



CUTTING TOOL CATALOGUE



Company Profile

Canzhou Achteck Tool Technology Co., Ltd. is a wholly-owned subsidiary of Chengyi Zhongyuan Tungsten Co., Ltd. (Listed Company with stock code 002278). The registered capital of Achteck is 280 million USD with 600 employees. The main products include: Coated Carbide Inserts, Carbide Rods and etc. Achteck has the outstanding R&D competence, the production and testing equipments, and the coated carbide insert production technology. The inserts covering Turning, Grooving, Milling and Drilling are widely applied in automotive, energy, die & mold, general machinery, aerospace and other industries.

Achteck Tool is technology oriented, owns a strong research team and keeps on innovation. Having "Benefit from Resources, Reliance on Technologies, Devotion to Humanity and Top with Trust" as the operation philosophy and "Safety, Harmony, Efficiency and Innovation" as the target, Achteck aims to become a well-known brand in the world and a first-class cemented carbide manufacturer in China.



Swiss Tool Inserts

2021
NEW!



AP301M Features

PVD grade for stainless steel turning

Good machining performance, reduced built up edge, better surface finish, and longer tool life
Substratum cemented carbide substrate combined with nanostructured multi layer PVD coating

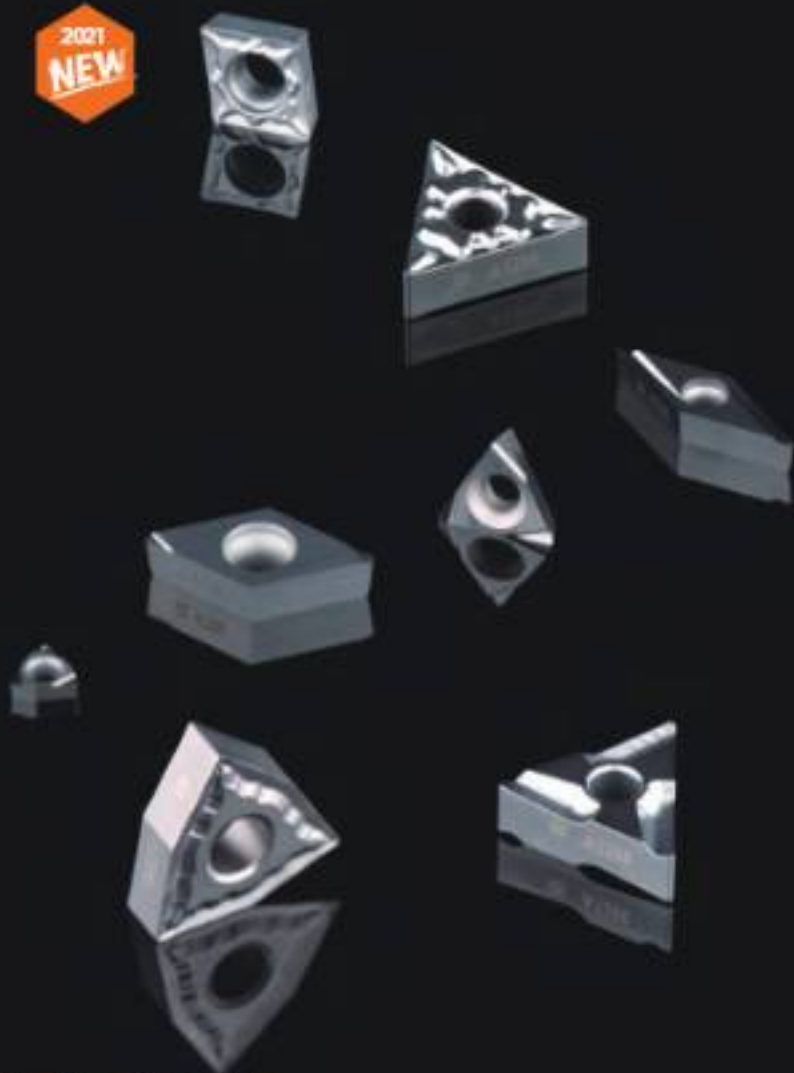
Good wear resistance and chipping resistance

Obtain more reliable machining performance

For continuous and interrupt cutting

Cermet

AT200



Product Features and Applications

- Suitable for steel and cast iron finish and semi-finish turning, high oxidation resistance, can be used in high-speed dry machining
- High chemical stability effectively reduced built up edge to obtain better surface finish

Grooving Tool

2021
NEW



Product Features and Applications

- Holders can cover external, internal and face grooving.
- Insert width range 2-9mm
- Three parting and grooving geometries: CS, CM, CI
- Two turning geometries: TM, TS
- Two profiling geometries: RA
- High precision ground insert series, covering 1-9mm insert width, can be used in parting, grooving and profiling machining.
- Unique rake geometry design combined with double relief angle on the flank, obtained more clearance in smaller diameter face grooving and internal grooving

Profile Milling

APM00-RO

Product Features and Applications

- Main applications in blade and aircraft component profile milling
- Inserts are with anti-rotation design
- New APSC25 and APSC30 grade can cover stainless steel and super alloy machining
- Cutter diameter range: Ø25mm ~ Ø150mm
- MM3 geometry, precision ground flank and optimized cutting edge treatment, offer longer insert tool life
- Multiple coupling types: screw clamping, cylindrical shank and arbor cutter



ACHTECK
USA: ACHTECK.COM

Product Features and Applications

- AFF40-LN12/LN15 series cutters are mainly used to cast iron engine cylinder block, cylinder head and other kinds of valve housing type milling.
- The cutter used all approaching angle, close pitch design guaranteed high productivity.
- Stable wedge clamping for main cutting inserts, easy to handle.
- Wiper inserts are easy to be adjusted and reliable, can achieve good surface finish.
- 10 cutting edges of each insert, offer consistent performance and high cost efficiency.
- Cutter surface is hardened, with high precision insert pockets, and good wear resistance.



AFF40-LN12/LN15

Cast Iron Finishing Milling Cutter



Product Features and Applications

LN09 Insert series can be used not only in square shoulder milling cutter, but also in grooving cutter.

- Accurate 90° square shoulder milling cutter provides excellent verticality.
- Tangential mounted insert design offers strong insert toughness with better cutter rigidity.
- Positive axial angle design makes the cutting smooth. 45°-less insert tolerance offers high repeatability of insert positioning.
- Double-ended 2-edge insert, more cost efficient choice, while each insert is with sharp edge which can obtain good surface finish.
- Full tooth type of grooving milling cutter, with high metal removal rate, large cutting depth, high efficiency, known as the "powerful tool for rough machining".

LN09

Shoulder Milling

Product Features and Applications

- Product range 2Flute and 3Flute. With internal and external coolant.
- Diameter range 2-18mm
- 135° drill tip angle design, good re-settling, suitable for drilling in different materials
- Nanostructured PVD coating technology improves the toughness and wear resistance of tools.



D106

Solid Carbide Drill for Universal Use



AP6250/05/01 milling outer with hexagonal inserts, extra close pitch with wedge clamping, combined with heat resistant CVD coated inserts. The ideal choice of cast iron rough milling.



AP6250/05/01/12 peripheral milling outer uses tangential insert with helical edge profile. The high strength inserts have 4 cutting edges, offering high productivity, machining reliability and cost efficiency.



AP6250/05/01/12 square shoulder milling outer with 4 cutting edge tangential inserts with helical edge profile. The reliable cutting edge can adapt increased fz by 30%, and also bring on higher metal removal rate and productivity.





ADDFUTE cast iron finish milling cutter combined with cermet main cutting inserts and index inserts. It's cost efficient and easy to handle. The good wear resistant grade and high precision cutting edge guaranteed excellent surface finishing and longer tool life.



D100 drill series, the substrate has both hardness and toughness, combined with high wear resistant PVD coating, it can reach higher tool life in cast iron machining. The unique drill tip geometry can reduce the edge chipping.

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Machining Solutions for Engine Block

ACHTECK

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Turbocharger Housing Application Case



Special side face milling cutter used in machining the back face of flange.



ASM90-L113 square shoulder milling cutter with tangential mounted inserts. The insert has 4 cutting edges, can be used to machine the boss surface on the turbocharger.



APM00-0100-0101, with 45 degree approach angle, using 16 cutting edge insert with super edge. Used in finish milling the flange face of turbocharger casing.



APM00-0100-0101 face milling cutter with hardfaced inserts, 16 cutting edges, with nanostructured PVD coating. Used in rough milling the flange face, with a high performance/price ratio.





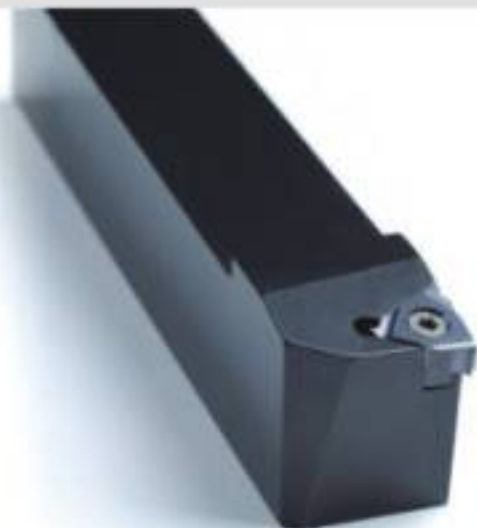
AP100S/AP201M PVD grades, used in rough external turning and face turning of turbocharger housing.



ATD grooving insert series can be used in external, face and V-shaped grooving.



Special bearing test, used in the turbocharger housing bearing.

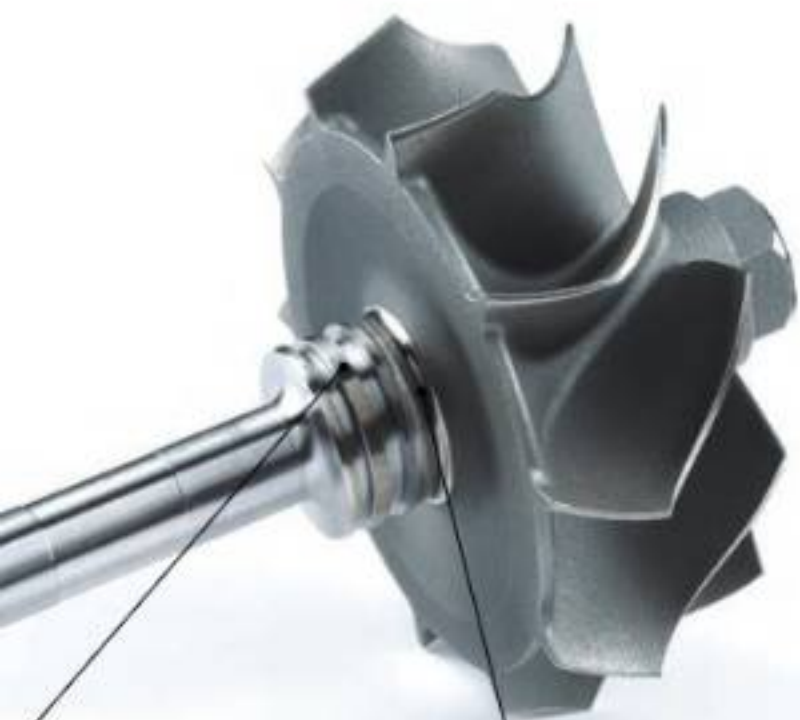


T802 1.00 ISO AP20TU Threading insert, used in
threading operation of turbine shaft.



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www.achtecktool.com

Turbine Shaft Machining Cases



Grooving holder ATSGR2509GT12 and
grooving insert ATG002TS AP001U are
used in external grooving of turbine shaft.



DMRG150600-903 AP1005, turning
insert for heat-resistant alloy, used in
braded surface contour machining



AP100-900-12 cutter used in rough milling of blade shroud.



AP100-900-12 square shoulder milling cutter with negative insert, 8 cutting edges, accurate 90 degree design, used in rough or finish milling blade root and shroud.

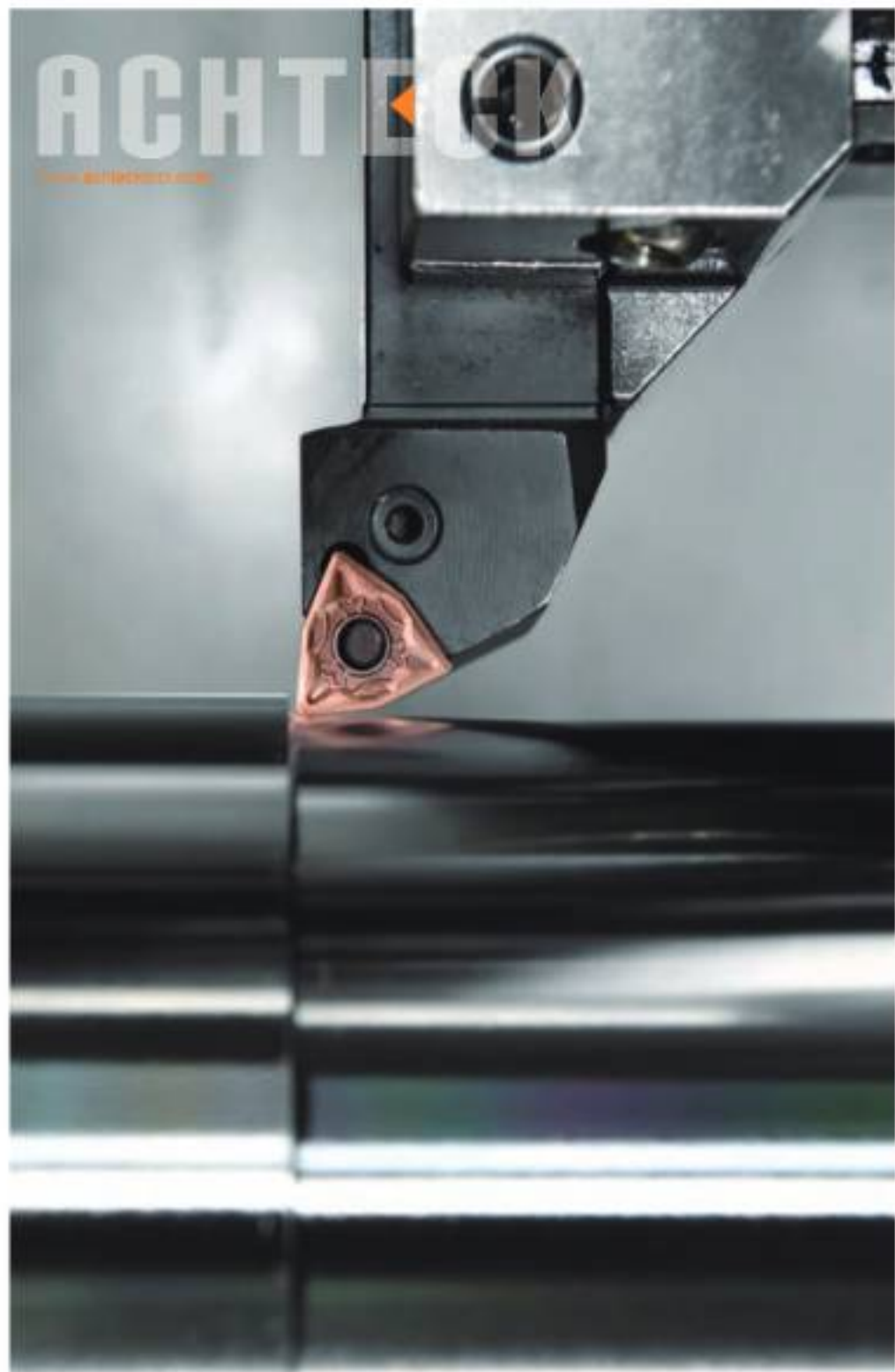
Steam Turbine and Aerospace Blade Solutions



ATM500-05M500-00 is used in rough milling the transition area between blade airfoil and root

ACHTER

www.achterdruck.com



CUTTING TOOL CATALOGUE

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ISO Turning Insert Denomination System

C	N			
1	2			
1- Shape code				
A	B	C	D	E
H	K	L	M	O
F	R	S	T	V
W	Z			
Others				

M	G		
2	4		
2- Clearance angle			
A	B	C	D
			
E	F	G	N
			
P	Q	Other clearance angle	
			

3- Reference



Class	Unit	In Circle dimension R, D	Nose height H	Thickness S
A	mm	+0.005	+0.005	+0.005
B	mm	+0.005	+0.010	+0.005
C	mm	+0.005	+0.005	+0.005
F	mm	+0.010	+0.005	+0.005
H	mm	+0.005	+0.005	+0.005
K	mm	+0.010	+0.010	+0.005
L	mm	+	+0.010	+0.005
M	mm	+	+	+0.005
O	mm	+	+	+0.005
R	mm	+	+	+0.005
S	mm	+	+	+0.005
T	mm	+	+	+0.005
V	mm	+	+	+0.005
W	mm	+	+	+0.005
Z	mm	+	+	+0.005

* For details refer to right and left hand tables

Shape C, E, H, M, Q, R, S, T, V, W				
IC	S		H, H	
	EXAMN	S	H, H	U
4.75	+0.005	+0.005	+0.005	+0.010
6.35	+0.005	+0.005	+0.005	+0.010
7.94	+0.005	+0.005	+0.005	+0.010
9.53	+0.005	+0.005	+0.005	+0.010
11.13	+0.005	+0.005	+0.005	+0.010
12.73	+0.005	+0.005	+0.005	+0.010
14.33	+0.005	+0.005	+0.005	+0.010
15.93	+0.005	+0.005	+0.005	+0.010
17.53	+0.005	+0.005	+0.005	+0.010
19.13	+0.005	+0.005	+0.005	+0.010
20.73	+0.005	+0.005	+0.005	+0.010
22.33	+0.005	+0.005	+0.005	+0.010
23.93	+0.005	+0.005	+0.005	+0.010
25.53	+0.005	+0.005	+0.005	+0.010
27.13	+0.005	+0.005	+0.005	+0.010
28.73	+0.005	+0.005	+0.005	+0.010
30.33	+0.005	+0.005	+0.005	+0.010

MINI shape	D shape		V shape	
IC	S	H	S	H
4.75	+0.005	+0.010	+0.005	+0.010
6.35	+0.005	+0.010	+0.005	+0.010
7.94	+0.005	+0.010	+0.005	+0.010
9.53	+0.005	+0.010	+0.005	+0.010
11.13	+0.005	+0.010	+0.005	+0.010
12.73	+0.005	+0.010	+0.005	+0.010
14.33	+0.005	+0.010	+0.005	+0.010
15.93	+0.005	+0.010	+0.005	+0.010

5- Type of Insert				
A	B	C	F	G
H	J	M	N	Q
R	T	U	W	Z
Special				

12

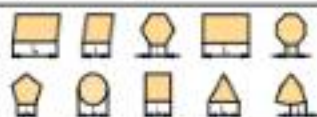
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04

6

5- Cutting edge length

In Code Dimension (mm)	Insert shape							
	Q	Q	Q	S	T	V	W	X
197					26		22	
217				25				
226				29				
417		26						
626	26	27			11	11	26	
817				26				
922	26	11	26	26	16	16	26	16
1017				10				
1217				16				
1217	12	12	12	12	22	22	26	
1527	16			16	16	27		
1617				16				
1622	16			16	16	26		
2017				22				
2217				26				
2217	22	22		22	22			
2417				27				
417				42				



6- Thickness

Round down plus zero or 1?

A, S, C, V, Q, W		Sample
		01 = 1.29
		T1 = 1.30
		02 = 2.29
		03 = 2.10
		T3 = 2.27
		04 = 4.79
		05 = 5.59
		06 = 6.29
		07 = 7.91
		08 = 9.52
		T1 = 11.11
		12 = 12.92
		13 = 14.29
		14 = 15.29

08

7

E

8

-

9

KC4

9

7- Round radius

Corner radius

Sample

VD = round insert (metric)

00 = Sharp

003 = 0.03

005 = 0.05

01 = 0.1

02 = 0.2

04 = 0.4

06 = 0.6

12 = 1.2

16 = 1.6

20 = 2.0

25 = 2.5

32 = 3.2

40 = 4.0

50 = 5.0

60 = 6.0

80 = 8.0

10 = 10.0

Z = Others



Edge

Approaching angle (A)

A = 45°

A = 60°

A = 75°

A = 90°

A = 97°

A = 100°

Z = Others

Ridge clearance angle (R)

R = 2°

R = 5°

R = 7°

R = 15°

R = 20°

R = 25°

R = 30°

R = 37°

R = 45°

Z = Others

8- Edge preparation

Code	Edge Shape	Illustration
0		Sharp cutting edge
1		Honed cutting edge
2		Negative Land
3		Negative land + honed cutting edge

9- Chip breaker illustration

Refer to page 122-23

General positive insert sample



Overview of Turning Insert Geometries

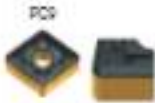
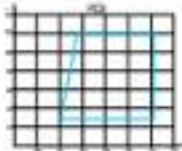
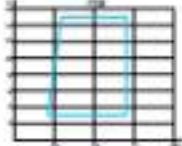
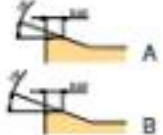
Negative Inserts

Application	Chip breaker	Features	Chip breaker range	Cross section geometry	
Finishing	PS1	First choice for steel finish turning. Light cutting chip breaker, low cutting force, suitable for machining slender shaft, thin wall and unstable clamping parts, good cutting performance.			A B
	MS2	First choice for stainless steel finish turning. High positive rake angle reduced cutting force and built-up edge, can obtain much better surface quality. Very good chip breaking at low feed and cutting depth.			A B
General turning	PS3	First choice for steel semi finish turning. The positive rake angle combined with small land guaranteed edge strength and sharpness, reduced the cutting force. The very side edge design has a good chip breaking result in out-dipping turning on the shoulder, and in profile turning at different cutting depths.			A B
	PC3	Alternative chipbreaker for steel semi finish turning. Unique geometry design offers wider chip breaking range. Double rake angle makes the cutting smooth. Balanced insert to reduced outer wear.			A B
Mediums	PC3	First choice for steel medium turning. It has a strong chip control ability at low feed and cutting depth, and reduces outer wear. The chip breaking is also very good at high feed and cutting depth due to the geometry design. Double rake angle design makes sharp cutting edge and reduces cutting force.			A B
	PC4	First choice for cast iron medium turning. Alternative chipbreaker for carbon steel and alloy steel medium turning. Flat T-land guarantees the strength of cutting edge. This multipurpose geometry can be used in universal applications.			A B
	PL5	First choice for steel slender shaft turning. Open chip breaker leads to a smooth turning with low cutting force, which is suitable for slender shaft turning.			A

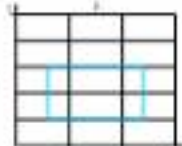
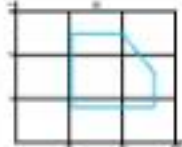
						
DNMG-PB1  P38 P42 P45 P48 P51 P52	DNMG-PB1  P42 P45 P48 P51 P52	DNMG-PB1  P45 P48 P51 P52	DNMG-PB1  P48 P51 P52	DNMG-PB1  P51 P52	DNMG-PB1  P52	
DNMG-MB2  P38 P42 P45 P48 P51 P52	DNMG-MB2  P42 P45 P48 P51 P52	DNMG-MB2  P45 P48 P51 P52	DNMG-MB2  P48 P51 P52	DNMG-MB2  P51 P52	DNMG-MB2  P52	
DNMG-PB3  P38 P42 P45 P48 P51 P52	DNMG-PB3  P42 P45 P48 P51 P52		DNMG-PB3  P48 P51 P52	DNMG-PB3  P51 P52	DNMG-PB3  P52	
DNMG-PC3  P38 P42 P45 P48 P51 P52	DNMG-PC3  P42 P45 P48 P51 P52	DNMG-PC3  P45 P48 P51 P52	DNMG-PC3  P48 P51 P52	DNMG-PC3  P51 P52	DNMG-PC3  P52	
DNMG-PC3  P38 P42 P45 P48 P51 P52	DNMG-PC3  P42 P45 P48 P51 P52	DNMG-PC3  P45 P48 P51 P52	DNMG-PC3  P48 P51 P52	DNMG-PC3  P51 P52	DNMG-PC3  P52	
DNMG-PC4  P38 P42 P45 P48 P51 P52	DNMG-PC4  P42 P45 P48 P51 P52	DNMG-PC4  P45 P48 P51 P52	DNMG-PC4  P48 P51 P52	DNMG-PC4  P51 P52	DNMG-PC4  P52	
			DNMG-PL3  P48			

Application	Chip breaker	Features	Chip breaker range	Cross section geometry	
Medium	SC3	First choice for high temperature alloy medium turning Used in medium turning high temperature alloy and titanium alloy. Large rake angle & small land width design, easy cutting and suitable in both axial turning.			A B
	MC3	First choice for stainless steel medium turning Sharp cutting edge, low cutting force, wide chip breaking range and chip removal ability.			A B
Roughing	PC8	Alternative chipbreaker for steel rough turning A strong cutting edge. Double rake angle design effectively reduces the cutting force, can still have good chip breaking at small cutting depth.			A B
	MC4	Alternative chipbreaker for stainless steel and superalloy rough turning Large chip breaker design, smooth chip evacuation, good chip breaking, with high metal removal rate.			A B
	IC4	First choice for cast iron rough turning It has strong cutting edge, reliable and stable performance.			A B
	IC8	First choice for cast iron rough turning High cutting edge strength, suitable for interrupted cutting and unstable cutting.			A
Heavy roughing	PC8	Light cutting geometry for heavy turning Positive rake angle and curved cutting edge design, low cutting force.			A B
	PC8	Heavy turning geometry for ash steel and stainless steel The geometry design ensures low cutting force. Suitable for low power machine tools. Applied in steel, stainless steel and cast iron heavy turning.			A B

						
DNMG-SC3  P39	DNMG-SC3  P42	DNMG-SC3  P45	TNMG-SC3  P48	VNMG-SC3  P51	WNMG-SC3  P52	
DNMG-MC3  P39	DNMG-MC3  P42	DNMG-MC3  P45	TNMG-MC3  P49	VNMG-MC3  P51	WNMG-MC3  P52	
DNMG-PD3  P40	DNMG-PD3  P44	DNMG-PD3  P46	TNMG-PD3  P50		WNMG-PD3  P53	
DNMG-MC4  P39	DNMG-MC4  P42	DNMG-MC4  P46	TNMG-MC4  P49		WNMG-MC4  P52	
DNMG-HC4  P40	DNMG-HC4  P44	DNMG-HC4  P46	TNMG-HC4  P49	VNMG-HC4  P51	WNMG-HC4  P52	
DNMA-HD5  P40	DNMA-HD5  P44	DNMA-HD5  P47	TNMA-HD5  P50		WNMA-HD5  P52	
DNMA-PD3  P41						
DNMA-PD3  P41		DNMA-PD3  P47	TNMA-PD3  P50			

Application	Chip breaker	Features	Chip breaker range	Cross section geometry	
Heavy turning	 PC9	First choice for steel heavy turning. This geometry is good for chip breaking. The geometry has a big space for chips, which is suitable for high metal removal rate.	 PC9	 A B	
	 PC9	Alternative chipbreaker for steel heavy turning. High edge strength is suitable for big cutting depth and high feed turning. High machining reliability.	 PC9	 A B	

Negative ground Insert

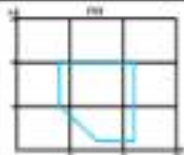
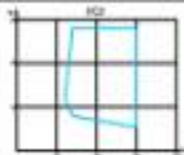
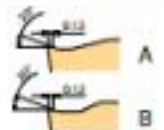
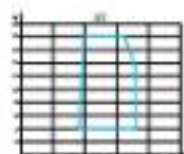
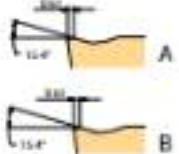
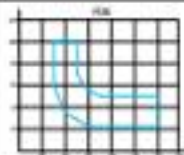
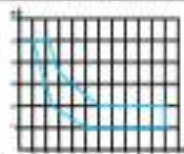
Application	Chip breaker	Features	Chip breaker range	Cross section geometry	
Finishing	 F	Finishing turning. Low cutting force, good chip control. The sharp edge produces a good surface finish.	 F	 A	
General turning roughing	 H	Light turning. Excellent chip control at low to medium feed rates. Strong edge strength.	 H	 A	

						
DNMM-PC9  P41		DNMM-PC9  P47				
DNMM-PC9  P41		DNMM-PC9  P47				

						
			THGG-F  P80			
			THGG-H  P80			

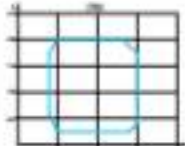
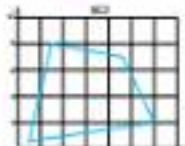
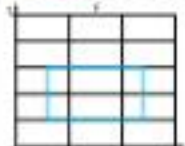
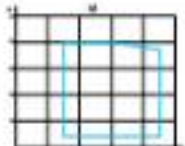
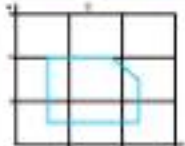
Overview of Turning Insert Geometries

Positive Inserts

Application	Chip breaker	Features	Chip breaker range	Cross section geometry 	
Finishing	PS1 	First choice for steel finish turning. Positive rake angle reduces cutting force and built-up edge, and obtains better surface finish and longer tool life. Also can be used in stainless steel turning.		 A B	
General turning	PC1 	First choice for steel and stainless steel semi finish turning. Sharp geometry design ensures low cutting force, less built-up edge and excellent chip control.		 A B	
Medium	VC2 	General purpose geometry for steel, stainless steel and cast iron turning. Suitable for medium and rough turning. Simple and durable chip breaker design, very good versatility and wide application range.		 A B	
Roughing	VC8 	Geometry for cast iron rough turning. Suitable for unstable machining due to its strong cutting edge. Reduced chipping.		 A	
	HT 	Geometry for steel turning with large cutting depth. Open chip breaker is suitable for large cutting depth with smooth chip evacuation. Good cost efficiency.		 A B	
Medium	PC8 	Geometry for carbon steel and alloy steel heavy turning. A wide chipbreaker avoid chip jam at big cutting depth. Chip control can be also good at small cutting depth.		 A	
	No code 	Alternative chipbreaker for cast iron and alloy steel medium turning. Negative land and big rake angle design ensure cutting edge strength and sharpness.		 A	

						
CCMT-PB1  P65	CCMT-PB1  P65	SCMT-PB1  P61	TNMG-PB1  P62	VNMG-PB1  P65		
CCMT-PC2  P65	CCMT-PC2  P65	SCMT-PC2  P61	TCMT-PC2  P62	VBMT-PC2 VCMTPC2  P65		
CCMT-HC2  P64	CCMT-HC2  P63	SCMT-HC2  P61	TCMT-HC2  P62	VBMT-HC2  P64		
CCMT-HC8  P65	CCMT-HC8  P63	SCMT-HC8  P61	TCMT-HC8  P62			
		SCMT-HT  P61				
						RCUHP08  P65
						RCUHC  P65

Positive ground inserts

Application	Chip breaker	Features	Chip breaker range	Cross section geometry 	
Finishing	LF 	First choice for high temperature alloy turning. Peripheral ground finish turning inserts with repeatability on insert positioning. Sharp cutting edge can achieve good machining tolerance.		 A  B	
Semi-finishing	HC2 	Choice for aluminum alloy turning. Very positive rake angle is designed for non-ferrous metal finish and semi-finish turning. It reduces the cutting force and makes smooth chip evacuation. The polished rake surface with reduced friction and built-up edge.		 A  B	
Finishing	F 	Choice for finish turning. Excellent chip control at low feed rates. Very low cutting force.		 A	
Low feed	M 	Geometry for low feed turning in automatic lathe. Excellent chip control at low to medium feed rates. Reliable machining. Big rake angle avoid work hardening.		 A	
	V 	Choice for Semi finish/rough turning in automatic lathe. The strong edge can be used in rough turning. Good chip control for low to medium feed rate.		 A	

						
 P55	 P52		 P62	 P66		
 P55	 P55	 P61	 P62	 P66		 P69
 P56	 P63		 P64	 P66, 67	 P68	
 P67	 P60		 P64	 P66, 67		
				 P67		

Grade Application Guide

Turning grade application for ISO material group										
Material Group	Materials	ISO	CVD coated				PVD coated		Uncoated	ISO
			AC150P	AC200P	AC250P	AC350P	AD15A	AD150K	AP301M	AP100S
P	Unalloyed steels / Alloyed steels	P01								P01
		P05								P05
		P10	AC150P							P10
		P15		AC200P						P15
		P20								P20
		P25			AC250P					P25
		P30				AC350P				P30
		P35					AC350P			P35
		P40								P40
		P45								P45
M	Stainless steels	M01								M01
		M05								M05
		M10								M10
		M15							AP100S	M15
		M20								M20
		M25						AP301M		M25
		M30								M30
		M35								M35
		M40								M40
		M45								M45
K	Cast iron	K01								K01
		K05								K05
		K10								K10
		K15					AD15A	AD150K		K15
		K20								K20
		K25								K25
		K30								K30
		K35								K35
		K40								K40
		K45								K45
S	Heat resistant alloy	S01								S01
		S05								S05
		S10								S10
		S15								S15
		S20								S20
		S25								S25
		S30						AP301M	AP100S	S30
		S35								S35
		S40								S40
N	Aluminum / Aluminum alloys	N01								N01
		N05								N05
		N10								N10
		N15								N15
		N20								N20
		N25								N25
H	Hardened steels / Oil-hard cast iron	H01								H01
		H05								H05
		H10								H10
		H15								H15
		H20								H20
		H25								H25

Turning Grade Description

AC150P

Coating: CVD coating

The ultra-fine crystal substrate combined with MTCVD TiCN coating, and plus a thick layer of $\alpha\text{-Al}_2\text{O}_3$ coating offers excellent wear resistance to extend tool life under high speed continuous or slight interrupted cutting.



Application range											
ISO Classification	01	05	10	15	20	25	30	35	40	45	50
P		AC150P									
M											
K											
S											
N											
H											

Remark: ☐ Best choice

AC200P

Coating: CVD coating

The thickened ultra-fine crystal MTCVD TiCN coating and columnar $\alpha\text{-Al}_2\text{O}_3$ coating has higher wear resistance and toughness, and can obtain longer tool life and better stability.



Application range											
ISO Classification	01	05	10	15	20	25	30	35	40	45	50
P			AC200P								
M											
K											
S											
N											
H											

Remark: ☐ Best choice

AC250P

Coating: CVD coating

 Cobalt enriched tough substrate with MTCVD TiCN and Al_2O_3 coating provides excellent wear resistance and chipping resistance. Very good versatility.


Application range											
ISO Classification	01	05	10	15	20	25	30	35	40	45	50
P					AC250P						
M											
A											
S											
N											
H											

 Remark: ☐ Best choice

AC350P

Coating: CVD coating

For rough turning steel. Very tough cobalt enriched substrate with specific coating. Excellent performance in interrupted cutting.



Application range											
ISO Classification	01	05	10	15	20	25	30	35	40	45	50
P							AC350P				
M											
A											
S											
N											
H											

 Remark: ☐ Best choice

ACK15A

Coating: CVD coating

Very good performance in cast iron medium and rough turning. Good for continuous and interrupted cutting.



Application range											
ISO Classification	01	05	10	15	20	25	30	35	40	45	50
P											
M											
K			ACK15A								
S											
N											
H											

Remark: ☐ Best choice

AC150K

Coating: CVD coating

Suitable for cast iron semi finish and medium turning. New thicker CVD coating on ultra-fine crystal substrate, with optimized coating structure and adhesive strength, and polished smooth coating surface, result in good wear resistance and chipping resistance.



Application range											
ISO Classification	01	05	10	15	20	25	30	35	40	45	50
P											
M											
K			AC150K								
S											
N											
H											

Remark: ☐ Best choice

AP301M

Coating: PVD coating

For stainless steel semi finish and medium turning. Tough and good wear resistance substrate with nanostructured PVD coating, provides better machining stability and longer tool life.



Application range											
ISO Classification	01	05	10	15	20	25	30	35	40	45	50
P											
M				AP301M							
K											
S				AP301M							
N											
H											

Remark:  Best choice
 2nd choice

AP100S

Coating: PVD coating

For heat resistant alloy turning. Ultra-fine grain substrate and nanostructured PVD coating provide strong adhesive strength and anti oxidation, and result in longer tool life.



Application range											
ISO Classification	01	05	10	15	20	25	30	35	40	45	50
P											
M		AP100S									
K											
S		AP100S									
N											
H											

Remark:  Best choice
 2nd choice

AW100K

Coating: Uncoated

For nonferrous alloy turning. Fine grain size substrate, uncoated, with special edge preparation.



Application range											
ISO Classification	01	05	10	15	20	25	30	35	40	45	50
P											
M											
A											
S											
N		AW100K									
H											

Remark: ☐ Best choice

Negative 80° (C) Rhombic Inserts



Dimensions (mm)				
Type	d	l	s	d1
CN1204	12.7	12.7	4.76	5.16
CN1606	15.87	16.1	6.35	6.35
CN1906	19.05	19.3	6.35	7.94

Inserts	Type	r (mm)	Recommended parameters		Grades									
			f (mm/rev)	ap (mm)	AP100	AP200	AP300	AP500	AP101	AP102	AP103	AP104	AP105	AP106
Facing		CNMG120404E-PB1 0.4	0.05-0.15	0.25-0.2	●	○	●							
		120408E-PB1 0.8	0.10-0.30	0.50-0.2	●	○	●							
		120412E-PB1 1.2	0.15-0.45	0.75-0.2	●	○	○							
		CNMG120404E-MB2 0.4	0.05-0.15	0.25-0.2					●					●
		120408E-MB2 0.8	0.10-0.30	0.50-0.2					●					●
Sandwiching		CNMG120404E-PB3 0.4	0.05-0.15	0.20-0.5	●	○	●							
		120408E-PB3 0.8	0.12-0.35	0.60-0.5	●	○	●							
		120412E-PB3 1.2	0.15-0.54	0.90-0.5	●	○	○							
		CNMG120404E-PC3 0.4	0.07-0.20	0.34-0.9	○	○	●							
		120408E-PC3 0.8	0.14-0.40	0.68-0.9	●	●	●							
		120412E-PC3 1.2	0.20-0.60	1.02-0.9	○	○	●							
Grooving		190408E-PC3 0.8	0.14-0.40	0.68-0.5	○	○	○							
		190412E-PC3 1.2	0.20-0.60	1.02-0.5	○	○	○							
		CNMG120404E-PD3 0.4	0.05-0.22	0.40-4.3	●	●	●	○						
		120408E-PD3 0.8	0.15-0.44	0.80-4.3	●	●	●	●						
		120412E-PD3 1.2	0.23-0.66	1.20-4.3	●	●	●	●						
		160408E-PD3 0.8	0.15-0.44	0.80-5.3	●	○	●	○						
		160412E-PD3 1.2	0.23-0.66	1.20-5.3	●	●	●	○						
		190408E-PD3 0.8	0.15-0.44	0.80-6.4	○	○	●	○						

Negative 80° (C) Rhombic Inserts



Dimensions (mm)				
Type	d	l	s	dl
CN 1204	12.7	12.9	4.76	5.16
CN 1606	15.87	16.1	6.35	6.35
CN 1906	19.05	19.3	6.35	7.94

Inserts	Type	r (mm)	Recommended parameters		Grades							
			f (mm/rev)	ap (mm)	AP100	AP200	AP300	AP500	AP601A	AP700	AP800	AP900
Medium		CNMG 120404E-BC3	0.4	0.08-0.22	0.40-4.3							●
		120408E-BC3	0.8	0.15-0.44	0.80-4.3				○			●
		120412E-BC3	1.2	0.23-0.66	1.20-4.3				○			●
		160612E-BC3	1.2	0.23-0.66	1.20-5.3				○			●
		160616E-BC3	1.6	0.20-0.88	1.60-5.3							○
		190612E-BC3	1.2	0.23-0.66	1.20-6.4							●
		190616E-BC3	1.6	0.20-0.88	1.60-6.4							○
		CNMG 120404E-MC3	0.4	0.08-0.22	0.32-4.3				●			○
		120408E-MC3	0.8	0.15-0.44	0.64-4.3				●			●
		120412E-MC3	1.2	0.23-0.66	0.96-4.3				●			○
		120416E-MC3	1.6	0.20-0.88	1.28-4.3				○			
		160608E-MC3	0.8	0.15-0.44	0.64-5.3				○			
		160612E-MC3	1.2	0.23-0.66	0.96-5.3				○			
		190608E-MC3	0.8	0.15-0.44	0.64-6.4				○			
		190612E-MC3	1.2	0.23-0.66	0.96-6.4				○			
		CNMG 120404E-PC4	0.4	0.08-0.22	0.40-4.3	○		●	○	○	●	
		120408E-PC4	0.8	0.15-0.44	0.80-4.3	●		●	○	●	●	
		120412E-PC4	1.2	0.23-0.66	1.20-4.3	●		●	○	○	●	
		160612E-PC4	1.2	0.23-0.66	1.20-5.3	○		○	○	○	○	
		160616E-PC4	1.6	0.20-0.88	1.60-5.3	○		○	○	○	●	
		190612E-PC4	1.2	0.23-0.66	1.20-6.4	○		●		○	○	
Roughing		CNMG 120408E-MC4	0.8	0.20-0.60	1.20-6.4				●			●
		120412E-MC4	1.2	0.30-0.90	1.80-6.4				●			●
		160612E-MC4	1.2	0.30-0.90	1.80-8.1				●			○
		160616E-MC4	1.6	0.40-1.20	2.40-8.1				○			○
		190612E-MC4	1.2	0.30-0.90	1.80-9.7				●			
		190616E-MC4	1.6	0.40-1.20	2.40-9.7				●			

Notes : ● Stock available ○ Non-stock standard

Negative 80° (C) Rhombic Inserts



Dimensions (mm)				
Type	d	l	a	d1
CH 0905	9.52	9.52	3.18	3.31
CH 1204	12.7	12.7	4.76	5.16
CH 1606	15.87	16.1	6.35	6.35
CH 1906	19.05	19.3	6.35	7.94

Inserts	Type	r (mm)	Recommended parameters		Grades							
			f (mm/rev)	ap (mm)	AP100	AP200	AP300	AP300P	AP101A	AP100K	AP101A	AP100K
	CNM3 090308E-KC4	0.8	0.18-0.48	0.96-0.9						○	○	
	120404E-KC4	0.4	0.09-0.24	0.49-0.2						○	●	
	120408E-KC4	0.8	0.18-0.48	0.96-0.2						●	●	
	120412E-KC4	1.2	0.26-0.72	1.44-0.2						●	●	
	120416E-KC4	1.6	0.38-0.96	1.92-0.2						●	○	
	160608E-KC4	0.8	0.18-0.48	0.96-0.4						○	○	
	160612E-KC4	1.2	0.26-0.72	1.44-0.4						●	●	
	160616E-KC4	1.6	0.38-0.96	1.92-0.4						○	●	
	190608E-KC4	0.8	0.18-0.48	0.96-0.7						○	○	
	190612E-KC4	1.2	0.26-0.72	1.44-0.7						○	●	
	190616E-KC4	1.6	0.38-0.96	1.92-0.7						○	●	
	190624E-KC4	2.4	0.82-1.44	3.28-0.7						○	○	
	CNM3 120408E-P06	0.8	0.20-0.60	1.20-0.4	●		●	●				
	120412E-P06	1.2	0.30-0.90	1.80-0.4	●		●	○				
	160612E-P06	1.2	0.30-0.90	1.80-0.1	●	●	●	●				
	160616E-P06	1.6	0.40-1.20	2.40-0.1	●		●	○				
	160624E-P06	2.4	0.60-1.80	3.60-0.1			○	○				
	190612E-P06	1.2	0.30-0.90	1.80-0.7	●		●	○				
	190616E-P06	1.6	0.40-1.20	2.40-0.7	○	●	●	●				
	CNMA 120404E-K06	0.4	0.10-0.30	0.60-0.4						○	○	
	120408E-K06	0.8	0.20-0.60	1.20-0.4						●	●	
	120412E-K06	1.2	0.30-0.90	1.80-0.4						●	●	
	120416E-K06	1.6	0.40-1.20	2.40-0.4						○	○	
	160608E-K06	0.8	0.20-0.60	1.20-0.1						○	○	
	160612E-K06	1.2	0.30-0.90	1.80-0.1						○	○	
	160616E-K06	1.6	0.40-1.20	2.40-0.1						●	○	
	160620E-K06	2.0	0.50-1.50	3.00-0.1						●	○	
	190608E-K06	0.8	0.20-0.60	1.20-0.7						○	○	
	190612E-K06	1.2	0.30-0.90	1.80-0.7						○	○	
	190616E-K06	1.6	0.40-1.20	2.40-0.7						○	●	

Negative 80° (C) Rhombic inserts



Dimensions (mm)				
Type	d	l	s	dl
CN 1204	12.7	12.8	4.76	8.16
CN 1606	15.87	16.1	6.35	8.58
CN 1908	19.05	19.3	6.35	7.94
CN 2507	25.4	25.8	7.94	9.12
CN 2509	25.4	25.8	9.53	9.12

Inserts	Type	r (mm)	Recommended parameters		Grades									
			f (mm/rev)	ap (mm)	A3 50°	A3 50°	A3 50°	A3 50°	A 1501 50°	A 3 1501	A 3 1501	A 3 1501	A 1501 50°	A 1501 50°
Heavy cutting		CNMM 190816E-PC8	1.6	0.32-0.64	2.88-7.7	○	○	○						
		190824E-PC8	2.4	0.48-0.96	4.32-7.7	○	○	○						
		CNMM 120408E-PC8	0.8	0.16-0.32	1.44-5.2	●		○	○					
		120412E-PC8	1.2	0.24-0.48	2.16-8.2	○		○	○					
		160812E-PC8	1.2	0.24-0.48	2.16-6.4	○		●	○					
		160816E-PC8	1.6	0.32-0.64	2.88-6.4	○		●	○					
		160824E-PC8	2.4	0.48-0.96	4.32-6.4	○		○	○					
		190812E-PC8	1.2	0.24-0.48	2.16-7.7	○		○	○					
		190816E-PC8	1.6	0.32-0.64	2.88-7.7	○		○	●					
		190824E-PC8	2.4	0.48-0.96	4.32-7.7	○		○	○					
		250724E-PC8	2.4	0.48-0.96	4.32-10.3	○		○	○					
		250924E-PC8	2.4	0.48-0.96	4.32-10.3	○		○	○					
		CNMM 190812E-PC9	1.2	0.24-0.60	2.40-9.7	○		○	○					
		190816E-PC9	1.6	0.32-0.80	3.20-9.7	○		○	○					
		190824E-PC9	2.4	0.50-1.20	4.80-9.7	○		○	○					
		250724E-PC9	2.4	0.50-1.20	4.80-12.9	○		○	○					
		250924E-PC9	2.4	0.50-1.20	4.80-12.9	○		●	○					
		CNMM 190812E-PD0	1.2	0.20-0.72	2.40-11.6	○		○	○					
		190816E-PD0	1.6	0.40-0.96	3.20-11.6	●	○	●	○					
		190824E-PD0	2.4	0.60-1.44	5.28-11.6	○		●	○					
		250724E-PD0	2.4	0.60-1.44	5.28-15.5	○		○	○					
		250924E-PD0	2.4	0.60-1.44	5.28-15.5	○	○	●	●					

Noted : ● Stock available ○ Normalized standard



Negative 55° (D) Rhombic inserts



Dimensions (mm)				
Type	d	l	s	d1
DN 1104	6.52	11.62	4.76	3.81
DN 1504	12.7	19.3	4.76	5.16
DN 1506	12.7	19.3	6.35	5.16

Inserts		Type	r (mm)	Recommended parameters		Grades									
				f (mm/rev)	ap (mm)	AP300	AP300B	AP300C	AP300P	AP610	AP310K	AP310A	AP100K	AP300S	
Standard		DNM3 110404E-PB1	0.4	0.05-0.15	0.25-0.3	○		●							
		150404E-PB1	0.4	0.05-0.15	0.25-0.3	●	○	●							
		150408E-PB1	0.8	0.10-0.30	0.32-0.3	●	○	●							
		150604E-PB1	0.4	0.05-0.15	0.25-0.3	●	○	○							
		150608E-PB1	0.8	0.10-0.30	0.32-0.3	●	○	●							
		DNM3 150404E-MB2	0.4	0.05-0.15	0.25-0.3					○				●	
		150408E-MB2	0.8	0.10-0.30	0.32-0.3					○				○	
		150604E-MB2	0.4	0.05-0.15	0.25-0.3					●				●	
		150608E-MB2	0.8	0.10-0.30	0.32-0.3					○				●	
		Semi-finished		DNM3 150404E-PB3	0.4	0.05-0.15	0.30-0.3	○	○	○					
150408E-PB3	0.8			0.12-0.36	0.60-0.3	●	○	○							
150412E-PB3	1.2			0.18-0.54	0.90-0.3	○	○	○							
150604E-PB3	0.4			0.05-0.15	0.30-0.3	●	○	●							
150608E-PB3	0.8			0.12-0.36	0.60-0.3	●	○	●							
150612E-PB3	1.2			0.18-0.54	0.90-0.3	○	○	○							
	DNM3 110408E-PC3		0.8	0.14-0.40	0.60-0.5	●	○	○							
	110412E-PC3		1.2	0.20-0.60	1.00-0.5	○	○	○							
	150404E-PC3		0.4	0.07-0.20	0.34-0.5	○	○	○							
	150408E-PC3		0.8	0.14-0.40	0.60-0.5	●	○	●							
	150412E-PC3		1.2	0.20-0.60	1.00-0.5	○	○	○							
	150604E-PC3		0.4	0.07-0.20	0.34-0.5	○	○	●							
Medium		150608E-PC3	0.8	0.14-0.40	0.60-0.5	●	●	●							
		150612E-PC3	1.2	0.20-0.60	1.00-0.5	○	○	○							
		DNM3 110404E-PD3	0.4	0.05-0.22	0.40-0.3	○	○	○							
		110408E-PD3	0.8	0.15-0.44	0.80-0.3	●	○	●							
		150404E-PD3	0.4	0.05-0.22	0.40-0.3	○	○	●							
		150408E-PD3	0.8	0.15-0.44	0.80-0.3	●	●	●	○						
		150412E-PD3	1.2	0.22-0.66	1.20-0.3	●	○	●	○						
		150604E-PD3	0.4	0.05-0.22	0.40-0.3	●	○	●							
		150608E-PD3	0.8	0.15-0.44	0.80-0.3	●	●	●	●						
		150612E-PD3	1.2	0.22-0.66	1.20-0.3	○	●	●	○						

Negative 55° (D) Rhombic inserts



Dimensions (mm)				
Type	d	l	s	d1
DN 1104	9.52	11.62	4.76	3.31
DN 1504	12.7	15.5	4.76	3.16
DN 1506	12.7	15.5	6.35	3.16

Inserts	Type	r (mm)	Recommended parameters		Grades							
			f (mm/rev)	ap (mm)	AP100	AP200	AP300	AP400	AP500	AP600	AP700	AP800
Medium		DNM3 150404E-BC3	0.4	0.08-0.22	0.40-0.9							●
		150408E-BC3	0.8	0.15-0.44	0.80-0.9							●
		150412E-BC3	1.2	0.20-0.66	1.20-0.9							○
		150604E-BC3	0.4	0.08-0.22	0.40-0.9							●
		150608E-BC3	0.8	0.15-0.44	0.80-0.9							●
		150612E-BC3	1.2	0.20-0.66	1.20-0.9							○
		DNM3 110404E-IC3	0.4	0.08-0.22	0.32-0.9				●			
		110408E-IC3	0.8	0.15-0.44	0.64-0.9				○			
		150404E-IC3	0.4	0.08-0.22	0.32-0.9				●			
		150408E-IC3	0.8	0.15-0.44	0.64-0.9				○			
		150412E-IC3	1.2	0.20-0.66	0.96-0.9				○			
		150604E-IC3	0.4	0.08-0.22	0.32-0.9				●			
		DNM3 150404E-PC4	0.4	0.08-0.22	0.40-0.9	○		○		○	○	
		150408E-PC4	0.8	0.15-0.44	0.80-0.9	○	●			○	●	
		150412E-PC4	1.2	0.20-0.66	1.20-0.9	○	○			○	●	
		150604E-PC4	0.4	0.08-0.22	0.40-0.9	○	○			○	○	
		150608E-PC4	0.8	0.15-0.44	0.80-0.9	●	○			●	●	
		150612E-PC4	1.2	0.20-0.66	1.20-0.9	●	○			○	○	
Roughing		DNM3 150408E-IC4	0.8	0.20-0.60	1.20-5.4					○		○
		150412E-IC4	1.2	0.30-0.90	1.80-5.4					○		○
		150608E-IC4	0.8	0.20-0.60	1.20-5.4					○		○
		150612E-IC4	1.2	0.30-0.90	1.80-5.4					○		○

Noted : ● Stock available ○ Normalized standard

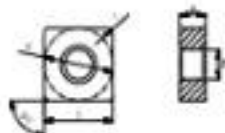
Negative 55° (D) Rhombic inserts



Dimensions (mm)				
Type	d	l	s	d1
DN 1104	6.52	11.62	4.76	3.81
DN 1504	12.7	19.3	4.76	5.16
DN 1506	12.7	16.5	6.35	5.16

Inserts		Type	r (mm)	Recommended parameters		Grades									
				f (mm/rev)	ap (mm)	AP100	AP200	AP300	AP300P	AP610	AP100K	AP110K	AP100K	AP100S	
BorgWarner		DNM3 110404E-KC4	0.4	0.09-0.24	0.48-0.8						○	○			
		110408E-KC4	0.8	0.18-0.48	0.96-0.8						○	●			
		150404E-KC4	0.4	0.09-0.24	0.48-0.8						○	○			
		150408E-KC4	0.8	0.18-0.48	0.96-0.8							●			
		150412E-KC4	1.2	0.26-0.72	1.44-0.8						○	○			
		150604E-KC4	0.4	0.09-0.24	0.48-0.8						○	●			
		150608E-KC4	0.8	0.18-0.48	0.96-0.8						●	●			
		150612E-KC4	1.2	0.26-0.72	1.44-0.8						●	○			
		DNM3 150408E-P05	0.8	0.20-0.60	1.20-0.4	○	○	●	○						
		150412E-P05	1.2	0.30-0.90	1.80-0.4	○	○	●	○						
		150416E-P05	1.6	0.40-1.20	2.40-0.4	○	○	●	○						
		150608E-P05	0.8	0.20-0.60	1.20-0.4	○	○	○	●						
		150612E-P05	1.2	0.30-0.90	1.80-0.4	●	○	●	○						
		150616E-P05	1.6	0.40-1.20	2.40-0.4	○	○	●	○						
		DNM4 150404E-KD5	0.4	0.10-0.30	0.60-0.4						○	○			
		150408E-KD5	0.8	0.20-0.60	1.20-0.4						○	○			
		150412E-KD5	1.2	0.30-0.90	1.80-0.4						○	○			
		150604E-KD5	0.4	0.10-0.30	0.60-0.4						○	○			
		150608E-KD5	0.8	0.20-0.60	1.20-0.4						○	●			
		150612E-KD5	1.2	0.30-0.90	1.80-0.4						●	●			

Negative 55° (D) Rhombic inserts



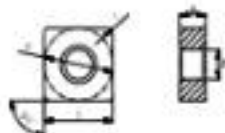
Dimensions (mm)				
Type	ϕ	l	a	h
SN 1204	12.7	12.7	4.76	3.16
SN 1506	15.87	15.87	6.35	4.35
SN 1906	19.05	19.05	6.35	7.94

Inserts	Type	r (mm)	Recommended parameters		Grades							
			f (mm/rev)	ap (mm)	AP 509	AP 509B	AP 509C	AP 509D	AP 509E	AP 509F	AP 509G	AP 509H
Facing		SNMG 120404E-PB1 0.4	0.08-0.18	0.26-0.2	○	○	○					
		120408E-PB1 0.8	0.10-0.30	0.52-0.2	○	○	●					
		120412E-PB1 1.2	0.18-0.48	0.78-0.2	●	○	○					
		SNMG 120404E-MB2 0.4	0.08-0.18	0.26-0.2					○			●
		120408E-MB2 0.8	0.10-0.30	0.52-0.2					○			○
Sandwiching		SNMG 120404E-PC3 0.4	0.07-0.20	0.24-0.8	○		○					
		120408E-PC3 0.8	0.14-0.40	0.60-0.8	○		●					
		120412E-PC3 1.2	0.20-0.60	1.02-0.8	○		○					
		SNMG 120404E-PO3 0.4	0.08-0.22	0.40-4.2	○	○	○	○				
		120408E-PO3 0.8	0.18-0.44	0.80-4.2	●	○	●	●				
		120412E-PO3 1.2	0.22-0.66	1.20-4.2	○	○	○	○				
Machining		190608E-PO3 0.8	0.18-0.44	0.80-6.3	○	○	○	○				
		SNMG 120408E-BC3 0.8	0.18-0.44	0.80-4.2								●
		120412E-BC3 1.2	0.22-0.66	1.20-4.2								●
		150612E-BC3 1.2	0.22-0.66	1.20-6.3								○
		150616E-BC3 1.6	0.30-0.88	1.60-5.1								○
		190612E-BC3 1.2	0.22-0.66	1.20-6.3								●
		SNMG 120404E-MC3 0.4	0.08-0.22	0.24-4.2				○				
		120408E-MC3 0.8	0.18-0.44	0.64-4.2				●				
		120412E-MC3 1.2	0.22-0.66	0.96-4.2				○				
		150612E-MC3 1.2	0.22-0.66	0.96-6.3				○				
		150616E-MC3 1.6	0.30-0.88	1.28-5.1				○				
		190612E-MC3 1.2	0.22-0.66	0.96-6.3				○				
		190616E-MC3 1.6	0.30-0.88	1.28-6.3				○				

Notes: ● Stock available ○ Normalized standard



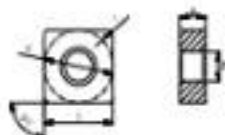
Negative 90° (S) Square Inserts



Dimensions (mm)				
Type	d	l	a	d1
SN 0903	9.52	9.52	3.18	3.91
SN 1204	12.7	12.7	4.76	5.16
SN 1506	15.87	15.87	6.35	6.35
SN 1908	19.05	19.05	8.35	7.94

Inserts		Type	r (mm)	Recommended parameters		Grades									
				f (mm/rev)	ap (mm)	AS 300	AS 300P	AS 300B	AS 300B	AP 601A	AS 300	AS 300A	AP 600K	AP 600S	
Medium		SNMG 120404E-PC4	0.4	0.08-0.22	0.40-4.2	○	○	○				○	○		
		120408E-PC4	0.8	0.15-0.44	0.80-4.2	●	○	●				○	●		
		120412E-PC4	1.2	0.23-0.66	1.20-4.2	●	○	●				○	●		
Roughing		SNMG 120408E-MC4	0.8	0.20-0.60	1.20-6.4					○					●
		120412E-MC4	1.2	0.30-0.90	1.80-6.4					○					○
		150612E-MC4	1.2	0.30-0.90	1.80-7.9					○					○
		150616E-MC4	1.6	0.40-1.20	2.40-7.9					○					○
		190612E-MC4	1.2	0.30-0.90	1.80-9.5					○					○
		190616E-MC4	1.6	0.40-1.20	2.40-9.5					○					○
		SNMG 090304E-KC4	0.4	0.09-0.24	0.48-5.1							○	○		
		090308E-KC4	0.8	0.18-0.48	0.96-5.1							○	○		
		120404E-KC4	0.4	0.09-0.24	0.48-5.1							○	●		
		120408E-KC4	0.8	0.18-0.48	0.96-5.1							●	●		
		120412E-KC4	1.2	0.26-0.72	1.44-5.1							●	●		
		150408E-KC4	0.8	0.18-0.48	0.96-6.4							○	○		
		150612E-KC4	1.2	0.26-0.72	1.44-6.4							○	●		
		150616E-KC4	1.6	0.35-0.96	1.92-6.4							○	○		
		190408E-KC4	0.8	0.18-0.48	0.96-7.9								○	○	
		190612E-KC4	1.2	0.26-0.72	1.44-7.9							○	●		
		190616E-KC4	1.6	0.35-0.96	1.92-7.9							○	●		
		190624E-KC4	2.4	0.30-1.44	2.88-7.9							○	○		
		SNMG 150608E-P05	0.8	0.20-0.60	1.20-7.9	○	○	○	○						
		150612E-P05	1.2	0.30-0.90	1.80-7.9	○	○	●	○						
		150616E-P05	1.6	0.40-1.20	2.40-7.9	○	○	○	○						
		190612E-P05	1.2	0.30-0.90	1.80-9.5	●	○	●	○						
		190616E-P05	1.6	0.40-1.20	2.40-9.5	○	○	●	○						

Negative - 90° (S) Square Inserts



Dimensions (mm)				
Type	a	h	s	d1
SN_1204_	12.7	12.7	4.76	9.14
SN_1506_	15.87	15.88	6.35	9.14
SN_1906_	19.03	19.28	6.35	9.14
SN_2507_	25.4	25.4	7.94	9.14
SN_2509_	25.4	25.4	9.52	9.14
SN_3109_	31.75	31.75	9.52	9.45

Inserts	Type	r (mm)	Recommended parameters		Grades							
			f (mm/rev)	ap (mm)	AP 500	AP 500P	AP 500S	AP 500SP	AP 1000	AP 1000P	AP 1000S	AP 1000SP
Turning		SNMA 120405E-KD5	0.8	0.20-0.60	1.20-6.4					○	○	
		120412E-KD5	1.2	0.30-0.90	1.80-6.4					●	●	
		120418E-KD5	1.6	0.40-1.20	2.40-6.4					●	○	
		150612E-KD5	1.2	0.30-0.90	1.80-7.9					○	●	
		150616E-KD5	1.6	0.40-1.20	2.40-7.9					○	○	
		190612E-KD5	1.2	0.30-0.90	1.80-9.8					○	●	
Heavy roughing		190616E-KD5	1.6	0.40-1.20	2.40-9.8					●	●	
		SNMM 120405E-PD8	0.8	0.16-0.32	1.44-5.1	○		○	○			
		120412E-PD8	1.2	0.24-0.48	2.16-5.1	○		○	○			
		150612E-PD8	1.2	0.24-0.48	2.16-6.4	○		○	○			
		150616E-PD8	1.6	0.32-0.64	2.88-6.4	○		○	○			
		190612E-PD8	1.2	0.24-0.48	2.16-7.6	○		○	○			
		190616E-PD8	1.6	0.32-0.64	2.88-7.6	○		○	●			
		190624E-PD8	2.4	0.48-0.96	4.32-7.6	○		○	○			
		250724E-PD8	2.4	0.48-0.96	4.32-10.2	○		○	○			
		250924E-PD8	2.4	0.48-0.96	4.32-10.2	○		○	○			
		SNMM 150612E-PC9	1.2	0.28-0.60	2.40-9.8	●	○	○	○			
		150616E-PC9	1.6	0.36-0.80	3.20-9.8	○	○	○	○			
		190624E-PC9	2.4	0.50-1.20	4.80-9.8	○	○	○	○			
		250724E-PC9	2.4	0.60-1.20	4.80-12.7	○	○	○	○			
		250924E-PC9	2.4	0.60-1.20	4.80-12.7	●	○	●	○			
		SNMH 310924E-PC9	2.4	0.60-1.20	4.80-15.9			○	●			
		SNMM 150612E-PD9	1.2	0.20-0.72	2.64-11.4	○	○	○	○			
		150616E-PD9	1.6	0.40-0.96	3.52-11.4	○	○	○	○			
		190624E-PD9	2.4	0.60-1.44	5.28-11.4	○	○	○	●			
		250724E-PD9	2.4	0.80-1.44	8.32-18.2	○	○	○	○			
		250924E-PD9	2.4	0.60-1.44	5.28-18.2	●	○	●	●			
		SNMX 310924E-PD9	2.4	0.60-1.44	5.28-19.1			○	●			

Notes: ● Stock available ○ Not stocked standard



Negative 60° (T) Triangle Inserts



Dimensions (mm)				
Type	d	l	s	d1
TN 1604	9.52	16.5	4.76	3.91

Inserts Right-hand shown unless it's applicable		Type	r (mm)	Recommended parameters		Grades									
				f (mm/rev)	ap (mm)	W3 003	W3 009	W3 509	W3 909	A 1601 04	W3 10X	W31 04	W400K	AP 9005	
Facing		TNMG 160404E-PB1	0.4	0.09-0.13	0.26-0.3	●	○	●							
		160408E-PB1	0.8	0.10-0.30	0.52-0.3	●	●	●							
		160412E-PB1	1.2	0.18-0.48	0.79-0.3	●	○	○							
		TNMG 160404E-MB2	0.4	0.09-0.13	0.26-0.3					●					●
		160408E-MB2	0.8	0.10-0.30	0.52-0.3					○					●
Side cutting		TNMG 160404E-PB3	0.4	0.09-0.13	0.20-0.3	●	○	●							
		160408E-PB3	0.8	0.12-0.36	0.40-0.3	●	●	●							
		160412E-PB3	1.2	0.18-0.54	0.60-0.3	●	○	●							
		TNMG 160404E-PC3	0.4	0.07-0.20	0.34-0.7	●	○	●							
		160408E-PC3	0.8	0.14-0.40	0.68-0.7	●	○	●							
		160412E-PC3	1.2	0.20-0.60	1.02-0.7	○	○	○							
Grooving		TNMG 160404E-PD3	0.4	0.08-0.22	0.40-4.1	●	○	●	○						
		160408E-PD3	0.8	0.15-0.44	0.80-4.1	●	●	●	○						
		160412E-PD3	1.2	0.23-0.66	1.20-4.1	●	●	●	○						
		TNMG 160404E-PL3	0.4	0.08-0.22	0.40-4.1	●	○	●							
		160408E-PL3	0.8	0.15-0.44	0.80-4.1	●	○	●							
		160404L-PL3	0.4	0.08-0.22	0.40-4.1	●	○	●							
		160408L-PL3	0.8	0.15-0.44	0.80-4.1	●	○	●							
		TNMG 160404E-BC3	0.4	0.08-0.22	0.40-4.1										●
		160408E-BC3	0.8	0.15-0.44	0.80-4.1										●
		160412E-BC3	1.2	0.23-0.66	1.20-4.1									○	

Negative 60° (T) Triangle Inserts



Dimensions (mm)				
Type	d	l	s	d1
TN_1103	6.35	11.3	3.18	2.36
TN_1604	9.52	16.5	4.76	3.81
TN_2204	12.7	22.0	4.76	5.16

Inserts	Type	r (mm)	Recommended parameters		Grades							
			f (mm/rev)	ap (mm)	AP 500	AP 500P	AP 500S	AP 500S	AP 500S	AP 500S	AP 500S	AP 500S
Medium		TNMG 160404E-MC3	0.4	0.08-0.22	0.32-4.3				●			○
		160408E-MC3	0.8	0.15-0.44	0.64-4.3				●			○
		160412E-MC3	1.2	0.22-0.66	0.96-4.3				●			○
		220408E-MC3	0.8	0.15-0.44	0.64-4.3				●			●
		220412E-MC3	1.2	0.22-0.66	0.96-4.3				○			○
		TNMG 160404E-PC4	0.4	0.08-0.22	0.40-4.3	●	○	○		○	○	
		160408E-PC4	0.8	0.15-0.44	0.80-4.3	●	○	●		●	●	
		160412E-PC4	1.2	0.22-0.66	1.20-4.3	○	○	○		●	○	
Roughing		220412E-PC4	1.2	0.22-0.66	1.20-4.3	○	○	○		○	○	
		TNMG 160408E-MC4	0.8	0.20-0.60	1.20-6.3				●			●
		160412E-MC4	1.2	0.30-0.90	1.80-6.3				○			○
		220408E-MC4	0.8	0.20-0.60	1.20-6.3				○			○
		220412E-MC4	1.2	0.30-0.90	1.80-6.3				○			○
		TNMG 110304E-KC4	0.4	0.09-0.24	0.48-9.3					○	○	
		160404E-KC4	0.4	0.09-0.24	0.48-4.3					○	●	
		160408E-KC4	0.8	0.18-0.48	0.96-4.3					●	●	
		160412E-KC4	1.2	0.26-0.72	1.44-4.3					○	○	
		160416E-KC4	1.6	0.39-0.96	1.92-4.3					○	○	
		220412E-KC4	1.2	0.26-0.72	1.44-6.3					○	●	
		220416E-KC4	1.6	0.39-0.96	1.92-6.3					○	○	

Notes : ● Stock available ○ Normalized standard

Negative 60° (T) Triangle Inserts



Dimensions (mm)				
Type	d	l	s	d1
TN 1604	0.52	16.5	4.75	3.81
TN 2204	12.7	22.0	4.75	5.16

Inserts (Right-hand shown unless it's applicable)		Type	s (mm)	Recommended parameters		Grades									
				f (mm/rev)	ap (mm)	AS 300	AS 300P	AS 300S	AS 300S	AP 1001 M	AS 300K	AS 300L	AP 100K	AP 100S	
Roughing		TNMG 160408E-P05	0.8	0.20-0.60	1.20-5.5	○	○	○	●						
		160412E-P05	1.2	0.20-0.90	1.20-5.5	○	○	○	●						
		220408E-P05	0.8	0.20-0.60	1.20-7.7	○	○	●	○						
		220412E-P05	1.2	0.20-0.90	1.20-7.7	○	○	○	○						
		220416E-P05	1.6	0.40-1.20	2.40-7.7	○	○	○	○						
		TNMA 160408E-K05	0.4	0.10-0.30	0.60-6.3						●	○			
		160408E-K05	0.8	0.20-0.60	1.20-6.3						●	●			
		160412E-K05	1.2	0.20-0.90	1.20-6.3						●	●			
		160416E-K05	1.6	0.40-1.20	2.40-6.3						○	○			
		220408E-K05	0.8	0.20-0.60	1.20-7.7						○	○			
		220412E-K05	1.2	0.20-0.90	1.20-7.7						○	○			
		220416E-K05	1.6	0.40-1.20	2.40-7.7						●	●			
Heavy roughing		TNMM 160408E-P08	0.8	0.16-0.32	1.44-4.0	○		○	○						
		160412E-P08	1.2	0.24-0.48	2.16-4.0	○		○	○						
		220408E-P08	0.8	0.16-0.32	1.44-6.0	○		○	○						
		220412E-P08	1.2	0.24-0.48	2.16-6.0	○		○	○						
		220416E-P08	1.6	0.32-0.64	2.88-6.0	○		○	○						
Finishing		TN02 160402PL-F	0.2	0.08-0.20	0.5-2.0					●					
		160402PL-F	0.2	0.08-0.20	0.5-2.0					●					
		160404PL-F	0.4	0.08-0.20	0.5-2.0					●					
		160404PL-F	0.4	0.08-0.20	0.5-2.0					●					
Semi-finishing		TN02 160404R-H	0.4	0.22-0.38	1.2-2.8					●					
		160404L-H	0.4	0.22-0.38	1.2-2.8					●					
		160408R-H	0.8	0.22-0.38	1.2-2.8					●					
		160408L-H	0.8	0.22-0.38	1.2-2.8					●					

Negative 35° (V) Rhombic Inserts



Dimensions (mm)				
Type	d	l	a	d1
VN 1604	9.52	16.5	4.76	3.91

Inserts		Type	r (mm)	Recommended parameters		Grades									
				f (mm/rev)	ap (mm)	AK 509	AK 509P	AK 509S	AK 509B	AP 601 M	AK 510K	AK 511 SA	AP 600K	AP 600S	
Finishing		VN160404E-PB1	0.4	0.05-0.15	0.25-0.1	●	○	●							
		160408E-PB1	0.8	0.10-0.30	0.52-0.1	●	●	●							
		VN160404E-MB2	0.4	0.05-0.15	0.25-0.1					●				●	
		160408E-MB2	0.8	0.10-0.30	0.52-0.1					●				●	
Semi-finishing		VN160404E-PB3	0.4	0.06-0.18	0.30-0.1	●	○	●							
		160408E-PB3	0.8	0.12-0.36	0.60-0.1	●	●	●							
		160412E-PB3	1.2	0.18-0.84	0.90-0.1	●	○	●							
		VN160404E-PC3	0.4	0.07-0.20	0.34-0.3	●	○	●							
		160408E-PC3	0.8	0.14-0.40	0.68-0.3	○	○	●							
		160412E-PC3	1.2	0.20-0.60	1.02-0.3	○	○	○							
Medium		VN160404E-PD3	0.4	0.08-0.22	0.40-0.3	●	○	●	○						
		160408E-PD3	0.8	0.15-0.44	0.80-0.3	●	●	●	○						
		160412E-PD3	1.2	0.23-0.66	1.20-0.3	●	○	●	○						
		VN160404E-BC3	0.4	0.08-0.22	0.40-0.3									●	
		160408E-BC3	0.8	0.15-0.44	0.80-0.3									●	
		160412E-BC3	1.2	0.23-0.66	1.20-0.3									●	
		VN160404E-MC3	0.4	0.08-0.22	0.33-0.3					●					
		160408E-MC3	0.8	0.15-0.44	0.64-0.3					●					
		VN160404E-PC4	0.4	0.08-0.22	0.40-0.3	○		●			○	●			
		160408E-PC4	0.8	0.15-0.44	0.80-0.3	●		○			●	●			
		160412E-PC4	1.2	0.23-0.66	1.20-0.3	○		○			●	○			
Roughing		VN160404E-HD4	0.4	0.09-0.24	0.48-0.3						○	●			
		160408E-HD4	0.8	0.18-0.48	0.96-0.3						●	●			
		160412E-HD4	1.2	0.26-0.72	1.44-0.3						○	○			

Notes : ● Stock available ○ Recommended standard



Negative 80° (W) Trigon Inserts



Dimensions (mm)				
Type	d	l	s	d1
WN 0804	6.35	6.35	4.76	3.81
WN 0804	12.7	9.7	4.76	6.16

Inserts	Type	r (mm)	Recommended parameters		Grades									
			f (mm/rev)	ap (mm)	W300	W300P	W300S	W300B	W300L	W300H	W300K	W300M	W300N	W300O
Facing		WNW3 080404E-PB1	0.4	0.08-0.18	0.26-0.3	●	○	●						
		080408E-PB1	0.8	0.10-0.30	0.52-0.3	●	○	●						
		080412E-PB1	1.2	0.18-0.48	0.78-0.3	○	○	○						
		WNW3 080404E-MB2	0.4	0.08-0.18	0.26-0.3					●				●
		080408E-MB2	0.8	0.10-0.30	0.52-0.3					●				●
Grooving		WNW3 080404E-PB3	0.4	0.08-0.18	0.20-0.3	●	○	●						
		080408E-PB3	0.8	0.12-0.36	0.40-0.3	●	○	●						
		080412E-PB3	1.2	0.18-0.54	0.60-0.3	●	○	●						
		WNW3 080404E-PC3	0.4	0.07-0.20	0.34-0.6	●	○	●						
		080408E-PC3	0.8	0.14-0.40	0.68-0.6	●	○	●						
		080412E-PC3	1.2	0.20-0.60	1.02-0.6	●	○	●						
Turning		WNW3 060408E-PD3	0.8	0.18-0.44	0.80-2.1	●	○	●	○					
		080404E-PD3	0.4	0.08-0.22	0.40-0.9	●	○	●	○					
		080408E-PD3	0.8	0.18-0.44	0.80-0.9	●	●	●	●					
		080412E-PD3	1.2	0.22-0.66	1.20-0.9	●	●	●	●					
		WNW3 080408E-DC3	0.4	0.08-0.22	0.40-0.9					○				●
		080408E-DC3	0.8	0.18-0.44	0.80-0.9									●
		080412E-DC3	1.2	0.22-0.66	1.20-0.9									●
		WNW3 060408E-MC3	0.8	0.18-0.44	0.64-0.1					●				○
		080412E-MC3	1.2	0.22-0.66	0.96-0.1					●				○
		080404E-MC3	0.4	0.08-0.22	0.32-0.9					●				○
		080408E-MC3	0.8	0.18-0.44	0.64-0.9					●				●
		080412E-MC3	1.2	0.22-0.66	0.96-0.9					○				○

Negative 80° (W) Trigon Inserts



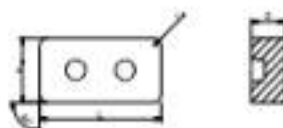
Dimensions (mm)				
Type	d	l	s	d1
WN 0804	6.52	6.52	4.76	3.81
WN 0804	12.7	9.7	4.76	6.16

Inserts	Type	r (mm)	Recommended parameters		Grades									
			f (mm/rev)	ap (mm)	AP3 80°	AP3 80°	AP3 80°	AP3 80°	AP3 80°	AP3 80°	AP3 80°	AP3 80°	AP3 80°	AP3 80°
Medium	WNW3 080404E-PC4	0.4	0.08-0.22	0.40-0.9	○		●			●	●			
	080408E-PC4	0.8	0.15-0.44	0.80-0.9	●		●			●	●			
	080412E-PC4	1.2	0.23-0.66	1.20-0.9	●		●			●	●			
Roughing	WNW3 080408E-MC4	0.8	0.20-0.60	1.20-0.3					○					○
	080412E-MC4	1.2	0.30-0.90	1.80-0.3					○					○
	080408E-MC4	0.8	0.20-0.60	1.20-4.3					○				●	
	080412E-MC4	1.2	0.30-0.90	1.80-4.3					○				●	
	WNW3 080404E-KC4	0.4	0.09-0.24	0.40-0.6						○	●			
	080408E-KC4	0.8	0.18-0.48	0.80-0.6						○	●			
	080404E-KC4	0.4	0.09-0.24	0.40-0.5						○	●			
	080408E-KC4	0.8	0.18-0.48	0.80-0.5						●	●			
	080412E-KC4	1.2	0.26-0.72	1.44-0.5						●	●			
	080416E-KC4	1.2	0.35-0.96	1.92-0.5						○	○			
	WNW3 080408E-PD6	0.8	0.20-0.60	1.20-4.3	○	●	●	●						
	080412E-PD6	1.2	0.30-0.90	1.80-4.3	○	○	●	●						
	WNMA 080404E-KD6	0.4	0.10-0.30	0.60-4.3						○	○			
	080408E-KD6	0.8	0.20-0.60	1.20-4.3						○	●			
	080412E-KD6	1.2	0.30-0.90	1.80-4.3						●	●			
	080416E-KD6	1.6	0.40-1.20	2.40-4.3						○	●			

Notes : ● Stock available ○ Non-stock standard



Negative 90° (L) Rectangle Inserts



Dimensions (mm)			
Type	L	W	H
LN 5014	50.8	25.4	14.2

Inserts	Type	r (mm)	Recommended parameters		Grades								
			f (mm/rev)	ap (mm)	AC100	AC200	AC300	AC1000	AP1014	AC10K	AC114A	AP100K	AP100S
Heavy roughing 	LNMX5014328-HE	3.2	0.75-1.6	6.0-40.0			○	●					

Positive 80° (C) Rhombic Inserts



Dimensions (mm)				
Type	d	l	s	d1
CCGT 060201E-UF	6.35	6.45	2.38	2.8
CC 09T3	9.52	9.67	3.97	4.4
CC 1204	12.7	12.9	4.76	5.5

Inserts		Type	r (mm)	Recommended parameters		Grades								
				f (mm/rev)	ap (mm)	AC100	AC200	AC300	AC300P	AP010	AP100	AP110	AP100K	AP100S
Finishing		CCGT 060201E-UF	0.1	0.02-0.15	0.10-1.4					○				○
		060202E-UF	0.2	0.02-0.15	0.10-1.4					●				●
		060204E-UF	0.4	0.02-0.20	0.10-1.4					●				●
		09T301E-UF	0.1	0.02-0.15	0.10-2.4					●				●
		09T302E-UF	0.2	0.02-0.15	0.10-2.4					●				●
		09T304E-UF	0.4	0.02-0.20	0.10-2.4					○				○
		09T305E-UF	0.8	0.02-0.25	0.10-2.4					●				○
		CCGT 060201F-UF	0.1	0.02-0.15	0.10-1.4					●				
		060202F-UF	0.2	0.02-0.15	0.10-1.4					●				
		060204F-UF	0.4	0.02-0.20	0.10-1.4					●				
		09T301F-UF	0.1	0.02-0.15	0.10-2.4					●				
		09T302F-UF	0.2	0.02-0.15	0.10-2.4					●				
		09T304F-UF	0.4	0.02-0.20	0.10-2.4					●				
		09T305F-UF	0.8	0.02-0.25	0.10-2.4					●				
Semi-finishing		CCGT 060204F-NC2	0.4	0.05-0.20	0.22-2.9								●	
		09T302F-NC2	0.2	0.02-0.10	0.16-4.4								○	
		09T304F-NC2	0.4	0.05-0.20	0.22-4.4								●	
		09T305F-NC2	0.8	0.10-0.40	0.64-4.4								●	
		120404F-NC2	0.4	0.05-0.20	0.32-5.5								●	
		120405F-NC2	0.8	0.10-0.40	0.64-5.5								○	
Finishing		CCMT 060202E-PB1	0.2	0.02-0.07	0.15-1.6	○	○	○		●				
		060204E-PB1	0.4	0.04-0.14	0.20-1.6	●	○	●		●				
		060205E-PB1	0.8	0.09-0.25	0.60-1.6	○	○	○		●				
		09T302E-PB1	0.2	0.02-0.07	0.15-2.4	○	○	○		●				
		09T304E-PB1	0.4	0.04-0.14	0.20-2.4	●	○	●		●				○
		09T305E-PB1	0.8	0.09-0.25	0.60-2.4	●	●	●		●				
Semi-finishing		CCMT 060204E-PC2	0.4	0.05-0.16	0.25-1.9	●	○	●		●				●
		060205E-PC2	0.8	0.10-0.32	0.70-1.9	●	○	●		●				●
		09T304E-PC2	0.4	0.05-0.16	0.25-2.9	●	●	●		●				●
		09T305E-PC2	0.8	0.10-0.32	0.70-2.9	●	●	●		●				●
		09T312E-PC2	1.2	0.16-0.40	1.05-3.3	○	○	○		●				○
		120404E-PC2	0.4	0.05-0.16	0.25-3.3	●	○	●		●				●
		120405E-PC2	0.8	0.10-0.32	0.70-3.3	●	○	●		●				●
		120412E-PC2	1.2	0.16-0.40	1.05-3.3	○	○	○		○				○

Noted : ● Stock available ○ Non-stocked standard



Positive 80° (C) Rhombic Inserts



Dimensions (mm)				
Type	d	l	a	d1
CC_0301	3.5	3.58	1.4	2.0
CC_0401	4.3	4.37	1.5	2.3
CC_0601	6.35	6.45	2.38	2.8
CC_0973	9.52	9.67	3.97	4.4
CC_1204	12.7	12.9	4.76	5.5

Inserts (Left-hand shown unless the right-hand)		Type	r (mm)	Recommended parameters		Grades									
				f (mm/rev)	ap (mm)	AP100	AP200	AP300	AP300P	AP501A	AP501	AP501A	AP100K	AP100S	
Semi-finish		CCMT 060204E-KC2	0.4	0.06-0.12	0.40-0.1	○	○	●	○	●	○	●		●	
		060205E-KC2	0.6	0.10-0.26	0.50-0.1	○	○	○	○	○	○	●			
		09T304E-KC2	0.4	0.06-0.12	0.40-0.2	●	○	●	○	●	●	●			
		09T305E-KC2	0.6	0.12-0.36	0.50-0.2	●	●	○	○	○	○	●			
		120404E-KC2	0.4	0.06-0.12	0.40-0.3	○	○	○	○	○	○	●			
		120405E-KC2	0.6	0.10-0.36	0.50-0.3	●	○	●	●	●	●	●			
Finish		120412E-KC2	1.2	0.18-0.54	1.20-0.3	○	○	●	○	○	○	●			
		CCMT 060204E-KD5	0.4	0.10-0.22	0.40-0.2						○	○			
		09T304E-KD5	0.4	0.10-0.22	0.40-0.3						○	○			
		09T305E-KD5	0.6	0.20-0.44	0.50-0.3						○	●			
		120404E-KD5	0.4	0.10-0.22	0.40-0.4						○	○			
		120405E-KD5	0.6	0.20-0.44	0.50-0.4						○	●			
Finish		120412E-KD5	1.2	0.30-0.66	1.20-0.4						○	○			
		CCET 0301003FR-F	+0.03	0.01-0.06	0.1-0.3						○				
		0301003PL-F	+0.03	0.01-0.06	0.1-0.3						○				
		030101FR-F	+0.1	0.01-0.06	0.1-0.3						○				
		030101PL-F	+0.1	0.01-0.06	0.1-0.3						○				
		030102FR-F	+0.2	0.01-0.06	0.1-0.3						○				
		030102PL-F	+0.2	0.01-0.06	0.1-0.3						○				
		030104FR-F	+0.4	0.01-0.06	0.1-0.3						○				
		030104PL-F	+0.4	0.01-0.06	0.1-0.3						○				
		CCET 0401003FR-F	+0.03	0.01-0.06	0.1-0.4						○				
		0401003PL-F	+0.03	0.01-0.06	0.1-0.4						○				
		040101FR-F	+0.1	0.01-0.06	0.1-0.4						○				
		040101PL-F	+0.1	0.01-0.06	0.1-0.4						○				
		040102FR-F	+0.2	0.01-0.06	0.1-0.4						○				
		040102PL-F	+0.2	0.01-0.06	0.1-0.4						○				
		040104FR-F	+0.4	0.01-0.06	0.1-0.4						○				
		040104PL-F	+0.4	0.01-0.06	0.1-0.4						○				

Noted : ● Stock available ○ Non-stock standard

Positive 80° (C) Rhombic Inserts



Dimensions (mm)				
Type	d	l	s	d1
CC_0602	6.35	6.48	2.98	2.8
CC_09T3	9.52	9.67	3.97	4.4

Inserts (left-hand shown where it's applicable)		Type	r (mm)	Recommended parameters		Grades								
				f (mm/rev)	ap (mm)	W3 00P	W3 00P	W3 50P	W3 90P	W3 10M	W3 10K	W3 15K	W3 100K	W3 100K
Low feed		CCET 060203FR-M	+0.03	0.02-0.10	0.5-2.5					○				
		060203PL-M	+0.03	0.02-0.10	0.5-2.5					○				
		060201FR-M	+0.1	0.02-0.10	0.5-2.5					○				
		060201PL-M	+0.1	0.02-0.10	0.5-2.5					○				
		060202FR-M	+0.2	0.02-0.10	0.5-2.5					○				
		060202PL-M	+0.2	0.02-0.10	0.5-2.5					○				
		060204FR-M	+0.4	0.01-0.10	0.5-2.5					○				
		060204PL-M	+0.4	0.01-0.10	0.5-2.5					○				
		CCET 09T303FR-M	+0.03	0.02-0.10	0.5-4.0					●				
		09T303PL-M	+0.03	0.02-0.10	0.5-4.0					●				
		09T301FR-M	+0.1	0.02-0.10	0.5-4.0					●				
		09T301PL-M	+0.1	0.02-0.10	0.5-4.0					●				
		09T302FR-M	+0.2	0.02-0.10	0.5-4.0					●				
		09T302PL-M	+0.2	0.02-0.10	0.5-4.0					●				
		09T304FR-M	+0.4	0.02-0.10	0.5-4.0					●				
		09T304PL-M	+0.4	0.02-0.10	0.5-4.0					●				

Noted : ● Stock available ○ Normalized standard

Positive 35° (D) Rhombic Inserts



Dimensions (mm)				
Type	d	l	a	d1
DC, DT	6.35	7.75	2.38	2.8
DC, DT	9.52	11.52	3.97	4.4

Inserts		Type	r (mm)	Recommended parameters		Grades									
				f (mm/rev)	ap (mm)	W300	W300P	W300S	W300SP	W300L	W300S	W300L	W300S	W300L	
Fine turning		DCST 070201E-UF	0.1	0.02-0.15	0.10-1.4					●					○
		070202E-UF	0.2	0.02-0.15	0.10-1.4					●					○
		070204E-UF	0.4	0.02-0.20	0.10-1.4					●					○
		11T301E-UF	0.1	0.02-0.15	0.10-2.4					●					●
		11T302E-UF	0.2	0.02-0.15	0.10-2.4					●					●
		11T304E-UF	0.4	0.02-0.20	0.10-2.4					●					●
		DCST 070201F-UF	0.1	0.02-0.15	0.10-1.4					●					
		070202F-UF	0.2	0.02-0.15	0.10-1.4					●					
		070204F-UF	0.4	0.02-0.20	0.10-1.4					●					
		11T301F-UF	0.1	0.02-0.15	0.10-2.4					●					
		11T302F-UF	0.2	0.02-0.15	0.10-2.4					●					
		11T304F-UF	0.4	0.02-0.20	0.10-2.4					●					
Semi finishing		DCST 070202F-NC2	0.2	0.02-0.10	0.16-9.5									○	
		070204F-NC2	0.4	0.05-0.20	0.22-9.5									○	
		11T302F-NC2	0.2	0.02-0.10	0.16-9.5									●	
		11T304F-NC2	0.4	0.05-0.20	0.32-9.5									●	
		11T306F-NC2	0.8	0.10-0.40	0.64-9.5									○	
Fine turning		DCMT 070202E-PB1	0.2	0.02-0.07	0.15-1.5	○	○	○		○					
		070204E-PB1	0.4	0.04-0.14	0.20-1.5	●	○	●		●					
		11T302E-PB1	0.2	0.02-0.07	0.15-0.3	●	○	●		●					
		11T304E-PB1	0.4	0.04-0.14	0.20-0.3	●	○	●		●					
		11T306E-PB1	0.8	0.09-0.20	0.60-0.3	●	○	●		○					
Semi finishing		DCMT 070204E-PC2	0.4	0.05-0.16	0.25-0.1	○	○	●		●					●
		070206E-PC2	0.8	0.10-0.32	0.70-0.1	●	○	●		●					○
		11T304E-PC2	0.4	0.05-0.16	0.25-0.1	●	○	●		●					●
		11T306E-PC2	0.8	0.10-0.32	0.70-0.1	●	●	●		●					●
		11T312E-PC2	1.2	0.16-0.48	1.09-0.1	○	○	○		○					●

Marked : ● Stock available ○ Non-stocked standard

Positive 55° (D) Rhombic Inserts



Dimensions (mm)				
Type	d	l	s	d1
DC, DT02	6.35	7.75	2.38	2.8
DC, 11T3	9.52	11.52	3.97	4.4

Inserts Left-hand shown where it's applicable		Type	r (mm)	Recommended parameters		Grades									
				f (mm/rev)	ap (mm)	KT 500	KT 500P	KT 500S	KT 500S	KT 500S	KT 500S	KT 500S	KT 500S	KT 500S	KT 500S
Scarfing/shaving		DCMT 070204E-KC2	0.4	0.06-0.12	0.40-0.3	○	○	○			○	●			
		070208E-KC2	0.8	0.12-0.26	0.80-0.3	○	○	○	○		○	●			
		11T304E-KC2	0.4	0.06-0.12	0.40-0.3	●	○	●			●	●			
		11T308E-KC2	0.8	0.12-0.26	0.80-0.3	●	○	●	○		○	●			
Bore/finishing		11T312E-KC2	1.2	0.18-0.54	1.20-0.5	○	○	○			○	○			
		DCMT 070204E-KD5	0.4	0.06-0.12	0.40-0.3						○	○			
		070208E-KD5	0.8	0.12-0.26	0.80-0.3						○	○			
		11T304E-KD5	0.4	0.06-0.12	0.40-0.3						○	○			
Finishing		DCET 070203FR-F	+0.03	0.02-0.12	0.1-0.4						○				
		070203PL-F	+0.03	0.02-0.12	0.1-0.4						○				
		070201FR-F	+0.1	0.02-0.12	0.1-0.4						○				
		070201PL-F	+0.1	0.02-0.12	0.1-0.4						○				
		070203FR-F	+0.2	0.02-0.12	0.1-0.4						○				
		070202PL-F	+0.2	0.02-0.12	0.1-0.4						○				
		070204FR-F	+0.4	0.02-0.12	0.1-0.4						○				
		070204PL-F	+0.4	0.02-0.12	0.1-0.4						○				
		DCET 11T303FR-F	+0.03	0.02-0.20	0.1-0.4						●				
		11T303PL-F	+0.03	0.02-0.20	0.1-0.4						●				
		11T301FR-F	+0.1	0.02-0.20	0.1-0.4						●				
		11T301PL-F	+0.1	0.02-0.20	0.1-0.4						●				
		11T303FR-F	+0.2	0.02-0.20	0.1-0.4						●				
		11T302PL-F	+0.2	0.02-0.20	0.1-0.4						●				
		11T304FR-F	+0.4	0.02-0.20	0.1-0.4						●				
		11T304PL-F	+0.4	0.02-0.20	0.1-0.4						●				

Notes: ● Stock available ○ Recommended standard

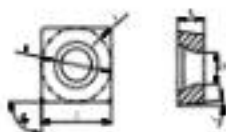
Positive 55° (D) Rhombic Inserts



Dimensions (mm)				
Type	d	l	s	d1
DC, DT	6.35	7.75	2.38	2.8
DC, DT	9.52	11.52	3.97	4.4

Inserts (Left-hand shown where it's applicable)		Type	s (mm)	Recommended parameters		Grades							
				f (mm/rev)	ap (mm)	AS 300	AS 300P	AS 300S	AS 300S	AP 100	AP 100P	AP 100S	AP 100S
Lowfeed		DCET 0702003PR-M	+0.03	0.01-0.08	0.5-2.8					○			
		DT02003PL-M	+0.03	0.01-0.08	0.5-2.8					○			
		DT0201PR-M	+0.1	0.01-0.08	0.5-2.8					○			
		DT0201PL-M	+0.1	0.01-0.08	0.5-2.8					○			
		DT0202PR-M	+0.2	0.01-0.08	0.5-2.8					○			
		DT0202PL-M	+0.2	0.01-0.08	0.5-2.8					○			
		DT0204PR-M	+0.4	0.01-0.08	0.5-2.8					○			
		DT0204PL-M	+0.4	0.01-0.08	0.5-2.8					○			
		DCET 11T3003PR-M	+0.03	0.01-0.10	0.5-4.0					●			
		11T3003PL-M	+0.03	0.01-0.10	0.5-4.0					●			
		11T301PR-M	+0.1	0.01-0.10	0.5-4.0					●			
		11T301PL-M	+0.1	0.01-0.10	0.5-4.0					●			
		11T302PR-M	+0.2	0.01-0.10	0.5-4.0					●			
		11T302PL-M	+0.2	0.01-0.10	0.5-4.0					●			
		11T304PR-M	+0.4	0.01-0.10	0.5-4.0					●			
		11T304PL-M	+0.4	0.01-0.10	0.5-4.0					●			

Positive 90° (S) Square Inserts



Dimensions (mm)				
Type	d	l	s	d1
SC 09T3	9.52	9.52	3.97	4.4
SC 1204	12.7	12.7	4.76	5.8
SC 3030	30.1	30.1	9.52	9.8

Inserts		Type	r (mm)	Recommended parameters		Grades									
				f (mm/rev)	ap (mm)	AP100	AP200	AP300	AP300P	AP611A	AP110K	AP111A	AP100K	AP100S	
Finishing		SCMT 09T304E-PB1	0.4	0.04-0.14	0.03-0.4	●	○	○		○					
		09T306E-PB1	0.8	0.09-0.28	0.03-0.4	○	○	○		●					
		120404E-PB1	0.4	0.04-0.14	0.03-0.3	○	○	○		○					
Semi-finishing		SCMT 09T304E-PC2	0.4	0.08-0.16	0.08-0.9	●	○	●		●				●	
		09T306E-PC2	0.8	0.10-0.32	0.03-0.9	○	○	●		○				○	
		120404E-PC2	0.4	0.08-0.16	0.08-0.8	○	○	●		●				○	
		120406E-PC2	0.8	0.10-0.32	0.03-0.8	●	○	○		●				○	
		120412E-PC2	1.2	0.16-0.48	1.05-0.8	○	○	○		○				○	
		SCGT 09T308F-NC2	0.8	0.10-0.40	0.64-4.3									○	
		SCMT 09T304E-KC2	0.4	0.06-0.18	0.40-3.1	○	○	○	○		○	●			
		09T306E-KC2	0.8	0.12-0.36	0.03-3.1	●	○	●	○		○	●			
		120404E-KC2	0.4	0.06-0.18	0.40-4.2	○	○	○	○		○	○			
		120406E-KC2	0.8	0.12-0.36	0.03-4.2	○	●	●	○		○	●			
120412E-KC2		1.2	0.18-0.84	1.20-4.2	○	○	○	○		○	●				
Roughing		SCMW 09T304E-KD6	0.4	0.10-0.32	0.40-4.8						○	○			
		09T306E-KD6	0.8	0.20-0.44	0.03-4.8						○	○			
		120404E-KD6	0.4	0.10-0.32	0.40-6.4						○	○			
		120406E-KD6	0.8	0.20-0.44	0.03-6.4						○	○			
		SCMT 380932-HT	3.2	0.70-1.40	4.0-18.0				○						

Notes : ● Stock available ○ Recommended standard

Positive 60° (T) Triangle Inserts



Dimensions (mm)					
Type	d	l	a	d1	
TCMT 11020	9.56	9.65	2.38	2.8	
TC 11020	9.52	11.3	2.38	2.8	
TC 1615	9.52	16.5	3.97	4.4	
TPMT 11020	9.56	9.65	2.38	2.8	
TPMT 11020	9.52	11.3	2.38	2.4	

Inserts	Type	r (mm)	Recommended parameters		Grades									
			f (mm/rev)	ap (mm)	AP100	AP200	AP300	AP400	AP500	AP600	AP700	AP800	AP900	AP1000
Turning		TCMT 11020E-UF 0.1	0.02-0.15	0.10-0.4						○				○
		11020E-UF 0.2	0.02-0.15	0.20-0.4						○				○
		11020E-UF 0.4	0.02-0.20	0.20-0.4						●				○
		16T304E-UF 0.4	0.02-0.20	0.20-0.4						○				○
		TCMT 11020F-UF 0.1	0.02-0.15	0.10-0.4						●				
		11020F-UF 0.2	0.02-0.15	0.20-0.4						●				
		11020F-UF 0.4	0.02-0.20	0.20-0.4						●				
		16T304F-UF 0.4	0.02-0.20	0.20-0.4						●				
		TCMT 09020E-PB1 0.4	0.04-0.14	0.20-1.0	○	○	○		○					
		11020E-PB1 0.2	0.02-0.07	0.18-0.2	●	○	○	○	○					
		11020E-PB1 0.4	0.04-0.14	0.30-0.2	○	○	○		○					
		11020E-PB1 0.8	0.09-0.28	0.60-0.2	○	○	○		○					
		16T304E-PB1 0.4	0.04-0.14	0.30-0.3	●	○	○		○					
		16T308E-PB1 0.8	0.09-0.28	0.60-0.3	○	○	○		○					
Semi-finishing		TCMT 09020E-PC2 0.4	0.08-0.16	0.28-0.6	○	○	●		●					○
		09020E-PC2 0.8	0.10-0.32	0.70-0.6	○	○	○		○					○
		11020E-PC2 0.4	0.08-0.16	0.35-0.0	○	○	●		●				●	
		11020E-PC2 0.8	0.10-0.32	0.70-0.0	○	○	●		●				●	
		16T304E-PC2 0.4	0.08-0.16	0.35-4.5	●	○	●		○				○	
		16T308E-PC2 0.8	0.10-0.32	0.70-4.5	●	○	●		●				○	
		TPMT 09020E-PC2 0.4	0.08-0.16	0.35-2.6	○	○	○		●				○	
		09020E-PC2 0.8	0.10-0.32	0.70-2.6	○	○	○		●				○	
		11020E-PC2 0.4	0.08-0.16	0.35-0.0	●	○	●		●				○	
		11020E-PC2 0.8	0.10-0.32	0.70-0.0	○	○	○		●				○	
		TCMT 11020F-NC2 0.4	0.08-0.20	0.32-4.0									○	
		16T304F-NC2 0.4	0.08-0.20	0.32-7.4									○	
		16T308F-NC2 0.8	0.10-0.40	0.64-7.4									○	

Positive 60° (T) Triangle Inserts



Dimensions (mm)				
Type	d	l	a	ø1
TSET-0601	3.57	6.83	1.59	2.3
TPEH-0802	4.76	8.24	2.38	2.3
TSET-0802	4.76	8.24	2.38	2.3
TPEH-0902	5.96	9.63	2.38	3.0
TPEH-1103	6.35	11.0	3.18	3.3
TSET-1103	6.35	11.0	3.18	3.3

Inserts (Left-hand shown where the tool is visible)		Type	T (mm)	Recommended parameters		Grades										
				f (mm/rev)	ap (mm)	AS 500	AS 500P	AS 500P	AS 500P	AP 500 M	AS 500	AS 500	AP 500K	AP 500S		
Flat (ring)		TSET 0601003FR-F	+0.03	0.03-0.08	0.1-0.3						○					
		0601003FL-F	+0.03	0.03-0.08	0.1-0.3						○					
		060101FR-F	+0.1	0.03-0.08	0.1-0.3						○					
		060101FL-F	+0.1	0.03-0.08	0.1-0.3						○					
		060102FR-F	+0.3	0.03-0.08	0.1-0.3						○					
		060102FL-F	+0.3	0.03-0.08	0.1-0.3						○					
		060104FR-F	+0.6	0.03-0.08	0.1-0.3						○					
		060104FL-F	+0.6	0.03-0.08	0.1-0.3						○					
		TPEH090201FR-F	+0.1	0.01-0.10	0.1-0.8						○					
		090201FL-F	+0.1	0.01-0.10	0.1-0.8						○					
		090202FR-F	+0.3	0.01-0.10	0.1-0.8						○					
		090202FL-F	+0.3	0.01-0.10	0.1-0.8						○					
		090204FR-F	+0.6	0.01-0.10	0.1-0.8						○					
		090204FL-F	+0.6	0.01-0.10	0.1-0.8						○					
		TPEH110302FR-F	+0.3	0.01-0.13	0.2-0.8						●					
		110302FL-F	+0.3	0.01-0.13	0.2-0.8						●					
		110304FR-F	+0.6	0.01-0.13	0.2-0.8						●					
		110304FL-F	+0.6	0.01-0.13	0.2-0.8						●					
	Scal (end)		TSET 0802003FR-M	+0.03	0.01-0.08	0.3-0.8						○				
			0802003FL-M	+0.03	0.01-0.08	0.3-0.8						○				
080201FR-M			+0.1	0.01-0.08	0.3-0.8						○					
080201FL-M			+0.1	0.01-0.08	0.3-0.8						○					
080202FR-M			+0.3	0.01-0.08	0.3-0.8						○					
080202FL-M			+0.3	0.01-0.08	0.3-0.8						○					
		TSET 1103003FR-M	+0.03	0.02-0.10	0.3-0.8						●					
		1103003FL-M	+0.03	0.02-0.10	0.3-0.8						●					
		110301FR-M	+0.1	0.02-0.10	0.3-0.8						●					
		110301FL-M	+0.1	0.02-0.10	0.3-0.8						●					
		110302FR-M	+0.3	0.02-0.10	0.3-0.8						●					
		110302FL-M	+0.3	0.02-0.10	0.3-0.8						●					
		110304FR-M	+0.6	0.02-0.10	0.3-0.8						●					
		110304FL-M	+0.6	0.02-0.10	0.3-0.8						●					

Marked : ● Stock available ○ Nonstock standard

Positive 35° (V) Rhombic Inserts



Dimensions (mm)				
Type	d	l	h	d1
VE_1103	6.35	11.07	3.18	2.8
VE_1604	9.52	16.61	4.76	4.4
VC_1103	6.35	11.07	3.18	2.8
VC_1604	9.52	16.61	4.76	4.4

Inserts	Type	r (mm)	Recommended parameters		Grades							
			f (mm/rev)	ap (mm)	AP100	AP200	AP300	AP300P	AP501A	AP100K	AP100L	AP100S
Inserting		VBST 110301E-UF	0.1	0.02-0.15	0.10-1.4				○			○
		110302E-UF	0.2	0.02-0.15	0.20-1.4				●			○
		110304E-UF	0.4	0.02-0.20	0.20-1.4				○			●
		160401E-UF	0.1	0.02-0.15	0.10-1.4				○			●
		160402E-UF	0.2	0.02-0.15	0.20-1.4				●			○
		VBST 110301F-UF	0.1	0.02-0.15	0.10-1.4				●			
		110302F-UF	0.2	0.02-0.15	0.20-1.4				●			
		110304F-UF	0.4	0.02-0.20	0.20-1.4				●			
		160401F-UF	0.1	0.02-0.15	0.10-1.4				●			
		160402F-UF	0.2	0.02-0.15	0.20-1.4				●			
		VCST 110301E-UF	0.1	0.02-0.15	0.10-1.4				●			○
		110302E-UF	0.2	0.02-0.15	0.20-1.4				○			●
		110304E-UF	0.4	0.02-0.20	0.20-1.4				○			○
		VCST 110301F-UF	0.1	0.02-0.15	0.10-1.4				●			
		110302F-UF	0.2	0.02-0.15	0.20-1.4				●			
		110304F-UF	0.4	0.02-0.20	0.20-1.4				●			
		VBMT 110304E-PB1	0.4	0.04-0.14	0.30-1.4	○	○	○	●			
		110305E-PB1	0.8	0.09-0.20	0.60-1.4	○	○	○	●			
		160402E-PB1	0.2	0.02-0.07	0.15-2.1	○	○	○	●			
		160404E-PB1	0.4	0.04-0.14	0.30-2.1	●	●	○	●			
		160405E-PB1	0.8	0.09-0.20	0.60-2.1	●	●	○	○			
		VCMT 160404E-PB1	0.4	0.04-0.14	0.30-2.1	○		○	○			
		160405E-PB1	0.8	0.09-0.20	0.60-2.1	○		○	○			
Semi-finishing		VBMT 110304E-PC2	0.4	0.09-0.16	0.29-2.1	●	○	○	●			●
		110305E-PC2	0.8	0.10-0.32	0.70-2.1	○	○	○	○			○
		160404E-PC2	0.4	0.09-0.16	0.29-2.1	●	○	●	●			●
		160405E-PC2	0.8	0.10-0.32	0.70-2.1	●	●	●	●			●
		160412E-PC2	1.2	0.16-0.40	1.09-2.1	●	○	○	○			●
		VCMT 110304E-PC2	0.4	0.09-0.16	0.29-2.1	●	○	○	○			
		110305E-PC2	0.8	0.10-0.32	0.70-2.1	○		○	○			
		160404E-PC2	0.4	0.09-0.16	0.29-2.1	○		○	●			
		160405E-PC2	0.8	0.10-0.32	0.70-2.1	●		○	○			

Notes: ● Stock available ○ Recommended standard



Positive 35° (V) Rhombic Inserts



Dimensions (mm)				
Type	d	l	s	d1
VB_1103	6.35	11.07	3.18	2.8
VB_1604	9.52	16.61	4.76	4.4
VC_1103	6.35	11.07	3.18	2.8
VC_1604	9.52	16.61	4.76	4.4
VC_2205	12.7	22.14	5.56	5.5
VC_2205	12.7	22.14	5.56	5.5

Inserts (achieved shown where it's applicable)		Type	s (mm)	Recommended parameters		Grades									
				f (mm/rev)	ap (mm)	AP100	AP200	AP300	AP300P	AP500	AP500P	AP600	AP600P	AP700	AP700P
Semi-finish		VCST 110302F-NC2	0.2	0.02-0.10	0.16-0.8								○		
		110304F-NC2	0.4	0.05-0.20	0.32-0.8								●		
		160404F-NC2	0.4	0.05-0.20	0.32-0.8								●		
		160408F-NC2	0.8	0.10-0.40	0.64-0.8								●		
		160412F-NC2	1.2	0.14-0.60	0.96-0.8								●		
		220502F-NC2	2.0	0.26-1.80	2.40-0.8								○		
		VPST 220502E-NC2	2.0	0.24-1.0	1.60-0.8								●		
		VPST 220502F-NC2	2.0	0.24-1.0	1.60-0.8								○		
Finish		VBMT 160404E-NC2	0.4	0.06-0.16	0.40-0.8	●	○	●			●	○			
		160408E-NC2	0.8	0.12-0.36	0.80-0.8	●	○	○			○	●			
		160412E-NC2	1.2	0.18-0.64	1.20-0.8	●	○	●			○	○			
		VBET 110303FR-F	+0.03	0.01-0.18	0.1-0.8						●				
		110303FL-F	+0.03	0.01-0.18	0.1-0.8						●				
		110301FR-F	+0.1	0.01-0.18	0.1-0.8						●				
		110301FL-F	+0.1	0.01-0.18	0.1-0.8						●				
		110302FR-F	+0.2	0.01-0.18	0.1-0.8						●				
Toolfeed		110302FL-F	+0.2	0.01-0.18	0.1-0.8						●				
		VBET 110301FR-M	+0.1	0.01-0.06	0.2-2.0						●				
		110301FL-M	+0.1	0.01-0.06	0.2-2.0						●				
		110302FR-M	+0.2	0.01-0.06	0.2-2.0						●				
		110302FL-M	+0.2	0.01-0.06	0.2-2.0						●				
		110304FR-M	+0.4	0.01-0.06	0.2-2.0						●				

Positive 35° (V) Rhombic Inserts



Dimensions (mm)				
Type	d	l	s	d1
VE_1103	6.35	11.07	3.18	2.8
VE_1204	9.53	12.61	4.75	4.4
VE_1103	6.35	11.07	3.18	2.8
VP_0802	4.75	8.3	2.98	2.3
VP_1103	6.35	11.07	3.18	2.8

Inserts (left-hand shown where it's applicable)		Type	s (mm)	Recommended parameters		Grades							
				f (mm/rev)	ap (mm)	AP100	AP200	AP300	AP400	AP500	AP600	AP700	AP800
Facing		VCET 110301FR-F	+0.1	0.01-0.12	0.1-0.3						●		
		110301FL-F	+0.1	0.01-0.12	0.1-0.3						●		
		110302FR-F	+0.2	0.01-0.12	0.1-0.3						●		
		110302FL-F	+0.2	0.01-0.12	0.1-0.3						●		
		110304FR-F	+0.4	0.01-0.12	0.1-0.3						●		
		110304FL-F	+0.4	0.01-0.12	0.1-0.3						●		
		VPET 080201FR-F	+0.1	0.02-0.15	0.05-0.2						○		
		080201FL-F	+0.1	0.02-0.15	0.05-0.2						○		
		080202FR-F	+0.2	0.02-0.15	0.05-0.2						○		
		080202FL-F	+0.2	0.02-0.15	0.05-0.2						○		
Load cut		VPET 080201FR-M	+0.1	0.01-0.06	0.2-1.5						○		
		080201FL-M	+0.1	0.01-0.06	0.2-1.5						○		
		080202FR-M	+0.2	0.01-0.06	0.2-1.5						○		
		080202FL-M	+0.2	0.01-0.06	0.2-1.5						○		
		VPET 110301FR-M	+0.1	0.01-0.06	0.2-2.0						○		
		110301FL-M	+0.1	0.01-0.06	0.2-2.0						○		
		110302FR-M	+0.2	0.01-0.06	0.2-2.0						○		
		110302FL-M	+0.2	0.01-0.06	0.2-2.0						○		
		110304FR-M	+0.4	0.01-0.06	0.2-2.0						○		
		110304FL-M	+0.4	0.01-0.06	0.2-2.0						○		
		VBET 110303FR-Y	+0.03	0.08-0.22	0.5-1.8						○		
		110303FL-Y	+0.03	0.08-0.22	0.5-1.8						○		
		110301FR-Y	+0.1	0.08-0.22	0.5-1.8						○		
		110301FL-Y	+0.1	0.08-0.22	0.5-1.8						○		
		110302FR-Y	+0.2	0.08-0.22	0.5-1.8						○		
		110302FL-Y	+0.2	0.08-0.22	0.5-1.8						○		
		110304FR-Y	+0.4	0.08-0.22	0.5-1.8						○		
		110304FL-Y	+0.4	0.08-0.22	0.5-1.8						○		
		VBET 160403FR-Y	+0.2	0.1-0.25	0.5-2.0						○		
		160403FL-Y	+0.2	0.1-0.25	0.5-2.0						○		
		160404FR-Y	+0.4	0.1-0.25	0.5-2.0						○		
		160404FL-Y	+0.4	0.1-0.25	0.5-2.0						○		
		160405FR-Y	0.8	0.1-0.25	0.5-2.0						○		
		160405FL-Y	0.8	0.1-0.25	0.5-2.0						○		

Notes: ● Stock available ○ Normalized standard

Positive 80° (W) Trigon Inserts



Dimensions (mm)				
Type	d	h	a	d1
WE 0601	3.97	3.52	1.59	2.3
WE 0602	4.75	4.75	2.38	2.3

Inserts (Left hand shown unless the opposite)		Type	r (mm)	Recommended parameters		Grades							
				f (mm/rev)	ap (mm)	WJ 100	WJ 200	WJ 500	WJ 800	WJ 1000	WJ 1500	WJ 2000	WJ 3000
See drawing		WEET 0601033FR-F	+0.03	0.05-0.08	0.1-0.2					○			
		0601033FL-F	+0.03	0.05-0.08	0.1-0.2					○			
		060101FR-F	+0.1	0.05-0.08	0.1-0.2					○			
		060101FL-F	+0.1	0.05-0.08	0.1-0.2					○			
		060102FR-F	+0.2	0.05-0.08	0.1-0.2					○			
		060102FL-F	+0.2	0.05-0.08	0.1-0.2					○			
		060104FR-F	+0.4	0.05-0.08	0.1-0.2					○			
		060104FL-F	+0.4	0.05-0.08	0.1-0.2					○			
		WEET 0802033FR-F	+0.03	0.05-0.08	0.1-0.2					○			
		0802033FL-F	+0.03	0.05-0.08	0.1-0.2					○			
		080201FR-F	+0.1	0.05-0.08	0.1-0.2					○			
		080201FL-F	+0.1	0.05-0.08	0.1-0.2					○			
		080202FR-F	+0.2	0.05-0.08	0.1-0.2					○			
		080202FL-F	+0.2	0.05-0.08	0.1-0.2					○			
		080204FR-F	+0.4	0.05-0.08	0.1-0.2					○			
		080204FL-F	+0.4	0.05-0.08	0.1-0.2					○			

Positive Round Turning Inserts



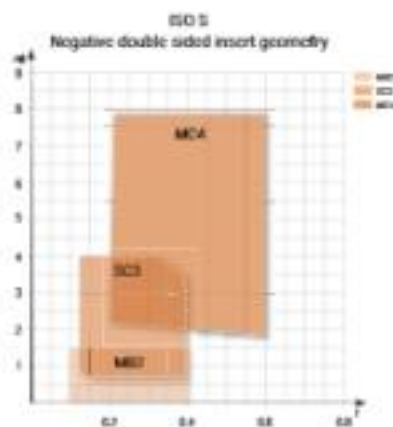
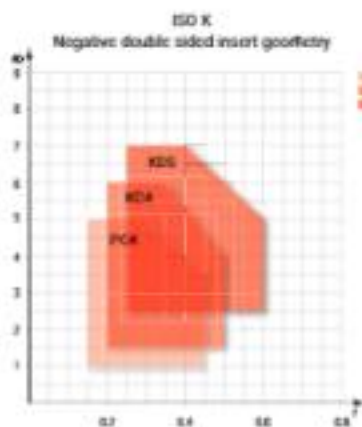
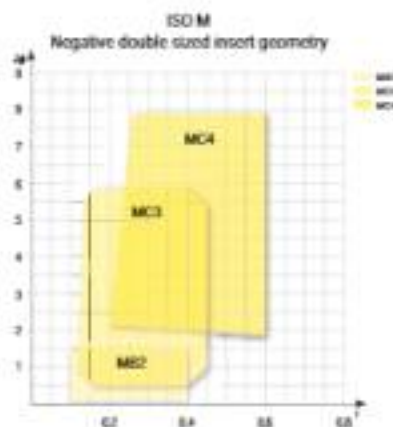
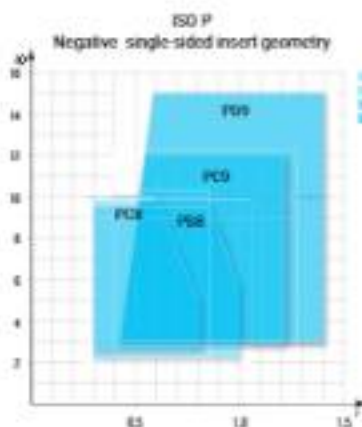
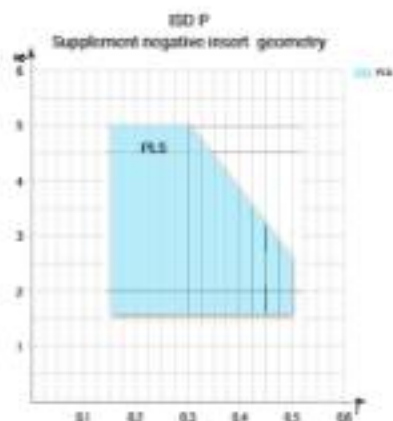
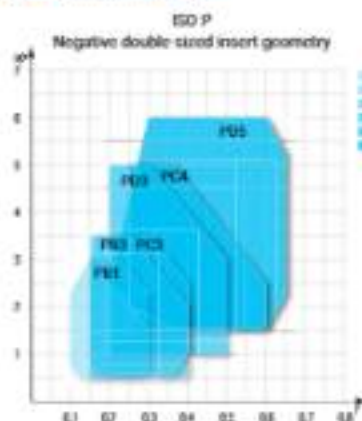
Dimensions (mm)				Dimensions (mm)			
Type	a	b	d1	Type	a	b	d1
RCGT_0803	3.18	8.0	3.4	RCMX_1606	6.35	16.0	6.3
RCGT_1003	3.18	10.0	4.4	RCMX_2006	6.35	20.0	6.3
RCGT_1010	3.97	10.0	4.4	RCMX_2507	7.94	25.0	7.2
RCMX_1003	3.18	10.0	3.6	RCMX_3209	9.52	32.0	9.6
RCMX_1204	4.76	12.0	4.3				

Inserts		Type	r (mm)	Recommended parameters		Grades									
				f (mm/rev)	ap (mm)	AP100	AP200	AP300	AP300P	AP610	AP100	AP110	AP100K	AP100S	
Scarfing		RCGT 0803MCP-NC2	4	0.10-1.00	0.70-3.3										
		1003MCP-NC2	5	0.20-1.30	0.90-4.0										
		10T3MCP-NC2	8	0.20-1.30	0.90-4.0										
Finishing		RCMX 2006M08-P08	10	0.40-0.90	3.9-9.0	○	○	○							
		2507M08-P08	12.5	0.55-1.20	4.0-12.0	○	●	○							
		2209M08-P08	16	0.65-1.50	5.0-15.0	○	○	○							
Skidless		RCMX 1003008	5	0.25-0.80	1.9-4.0	○		●	○						
		1204008	6	0.30-0.60	2.9-6.0	●		●	○						
		1606008	8	0.40-0.75	3.0-7.0	●		○	○						
		2006008	10	0.40-0.90	3.9-9.0	●		○	●						
		2507008	12.5	0.55-1.20	4.0-12.0	○		○	○						
		2209008	16	0.65-1.50	5.0-15.0	●		○	○						

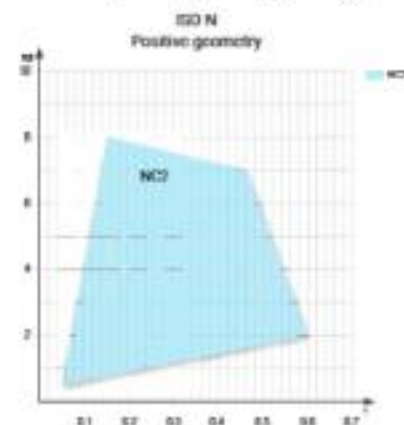
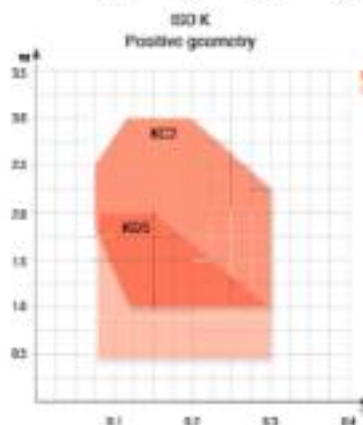
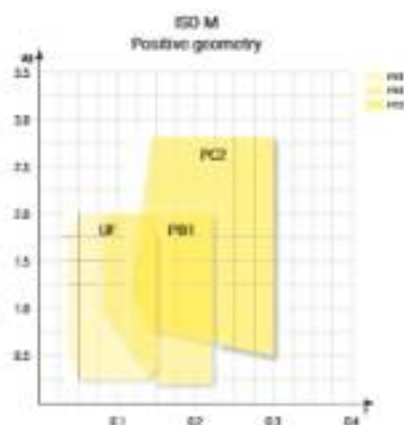
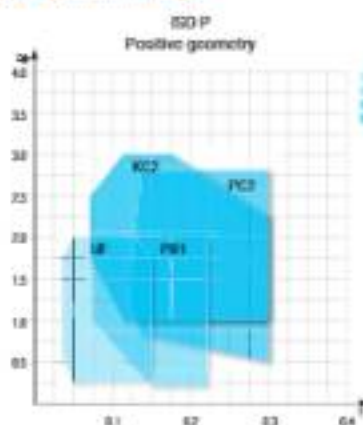
Noted : ● Stock available ○ Normalized standard



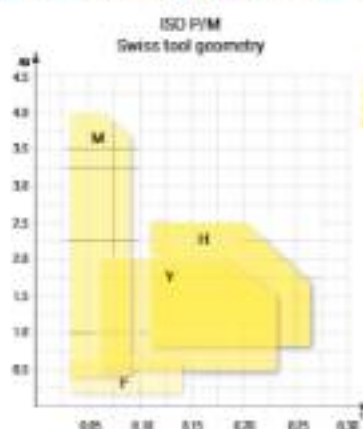
Negative Insert Geometry Ap, F Application Range



Positive Insert Geometry Ap, F Application Range



Swiss Tool Geometry Ap, F Application Range



Cutting Parameter Recommendation Table -Negative inserts

ID	Materials			Tool life and wear		Turning profile application range																							
	Workpiece material			Tool life (min)	Tool wear (mm)	Initial value of cutting speed (m/min)																							
						Feed (mm/min)																							
						Spindle speed (rpm)																							
P	Chromium steel	Cr12	Unhardened	100	0.1	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
		Cr12Mo1	Unhardened	100	0.1	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
		Cr12Mo2	Unhardened	100	0.1	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
		Cr12Mo3	Unhardened	100	0.1	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
		Cr12Mo4	Unhardened	100	0.1	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
	Austenitic steel	304	Unhardened	100	0.1	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
		316	Unhardened	100	0.1	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
		316L	Unhardened	100	0.1	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
	High speed steel and high alloy steel	HSS	Unhardened	100	0.1	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
		HSS-Co	Unhardened	100	0.1	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
	Stainless steel	304	Unhardened	100	0.1	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
		316	Unhardened	100	0.1	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
SS	Stainless steel	304	Unhardened	100	0.1	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
		316	Unhardened	100	0.1	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
		316L	Unhardened	100	0.1	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
X	Hardened steel	52100	Hardened	100	0.1	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
		52100	Hardened	100	0.1	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
	Alloy steel	42CrMo	Unhardened	100	0.1	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
		42CrMo	Unhardened	100	0.1	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
	Tool steel	W18Cr4V	Unhardened	100	0.1	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
H	Forged aluminum alloy	7050	Unhardened	100	0.1	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
		7050	Unhardened	100	0.1	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
	Cast aluminum alloy	AlSi10Mg	Unhardened	100	0.1	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
		AlSi10Mg	Unhardened	100	0.1	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
	Magnesium alloy	AZ91	Unhardened	100	0.1	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
E	Titanium alloy	TC4	Unhardened	100	0.1	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
		TC4	Unhardened	100	0.1	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
	Inconel alloy	718	Unhardened	100	0.1	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
		718	Unhardened	100	0.1	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
M	Inconel alloy	718	Unhardened	100	0.1	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
		718	Unhardened	100	0.1	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
	Inconel alloy	718	Unhardened	100	0.1	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
		718	Unhardened	100	0.1	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000

*The recommended cutting data range refers to general cutting conditions. The actual parameter should be adjusted according to the factors such as machine rigidity, tool life, workpiece conditions and so on.

Cutting Parameter Recommendation Table -Negative inserts

[illegible]

*The recommended boiling time always refers to generic boiling conditions. The actual position where it is subjected may vary in the fire (such as, heating rapidly, heat slowly, or keeping over a flame and so on).

PCBN Insert Denomination System

CNGA 120408	-	S	010	20	-	SL	-	1	-	CB	PB30
1		2	3	4		5		6		7	8

1-Insert Denomination System

3-Cutting edge shape



3-Insert width

005—0.05mm
010—0.10mm
015—0.15mm
020—0.20mm

4-Insert angle

10—10°
15—15°
20—20°
25—25°

5-CBN insert structure

FT—Full face CBN



SD—Solid CBN



SL—Small size tipped CBN



HL—Standard Hipped CBN (Regrindable)



6-Number of cutting edge

1—One cutting edge
2—Two cutting edges
3—Three cutting edges

7-Cutting edge preparation

CB—With chip breaker
WC—With wiper edge
"—Without chip breaker

8-Grade

PB30—Low content CBN
PB60—Medium content CBN
PB90—High content CBN

PCBN Insert Grade Introduction

Grade	Feature	Application
PB30	Well balanced wear resistance and shock resistance	Good versatility. Suitable for continuous and light interrupted cutting of hardened steel
PB60	Excellent toughness	Mainly applied in medium interrupted cutting of hardened steel, interrupted and continuous cutting of powder metal and cast iron cutting.
PB90	Good wear resistance, toughness, and shock resistance	Primarily applied in cast iron cutting. Heavy interrupted cutting of hardened steel and powder metal machining

PCBN Recommended Cutting Parameter

Grade	Material	Hardness	Cutting speed Vc(m/min)	Feed f3(mm/min)	Cutting depth ap(mm)	Recommended application
PB30	Hardened steel	HRC62-63	180-280	0.02-0.2	0.05-0.3	Continuous
PB60	Hardened steel	HRC65-66	50-150	0.02-0.2	0.05-0.5	Interrupted
	Cast iron	HB180-220	150-450	0.02-0.3	0.30-0.8	Continuous / Interrupted
	Powder metal	-	200-500	0.02-0.3	0.10-0.3	Continuous / Interrupted
PB90	Hardened steel	HRC65-66	50-120	0.02-0.2	0.05-0.5	Heavy Interrupted
	Cast iron	HB180-220	150-450	0.02-0.3	0.30-0.8	Continuous / Interrupted
	Powder metal	-	300-500	0.02-0.3	0.10-0.3	Continuous / Interrupted

Grade Application Guide

PCBN grade applications						
Material Group	Materials	ISO	Uncoated			ISO
			PB30	PB60	PB90	
P	Unalloy steels / Alloyed steels	P01				P01
		P05				P05
		P10				P10
		P15				P15
		P20				P20
		P25				P25
		P30				P30
		P35				P35
		P40				P40
		P45				P45
		P50				P50
M	Stainless steels	M01				M01
		M05				M05
		M10				M10
		M15				M15
		M20				M20
		M25				M25
		M30				M30
		M35				M35
		M40				M40
		M45				M45
K	Cast iron	K01				K01
		K05				K05
		K10		PB60		K10
		K15				K15
		K20			PB90	K20
		K25				K25
		K30				K30
		K35				K35
		K40				K40
		K45				K45
		K50				K50
N	Aluminum / Aluminum alloys	N01				N01
		N05				N05
		N10				N10
		N15				N15
		N20				N20
		N25				N25
		N30				N30
S	Heat resistant alloys	S01				S01
		S05				S05
		S10				S10
		S15				S15
		S20				S20
		S25				S25
		S30				S30
		S35				S35
		S40				S40
		S45				S45
H	Hardened steels / Chilled cast iron	H01				H01
		H05				H05
		H10	PB30	PB60		H10
		H15				H15
		H20			PB90	H20
		H25				H25
		H30				H30

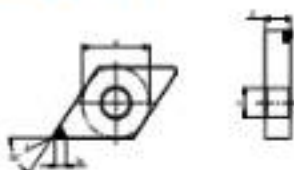
Negative 80° (CN)



Dimensions (mm)				
Type	d	s	lg	d1
DV 1324	12.7	4.76	3.2	6.16

[illegible]

Negative 55° (DN)



Dimensions (mm)				
Type	d	s	ts	d1
DN 1504	12.7	4.75	2.2	6.16
DN 1505	12.7	6.35	2.2	6.16

Inserts	Type	r (mm)	Recommended parameters		Grade		
			f (mm/rev)	kl (mm)	PM0	PM0	PM0
	DN3A 150402-801020-BL-1	0.2	0.05-0.3	0.05-0.5	●	●	●
	DN3A 150404-801020-BL-1	0.4	0.05-0.3	0.05-0.5	●	●	●
	DN3A 150408-801020-BL-1	0.8	0.05-0.3	0.05-0.5	●	●	●
	DN3A 150412-801020-BL-1	1.2	0.05-0.3	0.05-0.5	●	●	●
	DN3A 150602-801020-BL-1	0.2	0.05-0.3	0.05-0.5	●	●	●
	DN3A 150604-801020-BL-1	0.4	0.05-0.3	0.05-0.5	●	●	●
	DN3A 150608-801020-BL-1	0.8	0.05-0.3	0.05-0.5	●	●	●
	DN3A 150612-801020-BL-1	1.2	0.05-0.3	0.05-0.5	●	●	●
	DN3A 150402-801020-BL-2	0.2	0.05-0.3	0.05-0.5	●	●	●
	DN3A 150404-801020-BL-2	0.4	0.05-0.3	0.05-0.5	●	●	●
	DN3A 150408-801020-BL-2	0.8	0.05-0.3	0.05-0.5	●	●	●
	DN3A 150412-801020-BL-2	1.2	0.05-0.3	0.05-0.5	●	●	●
	DN3A 150602-801020-BL-2	0.2	0.05-0.3	0.05-0.5	●	●	●
	DN3A 150604-801020-BL-2	0.4	0.05-0.3	0.05-0.5	●	●	●
	DN3A 150608-801020-BL-2	0.8	0.05-0.3	0.05-0.5	●	●	●
	DN3A 150612-801020-BL-2	1.2	0.05-0.3	0.05-0.5	●	●	●
	DN3A 150402-801020-BL-4	0.2	0.05-0.3	0.05-0.5	●	●	●
	DN3A 150404-801020-BL-4	0.4	0.05-0.3	0.05-0.5	●	●	●
	DN3A 150408-801020-BL-4	0.8	0.05-0.3	0.05-0.5	●	●	●
	DN3A 150412-801020-BL-4	1.2	0.05-0.3	0.05-0.5	●	●	●
	DN3A 150602-801020-BL-4	0.2	0.05-0.3	0.05-0.5	●	●	●
	DN3A 150604-801020-BL-4	0.4	0.05-0.3	0.05-0.5	●	●	●
	DN3A 150608-801020-BL-4	0.8	0.05-0.3	0.05-0.5	●	●	●
	DN3A 150612-801020-BL-4	1.2	0.05-0.3	0.05-0.5	●	●	●

Negative 90° (SN)



Dimensions (mm)				
Type	d	s	g	g1
SN 1204	12.7	4.76	2.2	5.16

Inserts	Type	t (mm)	Recommended parameters		Grade		
			f (mm/rev)	ap (mm)	PB60	PB60	PB60
	SN3A 120402-S01020-SL-1	0.2	0.03-0.3	0.05-0.5	●	●	●
	SN3A 120404-S01020-SL-1	0.4	0.03-0.3	0.05-0.5	●	●	●
	SN3A 120408-S01020-SL-1	0.8	0.03-0.3	0.05-0.5	●	●	●
	SN3A 120412-S01020-SL-1	1.2	0.03-0.3	0.05-0.5	●	●	●
	SN3A 120402-S01020-SL-4	0.2	0.03-0.3	0.05-0.5	●	●	●
	SN3A 120404-S01020-SL-4	0.4	0.03-0.3	0.05-0.5	●	●	●
	SN3A 120408-S01020-SL-4	0.8	0.03-0.3	0.05-0.5	●	●	●
	SN3A 120412-S01020-SL-4	1.2	0.03-0.3	0.05-0.5	●	●	●
	SN3A 120402-S01020-SL-6	0.2	0.03-0.3	0.05-0.5	●	●	●
	SN3A 120404-S01020-SL-6	0.4	0.03-0.3	0.05-0.5	●	●	●
	SN3A 120408-S01020-SL-6	0.8	0.03-0.3	0.05-0.5	●	●	●
	SN3A 120412-S01020-SL-6	1.2	0.03-0.3	0.05-0.5	●	●	●

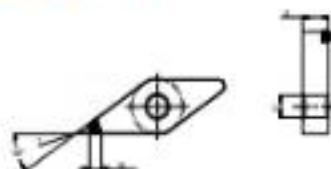
Negative 60° (TN)



Dimensions (mm)				
Type	d	s	la	dl
TN-1604	9.50	4.75	2.2	3.81

[illegible]

Negative 35° (VN)



Dimensions (mm)				
Type	d	s	lg	d1
VM 1604	6.62	4.76	3.2	3.31

[illegible]

Negative 80° (WN)



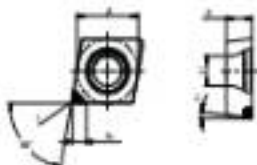
Dimensions (mm)				
Type	d	s	la	d1
PA 0804	12.7	4.75	2.2	5.16

[illegible]

Noted: ● Stock available □ Not stocked/ordered



Positive 80° (CC)



Dimensions (mm)				
Type	d	s	W	Cl
CC_0602	6.35	2.38	2.2	2.8
CC_0975	9.52	3.97	2.2	4.4
CC_1204	12.7	4.76	2.2	5.5

Inserts	Type	r (mm)	Recommended parameters		Grade		
			f (mm/rev)	ap (mm)	PM0	PM1	PM2
	CCSW 060202-801020-BL-1	0.2	0.05-0.3	0.05-0.5	●	●	●
	CCSW 060204-801020-BL-1	0.4	0.05-0.3	0.05-0.5	●	●	●
	CCSW 060208-801020-BL-1	0.8	0.05-0.3	0.05-0.5	●	●	●
	CCSW 097302-801020-BL-1	0.2	0.05-0.3	0.05-0.5	●	●	●
	CCSW 097304-801020-BL-1	0.4	0.05-0.3	0.05-0.5	●	●	●
	CCSW 097308-801020-BL-1	0.8	0.05-0.3	0.05-0.5	●	●	●
	CCSW 120402-801020-BL-1	0.2	0.05-0.3	0.05-0.5	●	●	●
	CCSW 120404-801020-BL-1	0.4	0.05-0.3	0.05-0.5	●	●	●
	CCSW 120408-801020-BL-1	0.8	0.05-0.3	0.05-0.5	●	●	●
	CCSW 120412-801020-BL-1	1.2	0.05-0.3	0.05-0.5	●	●	●
	CCSW 060202-801020-BL-2	0.2	0.05-0.3	0.05-0.5	●	●	●
	CCSW 060204-801020-BL-2	0.4	0.05-0.3	0.05-0.5	●	●	●
	CCSW 060208-801020-BL-2	0.8	0.05-0.3	0.05-0.5	●	●	●
	CCSW 097302-801020-BL-2	0.2	0.05-0.3	0.05-0.5	●	●	●
	CCSW 097304-801020-BL-2	0.4	0.05-0.3	0.05-0.5	●	●	●
	CCSW 097308-801020-BL-2	0.8	0.05-0.3	0.05-0.5	●	●	●
	CCSW 120402-801020-BL-2	0.2	0.05-0.3	0.05-0.5	●	●	●
	CCSW 120404-801020-BL-2	0.4	0.05-0.3	0.05-0.5	●	●	●
	CCSW 120408-801020-BL-2	0.8	0.05-0.3	0.05-0.5	●	●	●
	CCSW 120412-801020-BL-2	1.2	0.05-0.3	0.05-0.5	●	●	●

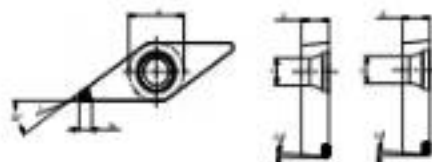
Positive 60° (TP)



Dimensions (mm)				
Type	d	a	h	d1
TP_0802	4.76	2.38	2.2	2.4
TP_0902	5.95	2.98	2.2	2.8
TP_1103	6.35	3.18	2.2	3.3
TP_1604	9.52	4.76	2.2	4.4

Inserts	Type	t (mm)	Recommended parameters		Grade		
			f (mm/rev)	ap (mm)	PB0	PB0	PB0
	TP0W 080202-801020-BL-1	0.2	0.03-0.3	0.05-0.5	●	●	●
	TP0W 080204-801020-BL-1	0.4	0.03-0.3	0.05-0.5	●	●	●
	TP0W 090202-801020-BL-1	0.2	0.03-0.3	0.05-0.5	●	●	●
	TP0W 090204-801020-BL-1	0.4	0.03-0.3	0.05-0.5	●	●	●
	TP0W 090208-801020-BL-1	0.8	0.03-0.3	0.05-0.5	●	●	●
	TP0W 110302-801020-BL-1	0.2	0.03-0.3	0.05-0.5	●	●	●
	TP0W 110304-801020-BL-1	0.4	0.03-0.3	0.05-0.5	●	●	●
	TP0W 160402-801020-BL-1	0.2	0.03-0.3	0.05-0.5	●	●	●
	TP0W 160404-801020-BL-1	0.4	0.03-0.3	0.05-0.5	●	●	●
	TP0W 080202-801020-BL-2	0.2	0.03-0.3	0.05-0.5	●	●	●
	TP0W 080204-801020-BL-2	0.4	0.03-0.3	0.05-0.5	●	●	●
	TP0W 090202-801020-BL-2	0.2	0.03-0.3	0.05-0.5	●	●	●
	TP0W 090204-801020-BL-2	0.4	0.03-0.3	0.05-0.5	●	●	●
	TP0W 090208-801020-BL-2	0.8	0.03-0.3	0.05-0.5	●	●	●
	TP0W 110302-801020-BL-2	0.2	0.03-0.3	0.05-0.5	●	●	●
	TP0W 110304-801020-BL-2	0.4	0.03-0.3	0.05-0.5	●	●	●
	TP0W 160402-801020-BL-2	0.2	0.03-0.3	0.05-0.5	●	●	●
	TP0W 160404-801020-BL-2	0.4	0.03-0.3	0.05-0.5	●	●	●

Positive 35° (V)



Dimensions (mm)					
Type	d	a	h	d1	
VB 1103	6.35	3.12	2.2	2.8	
VC 1103	6.35	3.12	2.2	2.8	
VB 1604	9.52	4.76	2.2	4.4	
VC 1604	9.52	4.76	2.2	4.4	

Inserts	Type	r (mm)	Recommended parameters		Grade		
			f (mm/rev)	kl (mm)	P100	P100	P100
	VB0W 110302-801020-BL-1	0.2	0.05-0.3	0.05-0.5	●	●	●
	VB0W 110304-801020-BL-1	0.4	0.05-0.3	0.05-0.5	●	●	●
	VB0W 110308-801020-BL-1	0.8	0.05-0.3	0.05-0.5	●	●	●
	VB0W 160402-801020-BL-1	0.2	0.05-0.3	0.05-0.5	●	●	●
	VB0W 160404-801020-BL-1	0.4	0.05-0.3	0.05-0.5	●	●	●
	VB0W 160408-801020-BL-1	0.8	0.05-0.3	0.05-0.5	●	●	●
	VB0W 110302-801020-BL-2	0.2	0.05-0.3	0.05-0.5	●	●	●
	VB0W 110304-801020-BL-2	0.4	0.05-0.3	0.05-0.5	●	●	●
	VB0W 110308-801020-BL-2	0.8	0.05-0.3	0.05-0.5	●	●	●
	VB0W 160402-801020-BL-2	0.2	0.05-0.3	0.05-0.5	●	●	●
	VB0W 160404-801020-BL-2	0.4	0.05-0.3	0.05-0.5	●	●	●
	VB0W 160408-801020-BL-2	0.8	0.05-0.3	0.05-0.5	●	●	●
	VC0W 110302-801020-BL-1	0.2	0.05-0.3	0.05-0.5	●	●	●
	VC0W 110304-801020-BL-1	0.4	0.05-0.3	0.05-0.5	●	●	●
	VC0W 110308-801020-BL-1	0.8	0.05-0.3	0.05-0.5	●	●	●
	VC0W 160402-801020-BL-1	0.2	0.05-0.3	0.05-0.5	●	●	●
	VC0W 160404-801020-BL-1	0.4	0.05-0.3	0.05-0.5	●	●	●
	VC0W 160408-801020-BL-1	0.8	0.05-0.3	0.05-0.5	●	●	●
	VC0W 110302-801020-BL-2	0.2	0.05-0.3	0.05-0.5	●	●	●
	VC0W 110304-801020-BL-2	0.4	0.05-0.3	0.05-0.5	●	●	●
	VC0W 110308-801020-BL-2	0.8	0.05-0.3	0.05-0.5	●	●	●
	VC0W 160402-801020-BL-2	0.2	0.05-0.3	0.05-0.5	●	●	●
	VC0W 160404-801020-BL-2	0.4	0.05-0.3	0.05-0.5	●	●	●
	VC0W 160408-801020-BL-2	0.8	0.05-0.3	0.05-0.5	●	●	●

PCD Insert Denomination System

CCGW 09T304	-	2	-	NL	-	5	-	CB	PD20
1		2		3		4		5	6

1-Standard PCD denomination system	2-Number of cutting edge 1-One cutting edge 2-Two cutting edges 3-Three cutting edges	3-PCD insert structure NL-Standard structure with tipped PCD LL-Full edge tipped PCD 	4-Rake angle 00°~0° 05°~5° 10°~10°
5-Cutting edge preparation CB- With chip breaker WG- With wiper edge - Without chip breaker	6-Grade P001-Fine grain PCD P010-Medium grain PCD P020-Coarse grain PCD		

PCD Insert Grade Introduction

Grade	Feature	Application
P020	Universal grade, balanced wear resistance and toughness	1st choice for general machining of aluminum alloys

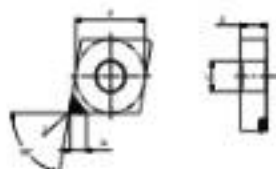
PCD Recommended Cutting Parameter

Grade	Material	Cutting speed Vc(m/min)	Feed f(mm/min)	Cutting depth ap(mm)	Recommended application
P020	Low-B Aluminum Alloy (B1 < 6%)	300-450	0.05-0.2	0.05-0.5	Continuous/Interrupt

Grade Application Guide

PCD insert applications				
Material Group	Materials	ISO	Uncoated PCD	ISO
P	Unalloyed steels / Alloyed steels	P01		P01
		P05		P05
		P10		P10
		P15		P15
		P20		P20
		P25		P25
		P30		P30
		P35		P35
		P40		P40
		P45		P45
		P50		P50
M	Stainless steels	M01		M01
		M05		M05
		M10		M10
		M15		M15
		M20		M20
		M25		M25
		M30		M30
		M35		M35
		M40		M40
		M45		M45
		M50		M50
K	Cast iron	K01		K01
		K05		K05
		K10		K10
		K15		K15
		K20		K20
		K25		K25
		K30		K30
		K35		K35
		K40		K40
		K45		K45
		K50		K50
N	Aluminum/ Aluminum alloys	N01		N01
		N05		N05
		N10		N10
		N15		N15
		N20	PCD	N20
		N25		N25
S	Heat resistant alloys	S01		S01
		S05		S05
		S10		S10
		S15		S15
		S20		S20
		S25		S25
		S30		S30
		S35		S35
		S40		S40
		S50		S50
H	Hardened steels/ Chilled cast iron	H01		H01
		H05		H05
		H10		H10
		H15		H15
		H20		H20

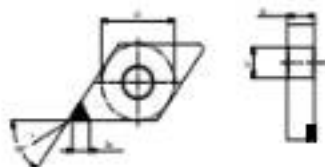
Negative 80° (CN)



Dimensions (mm)				
Type	d	g	h	d1
DB 120 L	127	47.6	3.0	3.0

[illegible]

Negative 55° (DN)



Dimensions (mm)				
Type	d	s	ls	d1
DN 1504	127	475	30	516

[illegible]

Marked : ● Stock available □ Not stocked standard



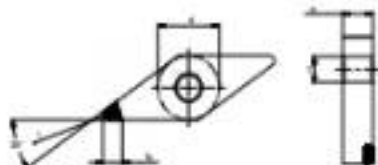
Negative $6G^+$ (TN)



Dimensions (mm)				
Type	d	g	ls	d1
TA 360L	6.82	4.76	3.0	3.81

[illegible]

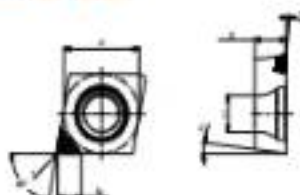
Negative 35° (VN)



Dimensions (mm)				
Type	d	s	h	d1
VM 1604	6.35	4.75	3.0	3.61

[illegible]Marked : ☒ Stock available ☐ Not stocked standard

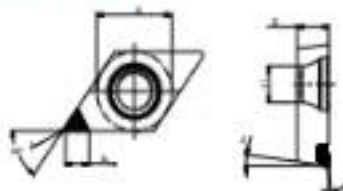
Positive 80° (CC)



Dimensions (mm)				
Type	d	s	ls	dl
CC_0603	6.35	2.38	3.0	2.3
CC_0973	9.52	3.97	3.0	4.4
CC_1204	12.7	4.75	3.0	5.5

Inserts	Type	r (mm)	α (°)	Recommended parameters		Grade
				f (mm/rev)	Ap (mm)	P (kg)
	CCGW 060202-1-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	CCGW 060204-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	CCGW 060208-1-NL-05	0.8	5°	0.03-0.2	0.05-0.5	●
	CCGW 097302-1-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	CCGW 097304-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	CCGW 097308-1-NL-05	0.8	5°	0.03-0.2	0.05-0.5	●
	CCGW 120402-1-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	CCGW 120404-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	CCGW 120408-1-NL-05	0.8	5°	0.03-0.2	0.05-0.5	●
	CCGW 060202-2-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	CCGW 060204-2-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	CCGW 060208-2-NL-05	0.8	5°	0.03-0.2	0.05-0.5	●
	CCGW 097302-2-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	CCGW 097304-2-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	CCGW 097308-2-NL-05	0.8	5°	0.03-0.2	0.05-0.5	●
	CCGW 120402-2-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	CCGW 120404-2-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	CCGW 120408-2-NL-05	0.8	5°	0.03-0.2	0.05-0.5	●

Positive 55° (DC)



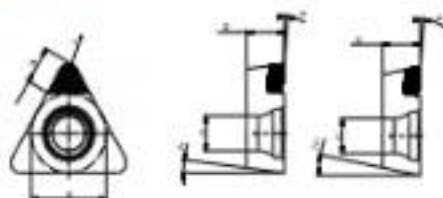
Dimensions (mm)				
Type	d	a	ls	d1
CC-0702	6.35	2.58	3.0	2.8
CC-1113	6.35	3.97	3.0	4.4

[illegible]

Marked : ● Stock available □ Not in stock standard



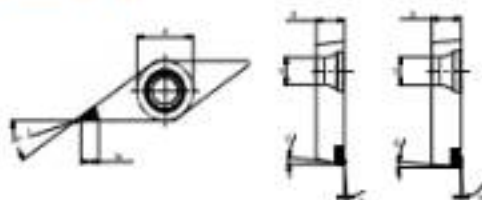
Positive 60° (T)



Dimensions (mm)				
Type	d	a	b	d1
TC 0802	4.75	2.38	3.0	2.4
TC 1103	6.35	3.12	3.0	2.8
TC 1604	9.52	4.75	3.0	4.4
TP 0802	4.75	2.38	3.0	2.4
TP 1604	9.52	4.75	3.0	4.4

Inserts	Type	T (mm)	α (°)	Recommended parameters		Grade
				f (mm/rev)	ap (mm)	
	TC0W 080202-1-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	TC0W 080204-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	TC0W 080208-1-NL-05	0.8	5°	0.03-0.2	0.05-0.5	●
	TC0W 110302-1-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	TC0W 110304-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	TC0W 110308-1-NL-05	0.8	5°	0.03-0.2	0.05-0.5	●
	TC0W 160402-1-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	TC0W 160404-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	TC0W 160408-1-NL-05	0.8	5°	0.03-0.2	0.05-0.5	●
	TC0W 160408-2-NL-05	0.8	5°	0.03-0.2	0.05-0.5	●
	TP0W 080202-3-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	TP0W 080204-3-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	TP0W 080208-3-NL-05	0.8	5°	0.03-0.2	0.05-0.5	●
	TP0W 110302-3-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	TP0W 110304-3-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	TP0W 110308-3-NL-05	0.8	5°	0.03-0.2	0.05-0.5	●
	TP0W 160402-3-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	TP0W 160404-3-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	TP0W 160408-3-NL-05	0.8	5°	0.03-0.2	0.05-0.5	●
	TP0W 080202-1-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	TP0W 080204-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	TP0W 080208-1-NL-05	0.8	5°	0.03-0.2	0.05-0.5	●
	TP0W 080202-1-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	TP0W 080204-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	TP0W 080204-1-NL-05	0.8	5°	0.03-0.2	0.05-0.5	●
	TP0W 110302-1-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	TP0W 110304-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	TP0W 080202-3-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	TP0W 080204-3-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	TP0W 080208-3-NL-05	0.8	5°	0.03-0.2	0.05-0.5	●
	TP0W 160402-3-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	TP0W 160404-3-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	TP0W 160408-3-NL-05	0.8	5°	0.03-0.2	0.05-0.5	●

Positive 35° (V)



Dimensions (mm)				
Type	d	a	b	d1
VB 1103	6.35	3.18	3.0	2.8
VB 1604	6.35	4.76	3.0	4.4

Inserts	Type	r (mm)	φ (°)	Recommended parameters		Grade
				f (mm/rev)	ap (mm)	
	VSDW 110300-1-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	VSDW 110304-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	VSDW 160400-1-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	VSDW 160404-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	VSDW 110300-2-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	VSDW 110304-2-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	VSDW 160400-2-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	VSDW 160404-2-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	VCDW 110300-1-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	VCDW 110304-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	VCDW 160400-1-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	VCDW 160404-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	VCDW 110300-2-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	VCDW 110304-2-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	VCDW 110300-2-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	VCDW 110304-2-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●

ACHTOK

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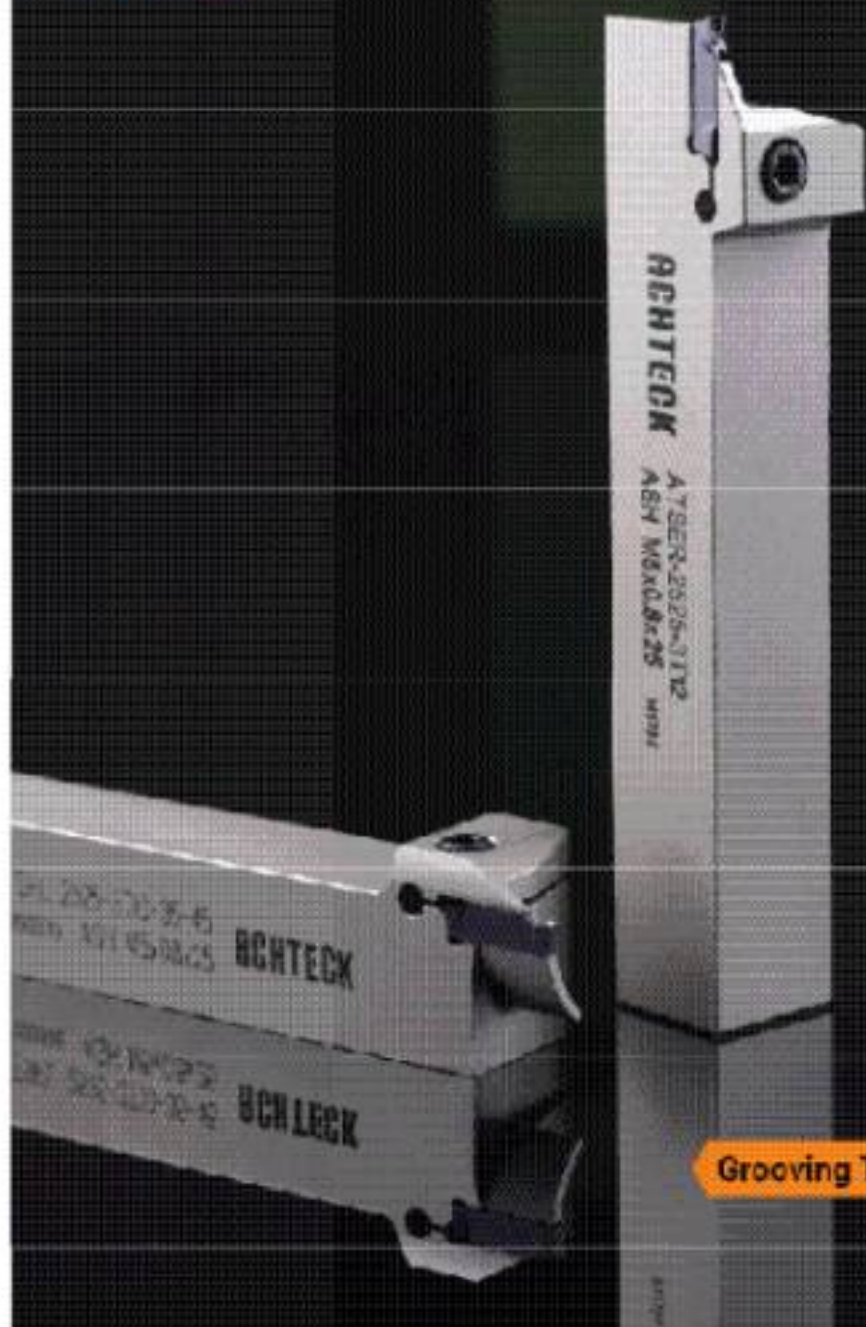


CUTTING TOOL CATALOGUE

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Grooving Tool Holder

Grooving Holder Denomination System

A	G	U	E	R	32	25	-	4	T25	-	40	-	80	-	SW
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

1-Company name
ACHTTECK

2-Application
G Grooving
T Turning

3-Shape of holder head
S Straight-180°
U Under cut-45°
P Perpendicular-90°

4-Mounting type
E External
I Internal
F Facing

5-Head of tool
L Left hand
R Right hand

6-Holder diameter
20×20mm
25×25mm
32×32mm

7-Holder height
20×20mm
25×25mm
32×32mm

8-Insert width
20×20mm
25×25mm
32×32mm

9-Insert width
2×2mm
3×3mm
4×4mm

10-Tip
T15-4/16/25mm

11-Minimum cutting diameter
40×40mm

12-Minimum cutting diameter
30×30mm

13-Reserved code
Svt: For swiss machine
OB: Outside bulge holders
C: With internal coolant
D: Reinforced holders

Overview of Grooving Holders

Holder Application			External grooving			
			ATSER/L	ATSER/L-D	ATSER/L-SW	AQSER/L
						
Page			P103	P105	P106	P107
External grooving	Parting off		•	•	•	
	Grooving		•	•	•	
	Turning		•	•	•	
	Profiling		•	•	•	
	Under cut					•
Face grooving	Grooving					
	Turning					
Internal machining	Grooving					
	Turning					

Marked : • Best choice

Overview of Grooving Holders

Holder Application			Face grooving				
			ATSPR/L	ATSPR/L-08	AGSPR/L	AGDPR/L	ATDPR/L
							
Page			P108	P109	P110	P111	P112
External grooving	Parting off						
	Grooving					•	•
	Turning					○	○
	Profiling						
	Under cut						
Face grooving	Grooving		•	•	•	•	•
	Turning		•	•	•	•	•
Internal machining	Grooving						
	Turning						

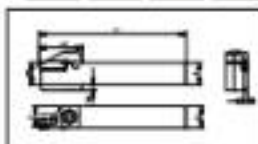
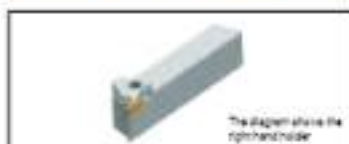
Marked : • Best choice

Overview of Grooving Holders

Holder Application			Internal machining			
			ATPR/L	ATSR/L	AGDR/L	AQUR/L
						
Page			P113	P114	P115	P116
External grooving	Parting off					
	Grooving					
	Turning					
	Profiling					
	Under cut					•
Face grooving	Grooving			•	•	
	Turning			•	•	
Internal machining	Grooving		•			
	Turning		•			

Marked : • Gear choice

ATSER/L External Turning and Grooving Holder

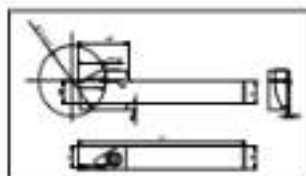
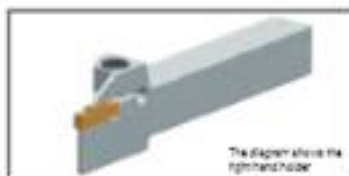


Product code		Dimension (mm)								Insert*
		R	B	H1	H2	A	L1	L2	F	
ATSER/L	1616-2T08	16	16	16	4	1.2	110	32	18.1	8
	1616-2T12	16	16	16	4	1.2	110	32	18.1	12
	1616-2T17	16	16	16	4	1.2	110	32	18.1	17
	2020-2T08	20	20	20	0	1.8	128	32	19.1	8
	2020-2T12	20	20	20	0	1.8	128	32	19.1	12
	2020-2T17	20	20	20	0	1.8	128	32	19.1	17
	2525-2T08	25	25	25	0	1.8	150	32	24.1	8
	2525-2T12	25	25	25	0	1.8	150	32	24.1	12
ATSER/L	2525-2T17	25	25	25	0	1.8	150	32	24.1	17
	1616-2T09	16	16	16	4	2.4	110	32	14.3	9
	1616-2T12	16	16	16	4	2.4	110	32	14.3	12
	1616-2T20	16	16	16	4	2.4	110	32	14.3	20
	2020-2T09	20	20	20	0	2.4	128	32	18.8	9
	2020-2T12	20	20	20	0	2.4	128	32	18.8	12
	2020-2T20	20	20	20	0	2.4	128	32	18.8	20
	2525-2T09	25	25	25	0	2.4	150	32	23.8	9
ATSER/L	2525-2T12	25	25	25	0	2.4	150	32	23.8	12
	2525-2T20	25	25	25	0	2.4	150	32	23.8	20
	2525-2T25	25	25	25	0	2.4	150	48	23.8	25
ATSER/L	1616-4T10	16	16	16	4	3.0	110	32	14.5	10
	1616-4T15	16	16	16	4	3.0	110	32	14.5	15
	1616-4T25	16	16	16	4	3.0	110	48	14.5	25
	2020-4T10	20	20	20	0	3.0	128	32	18.8	10
	2020-4T15	20	20	20	0	3.0	128	32	18.8	15
	2020-4T25	20	20	20	0	3.0	128	48	18.8	25
	2525-4T10	25	25	25	0	3.0	150	32	23.8	10
	2525-4T15	25	25	25	0	3.0	150	32	23.8	15
ATSER/L	2525-4T25	25	25	25	0	3.0	150	48	23.8	25
	2020-5T12	20	20	20	0	4	128	38	18.1	12
	2020-5T20	20	20	20	0	4	128	38	18.1	20
	2525-5T12	25	25	25	0	4	150	38	23.1	12
	2525-5T20	25	25	25	0	4	150	38	23.1	20
	2525-5T32	25	25	25	0	4	150	55	23	32
	3030-5T12	32	32	32	0	3.9	170	35.8	30.08	12
	3030-5T20	32	32	32	0	3.9	170	37.8	30.08	20
ATSER/L	3030-5T25	32	32	32	0	3.9	170	44.8	30.08	25
	3030-5T32	32	32	32	0	3.9	170	55	30.08	32
	2020-6T12	20	20	20	0	5	128	38	17.6	12
	2020-6T20	20	20	20	0	5	128	40	17.6	20
	2525-6T12	25	25	25	7	5	150	38	22.6	12
	2525-6T20	25	25	25	7	5	150	40	22.6	20
	2525-6T32	25	25	25	7	5	150	55	22.6	32
	3232-6T12	32	32	32	0	4.9	170	35.8	30.08	12
ATSER/L	3232-6T20	32	32	32	0	4.9	170	36.8	30.08	20
	3232-6T25	32	32	32	0	4.9	170	44.8	30.08	25
	3232-6T32	32	32	32	0	4.9	170	55	30.08	32
	2525-7T16	25	25	25	7	5.9	150	45	22.1	16
	2525-7T25	25	25	25	7	5.9	150	45	22.1	25
	2525-7T36	25	25	25	7	5.9	150	60	22.1	36
ATSER/L	3232-7T25	32	32	32	0	5.9	170	48	26.1	25
	3232-7T36	32	32	32	0	5.9	170	60	26.1	36

Insert*: ACS/ACS series are only applicable to grooving and parting off machining

Product code	Screw	Wrench
		
ATSER/L 1616-2/3	SH080160	LT44
ATSER/L 2020-2/3	SH080200	LT44
ATSER/L 2525-2/3	SH080250	LT44
ATSER/L 1616-4/5	SH060160	LT45
ATSER/L 2020-4/5	SH060200	LT45
ATSER/L 2525-4/5	SH060250	LT45
ATSER/L 2020-6	SH080200	LT46
ATSER/L 2525-6/8	SH080250	LT46
ATSER/L 3232-6	SH060250	LT46
ATSER/L 3232-8	SH080250	LT46
ATSER/L 3232-8	SH080250	LT48

ATSER/L-D Reinforced External Turning and Grooving Holder



Product code		Dimension (mm)										Insert*
		R	S	H1	H2	A	L1	L2	F	Tmax	Dmax	
ATSER/L	1010-0715-040	10	10	10	6	1.8	125	32	9.1	15	40	ACD/ACS/ ATO
	1212-0715-040	12	12	12	4	1.8	125	32	11.1	15	40	
	1616-0720-045	16	16	16	4	1.8	125	38	15.1	20	45	
	2020-0720-045	20	20	20	0	1.8	125	38	19.1	20	45	
	2525-0720-045	25	25	25	0	1.8	150	38	24.1	20	45	
	1212-0715-040	12	12	12	4	2.4	125	32	10.8	15	40	
	1616-0720-045	16	16	16	4	2.4	125	32	14.8	20	45	
	2020-0720-045	20	20	20	0	2.4	125	32	18.8	20	45	
	2525-0720-045	25	25	25	0	2.4	150	32	23.8	20	45	
	2525-0725-060	25	25	25	7	2.4	150	45	23.8	25	60	

*Inserts ACD/ACS series are only applicable to grooving and parting off machining

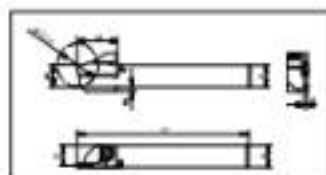
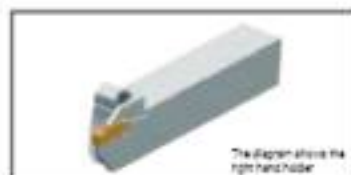
Product code	Screw	Wrench
		
ATSER/L 1010-0	SH050160	UTM4
ATSER/L 1212-0/0	SH050160	UTM4
ATSER/L 1616-0	SH050160	UTM4
ATSER/L 1616-0	SH060200	UTM4
ATSER/L 2020-0/0	SH060200	UTM4
ATSER/L 2525-0/0	SH060280	UTM4

The max. cutting depth is workpiece diameter

Product code		Workpiece diameter	Tmax																
			40	50	100	110	120	130	140	150	170	180	190	200	210	220	230	240	250
ATSER/L	1010-0715-040	Dmax	∞	∞	∞	255	120	75	25	∞	-	-	-	-	-	-	-	-	-
	1212-0715-040		∞	∞	∞	265	120	75	25	∞	-	-	-	-	-	-	-	-	
	1616-0720-045		∞	∞	∞	∞	∞	132	123	125	75	50	27	∞	-	-	-	-	
	2020-0720-045		∞	∞	∞	∞	∞	132	123	125	75	50	27	∞	-	-	-	-	
	2525-0720-045		∞	100	325	192	125	105	57	75	50	25	∞	-	-	-	-	-	
	1212-0715-040		∞	∞	∞	255	120	75	25	∞	-	-	-	-	-	-	-	-	
	1616-0720-045		∞	∞	∞	∞	∞	132	123	125	75	50	27	∞	-	-	-	-	
	2020-0720-045		∞	∞	∞	∞	∞	132	123	125	75	50	27	∞	-	-	-	-	
	2525-0720-045		∞	100	325	192	125	105	57	75	50	25	∞	-	-	-	-	-	
2525-0725-060	∞	∞	∞	∞	∞	∞	∞	∞	415	227	157	130	127	91	81	73	60		

The diameter is infinite



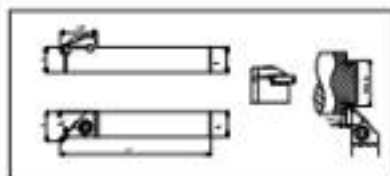
ATSER/L-SW External Turning and Grooving Holder for Swiss Lathe


Product code		Dimension(mm)									Insert*
		R	B	HT	HT2	A	L1	L2	F	Clamp	
ATSER/L	1010-0030-SW	10	10	10	2	1.8	128	20	9.1	20	ACD/ACS/ ATD
	1210-0034-SW	12	12	12	2	1.8	128	20	11.1	24	
	1414-0034-SW	14	14	14	0	1.8	128	20	12.1	24	
	1616-0030-SW	16	16	16	0	1.8	128	25	15.1	32	
	1210-0034-SW	12	12	12	2	2.4	128	20	10.8	24	
	1616-0032-SW	16	16	16	0	2.4	128	25	14.8	32	
	1616-0038-SW	16	16	16	0	2.4	128	27	14.8	38	
	2020-0048-SW	20	20	20	0	2.4	128	34	18.8	48	

Insert*: ACD/ACS series are only applicable to grooving and parting off machining

Product code	Screw	Wrench
ATSER/L-SW	SP040125	L7-TD15

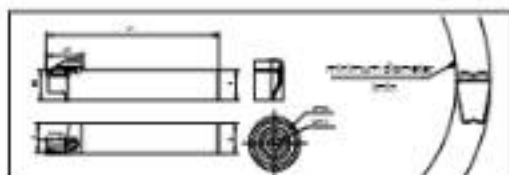
AGUER/L External Under Cut Holder



Product code		Insert Dimension (mm)	Dimension (mm)								Insert*
			h	b	H0	L1	L2	Ø	Tmax	Depth	
AGUER/L	1616-3	2.5	16	16	16	110	29.5	12.8	3	60	ATD
	1616-4	4	16	16	16	110	29.5	12.8	3	66	
	2020-3	2.5	20	20	20	125	29.5	22.8	3	60	
	2020-4	4	20	20	20	125	29.5	22.8	3	66	
	2525-3	2.5	25	25	25	150	29.5	27.8	3	60	
	2525-4	4	25	25	25	150	29.5	27.8	3	66	
	2525-6	6.6	25	25	25	150	32.5	28.0	1.5	66	

Product code	Screw	Wrench
		
AGUER/L 1616-3	SH050160	LT44
AGUER/L 2020-3	SH060200	LT44
AGUER/L 2525-3	SH060250	LT44
AGUER/L 1616-4	SH060160	LT45
AGUER/L 2020-4	SH060200	LT45
AGUER/L 2525-4	SH060250	LT45
AGUER/L 2525-6	SH060250	LT45

ATSFR/L Face Grooving and Turning Holder



Product code		Dimension (mm)									Inserts size (mm)	Minimum machining diameter of face grooving inserts (mm)								Inserts ¹⁾
		H	B	HT	L1	L2	F	Tmax	Qmin	Qmax		TG	TL	Ground	RH	CS	CH	CH		
ATSFR/L	2529-9T10-05-45	25	25	25	150	30	33.95	10	35	45	3	30	30	-	-	-	-	ACS/ ACS/ ATO		
	2529-9T10-10-45	25	25	25	150	30	33.95	10	40	55	3	30	30	-	-	-	-			
	2529-9T15-05-45	25	25	25	150	30	33.95	15	40	55	3	30	30	55	55	-	-		-	
	2529-9T15-05-60	25	25	25	150	30	33.95	15	35	50	3	30	30	55	55	75	75		75	
	2529-9T15-05-90	25	25	25	150	30	33.95	15	35	50	4	30	30	40	40	-	40		40	
	2529-9T15-10-45	25	25	25	150	30	33.95	15	40	55	4	30	30	40	40	-	40		40	
	2529-9T15-05-65	25	25	25	150	30	33.95	15	35	50	4	30	30	40	40	-	40		40	
	2529-9T20-05-90	25	25	25	150	40	33.95	20	50	60	5	30	30	40	40	-	50		50	
	2529-9T20-10-110	25	25	25	150	40	33.95	20	70	110	5	30	30	40	40	-	50		50	
	2529-9T20-100-130	25	25	25	150	40	33.95	20	100	130	5	30	30	40	40	-	50		50	
	2529-9T20-140-200	25	25	25	150	40	33.95	20	100	200	5	30	30	40	40	-	50		50	
	2529-9T20-05-65	25	25	25	150	40	33.95	20	50	60	5	15	15	30	30	-	40		40	
	2529-9T20-10-130	25	25	25	150	40	33.95	20	70	130	5	15	15	30	30	-	40		40	
	2529-9T20-140-250	25	25	25	150	40	33.95	20	100	250	5	15	15	30	30	-	40		40	
	2529-9T20-200-300	25	25	25	150	40	33.95	20	200	300	5	15	15	30	30	-	40		40	

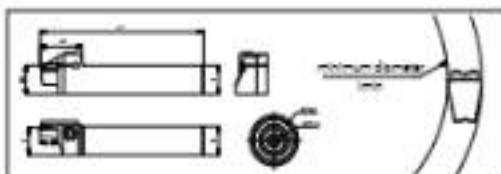
1 Insert¹⁾ ACS/ACS series are only applicable to grooving machining.

2 (*) indicates that the insert is not a choice.

3 Having selected the range of tool holder, please check the minimum face grooving machining diameter of the selected insert.

Product code	Screw	Wrench
ATSFR/L 2529-3	SH060250	LTH4
ATSFR/L 2529-4	SH060250	LTH5
ATSFR/L 2529-5	SH080250	LTH6
ATSFR/L 2529-6	SH080250	LTH6

ATSFR/L-08 Face Grooving and Turning Holder (Outside Bluge Type)



Product code	Dimension(mm)										Minimum machining diameter of face grooving inserts(mm)						Insert ¹⁾
	H	B	H1	L1	L2	F	Trmax	Drmin	Drmax	TB	Td1	Ground	Rd1	CS	DM	CH	
ATSFR/L	2020-9T10-20-50-08	20	20	20	140	31	18.00	10	30	30	24	24	-	-	-	-	-
	2020-9T10-20-50-08	20	20	20	140	31	18.00	10	30	30	24	24	-	-	-	-	-
	2020-9T10-20-75-08	20	20	20	140	31	18.00	15	30	70	24	24	28	28	-	-	-
	2020-9T10-20-100-08	20	20	20	140	31	18.00	15	60	100	24	24	28	28	70	70	70
	2020-9T10-20-50-08	20	20	20	140	31	18.00	10	30	30	22	22	-	-	-	-	-
	2020-9T10-20-50-08	20	20	20	140	31	18.00	10	25	25	22	22	-	-	-	-	-
	2020-9T10-20-50-08	20	20	20	140	31	18.00	14	30	30	22	22	-	-	-	-	-
	2020-9T10-20-50-08	20	20	20	140	31	18.00	14	25	25	22	22	12	12	-	12	12
	2020-9T10-20-75-08	20	20	20	140	31	18.00	14	30	70	22	22	12	12	-	12	12
	2020-9T10-20-100-08	20	20	20	140	31	18.00	14	60	100	22	22	12	12	-	12	12
	2020-9T10-110-200-08	20	20	20	140	31	18.00	14	110	200	22	22	12	12	-	12	12
	2020-9T10-20-50-08	25	25	25	180	39	22.00	10	30	30	24	24	-	-	-	-	-
	2020-9T10-20-75-08	25	25	25	180	39	22.00	15	30	70	24	24	28	28	-	-	-
	2020-9T10-20-100-08	25	25	25	180	39	22.00	15	60	100	24	24	28	28	70	70	70
	2020-9T10-20-50-08	25	25	25	180	39	22.00	10	30	30	22	22	-	-	-	-	-
	2020-9T20-20-50-08	25	25	25	180	39	22.00	20	30	30	22	22	-	-	-	-	-
	2020-9T20-20-50-08	25	25	25	180	39	22.00	20	30	30	22	22	12	12	-	12	12
	2020-9T20-20-75-08	25	25	25	180	39	22.00	20	30	70	22	22	12	12	-	12	12
	2020-9T20-20-100-08	25	25	25	180	39	22.00	20	60	100	22	22	12	12	-	12	12
	2020-9T20-110-200-08	25	25	25	180	39	22.00	20	110	200	22	22	12	12	-	12	12
	2020-9T20-180-300-08	25	25	25	180	39	22.00	20	180	300	22	22	12	12	-	12	12
ATSFR/L	2020-9T20-50-50-08	25	25	25	150	35	22.00	25	50	50	30	30	40	40	-	50	50
	2020-9T10-50-50-08	25	25	25	150	35	22.00	15	50	50	30	30	40	40	-	50	50
	2020-9T20-70-110-08	25	25	25	150	35	22.00	25	70	110	30	30	40	40	-	50	50
	2020-9T10-70-110-08	25	25	25	150	35	22.00	15	70	110	30	30	40	40	-	50	50
	2020-9T20-100-180-08	25	25	25	150	35	22.00	25	100	180	30	30	40	40	-	50	50
	2020-9T20-140-300-08	25	25	25	150	35	22.00	25	140	300	30	30	40	40	-	50	50
	2020-9T20-180-300-08	25	25	25	150	35	22.00	25	180	300	30	30	40	40	-	50	50
	2020-9T20-50-70-08	25	25	25	150	35	22.00	25	50	70	18	18	30	30	-	40	40
	2020-9T20-50-100-08	25	25	25	150	35	22.00	25	50	100	18	18	30	30	-	40	40
	2020-9T20-50-180-08	25	25	25	150	35	22.00	25	50	180	18	18	30	30	-	40	40
	2020-9T20-170-400-08	25	25	25	150	35	22.00	25	170	400	18	18	30	30	-	40	40
	2020-9T20-260-600-08	25	25	25	150	35	22.00	25	260	600	18	18	30	30	-	40	40

1) Insert¹⁾ ACC/ACS series are only applicable to grooving machining.

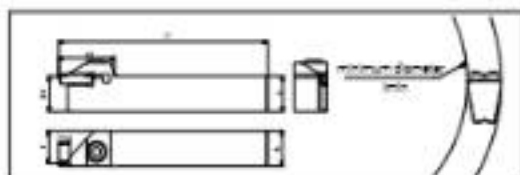
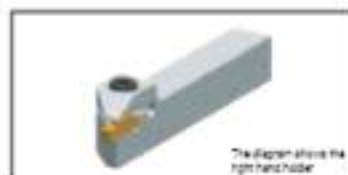
2) Indicated that the insert is not a choice.

3) Having selected the range of tool holder, please check the minimum face grooving machining diameter of the selected insert.

Product code	Slot	Wrench
ATSFR/L-08 2020-5/4	SH060200	LT-H5
ATSFR/L-08 2020-0	SH060280	LT-H6
ATSFR/L-08 2020-4	SH060230	LT-H8
ATSFR/L-08 2020-6	SH080250	LT-H6
ATSFR/L-08 2020-6	SH080250	LT-H6



AGSFR/L External & Face Grooving and Turning Holder



Product code		Inserts size (mm)	Dimension(mm)							Minimum machining diameter of face grooving inserts (mm/mm)								Inserts*
			a	b	H1	L1	L2	F	Tmax	TG	TM	Ground	RM	CS	CM	CH		
AGSFR/L	1616-G	2	16	16	16	110	22	14.55	4.5	195	-	100	195	195	195	195	AGS/ACS/ATC	
		3	16	16	16	110	22	14.55	4.5	20	20	55	55	75	75	75		
		4	16	16	16	110	22	14.55	4.5	22	22	62	62	-	62	62		
	2020-G	2	20	20	20	125	22	16.55	4.5	195	-	100	195	195	195	195		
		3	20	20	20	125	22	16.55	4.5	20	20	55	55	75	75	75		
		4	20	20	20	125	22	16.55	4.5	22	22	62	62	-	62	62		
	2020-G	2	20	20	20	125	22	17.55	4.5	20	20	60	60	-	60	60		
		3	20	20	20	125	22	17.55	4.5	18	18	25	25	-	60	60		
		4	20	20	20	125	22	17.55	4.5	22	22	62	62	-	62	62		
	2525-G	2	25	25	25	150	22	20.55	4.5	195	-	100	195	195	195	195		
		3	25	25	25	150	22	20.55	4.5	20	20	55	55	75	75	75		
		4	25	25	25	150	22	20.55	4.5	22	22	62	62	-	62	62		
	2525-G	2	25	25	25	150	22	20.55	4.5	20	20	60	60	-	60	60		
		3	25	25	25	150	22	20.55	4.5	18	18	25	25	-	60	60		
		4	25	25	25	150	22	20.55	4.5	22	22	62	62	-	62	62		

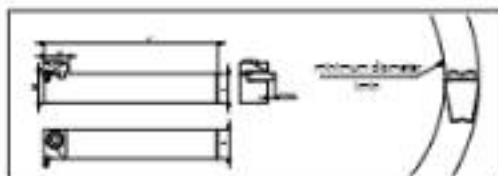
Inserts: AGS/ACS series are only applicable to grooving machining

TM indicates that the insert is not a choice

2-After selected the range of tool holder, please check the minimum face grooving machining diameter of the selected insert

Product code	Screw	Wrench
		
AGSFR/L 1616	SH060160	LTH6
AGSFR/L 2020	SH060200	LTH6
AGSFR/L 2525	SH060250	LTH6

AGPFR/L Face Grooving and Turning Holder



Product code		Inserts size (mm)	Dimension(mm)						Minimum machining diameter of face grooving inserts (mm/min)								Inserts*
			b	b1	H1	L1	L2	Tmax	TB	TM	Ground	RM	GS	GM	CH		
AGPFR/L	2020-L	2	30	30	30	125	20	4.8	198	-	100	198	198	198	198	ACD/ACS/ATS	
		3	30	30	30	125	20	4.8	24	24	98	98	78	78			
		4	30	30	30	125	20	4.8	22	22	42	42	-	42	42		
	2025-L	2	35	35	35	150	20	4.8	198	-	100	198	198	198	198		
		3	35	35	35	150	20	4.8	24	24	98	98	78	78	78		
		4	35	35	35	150	20	4.8	22	22	42	42	-	42	42		
	2025-S	2	35	35	35	150	25	4.8	20	20	40	40	-	20	20		
		3	35	35	35	150	25	4.8	18	18	28	28	-	18	18		
		4	35	35	35	150	25	4.8	18	18	28	28	-	18	18		
	2030-L	2	40	40	40	175	20	4.8	198	-	100	198	198	198	198		
		3	40	40	40	175	20	4.8	24	24	98	98	78	78	78		
		4	40	40	40	175	20	4.8	22	22	42	42	-	42	42		

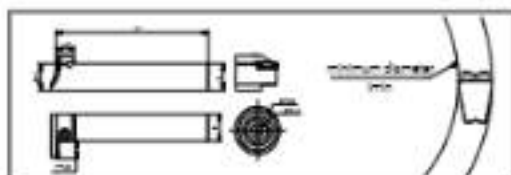
*Inserts: ACD/ACS series are only applicable to grooving machining.

2" indicates that the insert is not a choice.

2. Having selected the range of tool holder, please check the minimum face grooving machining diameter of the selected insert.

Product code	Screw	Wrench
		
AGPFR/L 2020	SH060200	LT+5
AGPFR/L 2025	SH060250	LT+5

ATPFR/L Face Grooving and Turning Holder



Product code		Inserts block size (mm)	Dimension (mm)						Minimum machining diameter of face grooving inserts (mm)								Inserts
			R	φ	L1	L2	Thick	Orin	Ormax	T8	T16	Ground	R6	CS	Ch	Ch	
ATPFR/L	ATPFR/L 2525-0T10-20-40	2	25	25	150	15	10	25	40	24	24	+	+	+	+	+	ACD/ACS/ATD
	ATPFR/L 2525-0T10-20-50	2	25	25	150	15	10	25	50	24	24	+	+	+	+	+	
	ATPFR/L 2525-0T15-40-60	2	25	25	150	15	15	25	60	24	24	+	+	+	+	+	
	ATPFR/L 2525-0T15-50-80	2	25	25	150	15	15	25	80	24	24	+	+	+	+	+	
	ATPFR/L 2525-0T15-20-80	4	25	25	150	15.5	12	25	80	22	22	+	+	+	+	+	
	ATPFR/L 2525-0T15-20-90	4	25	25	150	15.5	15	25	90	22	22	+	+	+	+	+	
	ATPFR/L 2525-0T15-40-90	4	25	25	150	15.5	15	25	90	22	22	+	+	+	+	+	
	ATPFR/L 2525-0T15-50-90	4	25	25	150	15.5	15	25	90	22	22	+	+	+	+	+	
	ATPFR/L 2525-0T20-50-90	5	25	25	150	22	20	25	90	20	20	+	+	+	+	+	
	ATPFR/L 2525-0T20-70-110	5	25	25	150	22	20	70	110	20	20	+	+	+	+	+	
	ATPFR/L 2525-0T20-100-130	5	25	25	150	22	20	100	130	20	20	+	+	+	+	+	
	ATPFR/L 2525-0T20-140-200	5	25	25	150	22	20	140	200	20	20	+	+	+	+	+	
	ATPFR/L 2525-0T20-150-200	5	25	25	150	22	20	150	200	20	20	+	+	+	+	+	
	ATPFR/L 2525-0T20-50-90	5	25	25	150	22	20	25	90	18	18	+	+	+	+	+	
	ATPFR/L 2525-0T20-75-150	5	25	25	150	22	20	75	150	18	18	+	+	+	+	+	
	ATPFR/L 2525-0T20-140-240	5	25	25	150	22	20	140	240	18	18	+	+	+	+	+	
ATPFR/L 2525-0T20-200-300	5	25	25	150	22	20	200	300	18	18	+	+	+	+	+		

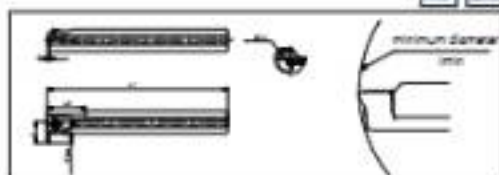
1 Insert¹⁾: ACD/ACS series are only applicable to grooving machining.

2 "+" indicates that the insert is not a choice.

3 Having selected the range of tool holder, please check the minimum face grooving machining diameter of the selected insert.

Product code	Screw	Wrench
ATPFR/L2525-2	SH080250	LT-H4
ATPFR/L2525-4	SH080250	LT-H5
ATPFR/L2525-5	SH080250	LT-H6
ATPFR/L2525-6	SH080250	LT-H6

ATPR/L Internal Grooving, Turning and Profiling Holder



Product code		Dimension (mm)							Minimum machining diameter of internal grooving inserts (mm)								Insert ¹⁾
		ø	L1	L2	F	A	Travel	Ømin	TG	TM	Ground	RM	RA	CS	CM	CH	
ATPR/L	22-075-25-C	22	160	40	15.8	1.8	5	25	25	-	25	25	-	-	-	-	ACD/ACS/ATC
	22-075-25-C	22	200	40	17.5	1.8	5	25	25	-	25	25	-	-	-	-	
	22-075-30-C	22	250	40	19.2	1.8	5	30	25	-	25	25	-	-	-	-	
	22-075-25-C	22	160	40	15.8	2.1	5	25	25	25	25	25	25	-	-	-	
	22-075-25-C	22	200	40	17.5	2.1	5	25	25	25	25	25	25	-	-	-	
	22-075-30-C	22	200	40	21.5	2.1	5	32	25	25	25	25	25	-	-	-	
	22-075-30-C	22	250	60	19.8	2.1	5	30	25	25	25	25	25	-	-	-	
	22-0710-40-C	22	200	60	27	2.1	10	40	25	25	25	25	25	-	-	-	
	22-0712-50-C	22	200	85	33	2.1	12	50	25	25	25	25	25	45	45	45	
	22-075-25-C	22	160	40	15.8	3	5	25	25	25	25	25	25	-	-	-	
	22-075-25-C	22	200	40	17.5	3	5	25	25	25	25	25	25	-	-	-	
	22-075-30-C	22	200	40	21.5	3	5	32	25	25	25	25	25	-	-	-	
	22-075-30-C	22	250	60	20.8	3.3	5	30	25	25	25	25	25	-	-	-	
	22-0710-40-C	22	250	60	27	3	10	40	25	25	25	25	25	-	-	-	
	22-0712-50-C	22	300	85	33	3	12	50	30	30	30	30	30	-	45	45	
	22-0712-60-C	22	250	70	40	3	12	60	30	30	30	30	30	-	45	45	
	22-075-25-C	22	200	40	17.5	3.5	5	21	30	30	30	30	30	-	-	-	
	22-075-25-C	22	250	60	20.8	3.5	5	21	30	30	30	30	30	-	-	-	
	22-0710-40-C	22	250	60	27	3.85	10	40	30	30	30	30	30	-	-	-	
	22-0712-50-C	22	300	85	33	3.85	12	50	30	30	30	30	30	-	45	45	
	22-0712-60-C	22	250	70	40	3.85	12	60	30	30	30	30	30	-	45	45	
	22-075-25-C	22	250	60	20.8	4.5	5	21	30	30	30	30	30	-	-	-	
	22-0710-40-C	22	250	60	27	4.85	10	40	30	30	30	30	30	-	-	-	
	22-0712-50-C	22	300	85	33	4.85	12	50	30	30	30	30	30	-	45	45	
	22-0712-60-C	22	250	70	40	4.85	12	60	30	30	30	30	30	-	45	45	
	22-075-25-C	22	250	60	21.5	5.85	5	25	32	32	32	32	32	-	-	-	
	22-075-30-C	22	300	85	25.8	5.85	5	32	32	32	32	32	32	-	-	-	

1) Insert¹⁾ ACD/ACS series are only applicable to grooving machining.

2) - indicates that the insert is not a choice.

3) Having selected the range of tool holder, please check the minimum face grooving machining diameter of the selected insert.

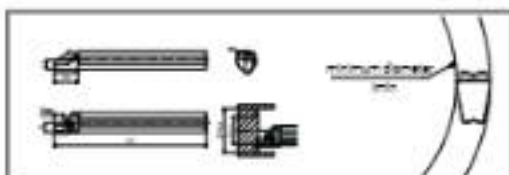
Product code	Series	Wrench
ATPR/L 22-0/3/4	SH050120	LT44
ATPR/L 22-0/3/4	SH050160	LT44
ATPR/L 22-0/4	SH050160	LT44
ATPR/L 40-0/4	SH050160	LT44
ATPR/L 50-4	SH050200	LT44
ATPR/L 25-5	SH060160	LT45
ATPR/L 22-5/6/8	SH060200	LT45
ATPR/L 40/50-5/6/8	SH060250	LT45



ATSIR/L Internal Facing Grooving and Turning Holder



The diagram shows the right hand holder



Product code		Dimension(mm)							Minimum machining diameter of face grooving inserts (mm/mm)								Inserts ¹⁾
		Ø	L1	L2	F	W	Tmax	Ømin	Ømax	T2	T1	Ground	RV	CS	CM	CH	
ATSIR/L	25-0712-05-03-C	25	200	21	11.5	11.5	12	25	45	24	24	-	-	-	-	-	ACD/ ACS/ ATD
	25-0712-05-05-C	25	200	21	11.5	11.5	12	40	80	24	24	-	-	-	-	-	
	25-0712-05-09-C	25	200	21	11.5	11.5	12	55	90	24	24	55	55	-	-	-	
	25-0712-05-130-C	25	200	21	11.5	11.5	12	90	180	24	24	85	85	75	75	75	
	25-0712-05-05-C	25	200	21	11	11.5	12	20	25	22	22	-	-	-	-	-	
	25-0712-05-05-C	25	200	21	11	11.5	12	25	45	22	22	-	-	-	-	-	
	25-0712-05-05-C	25	200	21	11	11.5	12	25	55	22	22	40	40	-	40	40	
	30-0712-05-070-C	30	250	21	14.5	15	12	45	70	22	22	40	40	-	40	40	
	30-0712-05-100-C	30	280	21	14.5	15	12	80	100	22	22	40	40	-	40	40	
	30-0712-05-180-C	30	280	21	14.5	15	12	90	180	22	22	40	40	-	40	40	

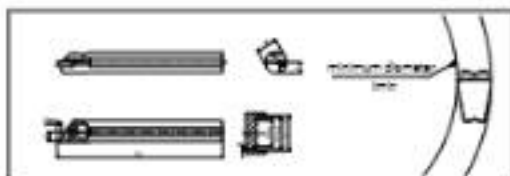
1. Inserted: ACD/ACS series are only applicable to grooving machining

2. "-" indicates that the insert is not a choice

3. After selecting the range of tool holder, please check the minimum face grooving machining diameter of the selected insert

Product code	Screw	Wrench
		
ATSIR/L 25-0/4	SH050160	LTH4
ATPIL/L 32-4	SH080160	LTH4

AGSR/L Internal Facing Grooving and Turning Holder



Product code		Inserts size (mm)	Dimension (mm)					Minimum machining diameter of face grooving inserts (mm/mm)								Inserts ¹⁾
			Ø	L1	W1	F	Tmax	T5	T10	Ground	Rx	CS	CM	CH		
AGSR/L	20-UT9C	2	20	200	12.0	10.0	5.0	190	-	100	180	180	180	180	ACD/ACB/ATC	
		3	20	200	12.0	10.0	5.0	20	20	80	80	70	70	70		
		4	20	200	12.0	10.0	5.0	22	22	42	42	-	42	42		
	20-ET9C	3	20	200	12.0	10.0	5.0	20	20	40	40	-	30	30		
		5	20	200	12.0	10.0	5.0	10	10	20	20	-	10	10		
	20-UT9C	2	20	250	15.0	14.0	5.0	190	-	100	180	180	180	180		
		3	20	250	15.0	14.0	5.0	20	20	80	80	70	70	70		
		4	20	250	15.0	14.0	5.0	22	22	42	42	-	42	42		
	20-ET9C	3	20	250	15.0	13.75	5.0	20	20	40	40	-	30	30		
		5	20	250	15.0	13.75	5.0	10	10	20	20	-	10	10		

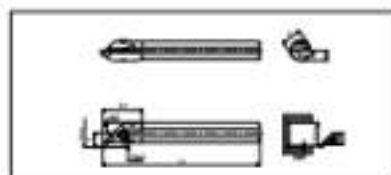
1) Inserts²⁾ ACD/ACB series are only applicable to grooving machining

2) - indicates that the insert is not a choice

3) Having selected the range of tool holder, please check the minimum face grooving machining diameter of the selected insert

Product code	Screw	Wrench
		
AGSR/L 20	SH060160	LT44
AGSR/L 32	SH060160	LT44

AGUR/L Internal Under Cut Machining Holder



Product code		Dimension(mm)						Inserts*
		d	L1	L2	F	Tmax	Dmin	
AGUR/L	22-072-05	20	160	60	12.8	2	15	ACD/ACD/AT5
	22-073-05	25	160	60	12.8	2	15	
	22-072-05	28	200	60	14.6	2	15	
	22-073-05	28	200	60	14.6	2	15	
	22-072-05	28	200	60	14.6	2	15	

Product code	Screw	Insert
AGUR/L 20-3	SH050120	LT-H4
AGUR/L 20-4	SH050120	LT-H4
AGUR/L 25-3	SH050160	LT-H4
AGUR/L 25-4	SH050160	LT-H4
AGUR/L 25-5	SH050160	LT-H5

Insert Denomination System

A	C	D	4	0	3	-	CM	-	6	R
1	2	3	4	5		-	6	-	7	8

1-Company name
ACHTTECK

2-Application	
C	Grooving/Parting off
T	Turning/Grooving

3-Insert shape	
S	Single-edged
D	Double-edged

4-Insert width	
	2x2.0mm 3x3.0mm 4x4.0mm

5-Corner radius	
	03=0.2mm 03=0.3mm 04=0.4mm

6-Summary	
	CS OM CH TS

7-Cutting edge angle	
	5
	15

8-Hand of Tool	
	L: Left
	R: Right

Insert Denomination System (Ground)

A	T	D	215	E	010	G	-	R/L
1	2	3	4	5	6	7	-	8

1-Company name
ACHTTECK

2-Application	
T	Turning/Grooving

3-Insert shape	
S	Single-edged
D	Double-edged

4-Insert width	
	2x2.0mm 3x3.0mm 4x4.0mm

5-Application
E: External F: Facing I: Internal

6-Corner radius	
	010=0.10mm 020=0.20mm 200=2.00mm

7-Application Method	
6	only applicable to parting off

Insert direction	
	L: left hand
	R: right hand

Overview of Grooving Inserts

Inserts¹⁾ Application			ADD			ATD				
			CS	DM	CH	TS	TM	RM	RA	Q
										
Page			P124	P125	P126	P127	P128	P129	P130	P131-133
External grooving	Parting off		•	•	•	•	•			
	Grooving		•	•	•	•	•	•		•
	Turning					•	•	•	•	•
	Profiling							•	•	•
	Under cut							•	•	•
Face grooving	Grooving		•	•	•	•	•			•
	Turning					•	•			•
Internal machining	Grooving		•	•	•	•	•			•
	Turning					•	•	•		•

 1) Varied : • 1st choice
 • 2nd choice

ACHTECK

www.achtecktool.com



Grooving inserts

Insert Geometry Introduction

Inserts	Geometry	Shape of cutting edge	Description
	CS		1. Used in parting off & grooving stainless steel, heat resistant alloy and low carbon steel 2. For low feed rate application
	CM		1. Used in parting off & grooving low carbon steel and stainless steel 2. For alloy material, pipe fitting, thin-walled part parting off, low cutting force 3. For low to medium feed rate
	CH		1. Used in parting off and grooving steel with high hardness and toughness, alloy steel and stainless steel 2. Strong cutting edge 3. For parting off and grooving at medium to high feed rate
	TS		1. Multifunctional insert for external, internal turning and grooving, parting off, face grooving and face turning 2. Excellent chip control 3. For low and medium feed rate 4. There is a wider machining diameter range in the internal grooving and face grooving.
	TM		1. Multifunctional insert for external, internal turning and grooving, parting off, face grooving and face turning 2. Stronger cutting edge design 3. For medium feed rate
	RM		1. External grooving, turning, profiling 2. Medium feed rate
	RA		1. For turning and profiling aluminum alloy 2. High positive rake angle and sharp cutting edge 3. Ground inserts with high precision

Grade Application Guide

Grooving grade ISO group					
Material	Materials	ISO	PVD coated AP901U	Uncoated AW100K	ISO
P	Carbon steels / alloyed steels	P01	AP901U		P01
		P02			P02
		P10			P10
		P15			P15
		P20			P20
		P25			P25
		P30			P30
		P35			P35
		P40			P40
		P45			P45
		P50			P50
M	Stainless steels	M01	AP901U		M01
		M05			M05
		M10			M10
		M15			M15
		M20			M20
		M25			M25
		M30			M30
		M35			M35
		M40			M40
		M45			M45
K	Cast iron	K01	AP901U		K01
		K05			K05
		K10			K10
		K15			K15
		K20			K20
		K25			K25
		K30			K30
		K35			K35
		K40			K40
		K45			K45
		K50			K50
S	Heat resistant alloys	S01			S01
		S05			S05
		S10			S10
		S15			S15
		S20			S20
		S25			S25
		S30			S30
		S35			S35
		S40			S40
N	Aluminum/ Aluminum alloys	N01		AW100K	N01
		N05			N05
		N10			N10
		N15			N15
		N20			N20
		N25			N25
H	Hardened steels/ Chilled cast iron	H01			H01
		H05			H05
		H10			H10
		H15			H15
		H20			H20
		H25			H25
		H30			H30

Grade Application Guide

Materials				Turning grade application	
				PVD coated	Uncoated
ISO	Material classification	Tensile strength (N/mm ²)	Hardness (HRC)	AP5010	AW100K
F	Unalloyed steel	<400	<190	●	-
		>400	>190	●	-
	Alloyed steel	700-900	300-400	●	-
		900-1000	500-600	●	-
		1000-1200	550-610	●	-
M	Duplex stainless steel	770	300	●	-
	Austenitic stainless steel	475	200	●	-
	Preclotation-hardening stainless steel	>1000	400	●	-
K	Grey cast iron	150	200	●	-
	Nodular cast iron	400	240	●	-
	Malleable cast iron	400	200	●	-
S	Fe-based alloy	400	200	-	-
	Co-based alloy	>1000	600	-	-
	Ni-based alloy	>1170	600	-	-
	Ti alloy	>1000	370	-	-
N	Aluminum	240	75	-	●
	Aluminum alloy	400	100	-	●
H	Hardened steel	-	50-60HRC	-	-
	Onited cast iron	-	22-26C	-	-

- See above
 ● See above
 - Inapplicable

Grooving Grade Description

AP301U

Coating: PVD coating

Suitable for steel, stainless steel and heat resistant alloy grooving. High strength and wear resistance submicron carbide substrate with multi layer nanostructured PVD coating. Good coating adhesion. High wear resistance.



Application range											
ISO Classification	01	05	10	15	20	25	30	35	40	45	50
P				AP301U							
M				AP301U							
K				AP301U							
S											
N											
H											

Remark: ☐ Best choice☐ 2nd choice

AW100K

Coating: uncoated

Uncoated ultrafine grain substrate, specially treated cutting edge, suitable for aluminum alloy grooving.

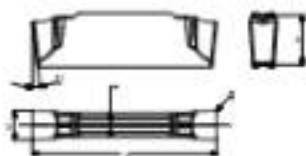


Application range											
ISO Classification	01	05	10	15	20	25	30	35	40	45	50
P											
M											
K											
S											
N		AW100K									
H											

Remark: ☐ Best choice

Parting Off-Grooving Series

CS: Double-edged inserts applicable to parting off and grooving

[illegible]

Method : ● Stock available ○ Not stocked standard



Parting Off-Grooving Series

CM: Double-edged, single-edged inserts applicable to parting off and grooving



Inserts	Product code	Cutting parameter		Dimension (mm)					Grade	
		Thick	Feed (mm/rev)	W	R	L	H	h	A PR11U	AW100K
	ACD 202-CM	19.7	0.04-0.18	2	0.2	20.0	1.7	8.1	●	
	ACD 202-CM4R	19.7	0.03-0.09	2	0.2	20.7	1.7	8.1	●	
	ACD 302-CM4L	19.7	0.03-0.09	2	0.2	20.7	1.7	8.1	●	
	ACD 302-CM15R	19.7	0.03-0.09	2	0.2	21.0	1.7	8.1	●	
	ACD 302-CM415L	19.7	0.03-0.09	2	0.2	21.0	1.7	8.1	●	
	ACD 302-CM	19.7	0.08-0.18	3	0.2	20.0	2.4	8.1	●	
	ACD 302-CM4R	19.7	0.04-0.14	3	0.2	20.7	2.4	8.1	●	
	ACD 302-CM4L	19.7	0.04-0.14	3	0.2	20.7	2.4	8.1	●	
	ACD 302-CM15R	19.7	0.04-0.14	3	0.2	21.0	2.4	8.1	●	
	ACD 302-CM415L	19.7	0.04-0.14	3	0.2	21.0	2.4	8.1	●	
	ACD 402-CM	19.7	0.06-0.18	4	0.3	20.0	3.0	8.1	●	
	ACD 402-CM4R	19.7	0.08-0.18	4	0.3	20.7	3.0	8.1	●	
	ACD 402-CM4L	19.7	0.08-0.18	4	0.3	20.7	3.0	8.1	●	
	ACD 502-CM	24.7	0.06-0.20	5	0.3	25.0	4.0	8.0	●	
	ACD 502-CM4R	24.7	0.06-0.18	5	0.3	25.7	4.0	8.0	(1)	
	ACD 502-CM4L	24.7	0.06-0.18	5	0.3	25.7	4.0	8.0	(1)	
	ACD 602-CM	29.7	0.06-0.22	6	0.3	25.0	5.0	8.0	●	
	ACS 302-CM	19.7	0.04-0.18	2	0.2	20.0	1.7	8.1	●	
	ACS 302-CM	19.7	0.08-0.18	3	0.2	20.0	2.4	8.1	●	
	ACS 402-CM	19.7	0.06-0.18	4	0.3	20.0	3.0	8.1	(1)	
	ACS 502-CM	24.7	0.06-0.20	5	0.3	25.0	4.0	8.0	(1)	
	ACS 602-CM	29.7	0.06-0.22	6	0.3	25.0	5.0	8.0	(1)	

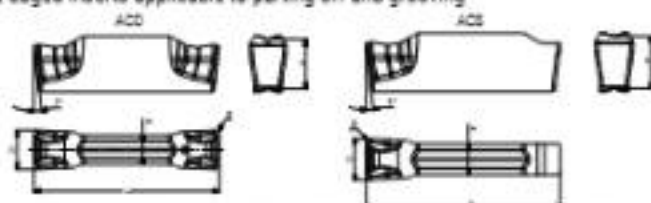
Remark 1. If R/L style inserts are selected, the feed need to be reduced by 20-40%
 2. ACS single edged inserts Thres is determined according to the tool holder

Marked : ● Stock available (1) Nonstock standard



Parting Off-Grooving Series

CH: Double-edged, single-edged inserts applicable to parting off and grooving



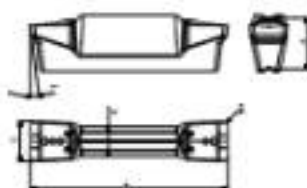
Inserts*	Product code	Cutting parameter		Dimension(mm)					Grade	
		Time ¹	Feed (mm/rev)	W	R	L	H	h	A P80/U	AW500E
	ACO 302-CH	19.7	0.08-0.20	2	0.2	20.0	1.7	9.1	●	
	ACO 302-CH-6R	19.7	0.04-0.16	2	0.2	20.7	1.7	9.1	●	
	ACO 302-CH-6L	19.7	0.04-0.16	2	0.2	20.7	1.7	9.1	●	
	ACO 302-CH-15R	19.7	0.04-0.16	2	0.2	21.0	1.7	9.1	●	
	ACO 302-CH-15L	19.7	0.04-0.16	2	0.2	21.0	1.7	9.1	●	
	ACO 303-CH	19.7	0.07-0.28	3	0.2	20.0	2.4	9.1	●	
	ACO 303-CH-6R	20.7	0.05-0.20	3	0.2	20.7	2.4	9.1	●	
	ACO 303-CH-6L	21.7	0.05-0.20	3	0.2	20.7	2.4	9.1	●	
	ACO 303-CH-15R	20.0	0.05-0.18	3	0.2	21.0	2.4	9.1	●	
	ACO 303-CH-15L	20.0	0.05-0.18	3	0.2	21.0	2.4	9.1	●	
	ACO 403-CH	19.0	0.08-0.30	4	0.3	20.0	3.0	9.1	●	
	ACO 403-CH-6R	19.7	0.06-0.28	4	0.3	20.7	3.0	9.1	●	
	ACO 403-CH-6L	19.7	0.06-0.28	4	0.3	20.7	3.0	9.1	●	
	ACO 503-CH	24.0	0.09-0.35	5	0.3	20.0	4.0	9.0	●	
	ACO 503-CH-6R	24.7	0.08-0.30	5	0.3	20.7	4.0	9.0	●	
	ACO 503-CH-6L	25.7	0.08-0.30	5	0.3	20.7	4.0	9.0	●	
	ACS 302-CH	-	0.05-0.20	2	0.2	20.0	1.7	9.1	●	
	ACS 303-CH	-	0.07-0.28	3	0.2	20.0	2.4	9.1	●	
	ACS 403-CH	-	0.08-0.30	4	0.3	20.0	3.0	9.1	●	
	ACS 503-CH	-	0.09-0.35	5	0.3	20.0	4.0	9.0	●	
	ACS 603-CH	-	0.10-0.40	6	0.3	20.0	5.0	9.0	○	

Remark: 1. If R/L style inserts are selected, the feed need to be reduced by 20-40%
2. ACS single edged inserts Times is determined according to the tool holder.

Marked : ● Stock available ○ Nonstock standard

Growing-Turning-Series

TS: Double-edged inserts applicable to external, internal and face turning, grooving and parting off

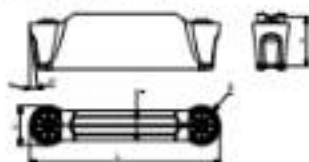
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Marked : ● Stock available ○ Not stocked/ordered



Growing-Turning-Series

RM: Double-edged inserts applicable to external turning, grooving and profiling

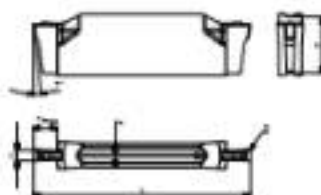
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Noted: ● Stock available □ Not stocked standard



Grooving Series

Ground inserts applicable to grooving



Inserts*	Product code	Suitable tool holder	Cutting parameter	Dimension(mm)						Grade	
			Grooving	Vf	R	Tmax	H	n	L	AP1010	AW1004
			Feed (mm/rev)								
	ATD 103E000G	2mm	0.02-0.05	1.00	0.00	2.00	2.20	5.1	20.700	●	
	ATD 104E000G	2mm	0.02-0.05	1.04	0.00	2.00	2.20	5.1	20.700	●	
	*ATD 113E000G	2mm	0.02-0.05	1.15	0.00	2.00	2.20	5.1	20.700	●	
	ATD 120E000G	2mm	0.03-0.05	1.20	0.00	2.00	2.20	5.1	20.700	●	
	ATD 123E010G	2mm	0.03-0.05	1.23	0.10	2.00	2.20	5.1	20.700	●	
	*ATD 130E000G	2mm	0.03-0.05	1.30	0.00	2.00	2.20	5.1	20.700	●	
	ATD 135E000G	2mm	0.03-0.05	1.35	0.00	2.00	2.20	5.1	20.700	●	
	ATD 140E000G	2mm	0.03-0.05	1.40	0.00	2.00	2.20	5.1	20.700	●	
	ATD 145E010G	2mm	0.03-0.05	1.45	0.10	2.00	2.20	5.1	20.700	●	
	ATD 147E000G	2mm	0.03-0.05	1.47	0.00	2.50	2.20	5.1	20.700	●	
	ATD 150E010G	2mm	0.03-0.05	1.50	0.10	2.50	2.20	5.1	20.700	●	
	ATD 157E015G	2mm	0.03-0.07	1.57	0.15	2.70	2.20	5.1	20.700	●	
	*ATD 165E010G	2mm	0.03-0.07	1.65	0.10	2.70	2.20	5.1	20.700	●	
	ATD 170E010G	2mm	0.03-0.07	1.70	0.10	3.00	2.20	5.1	20.700	●	
	ATD 175E015G	2mm	0.03-0.07	1.75	0.15	3.00	2.20	5.1	20.700	●	
	*ATD 190E010G	2mm	0.04-0.09	1.90	0.10	3.00	2.20	5.1	20.700	●	
	ATD 194E015G	2mm	0.04-0.09	1.94	0.15	3.00	2.20	5.1	20.700	●	
	ATD 203E000G	2mm	0.04-0.09	2.00	0.20	3.00	2.20	5.1	20.700	●	
	*ATD 215E010G	2mm	0.04-0.10	2.15	0.10	3.00	2.20	5.1	20.700	●	
	ATD 222E015G	2mm	0.04-0.10	2.22	0.15	3.50	2.20	5.1	20.700	●	
	ATD 230E000G	2mm	0.04-0.10	2.30	0.20	3.50	2.20	5.1	20.700	●	
	ATD 103E080G	2mm	0.03-0.05	1.00	0.80	2.00	2.20	5.1	20.700	●	
	ATD 140E070G	2mm	0.04-0.07	1.40	0.70	2.00	2.20	5.1	20.700	●	
	ATD 157E070G	2mm	0.04-0.08	1.57	0.75	2.70	2.20	5.1	20.700	●	
	ATD 203E100G	2mm	0.03-0.11	2.00	1.00	3.00	2.20	5.1	20.700	●	
	ATD 235E120G	2mm	0.05-0.12	2.35	1.15		2.20	5.1	20.700	●	

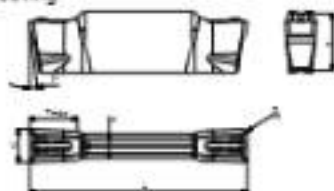
1. * For double groove

2. When the width of the insert is less than 1.78mm, please pay attention to size A of the holder

Marked : ● Stock available ○ Nonstocked standard

Grooving Series

Ground inserts applicable to profiling, turning and grooving

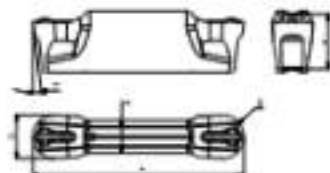


inserts*	Product code	Suitable tool holder	Cutting parameter			Dimension (mm)						Grade	
			Grooving	Turning		W	R	Tmax	H	h	L	AP1010	AW1004
				Feed (mm/rev)	Ap (mm)								
	ATO 26SE215	3mm	0.04-0.12	0.10-0.18	0.20-1.80	2.65	0.15	-	2.20	5.1	20.70	●	
	ATO 30SE220	3mm	0.06-0.14	0.11-0.20	0.30-2.00	3.00	0.20	-	2.20	5.1	20.70	●	
	ATO 30SE240	3mm	0.06-0.18	0.15-0.25	0.50-2.20	3.00	0.40	-	2.20	5.1	20.70	●	
	ATO 40SE240	4mm	0.08-0.16	0.16-0.30	0.50-2.50	4.00	0.40	-	3.00	5.1	20.70	●	
	ATO 40SE260	4mm	0.08-0.18	0.16-0.30	1.00-2.80	4.00	0.60	-	3.00	5.1	20.70	●	
	ATO 41SE215	4mm	0.08-0.18	0.16-0.30	0.30-2.80	4.15	0.18	-	3.00	5.1	20.70	●	
	ATO 47SE255	5mm	0.10-0.20	0.20-0.35	0.60-2.60	4.75	0.55	-	4.00	5.0	25.70	●	
	ATO 50SE240	5mm	0.10-0.20	0.20-0.35	0.80-3.60	5.00	0.40	-	4.00	5.0	25.70	●	
	ATO 50SE260	5mm	0.10-0.20	0.22-0.35	1.00-5.00	5.00	0.60	-	4.00	5.0	25.70	●	
	ATO 51SE215	5mm	0.10-0.22	0.22-0.35	0.20-5.00	5.15	0.18	-	4.00	5.0	25.70	●	
	ATO 55SE255	5mm	0.12-0.25	0.22-0.40	0.60-3.00	5.55	0.55	-	5.00	5.0	25.70	●	
	ATO 55SE260	5mm	0.12-0.30	0.25-0.45	1.00-5.50	6.00	0.60	-	5.00	5.0	25.70	●	
	ATO 60SE120	6mm	0.12-0.30	0.25-0.45	1.30-5.50	6.00	1.20	-	5.00	5.0	25.70	●	
	ATO 63SE260	6mm	0.13-0.30	0.25-0.45	1.00-5.50	6.35	0.60	-	5.00	5.0	25.70	●	
	ATO 80SE260	8mm	0.15-0.40	0.30-0.55	1.00-4.50	8.00	0.60	-	6.00	6.1	31.50	●	
	ATO 90SE120	9mm	0.15-0.40	0.30-0.55	1.20-4.50	9.00	1.20	-	6.00	6.1	31.50	●	

Marked : ● Stock available ○ Nonstocked standard

Growing Series

Ground inserts applicable to turning and grooving

[illegible]

Noted: ● Stock available ○ Not stocked standard



Cutting Parameter Recommendation of Parting Off and Grooving Application

Materials					Cutting parameter recommended table of parting off and grooving application						
ISO	Workpiece material			Bore hardness (HRC)	Tensile strength Rm(N/mm²)	AP301U			AM100K		
						Feed (mm/min)					
						0.1	0.2	0.3	0.1	0.2	0.4
P	Unalloyed steel	Cu0.25%	Annealed	125	330	180	145	120	-	-	-
		0.35 % C, Cu0.55%	Annealed	190	530	135	120	115	-	-	-
		0.35 % C, Cu0.55%	Heat-treated	215	700	130	115	100	-	-	-
		C > 0.55%	Annealed	190	530	145	120	115	-	-	-
		C > 0.55%	Heat-treated	300	1075	115	100	90	-	-	-
	Low alloyed steel	Free cutting steel (stainless)	Annealed	225	610	130	115	100	-	-	-
			Annealed	175	521	180	145	120	-	-	-
			Heat-treated	300	1075	115	100	90	-	-	-
			Heat-treated	350	1285	105	90	105	-	-	-
	High alloyed steel and high alloyed tool steel		Heat-treated	430	1477	-	-	-	-	-	-
			Annealed	300	875	-	-	-	-	-	-
			Hardened and tempered	300	1075	-	-	-	-	-	-
	Stainless steel		Hardened and tempered	400	1281	-	-	-	-	-	-
			Semifinished, annealed	200	875	185	125	120	-	-	-
	M	Stainless steel		Manufacture, heat-treated	300	1175	185	115	75	-	-
			Austenitic, quench hardened	300	875	185	125	105	-	-	-
			Austenitic, precipitation hardened (PH)	300	1075	185	120	90	-	-	-
			Austenitic/ferritic, duplex	330	775	125	110	85	-	-	-
K	Malleable cast iron		Ferrous	300	400	115	85	85	-	-	-
			Ferrous	350	700	115	85	85	-	-	-
	Gray cast iron		Low tensile strength	185	320	180	140	95	-	-	-
			High tensile strength, austenitic	315	340	185	140	95	-	-	-
	Nodular cast iron		Ferrous	185	400	145	110	85	-	-	-
			Ferrous	335	700	145	110	85	-	-	-
			GG/GGS	335	400	-	-	-	-	-	-
N	Wrought aluminum alloys		Nonaging	90	-	-	-	-	-	-	-
			aged	100	340	-	-	-	-	-	-
	Cast aluminum alloys		≤ 12% Si, nonaging	75	340	-	-	-	300	300	300
			≤ 12% Si, aged	90	310	-	-	-	-	-	-
	Magnesium alloys		≤ 12% Si, nonaging	120	480	-	-	-	400	300	30
S	Copper and copper alloys (Brass/bronze)		Unalloyed, electrolytic copper	100	340	-	-	-	-	-	-
			Brass, bronze, red brass	90	310	-	-	-	-	-	-
			Co alloys, aluminum	110	340	-	-	-	-	-	-
			High tensile, alloyed alloy	300	1070	-	-	-	-	-	-
S	Heat treatment alloys	Deformed	Annealed	200	640	-	-	-	-	-	-
			Hardened	300	940	-	-	-	-	-	-
		Hot or Cold-chamber	Annealed	230	840	-	-	-	-	-	-
			Hardened	300	1100	-	-	-	-	-	-
			Cast	300	1080	-	-	-	-	-	-
	Titanium alloys	Aluminum		300	640	-	-	-	-	-	-
		α and β alloys, hardened		375	1280	-	-	-	-	-	-
		β alloys		375	1400	-	-	-	-	-	-
	Tungsten alloys	T100		300	1270	-	-	-	-	-	-
	Inconel alloys	1200		300	1070	-	-	-	-	-	-
H	Hardened steel			Hardened and tempered	50-60C	-	-	-	-	-	-
				Hardened and tempered	55-60C	-	-	-	-	-	-
				Hardened and tempered	60-65C	-	-	-	-	-	-
				Hardened and tempered	50-60C	-	-	-	-	-	-

The recommended cutting conditions are only for general conditions. These cutting conditions should be adjusted according to the particular machine tool, tool, workpiece geometry and so on.

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TM45-100-Z07-A32R-XN16



CUTTING TOOL CATALOGUE

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Milling Cutter Denomination System

A	FM	90	080	Z07	A	22	R	SN12	C
1	2	3	4	5	6	7	8	9	10

1. A-ACHTECK

2. Machining method	
Face milling	FM
Shoulder milling	SM
Profile milling	PM
High-feed milling	HFM
Side & face milling	DFM
Thread milling	TM
Chamfer milling	CFM

3. Approach angle (K)	
Figure	Angle
00	0°
08	8°
15	15°
30	30°
45	45°
60	60°
75	75°
90	90°
+	+
+	+
18	18°
00	Round insert

4. Cutter dia.	
000	00mm
080	80mm
+	+
+	+
250	250mm

5. Number of teeth	
010	1 tooth
+	+
010	1 tooth
+	+
200	20 teeth

6. Connection	
A	Adapt
W	Weld on shank
C	Cylinder shank
H	Whale notch shank
U	Screw clamped with modular head

7. Coupling Size	
22—Connection diameter 22mm	

8. Direction of tool	
R	Right
L	Left
0	Neutral

9. Insert info	
SN12—SN12 series insert	

10. Others	
C	Internal coolant
No mark	No coolant

Porcupine Cutter Denomination

A	PE	90	063	Z04	A	27	R	L13	L56	F	C
1	2	3	4	5	6	7	8	9	10	11	12

1. A—ACHTECK

2. Cutting method

Porcupine cutter	PS
Shoulder milling cutter	SV
Profile milling cutter	PU
High feed milling cutter	SH
Side and face milling cutter	CV
Thread milling cutter	TH
Chamber milling cutter	CV
Rake milling cutter	CV

3. Approach angle (90°)

Profile	Angle
90	90°
95	95°
100	100°
105	105°
110	110°
115	115°
120	120°
125	125°
130	130°
135	135°
140	140°
145	145°
150	150°

4. Cutter dia.

018	18mm
025	25mm
032	32mm
040	40mm
050	50mm
063	63mm
080	80mm
100	100mm
125	125mm
160	160mm

5. Number of teeth

018	2 teeth
025	3 teeth
032	3 teeth
040	3 teeth
050	3 teeth
063	3 teeth
080	3 teeth
100	3 teeth
125	3 teeth
160	3 teeth

6. Coupling

A	A-loc
H	Weldon shank
C	Cylinder shank
N	Whisker shank
W	Screw clamped with modular head

7. Coupling size

27—Connection diameter 27mm

8. Direction of tool

R	Right
L	Left
N	Neutral

9. Insert information

LV12—LV13 series insert

10. Max. cutting depth

L20	20mm
L25	25mm
L32	32mm
L40	40mm
L50	50mm
L63	63mm
L80	80mm
L100	100mm
L125	125mm
L160	160mm

11. Tool type

R	Full tooth
H	Half tooth

12. Others

C	With internal coolant
No indication	Without internal coolant

Overview of Milling Products

Product family			APM42-0004	APM42-0006	APM42-0105	APM42-0005	APM75-0005
Image							
Page			P142	P150	P152	P154	P156
Approach angle			42°	42°	40°	48°	78°
Max. ap. (mm)			2.8	4.5	2	2	6
Diameter range (mm)			φ 22- φ 128	φ 50- φ 160	φ 50- φ 160	φ 16- φ 128	φ 25- φ 100
Insert type			OD.0404..	OD.0605..	OK.0504..	SD.0973..	SD.0973..
Application	Face milling		•	•	•	•	•
	Shoulder milling						
	Slot milling						
	Ramping		•	•		•	•
	Helical interpolate milling		•	•			
	Plunging						
	Profile milling						
	Chamfer milling		•	•		•	
	Pocket milling		•	•			

Remark: • Recommended application

Overview of Milling Products

Product family			APM50-SD09	APM48-SD12	APM79-SD12	APM50-SD12	APM48-SD12
Image							
Page			P188	P160	P162	P164	P166
Approach angle			90°	45°	75°	90°	45°
Max. ap. (mm)			6	7	8	9	6.5
Diameter range (mm)			φ 25- φ 100	φ 50- φ 125	φ 50- φ 125	φ 50- φ 125	φ 50- φ 250
Insert type			SD.09T5..	SD.1204..	SD.1204..	SD.1204..	SH.1206..
Application	Face milling		•	•	•	•	•
	Shoulder milling						
	Slot milling						
	Ramming		•	•	•	•	
	Helical interpolate milling						
	Plunging						
	Profile milling						
	Chamfer milling			•			
	Pocket milling						

Remark: • Recommended application

Overview of Milling Products

Product family			APM10-D110	APM10-D112	APM10-D112	APM10-D117	APM10-D117
Page			P166	P168	P170	P172	P174
Approach angle			45°	75°	55°	45°	45°
Max. ap. (mm)			11	8	10	4	6
Diameter range (mm)			φ 160-φ 250	φ 50-φ 250	φ 50-φ 200	φ 40-φ 160	φ 60-φ 200
Insert type			SN.1009...	SN.1206...	SN.1206...	SN.0705...	SN.0906...
Applications	Face milling		●	●	●	●	●
	Shoulder milling						
	Slot milling						
	Ramping						
	Helical Interpolate milling						
	Plunging						
	Profile milling						
	Chamfer milling						
	Pocket milling						

Remark: ● Recommended application

Overview of Milling Products

Product family							
Page			P174	P176	P176	P178	P180
Approach angle			48°	40°	40°	90°	90°
Max. ap (mm)			8	0.8	0.8	8	12
Diameter range (mm)			φ 30- φ 200	φ 30- φ 250	φ 30- φ 250	φ 20- φ 80	φ 40- φ 160
Insert type			3X-0906	3X-0904, LN-1204L	3X-0904, LN-1606L	LN-HU-0904	LN-HU-1306L
Applications	Face milling		•	•	•	•	•
	Shoulder milling					•	•
	Slot milling					•	•
	Ramping						
	Helical Interpolate milling						
	Plunging						
	Profile milling						
	Chamfer milling						
	Pocket milling						

Remark: • Recommended application

Overview of Milling Products

Product family							
Page			P182	P184	P186	P188	P190
Approach angle			90°	90°	90°	90°	90°
Max. ap. (mm)			18	7	3	16	42
Diameter range (mm)			φ 63- φ 160	φ 40- φ 160	φ 16- φ 63	φ 25- φ 63	φ 25- φ 30
Insert type			LNHU 1607..	VHL 0806..	APKT 1003..	APKT 1703..	LNHU 0904..
Applications	Face milling		•	•	•	•	•
	Shoulder milling		•	•	•	•	•
	Slot milling		•	•	•	•	
	Ramping				•	•	
	Helical interpolate milling				•	•	
	Plunging				•	•	
	Profile milling						
	Chamfer milling						
	Pocket milling				•	•	

Remark: • Recommended application

Overview of Milling Products

Product family			APB30-LV13	APM30-RP	APM30-RC08	APM30-RC12	APM30-RC12
Page			P192	P194	P196	P198	P200
Approach angle			90°	+	-	-	-
Max. ap (mm)			88	+	4	8	8
Diameter range (mm)			φ 40-φ 80	φ 16-φ 20	φ 16-φ 25	φ 25-φ 50	φ 32-φ 80
Insert type			UNHJ 1308..	RPM 080/100..	RC..0803..	RC..10T3..	RC..1204..
Applications	Face milling		•		•	•	•
	Shoulder milling		•				
	Slot milling						
	Ramping			•	•	•	•
	Helical interpolate milling				•	•	•
	Plunging						
	Profile milling			•	•	•	•
	Chamfer milling						
	Pocket milling			•	•	•	•

Remark: • Recommended application

Overview of Milling Products

Product family			APM00-RD16	APM00-RD20	APM00-LV06	APM19-D005	APM19-D012
Page							
Approach angle			°	°	20°	15°	15°
Max. ap. (mm)			8	10	1.0	1.5	2.8
Diameter range (mm)			φ 63- φ 100	φ 100- φ 160	φ 16- φ 63	φ 25- φ 50	φ 32- φ 125
Insert type			RD.1605..	RD.2006..	LV.0604..	XD.0904..	XD.1205..
Applications	Face milling		•	•	•	•	•
	Shoulder milling						
	Slot milling				•	•	•
	Ramming		•	•	•	•	•
	Helical Interpolated milling		•	•	•	•	•
	Plunging				•	•	•
	Profile milling		•	•			
	Chamfer milling						
	Pocket milling		•	•	•	•	•

Remark: • Recommended application

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Milling cutters

AFM42-0004

42° Approaching angle face milling cutter



Product code	D	d1	L	apmax	Internal coolant	Z	Inserts
AFM42-032-203-M16R-0004-C	32	M16	42	3.5		3	OD.0404



Product code	D	d1	L	apmax	Internal coolant	Z	Inserts
AFM42-032-203-W32R-0004-C	32	32	120	3.5		3	OD.0404



Product code	D	d1	L	apmax	Internal coolant	Z	Inserts
AFM42-040-204-A16R-0004-C	40	16	40	3.5		4	OD.0404
AFM42-050-205-A16R-0004-C	50	16	40	3.5		5	
AFM42-063-205-A22R-0004-C	63	22	40	3.5		5	
AFM42-063-206-A22R-0004-C	63	22	40	3.5		6	
AFM42-080-206-A27R-0004-C	80	27	50	3.5		6	
AFM42-080-206-A27R-0004-C	80	27	50	3.5		8	
AFM42-100-207-A32R-0004-C	100	32	50	3.5		7	
AFM42-100-206-A32R-0004-C	100	32	50	3.5		8	
AFM42-125-208-A40R-0004-C	125	40	60	3.5		8	
AFM42-125-210-A40R-0004-C	125	40	60	3.5		10	

Dimension(mm)	Tools parts		
Cutter diameter	Screw	Wrench	Torque
φ 32-125			2.5Nm
	SPO40112	CH-T9115	

Now With internal coolant
 Without internal coolant



[illegible]

	Books available	C's Recommended standard
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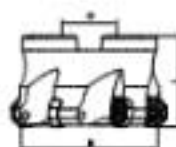
Materials				Cutting depth and feed										
ISO	Material classification	Tensile strength (N/mm²)	Hardness (HRC)	ISO 8001										
				ap	Geometry						f _g			
					VFG		MVG		PVG					
					(mm)									
					min	max	min	max	min	max		min	max	
P	Unalloyed steel	<400	<400	0.01	0.01	0.15	0.25	0.12	0.20	-	-			
		<500	<500											
		700-900	300-380			0.12	0.20	0.10	0.28	-	-			
		900-1200	380-580											
M	Alloyed steel	1200-1400	550-610											
		Duplex stainless steel	770			330								
		Austenitic stainless steel	610			200	-	-	0.08	0.25	-	-		
	Precipitation-hardening stainless steel	1010	300											
K	Cast iron	Grey cast iron	700			330	0.01	0.01	0.15	0.25	0.12	0.20	-	-
		Modular cast iron	580			280								
		Valuable cast iron	630			280								
S	Aluminum	Al-based alloy	310			280								
		Cu-based alloy	370			320								
		Mg-based alloy	310			280								
		Titanium	1300			370								
N	Aluminum	Aluminum	260			70								
		Aluminum alloy	300	130										
H	Hardened steel	-	50-60HRC	0.05	0.20	-			-	-	-	-	-	
		Drilled cast iron	-			55-60								

The recommended using conditions always refer to general conditions. These using conditions should be adjusted according to the practical machine type, use, workpiece standing and systems. $\sigma_{\text{max}} = \frac{F_{\text{max}}}{A_{\text{min}}}$ for $\sigma_{\text{max}} \leq 200$.



AFM42-0006

42 ° Approaching angle face milling cutter

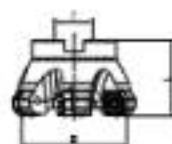


Product code	D	ØT	L	apmax	Internal coolant	Z	Inserts
AFM42-050-Z04-A16R-0006-C	50	16	40	4.5		4	CO. 0606
AFM42-063-Z06-A22R-0006-C	63	22	40	4.5		6	
AFM42-080-Z06-A27R-0006-C	80	27	50	4.5		6	
AFM42-080-Z06-A27R-0006-C	80	27	50	4.5		6	
AFM42-100-Z06-A32R-0006-C	100	32	50	4.5		6	
AFM42-100-Z07-A32R-0006-C	100	32	50	4.5		7	
AFM42-125-Z07-A40R-0006-C	125	40	63	4.5		7	
AFM42-125-Z08-A40R-0006-C	125	40	63	4.5		8	
AFM42-160-Z10-A40R-0006	160	40	63	4.5		10	

Dimension(mm)	Tools parts		
Cutter diameter	Screw	Wrench	Torque
ø 50-160			9.0Nm
	SP04812043	DT-TP20	

AFM40-ON05

40° Approaching angle face milling cutter



Product code	D	dT	L	apmax	Internal coolant	Z	Inserts
AFM40-050-204-A22R-ON05-N-C	50	22	40	3.5		4	ON_0504
AFM40-050-206-A22R-ON05-N-C	50	22	40	3.5		6	
AFM40-063-205-A22R-ON05-N-C	63	22	40	3.5		5	
AFM40-063-206-A22R-ON05-N-C	63	22	40	3.5		6	
AFM40-063-208-A22R-ON05-N-C	63	22	40	3.5		8	
AFM40-080-206-A27R-ON05-N-C	80	27	50	3.5		6	
AFM40-080-208-A27R-ON05-N-C	80	27	50	3.5		8	
AFM40-080-209-A27R-ON05-N-C	80	27	50	3.5		9	
AFM40-100-207-A32R-ON05-N-C	100	32	50	3.5		7	
AFM40-100-209-A32R-ON05-N-C	100	32	50	3.5		9	
AFM40-100-211-A32R-ON05-N-C	100	32	50	3.5		11	
AFM40-125-207-A40R-ON05-N-C	125	40	63	3.5		7	
AFM40-125-209-A40R-ON05-N-C	125	40	63	3.5		9	
AFM40-125-214-A40R-ON05-N-C	125	40	63	3.5		14	
AFM40-160-210-A40R-ON05-N	160	40	63	3.5		10	

Dimension(mm)	Spare parts		
Outlet diameter	Screw	Wrench	Torque
ø 50-140			4.0 Nm
	SP04C090	CHTP15	

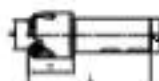
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Materials				Cutting depth and feed					
ISO	Material classification	Tensile strength (N/mm²)	Hardness (HRC)	DN 2501					
				Ø1	Geometry				
					ISO2		ISO3		
					Fz				
(mm)						min		max	
				min	max	min	max	min	max
P	Unalloyed steel	450	41-50	0.05	0.25	0.10	0.25	0.15	0.35
		420							
	Alloyed steel	710-930	300-380						
		930-1210	380-500						
M	Duplex stainless steel	770	330			0.08	0.30	0.10	0.35
	Austenitic stainless steel	570	200						
	Precipitation hardening stainless steel	1010	300						
K	Grey cast iron	710	330			0.10	0.35	0.15	0.35
	Inductio cast iron	560	250						
	High speed cast iron	300	280						
S	Refined alloy	910	380			-	-	-	-
	Carbided alloy	1210	320						
	W based alloy	1170	350						
	Ti alloy	1210	370						
N	Aluminum	260	75	-	-	-	-		
	Aluminum alloy	307	120						
H	Hardened steel	-	50-60 HRC	-	-	-	-		
	Drilled cast iron	-	55-60						

The recommended using conditions always refer to general conditions. These using conditions should be adjusted according to the practical machine type, use, workplace standing and custom. $\sigma = \frac{F}{A}$ $\sigma_{allow} = \frac{\sigma}{n}$

AFM45-SD09

45° Approaching angle face milling cutter



Product code	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
AFM45-016-Z32-W16R-SD09-C	16	16	90	25	5		2	SD-0073
AFM45-020-Z32-W20R-SD09-C	20	20	110	30	5		2	
AFM45-025-Z32-W25R-SD09-C	25	25	120	30	5		3	
AFM45-032-Z32-W32R-SD09-C	32	32	120	35	5		3	



Product code	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
AFM45-032-Z04-A16R-SD09-C	32	16	40	-	5		4	SD-0073
AFM45-040-Z05-A16R-SD09-C	40	16	40	-	5		5	
AFM45-050-Z05-A22R-SD09-C	50	22	40	-	5		5	
AFM45-050-Z06-A22R-SD09-C	50	22	40	-	5		6	
AFM45-063-Z05-A22R-SD09-C	63	22	40	-	5		5	
AFM45-063-Z07-A22R-SD09-C	63	22	40	-	5		7	
AFM45-080-Z06-A27R-SD09-C	80	27	50	-	5		6	
AFM45-080-Z09-A27R-SD09-C	80	27	50	-	5		9	
AFM45-100-Z07-A32R-SD09-C	100	32	50	-	5		7	
AFM45-100-Z11-A32R-SD09-C	100	32	50	-	5		11	
AFM45-125-Z06-A40R-SD09-C	125	40	60	-	5		8	

Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
φ 16-32			2.5Nm
	STD40078	DTT18	
φ 40-125	SPD40090	DT-TD15	

Now With internal coolant

Without internal coolant



[illegible]

	Books available	C's Recommended standard
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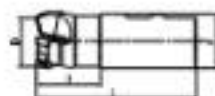
Materials				Cutting depth and feed							
ISO	Material classification	Tensile strength (N/mm²)	Hardness (HRC)	ISO 1073							
				D	Geometry						
					WED		WMD				
					Fz						
mm											
min		max		min		max		min		max	
P	Unalloyed steel	400	H150	0.00	0.00	0.10	0.20	0.05	0.20		
		450	400								
	Alloyed steel	700-900	200-280								
		900-1300	280-380			0.05	0.20	0.05	0.20		
M	Duplex stainless steel	770	330								
	Austenitic stainless steel	570	200			-	-	0.05	0.20		
	Precipitation hardening stainless steel	1010	300								
K	Grey cast iron	700	230								
	Induct cast iron	580	250	0.10	0.20	0.05	0.20				
	High strength cast iron	800	280								
S	Refined alloy	910	280								
	Co-based alloy	1210	320								
	W-based alloy	1170	280								
	Ti alloy	910	270								
N	Aluminum	260	70								
	Aluminum alloy	300	120								
H	Hardened steel	-	50-60 HRC								
	Drilled cast iron	-	20-40	0.05	0.20	-	-				

The recommended using conditions always refer to general conditions. These using conditions should be adjusted according to the practical machine type, use, workplace standing and systems. $\sigma = \frac{F}{A}$ (see also for $\sigma = 200$).



AFM75-SD09

75° Approach angle milling face cutter



Product code	D	d1	L	IT	apmax	Internal coolant	Z	Inserts
AFM75-025-Z32-W25R-SD09-C	25	25	96	40	6		2	SD.09T3
AFM75-022-Z33-W32R-SD09-C	22	22	100	40	6		2	



Product code	D	d1	L	IT	apmax	Internal coolant	Z	Inserts
AFM75-040-Z04-A16R-SD09-C	40	16	32	-	6		4	SD.09T3
AFM75-050-Z05-A22R-SD09-C	50	22	40	-	6		5	
AFM75-063-Z06-A32R-SD09-C	63	22	40	-	6		6	
AFM75-080-Z08-A37R-SD09-C	80	27	50	-	6		8	
AFM75-100-Z10-A32R-SD09-C	100	32	50	-	6		10	

Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
ø 25-22			2.0Nm
	ST040075	DT715	
ø 40-100	SP040090	DT7015	


 Note With internal coolant
 Without internal coolant

[illegible]Noted : ☒ Stock available ☐ Not graded standard

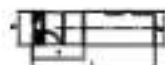
Materials				Cutting depth and feed							
ISO	Material classification	Tensile strength (N/mm²)	Hardness (HRC)	ISO 1073							
				D	Geometry						
					WED		MIG				
					Fz						
mm						mm		mm		mm	
min	max	min	max	min	max	min	max				
P	Unalloyed steel	<400	<180	0.00	0.00	0.10	0.20	0.05	0.20		
		>400	>180								
	Alloyed steel	700-900	200-280								
		900-1300	280-380			0.05	0.20	0.05	0.20		
M		1300-1400	380-470								
	Duplex stainless steel	770	330								
	Austenitic stainless steel	570	200			-	-	0.05	0.20		
	Precipitation hardening stainless steel	1010	300								
K	Grey cast iron	700	230								
	Inductio cast iron	580	200			0.10	0.20	0.05	0.20		
	High strength cast iron	800	280								
S	Refined alloy	910	380								
	Co-based alloy	1210	320								
	Ni-based alloy	1100	380								
	Ti alloy	1210	370								
N	Aluminum	260	70								
	Aluminum alloy	300	120								
H	Hardened steel	-	50-60 HRC								
	Drilled cast iron	-	20-40	0.05	0.20	-	-				

The recommended using conditions always refer to general conditions. These using conditions should be adjusted according to the practical machine type, use, workplace standing and custom. $\sigma = \frac{F}{A}$ $\sigma_{allow} = \frac{\sigma}{n}$

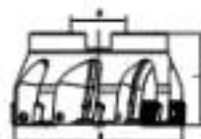


AFM90-SD09

90° Approach angle face milling cutter



Product code	D	Ø1	L	H	apmax	Internal coolant	Z	Inserts
AFM90-025-Z32-W25R-SD09-C	25	25	120	30	6		2	SD-09T3
AFM90-022-Z33-W32R-SD09-C	22	22	120	28	6		3	



Product code	D	Ø1	L	H	apmax	Internal coolant	Z	Inserts
AFM90-040-Z04-A16R-SD09-C	40	16	40	-	6		4	SD-09T3
AFM90-050-Z05-A22R-SD09-C	50	22	40	-	6		5	
AFM90-063-Z06-A32R-SD09-C	63	22	40	-	6		6	
AFM90-080-Z08-A37R-SD09-C	80	27	80	-	6		8	
AFM90-100-Z10-A32R-SD09-C	100	32	80	-	6		10	

Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
ø 25-32			2.0Nm
	ST040078	DT718	
ø 40-100	SP040090	DT7018	

Product code	Dimension(mm)		Grades						
	Insert corner radius mm	Wiper length mm	AP3010	AP1510	AP1010 P	AP4010	AP2010 E	AP1510 E	AW100K
SDMT 09T304EN-VM3	0.4	-	●	●	●		●		
SDMT 09T308EN-VM3	0.2	-	●	●	●		●		
SDGT 09T3P06R-VM6	0.2	1.2	●	●			●	●	
SDMW 09T308EN-HR2	0.2	-	●				●		

	Books available	C's Recommended standard
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Materials				Cutting depth and feed					
ISO	Material classification	Tensile strength (N/mm ²)	Hardness (HRC)	ISO 1073					
				ISO	Geometry				
					VDR		VDR		
					f _z				
		(mm)							
		mm	mm/s	mm	mm/s	mm	mm/s		
P	Unalloyed steel	<400	<180	0.30	0.30	0.10	0.35	0.08	0.30
		400-700	200-280						
	Alloyed steel	700-1000	280-350			0.08	0.30	0.05	0.35
		1000-1400	350-410						
M	Duplex stainless steel	770	330						
	Austenitic stainless steel	570	200			-	-	0.05	0.35
	Preipharman hardening stainless steel	1010	300						
K	Cast steel iron	700	280			0.30	0.30	0.10	0.35
	Cast steel iron	600	250						
	Cast steel iron	500	230						
S	Refined alloy	910	380						
	Colored alloy	1070	320						
	Al based alloy	1170	280						
	Ti alloy	1240	310						
N	Aluminum	260	75						
	Aluminum alloy	307	130						
H	Hardened steel	-	50-60 HRC			0.08	0.30	-	-
	Chilled cast iron	-	55-60 HRC						

The recommended using conditions always refer to general conditions. These using conditions should be adjusted according to the practical machine type, use, working conditions and systems. $\sigma = \frac{F}{A}$ (see also for $\sigma = 200$).

AFM45-SD12

45° Approach angle face milling cutter



Product code	D	ØT	L	IT	Apmax	Internal coolant	Z	Inserts
AFM45-050-Z04-A22R-SD12-C	50	22	40	-	7		4	SD 1204
AFM45-063-Z06-A22R-SD12-C	63	22	40	-	7		6	
AFM45-080-Z06-A27R-SD12-C	80	27	50	-	7		6	
AFM45-100-Z07-A32R-SD12-C	100	32	60	-	7		7	
AFM45-125-Z09-A40R-SD12-C	125	40	60	-	7		8	

Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
ø 50-125			5.0Nm
	SP04511566	DT-TP22	

Product code	Dimension(mm)		Grades						
	Insert corner radius mm	Wiper length mm	AP3010	AP1510	AC3010	AP4010	AC3015	AP1515	AW100X
SDMT 120406EN-MMA	0.8	-	●	●			●	●	
SDMT 120412EN-MMA3	1.2	-	●	●	●		●		
SDKT 1204A6EN-MR2	-	1.5	●	●	●		●	●	
SDHT 1204A6EN-MR6	-	1.5	●	●			●	●	
SDHW 120412EN-MR2	1.2	-	●				●	●	
SDHW 1204A6EN-MR2	-	2	●				●	●	

Noted -  Stock available  Harvested avoided

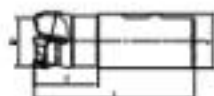
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The recommended using conditions always refer to general conditions. These using conditions should be adjusted according to the practical machine type, use, working standing and system. www.din.de for DIN 9139.



AFM75-SD12

75° Approach angle face milling cutter



Product code	D	H	L	R	apmax	Internal coolant	Z	Inserts
AFM75-022-Z02-W32R-SD12-C	32	32	114	40	8		2	SD_1204
AFM75-040-Z03-W32R-SD12-C	40	32	114	40	8		3	



Product code	D	H	L	R	apmax	Internal coolant	Z	Inserts
AFM75-050-Z04-A22R-SD12-C	50	32	40	-	8		4	SD_1204
AFM75-063-Z05-A22R-SD12-C	63	32	40	-	8		5	
AFM75-080-Z06-A27R-SD12-C	80	37	50	-	8		6	
AFM75-100-Z07-A22R-SD12-C	100	32	80	-	8		7	
AFM75-125-Z08-A40R-SD12-C	125	40	63	-	8		8	

Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
ø 32-125			8.0Nm
	SP04511.888	01-TP020	


 Note With internal coolant
 Without internal coolant

AFM90-SD12

90° Approach angle face milling cutter

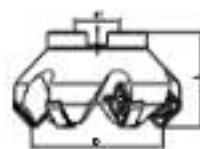


Product code	D	BT	L	IT	Apmax	Internal coolant	Z	Inserts
AFM90-050-Z04-A22R-SD12-C	50	22	40	-	0		4	SD.1204
AFM90-063-Z05-A22R-SD12-C	63	22	40	-	0		5	
AFM90-080-Z06-A27R-SD12-C	80	27	50	-	0		6	
AFM90-100-Z08-A32R-SD12-C	100	32	60	-	0		8	
AFM90-125-Z10-A40R-SD12-C	125	40	60	-	0		10	

Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
ø 50-125			5.0Nm
	SP04511565	DT-TP22	

AFM45-SN12/SN19

45° Approach angle face milling cutter



Product code	D	d1	L	apmax	Internal coolant	Z	Inserts
AFM45-050-Z04-A22R-SN12-N-C	50	22	40	6.5		4	SN1 IX 1206ANW SN1 IX 1206.
AFM45-050-Z06-A22R-SN12-N-C	50	22	40	6.5		6	
AFM45-063-Z04-A22R-SN12-N-C	63	22	40	6.5		4	
AFM45-063-Z06-A22R-SN12-N-C	63	22	40	6.5		6	
AFM45-063-Z08-A22R-SN12-N-C	63	22	40	6.5		8	
AFM45-080-Z04-A27R-SN12-N-C	80	27	50	6.5		4	
AFM45-080-Z06-A27R-SN12-N-C	80	27	50	6.5		6	
AFM45-080-Z07-A27R-SN12-N-C	80	27	50	6.5		7	
AFM45-100-Z06-A32R-SN12-N-C	100	32	50	6.5		6	
AFM45-100-Z08-A32R-SN12-N-C	100	32	50	6.5		8	
AFM45-125-Z07-A40R-SN12-N-C	125	40	63	6.5		7	
AFM45-125-Z08-A40R-SN12-N-C	125	40	63	6.5		8	
AFM45-125-Z10-A40R-SN12-N-C	125	40	63	6.5		10	
AFM45-160-Z10-A60R-SN12-N	160	60	63	6.5		10	
AFM45-200-Z14-A60R-SN12-N	200	60	63	6.5		14	
AFM45-250-Z16-A60R-SN12-N	250	60	63	6.5		16	
AFM45-160-Z08-A40R-SN19	160	40	63	11		8	SN1 IX 1206ANW
AFM45-200-Z10-A60R-SN19	200	60	63	11		10	
AFM45-250-Z12-A60R-SN19	250	60	63	11		12	

Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
ø 50-250 (SN1, 1206ANW)			
	SP050120	OT-TP20	3.5Nm
ø 160-250 (SN1, 1206ANW)	SP06018070	OT-TP25	5.0Nm

Product code	Dimension(mm)		Grades						
	Insert corner radius mm	Wiper length mm	AP0011	AP0013	AC0019	AP0011	AC0019	AP0019	AP0019
SNMX 1206ANN-MM2	-	1.8	●	●	●		●	●	
SNMX 1206ANN-MM4	-	1.8	●	●	●		●	●	
SNMX 1206ANN-MR6	-	1.8	●	●	●		●	●	
SNMX 1206ANN-RR2	-	1.8	●	●	●		●	●	
SNMX 1200ANN-MM2	-	2.0	●	●					
SNMX 1200ANN-MR6	-	2.0		●					
SNMX 120603-MM4	2.8	-	●	●	●		●	●	
SNMX 120612-MM4	1.2	-	●						
SNMX 1206ANN-MM2	-	1.8	●	●	●		●	●	
SNMX 1206ANN-MM4	-	1.8	●	●	●		●	●	
SNMX 1206ANN-MR6	-	1.8	●	●	●		●	●	
SNMX 120603-MM4	2.8	-	●	●	●		●	●	
SNMX 120612-MM2	1.2	-	●	●	●		●	●	
SNMX 120612-MM4	1.2	-	●	●	●		●	●	
SNMX 120612-MR6	1.2	-	●	●	●		●	●	
SNMX 120612-RR2	1.2	-	●		●		●	●	
SNMX 120603-MM4	2.0	-	●	●	●		●	●	
SNMX 120603-RR2	2.0	-	●	●	●		●	●	●
SNMX 1206ANN-PV2	-	1.8							
SNMX 1206ANN-W	-	6.7	●				●		

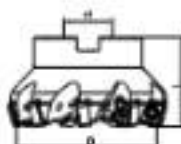
Marked : ● Stock available ○ Nonmarked standard

Materials				Cutting depth and feed													
ISO	Material classification	Tensile strength (N/mm ²)	Hardness (HRC)	SNMX 1206													
				AP	Geometry						fz						
					MM2		MM4		MR6		RR2		PV2				
					(mm)												
				min	max	min	max	min	max	min	max	min	max	min	max		
P	Unalloyed steel	<400	<400	0.20	0.10	0.15	0.25	0.10	0.20	0.10	0.20	0.10	0.20	-	-		
		>400	>400														
	Alloyed steel	700-900	200-280			0.10	0.20	0.10	0.20	0.10	0.20	0.10	0.20	-	-		
		900-1200	300-350														
M	Duplex stainless steel	770	230														
	Austenitic stainless steel	570	200			0.10	0.20	0.10	0.20	-	-	-	-	-	-	-	
	Precipitation hardening stainless steel	1070	300														
K	Gray cast iron	700	230														
	Peardite cast iron	800	280			0.10	0.20	0.10	0.20	0.10	0.20	0.10	0.20	-	-	-	
	Martensitic cast iron	800	280														
S	Perbaised alloy	900	280														
	Colbaised alloy	1070	300			0.10	0.20	0.10	0.20	-	-	-	-	-	-	-	
	Nitbaised alloy	1170	300														
N	Titanio	1040	270														
	aluminum	240	70														
H	Aluminum alloy	240	120			-	-	-	-	-	-	-	-	-	0.10	0.20	
	Hardened steel	-	50-60HRC			-	-	-	-	-	-	-	-	-	-	-	-
H	Chilled cast iron	-	50-60			-	-	-	-	-	-	-	-	-	-	-	-

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, work, workpiece clamping and coolant. For details, please refer to the ACHTECK website.

AFM75-SN12

75° Approach angle face milling cutter



Product code	D	H	L	apmax	Internal coolant	Z	Inserts
AFM75-050-Z04-A32R-SN12-N-C	50	22	40	3.0		4	SN121206SN12 SN11 12X1206
AFM75-063-Z06-A32R-SN12-N-C	63	22	40	3.0		6	
AFM75-080-Z07-A32R-SN12-N-C	80	27	50	3.0		7	
AFM75-100-Z08-A32R-SN12-N-C	100	32	50	3.0		8	
AFM75-125-Z08-A40R-SN12-N-C	125	40	63	3.0		8	
AFM75-125-Z10-A40R-SN12-N-C	125	40	63	3.0		10	
AFM75-160-Z10-A40R-SN12-N	160	40	63	3.0		10	
AFM75-200-Z14-A60R-SN12-N	200	60	63	3.0		14	
AFM75-250-Z16-A60R-SN12-N	250	60	63	3.0		16	

Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
φ 50-250			2.5N·m
	SPO80120	QNT020	

Product code	Dimension(mm)		Grades						
	Insert corner radius mm	Wiper length mm	AP3010	AP3510	AC3010	AP4010	AC3015	AP3115	AW100X
BNMX 12060NN-MM3	-	1.2	●	●	●		●	●	
BNMX 12060NN-MM4	-	1.2	●	●	●		●	●	
BNMX 12060NN-MR6	-	1.2	●	●	●		●	●	
BNMX 12060S-MM4	0.8	-	●	●	●		●	●	
BNMX 120612-MM4	1.2	-	●						
BNMX 12060NN-MM4	-	1.2			●				
BNMX 120620-MM4	0.8	-	●	●	●		●	●	
BNMX 120612-MM3	1.2	-	●	●	●		●	●	
BNMX 120612-MM4	1.2	-	●	●	●		●	●	
BNMX 120612-MR6	1.2	-	●	●	●		●	●	
BNMX 120612-MR2	1.2	-	●	●	●		●	●	
BNMX 120620-MM4	2.0	-	●	●	●		●	●	
BNMX 120620-MR2	2.0	-	●	●	●		●	●	

Marked : ● Grade available ○ Recommended standard

Materials				Cutting depth and feed												
ISO	Material classification	Tensile strength (N/mm²)	Hardness (HRC)	ap	SNGX 1206											
					Geometry											
					MM2		MM3		MR6		MR2					
					fz											
					(mm)											
				ap=1	ap=0.5	ap=1	ap=0.5	ap=1	ap=0.5	ap=1	ap=0.5	ap=1	ap=0.5			
P	Unalloyed steel	<400	<400	0.30	0.30	0.12	0.20	0.10	0.20	0.10	0.20	0.10	0.20			
		<450	<400													
	Alloyed steel	700-900	300-380			0.10	0.20	0.10	0.20	0.10	0.20	0.10	0.20			
		900-1200	320-350													
M	Duplex stainless steel	770	320													
	Austenitic stainless steel	570	300			0.10	0.20	0.10	0.20	-	-	-	-			
	Precipitation hardening stainless steel	1070	300													
K	Gray cast iron	700	300			0.10	0.20	0.10	0.20	0.10	0.20	0.10	0.20			
	Modular cast iron	600	280													
	White cast iron	800	280													
S	Carburized alloy	900	300			0.10	0.20	0.10	0.20	-	-	-	-			
	Citroized alloy	1070	300													
	Nitroized alloy	1100	300													
	Free alloy	1200	270													
N	Aluminum	260	70			-	-	-	-	-	-	-	-			
	Aluminum alloy	300	120													
H	Hardened steel	-	20-60HRC			-	-	-	-	-	-	-	-			
	Drilled cast iron	-	20-40													

The recommended cutting conditions above refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, work, workpiece clamping and systems. For $\frac{1}{2}$ inch tool use for $\frac{1}{2}$ inch - 1 inch.

AFM85-SN12

88° Approach angle face milling cutter



Product code	D	ØT	L	apmax	Internal coolant	Z	Inserts
AFM85-050-Z04-A22R-SN12-N-C	50	22	40	10.0		4	SHG21206Z1N SN11307206
AFM85-063-Z04-A22R-SN12-N-C	63	22	40	10.0		4	
AFM85-063-Z06-A22R-SN12-N-C	63	22	40	10.0		6	
AFM85-080-Z04-A27R-SN12-N-C	80	27	50	10.0		4	
AFM85-080-Z07-A27R-SN12-N-C	80	27	50	10.0		7	
AFM85-100-Z08-A32R-SN12-N-C	100	32	50	10.0		8	
AFM85-100-Z11-A32R-SN12-N-C	100	32	50	10.0		11	
AFM85-125-Z10-A40R-SN12-N-C	125	40	63	10.0		10	
AFM85-125-Z13-A40R-SN12-N-C	125	40	63	10.0		13	
AFM85-160-Z12-A40R-SN12-N	160	40	63	10.0		12	
AFM85-200-Z14-A60R-SN12-N	200	60	63	10.0		14	

Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
ø 30-200			2.5Nm
	SPO80120	OT-TR02	

Product code	Dimension(mm)		Grades							
	Insert corner radius mm	Work length mm	AP3010	AP3110	AC3010	AP4010	AC3010	AP3110	AW1000	
BNMX 12062NN-MM3	-	1.2	●	●	●		●	●		
BNMX 12062NN-MM4	-	1.2	●	●	●		●	●		
BNMX 12062NN-MR6	-	1.2	●	●	●					
BNMX 12060S-MM4	0.8	-	●	●	●		●	●		
BNMX 120612-MM4	1.2	-	●							
BNMX 12060S-MM4	0.8	-	●	●	●		●	●		
BNMX 120612-MM3	1.2	-	●	●	●		●	●		
BNMX 120612-MM4	1.2	-	●	●	●		●	●		
BNMX 120612-MR6	1.2	-	●	●	●					
BNMX 120612-PR2	1.2	-	●	●	●		●	●		
BNMX 12062S-MM4	2.0	-	●	●	●		●	●		
BNMX 12062S-PR2	2.0	-	●	●	●		●	●		
BNMX 12062NN-PM2	-	1.2							●	
BNMX 12062NN-W	1.0	4.4	●				●			

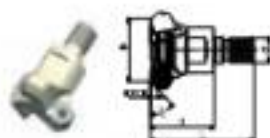
Marked : ● Stock available ○ Not stocked standard

Materials				Cutting depth and feed											
ISO	Material classification	Tensile strength (N/mm²)	Hardness (HRC)	BNMX 1206											
				ap	Geometry										
					0.075	0.150	1.000		2.000		3.000				
							fz								
							(mm)								
PR1	PR40	PR1	PR40	PR1	PR40	PR1	PR40	PR1	PR40	PR1	PR40				
P	Unalloyed steel	<450	<180	0.20	10-60	0.12	0.20	0.10	0.20	0.10	0.20	0.10	0.05	-	-
		<550	<200												
	Alloyed steel	700-900	300-380			0.10	0.20	0.10	0.20	0.10	0.20	0.10	0.05	-	-
		950-1200	350-550												
M	Duplex stainless steel	770	280												
	Austenitic stainless steel	570	200			0.10	0.20	0.10	0.20	-	-	-	-	-	-
	Precipitation hardening stainless steel	1010	300												
K	Grey cast iron	700	280												
	Modular cast iron	500	280			0.12	0.20	0.10	0.20	0.10	0.20	0.10	0.05	-	-
	High alloy cast iron	800	280												
S	Relaxed alloy	910	280												
	Colloidal alloy	1070	280			0.10	0.20	0.10	0.20	-	-	-	-	-	-
	Al based alloy	1170	280												
	Ti alloy	1200	270												
N	Aluminum	260	70			-	-	-	-	-	-	-	-	0.10	0.20
	Aluminum alloy	217	100												
H	Hardened steel	-	30-55 HRC			-	-	-	-	-	-	-	-	-	-
	Chilled cast iron	-	55 HRC												

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tool, workpiece clamping and systems. . Refer to  and .

AFM45-XN07

45° Approach angle face milling cutter



Product code	D	d1	L	fl	apmax	Internal coolant	Z	Inserts
AFM45-040-Z03-M16R-XN07-C	40	16	70	43	4.4		3	30x U 0718



Product code	D	d1	L	fl	apmax	Internal coolant	Z	Inserts
AFM45-040-Z03-W40R-XN07-C	40	40	100	38	4.4		3	30x U 0718



Product code	D	d1	L	fl	apmax	Internal coolant	Z	Inserts
AFM45-040-Z03-A16R-XN07-C	40	16	40	-	4.4		3	30x U 0718
AFM45-050-Z04-A22R-XN07-C	50	22	40	-	4.4		4	
AFM45-050-Z05-A22R-XN07-C	50	22	40	-	4.4		5	
AFM45-063-Z06-A22R-XN07-C	63	22	40	-	4.4		6	
AFM45-063-Z06-A22R-XN07-C	63	22	40	-	4.4		6	
AFM45-080-Z06-A27R-XN07-C	80	27	50	-	4.4		6	
AFM45-080-Z07-A27R-XN07-C	80	27	80	-	4.4		7	
AFM45-100-Z07-A32R-XN07-C	100	32	80	-	4.4		7	
AFM45-100-Z08-A32R-XN07-C	100	32	80	-	4.4		8	
AFM45-125-Z08-A40R-XN07-C	125	40	80	-	4.4		9	
AFM45-125-Z10-A40R-XN07-C	125	40	80	-	4.4		10	
AFM45-160-Z09-A40R-XN07	160	40	80	-	4.4		9	
AFM45-160-Z12-A40R-XN07	160	40	80	-	4.4		12	

Dimension(mm)	Span parts		
Cutter diameter	Screw	Wrench	Torque
ø 40-160			2.0 Nm
	SP028122H	OT-T018	



Now With internal coolant
 Without internal coolant

Product code	Dimension(mm)		Grades						
	Insert corner radius mm	Wiper length mm	AP3010	AP3100	AP301P	AP4010	AP301S	AP311S	AW100X
XW3U 0705ANN-MM2	0.2	1.1	●	●		●	●		
XW3U 0705ANN-MM4	0.2	1.1	●				●		
XW4U 0705ANN-MM4	0.2	1.1	●	●	●	●		●	
XW5U 0705ANN-MR6	0.2	1.1	●	●		●	●	●	
XW6U 070500-MR4	0.2	-		●		●	●	●	
XW2X 0705ANN-W	1.0	6	●				●		

Noted -  Stock available  Harvested avoided

Materials				Cutting depth and feed									
ISO	Material classification	Tensile strength (N/mm²)	Hardness (HRC)	ISO 27025									
				AP	Geometry								
					MM2		MM3		MM8		MM6		
					fz								
					(mm)								
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm				
P	Unalloyed steel	<600	<180	0.20	2-40	0.18	0.28	0.18	0.28	0.18	0.20		
		<600	<200										
	Alloyed steel	770-980	220-280			0.12	0.22	0.12	0.22	0.12	0.20		
		920-1200	280-320										
M	Super stainless steel	770	220										
	Austenitic stainless steel	670	200			0.12	0.20	0.12	0.20	-	-		
	Precipitation hardening stainless steel	1012	300										
K	Grey cast iron	700	220										
	Modular cast iron	680	200	0.12	0.25	0.12	0.25	0.12	0.20				
	White cast iron	870	280										
S	Fe based alloy	910	280										
	Co based alloy	1070	320	0.12	0.28	0.12	0.28	-	-				
	Ni based alloy	1177	350										
	Ti alloy	1280	370										
N	Aluminum	260	72	-	-	-	-	-	-	-			
	Aluminum alloy	507	120										
H	Hardened steel	-	50-60 HRC	-	-	-	-	-	-	-			
	Chilled cast iron	-	50-60 HRC										

The recommended using conditions always refer to general conditions. These using conditions should be adjusted according to the practical machine type, use, workpiece standing and systems. $\Rightarrow$ [Click here for more](#)



AFM45-XN09

45° Approach angle face milling cutter

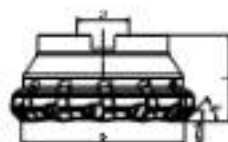


Product code	Ø	Ø1	L	fl	apmax	Internal coolant	Z	Inserts
AFM45-060-Z06-A22R-XN09-C	60	32	40	+	6.0		6	30xL U 0006
AFM45-080-Z06-A27R-XN09-C	80	37	50	+	6.0		6	
AFM45-100-Z07-A32R-XN09-C	100	32	50	+	6.0		7	
AFM45-100-Z08-A32R-XN09-C	100	32	50	+	6.0		8	
AFM45-125-Z08-A40R-XN09-C	125	40	60	+	6.0		8	
AFM45-125-Z10-A40R-XN09-C	125	40	60	+	6.0		10	
AFM45-160-Z09-A40R-XN09	160	40	60	+	6.0		9	
AFM45-160-Z11-A40R-XN09	200	60	60	+	6.0		11	
AFM45-200-Z12-A60R-XN09	200	60	60	+	6.0		12	

Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
Ø 60-200			5.0Nm
	SP060190	DT-TP20	

AFM45-XN09-W

45° Approach angle face milling cutter with wedge clamping



Product code	Ø	Ø1	L	fl	apmax	Internal coolant	Z	Inserts
AFM45-080-Z09-A27R-XN09-W	80	37	50	+	6.0		9	30xL U 0006
AFM45-100-Z12-A32R-XN09-W	100	32	50	+	6.0		12	
AFM45-125-Z16-A40R-XN09-W	125	40	60	+	6.0		16	
AFM45-125-Z18-A40L-XN09-W	125	40	60	+	6.0		18	
AFM45-160-Z20-A40R-XN09-W	160	40	60	+	6.0		20	
AFM45-160-Z20-A40L-XN09-W	160	40	60	+	6.0		20	
AFM45-200-Z24-A60R-XN09-W	200	60	60	+	6.0		24	
AFM45-250-Z26-A80L-XN09-W	200	60	60	+	6.0		26	

Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
Ø 80-200			7.0Nm
	AXG 04	AX/SB32F	

Flow 100 Internal coolant

100 External coolant

[illegible]

Model	● Stock available	○ Homebased standard
Model 1		
Model 2		
Model 3		
Model 4		
Model 5		
Model 6		
Model 7		
Model 8		
Model 9		
Model 10		
Model 11		
Model 12		
Model 13		
Model 14		
Model 15		
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Model 88		
Model 89		
Model 90		
Model 91		
Model 92		
Model 93		
Model 94		
Model 95		
Model 96		
Model 97		
Model 98		
Model 99		
Model 100		

Materials				Cutting depth and feed									
ISO	Material classification	Tensile strength (N/mm²)	Hardness (HRC)	ISO 22828									
				AP	Geometry								
					MMZ		MMZ		VDR				
					f _s								
					(mm)								
0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40						
P	Unalloyed steel	<450	<180	0.20	4.00	0.18	0.28	0.18	0.28	0.18	0.20		
		<450	<200										
	Alloyed steel	770-980	320-380			0.12	0.22	0.12	0.22	0.12	0.20		
		920-1200	380-500										
M	Super stainless steel	770	320										
	Austenitic stainless steel	515	200			0.12	0.20	0.12	0.20	-	-		
	Precipitation-hardening stainless steel	1012	300										
K	Grey cast iron	700	320										
	Modular cast iron	680	280	0.12	0.25	0.12	0.28	0.12	0.20				
	White cast iron	810	280										
S	Fe-based alloy	910	380										
	Co-based alloy	1075	320	0.12	0.28	0.12	0.28	-	-				
	Ni-based alloy	1100	280										
	Ti alloy	1280	270										
N	Aluminum	260	72	-	-	-	-	-	-				
	Aluminum alloy	507	120										
H	Hardened steel	-	50-60 HRC	-	-	-	-	-	-				
	Chilled cast iron	-	50-60 HRC										

The recommended using conditions always refer to general conditions. These using conditions should be adjusted according to the practical machine type, use, workpiece standing and systems.       

AFF40-LN12/LN15

Cast iron finishing milling cutter



Product code	Ø	Ø1	L	apmax	Internal coolant	°Z	Cutting edge for finishing machining	Inserts
AFF40-080-Z38-A27R-LN12	80	27	80	0.8		8+2	2	CH-HP 080408-LN12 LN-HQ 120408R-HV
AFF40-100-Z10-A22R-LN12	100	32	80	0.8		10+2	2	
AFF40-125-Z15-A40R-LN15	125	40	80	0.8		15+3	3	
AFF40-160-Z18-A40R-LN15	160	40	80	0.8		18+3	3	CH-HP 080408-LN12 LN-HQ 120408R-HV
AFF40-200-Z24-A60R-LN15	200	60	80	0.8		24+3	3	
AFF40-250-Z30-A60R-LN15	250	60	80	0.8		30+3	3	

Dimension	Spare parts				
Cutter diameter	wedge type	wedge locking screw	wiper insert locking screw	wiper insert adjusting screw	wiper cartridge locking screw
Ø 80-250					
	AKQ-6H-138	WD060200	SP040085H	AKQ80100F	SH060280

Dimension	Spare parts				
Cutter diameter	wedge screw wrench	wiper insert screw wrench	wiper insert adjusting screw wrench	wiper insert cartridge locking screw wrench	wiper cartridge
Ø 80-250					
	LTHQ	DTTP10	LTHQ B	LTHQ	080-100 0128-250 04UN1235-2545 04UN1835-2545



Now With internal coolant
 Without internal coolant

[illegible]

Noted : ● Stock available ○ Not graded standard

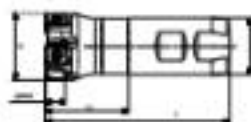
Materials				Cutting depth and feed			
ISO	Material classification	Tensile strength (N/mm²)	Hardness (HRC)	DIN 65 - Lined, 10			
				40	Geometry		mm
					DIN 65 - 10		
					10		
		(mm)					
		min	max	min	max		
	Grey cast iron	150	220	0.25	0.50	0.05	0.25
	Medium cast iron	220	280				
	White cast iron	300	350				

The recommended cutting conditions above refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tool, workpiece geometry and systems. For more details, please refer to the manual.

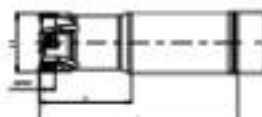
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ASM90-LN09-C

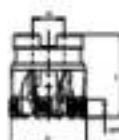
90° Shoulder milling cutter



Product code	D	d1	L	r1	apmax	Internal coolant	Z	Inserts
ASM90-025-Z03-W25R-LN09-C	25	25	100	45	8		3	LNPM 0004
ASM90-025-Z04-W25R-LN09-C	25	25	100	45	8		4	
ASM90-032-Z04-W32R-LN09-C	32	32	110	50	8		4	
ASM90-032-Z05-W32R-LN09-C	32	32	110	50	8		5	
ASM90-040-Z04-W32R-LN09-C	40	32	110	55	8		4	
ASM90-040-Z06-W32R-LN09-C	40	32	110	55	8		6	



Product code	D	d1	L	r1	apmax	Internal coolant	Z	Inserts
ASM90-020-Z02-C20R-LN09-L110	20	20	110	31	8		2	LNPM 0004
ASM90-020-Z03-C20R-LN09-L110	20	20	110	31	8		3	
ASM90-025-Z02-C25R-LN09-L200-C	25	25	200	40	8		3	
ASM90-025-Z04-C25R-LN09-L200-C	25	25	200	40	8		4	
ASM90-032-Z04-C32R-LN09-L250-C	32	32	250	50	8		4	
ASM90-032-Z05-C32R-LN09-L250-C	32	32	250	50	8		5	



Product code	D	d1	L	ISO	apmax	Internal coolant	Z	Inserts
ASM90-040-Z04-A16R-LN09-C	40	16	40	A	8		4	LNPM 0004
ASM90-040-Z06-A16R-LN09-C	40	16	40	A	8		6	
ASM90-050-Z05-A22R-LN09-C	50	22	40	A	8		5	
ASM90-050-Z07-A22R-LN09-C	50	22	40	A	8		7	
ASM90-063-Z07-A22R-LN09-C	63	22	40	A	8		7	
ASM90-063-Z10-A22R-LN09-C	63	22	40	A	8		10	
ASM90-080-Z09-A27R-LN09-C	80	27	50	A	8		9	
ASM90-080-Z13-A27R-LN09-C	80	27	50	A	8		13	

Flow with internal coolant
 without internal coolant



Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
φ 20-30			1.0Nm
	SP030083	DT1909	

Product code	Dimension(mm)		Grade						
	Insert corner radius mm	Wiper length mm	AP0115	AP0315	AP0515	AP0715	AP0915	AP1115	AP1315
LNHU 090404ER-FM2	3.4	1.35							●
LNHU 090404ER-MM2	3.4	1.35			●	●			
LNHU 090404ER-MR2	3.4	1.35	●		●	●	●	●	
LNHU 090405ER-MR2	3.8	1.3	●		●	●	●	●	
LNHU 090412ER-MR2	1.2	1.0	●			●	●		
LNHU 090416ER-MR2	1.6	0.65	●			●	●		
LNHU 090420ER-MR2	2.0	0.48	●			●	●		
LNHU 0904PDER-W	3.4	3.6	●				●		

Legend : ● Stock available ○ Not stocked standard

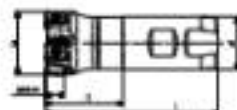
Materials				Cutting depth and feed								
ISO	Material classification	Tensile strength (N/mm ²)	Hardness (HRC)	LNHL2002								
				ap	Geometry						fz	fz
					ISO2		ISO3		ISO4			
					fz (mm)							
				mm	mm	mm	mm	mm	mm	mm	mm	
P	Unalloyed steel	<600	<700	0.25	0.20	0.08	0.20	0.08	0.20	-	-	
		<650	<800			0.08	0.20	0.08	0.20	-	-	
	Alloyed steel	700-900	200-280			0.08	0.20	0.08	0.20	-	-	
		900-1200	280-350			0.08	0.20	0.08	0.20	-	-	
M	Double stainless steel	775	280			0.08	0.20	0.08	0.20	-	-	
	Austenitic stainless steel	675	200			0.08	0.20	0.08	0.20	-	-	
	Precipitation-hardening stainless steel	1075	300			0.08	0.20	0.08	0.20	-	-	
K	Grey cast iron	700	200			0.08	0.20	0.08	0.20	-	-	
	Modular cast iron	600	180			0.08	0.20	0.08	0.20	-	-	
	High speed cast iron	600	200			0.08	0.20	0.08	0.20	-	-	
S	Refined alloy	915	280			-	-	0.08	0.16	-	-	
	Corrosion alloy	1075	300			-	-	0.08	0.16	-	-	
	High speed alloy	1177	380			-	-	0.08	0.16	-	-	
	Tool steel	1280	475			-	-	0.08	0.16	-	-	
N	Aluminum	265	75			-	-	-	-	0.08	0.20	
	Aluminum alloy	307	120			-	-	-	-	0.08	0.20	
H	Hardened steel	-	50-60HRC			-	-	-	-	-	-	
	Chilled cast iron	-	55-60HRC			-	-	-	-	-	-	

The recommended cutting conditions above refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, work, workpiece clamping and systems. For details, please refer to the ACHTECK manual.

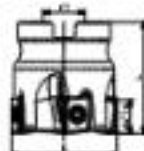


ASM90-LN13-C

90° Shoulder milling cutter



Product code	D	d1	L	IT	apmax	Internal coolant	Z	Inserts
ASM90-040-ZS-W32R-LN13-C	40	32	120	50	12		5	LN-HU 1306



Product code	D	d1	L	IT	apmax	Internal coolant	Z	Inserts
ASM90-040-Z04-A16R-LN13-C	40	16	40	-	12.0		4	LN-HU 1306
ASM90-040-Z05-A16R-LN13-C	40	16	40	-	12.0		5	
ASM90-050-Z05-A22R-LN13-C	50	22	40	-	12.0		5	
ASM90-050-Z06-A22R-LN13-C	50	22	40	-	12.0		6	
ASM90-063-Z04-A22R-LN13-C	63	22	40	-	12.0		4	
ASM90-063-Z06-A22R-LN13-C	63	22	40	-	12.0		6	
ASM90-063-Z08-A22R-LN13-C	63	22	40	-	12.0		8	
ASM90-080-Z05-A27R-LN13-C	80	27	50	-	12.0		5	
ASM90-080-Z07-A27R-LN13-C	80	27	50	-	12.0		7	
ASM90-080-Z10-A27R-LN13-C	80	27	50	-	12.0		10	
ASM90-100-Z07-A32R-LN13-C	100	32	50	-	12.0		7	
ASM90-100-Z09-A32R-LN13-C	100	32	50	-	12.0		9	
ASM90-100-Z13-A32R-LN13-C	100	32	50	-	12.0		13	
ASM90-125-Z09-A40R-LN13-C	125	40	63	-	12.0		9	
ASM90-125-Z11-A40R-LN13-C	125	40	63	-	12.0		11	
ASM90-125-Z16-A40R-LN13-C	125	40	63	-	12.0		16	
ASM90-160-Z09-A40R-LN13	160	40	63	-	12.0		9	
ASM90-160-Z13-A40R-LN13	160	40	63	-	12.0		13	

Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
ø 40-160			2.5Nm
	SPO40115	OT-TPE15	



Flow with internal coolant
 without internal coolant

Product code	Dimension(mm)		Grade					
	Insert corner radius mm	Wiper length mm	AP001F	AC001F	AP151F	AP401F	AC011F	AP111F
LNHU 130608R-FM2	0.8	2.7				●		●
LNHU 130608R-MM3	0.8	2.7						
LNHU 130608R-MR2	0.8	2.7	●	●	●	●	●	●
LNHU 130612R-MR2	1.2	2.3			●	●	●	
LNHU 130616R-MR2	1.6	1.9			●	●	●	
LNHU 130620R-MR2	2.0	1.5			●	●		
LNHU 130624R-MR2	2.4	1.0			●	●		
LNHU 130631R-MR2	3.1	0.4			●	●	●	
LNHU 1306PDR-W	0.0	3.6	●				●	

Noted : ● Stock available □ Nonstock standard

Materials				Cutting depth and feed							
ISO	Material classification	Tensile strength (N/mm ²)	Hardness (HRC)	LNHL 1205							
				ap	Geometry						
					ISO2		ISO2				
					f ₀						
(mm)											
ap		ap ₀		ap		ap ₀		ap		ap ₀	
P	Unalloyed steel	<450	<180	0.20	12.00	0.10	0.20	0.10	0.20		
		<450	<180								
	Alloyed steel	700-900	200-280			0.08	0.20	0.10	0.30		
		900-1200	280-350								
M	Duplex stainless steel	770	220								
	Austenitic stainless steel	670	200			0.08	0.20	0.08	0.20		
	Preipitationhardening stainless steel	1070	300								
K	Grey cast iron	700	230			-	-	0.10	0.20		
	Modular cast iron	600	230								
	White cast iron	800	230								
S	Deformed alloy	600	230								
	Coarse alloy	1070	230			0.08	0.10	0.08	0.20		
	Al based alloy	1100	230								
	Ti alloy	1200	270								
N	Aluminum	260	70			-	-	-	-		
	Aluminum alloy	300	70								
H	Hardened steel	-	50-60HRC			-	-	0.08	0.20		
	Chilled cast iron	-	55-60C								

The recommended cutting conditions above refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, work, workpiece clamping and systems. For $\frac{D}{L} \geq 10$, decrease for $\frac{D}{L} < 10$.



ASM90-LN16-C

90° Shoulder milling cutter

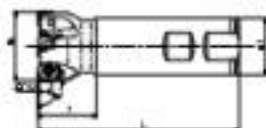


Product code	D	d1	L	ISO	apmax	Internal coolant	Z	Inserts
ASM90-063-Z04-A22R-LN16-C	63	22	40	A	16		4	LN16 1607
ASM90-080-Z05-A27R-LN16-C	80	27	50	A	16		5	
ASM90-125-Z07-A40R-LN16-C	125	40	63	A	16		7	
ASM90-160-Z08-A40R-LN16	160	40	63	A	16		8	

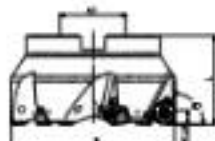
Dimension(mm)	Tools parts		
Cutter diameter	Screw	Wrench	Torque
φ 63-160			Shim
	SPO5013063	OT-TP23	

ASM90-WN08-C

90° Shoulder milling cutter



Product code	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
ASM90-040-Z03-W02R-WN08-C	40	32	120	38	7.0		3	WFLU 0806
ASM90-040-Z04-W02R-WN08-C	40	32	120	38	7.0		4	WFLU 0806



Product code	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
ASM90-050-Z04-A02R-WN08-C	50	32	40	-	7		4	WFLU 0806
ASM90-050-Z05-A02R-WN08-C	50	32	40	-	7		5	
ASM90-063-Z04-A02R-WN08-C	63	32	40	-	7		4	
ASM90-063-Z06-A02R-WN08-C	63	32	40	-	7		6	
ASM90-063-Z07-A02R-WN08-C	63	32	40	-	7		7	
ASM90-080-Z05-A02R-WN08-C	80	27	80	-	7		5	
ASM90-080-Z07-A02R-WN08-C	80	27	50	-	7		7	
ASM90-080-Z09-A02R-WN08-C	80	27	80	-	7		9	
ASM90-100-Z06-A02R-WN08-C	100	32	80	-	7		6	
ASM90-100-Z08-A02R-WN08-C	100	32	50	-	7		8	
ASM90-100-Z11-A02R-WN08-C	100	32	80	-	7		11	
ASM90-125-Z07-A03R-WN08-C	125	40	63	-	7		7	
ASM90-125-Z11-A03R-WN08-C	125	40	63	-	7		11	
ASM90-125-Z13-A03R-WN08-C	125	40	63	-	7		13	
ASM90-160-Z08-A03R-WN08-C	160	40	63	-	7		8	
ASM90-160-Z12-A03R-WN08-C	160	40	63	-	7		12	

Dimension(mm)	Span parts		
Cutter diameter	Screw	Wrench	Torque
ø 40-160			3.5Nm
	ST040085H	D7-TP10	



Now With internal coolant
 Without internal coolant

Product code	Dimension(mm)		Grade						
	Insert corner radius mm	Wiper length mm	AP3010	AC3010	AP1510	AP1010	AC1010	AP1110	AW1010
WNHU 08060R-PM2	0.8	2.0			●	●			●
WNGU 08060R-MM3	0.4	2.2			●	●			
WNGU 08060R-MM3	0.8	2.0	●		●	●			
WNGU 08060R-MM4	0.4	2.2	●		●	●		●	
WNGU 08060R-MM4	0.8	2.0	●	●	●	●	●	●	
WNGU 080612R-MM4	1.2	1.6	●		●	●			
WNGU 080616R-MM4	1.6	1.2	●		●	●			
WNGU 08060R-MR2	0.8	2.0	●					●	
WNGU 080612R-MR2	1.2	1.6	●					●	
WNGU 080616R-MR2	1.6	1.2	●					●	
WNHC 080622R-W	1.0	4.8	●				●		

Legend : ● Stock available □ Non-stock standard

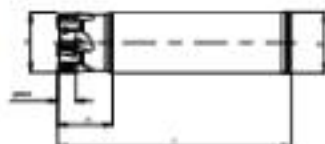
Materials				Cutting depth and feed												
ISO	Material classification	Tensile strength (N/mm ²)	Hardness (HRC)	WNGU 0806												
				ap	Geometry											
					Geometry				fz							
					(mm)											
ap1	ap2	ap3	ap4	ap5	ap6	ap7	ap8	ap9	ap10	ap11						
P	Unalloyed steel	<400	<400	0.30	7.00				0.12	0.20	0.12	0.20	0.12	0.20		
		<450	<400													
	Alloyed steel	700-900	300-380													
		900-1200	320-350													
M	Duplex stainless steel	770	320													
	Austenitic stainless steel	670	300						0.06	0.10	0.06	0.10	-	-		
	Precipitation hardening stainless steel	1010	300													
K	High speed steel	700	320													
	Tool steel HSS	800	300						0.10	0.20	0.10	0.20	0.10	0.20		
	High speed steel	800	280													
S	Free-cutting alloy	910	300													
	Free-cutting alloy	1010	320													
	Free-cutting alloy	1100	280													
	Free-cutting alloy	1200	270													
N	Aluminum	200	70						0.10	0.20	-	-	-	-	-	-
	Aluminum alloy	300	120													
H	Hardened steel	-	20-60HRC						-	-	-	-	-	-	-	-
	Chilled cast iron	-	20-40C													

The recommended cutting conditions above refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, work, workpiece clamping and systems. For $\frac{1}{2}$ inch, see page 100.

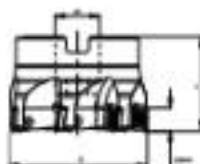


ASM90-AP10-C

90° Shoulder milling cutter



Product code	D	d1	L	r1	apmax	Internal coolant	Z	Inserts
ASM90-016-202-C16R-AP10-L30-C	16	16	90	26	8		2	APKT 1003
ASM90-020-203-C20R-AP10-L110-C	20	20	150	28	8		3	
ASM90-025-204-C25R-AP10-L120-C	25	25	120	30	8		4	
ASM90-032-205-C32R-AP10-L130-C	32	32	100	26	8		5	

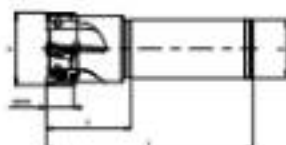


Product code	D	d1	L	r1	apmax	Internal coolant	Z	Inserts
ASM90-063-207-A22R-AP10-C	63	63	40	A	8		7	APKT 1003

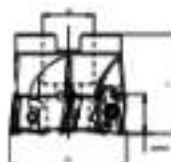
Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
p 16-63			1.0Nm
	SP01805480H	07-TP08	

ASM90-AP17-C

90° Shoulder milling cutter



Product code	D	d1	L	r1	asmax	Internal coolant	Z	Inserts
ASM90-025-Z32-C32R-AP17-L100-C	25	25	100	39	16		2	APKT 1705
ASM90-032-Z32-C32R-AP17-L110-C	32	32	110	40	16		2	
ASM90-040-Z34-C32R-AP17-L120-C	40	32	120	45	16		4	

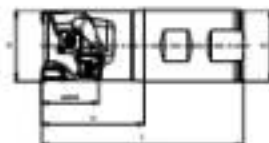


Product code	D	d1	L	r1	asmax	Internal coolant	Z	Inserts
ASM90-050-Z35-A22R-AP17-C	50	32	40	-	16		5	APKT 1705
ASM90-063-Z36-A22R-AP17-C	63	32	40	-	16		6	

Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
$\varnothing 25$ $\varnothing 32-63$			4.0 Nm
	SP040084 SP040093	CH-TP18	

APE90-LN09

90° Procupine milling cutter

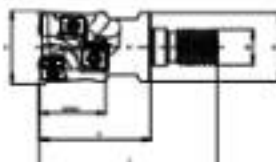


Product code	D	d1	L	L1	d2	d3	d4	apmax	Internal coolant	clamping screw	Z	row	Insert number	Inserts
APE90-025-Z02-W05R-LN09-L32-F-C	25	25	100	40	-	-	-	32		-	3	4	8	L/HU 0904
APE90-032-Z02-W03R-LN09-L32-F-C	32	32	108	44	-	-	-	32		-	3	4	8	
APE90-032-Z02-W03R-LN09-L40-F-C	32	32	110	50	-	-	-	40		-	3	5	10	
APE90-040-Z03-W40R-LN09-L40-F-C	40	40	128	58	-	-	-	40		-	3	5	15	
APE90-040-Z03-W40R-LN09-L48-F-C	40	40	130	50	-	-	-	48		-	3	5	18	



Product code	D	d1	L	L1	d2	d3	d4	apmax	Internal coolant	clamping screw	Z	row	Insert number	Inserts
APE90-040-Z03-A16R-LN09-L32-F-C	40	38	55	-	16	9	16	32		SH080400	3	4	12	L/HU 0904
APE90-040-Z03-A16R-LN09-L40-F-C	40	38	68	-	16	9	18	40		SH080800	3	5	18	
APE90-050-Z04-A22R-LN09-L48-F-C	50	47.5	75	-	22	11	18	48		SH100550	4	6	24	

clamping screw	Designation	screw type	clamping torque
	SH080400	M8*40	41Nm
	SH080800	M8*80	41Nm
	SH100550	M10*55	81Nm



Product code	D	d1	L	L1	d2	d3	d4	apmax	Internal coolant	clamping screw	Z	row	Insert number	Inserts
APE90-025-Z02-M12R-LN09-L24-F-C	25	23.4	64	40	12	-	-	24		-	3	3	6	L/HU 0904
APE90-032-Z02-M16R-LN09-L24-F-C	32	30	67	40	16	-	-	24		-	3	3	6	
APE90-032-Z02-M16R-LN09-L32-F-C	32	30	77	50	16	-	-	32		-	3	4	8	

Dimension(mm)	Screw parts			
Cutter diameter	Screw	Wrench	wrench	Torque
p 25-50				1.2Nm
	SP030022	07-TF09	APW-18/24	



NOTE: Internal coolant
 Without internal coolant

Product code	Dimension(mm)		Grade						
	Insert corner radius mm	Wiper length mm	AP001F	AC001F	AP151F	AP-K11M	AC011E	AP111E	AW100E
LNHU 090404ER-FM2	0.4	1.05							●
LNHU 090404ER-MM3	0.4	1.05			●	●			
LNHU 090404ER-MR2	0.4	1.05	●		●	●	●	●	
LNHU 090405ER-MR2	0.5	1.3	●		●	●	●	●	
LNHU 090412ER-MR2	1.2	1.0	●			●	●		
LNHU 090416ER-MR2	1.6	0.65	●			●	●		
LNHU 090420ER-MR2	2.0	0.45	●			●	●		
LNHU 090400ER-W	0.4	3.6	●				●		

Legend : ● Stock available ○ Not stocked standard

Materials				Cutting depth and feed							
ISO	Material classification	Tensile strength (N/mm²)	Hardness (HRC)	UNML 0900							
				ap	Geometry						
					MMZ		MMZ		MMZ		
					fz						
					(mm)						
mm	mm	mm	mm	mm	mm	mm	mm				
P	Unalloyed steel	<800	<700	0.20	30-50	0.08	0.20	0.08	0.20	-	-
		<900	<800			0.08	0.18	0.08	0.20	-	-
	Alloyed steel	700-900	500-580			0.08	0.18	0.08	0.20	-	-
		900-1200	580-650			0.08	0.18	0.08	0.20	-	-
M	Duplex stainless steel	770	300			0.08	0.18	0.08	0.18	-	-
	Austenitic stainless steel	570	200			0.08	0.18	0.08	0.18	-	-
	Precipitation-hardening stainless steel	1070	300			0.08	0.20	0.08	0.20	-	-
K	Gray cast iron	700	200			0.08	0.20	0.08	0.20	-	-
	Modular cast iron	600	180			0.08	0.20	0.08	0.20	-	-
	White cast iron	600	200			0.08	0.20	0.08	0.20	-	-
S	Free-machining alloy	610	200			0.08	0.18	-	-	-	-
	Corrosion alloy	1070	200			0.08	0.18	-	-	-	-
	High-speed alloy	1100	200			0.08	0.18	-	-	-	-
	Tool steel	1200	270			0.08	0.18	-	-	-	-
N	Aluminum	200	70			-	-	-	-	0.08	0.20
	Aluminum alloy	300	100			-	-	-	-	0.08	0.20
H	Hardened steel	-	50-60HRC			-	-	0.08	0.18	-	-
	Cast iron	-	55-60C			-	-	0.08	0.18	-	-

The recommended cutting conditions above refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, work, workpiece clamping and systems. For $\frac{1}{2}$ inch, see page 100.

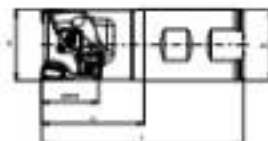


APE90-LN13

90° Porcupine milling cutter



Product code	Ø	Ø1	L	L1	Ø2	Ø3	Ø4	apmax	Internal coolant	Z	Row	Insert number	Inserts
APE90-040-Z02-A16R-LN13-L34-F-C	40	39	55	-	16	9	15	34		2	3	6	LN13U 1306
APE90-040-Z02-A16R-LN13-L45-F-C	40	39	66	-	16	9	16	45		2	4	6	
APE90-050-Z03-A22R-LN13-L34-F-C	50	47.5	55	-	22	11	18	34		3	3	9	
APE90-050-Z03-A22R-LN13-L45-F-C	50	47.5	66	-	22	11	18	45		3	4	12	
APE90-063-Z04-A27R-LN13-L56-F-C	63	59.5	80	-	27	14	20	56		4	5	20	
APE90-063-Z04-A27R-LN13-L45-F-C	63	59.5	70	-	27	14	20	45		4	4	16	
APE90-080-Z05-A32R-LN13-L56-F-C	80	75.6	88	-	32	16	26	56		5	5	25	



Product code	Ø	Ø1	L	L1	Ø2	Ø3	Ø4	apmax	Internal coolant	Z	Row	Insert number	Inserts
APE90-040-Z02-W40R-LN13-L34-F-C	40	40	120	54	-	-	-	34		2	3	6	LN13U 1306
APE90-040-Z02-W40R-LN13-L45-F-C	40	40	135	54	-	-	-	45		2	4	6	

Dimension(mm)	Tools parts		
Cutter diameter	Screw	Wrench	Torque
Ø 40-80			3.5Nm
	SPQ40115	CHT115	

Now With internal coolant
 Without internal coolant

Product code	Dimension(mm)		Grade						
	Insert corner radius mm	Wiper length mm	AP3010	AP301P	AP3110	AP4010	AP301E	AP311E	AW100E
LNHU 130603ER-FM2	0.3	2.7							●
LNHU 130603ER-MM3	0.3	2.7				●			
LNHU 130603ER-MR2	0.3	2.7	●	●	●	●	●	●	
LNHU 130612ER-MR2	1.2	2.3			●	●	●		
LNHU 130614ER-MR2	1.6	1.9			●	●	●		
LNHU 130620ER-MR2	2.0	1.5			●	●			
LNHU 130634ER-MR2	2.4	1.0			●	●			
LNHU 130631ER-MR2	3.1	0.4			●	●	●		
LNHU 1306P0ER-W	0.5	3.6	●				●		

Used : ● Drink available () Non-stocked standard

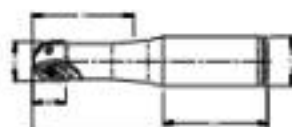
Materials				Cutting depth and feed										
ISO	Material classification	Tensile strength (N/mm²)	Hardness (HRC)	UN40.1006										
				AP	Geometry						Fz			
					MM2		MM2		MM2		MM2		MM2	
					fz		fz		fz		fz		fz	
					(mm)									
AP1	AP2	AP3	AP4	AP5	AP6	AP7	AP8	AP9	AP10					
P	Unalloyed steel	<800	<180	0.20	55			0.10	0.20	0.10	0.20	-	-	
		<800	<200											
	Alloyed steel	770-980	200-280					0.08	0.20	0.08	0.20	-	-	
		920-1200	280-350											
M	Super stainless steel	770	220											
	Austenitic stainless steel	670	200					0.08	0.20	0.08	0.20	-	-	
	Precipitation hardening stainless steel	1010	300											
K	Grey cast iron	700	220											
	Modular cast iron	680	260					-	-	0.10	0.20	-	-	
	White cast iron	870	280											
S	Free turned alloy	910	280											
	Carburized alloy	1070	320											
	Nitrided alloy	1100	380			0.08	0.2	-	-	-	-			
	Free alloy	1080	270											
N	Aluminum	260	70											
	Aluminum alloy	300	120											
H	Hardened steel	-	50-60 HRC					0.08	0.15	-	-			
	Chilled cast iron	-	50-60 HRC											

The recommended using conditions always refer to general conditions. These using conditions should be adjusted according to the practical machine type, use, workpiece standing and systems.   

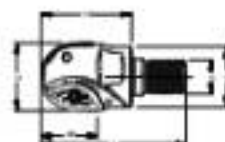


APM00-RP

Ballnose milling cutter



Product code	D	d1	L	R1	R2	apmax	M	Internal coolant	Z	Inserts
APM00-016-202-C20R-RP050-L120-C	16	20	120	80	70	14	-		2	RPM C20R-A15/14
APM00-020-202-C25R-RP100-L126-C	20	25	126	82	64	18	-		2	RPM C25R-A15/14
APM00-020-202-C25R-RP100-L176-C	20	25	176	70	106	18	-		2	RPM C25R-A15/14



Product code	D	d1	L	R1	R2	apmax	M	Internal coolant	Z	Inserts
APM00-016-202-M10R-RP050-C	16	15	40	25	-	14	M12		2	RPM C05R-A15/14
APM00-020-202-M10R-RP100-C	20	15	51	20	-	18	M12		2	RPM C05R-A15/14

Dimension(mm)	Span parts			
Cutter diameter	Screw	Wrench	Wrench	Torque
				1.0Nm
φ 16	SP02506450H	DT1P06	APV-15	
φ 20	SP030072H	DT1P09	APV-15	

[illegible]

Material	● Dishes available	□ Non-stocked standard
1. 100% Pure		
2. 100% Pure		
3. 100% Pure		
4. 100% Pure		
5. 100% Pure		
6. 100% Pure		
7. 100% Pure		
8. 100% Pure		
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99. 100% Pure		
100. 100% Pure		

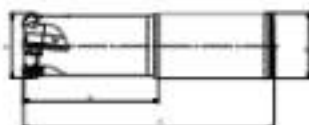
Materials				Cutting depth and feed					
ISO	Material classification	Tensile strength (N/mm²)	Hardness (HRC)	DPM...					
				DPM		Geometry			
						T/M/L	Fz		
				(mm)					
		mm	mm	mm	mm	mm	mm		
P	Unalloyed steel	<800	4-50	0.20	18-20	-	-		
		<900	<300						
		770-980	300-380					0.10	0.10
		980-1200	380-500						
Alloyed steel	980-1200	380-500	0.10			0.10			
	1200-1400	500-610							
M	Super stainless steel	770	300			0.10	0.10		
	Austenitic stainless steel	570	300						
	Precipitation-hardening stainless steel	1070	300						
K	Grey cast iron	700	300			-	-		
	Modular cast iron	580	280						
	White cast iron	800	280						
S	Refined alloy	910	380			0.08	0.10		
	Grained alloy	1070	320						
	Ungrained alloy	1170	380						
	Tooling	1280	370						
N	Aluminum	300	70	-	-				
	Aluminum alloy	507	120						
H	Hardened steel	-	50-60HRC	-	-				
	Chilled cast iron	-	50-60HRC						

*The recommended using conditions always refer to general conditions. These using conditions should be adjusted according to the practical machine type, use, working standing and custom. $\text{kg} = \frac{\text{lb}}{2.2}$ $\text{lb} = \text{kg} \times 2.2$



APM00-R008

Profile milling cutter



Product code	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
APM00-016-Z02-W16R-R008-L100	16	16	100	76	4		2	RD 0803
APM00-025-Z04-C25R-R008-L116-C	25	25	116	80	4		4	

Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
ø 16-25			2.0 Nm
	SP030062	OT-TPO8	

[illegible]

Noted: ● Drink available ☐ Not stocked standard

Materials				Cutting depth and feed							
ISO	Material classification	Tensile strength (N/mm ²)	Hardness (HRC)	ADAPT 2003							
				AP	Geometry				UNIT		
					mm				mm		
					0.1 < ap ≤ 0.7		0.1 < ap ≤ 0.3				
					(mm)						
ap	vf	ap	vf	ap	vf	ap	vf				
P	Unalloyed steel	≥800	4100	0.20	0.20	0.15	0.50	0.05	0.20		
		≥800	4200								
		700-800	300-380			0.12	0.40	0.05	0.20		
		600-700	280-350								
M	Alloyed steel	≥800-1000	350-410								
		700-800	300-380								
		600-700	280-350								
M	Duplex stainless steel	770	330								
	Austenitic stainless steel	570	300			0.10	0.40	0.05	0.20		
	Precipitation hardening stainless steel	1010	300								
K	Grey cast iron	700	220					-	-	-	-
	White cast iron	800	260								
	Cast steel	500	330								
S	Refined alloy	910	380								
	Coarse alloy	1070	330			0.10	0.35	0.05	0.20		
	Tool alloy	1280	470								
N	Aluminum	240	75			-	-	-	-		
	Aluminum alloy	307	130								
H	Hardened steel	-	50-65 HRC			-	-	-	-		
	Chilled cast iron	-	55-60								

The recommended using conditions always refer to general conditions. These using conditions should be adjusted according to the practical machine type, use, working standing and custom. $\sigma = \frac{F}{A}$ $\sigma_{\text{allow}} = 100 \text{ MPa}$

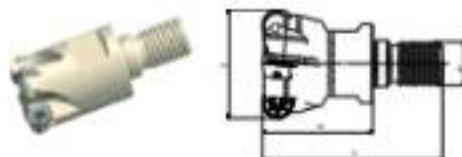


APM00-R010

Profile milling cutter



Product code	Ø	Ø1	L	fl	apmax	Internal coolant	Z	Inserts
APM00-025-232-C32R-R010-L225-C	25	25	225	60	5		3	RD 10T3
APM00-032-234-C32R-R010-L130-C	32	32	130	70	5		4	



Product code	Ø	Ø1	L	fl	apmax	Internal coolant	Z	Inserts
APM00-025-233-M12R-R010-C	25	M12	50	25	5		3	RD 10T3
APM00-032-234-M16R-R010-C	32	M16	70	43	5		4	



Product code	Ø	Ø1	L	fl	apmax	Internal coolant	Z	Inserts
APM00-040-205-A16R-R010-C	40	16	40	-	5		5	RD 10T3
APM00-050-206-A22R-R010-C	50	22	40	-	5		6	

Dimension(mm)	Screw parts		
Cutter diameter	Screw	Wrench	Torque
p 25-50			2.0Nm
	SP030272H	CH-TPO8	

[illegible]

Noted: ● Drink available ☐ Not stocked standard

Materials				Cutting depth and feed										
ISO	Material classification	Tensile strength (N/mm²)	Hardness (HRC)	ISO 1073										
				40	Geometry									
					1/12				1/25					
					f _z									
					0.1 < ap ≤ 0.2		0.2 < ap ≤ 0.5		0.1 < ap ≤ 0.2		0.2 < ap ≤ 0.5			
(mm)														
min		max		min		max		min		max				
P	Unalloyed steel	<400	<190	0.20	0.05	-	-	-	-	-	-	-		
		<450	<200											
		700-850	220-280											
		900-1000	280-350											
Alloyed steel	1000-1400	300-410	0.10			0.05	0.08	0.08	0.12	0.05	0.08	0.10	0.10	
M	Duplex stainless steel	770	220			0.10	0.05	0.08	0.08	0.10	0.05	0.08	0.10	0.10
	Austenitic stainless steel	670	200											
	Preipitation hardening stainless steel	1070	300											
K	Grey cast iron	700	220			-	-	-	-	-	-	-	-	-
	White cast iron	800	260											
	Marbolic cast iron	600	200											
S	Refined clay	600	200	0.10	0.05	0.08	0.08	-	-	-	-	-		
	Coarse clay	1070	300											
	Refined clay	1100	280											
	Trilay	1300	370											
N	Aluminum	340	70	-	-	-	-	-	-	-	-	-		
	Aluminum alloy	400	100											
H	Hardened steel	-	50-60-HRC	-	-	-	-	-	-	-	-	-		
	Chilled cast iron	-	55-60-HRC											

The recommended using conditions always refer to general conditions. These using conditions should be adjusted according to the practical machine type, use, workpiece standing and systems. $\sigma_{\text{max}} = \frac{F_{\text{max}}}{A_{\text{min}}}$ (see also 4.3.20).

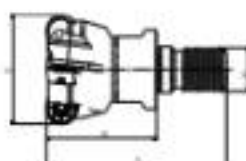


APM00-R012

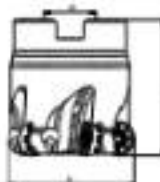
Profile milling cutter



Product code	Ø	Ø1	L	l1	apmax	Internal coolant	Z	Inserts
APM00-032-Z03-C02R-R012-L120-C	32	22	120	40	6		5	RD 1204



Product code	Ø	Ø1	L	l1	apmax	Internal coolant	Z	Inserts
APM00-040-Z04-M16R-R012-C	40	M16	70	43	6		4	RD 1204



Product code	Ø	Ø1	L	l1	apmax	Internal coolant	Z	Inserts
APM00-040-Z04-A16R-R012-C	40	16	40	-	6		4	RD 1204
APM00-050-Z05-A22R-R012-C	50	22	40	-	6		6	
APM00-063-Z06-A22R-R012-C	63	22	40	-	6		6	
APM00-080-Z07-A27R-R012-C	80	27	80	-	6		7	

Dimension(mm)	Tools parts		
Cutter diameter	Screw	Wrench	Torque
Ø 32-80			4.0Nm
	SP04035H	DT-TP12	

[illegible]

Verified : ● Drink available ○ Non-stocked standard

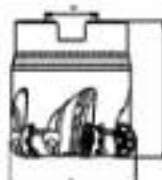
Materials				Cutting depth and feed									
ISO	Material classification	Tensile strength (N/mm²)	Hardness (HRC)	RD 120L									
				AP	Geometry								
					V/G				V/S				
					f _g								
					0.1 < ap ≤ 0.8		1.0 < ap ≤ 9		0.1 < ap ≤ 0.8		1.0 < ap ≤ 9		
					(mm)								
min	max	min	max	min	max	min	max	min	max				
P	Unalloyed steel	>800	>180	0.07	0.07	-	-	-	-	-	-	-	-
		>800	>180			-	-	-	-	-	-		
		700-800	330-380			0.10	0.05	0.10	0.05	0.10	0.05		
		600-700	280-330			0.10	0.05	0.10	0.05	0.10	0.05		
	Alloyed steel	1200-1400	350-510			-	-	-	-	-	-	-	-
		-	-			-	-	-	-	-	-		
		-	-			-	-	-	-	-	-		
M	Duplex stainless steel	770	320			-	-	-	-	-	-	-	-
	Austenitic stainless steel	670	300			-	-	-	-	-	-	-	-
	Precipitation hardening stainless steel	1070	300			-	-	-	-	-	-	-	-
K	Grey cast iron	700	230			-	-	-	-	-	-	-	-
	Nodular cast iron	600	260			-	-	-	-	-	-	-	-
	Malleable cast iron	600	230	-	-	-	-	-	-	-	-		
S	Relaxed alloy	620	260	0.12	0.05	0.10	0.05	0.10	0.05	-	-	-	-
	Corrosion alloy	1070	300			-	-	-	-	-	-		
	High speed alloy	1170	380			-	-	-	-	-	-		
	Titanium	1280	370			-	-	-	-	-	-		
N	Aluminum	340	70	-	-	-	-	-	-	-	-		
	Aluminum alloy	407	100	-	-	-	-	-	-	-	-		
H	Hardened steel	-	50-60 HRC	-	-	-	-	-	-	-	-		
	Chilled cast iron	-	55-60	-	-	-	-	-	-	-	-		

The recommended using conditions always refer to general conditions. These using conditions should be adjusted according to the practical machine type, use, working standing and system. $\sigma = \frac{F}{A}$ $\sigma_{\text{allow}} = \frac{\sigma}{S}$



APM00-R016

Profile milling cutter



Product code	D	d1	L	fl	apmax	Internal coolant	Z	Inserts
APM00-063-205-A22R-R016-C	63	22	40	-	8		5	RD 1625
APM00-080-206-A27R-R016-C	80	27	50	-	8		6	
APM00-100-207-A32R-R016-C	100	32	60	-	8		7	

Dimension(mm)	Screw parts		
Cutter diameter	Screw	Wrench	Torque
ø 63-100			8.0Nm
	SF0801.20	OT-TR20	

[illegible]

tried : ☒ Desk available ☐ Temporarily wanted

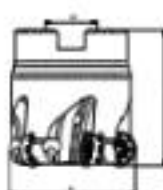
[illegible]

The recommended using conditions always refer to general conditions. These using conditions should be adjusted according to the practical machine type, use, workplace standing and custom. $\sigma = \frac{F}{A}$ $\sigma_{\text{allow}} = \frac{\sigma}{S}$



APM00-R020

Profile milling cutter

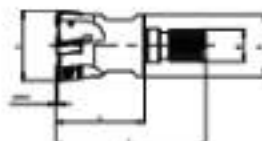


Product code	Ø	d1	L	/°	apmax	Internal coolant	Z	Inserts
APM00-100-Z06-A32R-R020-C	100	32	80	-	10		6	R0 2006
APM00-125-Z07-A40R-R020-C	125	40	63	-	10		7	
APM00-160-Z08-A40R-R020	160	40	6	-	10		8	

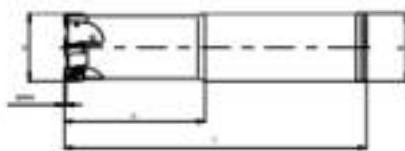
Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
ø 100-160			7.0Nm
	SP0601.21	DT-TP25	

AHM20-LN06

20° Approach angle high feed milling cutter



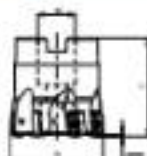
Product code	D	d1	L	L1	M	asmax	Internal coolant	Z	Inserts
AHM20-016-Z02-M08R-LN06-C	16	14.5	42	25	M8	0.8		2	LN0604
AHM20-017-Z02-M08R-LN06-C	17	14.5	42	25	M8	0.8		2	
AHM20-020-Z03-M10R-LN06-C	20	18	51	30	M10	0.8		3	
AHM20-021-Z03-M10R-LN06-C	21	18	51	30	M10	0.8		3	
AHM20-025-Z04-M12R-LN06-C	25	23	59	35	M12	0.8		4	
AHM20-026-Z03-M12R-LN06-C	26	23	59	35	M12	0.8		3	
AHM20-026-Z04-M12R-LN06-C	26	23	59	35	M12	0.8		4	
AHM20-032-Z04-M16R-LN06-C	32	29	70	42	M16	0.8		4	
AHM20-032-Z05-M16R-LN06-C	32	29	70	42	M16	0.8		5	
AHM20-033-Z05-M16R-LN06-C	33	29	70	42	M16	0.8		5	
AHM20-035-Z05-M16R-LN06-C	35	29	70	42	M16	0.8		5	
AHM20-040-Z04-M16R-LN06-C	40	29	70	42	M16	0.8		6	



Product code	D	d1	L	L1	d2	asmax	Internal coolant	Z	Inserts
AHM20-016-Z02-C16R-LN06-L100-C	16	16	100	30	-	0.8		2	LN0604
AHM20-017-Z02-C16R-LN06-L150-C	17	16	150	35	-	0.8		2	
AHM20-020-Z03-C20R-LN06-L130-C	20	20	130	30	-	0.8		3	
AHM20-021-Z03-C20R-LN06-L140-C	21	20	140	30	-	0.8		3	
AHM20-025-Z03-C25R-LN06-L140-C	25	25	140	30	-	0.8		3	
AHM20-025-Z03-C25R-LN06-L150-C	25	25	150	35	-	0.8		3	
AHM20-032-Z04-C32R-LN06-L150-C	32	32	150	70	-	0.8		4	
AHM20-033-Z04-C32R-LN06-L200-C	33	32	200	35	-	0.8		4	
AHM20-035-Z05-C32R-LN06-L200-C	35	32	200	35	-	0.8		5	

Note With internal coolant

Without internal coolant



Product code	D	d1	L	L1	d2	asmax	Internal coolant	Z	Inserts
AHM20-040-206-A16R-UN06-C	40	16	40	-	-	0.8		6	UN 0604
AHM20-050-207-A22R-UN06-C	50	22	40	-	-	0.8		7	
AHM20-050-207-A22R-UN06-C	50	22	40	-	-	0.8		7	
AHM20-060-208-A22R-UN06-C	60	22	40	-	-	0.8		8	

Dimension(mm)	Screw parts		
Outer diameter	Screw	Wrench	Torque
ø 16-63			1.0Nm
	3P02806480H	071P008	

Product code	Dimension(mm)		Grades									
	Insert corner radius mm	Wiper length mm	AP01P	AP03U	AP05U	AP08U	AP10TM	AP10L	AP11L	AP10SL	AP10SL	AP13 H
UNMK 060410R-MM3	1.0	-	●	●			●					●
UNMK 060410R-MM4	1.0	-	●	●			●					●

Legend : ● Stock available ○ Non stocked standard

Materials				Cutting depth and feed							
ISO	Material classification	Tensile strength (N/mm²)	Hardness (HRC)	UNMK 0600							
				High feed milling				Plunging milling			
				ap		fs		ap		fs	
				(mm)							
				min	max	min	max	min	max	min	max
P	Unalloyed steel	<850	<190	0.30	0.8	0.30	1.00	0.50	1	0.08	0.15
		<850	<190								
	Alloyed steel	700-900	300-380								
		950-1200	380-500								
M	Duplex stainless steel	770	330								
	Austenitic stainless steel	670	300								
	Phosphor-titanium stainless steel	1010	300								
K	Gray cast iron	700	230								
	Resin cast iron	600	260								
	Cast steel cast iron	600	260								
S	Refined alloy	910	380								
	Gr-fused alloy	1070	380								
	Gr-fused alloy	1170	380								
	Ti alloy	1260	370								
N	Aluminum	360	75								
	Aluminum alloy	500	130								
H	Hardened steel	-	50-60HRC								
	Chilled cast iron	-	55-60HRC								

Note: Please refer to P40 for programming information of high feed milling cutter.

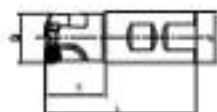
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, work, workpiece clamping and coolant. For more details, please refer to the ACHTECK manual.



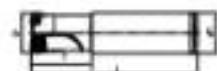
Accessories for ACHTECK

AHM15-XD09

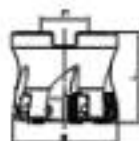
15° Approach angle high feed milling cutter



Product code	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
AHM15-025-202-W05R-XD09-C	25	25	96	40	1.5		2	XD.0904
AHM15-032-203-W02R-XD09-C	32	32	100	40	1.5		2	



Product code	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
AHM15-025-202-C05R-XD09-C	25	25	200	50	1.5		2	XD.0904
AHM15-026-203-C05R-XD09-L100-C	26	26	190	30	1.5		2	
AHM15-032-203-C02R-XD09-C	32	32	250	70	1.5		2	



Product code	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
AHM15-040-203-A16R-XD09-C	40	16	32	-	1.5		5	XD.0904
AHM15-040-204-A16R-XD09-C	40	16	32	-	1.5		4	
AHM15-040-205-A16R-XD09-C	40	16	32	-	1.5		5	
AHM15-050-205-A22R-XD09-C	50	22	40	-	1.5		5	
AHM15-050-206-A22R-XD09-C	50	22	40	-	1.5		6	

Dimension(mm)	Spare parts		
Outer diameter	Screw	Wrench	Torque
ø 25-50			3.0Nm
	SPOS004	DT-TP10	

Note: Please refer to P402 for programming information of high feed milling cutter

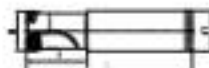
Note: With internal coolant

Without internal coolant

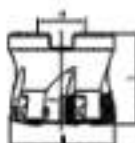


AHM15-XD12

15° Approach angle high feed milling cutter



Product code	D	d1	L	H	apmax	Internal coolant	Z	Inserts
AHM15-032-202-032R-XD12-C	32	32	280	70	2.6		2	XD.1208



Product code	D	d1	L	H	apmax	Internal coolant	Z	Inserts
APM00-063-205-A22R-R016-C	32	32	40	-	2.8		3	XD.1208
APM00-080-206-A27R-R016-C	32	32	40	-	2.5		4	
APM00-080-206-A27R-R016-C	32	32	40	-	2.8		5	
APM00-063-205-A22R-R016-C	63	32	40	-	2.5		4	
APM00-080-206-A27R-R016-C	63	32	40	-	2.8		5	
APM00-080-206-A27R-R016-C	63	32	40	-	2.5		4	
APM00-063-205-A22R-R016-C	63	32	40	-	2.5		5	
APM00-080-206-A27R-R016-C	66	27	48	-	2.5		4	
APM00-080-206-A27R-R016-C	66	27	48	-	2.5		5	
APM00-063-205-A22R-R016-C	66	27	48	-	2.8		4	
APM00-080-206-A27R-R016-C	66	27	48	-	2.5		5	
APM00-080-206-A27R-R016-C	80	27	50	-	2.8		5	
APM00-063-205-A22R-R016-C	80	27	50	-	2.5		5	
APM00-080-206-A27R-R016-C	80	27	50	-	2.5		5	
APM00-063-205-A22R-R016-C	100	32	50	-	2.5		6	
APM00-080-206-A27R-R016-C	100	32	50	-	2.8		9	
APM00-080-206-A27R-R016-C	100	32	50	-	2.5		6	
APM00-063-205-A22R-R016-C	100	32	50	-	2.8		9	
APM00-080-206-A27R-R016-C	125	40	60	-	2.5		8	
APM00-130-207-A32R-R016-C	125	40	60	-	2.8		11	
APM00-080-206-A27R-R016-C	125	40	60	-	2.5		8	
APM00-130-207-A32R-R016-C	125	40	60	-	2.5		11	

Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
ø 32-125			3.5 Nm
	SP040112	DT-TD15	

Note: Please refer to R400 for programming information of high feed milling cutter.

Product code	Dimension(mm)		Grooves					
	Insert corner radius mm	Wiper length mm	AC300 P	A-P0510	A-P0510	A-P0510	AC300 E	A-P051 E
XDLT 120508ER-NM3	3.8	2.2	●	●	●		●	●
XDLT 120512ER-NM3	1.2	2.2	●	●	●		●	●
XDMW 120508ER-HR2	3.8	2.2		●			●	

Noted : ● Stock available □ Nonstock standard

Materials				Cutting depth and feed							
ISO	Material classification	Tensile strength (N/mm²)	Hardness (HRC)	D0, 1205							
				High feed milling				Plunging Milling			
				ap		fz		ap		fz	
				(mm)							
				min	max	min	max	min	max	min	max
P	Unalloyed steel	≤800	≤180	0.50	2.00	0.30	2.00	0.00	10	0.05	0.15
		≤900	≤180								
	Alloyed steel	100-900	200-280			0.30	2.00			0.05	0.15
		100-1200	280-285								
M	Duplex stainless steel	770	320			0.50	1.00			0.05	0.12
	Austenitic stainless steel	675	300								
	Precipitation hardening stainless steel	1015	300			0.10	0.60			0.05	0.10
K	Gray cast iron	700	220			0.30	2.00	0.00	10	0.05	0.15
	Cast iron with Ni	600	200								
	Cast iron with Ni	600	200								
	Cast iron with Ni	600	200								
S	Refined alloy	910	280			0.30	2.00			0.05	0.12
	Co-based alloy	1074	320								
	Ni-based alloy	1177	280								
	Titanium	1240	270								
N	aluminum	340	75			-	-			-	-
	Aluminum alloy	327	120								
H	Hardened steel	-	50-60HRC			0.30	1.00			0.05	0.12
	Chilled cast iron	-	55-60HRC								

The recommended cutting conditions above refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, work, workpiece clamping and systems. Refer to  for details.



Milling Insert Denomination System

A 1	P 2	F 3	W 4
1-Shape/size		2-Clearance angle	
A 	H 	C 	D
M 	O 	E 	F
R 		G 	H
B 	T 	I 	J
Z 	X 	K 	L
S 	Special 	M 	Other clearance angle

3-Tolerance



Class	Unit	In-Drive dimension d	Insert height h	Thickness s
A	mm	+0.005	+0.005	+0.005
C	mm	+0.005	+0.015	+0.005
E	mm	+0.005	+0.005	+0.005
F	mm	+0.015	+0.005	+0.005
G	mm	+0.005	+0.005	+0.015
H	mm	+0.015	+0.015	+0.005
J	mm	+	+0.005	+0.005
K	mm	+	+0.015	+0.005
L	mm	+	+0.005	+0.005
M	mm	+	+	+0.017
Q	mm	+	+	+0.017
R	mm	+	+	+0.005

* For details refer to right and below tables

Shape: C, E, H, M, Q, R, T, Z, X				
IC	C		M	
	20, 25, 30, 40, 50	60, 80, 100	120, 150	200
475	+0.005	+0.005	+0.005	+0.015
500	+0.005	+0.005	+0.005	+0.015
525	+0.005	+0.005	+0.005	+0.015
550	+0.005	+0.005	+0.005	+0.015
575	+0.005	+0.005	+0.005	+0.015
600	+0.005	+0.005	+0.005	+0.015
625	+0.005	+0.005	+0.005	+0.015
650	+0.005	+0.005	+0.005	+0.015
675	+0.005	+0.005	+0.005	+0.015
700	+0.005	+0.005	+0.005	+0.015
725	+0.005	+0.005	+0.005	+0.015
750	+0.005	+0.005	+0.005	+0.015
775	+0.005	+0.005	+0.005	+0.015
800	+0.005	+0.005	+0.005	+0.015
825	+0.005	+0.005	+0.005	+0.015
850	+0.005	+0.005	+0.005	+0.015
875	+0.005	+0.005	+0.005	+0.015
900	+0.005	+0.005	+0.005	+0.015
925	+0.005	+0.005	+0.005	+0.015
950	+0.005	+0.005	+0.005	+0.015
975	+0.005	+0.005	+0.005	+0.015
1000	+0.005	+0.005	+0.005	+0.015
1025	+0.005	+0.005	+0.005	+0.015
1050	+0.005	+0.005	+0.005	+0.015
1075	+0.005	+0.005	+0.005	+0.015
1100	+0.005	+0.005	+0.005	+0.015
1125	+0.005	+0.005	+0.005	+0.015
1150	+0.005	+0.005	+0.005	+0.015
1175	+0.005	+0.005	+0.005	+0.015
1200	+0.005	+0.005	+0.005	+0.015

H-shape		D-shape		V-shape	
IC	h	h	h	h	h
200	+0.005	+0.01	+0.005	+0.015	+0.015
225	+0.005	+0.01	+0.005	+0.015	+0.015
250	+0.005	+0.01	+0.005	+0.015	+0.015
275	+0.005	+0.01	+0.005	+0.015	+0.015
300	+0.005	+0.01	+0.005	+0.015	+0.015
325	+0.005	+0.01	+0.005	+0.015	+0.015
350	+0.005	+0.01	+0.005	+0.015	+0.015
375	+0.005	+0.01	+0.005	+0.015	+0.015
400	+0.005	+0.01	+0.005	+0.015	+0.015
425	+0.005	+0.01	+0.005	+0.015	+0.015
450	+0.005	+0.01	+0.005	+0.015	+0.015

4-Champing type				
A	B	C	F	G
H	J	M	N	Q
R	T	U	W	X
Special	Special	Special	Special	Special

16 5	04 6	PD 7
2- Cutting edge length		
5-160		15
5-875		16
5-500	15	
5-250		16
6-500	16	
6-250		17
7-500		18
8-500	18	
8-250	18	19
10-500	19	
10-250		19
12-750	19	20
14-875	20	21
16-500	20	22
16-250		22
20-500	22	23
22-500	23	
25-750	25	
30-500	25	
3-Corner radius and edge edge		
00 = 0/0/0	14 = 1.4	
01 = 0.1	20 = 2.0	
02 = 0.2	32 = 3.2	
04 = 0.4	40 = 4.0	
06 = 0.6	48 = 4.8	
12 = 1.2	56 = 5.6	
16 = 1.6	64 = 6.4	
20 = 2.0	X = others	
Round insert/ID refers to metric dia. size		
A - Approach angle (entering angle) (°) A = 15° C = 30° E = 75° F = 35° G = 90° H = Others		
B - Clearance angle of chip edge (°) A = 2° B = 5° C = 1° D = 15° E = 30° F = 25° G = 30° H = 0° I = 11° J = Others		

S 8	R 9	- -	FM2 10
4-Insert thickness			
01=1.50mm			
T1=1.50mm			
02=2.50mm			
T2=2.70mm			
03=3.10mm			
T3=2.97mm			
04=4.75mm			
05=5.50mm			
06=6.35mm			
07=7.54mm			
09=9.52mm			
5-Edge preparation			
F Sharp cutting edge			
E Honed cutting edge			
T Negative land			
K Double negative land			
S Negative land honed			
P Double negative land honed			
6-Feed of tool			
R Right hand			
L Left hand			
N Neutral			
10-Chip breakers refers to page P252			
*Marked with a corner radius, the information needs to put between thickness and vipes. Example: APST 1600SP000105			

Geometry Application Guide

Materials				Milling geometry application table						
				RVQ	LVQ	MVA	VR2	VR6	RR2	HR2
ID	Material classification	Tensile strength (N/mm²)	Hardness (HRC)	Suitable for machining aluminium alloy	Light cutting machining	General purpose	Medium machining	Roughing machining	Heavy roughing machining	Roughing machining
P	Unalloyed steel	<600	<120	-	●	●	●	●	-	-
		<980	<280	-	●	●	●	●	-	-
	Alloyed steel	700-950	300-380	-	●	●	●	●	-	-
		950-1200	280-355	-	●	●	●	●	-	-
		1200-1400	355-415	-	●	●	●	●	-	-
M	Duplex stainless steel	775	230	-	●	●	●	-	-	-
	Austenitic stainless steel	675	200	-	●	●	●	-	-	-
	Precipitation-hardening stainless steel	1015	300	-	●	●	●	-	-	-
K	Grey cast iron	390	200	-	-	●	●	●	●	●
	Nodular cast iron	580	240	-	-	●	●	●	●	●
	Variable cast iron	500	280	-	-	●	●	●	●	●
S	Fe-based alloy	940	330	-	●	●	●	-	-	-
	Co-based alloy	1075	320	-	●	●	●	-	-	-
	Ni-based alloy	1177	360	-	●	●	●	-	-	-
	Ti-alloy	1252	370	-	●	●	●	-	-	-
N	Aluminum	260	75	●	-	-	-	-	-	-
	Aluminum alloy	447	150	●	-	-	-	-	-	-
H	Hardened steel	-	50-60HRC	-	-	●	●	-	-	-
	Chilled cast iron	-	55HRC	-	-	●	●	-	-	-

- Best choice
 ● Good choice
 - Inappropriate

Milling Geometry Introduction

Insert geometry	Edge shape	Application
FM2		• Low cutting force, for weak machining condition • Sharp geometry • For aluminium material machining
MM2		• Low cutting force, for weak machining condition • Sharp geometry • For steel, stainless steel and heat resistant alloy machining
MM4		• For medium machining condition • Universal geometry • For machining most materials
MR2		• For medium or better machining condition • Universal geometry • For machining most materials
MR6		• For stable machining condition • Roughing geometry • For machining most materials
HR2		• For stable machining condition • Roughing geometry • Mainly for cast iron machining
RR2		• For stable machining condition • Heavy roughing geometry • Mainly for cast iron and steel machining
IT		• Sharp geometry for specified product
DT		• Universal geometry for specified product

Grade Application Guide

Milling grade ISO group														
Material Group	Materials	ISO	PVD AP201U	PVD AP201U	PVD AP201U	PVD AP201U	PVD AP201U	PVD AP201U	PVD AP201U	PVD AP201U	PVD AP201U	PVD AP201U	PVD AP201U	Uncoated AW1000
P	Unalloyed steels / Alloyed steels	P01												P01
		P05												P05
		P10												P10
		P15												P15
		P20												P20
		P25	AP201U											P25
		P30			AP201U									P30
		P35			AP201U									P35
		P40		AP201U		AP201U						AP201U		P40
		P45							AP201U					P45
M	Stainless steels	P50												P50
		M01												M01
		M05												M05
		M10												M10
		M15												M15
		M20												M20
		M25	AP201U											M25
		M30			AP201U							AP201U		M30
		M35			AP201U									M35
		M40		AP201U		AP201U			AP201U					M40
K	Cast iron	M45							AP201U	AP201U				M45
		M50												M50
		K01												K01
		K05												K05
		K10												K10
		K15											AP201U	K15
		K20												K20
		K25									AP201U			K25
		K30									AP201U			K30
		K35												K35
S	Heat resistant alloys	K40												K40
		K45												K45
		K50												K50
		S01												S01
		S05												S05
		S10												S10
		S15												S15
		S20												S20
		S25												S25
		S30												S30
N	Aluminum/ Aluminum alloys	S35												S35
		S40		AP201U		AP201U			AP201U	AP201U				S40
		S45												S45
		S50												S50
		N01												N01
		N05												N05
		N10												N10
		N15											AW1000	N15
		N20												N20
		N25												N25
H	Hardened steels/ Chilled cast iron	N30												N30
		H01												H01
		H05												H05
		H10												H10
		H15											AP201U	H15
		H20												H20
		H25												H25
		H30												H30

Grade Application Guide

Materials				Milling grade application										
				PVD coated						CVD coated	PVD coated		Uncoated	
ID	Material classification	Tensile strength (N/mm ²)	Hardness (HRC)	AP0100	AP0150	AP0200	AP0300	AP0400	AP0500	AP0600	AP0700	AP0800	AP0900	AP1000
P	Unalloyed steel	400	<180	●	●	●	●	●	●	●	●	●	-	-
		490	<180	●	●	●	●	●	●	●	●	●	-	-
	Alloyed steel	700-980	200-280	●	●	●	●	●	●	●	●	●	-	-
		980-1200	280-330	●	●	●	●	●	●	●	●	●	-	-
		1200-1400	330-410	●	●	●	●	●	●	●	●	●	-	-
M	Duplex stainless steel	775	230	●	●	●	●	●	●	●	-	-	-	-
	Austenitic stainless steel	675	200	●	●	●	●	●	●	●	-	-	-	-
	Precipitation-hardening stainless steel	1015	300	●	●	●	●	●	●	●	-	-	-	-
K	Gray cast iron	700	220	-	-	-	-	-	-	●	●	●	-	-
	Modular cast iron	980	240	-	-	-	-	-	-	●	●	●	-	-
	Malleable cast iron	900	230	-	-	-	-	-	-	●	●	●	-	-
S	Fe-based alloy	345	230	-	●	●	-	●	●	-	-	-	-	-
	Co-based alloy	1075	230	-	●	●	-	●	●	-	-	-	-	-
	Ni-based alloy	1177	290	-	●	●	-	●	●	-	-	-	-	-
	Ti alloy	1245	270	-	●	●	-	●	●	-	-	-	-	●
N	Aluminum	260	75	-	-	-	-	-	-	-	-	-	-	●
	Aluminum alloy	447	130	-	-	-	-	-	-	-	-	-	-	●
H	Hardened steel	-	50-60HRC	-	-	-	-	-	-	-	-	-	●	-
	Chilled cast iron	-	55HRC	-	-	-	-	-	-	-	-	-	●	-

● Best choice
 ● Good choice
 - Inapplicable

Milling Grade Description

AP301U

Coating: PVD coating

Suitable for steel, stainless steel and high-temp alloy milling. High strength and wear resistance. Ultra fine carbide substrate with nanostructured PVD coating in controllable layer, high coating adhesion, wear-resistance and strength.



Application range											
ISO Classification	01	05	10	15	20	25	30	35	40	45	50
P				AP301U							
M				AP301U							
K											
S											
N											
H											

Remark: Best choice
 2nd choice

AP351U

Coating: PVD coating

Suitable for steel, stainless steel and high-temp alloy semi-finishing and roughing milling. High strength carbide substrate with nanostructured PVD coating in controllable layer, high coating adhesion, wear-resistance and strength.



Application range											
ISO Classification	01	05	10	15	20	25	30	35	40	45	50
P							AP351U				
M							AP351U				
K											
S							AP351U				
N											
H											

Remark: Best choice
 2nd choice

AP401U

Coating: PVD coating

Suitable for steel, stainless steel and high-temp alloy rough milling. Ultra high strength carbide substrate with nanostructured PVD coating in controllable layer, high coating adhesion, wear-resistance and strength.



Application range											
ISO Classification	01	05	10	15	20	25	30	35	40	45	50
P							AP401U				
M							AP401U				
K											
S							AP401U				
N											
H											

Remark: Best choice
 2nd choice

AC301P

Coating: CVD coating

Suitable for steel and stainless steel semi-finish milling. High strength carbide substrate with multi-layer CVD coating, high coating adhesion, wear resistance and surface finish quality.



Application range											
ISO Classification	01	05	10	15	20	25	30	35	40	45	50
P						AC301P					
M						AC301P					
K											
S											
N											
H											

Remark: Best choice
 2nd choice

AC301K

Coating: CVD coating

Suitable for gray and nodular cast iron finish, semi-finish and rough milling. High strength and wear resistance carbide substrate with multi-layer CVD coating, controllable coating layer structure and high adhesive strength.



Application range											
ISO Classification	01	05	10	15	20	25	30	35	40	45	50
P											
M											
K			AC301K								
S											
N											
H											

Remark: ☐ Best choice

AP351K

Coating: PVD coating

Suitable for nodular cast iron, finish, semi-finish and rough milling. High strength and wear resistance carbide substrate with nanostructured PVD coating in controllable layer, high coating adhesion, wear resistance and oxidation resistance.



Application range											
ISO Classification	01	05	10	15	20	25	30	35	40	45	50
P											
M											
K			AP351K								
S											
N											
H											

Remark: ☐ Best choice

AW100K

Coating: Uncoated

Uncoated fine grain carbide substrate with special treated cutting edge. Suitable for nonferrous metal milling under various cutting conditions.



Application range											
ISO Classification	01	05	10	15	20	25	30	35	40	45	50
P											
M											
K											
S											
N			AW100K								
H											

Remark: ☐ Best choice

AP351M

Coating: PVD Coating

Suitable for steel, stainless-steel and heat resistant alloy milling, with excellent thermal stability and wear-resistant, good thermal-crack resistance and high coating adhesion.



Application range											
ISO Classification	01	05	10	15	20	25	30	35	40	45	50
P						AP351M					
M						AP351M					
K											
S						AP351M					
N											
H											

Remark: ☐ Best choice

AP403M

Coating: PVD Coating

Suitable for steel, stainless-steel and heat resistant alloy milling, with good wear-resistance, heat-resistance and high coating adhesion, very smooth coating surface.



Application range											
ISO Classification	01	05	10	15	20	25	30	35	40	45	50
P								AP403M			
M								AP403M			
K											
S								AP403M			
N											
H											

Remark: ☐ Best choice

AP403S

Coating: PVD Coating

Suitable for stainless-steel and heat resistant alloy milling, with new substrate and coating combination, new substrate with high toughness, excellent hot hardness. New generation of PVD coating, with high hardness, high wear-resistance, good performance on heat-conductivity, thermal stability, smooth surface good for reducing built-up edge.



Application range											
ISO Classification	01	05	10	15	20	25	30	35	40	45	50
P											
M								AP403S			
K											
S								AP403S			
N											
H											

Remark: ☐ Best choice

AP151H

Coating: PVD Coating

Suitable for hardened steel milling and cast iron finish milling. Ultra fine carbide substrate with high hardness and wear-resistance. Extremely hard PVD coating with good oxidation resistance, wear resistance, and thermal crack resistance.

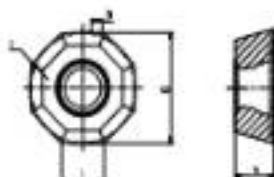


Application range											
ISO Classification	01	05	10	15	20	25	30	35	40	45	50
P											
M											
A											
S											
N											
H			AP151H								

Remark: Best choice

OD_04/06

Positive octagonal milling inserts

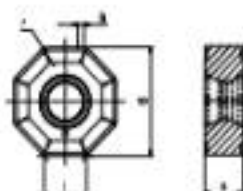


Inserts	Product code	Dimension(mm)						Grades					
		L	d	B	r	h	AP010	AP011	AP012	AP013	AP014	AP015	AP016
	OD0T 0404APFN-FM2	4	12.7	4.75	-	1.2							●
	OD0T 0605APFN-FM2	6	16	5.95	-	1.6							●
	OD0T 0404APFN-MM3	4	12.7	4.75	-	1.2	●	●		●	●		
	ODMT 040408FN-MM3	4	12.7	4.75	0.8	-		●		●	●		
	ODMT 060508FN-MM3	6	16	5.95	0.8	-	●	●	●	●	●		
	ODMT 060512FN-MM3	6	16	5.95	1.2	-	●						
	OD0T 0605APFN-MM3	6	16	5.95	-	1.6	●	●		●	●		
	OD0W 0404AP0R-HR2	4	12.7	4.75	-	1.2	●				●	●	
	OD0W 0605AP0R-HR2	6	16	5.95	-	1.6					●	●	
	OD0W 0605AP0N-HR2	6	16	5.95	-	1.6					●	●	
	ODMW 040408BN-HR2	4	12.7	4.75	0.8	-					●	●	
	ODMW 060512BN-HR2	6	16	5.95	1.2	-					●	●	

Noted : ● Stock available ○ Nonstock standard

ON_05

Negative octagonal milling inserts

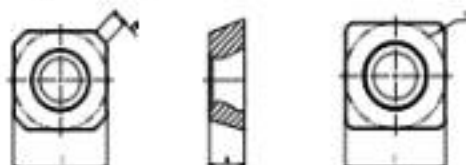


Inserts	Product code	Dimension(mm)					Grades						
		l	d	s	r	b	AP501U	AP501U	AP501P	AP601U	AP701E	AP701E	AP800K
	ONHU 050403-MM3	4.00	12.70	4.76	0.8	-	●						
	ONMU 050403-MM4	4.00	12.70	4.76	0.8	-	●	●		●	●	●	
	ONHU 050408AEN-MM3	4.00	12.70	4.76	0.8	0.7	●	●				●	
	ONHU 050408AEN-MM4	4.00	12.70	4.76	0.8	0.7		●				●	
	ONHU 05042NR-MM3	4.00	12.70	4.76	0.8	1.4	●						

Noted : ● Stock available ○ Nonstocked standard

SC_09/12

Positive square milling inserts



Inserts	Product code	Dimension(mm)				Grades						
		l	s	r	h	AP993V	AP993U	AC993P	AP993H	AC993E	AP993S	AP993K
	SCMT 09T304EN-MM3	9.525	9.97	0.4	-	●	●		●			
	SCMT 120412EN-MM3	12.7	4.76	1.2	-		●		●			
	SCMT 12M512EN-MM3	12.7	5	1.2	-		●		●			
	SCMT 1204ACEN-MM6	12.7	4.76	+	1.2				●		●	
	SCMT 12M5ACEN-MM6	12.7	5	+	1.2				●		●	
	SCMW 12M512EN-HR2	12.7	5	1.2	-		●				●	

(marked) : ● Stock available ○ Not stocked standard

SD_09/12

Positive square milling inserts

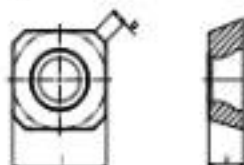


Inserts	Product code	Dimension (mm)				Grades						
		l	s	r	h	AP93V	AP93U	AC308P	AP93H	AC308E	AP93S	AC308K
	SDMT 09T304EN-MM3	9.525	3.97	0.4	-	●	●	●		●		
	SDMT 09T308EN-MM3	9.525	3.97	0.8	-	●	●	●		●		
	SDMT 09T320-MM4	9.525	3.97	2.0	-				●			
	SDMT 120408EN-MM4	12.7	4.76	0.8	-	●	●			●	●	
	SDMT 120412EN-MM3	12.7	4.76	1.2	-	●	●	●		●		
	SDGT 09T3AEN-MM4	9.525	3.97	-	1.6	●	●			●	●	
	SDKT 1204AEN-MR2	12.7	4.76	-	2.0	●	●	●		●	●	
	SDGT 09T3P0ER-MR6	9.525	3.97	0.8	1.2	●	●			●	●	
	SDGT 1204P0ER-MR6	12.7	4.76	0.8	1.6	●	●			●	●	
	SDHT 1204AEN-MR6	12.7	4.76	0.8	2.0	●	●			●	●	
	SDMW 09T308EN-HR2	9.525	3.97	0.8	-	●				●		
	SDHW 09T3AEN-HR2	9.525	3.97	-	1.6	●				●	●	
	SDMW 120412EN-HR2	12.7	4.76	1.2	-	●				●	●	
	SDHW 1204AEN-HR2	12.7	4.76	-	2.0	●				●	●	

Noted : ● Stock available ○ Non-machined standard

SE_12

Positive square milling inserts

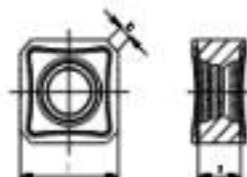


Inserts	Product code	Dimension (mm)				Grades						
		l	s	r	h	AP93V1	AP93V11	AC93V1	AP93V11	AC93V11	AP93V11	AC93V11
	SEKT 1204AFER-MR2	12.7	4.91	1.2	1.2	●	●	●		●	●	

Noted : ● Stock available ○ Not stocked standard

SNGX12/19

Negative short wiper milling inserts(applicable to AFM45-SN12 milling cutter)



Inserts	Product code	Dimension(mm)			Grades					
		l	s	b	AP900	AP901	AP902 P	AP903	AP904	AP905
	SNGX 1206ANH-MM2	12.7	6.98	1.8						●
	SNGX 1206ANH-MM3	12.7	6.98	1.8	●	●	●		●	
	SNGX 1206ANH-MM4	12.7	6.98	1.8	●	●	●		●	
	SNGX 1206ANH-MR6	12.7	6.98	1.8	●	●	●		●	
	SNGX 1206ANH-RR2	12.7	6.98	1.8	●	●	●		●	
	SNGX 1906ANH-MM3	19.05	9.52	2.9	●	●				
	SNGX 1906ANH-MR6	19.05	9.52	2.9		●				

SNHX12

Negative long wiper milling inserts(applicable to AFM45-SN12 milling cutter)

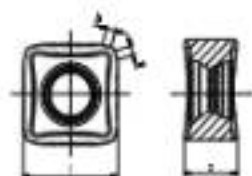


Inserts	Product code	Dimension(mm)			Grades					
		l	s	b	AP900	AP901	AP902 P	AP903	AP904	AP905
	SNHX 1206ANH-W	12.7	6.98	6.7	●				●	

Noted : ● Stock available □ Nonstock standard

SNGX12

Negative short wiper milling inserts(applicable to AFM75-SN12 milling cutter)

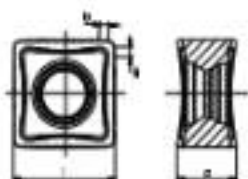


Inserts	Product code	Dimension(mm)			Grades					
		l	h	b	AP90K	AP90H	AP90P	AP90H	AP90K	AP90K
	SNGX 1206EN-MV3	12.7	6.98	1.2	●	●	●		●	●
	SNGX 1206EN-MV4	12.7	6.98	1.2	●	●	●		●	●
	SNGX 1206EN-MV6	12.7	6.98	1.2	●	●	●		●	●

Noted : ● Stock available ○ Non-stock standard

SNGX12

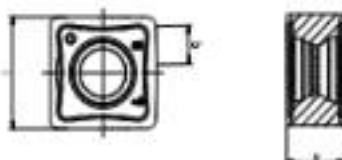
Negative short wiper milling inserts(applicable to AFM88-SN12 milling cutter)



Inserts	Product code	Dimension(mm)			Grades					
		l	a	b	AFM88U	AFM88H	AFM88P	AFM88L	AFM88K	AFM88K
	SNHX 1206ZNN-PM2	12.7	7.63	0.8						●
	SNHX 1206ZNN-MM4	12.7	6.98	1.2	●	●	●		●	
	SNHX 1206ZNN-MM6	12.7	6.98	1.2	●	●	●		●	
	SNHX 1206ZNN-MM3	12.7	6.98	1.2	●	●	●		●	

SNHX12

Negative long wiper milling inserts(applicable to AFM88-SN12 milling cutter)

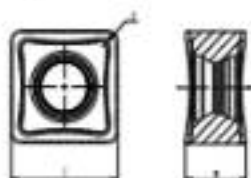


Inserts	Product code	Dimension(mm)			Grades					
		l	a	b	AFM88U	AFM88H	AFM88P	AFM88L	AFM88K	AFM88K
	SNHX 1206ZNN-W	12.7	6.98	4.4	●				●	

■ Available □ Not available

SN.X12

Negative square milling inserts with corner radius



Inserts	Product code	Dimension (mm)				Grades					
		l	s	r	h	AP9931	AP9931	AP9931	AP9931	AP9931	AP9931
	SNMX 120608-MM4	12.7	6.98	0.8	-	●	●	●		●	●
	SNMX 120612-MM4	12.7	6.98	1.2	-	●					
	SNMX 120608-MM4	12.7	6.98	0.8	-	●	●	●		●	●
	SNMX 120612-MM2	12.7	6.98	1.2	-	●	●	●		●	●
	SNMX 120612-MM4	12.7	6.98	1.2	-	●	●	●		●	●
	SNMX 120612-MR6	12.7	6.98	1.2	-	●	●	●		●	●
	SNMX 120612-RR2	12.7	6.98	1.2	-	●	●	●		●	●
	SNMX 120620-MM4	12.7	6.98	2.0	-	●	●	●		●	●
	SNMX 120620-RR2	12.7	6.98	2.0	-	●	●	●		●	●
	SNMX 1206A1N-MM3	12.7	6.98	0.4	1.8	●	●	●		●	●
	SNMX 1206A1N-MM4	12.7	6.98	0.4	1.8	●	●	●		●	●
	SNMX 1206A1N-MR6	12.7	6.98	0.4	1.8	●	●	●		●	●
	SNMX 1206BN-MM4	12.7	6.98	0.8	1.2			●			

Marked : ● Stock available ○ Not stocked standard

XN.U07/09ANN

Negative heptagonal milling inserts with short wiper



Inserts	Product code	Dimension (mm)					Grades						
		l	d	s	r	d	AP 3011	AP 3211	AP 3317	AP 4011	AC 3015	AP 5015	AP 6001
	XNGU 0705ANN-MM2	7.0	14.5	5.4	0.8	1.1	●	●			●		
	XNGU 0705ANN-MM4	7.0	14.5	5.4	0.8	1.1	●				●		
	XNMU 0705ANN-MM4	7.0	14.5	5.4	0.8	1.1	●	●	●		●	●	
	XNMU 0705ANN-MR6	7.0	14.5	5.4	0.8	1.1	●	●			●	●	
	XNGU 0906ANN-MM2	9.2	19.0	6.25	0.8	1.4	●	●	●		●		
	XNGU 0906ANN-MM4	9.2	19.0	6.25	0.8	1.4	●	●	●		●		
	XNMU 0906ANN-MR6	9.2	19.0	6.25	0.8	1.4	●				●	●	

Marked : ● Stock available ○ Normalized standard

XNMU 07/09

Negative heptagonal milling inserts with corner radius



Inserts	Product code	Dimension(mm)					Grades						
		l	d	s	r	b	AP1000	AP1300	AC1001	AP4000	AC3001	AP1101	AP1001E
	XNMU 070908-MH4	7.0	14.8	8.40	0.8	-		●		●	●	●	
	XNMU 090812-MH4	9.2	19.0	6.25	1.2	-	●	●		●	●	●	

XNGX 07/09ANN-W

Negative milling inserts with long wiper



Inserts	Product code	Dimension(mm)					Grades						
		l	d	s	f	R	AP1001	AP1301	AC2011	AP4001	AC3011	AP1111	AP1001E
	XNGX 0709ANN-W	-	18	8.4	1.0	8	●				●		
	XNGX 0709ANN-W	-	10.05	6.2	1.0	7.8	●				●		

Legend: ● Stock available ○ Nonstock standard

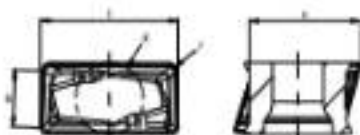
LNHU 0904

Negative shoulder milling insert



Inserts	Product code	Dimension(mm)					Grades						
		l	d	s	r	h	AP9811	AC308 P	AP3311	AP403 M	AC308 S	AP331 S	AP100 K
	LNHU 090404ER-FM2	9	4.5	7.5	0.4	-							●
	LNHU 090404ER-MM3	9	4.5	7.5	0.4	-			●	●			
	LNHU 090404ER-VR2	9	4.5	7.5	0.4	-	●		●	●	●	●	
	LNHU 090405ER-VR2	9	4.5	7.65	0.5	-	●		●	●	●	●	
	LNHU 090412ER-VR2	9	4.5	7.4	1.2	-	●			●	●		
	LNHU 090416ER-VR2	9	4.5	7.35	1.6	-	●			●	●		
	LNHU 090420ER-VR2	9	4.5	7.31	2	-	●			●	●		

Wiper insert type

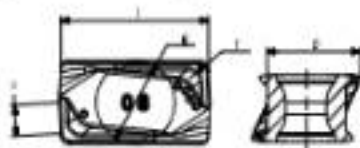


Inserts	Product code	Dimension(mm)					Grades						
		l	d	s	r	h	AP9811	AC308 P	AP3311	AP403 M	AC308 S	AP331 S	AP100 K
	LNHL0204FDER-W	9.24	4.5	7.4	0.4	2.6	■					■	

Legend : ● Stock available ○ Non-machined standard

LNHU 1306

Negative shoulder milling insert



Inserts	Product code	Dimension(mm)					Grades					
		l	d	a	r	b	AP3011	AC3011	AP3011	AP3011	AC3011	AP3011
	LNHU 130600ER-PM2	13.02	6.3	10.11	0.8	-						●
	LNHU 130600ER-MM2	13.02	6.3	10.10	0.8	-				●		
	LNHU 130600ER-MR2	13.02	6.3	10.18	0.8	-	●	●	●	●	●	
	LNHU 130612ER-MR2	13.02	6.3	10.09	1.2	-			●	●	●	
	LNHU 130616ER-MR2	13.02	6.3	10.03	1.6	-			●	●	●	
	LNHU 130620ER-MR2	13.02	6.3	9.99	2.0	-			●	●		
	LNHU 130624ER-MR2	13.02	6.3	9.92	2.4	-			●	●		
	LNHU 130631ER-MR2	13.02	6.3	9.83	3.1	-			●	●	●	



Inserts	Product code	Dimension(mm)					Grades					
		l	d	a	r	b	AP3011	AC3011	AP3011	AP3011	AC3011	AP3011
	LNHU 1206PDSR-W	13.02	6.3	10.02	0.8	0.6	●				●	

Marked : ● Stock available ○ Nonstocked standard

LNHU 1607...

Negative shoulder milling insert



Inserts	Product code	Dimension (mm)				Grades					
		L	D	2	F	AP3000	AP3010	AP3100	AP3110	AP3120	AP3130
	LNHU 1607080R-MR2	16	7.2	12	0.8	●		●		●	●
	LNHU 1607160R-MR2	16	7.2	12	1.6	●				●	

Marked : ● Stock available ○ Nonstocked standard

WN_CB

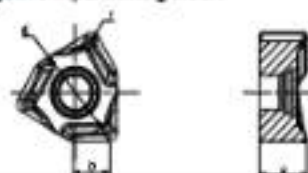
Negative milling insert



Inserts	Product code	Dimension(mm)				Grades						
		l	d	s	r	APB10	ACB10	APB11	APB12	ACB12	APB13	AWT00K
	WNBU 080608R-PM2	8	12.5	7.08	0.8							●
	WNBU 080604R-IMM3	8	12.5	7.08	0.4			●	●			
	WNBU 080608R-IMM3	8	12.5	7.08	0.8	●		●	●			
	WNBU 080604R-IMM4	8	12.5	7.08	0.4	●		●	●		●	
	WNBU 080608R-IMM4	8	12.5	7.08	0.8	●	●	●	●	●	●	
	WNBU 080612R-IMM4	8	12.5	7.08	1.2	●		●	●			
	WNBU 080616R-IMM4	8	12.5	7.08	1.6	●		●	●			
	WNBU 080608R-IMR2	8	12.5	7.08	0.8	●					●	
	WNBU 080612R-IMR2	8	12.5	7.08	1.2	●					●	
	WNBU 080616R-IMR2	8	12.5	7.08	1.6	●					●	

WNGU 08

Negative wiper milling insert

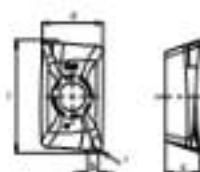


Inserts	Product code	Dimension(mm)				Grades						
		D	d	s	r	APB10	ACB10	APB11	APB12	ACB12	APB13	AWT00K
	WNHX 080622R-W	11.3	4.8	6.47	1	●				●		

Inserted : ● Stock available ○ Not stocked standard

APKT 1003PDER-IT

Positive shoulder milling insert

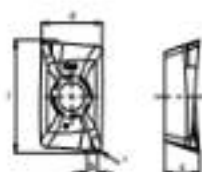


Inserts	Product code	Dimension(mm)					Grades						
		l	d	s	r	b	AP1003	AC101P	AP1300	AP1400	AC101K	AP131K	AP1405
	APKT 1003PDER-IT	11.35	6.66	3.77	0.8	1.02	●		●	●			●

Marked : ● Stock available □ Not stocked standard

APKT 1705...-DT

Positive shoulder milling insert

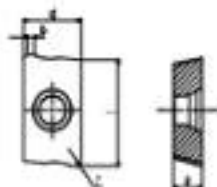


Inserts	Product code	Dimension(mm)					Grades					
		l	d	s	r	b	AP1003	AP101P	AP1300	AP1403	AP141K	AP151K
	APKT 1705PER-DT	12.04	10.76	5.56	2.2	2.16	●	●	●		●	●

Marked : ● Stock available ○ Normalized standard

APMT

Positive shoulder milling inserts



Inserts	Product code	Dimension(mm)					Grades					
		l	d	s	r	b	APMT03	APMT04	APMT05	APMT06	APMT07	APMT08
	APMT 1135PDER	11.31	6.26	3.6	0.8	1.25	●		●			●
	APMT 1604PDER	17.32	9.27	5.17	0.8	1.54	●		●			

Marked : ● Stock available ○ Non-stocked standard

RD/RP

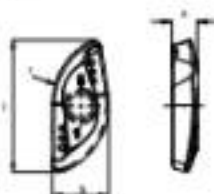
Round inserts



Inserts	Product code	Dimension(mm)		Grade						
		ø	h	1185AF	1185AF	1185AF	1185AF	1185AF	1185AF	1185AF
	RDHT 0702MDE-MM3	7	2.38	●						
	RDHT 1003MDE-MM3	10	3.18	●						
	RDHT 12T3MDE-MM3	12	3.97	●	●	●				
	RDHT 1606MDE-MM3	16	6.35	●	●	●				
	RDHT 1604MDE-MM3	16	4.76	●		●				
	RDHW 0702MDE-HR2	7	2.38	●	●	●		●	●	
	RDHW 1003MDE-HR2	10	3.18	●	●	●		●	●	
	RDHW 12T3MDE-HR2	12	3.97	●	●	●		●	●	
	RDHW 1606MDE-HR2	16	6.35	●					●	
	RDHW 1604MDE-HR2	16	4.76	●						
	RDVT 0702MDE-MM3	7	2.38	●	●					
	RDVT 1003MDE-MM3	10	3.18	●	●	●				
	RDVT 12T3MDE-MM3	12	3.97	●	●					
	RDVT 1606MDE-MM3	16	6.35	●	●					
	RDVT 1604MDE-MM3	16	4.76		●					
	RDWV 1204MDE-HR2	12	4.76	●		●				
	RDWV 1606MDE-HR2	16	6.35					●		
	RPMW 1003MDE-HR2	10	3.18	●		●				●
	RPMW 10T3MDE-HR2	10	3.97	●		●				●
	RPMT 1204MDE	12	4.76	●		●				●

Marked : ● Stock available ○ Nonstock standard

RPM_MM4 Copy milling insert

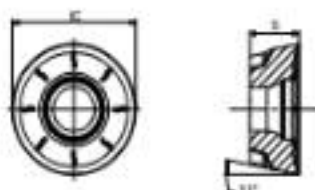


Inserts	Product code	Dimension (mm)				Grades						
		l	d	s	r	AP1000	AC301P	AP1503	AP1003	AP1513	AC301K	AP151K
	RPM 000R-MM4	14.75	6.25	3.21	2				●	●		
	RPM 100R-MM4	12.25	2.62	3.20	10				●	●		●

Marked : ● Stock available ○ Nonstocked standard

RO.T

Round inserts

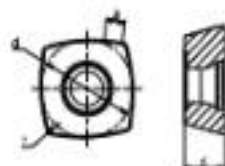


Inserts	Product code	Dimension (mm)		Grades					
		IC	S	AP3003	AP3014	AP3103	AP3114	AP3116	AP3118
	ROHT 2003MSE-MMD	8	3.18				●		●
	ROHT 1073MSE-MMD	10	3.97				●		●
	ROHT 1204MSE-MMD	12	4.76				●		●
	ROHT 1204MSE-MMD	12	4.76				●		●
	ROHT 1605MSE-MMD	16	5.96				●		●
	ROHT 2006MSE-MMD	20	6.35				●		●
	ROMT 1073MSE-MMS	10	3.97				●		●
	ROMT 1204MSE-MMS	12	4.76				●		●
	ROMT 1605MSE-MMS	16	5.96				●		●
	ROMT 2006MSE-MMS	20	6.35				●		●

Marked : ● Stock available, ○ Not stocked standard

XD_09/12

High feed milling inserts

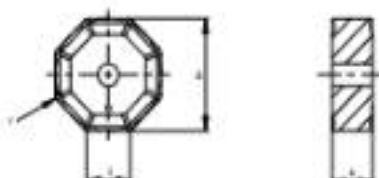


Inserts	Product code	Dimension(mm)				Grades						
		d	d ₁	r	b	AC805 P	AP810 D	AP810 H	AP810 L	AC805 E	AP810 E	AP810 X
	XDLT 090408ER-MMD	9.525	4.76	0.8	1.2		●					
	XDLT 120508ER-MMD	12.7	6.35	0.8	2.2	●	●	●		●	●	
	XDLT 120512ER-MMD	12.7	6.35	1.2	2.2	●	●	●		●	●	
	XDMW 090408ER-HR2	9.525	4.76	0.8	1.2					●		
	XDMW 120508ER-HR2	12.7	6.35	0.8	2.2		●			●		

Marked : ● Stock available ○ Nonstock standard

ON05/LN12/LN15

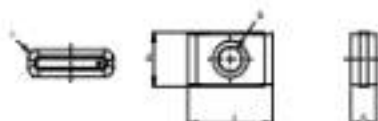
Cast iron finishing machining inserts



Inserts	Product code	Dimension(mm)				Grades
		l	d	a	t	AP13 H
	ON05 050405-NN02	5.3	12.7	4.5	0.5	●

LN12

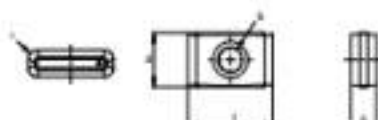
Cast iron finishing wiper insert



Inserts	Product code	Dimension(mm)					Grades
		l	d	a	r	H	AP13 H
	LNH0 120405PN-W	12.7	9.525	4.75	0.8	4.2	●

LN15

Cast iron finishing wiper insert



Inserts	Product code	Dimension(mm)					Grades
		l	d	a	r	H	AP13 H
	LNH0 150415PN-W	15.875	9.525	4.75	1.6	4.2	●

Noted : ● Stock available ○ Non-stock standard

Cutting Parameter Recommendation Table

ISO	Material classification		Material hardness (HRC)	Tensile strength (N/mm²)	Feed rate (mm/min)											
					ISO 100			ISO 200			ISO 300			ISO 400		
					0.1	0.2	0.3	0.1	0.2	0.3	0.1	0.2	0.3	0.1	0.2	0.3
P	Unalloyed steel	0.1-0.25%	Unalloyed	120	220	220	220	220	220	220	220	220	220	220	220	220
		0.25-0.5%	Unalloyed	120	220	220	220	220	220	220	220	220	220	220	220	220
		0.5-1%	Unalloyed	120	220	220	220	220	220	220	220	220	220	220	220	220
		1-1.5%	Unalloyed	120	220	220	220	220	220	220	220	220	220	220	220	220
		2-3%	Unalloyed	120	220	220	220	220	220	220	220	220	220	220	220	220
	Alloyed steel	Free cutting steel (Austenitic)	Unalloyed	120	220	220	220	220	220	220	220	220	220	220	220	220
		Unalloyed	120	220	220	220	220	220	220	220	220	220	220	220	220	220
		Unalloyed	120	220	220	220	220	220	220	220	220	220	220	220	220	220
		Unalloyed	120	220	220	220	220	220	220	220	220	220	220	220	220	220
	High alloyed steel and high alloyed cast steel	Unalloyed	120	220	220	220	220	220	220	220	220	220	220	220	220	220
		Unalloyed and cast steel	120	220	220	220	220	220	220	220	220	220	220	220	220	220
	Stainless steel	Unalloyed	120	220	220	220	220	220	220	220	220	220	220	220	220	220
		Unalloyed and cast steel	120	220	220	220	220	220	220	220	220	220	220	220	220	220
M	Stainless steel	Unalloyed, austenitic stainless steel	120	220	220	220	220	220	220	220	220	220	220	220	220	220
		Unalloyed, ferritic stainless steel	120	220	220	220	220	220	220	220	220	220	220	220	220	220
		Unalloyed, duplex stainless steel	120	220	220	220	220	220	220	220	220	220	220	220	220	220
K	Cast iron	Gray cast iron	120	220	220	220	220	220	220	220	220	220	220	220	220	220
		White cast iron	120	220	220	220	220	220	220	220	220	220	220	220	220	220
		Cast iron with alloy	120	220	220	220	220	220	220	220	220	220	220	220	220	220
		Cast iron with alloy	120	220	220	220	220	220	220	220	220	220	220	220	220	220
		Cast iron with alloy	120	220	220	220	220	220	220	220	220	220	220	220	220	220
N	Aluminum alloy	Aluminum alloy	120	220	220	220	220	220	220	220	220	220	220	220	220	220
		Aluminum alloy	120	220	220	220	220	220	220	220	220	220	220	220	220	220
	Copper alloy	Copper alloy	120	220	220	220	220	220	220	220	220	220	220	220	220	220
		Copper alloy	120	220	220	220	220	220	220	220	220	220	220	220	220	220
	Titanium alloy	Titanium alloy	120	220	220	220	220	220	220	220	220	220	220	220	220	220
		Titanium alloy	120	220	220	220	220	220	220	220	220	220	220	220	220	220
S	Inconel alloy	Inconel alloy	120	220	220	220	220	220	220	220	220	220	220	220	220	220
		Inconel alloy	120	220	220	220	220	220	220	220	220	220	220	220	220	220
		Inconel alloy	120	220	220	220	220	220	220	220	220	220	220	220	220	220
		Inconel alloy	120	220	220	220	220	220	220	220	220	220	220	220	220	220
		Inconel alloy	120	220	220	220	220	220	220	220	220	220	220	220	220	220
	Titanium alloy	Titanium alloy	120	220	220	220	220	220	220	220	220	220	220	220	220	220
		Titanium alloy	120	220	220	220	220	220	220	220	220	220	220	220	220	220
		Titanium alloy	120	220	220	220	220	220	220	220	220	220	220	220	220	220
		Titanium alloy	120	220	220	220	220	220	220	220	220	220	220	220	220	220
		Titanium alloy	120	220	220	220	220	220	220	220	220	220	220	220	220	220
H	Hardened steel	Hardened steel	120	220	220	220	220	220	220	220	220	220	220	220	220	220
		Hardened steel	120	220	220	220	220	220	220	220	220	220	220	220	220	220
		Hardened steel	120	220	220	220	220	220	220	220	220	220	220	220	220	220

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Drill holders

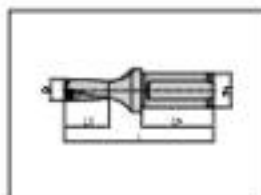
Drilling Holder Denomination System

HP	-	2D	-	255	-	S32	-	S07
1		2		3		4		5

1	HP	Machining method	Represent for high productivity machining			
2	2D	Length-diameter ratio	2D, 5D, 4D			
3	255	Tool diameter	255=25.5mm, 500=50mm			
4	S32	Shank diameter	S30=30mm	S25=25mm	S32=32mm	S40=40mm
5	S07	Inserts shape and edge length	If the insert shape is "J", it means the cutting edge length is 7mm, if the insert shape is "W", the code is "W07"			

DP Series Drilling Holder

Length-diameter ratio: 20

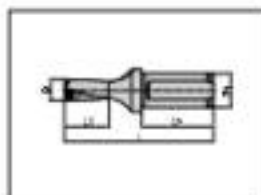


Product code	Dimension (mm)					Inserts
	D	L	L ₁	D ₁	L ₂	
HP-20130-820-805	13.0	29	99	20	90	SPH/T050204E-CP
HP-20135-820-805	13.5	30	100	20	90	
HP-20140-820-805	14.0	31	101	20	90	
HP-20145-820-805	14.5	32	102	20	90	
HP-20150-820-805	15.0	33	103	20	90	
HP-20155-825-806	15.5	34	113	25	96	SPH/T060204E-CP
HP-20160-825-806	16.0	35	114	25	96	
HP-20165-825-806	16.5	36	117	25	96	
HP-20170-825-806	17.0	37	118	25	96	
HP-20175-825-806	17.5	38	119	25	96	
HP-20180-825-806	18.0	39	120	25	96	
HP-20185-825-806	18.5	40	121	25	96	
HP-20190-825-806	19.0	41	122	25	96	
HP-20195-825-806	19.5	42	123	25	96	
HP-20200-825-806	20.0	43	124	25	96	
HP-20205-825-806	20.5	44	125	25	96	
HP-20210-825-806	21.0	45	126	25	96	
HP-20215-825-806	21.5	46	127	25	96	
HP-20220-832-807	22.0	47	137	32	60	SPH/T07T0305E-CP
HP-20225-832-807	22.5	48	138	32	60	
HP-20230-832-807	23.0	49	139	32	60	
HP-20235-832-807	23.5	50	140	32	60	
HP-20240-832-807	24.0	51	141	32	60	
HP-20245-832-807	24.5	52	142	32	60	
HP-20250-832-807	25.0	53	143	32	60	
HP-20255-832-807	25.5	54	144	32	60	
HP-20260-832-807	26.0	55	145	32	60	
HP-20265-832-807	26.5	56	146	32	60	
HP-20270-832-807	27.0	57	147	32	60	
HP-20275-832-807	27.5	58	148	32	60	

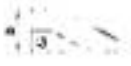
Dimensions (mm)	Spare parts	
Holder diameter	Screw	Wrench
13-15	AST2043-60	AWP-T06
16-21.5	AST2259-60	AWP-T06
22-27.5	AST25065-60S	AWP-T06

DP Series Drilling Holder

Length-diameter ratio: 30

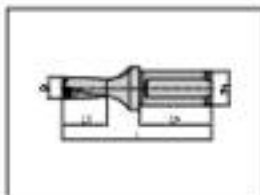


Product code	Dimension (mm)					Inserts
	D	L	L	D ₁	L ₁	
HP-30130-820-805	13.0	42	112	20	50	SPH/T050204E-CP
HP-30135-820-805	13.5	44	114	20	50	
HP-30140-820-805	14.0	45	115	20	50	
HP-30145-820-805	14.5	47	117	20	50	
HP-30150-820-805	15.0	48	118	20	50	
HP-30155-825-806	15.5	50	121	25	56	SPH/T060204E-CP
HP-30160-825-806	16.0	51	122	25	56	
HP-30165-825-806	16.5	53	124	25	56	
HP-30170-825-806	17.0	54	125	25	56	
HP-30175-825-806	17.5	56	127	25	56	
HP-30180-825-806	18.0	57	128	25	56	
HP-30185-825-806	18.5	59	130	25	56	
HP-30190-825-806	19.0	60	131	25	56	
HP-30195-825-806	19.5	62	133	25	56	
HP-30200-825-806	20.0	63	134	25	56	
HP-30205-825-806	20.5	65	136	25	56	
HP-30210-825-806	21.0	66	137	25	56	
HP-30215-825-806	21.5	68	139	25	56	
HP-30220-832-807	22.0	69	150	32	60	SPH/T07T0305E-CP
HP-30225-832-807	22.5	71	151	32	60	
HP-30230-832-807	23.0	72	152	32	60	
HP-30235-832-807	23.5	74	154	32	60	
HP-30240-832-807	24.0	75	155	32	60	
HP-30245-832-807	24.5	77	157	32	60	
HP-30250-832-807	25.0	78	158	32	60	
HP-30255-832-807	25.5	80	170	32	60	
HP-30260-832-807	26.0	81	171	32	60	
HP-30265-832-807	26.5	83	173	32	60	
HP-30270-832-807	27.0	84	174	32	60	
HP-30275-832-807	27.5	86	176	32	60	

Dimensions (mm)	Spare parts	
Holder diameter	Screw	Wrench
		
13-15	AST2045-60	AHP-706
16-21.5	AST2255-60	AHP-706
22-27.5	AST25065-60S	AHP-708

DP Series Drilling Holder

Length-diameter ratio: 30

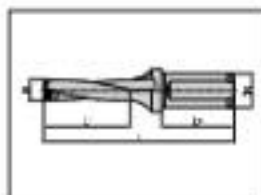


Product code	Dimension (mm)					Inserts
	D	L	L	D ₁	L ₁	
HP-30280-832-809	28.0	87	177	32	60	SPH7090438E-OP
HP-30285-832-809	28.5	89	179	32	60	
HP-30290-832-809	29.0	90	180	32	60	
HP-30295-832-809	29.5	93	183	32	60	
HP-30300-832-809	30.0	96	186	32	60	
HP-30310-832-809	31.0	96	186	32	60	
HP-30320-832-809	32.0	101	191	32	60	
HP-30330-832-809	33.0	104	194	32	60	SPH7110438E-OP
HP-30340-840-811	34.0	107	212	40	70	
HP-30350-840-811	35.0	110	216	40	70	
HP-30360-840-811	36.0	113	218	40	70	
HP-30370-840-811	37.0	116	221	40	70	
HP-30380-840-811	38.0	119	224	40	70	
HP-30390-840-811	39.0	122	227	40	70	
HP-30400-840-811	40.0	125	230	40	70	SPH7140812E-OP
HP-30410-840-811	41.0	128	233	40	70	
HP-30420-840-814	42.0	131	236	40	70	
HP-30430-840-814	43.0	134	239	40	70	
HP-30440-840-814	44.0	137	242	40	70	
HP-30450-840-814	45.0	140	246	40	70	
HP-30460-840-814	46.0	143	249	40	70	
HP-30470-840-814	47.0	146	251	40	70	SPH7140812E-OP
HP-30480-840-814	48.0	149	254	40	70	
HP-30490-840-814	49.0	152	257	40	70	
HP-30500-840-814	50.0	155	260	40	70	

Dimensions (mm)	Spare parts	
Holder diameter	Screw	Wrench
28-33	AST38084-60H	AJWP-T15
34-41	AST4104-60H	AJWP-T18
42-50	AST5126-60	AJWP-T20

DP Series Drilling holder

Length-diameter ratio: 40

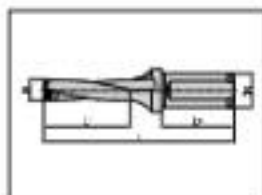


Product code	Dimension(mm)					Inserts
	D	L	L ₁	D ₁	L ₂	
HP-40130-820-805	13.0	55	125	30	50	SPH/T050204E-CP
HP-40135-820-805	13.5	57	127	30	50	
HP-40140-820-805	14.0	59	129	30	50	
HP-40145-820-805	14.5	61	131	30	50	
HP-40150-820-805	15.0	63	133	30	50	
HP-40155-825-806	15.5	65	146	25	56	SPH/T060204E-CP
HP-40160-825-806	16.0	67	148	25	56	
HP-40165-825-806	16.5	69	150	25	56	
HP-40170-825-806	17.0	71	152	25	56	
HP-40175-825-806	17.5	73	154	25	56	
HP-40180-825-806	18.0	75	156	25	56	
HP-40185-825-806	18.5	77	158	25	56	
HP-40190-825-806	19.0	79	160	25	56	
HP-40195-825-806	19.5	81	162	25	56	
HP-40200-825-806	20.0	83	164	25	56	
HP-40205-825-806	20.5	85	166	25	56	
HP-40210-825-806	21.0	87	168	25	56	
HP-40215-825-806	21.5	89	170	25	56	
HP-40220-832-807	22.0	91	181	32	60	SPH/T07T0205E-CP
HP-40225-832-807	22.5	93	183	32	60	
HP-40230-832-807	23.0	95	185	32	60	
HP-40235-832-807	23.5	97	187	32	60	
HP-40240-832-807	24.0	99	189	32	60	
HP-40245-832-807	24.5	101	191	32	60	
HP-40250-832-807	25.0	103	193	32	60	
HP-40255-832-807	25.5	105	195	32	60	
HP-40260-832-807	26.0	107	197	32	60	
HP-40265-832-807	26.5	109	199	32	60	
HP-40270-832-807	27.0	111	201	32	60	
HP-40275-832-807	27.5	113	203	32	60	

Dimensions (mm)	Spare parts	
Holder diameter	Screw	Wrench
13-15	AST2043-60	AHP-T06
16-21.5	AST2259-60	AHP-T06
22-27.5	AST25065-60S	AHP-T08

DP Series Drilling holder

Length-diameter ratio: 40

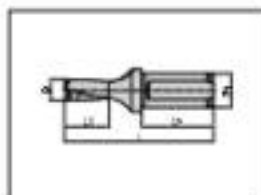


Product code	Dimension(mm)					Inserts
	D	L	L ₁	D ₁	L ₂	
HP-40250-S32-S09	25.0	115	105	32	60	SPH709043SE-CP
HP-40255-S32-S09	25.5	117	107	32	60	
HP-40290-S32-S09	29.0	120	110	32	60	
HP-40295-S32-S09	29.5	123	113	32	60	
HP-40300-S32-S09	30.0	125	115	32	60	
HP-40310-S32-S09	31.0	129	119	32	60	
HP-40320-S32-S09	32.0	133	123	32	60	
HP-40330-S32-S09	33.0	137	127	32	60	SPH711043SE-CP
HP-40340-S40-S11	34.0	141	131	40	70	
HP-40350-S40-S11	35.0	145	135	40	70	
HP-40360-S40-S11	36.0	149	139	40	70	
HP-40370-S40-S11	37.0	153	143	40	70	
HP-40380-S40-S11	38.0	157	147	40	70	
HP-40390-S40-S11	39.0	161	151	40	70	
HP-40400-S40-S11	40.0	165	155	40	70	SPH7140S12E-CP
HP-40410-S40-S11	41.0	169	159	40	70	
HP-40420-S40-S14	42.0	173	163	40	70	
HP-40430-S40-S14	43.0	177	167	40	70	
HP-40440-S40-S14	44.0	181	171	40	70	
HP-40450-S40-S14	45.0	185	175	40	70	
HP-40460-S40-S14	46.0	189	179	40	70	
HP-40470-S40-S16	47.0	193	183	40	70	SPH7140S12E-CP
HP-40480-S40-S16	48.0	197	187	40	70	
HP-40490-S40-S16	49.0	201	191	40	70	
HP-40500-S40-S16	50.0	205	195	40	70	

Dimensions (mm)	Spare parts	
	Screw	Wrench
25-33	AST35084-S0H	AJWP-T15
34-41	AST4104-S0H	AJWP-T15
42-50	AST5126-S0	AJWP-T20

DG Series Drilling holder

Length-diameter ratio: 20

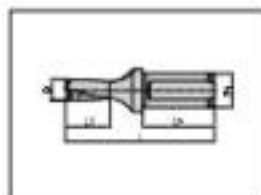


Product code	Dimension(mm)					Inserts
	D	L	L	D ₁	L ₁	
HP-20160-825-W03	16.0	35	116	25	56	VDMT 0202048-02
HP-20165-825-W03	16.5	36	117	25	56	
HP-20170-825-W03	17.0	37	118	25	56	
HP-20175-825-W03	17.5	38	119	25	56	
HP-20180-825-W03	18.0	39	120	25	56	
HP-20185-825-W03	18.5	40	121	25	56	
HP-20190-825-W03	19.0	41	122	25	56	
HP-20195-825-W03	19.5	42	123	25	56	
HP-20200-825-W03	20.0	43	124	25	56	VDMT 0402048-02
HP-20205-825-W04	20.5	44	125	25	56	
HP-20210-825-W04	21.0	45	126	25	56	
HP-20215-825-W04	21.5	46	127	25	56	
HP-20220-825-W04	22.0	47	128	25	56	
HP-20225-825-W04	22.5	48	129	25	56	
HP-20230-825-W04	23.0	49	130	25	56	
HP-20235-825-W04	23.5	50	131	25	56	
HP-20240-825-W04	24.0	51	132	25	56	VDMT 0602068-02
HP-20245-825-W04	24.5	52	133	25	56	
HP-20250-825-W04	25.0	53	134	25	56	
HP-20255-822-W05	25.5	54	144	32	60	
HP-20260-822-W05	26.0	55	145	32	60	
HP-20265-822-W05	26.5	56	146	32	60	
HP-20270-822-W05	27.0	57	147	32	60	
HP-20275-822-W05	27.5	58	148	32	60	
HP-20280-822-W05	28.0	59	149	32	60	VDMT 0802088-02
HP-20285-822-W05	28.5	60	150	32	60	
HP-20290-822-W05	29.0	61	151	32	60	
HP-20295-822-W05	29.5	62	152	32	60	
HP-20300-822-W05	30.0	63	153	32	60	

Dimensions (mm)	Spare parts	
Holder diameter	Screw	Wrench
16-20	AST22048-88	AHP-T06
20.5-25	AST25052-90	AHP-T08
25.5-30	AST3207-98	AHP-T08

DG Series Drilling holder

Length-diameter ratio: 20

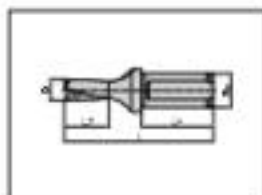


Product code	Dimension (mm)					Inserts
	D	L	L ₁	D ₁	L ₂	
HP-20310-832-W06	31.0	65	155	32	60	WDMT 08T308B-OG
HP-20320-832-W06	32.0	67	157	32	60	
HP-20330-832-W06	33.0	69	159	32	60	
HP-20340-832-W06	34.0	71	161	32	60	
HP-20350-832-W06	35.0	73	163	32	60	
HP-20360-832-W06	36.0	75	165	32	60	
HP-20370-832-W06	37.0	77	167	32	60	
HP-20380-832-W06	38.0	79	169	32	60	
HP-20390-832-W06	39.0	81	171	32	60	
HP-20400-832-W06	40.0	83	173	32	60	
HP-20410-832-W06	41.0	85	175	32	60	WDMT 080408E-OG
HP-20420-840-W08	42.0	87	182	40	70	
HP-20430-840-W08	43.0	89	184	40	70	
HP-20440-840-W08	44.0	91	186	40	70	
HP-20450-840-W08	45.0	93	188	40	70	
HP-20460-840-W08	46.0	95	190	40	70	
HP-20470-840-W08	47.0	97	192	40	70	
HP-20480-840-W08	48.0	99	194	40	70	
HP-20490-840-W08	49.0	101	196	40	70	
HP-20500-840-W08	50.0	103	198	40	70	
HP-20510-840-W08	51.0	105	200	40	70	
HP-20520-840-W08	52.0	107	202	40	70	
HP-20530-840-W08	53.0	109	204	40	70	
HP-20540-840-W08	54.0	111	206	40	70	
HP-20550-840-W08	55.0	113	208	40	70	
HP-20560-840-W08	56.0	115	210	40	70	
HP-20570-840-W08	57.0	117	212	40	70	
HP-20580-840-W08	58.0	119	214	40	70	

Dimensions (mm)	Spare parts	
Holder diameter	Screw	Wrench
21-41	AST2609-BB	AHP-T15
42-58	AST411-6DVHM	AHP-T15

DG Series Drilling holder

Length-diameter ratio: 30

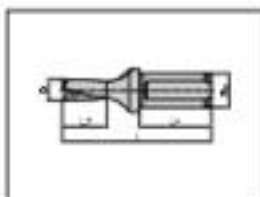


Product code	Dimension(mm)					Inserts
	D	L	L ₁	D ₁	L ₂	
HP-30160-825-W03	16.0	51	132	25	56	WDMT 030204B-03
HP-30165-825-W03	16.5	53	134	25	56	
HP-30170-825-W03	17.0	54	135	25	56	
HP-30175-825-W03	17.5	56	137	25	56	
HP-30180-825-W03	18.0	57	138	25	56	
HP-30185-825-W03	18.5	59	140	25	56	
HP-30190-825-W03	19.0	60	141	25	56	
HP-30195-825-W03	19.5	62	143	25	56	
HP-30200-825-W03	20.0	63	144	25	56	WDMT 040204B-03
HP-30205-825-W04	20.5	65	146	25	56	
HP-30210-825-W04	21.0	66	147	25	56	
HP-30215-825-W04	21.5	68	149	25	56	
HP-30220-825-W04	22.0	69	150	25	56	
HP-30225-825-W04	22.5	71	152	25	56	
HP-30230-825-W04	23.0	72	153	25	56	
HP-30235-825-W04	23.5	74	155	25	56	
HP-30240-825-W04	24.0	75	156	25	56	WDMT 050205B-03
HP-30245-825-W04	24.5	77	158	25	56	
HP-30250-825-W04	25.0	78	159	25	56	
HP-30255-832-W05	25.5	80	170	32	60	
HP-30260-832-W05	26.0	81	171	32	60	
HP-30265-832-W05	26.5	83	173	32	60	
HP-30270-832-W05	27.0	84	174	32	60	
HP-30275-832-W05	27.5	86	176	32	60	
HP-30280-832-W05	28.0	87	177	32	60	WDMT 060206B-03
HP-30285-832-W05	28.5	89	179	32	60	
HP-30290-832-W05	29.0	90	180	32	60	
HP-30295-832-W05	29.5	92	182	32	60	
HP-30300-832-W05	30.0	93	183	32	60	

Dimensions (mm)	Spare parts	
Holder diameter	Screw	Wrench
16-22	AST2204B-08	AHP-T06
22.5-26	AST2605B-10	AHP-T08
26.5-30	AST3007-08	AHP-T08

DG Series Drilling holder

Length-diameter ratio: 30

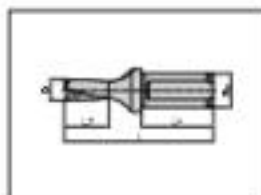


Product code	Dimension (mm)					Inserts
	D	L	L ₁	D ₁	L ₂	
HP-30310-832-W06	31.0	95	186	32	60	WDMT 08T308B-0G
HP-30320-832-W06	32.0	90	189	32	60	
HP-30330-832-W06	33.0	102	192	32	60	
HP-30340-832-W06	34.0	108	196	32	60	
HP-30350-832-W06	35.0	108	198	32	60	
HP-30360-832-W06	36.0	111	201	32	60	
HP-30370-832-W06	37.0	114	204	32	60	
HP-30380-832-W06	38.0	117	207	32	60	
HP-30390-832-W06	39.0	120	210	32	60	
HP-30400-832-W06	40.0	122	213	32	60	
HP-30410-832-W06	41.0	126	216	32	60	
HP-30420-840-W08	42.0	129	224	40	70	WDMT 080408E-0G
HP-30430-840-W08	43.0	132	227	40	70	
HP-30440-840-W08	44.0	135	240	40	70	
HP-30450-840-W08	45.0	138	243	40	70	
HP-30460-840-W08	46.0	141	246	40	70	
HP-30470-840-W08	47.0	144	249	40	70	
HP-30480-840-W08	48.0	147	252	40	70	
HP-30490-840-W08	49.0	150	255	40	70	
HP-30500-840-W08	50.0	153	258	40	70	
HP-30510-840-W08	51.0	156	261	40	70	
HP-30520-840-W08	52.0	159	264	40	70	
HP-30530-840-W08	53.0	162	267	40	70	
HP-30540-840-W08	54.0	165	270	40	70	
HP-30550-840-W08	55.0	168	273	40	70	
HP-30560-840-W08	56.0	171	276	40	70	
HP-30570-840-W08	57.0	174	279	40	70	
HP-30580-840-W08	58.0	177	282	40	70	

Dimensions (mm)	Spare parts	
Holder diameter	Screw	Wrench
21-41	AST2609-B8	AHP-T15
42-58	AST411-6DVHM	AHP-T15

DG Series Drilling holder

Length-diameter ratio: 40

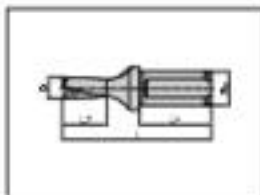


Product code	Dimension(mm)					Inserts
	D	L	L ₁	D ₁	L ₂	
HP-40160-825-W03	16.0	67	143	25	56	WDMT 030204B-03
HP-40165-825-W03	16.5	69	150	25	56	
HP-40170-825-W03	17.0	71	152	25	56	
HP-40175-825-W03	17.5	75	154	25	56	
HP-40180-825-W03	18.0	78	156	25	56	
HP-40185-825-W03	18.5	77	158	25	56	
HP-40190-825-W03	19.0	79	160	25	56	
HP-40195-825-W03	19.5	81	162	25	56	
HP-40200-825-W03	20.0	83	164	25	56	WDMT 040204B-03
HP-40205-825-W04	20.5	85	166	25	56	
HP-40210-825-W04	21.0	87	168	25	56	
HP-40215-825-W04	21.5	89	170	25	56	
HP-40220-825-W04	22.0	91	172	25	56	
HP-40225-825-W04	22.5	93	174	25	56	
HP-40230-825-W04	23.0	95	176	25	56	
HP-40235-825-W04	23.5	97	178	25	56	
HP-40240-825-W04	24.0	99	180	25	56	WDMT 050204B-03
HP-40245-825-W04	24.5	101	182	25	56	
HP-40250-825-W04	25.0	103	184	25	56	
HP-40255-825-W05	25.5	105	186	32	60	
HP-40260-825-W05	26.0	107	187	32	60	
HP-40265-825-W05	26.5	109	199	32	60	
HP-40270-825-W05	27.0	111	201	32	60	
HP-40275-825-W05	27.5	113	203	32	60	
HP-40280-825-W05	28.0	115	205	32	60	WDMT 060204B-03
HP-40285-825-W05	28.5	117	207	32	60	
HP-40290-825-W05	29.0	119	209	32	60	
HP-40295-825-W05	29.5	121	211	32	60	
HP-40300-825-W05	30.0	123	213	32	60	

Dimensions (mm)	Spare parts	
Holder diameter	Screw	Wrench
16-25	AST2204B-88	AHP-T06
20.5-26	AST2505B-60	AHP-T08
25.5-30	AST307-88	AHP-T08

DG Series Drilling holder

Length-diameter ratio: 40



Product code	Dimension(mm)					Inserts
	D	L	L ₁	D ₁	L ₂	
HP-40310-S32-W06	31.0	127	217	32	60	WDMT 06T308B-0G
HP-40320-S32-W06	32.0	131	221	32	60	
HP-40330-S32-W06	33.0	135	225	32	60	
HP-40340-S32-W06	34.0	139	229	32	60	
HP-40350-S32-W06	35.0	143	233	32	60	
HP-40360-S32-W06	36.0	147	237	32	60	
HP-40370-S32-W06	37.0	151	241	32	60	
HP-40380-S32-W06	38.0	155	245	32	60	
HP-40390-S32-W06	39.0	159	249	32	60	
HP-40400-S32-W06	40.0	163	253	32	60	
HP-40410-S32-W06	41.0	167	257	32	60	
HP-40420-S40-W08	42.0	171	276	40	70	WDMT 080408E-0G
HP-40430-S40-W08	43.0	175	280	40	70	
HP-40440-S40-W08	44.0	179	284	40	70	
HP-40450-S40-W08	45.0	183	288	40	70	
HP-40460-S40-W08	46.0	187	292	40	70	
HP-40470-S40-W08	47.0	191	296	40	70	
HP-40480-S40-W08	48.0	195	300	40	70	
HP-40490-S40-W08	49.0	199	304	40	70	
HP-40500-S40-W08	50.0	203	308	40	70	
HP-40510-S40-W08	51.0	207	312	40	70	
HP-40520-S40-W08	52.0	211	316	40	70	
HP-40530-S40-W08	53.0	215	320	40	70	
HP-40540-S40-W08	54.0	219	324	40	70	
HP-40550-S40-W08	55.0	223	328	40	70	
HP-40560-S40-W08	56.0	227	332	40	70	
HP-40570-S40-W08	57.0	231	336	40	70	
HP-40580-S40-W08	58.0	235	340	40	70	

Dimensions (mm)	Spare parts	
Holder diameter	Screw	Wrench
21-41	AST2609-BB	AHP-T15
42-58	AST411-6DVHM	AHP-T15

Drilling Inert Denomisation System

S

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P

2

1. **Answer: D**

* Interview



Class	Unit	1st Circle diameter (mm)	Base height (mm)	Thickness (mm)
A	mm	+0.002	+0.001	+0.002
C	mm	+0.002	+0.012	+0.002
E	mm	+0.002	+0.002	+0.002
F	mm	+0.012	+0.002	+0.002
G	mm	+0.002	+0.002	+0.012
H	mm	+0.012	+0.012	+0.002
J	mm	"	+0.002	+0.002
K	mm	"	+0.012	+0.002
L	mm	"	+0.002	+0.002
M	mm	"	"	+0.012
U	mm	"	"	+0.012
N	mm	"	"	+0.002

* For details, refer to note and figures within

M20 shape	C shape		V shape	
	β	η	β	η
2.5h	0.005	0.01		
6.6h	0.005	0.01	0.005	0.015
7.6h	0.005	0.01	0.005	0.015
9.0h	0.005	0.01	0.005	0.015
10.7	0.005	0.015	0.005	0.02
12.4h	0.01	0.015	0.012	0.027
14.0h	0.01	0.015	0.012	0.02

M

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T

4

2.9. Summary



Shanghai Zhongshan Road 1000 No. 1000

ID	E		M	
	100,000	1	10,000	1
4.76	+0.02	+0.06	+0.08	+0.10
5.84	+0.02	+0.06	+0.08	+0.10
6	+0.02	+0.06	+0.08	+0.10
6.82	+0.02	+0.06	+0.08	+0.10
7.61	+0.02	+0.06	+0.08	+0.10
8	+0.02	+0.06	+0.08	+0.10
8.88	+0.02	+0.06	+0.08	+0.10
10	+0.02	+0.06	+0.08	+0.10
12	+0.06	+0.10	+0.10	+0.10
14.7	+0.06	+0.10	+0.10	+0.10
16.87	+0.1	+0.14	+0.14	+0.17
18	+0.1	+0.14	+0.14	+0.17
19.22	+0.1	+0.14	+0.14	+0.17
20	+0.1	+0.14	+0.14	+0.17
22	+0.14	+0.18	+0.18	+0.20
24.4	+0.14	+0.18	+0.18	+0.20
27.72	+0.18	+0.22	+0.22	+0.24
30	+0.18	+0.22	+0.22	+0.24

4-Clamped bow



06

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02

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04

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E

8

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DP

9

5- Cutting edge length

In-Drill Dimension (mm)	S		W	
	Code	Length	Code	Length
2.25			03	2.2
4.00	04	4.00	04	4.0
7.62			05	7.6
9.5	08	9.5		
12.00	09	12.00	09	12.0
12.7	12	12.7	08	12.7

7- Corner radius

Example	
04	• 0.4
08	• 0.8
12	• 1.2

2- Cutting edge shape

Example	Illustration
6	 Rounded cutting edge
8	 Sharp cutting edge
9	 Negative land

6- Insert thickness

Thickness illustration	Thickness mark	Example
 Insert thickness 'I' refers to the distance between cutting edge nose and bottom.		00 • 0.75
		T0 • 0.90
		01 • 1.00
		T1 • 1.30
		02 • 2.30
		T2 • 2.50
		03 • 3.10
		T3 • 3.97
		04 • 4.75
		T4 • 4.90
		05 • 5.50
		T5 • 5.90
		06 • 6.35
		07 • 7.04
		09 • 9.50
		T6 • 11.11
		12 • 12.70
		14 • 14.20
		15 • 15.20

9- Chip breaker code

DP	DU/DG
	

10. Chip breaker's information refer to page 208

Geometry Application Guide

DP

1. DP geometry has high efficiency. Suitable for short hole high speed drilling.
2. Strong square insert with reinforced geometry offers excellent hole straightness.
3. Drilling holder with helical flute provides excellent chip evacuation and high hole precision.



DU/DG

1. Suitable cutting angle makes perfect balance for the cutting force.
2. General purpose geometry combined with two grades are suitable for P/M/C3 materials, especially good for the chip control in soft materials.
3. Obtains good surface finish.
4. Good versatility. It's suitable for rotating and non-rotating machining.



Grade Application Guide

Drilling insert grade ISO group							
Material Group	Materials	ISO	AP501U	AP101U	AP101M	AC301P	ISO
P	Unalloy steels / Alloyed steels	P01					P01
		P05					P05
		P10					P10
		P15					P15
		P20					P20
		P25	AP501U				P25
		P30					P30
		P35					P35
		P40		AP101U	AP101M	AC301P	P40
		P45					P45
		P50					P50
		M01					M01
M	Stainless steels	M05					M05
		M10					M10
		M15					M15
		M20	AP501U				M20
		M25					M25
		M30					M30
		M35		AP101U	AP101M		M35
		M40					M40
		M45					M45
		K01					K01
		K05					K05
		K10					K10
K	Cast iron	K15					K15
		K20					K20
		K25					K25
		K30					K30
		K35					K35
		K40					K40
		K45					K45
		S01					S01
		S05					S05
		S10					S10
		S15					S15
		S20					S20
S	Heat resistant alloys	S25					S25
		S30					S30
		S35					S35
		S40		AP101U	AP101M		S40
		S45					S45
		N01					N01
		N05					N05
		N10					N10
		N15					N15
		N20					N20
		N25					N25
		N30					N30
N	Aluminum/Aluminum alloys	H01					H01
		H05					H05
		H10					H10
		H15					H15
		H20					H20
		H25					H25
		H30					H30
		H01					H01
		H05					H05
		H10					H10
		H15					H15
		H20					H20
H	Hardened steels/Drilled cast iron	H25					H25
		H30					H30

Grade Application Guide

Materials				PVD coated			CVD coated
				AF201U	AF201U	AF201U	AC201P
ISO	Material classification	Tensile strength (N/mm ²)	Hardness (HV)	Priority			
P	Unalloyed steel	>900	>130	●	●	●	●
		>950	>200	●	●	●	●
	Alloyed steel	700-950	200-280	●	●	●	●
		950-1200	280-380	●	●	●	●
		1200-1400	380-475	●	●	●	●
M	Duplex stainless steel	775	230	●	●	●	-
	Austenitic stainless steel	675	200	●	●	●	-
	Precipitation-hardening stainless steel	1013	300	●	●	●	-
K	Gray cast iron	700	220	-	-	-	-
	Nodular cast iron	880	260	-	-	-	-
	Marballe cast iron	900	280	-	-	-	-
S	Fe-based alloy	945	280	-	●	●	-
	Co-based alloy	1275	320	-	●	●	-
	Ni-based alloy	1177	350	-	●	●	-
	Ti alloy	1262	370	-	●	●	-
N	Aluminum	260	75	-	-	-	-
	Aluminum alloy	447	120	-	-	-	-
H	Hardened steel	-	50-60HRC	-	-	-	-
	Chilled cast iron	-	55HRC	-	-	-	-

- Best choice
 ● 2nd choice
 - Inapplicable

Drilling Grade Description

AP301U

Coating: PVD coating

Suitable for steel, stainless steel drilling. High strength and wear resistance ultra fine carbide substrate with nanostructured PVD coating in controllable layer, high coating adhesion, wear-resistance and strength.



Application range											
ISO Classification	01	05	10	15	20	25	30	35	40	45	50
P				AP301U							
M				AP301U							
K											
S											
N											
H											

Remark: Best choice
 2nd choice

AP351U

Coating: PVD coating

Suitable for steel, stainless steel and heat resistant alloy drilling. High strength carbide substrate with nanostructured PVD coating in controllable layer, high coating adhesion, wear-resistance and strength.



Application range											
ISO Classification	01	05	10	15	20	25	30	35	40	45	50
P							AP351U				
M							AP351U				
K											
S							AP351U				
N											
H											

Remark: Best choice
 2nd choice

AC301P

Coating: CVD coating

For steel and cast iron drilling. High strength substrate combined with multi-layer CVD, good coating adhesion and strength.



Application range											
ISO Classification	01	05	10	15	20	25	30	35	40	45	50
P						AC301P					
M											
K											
S											
N											
H											

 Remark: ☐ Best choice
☐ 2nd choice

AP351M

Coating: PVD coating

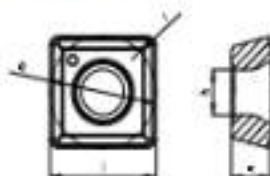
Suitable for steel, stainless steel and heat resistant alloy drilling. Good stability and wear resistance. Good thermal crack resistance and high coating adhesion and strength.



Application range											
ISO Classification	01	05	10	15	20	25	30	35	40	45	50
P						AP351M					
M						AP351M					
K											
S						AP351M					
N											
H											

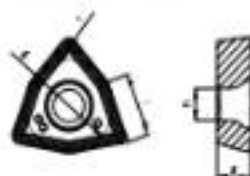
 Remark: ☐ Best choice
☐ 2nd choice

SPMT-OP Drilling Insert



Inserts	Product code	Dimension (mm)					Grades							
		l	b	s	r	h	APB10	APB11	ACB10	APB10	APB11	ACB10	APB10	APB11
	SPMT 050004S-OP	5	5	2.33	0.4	2.28	●	●	●	●				
	SPMT 060004S-OP	6	6	2.33	0.4	2.61	●	●	●	●				
	SPMT 077308E-OP	7.94	7.94	2.97	0.8	2.85	●	●	●	●				
	SPMT 090408E-OP	9.8	9.8	4.3	0.8	4.05	●	●	●	●				
	SPMT 110408E-OP	11.3	11.3	4.8	0.8	4.48	●	●	●	●				
	SPMT 140512E-OP	14.3	14.3	5.2	1.2	5.75	●	●	●	●				

Marked: ● Stock available

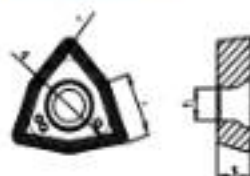
WCMT-DU Drilling Insert


Inserts	Product code	Dimension(mm)					Grades							
		l	d	s	r	h	APB10	APB11	ACB10	APB10	APB11	ACB10	APB10	APB11
	WCMT 030208E-DU	3.2	8.86	2.38	0.8	2.8	●	●						
	WCMT 040208E-DU	4.3	8.86	2.38	0.8	3.0	●	●						
	WCMT 050208E-DU	5.4	7.94	2.18	0.8	2.4	●	●						
	WCMT 06T308E-DU	6.5	6.525	3.97	0.8	3.0	●	●						
	WCMT 080412E-DU	8.7	12.7	4.76	1.2	4.4	●	●						

Note: The DU insert is a universal insert and Achteck does not provide a tool holder.

Marked : ● Stock available

WCMT-DG Drilling insert



Inserts	Product code	Dimension(mm)					Grades								
		l	d	s	r	h	APB10	APB11	AC10 P	AP13 M	APB10	AP13 E	AC10 E	AW100E	AP10 L
	WCMT 030304E-DG	3.8	3.84	2.38	0.4	2.8	●	●							
	WCMT 040304E-DG	4.2	6.38	2.38	0.4	2.8	●	●							
	WCMT 060308E-DG	6.4	7.94	2.18	0.8	2.4	●	●							
	WCMT 06T308E-DG	6.6	9.525	1.97	0.8	4.45	●	●							
	WCMT 080408E-DG	8.7	12.7	4.76	0.8	5.5	●	●							

Marked : ● Stock available

Cutting Parameter Recommendations

Material		SP of the insert, cutting grade, application, and recommendation													
		Tool (insert)													
ISO	Material description	Material strength (N/mm ²)	Material hardness (HRC)	Tool											
				APC604						APC604					
				APC604						APC604					
				APC604						APC604					
P	Aluminum	200-250	20-25	Tool											
				APC604						APC604					
				APC604						APC604					
				APC604						APC604					
M	Steel	200-250	20-25	Tool											
				APC604						APC604					
				APC604						APC604					
				APC604						APC604					
F	Cast iron	200-250	20-25	Tool											
				APC604						APC604					
				APC604						APC604					
				APC604						APC604					
H	Titanium	200-250	20-25	Tool											
				APC604						APC604					
				APC604						APC604					
				APC604						APC604					

The cutting speed and feed rate are recommended for the cutting conditions. The cutting speed and feed rate are recommended for the cutting conditions. The cutting speed and feed rate are recommended for the cutting conditions.

Cutting Parameter Recommendations

Material ID		Material description (Material)	V _{cut} of the insert, select grade, depth of the chip range, & cutting parameter recommendation												Total power
			AP1000			AP1010			AC1010			AC1010			
ISO	Material description (Material)	Material description (Material)	Cutting speed (m/min)												Total power
			100	150	200	250	300	350	400	450	500	550	600	650	
			100	150	200	250	300	350	400	450	500	550	600	650	
			100	150	200	250	300	350	400	450	500	550	600	650	
P	Steel	Free-cutting steel (P10)	100-150	150-200	200-250	250-300	300-350	350-400	400-450	450-500	500-550	550-600	600-650	650-700	100-150
			150-200	200-250	250-300	300-350	350-400	400-450	450-500	500-550	550-600	600-650	650-700	700-750	150-200
			200-250	250-300	300-350	350-400	400-450	450-500	500-550	550-600	600-650	650-700	700-750	750-800	200-250
			250-300	300-350	350-400	400-450	450-500	500-550	550-600	600-650	650-700	700-750	750-800	800-850	250-300
M	Aluminum	Aluminum (M10)	100-150	150-200	200-250	250-300	300-350	350-400	400-450	450-500	500-550	550-600	600-650	650-700	100-150
			150-200	200-250	250-300	300-350	350-400	400-450	450-500	500-550	550-600	600-650	650-700	700-750	150-200
			200-250	250-300	300-350	350-400	400-450	450-500	500-550	550-600	600-650	650-700	700-750	750-800	200-250
			250-300	300-350	350-400	400-450	450-500	500-550	550-600	600-650	650-700	700-750	750-800	800-850	250-300
F	Inconel	Inconel (F10)	100-150	150-200	200-250	250-300	300-350	350-400	400-450	450-500	500-550	550-600	600-650	650-700	100-150
			150-200	200-250	250-300	300-350	350-400	400-450	450-500	500-550	550-600	600-650	650-700	700-750	150-200
			200-250	250-300	300-350	350-400	400-450	450-500	500-550	550-600	600-650	650-700	700-750	750-800	200-250
			250-300	300-350	350-400	400-450	450-500	500-550	550-600	600-650	650-700	700-750	750-800	800-850	250-300
H	Titanium	Titanium (H10)	100-150	150-200	200-250	250-300	300-350	350-400	400-450	450-500	500-550	550-600	600-650	650-700	100-150
			150-200	200-250	250-300	300-350	350-400	400-450	450-500	500-550	550-600	600-650	650-700	700-750	150-200
			200-250	250-300	300-350	350-400	400-450	450-500	500-550	550-600	600-650	650-700	700-750	750-800	200-250
			250-300	300-350	350-400	400-450	450-500	500-550	550-600	600-650	650-700	700-750	750-800	800-850	250-300
K	Copper	Copper (K10)	100-150	150-200	200-250	250-300	300-350	350-400	400-450	450-500	500-550	550-600	600-650	650-700	100-150
			150-200	200-250	250-300	300-350	350-400	400-450	450-500	500-550	550-600	600-650	650-700	700-750	150-200
			200-250	250-300	300-350	350-400	400-450	450-500	500-550	550-600	600-650	650-700	700-750	750-800	200-250
			250-300	300-350	350-400	400-450	450-500	500-550	550-600	600-650	650-700	700-750	750-800	800-850	250-300

ISO: International Organization for Standardization. P: Free-cutting steel. M: Aluminum. F: Inconel. H: Titanium. K: Copper. V_{cut}: Cutting speed. A: Feed. S: Spindle speed. D: Depth of cut. P: Power. T: Time. W: Wheel. R: Radius. L: Length. C: Center. E: End. F: Finish. G: Groove. H: Hole. J: Jig. K: Key. L: Lead. M: Mill. N: Nut. O: Oil. P: Power. Q: Quantity. R: Radius. S: Spindle speed. T: Time. U: Undercut. V: V-cut. W: Wheel. X: X-axis. Y: Y-axis. Z: Z-axis. A: Feed. B: Backlash. C: Clearance. D: Depth of cut. E: End. F: Finish. G: Groove. H: Hole. I: Index. J: Jig. K: Key. L: Lead. M: Mill. N: Nut. O: Oil. P: Power. Q: Quantity. R: Radius. S: Spindle speed. T: Time. U: Undercut. V: V-cut. W: Wheel. X: X-axis. Y: Y-axis. Z: Z-axis.

Deep-hole Drilling Product Introduction

Achteck has launched general-purpose deep-hole drilling inserts, which offer high productivity for many industries: energy, engineering, machinery, injection molding, aircraft, shipbuilding, military, etc. It can achieve good hole straightness in deep hole drilling and good surface finish. Drilling geometries and grades cover steel, stainless steel and heat resistant alloy drilling.

Product application and features

- The inserts can be mounted on the deephole drilling head.
- AP501U(N) is the first choice for drilling steel and stainless steel
- All geometries offer good chip-breaking result
- Increased efficiency due to high feed rate
- Reduces the cost per hole

Grade and Application

Grade	Coating	Workpiece material					
		P	M	K	S	N	H
AP501U(N)	PVD	●	●		○		

● Marked: 1st Choice ● Marked: 2nd Choice ○ Marked: Supplementary application

(SD P - (P15-P35)) General-purpose PVD coating with excellent wear-resistance and toughness.

(SD M - (M15-M35)) General-purpose grade for SD-M applications, PVD coating with excellent toughness and resistance to built-up edges.

(SD S - (S15-S35)) PVD coating with excellent wear resistance and toughness, good resistance to built-up edges.

Geometry Types and Features

Geometry	Edge shape	Application
GH		• For general purpose. • Suitable for high cutting speed and feed. • Good chip control in most of materials.
DL		• Suitable for long chip materials (such as low carbon alloy steel and duplex stainless steel). • Obtain a reliable production process in drilling materials where chip jamming can be a problem.
LH		• With open geometry. • Suitable for high cutting speed and feed.

DH Geometry



Center insert	Product code	l	w	s	r	d1	Competitors description	Stock
	EPMT 0503080-DH AP301U(N)	5.56	8	3.18	0.8	2.5	800-050308M-C-G 1025	●
	EPMT 06T3080-DH AP301U(N)	6.25	9.27	3.97	0.8	2.8	800-06T308M-C-G 1025	●
	EPMT 08T3080-DH AP301U(N)	7.94	9.27	3.97	0.8	2.8	800-08T308M-C-G 1025	●
	EPMT 10T3080-DH AP301U(N)	9.23	9.27	3.97	0.8	2.8	800-10T308M-C-G 1025	●
	EPMT 12T3080-DH AP301U(N)	12.7	9.27	3.97	0.8	2.8	800-12T308M-C-G 1025	●



Intermediate insert	Product code	l	w	s	r	d1	Competitors description	Stock
	EPMT 050308I-DH AP301U(N)	5.56	8	3.18	0.8	2.5	800-050308M-H-G 1025	●
	EPMT 06T308I-DH AP301U(N)	6.25	9.27	3.97	0.8	2.8	800-06T308M-H-G 1025	●
	EPMT 08T308I-DH AP301U(N)	7.94	9.27	3.97	0.8	2.8	800-08T308M-H-G 1025	●
	EPMT 12T308I-DH AP301U(N)	12.7	9.27	3.97	0.8	2.8	800-12T308M-H-G 1025	●

Noted : ● Stock available

DH Geometry


Periphery insert	Product code	l	w	a	r	ø1	Competitor's description	Stock
	APHT 060308P-DH AP301U(N)	6.6	8	3.15	0.8	2.8	800-060308H-P-Q 1025	●
	APHT 08T308P-DH AP301U(N)	8.6	9	3.97	0.8	2.8	800-08T308H-P-Q 1025	●
	APHT 09T308P-DH AP301U(N)	9.66	9	3.97	0.8	2.8	800-09T308H-P-Q 1025	●
	APHT 11T308P-DH AP301U(N)	12.75	9	3.97	0.8	2.8	800-11T308H-P-Q 1025	●

DL Geometry


Intermediate insert	Product code	l	w	a	r	ø1	Competitor's description	Stock
	EPMT 08C308I-DL AP301U(N)	6.66	8	3.15	0.8	2.8	800-08C308H-I-L 1025	●
	EPMT 08T308I-DL AP301U(N)	6.25	9.87	3.97	0.8	2.8	800-08T308H-I-L 1025	●
	EPMT 08T308I-DL AP301U(N)	7.94	9.87	3.97	0.8	2.8	800-08T308H-I-L 1025	●
	EPMT 12T308I-DL AP301U(N)	12.7	9.87	3.97	0.8	2.8	800-12T308H-I-L 1025	●



Periphery insert	Product code	l	w	a	r	ø1	Competitor's description	Stock
	APHT 060308P-DL AP301U(N)	6.6	8	3.15	0.8	2.8	800-060308H-P-L 1025	●
	APHT 08T308P-DL AP301U(N)	8.6	9	3.97	0.8	2.8	800-08T308H-P-L 1025	●
	APHT 09T308P-DL AP301U(N)	9.66	9	3.97	0.8	2.8	800-09T308H-P-L 1025	●
	APHT 11T308P-DL AP301U(N)	12.75	9	3.97	0.8	2.8	800-11T308H-P-L 1025	●

DH Geometry



Center/intermediate insert	Product code	l	d	s	r	d1	Competitor's description	Stock
	TPMT 16T212R-DH AP301U(N)	14.8	9.528	2.97	1.2	2.4	TPMT 16T202R-23 1025	●
	TPMT 220612R-DH AP301U(N)	22	12.7	6.35	1.2	4.4	TPMT 220612R-23 1025	●



Periphery insert	Product code	l	d	s	r	d1	Competitor's description	Stock
	APMT 13T306-DH AP301U(N)	14.6	10	2.97	0.8	2.4	R424.9-13T306-23 1025	●
	APMT 180606-DH AP301U(N)	20.6	11.5	6.35	0.8	4.4	R424.9-180606-23 1025	●

Noted : ● Stock available

LH Geometry



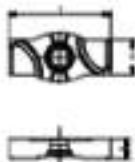
Center/intermediate insert	Product code	l	d	s	r	d1	Competitor's description	Stock
	TPMT 16T312R-LH AP301U(N)	16.8	9.528	3.97	1.2	3.4	TPMT 16T308R-22 1028	●
	TPMT 220612R-LH AP301U(N)	22	12.7	6.35	1.2	4.4	TPMT 220612R-22 1028	●



Periphery insert	Product code	l	d	s	r	d1	Competitor's description	Stock
	APMT 13T308-LH AP301U(N)	14.6	10	3.97	0.8	3.4	R424.0-13T308-22 1028	●
	APMT 180608-LH AP301U(N)	20.6	11.5	6.35	0.8	4.4	R424.0-180608-22 1028	●

marked : ● Stock available

Guiding Pad



Guiding pad	Product code	d	l	s	Competitor's description	Stock
	GPAD-06A AC301K	6.00	18.00	3.00	300-06A PM/I	●
	GPAD-07A AC301K	6.90	20.00	3.50	300-07A PM/I	●
	GPAD-08A AC301K	8.00	25.00	4.50	300-08A PM/I	●
	GPAD-10A AC301K	10.00	30.00	4.50	300-10A PM/I	●
	GPAD-12A AC301K	12.00	35.00	5.50	300-12A PM/I	●

TPMX Series



Sharp	Product code	s	d	r	d1	Competitor's description	Stock
	TPMX 1403R-OH AP301U(N)	3.50	8.45	0.80	2.87	TPMX 1403RG TT9030	●
	TPMX 1704R-OH AP301U(N)	4.00	10.30	0.80	3.90	TPMX 1704RG TT9030	●
	TPMX 2405R-OH AP301U(N)	5.50	14.20	1.20	4.40	TPMX 2405RG TT9030	●
	TPMX 2405L-OH AP301U(N)	5.50	14.20	1.20	4.40	TPMX 2405LG TT9030	●
	TPMX 2807R-OH AP301U(N)	7.50	17.00	1.60	5.50	TPMX 2807RG TT9030	●

Noted : ● Stock available

Recommended Cutting Speed for Materials(Dia 25.00-65.00mm)

Workpiece material			Small hardness (HRC)	Grade			Cutting speed Vc m/min	Feed f/mm/r	
				Insert				Drilling dia mm	
P	I	C	25.00-32.00	32.01-65.00					
P	Unalloyed steel	0-0.25% C	100	UN8150	75-90	0.15-0.21	0.10-0.20		
		0-0.10% S	100		75-90	0.15-0.21	0.10-0.20		
		0-0.05-0.08% S	100		75-90	0.15-0.21	0.10-0.20		
		0-0.02-0.03% S	170		75-90	0.15-0.21	0.10-0.20		
	High carbon steel	0.50-0.60% C	210	UN8150	75-90	0.15-0.21	0.10-0.20		
		Non-hardened	160		80-110	0.15-0.21	0.10-0.20		
	Low alloy steel	Tempered	270	UN8150	75-100	0.15-0.21	0.10-0.20		
		Tempered	320		75-100	0.15-0.21	0.10-0.20		
	High alloy steel	Unalloyed	200	UN8150	80-110	0.15-0.21	0.10-0.20		
		Hardened tool steel	600		80-110	0.05-0.08	0.05-0.07		
M	Stainless steel	Non-hardened Ferritic materials	210	UN8150	80-110	0.15-0.21	0.10-0.20		
		Austenitic	210		80-110	0.15-0.21	0.10-0.20		
		Austenitic precipitation hardened (PH)	410		80-110	0.15-0.21	0.10-0.20		
		Austenitic Ferritic duplex	320		80-110	0.15-0.21	0.10-0.20		
		Aluminum	320		80-110	0.15-0.21	0.10-0.20		
E	Incoloy alloy (In)	Austenitic	320	UN8150	80-110	0.15-0.21	0.10-0.20		
		Ferritic	320		80-110	0.15-0.21	0.10-0.20		
	Inconel alloy (In)	Low alloy strength	160	UN8150	80-110	0.15-0.21	0.10-0.20		
		High alloy strength	210		80-110	0.15-0.21	0.10-0.20		
	Invar alloy (In)	Austenitic	160	UN8150	80-110	0.15-0.21	0.10-0.20		
		Ferritic	320		80-110	0.15-0.21	0.10-0.20		
A	Forged aluminum alloy	Nonaging	40	UN8150	40-100	0.04-0.20	0.05-0.20		
		aged	100		40-100	0.04-0.20	0.05-0.20		
		<10% Al, nonaging	70		40-100	0.04-0.20	0.05-0.20		
		<10% Al, aged	40		40-100	0.04-0.20	0.05-0.20		
	Cast aluminum alloy	<10% Al, nonaging	100	UN8150	40-100	0.04-0.20	0.05-0.20		
		Magnesium alloy	70		40-100	0.04-0.20	0.05-0.20		
	Copper and copper alloy (bronze brass)	Unalloyed electrolytic copper	100	UN8150	40-100	0.04-0.20	0.05-0.20		
		Brass, bronze, red brass	80		40-100	0.04-0.20	0.05-0.20		
		Cu alloy, aluminum	110		40-100	0.04-0.20	0.05-0.20		
		High tensile, copper alloy	200		40-100	0.04-0.20	0.05-0.20		
S	Heat treatment alloy	Refractory material	200	UN8150	10-40	0.04-0.20	0.05-0.20		
		Refractory material	280		10-40	0.04-0.20	0.05-0.20		
		Refractory material	320		10-40	0.04-0.20	0.05-0.20		
		High Cr-based material	200		10-40	0.04-0.20	0.05-0.20		
		High Cr-based material	280		10-40	0.04-0.20	0.05-0.20		
		High Cr-based steel	400		10-40	0.04-0.20	0.05-0.20		
Titanium alloy	Aluminum	210	UN8150	30-40	0.04-0.20	0.05-0.20			
	Aluminum	270		30-40	0.04-0.20	0.05-0.20			
	Aluminum	270		30-40	0.04-0.20	0.05-0.20			
	Aluminum	280		30-40	0.04-0.20	0.05-0.20			
H	Hardened steel	Hardened and tempered	58-67 HRC						
	Hardened cast iron		57-61 HRC						

*Inserts: P, I, C
 P: general insert, I: intermediate insert, C: general insert

Recommended Cutting Speed for Materials(Dia ≥63.50mm)

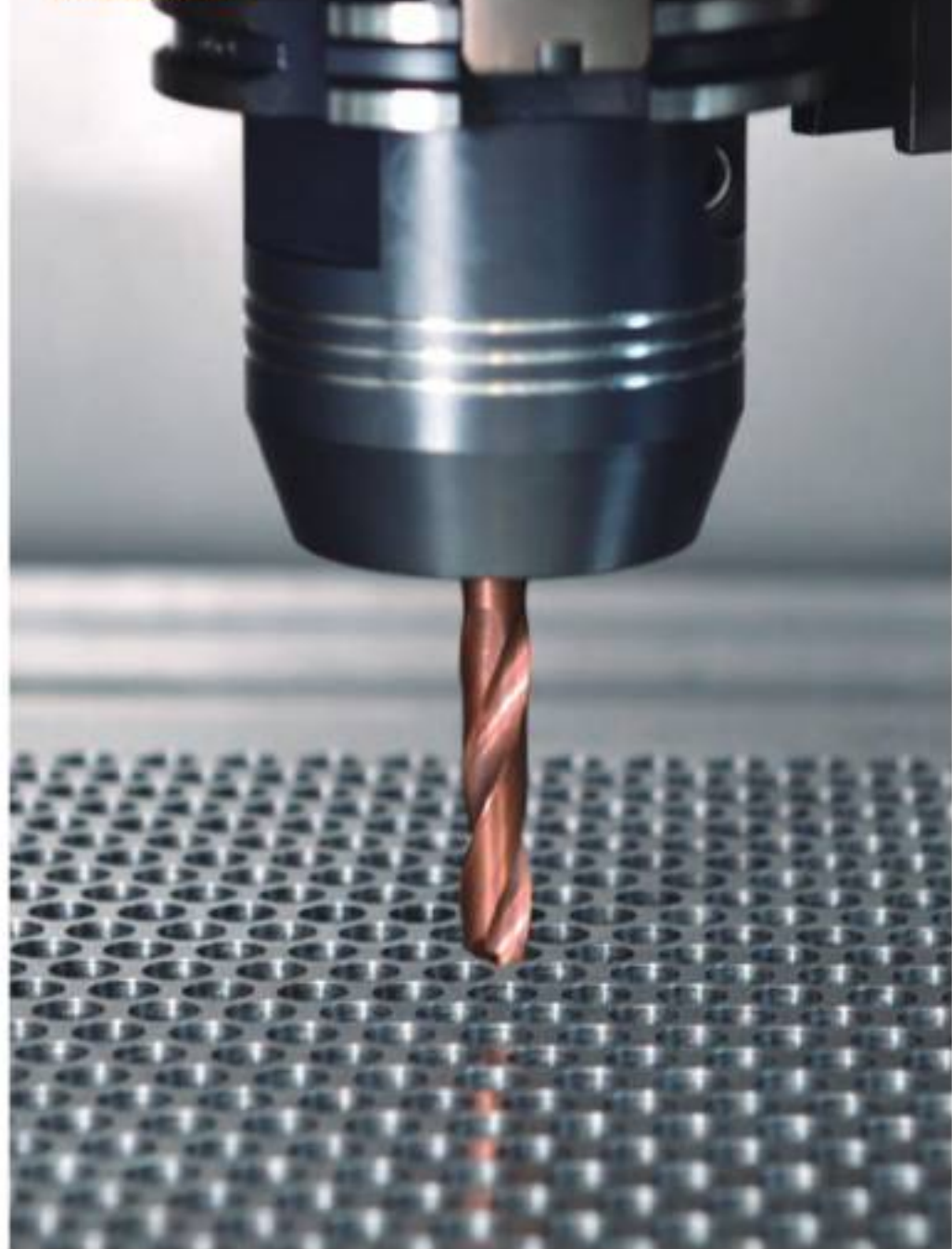
Workpiece material			Brinell hardness (HBS)	Grade			Cutting speed Vc m/min	Feed f mm/r
				Insert				± 0.05
P	Unalloyed steel	0-0.25% C	135	APMT100		80-100	0.15-0.25	
		0-0.10% S	135			80-100	0.15-0.25	
		0-0.25% S	135			80-100	0.15-0.25	
		0-0.25% S	175			60-80	0.14-0.25	
	High carbon steel	Carbon tool steel	210	APMT100		70-100	0.15-0.25	
		Non-hardened	190			60-80	0.15-0.25	
	Low-alloyed steel	Tempered	275	APMT100		70-100	0.15-0.25	
		Tempered	300			70-100	0.15-0.25	
	High-alloyed steel	Unalloyed	310	APMT100		60-80	0.15-0.25	
		Hardened tool steel	335			60-80	0.15-0.25	
M	Tool steel	Unalloyed steel	190	APMT100		60-80	0.15-0.25	
		Low-alloyed steel	210			60-80	0.15-0.25	
		Low-alloyed, phosphorus hardened (P)	210			60-80	0.15-0.25	
		Low-alloyed ferritic, duplex	210					
		Low-alloyed ferritic, duplex	210					
C	Hardened cast iron	As-cast	210	APMT100				
		Heat-treated	210					
	Ductile cast iron	Low-alloyed strength	190	APMT100				
		High-alloyed strength	210					
	Cast iron	As-cast	190	APMT100				
		Heat-treated	210					
		As-cast	210					
H	Forged aluminum alloy	Non-aging	35	APMT100		25-40	0.15-0.25	
		Aged	100			25-40	0.15-0.25	
	Cast aluminum alloy	Al 10% Si, non-aging	75	APMT100		25-40	0.15-0.25	
		Al 10% Si, aged	60			25-40	0.15-0.25	
	Magnesium alloy	Al 10% Si, non-aging	100	APMT100		25-40	0.15-0.25	
		Al 10% Si, aged	75			25-40	0.15-0.25	
	Copper and copper alloy (brass/bronze)	Unalloyed, electro-copper	100	APMT100		25-40	0.15-0.25	
		Brass, bronze, red brass	60			25-40	0.15-0.25	
		Al alloy, aluminum	110			25-40	0.15-0.25	
		High-strength, copper alloy	210			25-40	0.15-0.25	
S	Heat treatment alloy	Unalloyed, electro-copper	100	APMT100		25-40	0.15-0.25	
		Brass, bronze, red brass	60			25-40	0.15-0.25	
		Al alloy, aluminum	110			25-40	0.15-0.25	
		High-strength, copper alloy	210			25-40	0.15-0.25	
		Unalloyed, electro-copper	100			25-40	0.15-0.25	
		Brass, bronze, red brass	60			25-40	0.15-0.25	
	Titanium alloy	Al alloy, aluminum	110	APMT100		25-40	0.15-0.25	
		High-strength, copper alloy	210			25-40	0.15-0.25	
		Unalloyed, electro-copper	100			25-40	0.15-0.25	
		Brass, bronze, red brass	60			25-40	0.15-0.25	
N	Hardened steel	Hardened and tempered	18-47 HRC					
	Hardened cast iron	Hardened and tempered	47-61 HRC					

* In the position P, I, C

P: Perforated insert, I: Intermediate insert, C: Center insert

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CUTTING TOOL CATALOGUE

Solid carbide drill	286
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Drilling Tools Denomination System

D	1	06	-	03	-	03000	A	1	AP30P1	U
1	2	3	-	4	-	5	6	7	8	9

1-Tool group	
0	Drilling

2-Generation	
1	

3-Tool type	
06	Universal

4-Drilling depth	
03	~ 3 x Dc in accordance with DIN 6837K
05	~ 5 x Dc in accordance with DIN 6837L

5-Cutting diameter	
03000	3.0mm
12100	12.1mm

6-Shank type	
A	DIN 6835 HA cylindrical shank

7-Coolant	
0	External coolant
1	Internal coolant

8-Stock	
AP30P1	

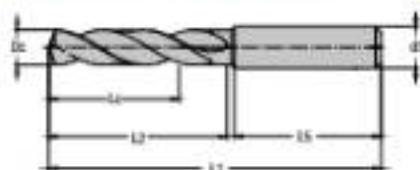
9-Application range	
U	Universal machining RKN

Product Overview

External coolant		
Machining application	 Through hole	 Blind hole
Drilling depth	3xDc	5xDc
Series	D106	D106
Standard	DIN 6837 K	DIN 6837 L
Dia. Range(mm)	3~16	3~16
Stock items	P209-P292	P293-P296
		

Internal coolant		
Machining application	 Through hole	 Blind hole
Drilling depth	3xDc	5xDc
Series	D106	D106
Standard	DIN 6837 K	DIN 6837 L
Dia. Range(mm)	3~16	3~16
Stock items	P297-P300	P301-P304
		

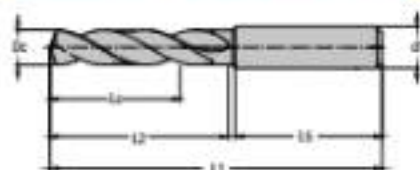
Solid Carbide Drill D106 with External Coolant - 3xDc



Product code	Dc (mm)	Dc Inch/No.	Lc (mm)	L1 (mm)	L2 (mm)	L3 (mm)	d1 (mm)	stock
D106-03-03000A0 AP30P1U	3		14	62	20	36	4	●
D106-03-03100A0 AP30P1U	3.1		14	62	20	36	4	●
D106-03-03175A0 AP30P1U	3.175	1/8"	14	62	20	36	4	○
D106-03-03200A0 AP30P1U	3.2		14	62	20	36	4	●
D106-03-03250A0 AP30P1U	3.25		14	62	20	36	4	○
D106-03-03300A0 AP30P1U	3.3		14	62	20	36	4	●
D106-03-03400A0 AP30P1U	3.4		14	62	20	36	4	○
D106-03-03500A0 AP30P1U	3.5		14	62	20	36	4	●
D106-03-03575A0 AP30P1U	3.575	9/64"	14	62	20	36	4	○
D106-03-03600A0 AP30P1U	3.6		14	62	20	36	4	●
D106-03-03650A0 AP30P1U	3.65		14	62	20	36	4	○
D106-03-03700A0 AP30P1U	3.7		14	62	20	36	4	●
D106-03-03800A0 AP30P1U	3.8		17	66	24	36	6	○
D106-03-03900A0 AP30P1U	3.9		17	66	24	36	6	●
D106-03-03960A0 AP30P1U	3.960	5/32"	17	66	24	36	6	○
D106-03-04000A0 AP30P1U	4		17	66	24	36	6	●
D106-03-04100A0 AP30P1U	4.1		17	66	24	36	6	○
D106-03-04200A0 AP30P1U	4.2		17	66	24	36	6	●
D106-03-04300A0 AP30P1U	4.3		17	66	24	36	6	○
D106-03-04366A0 AP30P1U	4.366	11/64"	17	66	24	36	6	○
D106-03-04400A0 AP30P1U	4.4		17	66	24	36	6	○
D106-03-04500A0 AP30P1U	4.5		17	66	24	36	6	●
D106-03-04600A0 AP30P1U	4.6		17	66	24	36	6	○
D106-03-04680A0 AP30P1U	4.68		17	66	24	36	6	○
D106-03-04700A0 AP30P1U	4.7		17	66	24	36	6	○
D106-03-04763A0 AP30P1U	4.763	3/16"	20	66	28	36	6	○
D106-03-04800A0 AP30P1U	4.8		20	66	28	36	6	●
D106-03-04900A0 AP30P1U	4.9		20	66	28	36	6	●
D106-03-05000A0 AP30P1U	5		20	66	28	36	6	●
D106-03-05100A0 AP30P1U	5.1		20	66	28	36	6	●
D106-03-05199A0 AP30P1U	5.199	13/64"	20	66	28	36	6	○
D106-03-05200A0 AP30P1U	5.2		20	66	28	36	6	●
D106-03-05300A0 AP30P1U	5.3		20	66	28	36	6	○
D106-03-05400A0 AP30P1U	5.4		20	66	28	36	6	○
D106-03-05500A0 AP30P1U	5.5		20	66	28	36	6	●
D106-03-05590A0 AP30P1U	5.59		20	66	28	36	6	○

Method : ● Stock available ○ Nonstocked standard

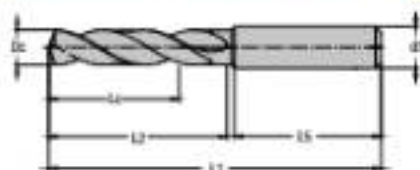
Solid Carbide Drill D106 with External Coolant - 3xDc



Product code	Dc (mm)	Dc (Inch)	Lc (mm)	L1 (mm)	L2 (mm)	L3 (mm)	d1 (mm)	stock
D106-03-0556A0 AP30P1U	5.556	7/32"	20	66	28	26	6	○
D106-03-0560A0 AP30P1U	5.6		20	66	28	26	6	○
D106-03-05700A0 AP30P1U	5.7		20	66	28	26	6	○
D106-03-05800A0 AP30P1U	5.8		20	66	28	26	6	●
D106-03-05900A0 AP30P1U	5.9		20	66	28	26	6	●
D106-03-06953A0 AP30P1U	5.953	15/64"	20	66	28	26	6	○
D106-03-06000A0 AP30P1U	6		20	66	28	26	6	●
D106-03-06100A0 AP30P1U	6.1		24	70	41	26	8	○
D106-03-06200A0 AP30P1U	6.2		24	70	41	26	8	○
D106-03-06300A0 AP30P1U	6.3		24	70	41	26	8	○
D106-03-06350A0 AP30P1U	6.35	1/4"	24	70	41	26	8	○
D106-03-06400A0 AP30P1U	6.4		24	70	41	26	8	○
D106-03-06500A0 AP30P1U	6.5		24	70	41	26	8	●
D106-03-06600A0 AP30P1U	6.6		24	70	41	26	8	○
D106-03-06700A0 AP30P1U	6.7		24	70	41	26	8	○
D106-03-06747A0 AP30P1U	6.747	17/64"	24	70	41	26	8	○
D106-03-06800A0 AP30P1U	6.8		24	70	41	26	8	●
D106-03-06900A0 AP30P1U	6.9		24	70	41	26	8	●
D106-03-07000A0 AP30P1U	7		24	70	41	26	8	●
D106-03-07100A0 AP30P1U	7.1		26	70	41	26	8	○
D106-03-07144A0 AP30P1U	7.144	9/32"	29	70	41	26	8	○
D106-03-07200A0 AP30P1U	7.2		29	70	41	26	8	○
D106-03-07300A0 AP30P1U	7.3		29	70	41	26	8	○
D106-03-07400A0 AP30P1U	7.4		29	70	41	26	8	●
D106-03-07500A0 AP30P1U	7.5		29	70	41	26	8	●
D106-03-07541A0 AP30P1U	7.541	15/64"	29	70	41	26	8	○
D106-03-07550A0 AP30P1U	7.55		29	70	41	26	8	○
D106-03-07600A0 AP30P1U	7.6		29	70	41	26	8	○
D106-03-07700A0 AP30P1U	7.7		29	70	41	26	8	○
D106-03-07800A0 AP30P1U	7.8		29	70	41	26	8	●
D106-03-07900A0 AP30P1U	7.9		29	70	41	26	8	●
D106-03-07938A0 AP30P1U	7.938	5/16"	29	70	41	26	8	○
D106-03-08000A0 AP30P1U	8		29	70	41	26	8	●
D106-03-08100A0 AP30P1U	8.1		35	89	47	40	10	○
D106-03-08200A0 AP30P1U	8.2		35	89	47	40	10	○
D106-03-08300A0 AP30P1U	8.3		35	89	47	40	10	○
D106-03-08334A0 AP30P1U	8.334	21/64"	35	89	47	40	10	○
D106-03-08400A0 AP30P1U	8.4		35	89	47	40	10	○
D106-03-08500A0 AP30P1U	8.5		35	89	47	40	10	●
D106-03-08600A0 AP30P1U	8.6		35	89	47	40	10	●
D106-03-08700A0 AP30P1U	8.7		35	89	47	40	10	○
D106-03-08731A0 AP30P1U	8.731	11/32"	35	89	47	40	10	○
D106-03-08800A0 AP30P1U	8.8		35	89	47	40	10	●
D106-03-08900A0 AP30P1U	8.9		35	89	47	40	10	●

Method : ● Stock available ○ Nonstocked standard

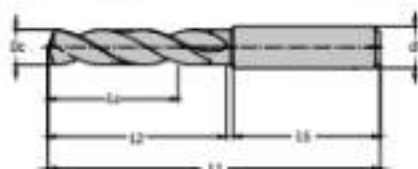
Solid Carbide Drill D106 with External Coolant - 3xDc



Product code	Dc (mm)	Dc Inch/No.	Lc mm	L1 mm	L2 mm	L3 mm	d1 (mm)	stock
D106-03-09000A0 AP30P1U	9		38	39	47	40	10	●
D106-03-09100A0 AP30P1U	9.1		38	39	47	40	10	○
D106-03-09128A0 AP30P1U	9.128	23/64	38	39	47	40	10	○
D106-03-09200A0 AP30P1U	9.2		38	39	47	40	10	○
D106-03-09300A0 AP30P1U	9.3		38	39	47	40	10	●
D106-03-09400A0 AP30P1U	9.4		38	39	47	40	10	○
D106-03-09500A0 AP30P1U	9.5		38	39	47	40	10	○
D106-03-09528A0 AP30P1U	9.528	3/8	38	39	47	40	10	○
D106-03-09600A0 AP30P1U	9.58		38	39	47	40	10	○
D106-03-09600A0 AP30P1U	9.6		38	39	47	40	10	○
D106-03-09700A0 AP30P1U	9.7		38	39	47	40	10	○
D106-03-09800A0 AP30P1U	9.8		38	39	47	40	10	●
D106-03-09900A0 AP30P1U	9.9		38	39	47	40	10	○
D106-03-09922A0 AP30P1U	9.922	25/64	38	39	47	40	10	○
D106-03-10000A0 AP30P1U	10		38	39	47	40	10	●
D106-03-10100A0 AP30P1U	10.1		40	102	55	45	12	●
D106-03-10200A0 AP30P1U	10.2		40	102	55	45	12	●
D106-03-10300A0 AP30P1U	10.3		40	102	55	45	12	●
D106-03-10319A0 AP30P1U	10.319	13/32	40	102	55	45	12	○
D106-03-10400A0 AP30P1U	10.4		40	102	55	45	12	○
D106-03-10500A0 AP30P1U	10.5		40	102	55	45	12	●
D106-03-10600A0 AP30P1U	10.6		40	102	55	45	12	●
D106-03-10700A0 AP30P1U	10.7		40	102	55	45	12	○
D106-03-10716A0 AP30P1U	10.716	27/64	40	102	55	45	12	○
D106-03-10800A0 AP30P1U	10.8		40	102	55	45	12	●
D106-03-10900A0 AP30P1U	10.9		40	102	55	45	12	○
D106-03-11000A0 AP30P1U	11		40	102	55	45	12	●
D106-03-11100A0 AP30P1U	11.1		40	102	55	45	12	○
D106-03-11113A0 AP30P1U	11.113	7/16	40	102	55	45	12	○
D106-03-11200A0 AP30P1U	11.2		40	102	55	45	12	○
D106-03-11300A0 AP30P1U	11.3		40	102	55	45	12	○
D106-03-11400A0 AP30P1U	11.4		40	102	55	45	12	○
D106-03-11500A0 AP30P1U	11.5		40	102	55	45	12	○
D106-03-11500A0 AP30P1U	11.500	23/64	40	102	55	45	12	○
D106-03-11500A0 AP30P1U	11.58		40	102	55	45	12	○
D106-03-11600A0 AP30P1U	11.6		40	102	55	45	12	○
D106-03-11700A0 AP30P1U	11.7		40	102	55	45	12	○
D106-03-11800A0 AP30P1U	11.8		40	102	55	45	12	●
D106-03-11900A0 AP30P1U	11.9		40	102	55	45	12	○
D106-03-11906A0 AP30P1U	11.906	15/32	40	102	55	45	12	○
D106-03-12000A0 AP30P1U	12		40	102	55	45	12	●
D106-03-12100A0 AP30P1U	12.1		45	107	60	45	14	○
D106-03-12200A0 AP30P1U	12.2		45	107	60	45	14	○
D106-03-12250A0 AP30P1U	12.25		45	107	60	45	14	○

Inched : ● Stock available ○ Nonstock standard

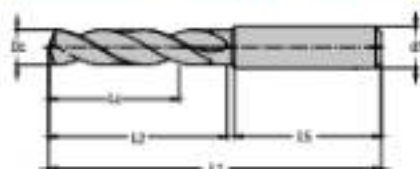
Solid Carbide Drill D106 with External Coolant - 3xDc



Product code	Dc(mT) mm	Dc inch/deg.	Lc mm	L1 mm	L2 mm	L3 mm	d1(h8) mm	stock
D106-03-12300A0 AP30P1U	12.3		43	107	60	45	14	○
D106-03-12303A0 AP30P1U	12.303	1/2	43	107	60	45	14	○
D106-03-12400A0 AP30P1U	12.4		43	107	60	45	14	○
D106-03-12500A0 AP30P1U	12.5		43	107	60	45	14	●
D106-03-12600A0 AP30P1U	12.6		43	107	60	45	14	○
D106-03-12700A0 AP30P1U	12.7	1/2	43	107	60	45	14	○
D106-03-12750A0 AP30P1U	12.75		43	107	60	45	14	○
D106-03-12800A0 AP30P1U	12.8		43	107	60	45	14	○
D106-03-12900A0 AP30P1U	12.9		43	107	60	45	14	○
D106-03-13000A0 AP30P1U	13		43	107	60	45	14	●
D106-03-13100A0 AP30P1U	13.1		43	107	60	45	14	○
D106-03-13200A0 AP30P1U	13.2		43	107	60	45	14	●
D106-03-13300A0 AP30P1U	13.3		43	107	60	45	14	○
D106-03-13400A0 AP30P1U	13.4		43	107	60	45	14	○
D106-03-13494A0 AP30P1U	13.494	1/2	43	107	60	45	14	○
D106-03-13500A0 AP30P1U	13.5		43	107	60	45	14	○
D106-03-13600A0 AP30P1U	13.6		43	107	60	45	14	○
D106-03-13700A0 AP30P1U	13.7		43	107	60	45	14	○
D106-03-13800A0 AP30P1U	13.8		43	107	60	45	14	○
D106-03-13900A0 AP30P1U	13.9		43	107	60	45	14	○
D106-03-14000A0 AP30P1U	14		43	107	60	45	14	●
D106-03-14100A0 AP30P1U	14.1		45	115	65	45	16	●
D106-03-14200A0 AP30P1U	14.2		45	115	65	45	16	●
D106-03-14255A0 AP30P1U	14.255	9/16	45	115	65	45	16	○
D106-03-14300A0 AP30P1U	14.3		45	115	65	45	16	○
D106-03-14400A0 AP30P1U	14.4		45	115	65	45	16	○
D106-03-14500A0 AP30P1U	14.5		45	115	65	45	16	●
D106-03-14600A0 AP30P1U	14.6		45	115	65	45	16	●
D106-03-14700A0 AP30P1U	14.7		45	115	65	45	16	●
D106-03-14750A0 AP30P1U	14.75		45	115	65	45	16	○
D106-03-14800A0 AP30P1U	14.8		45	115	65	45	16	○
D106-03-15000A0 AP30P1U	15		45	115	65	45	16	●
D106-03-15100A0 AP30P1U	15.1		45	115	65	45	16	○
D106-03-15200A0 AP30P1U	15.2		45	115	65	45	16	○
D106-03-15300A0 AP30P1U	15.3		45	115	65	45	16	○
D106-03-15300A0 AP30P1U	15.3		45	115	65	45	16	●
D106-03-15600A0 AP30P1U	15.6		45	115	65	45	16	○
D106-03-15700A0 AP30P1U	15.7		45	115	65	45	16	●
D106-03-15800A0 AP30P1U	15.8		45	115	65	45	16	●
D106-03-15875A0 AP30P1U	15.875	5/8	45	115	65	45	16	○
D106-03-15900A0 AP30P1U	15.9		45	115	65	45	16	○
D106-03-16000A0 AP30P1U	16		45	115	65	45	16	●

Noted : ● Stock available ○ Normalized standard

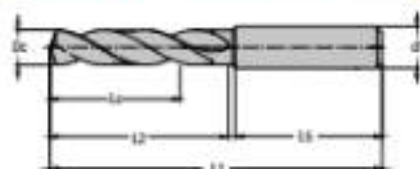
Solid Carbide Drill D106 with External Coolant - 5xDc



Product code	Dc (mm)	Dc Inch/No.	Lc (mm)	L1 (mm)	L2 (mm)	L3 (mm)	d1 (mm)	stock
D106-05-03000A0 AP30P1U	3		25	66	28	36	4	●
D106-05-03100A0 AP30P1U	3.1		25	66	28	36	4	●
D106-05-03175A0 AP30P1U	3.175	1/8"	25	66	28	36	4	○
D106-05-03200A0 AP30P1U	3.2		25	66	28	36	4	●
D106-05-03250A0 AP30P1U	3.25		25	66	28	36	4	○
D106-05-03300A0 AP30P1U	3.3		25	66	28	36	4	●
D106-05-03400A0 AP30P1U	3.4		25	66	28	36	4	○
D106-05-03500A0 AP30P1U	3.5		25	66	28	36	4	●
D106-05-03575A0 AP30P1U	3.575	9/64"	25	66	28	36	4	○
D106-05-03600A0 AP30P1U	3.6		25	66	28	36	4	●
D106-05-03650A0 AP30P1U	3.65		25	66	28	36	4	○
D106-05-03700A0 AP30P1U	3.7		25	66	28	36	4	●
D106-05-03800A0 AP30P1U	3.8		29	74	36	36	6	○
D106-05-03900A0 AP30P1U	3.9		29	74	36	36	6	●
D106-05-03960A0 AP30P1U	3.960	5/32"	29	74	36	36	6	○
D106-05-04000A0 AP30P1U	4		29	74	36	36	6	●
D106-05-04100A0 AP30P1U	4.1		29	74	36	36	6	○
D106-05-04200A0 AP30P1U	4.2		29	74	36	36	6	●
D106-05-04300A0 AP30P1U	4.3		29	74	36	36	6	○
D106-05-04366A0 AP30P1U	4.366	11/64"	29	74	36	36	6	○
D106-05-04400A0 AP30P1U	4.4		29	74	36	36	6	○
D106-05-04500A0 AP30P1U	4.5		29	74	36	36	6	●
D106-05-04600A0 AP30P1U	4.6		29	74	36	36	6	○
D106-05-04680A0 AP30P1U	4.68		29	74	36	36	6	○
D106-05-04700A0 AP30P1U	4.7		29	74	36	36	6	○
D106-05-04763A0 AP30P1U	4.763	3/16"	35	82	44	36	6	○
D106-05-04800A0 AP30P1U	4.8		35	82	44	36	6	●
D106-05-04900A0 AP30P1U	4.9		35	82	44	36	6	●
D106-05-05000A0 AP30P1U	5		35	82	44	36	6	●
D106-05-05100A0 AP30P1U	5.1		35	82	44	36	6	●
D106-05-05190A0 AP30P1U	5.190	13/64"	35	82	44	36	6	○
D106-05-05200A0 AP30P1U	5.2		35	82	44	36	6	●
D106-05-05300A0 AP30P1U	5.3		35	82	44	36	6	○
D106-05-05400A0 AP30P1U	5.4		35	82	44	36	6	○
D106-05-05500A0 AP30P1U	5.5		35	82	44	36	6	●
D106-05-05550A0 AP30P1U	5.55		35	82	44	36	6	○

marked : ● Stock available ○ Non stocked standard

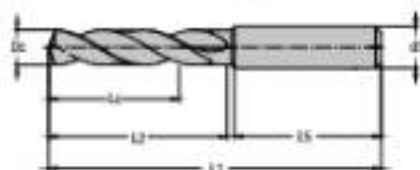
Solid Carbide Drill D106 with External Coolant - 5xDc



Product code	Dc(mT) mm	Dc inch/No.	Lc mm	L1 mm	L2 mm	L3 mm	d1(h8) mm	stock
D106-05-0556A0 AP30P1U	5.556	7/32"	35	52	44	36	6	○
D106-05-0560A0 AP30P1U	5.6		35	52	44	36	6	○
D106-05-0570A0 AP30P1U	5.7		35	52	44	36	6	○
D106-05-0580A0 AP30P1U	5.8		35	52	44	36	6	●
D106-05-0590A0 AP30P1U	5.9		35	52	44	36	6	●
D106-05-0595A0 AP30P1U	5.952	15/64"	35	52	44	36	6	○
D106-05-0600A0 AP30P1U	6		35	52	44	36	6	●
D106-05-0610A0 AP30P1U	6.1		40	51	53	36	8	○
D106-05-0620A0 AP30P1U	6.2		40	51	53	36	8	○
D106-05-0630A0 AP30P1U	6.3		40	51	53	36	8	○
D106-05-0635A0 AP30P1U	6.35	1/4"	40	51	53	36	8	○
D106-05-0640A0 AP30P1U	6.4		40	51	53	36	8	○
D106-05-0650A0 AP30P1U	6.5		40	51	53	36	8	●
D106-05-0660A0 AP30P1U	6.6		40	51	53	36	8	○
D106-05-0670A0 AP30P1U	6.7		40	51	53	36	8	○
D106-05-06747A0 AP30P1U	6.747	17/64"	40	51	53	36	8	○
D106-05-0680A0 AP30P1U	6.8		40	51	53	36	8	●
D106-05-0690A0 AP30P1U	6.9		40	51	53	36	8	●
D106-05-0700A0 AP30P1U	7		40	51	53	36	8	●
D106-05-0710A0 AP30P1U	7.1		40	51	53	36	8	○
D106-05-07144A0 AP30P1U	7.144	9/32"	40	51	53	36	8	○
D106-05-0720A0 AP30P1U	7.2		40	51	53	36	8	○
D106-05-0730A0 AP30P1U	7.3		40	51	53	36	8	○
D106-05-0740A0 AP30P1U	7.4		40	51	53	36	8	●
D106-05-0750A0 AP30P1U	7.5		40	51	53	36	8	●
D106-05-07541A0 AP30P1U	7.541	15/64"	40	51	53	36	8	○
D106-05-0755A0 AP30P1U	7.55		40	51	53	36	8	○
D106-05-0760A0 AP30P1U	7.6		40	51	53	36	8	○
D106-05-0770A0 AP30P1U	7.7		40	51	53	36	8	○
D106-05-0780A0 AP30P1U	7.8		40	51	53	36	8	●
D106-05-0790A0 AP30P1U	7.9		40	51	53	36	8	●
D106-05-07938A0 AP30P1U	7.938	5/16"	40	51	53	36	8	○
D106-05-0800A0 AP30P1U	8		40	51	53	36	8	●
D106-05-0810A0 AP30P1U	8.1		40	103	61	40	10	○
D106-05-0820A0 AP30P1U	8.2		40	103	61	40	10	○
D106-05-0830A0 AP30P1U	8.3		40	103	61	40	10	○
D106-05-08334A0 AP30P1U	8.334	21/64"	40	103	61	40	10	○
D106-05-0840A0 AP30P1U	8.4		40	103	61	40	10	○
D106-05-0850A0 AP30P1U	8.5		40	103	61	40	10	●
D106-05-0860A0 AP30P1U	8.6		40	103	61	40	10	●
D106-05-0870A0 AP30P1U	8.7		40	103	61	40	10	○
D106-05-08731A0 AP30P1U	8.731	11/32"	40	103	61	40	10	○
D106-05-0880A0 AP30P1U	8.8		40	103	61	40	10	●
D106-05-0890A0 AP30P1U	8.9		40	103	61	40	10	●

Method : ● Stock available ○ Nonstocked standard

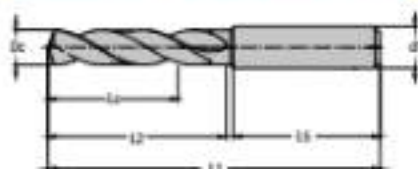
Solid Carbide Drill D106 with External Coolant - 5xDc



Product code	Dc (mm)	Dc Inch/No.	Lc mm	L1 mm	L2 mm	L3 mm	d1 (H6) mm	stock
D106-05-09000A0 AP30P1U	9		49	103	61	40	10	●
D106-05-09100A0 AP30P1U	9.1		49	103	61	40	10	○
D106-05-09120A0 AP30P1U	9.125	23/64	49	103	61	40	10	○
D106-05-09200A0 AP30P1U	9.2		49	103	61	40	10	○
D106-05-09300A0 AP30P1U	9.3		49	103	61	40	10	●
D106-05-09400A0 AP30P1U	9.4		49	103	61	40	10	○
D106-05-09500A0 AP30P1U	9.5		49	103	61	40	10	○
D106-05-09520A0 AP30P1U	9.525	3/8	49	103	61	40	10	○
D106-05-09530A0 AP30P1U	9.55		49	103	61	40	10	○
D106-05-09600A0 AP30P1U	9.6		49	103	61	40	10	○
D106-05-09700A0 AP30P1U	9.7		49	103	61	40	10	○
D106-05-09800A0 AP30P1U	9.8		49	103	61	40	10	●
D106-05-09900A0 AP30P1U	9.9		49	103	61	40	10	○
D106-05-09920A0 AP30P1U	9.925	25/64	49	103	61	40	10	○
D106-05-10000A0 AP30P1U	10		49	103	61	40	10	●
D106-05-10100A0 AP30P1U	10.1		56	118	71	45	12	●
D106-05-10200A0 AP30P1U	10.2		56	118	71	45	12	●
D106-05-10300A0 AP30P1U	10.3		56	118	71	45	12	●
D106-05-10319A0 AP30P1U	10.319	13/32	56	118	71	45	12	○
D106-05-10400A0 AP30P1U	10.4		56	118	71	45	12	○
D106-05-10500A0 AP30P1U	10.5		56	118	71	45	12	●
D106-05-10600A0 AP30P1U	10.6		56	118	71	45	12	●
D106-05-10700A0 AP30P1U	10.7		56	118	71	45	12	○
D106-05-10716A0 AP30P1U	10.716	27/64	56	118	71	45	12	○
D106-05-10800A0 AP30P1U	10.8		56	118	71	45	12	●
D106-05-10900A0 AP30P1U	10.9		56	118	71	45	12	○
D106-05-11000A0 AP30P1U	11		56	118	71	45	12	●
D106-05-11100A0 AP30P1U	11.1		56	118	71	45	12	○
D106-05-11113A0 AP30P1U	11.113	7/16	56	118	71	45	12	○
D106-05-11200A0 AP30P1U	11.2		56	118	71	45	12	○
D106-05-11300A0 AP30P1U	11.3		56	118	71	45	12	○
D106-05-11400A0 AP30P1U	11.4		56	118	71	45	12	○
D106-05-11500A0 AP30P1U	11.5		56	118	71	45	12	○
D106-05-11509A0 AP30P1U	11.509	25/64	56	118	71	45	12	○
D106-05-11530A0 AP30P1U	11.55		56	118	71	45	12	○
D106-05-11600A0 AP30P1U	11.6		56	118	71	45	12	○
D106-05-11700A0 AP30P1U	11.7		56	118	71	45	12	○
D106-05-11800A0 AP30P1U	11.8		56	118	71	45	12	●
D106-05-11900A0 AP30P1U	11.9		56	118	71	45	12	○
D106-05-11906A0 AP30P1U	11.906	15/32	56	118	71	45	12	○
D106-05-12000A0 AP30P1U	12		56	118	71	45	12	●
D106-05-12100A0 AP30P1U	12.1		60	124	77	45	14	○
D106-05-12200A0 AP30P1U	12.2		60	124	77	45	14	○
D106-05-12250A0 AP30P1U	12.25		60	124	77	45	14	○

Method : ● Stock available ○ Nonstocked standard

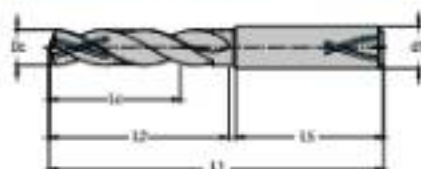
Solid Carbide Drill D106 with External Coolant - 5xDc



Product code	Dc (mm)	Dc Inch/No.	Lc (mm)	L1 (mm)	L2 (mm)	L3 (mm)	d1 (mm)	stock
D106-05-12300A0 AP30P1U	12.3	31/64	60	124	77	48	14	○
D106-05-12303A0 AP30P1U	12.303		60	124	77	48	14	○
D106-05-12400A0 AP30P1U	12.4		60	124	77	48	14	○
D106-05-12500A0 AP30P1U	12.5		60	124	77	48	14	●
D106-05-12600A0 AP30P1U	12.6	1/2"	60	124	77	48	14	○
D106-05-12700A0 AP30P1U	12.7		60	124	77	48	14	○
D106-05-12700A0 AP30P1U	12.76		60	124	77	48	14	○
D106-05-12800A0 AP30P1U	12.8		60	124	77	48	14	○
D106-05-12900A0 AP30P1U	12.9	17/32	60	124	77	48	14	○
D106-05-13000A0 AP30P1U	13		60	124	77	48	14	●
D106-05-13100A0 AP30P1U	13.1		60	124	77	48	14	○
D106-05-13200A0 AP30P1U	13.2		60	124	77	48	14	●
D106-05-13300A0 AP30P1U	13.3	9/16"	60	133	83	48	16	○
D106-05-13400A0 AP30P1U	13.4		60	133	83	48	16	○
D106-05-13494A0 AP30P1U	13.494		60	133	83	48	16	○
D106-05-13500A0 AP30P1U	13.5		60	133	83	48	16	○
D106-05-13600A0 AP30P1U	13.6	5/8"	60	133	83	48	16	○
D106-05-13700A0 AP30P1U	13.7		60	133	83	48	16	●
D106-05-13800A0 AP30P1U	13.8		60	133	83	48	16	○
D106-05-13900A0 AP30P1U	13.9		60	133	83	48	16	○
D106-05-14000A0 AP30P1U	14	3/4"	60	133	83	48	16	●
D106-05-14100A0 AP30P1U	14.1		60	133	83	48	16	●
D106-05-14200A0 AP30P1U	14.2		60	133	83	48	16	●
D106-05-14288A0 AP30P1U	14.288		60	133	83	48	16	○
D106-05-14300A0 AP30P1U	14.3	1 1/8"	60	133	83	48	16	○
D106-05-14400A0 AP30P1U	14.4		60	133	83	48	16	○
D106-05-14500A0 AP30P1U	14.5		60	133	83	48	16	●
D106-05-14600A0 AP30P1U	14.6		60	133	83	48	16	●
D106-05-14700A0 AP30P1U	14.7	1 1/4"	60	133	83	48	16	●
D106-05-14790A0 AP30P1U	14.79		60	133	83	48	16	○
D106-05-14800A0 AP30P1U	14.8		60	133	83	48	16	○
D106-05-15000A0 AP30P1U	15		60	133	83	48	16	●
D106-05-15100A0 AP30P1U	15.1	1 1/2"	60	133	83	48	16	○
D106-05-15200A0 AP30P1U	15.2		60	133	83	48	16	○
D106-05-15300A0 AP30P1U	15.3		60	133	83	48	16	○
D106-05-15400A0 AP30P1U	15.4		60	133	83	48	16	●
D106-05-15600A0 AP30P1U	15.6	1 5/8"	60	133	83	48	16	○
D106-05-15700A0 AP30P1U	15.7		60	133	83	48	16	●
D106-05-15800A0 AP30P1U	15.8		60	133	83	48	16	●
D106-05-15875A0 AP30P1U	15.875		60	133	83	48	16	○
D106-05-15900A0 AP30P1U	15.9	1 3/4"	60	133	83	48	16	○
D106-05-16000A0 AP30P1U	16		60	133	83	48	16	●

Noted : ● Stock available ○ Non-stock standard

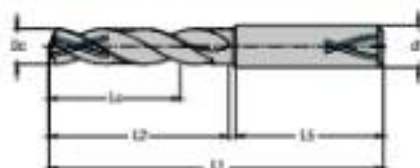
Solid Carbide Drill D106 with Internal Coolant - 3xDc



Product code	Dc (mm)	Dc Inch/No.	Lc (mm)	L1 (mm)	L2 (mm)	L3 (mm)	d1 (mm)	stock
D106-03-03000A1 AP30P1U	3		14	62	20	36	6	●
D106-03-03100A1 AP30P1U	3.1		14	62	20	36	6	●
D106-03-03175A1 AP30P1U	3.175	1/8"	14	62	20	36	6	○
D106-03-03200A1 AP30P1U	3.2		14	62	20	36	6	●
D106-03-03250A1 AP30P1U	3.25		14	62	20	36	6	○
D106-03-03300A1 AP30P1U	3.3		14	62	20	36	6	●
D106-03-03400A1 AP30P1U	3.4		14	62	20	36	6	○
D106-03-03500A1 AP30P1U	3.5		14	62	20	36	6	●
D106-03-03575A1 AP30P1U	3.575	9/64"	14	62	20	36	6	○
D106-03-03600A1 AP30P1U	3.6		14	62	20	36	6	●
D106-03-03650A1 AP30P1U	3.65		14	62	20	36	6	○
D106-03-03700A1 AP30P1U	3.7		14	62	20	36	6	●
D106-03-03800A1 AP30P1U	3.8		17	66	24	36	6	○
D106-03-03900A1 AP30P1U	3.9		17	66	24	36	6	●
D106-03-03960A1 AP30P1U	3.960	5/32"	17	66	24	36	6	○
D106-03-04000A1 AP30P1U	4		17	66	24	36	6	●
D106-03-04100A1 AP30P1U	4.1		17	66	24	36	6	○
D106-03-04200A1 AP30P1U	4.2		17	66	24	36	6	●
D106-03-04300A1 AP30P1U	4.3		17	66	24	36	6	○
D106-03-04366A1 AP30P1U	4.366	11/64"	17	66	24	36	6	○
D106-03-04400A1 AP30P1U	4.4		17	66	24	36	6	○
D106-03-04500A1 AP30P1U	4.5		17	66	24	36	6	●
D106-03-04600A1 AP30P1U	4.6		17	66	24	36	6	○
D106-03-04680A1 AP30P1U	4.68		17	66	24	36	6	○
D106-03-04700A1 AP30P1U	4.7		17	66	24	36	6	○
D106-03-04763A1 AP30P1U	4.763	3/16"	20	66	28	36	6	○
D106-03-04800A1 AP30P1U	4.8		20	66	28	36	6	●
D106-03-04900A1 AP30P1U	4.9		20	66	28	36	6	●
D106-03-05000A1 AP30P1U	5		20	66	28	36	6	●
D106-03-05100A1 AP30P1U	5.1		20	66	28	36	6	●
D106-03-05199A1 AP30P1U	5.199	13/64"	20	66	28	36	6	○
D106-03-05200A1 AP30P1U	5.2		20	66	28	36	6	●
D106-03-05300A1 AP30P1U	5.3		20	66	28	36	6	○
D106-03-05400A1 AP30P1U	5.4		20	66	28	36	6	○
D106-03-05500A1 AP30P1U	5.5		20	66	28	36	6	●
D106-03-05590A1 AP30P1U	5.59		20	66	28	36	6	○

Legend : ● Stock available ○ Non-stock standard

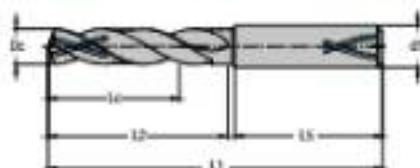
Solid Carbide Drill D106 with Internal Coolant - 3xDc



Product code	Dc (mm)	Dc (Inch)	Lc (mm)	L1 (mm)	L2 (mm)	L3 (mm)	d1 (mm)	stock
D106-03-0556A1 AP30P1U	5.556	7/32"	20	66	28	26	6	○
D106-03-0560A1 AP30P1U	5.6		20	66	28	26	6	○
D106-03-05700A1 AP30P1U	5.7		20	66	28	26	6	○
D106-03-05800A1 AP30P1U	5.8		20	66	28	26	6	●
D106-03-05900A1 AP30P1U	5.9		20	66	28	26	6	●
D106-03-05953A1 AP30P1U	5.953	15/64"	20	66	28	26	6	○
D106-03-06000A1 AP30P1U	6		20	66	28	26	6	●
D106-03-06100A1 AP30P1U	6.1		24	70	41	26	8	○
D106-03-06200A1 AP30P1U	6.2		24	70	41	26	8	○
D106-03-06300A1 AP30P1U	6.3		24	70	41	26	8	○
D106-03-06350A1 AP30P1U	6.35	1/4"	24	70	41	26	8	○
D106-03-06400A1 AP30P1U	6.4		24	70	41	26	8	○
D106-03-06500A1 AP30P1U	6.5		24	70	41	26	8	●
D106-03-06600A1 AP30P1U	6.6		24	70	41	26	8	○
D106-03-06700A1 AP30P1U	6.7		24	70	41	26	8	○
D106-03-06747A1 AP30P1U	6.747	17/64"	24	70	41	26	8	○
D106-03-06800A1 AP30P1U	6.8		24	70	41	26	8	●
D106-03-06900A1 AP30P1U	6.9		24	70	41	26	8	●
D106-03-07000A1 AP30P1U	7		24	70	41	26	8	●
D106-03-07100A1 AP30P1U	7.1		26	70	41	26	8	○
D106-03-07144A1 AP30P1U	7.144	9/32"	29	70	41	26	8	○
D106-03-07200A1 AP30P1U	7.2		29	70	41	26	8	○
D106-03-07300A1 AP30P1U	7.3		29	70	41	26	8	○
D106-03-07400A1 AP30P1U	7.4		29	70	41	26	8	●
D106-03-07500A1 AP30P1U	7.5		29	70	41	26	8	●
D106-03-07541A1 AP30P1U	7.541	15/64"	29	70	41	26	8	○
D106-03-07550A1 AP30P1U	7.55		29	70	41	26	8	○
D106-03-07600A1 AP30P1U	7.6		29	70	41	26	8	○
D106-03-07700A1 AP30P1U	7.7		29	70	41	26	8	○
D106-03-07800A1 AP30P1U	7.8		29	70	41	26	8	●
D106-03-07900A1 AP30P1U	7.9		29	70	41	26	8	●
D106-03-07938A1 AP30P1U	7.938	5/16"	29	70	41	26	8	○
D106-03-08000A1 AP30P1U	8		29	70	41	26	8	●
D106-03-08100A1 AP30P1U	8.1		35	89	47	40	10	○
D106-03-08200A1 AP30P1U	8.2		35	89	47	40	10	○
D106-03-08300A1 AP30P1U	8.3		35	89	47	40	10	○
D106-03-08334A1 AP30P1U	8.334	21/64"	35	89	47	40	10	○
D106-03-08400A1 AP30P1U	8.4		35	89	47	40	10	○
D106-03-08500A1 AP30P1U	8.5		35	89	47	40	10	●
D106-03-08600A1 AP30P1U	8.6		35	89	47	40	10	●
D106-03-08700A1 AP30P1U	8.7		35	89	47	40	10	○
D106-03-08731A1 AP30P1U	8.731	11/32"	35	89	47	40	10	○
D106-03-08800A1 AP30P1U	8.8		35	89	47	40	10	●
D106-03-08900A1 AP30P1U	8.9		35	89	47	40	10	●

Notes : ● Stock available ○ Nonstocked standard

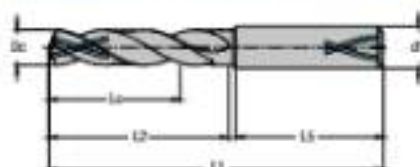
Solid Carbide Drill D106 with Internal Coolant - 3xDc



Product code	Dc (mm)	Dc Inch/No.	Lc mm	L1 mm	L2 mm	L3 mm	d1 (H6) mm	stock
D106-03-09000A1 AP30P1U	9		38	39	47	40	10	●
D106-03-09100A1 AP30P1U	9.1		38	39	47	40	10	○
D106-03-09128A1 AP30P1U	9.128	23/64	38	39	47	40	10	○
D106-03-09200A1 AP30P1U	9.2		38	39	47	40	10	○
D106-03-09300A1 AP30P1U	9.3		38	39	47	40	10	●
D106-03-09400A1 AP30P1U	9.4		38	39	47	40	10	○
D106-03-09500A1 AP30P1U	9.5		38	39	47	40	10	○
D106-03-09528A1 AP30P1U	9.528	3/8	38	39	47	40	10	○
D106-03-09600A1 AP30P1U	9.58		38	39	47	40	10	○
D106-03-09600A1 AP30P1U	9.6		38	39	47	40	10	○
D106-03-09700A1 AP30P1U	9.7		38	39	47	40	10	○
D106-03-09800A1 AP30P1U	9.8		38	39	47	40	10	●
D106-03-09900A1 AP30P1U	9.9		38	39	47	40	10	○
D106-03-09922A1 AP30P1U	9.922	25/64	38	39	47	40	10	○
D106-03-10000A1 AP30P1U	10		38	39	47	40	10	●
D106-03-10100A1 AP30P1U	10.1		40	102	55	45	12	●
D106-03-10200A1 AP30P1U	10.2		40	102	55	45	12	●
D106-03-10300A1 AP30P1U	10.3		40	102	55	45	12	●
D106-03-10319A1 AP30P1U	10.319	13/32	40	102	55	45	12	○
D106-03-10400A1 AP30P1U	10.4		40	102	55	45	12	○
D106-03-10500A1 AP30P1U	10.5		40	102	55	45	12	●
D106-03-10600A1 AP30P1U	10.6		40	102	55	45	12	●
D106-03-10700A1 AP30P1U	10.7		40	102	55	45	12	○
D106-03-10716A1 AP30P1U	10.716	27/64	40	102	55	45	12	○
D106-03-10800A1 AP30P1U	10.8		40	102	55	45	12	●
D106-03-10900A1 AP30P1U	10.9		40	102	55	45	12	○
D106-03-11000A1 AP30P1U	11		40	102	55	45	12	●
D106-03-11100A1 AP30P1U	11.1		40	102	55	45	12	○
D106-03-11131A1 AP30P1U	11.131	7/16	40	102	55	45	12	○
D106-03-11200A1 AP30P1U	11.2		40	102	55	45	12	○
D106-03-11300A1 AP30P1U	11.3		40	102	55	45	12	○
D106-03-11400A1 AP30P1U	11.4		40	102	55	45	12	○
D106-03-11500A1 AP30P1U	11.5		40	102	55	45	12	○
D106-03-11500A1 AP30P1U	11.500	23/64	40	102	55	45	12	○
D106-03-11500A1 AP30P1U	11.58		40	102	55	45	12	○
D106-03-11600A1 AP30P1U	11.6		40	102	55	45	12	○
D106-03-11700A1 AP30P1U	11.7		40	102	55	45	12	○
D106-03-11800A1 AP30P1U	11.8		40	102	55	45	12	●
D106-03-11900A1 AP30P1U	11.9		40	102	55	45	12	○
D106-03-11906A1 AP30P1U	11.906	15/32	40	102	55	45	12	○
D106-03-12000A1 AP30P1U	12		40	102	55	45	12	●
D106-03-12100A1 AP30P1U	12.1		45	107	60	45	14	○
D106-03-12200A1 AP30P1U	12.2		45	107	60	45	14	○
D106-03-12250A1 AP30P1U	12.25		45	107	60	45	14	○

Marked : ● Stock available ○ Nonstocked standard

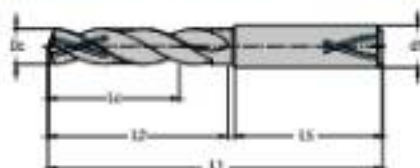
Solid Carbide Drill D106 with Internal Coolant - 3xDc



Product code	Dc (mm)	Dc Inch/No.	Lc mm	L1 mm	L2 mm	L3 mm	d1 (mm)	stock
D106-03-12300A1 AP30P1U	12.3		45	107	60	45	14	○
D106-03-12303A1 AP30P1U	12.303	1/2"	45	107	60	45	14	○
D106-03-12400A1 AP30P1U	12.4		45	107	60	45	14	○
D106-03-12500A1 AP30P1U	12.5		45	107	60	45	14	●
D106-03-12600A1 AP30P1U	12.6		45	107	60	45	14	○
D106-03-12700A1 AP30P1U	12.7	1/2"	45	107	60	45	14	○
D106-03-12700A1 AP30P1U	12.75		45	107	60	45	14	○
D106-03-12800A1 AP30P1U	12.8		45	107	60	45	14	○
D106-03-12900A1 AP30P1U	12.9		45	107	60	45	14	○
D106-03-13000A1 AP30P1U	13		45	107	60	45	14	●
D106-03-13100A1 AP30P1U	13.1		45	107	60	45	14	○
D106-03-13200A1 AP30P1U	13.2		45	107	60	45	14	●
D106-03-13300A1 AP30P1U	13.3		45	107	60	45	14	○
D106-03-13400A1 AP30P1U	13.4		45	107	60	45	14	○
D106-03-13494A1 AP30P1U	13.494	1/2"	45	107	60	45	14	○
D106-03-13500A1 AP30P1U	13.5		45	107	60	45	14	○
D106-03-13600A1 AP30P1U	13.6		45	107	60	45	14	○
D106-03-13700A1 AP30P1U	13.7		45	107	60	45	14	○
D106-03-13800A1 AP30P1U	13.8		45	107	60	45	14	○
D106-03-13900A1 AP30P1U	13.9		45	107	60	45	14	○
D106-03-14000A1 AP30P1U	14		45	107	60	45	14	●
D106-03-14100A1 AP30P1U	14.1		45	115	65	45	16	●
D106-03-14200A1 AP30P1U	14.2		45	115	65	45	16	●
D106-03-14288A1 AP30P1U	14.288	9/16"	45	115	65	45	16	○
D106-03-14300A1 AP30P1U	14.3		45	115	65	45	16	○
D106-03-14400A1 AP30P1U	14.4		45	115	65	45	16	○
D106-03-14500A1 AP30P1U	14.5		45	115	65	45	16	●
D106-03-14600A1 AP30P1U	14.6		45	115	65	45	16	●
D106-03-14700A1 AP30P1U	14.7		45	115	65	45	16	●
D106-03-14750A1 AP30P1U	14.75		45	115	65	45	16	○
D106-03-14800A1 AP30P1U	14.8		45	115	65	45	16	○
D106-03-15000A1 AP30P1U	15		45	115	65	45	16	●
D106-03-15100A1 AP30P1U	15.1		45	115	65	45	16	○
D106-03-15200A1 AP30P1U	15.2		45	115	65	45	16	○
D106-03-15300A1 AP30P1U	15.3		45	115	65	45	16	○
D106-03-15500A1 AP30P1U	15.5		45	115	65	45	16	●
D106-03-15600A1 AP30P1U	15.6		45	115	65	45	16	○
D106-03-15700A1 AP30P1U	15.7		45	115	65	45	16	●
D106-03-15800A1 AP30P1U	15.8		45	115	65	45	16	●
D106-03-15875A1 AP30P1U	15.875	5/8"	45	115	65	45	16	○
D106-03-15900A1 AP30P1U	15.9		45	115	65	45	16	○
D106-03-16000A1 AP30P1U	16		45	115	65	45	16	●

Notes : ● Stock available ○ Non-stock standard

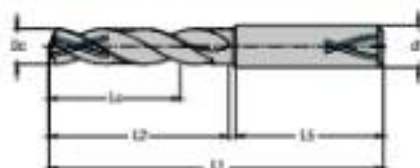
Solid Carbide Drill D106 with Internal Coolant - 5xDc



Product code	Dc (mm)	Dc Inch/No.	Lc (mm)	L1 (mm)	L2 (mm)	L3 (mm)	d1 (mm)	stock
D106-05-03000A1 AP30P1U	3		25	66	28	36	4	●
D106-05-03100A1 AP30P1U	3.1		25	66	28	36	4	●
D106-05-03175A1 AP30P1U	3.175	1/8"	25	66	28	36	4	○
D106-05-03200A1 AP30P1U	3.2		25	66	28	36	4	●
D106-05-03250A1 AP30P1U	3.25		25	66	28	36	4	○
D106-05-03300A1 AP30P1U	3.3		25	66	28	36	4	●
D106-05-03400A1 AP30P1U	3.4		25	66	28	36	4	○
D106-05-03500A1 AP30P1U	3.5		25	66	28	36	4	●
D106-05-03572A1 AP30P1U	3.572	9/64"	25	66	28	36	4	○
D106-05-03600A1 AP30P1U	3.6		25	66	28	36	4	●
D106-05-03650A1 AP30P1U	3.65		25	66	28	36	4	○
D106-05-03700A1 AP30P1U	3.7		25	66	28	36	4	●
D106-05-03800A1 AP30P1U	3.8		29	74	36	36	6	○
D106-05-03900A1 AP30P1U	3.9		29	74	36	36	6	●
D106-05-03969A1 AP30P1U	3.969	5/32"	29	74	36	36	6	○
D106-05-04000A1 AP30P1U	4		29	74	36	36	6	●
D106-05-04100A1 AP30P1U	4.1		29	74	36	36	6	○
D106-05-04200A1 AP30P1U	4.2		29	74	36	36	6	●
D106-05-04300A1 AP30P1U	4.3		29	74	36	36	6	○
D106-05-04366A1 AP30P1U	4.366	11/64"	29	74	36	36	6	○
D106-05-04400A1 AP30P1U	4.4		29	74	36	36	6	○
D106-05-04500A1 AP30P1U	4.5		29	74	36	36	6	●
D106-05-04600A1 AP30P1U	4.6		29	74	36	36	6	○
D106-05-04685A1 AP30P1U	4.685		29	74	36	36	6	○
D106-05-04700A1 AP30P1U	4.7		29	74	36	36	6	○
D106-05-04763A1 AP30P1U	4.763	3/16"	35	82	44	36	6	○
D106-05-04800A1 AP30P1U	4.8		35	82	44	36	6	●
D106-05-04900A1 AP30P1U	4.9		35	82	44	36	6	●
D106-05-05000A1 AP30P1U	5		35	82	44	36	6	●
D106-05-05100A1 AP30P1U	5.1		35	82	44	36	6	●
D106-05-05199A1 AP30P1U	5.199	13/64"	35	82	44	36	6	○
D106-05-05200A1 AP30P1U	5.2		35	82	44	36	6	●
D106-05-05300A1 AP30P1U	5.3		35	82	44	36	6	○
D106-05-05400A1 AP30P1U	5.4		35	82	44	36	6	○
D106-05-05500A1 AP30P1U	5.5		35	82	44	36	6	●
D106-05-05595A1 AP30P1U	5.595		35	82	44	36	6	○

Marked : ● Stock available ○ Nonstocked standard

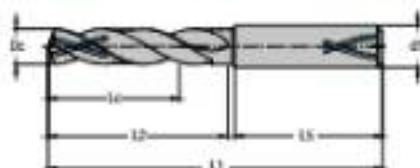
Solid Carbide Drill D106 with Internal Coolant - 5xDc



Product code	Dc (mm)	Dc (Inch)	Lc (mm)	L1 (mm)	L2 (mm)	L3 (mm)	d1 (mm)	stock
D106-05-0556A1 AP30P1U	5.56	7/32"	38	52	44	36	6	○
D106-05-0560A1 AP30P1U	5.6		38	52	44	36	6	○
D106-05-05700A1 AP30P1U	5.7		38	52	44	36	6	○
D106-05-05800A1 AP30P1U	5.8		38	52	44	36	6	●
D106-05-05900A1 AP30P1U	5.9		38	52	44	36	6	●
D106-05-06053A1 AP30P1U	5.953	15/64"	38	52	44	36	6	○
D106-05-06000A1 AP30P1U	6		38	52	44	36	6	●
D106-05-06100A1 AP30P1U	6.1		40	51	50	36	8	○
D106-05-06200A1 AP30P1U	6.2		40	51	50	36	8	○
D106-05-06300A1 AP30P1U	6.3		40	51	50	36	8	○
D106-05-06350A1 AP30P1U	6.35	1/4"	40	51	50	36	8	○
D106-05-06400A1 AP30P1U	6.4		40	51	50	36	8	○
D106-05-06500A1 AP30P1U	6.5		40	51	50	36	8	●
D106-05-06600A1 AP30P1U	6.6		40	51	50	36	8	○
D106-05-06700A1 AP30P1U	6.7		40	51	50	36	8	○
D106-05-06747A1 AP30P1U	6.747	17/64"	40	51	50	36	8	○
D106-05-06800A1 AP30P1U	6.8		40	51	50	36	8	●
D106-05-06900A1 AP30P1U	6.9		40	51	50	36	8	●
D106-05-07000A1 AP30P1U	7		40	51	50	36	8	●
D106-05-07100A1 AP30P1U	7.1		40	51	50	36	8	○
D106-05-07144A1 AP30P1U	7.144	9/32"	40	51	50	36	8	○
D106-05-07200A1 AP30P1U	7.2		40	51	50	36	8	○
D106-05-07300A1 AP30P1U	7.3		40	51	50	36	8	○
D106-05-07400A1 AP30P1U	7.4		40	51	50	36	8	●
D106-05-07500A1 AP30P1U	7.5		40	51	50	36	8	●
D106-05-07541A1 AP30P1U	7.541	15/64"	40	51	50	36	8	○
D106-05-07550A1 AP30P1U	7.55		40	51	50	36	8	○
D106-05-07600A1 AP30P1U	7.6		40	51	50	36	8	○
D106-05-07700A1 AP30P1U	7.7		40	51	50	36	8	○
D106-05-07800A1 AP30P1U	7.8		40	51	50	36	8	●
D106-05-07900A1 AP30P1U	7.9		40	51	50	36	8	●
D106-05-07938A1 AP30P1U	7.938	5/16"	40	51	50	36	8	○
D106-05-08000A1 AP30P1U	8		40	51	50	36	8	●
D106-05-08100A1 AP30P1U	8.1		49	103	61	40	10	○
D106-05-08200A1 AP30P1U	8.2		49	103	61	40	10	○
D106-05-08300A1 AP30P1U	8.3		49	103	61	40	10	○
D106-05-08334A1 AP30P1U	8.334	21/64"	49	103	61	40	10	○
D106-05-08400A1 AP30P1U	8.4		49	103	61	40	10	○
D106-05-08500A1 AP30P1U	8.5		49	103	61	40	10	●
D106-05-08600A1 AP30P1U	8.6		49	103	61	40	10	●
D106-05-08700A1 AP30P1U	8.7		49	103	61	40	10	○
D106-05-08731A1 AP30P1U	8.731	11/32"	49	103	61	40	10	○
D106-05-08800A1 AP30P1U	8.8		49	103	61	40	10	●
D106-05-08900A1 AP30P1U	8.9		49	103	61	40	10	●

Method : ● Stock available ○ Nonstocked standard

Solid Carbide Drill D106 with Internal Coolant - 5xDc

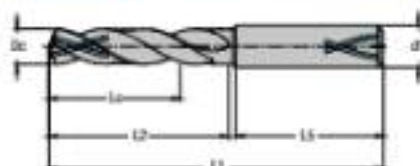


Product code	Dc (mm)	Dc Inch/No.	Lc mm	L1 mm	L2 mm	L3 mm	d1 (H6) mm	stock
D106-05-09000A1 AP30P1U	9		49	103	61	40	10	●
D106-05-09100A1 AP30P1U	9.1		49	103	61	40	10	○
D106-05-09125A1 AP30P1U	9.125	23/64	49	103	61	40	10	○
D106-05-09200A1 AP30P1U	9.2		49	103	61	40	10	○
D106-05-09300A1 AP30P1U	9.3		49	103	61	40	10	●
D106-05-09400A1 AP30P1U	9.4		49	103	61	40	10	○
D106-05-09500A1 AP30P1U	9.5		49	103	61	40	10	○
D106-05-09525A1 AP30P1U	9.525	3/8	49	103	61	40	10	○
D106-05-09550A1 AP30P1U	9.55		49	103	61	40	10	○
D106-05-09600A1 AP30P1U	9.6		49	103	61	40	10	○
D106-05-09700A1 AP30P1U	9.7		49	103	61	40	10	○
D106-05-09800A1 AP30P1U	9.8		49	103	61	40	10	●
D106-05-09900A1 AP30P1U	9.9		49	103	61	40	10	○
D106-05-09925A1 AP30P1U	9.925	25/64	49	103	61	40	10	○
D106-05-10000A1 AP30P1U	10		49	103	61	40	10	●
D106-05-10100A1 AP30P1U	10.1		56	118	71	45	12	●
D106-05-10200A1 AP30P1U	10.2		56	118	71	45	12	●
D106-05-10300A1 AP30P1U	10.3		56	118	71	45	12	●
D106-05-10319A1 AP30P1U	10.319	13/32	56	118	71	45	12	○
D106-05-10400A1 AP30P1U	10.4		56	118	71	45	12	○
D106-05-10500A1 AP30P1U	10.5		56	118	71	45	12	●
D106-05-10600A1 AP30P1U	10.6		56	118	71	45	12	●
D106-05-10700A1 AP30P1U	10.7		56	118	71	45	12	○
D106-05-10716A1 AP30P1U	10.716	27/64	56	118	71	45	12	○
D106-05-10800A1 AP30P1U	10.8		56	118	71	45	12	●
D106-05-10900A1 AP30P1U	10.9		56	118	71	45	12	○
D106-05-11000A1 AP30P1U	11		56	118	71	45	12	●
D106-05-11100A1 AP30P1U	11.1		56	118	71	45	12	○
D106-05-11113A1 AP30P1U	11.113	7/16	56	118	71	45	12	○
D106-05-11200A1 AP30P1U	11.2		56	118	71	45	12	○
D106-05-11300A1 AP30P1U	11.3		56	118	71	45	12	○
D106-05-11400A1 AP30P1U	11.4		56	118	71	45	12	○
D106-05-11500A1 AP30P1U	11.5		56	118	71	45	12	○
D106-05-11509A1 AP30P1U	11.509	25/64	56	118	71	45	12	○
D106-05-11550A1 AP30P1U	11.55		56	118	71	45	12	○
D106-05-11600A1 AP30P1U	11.6		56	118	71	45	12	○
D106-05-11700A1 AP30P1U	11.7		56	118	71	45	12	○
D106-05-11800A1 AP30P1U	11.8		56	118	71	45	12	●
D106-05-11900A1 AP30P1U	11.9		56	118	71	45	12	○
D106-05-11906A1 AP30P1U	11.906	15/32	56	118	71	45	12	○
D106-05-12000A1 AP30P1U	12		56	118	71	45	12	●
D106-05-12100A1 AP30P1U	12.1		60	124	77	45	14	○
D106-05-12200A1 AP30P1U	12.2		60	124	77	45	14	○
D106-05-12250A1 AP30P1U	12.25		60	124	77	45	14	○

Marked : ● Stock available ○ Nonstocked standard

Solid Carbide Drill D106 with Internal Coolant - 5xDc

P	M	S	H	N	O
++	+	+	++	+	+



Product code	Dc(mT) mm	Dc inch/eq.	Lc mm	L1 mm	L2 mm	L3 mm	d1(h8) mm	stock
D106-05-12300A1 AP30P1U	12.3		60	124	77	45	14	○
D106-05-12303A1 AP30P1U	12.303	1/2	60	124	77	45	14	○
D106-05-12400A1 AP30P1U	12.4		60	124	77	45	14	○
D106-05-12500A1 AP30P1U	12.5		60	124	77	45	14	●
D106-05-12600A1 AP30P1U	12.6		60	124	77	45	14	○
D106-05-12700A1 AP30P1U	12.7	1/2	60	124	77	45	14	○
D106-05-12750A1 AP30P1U	12.75		60	124	77	45	14	○
D106-05-12800A1 AP30P1U	12.8		60	124	77	45	14	○
D106-05-12900A1 AP30P1U	12.9		60	124	77	45	14	○
D106-05-13000A1 AP30P1U	13		60	124	77	45	14	●
D106-05-13100A1 AP30P1U	13.1		60	124	77	45	14	○
D106-05-13200A1 AP30P1U	13.2		60	124	77	45	14	●
D106-05-13300A1 AP30P1U	13.3		60	124	77	45	14	○
D106-05-13400A1 AP30P1U	13.4		60	124	77	45	14	○
D106-05-13494A1 AP30P1U	13.494	1/2	60	124	77	45	14	○
D106-05-13500A1 AP30P1U	13.5		60	124	77	45	14	○
D106-05-13600A1 AP30P1U	13.6		60	124	77	45	14	○
D106-05-13700A1 AP30P1U	13.7		60	124	77	45	14	●
D106-05-13800A1 AP30P1U	13.8		60	124	77	45	14	○
D106-05-13900A1 AP30P1U	13.9		60	124	77	45	14	○
D106-05-14000A1 AP30P1U	14		60	124	77	45	14	●
D106-05-14100A1 AP30P1U	14.1		60	133	83	45	16	●
D106-05-14200A1 AP30P1U	14.2		60	133	83	45	16	●
D106-05-14255A1 AP30P1U	14.255	9/16	60	133	83	45	16	○
D106-05-14300A1 AP30P1U	14.3		60	133	83	45	16	○
D106-05-14400A1 AP30P1U	14.4		60	133	83	45	16	○
D106-05-14500A1 AP30P1U	14.5		60	133	83	45	16	●
D106-05-14600A1 AP30P1U	14.6		60	133	83	45	16	●
D106-05-14700A1 AP30P1U	14.7		60	133	83	45	16	●
D106-05-14750A1 AP30P1U	14.75		60	133	83	45	16	○
D106-05-14800A1 AP30P1U	14.8		60	133	83	45	16	○
D106-05-15000A1 AP30P1U	15		60	133	83	45	16	●
D106-05-15100A1 AP30P1U	15.1		60	133	83	45	16	○
D106-05-15200A1 AP30P1U	15.2		60	133	83	45	16	○
D106-05-15300A1 AP30P1U	15.3		60	133	83	45	16	○
D106-05-15500A1 AP30P1U	15.5		60	133	83	45	16	●
D106-05-15600A1 AP30P1U	15.6		60	133	83	45	16	○
D106-05-15700A1 AP30P1U	15.7		60	133	83	45	16	●
D106-05-15800A1 AP30P1U	15.8		60	133	83	45	16	●
D106-05-15875A1 AP30P1U	15.875	5/8	60	133	83	45	16	○
D106-05-15900A1 AP30P1U	15.9		60	133	83	45	16	○
D106-05-16000A1 AP30P1U	16		60	133	83	45	16	●

Notes : ● Stock available ○ Non-stock standard

Cutting Data for D106 Solid Carbide Drill Family

The specified cutting data are average recommended values. For special applications, adjustment is recommended.

V: Cutting speed (m/min) Feed code = feed reference table see page 208				Drilling depth		DxD				SxD			
													
				Product family		D106		D106		D106		D106	
				Dx: Range(mm)		3.00-6.00		3.00-16.00		3.00-18.00		3.00-18.00	
				Coolant		External coolant		Internal coolant		External coolant		Internal coolant	
Workpiece material				Brinell hardness (HBS)	Tensile strength Rm (N/mm²)	Vc	Feed code	Vc	Feed code	Vc	Feed code	Vc	Feed code
Z	Unalloyed steel	St 355	Unalloyed	155	550	60-100	F	60-110	F	60-100	F	60-110	F
		1.22-1.22.255	Unalloyed	155	550	70-90	G	60-110	G	70-90	G	60-100	G
		1.22-1.22.255	Heat-treated	210	750	70-90	G	60-110	G	70-90	G	60-100	G
		1.22-1.22.255	Unalloyed	160	560	70-90	G	60-110	G	70-90	G	60-100	G
		1.22-1.22.255	Heat-treated	200	700	60-100	F	60-110	F	60-100	F	60-110	F
		Free cutting steel (non-alloying)	Unalloyed	200	700	60-100	F	60-110	F	60-100	F	60-110	F
	Low alloyed steel	Unalloyed	175	590	70-100	G	60-110	G	70-100	G	60-110	G	
		Heat-treated	200	700	60-100	F	60-110	F	60-100	F	60-110	F	
		Heat-treated	260	1060	60-80	C	60-80	C	60-80	C	60-80	C	
		Heat-treated	280	1070	60-80	G	60-80	G	60-80	G	60-80	G	
	High alloyed steel and high alloyed tool steel	Unalloyed	200	670	60-80	C	60-80	C	60-80	C	60-80	C	
		Hardened and tempered	200	700	60-80	C	60-80	C	60-80	C	60-80	C	
		Hardened and tempered	200	760	60-80	C	60-80	C	60-80	C	60-80	C	
	Stainless steel	Perma-metallic, annealed	200	670	60-70	D	60-80	D	60-70	D	60-80	D	
		Corrosion-resistant, heat-treated	200	770	60-80	C	60-80	C	60-80	C	60-80	C	
St	Stainless steel	Austenitic, passivated, hardened, P10	200	670				60-80	C			60-80	C
		Austenitic, passivated, hardened, P10	200	1010	60-80	D	60-80	D	60-80	D	60-80	D	
		Austenitic, ferritic, duplex	260	770				60-80	G			60-80	G
E	Hardened cast iron	Perma	200	600	70-90	G	70-90	G	70-90	G	70-90	G	
		Perma	200	700	60-80	G	60-80	G	60-80	G	60-80	G	
	Grey cast iron	Unalloyed, strength	160	500	60-110	A	60-110	A	60-110	A	60-110	A	
		High tensile, strength, austenitic	200	600	70-90	G	70-90	G	70-90	G	70-90	G	
	Cast iron with graphite particles	Perma	160	500	60-110	A	60-110	A	60-110	A	60-110	A	
		Perma	160	700	60-80	F	60-80	F	60-80	F	60-80	F	
N	Forged aluminum alloy	AlSi10Mg	200	400	60-80	F	60-80	F	60-80	F	60-80	F	
		Non-alloying	20	-	600-900	G	600-900	G	600-900	G	600-900	G	
		Agal	150	540	600-900	G	600-900	G	600-900	G	600-900	G	
		+ 10% Al, non-alloying	70	360	140-200	H	140-200	H	140-200	H	140-200	H	
	Cast aluminum alloy	+ 10% Al, Agal	40	410	140-200	H	140-200	H	140-200	H	140-200	H	
		+ 10% Al, non-alloying	150	520	140-200	G	140-200	G	140-200	G	140-200	G	
	Magnesium alloy	Unalloyed	70	320									
		Unalloyed, extruded, copper	100	460	100-160	C	100-160	C	100-160	C	100-160	C	
I	Copper and copper alloy (brass, bronze)	Brass, bronze, red brass	90	210	110-140	G	110-140	G	110-140	G	110-140	G	
		Cu alloy, aluminum	110	360	100-160	F	100-160	F	100-160	F	100-160	F	
		High tensile, bronze alloy	200	700	60-80	G	60-80	G	60-80	G	60-80	G	
	Heat treatment alloy	Fe-based	Unalloyed	200	600			60-80	G			60-80	G
		Fe-based	Unalloyed	200	600			60-80	A			60-80	A
I	Heat treatment alloy	Fe-based	Unalloyed	200	600			60-80	G			60-80	G
		Fe-based	Unalloyed	200	600			60-80	A			60-80	A
		Fe-based	Unalloyed	200	600			60-80	G			60-80	G
		Fe-based	Unalloyed	200	600			60-80	A			60-80	A
	Titanium alloy	Pure titanium	200	600	60-80	G	60-80	G	60-80	G	60-80	G	
		Al and alloy, hardened	270	760	60-80	A	60-80	A	60-80	A	60-80	A	
	Titanium alloy	Al and alloy	270	760	60-80	A	60-80	A	60-80	A	60-80	A	
		Al and alloy	270	760	60-80	A	60-80	A	60-80	A	60-80	A	
N	Hardened steel	Hardened and tempered	60-80	-	60-80	A	60-80	A	60-80	A	60-80	A	
		Hardened and tempered	60-80	-									
		Hardened and tempered	60-80	-									
		Hardened and tempered	60-80	-									

Feed Reference Table

Feed rate f (mm/rev)									
D _h mm		A	B	C	D	E	F	G	H
	2.0	0.03	0.04	0.05	0.06	0.08	0.10	0.12	0.14
	4.0	0.04	0.05	0.06	0.08	0.10	0.12	0.14	0.16
	5.0	0.05	0.06	0.07	0.09	0.10	0.12	0.15	0.18
	6.0	0.05	0.07	0.08	0.10	0.12	0.15	0.18	0.20
	8.0	0.06	0.08	0.10	0.12	0.15	0.18	0.20	0.23
	10.0	0.08	0.10	0.12	0.14	0.18	0.20	0.24	0.28
	12.0	0.10	0.12	0.14	0.18	0.20	0.24	0.28	0.32
	14.0	0.10	0.14	0.18	0.20	0.24	0.28	0.32	0.34
	16.0	0.12	0.18	0.18	0.20	0.28	0.30	0.34	0.36
	20.0	0.15	0.16	0.20	0.25	0.30	0.34	0.37	0.40

Thread Pilot Hole Diameters-Tapping

M	Metric coarse pitch thread DIN 13 and DIN ISO 965-1		
	D1		
Diameter	Min (mm)	Max (mm) B1/BH	
M4	3.342	3.422	3.50
M4.5	3.688	3.878	3.70
M5	4.134	4.324	4.20
M6	4.917	5.182	5.00
M7	5.917	6.182	6.00
M8	6.647	6.912	6.80
M9	7.647	7.912	7.80
M10	8.376	8.676	8.80
M11	9.376	9.676	9.80
M12	10.106	10.441	10.20
M14	11.835	12.210	12.00
M16	13.835	14.210	14.00
M18	15.294	15.744	15.50
M20	17.294	17.744	17.50
M22	19.294	19.744	19.50

UNC	Coarse thread ASME B1.1 standard		
	D1		
Diameter P (1/T)	Min (mm) 2B/2B	Max (mm) 2B	
9-32 UNC	3.312	3.501	3.50
10-32 UNC	3.683	3.962	3.90
12-32 UNC	4.343	4.897	4.80
1/4-20 UNC	4.976	5.268	5.10
5/16-18 UNC	6.411	6.734	6.60
3/8-16 UNC	7.858	8.164	8.00
7/16-14 UNC	9.149	9.550	9.40
1/2-13 UNC	10.584	11.073	10.28
9/16-12 UNC	11.996	12.456	12.30
5/8-11 UNC	13.276	13.868	13.50
3/4-10 UNC	14.299	14.933	14.50
7/8-9 UNC	16.160	16.745	16.50

UNF	Fine thread ASME B1.1 standard		
	D1		
Diameter P (1/T)	Min (mm) 2B/2B	Max (mm) 2B	
9-36 UNF	3.404	3.607	3.50
10-32 UNF	3.582	4.144	4.10
12-32 UNF	4.496	4.724	4.60
1/4-28 UNF	5.367	5.880	5.80
5/16-24 UNF	6.792	7.338	6.80
3/8-24 UNF	8.379	8.626	8.50
7/16-20 UNF	9.758	10.030	9.90
1/2-20 UNF	11.328	11.618	11.50
9/16-18 UNF	12.761	13.084	12.90
5/8-18 UNF	14.348	14.671	14.50
3/4-16 UNF	17.320	17.689	17.50

MF	Metric fine pitch thread DIN 13 and DIN ISO 965-1	
D	D1	
DiameterP	Max (mm) B1/BH	Diameter
M3.5x0.35	3.221	3.15
M4x0.35	3.721	3.65
M4x0.5	3.590	3.50
M4.5x0.5	4.090	4.00
M5x0.35	4.721	4.65
M5x0.5	4.590	4.50
M5x0.75	4.378	4.20
M6x0.5	5.090	5.00
M6x0.75	5.378	5.25
M7x0.5	5.890	5.80
M7x0.75	6.378	6.25
M8x0.5	7.590	7.50
M8x0.75	7.378	7.25
M8x1	7.153	7.00
M9x0.75	8.378	8.25
M9x1	8.153	8.00
M10x0.5	9.590	9.50
M10x0.75	9.378	9.25
M10x1	9.153	9.00
M10x1.25	8.912	8.75
M11x1	10.183	10.00
M12x0.5	11.899	11.80
M12x1	11.183	11.00
M12x1.25	10.912	10.75
M12x1.5	10.676	10.50
M13x1	12.153	12.00
M14x0.75	13.378	13.20
M14x1	13.153	13.00
M14x1.25	12.912	12.75
M14x1.5	12.676	12.50
M15x1	14.183	14.00
M15x1.5	13.676	13.50
M16x0.75	15.378	15.20
M16x1	15.183	15.00
M16x1.25	14.912	14.75
M16x1.5	14.676	14.50
M17x1	16.183	16.00
M18x1	17.183	17.00
M18x1.5	16.676	16.50
M18x2	16.21	16.00
M20x1	19.153	19.00
M20x1.5	18.676	18.50
M20x2	18.21	18.00

Thread Pilot Hole Diameters- Forming

M	Metric coarse pitch thread DIN 13 and DIN ISO 965-1
d	
Diameter	Diameter
M3.5	3.25
M4	3.70
M5	4.65
M6	5.55
M8	7.40
M10	9.30
M12	11.20
M14	13.10
M16	15.10
M18	16.90
M20	18.90

MF	Metric fine pitch thread DIN 13 and DIN ISO 965-1
d	
Diameter	Diameter
M4x0.5	3.80
M5x0.5	4.80
M6x0.5	5.80
M6x0.75	5.65
M7x0.75	6.65
M8x0.75	7.65
M8-1	7.55
M10x0.75	9.65
M10-1	9.55
M10x1.25	9.40
M12-1	11.55
M12x1.25	11.40
M12x1.5	11.30
M14-1	13.55
M14x1.5	13.30
M16-1	15.55
M16x1.5	15.30
M18-1	17.55
M18x1.5	17.30
M20x1.5	19.30
M20-2	19.10
M22x1.5	21.30

UNC	Coarse thread ASME B1.1 standard
d	
Diameter	Diameter
6-32 UNC	3.15
8-32 UNC	3.80
10-32 UNC	4.30
12-32 UNC	5.00
1/4-20 UNC	5.75
5/16-18 UNC	7.25
3/8-16 UNC	8.75
7/16-14 UNC	10.00
1/2-13 UNC	11.30
9/16-12 UNC	13.30
5/8-11 UNC	14.80
3/4-10 UNC	17.90

UNF	Fine thread ASME B1.1 standard
d	
Diameter	Diameter
6-48 UNF	3.30
8-56 UNF	3.85
10-62 UNF	4.45
12-62 UNF	5.05
1/4-32 UNF	5.90
5/16-34 UNF	7.45
3/8-34 UNF	9.00
7/16-30 UNF	10.60
1/2-30 UNF	12.10
9/16-28 UNF	13.70
5/8-28 UNF	15.25
3/4-26 UNF	16.40

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CUTTING TOOL CATALOGUE

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Chuck Denomination Rule

HSK-A63		HC		A		12		85
1		2		3		4		5

1-Type of spindle
HSK-A63 HSK-A100 BT30 BT40 BT50

2-Type of clamping	
Code	Name
HC	Hydraulic Chuck
SP	Shrink Fit Chuck
ER	ER Collet Chuck
SL	Side Lock Chuck
PC	Power Mill Chuck
PM	Face Milling Cutter Arbor

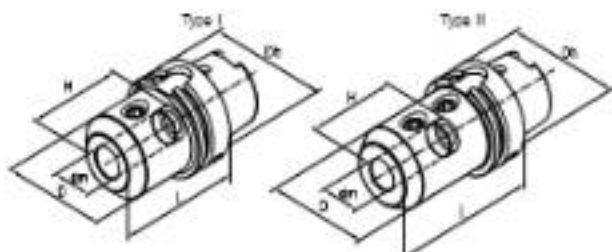
3-Clamping code	
Shrink Fit Chuck/Hydraulic Chuck/ Power Mill Chuck	Without—Standard L—Mini H—Heavy Duty Design
Side Lock Chuck	B—Weldon Type S—Whitish Notch Type
Face Milling Cutter Arbor	A—Common Clamping Screw B—Cross Clamping Screw C—Pentahery Clamping Screw D—For Slot Milling Cutter
ER Collet Chuck	Without—General Type V—Tapping Type H—High Speed Type

4-Clamping diameter
ØH=12

5-Length of chuck
L=85

Side Lock Chuck, Weldon Type

DIN69893

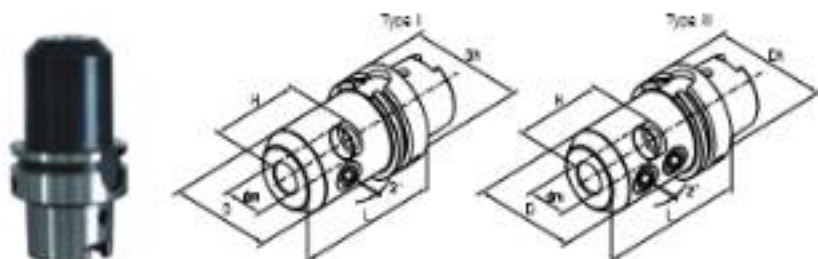


Product code	Stock		Dimension (mm)					Model
			Dn	dn	D	L	H	
DIN69893								
HSK-A63-SLB16-80	●	HSK-A63	63	16	48	80	52	I
HSK-A63-SLB20-80	●	HSK-A63	63	20	52	80	54	I
HSK-A63-SLB28-110	●	HSK-A63	63	28	68	110	66	II
HSK-A63-SLB32-110	●	HSK-A63	63	32	72	110	70	II
HSK-A100-SLB16-100	□	HSK-A100	100	16	48	100	52	I
HSK-A100-SLB20-100	●	HSK-A100	100	20	52	100	54	I
HSK-A100-SLB28-100	●	HSK-A100	100	28	68	100	66	II
HSK-A100-SLB32-100	●	HSK-A100	100	32	72	100	66	II
HSK-A100-SLB40-100	●	HSK-A100	100	40	80	100	80	II
HSK-A100-SLB40-160	□	HSK-A100	100	40	80	160	80	II

● Stock available □ Produced by order

Side Lock Chuck, Whistle Notch Type

DIN69893

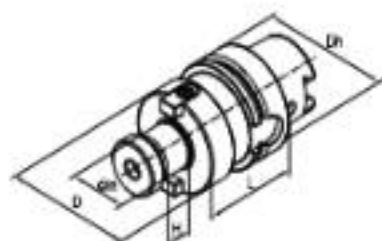


Product code	Stock		Dimension (mm)					Model
			dH	dH	D	L	H	
DIN69893								
HSK-A63-SLE16-100	○	HSK-A63	63	16	48	100	52	I
HSK-A63-SLE20-100	○	HSK-A63	63	20	52	100	54	I
HSK-A63-SLE25-110	○	HSK-A63	63	25	65	110	59	II
HSK-A63-SLE32-110	○	HSK-A63	63	32	72	110	63	II
HSK-A100-SLE16-100	○	HSK-A100	100	16	48	100	52	I
HSK-A100-SLE20-110	○	HSK-A100	100	20	52	110	54	I
HSK-A100-SLE25-120	○	HSK-A100	100	25	65	120	59	II
HSK-A100-SLE32-120	○	HSK-A100	100	32	72	120	63	II

● Stock available ○ Produced by order

Face Milling Cutter Arbor

DIN69893

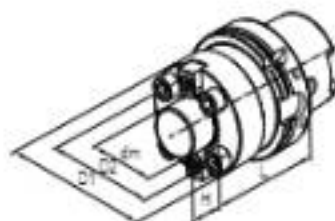


Product code	Stock		Dimension (mm)				
			Dn	dn	D	L	H
DIN69893							
HSK-A63-PM16-60	●	HSK-A63	63	16	35	60	17
-100	○	HSK-A63	63	16	35	100	17
HSK-A63-PM22-60	●	HSK-A63	63	22	48	60	19
-100	○	HSK-A63	63	22	48	100	19
HSK-A63-PM27-60	●	HSK-A63	63	27	60	60	21
-100	○	HSK-A63	63	27	60	100	21
HSK-A63-PM32-60	●	HSK-A63	63	32	78	60	24
-100	○	HSK-A63	63	32	78	100	24
HSK-A63-PM40-60	●	HSK-A63	63	40	99	60	27
HSK-A100-PM22-60	●	HSK-A100	100	22	48	60	19
-100	○	HSK-A100	100	22	48	100	19
HSK-A100-PM27-60	●	HSK-A100	100	27	60	60	21
-100	○	HSK-A100	100	27	60	100	21
HSK-A100-PM32-60	●	HSK-A100	100	32	78	60	24
-100	○	HSK-A100	100	32	78	100	24
HSK-A100-PM40-60	●	HSK-A100	100	40	99	60	27
-100	○	HSK-A100	100	40	99	100	27

● Stock available ○ Produced to order

Face Milling Cutter Arbor

DIN69893

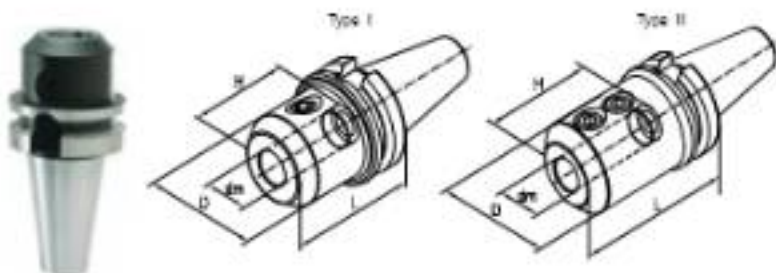


Product code	Stock		Dimension (mm)				
DIN69893			Dm	D1	D2	L	H
H9K-A100-FMC40-60	○	H9K-A100	40	100	66.7	60	37
H9K-A100-FMC60-75	○	H9K-A100	60	120	101.6	75	58

● Stock available ○ Produced by order

Side Lock Chuck, Weldon Type

JIS B6339

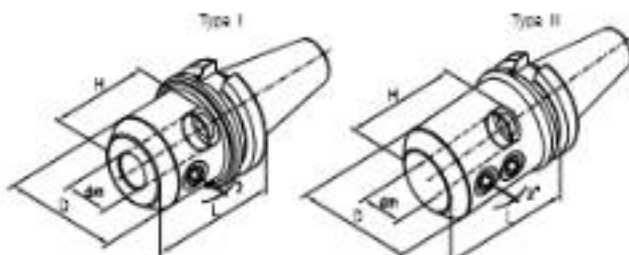


Product code	Stock		Dimension (mm)				Model
			6H	D	L	H	
JIS B6339-40							
BT40-SLB16-90	●	40	16	48	90	52	I
BT40-SLB20-100	●	40	20	52	100	54	I
BT40-SLB25-100	●	40	25	65	100	66	II
BT40-SLB32-100	●	40	32	72	100	70	II
BT50-SLB16-90	●	50	16	48	90	52	I
BT50-SLB20-100	●	50	20	52	100	54	I
BT50-SLB25-100	●	50	25	65	100	66	II
BT50-SLB32-100	●	50	32	74	100	70	II
BT50-SLB40-118	●	50	40	80	118	80	II

● Stock available ○ Produced to order

Side Lock Chuck, Whistle Notch Type

JIS B6339

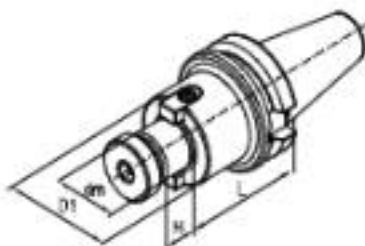


Product code	Stock		Dimension (mm)				Model
			dH	D	L	H	
JIS B6339-40							
BT40-SLE16-63	○	40	16	48	63	62	I
BT40-SLE20-63	●	40	20	52	63	54	I
BT40-SLE28-100	●	40	28	68	100	89	II
BT40-SLE32-100	●	40	32	72	100	63	II
BT50-SLE16-80	○	50	16	48	80	62	I
BT50-SLE20-80	●	50	20	52	80	54	I
BT50-SLE28-100	●	50	28	68	100	89	II
BT50-SLE32-100	●	50	32	72	100	63	II

● Stock available ○ Produced by order

Face Milling Cutter Arbor

JIS B6339

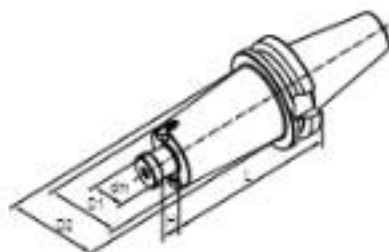


Product code	Stock		Dimension (mm)			
JIS B6339-A			d1	D1	L	H
BT40-FMA16-60	●	40	16	35	60	17
-100	○	40	16	35	100	17
-150	○	40	16	35	150	17
BT40-FMA22-60	●	40	22	45	60	19
-100	●	40	22	45	100	19
-150	●	40	22	45	150	19
BT40-FMA27-60	●	40	27	60	60	21
-100	○	40	27	60	100	21
-150	○	40	27	60	150	21
BT40-FMB32-60	●	40	32	75	60	24
BT40-FMB40-60	●	40	40	89	60	27

● Stock available ○ Produced to order

Face Milling Cutter Arbor

JIS B6339

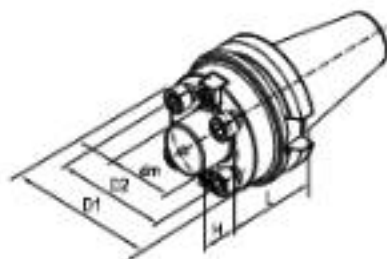


Product code	Stock		Dimension (mm)				
			d1	D1	D2	L	H
JIS B6339-A							
ST50-FM32-60	●	50	32	48	-	60	19
-100	●	50	32	48	-	100	19
-150	●	50	32	48	60	150	19
-200	●	50	32	48	60	200	19
-250	○	50	32	48	60	250	19
ST50-FM37-60	●	50	37	60	-	60	21
-100	●	50	37	60	-	100	21
-150	●	50	37	60	75	150	21
-200	○	50	37	60	75	200	21
-250	○	50	37	60	75	250	21
ST50-FM32-60	●	50	32	75	-	60	34
-100	○	50	32	75	-	100	34
-150	○	50	32	75	-	150	34
ST50-FM340-60	●	50	40	89	-	60	27
-100	○	50	40	89	-	100	27

● Stock available ○ Produced by order

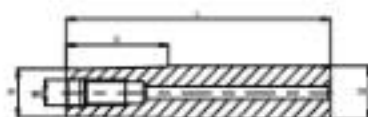
Face Milling Cutter Arbor

JIS B6339



Product code	Stock		Dimension (mm)				
			Dm	D1	D2	L	H
JIS B6339-A							
ET50-PL/040-60	●	50	40	108	66.7	60	27
ET50-PL/060-75	●	50	40	129	101.6	75	38

● Stock available ○ Produced by order

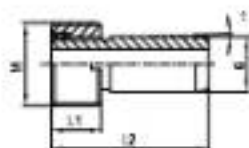
Head Taper Shank


Product code	Dimension (mm)					Coolant	Material
	MD	D1	d1	L	H		
AMD-M08-030-030-16T	M8	16	14.8	30	20		steel
AMD-M08-040-100-16T	M8	16	14.8	100	40		steel
AMD-M08-080-150-16T	M8	16	14.8	150	50		carbide
AMD-M08-150-200-16T	M8	16	14.8	200	150		carbide
AMD-M10-030-100-20T	M10	20	18	100	30		steel
AMD-M10-050-120-20T	M10	20	18	120	50		steel
AMD-M10-090-150-20T	M10	20	18	150	90		carbide
AMD-M10-140-200-20T	M10	20	18	200	140		carbide
AMD-M12-030-110-25T	M12	25	22.8	110	30		steel
AMD-M12-080-130-25T	M12	25	22.8	130	80		steel
AMD-M12-120-180-25T	M12	25	22.8	180	120		carbide
AMD-M12-140-250-25T	M12	25	22.8	250	140		carbide
AMD-M16-035-125-32T	M16	32	28.8	125	35		steel
AMD-M16-055-145-32T	M16	32	28.8	145	55		steel
AMD-M16-130-200-32T	M16	32	28.8	200	130		carbide
AMD-M16-180-250-32T	M16	32	28.8	250	180		carbide

Straight Shank


Product code	Dimension (mm)			Coolant	Material
	MD	D1	L		
AMD-M08-105-168	M8	16	105		carbide
AMD-M08-160-168	M8	16	160		carbide
AMD-M10-130-208	M10	20	130		carbide
AMD-M10-250-208	M10	20	250		carbide
AMD-M12-145-258	M12	25	145		carbide
AMD-M12-255-258	M12	25	255		carbide
AMD-M16-157-328	M16	32	157		carbide
AMD-M16-257-328	M16	32	257		carbide

HSK Coolant Tube



Product code	Stock		Dimension (mm)			
			M	G	L1	L2
CT-HSK63	●	HSK-63	M18 x 1	12	11.5	36.6
CT-HSK100	●	HSK-100	M24 x 1.5	18	18.5	44.2

● Stock available ○ Produced by order

ACHTECK

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CUTTING TOOL CATALOGUE

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Grade Conversion Table

Turning

ISO division	Mineral division	AGRICULTURE	COMMERCE	EDUCATION	HEALTH	HOUSING	INDUSTRY	TRANSPORTATION	SECURITY	ENTERTAINMENT	TECHNOLOGY	ARTS/CULTURE	WATER	ZOO
P	P10	AC1000	GC1010 GC1010	CE100	HC101 HC1010	HC1010 HC1010	CA101 CA1010	HC101 HC1010	TP1000 TP1001	AC1010 AC1000	TP1010	TP101 TP1010	WP100 WP1010	TC100 TC1010
	P20	AC2000	GC2020 GC2020	CE200	HC201 HC2010	HC2020 HC2020	CA201 CA2020	HC202 HC2020	TP2000 TP2001	AC2020 AC2020	TP2010	TP201 TP2010	WP200 WP2020	TC200 TC2020
	P30	AC3000	GC3030 GC3030	CE300	HC301 HC3010	HC3020 HC3020	CA301 CA3020	HC302 HC3020	TP3000 TP3001	AC3030 AC3030	TP3010	TP301 TP3010	WP300 WP3020	TC300 TC3020
M	M10	AP1000	GC1010 GC1010	CE101 CE1010	HC101 HC1010	HC1010 HC1010	CA101 CA1010	HC101 HC1010	TP1000 TP1000	AC1010 AC1010	TP1010	AP101 AP1010	WP101 WP1010	TC101 TC1010
	M20	AP2010	GC2020 GC2020	CE201 CE2010	HC201 HC2010	HC2020 HC2020	CA201 CA2020	HC202 HC2020	TP2000 TP2000	AC2020 AC2020	TP2010	AP201 AP2010	WP201 WP2010	TC201 TC2010
	M30	AP3010	GC3030 GC3030	CE301 CE3010	HC301 HC3010	HC3020 HC3020	CA301 CA3020	HC302 HC3020	TP3000 TP3000	AC3030 AC3030	TP3010	AP301 AP3010	WP301 WP3010	TC301 TC3010
K	K10	AC1000	GC2020 GC2020	CE100	HC100	HC100	CA100 CA1010	HC100 HC100	TP1001 TP1000	AC1010 AC1010	TP100	TP100	WP100 WP1010	TC100
	K20	AC1000 AC1010	GC2020 GC2020	CE100	HC101 HC1010	HC1010	CA101 CA1010	HC101 HC1010	TP1001 TP1000	AC1010 AC1000	TP1010	TP101 TP1010	WP100 WP1010	TC100 TC1010
	K30	AC1000	GC2020 GC2020	CE100	HC101 HC1010	HC1010	CA101 CA1010	HC101 HC1010	TP1001 TP1000	AC1010 AC1000	TP1010	TP101 TP1010	WP100 WP1010	TC100 TC1010
E	E10	AP1000	GC1010 GC1010	CE101 CE1010	HC101 HC1010	HC1010	CA101 CA1010	HC101 HC1010	TP1000 TP1000	AC1010 AC1010	TP1000	AP101 AP1010	WP101 WP1010	TC101 TC1010
	E20	AP2010	GC2020 GC2020	CE201 CE2010	HC201 HC2010	HC2020	CA201 CA2020	HC202 HC2020	TP2000 TP2000	AC2020 AC2020	TP2000	AP201 AP2010	WP201 WP2010	TC201 TC2010
	E30	AP3010	GC3030 GC3030	CE301 CE3010	HC301 HC3010	HC3020	CA301 CA3020	HC302 HC3020	TP3000 TP3000	AC3030 AC3030	TP3000	AP301 AP3010	WP301 WP3010	TC301 TC3010
N	N10	AP1000	N10	CE100	HC100	HC100	CA100	HC100	CE100	AC100	TP100	TP100	WP100	TC100

^a2000 control model

Turning Chip Breaker Conversion Table

Negative turning insert

Category	Sub-category	Region A										Region B										Region C										Region D									
		Sub-region A1					Sub-region A2					Sub-region B1					Sub-region B2					Sub-region C1					Sub-region C2					Sub-region D1					Sub-region D2				
Code	Name	Value 1	Value 2	Value 3	Value 4	Value 5	Value 6	Value 7	Value 8	Value 9	Value 10	Value 11	Value 12	Value 13	Value 14	Value 15	Value 16	Value 17	Value 18	Value 19	Value 20	Value 21	Value 22	Value 23	Value 24	Value 25	Value 26	Value 27	Value 28	Value 29	Value 30	Value 31	Value 32	Value 33	Value 34	Value 35	Value 36	Value 37	Value 38	Value 39	Value 40
A	A1	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400
		10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400
		10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400
		10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400
B	B1	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400
		10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400
		10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400
		10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400
C	C1	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400
		10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400
		10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400
		10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400
D	D1	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400
		10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400
		10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400
		10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400
E	E1	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400
		10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400
		10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400
		10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400

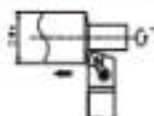
Turning Chip Breaker Conversion Table

Positive turning insert

ISO classification	Application	ACHTECK	COORMANT	EUROCARD	ISCAR	KENNAMETAL	KOBALDY	KODERA	MITUBISHI	SECO	SUMITOMO	TAKISUE	TUNGALOY	VALERIE	WALTER	ZCC
P M K	Turning		RS, LR		20, RS	SR 11, SR	VL, VR AD	SR SR, SR VR	RV	RP1	SL SL	SR SR	CL, PR PS		PR1, PR2	SR
		PR1, PR2						CR, SR SR, SR DR	SRV		PR	SR	LR			
	Bore milling		LM SR	RI	SR LR, SR	SR LR	VP VR, VR DR	SR SR	SR, SR	RI	PR SR SR, SR	PR		PRV PRV	PR2	SR
		PR2	PR1	SR		VP		SR				PR PR	PR2 PR			SR SR
N	Contouring		SR PR, LR SR	SR	SL, SR LR, SR	SR	CR	SR	VR, VR SR, SR G	RI	SR, SL	VR	PR	PRV	PRV SR, SR SR	SR
		PR2	SR	SR	SR, SR	SR	SR, SR	SR	SR	SR	SR, SR	SR	PR	PRV	PRV	SR

Turning Machining Formulas

● Cutting speed



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

V_c Cutting speed (m/min) n RPM
 D_c Cutting diameter (mm) f Feed rate (mm/rev)

● Feed speed

$$V_f = f \times n \quad (\text{mm/min})$$

V_f Cutting speed (mm/min) f Feed rate (mm/rev)
 n Spindle speed (rev/min)

● Chip thickness

$$h = f \times \sin \alpha \quad (\text{mm})$$

h Chip thickness (mm) f Feed rate (mm/rev)

● Chip width

$$b = \frac{ap}{\sin \alpha} \quad (\text{mm})$$

b Chip width (mm) ap Axial depth of cut (mm)

● Chip area

$$A = h \times b = ap \times f \quad (\text{mm}^2)$$

A Chip area (mm²) ap Axial depth of cut (mm)
 f Feed rate (mm/rev)

● Cutting force

$$F_c = K_c \times ap \times f \quad (\text{N})$$

F_c Cutting force (N) K_c Unit cutting force (N/mm²)
 ap Axial depth of cut (mm) f Feed rate (mm/rev)

● Cutting power

$$P_{\text{mot}} = \frac{K_c \times V_c \times ap \times f}{60000 \times \eta} \quad (\text{KW})$$

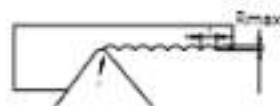
P_{mot} Cutting power (KW) K_c Unit cutting force (N/mm²)
 V_c Cutting speed (m/min) ap Axial depth of cut (mm)
 f Feed rate (mm/rev) η Machine efficiency

● Chip removal

$$Q = ap \times f \times V_c \quad (\text{cm}^3/\text{min})$$

Q Chip removal (cm³/min) ap Axial depth of cut (mm)
 f Feed rate (mm/rev) V_c Cutting speed (m/min)

● Theoretical surface roughness



$$R_{\text{max}} = \frac{f^2}{8 \times r} \times 1000 \quad (\mu\text{m})$$

R_{max} Theoretical surface roughness (μm)
 f Feed rate (mm/rev) r Corner radius (mm)

● Work time



$$T_c = \frac{L}{f \times n} \quad (\text{min})$$

T_c Turn time (min) f Feed rate (mm/rev)
 n Spindle speed (rev/min) L Working length (mm)

Turning Insert Normal Failures & Solutions

Failures	Pic.	Analysis	Solution
Flank wear		• Tool materials too soft • Excessive cutting speed • Less clearance angle • Less feed rate • Insufficient cooling	• Choosing high wear-resistance insert grade • Reduce cutting speed • Enlarge clearance angle • Increase feed rate
Crater wear		• Tool materials too soft • Excessive cutting speed • Excessive feed rate	• Choosing high wear-resistance insert grade • Reduce cutting speed • Reduce feed rate • Increasing the flow of coolant
Chipping		• Tool materials too hard • Less cutting strength	• Choosing tougher grade • Enhancing cutting edge strength
Deformation		• Tool materials too soft • Over strong cutting edge • Excessive cutting depth & feed rate • Insufficient cooling	• Choosing high wear-resistance insert grade • Reduce cutting speed • Reduce cutting depth & feed rate • Choosing good thermal conductivity grade • Increasing the flow of coolant
Built-up edge		• Less cutting speed • Cutting edge not sharp • Unsuitable grade • Insufficient cooling	• Increase cutting rate • Choosing sharp geometry • Choosing less adhesion grade • Increasing the flow of coolant
Mechanical wear		• Excessive feed rate and cutting depth • Vibration	• Choosing tougher grade • Enlarge feed angle • Choosing bigger corner radius • Change to strong rigidity holder
Thermal cracking		• Excessive cutting heat • Change of edges	• Choosing dry cutting or adequate cooling • Choosing tougher grade
Peripheral wear		• Excessive feed rate & cutting speed • Tool materials too soft	• Choosing high wear-resistance tool grade • Enlarge rake angle leads to sharp edge • Reduce cutting speed
Coating peeling		• Sticky chip on the cutting edge • Chip evacuation failure	• Enlarge rake angle leads to sharp edge • Use chip breaker with bigger space

Milling Grades Conversion Table

ISO classification	ACHTECK	COMMAWAT	ISCAR	KERNAMETAL	KORLOY	KYOCERA	METABOND	SECO	SUMIKAGE	TUNGTEC	TUNGALOY	WALDR
P	AP301U AC301P	QC4220 QC4230	IC990	HC622M HC625M	PC3600 PC3650 PC3615 PC3625	PR600 PR660 PR730	VP18TF	MP1800 MP2800 T250M		TT7080 TT7030	T3130 AH330	WKP25 WMA10 WMA30
	AP351U	QC1030 QC4240	IC808 IC908	HC622M HC625M HC728M	PC3600 NC8330 PC9830	PR6025 PR630	VP18TF VP23RT	F30M MP3000	ACP2000	TT9080 TT9030	AH120 AH728 AH750 QH350	WMA30
	AP401U	QC1040	IC820 IC230 IC928	HC728M HC928M	PC3645		VP30RT F-H7020M F7030	F40M MP2800	ACP300 AC2380	TT8020 TT7500 TT8080	AH140 T3130 AH130	WKP235 WSP45 WSP45
M	AP301U	QC1030 QC2030	IC808 IC908	HC628M	PC8000 NC8330 PC9830	PR730 PR630 PR925 PR1025	VP18TF	MP2500 F30M	ACP2000	TT8000 TT9080	T3130 AH728 AH120	WMA30 WMA35
	AP351U	QC2040 S47T	IC830 IC330 IC918	HC728M	PC3645 PC8300	PR1328 PR908	VP30RT MP9030 F7030	F40M MA4800 MS2500	ACP300 EH25Z B-H20Z	TT8030 TT8080	AH130 AH140 SH730	WMA35 WMA35 WSP45
K	AC301K AP351K	QC3220 QC4220	IC810 IC910	KCH15 HC820M	PC6810 PC218K PC8300	PR908 PR610 PR610	NC8020 VP18TF MP8010	MA2080 MA2000 MA2020	ACH2000 ACH3000 AC2310	TT6080	T1118 AH120 QH110	WKP25 WKP35

High Feed Cutter AHM15-XD Application Information

Face milling	Maximum milling depth a_p (mm)		
	a_p (mm)	XD.0904	XD.1208
		1.8	2.8

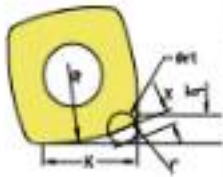
Ramping	Maximum bevel				
	D_a (mm)	XD.0904		XD.1208	
		Maximum bevel A	Maximum bevel B	Maximum bevel A	Maximum bevel B
	25	2.80°	6.50°	-	-
	32	1.50°	5.00°	-	-
	40	0.80°	2.70°	-	-
	50	-	-	0.3°	2.7°
	63	-	-	0.4°	1.8°
	80	-	-	0.48°	1.5°
	100	-	-	0.32°	1.48°
	125	-	-	0.24°	1.08°

A-Maximum bevel angle of full for corner B-Maximum bevel of full corner + radius

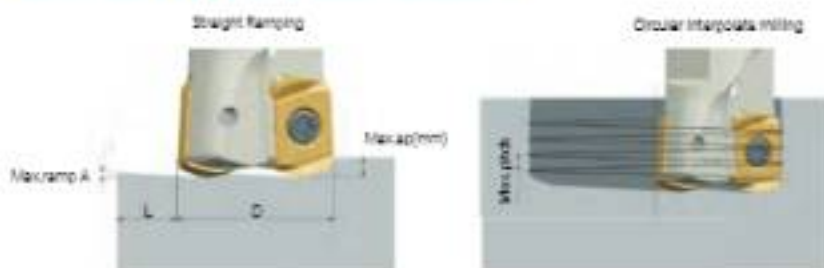
Plunging	Maximum milling depth a_p (mm)		
	D_a (mm)	XD.0904	XD.1208 Maximum bevel A
	25	6.0	-
	32	6.0	-
	40	6.0	-
	50	6.0	-
	63	-	9.0
	80	-	9.0
	100	-	9.0
	125	-	9.0
	160	-	9.0
	200	-	9.0

Circular interpolation milling		Diameter range of hole that can be milled in one pass (mm)			
	D _t (mm)	XD.0904		XD.1208	
		D _h min (mm)	D _h max (mm)	D _h min (mm)	D _h max (mm)
	28	30	80	-	-
	32	31	84	-	-
	40	37	90	-	-
	50	37	100	-	-
	52	-	-	87.2	104
	63	-	-	109.2	126
	66	-	-	115.2	132
	80	-	-	143.2	160
	100	-	-	183.2	200
	128	-	-	235.2	280

Programming information

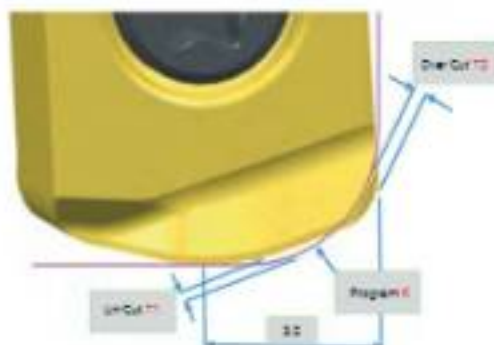
Circular interpolation milling							
	insert insert	R	r	r _t	k	kr	X
	XD.090408	17	3.8	2.0	6.5	1.9	1.47
	XD.120808	22.8	3.8	2.5	8.4	2.4	1.00
	XD.120812	20	1.2	3.0	3.3	2.8	0.86
	XD.120820	20	2.0	3.0	3.0	3.4	0.90
When programmed with the theoretical tool radius "r _t ", the maximum deviation shown above is produced with the final contour. Minor deviations that occur only in rounded corners can be corrected by other tools in subsequent process.							

High Feed Cutter AHM20-LN06 Application Information



Cutter Dia(φ)	Straight ramp down			Circular interpolate milling	
	Max.ramp-A	Max.ap(mm)	Min.Length-L(mm)	Min.Dia.(mm)	Max.Dia.(mm)
φ16	2.0°	0.7	13.8	23	33
φ17	2.6°	0.7	15.4	25	34
φ20	1.0°	1.0	20.1	31	42
φ21	1.2°	1.0	21.8	33	42
φ25	1.3°	1.0	44.0	41	50
φ26	1.3°	1.0	44.0	43	52
φ32	0.9°	1.0	63.6	55	64
φ33	0.9°	1.0	63.6	57	66
φ40	0.7°	1.0	91.8	71	80
φ50	0.5°	1.0	114.3	91	100
φ63	0.4°	1.0	143.2	117	126

NC Program Radius



Technical Information for NC program

Program R	Un-Cut T1	Over-Cut T2
R1.5	0.40	0
R2.0	0.29	0.06
R2.5	0.15	0.24

Note: select R1.5 as program R, without over-cut.

Ramping Milling Parameters

Ramping		Maximum angle A (°)				
	Dφ(mm)	Indovable inserts diameter d (mm)				
		d8	d10	d12	d16	d20
	28	3.2	6.5	-	-	-
	32	-	3.0	4.3	-	-
	40	-	1.4	3.0	-	-
	50	-	2.0	2.1	-	-
	63	-	-	1.5	2.6	-
	80	-	-	1.4	1.4	-
	100	-	-	-	1.0	1.3
	128	-	-	-	-	0.9
	160	-	-	-	-	0.7
	40 max(mm)	6.6	8.8	10.7	14	17.2

Circular Interpolate Milling Parameters

Actual circular interpolate milling data on workpiece		Diameter range of the hole that can be milled by one pass (mm)									
	Dφ(mm)	Indovable inserts diameter d (mm)									
		d8		d10		d12		d16		d20	
		50 min (mm)	50 max (mm)	50 min (mm)	50 max (mm)	50 min (mm)	50 max (mm)	50 min (mm)	50 max (mm)	50 min (mm)	50 max (mm)
	28	31.2	30	32	30	-	-	-	-	-	-
	32	-	-	46	44	42.5	44	-	-	-	-
	40	-	-	62	60	60	60	-	-	-	-
	50	-	-	92	100	78.5	100	97.5	126	-	-
	63	-	-	-	-	104.5	126	131.5	160	-	-
	80	-	-	-	-	138	160	171.5	200	-	-
	100	-	-	-	-	-	-	-	-	165.5	200
	128	-	-	-	-	-	-	-	-	215.5	230
	160	-	-	-	-	-	10.7	-	-	265.5	300

Milling General Formula

● Cutting speed

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

V_c Cutting speed (m/min) n RPM
 D_c Cutter diameter (mm) n Spindle speed (rev/min)

● Spindle speed

$$n = \frac{1000 \times V_c}{\pi \times D_c} \quad (\text{rev/min})$$

V_c Cutting speed (m/min) n RPM
 D_c Cutter diameter (mm) n Spindle speed (rev/min)

● Feed speed

$$VF = fz \times n \times Z \quad (\text{mm/min})$$

Vf Feed speed (mm/min) fz Feed per tooth (mm/z)
 n Spindle speed (rev/min) Z Number of teeth

● Feed rate per rev

$$fz = \frac{VF}{n \times Z} \quad (\text{mm/z})$$

fz Feed rate per rev (mm/z) Vf Feed speed (mm/min)
 n Spindle speed (rev/min) Z Number of teeth

● Feed rate per rev

$$f = \frac{VF}{n} \quad (\text{mm/rev})$$

f Feed rate per rev (mm/rev) Vf Feed speed (mm/min)
 n Spindle speed (rev/min)

● Time of cut

$$T_c = \frac{L}{VF} \quad (\text{min})$$

T_c Time of cut (min) L Length of feed (mm)
 Vf Feed speed (mm/min)

● Horse power

$$Hp = \frac{P_{mot}}{0.75}$$

Hp Horse power P_{mot} Motor power (KW)

● Power demand

$$P_{mot} = \frac{ap \times ae \times Vf \times K_c}{6 \times 10^7 \times \eta} \quad (\text{KW})$$

P_{mot} Motor power (KW) ap Cutting depth ae Cutting width
 Vf Feed speed (mm/min) K_c Cutting coefficient (N/mm²) η Efficiency (0.7-0.9)

● Average chip thickness

$$h_m = \frac{114.7 \times fz \times \sin \alpha + (ae/D_c)}{\phi \times 2} \quad (\text{mm})$$

h_m Average chip thickness fz Feed per tooth (mm/z)
 ae Cutting width D_c Cutter diameter (mm) α Pressure angle

● Feed force

Cut in the perpendicular

$$\psi_s = 2 + \arcsin \left(\frac{ae}{D_c} \right) \quad (^\circ)$$

Cut in the parallel

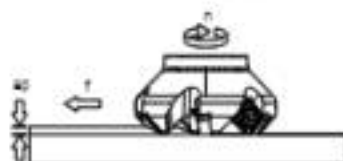
$$\psi_s = 90^\circ + \arcsin \frac{ae - (D_c/2)}{(D_c/2)} \quad (^\circ)$$

α Pressure angle ae Cutting width
 D_c Cutter diameter (mm)

● Chip removal

$$Q = \frac{ap \times ae \times Vf}{1000} \quad (\text{cm}^3/\text{min})$$

Q Chip removal (cm³/min) ap Cutting depth
 ae Cutting width Vf Feed speed (mm/min)



Drilling General Recommendation

Cutting speed

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

V_c Cutting speed (m/min) $n \times 0.1$

D_c Drill diameter (mm) n Spindle speed (rev/min)

Spindle speed

$$n = \frac{1000 \times V_c}{\pi \times D_c} \quad (\text{rev/min})$$

V_c Cutting speed (m/min) $n \times 0.1$

D_c Drill diameter (mm) n Spindle speed (rev/min)

Feed speed

$$V_f = f_z \times n \times Z \quad (\text{mm/min})$$

V_f Feed speed (mm/min)

f_z Feed per tooth (mm/z)

n Spindle speed (rev/min)

Z Number of teeth

Feed rate per rev

$$f_z = \frac{V_f}{n \times Z} \quad (\text{mm/z})$$

V_f Feed speed (mm/min)

n Spindle speed (rev/min)

Z Number of teeth

Feed rate per rev

$$f = \frac{V_f}{n} \quad (\text{mm/rev})$$

V_f Feed speed (mm/min)

n Spindle speed (rev/min)

Chip removal

$$Q = \frac{V_f \times \pi \times D_c^2}{4 \times 1000} \quad (\text{cm}^3/\text{min})$$

Q Chip removal (cm³/min) V_f Feed speed (mm/min)

$n \times 0.1$ D_c Drill diameter (mm)

Horse power

$$H_p = \frac{P_{mot}}{0.75}$$

H_p Horsepower P_{mot} Power (kW)

Power demand

$$P_{mot} = \frac{Q \times K_z}{60000 \times \eta} \quad (\text{KW})$$

P_{mot} Power (kW) Q Chip removal (cm³/min)

K_z Unit cutting force (N/mm²)

η Machine efficiency coefficient (0.7-0.85)

Torque

$$M_c = \frac{D_c^2 \times K_z \times f}{8000} \quad (\text{Nmm})$$

M_c Torque

D_c Drill diameter (mm)

K_z Unit cutting force (N/mm²) f Feed rate per rev (mm/rev)

Feed force

$$F_f = 0.63 \times \frac{f \times D_c \times K_z}{2} \quad (\text{N})$$

F_f Feed force

f Feed rate per rev (mm/rev)

D_c Drill diameter (mm)

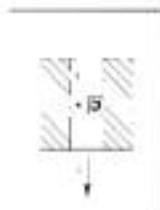
K_z Unit cutting force (N/mm²)

Cutting thickness

$$h = f_z \times \sin \alpha \quad (\text{mm})$$

h Cutting thickness (mm)

f_z Feed rate (mm/z)



Hardness Conversion Table

Brinell Hardness 10 ball load 3000kg		Micro Vickers Hardness HV	Rockwell Hardness				Shore Hardness	Tensile Strength (approximate) kgf/mm ²
Master ball	WC ball HB		A scale 60kgf diamond brake HRA	B scale 100kgf 1/16in ball HRB	C scale 150kgf diamond brake HRC	D scale 100kgf diamond brake HRD		
-	-	1365	92.0	-	92	-	-	-
-	-	1787	91.5	-	79	-	-	-
-	-	1710	91.0	-	78	-	-	-
-	-	1693	90.8	-	77	-	-	-
-	-	1556	90.0	-	76	-	-	-
-	-	1478	89.5	-	75	-	-	-
-	-	1400	89.0	-	74	-	-	-
-	-	1323	88.5	-	73	-	-	-
-	-	1245	88.0	-	72	-	-	-
-	-	1167	87.0	-	71	-	-	-
-	-	1075	86.5	-	70	-	-	-
-	-	1004	86.0	-	69	-	-	-
-	-	940	85.5	-	68.0	79.8	97	-
-	-	920	85.3	-	67.5	79.5	96	-
-	-	900	85.0	-	67.0	79.1	95	-
-	767	880	84.7	-	66.4	78.7	93	-
-	757	860	84.4	-	65.9	78.3	92	-
-	748	840	84.1	-	65.5	74.8	91	-
-	723	820	83.8	-	64.7	74.3	90	-
-	723	800	83.4	-	64.0	73.8	88	-
-	712	-	-	-	-	-	-	-
-	710	780	83.0	-	63.3	73.3	87	-
-	698	760	82.6	-	62.5	72.8	86	-
-	684	740	82.3	-	61.8	72.1	-	-
-	682	727	82.0	-	61.7	72.0	84	-
-	670	720	81.8	-	61.0	71.5	83	-
-	666	700	81.3	-	60.1	70.8	-	-
-	663	697	81.2	-	60.0	70.7	81	-
-	647	690	81.1	-	59.7	70.6	-	-
-	638	680	80.8	-	59.2	70.1	80	-
-	630	670	80.5	-	58.5	69.8	-	-
-	627	667	80.3	-	58.7	69.7	79	-
-	601	640	79.8	-	57.8	68.7	77	-
-	578	615	79.1	-	56.0	67.7	75	-
-	555	591	78.4	-	54.7	66.7	73	210
-	554	569	77.8	-	53.5	65.8	71	202
-	514	547	76.9	-	52.1	64.7	70	193
-	495	528	76.3	-	51.0	63.8	68	186
-	477	508	75.6	-	49.6	62.7	66	177
-	461	491	74.9	-	48.5	61.7	65	170
-	444	472	74.2	-	47.1	60.8	63	162
420	429	458	73.4	-	45.7	59.7	61	154
415	415	440	72.8	-	44.5	58.8	59	149
401	401	425	72.0	-	43.1	57.8	58	142
388	388	410	71.4	-	41.8	56.8	56	136
375	375	394	70.6	-	40.4	55.7	54	129
363	363	380	70.0	-	39.1	54.6	52	124
352	352	372	69.3	(110.0)	37.9	53.8	51	120
341	341	360	68.7	(109.0)	36.5	52.8	50	115
331	331	350	68.1	(108.8)	35.6	51.9	48	112
321	321	339	67.5	(108.0)	34.3	51.0	47	108
311	311	328	66.9	(107.8)	33.1	50.0	46	105
302	302	319	66.3	(107.0)	32.1	49.3	45	103
293	293	309	65.7	(106.0)	30.9	48.3	43	99
285	285	301	65.3	(105.8)	29.9	47.6	-	97
277	277	292	64.6	(104.8)	28.3	46.7	41	94

Hardness Conversion Table

Brinell Hardness 10 ball load 3000kg		Micro Vickers Hardness HV	Rockwell Hardness				Shore's Hardness	Tensile Strength (approximate) kgf/mm
Master ball	WC ball HB		A scale 60kgf diamond brake HRA	B scale 100kgf 1/16in ball HRB	C scale 150kgf diamond brake HRC	D scale 100kgf diamond brake HRD		
260	260	264	64.1	(154.0)	28	48.9	40	91
262	262	276	65.6	(153.0)	27	48.0	39	89
266	266	269	65.0	(152.0)	26	44.2	38	86
248	248	261	62.8	(151.0)	24	43.2	37	84
241	241	283	61.8	100	23	42.0	36	82
236	236	247	61.4	99	22	41.4	35	80
220	220	241	60.8	98.2	21	40.8	34	78
223	223	234	-	97.3	(18.8)	-	-	-
217	217	223	-	96.4	(17.8)	-	33	74
212	212	222	-	95.6	(16.0)	-	-	72
207	207	218	-	94.6	(15.2)	-	32	70
201	201	212	-	93.8	(13.8)	-	31	68
197	197	207	-	92.8	(12.7)	-	30	67
192	192	202	-	91.9	(11.8)	-	29	66
187	187	196	-	90.7	(10.0)	-	-	62
183	183	192	-	90	(9.0)	-	28	63
179	179	182	-	89	(8.2)	-	27	61
174	174	182	-	87.8	(6.4)	-	-	60
170	170	178	-	86.8	(5.4)	-	26	58
167	167	175	-	86	(4.4)	-	-	57
163	163	171	-	85	(3.3)	-	25	56
156	156	163	-	82.9	(5.9)	-	-	53
149	149	166	-	80.8	-	-	23	51
143	143	160	-	78.7	-	-	22	50
137	137	143	-	76.4	-	-	21	47
131	131	137	-	74	-	-	-	46
126	126	132	-	72	-	-	20	44
121	121	127	-	69.8	-	-	19	42
116	116	122	-	67.6	-	-	18	41
111	111	117	-	65.7	-	-	17	39

Material Conversion Table

ISO	Country and standard										
	China	International	Germany	USA	U.K.		France	Sweden	Nip.	Spain	Japan
	GB	DN	EN	AISI/SAE	BS	PH	AFNOR	SS	UNI	UNE	JIS
S	Structural steel										
	15	C15	1.0021	1015	080M15	-	CC12	1205	C15C15	S111	-
	20	C22	1.0023	1020	080A30	20	CC20	1205	C20C20	S112	-
	25	C25	1.0027	1025	080A35	-	CC25	1205	C25	S113	-
	28	C28	1.0033	1028	080M40	-	CC28	1205	C28	S114	-
	35	C35	1.0035	1035	070M35	-	-	1205	C35	-	-
	40	C40	1.0037	1040	080A52	40	CC35	-	C40	-	-
	45	45Mn2	1.0715	1045	030M47	-	S235	1212	C45Mn2	113Mn2	S45C
	-	50MnPS20	1.0718	1045	-	-	S235PS	1212	C45MnPS20	113MnPS20	S45C2L
	-	100Mn20	1.0722	-	-	-	100Mn2	-	C100Mn20	100Mn20	-
	-	20Mn2	1.0728	1140	212M28	20	20Mn2	1207	-	S2100	-
	47S	45Mn2	1.0728	1045	030M47	48	S235	-	C45Mn2	120Mn2	-
	-	50MnPS20	1.0727	1045	-	-	S235PS	1205	C45MnPS20	120MnPS20	-
	55S2Mn	55S2	1.0920	9025	20CA52	15	55S2	2005	55S2	55S2	-
	-	60S2C7	1.0941	9042	-	-	60S2C7	-	60S2C6	60S2C6	-
	18	Q18	1.1121	1018	080M18	18	18C18	1212	C18	C18C	S18C
	20Mn	20Mn2	1.1127	1020	180M28	18	20Mn	-	-	-	-
	25	Q25	1.1129	1025	-	-	-	-	-	-	S25C
	25Mn2	25Mn2	1.1127	1025	-	-	25Mn2	2120	-	25Mn2	S25Mn2(4)
	30Mn	20Mn2	1.117	1020	150M22	1.24	20Mn	-	C20Mn	-	S20Mn
	30Mn	Q30	1.1183	1025	080A35	-	X20Mn2	1212	C30	-	S30C
	Q30	45	1.1191	1028	080M48	-	30C35	1212	C45	C30C	S30C
	35	Q35	1.1203	1035	070M35	-	30C35	-	C35	C35C	S35C
	40	Q40	1.1213	1040	080A52	-	X20Mn2	1212	C40	-	S40C
	40Mn	Q40	1.1221	1040	080A52	40	30C40	1212	C40	-	S40C
	-	Q40C1	1.1214	1045	080A55	-	-	1212	-	-	S40C
	-	X120Mn12	1.2021	-	2120M12	-	X120M12	-	X2120M12	X120M12	S21Mn1
	50C18	100Mn	1.2025	S1120	50Mn2	21	100Mn	2005	100Mn	S121	S45C
	-	18Mn2	1.2018	ASTM A228M/A	1801-240	-	18C3	2112	18Mn2C10	18Mn2	-
	-	18Mn2	1.2028	ASTM A228M/A	1803-240	-	-	-	18Mn2	18Mn2	-
	-	12Mn	1.2022	ASTM A228M/A	-	-	12Mn	-	12Mn	12Mn	-
	-	X21Mn	1.2022	ASTM A228M/A	1801-240	-	-	-	X121Mn	X21Mn	-

Material Conversion Table

ISO	Country and standard										
	China	International	Germany	U.S.A.	U.K.		France	Sweden	Italy	Spain	Japan
	GB	EN	EN	AISI/SAE	BS	BS	AFNOR	S	UNI	UNE	JIS
S	Structural steel										
	-	12V19	1.8503	2515	-	-	21815	-	-	-	-
	-	38V105	1.8710	2120	610A20	111A	25V105	-	-	-	SWC330
	-	18V1010	1.8722	2215	-	-	14V111	-	18V1011	18V1011	SWC315 (H)
	-	18V1014	1.8722	24183310	688H1388B412	38A	12V118	-	-	-	SWC315 (H)
	-	28V1016	1.8811	2202	218V102	110	42V102	-	28V1016 (H)	28V1016	-
	-	21V1012	1.8533	2202	220V102	242	20V102	2202	20V1012	20V1012	SWC4225 (H)
	-	20V1012	1.8538	2142	2117Type7	-	-	-	20V1012 (H)	20V1012	SWC330
	42V1016A	20V1016	1.8582	2202	211V102	24	20V102	2202	20V1016 (H)	-	-
	-	110V1016	1.8597	-	220A16	-	18V102	-	-	142V1016	-
	180	180A	1.7018	2018	220V18	-	1202	-	-	-	20V180A
	280	280A	1.7028	2120	220A20	130	2202	-	240A100	280A	20V180A
	220	210A	1.7025	2142	220V102	18	1202	-	210A	220A	20V102A
	220	220A	1.7025	2142	-	-	-	2202	-	220A	20V102
	180V18	180V1012	1.7121	2112	221V102	-	18V102	2211	180V1012	180V1012	-
	220V18	220V	1.7119	2120	221A20	18	2202	-	-	-	SWP9A
	220V18	220V18	1.7218	2120	1717022112	-	2202A	2228	220V18 (H)	220V	20V120, 20V120
	280V18	280V18	1.7220	2120	220A27	130	2202A	2231	280V18	280V18	20V120, 20V120
	220V18A	210V18	1.7223	2142	220V102	19A	1202015	2231	210V18	210V18	20V120
	220V18 (220V18A)	220V18	1.7225	2142	220V102	19A	1202A	2231	220V18	220V18	20V120(H)
	-	120V18	1.7242	-	-	-	1202A	2218	-	120V18	20V120A
	-	120V18	1.7225	ASTM A1027 F12	1801-6202-27	-	18022.5 18022.5	-	120V18	120V18	-
	-	220V1812	1.7241	-	723V102	608	220V18	2230	220V1812	2122A	-
	-	100V1810	1.7280	ASTM A1027 F12	1201-6202-21.25	-	12022.10	2218	100V1810	7U.4	-
	-	120V182	1.7715	-	1202-6202-102	-	-	-	-	120V182	-
	220V18	220V18	1.8159	2120	723A20	47	2202A	2230	220V18	210V18	SWP10
	-	210V1817	1.8209	-	908V102	218	100A2012	2230	210V1817	210V1817	-
	-	220V181128	1.8223	-	221V102	402	-	-	220V1812	-	-

Material Conversion Table

ISO	Country and standard										
	China	International	Germany	USA	U.K.		France	Sweden	Italy	Spain	Japan
	GB	ISO	Werk	AISI/SAE	BS	BS	AFNOR	SS	UNI	UNE	JIS
S	Tool steel										
	T12	C12SW	1.1525	W110	-	-	Y112S	1880	D2W D12SW	S215 S215	-
	T13A	C12SW	1.1883	W112	-	-	Y213S	-	D12SW	(D12)	S420
	9Cr15	100Cr6	1.2087	L6	S6	-	Y100Cr6	-	-	100Cr6	-
	9Cr5	X2100Cr12	1.2080	S8	S08	-	X2100Cr12	-	X2100Cr12U X2500Cr12U	X2100Cr12	S401
	9Cr5WV8	X100CrWV8.1	1.2334	W12	S412	-	X100CrWV8	S412	X100CrWV8W X2500CrWV8W	X100CrWV8	S4061
	9CrWV	X100CrWV8.1	1.2382	A2	S42	-	X100CrWV8	S280	X100CrWV8TU	X100CrWV8	S4012
	9CrW6	108W6	1.2610	-	-	-	108W6T3	2140	108W6 108W6W	108W6	S4331 S432 S432
	9Cr12W	X2100CrW12	1.2636	-	-	-	-	S212	X2100CrW12 W	X2100CrW12	S432
	9CrW6Mo	65WCr17	1.2833	S7	S67	-	-	S710	65WCr16W	65WCr16	-
	9Cr12WV	X250CrWV9 X250CrWV12W	1.2831	A21	S421	-	X250CrWV9	-	X250CrWV9W X250CrWV12W	X250CrWV9	S435
	9Cr12MoV	X1650CrMoV12	1.2807	-	-	-	-	S210	X1650CrMoV12W	X1650CrMoV12	S4311
	9CrMo	25CrMo4W6	1.2713	L6	-	-	25CrMoV7	-	-	A251.3	S471
	V	100V1	1.3339	W215	S42	-	Y110S1	-	-	-	S4343
	W18Cr4V2Co8	58Cr4V2	1.3333	-	-	-	288W4CrV	S733	488Cr4V2	488Cr4V2	S4433
	W18Cr4VCo8	57Cr4V2S	1.3335	T6	S76	-	288W4CrV 10Cr5W2Co9	-	X78W4Cr1808W	W218Cr4V2S	S443
	W18Cr4V12	58Cr4V2	1.3333	M2	S42	-	288W4CrV 28Cr5W2Co9	S733	X250W4Cr1808W	488Cr4V2	S449
	-	52Cr4V2	1.3335	M7	-	(M2 M)	2100W4CrV 28Cr5W2Co9	S782	482Cr4V2	482Cr4V2	-
	W18Cr4V	51Cr4V1	1.3335	T1	S71	-	288W4CrV 18Cr4V1	-	X78W18W	4818Cr4V1	S442
	W18Cr4V13	58Cr4V2	-	M2	-	-	-	-	-	-	S4432
	-	-	-	M42	S443	-	-	-	-	-	S4439

Material Conversion Table

ISO	Country and standard									
	China	International	Germany	U.S.A.	U.K.		France	Sweden	Italy	Spain
	GB	EN	DIN	AISI/SAE	BS	BS	AFNOR	SS	UNI	UNE
A2-70	Stainless steel									
	S304 1010	A23	1.4300	A23	A2307	+	S304	A2307	X304	A2307
	-	-	1.4301	-	-	-	-	-	-	-
	1010	A10	1.4308	A10	A10001	88A	X10001	A1001	X10001	A1001
	1017	A20	1.4318	A20	A2001	80	X2001	A2001	X2001	A2001
	3010	A10	1.4301	A10	880	880/880	X880	-	X880	A880
	-	-	1.4307	-	A2000	880	-	-	-	-
	A2010	-	1.4304	-	A2000	880	X880	A2001	X880	A2001
	1017V02	A21	1.4307	A21	A2100	87	X10001	A2101	X10001	A2101
	1017V05	A20F	1.4304	A20F	-	-	X10001	A2001	X10001	A2001
	1017V06	A20	1.4318	A20	A2001	+	X2001	A2001	X2001	-
	-	-	1.4319	-	A2001	+	-	-	-	-
	-	-	1.4308	-	A1001	-	-	-	-	-
	A2002	A10	1.4318	A10	A2100	80	X10001	-	X10001	A2101
	A2104	A20	1.4304	A20	A2001	+	X10001	-	X10001	A2101
	A21	A20	1.4318	A20	A2001	80	X2001	-	X2001	A2001
	A2000V01	A10V01	1.4307	A10V01	A2000	88	X880	A2001	X880	A2001
	A2000	A10	1.4308	A10	-	-	X10001	A2001	X10001	-
	Austenitic stainless steel									
	A2000V01	X10001V01	1.4307	A20	A2001	88	X880	A2001	X880	A2001
	1017V02V01	X10001V01	1.4307	A20	A2001	88A	X10001	A2001	X10001	A2001
	A2000V01	X10001V01	1.4308	A20L	A2001	+	A2001	A2001	X10001	A2001
	-	A2000V01	1.4308	-	A2001	-	A2001	-	-	-
	A2001	X10001V01	1.4318	A20	-	+	A2001	A2001	X10001	A2001
	-	X10001V01	1.4311	A20L	A2001	+	A2001	-	-	-
	A2000V01	X10001V01	1.4308	A20	A2001	88	A2001	-	X10001	A2001
	A2000V01V01	X10001V01V01	1.4307	A20	A2001	88A	X10001	A2001	X10001	A2001
	A2000V01V02	X10001V01V02	1.4308	A20L	A2001	+	A2001	A2001	X10001	A2001
	A2000V01V03	X10001V01V03	1.4308	A20L	A2001	+	A2001	A2001	X10001	A2001
	A2000V01V04	X10001V01V04	1.4308	A20L	A2001	+	A2001	A2001	X10001	A2001
	A2000V01V05	X10001V01V05	1.4308	A20L	A2001	+	A2001	A2001	X10001	A2001
	-	X10001V01V05	1.4308	A20L	-	-	-	-	-	-

Material Conversion Table

ISO	Country and standard										
	China	International	Germany	U.S.A.	U.K.		France	Sweden	Italy	Spain	Japan
	GB	ISO	Werk	AISI/SAE	BS	SI	AFNOR	SS	UNI	UNE	JIS
A	Austenitic stainless steel										
	1Cr18Ni9Ti	X8CrNi19Ti16	1.4301	321	2327	201S12	28CrNi19Ti10	308	X8CrNi19Ti16	A321	SUS321
	1Cr18Ni11Nb	X8CrNi18Nb10	1.4303	307	201S17	304	28CrNi18Nb10	308	X8CrNi18Nb10	A304	SUS304
	0Cr18Ni12Mo2Ti	X6CrNiMo181222	1.4363	316Ti	200S17	304L	28CrNi18Ti12	2805	X6CrNiMo1812	A316	-
	-	01X3CrNiMo181210	1.4361	-	216C7	-	28CrNi18Ti12M	-	X6CrNiMo1812	-	90303
	0Cr17Ni12Mo2Nb	X12CrNiMo171212	1.4362	316	-	-	28CrNi17Ti12Nb	-	X8CrNiMo17Ti12	-	-
	1Cr12Ni12	X12CrNi1212	1.4308	309	201S20	-	215CrNi201	-	-	-	SUS309
	00Cr19Ni10	X12CrNi1910	1.4305	316L	215S20	-	215CrNi202	2805	X8CrNi202	A321	SUS316
	0Cr19Ni10Ti	X12CrNi1910Ti	1.4304	316L	-	-	215CrNi201	-	-	-	SUS316L
	-	01X2CrNi1910Ti	1.4303	-	200C11	-	-	-	X8CrNi1910Ti	-	SUS316
B	00Cr19Ni10Ti	X12CrNi1910Ti	1.4301	316L	215S21	201S20	215CrNi101	-	X8CrNi1910Ti	-	SUS316L
	1Cr18Ni9Ti	X12CrNi1810	1.4308	321	215S20	304	28CrNi1810	-	X8CrNi1810	A321	SUS321

ISO	Country and standard								
	China	Germany	U.S.A.	U.K.	France	Sweden	Italy	Spain	Japan
	GB	Werk	ASTM/AISI	BS	AFNOR	SS	UNI	UNE	JIS
C	Ferritic cast iron								
	QT600-18	GGG50	60-40-18	600/17	FG600-17	DT17-02	GGG17-17	FG600-17	FC600
	QT600-10	—	60-40-10	600/12	FG600-12	—	GGG12-12	FG600-12	FC600
	QT600-7	GGG40	70-30-05	600/7	FG600-7	DT27-02	GGG27-7	FG600-7	FC600
	QT600-3	GGG40	60-40-03	600/7	FG600-2	DT30-03	GGG30-3	FG600-3	FC600
	QT600-2	GGG70	100-10-03	700/2	FG670-2	DT37-01	GGG70-2	FG670-2	FC670
	QT600-2	GGG40	120-10-02	600/2	FG600-2	100-10	GGG10-2	FG600-2	FC600
	QT600-2	—	—	600/2	—	—	—	—	—
	Grey cast iron								
	—	GG10	HC10	—	FG100	DT10	—	—	—
D	HT200	GG20	HC20	200	FG200	DT20	GG20	FG20	FC200
	HT300	GG30	HC30	300	FG300	DT30	GG30	FG30	FC300
	HT350	GG35	HC35	350	FG350	DT35	GG35	FG35	FC350
	HT400	GG40	HC40	400	FG400	DT40	GG40	FG40	FC400
	HT450	GG45	HC45	450	FG450	DT45	GG45	FG45	FC450
	HT500	—	—	500	—	DT50	GG50	—	FC500

Material Conversion table

ISO	Country and standard									
	China	International	Germany	U.S.A.	U.K.	France	Sweden	Italy	Spain	Japan
	GB	ISO	VDE	ASTM/AIS	BS	AFNOR	S	UNI	UNE	JIS
Al	Al-based alloy									
	2A01Tig	Al-97Vg(Pe)	Al-97Vg	200	LV25	Al-97S	2304	2059	-	AC0C
	2A01VgA	Al-97Vg	Al-97Vg	A200.0	2.09	Al-97003	-	8004	-	AC0C
	2A01S	Al-97S	Al-97S	2128/110.0	LV8	Al-97S	2301	2014	-	AC0A
	2A01Vg	Al-97Vg	Al-97Vg	200	LV8	Al-97S/Al-97S	2302	2001	-	AC0A
	-	Al-97S	Al-97Vg	A-002.0	-	-	-	8077	-	-
	-	Al-97Pe	-	0012.0	-	-	-	00-AL-97Pe	-	-
	-	(Al-97Pe)	-	A-002.0	-	-	-	-	-	-
	-	Al-97Pe	-	212	LV20	Al-97S	2303	2079	-	AC01

ISO	Country and standard									
	China	International	Germany	U.S.A.	U.K.	France	Sweden	Italy	Spain	Japan
	GB	ISO	VDE	ASTM/AIS	BS	AFNOR	S	UNI	UNE	JIS
Zn	Zn-based alloy									
	-	ZnO13A16Vale	UNE-0870	5201	mer 01.05	NC13A0	-	-	-	-
	-	NCa13D10Vale	UNE-0874	Al-5207	-	-	-	-	-	-
	-	NCa13D11Vale	UNE-0882	5205	-	22-NC0710	-	-	-	-
	-	NC19A19Vale	UNE-0880	5200	HP2	NC19A0	-	-	-	-
	-	NC007A0	2.001	-	Al-001.001	NC007A	-	-	-	-
	-	NC19Ca17Vale	2.070	Al-5209	-	NC19A0T	-	-	-	-
	-	NC19A19Vale	UNE-0880	Al-5200	-	NC007A	-	-	-	-
	-	-	2.002	5200A	-	NC007A0	-	-	-	-
	-	NC02Nc06	2.008	5208	-	NC02Nc06	-	-	-	-
	-	NC000	2.000	-	Al-5200-0	NC000	-	-	-	-
	-	NC00A037	2.078	0878	207D78	-	-	-	-	-
	Co-based alloy									
	-	Co000V100	-	0007CAMS	-	Co000V	-	-	-	-
	-	Co002V100	UNE-0904	0770	-	Co000V	-	-	-	-
	Ti alloy									
	-	TA00A00	07110.1	UNS R50000	TA001T	TA00	-	-	-	-
	-	-	-	-	-	UNS R50000	-	-	-	-
	-	TA00V0	07140.1	-	TA0010/TA00	UNS R50001	-	TA00V	-	-
	-	TA00V0V000	-	-	-	-	-	-	-	-
	-	TA00V00N000.0	07100	-	-	-	-	-	-	-

SHVQ-PC3	43	V		WVAG-MC4	53
SHVH-PC3	47	VBT F	64	WVAG-PB1	52
SHVH-PC4	47	VBT N	64	WVAG-PB3	52
SHVH-PB6	47	VBT Y	67	WVAG-PC3	52
SHVH-PB8	47	VBT PA1	65	WVAG-PC4	53
SHVH	202	VBDW-SL1	83	WVAG-PC5	52
SHVH-PC9	47	VBDW-SL2	83	WVAG-PD5	53
SHVH	213	VBDW-1-NL-05	95	WVAG-SC3	52
		VBDW-2-NL-05	95		
		VBT F02	64		
T		VBT PB1	65	X	
TBT F	64	VBT PC2	65	XLT	244
TCD M	64	VCD F	67	XDM	246
TCD-NC2	62	VCD-NC2	64	XGJ	238
TCD-PA1	62	VCD-PA1	65	XHX	234
TCDW-1-NL-05	74	VCDW-SL1	83	XWJ	233
TCDW-3-NL-05	74	VCDW-SL2	85		
TCD-NC2	63	VCDW-1-NL-05	95		
TCD-PB	62	VCDW-2-NL-05	95		
TCD-PC2	62	VCD-PB1	65		
TCDW-ED1	67	VCD-PC2	65		
TGA-SL1	79	VGA-SL1	86		
TGA-SL3	79	VGA-SL2	86		
TGA-SL4	79	VGA-SL4	86		
TGA-1-NL-05	70	VGA-1-NL-05	91		
TGA-3-NL-05	70	VGA-2-NL-05	91		
TGG F	83	VVAG-EC4	5		
TGG H	83	VVAG-MB2	5		
TNA-KB5	30	VVAG-MC3	31		
TNG-EC4	49	VVAG-PB1	31		
TNG-MB2	48	VVAG-PB3	31		
TNG-MC3	49	VVAG-PC3	5		
TNG-MC4	49	VVAG-PC4	5		
TNG-PB1	48	VVAG-PD5	31		
TNG-PB3	48	VVAG-SC3	31		
TNG-PC3	48	VPT F	67		
TNG-PC4	49	VPT N	67		
TNG-PD3	48	VPT-NC2	64		
TNG-PD3	31				
TNG-P5	48				
TNG-SC3	48	W			
TNV-PB6	50	WBT F	48		
TRE F	64	WBT(DG)	275		
TGW-SL1	84	WBT(DU)	274		
TGW-SL3	84	WGA-SL1	81		
TGW-1-NL-05	74	WGA-SL3	8		
TGW-3-NL-05	74	WGA-SL4	8		
TMT-BH	281	WJGJ	242		
TMT-CH	282	WJHJ	243		
TMT-PC3	48	WJHJ	243		
TMT-BH	283	WNA-KB5	30		
		WVAG-EC4	53		
		WVAG-MB3	30		
		WVAG-MC3	32		



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