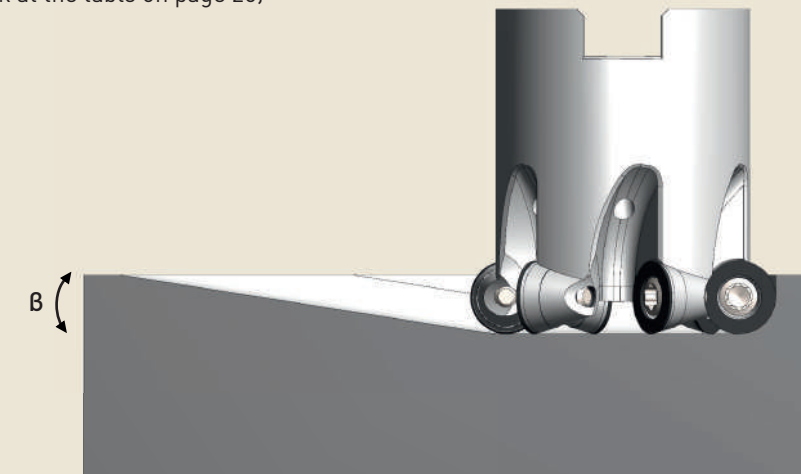
ISO Code	IC	S	R	PCD Diamond Item No.	CVD-D Diamond Item No.	CBN-H Item No.	CBN-K Item No.	CBN-X Item No.
RDHX 1003M0	10,00	3,18	M0	DP1030-0008	DP2030-0008	MI5030-0140	MI5530-0142	MI5930-0142

for Face Milling Cutter from D1 Ø52

ISO Code	IC	S	R	PCD Diamond Item No.	CVD-D Diamond Item No.	CBN-H Item No.	CBN-K Item No.	CBN-X Item No.
RDHX 12T3M0	12,00	3,97	M0	DP1030-0009	DP2030-0009	MI5030-0145	MI5530-0147	MI5930-0147

## Ramp angle β

(look at the table on page 26)



### Application range:

- **PCD** Aluminum < 10% Si, Brass, Graphite coarse-grained, Plastics, Zinc ...
- **CVD-D** Aluminum > 10% Si, Carbide > 8% Co, Copper, GFRP, CFRP, Glass materials, Graphite fine-grained, Titanium (Finishing) ...
- **CBN-H** General hardened steels up to 72 HRC ...
- **CBN-K** Grey cast iron (GG), Ductile cast iron (GGG) ...
- **CBN-X** Tool steels up to 72 HRC, Stellite, powder metallurgical steels, Stainless steel hardened, Ni, Co, Fe, u. Cr-Alloys ...

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



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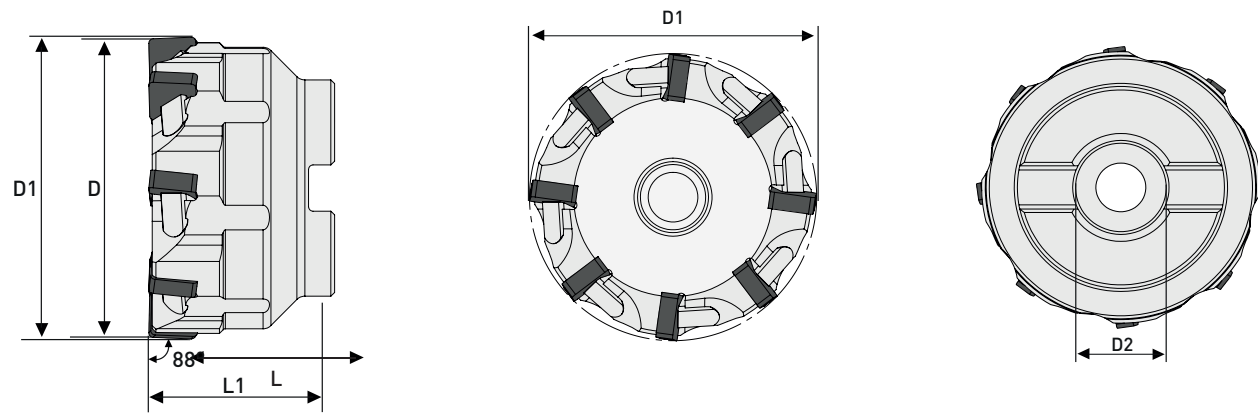


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Subject to technical changes.

# Face Milling Cutters

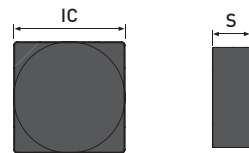
for our SNGN CBN Solid milling inserts



Excluding milling inserts and chuck

D1	D2	L1	Z	n max	Cutting Insert	Item No.
40,00	41,00	40,00	4	23000	for SNGN 0904...	FW7060-5520
50,00	51,00	40,00	5	18000	for SNGN 1204...	FW7060-5530
63,00	64,00	40,00	6	13000	for SNGN 1204...	FW7060-5540
80,00	81,00	50,00	8	10000	for SNGN 1204...	FW7060-5550
100,00	101,00	50,00	10	8000	for SNGN 1204...	FW7060-5560
125,00	126,00	63,00	12	8000	for SNGN 1204...	FW7060-5570
160,00	161,00	63,00	15	6000	for SNGN 1204...	FW7060-5580

Also available with special diameter on request.



Solid

ISO Code	IC	S	R	CBN-H	CBN-K	CBN-X
				Item No.	Item No.	Item No.
SNGN 090404	9,525	3,18	0,40	MI5040-0104	MI5540-0104	MI5940-0104
SNGN 090408	9,525	3,18	0,80	MI5040-0108	MI5540-0108	MI5940-0108

Tightening torque 3,50 Nm

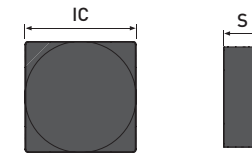
### Application range:

- CBN** Steel hardened up to 72HRC, Tool steel hardened up to 72HRC, VHM >20%Co, Stellite, Inconel, Cast iron, Titanium, difficult to machine steels ...
- CBN-K** Stellite, Inconel, Guss, Titan, schwer zerspanbare Steels ...
- CBN-X** Tool steel up to 72 HRC, Stellite, powder metallurgical Steel, Stainless Steel hardened, Ni-, Co-, Fe- and Cr-Alloys ...

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

# SNGN Milling Inserts

for our face milling cutter



Solid

ISO Code	IC	S	R	CBN-H	CBN-K	CBN-X
				Item No.	Item No.	Item No.
SNGN 120404	12,70	4,76	0,40	MI5040-0204	MI5540-0204	MI5940-0204
SNGN 120408	12,70	4,76	0,80	MI5040-0208	MI5540-0208	MI5940-0208
SNGN 120412	12,70	4,76	1,20	MI5040-0212	MI5540-0212	MI5940-0212
SNGN 120416	12,70	4,76	1,60	MI5040-0216	MI5540-0216	MI5940-0216

Tightening torque 5,00 Nm

### Accessories:

D	Base Body	Clamping element	Double threaded screw	Tightening torque	Torx blade	Cross handle
40,00	FW7060-5520	01-FW7090-0510	01-FW7090-0511	3,5 Nm	01-FW9090-0511	01-FW9090-0500
50,00	FW7060-5530					
60,00	FW7060-5540					
80,00	FW7060-5550					
100,00	FW7060-5560	01-FW7090-0520	01-FW7090-0521	5 Nm	01-FW9090-0521	
120,00	FW7060-5570					
160,00	FW7060-5580					



Special tools on request for you!  
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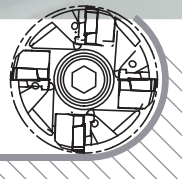
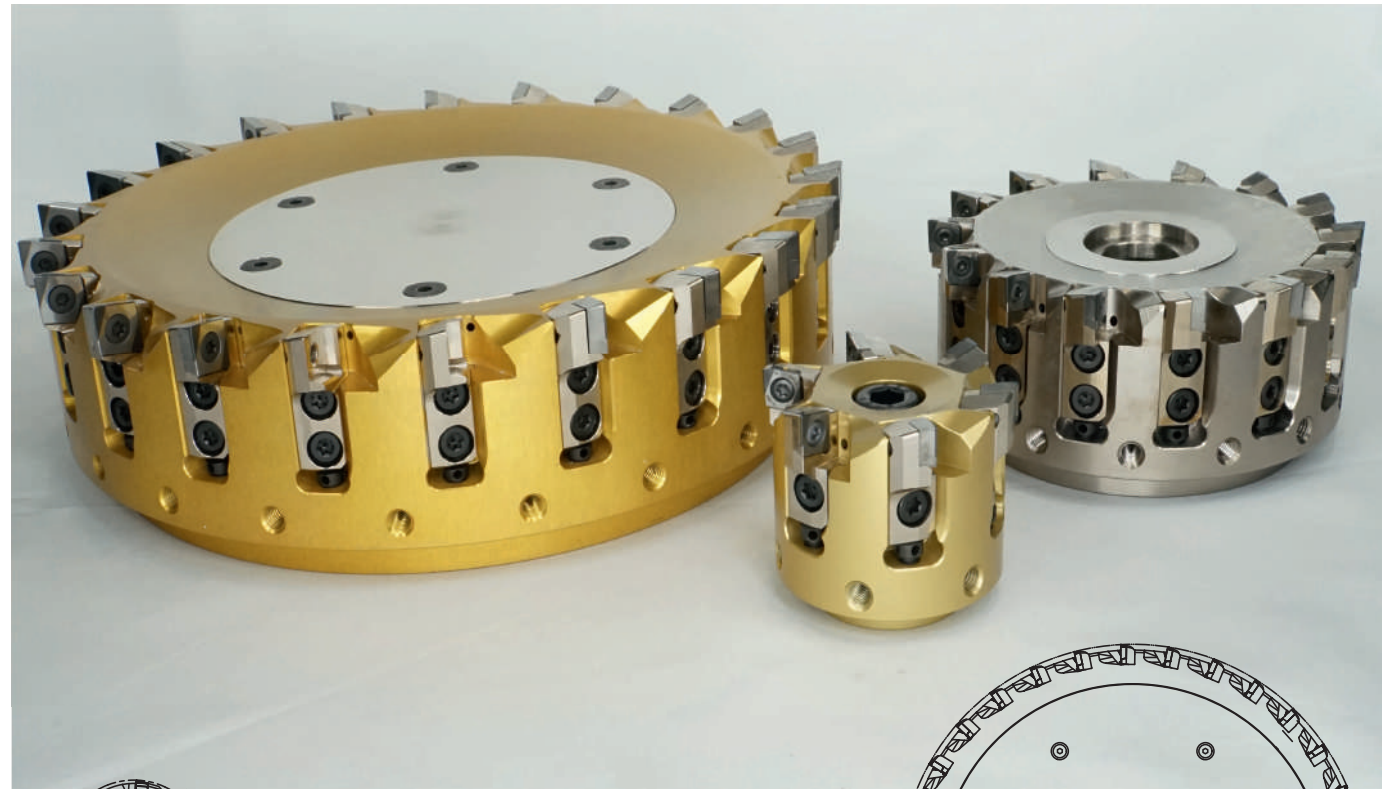


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Visit us at [diamond-tools24.de](http://diamond-tools24.de)

Subject to technical changes.

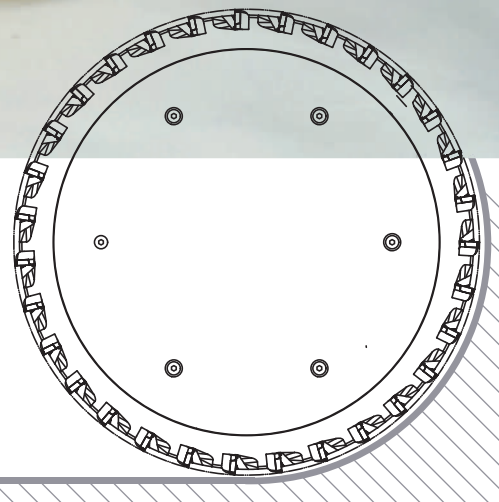
## Milling Cutter Systems with adjustable Cartridges

Aluminum Base Body from 50mm to 400mm



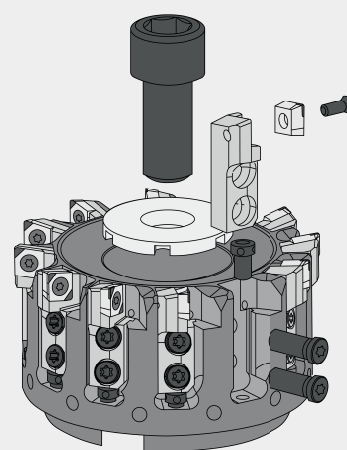
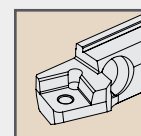
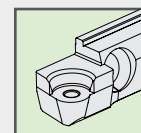
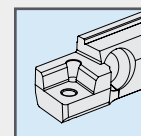
each with **steel** or **aluminum** base body

Ø50mm	Ø100mm	Ø200mm
Ø63mm	Ø125mm	Ø250mm
Ø80mm	Ø160mm	Ø315mm
		Ø400mm



### Benefits of this cassette milling system:

- one base body for 3 different exchangeable cassettes
- with internal cooling
- balancing screw holes for fine balancing
- exact adjustability in the height of the cassettes
- use of wide finishing inserts for best surfaces
- PCD, CVD-D and CBN inserts from stock



## Milling Cutter Systems with adjustable Cartridges

Steel Base Body from 50mm to 400mm

First choice for face/corner milling, with the option of combined roughing/finishing machining through the use of Wide finishing inserts\*.

\*use only on 90° cassettes

Round FullFace inserts for face milling allow multiple use.

The plate types for semi-finishing use, with less cutting pressure, mainly for more filigree components.



CPGW 09|12



RPGW 10

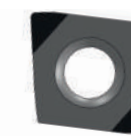
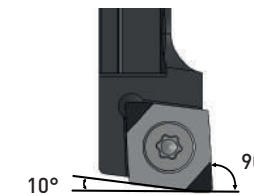


SPGW 09|12



CPGW 09|12

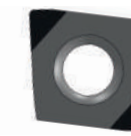
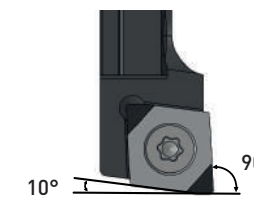
90° Cartridge System  
for face milling



CPGW 09|12

- 2-edge tipped face and corner milling inserts
- CPGW 09T302 - 12 in Z2 CL 3,00 - 6,00 mm
- CPGW 120404 - 12 in Z2 CL 8,00 mm
- From stock in PCD, CVD-D and CBN

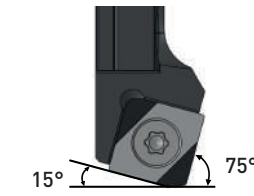
90° Cartridge System  
for face milling



CPGW 09|12  
Wiper Finish

- 2-edge tipped finish inserts
- CPGW 09T302 - 04 in Z2 CL 3,00 mm
- CPGW 120404 - 08 in Z2 CL 3,00 mm
- From stock in PCD, CVD-D and CBN

75° Cartridge System  
for face milling



SPGW 09|12

- 2-edge tipped face milling inserts
- SPGW 09T302 - 08 in Z2 CL 5,50 mm
- SPGW 120404 - 12 in Z2 CL 7,50 mm
- From stock in PCD, CVD-D and CBN

90° Cartridge System  
for face milling



RPGW 10

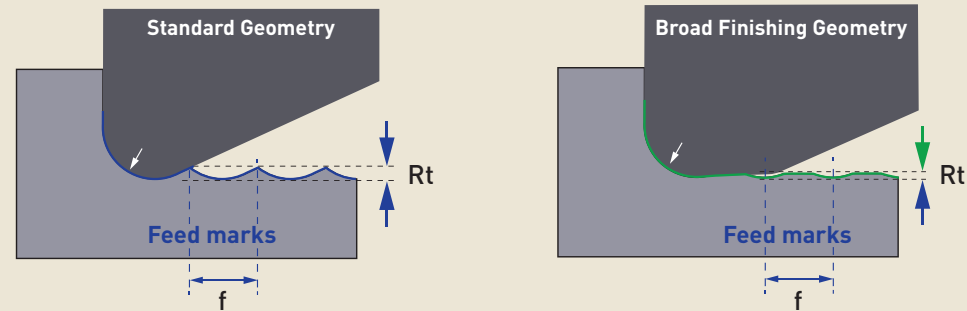
- Face and corner milling inserts
- RPGW 10T3M0 FullFace
- From stock in PCD, CVD-D and CBN



## Finish Milling Inserts

for cardige milling cutters, for the best surface

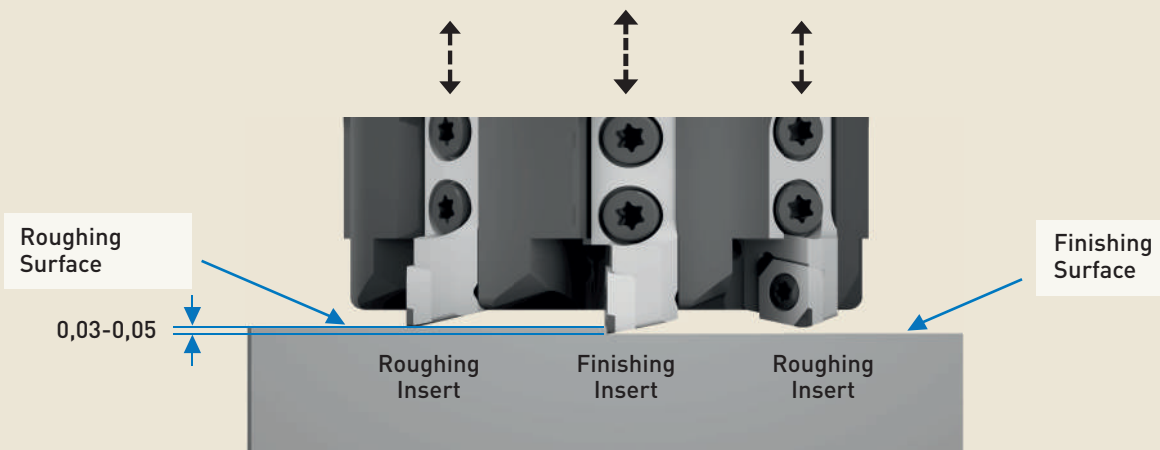
### Finish Milling Inserts:



When using DTS finish Milling Inserts, you can improve the surface quality by a factor of 3 to 4 at the same feed rate. Special requests are also possible, precisely adapted to your machining process.

### Roughing and Finishing in one Process:

The cassette technology allows precise height adjustments of the cutting edges down to 5µm.

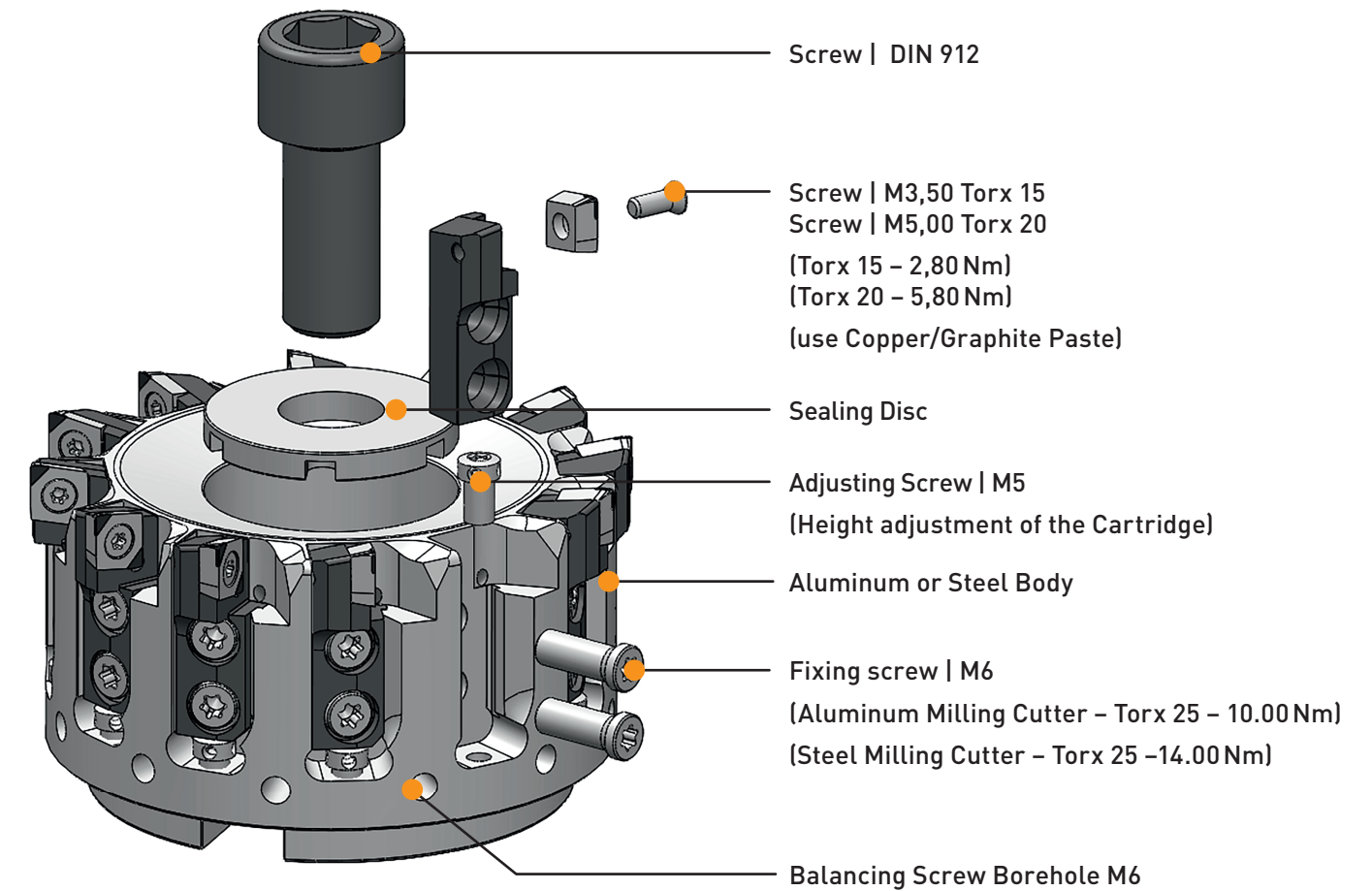


By increasing the height of the finishing milling insert, it is possible to realize a rough-finishing cut with one cut.

Thus, a significantly better surface quality can be produced in one cut.

## Adjustment Instructions Milling Cutter

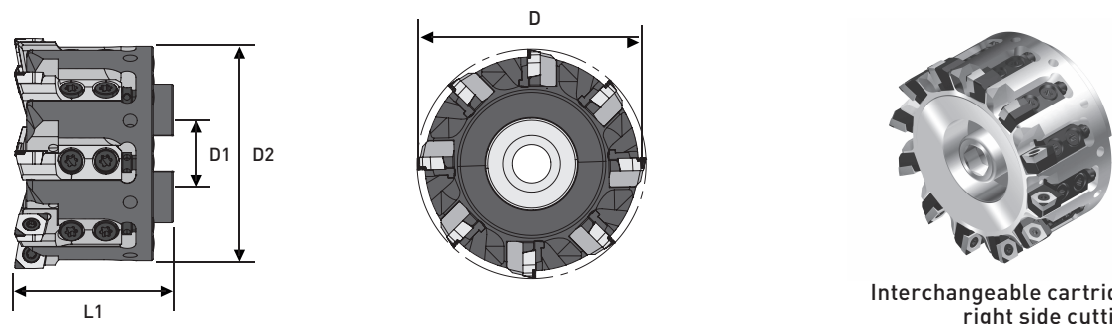
for aluminum and steel bodies



- 1 - Place the base body on the SK - HSK - etc. interface
- 2 - Insert the Sealing Disc
- 3 - Tighten DIN 912 screw
- 4 - Screw in the M5 adjusting screw
- 5 - Insert the cartridge
- 6 - Apply fastening screw M6
- 7 - Insert the milling plates into the cartridge (use copper graphite paste on the screw)
- 8 - Tighten the milling plate screw with torque wrench 2.8 Nm
- 9 - Adjust all cutting edges on height difference max. 0.005 mm with the adjusting screw M5
- 9.1 - If you use finishing inserts Set them 0.01 mm to 0.03 mm higher
- 10 - Tighten the fastening screw with torque wrench 10/14 Nm
- 11 - Check milling cutter for imbalance - if necessary, balance

# Complete Set for CPGW Milling Inserts

for adjustable cassette milling cutter with internal cooling



Interchangeable cartridge system,  
right side cutting  
Steel- or aluminum body

Including base body, exchangeable cartridges and accessories | Excluding milling inserts and chuck

D	Base Body	Item No.	D1	D2	L1	Z	n max	Cartridges
50,00	Steel	FK7000-0210	22,00	40,00	57,00	4	24.000	CPGW 09 / 90°
50,00	Aluminum	FK7500-0210	22,00	40,00	57,00	4	24.000	CPGW 09 / 90°
63,00	Steel	FK7000-0220	22,00	40,00	54,00	6	22.000	CPGW 09 / 90°
63,00	Aluminum	FK7500-0220	22,00	40,00	54,00	6	22.000	CPGW 09 / 90°
80,00	Steel	FK7000-0230	27,00	48,00	54,00	8	20.000	CPGW 09 / 90°
80,00	Aluminum	FK7500-0230	27,00	48,00	54,00	8	20.000	CPGW 09 / 90°
100,00	Steel	FK7000-0240	32,00	80,00	58,00	12	18.000	CPGW 09 / 90°
100,00	Aluminum	FK7500-0240	32,00	80,00	58,00	12	18.000	CPGW 09 / 90°
125,00	Steel	FK7000-0250	40,00	100,00	59,00	14	16.000	CPGW 09 / 90°
125,00	Aluminum	FK7500-0250	40,00	100,00	59,00	14	16.000	CPGW 09 / 90°
160,00	Steel	FK7002-0260	40,00	130,00	61,00	17	14.000	CPGW 12 / 90°
160,00	Aluminum	FK7502-0260	40,00	130,00	61,00	17	14.000	CPGW 12 / 90°
200,00	Steel	FK7002-0270	60,00	160,00	61,00	19	12.000	CPGW 12 / 90°
200,00	Aluminum	FK7502-0270	60,00	160,00	61,00	19	12.000	CPGW 12 / 90°
250,00	Steel	FK7002-0280	60,00	220,00	69,00	22	10.000	CPGW 12 / 90°
250,00	Aluminum	FK7502-0280	60,00	220,00	69,00	22	10.000	CPGW 12 / 90°
315,00	Steel	FK7002-0290	60,00	225,00	76,00	27	8.000	CPGW 12 / 90°
315,00	Aluminum	FK7502-0290	60,00	225,00	76,00	27	8.000	CPGW 12 / 90°
400,00	Steel	FK7002-0301	60,00	230,00	80,00	31	7.000	CPGW 12 / 90°
400,00	Aluminum	FK7502-0301	60,00	230,00	80,00	31	7.000	CPGW 12 / 90°

### Application range:

- **PCD** Aluminum < 10% Si, Brass, Graphite coarse-grained, Plastics, Zinc ...
- **CVD-D** Aluminum > 10% Si, Carbide > 8% Co, Copper, GFRP, CFRP, Glass materials, Graphite fine-grained, Titanium (Finishing) ...
- **CBN-H** General hardened steels up to 72 HRC ...
- **CBN-K** Grey cast iron (GG), Ductile cast iron (GGG) ...
- **CBN-X** Tool steel up to 72 HRC, Stellite, powder metallurgical Steel, Stainless Steel hardened, Ni-, Co-, Fe- and Cr-Alloys ...

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

# CPGW Fräswendeplatten

for adjustable cassette milling cutter with internal cooling

for face and corner milling  
2-edge tipped

● **PCD**  
Diamond

● **CVD-D**  
Diamond

● **CBN-H**

● **CBN-K**

● **CBN-X**

ISO Code	CL	S	R	Item No.	Item No.	Item No.	Item No.	Item No.
CPGW 09T302	3,50	3,97	0,20	MI1091-0111	MI2091-0111	MI5091-0111	MI5591-0111	MI5991-0111
CPGW 09T304	3,50	3,97	0,40	MI1091-0113	MI2091-0113	MI5091-0113	MI5591-0113	MI5991-0113
CPGW 09T308	3,50	3,97	0,80	MI1091-0115	MI2091-0115	MI5091-0115	MI5591-0115	MI5991-0115
CPGW 09T312	3,50	3,97	1,20	MI1091-0117	MI2091-0117	MI5091-0117	MI5591-0117	MI5991-0117

Also available with UltraDiamond on request

for face and corner milling  
2-edge tipped

● **PCD**  
Diamond

● **CVD-D**  
Diamond

● **CBN-H**

● **CBN-K**

● **CBN-X**

ISO Code	CL	S	R	Item No.	Item No.	Item No.	Item No.	Item No.
CPGW 09T302	6,00	3,97	0,20	MI1091-0110	MI2091-0110	MI5091-0110	MI5591-0110	MI5991-0110
CPGW 09T304	6,00	3,97	0,40	MI1091-0112	MI2091-0112	MI5091-0112	MI5591-0112	MI5991-0112
CPGW 09T308	6,00	3,97	0,80	MI1091-0114	MI2091-0114	MI5091-0114	MI5591-0114	MI5991-0114
CPGW 09T312	6,00	3,97	1,20	MI1091-0116	MI2091-0116	MI5091-0116	MI5591-0116	MI5991-0116

for face and corner milling  
2-edge tipped

● **PCD**  
Diamond

● **CVD-D**  
Diamond

● **CBN-H**

● **CBN-K**

● **CBN-X**

ISO Code	CL	S	R	Item No.	Item No.	Item No.	Item No.	Item No.
CPGW 120404	8,00	4,76	0,40	MI1091-0142	MI2091-0142	MI5091-0142	MI5591-0142	MI5991-0142
CPGW 120408	8,00	4,76	0,80	MI1091-0144	MI2091-0144	MI5091-0144	MI5591-0144	MI5991-0144
CPGW 120412	8,00	4,76	1,20	MI1091-0146	MI2091-0146	MI5091-0146	MI5591-0146	MI5991-0146

Finish insert  
(Wiper)  
2-edge tipped

● **PCD**  
Diamond

● **CVD-D**  
Diamond

● **CBN-H**

● **CBN-K**

● **CBN-X**

ISO Code	CL	S	R	Item No.	Item No.	Item No.	Item No.	Item No.
CPGW 09T302	3,00	3,97	0,20	MI1091-0119	MI2091-0119	MI5091-0119	MI5591-0119	MI5991-0119
CPGW 09T304	3,00	3,97	0,40	MI1091-0120	MI2091-0120	MI5091-0120	MI5591-0120	MI5991-0120
CPGW 120404	3,00	4,76	0,40	MI1091-0150	MI2091-0150	MI5091-0150	MI5591-0150	MI5991-0150
CPGW 120408	3,00	4,76	0,80	MI1091-0152	MI2091-0152	MI5091-0152	MI5591-0152	MI5991-0152

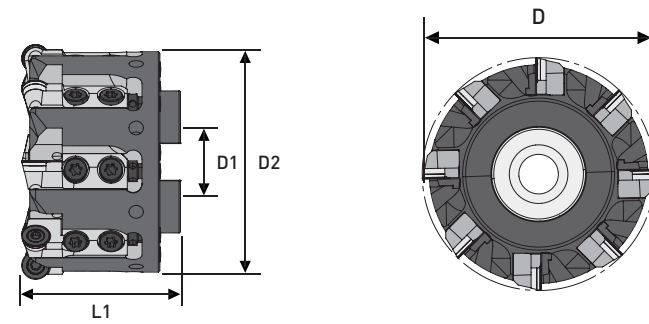
Also available with UltraDiamond on request

Subject to technical changes.

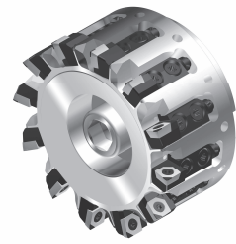


# Complete Set for RPGW Milling Inserts

for adjustable cassette milling cutter with internal cooling



Graphic with CPGW inserts



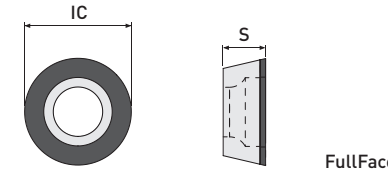
Interchangeable cartridge system,  
right side cutting  
Steel- or aluminum body

Including base body, exchangeable cartridges and accessories | Excluding milling inserts and chuck.

D	Base Body	Item No.	D1	D2	L	Z	n max	Cartridges
50,00	Steel	FK7005-0210	22,00	40,00	57,00	4	24.000	RPGW 10 / 90°
50,00	Aluminum	FK7505-0210	22,00	40,00	57,00	4	24.000	RPGW 10 / 90°
63,00	Steel	FK7005-0220	22,00	40,00	54,00	6	22.000	RPGW 10 / 90°
63,00	Aluminum	FK7505-0220	22,00	40,00	54,00	6	22.000	RPGW 10 / 90°
80,00	Steel	FK7005-0230	27,00	48,00	54,00	8	20.000	RPGW 10 / 90°
80,00	Aluminum	FK7505-0230	27,00	48,00	54,00	8	20.000	RPGW 10 / 90°
100,00	Steel	FK7005-0240	32,00	80,00	58,00	12	18.000	RPGW 10 / 90°
100,00	Aluminum	FK7505-0240	32,00	80,00	58,00	12	18.000	RPGW 10 / 90°
125,00	Steel	FK7005-0250	40,00	100,00	59,00	14	16.000	RPGW 10 / 90°
125,00	Aluminum	FK7505-0250	40,00	100,00	59,00	14	16.000	RPGW 10 / 90°

# RPGW Fräswendeplatten and Accessories

for adjustable cassette milling cutter with internal cooling



ISO Code	IC	S	R	PCD Diamond Item No.	CVD-D Diamond Item No.	CBN-H Item No.	CBN-K Item No.	CBN-X Item No.
RPGW 10T3M0	10,00	3,97	M0	MI1092-0110	MI2092-0110	MI5092-0110	MI5592-0110	MI5992-0110

## Accessories:

D	Type	Base Body	Sealing Disc	Cartridges	Fixing Screw	Adjusting Screw	Insert Clamping Screw
50	Steel	FK7060-0210		01-FK7091-0270	01-FK7090-0227	01-FK7090-0223	01-KL9060-0006
	Aluminum	FK7560-0210					
63	Steel	FK7060-0220		01-FK7091-0270	01-FK7090-0227	01-FK7090-0223	01-KL9060-0006
	Aluminum	FK7560-0220					
80	Steel	FK7060-0230	01-FK7090-0230	01-FK7091-0235	01-FK7090-0225	01-FK7090-0223	01-KL9060-0006
	Aluminum	FK7560-0230					
100	Steel	FK7060-0240	01-FK7090-0240	01-FK7091-0235	01-FK7090-0225	01-FK7090-0223	01-KL9060-0006
	Aluminum	FK7560-0240					
125	Steel	FK7060-0250	01-FK7090-0250	01-FK7091-0235	01-FK7090-0225	01-FK7090-0223	01-KL9060-0006
	Aluminum	FK7560-0250					

### Application range:

- **PCD** Aluminum < 10% Si, Brass, Graphite coarse-grained, Plastics, Zinc ...
- **CVD-D** Aluminum > 10% Si, Carbide > 8% Co, Copper, GFRP, CFRP, Glass materials, Graphite fine-grained, Titanium (Finishing) ...
- **CBN-H** General hardened steels up to 72 HRC ...
- **CBN-K** Grey cast iron (GG), Ductile cast iron (GGG) ...
- **CBN-X** Tool steel up to 72 HRC, Stellite, powder metallurgical Steel, Stainless Steel hardened, Ni-, Co-, Fe- and Cr-Alloys ...

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



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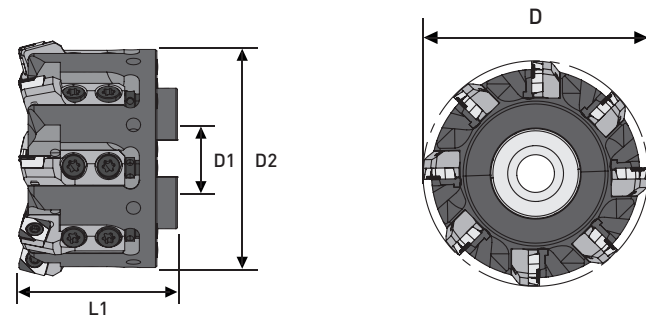
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Subject to technical changes.

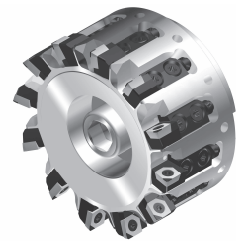


# Complete Set for SPGW Milling Inserts

for adjustable cassette milling cutter with internal cooling



Graphic with CPGW inserts



Interchangeable cartridge system, right side cutting  
Steel- or aluminum body

Including base body, exchangeable cartridges and accessories | Excluding milling inserts and chuck.

D	Base Body	Item No.	D1	D2	L	Z	n max	Cartridges
80,00	Steel	FK7006-0230	27,00	48,00	55,00	8	20.000	SPGW 09 / 75°
80,00	Aluminum	FK7506-0230	27,00	48,00	55,00	8	20.000	SPGW 09 / 75°
100,00	Steel	FK7006-0240	32,00	80,00	59,00	12	18.000	SPGW 09 / 75°
100,00	Aluminum	FK7506-0240	32,00	80,00	59,00	12	18.000	SPGW 09 / 75°
125,00	Steel	FK7006-0250	40,00	100,00	60,00	14	16.000	SPGW 09 / 75°
125,00	Aluminum	FK7506-0250	40,00	100,00	60,00	14	16.000	SPGW 09 / 75°
160,00	Steel	FK7007-0260	40,00	130,00	62,00	17	14.000	SPGW 12 / 75°
160,00	Aluminum	FK7507-0260	40,00	130,00	62,00	17	14.000	SPGW 12 / 75°
200,00	Steel	FK7007-0270	60,00	160,00	62,00	19	12.000	SPGW 12 / 75°
200,00	Aluminum	FK7507-0270	60,00	160,00	62,00	19	12.000	SPGW 12 / 75°
250,00	Steel	FK7007-0280	60,00	220,00	70,00	22	10.000	SPGW 12 / 75°
250,00	Aluminum	FK7507-0280	60,00	220,00	70,00	22	10.000	SPGW 12 / 75°
315,00	Steel	FK7007-0290	60,00	225,00	77,00	27	8.000	SPGW 12 / 75°
315,00	Aluminum	FK7507-0290	60,00	225,00	77,00	27	8.000	SPGW 12 / 75°
400,00	Steel	FK7007-0301	60,00	230,00	81,00	31	7.000	SPGW 12 / 75°
400,00	Aluminum	FK7507-0301	60,00	230,00	81,00	31	7.000	SPGW 12 / 75°

### Application range:

- **PCD** Aluminum < 10% Si, Brass, Graphite coarse-grained, Plastics, Zinc ...
- **CVD-D** Aluminum > 10% Si, Carbide > 8% Co, Copper, GFRP, CFRP, Glass materials, Graphite fine-grained, Titanium (Finishing) ...
- **CBN-H** General hardened steels up to 72 HRC ...
- **CBN-K** Grey cast iron (GG), Ductile cast iron (GGG) ...
- **CBN-X** Tool steel up to 72 HRC, Stellite, powder metallurgical Steel, Stainless Steel hardened, Ni-, Co-, Fe- and Cr-Alloys ...

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

# SPGW Milling Inserts and Accessories

for adjustable cassette milling cutter with internal cooling

ISO Code	CL	S	R					
				Item No.	Item No.	Item No.	Item No.	Item No.
SPGW 09T302	5,50	3,97	0,20	MI1091-0160	MI2091-0160	MI5091-0160	MI5591-0160	MI5991-0160
SPGW 09T304	5,50	3,97	0,40	MI1091-0162	MI2091-0162	MI5091-0162	MI5591-0162	MI5991-0162
SPGW 09T308	5,50	3,97	0,80	MI1091-0164	MI2091-0164	MI5091-0164	MI5591-0164	MI5991-0164
SPGW 120404	7,50	4,76	0,40	MI1091-0172	MI2091-0172	MI5091-0172	MI5591-0172	MI5991-0172
SPGW 120408	7,50	4,76	0,80	MI1091-0174	MI2091-0174	MI5091-0174	MI5591-0174	MI5991-0174
SPGW 120412	7,50	4,76	1,20	MI1091-0176	MI2091-0176	MI5091-0176	MI5591-0176	MI5991-0176

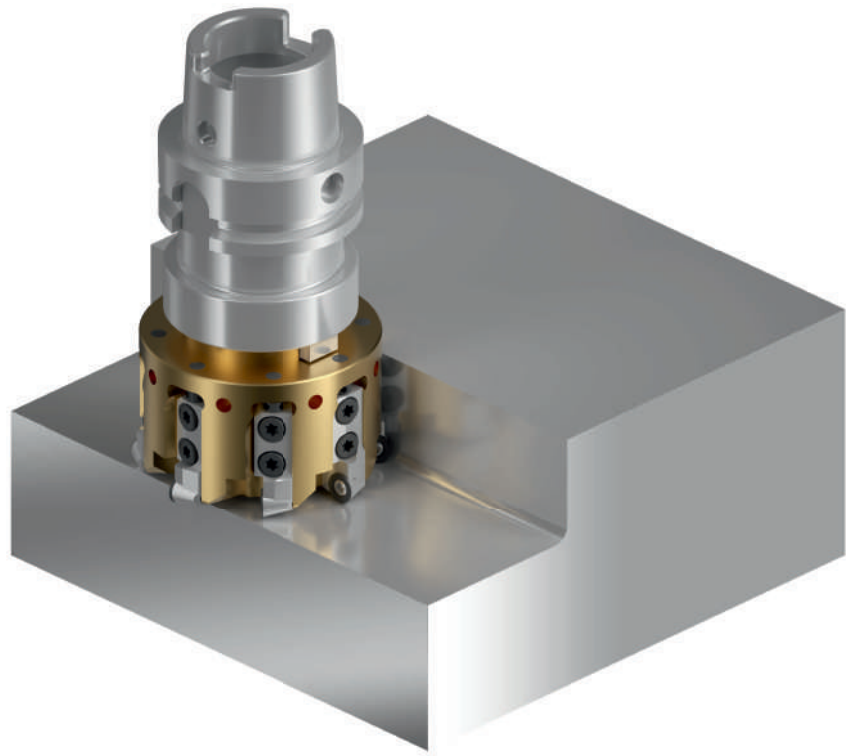
### Accessories:

D	Type	Base Body	Sealing Disc	Cartridges	Fixing Screw	Adjusting Screw	Insert Clamping Screw
80	Steel	FK7060-0230	01-FK7090-0230	01-FK7091-0240	01-FK7090-0225	01-FK7090-0223	01-KL7090-9021
	Aluminum	FK7560-0230					
100	Steel	FK7060-0240	01-FK7090-0240	01-FK7091-0240	01-FK7090-0225	01-FK7090-0223	01-KL7090-9021
	Aluminum	FK7560-0240					
125	Steel	FK7060-0250	01-FK7090-0250	01-FK7091-0240	01-FK7090-0225	01-FK7090-0223	01-KL7090-9021
	Aluminum	FK7560-0250					
160	Steel	FK7060-0260	01-FK7090-0260	01-FK7091-0245	01-FK7090-0226	01-FK7090-0223	01-FK7090-0213
	Aluminum	FK7560-0260					
200	Steel	FK7060-0270	01-FK7090-0270	01-FK7091-0245	01-FK7090-0226	01-FK7090-0223	01-FK7090-0213
	Aluminum	FK7560-0270					
250	Steel	FK7060-0280	01-FK7090-0280	01-FK7091-0245	01-FK7090-0226	01-FK7090-0223	01-FK7090-0213
	Aluminum	FK7560-0280					
315	Steel	FK7060-0290	01-FK7090-0290	01-FK7091-0245	01-FK7090-0226	01-FK7090-0223	01-FK7090-0213
	Aluminum	FK7560-0290					
400	Steel	FK7060-0301	01-FK7090-0291	01-FK7091-0245	01-FK7090-0226	01-FK7090-0223	01-FK7090-0213
	Aluminum	FK7560-0301					

Subject to technical changes.

# Formulas

## Milling



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

### ▶ Cutting speed

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

### ▶ Spindle speed

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

### ▶ Feed per tooth

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

### ▶ Feed per revolution

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

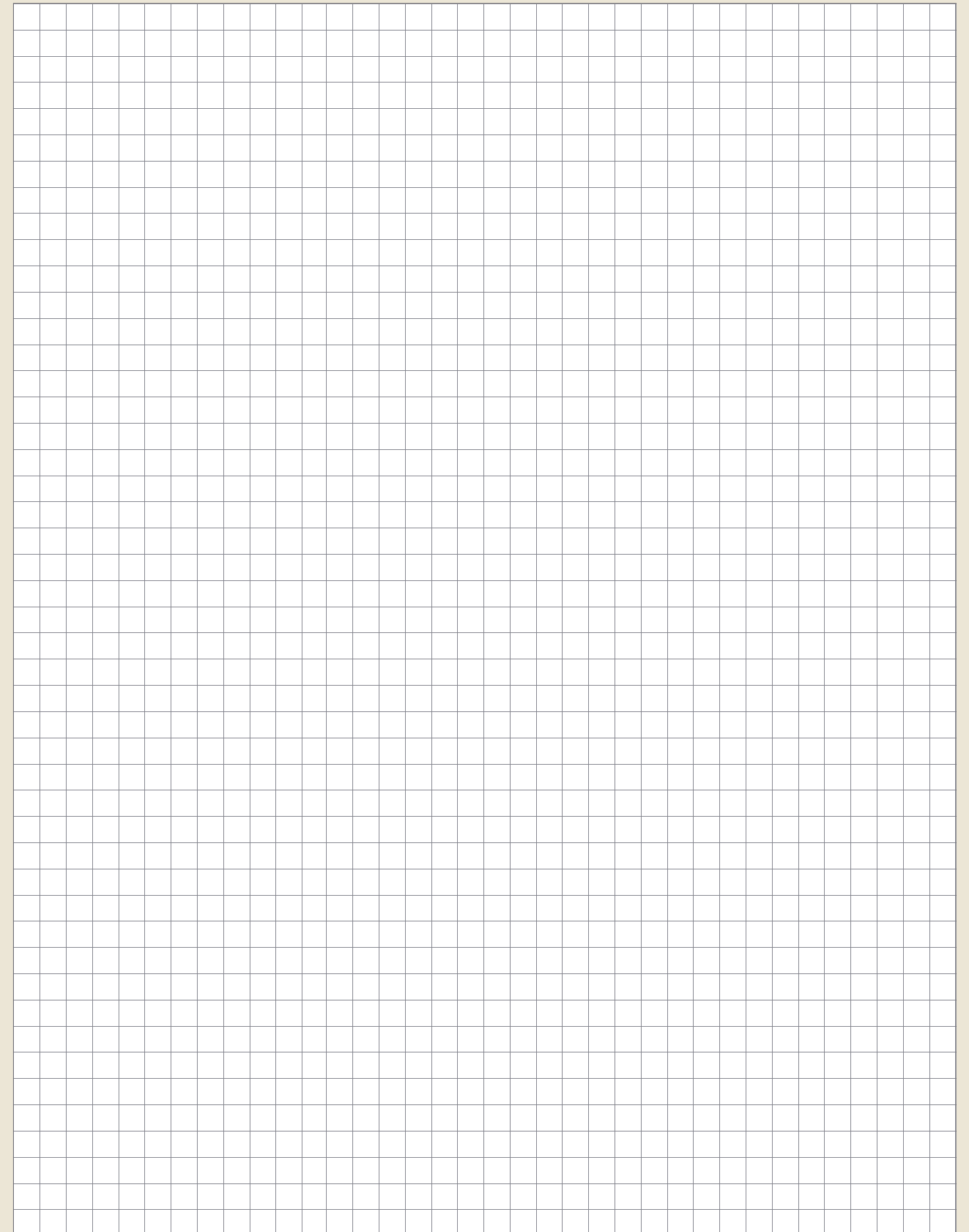
### ▶ Machine performance

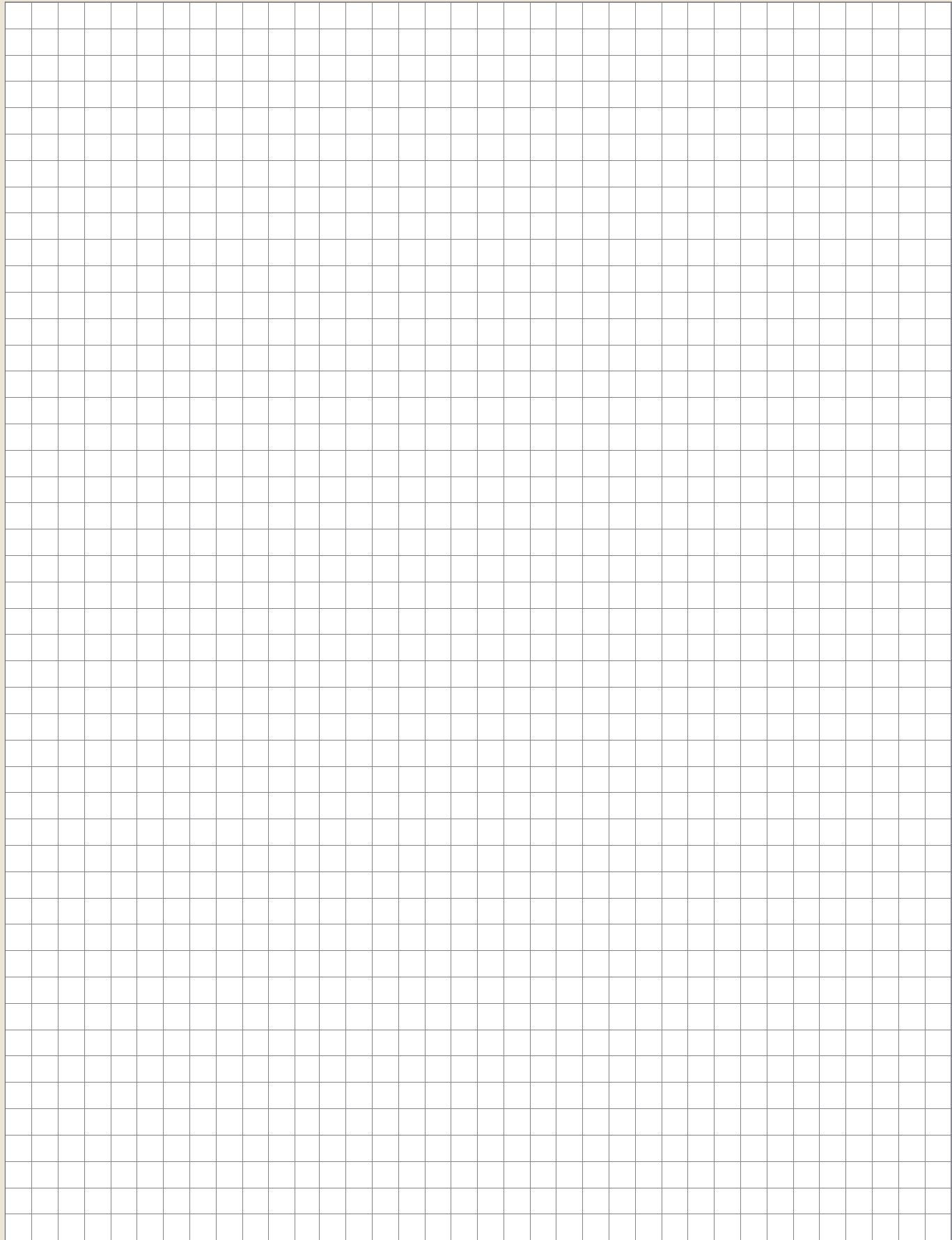
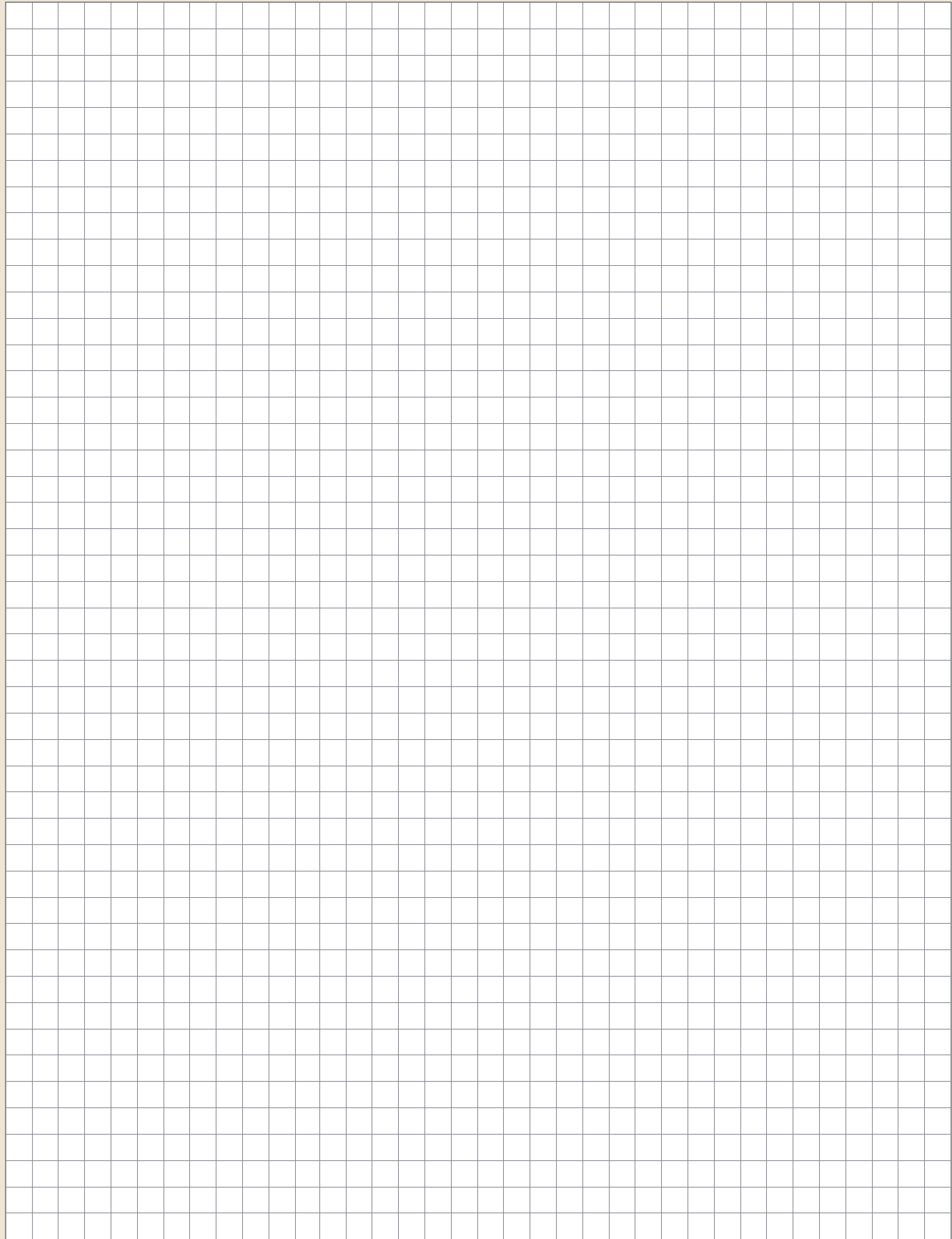
$$P = \frac{a_p \times a_e \times V_f}{1800} \quad [\text{kW}]$$

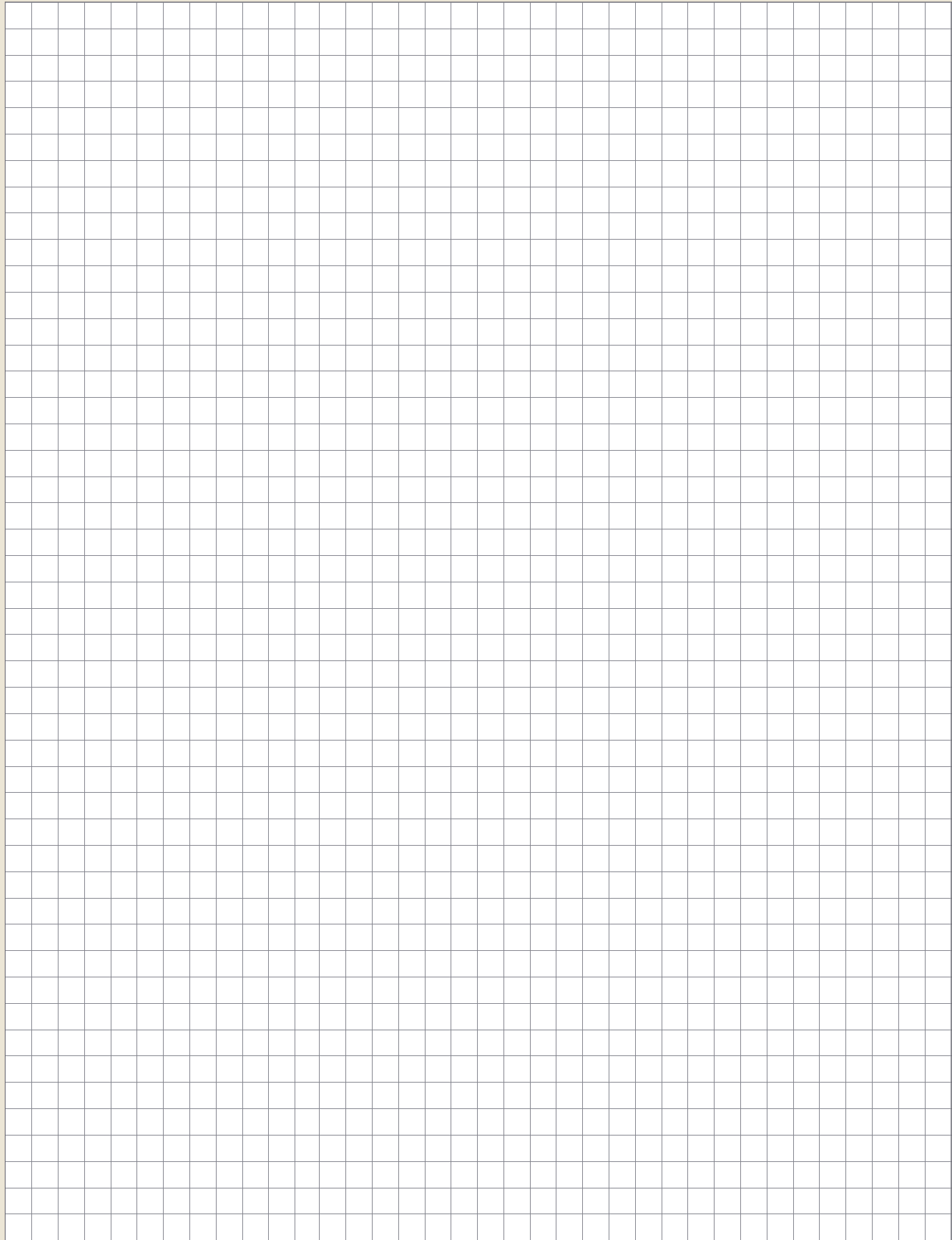
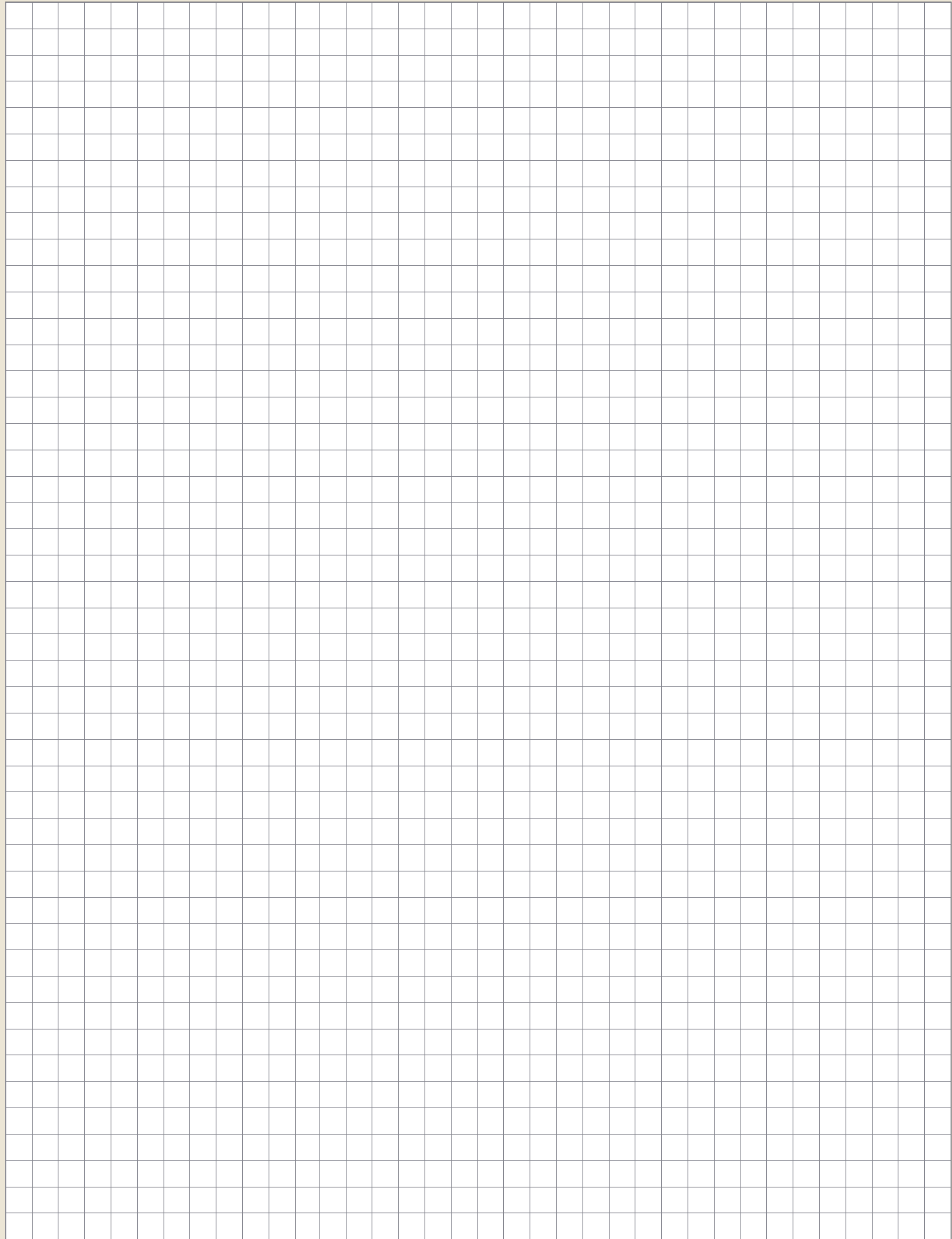
### ▶ Stock removal rate

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

## Your notes













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