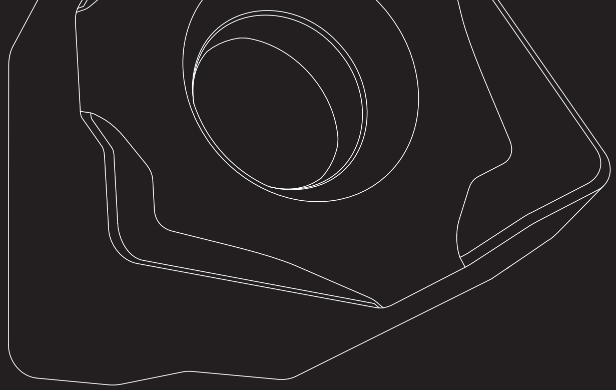
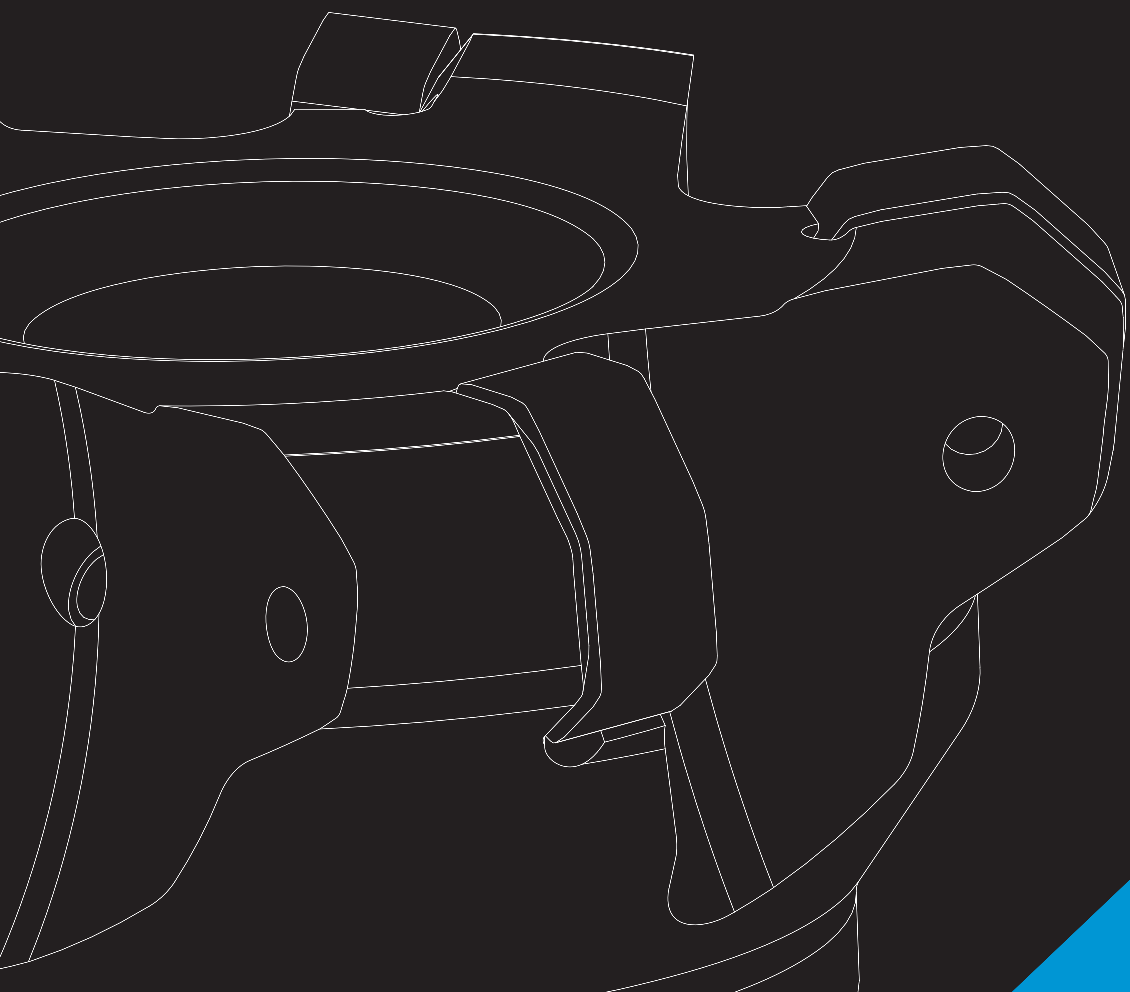


2021 ACHTECK

CUTTING TOOL CATALOGUE



VEGA INTERNATIONAL TOOLS

Company Profile

Ganzhou Achteck Tool Technology Co., Ltd. is a wholly-owned subsidiary of Chongyi Zhangyuan Tungsten Co., Ltd. (Listed Company with stock code 002378). The registered capital of Achteck is 1.65 billion Yuan with existing staff of 600 people. And the main products include: the Coated Cemented Carbide Inserts, Cemented Carbide Rods etc. Achteck has world-class R&D, production and testing equipments and the coated cemented carbide inserts production technology. The inserts with series of Turning, Grooving, Milling, Drilling are widely applied for automotive, energy, Die&mold, general machinery, aerospace and other fields.

Achteck Tool sticks to the faith of technology-guided and owns a strong research team and keeps self-innovation along with research and development. Seeing 'Benefit from Resources, Reliance on Technologies, Devotion to Humanity and Top with Trust' as operation philosophy and 'Safety, Harmony, Efficiency and Innovation' as target, Achteck aims to become a top-class cemented carbide manufacturer in China and well-known around the world.

ACHTECK

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Grooving da pag. 171 a pag. 205

Milling da pag. 207 a pag. 323

Drilling da pag. 325 a pag. 351

Technical Guide da pag. 353 a pag. 371

Turning Inserts

AC350P

New grade for turning on steels.
Mainly applied for heavy turning and very excellent for interrupted machining, the excellent toughness ensures the machining reliability.

AP301M

New grade for turning on stainless steels. Applied for heat resistant super alloys.
Submicron carbide substrate with multi nano layered PVD coating. Hardness, toughness and oxidation resistance enhanced for higher cutting speed machining.Reduce built up edge and better surface finish on the workpiece.

AP100S

New grade for heat resistant super alloys. Applied for stainless steels in continuous turning.
Submicron carbide substrate combined with high hardness and multi nano layered PVD coating enhanced hardness and oxidation resistance at higher cutting speed machining. The best choice for difficult machining.

AW100K

New grade for aluminum alloys and non ferrous materials.
High hardness uncoated carbide grade. Excellent wear resistance can be applied for longer toolife. Very good performance for alumium alloys.

Grooving

Features and Application

- Holders can be corvered for external, internal and facing.
- Inserts provide high accuracy position on the pocket when insert edge is changed.
- Holder has excellent wear resistance.

- Three type of geometries in parting and grooving inserts series: CS, CM, CH are applied for different machining.
- Two types of geometries in inserts series with the function of grooving and turning: TM, TS.
- The special design on the face and flank with double relief angle of insert provides more space to achieve a smaller machining diameter range in the facing and internal machining.

AFM45-XN07/09 Series

Face milling

Features and Application

- 45° face milling cutter with negative heptagonal inserts, 14 cutting edges, provides high economical efficiency.
- Cutter body's with screw and wedge clamping for different applications.

- Different insert design, some with only corner radius and some with wiper for good surface roughness quality.
- Positive rake angle to reduce cutting force.
- Mainly application in cast iron, steel parts, stainless steel materials etc.

2019 NEW

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ASM90-LN13

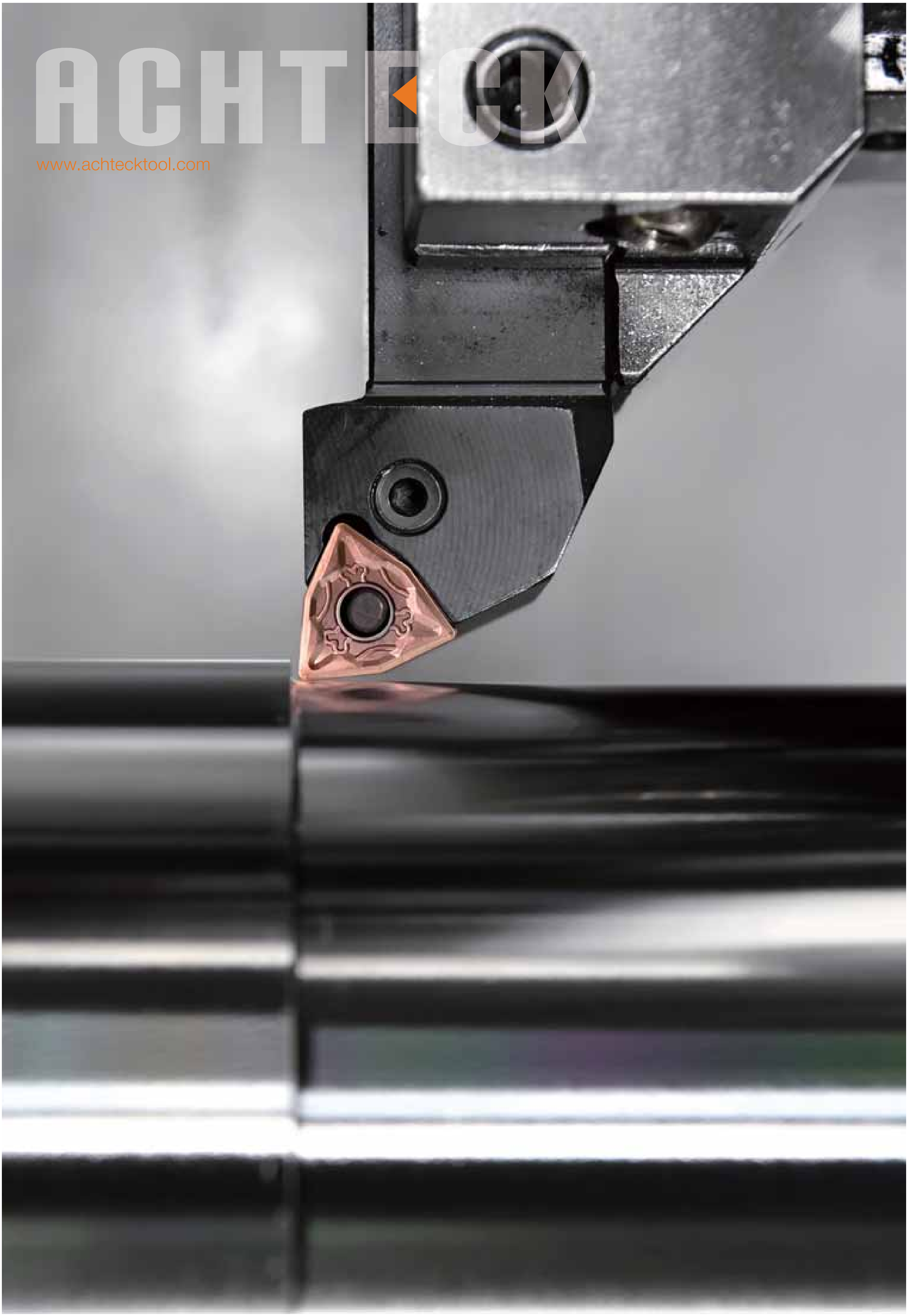
Square Shoulder Milling Cutter

Features and Application

· True 90°shoulder milling cutter, cutter dia.:ϕ40-ϕ160mm.
· High precision axial and radial runout.
· Tangential mounted inserts, with high body strength and working efficiency.
· Different pitch design, coarse pitch and close pitch.
· Cutter interface: arbor style, cylindrical style, side-locked style and modular style.
· Shining Nickel-plated cutter gives good corrosion and wear resistance.

· Economical negative inserts with 4 cutting edges, strong edges with positive rake angle for smooth and efficient machining.
· MR2 geometry with a short wiper design, to get better surface roughness.
· Many choices of corner radius, R0.8/1.2/1.6/2.0/2.4/3.1.
· Inserts in 6 different kind of grades, gives a wide applications area.

2019 NEW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CUTTING TOOL CATALOGUE

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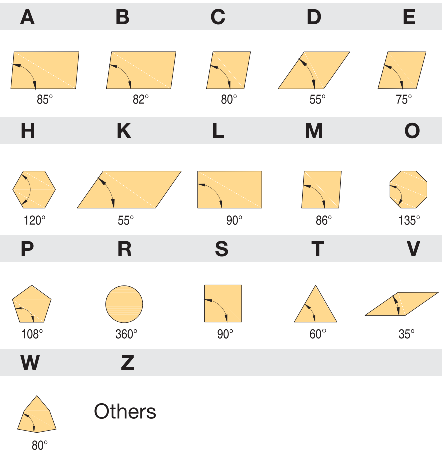
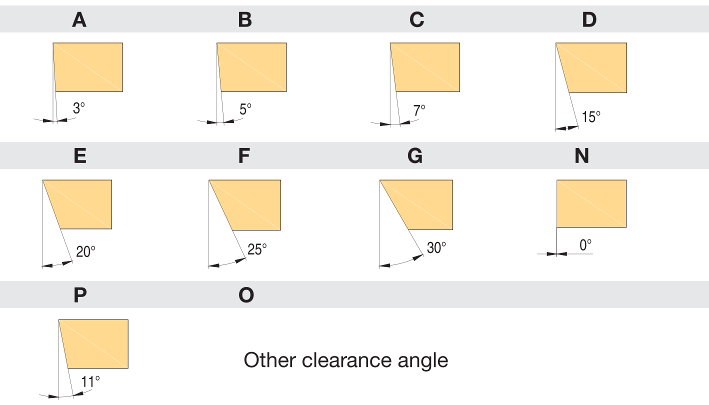
ISO Turning Insert Designation System

C	N	M	G
1	2	3	4

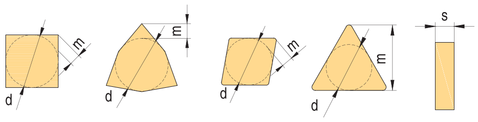
1- Shape/Code



2- Clearance Angle



3- Tolerance



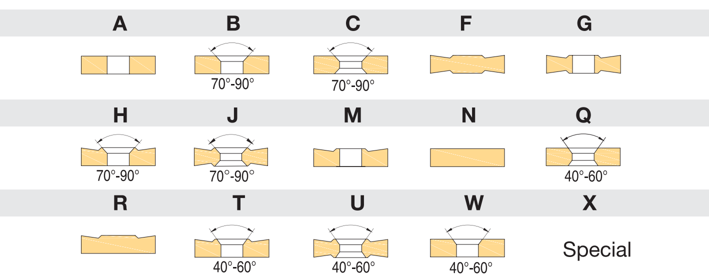
Class	Unit	In.Circle Dimension d	Nose height m	Thickness s
A	mm	± 0,025	± 0,005	± 0,025
C	mm	± 0,025	± 0,013	± 0,025
E	mm	± 0,025	± 0,025	± 0,025
F	mm	± 0,013	± 0,005	± 0,025
G	mm	± 0,025	± 0,025	± 0,130
H	mm	± 0,013	± 0,013	± 0,025
J	mm	*	± 0,005	± 0,025
K	mm	*	± 0,013	± 0,025
L	mm	*	± 0,025	± 0,025
M	mm	*	*	± 0,127
U	mm	*	*	± 0,127
N	mm	*	*	± 0,025

* For details refer to right and below tables

Shape : C, E, H, M, O, P, S, T, R, W				
IC	d		m	
	J,K,L,M,N	U	M, N	U
4.76	± 0,05	± 0,08	± 0,08	± 0,13
5.56	± 0,05	± 0,08	± 0,08	± 0,13
6	± 0,05	± 0,08	± 0,08	± 0,13
6.35	± 0,05	± 0,08	± 0,08	± 0,13
7.94	± 0,05	± 0,08	± 0,08	± 0,13
8	± 0,05	± 0,08	± 0,08	± 0,13
9.525	± 0,05	± 0,08	± 0,08	± 0,13
10	± 0,05	± 0,08	± 0,08	± 0,13
12	± 0,08	± 0,13	± 0,13	± 0,2
12.7	± 0,08	± 0,13	± 0,13	± 0,2
15.875	± 0,1	± 0,18	± 0,15	± 0,27
16	± 0,1	± 0,18	± 0,15	± 0,27
19.05	± 0,1	± 0,18	± 0,15	± 0,27
20	± 0,1	± 0,18	± 0,15	± 0,27
25	± 0,13	± 0,25	± 0,18	± 0,38
25.4	± 0,13	± 0,25	± 0,18	± 0,38
31.75	± 0,15	± 0,25	± 0,2	± 0,38
32	± 0,15	± 0,25	± 0,2	± 0,38

M&N shape	D shape		V shape	
IC	d	m	d	m
5.56	± 0,05	± 0,11		
6.35	± 0,05	± 0,11	± 0,05	± 0,16
7.94	± 0,05	± 0,11	± 0,05	± 0,16
9.525	± 0,05	± 0,11	± 0,05	± 0,16
12.7	± 0,08	± 0,15	± 0,08	± 0,2
15.875	± 0,10	± 0,18	± 0,10	± 0,27
19.05	± 0,10	± 0,18	± 0,10	± 0,27

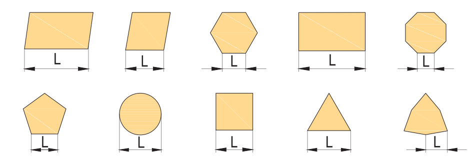
4- Clamping Type



12	04	08	E	-	KC4
5	6	7	8	-	9

5- Cutting Edge Length

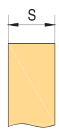
In.Circle Dimension (mm)	Insert shape							
	C	D	R	S	T	V	W	K
3.97					06		02	
5.0			05					
5.56			09					
6.0		06						
6.35	06	07			11	11	04	
8.0			08					
9.525	09	11	09	09	16	16	06	16
10.0			10					
12.0			12					
12.7	12	15	12	12	22	22	08	
15.875	16		15	15	27			
16.0			16					
19.05	19		19	19	33			
20.0			20					
25.0			25					
25.4	25		25	25				
31.75			31					
32			32					



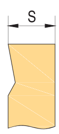
6- Thickness

Round down plus zero or T

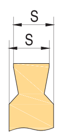
A, B, C, N, O, W,



H, M, R, T,



F, G, J, U,



Example:

01 = 1.59
T1 = 1.98
02 = 2.38
03 = 3.18
T3 = 3.97
04 = 4.76
05 = 5.56
06 = 6.35
07 = 7.94
09 = 9.525
11 = 11.11
12 = 12.70
14 = 14.29
15 = 15.88

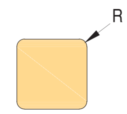
7- Tool Nose

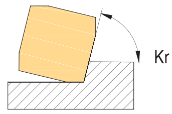
Corner radius

Example:

MO = round insert (metric)

OO = Sharp	24 = 2.4
01 = 0.1	28 = 2.8
02 = 0.2	32 = 3.2
04 = 0.4	40 = 4.0
08 = 0.8	48 = 4.8
12 = 1.2	56 = 5.6
16 = 1.6	64 = 6.4
20 = 2.0	X = Others





Wiper nose

Approaching angle（Kr）	Wiper clearance angle（an）
A = 45	A = 3
D = 60	B = 5
E = 75	C = 7
F = 85	D = 15
G = 87	E = 20
P = 90	F = 25
Z = Others	G = 30
	N = 0
	P = 11
	Z = Others

8- Edge Preparation

Code	Edge Shape	Illustration
F		Sharp cutting edge
E		Honed cutting edge
T		Negative Land
S		Negative Land + Honed cutting edge

9- Chip Breaker Illustration

Refer to page : 22-33

Turning inserts

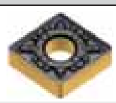
Overview of Turning Insert Geometries

Negative Inserts

Application		Finishing		Semi-finishing	
Chip breaker		PB1	MB2	PB3	PC3
Inserts					
C	80°	●	●	●	●
D	55°	●	●	●	●
R	360°				
S	90°	●	●		●
T	60°	●	●	●	●
V	35°	●	●	●	●
W	80°	●	●	●	●

● Available

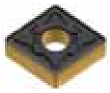
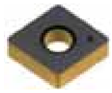
Negative Inserts

Application		Medium machining				
Chip breaker		PD3	PL5	SC3	MC3	PC4
Inserts						
C	80°	●		●	●	●
D	55°	●		●	●	●
R	360°					
S	90°	●		●	●	●
T	60°	●	●	●	●	●
V	35°	●		●	●	●
W	80°	●		●	●	●

● Available

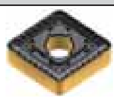
Overview of Turning Insert Geometries

Negative Inserts

Application	Roughing			
Chip breaker	MC4	KC4	PD5	KD5
Inserts				
C	●	●	●	●
D	●	●	●	●
R				
S	●	●	●	●
T	●	●	●	●
V		●		
W	●	●	●	●

● Available

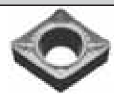
Negative Inserts

Application	Heavy&Roughing				
Chip breaker	PD8	PC9	PD9		
Inserts					
C	●	●	●		
D					
R					
S	●	●	●		
T	●				
V					
W					

● Available

Overview of Turning Insert Geometries

Positive Inserts

Application	Finishing	Semi-finishing		Medium machining
Chip breaker	PB1	PC2	NC2	KC2
Inserts				
C	●	●	●	●
D	●	●	●	●
R			●	
S	●	●	●	●
T	●	●	●	●
V	●	●	●	●
W				

● Available

Positive Inserts

Application	Roughing				
Chip breaker	KD5				
Inserts					
C	●				
D	●				
R					
S	●				
T	●				
V					
W					

● Available

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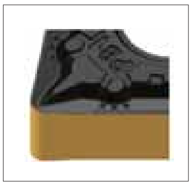
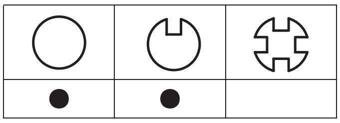
Turning inserts

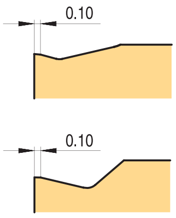
Negative Turning Insert Geometry Introduction

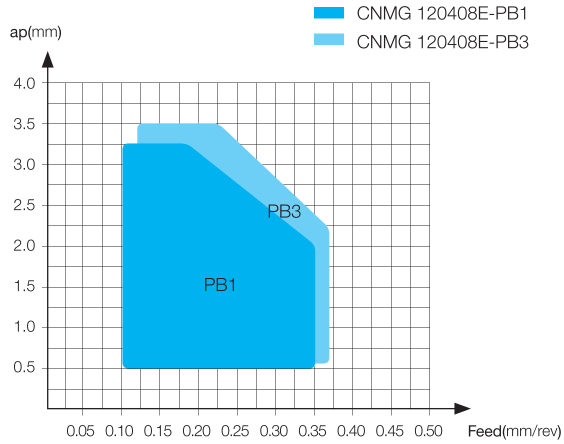
PB1 Geometry for Finishing

The first choice for steels finishing. Good chip control.



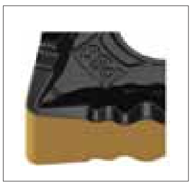


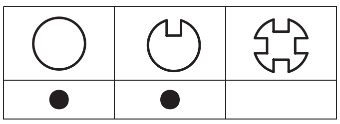


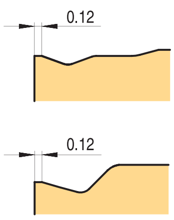


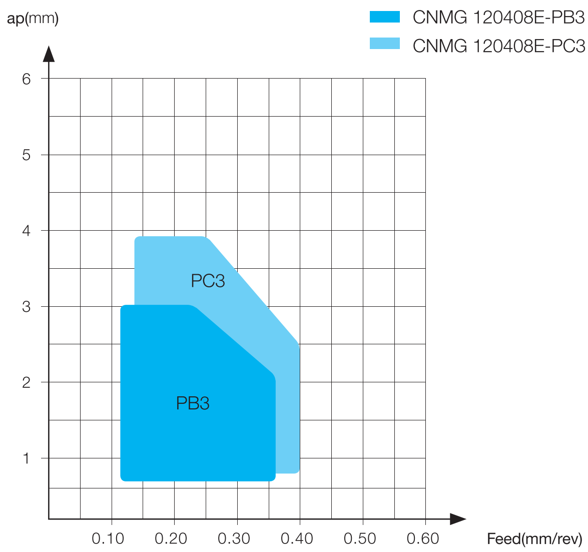
PB3 Geometry for Semi-Finishing

First choice for steels semi-finishing to semi medium. Excellent chip controlling for automotive components.





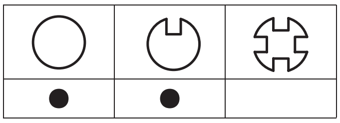


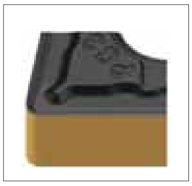


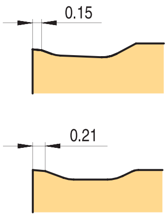
Continuous turning
Interrupted turning
Strong interrupted turning

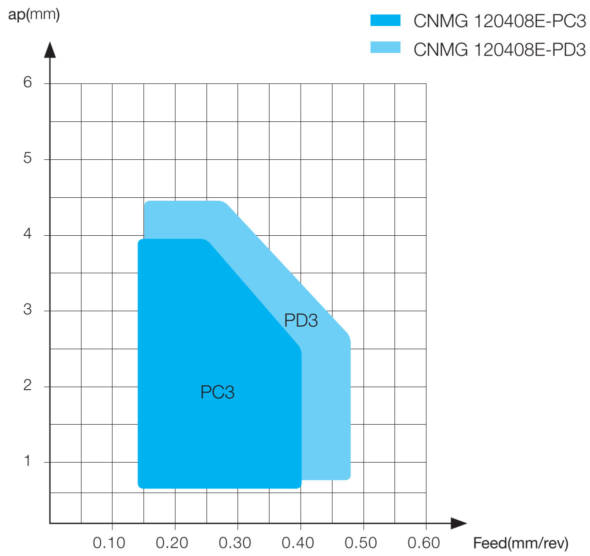
PC3 Geometry for Semi-Medium to Medium Machining

PC3 Geometry for Semi-Medium to Medium Machining. Suitable performance on steels. It's smooth cutting and longer tool life due to positive rake angle.



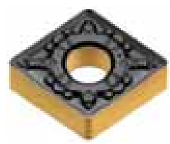


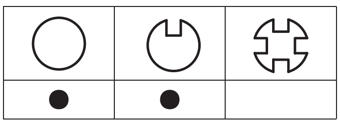


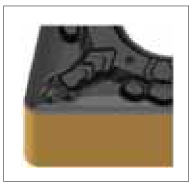


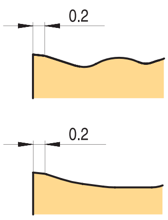
PD3 Geometry for Medium Machining

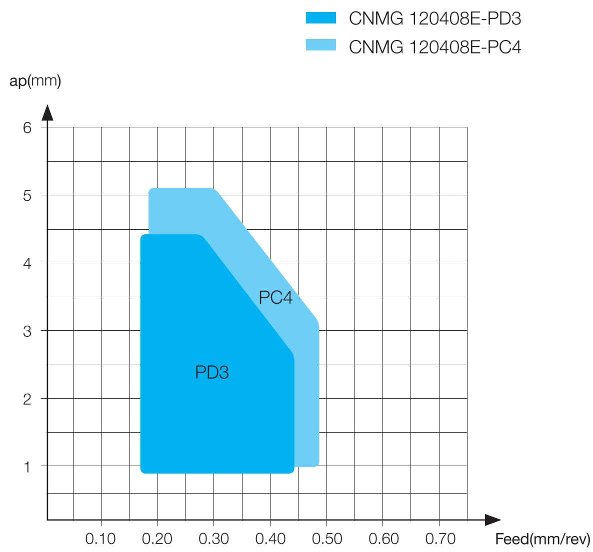
First choice for steels medium machining. Extensive mchining feed and depth of cut; Designed positive rake angle provides lower cutting force and smooth cutting. Very stable tool life.











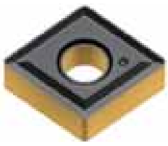
Continuous turning

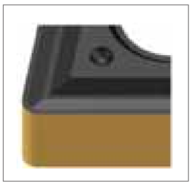
Interrupted turning

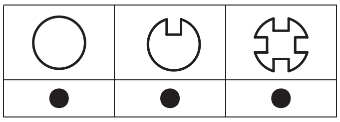
Strong interrupted turning

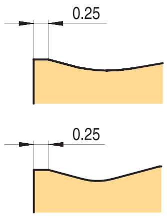
PC4 Geometry for Medium Maching

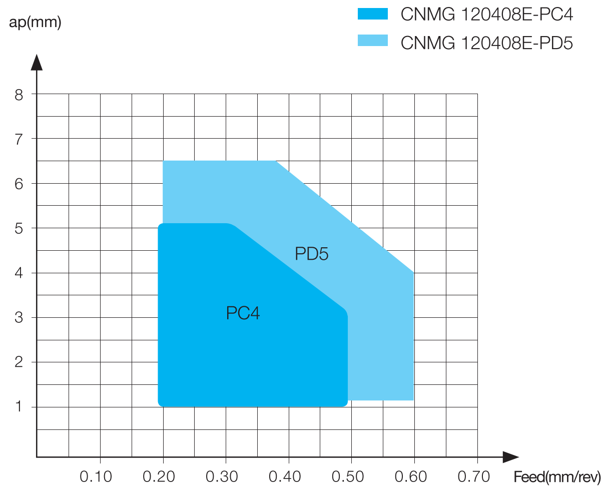
Medium turning for carbon steel and alloy steel. Falt T-land guarantee the strength of the cutting edge. The common style geometry has high universal application.





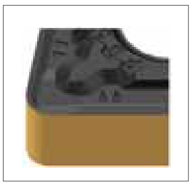


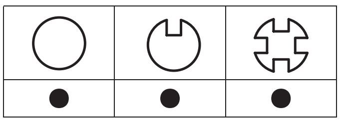


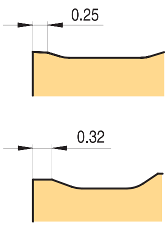


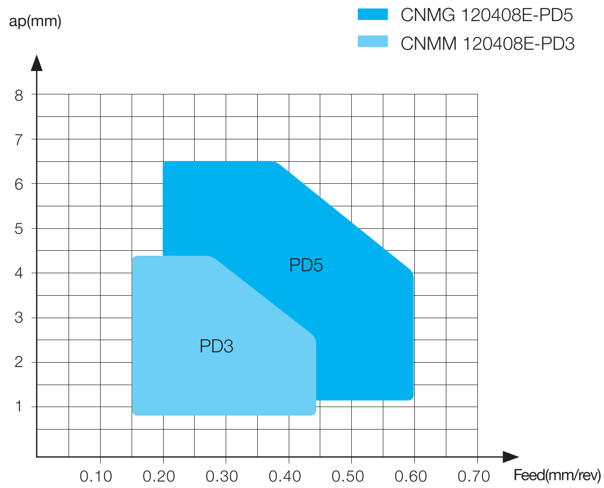
PD5 Geometry for Roughing

First choice for steel roughing. Lower cutting force due to positive rake angle design.





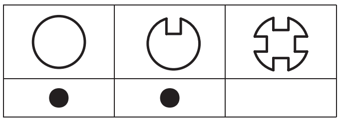


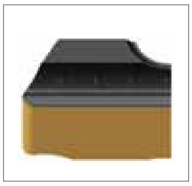


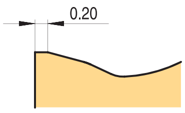
Continuous turning
Interrupted turning
Strong interrupted turning

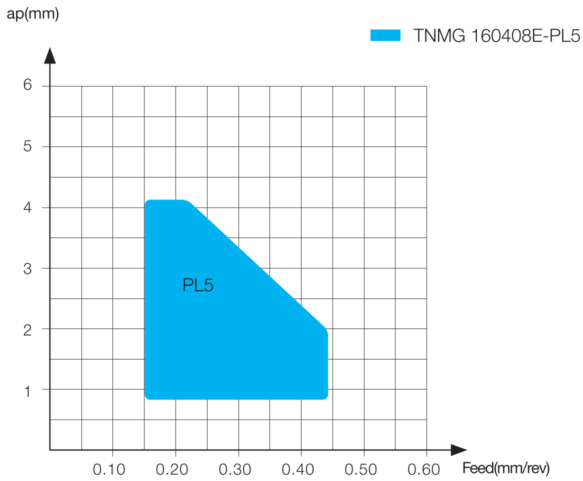
PL5 Geometry for Medium Maching

Open type chip breaker leads to smooth cutting with low cutting force, which is suitable for slender bar workpiece .



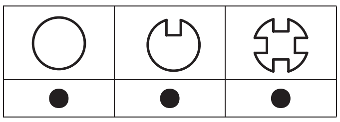


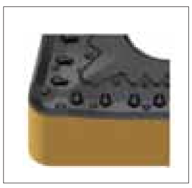


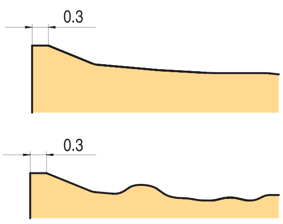


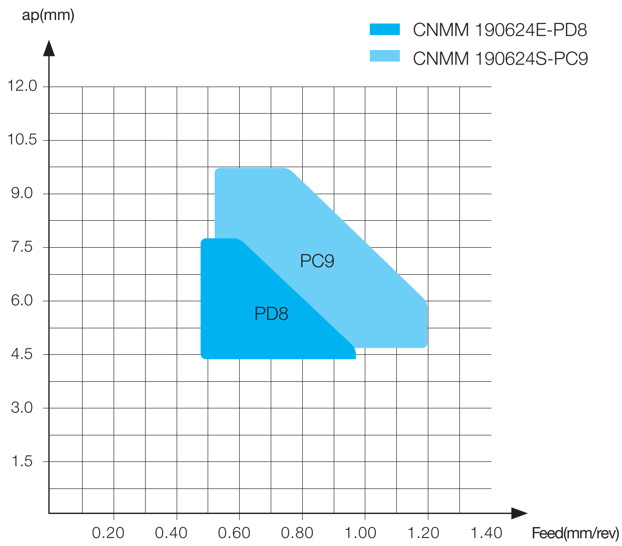
PD8 Geometry for Heavry Roughing

Single sided insert. Suitable for steel roughing, also for stainless steel and cast iron roughing. Low cutting force is suitable for low capacity machine and flexible chip breaker gets perfect chip control.





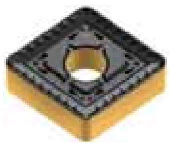


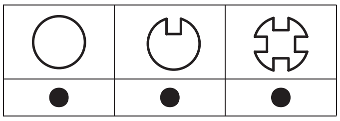


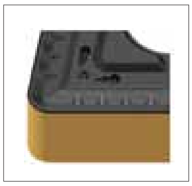
Continuous turning
Interrupted turning
Strong interrupted turning

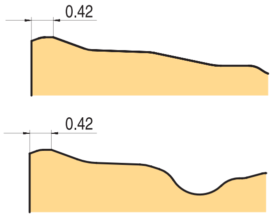
PC9 Geometry for Heavry Roughing

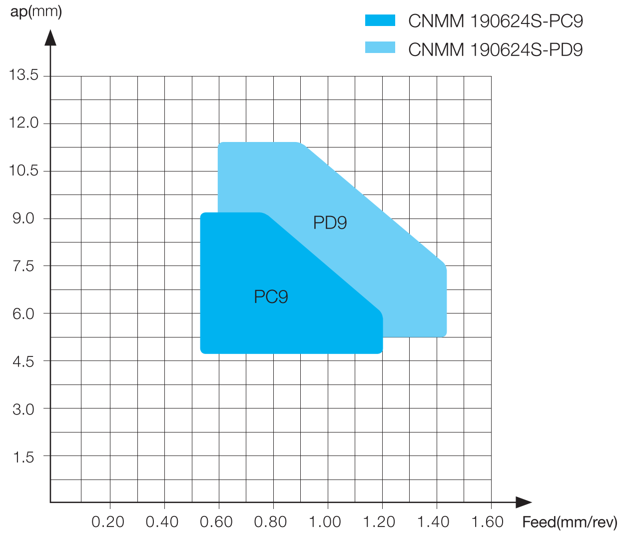
Single sided insert. Suitable for steel heavy machining. Strong cutting edge.





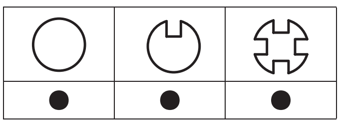


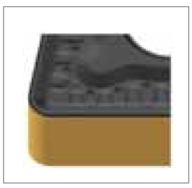


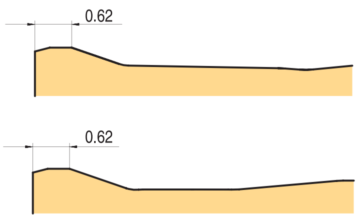


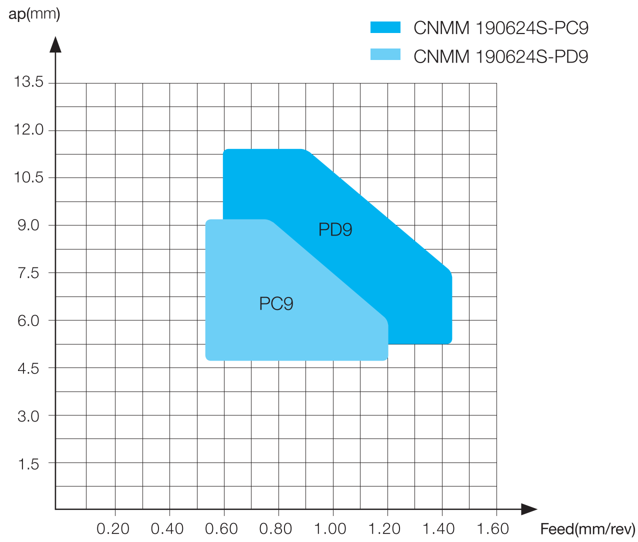
PD9 Geometry for Heavry Roughing

Suitable for steel heavy load roughing. High strength edge is suitable for big depth of cut and high feed cutting with stability.





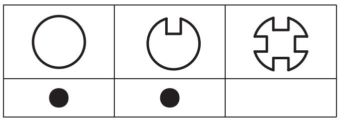


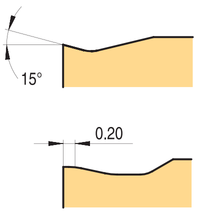


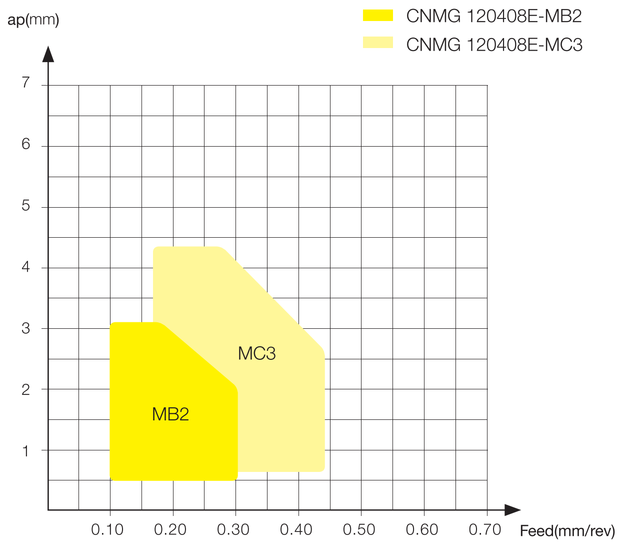
Continuous turning
Interrupted turning
Strong interrupted turning

MB2 Geometry for Finishing

Suitable for stainless steel finishing with low feed and small depth of cut. High positive rake angle. To make sure much better surface quality and longer tool life.

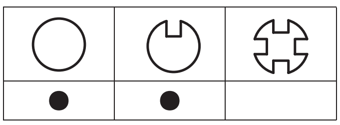


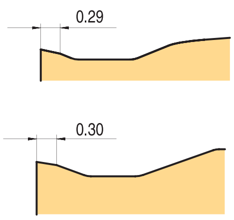


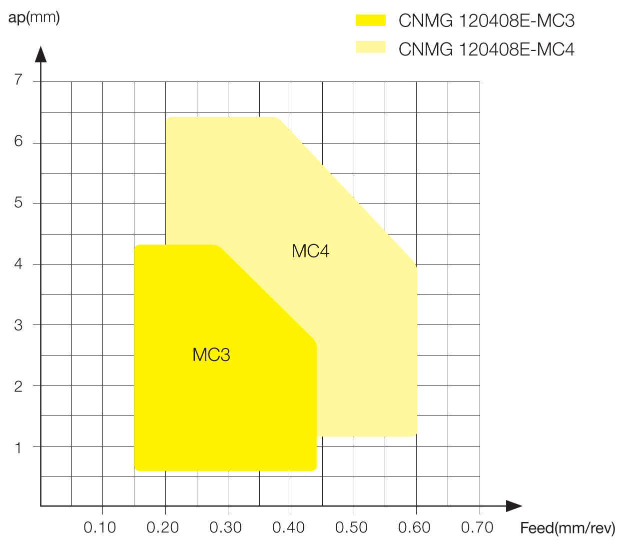


MC3 Geometry for Medium Maching

For medium machinning on stainless steels. Sharp cutting edge with low cutting force.



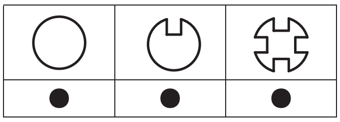


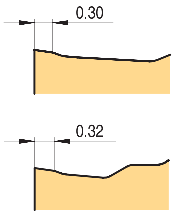


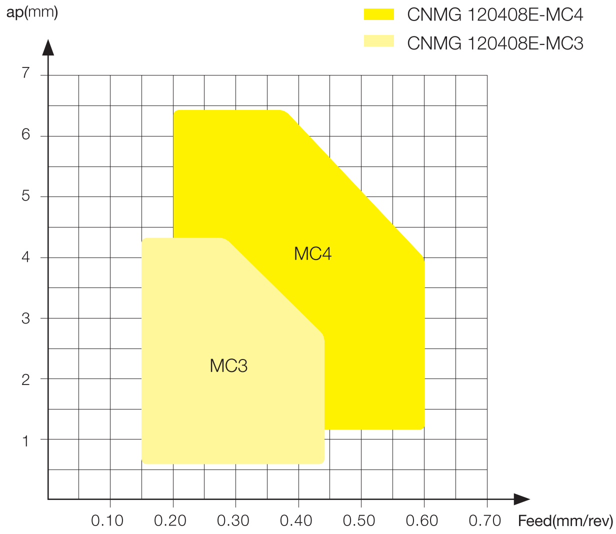
Continuous turning
Interrupted turning
Strong interrupted turning

MC4 Geometry for Roughing

Suitable for stainless steel roughing. Positive rake angle

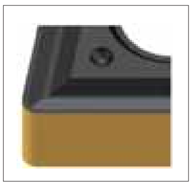


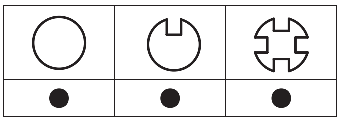


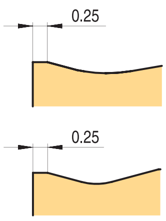


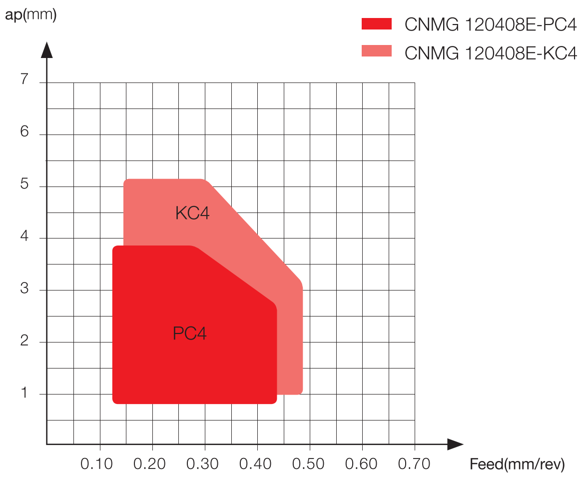
PC4 Geometry for Medium Machining

Medium turning for cast iron. Falt T-land guarantee the strenth of the cutting edge. The common style geometry has high universal application.





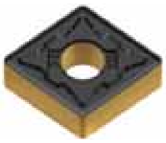


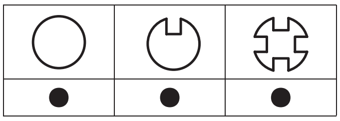


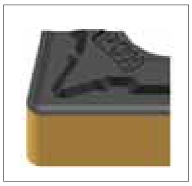
Continuous turning
Interrupted turning
Strong interrupted turning

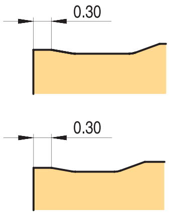
KC4 Geometry for Roughing

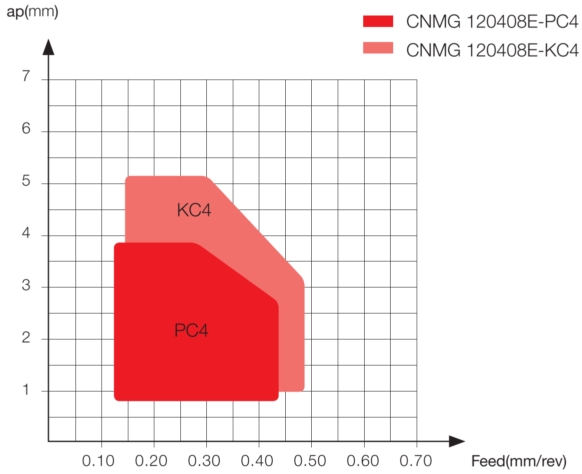
Strong cutting edge is suitable for cast iron roughing. First choice for cast iron.





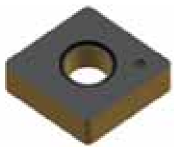


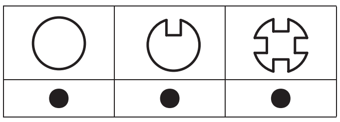


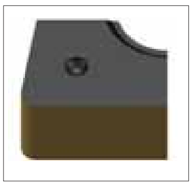


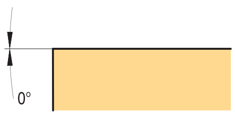
KD5 Geometry for Roughing

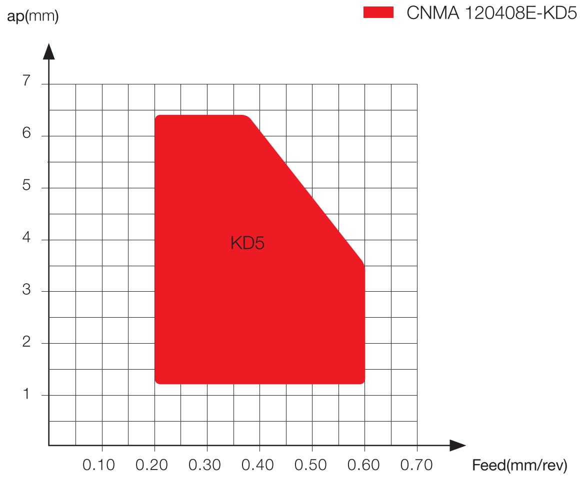
Flat type. First choice for cast iron roughing. Good for interrupted cut and unstable machining.









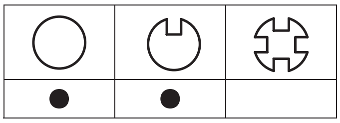


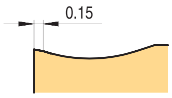
Continuous turning
Interrupted turning
Strong interrupted turning

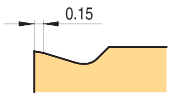
Turning inserts

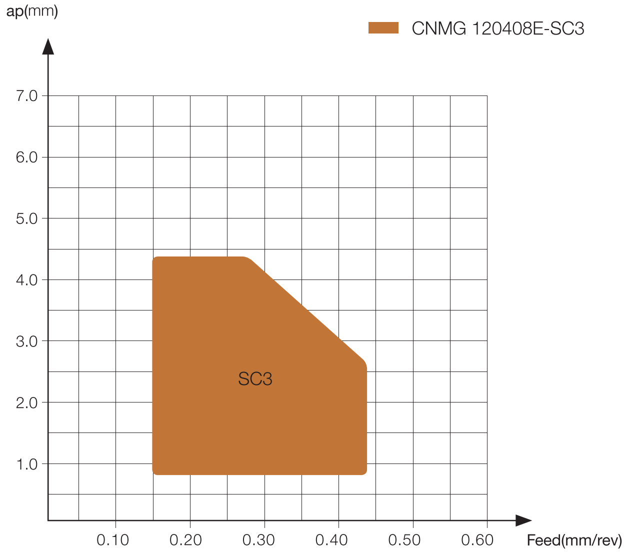
SC3 Geometry for Medium Machining.

Suitable for high-temerature super alloys and Titanium medium machining, High positive rake angle applies for lower cutting force and less built up edge. First choice for super alloys.







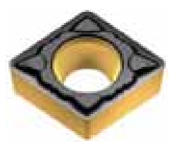


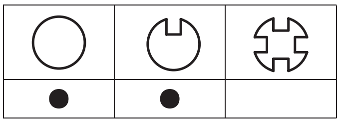
Continuous turning
Interrupted turning
Strong interrupted turning

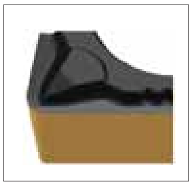
Positive Turning Insert Geometry Introduction

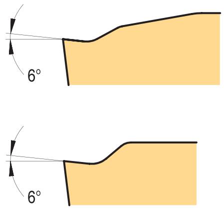
PB1 Geometry for Finishing

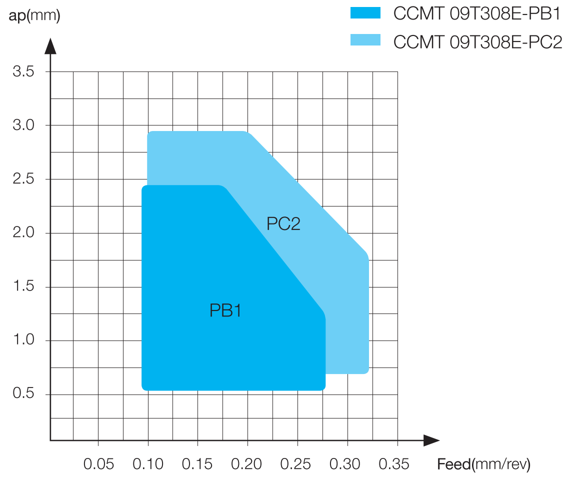
Positive rake angle design to get low cutting force. Good chip control.





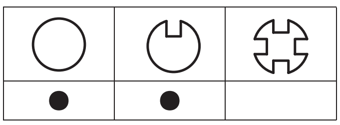


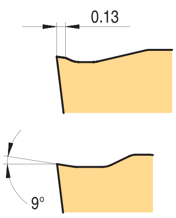


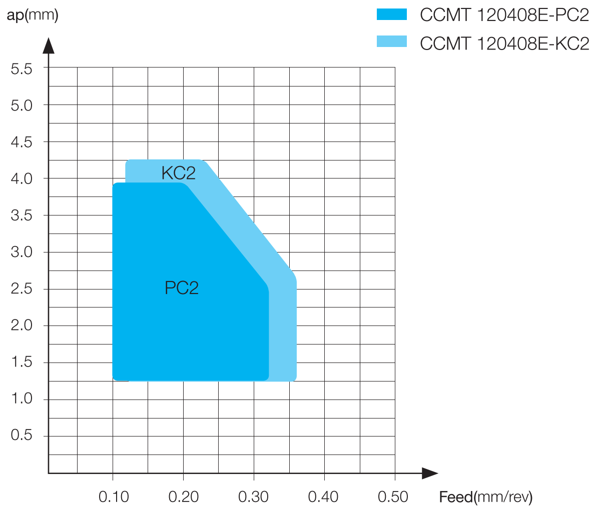


PC2 Geometry for Finishing and Semi-finishing

For finishing to semi-finishing on steels and stainless steels. Cutting edge indination design to ensure low cutting force. Excellent chip control due to the professional design of chip breaker.



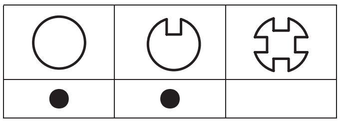


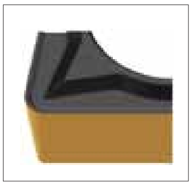


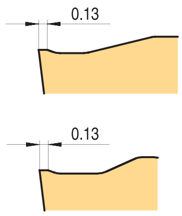
Continuous turning
Interrupted turning
Strong interrupted turning

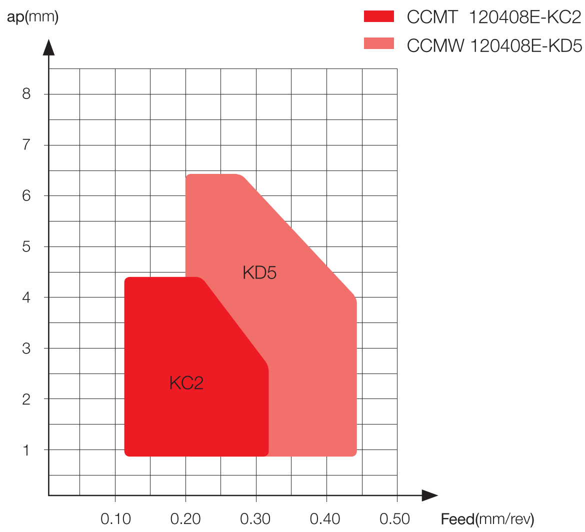
KC2 Geometry for Medium Machining

For medium and semi-roughing on cast iron , steels and stainless steels.



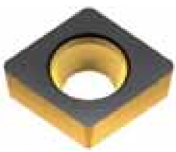


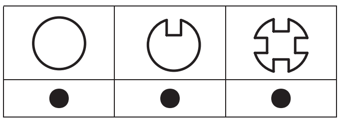


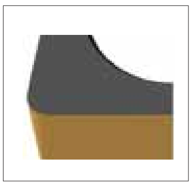


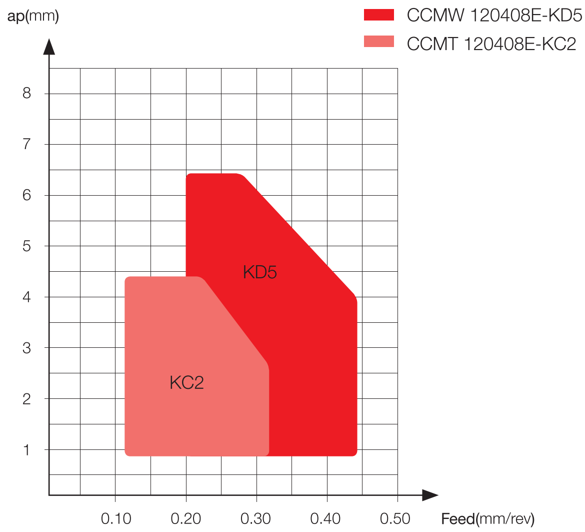
KD5 Geometry for Roughing

Flat type ,for roughing on cast iron. Strong cutting edge with good chipping resistance.





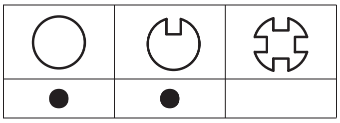


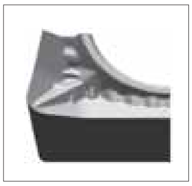


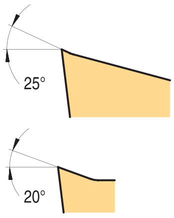
Continuous turning
Interrupted turning
Strong interrupted turning

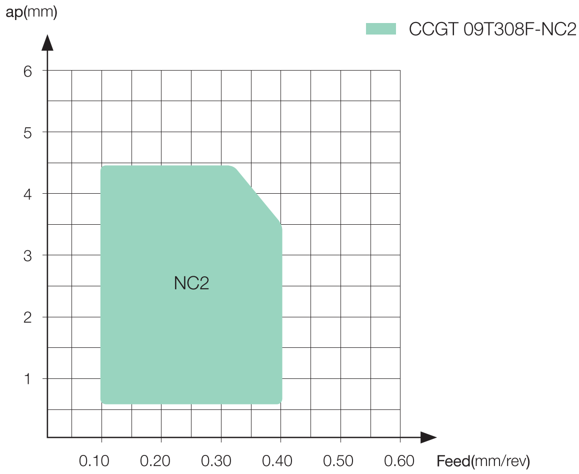
NC2 Geometry for Finishing and Semi-Finishing

For finishing and semi-finishing on non-ferrous materials. High positive rake angle design leads to smooth chip evacuation, lower cutting force and extended tool life. Insert surface polishing treatment effectively controls chips, prevents built-up edge and improves adhesion resistance.









◯ Continuous turning
◯ Interrupted turning
◯ Strong interrupted turning

Materials Index

Non-alloyed steels/Alloyed steels	P
Stainless steels	M
Cast iron	K
High temperature alloys	S
Aluminum/Aluminum alloys	N
Hardened steels/Chilled cast iron	H

Grade Application Guide

Turning grade application for ISO material group											
Material Group	Materials	ISO	CVD coated					PVD coated		Uncoated	ISO
			AC150P	AC250P	AC350P	ACK15A	AC150K	AP301M	AP100S	AW100K	
		P01									P01
		P05									P05
		P10									P10
		P15	AC150P								P15
P		P20									P20
	Non-alloy steels / Alloyed steels	P25		AC250P							P25
		P30									P30
		P35			AC350P						P35
		P40									P40
		P45									P45
		P50									P50
		M01									M01
		M05									M05
		M10									M10
		M15							AP100S		M15
M	Stainless steels	M20									M20
		M25						AP301M			M25
		M30									M30
		M35									M35
		M40									M40
		M45									M45
		K01									K01
		K05									K05
		K10									K10
		K15					AC150K				K15
		K20				ACK15A					K20
K	Cast iron	K25									K25
		K30									K30
		K35									K35
		K40									K40
		K45									K45
		K50									K50
		S01									S01
		S05									S05
		S10									S10
S		S15							AP100S		S15
	High temperature alloys	S20									S20
		S25						AP301M			S25
		S30									S30
		S35									S35
		S40									S40
		N01									N01
		N05									N05
		N10								AW100K	N10
N	Aluminum/ Aluminum alloys	N15									N15
		N20									N20
		N25									N25
		N30									N30
		H01									H01
		H05									H05
		H10									H10
H	Hardened steels/ Chilled cast iron	H15									H15
		H20									H20
		H25									H25
		H30									H30

Grade Application Guide

Materials				Turning grade application							
				CVD coated					PVD coated		Uncoated
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	AC150P	AC250P	AC350P	ACK15A	AC150K	AP301M	AP100S	AW100K
P	Non-alloyed steel	<600	<180	●	●	●	-	-	-	-	-
		<950	<280	●	●	●	-	-	-	-	-
	Alloyed steel	700-950	200-280	●	●	●	-	-	-	-	-
		950-1200	280-355	●	●	●	-	-	-	-	-
		1200-1400	355-415	●	●	●	-	-	-	-	-
M	Duplex stainless steel	778	230	-	-	-	-	-	●	◐	-
	Austenitic stainless steel	675	200	-	-	-	-	-	●	◐	-
	Precipitation-hardening stainless steel	1013	300	-	-	-	-	-	●	◐	-
K	Grey cast iron	700	220	-	-	-	●	●	-	-	-
	Nodular cast iron	880	260	-	-	-	◐	◐	-	-	-
	Malleable cast iron	800	250	-	-	-	◐	◐	-	-	-
S	Fe-based alloy	943	280	-	-	-	-	-	◐	●	-
	Co-based alloy	1076	320	-	-	-	-	-	◐	●	-
	Ni-based alloy	1177	350	-	-	-	-	-	◐	●	-
	Ti-alloy	1262	370	-	-	-	-	-	◐	●	-
N	Aluminum	260	75	-	-	-	-		-	-	●
	Aluminum alloy	447	130	-	-	-	-		-	-	●
H	Hardened steel	-	50-60HRC	-	-	-	-		-	-	-
	Chilled cast iron	-	55HRC	-	-	-	-		-	-	-

● Best choice
◐ 2nd choice
- Inapplicable

Turning Grade Description

AC150P

Coating: CVD coating

New developed ultra-fine crystal CVD coating. High hardness substrate and toughness with thick Al_2O_3 layer has excellent wear-resistance to extend tool life under high speed continuous cutting and slight interrupted cutting.

<table>
<tr><th colspan="12">Application range</th></tr>
<tr><td>ISO Classification</td><td>01</td><td>05</td><td>10</td><td>15</td><td>20</td><td>25</td><td>30</td><td>35</td><td>40</td><td>45</td><td>50</td></tr>
<tr><td>P</td><td></td><td></td><td colspan="4">AC150P</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>M</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>K</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>S</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>N</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>H</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

Remark: Best choice

AC250P

Coating: CVD coating

Medium hardness and medium toughness substrate with CVD coating. Thick Al_2O_3 layer provides excellent wear-resistance and chipping resistance for general machining. First choice for steels.

<table>
<tr><th colspan="12">Application range</th></tr>
<tr><td>ISO Classification</td><td>01</td><td>05</td><td>10</td><td>15</td><td>20</td><td>25</td><td>30</td><td>35</td><td>40</td><td>45</td><td>50</td></tr>
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<tr><td>M</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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<tr><td>S</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>N</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>H</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

Remark: Best choice

AC350P

Coating: CVD coating

For roughing on steels, very tough substrate and excellent performance in interrupted cutting.

<table>
<tr><th colspan="12">Application range</th></tr>
<tr><td>ISO Classification</td><td>01</td><td>05</td><td>10</td><td>15</td><td>20</td><td>25</td><td>30</td><td>35</td><td>40</td><td>45</td><td>50</td></tr>
<tr><td>P</td><td></td><td></td><td></td><td></td><td></td><td></td><td colspan="4">AC350P</td><td></td></tr>
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<tr><td>S</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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<tr><td>H</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

Remark: Best choice

ACK15A

Coating: CVD coating

Very good performance on cast iron. For continuous cutting and interrupted cutting.

<table>
<tr><th colspan="12">Application range</th></tr>
<tr><td>ISO Classification</td><td>01</td><td>05</td><td>10</td><td>15</td><td>20</td><td>25</td><td>30</td><td>35</td><td>40</td><td>45</td><td>50</td></tr>
<tr><td>P</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>M</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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<tr><td>H</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

Remark: Best choice

AC150K

Coating: CVD coating

Very good performance in high speed cutting on cast iron.

<table>
<tr><th colspan="12">Application range</th></tr>
<tr><td>ISO Classification</td><td>01</td><td>05</td><td>10</td><td>15</td><td>20</td><td>25</td><td>30</td><td>35</td><td>40</td><td>45</td><td>50</td></tr>
<tr><td>P</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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</table>

Remark: Best choice

AP301M

Coating: PVD coating

For stainless steels. Toughness and good wear resistance substrate with PVD coating, Provides stable machining and better tool life.

<table>
<tr><th colspan="12">Application range</th></tr>
<tr><td>ISO Classification</td><td>01</td><td>05</td><td>10</td><td>15</td><td>20</td><td>25</td><td>30</td><td>35</td><td>40</td><td>45</td><td>50</td></tr>
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<tr><td>K</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>S</td><td></td><td></td><td></td><td colspan="5">AP301M</td><td></td><td></td><td></td></tr>
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<tr><td>H</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

Remark: Best choice
2nd choice

AP100S

Coating: PVD coating

For turning on high temperature super alloys. Ultra-fine grain substrate with very good wear resistance, coated nano-structure PVD coating to get strong binding forces and anti oxidant, improved 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

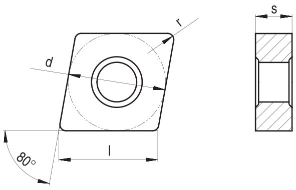
Coating: Uncoated

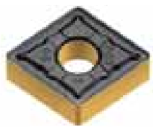
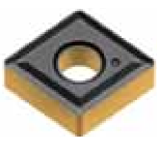
For turning on nonferrous alloys. Fine grain size substrate, uncoated, carbide grade.

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

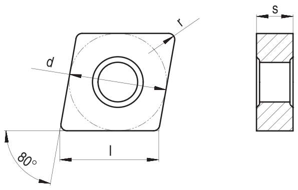
Negative 80° （C） Rhombic Inserts



Inserts	Designation	Recommended parameters		Dimensions (mm)				Grades						
								CVD coated					PVD coated	
		Feed (mm/rev)	ap (mm)	d	l	s	r	AC150P	AC250P	AC350P	ACK15A	AC150K	AP301M	AP100S
	CNMG 120404E-PB1	0.05-0.15	0.26-3.2	12.7	12.9	4.76	0.4	●	●					
	120408E-PB1	0.10-0.30	0.52-3.2	12.7	12.9	4.76	0.8	●	●					
	120412E-PB1	0.15-0.45	0.78-3.2	12.7	12.9	4.76	1.2	○	○					
	CNMG 120404E-MB2	0.05-0.15	0.26-3.2	12.7	12.9	4.76	0.4						●	●
	120408E-MB2	0.10-0.30	0.52-3.2	12.7	12.9	4.76	0.8						●	●
	CNMG 120404E-PB3	0.06-0.18	0.30-3.5	12.7	12.9	4.76	0.4	●	●					
	120408E-PB3	0.12-0.36	0.60-3.5	12.7	12.9	4.76	0.8	●	●					
	120412E-PB3	0.18-0.54	0.90-3.5	12.7	12.9	4.76	1.2	●	●					
	CNMG 120404E-PC3	0.07-0.20	0.34-3.9	12.7	12.9	4.76	0.4	●	●					
	120408E-PC3	0.14-0.40	0.68-3.9	12.7	12.9	4.76	0.8	●	●					
	120412E-PC3	0.20-0.60	1.02-3.9	12.7	12.9	4.76	1.2	●	●					
	190608E-PC3	0.14-0.40	0.68-5.8	19.05	19.3	6.35	0.8	○	○					
	190612E-PC3	0.20-0.60	1.02-5.8	19.05	19.3	6.35	1.2	○	○					
	CNMG 120404E-PD3	0.08-0.22	0.40-4.3	12.7	12.9	4.76	0.4	●	●	○				
	120408E-PD3	0.15-0.44	0.80-4.3	12.7	12.9	4.76	0.8	●	●	●				
	120412E-PD3	0.23-0.66	1.20-4.3	12.7	12.9	4.76	1.2	●	●	●				
	160608E-PD3	0.15-0.44	0.80-5.3	15.875	16.1	6.35	0.8	●	●	○				
	190608E-PD3	0.15-0.44	0.80-6.4	19.05	19.3	6.35	0.8	●	●	○				
	CNMG 120404E-PC4	0.08-0.22	0.40-4.3	12.7	12.9	4.76	0.4	●	●		●	○		
	120408E-PC4	0.15-0.44	0.80-4.3	12.7	12.9	4.76	0.8	●	●		●	●		
	120412E-PC4	0.23-0.66	1.20-4.3	12.7	12.9	4.76	1.2	●	●		●	○		
	160608E-PC4	0.15-0.44	0.80-5.3	15.875	16.1	6.35	0.8	○	○		○	○		
	160612E-PC4	0.23-0.66	1.20-5.3	15.875	16.1	6.35	1.2	○	●		○	○		
	160616E-PC4	0.30-0.88	1.60-5.3	15.875	16.1	6.35	1.6	○	○		●	○		
	190608E-PC4	0.15-0.44	0.80-6.4	19.05	19.3	6.35	0.8	○	○		○	○		
	190612E-PC4	0.23-0.66	1.20-6.4	19.05	19.3	6.35	1.2	●	●		○	○		
	190616E-PC4	0.30-0.88	1.60-6.4	19.05	19.3	6.35	1.6	○	○		○	○		

Marked: ● Stock available
○ Produced by order

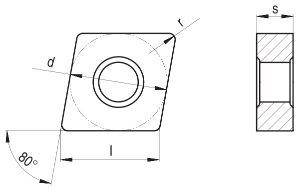
Negative 80° （C） Rhombic Inserts

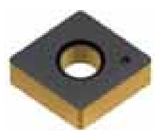


Inserts	Designation	Recommended parameters		Dimensions (mm)				Grades						
								CVD coated					PVD coated	
		Feed (mm/rev)	ap (mm)	d	l	s	r	AC150P	AC250P	AC350P	ACK15A	AC150K	AP301M	AP100S
	CNMG 120404E-MC3	0.08-0.22	0.32-4.3	12.7	12.9	4.76	0.4						●	
	120408E-MC3	0.15-0.44	0.64-4.3	12.7	12.9	4.76	0.8						●	
	120412E-MC3	0.23-0.66	0.96-4.3	12.7	12.9	4.76	1.2						●	
	120416E-MC3	0.30-0.88	1.28-4.3	12.7	12.9	4.76	1.6						○	
	160608E-MC3	0.15-0.44	0.64-5.3	15.875	16.1	6.35	0.8						○	
	160612E-MC3	0.23-0.66	0.96-5.3	15.875	16.1	6.35	1.2						○	
	190608E-MC3	0.15-0.44	0.64-6.4	19.05	19.3	6.35	0.8						○	
	190612E-MC3	0.23-0.66	0.96-6.4	19.05	19.3	6.35	1.2						○	
	CNMG 120404E-SC3	0.08-0.22	0.40-4.3	12.7	12.9	4.76	0.4							●
	120408E-SC3	0.15-0.44	0.80-4.3	12.7	12.9	4.76	0.8							●
	120412E-SC3	0.23-0.66	1.20-4.3	12.7	12.9	4.76	1.2							●
	160612E-SC3	0.23-0.66	1.20-5.3	15.875	16.1	6.35	1.2							●
	160616E-SC3	0.30-0.88	1.60-5.3	15.875	16.1	6.35	1.6							●
	190612E-SC3	0.23-0.66	1.20-6.4	19.05	19.3	6.35	1.2							●
	190616E-SC3	0.30-0.88	1.60-6.4	19.05	19.3	6.35	1.6							●
	CNMG 120408E-PD5	0.20-0.60	1.20-6.4	12.7	12.9	4.76	0.8	●	●	●				
	120412E-PD5	0.30-0.90	1.80-6.4	12.7	12.9	4.76	1.2	●	●	●				
	160612E-PD5	0.30-0.90	1.80-8.1	15.875	16.1	6.35	1.2	●	●	○				
	160616E-PD5	0.40-1.20	2.40-8.1	15.875	16.1	6.35	1.6	●	●	●				
	190612E-PD5	0.30-0.90	1.80-9.7	19.05	19.3	6.35	1.2	●	●	○				
	190616E-PD5	0.40-1.20	2.40-9.7	19.05	19.3	6.35	1.6	●	●	●				
	CNMG 120408E-MC4	0.20-0.60	1.20-6.4	12.7	12.9	4.76	0.8						●	●
	120412E-MC4	0.30-0.90	1.80-6.4	12.7	12.9	4.76	1.2						●	●
	160612E-MC4	0.30-0.90	1.80-8.1	15.875	16.1	6.35	1.2						○	○
	160616E-MC4	0.40-1.20	2.40-8.1	15.875	16.1	6.35	1.6						○	○
	190612E-MC4	0.30-0.90	1.80-9.7	19.05	19.3	6.35	1.2						○	○
	190616E-MC4	0.40-1.20	2.40-9.7	19.05	19.3	6.35	1.6						○	○

Marked: ● Stock available
○ Produced by order

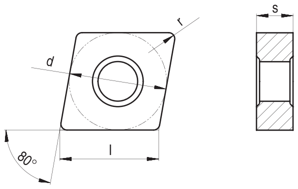
Negative 80° （C） Rhombic Inserts



Inserts	Designation	Recommended parameters		Dimensions (mm)				Grades						
		Feed (mm/rev)	ap (mm)	d	l	s	r	CVD coated					PVD coated	
								AC150P	AC250P	AC350P	ACK15A	AC150K	AP301M	AP100S
	CNMG 090308E-KC4	0.18-0.48	0.96-3.9	9.525	9.67	3.18	0.8				●	○		
	120404E-KC4	0.09-0.24	0.48-5.2	12.7	12.9	4.76	0.4				●	●		
	120408E-KC4	0.18-0.48	0.96-5.2	12.7	12.9	4.76	0.8				●	●		
	120412E-KC4	0.26-0.72	1.44-5.2	12.7	12.9	4.76	1.2				●	●		
	120416E-KC4	0.35-0.96	1.92-5.2	12.7	12.9	4.76	1.6				●	○		
	160608E-KC4	0.18-0.48	0.96-6.4	15.875	16.1	6.35	0.8				●	○		
	160612E-KC4	0.26-0.72	1.44-6.4	15.875	16.1	6.35	1.2				●	●		
	160616E-KC4	0.35-0.96	1.92-6.4	15.875	16.1	6.35	1.6				●	●		
	190608E-KC4	0.18-0.48	0.96-7.7	19.05	19.3	6.35	0.8				●	○		
	190612E-KC4	0.26-0.72	1.44-7.7	19.05	19.3	6.35	1.2				●	●		
	190616E-KC4	0.35-0.96	1.92-7.7	19.05	19.3	6.35	1.6				●	○		
	190624E-KC4	0.53-1.44	2.88-7.7	19.05	19.3	6.35	2.4				●	○		
	CNMA 120404E-KD5	0.10-0.30	0.60-6.4	12.7	12.9	4.76	0.4				●	○		
	120408E-KD5	0.20-0.60	1.20-6.4	12.7	12.9	4.76	0.8				●	●		
	120412E-KD5	0.30-0.90	1.80-6.4	12.7	12.9	4.76	1.2				●	●		
	120416E-KD5	0.40-1.20	2.40-6.4	12.7	12.9	4.76	1.6				●	●		
	160608E-KD5	0.20-0.60	1.20-8.1	15.875	16.1	6.35	0.8				●	○		
	160612E-KD5	0.30-0.90	1.80-8.1	15.875	16.1	6.35	1.2				●	●		
	160616E-KD5	0.40-1.20	2.40-8.1	15.875	16.1	6.35	1.6				●	●		
	190608E-KD5	0.20-0.60	1.20-9.7	19.05	19.3	6.35	0.8				●	○		
	190612E-KD5	0.30-0.90	1.80-9.7	19.05	19.3	6.35	1.2				●	○		
	190616E-KD5	0.40-1.20	2.40-9.7	19.05	19.3	6.35	1.6				●	○		
	CNMM 120408E-PD8	0.16-0.32	1.44-5.2	12.7	12.9	4.76	0.8	○	●	●				
	120412E-PD8	0.24-0.48	2.16-5.2	12.7	12.9	4.76	1.2	○	●	●				
	160612E-PD8	0.24-0.48	2.16-6.4	15.875	16.1	6.35	1.2	●	●	○				
	160616E-PD8	0.32-0.64	2.88-6.4	15.875	16.1	6.35	1.6	○	●	○				
	160624E-PD8	0.48-0.96	4.32-6.4	15.875	16.1	6.35	2.4	○	●	○				
	190612E-PD8	0.24-0.48	2.16-7.7	19.05	19.3	6.35	1.2	●	●	○				
	190616E-PD8	0.32-0.64	2.88-7.7	19.05	19.3	6.35	1.6	●	●	●				
	190624E-PD8	0.48-0.96	4.32-7.7	19.05	19.3	6.35	2.4	●	●	●				
	250724E-PD8	0.48-0.96	4.32-10.3	25.4	25.8	7.94	2.4	●	●	○				
	250924E-PD8	0.48-0.96	4.32-10.3	25.4	25.8	9.525	2.4	●	●	●				

Marked: ● Stock available
○ Produced by order

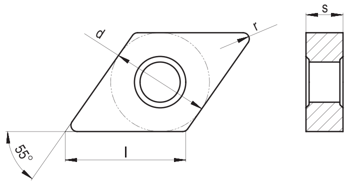
Negative 80° （C） Rhombic Inserts

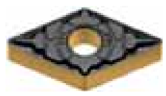
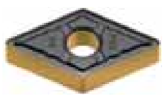
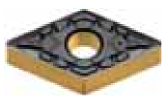


Inserts	Designation	Recommended parameters		Dimensions (mm)				Grades						
								CVD coated					PVD coated	
		Feed rate (mm/rev)	ap (mm)	d	l	s	r	AC150P	AC250P	AC350P	ACK15A	AC150K	AP301M	AP100S
	CNMM 190612S-PC9	0.26-0.60	2.40-9.7	19.05	19.3	6.35	1.2	●	●	○				
	190616S-PC9	0.35-0.80	3.20-9.7	19.05	19.3	6.35	1.6	●	●	○				
	190624S-PC9	0.53-1.20	4.80-9.7	19.05	19.3	6.35	2.4	●	●	●				
	250724S-PC9	0.53-1.20	4.80-12.9	25.4	25.8	7.94	2.4	●	●	●				
	250924S-PC9	0.53-1.20	4.80-12.9	25.4	25.8	9.525	2.4	●	●	○				
	CNMM 190612S-PD9	0.30-0.72	2.64-11.6	19.05	19.3	6.35	1.2	○	●	○				
	190616S-PD9	0.40-0.96	3.52-11.6	19.05	19.3	6.35	1.6	●	●	○				
	190624S-PD9	0.60-1.44	5.28-11.6	19.05	19.3	6.35	2.4	●	●	●				
	250724S-PD9	0.60-1.44	5.28-15.5	25.4	25.8	7.94	2.4	○	●	○				
	250924S-PD9	0.60-1.44	5.28-15.5	25.4	25.8	9.525	2.4	●	●	●				

Marked: ● Stock available
○ Produced by order

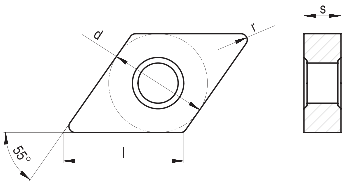
Negative 55° （D） Rhombic Inserts

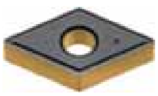
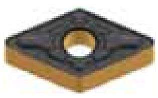
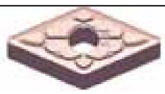


Inserts	Designation	Recommended parameters		Dimensions (mm)				Grades						
								CVD coated					PVD coated	
		Feed rate (mm/rev)	ap (mm)	d	l	s	r	AC150P	AC250P	AC350P	ACK15A	AC150K	AP301M	AP100S
	DNMG 110404E-PB1	0.05-0.15	0.26-2.3	9.525	11.62	4.76	0.4	○	●					
	150404E-PB1	0.05-0.15	0.26-3.1	12.7	15.5	4.76	0.4	●	●					
	150408E-PB1	0.10-0.30	0.52-3.1	12.7	15.5	4.76	0.8	●	●					
	150412E-PB1	0.15-0.45	0.78-3.1	12.7	15.5	4.76	1.2	○	○					
	150604E-PB1	0.05-0.15	0.26-3.1	12.7	15.5	6.35	0.4	●	●					
	150608E-PB1	0.10-0.30	0.52-3.1	12.7	15.5	6.35	0.8	●	●					
	150612E-PB1	0.15-0.45	0.78-3.1	12.7	15.5	4.76	1.2	○	○					
	DNMG 150404E-MB2	0.05-0.15	0.26-2.9	12.7	15.5	4.76	0.4						●	●
	150408E-MB2	0.10-0.30	0.52-2.9	12.7	15.5	4.76	0.8						●	●
	150604E-MB2	0.05-0.15	0.26-2.9	12.7	15.5	6.35	0.4						●	●
	150608E-MB2	0.10-0.30	0.52-2.9	12.7	15.5	6.35	0.8						●	●
	DNMG 150404E-PB3	0.06-0.18	0.30-3.1	12.7	15.5	4.76	0.4	●	●					
	150408E-PB3	0.12-0.36	0.60-3.1	12.7	15.5	4.76	0.8	●	●					
	150412E-PB3	0.18-0.54	0.90-3.1	12.7	15.5	4.76	1.2	●	●					
	150604E-PB3	0.06-0.18	0.30-3.1	12.7	15.5	6.35	0.4	●	●					
	150608E-PB3	0.12-0.36	0.60-3.1	12.7	15.5	6.35	0.8	●	●					
	150612E-PB3	0.18-0.54	0.90-3.1	12.7	15.5	6.35	1.2	●	●					
	DNMG 110408E-PC3	0.14-0.40	0.68-2.6	9.525	11.62	4.76	0.8	○	○					
	110412E-PC3	0.20-0.60	1.02-2.6	9.525	11.62	4.76	1.2	○	○					
	150404E-PC3	0.07-0.20	0.34-3.5	12.7	15.5	4.76	0.4	●	●					
	150408E-PC3	0.14-0.40	0.68-3.5	12.7	15.5	4.76	0.8	●	●					
	150412E-PC3	0.20-0.60	1.02-3.5	12.7	15.5	4.76	1.2	●	●					
	150604E-PC3	0.07-0.20	0.34-3.5	12.7	15.5	6.35	0.4	●	●					
	150608E-PC3	0.14-0.40	0.68-3.5	12.7	15.5	6.35	0.8	●	●					
	150612E-PC3	0.20-0.60	1.02-3.5	12.7	15.5	6.35	1.2	●	●					
	DNMG 110404E-PD3	0.08-0.22	0.40-2.9	9.525	11.62	4.76	0.4	●	●					
	110408E-PD3	0.15-0.44	0.80-2.9	9.525	11.62	4.76	0.8	●	●					
	110412E-PD3	0.23-0.66	1.20-2.9	9.525	11.62	4.76	1.2	○	○					
	150404E-PD3	0.08-0.22	0.40-3.9	12.7	15.5	4.76	0.4	●	●					
	150408E-PD3	0.15-0.44	0.80-3.9	12.7	15.5	4.76	0.8	●	●	○				
	150412E-PD3	0.23-0.66	1.20-3.9	12.7	15.5	4.76	1.2	●	●	○				
	150604E-PD3	0.08-0.22	0.40-3.9	12.7	15.5	6.35	0.4	●	●					
	150608E-PD3	0.15-0.44	0.80-3.9	12.7	15.5	6.35	0.8	●	●	●				
	150612E-PD3	0.23-0.66	1.20-3.9	12.7	15.5	6.35	1.2	●	●	●				

Marked: ● Stock available
○ Produced by order

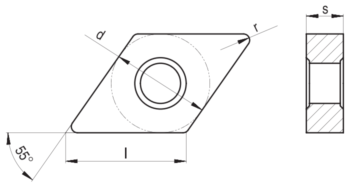
Negative 55° （D） Rhombic Inserts

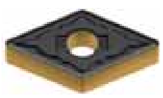
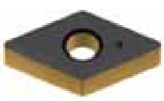


Inserts	Designation	Recommended parameters		Dimensions (mm)				Grades						
								CVD coated					PVD coated	
		Feed rate (mm/rev)	ap (mm)	d	l	s	r	AC150P	AC250P	AC350P	ACK15A	AC150K	AP301M	AP100S
	DNMG 150404E-PC4	0.08-0.22	0.40-3.9	12.7	15.5	4.76	0.4	●	●		●	●		
	150408E-PC4	0.15-0.44	0.80-3.9	12.7	15.5	4.76	0.8	●	●		●	○		
	150412E-PC4	0.23-0.66	1.20-3.9	12.7	15.5	4.76	1.2	●	○		●	●		
	150604E-PC4	0.08-0.22	0.40-3.9	12.7	15.5	6.35	0.4	●	○		○	○		
	150608E-PC4	0.15-0.44	0.80-3.9	12.7	15.5	6.35	0.8	●	●		●	●		
	150612E-PC4	0.23-0.66	1.20-3.9	12.7	15.5	6.35	1.2	●	●		●	○		
	DNMG 150404E-MC3	0.08-0.22	0.32-3.9	12.7	15.5	4.76	0.4						●	
	150408E-MC3	0.15-0.44	0.64-3.9	12.7	15.5	4.76	0.8						●	
	150412E-MC3	0.23-0.66	0.96-3.9	12.7	15.5	4.76	1.2						●	
	150604E-MC3	0.08-0.22	0.32-3.9	12.7	15.5	4.76	0.4						●	
	150608E-MC3	0.15-0.44	0.64-3.9	12.7	15.5	6.35	0.8						●	
	150612E-MC3	0.23-0.66	0.96-3.9	12.7	15.5	6.35	1.2						●	
	DNMG 150404E-SC3	0.08-0.22	0.40-3.9	12.7	15.5	4.76	0.4							●
	150408E-SC3	0.15-0.44	0.80-3.9	12.7	15.5	4.76	0.8							●
	150412E-SC3	0.23-0.66	1.20-3.9	12.7	15.5	4.76	1.2							●
	150604E-SC3	0.08-0.22	0.40-3.9	12.7	15.5	6.35	0.4							●
	150608E-SC3	0.15-0.44	0.80-3.9	12.7	15.5	6.35	0.8							●
	150612E-SC3	0.23-0.66	1.20-3.9	12.7	15.5	6.35	1.2							●
	DNMG 150408E-PD5	0.20-0.60	1.20-5.4	12.7	15.5	4.76	0.8	●	●	●				
	150412E-PD5	0.30-0.90	1.80-5.4	12.7	15.5	4.76	1.2	●	●	●				
	150416E-PD5	0.40-1.20	2.40-5.4	12.7	15.5	4.76	1.6	●	●	●				
	150608E-PD5	0.20-0.60	1.20-5.4	12.7	15.5	6.35	0.8	○	○	●				
	150612E-PD5	0.30-0.90	1.80-5.4	12.7	15.5	6.35	1.2	●	●	○				
	150616E-PD5	0.40-1.20	2.40-5.4	12.7	15.5	6.35	1.6	○	●	○				
	DNMG 150408E-MC4	0.20-0.60	1.20-5.4	12.7	15.5	4.76	0.8						●	○
	150412E-MC4	0.30-0.90	1.80-5.4	12.7	15.5	4.76	1.2						●	○
	150608E-MC4	0.20-0.60	1.20-5.4	12.7	15.5	6.35	0.8						●	●
	150612E-MC4	0.30-0.90	1.80-5.4	12.7	15.5	6.35	1.2						●	●

Marked: ● Stock available
○ Produced by order

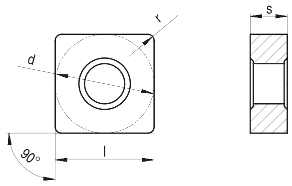
Negative 55° （D） Rhombic Inserts



Inserts	Designation	Recommended parameters		Dimensions (mm)				Grades						
		Feed rate (mm/rev)	ap (mm)	d	l	s	r	CVD coated					PVD coated	
								AC150P	AC250P	AC350P	ACK15A	AC150K	AP301M	AP100S
	DNMG 110404E-KC4	0.09-0.24	0.48-3.5	9.525	11.62	4.76	0.4				●	○		
	110408E-KC4	0.18-0.48	0.96-3.5	9.525	11.62	4.76	0.8				●	○		
	150404E-KC4	0.09-0.24	0.48-4.6	12.7	15.5	4.76	0.4				●	○		
	150408E-KC4	0.18-0.48	0.96-4.6	12.7	15.5	4.76	0.8				●	○		
	150412E-KC4	0.26-0.72	1.44-4.6	12.7	15.5	4.76	1.2				●	○		
	150604E-KC4	0.09-0.24	0.48-4.6	12.7	15.5	6.35	0.4				●	○		
	150608E-KC4	0.18-0.48	0.96-4.6	12.7	15.5	6.35	0.8				●	●		
	150612E-KC4	0.26-0.72	1.44-4.6	12.7	15.5	6.35	1.2				●	○		
	DNMA 150404E-KD5	0.10-0.30	0.60-5.4	12.7	15.5	4.76	0.4				●	○		
	150408E-KD5	0.20-0.60	1.20-5.4	12.7	15.5	4.76	0.8				●	○		
	150412E-KD5	0.30-0.90	1.80-5.4	12.7	15.5	4.76	1.2				●	○		
	150604E-KD5	0.10-0.30	0.60-5.4	12.7	15.5	6.35	0.4				●	○		
	150608E-KD5	0.20-0.60	1.20-5.4	12.7	15.5	6.35	0.8				●	○		
	150612E-KD5	0.30-0.90	1.80-5.4	12.7	15.5	6.35	1.2				●	○		

Marked: ● Stock available
○ Produced by order

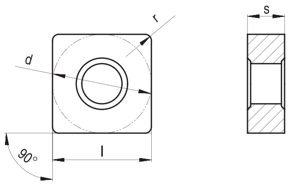
Negative 90° （S） Square Inserts



Inserts	Designation	Recommended parameters		Dimensions (mm)				Grades						
								CVD coated					PVD coated	
		Feed rate (mm/rev)	ap (mm)	d	l	s	r	AC150P	AC250P	AC350P	ACK15A	AC150K	AP301M	AP100S
	SNMG 120404E-PB1	0.05-0.15	0.26-3.2	12.7	12.7	4.76	0.4	●	●					
	120408E-PB1	0.10-0.30	0.52-3.2	12.7	12.7	4.76	0.8	●	●					
	120412E-PB1	0.15-0.45	0.78-3.2	12.7	12.7	4.76	1.2	○	○					
	SNMG 120404E-MB2	0.05-0.15	0.26-3.2	12.7	12.7	4.76	0.4						●	●
	120408E-MB2	0.10-0.30	0.52-3.2	12.7	12.7	4.76	0.8						●	●
	SNMG 120404E-PC3	0.07-0.20	0.34-3.8	12.7	12.7	4.76	0.4	●	●					
	120408E-PC3	0.14-0.40	0.68-3.8	12.7	12.7	4.76	0.8	●	●					
	120412E-PC3	0.20-0.60	1.02-3.8	12.7	12.7	4.76	1.2	●	●					
	SNMG 120404E-PD3	0.08-0.22	0.40-4.2	12.7	12.7	4.76	0.4	●	●	○				
	120408E-PD3	0.15-0.44	0.80-4.2	12.7	12.7	4.76	0.8	●	●	●				
	120412E-PD3	0.23-0.66	1.20-4.2	12.7	12.7	4.76	1.2	●	●	●				
	190608E-PD3	0.15-0.44	0.80-6.3	19.05	19.05	6.35	0.8	●	●	○				
	SNMG 120404E-PC4	0.08-0.22	0.40-4.2	12.7	12.7	4.76	0.4	●	●		○	○		
	120408E-PC4	0.15-0.44	0.80-4.2	12.7	12.7	4.76	0.8	●	●		●	○		
	120412E-PC4	0.23-0.66	1.20-4.2	12.7	12.7	4.76	1.2	●	●		●	●		
	SNMG 120404E-MC3	0.08-0.22	0.32-4.2	12.7	12.7	4.76	0.4						●	
	120408E-MC3	0.15-0.44	0.64-4.2	12.7	12.7	4.76	0.8						●	
	120412E-MC3	0.23-0.66	0.96-4.2	12.7	12.7	4.76	1.2						●	
	150612E-MC3	0.23-0.66	0.96-5.2	15.875	15.875	6.35	1.2						○	
	150616E-MC3	0.30-0.88	1.28-5.2	15.875	15.875	6.35	1.6						○	
	190612E-MC3	0.23-0.66	0.96-6.3	19.05	19.05	6.35	1.2						○	
	190616E-MC3	0.30-0.88	1.28-6.3	19.05	19.05	6.35	1.6						○	

Marked: ● Stock available
○ Produced by order

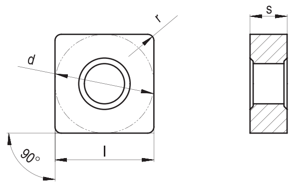
Negative 90° （S） Square Inserts

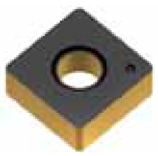
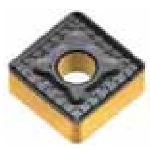


Inserts	Designation	Recommended parameters		Dimensions (mm)				Grades						
								CVD coated					PVD coated	
		Feed rate (mm/rev)	ap (mm)	d	l	s	r	AC150P	AC250P	AC350P	ACK15A	AC150K	AP301M	AP100S
	**SNMG 120412E-SC3**	0.23-0.66	1.20-4.2	12.7	12.7	4.76	1.2							●
	150612E-SC3	0.23-0.66	1.20-5.2	15.875	15.875	6.35	1.2							●
	150616E-SC3	0.30-0.88	1.60-5.2	15.875	15.875	6.35	1.6							●
	190612E-SC3	0.23-0.66	1.20-6.3	19.05	19.05	6.35	1.2							●
	**SNMG 150608E-PD5**	0.20-0.60	1.20-7.9	15.875	15.875	6.35	0.8	○	●	●				
	150612E-PD5	0.30-0.90	1.80-7.9	15.875	15.875	6.35	1.2	○	●	●				
	150616E-PD5	0.40-1.20	2.40-7.9	15.875	15.875	6.35	1.6	○	●	○				
	190612E-PD5	0.30-0.90	1.80-9.5	19.05	19.05	6.35	1.2	●	●	○				
	190616E-PD5	0.40-1.20	2.40-9.5	19.05	19.05	6.35	1.6	●	●	○				
	**SNMG 120408E-MC4**	0.20-0.60	1.20-6.4	12.7	12.7	4.76	0.8						●	●
	120412E-MC4	0.30-0.90	1.80-6.4	12.7	12.7	4.76	1.2						●	●
	150612E-MC4	0.30-0.90	1.80-7.9	15.875	15.875	6.35	1.2						○	○
	150616E-MC4	0.40-1.20	2.40-7.9	15.875	15.875	6.35	1.6						○	○
	190612E-MC4	0.30-0.90	1.80-9.5	19.05	19.05	6.35	1.2						○	○
	190616E-MC4	0.40-1.20	2.40-9.5	19.05	19.05	6.35	1.6						○	○
	**SNMG 090304E-KC4**	0.09-0.24	0.48-3.8	9.525	9.525	3.18	0.4				●	○		
	090308E-KC4	0.18-0.48	0.96-3.8	9.525	9.525	3.18	0.8				●	○		
	120404E-KC4	0.09-0.24	0.48-5.1	12.7	12.7	4.76	0.4				●	○		
	120408E-KC4	0.18-0.48	0.96-5.1	12.7	12.7	4.76	0.8				●	●		
	120412E-KC4	0.26-0.72	1.44-5.1	12.7	12.7	4.76	1.2				●	●		
	150608E-KC4	0.18-0.48	0.96-6.4	15.875	15.875	6.35	0.8				●	○		
	150612E-KC4	0.26-0.72	1.44-6.4	15.875	15.875	6.35	1.2				●	○		
	150616E-KC4	0.35-0.96	1.92-6.4	15.875	15.875	6.35	1.6				●	○		
	190608E-KC4	0.18-0.48	0.96-7.6	19.05	19.05	6.35	0.8				●	○		
	190612E-KC4	0.26-0.72	1.44-7.6	19.05	19.05	6.35	1.2				●	○		
	190616E-KC4	0.35-0.96	1.92-7.6	19.05	19.05	6.35	1.6				●	○		
	190624E-KC4	0.53-1.44	2.88-7.6	19.05	19.05	6.35	2.4				●	○		

Marked: ● Stock available
○ Produced by order

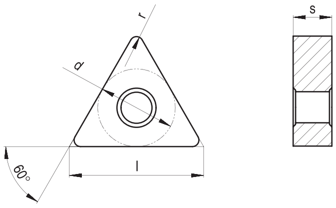
Negative 90° （S） Square Inserts

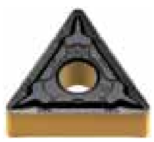


Inserts	Designation	Recommended parameters		Dimensions (mm)				Grades						
								CVD coated					PVD coated	
		Feed rate (mm/rev)	ap (mm)	d	l	s	r	AC150P	AC250P	AC350P	ACK15A	AC150K	AP301M	AP100S
	SNMA 120408E-KD5	0.20-0.60	1.20-6.4	12.7	12.7	4.76	0.8				●	○		
	120412E-KD5	0.30-0.90	1.80-6.4	12.7	12.7	4.76	1.2				●	●		
	120416E-KD5	0.40-1.20	2.40-6.4	12.7	12.7	4.76	1.6				●	●		
	150612E-KD5	0.30-0.90	1.80-7.9	15.875	15.875	6.35	1.2				●	○		
	150616E-KD5	0.40-1.20	2.40-7.9	15.875	15.875	6.35	1.6				●	●		
	190612E-KD5	0.30-0.90	1.80-9.5	19.05	19.05	6.35	1.2				●	○		
	190616E-KD5	0.40-1.20	2.40-9.5	19.05	19.05	6.35	1.6				●	○		
	SNMM 120408E-PD8	0.16-0.32	1.44-5.1	12.7	12.7	4.76	0.8	○	●	●				
	120412E-PD8	0.24-0.48	2.16-5.1	12.7	12.7	4.76	1.2	○	○	○				
	150612E-PD8	0.24-0.48	2.16-6.4	15.875	15.875	6.35	1.2	○	○	○				
	150616E-PD8	0.32-0.64	2.88-6.4	15.875	15.875	6.35	1.6	○	○	○				
	190612E-PD8	0.24-0.48	2.16-7.6	19.05	19.05	6.35	1.2	●	●	○				
	190616E-PD8	0.32-0.64	2.88-7.6	19.05	19.05	6.35	1.6	○	○	●				
	190624E-PD8	0.48-0.96	4.32-7.6	19.05	19.05	6.35	2.4	●	●	●				
	250724E-PD8	0.48-0.96	4.32-10.2	25.4	25.4	7.94	2.4	○	○	○				
	250924E-PD8	0.48-0.96	4.32-10.2	25.4	25.4	9.525	2.4	●	●	○				
	SNMM 190612S-PC9	0.26-0.60	2.40-9.5	19.05	19.05	6.35	1.2	●	●	○				
	190616S-PC9	0.35-0.80	3.20-9.5	19.05	19.05	6.35	1.6	○	●	○				
	190624S-PC9	0.53-1.20	4.80-9.5	19.05	19.05	6.35	2.4	●	●	●				
	250724S-PC9	0.53-1.20	4.80-12.7	25.4	25.4	7.94	2.4	●	●	○				
	250924S-PC9	0.53-1.20	4.80-12.7	25.4	25.4	9.525	2.4	●	●	○				
	SNMM 190612S-PD9	0.30-0.72	2.64-11.4	19.05	19.05	6.35	1.2	○	●	○				
	190616S-PD9	0.40-0.96	3.52-11.4	19.05	19.05	6.35	1.6	○	●	○				
	190624S-PD9	0.60-1.44	5.28-11.4	19.05	19.05	6.35	2.4	●	●	●				
	250724S-PD9	0.60-1.44	5.28-15.2	25.4	25.4	7.94	2.4	○	●	○				
	250924S-PD9	0.60-1.44	5.28-15.2	25.4	25.4	9.525	2.4	●	●	●				

Marked: ● Stock available
○ Produced by order

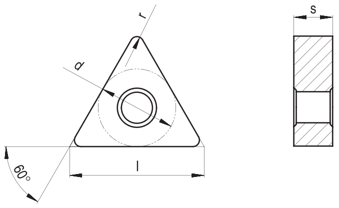
Negative 60° （T） Triangle Inserts

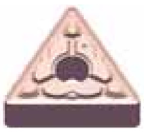


Inserts	Designation	Recommended parameters		Dimensions (mm)				Grades						
								CVD coated					PVD coated	
		Feed rate (mm/rev)	ap (mm)	d	l	s	r	AC150P	AC250P	AC350P	ACK15A	AC150K	AP301M	AP100S
	TNMG 160404E-PB1	0.05-0.15	0.26-3.1	9.525	16.5	4.76	0.4	●	●					
	160408E-PB1	0.10-0.30	0.52-3.1	9.525	16.5	4.76	0.8	●	●					
	160412E-PB1	0.15-0.45	0.78-3.1	9.525	16.5	4.76	1.2	●	●					
	TNMG 160404E-MB2	0.05-0.15	0.26-3.1	9.525	16.5	4.76	0.4						●	●
	160408E-MB2	0.10-0.30	0.52-3.1	9.525	16.5	4.76	0.8						●	●
	TNMG 160404E-PB3	0.06-0.18	0.30-3.3	9.525	16.5	4.76	0.4	●	●					
	160408E-PB3	0.12-0.36	0.60-3.3	9.525	16.5	4.76	0.8	●	●					
	160412E-PB3	0.18-0.54	0.90-3.3	9.525	16.5	4.76	1.2	●	●					
	TNMG 160404E-PC3	0.07-0.20	0.34-3.7	9.525	16.5	4.76	0.4	●	●					
	160408E-PC3	0.14-0.40	0.68-3.7	9.525	16.5	4.76	0.8	●	●					
	160412E-PC3	0.20-0.60	1.02-3.7	9.525	16.5	4.76	1.2	●	●					
	TNMG 160404E-PD3	0.08-0.22	0.40-4.1	9.525	16.5	4.76	0.4	●	●	○				
	160408E-PD3	0.15-0.44	0.80-4.1	9.525	16.5	4.76	0.8	●	●	●				
	160412E-PD3	0.23-0.66	1.20-4.1	9.525	16.5	4.76	1.2	●	●	○				
	TNMG 160404E-PC4	0.08-0.22	0.40-4.1	9.525	16.5	4.76	0.4	●	●		●	●		
	160408E-PC4	0.15-0.44	0.80-4.1	9.525	16.5	4.76	0.8	●	●		●	●		
	160412E-PC4	0.23-0.66	1.20-4.1	9.525	16.5	4.76	1.2	●	●		●	●		
	220412E-PC4	0.23-0.66	1.20-4.9	12.7	22.0	4.76	1.2	○	○		○	○		

Marked: ● Stock available
○ Produced by order

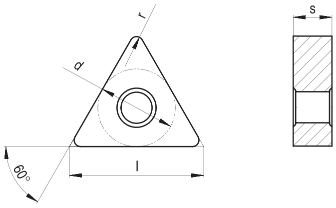
Negative 60° （T） Triangle Inserts



Inserts	Designation	Recommended parameters		Dimensions (mm)				Grades						
								CVD coated					PVD coated	
		Feed rate (mm/rev)	ap (mm)	d	l	s	r	AC150P	AC250P	AC350P	ACK15A	AC150K	AP301M	AP100S
	TNMG 160404R-PL5	0.08-0.22	0.40-4.1	9.525	16.5	4.76	0.4	●	●					
	160408R-PL5	0.15-0.44	0.80-4.1	9.525	16.5	4.76	0.8	●	●					
	160404L-PL5	0.08-0.22	0.40-4.1	9.525	16.5	4.76	0.4	●	●					
	160408L-PL5	0.15-0.44	0.80-4.1	9.525	16.5	4.76	0.8	●	●					
	TNMG 160404E-MC3	0.08-0.22	0.32-4.1	9.525	16.5	4.76	0.4						●	
	160408E-MC3	0.15-0.44	0.64-4.1	9.525	16.5	4.76	0.8						●	
	160412E-MC3	0.23-0.66	0.96-4.1	9.525	16.5	4.76	1.2						●	
	220408E-MC3	0.15-0.44	0.64-4.9	15.875	22.0	4.76	0.8						○	
	220412E-MC3	0.23-0.66	0.96-4.9	15.875	22.0	4.76	1.2						○	
	TNMG 160404E-SC3	0.08-0.22	0.40-4.1	9.525	16.5	4.76	0.4							○
	160408E-SC3	0.15-0.44	0.80-4.1	9.525	16.5	4.76	0.8							●
	160412E-SC3	0.23-0.66	1.20-4.1	9.525	16.5	4.76	1.2							●
	TNMG 160408E-PD5	0.20-0.60	1.20-5.8	9.525	16.5	4.76	0.8	●	●	●				
	160412E-PD5	0.30-0.90	1.80-5.8	9.525	16.5	4.76	1.2	●	●	●				
	220408E-PD5	0.20-0.60	1.20-7.7	12.7	22.0	4.76	0.8	●	●	●				
	220412E-PD5	0.30-0.90	1.80-7.7	12.7	22.0	4.76	1.2	●	●	●				
	220416E-PD5	0.40-1.20	2.40-7.7	12.7	22.0	4.76	1.6	●	●	●				
	TNMG 160408E-MC4	0.20-0.60	1.20-5.8	9.525	16.5	4.76	0.8						●	●
	160412E-MC4	0.30-0.90	1.80-5.8	9.525	16.5	4.76	1.2						●	●
	220408E-MC4	0.20-0.60	1.20-6.6	12.7	22.0	4.76	0.8						○	○
	220412E-MC4	0.30-0.90	1.80-6.6	12.7	22.0	4.76	1.2						○	○
	TNMG 110304E-KC4	0.09-0.24	0.48-3.3	6.35	11.0	3.18	0.4				○	○		
	160404E-KC4	0.09-0.24	0.48-4.9	9.525	16.5	4.76	0.4				●	●		
	160408E-KC4	0.18-0.48	0.96-4.9	9.525	16.5	4.76	0.8				●	●		
	160412E-KC4	0.26-0.72	1.44-4.9	9.525	16.5	4.76	1.2				●	●		
	160416E-KC4	0.35-0.96	1.92-4.9	9.525	16.5	4.76	1.6				●	●		
	220412E-KC4	0.26-0.72	1.44-6.0	12.7	22.0	4.76	1.2				●	●		
	220416E-KC4	0.35-0.96	1.92-6.0	12.7	22.0	4.76	1.6				●	○		

Marked: ● Stock available
○ Produced by order

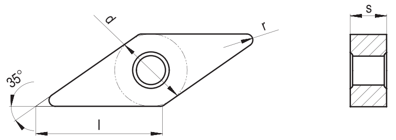
Negative 60° （T） Triangle Inserts

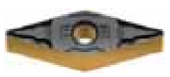
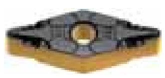
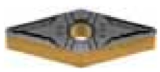
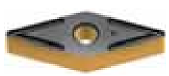
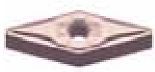


Inserts	Designation	Recommended parameters		Dimensions (mm)				Grades						
								CVD coated					PVD coated	
		Feed rate (mm/rev)	ap (mm)	d	l	s	r	AC150P	AC250P	AC350P	ACK15A	AC150K	AP301M	AP100S
	TNMA 160404E-KD5	0.10-0.30	0.60-5.8	9.525	16.5	4.76	0.4				●	○		
	160408E-KD5	0.20-0.60	1.20-5.8	9.525	16.5	4.76	0.8				●	○		
	160412E-KD5	0.30-0.90	1.80-5.8	9.525	16.5	4.76	1.2				●	○		
	160416E-KD5	0.40-1.20	2.40-5.8	9.525	16.5	4.76	1.6				●	○		
	220408E-KD5	0.20-0.60	1.20-7.7	12.7	22.0	4.76	0.8				●	○		
	220412E-KD5	0.30-0.90	1.80-7.7	12.7	22.0	4.76	1.2				●	●		
	220416E-KD5	0.40-1.20	2.40-7.7	12.7	22.0	4.76	1.6				●	●		
	TNMM 160408E-PD8	0.16-0.32	1.44-4.9	9.525	16.5	4.76	0.8	○	○	○				
	160412E-PD8	0.24-0.48	2.16-4.9	9.525	16.5	4.76	1.2	○	○	○				
	220408E-PD8	0.16-0.32	1.44-6.0	12.7	22.0	4.76	0.8	○	○	○				
	220412E-PD8	0.24-0.48	2.16-6.0	12.7	22.0	4.76	1.2	○	○	○				
	220416E-PD8	0.32-0.64	2.88-6.0	12.7	22.0	4.76	1.6	○	○	○				

Marked: ● Stock available
○ Produced by order

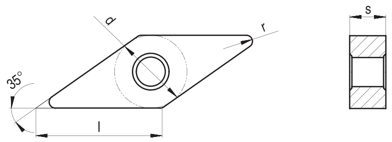
Negative 35° （V） Rhombic Inserts



Inserts	Designation	Recommended parameters		Dimensions (mm)				Grades						
								CVD coated					PVD coated	
		Feed rate (mm/rev)	ap (mm)	d	l	s	r	AC150P	AC250P	AC350P	ACK15A	AC150K	AP301M	AP100S
	VNMG 160404E-PB1	0.05-0.15	0.26-2.1	9.525	16.5	4.76	0.4	●	●					
	160408E-PB1	0.10-0.30	0.52-2.1	9.525	16.5	4.76	0.8	●	●					
	160412E-PB1	0.15-0.45	0.78-2.1	9.525	16.5	4.76	1.2	○	○					
	VNMG 160404E-MB2	0.05-0.15	0.26-2.1	9.525	16.5	4.76	0.4						●	●
	160408E-MB2	0.10-0.30	0.52-2.1	9.525	16.5	4.76	0.8						●	●
	VNMG 160404E-PB3	0.06-0.18	0.30-3.1	9.525	16.5	4.76	0.4	●	●					
	160408E-PB3	0.12-0.36	0.60-3.1	9.525	16.5	4.76	0.8	●	●					
	160412E-PB3	0.18-0.54	0.90-3.1	9.525	16.5	4.76	1.2	●	●					
	VNMG 160404E-PC3	0.07-0.20	0.34-3.3	9.525	16.5	4.76	0.4	●	●					
	160408E-PC3	0.14-0.40	0.68-3.3	9.525	16.5	4.76	0.8	●	●					
	160412E-PC3	0.20-0.60	1.02-3.3	9.525	16.5	4.76	1.2	●	●					
	VNMG 160404E-PD3	0.08-0.22	0.40-3.3	9.525	16.5	4.76	0.4	●	●					
	160408E-PD3	0.15-0.44	0.80-3.3	9.525	16.5	4.76	0.8	●	●					
	160412E-PD3	0.23-0.66	1.20-3.3	9.525	16.5	4.76	1.2	●	●					
	VNMG 160404E-PC4	0.08-0.22	0.40-3.3	9.525	16.5	4.76	0.4	●	●		●	●		
	160408E-PC4	0.15-0.44	0.80-3.3	9.525	16.5	4.76	0.8	●	●		●	●		
	160412E-PC4	0.23-0.66	1.20-3.3	9.525	16.5	4.76	1.2	●	●		●	●		
	VNMG 160404E-MC3	0.08-0.22	0.32-3.3	9.525	16.5	4.76	0.4						●	
	160408E-MC3	0.15-0.44	0.64-3.3	9.525	16.5	4.76	0.8						●	
	VNMG 160404E-SC3	0.08-0.22	0.40-3.3	9.525	16.5	4.76	0.4							●
	160408E-SC3	0.15-0.44	0.80-3.3	9.525	16.5	4.76	0.8							●
	160412E-SC3	0.23-0.66	1.20-3.3	9.525	16.5	4.76	1.2							●

Marked: ● Stock available
○ Produced by order

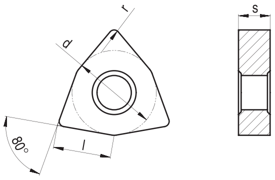
Negative 35° （V） Rhombic Inserts



Inserts	Designation	Recommended parameters		Dimensions (mm)				Grades						
								CVD coated					PVD coated	
		Feed rate (mm/rev)	ap (mm)	d	l	s	r	AC150P	AC250P	AC350P	ACK15A	AC150K	AP301M	AP100S
	**VNMG 160404E-KC4**	0.09-0.24	0.48-3.3	9.525	16.5	4.76	0.4				●	○		
	160408E-KC4	0.18-0.48	0.96-3.3	9.525	16.5	4.76	0.8				●	○		
	160412E-KC4	0.26-0.72	1.44-3.3	9.525	16.5	4.76	1.2				●	○		

Marked: ● Stock available
○ Produced by order

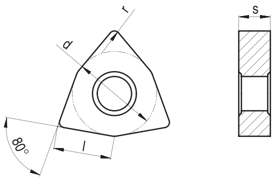
Negative 80° （W） Trigon Inserts



Inserts	Designation	Recommended parameters		Dimensions (mm)				Grades						
								CVD coated					PVD coated	
		Feed rate (mm/rev)	ap (mm)	d	l	s	r	AC150P	AC250P	AC350P	ACK15A	AC150K	AP301M	AP100S
	WNMG 080404E-PB1	0.05-0.15	0.26-2.2	12.7	8.7	4.76	0.4	●	●					
	080408E-PB1	0.10-0.30	0.52-2.2	12.7	8.7	4.76	0.8	●	●					
	080412E-PB1	0.15-0.45	0.78-2.2	12.7	8.7	4.76	1.2	●	●					
	WNMG 080404E-MB2	0.05-0.15	0.26-2.2	12.7	8.7	4.76	0.4						●	●
	080408E-MB2	0.10-0.30	0.52-2.2	12.7	8.7	4.76	0.8						●	●
	WNMG 080404E-PB3	0.06-0.18	0.30-2.3	12.7	8.7	4.76	0.4	●	●					
	080408E-PB3	0.12-0.36	0.60-2.3	12.7	8.7	4.76	0.8	●	●					
	080412E-PB3	0.18-0.54	0.90-2.3	12.7	8.7	4.76	1.2	●	●					
	WNMG 080404E-PC3	0.07-0.20	0.34-2.6	12.7	8.7	4.76	0.4	●	●					
	080408E-PC3	0.14-0.40	0.68-2.6	12.7	8.7	4.76	0.8	●	●					
	080412E-PC3	0.20-0.60	1.02-2.6	12.7	8.7	4.76	1.2	●	●					
	WNMG 060408E-PD3	0.15-0.44	0.80-2.1	9.525	6.52	4.76	0.8	●	●	○				
	080404E-PD3	0.08-0.22	0.40-2.9	12.7	8.7	4.76	0.4	●	●	○				
	080408E-PD3	0.15-0.44	0.80-2.9	12.7	8.7	4.76	0.8	●	●	●				
	080412E-PD3	0.23-0.66	1.20-2.9	12.7	8.7	4.76	1.2	●	●	●				
	WNMG 080404E-PC4	0.08-0.22	0.40-2.9	12.7	8.7	4.76	0.4	●	●		●	●		
	080408E-PC4	0.15-0.44	0.80-2.9	12.7	8.7	4.76	0.8	●	●		●	●		
	080412E-PC4	0.23-0.66	1.20-2.9	12.7	8.7	4.76	1.2	●	●		●	●		
	WNMG 060408E-MC3	0.15-0.44	0.64-2.1	9.525	6.52	4.76	0.8						●	
	060412E-MC3	0.23-0.66	0.96-2.1	9.525	6.52	4.76	1.2						●	
	080404E-MC3	0.08-0.22	0.32-2.9	12.7	8.7	4.76	0.4						●	
	080408E-MC3	0.15-0.44	0.64-2.9	12.7	8.7	4.76	0.8						●	
	080412E-MC3	0.23-0.66	0.96-2.9	12.7	8.7	4.76	1.2						●	

Marked: ● Stock available
○ Produced by order

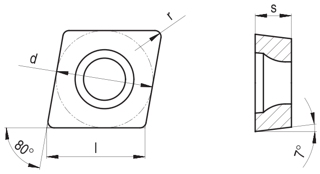
Negative 80° （W） Trigon Inserts



Inserts	Designation	Recommended parameters		Dimensions (mm)				Grades						
								CVD coated					PVD coated	
		Feed rate (mm/rev)	ap (mm)	d	l	s	r	AC150P	AC250P	AC350P	ACK15A	AC150K	AP301M	AP100S
	**WNMG 080404E-SC3**	0.08-0.22	0.40-2.9	12.7	8.7	4.76	0.4							●
	080408E-SC3	0.15-0.44	0.80-2.9	12.7	8.7	4.76	0.8							●
	080412E-SC3	0.23-0.66	1.20-2.9	12.7	8.7	4.76	1.2							●
	**WNMG 080408E-PD5**	0.20-0.60	1.20-4.3	12.7	8.7	4.76	0.8	●	●	●				
	080412E-PD5	0.30-0.90	1.80-4.3	12.7	8.7	4.76	1.2	●	●	●				
	**WNMG 060408E-MC4**	0.20-0.60	1.20-3.3	9.525	6.52	4.76	0.8						○	○
	060412E-MC4	0.30-0.90	1.80-3.3	9.525	6.52	4.76	1.2						○	○
	080408E-MC4	0.20-0.60	1.20-4.3	12.7	8.7	4.76	0.8						●	●
	080412E-MC4	0.30-0.90	1.80-4.3	12.7	8.7	4.76	1.2						●	●
	**WNMG 060404E-KC4**	0.09-0.24	0.48-2.6	9.525	6.52	4.76	0.4				●	○		
	060408E-KC4	0.18-0.48	0.96-2.6	9.525	6.52	4.76	0.8				●	○		
	080404E-KC4	0.09-0.24	0.48-3.5	12.7	8.7	4.76	0.4				●	○		
	080408E-KC4	0.18-0.48	0.96-3.5	12.7	8.7	4.76	0.8				●	●		
	080412E-KC4	0.26-0.72	1.44-3.5	12.7	8.7	4.76	1.2				●	●		
	080416E-KC4	0.35-0.96	1.92-3.5	12.7	8.7	4.76	1.2				●	○		
	**WNMA 080404E-KD5**	0.10-0.30	0.60-4.3	12.7	8.7	4.76	0.4				●	○		
	080408E-KD5	0.20-0.60	1.20-4.3	12.7	8.7	4.76	0.8				●	●		
	080412E-KD5	0.30-0.90	1.80-4.3	12.7	8.7	4.76	1.2				●	●		
	080416E-KD5	0.40-1.20	2.40-4.3	12.7	8.7	4.76	1.6				●	○		

Marked: ● Stock available
○ Produced by order

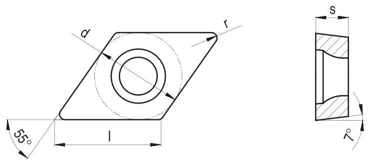
Positive 80° （C） Rhombic Inserts

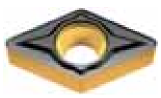
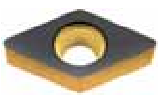


Inserts	Designation	Recommended parameters		Dimensions (mm)				Grades							
								CVD coated					PVD coated		uncoated
		Feed rate (mm/rev)	ap (mm)	d	l	s	r	AC150P	AC250P	AC350P	ACK15A	AC150K	AP301M	AP100S	AW100K
	CCMT 060202E-PB1	0.02-0.07	0.15-1.6	6.35	6.45	2.38	0.2	●	●				●		
	060204E-PB1	0.04-0.14	0.30-1.6	6.35	6.45	2.38	0.4	●	●				●		
	060208E-PB1	0.09-0.28	0.60-1.6	6.35	6.45	2.38	0.8	●	●				●		
	09T302E-PB1	0.02-0.07	0.15-2.4	9.525	9.67	3.97	0.2	●	●				●		
	09T304E-PB1	0.04-0.14	0.30-2.4	9.525	9.67	3.97	0.4	●	●				●		
	09T308E-PB1	0.09-0.28	0.60-2.4	9.525	9.67	3.97	0.8	●	●				●		
	CCMT 060204E-PC2	0.05-0.16	0.35-1.9	6.35	6.45	2.38	0.4	●	●				●	●	
	060208E-PC2	0.10-0.32	0.70-1.9	6.35	6.45	2.38	0.8	●	●				●	●	
	09T304E-PC2	0.05-0.16	0.35-2.9	9.525	9.67	3.97	0.4	●	●				●	●	
	09T308E-PC2	0.10-0.32	0.70-2.9	9.525	9.67	3.97	0.8	●	●				●	●	
	120404E-PC2	0.05-0.16	0.35-3.9	12.7	12.9	4.76	0.4	●	●				●	●	
	120408E-PC2	0.10-0.32	0.70-3.9	12.7	12.9	4.76	0.8	●	●				●	●	
	120412E-PC2	0.16-0.48	1.05-3.9	12.7	12.89	4.76	1.2	●	●				●	●	
	CCGT 060204F-NC2	0.05-0.20	0.32-2.9	6.35	6.45	2.38	0.4								●
	09T302F-NC2	0.02-0.10	0.16-4.4	9.525	9.67	3.97	0.2								●
	09T304F-NC2	0.05-0.20	0.32-4.4	9.525	9.67	3.97	0.4								●
	09T308F-NC2	0.10-0.40	0.64-4.4	9.525	9.67	3.97	0.8								●
	120404F-NC2	0.05-0.20	0.32-5.8	12.7	12.9	4.76	0.4								●
	120408F-NC2	0.10-0.40	0.64-5.8	12.7	12.9	4.76	0.8								●
	CCMT 060204E-KC2	0.06-0.18	0.40-2.1	6.35	6.45	2.38	0.4	●	●		●	●			
	060208E-KC2	0.12-0.36	0.80-2.1	6.35	6.45	2.38	0.8	●	●		●	○			
	09T304E-KC2	0.06-0.18	0.40-3.2	9.525	9.67	3.97	0.4	●	●		●	○			
	09T308E-KC2	0.12-0.36	0.80-3.2	9.525	9.67	3.97	0.8	●	●		●	●			
	120404E-KC2	0.06-0.18	0.40-4.3	12.7	12.9	4.76	0.4	●	●		●	●			
	120408E-KC2	0.12-0.36	0.80-4.3	12.7	12.9	4.76	0.8	●	●		●	●			
	120412E-KC2	0.18-0.54	1.20-4.3	12.7	12.9	4.76	1.2	●	●		●	●			
	CCMW 060204E-KD5	0.10-0.22	0.40-3.2	6.35	6.45	2.38	0.4				●	○			
	09T304E-KD5	0.10-0.22	0.40-4.8	9.525	9.67	3.97	0.4				●	○			
	09T308E-KD5	0.20-0.44	0.80-4.8	9.525	9.67	3.97	0.8				●	○			
	120404E-KD5	0.10-0.22	0.40-6.4	12.7	12.9	4.76	0.4				●	○			
	120408E-KD5	0.20-0.44	0.80-6.4	12.7	12.9	4.76	0.8				●	○			

Marked: ● Stock available
○ Produced by order

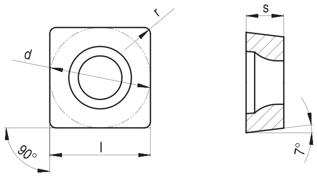
Positive 55° （D） Rhombic Inserts



Inserts	Designation	Recommended parameters		Dimensions (mm)				Grades							
		Feed rate (mm/rev)	ap (mm)	d	l	s	r	CVD coated					PVD coated		uncoated
								AC150P	AC250P	AC350P	ACK15A	AC150K	AP301M	AP100S	AW100K
	DCMT 070202E-PB1	0.02-0.07	0.15-1.5	6.35	7.75	2.38	0.2	●	●				●		
	070204E-PB1	0.04-0.14	0.30-1.5	6.35	7.75	2.38	0.4	●	●				●		
	11T302E-PB1	0.02-0.07	0.15-2.3	9.525	11.62	3.97	0.2	●	●				●		
	11T304E-PB1	0.04-0.14	0.30-2.3	9.525	11.62	3.97	0.4	●	●				●		
	11T308E-PB1	0.09-0.28	0.60-2.3	9.525	11.62	3.97	0.8	●	●				●		
	DCMT 070204E-PC2	0.05-0.16	0.35-2.1	6.35	7.75	2.38	0.4	●	●				●	●	
	070208E-PC2	0.10-0.32	0.70-2.1	6.35	7.75	2.38	0.8	●	●				●	●	
	11T304E-PC2	0.05-0.16	0.35-3.1	9.525	11.62	3.97	0.4	●	●				●	●	
	11T308E-PC2	0.10-0.32	0.70-3.1	9.525	11.62	3.97	0.8	●	●				●	●	
	11T312E-PC2	0.16-0.48	1.05-3.1	9.525	11.62	3.97	1.2	●	●				○	○	
	DCGT 070202F-NC2	0.02-0.10	0.16-3.5	6.35	7.75	2.38	0.2								●
	070204F-NC2	0.05-0.20	0.32-3.5	6.35	7.75	2.38	0.4								●
	11T302F-NC2	0.02-0.10	0.16-5.2	9.525	11.62	3.97	0.2								●
	11T304F-NC2	0.05-0.20	0.32-5.2	9.525	11.62	3.97	0.4								●
	11T308F-NC2	0.10-0.40	0.64-5.2	9.525	11.62	3.97	0.8								●
	DCMT 070204E-KC2	0.06-0.18	0.40-2.3	6.35	7.75	2.38	0.4	●	●		●	●			
	070208E-KC2	0.12-0.36	0.80-2.3	6.35	7.75	2.38	0.8	●	●		○	○			
	11T304E-KC2	0.06-0.18	0.40-3.5	9.525	11.62	3.97	0.4	●	●		●	●			
	11T308E-KC2	0.12-0.36	0.80-3.5	9.525	11.62	3.97	0.8	●	●		●	●			
	11T312E-KC2	0.18-0.54	1.20-3.5	9.525	11.62	3.97	1.2	●	●		○	○			
	DCMW 070204E-KD5	0.06-0.18	0.40-3.9	6.35	7.75	2.38	0.4				●	○			
	070208E-KD5	0.12-0.36	0.80-3.9	6.35	7.75	2.38	0.8				●	○			
	11T304E-KD5	0.06-0.18	0.40-5.8	9.525	11.62	3.97	0.4				●	○			
	11T308E-KD5	0.12-0.36	0.80-5.8	9.525	11.62	3.97	0.8				●	○			

Marked: ● Stock available
○ Produced by order

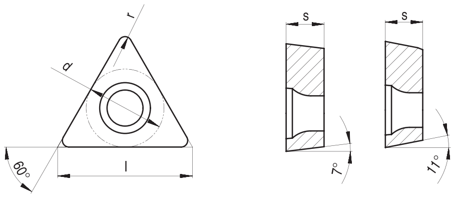
Positive 90° （S） Square Inserts

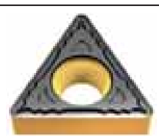


Inserts	Designation	Recommended parameters		Dimensions (mm)				Grades							
		Feed rate (mm/rev)	ap (mm)	d	l	s	r	CVD coated					PVD coated		uncoated
								AC150P	AC250P	AC350P	ACK15A	AC150K	AP301M	AP100S	AW100K
	SCMT 09T304E-PB1	0.04-0.14	0.30-2.4	9.525	9.525	3.97	0.4	●	●				●		
	09T308E-PB1	0.09-0.28	0.60-2.4	9.525	9.525	3.97	0.8	●	●				●		
	120404E-PB1	0.04-0.14	0.30-3.2	12.7	12.7	4.76	0.4	○	○				○		
	SCMT 09T304E-PC2	0.05-0.16	0.35-2.9	9.525	9.525	3.97	0.4	●	●				●	●	
	09T308E-PC2	0.10-0.32	0.70-2.9	9.525	9.525	3.97	0.8	●	●				●	●	
	120404E-PC2	0.05-0.16	0.35-3.8	12.7	12.7	4.76	0.4	●	●				●	●	
	120408E-PC2	0.10-0.32	0.70-3.8	12.7	12.7	4.76	0.8	●	●				●	●	
	120412E-PC2	0.16-0.48	1.05-3.8	12.7	12.7	4.76	1.2	●	●				○	●	
	SCGT 09T308F-NC2	0.10-0.40	0.64-4.3	9.525	9.525	3.97	0.8								●
	SCMT 09T304E-KC2	0.06-0.18	0.40-3.1	9.525	9.525	3.97	0.4	●	●		●	○			
	09T308E-KC2	0.12-0.36	0.80-3.1	9.525	9.525	3.97	0.8	●	●		●	○			
	120404E-KC2	0.06-0.18	0.40-4.2	12.7	12.7	4.76	0.4	●	●		●	○			
	120408E-KC2	0.12-0.36	0.80-4.2	12.7	12.7	4.76	0.8	●	●		●	○			
	120412E-KC2	0.18-0.54	1.20-4.2	12.7	12.7	4.76	1.2	●	●		●	○			
	SCMW 09T304E-KD5	0.10-0.22	0.40-4.8	9.525	9.525	3.97	0.4				●	○			
	09T308E-KD5	0.20-0.44	0.80-4.8	9.525	9.525	3.97	0.8				●	○			
	120404E-KD5	0.10-0.22	0.40-6.4	12.7	12.7	4.76	0.4				●	○			
	120408E-KD5	0.20-0.44	0.80-6.4	12.7	12.7	4.76	0.8				●	○			

Marked: ● Stock available
○ Produced by order

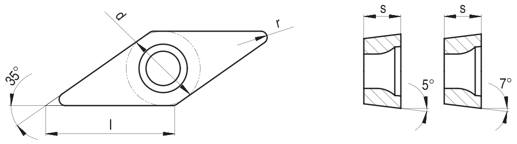
Positive 60° （T）Triangle Inserts



Inserts	Designation	Recommended parameters: Feed rate (mm/rev)	Recommended parameters: ap (mm)	Dimensions (mm): d	Dimensions (mm): l	Dimensions (mm): s	Dimensions (mm): r	Grades, CVD coated: AC150P	CVD coated: AC250P	CVD coated: AC350P	CVD coated: ACK15A	CVD coated: AC150K	PVD coated: AP301M	PVD coated: AP100S	uncoated: AW100K
	TCMT 090204E-PB1	0.04-0.14	0.30-1.9	5.56	9.63	2.38	0.4	○	○				●		
	110202E-PB1	0.02-0.07	0.15-2.2	6.35	11.0	2.38	0.2	○	○				●		
	110204E-PB1	0.04-0.14	0.30-2.2	6.35	11.0	2.38	0.4	●	●				●		
	110208E-PB1	0.09-0.28	0.60-2.2	6.35	11.0	2.38	0.8	●	●				●		
	16T304E-PB1	0.04-0.14	0.30-3.3	9.525	16.5	3.97	0.4	●	●				●		
	16T308E-PB1	0.09-0.28	0.60-3.3	9.525	16.5	3.97	0.8	●	●				○		
	TCMT 090204E-PC2	0.05-0.16	0.35-2.6	5.56	9.63	2.38	0.4	●	●				●	●	
	090208E-PC2	0.10-0.32	0.70-2.6	5.56	9.63	2.38	0.8	●	●				●	●	
	110204E-PC2	0.05-0.16	0.35-3.0	6.35	11.0	2.38	0.4	●	●				●	●	
	110208E-PC2	0.10-0.32	0.70-3.0	6.35	11.0	2.38	0.8	●	●				●	●	
	16T304E-PC2	0.05-0.16	0.35-4.5	9.525	16.5	3.97	0.4	●	●				●	●	
	16T308E-PC2	0.10-0.32	0.70-4.5	9.525	16.5	3.97	0.8	●	●				●	●	
	16T312E-PC2	0.16-0.48	1.05-4.5	9.525	16.5	3.97	1.2	●	●				●	●	
	TPMT 090204E-PC2	0.05-0.16	0.35-2.6	5.56	9.63	2.38	0.4	●	●				●		
	090208E-PC2	0.10-0.32	0.70-2.6	5.56	9.63	2.38	0.8	○	○				●		
	110304E-PC2	0.05-0.16	0.35-3.0	6.35	11.0	3.97	0.4	●	○				●		
	110308E-PC2	0.10-0.32	0.70-3.0	6.35	11.0	3.97	0.8	○	○				●		
	TCGT 110204F-NC2	0.05-0.20	0.32-4.9	6.35	11.0	2.38	0.4								●
	16T304F-NC2	0.05-0.20	0.32-7.4	9.525	16.5	3.97	0.4								●
	16T308F-NC2	0.10-0.40	0.64-7.4	9.525	16.5	3.97	0.8								●
	TCMT 090204E-KC2	0.06-0.18	0.40-2.9	5.56	9.63	2.38	0.4	●	●		●	●			
	090208E-KC2	0.12-0.36	0.80-2.9	5.56	9.63	2.38	0.8	●	●		●	○			
	110204E-KC2	0.06-0.18	0.40-3.3	6.35	11.0	2.38	0.4	●	●		●	●			
	110208E-KC2	0.12-0.36	0.80-3.3	6.35	11.0	2.38	0.8	●	●		●	○			
	16T304E-KC2	0.06-0.18	0.40-4.9	9.525	16.5	3.97	0.4	●	●		●	●			
	16T308E-KC2	0.12-0.36	0.80-4.9	9.525	16.5	3.97	0.8	●	●		●	○			
	16T312E-KC2	0.18-0.54	1.20-4.9	9.525	16.5	3.97	1.2	●	●		●	○			
	TCMW 110204E-KD5	0.06-0.18	0.40-5.5	6.35	11.0	2.38	0.4				●	○			
	110208E-KD5	0.12-0.36	0.80-5.5	6.35	11.0	2.38					●	○			
	16T304E-KD5	0.06-0.18	0.40-8.2	9.525	16.5	3.97	0.4				●	○			
	16T308E-KD5	0.12-0.36	0.80-8.2	9.525	16.5	3.97	0.8				●	○			

Marked: ● Stock available
○ Produced by order

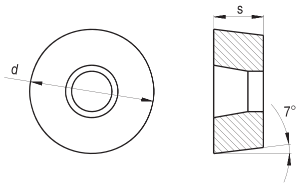
Positive 35° （V）Rhombic Inserts



Inserts	Designation	Recommended parameters		Dimensions (mm)				Grades							
								CVD coated					PVD coated		uncoated
		Feed rate (mm/rev)	ap (mm)	d	l	s	r	AC150P	AC250P	AC350P	ACK15A	AC150K	AP301M	AP100S	AW100K
	VBMT 110304E-PB1	0.04-0.14	0.30-1.4	6.35	11.07	3.18	0.4	○	○				●		
	110308E-PB1	0.09-0.28	0.60-1.4	6.35	11.07	3.18	0.8	○	○				●		
	160402E-PB1	0.02-0.07	0.15-2.1	9.525	16.61	4.76	0.2	○	○				○		
	160404E-PB1	0.04-0.14	0.30-2.1	9.525	16.61	4.76	0.4	○	○				●		
	160408E-PB1	0.09-0.28	0.60-2.1	9.525	16.61	4.76	0.8	●	●				○		
	VCMT 160404E-PB1	0.04-0.14	0.30-2.1	9.525	16.61	4.76	0.4	○	○				○		
	160408E-PB1	0.09-0.28	0.60-2.1	9.525	16.61	4.76	0.8	○	○				○		
	VBMT 110304E-PC2	0.05-0.16	0.35-2.1	6.35	11.07	3.18	0.4	●	●				●	●	
	110308E-PC2	0.10-0.32	0.70-2.1	6.35	11.07	3.18	0.8	○	○				●	●	
	160404E-PC2	0.05-0.16	0.35-3.1	9.525	16.61	4.76	0.4	●	●				●	●	
	160408E-PC2	0.10-0.32	0.70-3.1	9.525	16.61	4.76	0.8	●	●				●	●	
	160412E-PC2	0.16-0.48	1.05-3.1	9.525	16.61	4.76	1.2	●	●				●	●	
	VCMT 110304E-PC2	0.05-0.16	0.35-2.1	6.35	11.07	3.18	0.4	●	●				●		
	110308E-PC2	0.10-0.32	0.70-2.1	6.35	11.07	3.18	0.8	○	○				●		
	160404E-PC2	0.05-0.16	0.35-3.1	9.525	16.61	4.76	0.4	●	●				●		
	160408E-PC2	0.10-0.32	0.70-3.1	9.525	16.61	4.76	0.8	●	●				●		
	VCGT 110302F-NC2	0.02-0.10	0.16-2.8	6.35	11.07	3.18	0.2								●
	110304F-NC2	0.05-0.20	0.32-2.8	6.35	11.07	3.18	0.4								●
	160404F-NC2	0.05-0.20	0.32-4.2	9.525	16.61	4.76	0.4								●
	160408F-NC2	0.10-0.40	0.64-4.2	9.525	16.61	4.76	0.8								●
	160412F-NC2	0.14-0.60	0.96-4.2	9.525	16.61	4.76	1.2								●
	220530F-NC2	0.36-1.50	2.40-5.5	12.7	22.14	5.56	3.0								●
	VBMT 160404E-KC2	0.06-0.18	0.40-3.3	9.525	16.61	4.76	0.4	●	●		○	○			
	160408E-KC2	0.12-0.36	0.80-3.3	9.525	16.61	4.76	0.8	●	●		●	○			
	160412E-KC2	0.18-0.54	1.20-3.3	9.525	16.61	4.76	1.2	●	●		○	○			

Marked: ● Stock available
○ Produced by order

Positive Round Turning Inserts



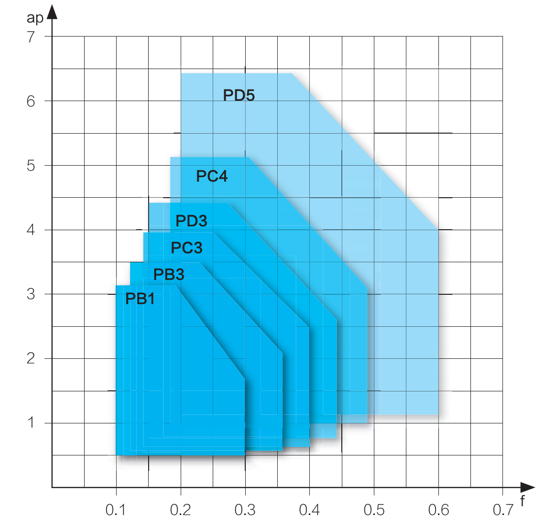
Inserts	Designation	Recommended parameters		Dimensions (mm)				Grades							
		Feed rate (mm/rev)	ap (mm)	d	l	s	r	CVD coated					PVD coated		uncoated
								AC150P	AC250P	AC350P	ACK15A	AC150K	AP301M	AP100S	AW100K
	RCMX 100300S	0.25-0.50	1.5-4.0	10		3.18	5	●	●	○					
	120400S	0.30-0.60	2.5-5.0	12		4.76	6	●	●	●					
	160600S	0.40-0.75	3.0-7.0	16		6.35	8	●	○	○					
	200600S	0.48-0.90	3.5-9.0	20		6.35	10	●	●	○					
	250700S	0.55-1.20	4.0-12.0	25		7.94	12.5	●	○	●					
	320900S	0.65-1.50	5.0-15.0	32		9.52	16	●	○	○					
	RCGT 0803MOF-NC2	0.10-1.00	0.70-3.3	8		3.18	4								○
	1003MOF-NC2	0.20-1.30	0.90-4.0	10		3.18	5								○
	10T3MOF-NC2	0.20-1.30	0.90-4.0	10		3.97	5								○

Marked: ● Stock available
○ Produced by order

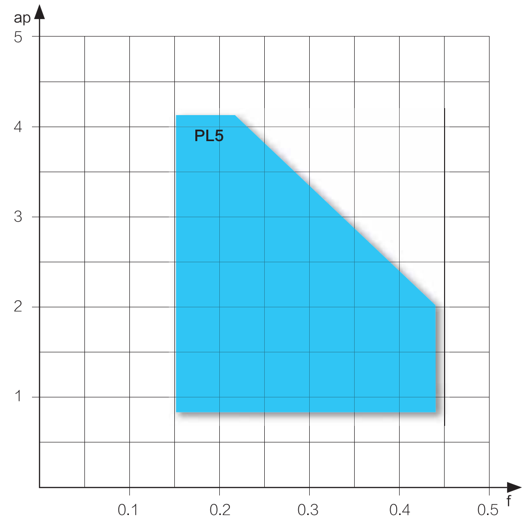
Ap-feed Rate Application Diagram

Negative Insert Geometry

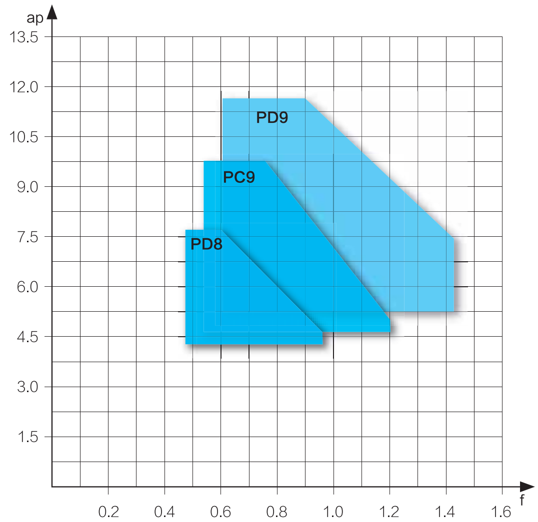
ISO P type
Double side negative insert application



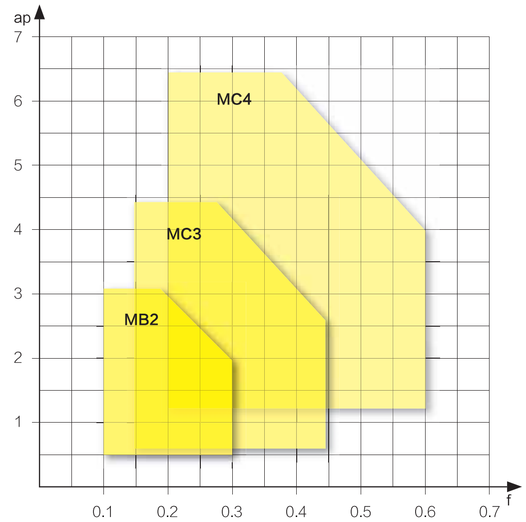
ISO P type
Other chipbreaker negative insert application



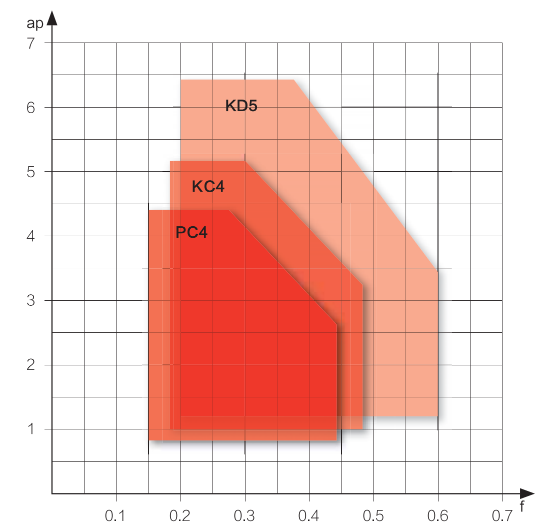
ISO P type
One side negative insert application



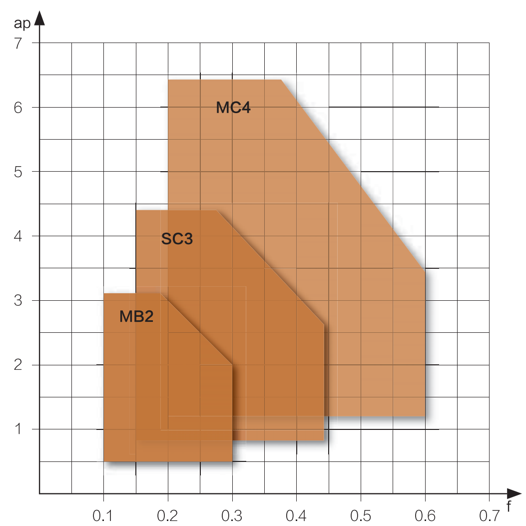
ISO M type
Negative insert application



ISO K type
Negative insert application

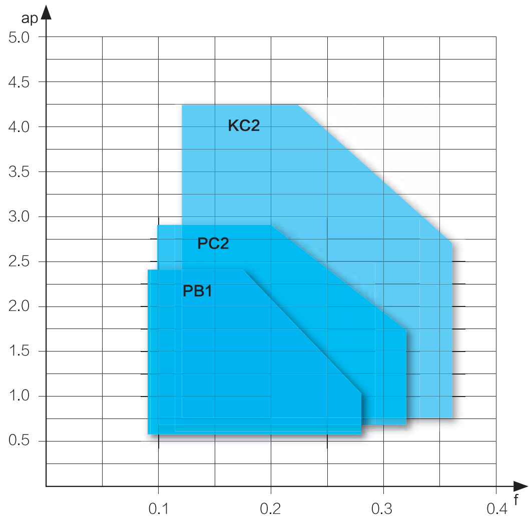


ISO S type
Negative insert application

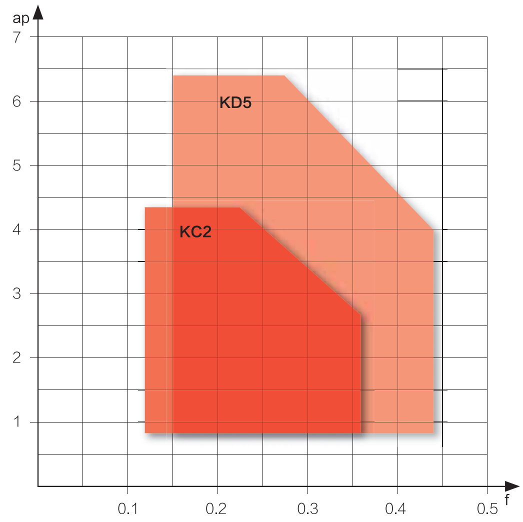


Ap-feed Rate Application Diagram
Positive Insert Geometry

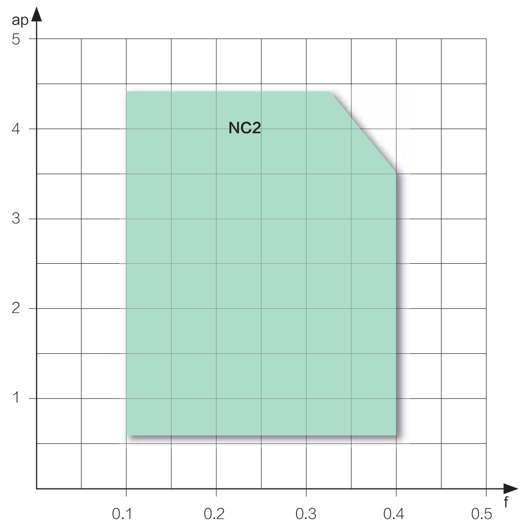
ISO P type
Positive insert application



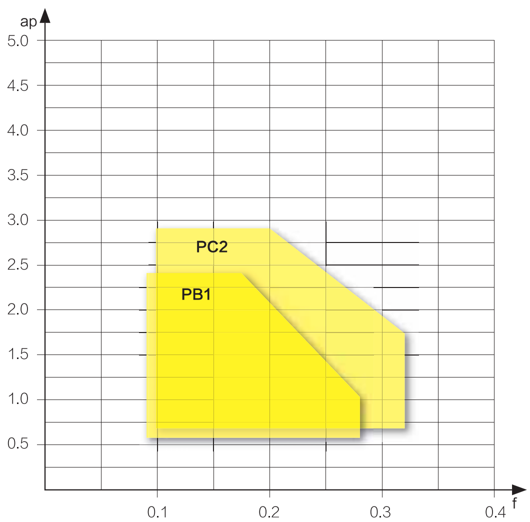
ISO K type
Positive insert application



ISO N type
Positive insert application



ISO M type
Positive insert application



Cutting Parameter Recommended Table

Materials				Turning grade application range																							
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	CVD coated															PVD coated						Uncoated		
				AC150P			AC250P			AC350P			ACK15A			AC150K			AP100S			AP301M			AW100K		
				P10-25			P20-35			P30-45			-			-			-			-			-		
				-			-			-			-			-			M05-25			M15-35			-		
				-			-			-			K10-30			K10-25			-			-			-		
				-			-			-			-			-			S05-25			S15-35			-		
				-			-			-			-			-			-			-			N05-15		
				-			-			-			-			-			-			-			-		
				Feed (mm/rev)																							
				min	med	max	min	med	max	min	med	max	min	med	max	min	med	max	min	med	max	min	med	max	min	med	max
				Cutting speed Vc (m/min)																							
P	Non-alloyed steel	<600	<180	485	378	270	380	260	160	250	182	115															
		<950	<280	335	243	150	240	162	100	160	117	75															
	Alloyed steel	700-950	200-280	230	168	120	215	155	90	148	109	70															
		950-1200	280-355	210	150	90	180	137	75	135	100	65															
		1200-1400	355-415	175	110	70	135	92	55	93	69	45															
M	Duplex stainless steel	778	230																215	170	145	180	140	110			
	Austenitic stainless steel	675	200																240	190	155	200	160	130			
	Precipitation-hardening stainless steel	1013	300																215	150	85	160	130	70			
K	Grey cast iron	700	220										400	255	145	450	300	165									
	Nodular cast iron	880	260										350	215	125	400	260	145									
	Malleable cast iron	800	250										235	165	95	275	195	115									
S	Fe-based alloy	943	280																180	110	40	150	90	40			
	Co-based alloy	1076	320																100	65	30	80	50	30			
	Ni-based alloy	1177	350																100	65	30	80	50	30			
	Ti-alloy	1262	370																200	125	50	160	90	35			
N	Aluminum	260	75																						950	600	200
	Aluminum alloy	447	130																						500	270	40
H	Hardened steel	-	50-60HRC																								
	Chilled cast iron	-	55HRC																								

*Above chart for general cutting conditions. The actual selection should be adjusted according to factors such as machine rigidity, tool body, workpiece conditions and coolant.

ACHTECK

NEW
PRODUCT !

PA1

New chip breaker PA1 with high precision tolerance insert

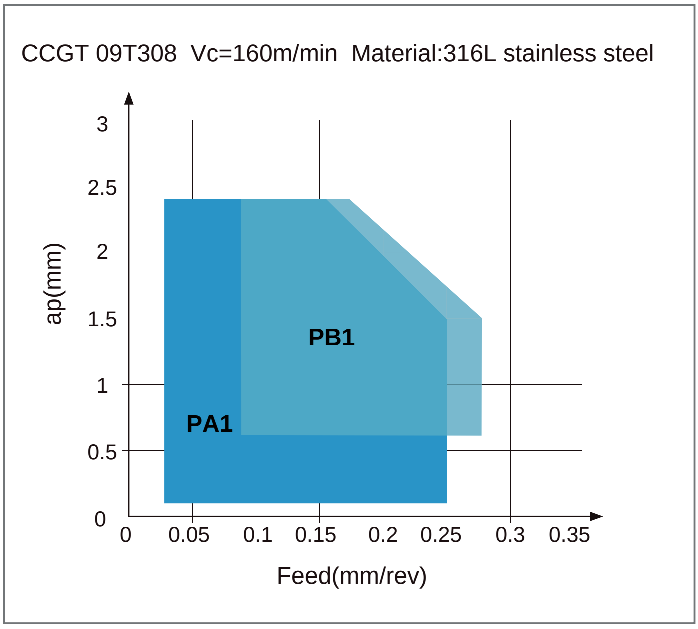
Achteck is launching a new chip breaker PA1 which is positive turning insert with precision tolerance.

PA1 chip breaker is suitable for super finishing to finishing with very excellent chip control at low feed rate and small depth of cut. The PA1 chip breaker has good combination with AP301M grade which supply excellent performance on stainless steel and super alloys.

PA1 chip breaker features

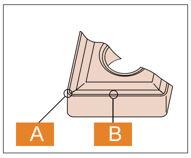
- For super finishing to finishing
- Excellent chip breaking at low feed rate and small depth of cut
- Periphery grinded insert with high precision tolerance
- Better surface finish and longer tool life
- For stainless steel and super alloys
- Insert radius supplied with 0.1mm,0.2mm,0.4mm and 0.8mm

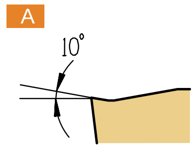
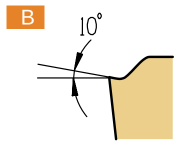
Chip breaker range



Chip breaker featrues

Positive insert



Chip breaker	Edge preparation		Application
PA1		 	• For super finishing to finishing • For stainless steel and super alloys

Grade application

Grade	Coating	Material					
		P	M	K	S	N	H
AP301M	PVD		●		◐		

● Marked : 1st Choice ◐ Marked : 2nd Choice

Recommended cutting speed by materials

Material	Material Type		Cutting speed (m/min)		
			Feed(low)	Feed(medium)	Feed(high)
Stainless steel	Austenite+ Ferrite	300 series	180	140	110
	Martensite	400 series	200	160	130
	Precipitated dispersion hardened stainless steel	P.H.	160	130	70
High temperature alloys	Iron base alloy	-	150	90	40
	Cobalt base alloy	Waspalloy	80	50	30
	Nickel base alloy	Inconel	80	50	30
	Titanium alloy	Ti6Al4V	160	90	35

Remark) The recommended cutting speed always refer to general conditons. These cutting speed should be adjusted according to the practical machine rigidity, tools, work piece clamping and coolants.(The feed rate refer corner radius)

Case stories

Component description: Conrod rod

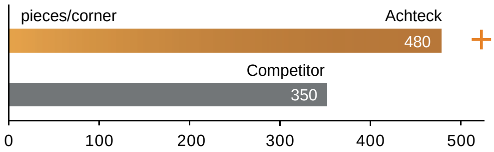
Material: Powder metallurgy

Insert: CCGT 060204E-PA1 AP301M

Competitor: CCGT 060204-MN2

Cutting Parameters: Vc=220m/min, f=0.1mm/r,
ap=0.15mm, wet cutting

Internal fine boring



+37%

Component description: Axis

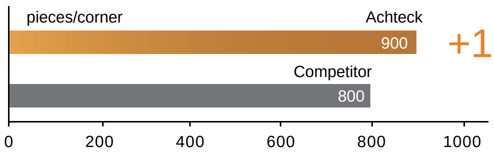
Material: 430F stainless steel

Insert: VBGT 110302E-PA1 AP301M

Competitor: VBGT 110302-SA

Cutting Parameters: Vc=110m/min, f=0.05mm/r,
ap=0.1mm, wet cutting

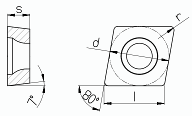
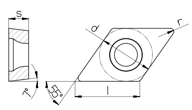
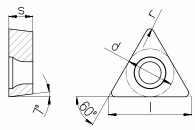
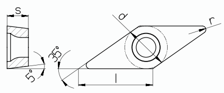
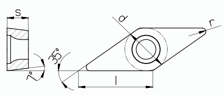
External finishing



+12%

Stock items

Positive insert

Insert	Item designation	Dimension(mm)				Recommended cutting parameters		Grade (PVD)	Geometry
		d	l	s	r	Feed (mm/rev)	ap (mm)	AP301M	
	CCGT 060201E-PA1	6.35	6.45	2.38	0.1	0.02-0.15	0.10-1.4	●	
	CCGT 060202E-PA1	6.35	6.45	2.38	0.2	0.02-0.15	0.10-1.4	●	
	CCGT 060204E-PA1	6.35	6.45	2.38	0.4	0.03-0.20	0.10-1.4	●	
	CCGT 09T301E-PA1	9.53	9.67	3.97	0.1	0.02-0.15	0.10-2.4	●	
	CCGT 09T302E-PA1	9.53	9.67	3.97	0.2	0.02-0.15	0.10-2.4	●	
	CCGT 09T304E-PA1	9.53	9.67	3.97	0.4	0.03-0.20	0.10-2.4	●	
	CCGT 09T308E-PA1	9.53	9.67	3.97	0.8	0.03-0.25	0.10-2.4	●	
	DCGT 070201E-PA1	6.35	7.75	2.38	0.1	0.02-0.15	0.10-1.4	●	
	DCGT 070202E-PA1	6.35	7.75	2.38	0.2	0.02-0.15	0.10-1.4	●	
	DCGT 070204E-PA1	6.35	7.75	2.38	0.4	0.03-0.20	0.10-1.4	●	
	DCGT 11T301E-PA1	9.53	11.62	3.97	0.1	0.02-0.15	0.10-2.4	●	
	DCGT 11T302E-PA1	9.53	11.62	3.97	0.2	0.02-0.15	0.10-2.4	●	
	DCGT 11T304E-PA1	9.53	11.62	3.97	0.4	0.03-0.20	0.10-2.4	●	
	TCGT 110201E-PA1	6.35	11.00	2.38	0.1	0.02-0.15	0.10-2.4	●	
	TCGT 110202E-PA1	6.35	11.00	2.38	0.2	0.02-0.15	0.20-2.4	●	
	TCGT 110204E-PA1	6.35	11.00	2.38	0.4	0.03-0.20	0.20-2.4	●	
	TCGT 16T304E-PA1	9.53	16.50	3.97	0.4	0.03-0.20	0.20-2.4	●	
	VBGT 110301E-PA1	6.35	11.07	3.18	0.1	0.02-0.15	0.10-1.4	●	
	VBGT 110302E-PA1	6.35	11.07	3.18	0.2	0.02-0.15	0.20-1.4	●	
	VBGT 110304E-PA1	6.35	11.07	3.18	0.4	0.03-0.20	0.20-1.4	●	
	VBGT 160401E-PA1	9.53	16.61	4.76	0.1	0.02-0.15	0.10-1.4	●	
	VBGT 160402E-PA1	9.53	16.61	4.76	0.2	0.02-0.15	0.20-1.4	●	
	VCGT 110301E-PA1	6.35	11.07	3.18	0.1	0.02-0.15	0.10-1.4	●	
	VCGT 110302E-PA1	6.35	11.07	3.18	0.2	0.02-0.15	0.20-1.4	●	
	VCGT 110304E-PA1	6.35	11.07	3.18	0.4	0.03-0.20	0.20-1.4	●	

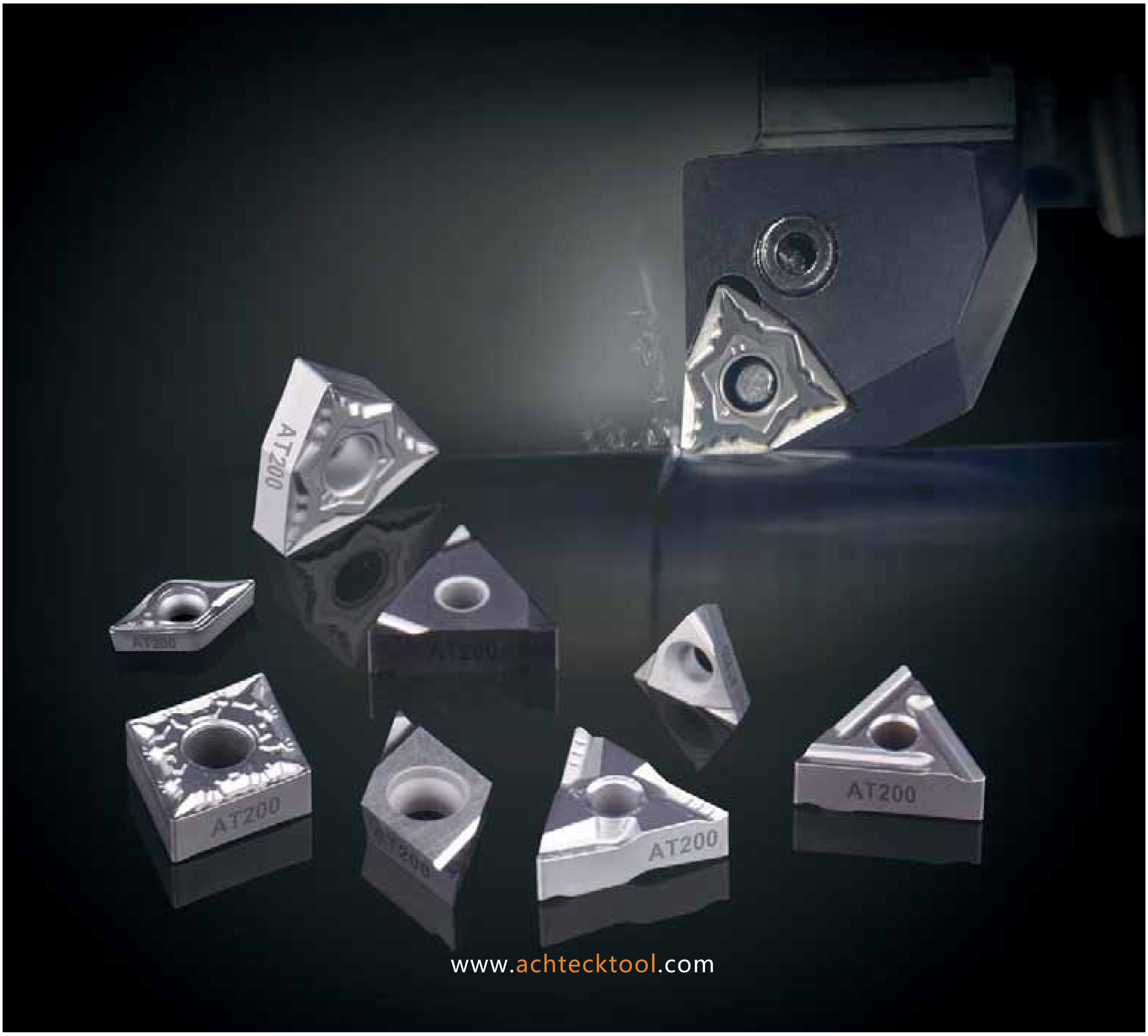
● Marked: represent for standard stock

ACHTECK

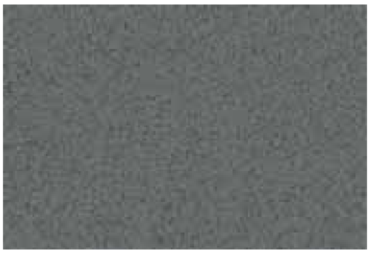
NEW
PRODUCT !

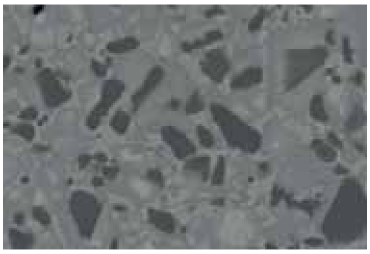
AT200

Cermet insert



AT200

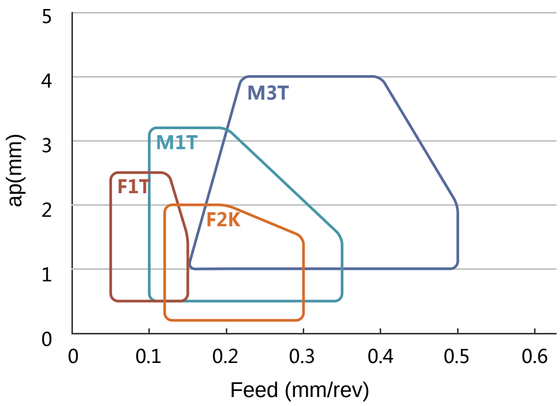




- Uniform double-layer structure realizes finishing and semi-finishing, achieving good wear resistance and anti-collapse
- Core-shell structure formed by cobalt-nickel binder and high melting point compound, achieving high heat resistance and chipping resistance
- Excellent surface treatment, reduce adhesion, improve processing surface and extend tool life

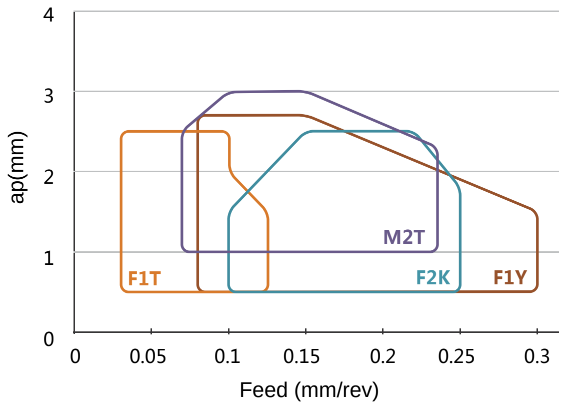
Chip breaker application

M-class negative insert



F1T：Low cutting force, suitable for finishing.
F2K：With good cutting treatment and strong universality, suitable for finishing and semi-finishing.
M1T：Large rake angle and low resistance, suitable for different deep-cutting conditions.
M3T：smooth front angle, suitable for medium rough machining with large feed.

M-class positive insert



F1T：Low cutting force, good chip breaking ability, suitable for finishing.
F2K：Universal chipbreaker, suitable for finishing and semi-finishing
M2T：Suitable for semi finishing
F1Y：Suitable for finishing, semi finishing

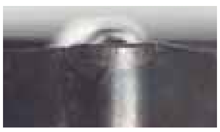
Continuous high speed wear resistance

Material to be processed：40CrNiMo(HB280-310)
Insert tool type：CNMG120408-F2K AT200
Vc=300m/min f=0.15mm/rev ap=1.0mm Dry


Achteck


Competitor B


Competitor C

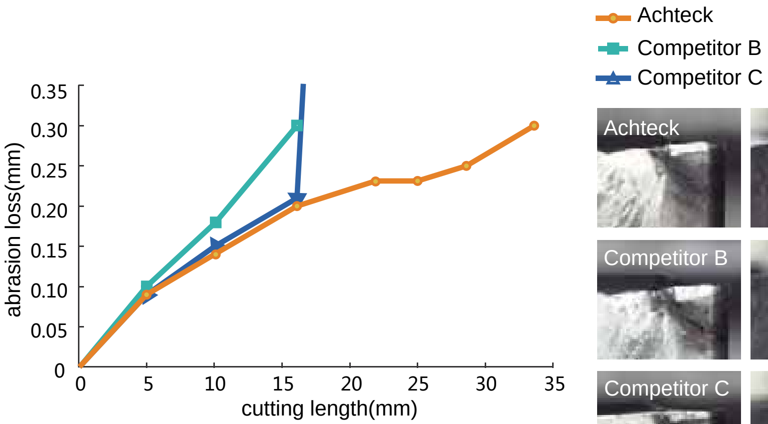

Achteck

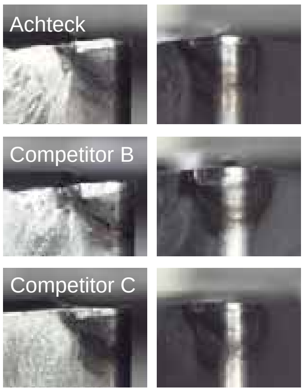

Competitor B


Competitor C

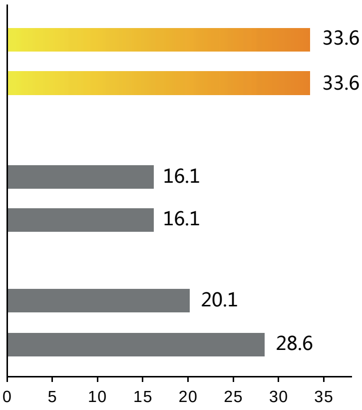
- Continuous cutting can achieve excellent wear resistance and ensure the accuracy control of the material to be cut

Stable cutting life





wear comparison
after 16 minutes

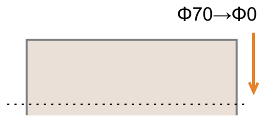


Life comparison

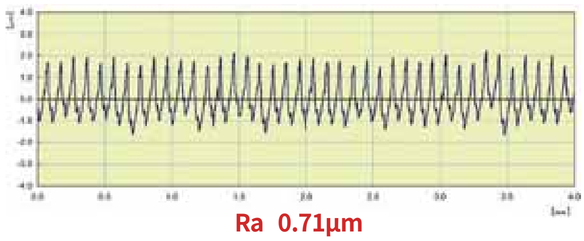
Material to be processed：40CrNiMo(HB280-310)
Insert tool type：CNMG120404-F2K AT200
Vc=200m/min f=0.20mm/rev ap=1.0mm Wet

Excellent processing quality

Material to be processed：45#
Insert tool type：CNMG120404-F2K AT200
Vc=242~0m/min ap=1.0mm f=0.1mm/rev Wet

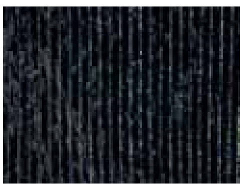


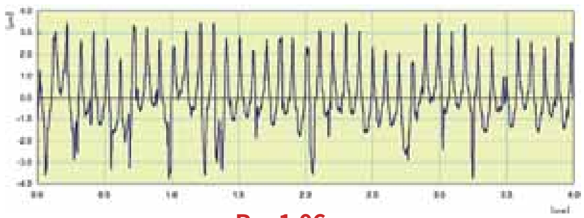
Achteck



Ra 0.71μm

Other company





Ra 1.06μm

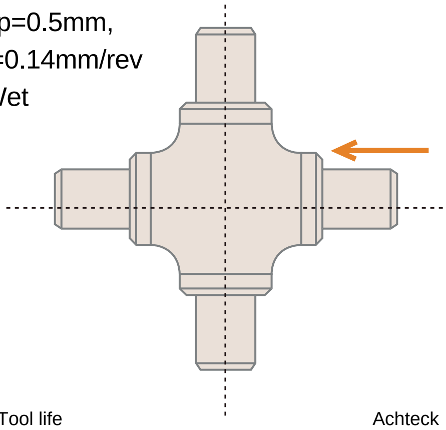
Recommended cutting parameter

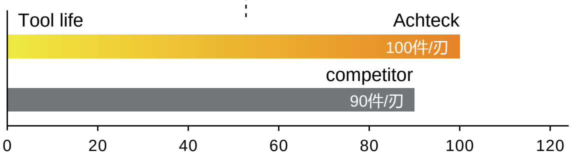
Cutting speed:Vc(m/min)

	Low-carbon steel HB: below 150	Carbon steel HB: below 250	High-carbon steel HB: below 300
AT200	100 - **250** - 350	100 - **230** - 330	100 - **200** - 300

Cases

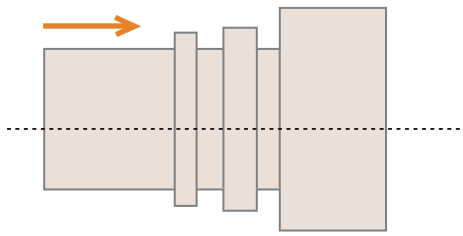
Workpiece: cross axle
Material:S45C
Insert:CNMG120404 FK2 AT200
Cutting parameter:
Vc=226m/min
ap=0.5mm,
f=0.14mm/rev
Wet

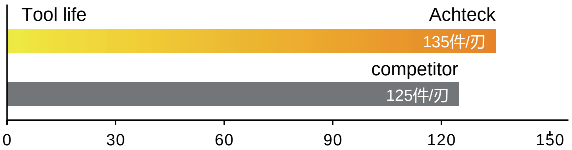




AT200 has a 10% longer life compared to other companies' products and is superior cost-effective.

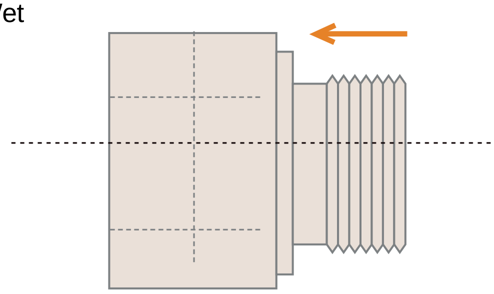
Workpiece:pipe joint
Material:Q235
Insert:TNMG160404R-M3T AT200
Cutting parameter:
Vc=125~135m/min
ap=1.0~0.5mm,
f=0.36~0.15mm/rev
Wet

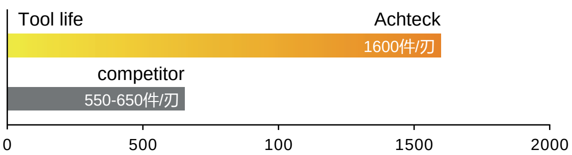




Rough and finish machining at the same time, with a stable performance, excellent workpiece surface roughness, no chipping

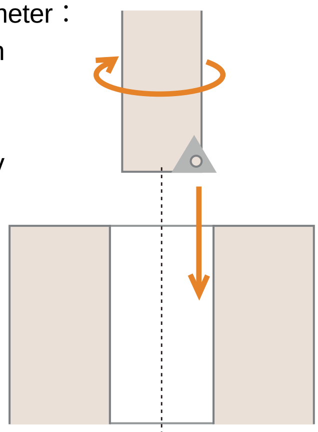
Workpiece: hydraulic fitting
Material: S45C
Insert: TNGG 160404R-C AT200
Cutting parameter:
Vc=125m/min
ap=1.8mm,
f=0.15-0.20mm/rev
Wet

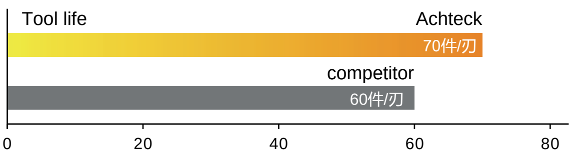




300% longer life, stable performance

Workpiece: Pillar support
Material: S45C
Insert: TPGT110304FL-F AT200
Cutting parameter：
Vc=306m/min
ap=127mm,
ae=0.12mm,
f=0.06mm/rev
Wet

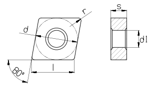
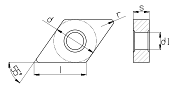
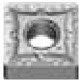
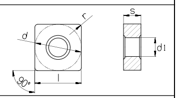
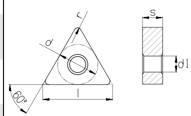
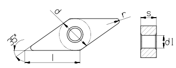
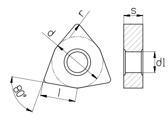
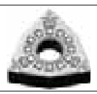
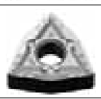




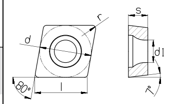
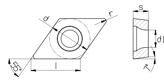
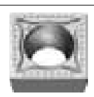
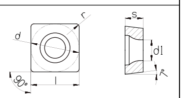
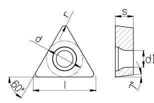
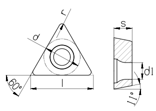
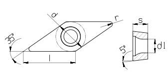
Rotary boring, tool wear resistance is superior to other companies', meanwhile ensuring an extraordinary machined surface

Product list

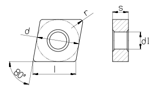
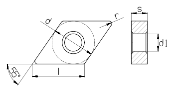
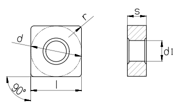
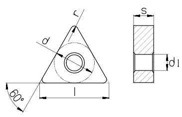
Negative M-class insert

Insert	Designation	Recommended parameter: Feed (mm/rev)	Recommended parameter: Cutting depth (mm)	Dimension(mm): d (mm)	l (mm)	s (mm)	d1 (mm)	r (mm)	Grade: Mental ceramic AT200	Geometry
	CNMG 120404-F2K	0.12-0.30	0.20-2.0	12.7	12.89	4.76	5.16	0.4	●	
	120408-F2K	0.12-0.30	0.20-2.0	12.7	12.89	4.76	5.16	0.8	●	
	DNMG 150404R-M1T	0.10-0.35	0.70-4.5	12.7	15.49	4.76	5.16	0.4	●	
	150404L-M1T	0.10-0.35	0.70-4.5	12.7	15.49	4.76	5.16	0.4	●	
	DNMG 150404-F2K	0.10-0.30	0.50-2.0	12.7	15.49	4.76	5.16	0.4	●	
	150408-F2K	0.10-0.30	0.50-2.0	12.7	15.49	4.76	5.16	0.8	●	
	SNMG 120404-M3T	0.12-0.40	1.0-4.0	12.7	12.7	4.76	5.16	0.4	●	
	120408-M3T	0.17-0.55	1.2-0.4	12.7	12.7	4.76	5.16	0.8	●	
	TNMG 160404-F1T	0.08-0.20	0.05-2.0	9.525	16.50	4.76	3.81	0.4	●	
	160408-F1T	0.08-0.20	0.05-2.0	9.525	16.50	4.76	3.81	0.8	●	
	TNMG 160404-F1Y	0.08-0.20	0.05-2.0	9.525	16.50	4.76	3.81	0.4	●	
	160408-F1Y	0.08-0.20	0.05-2.0	9.525	16.50	4.76	3.81	0.8	●	
	TNMG 160404-F2K	0.08-0.22	0.40-2.0	9.525	16.50	4.76	3.81	0.4	●	
	160408-F2K	0.08-0.22	0.40-2.0	9.525	16.50	4.76	3.81	0.8	●	
	TNMG 160404R-M1T	0.10-0.30	0.70-3.5	9.525	16.50	4.76	3.81	0.4	●	
	160404L-M1T	0.10-0.30	0.70-3.5	9.525	16.50	4.76	3.81	0.4	●	
	160408R-M1T	0.10-0.30	0.70-3.5	9.525	16.50	4.76	3.81	0.8	●	
	160408L-M1T	0.10-0.30	0.70-3.5	9.525	16.50	4.76	3.81	0.8	●	
	TNMG 160404R-M2T	0.20-0.40	1.0-4.0	9.525	16.50	4.76	3.81	0.4	●	
	160404L-M2T	0.20-0.40	1.0-4.0	9.525	16.50	4.76	3.81	0.4	●	
	160408R-M2T	0.20-0.40	1.0-4.0	9.525	16.50	4.76	3.81	0.8	●	
	160408L-M2T	0.20-0.40	1.0-4.0	9.525	16.50	4.76	3.81	0.8	●	
	TNMG 160404-M3T	0.12-0.40	1.0-4.0	9.525	16.50	4.76	3.81	0.4	●	
	160408-M3T	0.17-0.55	1.2-4.0	9.525	16.50	4.76	3.81	0.8	●	
	VNMG 160404-F2K	0.08-0.30	0.50-1.50	9.525	16.61	4.76	3.81	0.4	●	
	160408-F2K	0.08-0.30	0.50-1.50	9.525	16.61	4.76	3.81	0.8	●	
	VNMG 160404-M3T	0.15-0.36	1.0-3.0	9.525	8.69	4.76	3.81	0.4	●	
	160408-M3T	0.17-0.36	1.0-3.0	9.525	8.69	4.76	3.81	0.8	●	
	WNMG 080404-F1Y	0.08-0.20	0.05-2.0	12.7	8.69	4.76	5.16	0.4	●	
	080408-F1Y	0.08-0.20	0.05-2.0	12.7	8.69	4.76	5.16	0.8	●	
	WNMG 080404-F1T	0.05-0.15	0.50-2.5	12.7	8.69	4.76	5.16	0.4	●	
	080408-F1T	0.05-0.15	0.50-2.5	12.7	8.69	4.76	5.16	0.8	●	
	WNMG 080404-F2K	0.08-0.22	0.40-2.0	12.7	8.69	4.76	5.16	0.4	●	
	080408-F2K	0.08-0.22	0.40-2.0	12.7	8.69	4.76	5.16	0.8	●	
	WNMG 080404-M3T	0.12-0.40	1.0-4.0	12.7	8.69	4.76	5.16	0.4	●	
	080408-M3T	0.17-0.55	1.2-4.0	12.7	8.69	4.76	5.16	0.8	●	

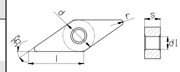
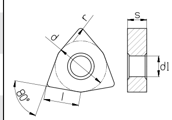
Positive M-class insert

Insert	Designation	Recommended parameter		Dimension(mm)					Grade	Geometry
		Feed	Cutting depth	d	l	s	d1	r	Mental ceramic	
		(mm/rev)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	AT200	
	CCMT 060204-F1T	0.05-0.15	0.30-1.5	6.35	6.45	2.38	2.8	0.4	●	
	09T304-F1T	0.07-0.20	0.40-2.0	9.525	9.67	3.97	4.4	0.4	●	
	09T308-F1T	0.10-0.25	0.60-2.0	9.525	9.67	3.97	4.4	0.8	●	
	CCMT 060202-F2K	0.08-0.20	0.50-1.5	6.35	6.45	2.38	2.8	0.2	●	
	060204-F2K	0.08-0.20	0.50-1.5	6.35	6.45	2.38	2.8	0.4	●	
	09T302-F2K	0.10-0.22	0.50-2.0	9.525	9.67	3.97	4.4	0.2	●	
	09T304-F2K	0.10-0.22	0.50-2.0	9.525	9.67	3.97	4.4	0.4	●	
	CCMT 060202-M2T	0.07-0.20	0.50-2.0	6.35	6.45	2.38	2.8	0.2	●	
	060402-M2T	0.07-0.20	0.50-2.0	6.35	6.45	2.38	2.8	0.2	●	
	09T304-M2T	0.70-3.50	0.10-0.25	9.525	9.67	3.97	4.4	0.4	●	
	09T308-M2T	0.13-0.30	1.00-3.50	9.525	9.67	3.97	4.4	0.8	●	
	DCMT 070204-F1T	0.07-0.20	0.40-1.50	6.35	7.75	2.38	2.8	0.4	●	
	11T304-F1T	0.10-0.25	0.60-1.50	9.525	11.62	3.97	4.4	0.4	●	
	11T308-F1T	0.10-0.25	0.60-1.50	9.525	11.62	3.97	4.4	0.8	●	
	DCMT 070202-F2K	0.08-0.20	0.50-1.50	6.35	7.75	2.38	2.8	0.2	●	
	070204-F2K	0.08-0.20	0.50-1.50	6.35	7.75	2.38	2.8	0.4	●	
	11T302-F2K	0.10-0.22	0.50-2.00	9.525	11.62	3.97	4.4	0.2	●	
	11T304-F2K	0.10-0.22	0.50-2.00	9.525	11.62	3.97	4.4	0.4	●	
	DCMT 11T304-F1Y	0.08-0.30	0.50-2.50	9.525	11.62	3.97	4.4	0.4	●	
	DCMT 11T304-M2T	0.10-0.25	0.50-3.0	9.525	11.62	3.97	4.4	0.4	●	
	11T308-M2T	0.10-0.25	0.50-3.0	9.525	11.62	3.97	4.4	0.8	●	
	SCMT 09T304-M2T	0.10-0.25	0.70-3.5	9.525	9.525	3.18	4.4	0.4	●	
	09T308-M2T	0.10-0.25	0.70-3.5	9.525	9.525	3.18	4.4	0.8	●	
	TCMT 110204-F1T	0.10-0.25	0.60-2.0	6.35	11.0	2.38	2.8	0.4	●	
	16T304-F1T	0.10-0.25	0.60-2.0	9.525	16.50	3.97	4.4	0.4	●	
	TCMT 110204-M2T	0.10-0.25	0.60-2.0	6.35	11.0	2.38	2.8	0.4	●	
	16T304-M2T	0.10-0.25	0.60-2.0	9.525	16.50	3.97	2.8	0.4	●	
	TPMT 110304-F1T	0.10-0.25	0.60-2.0	6.35	11.0	3.18	3.3	0.4	●	
	TPMT 110304-F2K	0.10-0.25	0.50-2.0	6.35	11.0	3.18	3.3	0.4	●	
	VBMT 110304-F2K	0.10-0.20	0.50-1.5	6.35	11.07	3.18	2.8	0.4	●	
	160404-F2K	0.05-0.25	0.50-2.0	9.525	16.61	4.76	4.4	0.4	●	

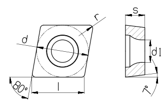
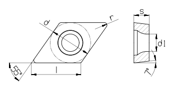
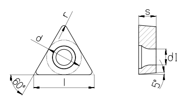
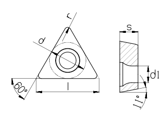
Negative G-class insert

Insert	Designation	Recommended parameter		Dimension(mm)					Grade Mental ceramic	Geometry
		Feed	Cutting depth	d	l	s	d1	r	AT200	
		(mm/rev)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)		
	CNGG 120402FR-F	0.05-0.20	0.50-2.0	12.7	12.89	4.76	5.16	0.2	●	
	120402FL-F	0.05-0.20	0.50-2.0	12.7	12.89	4.76	5.16	0.2	●	
	120404FR-F	0.05-0.20	0.50-2.0	12.7	12.89	4.76	5.16	0.4	●	
	120404FL-F	0.05-0.20	0.50-2.0	12.7	12.89	4.76	5.16	0.4	●	
	CNGG 120402R-C	0.20-0.40	1.0-3.0	12.7	12.89	4.76	5.16	0.2	●	
	120402L-C	0.20-0.40	1.0-3.0	12.7	12.89	4.76	5.16	0.2	●	
	120404R-C	0.20-0.40	1.0-3.0	12.7	12.89	4.76	5.16	0.4	●	
	120404L-C	0.20-0.40	1.0-3.0	12.7	12.89	4.76	5.16	0.4	●	
	120408R-C	0.20-0.40	1.0-3.0	12.7	12.89	4.76	5.16	0.8	●	
	120408L-C	0.20-0.40	1.0-3.0	12.7	12.89	4.76	5.16	0.8	●	
	DNGG 110402FR-F	0.05-0.15	0.80-2.0	9.525	11.62	4.76	3.81	0.2	●	
	110402FL-F	0.05-0.15	0.80-2.0	9.525	11.62	4.76	3.81	0.2	●	
	110404FR-F	0.05-0.15	0.80-2.0	9.525	11.62	4.76	3.81	0.4	●	
	110404FL-F	0.05-0.15	0.80-2.0	9.525	11.62	4.76	3.81	0.4	●	
	110408FR-F	0.05-0.15	0.80-2.0	9.525	11.62	4.76	3.81	0.8	●	
	110408FL-F	0.05-0.15	0.80-2.0	9.525	11.62	4.76	3.81	0.8	●	
	DNGG 110402R-C	0.15-0.30	0.50-2.5	9.525	11.62	4.76	3.81	0.2	●	
	110402L-C	0.15-0.30	0.50-2.5	9.525	11.62	4.76	3.81	0.2	●	
	110404R-C	0.15-0.30	0.50-2.5	9.525	11.62	4.76	3.81	0.4	●	
	110404L-C	0.15-0.30	0.50-2.5	9.525	11.62	4.76	3.81	0.4	●	
	110408R-C	0.15-0.30	0.50-2.5	9.525	11.62	4.76	3.81	0.8	●	
	110408L-C	0.15-0.30	0.50-2.5	9.525	11.62	4.76	3.81	0.8	●	
	SNGG 120402R-C	0.20-0.40	1.0-3.0	12.7	12.70	4.76	5.16	0.2	●	
	120402L-C	0.20-0.40	1.0-3.0	12.7	12.70	4.76	5.16	0.2	●	
	120404R-C	0.20-0.40	1.0-3.0	12.7	12.70	4.76	5.16	0.4	●	
	120404L-C	0.20-0.40	1.0-3.0	12.7	12.70	4.76	5.16	0.4	●	
	120408R-C	0.20-0.40	1.0-3.0	12.7	12.70	4.76	5.16	0.8	●	
	120408L-C	0.20-0.40	1.0-3.0	12.7	12.70	4.76	5.16	0.8	●	
	TNGG 160402FR-F	0.05-0.20	0.50-2.0	9.525	16.50	4.76	3.81	0.2	●	
	160402FL-F	0.05-0.20	0.50-2.0	9.525	16.50	4.76	3.81	0.2	●	
	160404FR-F	0.05-0.20	0.50-2.0	9.525	16.50	4.76	3.81	0.4	●	
	160404FL-F	0.05-0.20	0.50-2.0	9.525	16.50	4.76	3.81	0.4	●	
	TNGG 160402R-C	0.20-0.40	1.0-3.0	9.525	16.50	4.76	3.81	0.2	●	
	160402L-C	0.20-0.40	1.0-3.0	9.525	16.50	4.76	3.81	0.2	●	
	160404R-C	0.20-0.40	1.0-3.0	9.525	16.50	4.76	3.81	0.4	●	
	160404L-C	0.20-0.40	1.0-3.0	9.525	16.50	4.76	3.81	0.4	●	
	160408R-C	0.20-0.40	1.0-3.0	9.525	16.50	4.76	3.81	0.8	●	
	160408L-C	0.20-0.40	1.0-3.0	9.525	16.50	4.76	3.81	0.8	●	

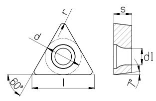
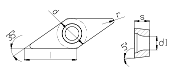
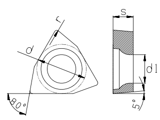
Remark：● represent for standard stock

Insert	Designation	Recommended parameter		Dimension(mm)					Grade	Geometry
		Feed	Cutting depth	d	l	s	d1	r	Mental ceramic	
		(mm/rev)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	AT200	
	VNGG 160402FR-F	0.05-0.15	0.50-1.8	9.525	16.61	4.76	3.81	0.2	●	
	160402FL-F	0.05-0.15	0.50-1.8	9.525	16.61	4.76	3.81	0.2	●	
	160404FR-F	0.05-0.15	0.50-1.8	9.525	16.61	4.76	3.81	0.4	●	
	160404FL-F	0.05-0.15	0.50-1.8	9.525	16.61	4.76	3.81	0.4	●	
	VNGG 160402R-C	0.15-0.30	0.50-2.5	9.525	16.61	4.76	3.81	0.2	●	
	160402L-C	0.15-0.30	0.50-2.5	9.525	16.61	4.76	3.81	0.2	●	
	160404R-C	0.15-0.30	0.50-2.5	9.525	16.61	4.76	3.81	0.4	●	
	160404L-C	0.15-0.30	0.50-2.5	9.525	16.61	4.76	3.81	0.4	●	
	160408R-C	0.15-0.30	0.50-2.5	9.525	16.61	4.76	3.81	0.8	●	
	160408L-C	0.15-0.30	0.50-2.5	9.525	16.61	4.76	3.81	0.8	●	
	WNGG 060402FR-F	0.05-0.20	0.50-2.0	9.525	6.52	4.76	3.81	0.2	●	
	060402FL-F	0.05-0.20	0.50-2.0	9.525	6.52	4.76	3.81	0.2	●	
	060404FR-F	0.05-0.20	0.50-2.0	9.525	6.52	4.76	3.81	0.4	●	
	060404FL-F	0.05-0.20	0.50-2.0	9.525	6.52	4.76	3.81	0.4	●	
	060408FR-F	0.05-0.20	0.50-2.0	9.525	6.52	4.76	3.81	0.8	●	
	060408FL-F	0.05-0.20	0.50-2.0	9.525	6.52	4.76	3.81	0.8	●	
	WNGG 080402FR-F	0.05-0.20	0.50-2.0	12.7	8.69	4.76	5.16	0.2	●	
	080402FL-F	0.05-0.20	0.50-2.0	12.7	8.69	4.76	5.16	0.2	●	
	080404FR-F	0.05-0.20	0.50-2.0	12.7	8.69	4.76	5.16	0.4	●	
	080404FL-F	0.05-0.20	0.50-2.0	12.7	8.69	4.76	5.16	0.4	●	
	080408FR-F	0.05-0.20	0.50-2.0	12.7	8.69	4.76	5.16	0.8	●	
	080408FL-F	0.05-0.20	0.50-2.0	12.7	8.69	4.76	5.16	0.8	●	
	WNGG 060402R-C	0.20-0.40	1.0-3.0	9.525	6.52	4.76	3.81	0.2	●	
	060402L-C	0.20-0.40	1.0-3.0	9.525	6.52	4.76	3.81	0.2	●	
	060404R-C	0.20-0.40	1.0-3.0	9.525	6.52	4.76	3.81	0.4	●	
	060404L-C	0.20-0.40	1.0-3.0	9.525	6.52	4.76	3.81	0.4	●	
	060408R-C	0.20-0.40	1.0-3.0	9.525	6.52	4.76	3.81	0.8	●	
	060408L-C	0.20-0.40	1.0-3.0	9.525	6.52	4.76	3.81	0.8	●	
	WNGG 080402R-C	0.20-0.40	1.0-3.0	12.7	8.69	4.76	5.16	0.2	●	
	080402L-C	0.20-0.40	1.0-3.0	12.7	8.69	4.76	5.16	0.2	●	
	080404R-C	0.20-0.40	1.0-3.0	12.7	8.69	4.76	5.16	0.4	●	
	080404L-C	0.20-0.40	1.0-3.0	12.7	8.69	4.76	5.16	0.4	●	
	080408R-C	0.20-0.40	1.0-3.0	12.7	8.69	4.76	5.16	0.8	●	
	080408L-C	0.20-0.40	1.0-3.0	12.7	8.69	4.76	5.16	0.8	●	

Positive G-class insert(sharp type)

Insert	Designation	Recommended parameter Feed (mm/rev)	Recommended parameter Cutting depth (mm)	Dimension(mm) d (mm)	Dimension(mm) l (mm)	Dimension(mm) s (mm)	Dimension(mm) d1 (mm)	Dimension(mm) r (mm)	Grade Mental ceramic AT200	Geometry
	CCGT 060202FR-F	0.02-0.10	0.02-0.40	6.35	6.45	2.38	2.8	0.2	●	
	060202FL-F	0.02-0.10	0.02-0.40	6.35	6.45	2.38	2.8	0.2	●	
	060204FR-F	0.02-0.10	0.02-0.40	6.35	6.45	2.38	2.8	0.4	●	
	060204FL-F	0.02-0.10	0.02-0.40	6.35	6.45	2.38	2.8	0.4	●	
	CCGT 09T302FR-F	0.02-0.10	0.02-0.50	9.525	9.67	3.97	4.4	0.2	●	
	09T302FL-F	0.02-0.10	0.02-0.50	9.525	9.67	3.97	4.4	0.2	●	
	09T304FR-F	0.02-0.10	0.02-0.50	9.525	9.67	3.97	4.4	0.4	●	
	09T304FL-F	0.02-0.10	0.02-0.50	9.525	9.67	3.97	4.4	0.4	●	
	DCGT 070202FR-F	0.03-0.18	0.05-0.40	6.35	7.75	2.38	2.8	0.2	●	
	070202FL-F	0.03-0.18	0.05-0.40	6.35	7.75	2.38	2.8	0.2	●	
	070204FR-F	0.03-0.18	0.05-0.40	6.35	7.75	2.38	2.8	0.4	●	
	070204FL-F	0.03-0.18	0.05-0.40	6.35	7.75	2.38	2.8	0.4	●	
	DCGT 11T302FR-F	0.02-0.18	0.02-0.40	9.525	11.62	3.97	4.4	0.2	●	
	11T302FL-F	0.02-0.18	0.02-0.40	9.525	11.62	3.97	4.4	0.2	●	
	11T304FR-F	0.02-0.18	0.02-0.40	9.525	11.62	3.97	4.4	0.4	●	
	11T304FL-F	0.02-0.18	0.02-0.40	9.525	11.62	3.97	4.4	0.4	●	
	DCGT 11T302FR-M	0.02-0.10	0.10-4.0	9.525	11.62	3.97	4.4	0.2	●	
	11T302FL-M	0.02-0.10	0.10-4.0	9.525	11.62	3.97	4.4	0.2	●	
	11T304FR-M	0.02-0.10	0.10-4.0	9.525	11.62	3.97	4.4	0.4	●	
	11T304FL-M	0.02-0.10	0.10-4.0	9.525	11.62	3.97	4.4	0.4	●	
	TBGT 060102FR-F	0.03-0.07	0.10-0.50	3.97	6.90	1.59	2.3	0.2	●	
	060102FL-F	0.03-0.07	0.10-0.50	3.97	6.90	1.59	2.3	0.2	●	
	060104FR-F	0.03-0.07	0.10-0.50	3.97	6.90	1.59	2.3	0.4	●	
	060104FL-F	0.03-0.07	0.10-0.50	3.97	6.90	1.59	2.3	0.4	●	
	TPGT 080202FR-F	0.02-0.10	0.20-0.80	4.76	8.20	2.38	2.3	0.2	●	
	080202FL-F	0.02-0.10	0.20-0.80	4.76	8.20	2.38	2.3	0.2	●	
	080204FR-F	0.02-0.10	0.20-0.80	4.76	8.20	2.38	2.3	0.4	●	
	080204FL-F	0.02-0.10	0.20-0.80	4.76	8.20	2.38	2.3	0.4	●	
	TPGT 090202FR-F	0.20-0.80	0.02-0.10	5.56	9.60	2.38	2.5	0.2	●	
	090202FL-F	0.20-0.80	0.02-0.10	5.56	9.60	2.38	2.5	0.2	●	
	090204FR-F	0.20-0.80	0.02-0.10	5.56	9.60	2.38	2.5	0.4	●	
	090204FL-F	0.20-0.80	0.02-0.10	5.56	9.60	2.38	2.5	0.4	●	
	TPGT 110302FR-F	0.02-0.12	0.20-0.80	6.35	11.0	3.18	3.3	0.2	●	
	110302FL-F	0.02-0.12	0.20-0.80	6.35	11.0	3.18	3.3	0.2	●	
	110304FR-F	0.02-0.12	0.20-0.80	6.35	11.0	3.18	3.3	0.4	●	
	110304FL-F	0.02-0.12	0.20-0.80	6.35	11.0	3.18	3.3	0.4	●	

Remark：● represent for standard stock

Insert	Designation	Recommended parameter		Dimension(mm)					Grade	Geometry
		Feed	Cutting depth	d	l	s	d1	r	Mental ceramic	
		(mm/rev)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	AT200	
	TCGT 110202FR-F	0.02-0.12	0.20-0.80	6.35	11.0	2.38	3.3	0.2	●	
	110202FL-F	0.02-0.12	0.20-0.80	6.35	11.0	2.38	3.3	0.2	●	
	110204FR-F	0.02-0.12	0.20-0.80	6.35	11.0	2.38	3.3	0.4	●	
	110204FL-F	0.02-0.12	0.20-0.80	6.35	11.0	2.38	3.3	0.4	●	
	VBGT 110301FR-F	0.02-0.18	0.02-0.40	6.35	11.07	3.18	2.8	0.1	●	
	110301FL-F	0.02-0.18	0.02-0.40	6.35	11.07	3.18	2.8	0.1	●	
	110302FR-F	0.02-0.18	0.02-0.40	6.35	11.07	3.18	2.8	0.2	●	
	110302FL-F	0.02-0.18	0.02-0.40	6.35	11.07	3.18	2.8	0.2	●	
	110304FR-F	0.02-0.18	0.02-0.40	6.35	11.07	3.18	2.8	0.4	●	
	110304FL-F	0.02-0.18	0.02-0.40	6.35	11.07	3.18	2.8	0.4	●	
	VBGT 160402FR-F	0.02-0.18	0.05-0.30	9.525	16.61	4.76	4.4	0.2	●	
	160402FL-F	0.02-0.18	0.05-0.30	9.525	16.61	4.76	4.4	0.2	●	
	160404FR-F	0.02-0.18	0.05-0.30	9.525	16.61	4.76	4.4	0.4	●	
	160404FL-F	0.02-0.18	0.05-0.30	9.525	16.61	4.76	4.4	0.4	●	
	VBGT 110302FR-Y	0.08-0.22	0.50-1.80	6.35	11.07	3.18	2.8	0.2	●	
	110302FL-Y	0.08-0.22	0.50-1.80	6.35	11.07	3.18	2.8	0.2	●	
	110304FR-Y	0.08-0.22	0.50-1.80	6.35	11.07	3.18	2.8	0.4	●	
	110304FL-Y	0.08-0.22	0.50-1.80	6.35	11.07	3.18	2.8	0.4	●	
	WBGT 060102FR-F	0.02-0.10	0.20-0.80	3.97	6.50	1.59	2.3	0.2	●	
	060102FL-F	0.02-0.10	0.20-0.80	3.97	6.50	1.59	2.3	0.2	●	
	060104FR-F	0.02-0.10	0.20-0.80	3.97	6.50	1.59	2.3	0.4	●	
	060104FL-F	0.02-0.10	0.20-0.80	3.97	6.50	1.59	2.3	0.4	●	

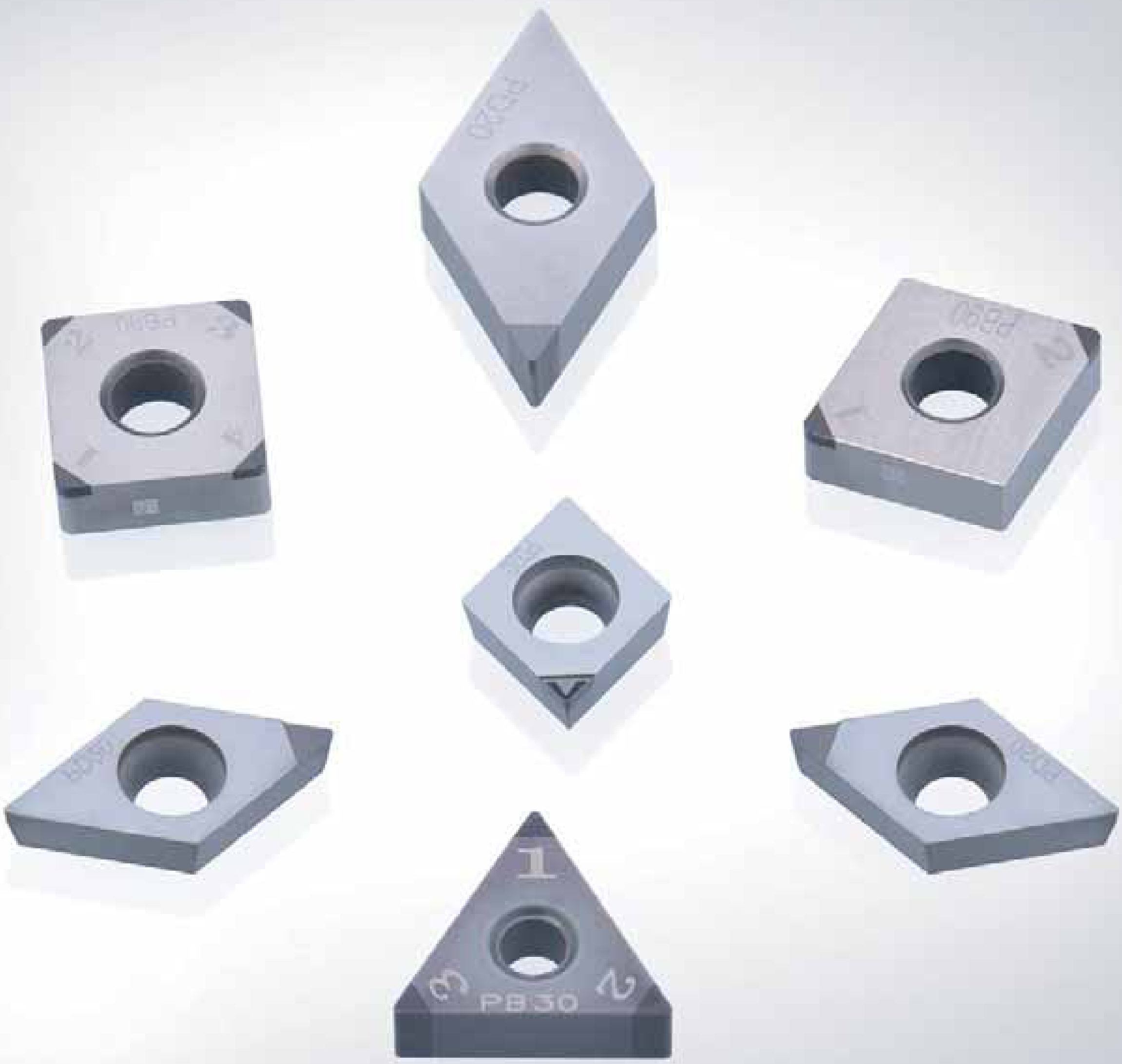
Remark：● represent for standard stock

ACHTECK

NEW
PRODUCT!

Superhard Turning Inserts Series

PCBN&PCD turning inserts

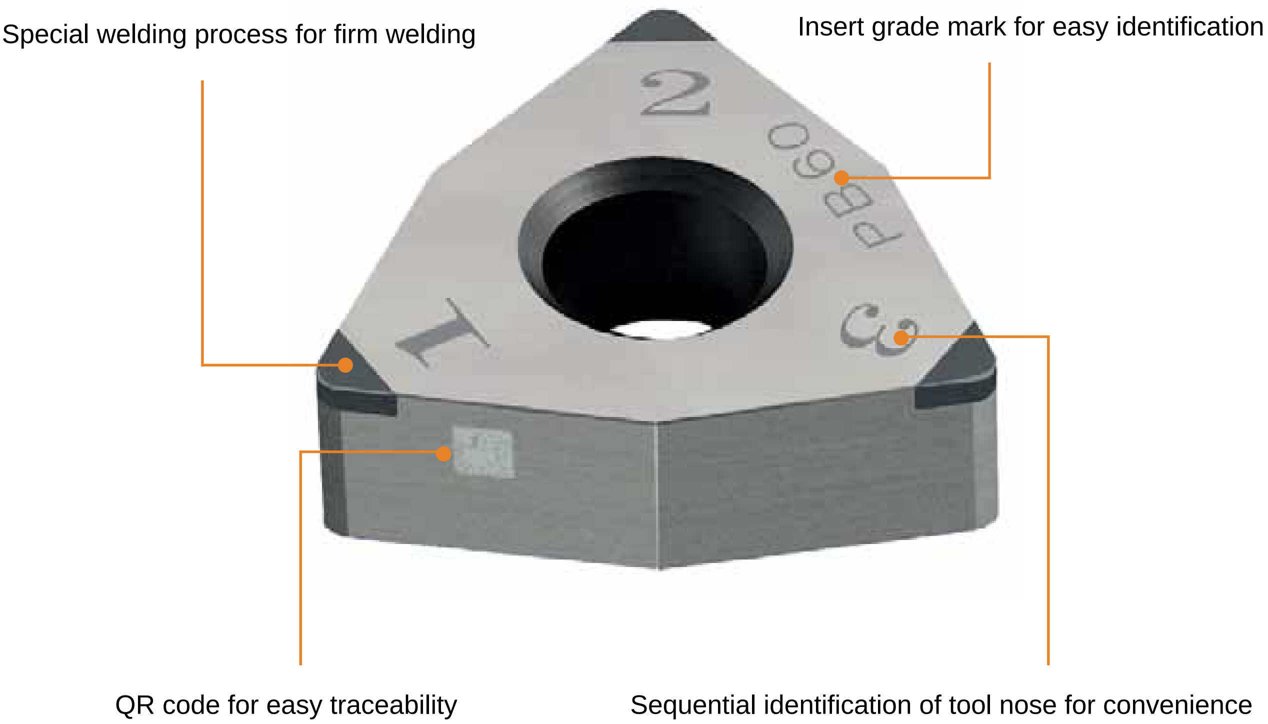


www.achtecktool.com

Super-hard cutting tools mainly include single crystal diamond tool, polycrystalline diamond (PCD) tool and polycrystalline cubic boron nitride (PCBN) tool, etc. It is an ideal solution for machining aluminum alloy and high hardness materials; Super hard material tools are applied to cutting, which has realized the effect of high efficiency and low cost in the aspects of turning replacing grinding and milling replacing grinding; It is suitable for the precision machining of forming, profiling and sizing to significantly improve the quality and efficiency, up to several times or even dozens of times. At present, it has been widely applied to the machining of automobile, aviation, mine, electronics, glass and other industries.

Product feature

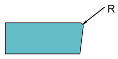
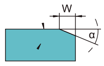
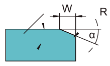
- High hardness and excellent wear resistance
- High thermal stability
- Good chemical stability
- Good thermal conductivity
- Low friction coefficient



PCBN insert naming system

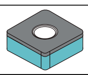
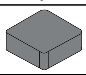
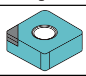
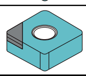
C	N	G	A	12	04	08	-	S	010	20	-	SL	-	1	-	CB	PB30	A
1								2	3	4		5		6		7	8	9

1-Standard ISO numbering system

2-Cutting edge shape		
E	Honed	
T	Land without honing	
S	Land with honed	
F	Sharpness	

3-T-Land width	
005	0.05mm
010	0.10mm
015	0.15mm
020	0.20mm

4-T-Land angle	
10	10°
15	15°
20	20°
25	25°

5-CBN Insert structure		
FT	Full face ripped CBN	
SD	Solid CBN	
SL	Small size tipped CBN	
NL	Standard-tipped 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
WG	With wiper insert
"-"	Without chip breaker

8-Grade	
PB30	Low content CBN
PB60	Medium content CBN
PB90	High content CBN

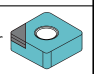
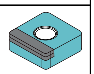
9-Coating type	
A	A type
B	B type
C	C type

PCD insert naming system

C	C	G	W	09	T3	04	-	2	-	NL	-	05	-	CB	PD20
1								2		3		4		5	6

1-Standard ISO numbering 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 in corner	
LL	Full edge tipped PCD	

4-Front angle	
00	0°
05	5°
10	10°

5-Cutting edge preparation	
CB	With chip breaker
WG	With wiper insert
"-"	Without chip breaker

6-Grade	
PD01	Fine particle PCD
PD10	Medium particle PCD
PD20	Coarse particle PCD

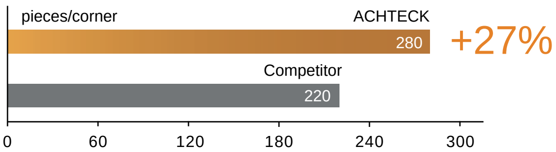
PCB&PCD insert grade introduction

PCBN			
Grade	Material	Feature	Application
PB30	ISO:H	Wear resistance and shock-resistance	Suitable for continuous and light interrupted cutting of chilled steel
PB60	ISO:H/K	Excellent toughness	Mainly applied to medium interrupted cutting of chilled steel,interrupted and continuous cutting of powder metallurgy and cast cutting as well.
PB90	ISO:K/H	Good wear resistance and toughness, shock-resistance avaliable	K-mainly applied to cast cutting H-strong interrupted cutting of chilled steel and powder metallurgy processing

PCD			
Grade	Material	Feature	Application
PD01	ISO:N	Ultra fine-grained PCD material, with good shock-resistance	Roughing and interrupted processing of aluminum alloy materials.
PD10	ISO:N	Universal grade with both material toughness and wear resistance	General processing of aluminum alloys and non-ferrous metals.
PD20	ISO:N	Preferred grade, excellent wear resistance	Preferred for general processing of aluminum alloy materials

Case stories

Work piece:Automobile Engine Cylinder
Material:HT250
Hardness:HB200-220
Insert:CCGW 09T304-S01020-SL-2 PB90
Competitor: CCMW 09T304 S1225
Cutting parameters:Vc=570m/min, f=0.2mm/r, ap=0.3mm
Dry cutting
Machining type: Boring



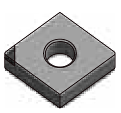
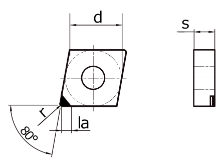
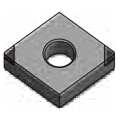
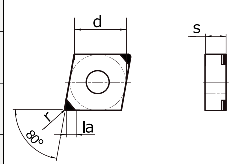
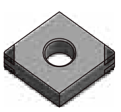
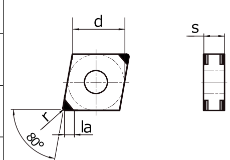
Recommended cutting parameter

PCBN					
Grade	Material	Cutting speed Vc（m/min）	Feed f（mm/r）	Cutting depth ap（mm）	Recommended application
PB30	Hardened steel	150-250	0.03-0.2	0.05-0.3	Continuous
PB60	Hardened steel	50-150	0.03-0.2	0.05-0.5	Interrupted
	Cast iron	300-800	0.03-0.3	0.30-0.5	Continuous / Interrupted
	Powder metallurgy	200-500	0.03-0.3	0.10-0.3	Continuous / Interrupted
PB90	Cast iron	300-800	0.03-0.3	0.30-0.5	Continuous / Interrupted
	Hardened steel	50-150	0.03-0.2	0.05-0.5	Stronger interrupted
	Powder metallurgy	300-800	0.03-0.3	0.10-0.3	Continuous / Interrupted

PCD					
Grade	Material	Cutting speed Vc（m/min）	Feed f（mm/r）	Cutting depth ap（mm）	Recommended application
PD01	High-silicon Aluminum Alloy(si＞12%)	300-4000	0.03-0.3	0.05-0.5	Continuous / Interrupted
PD10	Mid-Si Aluminium Alloy（6%＜Si＜12%）	300-4000	0.03-0.3	0.05-0.5	Continuous / Interrupted
PD20	Low-Si Aluminium Alloy（si<6%）	300-4000	0.03-0.2	0.30-0.5	Continuous

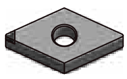
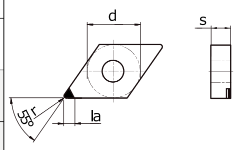
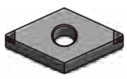
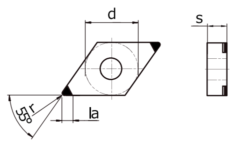
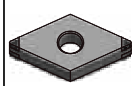
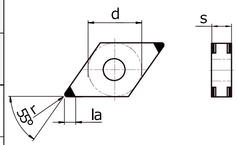
Stock items-PCBN inserts

Negative 80°（CN）

Insert	Type	Recommended parameter		Dimension(mm)				Grade			Geometry
		Feed (mm/rev)	Cutting depth (mm)	d	la	s	r	PB30	PB60	PB90	
	CNGA 120402-S01020-SL-1	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.2	●	●	●	
	CNGA 120404-S01020-SL-1	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.4	●	●	●	
	CNGA 120408-S01020-SL-1	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.8	●	●	●	
	CNGA 120412-S01020-SL-1	0.03-0.3	0.05-0.5	12.7	2.2	4.76	1.2	●	●	●	
	CNGA 120402-S01020-SL-2	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.2	●	●	●	
	CNGA 120404-S01020-SL-2	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.4	●	●	●	
	CNGA 120408-S01020-SL-2	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.8	●	●	●	
	CNGA 120412-S01020-SL-2	0.03-0.3	0.05-0.5	12.7	2.2	4.76	1.2	●	●	●	
	CNGA 120402-S01020-SL-4	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.2	●	●	●	
	CNGA 120404-S01020-SL-4	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.4	●	●	●	
	CNGA 120408-S01020-SL-4	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.8	●	●	●	
	CNGA 120412-S01020-SL-4	0.03-0.3	0.05-0.5	12.7	2.2	4.76	1.2	●	●	●	

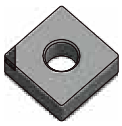
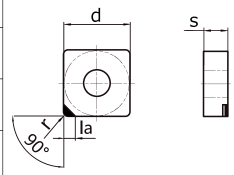
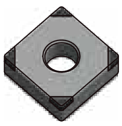
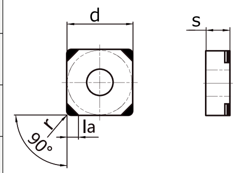
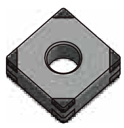
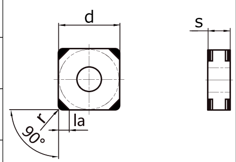
Remark: ● represent for standard stock

Negative 55°（DN）

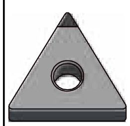
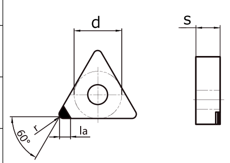
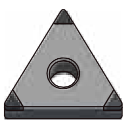
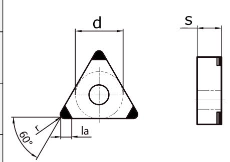
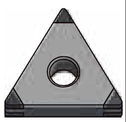
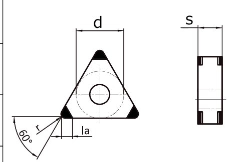
Insert	Type	Recommended parameter		Dimension(mm)				Grade			Geometry
		Feed (mm/rev)	Cutting depth (mm)	d	la	s	r	PB30	PB60	PB90	
	DNGA 150402-S01020-SL-1	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.2	●	●	●	
	DNGA 150404-S01020-SL-1	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.4	●	●	●	
	DNGA 150408-S01020-SL-1	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.8	●	●	●	
	DNGA 150412-S01020-SL-1	0.03-0.3	0.05-0.5	12.7	2.2	4.76	1.2	●	●	●	
	DNGA 150602-S01020-SL-1	0.03-0.3	0.05-0.5	12.7	2.2	6.35	0.2	●	●	●	
	DNGA 150604-S01020-SL-1	0.03-0.3	0.05-0.5	12.7	2.2	6.35	0.4	●	●	●	
	DNGA 150608-S01020-SL-1	0.03-0.3	0.05-0.5	12.7	2.2	6.35	0.8	●	●	●	
	DNGA 150612-S01020-SL-1	0.03-0.3	0.05-0.5	12.7	2.2	6.35	1.2	●	●	●	
	DNGA 150402-S01020-SL-2	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.2	●	●	●	
	DNGA 150404-S01020-SL-2	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.4	●	●	●	
	DNGA 150408-S01020-SL-2	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.8	●	●	●	
	DNGA 150412-S01020-SL-2	0.03-0.3	0.05-0.5	12.7	2.2	4.76	1.2	●	●	●	
	DNGA 150602-S01020-SL-2	0.03-0.3	0.05-0.5	12.7	2.2	6.35	0.2	●	●	●	
	DNGA 150604-S01020-SL-2	0.03-0.3	0.05-0.5	12.7	2.2	6.35	0.4	●	●	●	
	DNGA 150608-S01020-SL-2	0.03-0.3	0.05-0.5	12.7	2.2	6.35	0.8	●	●	●	
	DNGA 150612-S01020-SL-2	0.03-0.3	0.05-0.5	12.7	2.2	6.35	1.2	●	●	●	
	DNGA 150402-S01020-SL-4	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.2	●	●	●	
	DNGA 150404-S01020-SL-4	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.4	●	●	●	
	DNGA 150408-S01020-SL-4	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.8	●	●	●	
	DNGA 150412-S01020-SL-4	0.03-0.3	0.05-0.5	12.7	2.2	4.76	1.2	●	●	●	
	DNGA 150602-S01020-SL-4	0.03-0.3	0.05-0.5	12.7	2.2	6.35	0.2	●	●	●	
	DNGA 150604-S01020-SL-4	0.03-0.3	0.05-0.5	12.7	2.2	6.35	0.4	●	●	●	
	DNGA 150608-S01020-SL-4	0.03-0.3	0.05-0.5	12.7	2.2	6.35	0.8	●	●	●	
	DNGA 150612-S01020-SL-4	0.03-0.3	0.05-0.5	12.7	2.2	6.35	1.2	●	●	●	

Remark: ● represent for standard stock

Negative 90°（SN）

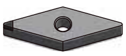
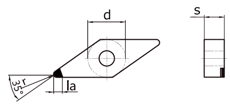
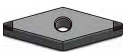
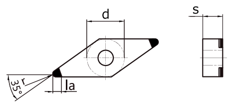
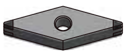
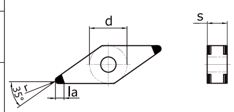
Insert	Type	Recommended parameter		Dimension(mm)				Grade			Geometry
		Feed (mm/rev)	Cutting depth (mm)	d	la	s	r	PB30	PB60	PB90	
	SNGA 120402-S01020-SL-1	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.2	●	●	●	
	SNGA 120404-S01020-SL-1	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.4	●	●	●	
	SNGA 120408-S01020-SL-1	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.8	●	●	●	
	SNGA 120412-S01020-SL-1	0.03-0.3	0.05-0.5	12.7	2.2	4.76	1.2	●	●	●	
	SNGA 120402-S01020-SL-4	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.2	●	●	●	
	SNGA 120404-S01020-SL-4	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.4	●	●	●	
	SNGA 120408-S01020-SL-4	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.8	●	●	●	
	SNGA 120412-S01020-SL-4	0.03-0.3	0.05-0.5	12.7	2.2	4.76	1.2	●	●	●	
	SNGA 120402-S01020-SL-8	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.2	●	●	●	
	SNGA 120404-S01020-SL-8	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.4	●	●	●	
	SNGA 120408-S01020-SL-8	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.8	●	●	●	
	SNGA 120412-S01020-SL-8	0.03-0.3	0.05-0.5	12.7	2.2	4.76	1.2	●	●	●	

Negative 60°（TN）

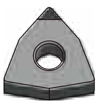
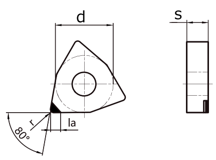
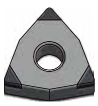
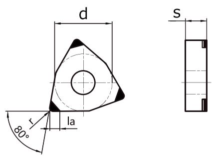
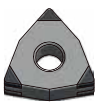
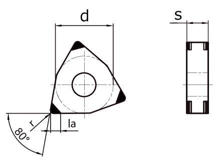
Insert	Type	Recommended parameter		Dimension(mm)				Grade			Geometry
		Feed (mm/rev)	Cutting depth (mm)	d	la	s	r	PB30	PB60	PB90	
	TNGA 160402-S01020-SL-1	0.03-0.3	0.05-0.5	9.53	2.2	4.76	0.2	●	●	●	
	TNGA 160404-S01020-SL-1	0.03-0.3	0.05-0.5	9.53	2.2	4.76	0.4	●	●	●	
	TNGA 160408-S01020-SL-1	0.03-0.3	0.05-0.5	9.53	2.2	4.76	0.8	●	●	●	
	TNGA 160412-S01020-SL-1	0.03-0.3	0.05-0.5	9.53	2.2	4.76	1.2	●	●	●	
	TNGA 160402-S01020-SL-3	0.03-0.3	0.05-0.5	9.53	2.2	4.76	0.2	●	●	●	
	TNGA 160404-S01020-SL-3	0.03-0.3	0.05-0.5	9.53	2.2	4.76	0.4	●	●	●	
	TNGA 160408-S01020-SL-3	0.03-0.3	0.05-0.5	9.53	2.2	4.76	0.8	●	●	●	
	TNGA 160412-S01020-SL-3	0.03-0.3	0.05-0.5	9.53	2.2	4.76	1.2	●	●	●	
	TNGA 160402-S01020-SL-6	0.03-0.3	0.05-0.5	9.53	2.2	4.76	0.2	●	●	●	
	TNGA 160404-S01020-SL-6	0.03-0.3	0.05-0.5	9.53	2.2	4.76	0.4	●	●	●	
	TNGA 160408-S01020-SL-6	0.03-0.3	0.05-0.5	9.53	2.2	4.76	0.8	●	●	●	
	TNGA 160412-S01020-SL-6	0.03-0.3	0.05-0.5	9.53	2.2	4.76	1.2	●	●	●	

Remark: ● represent for standard stock

Negative 35°（VN）

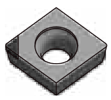
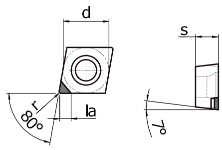
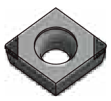
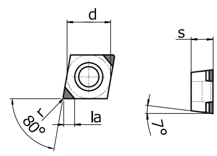
Insert	Type	Recommended parameter		Dimension(mm)				Grade			Geometry
		Feed (mm/rev)	Cutting depth (mm)	d	la	s	r	PB30	PB60	PB90	
	VNGA 160402-S01020-SL-1	0.03-0.3	0.05-0.5	9.53	2.2	4.76	0.2	●	●	●	
	VNGA 160404-S01020-SL-1	0.03-0.3	0.05-0.5	9.53	2.2	4.76	0.4	●	●	●	
	VNGA 160408-S01020-SL-1	0.03-0.3	0.05-0.5	9.53	2.2	4.76	0.8	●	●	●	
	VNGA 160412-S01020-SL-1	0.03-0.3	0.05-0.5	9.53	2.2	4.76	1.2	●	●	●	
	VNGA 160402-S01020-SL-2	0.03-0.3	0.05-0.5	9.53	2.2	4.76	0.2	●	●	●	
	VNGA 160404-S01020-SL-2	0.03-0.3	0.05-0.5	9.53	2.2	4.76	0.4	●	●	●	
	VNGA 160408-S01020-SL-2	0.03-0.3	0.05-0.5	9.53	2.2	4.76	0.8	●	●	●	
	VNGA 160412-S01020-SL-2	0.03-0.3	0.05-0.5	9.53	2.2	4.76	1.2	●	●	●	
	VNGA 160402-S01020-SL-4	0.03-0.3	0.05-0.5	9.53	2.2	4.76	0.2	●	●	●	
	VNGA 160404-S01020-SL-4	0.03-0.3	0.05-0.5	9.53	2.2	4.76	0.4	●	●	●	
	VNGA 160408-S01020-SL-4	0.03-0.3	0.05-0.5	9.53	2.2	4.76	0.8	●	●	●	
	VNGA 160412-S01020-SL-4	0.03-0.3	0.05-0.5	9.53	2.2	4.76	1.2	●	●	●	

Negative 80°（WN）

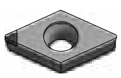
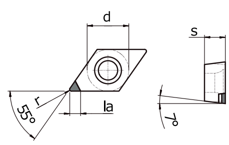
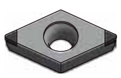
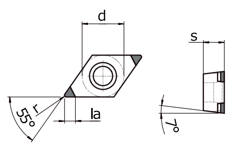
Insert	Type	Recommended parameter		Dimension(mm)				Grade			Geometry
		Feed (mm/rev)	Cutting depth (mm)	d	la	s	r	PB30	PB60	PB90	
	WNGA 080402-S01020-SL-1	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.2	●	●	●	
	WNGA 080404-S01020-SL-1	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.4	●	●	●	
	WNGA 080408-S01020-SL-1	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.8	●	●	●	
	WNGA 080412-S01020-SL-1	0.03-0.3	0.05-0.5	12.7	2.2	4.76	1.2	●	●	●	
	WNGA 080402-S01020-SL-3	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.2	●	●	●	
	WNGA 080404-S01020-SL-3	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.4	●	●	●	
	WNGA 080408-S01020-SL-3	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.8	●	●	●	
	WNGA 080412-S01020-SL-3	0.03-0.3	0.05-0.5	12.7	2.2	4.76	1.2	●	●	●	
	WNGA 080402-S01020-SL-6	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.2	●	●	●	
	WNGA 080404-S01020-SL-6	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.4	●	●	●	
	WNGA 080408-S01020-SL-6	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.8	●	●	●	
	WNGA 080412-S01020-SL-6	0.03-0.3	0.05-0.5	12.7	2.2	4.76	1.2	●	●	●	

Remark: ● represent for standard stock

Positive 80°（CC）

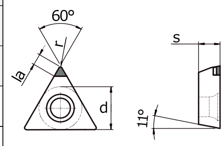
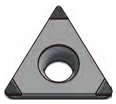
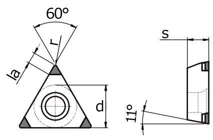
Insert	Type	Recommended parameter		Dimension(mm)				Grade			Geometry
		Feed (mm/rev)	Cutting depth (mm)	d	la	s	r	PB30	PB60	PB90	
	CCGW 060202-S01020-SL-1	0.03-0.3	0.05-0.5	6.35	2.2	2.38	0.2	●	●	●	
	CCGW 060204-S01020-SL-1	0.03-0.3	0.05-0.5	6.35	2.2	2.38	0.4	●	●	●	
	CCGW 060208-S01020-SL-1	0.03-0.3	0.05-0.5	6.35	2.2	2.38	0.8	●	●	●	
	CCGW 09T302-S01020-SL-1	0.03-0.3	0.05-0.5	9.525	2.2	3.97	0.2	●	●	●	
	CCGW 09T304-S01020-SL-1	0.03-0.3	0.05-0.5	9.525	2.2	3.97	0.4	●	●	●	
	CCGW 09T308-S01020-SL-1	0.03-0.3	0.05-0.5	9.525	2.2	3.97	0.8	●	●	●	
	CCGW 120402-S01020-SL-1	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.2	●	●	●	
	CCGW 120404-S01020-SL-1	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.4	●	●	●	
	CCGW 120408-S01020-SL-1	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.8	●	●	●	
	CCGW 120412-S01020-SL-1	0.03-0.3	0.05-0.5	12.7	2.2	4.76	1.2	●	●	●	
	CCGW 060202-S01020-SL-2	0.03-0.3	0.05-0.5	6.35	2.2	2.38	0.2	●	●	●	
	CCGW 060204-S01020-SL-2	0.03-0.3	0.05-0.5	6.35	2.2	2.38	0.4	●	●	●	
	CCGW 060208-S01020-SL-2	0.03-0.3	0.05-0.5	6.35	2.2	2.38	0.8	●	●	●	
	CCGW 09T302-S01020-SL-2	0.03-0.3	0.05-0.5	9.525	2.2	3.97	0.2	●	●	●	
	CCGW 09T304-S01020-SL-2	0.03-0.3	0.05-0.5	9.525	2.2	3.97	0.4	●	●	●	
	CCGW 09T308-S01020-SL-2	0.03-0.3	0.05-0.5	9.525	2.2	3.97	0.8	●	●	●	
	CCGW 120402-S01020-SL-2	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.2	●	●	●	
	CCGW 120404-S01020-SL-2	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.4	●	●	●	
	CCGW 120408-S01020-SL-2	0.03-0.3	0.05-0.5	12.7	2.2	4.76	0.8	●	●	●	
	CCGW 120412-S01020-SL-2	0.03-0.3	0.05-0.5	12.7	2.2	4.76	1.2	●	●	●	

Positive 55°(DC)

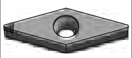
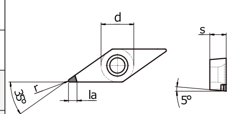
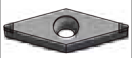
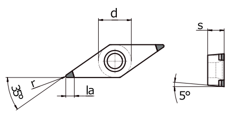
Insert	Type	Recommended parameter		Dimension(mm)				Grade			Geometry
		Feed (mm/rev)	Cutting depth (mm)	d	la	s	r	PB30	PB60	PB90	
	DCGW 070202-S01020-SL-1	0.03-0.3	0.05-0.5	6.35	2.2	2.38	0.2	●	●	●	
	DCGW 070204-S01020-SL-1	0.03-0.3	0.05-0.5	6.35	2.2	2.38	0.4	●	●	●	
	DCGW 070208-S01020-SL-1	0.03-0.3	0.05-0.5	6.35	2.2	2.38	0.8	●	●	●	
	DCGW 11T302-S01020-SL-1	0.03-0.3	0.05-0.5	9.525	2.2	3.97	0.2	●	●	●	
	DCGW 11T304-S01020-SL-1	0.03-0.3	0.05-0.5	9.525	2.2	3.97	0.4	●	●	●	
	DCGW 11T308-S01020-SL-1	0.03-0.3	0.05-0.5	9.525	2.2	3.97	0.8	●	●	●	
	DCGW 11T312-S01020-SL-1	0.03-0.3	0.05-0.5	9.525	2.2	3.97	1.2	●	●	●	
	DCGW 070202-S01020-SL-2	0.03-0.3	0.05-0.5	6.35	2.2	2.38	0.2	●	●	●	
	DCGW 070204-S01020-SL-2	0.03-0.3	0.05-0.5	6.35	2.2	2.38	0.4	●	●	●	
	DCGW 070208-S01020-SL-2	0.03-0.3	0.05-0.5	6.35	2.2	2.38	0.8	●	●	●	
	DCGW 11T302-S01020-SL-2	0.03-0.3	0.05-0.5	9.525	2.2	3.97	0.2	●	●	●	
	DCGW 11T304-S01020-SL-2	0.03-0.3	0.05-0.5	9.525	2.2	3.97	0.4	●	●	●	
	DCGW 11T308-S01020-SL-2	0.03-0.3	0.05-0.5	9.525	2.2	3.97	0.8	●	●	●	
	DCGW 11T312-S01020-SL-2	0.03-0.3	0.05-0.5	9.525	2.2	3.97	1.2	●	●	●	

Remark: ● represent for standard stock

Positive 60°(TP)

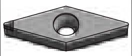
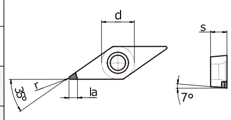
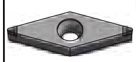
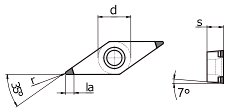
Insert	Type	Recommended parameter		Dimension(mm)				Grade			Geometry
		Feed (mm/rev)	Cutting depth (mm)	d	la	s	r	PB30	PB60	PB90	
	TPGW 080202-S01020-SL-1	0.03-0.3	0.05-0.5	4.76	2.2	2.38	0.2	●	●	●	
	TPGW 080204-S01020-SL-1	0.03-0.3	0.05-0.5	4.76	2.2	2.38	0.4	●	●	●	
	TPGW 090202-S01020-SL-1	0.03-0.3	0.05-0.5	5.56	2.2	2.38	0.2	●	●	●	
	TPGW 090204-S01020-SL-1	0.03-0.3	0.05-0.5	5.56	2.2	2.38	0.4	●	●	●	
	TPGW 090208-S01020-SL-1	0.03-0.3	0.05-0.5	5.56	2.2	2.38	0.8	●	●	●	
	TPGW 110302-S01020-SL-1	0.03-0.3	0.05-0.5	6.35	2.2	3.18	0.2	●	●	●	
	TPGW 110304-S01020-SL-1	0.03-0.3	0.05-0.5	6.35	2.2	3.18	0.4	●	●	●	
	TPGW 160402-S01020-SL-1	0.03-0.3	0.05-0.5	9.525	2.2	4.76	0.2	●	●	●	
	TPGW 160404-S01020-SL-1	0.03-0.3	0.05-0.5	9.525	2.2	4.76	0.4	●	●	●	
	TPGW 160408-S01020-SL-1	0.03-0.3	0.05-0.5	9.525	2.2	4.76	0.8	●	●	●	
	TPGW 080202-S01020-SL-3	0.03-0.3	0.05-0.5	4.76	2.2	2.38	0.2	●	●	●	
	TPGW 080204-S01020-SL-3	0.03-0.3	0.05-0.5	4.76	2.2	2.38	0.4	●	●	●	
	TPGW 090202-S01020-SL-3	0.03-0.3	0.05-0.5	5.56	2.2	2.38	0.2	●	●	●	
	TPGW 090204-S01020-SL-3	0.03-0.3	0.05-0.5	5.56	2.2	2.38	0.4	●	●	●	
	TPGW 090208-S01020-SL-3	0.03-0.3	0.05-0.5	5.56	2.2	2.38	0.8	●	●	●	
	TPGW 110302-S01020-SL-3	0.03-0.3	0.05-0.5	6.35	2.2	3.18	0.2	●	●	●	
	TPGW 110304-S01020-SL-3	0.03-0.3	0.05-0.5	6.35	2.2	3.18	0.4	●	●	●	
	TPGW 160402-S01020-SL-3	0.03-0.3	0.05-0.5	9.525	2.2	4.76	0.2	●	●	●	
	TPGW 160404-S01020-SL-3	0.03-0.3	0.05-0.5	9.525	2.2	4.76	0.4	●	●	●	
	TPGW 160408-S01020-SL-3	0.03-0.3	0.05-0.5	9.525	2.2	4.76	0.8	●	●	●	

Positive 35°（VB）

Insert	Type	Recommended parameter		Dimension(mm)				Grade			Geometry
		Feed (mm/rev)	Cutting depth (mm)	d	la	s	r	PB30	PB60	PB90	
	VBGW 110302-S01020-SL-1	0.03-0.3	0.05-0.5	6.35	2.2	3.18	0.2	●	●	●	
	VBGW 110304-S01020-SL-1	0.03-0.3	0.05-0.5	6.35	2.2	3.18	0.4	●	●	●	
	VBGW 110308-S01020-SL-1	0.03-0.3	0.05-0.5	6.35	2.2	3.18	0.8	●	●	●	
	VBGW 160402-S01020-SL-1	0.03-0.3	0.05-0.5	9.525	2.2	4.76	0.2	●	●	●	
	VBGW 160404-S01020-SL-1	0.03-0.3	0.05-0.5	9.525	2.2	4.76	0.4	●	●	●	
	VBGW 160408-S01020-SL-1	0.03-0.3	0.05-0.5	9.525	2.2	4.76	0.8	●	●	●	
	VBGW 110302-S01020-SL-2	0.03-0.3	0.05-0.5	6.35	2.2	3.18	0.2	●	●	●	
	VBGW 110304-S01020-SL-2	0.03-0.3	0.05-0.5	6.35	2.2	3.18	0.4	●	●	●	
	VBGW 110308-S01020-SL-2	0.03-0.3	0.05-0.5	6.35	2.2	3.18	0.8	●	●	●	
	VBGW 160402-S01020-SL-2	0.03-0.3	0.05-0.5	9.525	2.2	4.76	0.2	●	●	●	
	VBGW 160404-S01020-SL-2	0.03-0.3	0.05-0.5	9.525	2.2	4.76	0.4	●	●	●	
	VBGW 160408-S01020-SL-2	0.03-0.3	0.05-0.5	9.525	2.2	4.76	0.8	●	●	●	

Remark: ● represent for standard stock

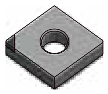
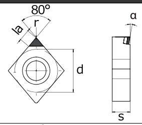
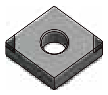
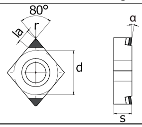
Positive 35°（VC）

Insert	Type	Recommended parameter		Dimension(mm)				Grade			Geometry
		Feed (mm/rev)	Cutting depth (mm)	d	la	s	r	PB30	PB60	PB90	
	VCGW 110302-S01020-SL-1	0.03-0.3	0.05-0.5	6.35	2.2	3.18	0.2	●	●	●	
	VCGW 110304-S01020-SL-1	0.03-0.3	0.05-0.5	6.35	2.2	3.18	0.4	●	●	●	
	VCGW 110308-S01020-SL-1	0.03-0.3	0.05-0.5	6.35	2.2	3.18	0.8	●	●	●	
	VCGW 160402-S01020-SL-1	0.03-0.3	0.05-0.5	9.525	2.2	4.76	0.2	●	●	●	
	VCGW 160404-S01020-SL-1	0.03-0.3	0.05-0.5	9.525	2.2	4.76	0.4	●	●	●	
	VCGW 160408-S01020-SL-1	0.03-0.3	0.05-0.5	9.525	2.2	4.76	0.8	●	●	●	
	VCGW 110302-S01020-SL-2	0.03-0.3	0.05-0.5	6.35	2.2	3.18	0.2	●	●	●	
	VCGW 110304-S01020-SL-2	0.03-0.3	0.05-0.5	6.35	2.2	3.18	0.4	●	●	●	
	VCGW 110308-S01020-SL-2	0.03-0.3	0.05-0.5	6.35	2.2	3.18	0.8	●	●	●	
	VCGW 160402-S01020-SL-2	0.03-0.3	0.05-0.5	9.525	2.2	4.76	0.2	●	●	●	
	VCGW 160404-S01020-SL-2	0.03-0.3	0.05-0.5	9.525	2.2	4.76	0.4	●	●	●	
	VCGW 160408-S01020-SL-2	0.03-0.3	0.05-0.5	9.525	2.2	4.76	0.8	●	●	●	

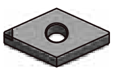
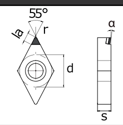
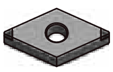
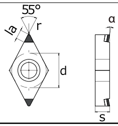
Remark: ● represent for standard stock

Stock items-PCD inserts

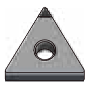
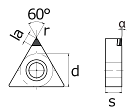
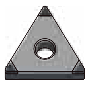
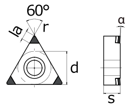
Negative 80°（CN）

Insert	Type	Recommended parameter		Dimension(mm)					Grade			Geometry
		Feed (mm/rev)	Cutting depth (mm)	d	la	s	r	α	PD01	PD10	PD20	
	CNGA 120402-1-NL-00	0.03-0.2	0.05-0.5	12.7	3.0	4.76	0.2	0°	●	●	●	
	CNGA 120404-1-NL-00	0.03-0.2	0.05-0.5	12.7	3.0	4.76	0.4	0°	●	●	●	
	CNGA 120408-1-NL-00	0.03-0.2	0.05-0.5	12.7	3.0	4.76	0.8	0°	●	●	●	
	CNGA 120402-2-NL-00	0.03-0.2	0.05-0.5	12.7	3.0	4.76	0.2	0°	●	●	●	
	CNGA 120404-2-NL-00	0.03-0.2	0.05-0.5	12.7	3.0	4.76	0.4	0°	●	●	●	
	CNGA 120408-2-NL-00	0.03-0.2	0.05-0.5	12.7	3.0	4.76	0.8	0°	●	●	●	

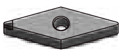
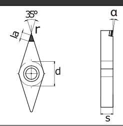
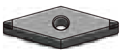
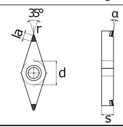
Negative 55°（DN）

Insert	Type	Recommended parameter		Dimension(mm)					Grade			Geometry
		Feed (mm/rev)	Cutting depth (mm)	d	la	s	r	α	PD01	PD10	PD20	
	DNGA 150402-1-NL-00	0.03-0.2	0.05-0.5	12.7	3.0	4.76	0.2	0°	●	●	●	
	DNGA 150404-1-NL-00	0.03-0.2	0.05-0.5	12.7	3.0	4.76	0.4	0°	●	●	●	
	DNGA 150408-1-NL-00	0.03-0.2	0.05-0.5	12.7	3.0	4.76	0.8	0°	●	●	●	
	DNGA 150402-2-NL-00	0.03-0.2	0.05-0.5	12.7	3.0	4.76	0.2	0°	●	●	●	
	DNGA 150404-2-NL-00	0.03-0.2	0.05-0.5	12.7	3.0	4.76	0.4	0°	●	●	●	
	DNGA 150408-2-NL-00	0.03-0.2	0.05-0.5	12.7	3.0	4.76	0.8	0°	●	●	●	

Negative 60°（TN）

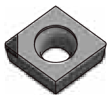
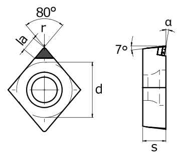
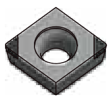
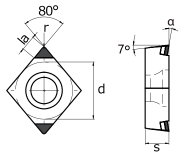
Insert	Type	Recommended parameter		Dimension(mm)					Grade			Geometry
		Feed (mm/rev)	Cutting depth (mm)	d	la	s	r	α	PD01	PD10	PD20	
	TNGA 160402-1-NL-00	0.03-0.2	0.05-0.5	9.525	3.0	4.76	0.2	0°	●	●	●	
	TNGA 160404-1-NL-00	0.03-0.2	0.05-0.5	9.525	3.0	4.76	0.4	0°	●	●	●	
	TNGA 160408-1-NL-00	0.03-0.2	0.05-0.5	9.525	3.0	4.76	0.8	0°	●	●	●	
	TNGA 160402-3-NL-00	0.03-0.2	0.05-0.5	9.525	3.0	4.76	0.2	0°	●	●	●	
	TNGA 160404-3-NL-00	0.03-0.2	0.05-0.5	9.525	3.0	4.76	0.4	0°	●	●	●	
	TNGA 160408-3-NL-00	0.03-0.2	0.05-0.5	9.525	3.0	4.76	0.8	0°	●	●	●	

Negative 35°（VN）

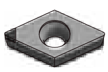
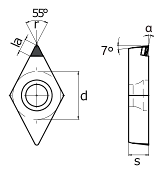
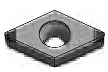
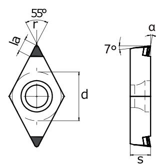
Insert	Type	Recommended parameter		Dimension(mm)					Grade			Geometry
		Feed (mm/rev)	Cutting depth (mm)	d	la	s	r	α	PD01	PD10	PD20	
	VNGA 160402-1-NL-00	0.03-0.2	0.05-0.5	9.525	3.0	4.76	0.2	0°	●	●	●	
	VNGA 160404-1-NL-00	0.03-0.2	0.05-0.5	9.525	3.0	4.76	0.4	0°	●	●	●	
	VNGA 160408-1-NL-00	0.03-0.2	0.05-0.5	9.525	3.0	4.76	0.8	0°	●	●	●	
	VNGA 160402-2-NL-00	0.03-0.2	0.05-0.5	9.525	3.0	4.76	0.2	0°	●	●	●	
	VNGA 160404-2-NL-00	0.03-0.2	0.05-0.5	9.525	3.0	4.76	0.4	0°	●	●	●	
	VNGA 160408-2-NL-00	0.03-0.2	0.05-0.5	9.525	3.0	4.76	0.8	0°	●	●	●	

Remark: ● represent for standard stock

Positive 80°（CC）

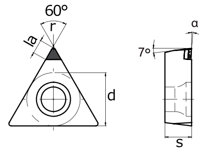
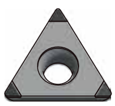
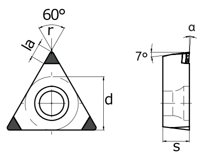
Insert	Type	Recommended parameter		Dimension(mm)					Grade			Geometry
		Feed (mm/rev)	Cutting depth (mm)	d	la	s	r	α	PD01	PD10	PD20	
	CCGW 060202-1-NL-05	0.03-0.2	0.05-0.5	6.35	3.0	2.38	0.2	5°	●	●	●	
	CCGW 060204-1-NL-05	0.03-0.2	0.05-0.5	6.35	3.0	2.38	0.4	5°	●	●	●	
	CCGW 060208-1-NL-05	0.03-0.2	0.05-0.5	6.35	3.0	2.38	0.8	5°	●	●	●	
	CCGW 09T302-1-NL-05	0.03-0.2	0.05-0.5	9.525	3.0	3.97	0.2	5°	●	●	●	
	CCGW 09T304-1-NL-05	0.03-0.2	0.05-0.5	9.525	3.0	3.97	0.4	5°	●	●	●	
	CCGW 09T308-1-NL-05	0.03-0.2	0.05-0.5	9.525	3.0	3.97	0.8	5°	●	●	●	
	CCGW 120402-1-NL-05	0.03-0.2	0.05-0.5	12.7	3.0	4.76	0.2	5°	●	●	●	
	CCGW 120404-1-NL-05	0.03-0.2	0.05-0.5	12.7	3.0	4.76	0.4	5°	●	●	●	
	CCGW 120408-1-NL-05	0.03-0.2	0.05-0.5	12.7	3.0	4.76	0.8	5°	●	●	●	
	CCGW 060202 -2-NL-05	0.03-0.2	0.05-0.5	6.35	3.0	2.38	0.2	5°	●	●	●	
	CCGW 060204 -2-NL-05	0.03-0.2	0.05-0.5	6.35	3.0	2.38	0.4	5°	●	●	●	
	CCGW 060208 -2-NL-05	0.03-0.2	0.05-0.5	6.35	3.0	2.38	0.8	5°	●	●	●	
	CCGW 09T302 -2-NL-05	0.03-0.2	0.05-0.5	9.525	3.0	3.97	0.2	5°	●	●	●	
	CCGW 09T304 -2-NL-05	0.03-0.2	0.05-0.5	9.525	3.0	3.97	0.4	5°	●	●	●	
	CCGW 09T308 -2-NL-05	0.03-0.2	0.05-0.5	9.525	3.0	3.97	0.8	5°	●	●	●	
	CCGW 120402 -2-NL-05	0.03-0.2	0.05-0.5	12.7	3.0	4.76	0.2	5°	●	●	●	
	CCGW 120404 -2-NL-05	0.03-0.2	0.05-0.5	12.7	3.0	4.76	0.4	5°	●	●	●	
	CCGW 120408 -2-NL-05	0.03-0.2	0.05-0.5	12.7	3.0	4.76	0.8	5°	●	●	●	

Positive 55°（DC）

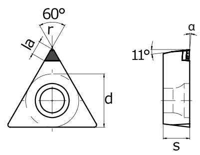
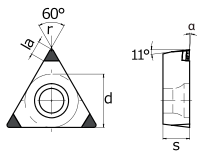
Insert	Type	Recommended parameter		Dimension(mm)					Grade			Geometry
		Feed (mm/rev)	Cutting depth (mm)	d	la	s	r	α	PD01	PD10	PD20	
	DCGW 070202-1-NL-05	0.03-0.2	0.05-0.5	6.35	3.0	2.38	0.2	5°	●	●	●	
	DCGW 070204-1-NL-05	0.03-0.2	0.05-0.5	6.35	3.0	2.38	0.4	5°	●	●	●	
	DCGW 070208-1-NL-05	0.03-0.2	0.05-0.5	6.35	3.0	2.38	0.8	5°	●	●	●	
	DCGW 11T302-1-NL-05	0.03-0.2	0.05-0.5	9.525	3.0	3.97	0.2	5°	●	●	●	
	DCGW 11T304-1-NL-05	0.03-0.2	0.05-0.5	9.525	3.0	3.97	0.4	5°	●	●	●	
	DCGW 11T308-1-NL-05	0.03-0.2	0.05-0.5	9.525	3.0	3.97	0.8	5°	●	●	●	
	DCGW 070202-2-NL-05	0.03-0.2	0.05-0.5	6.35	3.0	2.38	0.2	5°	●	●	●	
	DCGW 070204-2-NL-05	0.03-0.2	0.05-0.5	6.35	3.0	2.38	0.4	5°	●	●	●	
	DCGW 070208-2-NL-05	0.03-0.2	0.05-0.5	6.35	3.0	2.38	0.8	5°	●	●	●	
	DCGW 11T302-2-NL-05	0.03-0.2	0.05-0.5	9.525	3.0	3.97	0.2	5°	●	●	●	
	DCGW 11T304-2-NL-05	0.03-0.2	0.05-0.5	9.525	3.0	3.97	0.4	5°	●	●	●	
	DCGW 11T308-2-NL-05	0.03-0.2	0.05-0.5	9.525	3.0	3.97	0.8	5°	●	●	●	

Remark: ● represent for standard stock

Positive 60°（TC）

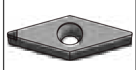
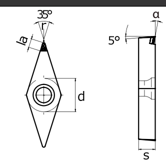
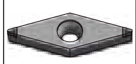
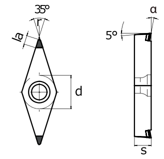
Insert	Type	Recommended parameter		Dimension(mm)					Grade			Geometry
		Feed (mm/rev)	Cutting depth (mm)	d	la	s	r	α	PD01	PD10	PD20	
	TCGW 080202-1-NL-05	0.03-0.2	0.05-0.5	4.76	3.0	2.38	0.2	5°	●	●	●	
	TCGW 080204-1-NL-05	0.03-0.2	0.05-0.5	4.76	3.0	2.38	0.4	5°	●	●	●	
	TCGW 080208-1-NL-05	0.03-0.2	0.05-0.5	4.76	3.0	2.38	0.8	5°	●	●	●	
	TCGW 110302-1-NL-05	0.03-0.2	0.05-0.5	6.35	3.0	3.18	0.2	5°	●	●	●	
	TCGW 110304-1-NL-05	0.03-0.2	0.05-0.5	6.35	3.0	3.18	0.4	5°	●	●	●	
	TCGW 110308-1-NL-05	0.03-0.2	0.05-0.5	6.35	3.0	3.18	0.8	5°	●	●	●	
	TCGW 160402-1-NL-05	0.03-0.2	0.05-0.5	9.525	3.0	4.76	0.2	5°	●	●	●	
	TCGW 160404-1-NL-05	0.03-0.2	0.05-0.5	9.525	3.0	4.76	0.4	5°	●	●	●	
	TCGW 160408-1-NL-05	0.03-0.2	0.05-0.5	9.525	3.0	4.76	0.8	5°	●	●	●	
	TCGW 080202-3-NL-05	0.03-0.2	0.05-0.5	4.76	3.0	2.38	0.2	5°	●	●	●	
	TCGW 080204-3-NL-05	0.03-0.2	0.05-0.5	4.76	3.0	2.38	0.4	5°	●	●	●	
	TCGW 080208-3-NL-05	0.03-0.2	0.05-0.5	4.76	3.0	2.38	0.8	5°	●	●	●	
	TCGW 110302-3-NL-05	0.03-0.2	0.05-0.5	6.35	3.0	3.18	0.2	5°	●	●	●	
	TCGW 110304-3-NL-05	0.03-0.2	0.05-0.5	6.35	3.0	3.18	0.4	5°	●	●	●	
	TCGW 110308-3-NL-05	0.03-0.2	0.05-0.5	6.35	3.0	3.18	0.8	5°	●	●	●	
	TCGW 160302-3-NL-05	0.03-0.2	0.05-0.5	9.525	3.0	4.76	0.2	5°	●	●	●	
	TCGW 160304-3-NL-05	0.03-0.2	0.05-0.5	9.525	3.0	4.76	0.4	5°	●	●	●	
	TCGW 160308-3-NL-05	0.03-0.2	0.05-0.5	9.525	3.0	4.76	0.8	5°	●	●	●	

Positive 60°（TP）

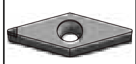
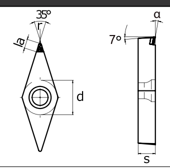
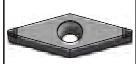
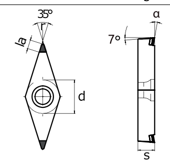
Insert	Type	Recommended parameter		Dimension(mm)					Grade			Geometry
		Feed (mm/rev)	Cutting depth (mm)	d	la	s	r	α	PD01	PD10	PD20	
	TPGW 080202-1-NL-05	0.03-0.2	0.05-0.5	4.76	3.0	2.38	0.2	5°	●	●	●	
	TPGW 080204-1-NL-05	0.03-0.2	0.05-0.5	4.76	3.0	2.38	0.4	5°	●	●	●	
	TPGW 080208-1-NL-05	0.03-0.2	0.05-0.5	4.76	3.0	2.38	0.8	5°	●	●	●	
	TPGW 080202-1-NL-05	0.03-0.2	0.05-0.5	9.525	3.0	4.76	0.2	5°	●	●	●	
	TPGW 080204-1-NL-05	0.03-0.2	0.05-0.5	9.525	3.0	4.76	0.4	5°	●	●	●	
	TPGW 080208-1-NL-05	0.03-0.2	0.05-0.5	9.525	3.0	4.76	0.8	5°	●	●	●	
	TPGW 080202-3-NL-05	0.03-0.2	0.05-0.5	4.76	3.0	2.38	0.2	5°	●	●	●	
	TPGW 080204-3-NL-05	0.03-0.2	0.05-0.5	4.76	3.0	2.38	0.4	5°	●	●	●	
	TPGW 080208-3-NL-05	0.03-0.2	0.05-0.5	4.76	3.0	2.38	0.8	5°	●	●	●	
	TPGW 160402-3-NL-05	0.03-0.2	0.05-0.5	9.525	3.0	4.76	0.2	5°	●	●	●	
	TPGW 160404-3-NL-05	0.03-0.2	0.05-0.5	9.525	3.0	4.76	0.4	5°	●	●	●	
	TPGW 160408-3-NL-05	0.03-0.2	0.05-0.5	9.525	3.0	4.76	0.8	5°	●	●	●	

Remark: ● represent for standard stock

Positive 35°（VB）

Insert	Type	Recommended parameter		Dimension(mm)					Grade			Geometry
		Feed (mm/rev)	Cutting depth (mm)	d	la	s	r	α	PD01	PD10	PD20	
	VBGW 110302-1-NL-05	0.03-0.2	0.05-0.5	6.35	3.0	3.18	0.2	5°	●	●	●	
	VBGW 110304-1-NL-05	0.03-0.2	0.05-0.5	6.35	3.0	3.18	0.4	5°	●	●	●	
	VBGW 160402-1-NL-05	0.03-0.2	0.05-0.5	9.525	3.0	4.76	0.2	5°	●	●	●	
	VBGW 160404-1-NL-05	0.03-0.2	0.05-0.5	9.525	3.0	4.76	0.4	5°	●	●	●	
	VBGW 110302-2-NL-05	0.03-0.2	0.05-0.5	6.35	3.0	3.18	0.2	5°	●	●	●	
	VBGW 110304-2-NL-05	0.03-0.2	0.05-0.5	6.35	3.0	3.18	0.4	5°	●	●	●	
	VBGW 160402-2-NL-05	0.03-0.2	0.05-0.5	9.525	3.0	4.76	0.2	5°	●	●	●	
	VBGW 160404-2-NL-05	0.03-0.2	0.05-0.5	9.525	3.0	4.76	0.4	5°	●	●	●	

Positive 35°（VC）

Insert	Type	Recommended parameter		Dimension(mm)					Grade			Geometry
		Feed (mm/rev)	Cutting depth (mm)	d	la	s	r	α	PD01	PD10	PD20	
	VCGW 110302-1-NL-05	0.03-0.2	0.05-0.5	6.35	3.0	3.18	0.2	5°	●	●	●	
	VCGW 110304-1-NL-05	0.03-0.2	0.05-0.5	6.35	3.0	3.18	0.4	5°	●	●	●	
	VCGW 160402-1-NL-05	0.03-0.2	0.05-0.5	9.525	3.0	4.76	0.2	5°	●	●	●	
	VCGW 160404-1-NL-05	0.03-0.2	0.05-0.5	9.525	3.0	4.76	0.4	5°	●	●	●	
	VCGW 110302-2-NL-05	0.03-0.2	0.05-0.5	6.35	3.0	3.18	0.2	5°	●	●	●	
	VCGW 110304-2-NL-05	0.03-0.2	0.05-0.5	6.35	3.0	3.18	0.4	5°	●	●	●	
	VCGW 110302-2-NL-05	0.03-0.2	0.05-0.5	9.525	3.0	4.76	0.2	5°	●	●	●	
	VCGW 110304-2-NL-05	0.03-0.2	0.05-0.5	9.525	3.0	4.76	0.4	5°	●	●	●	

Remark: ● represent for standard stock

ACHTECK

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External turning toolholders

External Turning Toolholder Designation System

P	C	L	N	R
1	2	3	4	5

1- Clamping Type of Insert

C: Plate clamping	M: Multi clamping	D: Top clamping	P: Lever clamping	S: Screw clamping

2- Insert Shape/Code

C	D	H	K	O	R	S	T	V	W
80°	55°	120°	55°	135°	360°	90°	60°	35°	80°

3- Tool Type and Approach Angle

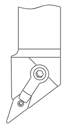
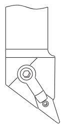
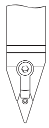
A	90°	J	93°	T	60°	E	60°	N	62°30'
H	107°30'	S	45°	D	45°	M	50°	W	60°
R	75°	C	90°	L	95°	V	72°30'	G	90°
B	75°	K	75°	U	93°	F	90°	X	Special approach angle

4- Clearance Angle

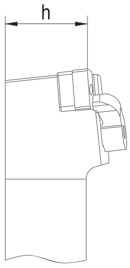
B	C	D	E	F	N	P	O
5°	7°	15°	20°	25°	0°	11°	Other clearance angle

20	20	K	12	-	B
6	7	8	9		10

5- Hand of Tool

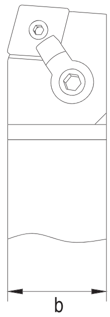
L Left hand	
R Right hand	
N Neutral	

6- Center height of tool (mm)



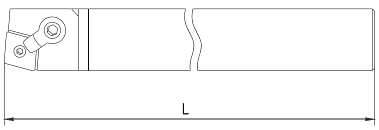
06=6
08=8
10=10
12=12
14=14
16=16
20=20
25=25
30=30
40=40
50=50

7- Width of Shank (mm)



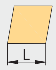
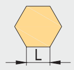
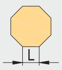
06=6
08=8
10=10
12=12
14=14
16=16
20=20
25=25
30=30
40=40
50=50

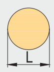
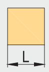
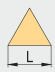
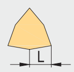
8- Tool Length (mm)



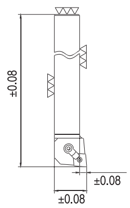
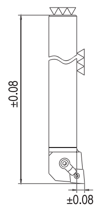
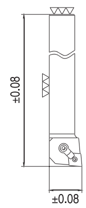
A=32	N=160
B=40	P=170
C=50	Q=180
D=60	R=200
E=70	S=250
F=80	T=300
G=90	U=350
H=100	V=400
J=110	W=450
K=125	Y=500
L=140	
M=150	X=Special

9- Length of Cutting Edge

C、D、E、M、V	H	O
		

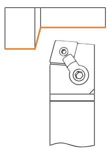
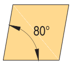
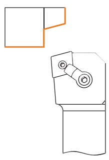
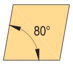
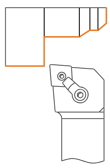
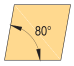
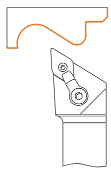
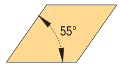
R	S	T	W
			

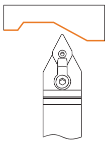
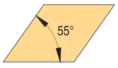
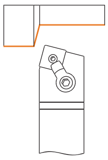
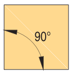
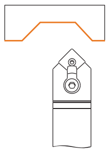
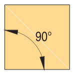
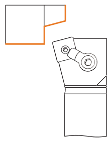
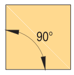
10- Holder Tolerance

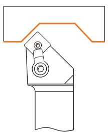
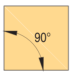
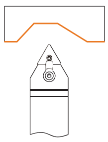
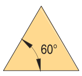
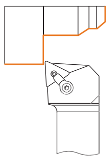
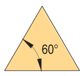
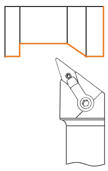
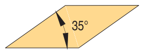
A	B	C
		

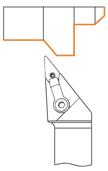
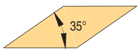
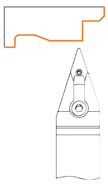
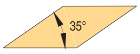
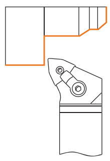
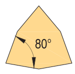
Turning holders

Overview of External Turning Toolholders
Negative Inserts

MCBNR/L		MCKNR/L		MCLNR/L		MDJNR/L	
75°	CN..	75°	CN..	95°	CN..	93°	DN..
							
	12		12		12		11
	16		16		16		15
	19				19		
					25		

MDNNN		MSBNR/L		MSDNN		MSKNR/L	
62°30'	DN..	75°	SN..	45°	SN..	75°	SN..
							
	11		12		12		12
	15		15		15		15
			19		19		

MSSNR/L		MTENN		MTJNR/L		MVHNR/L	
45°	SN..	60°	TN..	93°	TN..	107°30'	VN..
							
	12		16		16		16
	15		22		22		
	19						

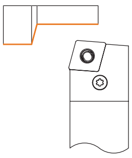
MVJNR/L		MVVNN		MWLNR/L	
93°	VN..	72°30'	VN..	95°	WN..
					
	16		16		06
					08

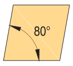
Overview of External Turning Toolholders

Negative Inserts

PCBNR/L

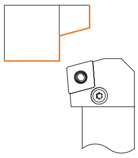
75°	CN..
	09
	12
	16
	19

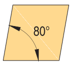




PCKNR/L

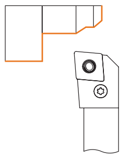
75°	CN..
	12
	16
	19

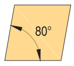




PCLNR/L

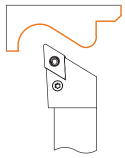
95°	CN..
	09
	12
	16
	19

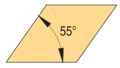




PDJNR/L

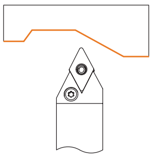
93°	DN..
	11
	15

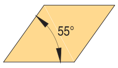




PDNNN

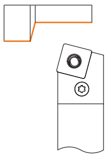
62°30'	DN..
	11
	15

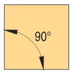




PSBNR/L

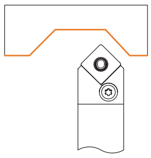
75°	SN..
	12
	15
	19

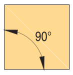




PSDNN

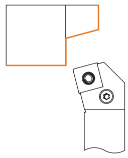
45°	SN..
	12
	15

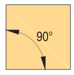




PSKNR/L

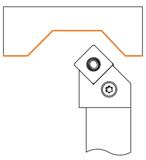
75°	SN..
	12
	15
	19

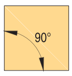




PSSNR/L

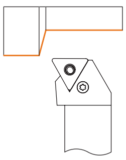
45°	SN..
	12
	15
	19

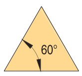




PTFNR/L

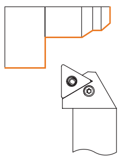
90°	TN..
	16
	22

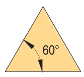




PTGNR/L

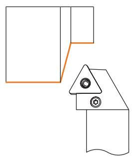
90°	TN..
	16
	22

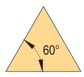




PTTNR/L

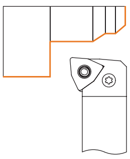
60°	TN..
	16
	22

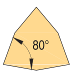




PWLNR/L

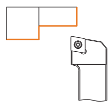
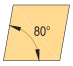
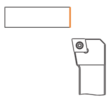
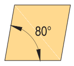
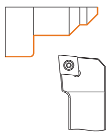
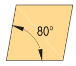
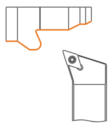
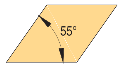
93°	WN..
	06
	08

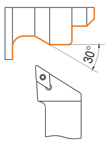
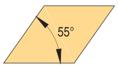
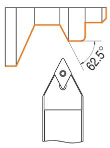
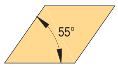
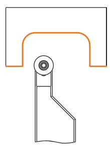
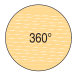
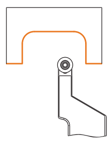
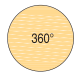


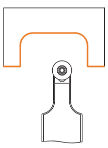
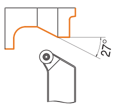
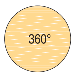
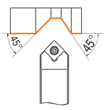
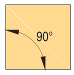
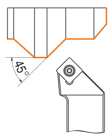
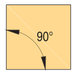


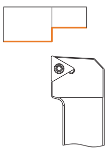
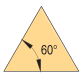
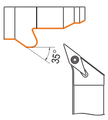
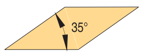
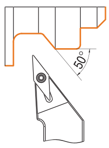
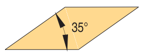
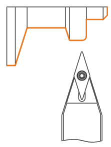
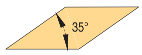
Overview of External Turning Toolholders

Positive Inserts

SCGCR/L		SCFCR/L		SCLCR/L		SDHCR/L	
90°	CC..	90°	CC..	95°	CC..	107°30'	DC..
							
	09		09		06		11
	12		12		09		
					12		

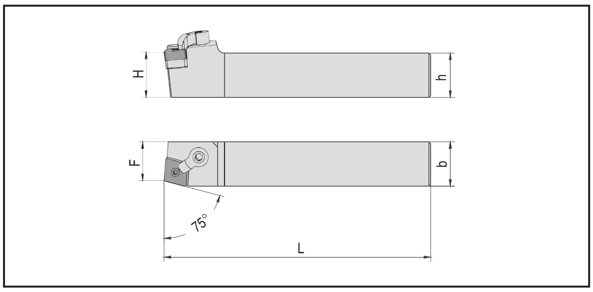
SDJCR/L		SDNCN		SRACR/L		SRCCR/L	
93°	DC..	62°30'	DC..		RC.T..		RC.T..
							
	07		07		10		10
	11		11		12		

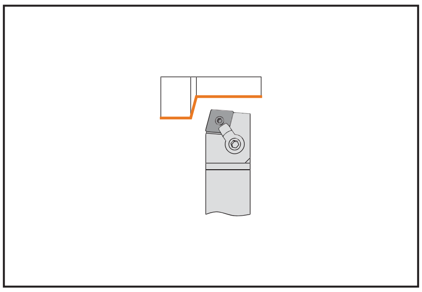
SRDCN		SRGCR/L		SSDCN		SSSCR/L	
	RC.T..		RC.T..	45°	SC..	45°	SC..
							
	10		10		09		09
	12		12		12		12
	16		16				
			20				

STGCR/L		SVHCR/L		SVJCR/L		SVVCN	
90°	TC..	107°30'	VC..	93°	VC..	72°30'	VC..
							
	11		11		11		16
	16		16		16		

MCBNR/L

Kr=75°



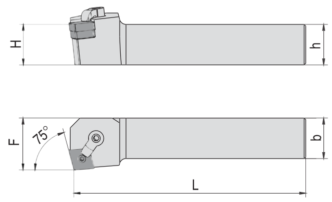


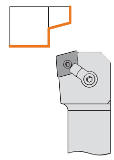
Designation	Dimensions (mm)					Inserts
	h	b	H	F	L	
MCBNR/L2020K12	20	20	20	17	125	CN..1204..
MCBNR/L2525M12	25	25	25	22	150	CN..1204..
MCBNR/L3232P12	32	32	32	27	170	CN..1204..
MCBNR/L3232P16	32	32	32	27	170	CN..1606..
MCBNR/L4040R19	40	40	40	35	200	CN..1906..

Designation	Shim	Pin	Wrench	Clamping plate	Screw	Wrench
MCBNR/L2020K12	AMSC 43	AMP 46	AWH03-32	ACL 9	AMH 59	AWH05-32
MCBNR/L2525M12	AMSC 43	AMP 46	AWH03-32	ACL 9	AMH 59	AWH05-32
MCBNR/L3232P12	AMSC 43	AMP 46	AWH03-32	ACL 9	AMH 59	AWH05-32
MCBNR/L3232P16	AMSC 53	AMP 58	AWH01-8	ACL 9	AMH 59	AWH05-32
MCBNR/L4040R19	AMSC 63	AMP 68	AWH09-64	ACL 12	AMH 510	AWH05-32

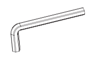
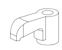
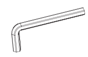
MCKNR/L

Kr=75°



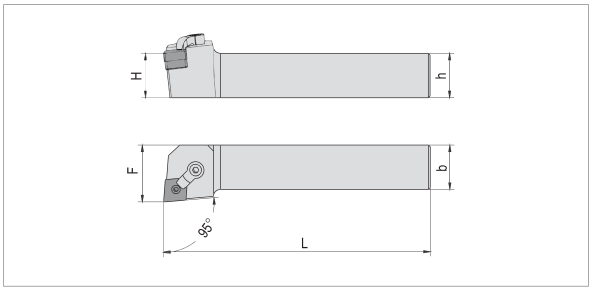


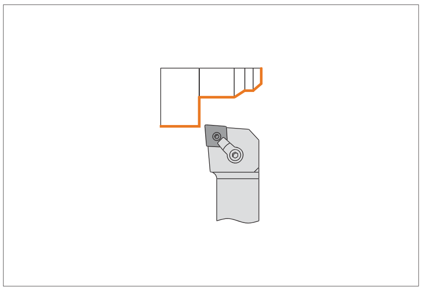
Designation	Dimensions (mm)					Inserts
	h	b	H	F	L	
MCKNR/L2020K12	20	20	20	25	125	CN..1204..
MCKNR/L2525M12	25	25	25	32	150	CN..1204..
MCKNR/L3232P12	32	32	32	40	170	CN..1204..
MCKNR/L3232P16	32	32	32	40	170	CN..1606..

Designation	Shim	Pin	Wrench	Clamping plate	Screw	Wrench
						
MCKNR/L2020K12	AMSC 43	AMP 46	AWH03-32	ACL 20	AMH 36	AWH01-8
MCKNR/L2525M12	AMSC 43	AMP 46	AWH03-32	ACL 20	AMH 36	AWH01-8
MCKNR/L3232P12	AMSC 43	AMP 46	AWH03-32	ACL 20	AMH 36	AWH01-8
MCKNR/L3232P16	AMSC 53	AMP 58	AWH01-8	ACL 9	AMH 59	AWH05-32

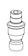
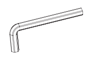
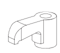
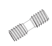
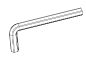
MCLNR/L

Kr=95°





Designation	Dimensions (mm)					Inserts
	h	b	H	F	L	
MCLNR/L1616H12	16	16	16	20	100	CN..1204..
MCLNR/L2020K12	20	20	20	25	125	CN..1204..
MCLNR/L2525M12	25	25	25	32	150	CN..1204..
MCLNR/L3225P12	32	25	32	32	170	CN..1204..
MCLNR/L3232P12	32	32	32	40	170	CN..1204..
MCLNR/L4040R12	40	40	40	50	200	CN..1204..
MCLNR/L2525M16	25	25	25	32	150	CN..1606..
MCLNR/L3225P16	32	25	32	32	170	CN..1606..
MCLNR/L3232P16	32	32	32	40	170	CN..1606..
MCLNR/L4040R16	40	40	40	50	200	CN..1606..
MCLNR/L3232P19	32	32	32	40	170	CN..1906..
MCLNR/L4040R19	40	40	40	50	200	CN..1906..
MCLNR/L5050S19	50	50	50	60	250	CN..1906..
MCLNR/L4040R25	40	40	40	50	200	CN..2509..

Designation	Shim	Pin	Wrench	Clamping plate	Screw	Wrench
						
MCLNR/L1616H12	AMSC 43	AMP 46	AWH03-32	ACL 20	AMH 48	AWH01-8
MCLNR/L2020K12	AMSC 43	AMP 46	AWH03-32	ACL 20	AMH 48	AWH01-8
MCLNR/L2525M12	AMSC 43	AMP 46	AWH03-32	ACL 20	AMH 48	AWH01-8
MCLNR/L3225P12	AMSC 43	AMP 46	AWH03-32	ACL 20	AMH 48	AWH01-8
MCLNR/L3232P12	AMSC 43	AMP 46	AWH03-32	ACL 20	AMH 48	AWH01-8
MCLNR/L4040R12	AMSC 43	AMP 46	AWH03-32	ACL 20	AMH 48	AWH01-8
MCLNR/L2525M16	AMSC 53	AMP 58	AWH01-8	ACL 12	AMH 510	AWH05-32
MCLNR/L3225P16	AMSC 53	AMP 58	AWH01-8	ACL 12	AMH 510	AWH05-32
MCLNR/L3232P16	AMSC 53	AMP 58	AWH01-8	ACL 12	AMH 510	AWH05-32
MCLNR/L4040R16	AMSC 53	AMP 58	AWH01-8	ACL 12	AMH 510	AWH05-32
MCLNR/L3232P19	AMSC 63	AMP 68	AWH09-64	ACL 12	AMH 510	AWH05-32
MCLNR/L4040R19	AMSC 63	AMP 68	AWH09-64	ACL 12	AMH 510	AWH05-32
MCLNR/L5050S19	AMSC 63	AMP 68	AWH09-64	ACL 12	AMH 510	AWH05-32
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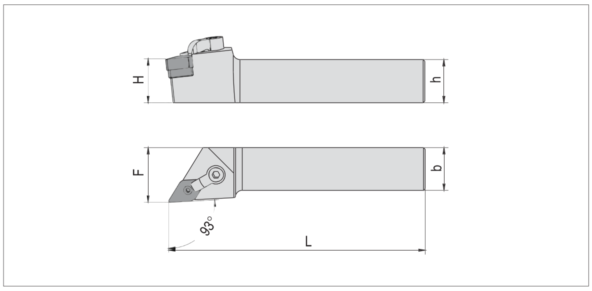
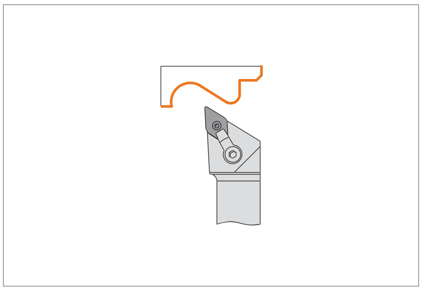
MDJNR/L

Kr=93°



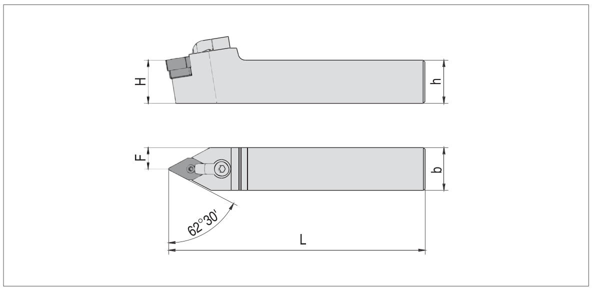


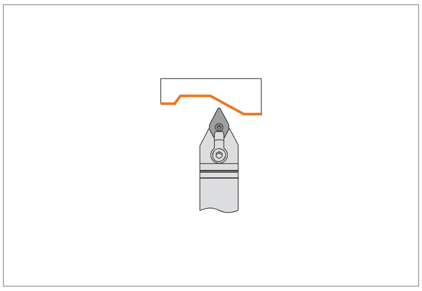
Designation	Dimensions (mm)					Inserts
	h	b	H	F	L	
MDJNR/L2020K11	20	20	20	25	125	DN..1104..
MDJNR/L2525M11	25	25	25	32	150	DN..1104..
MDJNR/L3232P11	32	32	32	40	170	DN..1104..
MDJNR/L2020K15	20	20	20	25	125	DN..1506..
MDJNR/L2525M15	25	25	25	32	150	DN..1506..
MDJNR/L3225P15	32	25	32	32	170	DN..1506..
MDJNR/L3232P15	32	32	32	40	170	DN..1506..
MDJNR/L4040R15	40	40	40	50	200	DN..1506..
MDJNR/L2020K15	20	20	20	25	125	DN..1504..
MDJNR/L2525M15	25	25	25	32	150	DN..1504..
MDJNR/L3225P15	32	25	32	32	170	DN..1504..
MDJNR/L3232P15	32	32	32	40	170	DN..1504..
MDJNR/L4040R15	40	40	40	50	200	DN..1504..

Designation	Shim	Pin	Wrench	Clamping plate	Screw	Wrench
MDJNR/L2020K11	AMSD 32	AMP 34L	AWH05-64	ACL 20	AMH 48	AWH01-8
MDJNR/L2525M11	AMSD 32	AMP 34L	AWH05-64	ACL 20	AMH 48	AWH01-8
MDJNR/L3232P11	AMSD 32	AMP 34L	AWH05-64	ACL 20	AMH 48	AWH01-8
MDJNR/L2020K15	AMSD 43	AMP 46L	AWH03-32	ACL 12	AMH 510	AWH05-32
MDJNR/L2525M15	AMSD 43	AMP 46L	AWH03-32	ACL 12	AMH 510	AWH05-32
MDJNR/L3225P15	AMSD 43	AMP 46L	AWH03-32	ACL 12	AMH 510	AWH05-32
MDJNR/L3232P15	AMSD 43	AMP 46L	AWH03-32	ACL 12	AMH 510	AWH05-32
MDJNR/L4040R15	AMSD 43	AMP 46L	AWH03-32	ACL 12	AMH 510	AWH05-32
MDJNR/L2020K15	AMSD 44	AMP 46L	AWH03-32	ACL 12	AMH 510	AWH05-32
MDJNR/L2525M15	AMSD 44	AMP 46L	AWH03-32	ACL 12	AMH 510	AWH05-32
MDJNR/L3225P15	AMSD 44	AMP 46L	AWH03-32	ACL 12	AMH 510	AWH05-32
MDJNR/L3232P15	AMSD 44	AMP 46L	AWH03-32	ACL 12	AMH 510	AWH05-32
MDJNR/L4040R15	AMSD 44	AMP 46L	AWH03-32	ACL 12	AMH 510	AWH05-32

MDNNN

Kr=62°30'



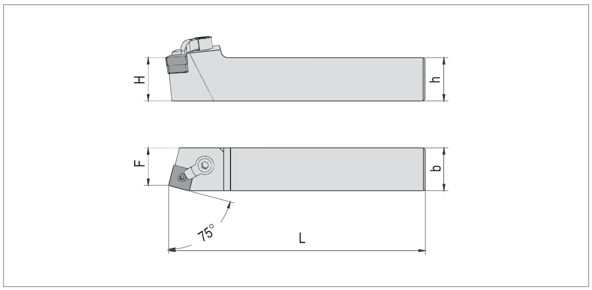


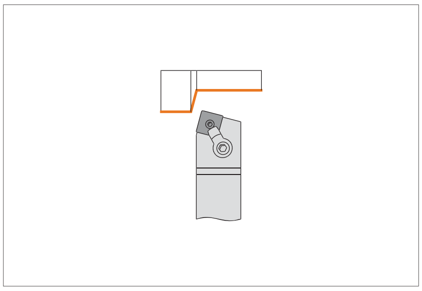
Designation	Dimensions (mm)					Inserts
	h	b	H	F	L	
MDNNN1616H11	16	16	16	8	100	DN..1104..
MDNNN2020K11	20	20	20	10	125	DN..1104..
MDNNN2525M11	25	25	25	12.5	150	DN..1104..
MDNNN2525M15	25	25	25	12.5	150	DN..1506..
MDNNN3232P15	32	32	32	16	170	DN..1506..
MDNNN4040R15	40	40	40	20	200	DN..1506..
MDNNN2525M15	25	25	25	12.5	150	DN..1504..
MDNNN3232P15	32	32	32	16	170	DN..1504..
MDNNN4040R15	40	40	40	20	200	DN..1504..

Designation	Shim	Pin	Wrench	Clamping plate	Screw	Wrench
MDNNN1616H11	AMSD 32	AMP 34L	AWH05-64	ACL 20	AMH 48	AWH01-8
MDNNN2020K11	AMSD 32	AMP 34L	AWH05-64	ACL 20	AMH 48	AWH01-8
MDNNN2525M11	AMSD 32	AMP 34L	AWH05-64	ACL 20	AMH 48	AWH01-8
MDNNN2525M15	AMSD 43	AMP 46L	AWH03-32	ACL 12	AMH 510	AWH05-32
MDNNN3232P15	AMSD 43	AMP 46L	AWH03-32	ACL 12	AMH 510	AWH05-32
MDNNN4040R15	AMSD 43	AMP 46L	AWH03-32	ACL 12	AMH 510	AWH05-32
MDNNN2525M15	AMSD 44	AMP 46L	AWH03-32	ACL 12	AMH 510	AWH05-32
MDNNN3232P15	AMSD 44	AMP 46L	AWH03-32	ACL 12	AMH 510	AWH05-32
MDNNN4040R15	AMSD 44	AMP 46L	AWH03-32	ACL 12	AMH 510	AWH05-32

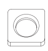
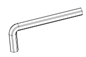
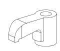
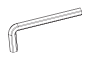
MSBNR/L

Kr=75°



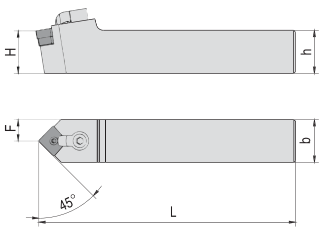


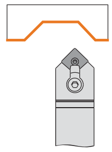
Designation	Dimensions (mm)					Inserts
	h	b	H	F	L	
MSBNR/L2525M12	25	25	25	22	150	SN..1204..
MSBNR/L3232P12	32	32	32	27	170	SN..1204..
MSBNR/L2525M15	25	25	25	22	150	SN..1506..
MSBNR/L3232P15	32	32	32	27	170	SN..1506..
MSBNR/L3232P19	32	32	32	27	170	SN..1906..
MSBNR/L4040R19	40	40	40	35	200	SN..1906..

Designation	Shim	Pin	Wrench	Clamping plate	Screw	Wrench
						
MSBNR/L2525M12	AMSS 43	AMP 46	AWH03-32	ACL 9	AMH 59	AWH05-32
MSBNR/L3232P12	AMSS 43	AMP 46	AWH03-32	ACL 9	AMH 59	AWH05-32
MSBNR/L2525M15	AMSS 53	AMP 58	AWH01-8	ACL 12	AMH 510	AWH05-32
MSBNR/L3232P15	AMSS 53	AMP 58	AWH01-8	ACL 12	AMH 510	AWH05-32
MSBNR/L3232P19	AMSS 63	AMP 68	AWH09-64	ACL 12	AMH 510	AWH05-32
MSBNR/L4040R19	AMSS 63	AMP 68	AWH09-64	ACL 12	AMH 510	AWH05-32

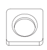
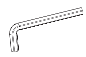
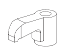
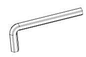
MSDNN

Kr=45°



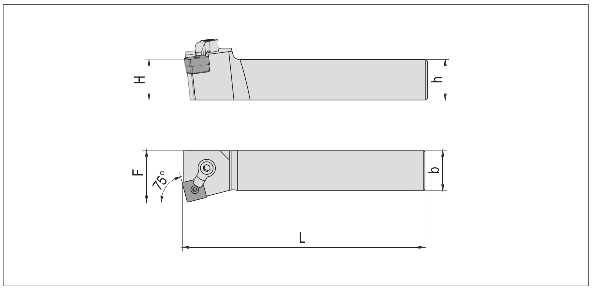


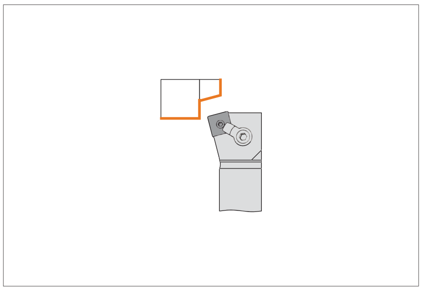
Designation	Dimensions (mm)					Inserts
	h	b	H	F	L	
MSDNN2020K12	20	20	20	10	125	SN..1204..
MSDNN2525M12	25	25	25	12.5	150	SN..1204..
MSDNN2525M15	25	25	25	12.5	150	SN..1506..
MSDNN3232P15	32	32	32	16	170	SN..1506..
MSDNN3232P19	32	32	32	16	170	SN..1906..
MSDNN4040R19	40	40	40	20	200	SN..1906..

Designation	Shim	Pin	Wrench	Clamping plate	Screw	Wrench
						
MSDNN2020K12	AMSS 43	AMP 46	AWH03-32	ACL 9	AMH 59	AWH05-32
MSDNN2525M12	AMSS 43	AMP 46	AWH03-32	ACL 9	AMH 59	AWH05-32
MSDNN2525M15	AMSS 53	AMP 58	AWH01-8	ACL 12	AMH 510	AWH05-32
MSDNN3232P15	AMSS 53	AMP 58	AWH01-8	ACL 12	AMH 510	AWH05-32
MSDNN3232P19	AMSS 63	AMP 68	AWH09-64	ACL 12	AMH 510	AWH05-32
MSDNN4040R19	AMSS 63	AMP 68	AWH09-64	ACL 12	AMH 510	AWH05-32

MSKNR/L

Kr=75°



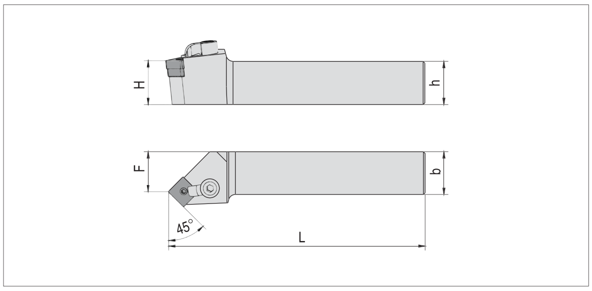


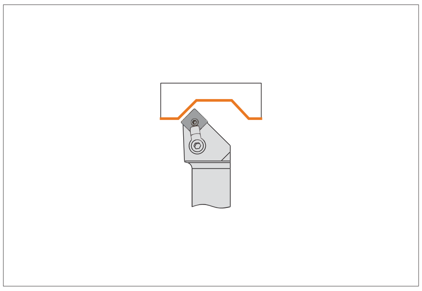
Designation	Dimensions (mm)					Inserts
	h	b	H	F	L	
MSKNR/L2020K12	20	20	20	25	125	SN..1204..
MSKNR/L2525M12	25	25	25	32	150	SN..1204..
MSKNR/L2525M15	25	25	25	32	150	SN..1506..
MSKNR/L3232P15	32	32	32	40	170	SN..1506..

Designation	Shim	Pin	Wrench	Clamping plate	Screw	Wrench
MSKNR/L2020K12	AMSS 43	AMP 46	AWH03-32	ACL 9	AMH 59	AWH05-32
MSKNR/L2525M12	AMSS 43	AMP 46	AWH03-32	ACL 9	AMH 59	AWH05-32
MSKNR/L2525M15	AMSS 53	AMP 58	AWH01-8	ACL 12	AMH 510	AWH05-32
MSKNR/L3232P15	AMSS 53	AMP 58	AWH01-8	ACL 12	AMH 510	AWH05-32

MSSNR/L

Kr=45°



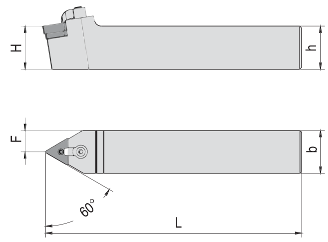


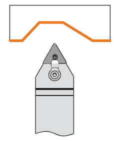
Designation	Dimensions (mm)					Inserts
	h	b	H	F	L	
MSSNR/L2020K12	20	20	20	25	125	SN..1204..
MSSNR/L2525M12	25	25	25	32	150	SN..1204..
MSSNR/L3232P12	32	32	32	40	170	SN..1204..
MSSNR/L2525M15	25	25	25	32	150	SN..1506..
MSSNR/L3232P15	32	32	32	40	170	SN..1506..
MSSNR/L3232P19	32	32	32	40	170	SN..1906..
MSSNR/L4040R19	40	40	40	50	200	SN..1906..

Designation	Shim	Pin	Wrench	Clamping plate	Screw	Wrench
MSSNR/L2020K12	AMSS 43	AMP 46	AWH03-32	ACL 9	AMH 59	AWH05-32
MSSNR/L2525M12	AMSS 43	AMP 46	AWH03-32	ACL 9	AMH 59	AWH05-32
MSSNR/L3232P12	AMSS 43	AMP 46	AWH03-32	ACL 9	AMH 59	AWH05-32
MSSNR/L2525M15	AMSS 53	AMP 58	AWH01-8	ACL 12	AMH 510	AWH05-32
MSSNR/L3232P15	AMSS 53	AMP 58	AWH01-8	ACL 12	AMH 510	AWH05-32
MSSNR/L3232P19	AMSS 63	AMP 68	AWH09-64	ACL 12	AMH 510	AWH05-32
MSSNR/L4040R19	AMSS 63	AMP 68	AWH09-64	ACL 12	AMH 510	AWH05-32

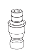
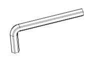
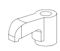
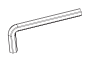
MTENN

Kr=60°



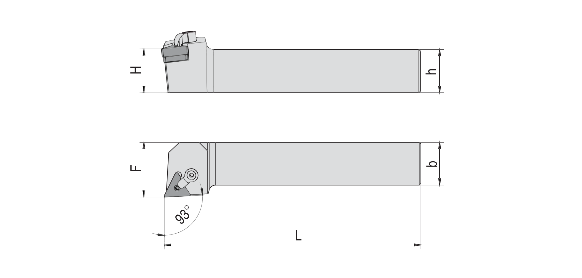


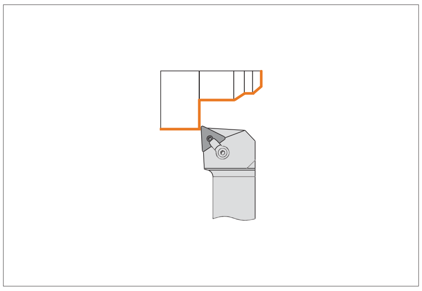
Designation	Dimensions (mm)					Inserts
	h	b	H	F	L	
MTENN1616H16	16	16	16	8	100	TN..1604..
MTENN2020K16	20	20	20	10	125	TN..1604..
MTENN2525M16	25	25	25	12.5	150	TN..1604..
MTENN3232P22	32	32	32	16	170	TN..2204..
MTENN3232P27	32	32	32	16	170	TN..2706..

Designation	Shim	Pin	Wrench	Clamping plate	Screw	Wrench
						
MTENN1616H16	AMST 32	AMP 34L	AWH05-64	ACL 6	AMH 36	AWH03-32
MTENN2020K16	AMST 32	AMP 34L	AWH05-64	ACL 6	AMH 36	AWH03-32
MTENN2525M16	AMST 32	AMP 34L	AWH05-64	ACL 6	AMH 36	AWH03-32
MTENN3232P22	AMST 43	AMP 46	AWH03-32	ACL 9	AMH 59	AWH05-32
MTENN3232P27	AMST 53	AMP 58	AWH01-8	ACL 9	AMH 59	AWH05-32

MTJNR/L

Kr=93°



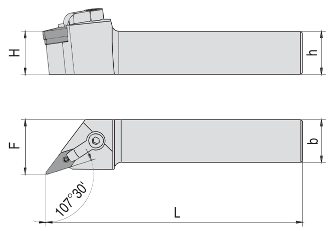


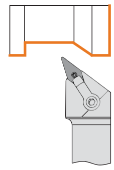
Designation	Dimensions (mm)					Inserts
	h	b	H	F	L	
MTJNR/L2020K16	20	20	20	25	125	TN..1604..
MTJNR/L2525M16	25	25	25	32	150	TN..1604..
MTJNR/L2525M22	25	25	25	32	150	TN..2204..

Designation	Shim	Pin	Wrench	Clamping plate	Screw	Wrench
MTJNR/L2020K16	AMST 32	AMP 34L	AWH05-64	ACL 6	AMH 36	AWH03-32
MTJNR/L2525M16	AMST 32	AMP 34L	AWH05-64	ACL 6	AMH 36	AWH03-32
MTJNR/L2525M22	AMST 43	AMP 46	AWH03-32	ACL 9	AMH 59	AWH05-64

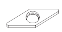
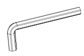
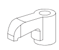
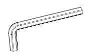
MVHNR/L

Kr=107°30'



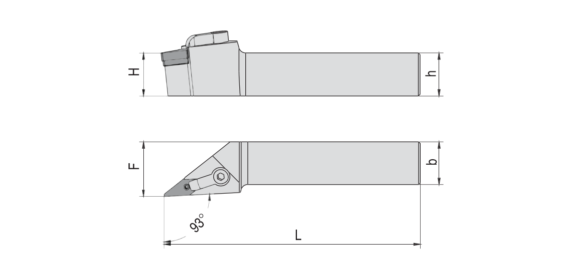


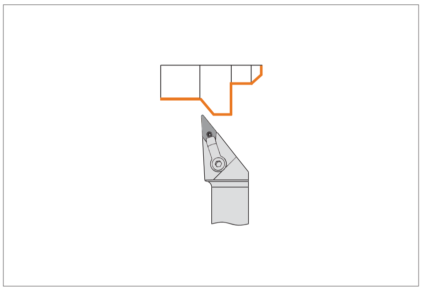
Designation	Dimensions (mm)					Inserts
	h	b	H	F	L	
MVHNR/L2525M16	25	25	25	32	150	VN..1604..
MVHNR/L3232P16	32	32	32	40	170	VN..1604..

Designation	Shim	Pin	Wrench	Clamping plate	Screw	Wrench
						
MVHNR/L2525M16	AMSV 32	AMP 34L	AWH05-64	ACL 30	AMH 59	AWH05-32
MVHNR/L3232P16	AMSV 32	AMP 34L	AWH05-64	ACL 30	AMH 59	AWH05-32

MVJNR/L

Kr=93°



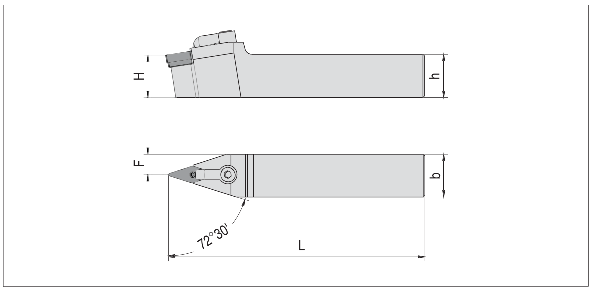


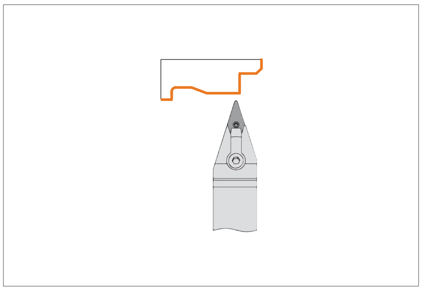
Designation	Dimensions (mm)					Inserts
	h	b	H	F	L	
MVJNR/L2020K16	20	20	20	25	125	VN..1604..
MVJNR/L2525M16	25	25	25	32	150	VN..1604..
MVJNR/L3232P16	32	32	32	40	170	VN..1604..

Designation	Shim	Pin	Wrench	Clamping plate	Screw	Wrench
MVJNR/L2020K16	AMSV 32	AMP 34L	AWH05-64	ACL 30	AMH 59	AWH05-32
MVJNR/L2525M16	AMSV 32	AMP 34L	AWH05-64	ACL 30	AMH 59	AWH05-32
MVJNR/L3232P16	AMSV 32	AMP 34L	AWH05-64	ACL 30	AMH 59	AWH05-32

MVVNN

Kr=72°30'



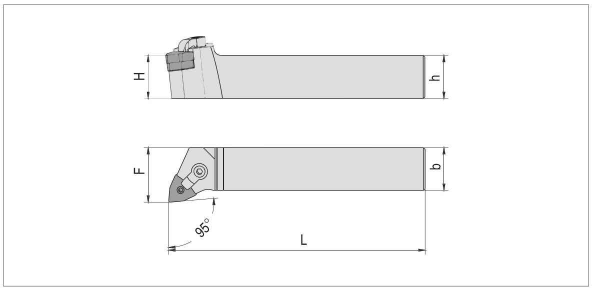


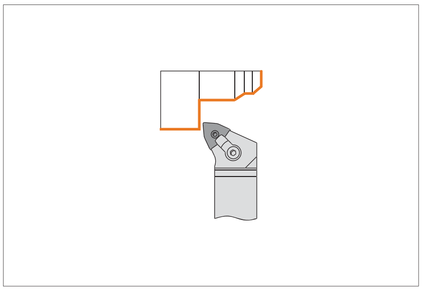
Designation	Dimensions (mm)					Inserts
	h	b	H	F	L	
MVVNN2020K16	20	20	20	10	125	VN..1604..
MVVNN2525M16	25	25	25	12.5	150	VN..1604..
MVVNN3232P16	32	32	32	16	170	VN..1604..

Designation	Shim	Pin	Wrench	Clamping plate	Screw	Wrench
MVVNN2020K16	AMSV 32	AMP 34L	AWH05-64	ACL 30	AMH 59	AWH05-32
MVVNN2525M16	AMSV 32	AMP 34L	AWH05-64	ACL 30	AMH 59	AWH05-32
MVVNN3232P16	AMSV 32	AMP 34L	AWH05-64	ACL 30	AMH 59	AWH05-32

MWLNR/L

Kr=95°



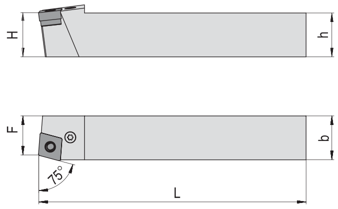


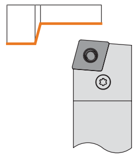
Designation	Dimensions (mm)					Inserts
	h	b	H	F	L	
MWLNR/L2020K06	20	20	20	25	125	WN..0604..
MWLNR/L2525M06	25	25	25	32	150	WN..0604..
MWLNR/L2020K08	20	20	20	25	125	WN..0804..
MWLNR/L2525M08	25	25	25	32	150	WN..0804..
MWLNR/L3232P08	32	32	32	40	170	WN..0804..

Designation	Shim	Pin	Wrench	Clamping plate	Screw	Wrench
MWLNR/L2020K06	AMSW 32	AMP 34L	AWH05-64	ACL 6	AMH 36	AWH03-32
MWLNR/L2525M06	AMSW 32	AMP 34L	AWH05-64	ACL 6	AMH 36	AWH03-32
MWLNR/L2020K08	AMSW 43	AMP 46	AWH03-32	ACL 20	AMH 48	AWH01-8
MWLNR/L2525M08	AMSW 43	AMP 46	AWH03-32	ACL 20	AMH 48	AWH01-8
MWLNR/L3232P08	AMSW 43	AMP 46	AWH03-32	ACL 20	AMH 48	AWH01-8

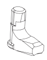
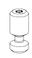
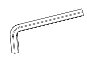
PCBNR/L

Kr=75°



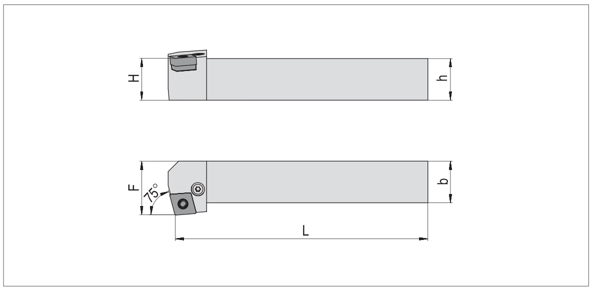


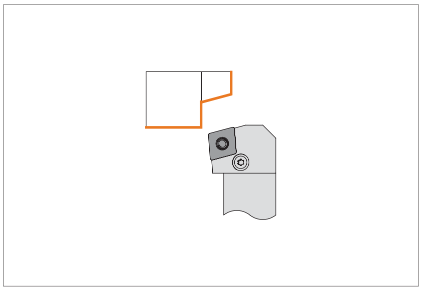
Designation	Dimensions (mm)					Inserts
	h	b	H	F	L	
PCBNR/L2020K12	20	20	20	25	125	CN..1204..
PCBNR/L2525M12	25	25	25	32	150	CN..1204..
PCBNR/L3232P12	32	32	32	40	170	CN..1204..
PCBNR/L3232P16	32	32	32	40	170	CN..1606..
PCBNR/L4040R16	40	40	40	50	200	CN..1606..
PCBNR/L4040R19	40	40	40	50	200	CN..1906..

Designation	Shim	Lever	Elastic pin	Screw	Wrench
					
PCBNR/L2020K12	ALSC 42	ALL 1204	ALP 12	ALH08-210	AWH 3
PCBNR/L2525M12	ALSC 42	ALL 1204	ALP 12	ALH08-210	AWH 3
PCBNR/L3232P12	ALSC 42	ALL 1204	ALP 12	ALH08-210	AWH 3
PCBNR/L3232P16	ALSC 53	ALL 15	ALP 15	ALH08-250	AWH 3
PCBNR/L4040R16	ALSC 53	ALL 15	ALP 15	ALH08-250	AWH 3
PCBNR/L4040R19	ALSC 63	ALL 19	ALP 19	ALH10-273	AWH 4

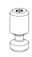
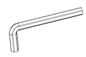
PCKNR/L

Kr=75°



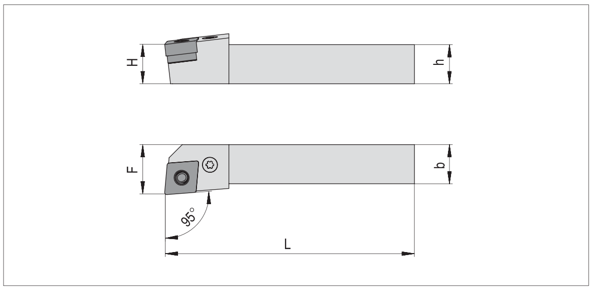


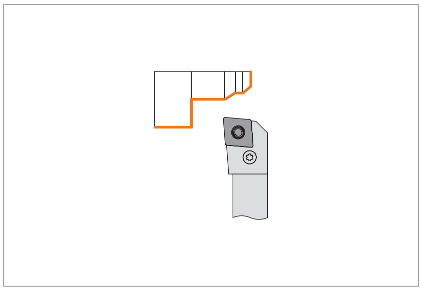
Designation	Dimensions (mm)					Inserts
	h	b	H	F	L	
PCKNR/L2020K12	20	20	20	25	125	CN..1204..
PCKNR/L2525M12	25	25	25	32	150	CN..1204..
PCKNR/L3232P12	32	32	32	40	170	CN..1204..
PCKNR/L3232P16	32	32	32	40	170	CN..1606..
PCKNR/L4040R16	40	40	40	50	200	CN..1606..
PCKNR/L4040R19	40	40	40	50	200	CN..1906..

Designation	Shim	Lever	Elastic pin	Screw	Wrench
					
PCKNR/L2020K12	ALSC 42	ALL 1204	ALP 12	ALH08-210	AWH 3
PCKNR/L2525M12	ALSC 42	ALL 1204	ALP 12	ALH08-210	AWH 3
PCKNR/L3232P12	ALSC 42	ALL 1204	ALP 12	ALH08-210	AWH 3
PCKNR/L3232P16	ALSC 53	ALL 15	ALP 15	ALH08-250	AWH 3
PCKNR/L4040R16	ALSC 53	ALL 15	ALP 15	ALH08-250	AWH 3
PCKNR/L4040R19	ALSC 63	ALL 19	ALP 19	ALH10-273	AWH 4

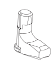
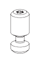
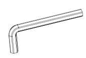
PCLNR/L

Kr=95°



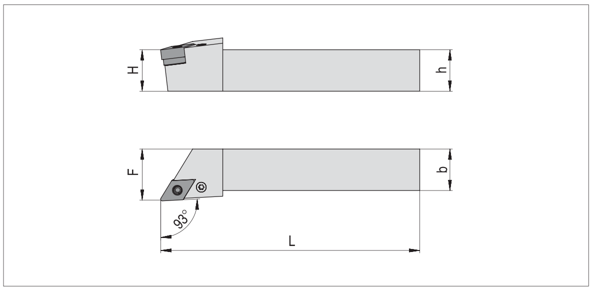


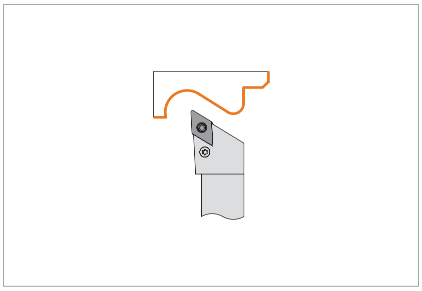
Designation	Dimensions (mm)					Inserts
	h	b	H	F	L	
PCLNR/L1616H09	16	16	16	20	100	CN..0903..
PCLNR/L2020K09	20	20	20	25	125	CN..0903..
PCLNR/L2525M09	25	25	25	32	150	CN..0903..
PCLNR/L2020K12	20	20	20	25	125	CN..1204..
PCLNR/L2525M12	25	25	25	32	150	CN..1204..
PCLNR/L3232P12	32	32	32	40	170	CN..1204..
PCLNR/L2525M16	25	25	25	32	150	CN..1606..
PCLNR/L3232P16	32	32	32	40	170	CN..1606..
PCLNR/L3232P19	32	32	32	40	170	CN..1906..
PCLNR/L4040R19	40	40	40	50	200	CN..1906..

Designation	Shim	Lever	Elastic pin	Screw	Wrench
					
PCLNR/L1616H09	ALSC 32	ALL 0903	ALP 10	ALH06-170	AWH 2.5
PCLNR/L2020K09	ALSC 32	ALL 0903	ALP 10	ALH06-170	AWH 2.5
PCLNR/L2525M09	ALSC 32	ALL 0903	ALP 10	ALH06-170	AWH 2.5
PCLNR/L2020K12	ALSC 42	ALL 1204	ALP 12	ALH08-210	AWH 3
PCLNR/L2525M12	ALSC 42	ALL 1204	ALP 12	ALH08-210	AWH 3
PCLNR/L3232P12	ALSC 42	ALL 1204	ALP 12	ALH08-210	AWH 3
PCLNR/L2525M16	ALSC 53	ALL 15	ALP 15	ALH08-250	AWH 3
PCLNR/L3232P16	ALSC 53	ALL 15	ALP 15	ALH08-250	AWH 3
PCLNR/L3232P19	ALSC 63	ALL 19	ALP 19	ALH10-273	AWH 4
PCLNR/L4040R19	ALSC 63	ALL 19	ALP 19	ALH10-273	AWH 4

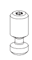
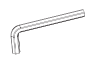
PDJNR/L

Kr=93°



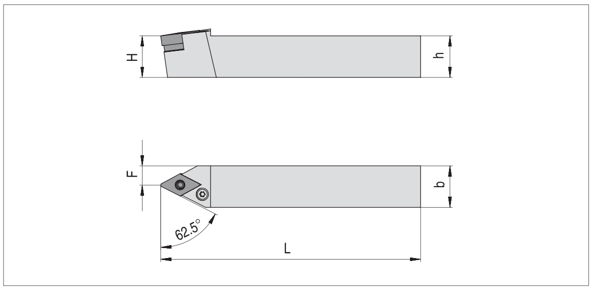


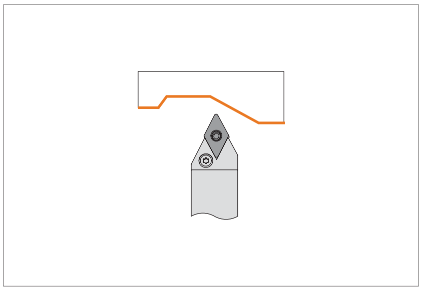
Designation	Dimensions (mm)					Inserts
	h	b	H	F	L	
PDJNR/L1616H11	16	16	16	20	100	DN..1104..
PDJNR/L2020K11	20	20	20	25	125	DN..1104..
PDJNR/L2525M11	25	25	25	32	150	DN..1104..
PDJNR/L2020K15	20	20	20	25	125	DN..1506..
PDJNR/L2525M15	25	25	25	32	150	DN..1506..
PDJNR/L3232P15	32	32	32	40	170	DN..1506..
PDJNR/L2020K15	20	20	20	25	125	DN..1504..
PDJNR/L2525M15	25	25	25	32	150	DN..1504..
PDJNR/L3232P15	32	32	32	40	170	DN..1504..

Designation	Shim	Lever	Elastic pin	Screw	Wrench
					
PDJNR/L1616H11	ALSD 32	ALL 0903	ALP 09	ALH06-170	AWH 2.5
PDJNR/L2020K11	ALSD 32	ALL 0903	ALP 09	ALH06-170	AWH 2.5
PDJNR/L2525M11	ALSD 32	ALL 0903	ALP 09	ALH06-170	AWH 2.5
PDJNR/L2020K15	ALSD 42	ALL 1204	ALP 12	ALH08-210	AWH 3
PDJNR/L2525M15	ALSD 42	ALL 1204	ALP 12	ALH08-210	AWH 3
PDJNR/L3232P15	ALSD 42	ALL 1204	ALP 12	ALH08-210	AWH 3
PDJNR/L2020K15	ALSD 42	ALL 1204	ALP 12	ALH08-210	AWH 3
PDJNR/L2525M15	ALSD 42	ALL 1204	ALP 12	ALH08-210	AWH 3
PDJNR/L3232P15	ALSD 42	ALL 1204	ALP 12	ALH08-210	AWH 3

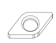
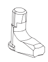
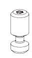
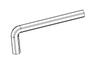
PDNNN

Kr=62°30'



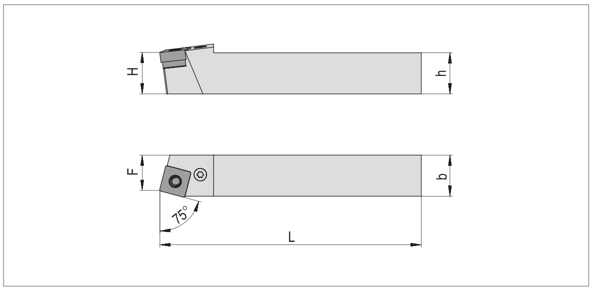


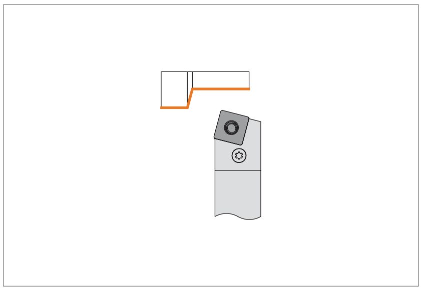
Designation	Dimensions (mm)					Inserts
	h	b	H	F	L	
PDNNN2020K11	20	20	20	10	125	DN..1104..
PDNNN2525M11	25	25	25	12.5	150	DN..1104..
PDNNN2525M15	25	25	25	12.5	150	DN..1506..
PDNNN3232P15	32	32	32	16	170	DN..1506..
PDNNN2525M15	25	25	25	12.5	150	DN..1504..
PDNNN3232P15	32	32	32	16	170	DN..1504..

Designation	Shim	Lever	Elastic pin	Screw	Wrench
					
PDNNN2020K11	ALSD 32	ALL 0903	ALP 09	ALH06-170	AWH 2.5
PDNNN2525M11	ALSD 32	ALL 0903	ALP 09	ALH06-170	AWH 2.5
PDNNN2525M15	ALSD 42	ALL 1204	ALP 12	ALH08-210	AWH 3
PDNNN3232P15	ALSD 42	ALL 1204	ALP 12	ALH08-210	AWH 3
PDNNN2525M15	ALSD 42	ALL 1204	ALP 12	ALH08-210	AWH 3
PDNNN3232P15	ALSD 42	ALL 1204	ALP 12	ALH08-210	AWH 3

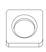
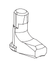
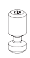
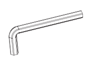
PSBNR/L

Kr=75°



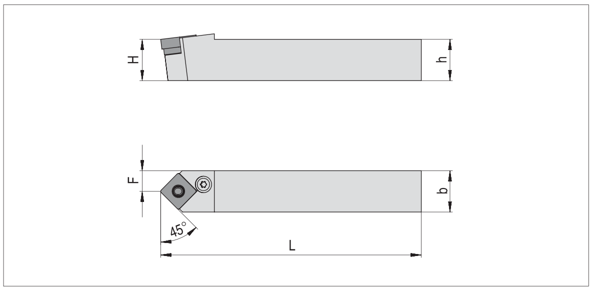


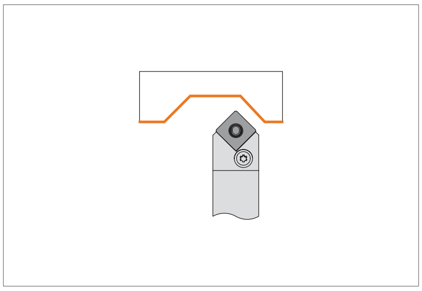
Designation	Dimensions (mm)					Inserts
	h	b	H	F	L	
PSBNR/L2020K12	20	20	20	25	125	SN..1204..
PSBNR/L2525M12	25	25	25	32	150	SN..1204..
PSBNR/L3225P12	32	25	32	40	170	SN..1204..
PSBNR/L2525M15	25	25	25	32	150	SN..1506..
PSBNR/L3232P15	32	32	32	40	170	SN..1506..
PSBNR/L4040R15	40	40	40	50	200	SN..1506..
PSBNR/L3232P19	32	32	32	40	170	SN..1906..
PSBNR/L4040R19	40	40	40	50	200	SN..1906..

Designation	Shim	Lever	Elastic pin	Screw	Wrench
					
PSBNR/L2020K12	ALSD 42	ALL 1204	ALP 12	ALH08-210	AWH 3
PSBNR/L2525M12	ALSD 42	ALL 1204	ALP 12	ALH08-210	AWH 3
PSBNR/L3225P12	ALSD 42	ALL 1204	ALP 12	ALH08-210	AWH 3
PSBNR/L2525M15	ALSD 53	ALL 15	ALP 15	ALH08-250	AWH 3
PSBNR/L3232P15	ALSD 53	ALL 15	ALP 15	ALH08-250	AWH 3
PSBNR/L4040R15	ALSD 53	ALL 15	ALP 15	ALH08-250	AWH 3
PSBNR/L3232P19	ALSD 63	ALL 19	ALP 19	ALH10-273	AWH 4
PSBNR/L4040R19	ALSD 63	ALL 19	ALP 19	ALH10-273	AWH 4

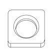
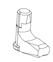
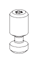
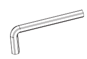
PSDNN

Kr=45°



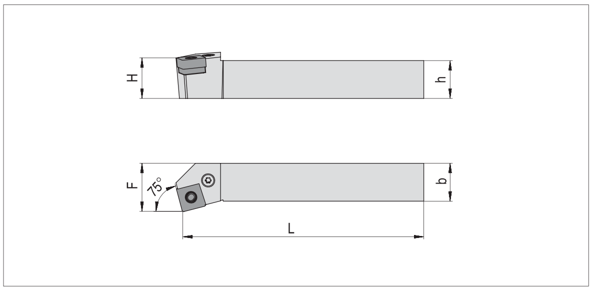


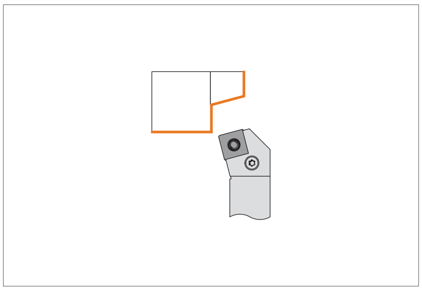
Designation	Dimensions (mm)					Inserts
	h	b	H	F	L	
PSDNN2020K12	20	20	20	10	125	SN..1204..
PSDNN2525M12	25	25	25	12.5	150	SN..1204..
PSDNN3232P12	32	32	32	16	170	SN..1204..
PSDNN3232P15	32	32	32	16	170	SN..1506..

Designation	Shim	Lever	Elastic pin	Screw	Wrench
					
PSDNN2020K12	ALSS 42	ALL 1204	ALP 12	ALH08-210	AWH 3
PSDNN2525M12	ALSS 42	ALL 1204	ALP 12	ALH08-210	AWH 3
PSDNN3232P12	ALSS 42	ALL 1204	ALP 12	ALH08-210	AWH 3
PSDNN3232P15	ALSS 53	ALL 15	ALP 15	ALH08-250	AWH 3

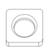
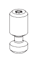
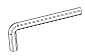
PSKNR/L

Kr=75°



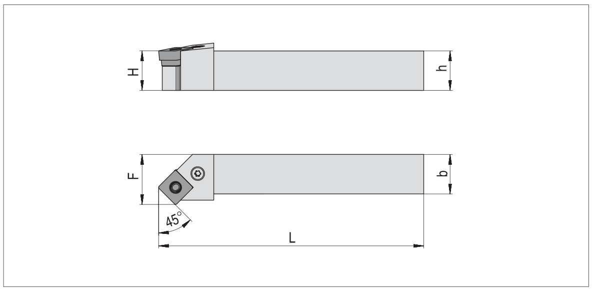


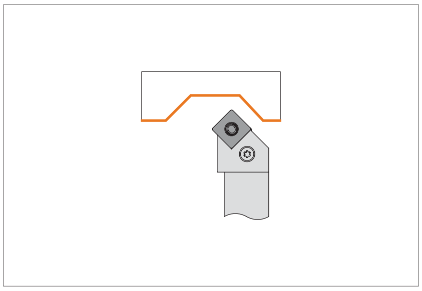
Designation	Dimensions (mm)					Inserts
	h	b	H	F	L	
PSKNR/L2020K12	20	20	20	25	125	SN..1204..
PSKNR/L2525M12	25	25	25	32	150	SN..1204..
PSKNR/L3232P12	32	32	32	40	170	SN..1204..
PSKNR/L3232P15	32	32	32	40	170	SN..1506..
PSKNR/L4040R15	40	40	40	50	200	SN..1506..
PSKNR/L3232P19	32	32	32	40	170	SN..1906..
PSKNR/L4040R19	40	40	40	50	200	SN..1906..

Designation	Shim	Lever	Elastic pin	Screw	Wrench
					
PSKNR/L2020K12	ALSS 42	ALL 1204	ALP 12	ALH08-210	AWH 3
PSKNR/L2525M12	ALSS 42	ALL 1204	ALP 12	ALH08-210	AWH 3
PSKNR/L3232P12	ALSS 42	ALL 1204	ALP 12	ALH08-210	AWH 3
PSKNR/L3232P15	ALSS 53	ALL 15	ALP 15	ALH08-250	AWH 3
PSKNR/L4040R15	ALSS 53	ALL 15	ALP 15	ALH08-250	AWH 3
PSKNR/L3232P19	ALSS 63	ALL 19	ALP 19	ALH10-273	AWH 4
PSKNR/L4040R19	ALSS 63	ALL 19	ALP 19	ALH10-273	AWH 4

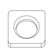
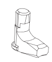
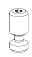
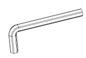
PSSNR/L

Kr=45°



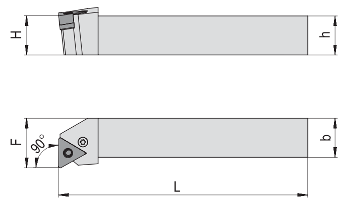


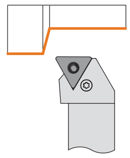
Designation	Dimensions (mm)					Inserts
	h	b	H	F	L	
PSSNR/L2020K12	20	20	20	25	125	SN..1204..
PSSNR/L2525M12	25	25	25	32	150	SN..1204..
PSSNR/L3225P12	32	25	32	40	170	SN..1204..
PSSNR/L3232P15	32	32	32	40	170	SN..1506..
PSSNR/L4040R15	40	40	40	50	200	SN..1506..
PSSNR/L3232P19	32	32	32	40	170	SN..1906..
PSSNR/L4040R19	40	40	40	50	200	SN..1906..

Designation	Shim	Lever	Elastic pin	Screw	Wrench
					
PSSNR/L2020K12	ALSS 42	ALL 1204	ALP 12	ALH08-210	AWH 3
PSSNR/L2525M12	ALSS 42	ALL 1204	ALP 12	ALH08-210	AWH 3
PSSNR/L3225P12	ALSS 42	ALL 1204	ALP 12	ALH08-210	AWH 3
PSSNR/L3232P15	ALSS 53	ALL 15	ALP 15	ALH08-250	AWH 3
PSSNR/L4040R15	ALSS 53	ALL 15	ALP 15	ALH08-250	AWH 3
PSSNR/L3232P19	ALSS 63	ALL 19	ALP 19	ALH10-273	AWH 4
PSSNR/L4040R19	ALSS 63	ALL 19	ALP 19	ALH10-273	AWH 4

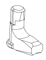
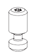
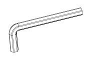
PTFNR/L

Kr=90°



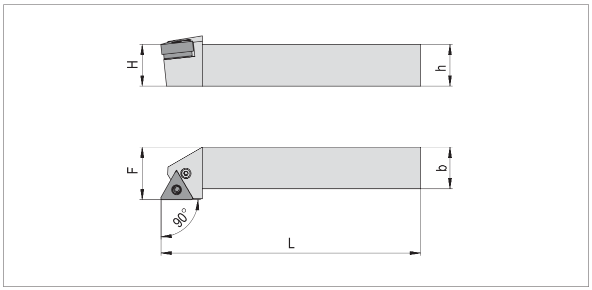


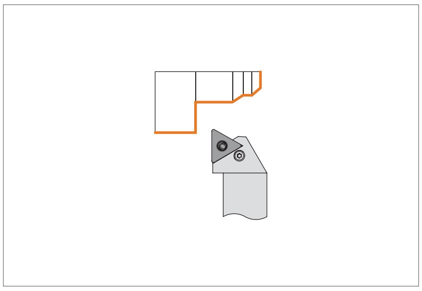
Designation	Dimensions (mm)					Inserts
	h	b	H	F	L	
PTFNR/L2020K16	20	20	20	25	125	TN..1604..
PTFNR/L2525M16	25	25	25	32	150	TN..1604..
PTFNR/L3232P16	32	32	32	40	170	TN..1604..
PTFNR/L2525M22	25	25	25	32	150	TN..2204..
PTFNR/L3232P22	32	32	32	40	170	TN..2204..
PTFNR/L4040R22	40	40	40	50	200	TN..2204..

Designation	Shim	Lever	Elastic pin	Screw	Wrench
					
PTFNR/L2020K16	ALST 32	ALL 0903	ALP 09	ALH06-170	AWH 2.5
PTFNR/L2525M16	ALST 32	ALL 0903	ALP 09	ALH06-170	AWH 2.5
PTFNR/L3232P16	ALST 32	ALL 0903	ALP 09	ALH06-170	AWH 2.5
PTFNR/L2525M22	ALST 42	ALL 1204	ALP 12	ALH08-210	AWH 3
PTFNR/L3232P22	ALST 42	ALL 1204	ALP 12	ALH08-210	AWH 3
PTFNR/L4040R22	ALST 42	ALL 1204	ALP 12	ALH08-210	AWH 3

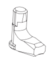
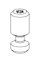
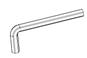
PTGNR/L

Kr=90°



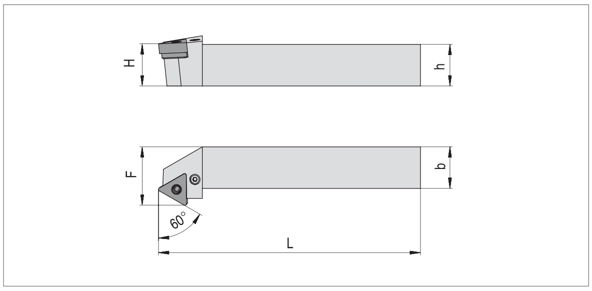


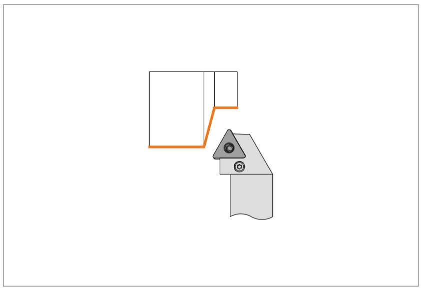
Designation	Dimensions (mm)					Inserts
	h	b	H	F	L	
PTGNR/L2020K16	20	20	20	25	125	TN..1604..
PTGNR/L2525M16	25	25	25	32	150	TN..1604..
PTGNR/L3225P16	32	25	32	40	170	TN..1604..
PTGNR/L2525M22	25	25	25	32	150	TN..2204..
PTGNR/L3232P22	32	32	32	40	170	TN..2204..
PTGNR/L4040R22	40	40	40	50	200	TN..2204..

Designation	Shim	Lever	Elastic pin	Screw	Wrench
					
PTGNR/L2020K16	ALST 32	ALL 0903	ALP 09	ALH06-170	AWH 2.5
PTGNR/L2525M16	ALST 32	ALL 0903	ALP 09	ALH06-170	AWH 2.5
PTGNR/L3225P16	ALST 32	ALL 0903	ALP 09	ALH06-170	AWH 2.5
PTGNR/L2525M22	ALST 42	ALL 1204	ALP 12	ALH08-210	AWH 3
PTGNR/L3232P22	ALST 42	ALL 1204	ALP 12	ALH08-210	AWH 3
PTGNR/L4040R22	ALST 42	ALL 1204	ALP 12	ALH08-210	AWH 3

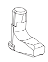
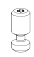
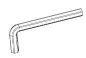
PTTNR/L

Kr=60°



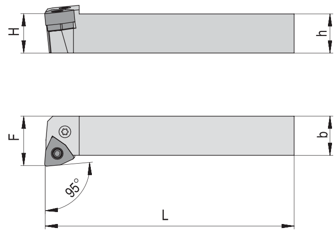


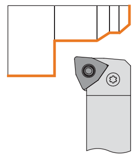
Designation	Dimensions (mm)					Inserts
	h	b	H	F	L	
PTTNR/L2020K16	20	20	20	17	125	TN..1604..
PTTNR/L2525M16	25	25	25	22	150	TN..1604..
PTTNR/L3225P16	32	25	32	22	170	TN..1604..
PTTNR/L3232P22	32	32	32	27	170	TN..2204..

Designation	Shim	Lever	Elastic pin	Screw	Wrench
					
PTTNR/L2020K16	ALST 32	ALL 0903	ALP 09	ALH06-170	AWH 2.5
PTTNR/L2525M16	ALST 32	ALL 0903	ALP 09	ALH06-170	AWH 2.5
PTTNR/L3225P16	ALST 32	ALL 0903	ALP 09	ALH06-170	AWH 2.5
PTTNR/L3232P22	ALST 42	ALL 1204	ALP 12	ALH08-210	AWH 3

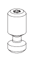
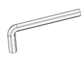
PWLNR/L

Kr=95°



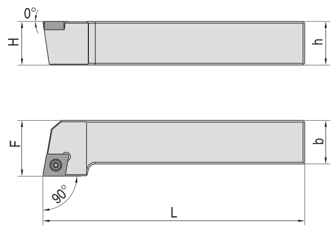


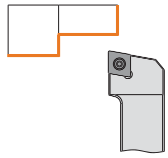
Designation	Dimensions (mm)					Inserts
	h	b	H	F	L	
PWLNR/L1616H06	16	16	16	20	100	WN..0604..
PWLNR/L2020K06	20	20	20	25	125	WN..0604..
PWLNR/L2525M06	25	25	25	32	150	WN..0604..
PWLNR/L2020K08	20	20	20	25	125	WN..0804..
PWLNR/L2525M08	25	25	25	32	150	WN..0804..
PWLNR/L3232P08	32	32	32	40	170	WN..0804..

Designation	Shim	Lever	Elastic pin	Screw	Wrench
					
PWLNR/L1616H06	ALSW 32	ALL 0903	ALP 09	ALH06-170	AWH 2.5
PWLNR/L2020K06	ALSW 32	ALL 0903	ALP 09	ALH06-170	AWH 2.5
PWLNR/L2525M06	ALSW 32	ALL 0903	ALP 09	ALH06-170	AWH 2.5
PWLNR/L2020K08	ALSW 43	ALL 1204	ALP 12	ALH08-210	AWH 3
PWLNR/L2525M08	ALSW 43	ALL 1204	ALP 12	ALH08-210	AWH 3
PWLNR/L3232P08	ALSW 43	ALL 1204	ALP 12	ALH08-210	AWH 3

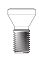
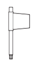
SCGCR/L

Kr=90°



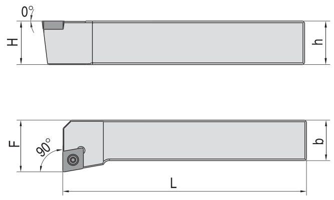


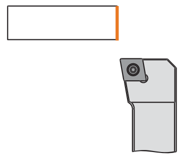
Designation	Dimensions (mm)					Inserts
	h	b	H	F	L	
SCGCR/L1616H09	16	16	16	20	100	CC..09T3..
SCGCR/L2020K09	20	20	20	25	125	CC..09T3..
SCGCR/L2525M09	25	25	25	32	150	CC..09T3..
SCGCR/L2525M12	25	25	25	32	150	CC..1204..

Designation	Screw	Wrench
		
SCGCR/L1616H09	AST035-80	AWF-T15
SCGCR/L2020K09	AST035-80	AWF-T15
SCGCR/L2525M09	AST035-80	AWF-T15
SCGCR/L2525M12	AST040-110	AWF-T15

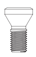
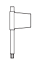
SCFCR/L

Kr=90°



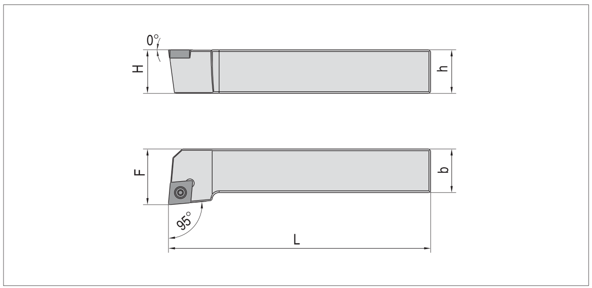


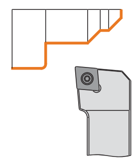
Designation	Dimensions (mm)					Inserts
	h	b	H	F	L	
SCFCR/L1212F09	12	12	12	16	80	CC..09T3..
SCFCR/L1616H09	16	16	16	20	100	CC..09T3..
SCFCR/L2020K09	20	20	20	25	125	CC..09T3..
SCFCR/L2525M09	25	25	25	32	150	CC..09T3..
SCFCR/L2525M12	25	25	25	32	150	CC..1204..

Designation	Screw	Wrench
		
SCFCR/L1212F09	AST035-80	AWF-T15
SCFCR/L1616H09	AST035-80	AWF-T15
SCFCR/L2020K09	AST035-80	AWF-T15
SCFCR/L2525M09	AST035-80	AWF-T15
SCFCR/L2525M12	AST040-110	AWF-T15

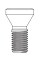
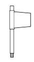
SCLCR/L

Kr=95°



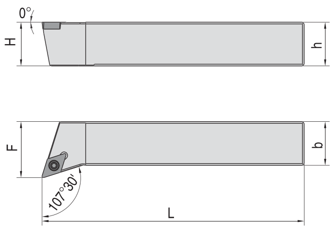


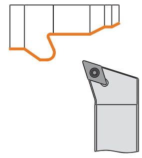
Designation	Dimensions (mm)					Inserts
	h	b	H	F	L	
SCLCR/L0808D06	8	8	8	10	60	CC..0602..
SCLCR/L1010E06	10	10	10	12	70	CC..0602..
SCLCR/L1212F06	12	12	12	16	80	CC..0602..
SCLCR/L1616H06	16	16	16	20	100	CC..0602..
SCLCR/L1212F09	12	12	12	16	80	CC..09T3..
SCLCR/L1616H09	16	16	16	20	100	CC..09T3..
SCLCR/L2020K09	20	20	20	25	125	CC..09T3..
SCLCR/L2525M09	25	25	25	32	150	CC..09T3..
SCLCR/L2020K12	20	20	20	25	125	CC..1204..
SCLCR/L2525M12	25	25	25	32	150	CC..1204..

Designation	Screw	Wrench
		
SCLCR/L0808D06	AST025-65	AWF-T07
SCLCR/L1010E06	AST025-65	AWF-T07
SCLCR/L1212F06	AST025-65	AWF-T07
SCLCR/L1616H06	AST025-65	AWF-T07
SCLCR/L1212F09	AST035-80	AWF-T15
SCLCR/L1616H09	AST035-80	AWF-T15
SCLCR/L2020K09	AST035-80	AWF-T15
SCLCR/L2525M09	AST035-80	AWF-T15
SCLCR/L2020K12	AST040-110	AWT-T15
SCLCR/L2525M12	AST040-110	AWT-T15

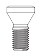
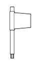
SDHCR/L

Kr=107°30'



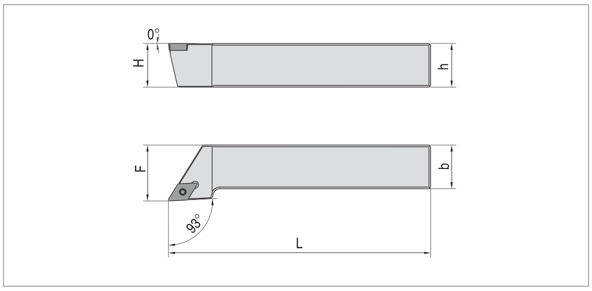


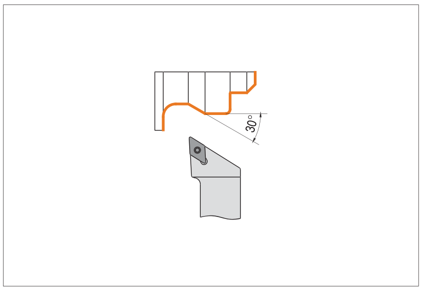
Designation	Dimensions (mm)					Inserts
	h	b	H	F	L	
SDHCR/L1616H11	16	16	16	20	100	DC..11T3..
SDHCR/L2020K11	20	20	20	25	125	DC..11T3..
SDHCR/L2525M11	25	25	25	32	150	DC..11T3..

Designation	Screw	Wrench
		
SDHCR/L1616H11	AST035-80	AWF-T15
SDHCR/L2020K11	AST035-80	AWF-T15
SDHCR/L2525M11	AST035-80	AWF-T15

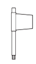
SDJCR/L

Kr=93°



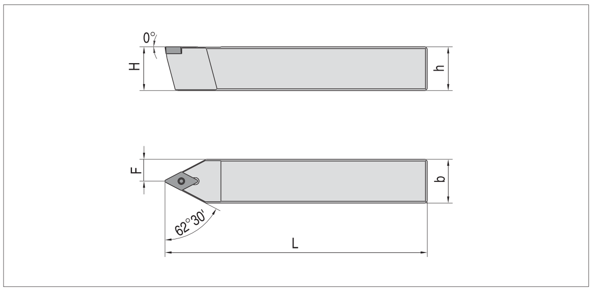


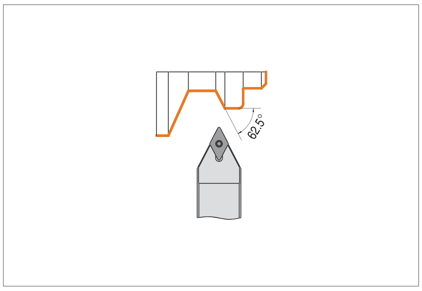
Designation	Dimensions (mm)					Inserts
	h	b	H	F	L	
SDJCR/L1616H07	16	16	16	20	100	DC..0702..
SDJCR/L2020K07	20	20	20	25	125	DC..0702..
SDJCR/L2525M07	25	25	25	32	150	DC..0702..
SDJCR/L1616H11	16	16	16	20	100	DC..11T3..
SDJCR/L2020K11	20	20	20	25	125	DC..11T3..
SDJCR/L2525M11	25	25	25	32	150	DC..11T3..

Designation	Screw	Wrench
		
SDJCR/L1616H07	AST025-65	AWF-T07
SDJCR/L2020K07	AST025-65	AWF-T07
SDJCR/L2525M07	AST025-65	AWF-T07
SDJCR/L1616H11	AST035-80	AWF-T15
SDJCR/L2020K11	AST035-80	AWF-T15
SDJCR/L2525M11	AST035-80	AWF-T15

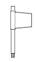
SDNCN

Kr=62°30'

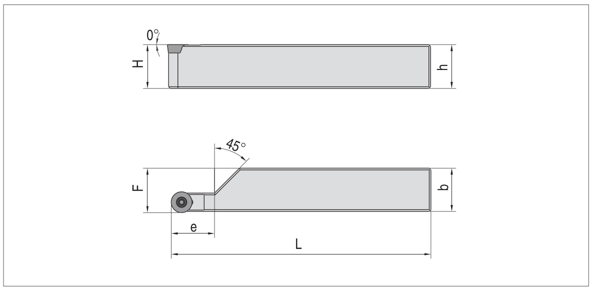


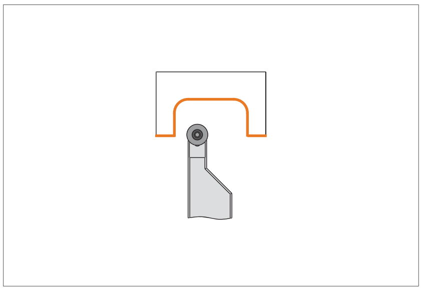


Designation	Dimensions (mm)					Inserts
	h	b	H	F	L	
SDNCN1616H07	16	16	16	8	100	DC..0702..
SDNCN2020K07	20	20	20	10	125	DC..0702..
SDNCN2525M07	25	25	25	12.5	150	DC..0702..
SDNCN1616H11	16	16	16	8	100	DC..11T3..
SDNCN2020K11	20	20	20	10	125	DC..11T3..
SDNCN2525M11	25	25	25	12.5	150	DC..11T3..

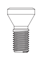
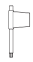
Designation	Screw	Wrench
		
SDNCN1616H07	AST025-65	AWF-T07
SDNCN2020K07	AST025-65	AWF-T07
SDNCN2525M07	AST025-65	AWF-T07
SDNCN1616H11	AST035-80	AWF-T15
SDNCN2020K11	AST035-80	AWF-T15
SDNCN2525M11	AST035-80	AWF-T15

SRACR/L

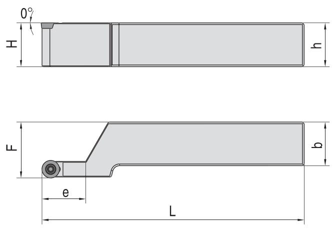


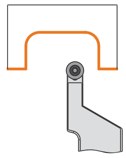


Designation	Dimensions (mm)						Inserts
	h	b	H	F	e	L	
SRACR/L2020K06	20	20	20	20	16	125	RC.T0602MO
SRACR/L2525M06	25	25	25	25	16	150	RC.T0602MO
SRACR/L2020K08	20	20	20	20	20	125	RC.T0803MO
SRACR/L2525M08	25	25	25	25	20	150	RC.T0803MO
SRACR/L2525M10	25	25	25	25	25	150	RC.T1003MO
SRACR/L3232P10	32	32	32	32	25	170	RC.T1003MO

Designation	Screw	Wrench
		
SRACR/L2020K06	SIC025065	FT07
SRACR/L2525M06	SIC025065	FT07
SRACR/L2020K08	SIC030072	FT09
SRACR/L2525M08	SIC030072	FT09
SRACR/L2525M10	SIC035080	FT15
SRACR/L3232P10	SIC035080	FT15

SRCCR/L

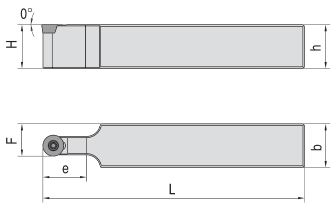


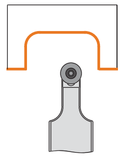


Designation	Dimensions (mm)						Inserts
	h	b	H	F	e	L	
SRCCR/L2020K06	20	20	20	25	20	125	RC.T0602MO
SRCCR/L2525M06	25	25	25	32	20	150	RC.T0602MO
SRCCR/L2525M10	25	25	25	32	25	150	RC.T1003MO

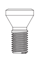
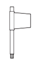
Designation	Screw	Wrench
SRCCR/L2020K06	SIC025065	FT07
SRCCR/L2525M06	SIC025065	FT07
SRCCR/L2525M10	SIC035080	FT15

SRDCN

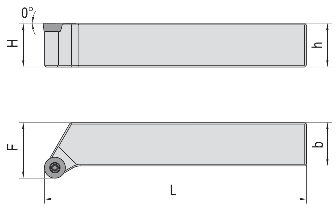


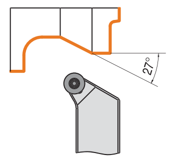


Designation	Dimensions (mm)						Inserts
	h	b	H	F	e	L	
SRDCN1616H06	16	16	16	11	16	100	RC.T0602MO
SRDCN2020K06	20	20	20	13	16	125	RC.T0602MO
SRDCN2525M06	25	25	25	15.5	16	150	RC.T0602MO
SRDCN1616H08	16	16	16	12	12	100	RC.T0803MO
SRDCN2020K08	20	20	20	14	20	125	RC.T0803MO
SRDCN2525M08	25	25	25	16.5	20	150	RC.T0803MO
SRDCN1616H10	16	16	16	13	16	100	RC.T1003MO
SRDCN2020K10	20	20	20	15	20	125	RC.T1003MO
SRDCN2525M10	25	25	25	17.5	25	150	RC.T1003MO
SRDCN3232P10	32	32	32	21	25	170	RC.T1003MO
SRDCN2525M12	25	25	25	18.5	25	150	RC.T1204MO
SRDCN3225P12	32	25	32	18.5	25	170	RC.T1204MO
SRDCN3225P16	32	25	32	20.5	25	170	RC.T1606MO

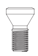
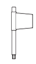
Designation	Screw	Wrench
		
SRDCN1616H06	SIC025065	FT07
SRDCN2020K06	SIC025065	FT07
SRDCN2525M06	SIC025065	FT07
SRDCN1616H08	SIC030072	FT09
SRDCN2020K08	SIC030072	FT09
SRDCN2525M08	SIC030072	FT09
SRDCN1616H10	SIC035080	FT15
SRDCN2020K10	SIC035080	FT15
SRDCN2525M10	SIC035080	FT15
SRDCN3232P10	SIC035080	FT15
SRDCN2525M12	SIC035080	FT15
SRDCN3225P12	SIC035080	FT15
SRDCN3225P16	SIC050108	FT20

SRGCR/L



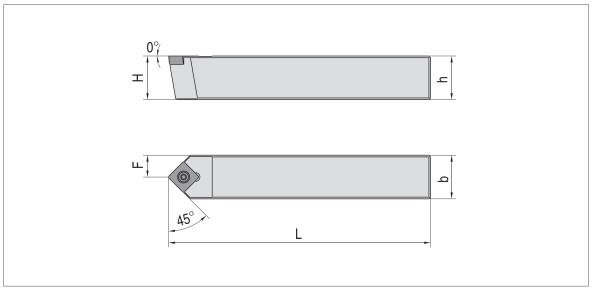


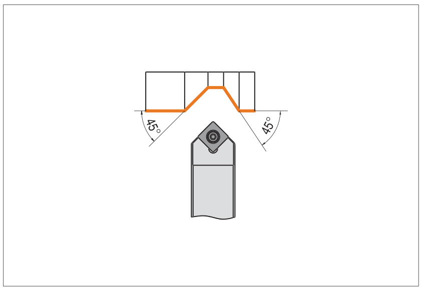
Designation	Dimensions(mm)					Insert
	h	b	H	F	L	
SRGCR/L2020K08	20	20	20	25	125	RC.T0803MO
SRGCR/L2525M08	25	25	25	32	150	RC.T0803MO
SRGCR/L2525M10	25	25	25	32	150	RC.T1003MO
SRGCR/L3232P10	32	32	32	40	170	RC.T1003MO
SRGCR/L2525M12	25	25	25	32	150	RC.T1204MO
SRGCR/L3232P16	32	32	32	40	170	RC.T1606MO
SRGCR/L3232P20	32	32	32	40	170	RC.T2006MO

Designation	Screw	Wrench
		
SRGCR/L2020K08	AST030-72	AWF-T09
SRGCR/L2525M08	AST030-72	AWF-T09
SRGCR/L2525M10	AST035-80	AWF-T15
SRGCR/L3232P10	AST035-80	AWF-T15
SRGCR/L2525M12	AST035-80	AWF-T15
SRGCR/L3232P16	AST050-108	AWF-T20
SRGCR/L3232P20	AST060-120	AWF-T25

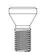
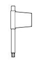
SSDCN

Kr=45°



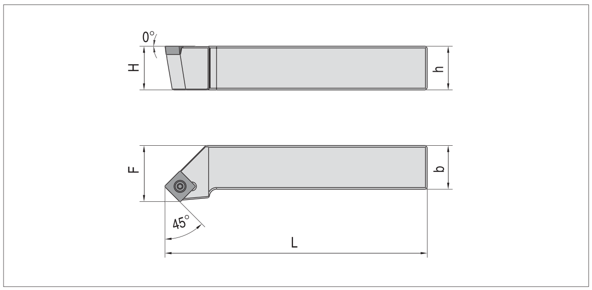


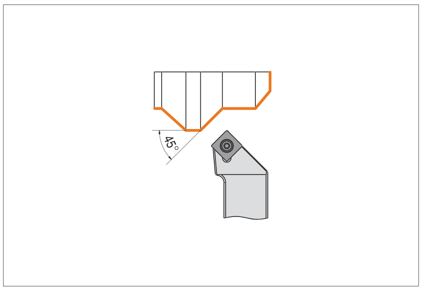
Designation	Dimensions(mm)					Insert
	h	b	H	F	L	
SSDCN1212F09	12	12	12	6	80	SC..09T3..
SSDCN1616H09	16	16	16	8	100	SC..09T3..
SSDCN2020K09	20	20	20	10	125	SC..09T3..
SSDCN2020K12	20	20	20	10	125	SC..1204..
SSDCN2525M12	25	25	25	12.5	150	SC..1204..

Designation	Screw	Wrench
		
SSDCN1212F09	AST035-80	AWF-T15
SSDCN1616H09	AST035-80	AWF-T15
SSDCN2020K09	AST035-80	AWF-T15
SSDCN2020K12	AST040-110	AWF-T15
SSDCN2525M12	AST040-110	AWF-T15

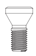
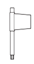
SSSCR/L

Kr=45°



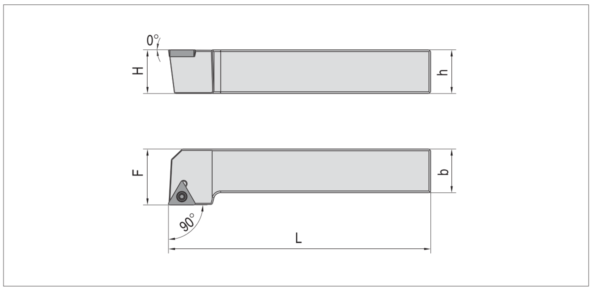


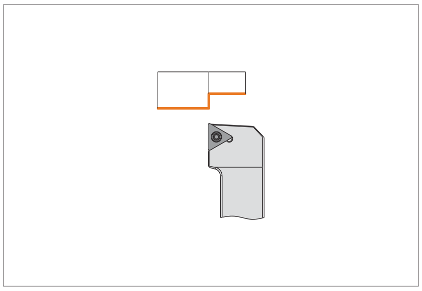
Designation	Dimensions(mm)					Insert
	h	b	H	F	L	
SSSCR/L2020K09	20	20	20	25	125	SC..09T3..
SSSCR/L2525M09	25	25	25	32	150	SC..09T3..
SSSCR/L2020K12	20	20	20	25	125	SC..1204..
SSSCR/L2525M12	25	25	25	32	150	SC..1204..

Designation	Screw	Wrench
		
SSSCR/L2020K09	AST035-80	AWF-T15
SSSCR/L2525M09	AST035-80	AWF-T15
SSSCR/L2020K12	AST040-110	AWF-T15
SSSCR/L2525M12	AST040-110	AWF-T15

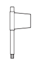
STGCR/L

Kr=90°



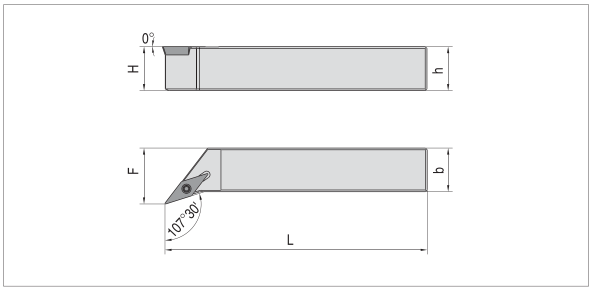


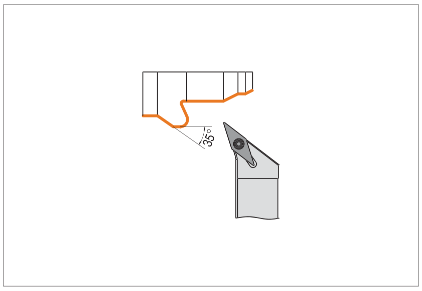
Designation	Dimensions(mm)					Insert
	h	b	H	F	L	
STGCR/L1616H11	16	16	16	20	100	TC/TP..1102..
STGCR/L2020K11	20	20	20	25	125	TC/TP..1102..
STGCR/L2525M11	25	25	25	32	150	TC/TP..1102..
STGCR/L1616H16	16	16	16	20	100	TC/TP..16T3..
STGCR/L2020K16	20	20	20	25	125	TC/TP..16T3..
STGCR/L2525M16	25	25	25	32	150	TC/TP..16T3..

Designation	Screw	Wrench
		
STGCR/L1616H11	AST025-65	AWF-T07
STGCR/L2020K11	AST025-65	AWF-T07
STGCR/L2525M11	AST025-65	AWF-T07
STGCR/L1616H16	AST035-80	AWF-T15
STGCR/L2020K16	AST035-80	AWF-T15
STGCR/L2525M16	AST035-80	AWF-T15

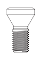
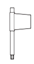
SVHCR/L

Kr=107°30'



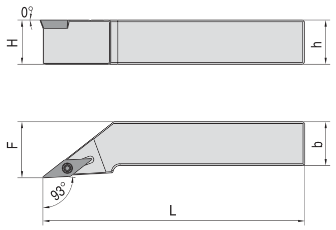


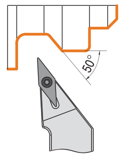
Designation	Dimensions(mm)					Insert
	h	b	H	F	L	
SVHCR/L2525M11	25	25	25	32	150	VB/VC ..1103..
SVHCR/L2525M16	25	25	25	32	150	VB/VC ..1604..

Designation	Screw	Wrench
		
SVHCR/L2525M11	AST025-65	AWF-T07
SVHCR/L2525M16	AST035-80	AWF-T15

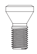
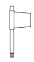
SVJCR/L

Kr=93°



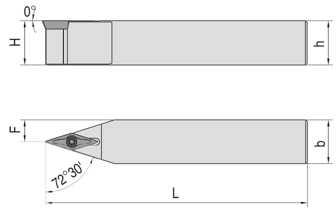


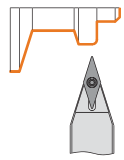
Designation	Dimensions(mm)					Insert
	h	b	H	F	L	
SVJCR/L1212F11	12	12	12	16	80	VB/VC ..1103..
SVJCR/L1616H11	16	16	16	20	100	VB/VC ..1103..
SVJCR/L2020K11	20	20	20	25	125	VB/VC ..1103..
SVJCR/L2525M11	25	25	25	32	150	VB/VC ..1103..
SVJCR/L2020K16	20	20	20	25	125	VB/VC ..1604..
SVJCR/L2525M16	25	25	25	32	150	VB/VC ..1604..

Designation	Screw 	Wrench 
SVJCR/L1212F11	AST025-65	AWF-T07
SVJCR/L1616H11	AST025-65	AWF-T07
SVJCR/L2020K11	AST025-65	AWF-T07
SVJCR/L2525M11	AST025-65	AWF-T07
SVJCR/L2020K16	AST035-80	AWF-T15
SVJCR/L2525M16	AST035-80	AWF-T15

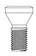
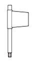
SVVCN

Kr=72°30'





Designation	Dimensions(mm)					Insert
	h	b	H	F	L	
SVVCN1616H11	16	16	16	8	100	VB/VC ..1103..
SVVCN2020K11	20	20	20	10	125	VB/VC ..1103..
SVVCN2525M11	25	25	25	12.5	150	VB/VC ..1103..
SVVCN2020K16	20	20	20	10	125	VB/VC ..1604..
SVVCN2525M16	25	25	25	12.5	150	VB/VC ..1604..

Designation	Screw	Wrench
		
SVVCN1616H11	AST025-65	AWF-T07
SVVCN2020K11	AST025-65	AWF-T07
SVVCN2525M11	AST025-65	AWF-T07
SVVCN2020K16	AST035-80	AWF-T15
SVVCN2525M16	AST035-80	AWF-T15

ACHTECK

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Internal Turning Holders

Internal Turning Toolholder Designation System

A	25	R	P	C
1	2	3	4	5

1- Holder Structure

A: Steel shank with internal coolant

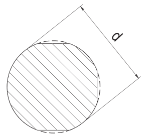
C: Carbide shank with steel head

E: Carbide shank with steel head and internal coolant

S: Steel shank

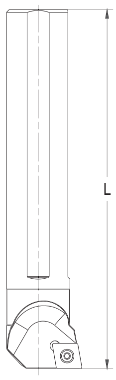
X: Special

2- Holder Diameter(mm)



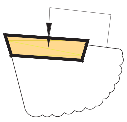
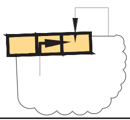
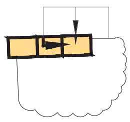
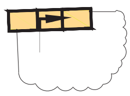
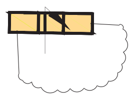
06 = 6	20 = 20
08 = 8	25 = 25
10 = 10	32 = 32
12 = 12	40 = 40
16 = 16	50 = 50

3- Holder Length(mm)

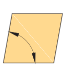
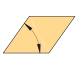
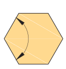
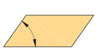
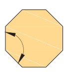
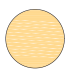
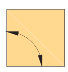
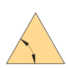
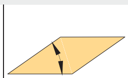
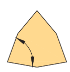


F = 80	S = 250
H = 100	T = 300
K = 125	U = 350
M = 150	V = 400
P = 170	W = 450
Q = 180	Y = 500
R = 200	X = special

4- Insert Clamping Type

C: Plate clamping	M: Multi clamping	D: Top clamping	P: Lever clamping	S: Screw clamping
				

5- Insert Shape/Code

C	D	H	K	O	R	S	T	V	W
									
80°	55°	120°	55°	135°	360°	90°	60°	35°	80°

L	N	R	12	-
6	7	8	9	10

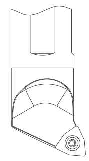
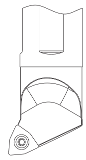
6- Tool Type and Approach Angle

F	90	S	45	K	75	U	93
L	95	W	62.5	Y	85	Q	107.5

7- Clearance Angle

A	B	C	D	E
3°	5°	7°	15°	20°
F	G	P	N	O
25°	30°	11°	0°	Other clearance angle

8- Hand of Tool

Right	
Left	

9- Length of Cutting edge

C、D、E、M、V	A、B、K	H	L
L	L	L	L

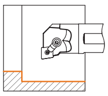
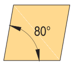
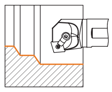
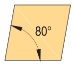
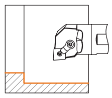
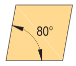
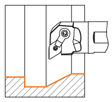
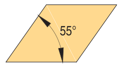
O	P	R	S	T	W
L	L	L	L	L	L

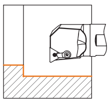
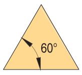
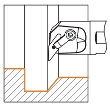
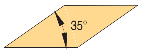
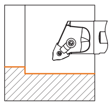
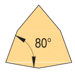
10- Designation for Special

Defined by manufacturer, may use figure and letter to represent. But need to use bar(-) to separate from designation.

Overview of Internal Turning Toolholders

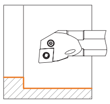
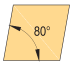
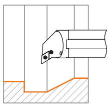
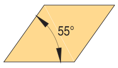
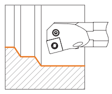
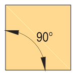
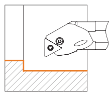
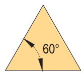
Negative Inserts

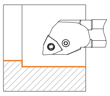
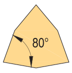
MCFNR/L		MCKNR/L		MCLNR/L		MDUNR/L	
90°	CN..	75°	CN..	95°	CN..	93°	DN..
							
	12		12		12		11
					16		15

MTFNR/L		MVUNR/L		MWLNR/L	
90°	TN..	93°	VN..	95°	WN..
					
	16		16		08

ACHTECK

Overview of Internal Turning Toolholders
Negative Inserts

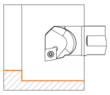
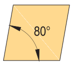
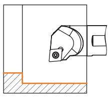
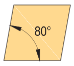
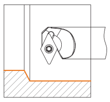
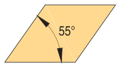
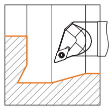
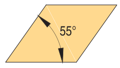
PCLNR/L		PDUNR/L		PSKNR/L		PTFNR/L	
95°	CN..	93°	DN..	45°	SN..	90°	TN..
							
	09		11		12		16
	12		15		15		
	16				19		
	19						

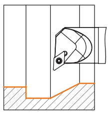
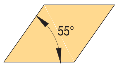
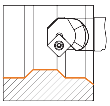
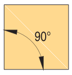
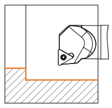
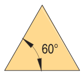
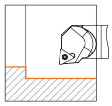
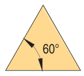
PWLNR/L	
95°	WN..
	
	06
	08

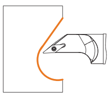
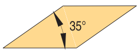
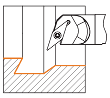
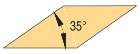
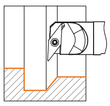
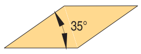
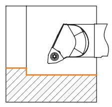
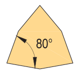
Turning holders

Overview of Internal Turning Toolholders

Positive Inserts

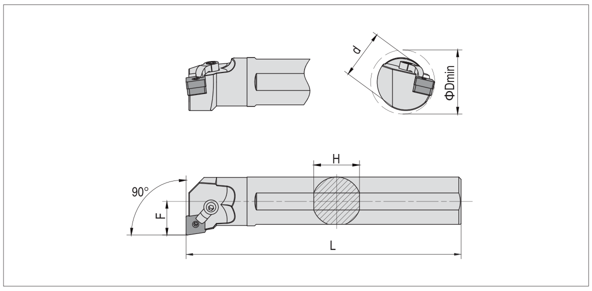
SCFCR/L		SCLCR/L		SDNCR/L		SDQCR/L	
90°	CC..	95°	CC..	62°30'	DC..	107°30'	DC..
							
	06		06		07		07
	09		09		11		11
	12		12				

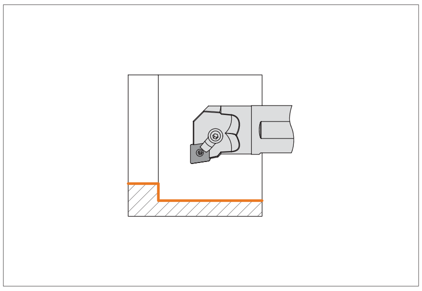
SDUCR/L		SSSCR/L		STFCR/L		STLCR/L	
93°	DC..	45°	SC..	90°	TC..	93°	TC..
							
	07		09		11		11
	11		12		16		16

SVJCR/L		SVQCR/L		SVUCR/L		SWLCR/L	
93°	VC..	107°30'	VC..	93°	VC..	95°	WC..
							
	11		11		11		04
			16		16		06

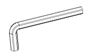
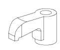
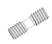
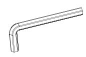
MCFNR/L

Kr=90°



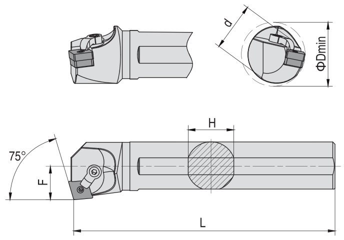


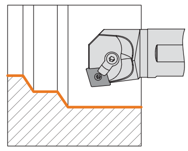
Designation	Dimensions (mm)					Inserts
	d	F	L	h	Dmin	
S25R-MCFNR/L12	25	17	200	23	32	CN..1204..
S25T-MCFNR/L12	25	17	300	23	32	CN..1204..
S32S-MCFNR/L12	32	22	250	30	40	CN..1204..
S32U-MCFNR/L12	32	22	350	30	40	CN..1204..
S40T-MCFNR/L12	40	27	300	37	50	CN..1204..
S50U-MCFNR/L12	50	35	350	46	63	CN..1204..

Designation	Shim	Pin	Elastic pin	Clamping plate	Screw	Wrench
						
S25R-MCFNR/L12	AMSC 43	AMP 46	AWH03-32	ACL 20	AMH 48	AWH01-8
S25T-MCFNR/L12	AMSC 43	AMP 46	AWH03-32	ACL 20	AMH 48	AWH01-8
S32S-MCFNR/L12	AMSC 43	AMP 46	AWH03-32	ACL 20	AMH 48	AWH01-8
S32U-MCFNR/L12	AMSC 43	AMP 46	AWH03-32	ACL 20	AMH 48	AWH01-8
S40T-MCFNR/L12	AMSC 43	AMP 46	AWH03-32	ACL 20	AMH 48	AWH01-8
S50U-MCFNR/L12	AMSC 43	AMP 46	AWH03-32	ACL 20	AMH 48	AWH01-8

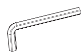
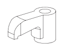
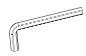
MCKNR/L

Kr=75°



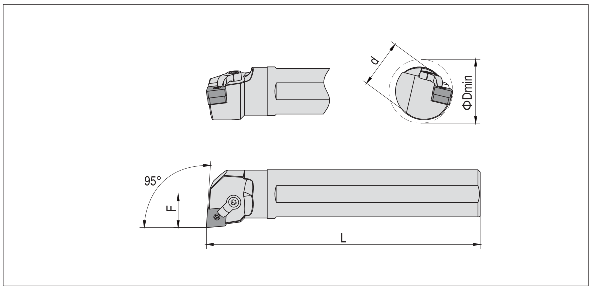


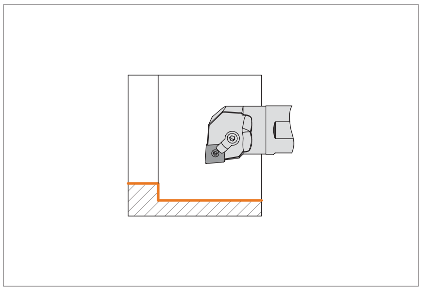
Designation	Dimensions (mm)					Inserts
	d	F	L	h	Dmin	
S32S-MCKNR/L12	32	22	250	30	40	CN..1204..
S40T-MCKNR/L12	40	27	300	37	50	CN..1204..

Designation	Shim	Pin	Elastic pin	Clamping plate	Screw	Wrench
						
S32S-MCKNR/L12	AMSC 43	AMP 46	AWH03-32	ACL 20	AMH 48	AWH01-8
S40T-MCKNR/L12	AMSC 43	AMP 46	AWH03-32	ACL 20	AMH 48	AWH01-8

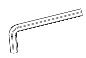
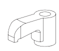
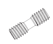
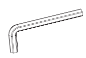
MCLNR/L

Kr=95°



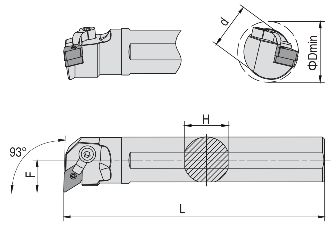


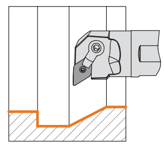
Designation	Dimensions (mm)					Inserts
	d	F	L	h	Dmin	
S25R-MCLNR/L12	25	17	200	23	32	CN..1204..
S25T-MCLNR/L12	25	17	300	23	32	CN..1204..
S32S-MCLNR/L12	32	22	250	30	40	CN..1204..
S32U-MCLNR/L12	32	22	350	30	40	CN..1204..
S40T-MCLNR/L12	40	27	300	37	50	CN..1204..
S40V-MCLNR/L12	40	27	400	37	50	CN..1204..
S50U-MCLNR/L12	50	35	350	46	63	CN..1204..
S50W-MCLNR/L12	50	35	450	46	63	CN..1204..
S40T-MCLNR/L16	40	27	300	37	50	CN..1606..
S40V-MCLNR/L16	40	27	400	37	50	CN..1606..
S50U-MCLNR/L16	50	35	350	46	63	CN..1606..
S50W-MCLNR/L16	50	35	450	46	63	CN..1606..

Designation	Shim	Pin	Wrench	Clamping plate	Screw	Wrench
						
S25R-MCLNR/L12	-	AMP 44	AWH03-32	ACL 20	AMH 48	AWH01-8
S25T-MCLNR/L12	-	AMP 44	AWH03-32	ACL 20	AMH 48	AWH01-8
S32S-MCLNR/L12	AMSC 43	AMP 46	AWH03-32	ACL 20	AMH 48	AWH01-8
S32U-MCLNR/L12	AMSC 43	AMP 46	AWH03-32	ACL 20	AMH 48	AWH01-8
S40T-MCLNR/L12	AMSC 43	AMP 46	AWH03-32	ACL 20	AMH 48	AWH01-8
S40V-MCLNR/L12	AMSC 43	AMP 46	AWH03-32	ACL 20	AMH 48	AWH01-8
S50U-MCLNR/L12	AMSC 43	AMP 46	AWH03-32	ACL 20	AMH 48	AWH01-8
S50W-MCLNR/L12	AMSC 43	AMP 46	AWH03-32	ACL 20	AMH 48	AWH01-8
S40T-MCLNR/L16	AMSC 53	AMP 58	AWH01-8	ACL 12	AMH 510	AWH05-32
S40V-MCLNR/L16	AMSC 53	AMP 58	AWH01-8	ACL 12	AMH 510	AWH05-32
S50U-MCLNR/L16	AMSC 53	AMP 58	AWH01-8	ACL 12	AMH 510	AWH05-32
S50W-MCLNR/L16	AMSC 53	AMP 58	AWH01-8	ACL 12	AMH 510	AWH05-32

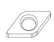
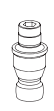
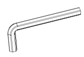
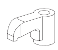
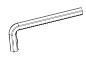
MDUNR/L

Kr=93°



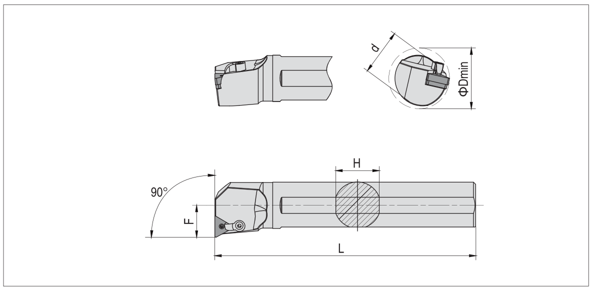


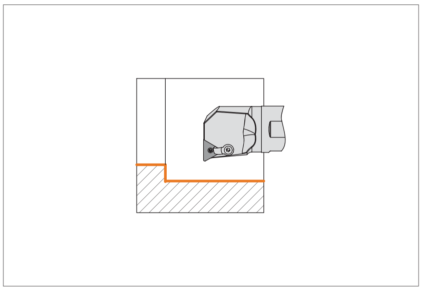
Designation	Dimensions (mm)					Inserts
	d	F	L	h	Dmin	
S25R-MDUNR/L11	25	17	200	23	32	DN..1104..
S32S-MDUNR/L11	32	22	250	30	40	DN..1104..
S32S-MDUNR/L15	32	22	250	30	40	DN..1506..
S40T-MDUNR/L15	40	27	300	37	50	DN..1506..
S50U-MDUNR/L15	50	35	350	46	63	DN..1506..
S32S-MDUNR/L15	32	22	250	30	40	DN..1504..
S40T-MDUNR/L15	40	27	300	37	50	DN..1504..
S50U-MDUNR/L15	50	35	350	46	63	DN..1504..

Designation	Shim	Pin	Wrench	Clamping plate	Screw	Wrench
						
S25R-MDUNR/L11	-	AMP 33L	AWH05-64	ACL 20	AMH 48	AWH01-8
S32S-MDUNR/L11	AMSD 32	AMP 34L	AWH05-64	ACL 20	AMH 48	AWH01-8
S32S-MDUNR/L15	AMSD 43	AMP 46L	AWH03-32	ACL 12	AMH 510	AWH05-32
S40T-MDUNR/L15	AMSD 43	AMP 46L	AWH03-32	ACL 12	AMH 510	AWH05-32
S50U-MDUNR/L15	AMSD 43	AMP 46L	AWH03-32	ACL 12	AMH 510	AWH05-32
S32S-MDUNR/L15	AMSD 44	AMP 46L	AWH03-32	ACL 12	AMH 510	AWH05-32
S40T-MDUNR/L15	AMSD 44	AMP 46L	AWH03-32	ACL 12	AMH 510	AWH05-32
S50U-MDUNR/L15	AMSD 44	AMP 46L	AWH03-32	ACL 12	AMH 510	AWH05-32

MTFNR/L

Kr=90°



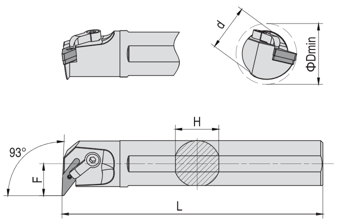


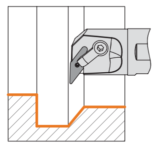
Designation	Dimensions (mm)					Inserts
	d	F	L	h	Dmin	
S25R-MTFNR/L16	25	17	200	23	32	TN..1604..
S25T-MTFNR/L16	25	17	300	23	32	TN..1604..
S32S-MTFNR/L16	32	22	250	30	40	TN..1604..
S32U-MTFNR/L16	32	22	350	30	40	TN..1604..
S40T-MTFNR/L16	40	27	300	37	50	TN..1604..
S40V-MTFNR/L16	40	27	400	37	50	TN..1604..

Designation	Shim	Pin	Wrench	Clamping plate	Screw	Wrench
S25R-MTFNR/L16	-	AMP 33L	AWH05-64	ACL 6	AMH 36	AWH03-32
S25T-MTFNR/L16	-	AMP 33L	AWH05-64	ACL 6	AMH 36	AWH03-32
S32S-MTFNR/L16	AMST 32	AMP 34L	AWH05-64	ACL 6	AMH 36	AWH03-32
S32U-MTFNR/L16	AMST 32	AMP 34L	AWH05-64	ACL 6	AMH 36	AWH03-32
S40T-MTFNR/L16	AMST 32	AMP 34L	AWH05-64	ACL 6	AMH 36	AWH03-32
S40V-MTFNR/L16	AMST 32	AMP 34L	AWH05-64	ACL 6	AMH 36	AWH03-32

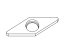
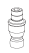
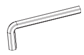
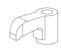
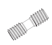
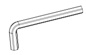
MVUNR/L

Kr=93°



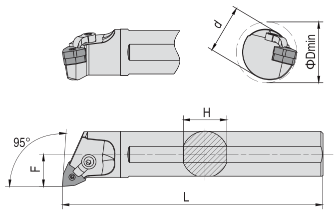


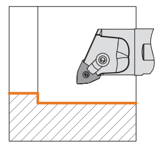
Designation	Dimensions (mm)					Inserts
	d	F	L	h	Dmin	
S32S-MVUNR/L16	32	22	250	30	40	VN..1604..
S40T-MVUNR/L16	40	27	300	37	50	VN..1604..

Designation	Shim	Pin	Wrench	Clamping plate	Screw	Wrench
						
S32S-MVUNR/L16	AMSV 32	AMP 34L	AWH05-64	ACL 30	AMH 59	AWH05-32
S40T-MVUNR/L16	AMSV 32	AMP 34L	AWH05-64	ACL 30	AMH 59	AWH05-32

MWLNR/L

Kr=95°



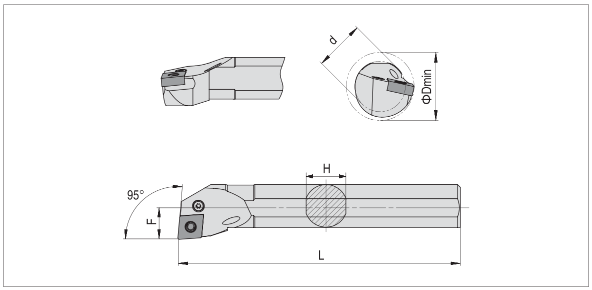


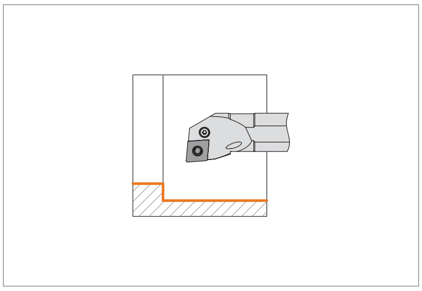
Designation	Dimensions (mm)					Inserts
	d	F	L	h	Dmin	
S25R-MWLNR/L06	25	17	200	23	32	WN..0604..
S25T-MWLNR/L06	25	17	300	23	32	WN..0604..
S32S-MWLNR/L06	32	22	250	30	40	WN..0604..
S32U-MWLNR/L06	32	22	350	30	40	WN..0604..
S40T-MWLNR/L08	40	27	300	37	50	WN..0804..
S40V-MWLNR/L08	40	27	400	37	50	WN..0804..
S50U-MWLNR/L08	50	35	350	46	63	WN..0804..
S50W-MWLNR/L08	50	35	450	46	63	WN..0804..

Designation	Shim	Pin	Wrench	Clamping plate	Screw	Wrench
S25R-MWLNR/L06	-	AMP 33L	AWH05-64	ACL 6	AMH 36	AWH03-32
S25T-MWLNR/L06	-	AMP 33L	AWH05-64	ACL 6	AMH 36	AWH03-32
S32S-MWLNR/L06	AMSW 32	AMP 34L	AWH05-64	ACL 6	AMH 36	AWH03-32
S32U-MWLNR/L06	AMSW 32	AMP 34L	AWH05-64	ACL 6	AMH 36	AWH03-32
S40T-MWLNR/L08	AMSW 43	AMP 46	AWH03-32	ACL 20	AMH 48	AWH01-8
S40V-MWLNR/L08	AMSW 43	AMP 46	AWH03-32	ACL 20	AMH 48	AWH01-8
S50U-MWLNR/L08	AMSW 43	AMP 46	AWH03-32	ACL 20	AMH 48	AWH01-8
S50W-MWLNR/L08	AMSW 43	AMP 46	AWH03-32	ACL 20	AMH 48	AWH01-8

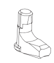
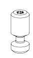
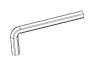
PCLNR/L

Kr=95°



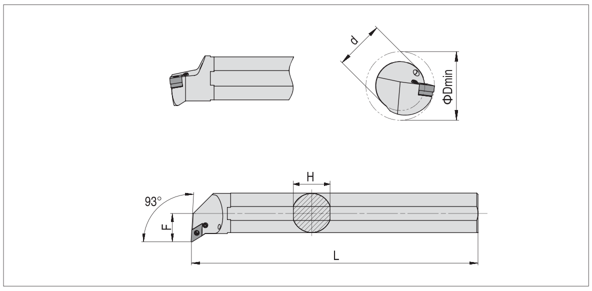


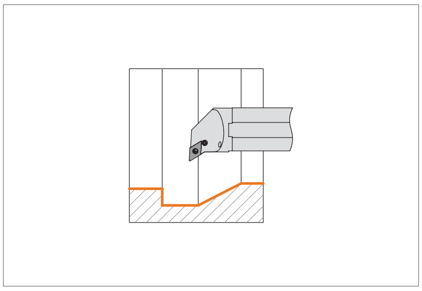
Designation	Dimensions (mm)					Inserts
	d	F	L	h	Dmin	
S16Q-PCLNR/L09	16	11	180	15	20	CN..0903..
S20R-PCLNR/L09	20	13	200	18	25	CN..0903..
S25S-PCLNR/L12	25	17	250	23	32	CN..1204..
S32T-PCLNR/L12	32	22	300	30	40	CN..1204..
S40U-PCLNR/L12	40	27	350	37	50	CN..1204..
S50V-PCLNR/L12	50	35	400	46	63	CN..1204..
S40U-PCLNR/L16	40	27	350	37	50	CN..1606..
S50V-PCLNR/L16	50	35	400	46	63	CN..1606..
S40U-PCLNR/L19	40	27	350	37	50	CN..1906..
S50V-PCLNR/L19	50	35	400	46	63	CN..1906..

Designation	Shim	Lever	Elastic pin	Screw	Wrench
					
S16Q-PCLNR/L09	-	ALL 0903N	-	ALC05-90	AWH 2
S20R-PCLNR/L09	-	ALL 0903N	-	ALC05-90	AWH 2
S25S-PCLNR/L12	-	ALL 1204N	-	ALC06-134	AWH 2.5
S32T-PCLNR/L12	ALSC 42	ALL 1204	ALP 12	ALC08-210	AWH 3
S40U-PCLNR/L12	ALSC 42	ALL 1204	ALP 12	ALC08-210	AWH 3
S50V-PCLNR/L12	ALSC 42	ALL 1204	ALP 12	ALC08-210	AWH 3
S40U-PCLNR/L16	ALSC 53	ALL 15	ALP 15	ALC08-250	AWH 3
S50V-PCLNR/L16	ALSC 53	ALL 15	ALP 15	ALC08-250	AWH 3
S40U-PCLNR/L19	ALSC 63	ALL 19	ALP 19	ALC10-273	AWH 4
S50V-PCLNR/L19	ALSC 63	ALL 19	ALP 19	ALC10-273	AWH 4

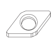
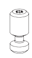
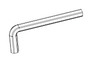
PDUNR/L

Kr=93°



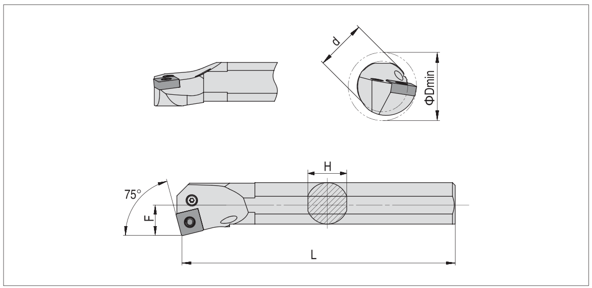


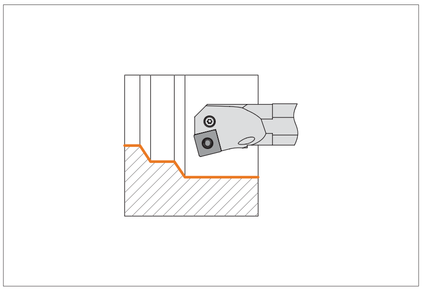
Designation	Dimensions (mm)					Inserts
	d	F	L	h	Dmin	
S25S-PDUNR/L11	25	17	250	23	32	DN..1104..
S25S-PDUNR/L15	25	17	250	23	32	DN..1506..
S32T-PDUNR/L15	32	22	300	30	40	DN..1506..
S40U-PDUNR/L15	40	27	350	37	50	DN..1506..
S50V-PDUNR/L15	50	35	400	46	63	DN..1506..

Designation	Shim	Lever	Elastic pin	Screw	Wrench
					
S25S-PDUNR/L11	-	ALL 0904NL	-	ALC05-120	AWH 2
S25S-PDUNR/L15	ALSD 42	ALL 1206	ALP 12	ALC08-210	AWH 3
S32T-PDUNR/L15	ALSD 42	ALL 1206	ALP 12	ALC08-210	AWH 3
S40U-PDUNR/L15	ALSD 42	ALL 1206	ALP 12	ALC08-210	AWH 3
S50V-PDUNR/L15	ALSD 42	ALL 1206	ALP 12	ALC08-210	AWH 3

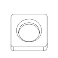
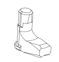
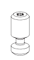
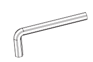
PSKNR/L

Kr=75°



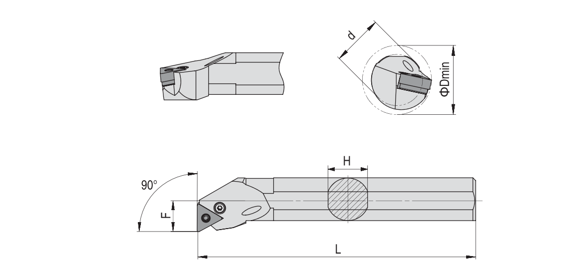


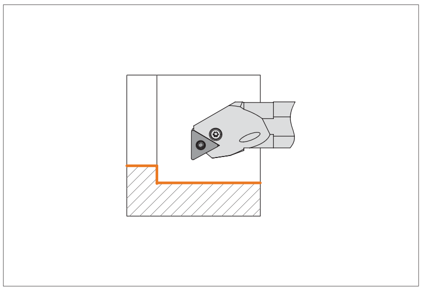
Designation	Dimensions (mm)					Inserts
	d	F	L	h	Dmin	
S25S-PSKNR/L12	25	17	250	23	32	SN..1204..
S32T-PSKNR/L12	32	22	300	30	40	SN..1204..
S40U-PSKNR/L12	40	27	350	37	50	SN..1204..
S50V-PSKNR/L12	50	35	400	46	63	SN..1204..
S32T-PSKNR/L15	32	22	300	30	40	SN..1506..
S40U-PSKNR/L15	40	27	350	37	50	SN..1506..
S50V-PSKNR/L15	50	35	400	46	63	SN..1506..
S40U-PSKNR/L19	40	27	350	37	50	SN..1906..
S50V-PSKNR/L19	50	35	400	46	63	SN..1906..

Designation	Shim	Lever	Elastic pin	Screw	Wrench
					
S25S-PSKNR/L12	-	ALL 1204N	-	ALH06-134	AWH 2.5
S32T-PSKNR/L12	ALSS 42	ALL 1204	ALP 12	ALH08-210	AWH 3
S40U-PSKNR/L12	ALSS 42	ALL 1204	ALP 12	ALH08-210	AWH 3
S50V-PSKNR/L12	ALSS 42	ALL 1204	ALP 12	ALH08-210	AWH 3
S32T-PSKNR/L15	ALSS 53	ALL 15	ALP 15	ALH08-250	AWH 3
S40U-PSKNR/L15	ALSS 53	ALL 15	ALP 15	ALH08-250	AWH 3
S50V-PSKNR/L15	ALSS 53	ALL 15	ALP 15	ALH08-250	AWH 3
S40U-PSKNR/L19	ALSS 63	ALL 19	ALP 19	ALH10-273	AWH 4
S50V-PSKNR/L19	ALSS 63	ALL 19	ALP 19	ALH10-273	AWH 4

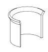
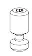
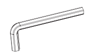
PTFNR/L

Kr=90°



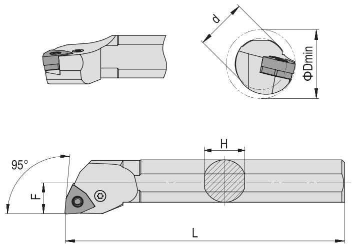


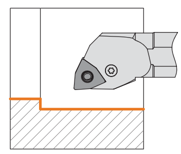
Designation	Dimensions (mm)					Inserts
	d	F	L	h	Dmin	
S25S-PTFNR/L16	25	17	250	23	32	TN..1604..
S32T-PTFNR/L16	32	22	300	30	40	TN..1604..
S40U-PTFNR/L16	40	27	350	37	50	TN..1604..
S50V-PTFNR/L16	50	35	400	46	63	TN..1604..

Designation	Shim	Lever	Elastic pin	Screw	Wrench
					
S25S-PTFNR/L16	-	ALL 0904N	-	ALH05-120	AWH 2
S32T-PTFNR/L16	ALST 32	ALL 0903	ALP 09	ALH06-170	AWH 2.5
S40U-PTFNR/L16	ALST 32	ALL 0903	ALP 09	ALH06-170	AWH 2.5
S50V-PTFNR/L16	ALST 32	ALL 0903	ALP 09	ALH06-170	AWH 2.5

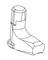
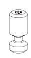
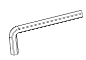
PWLNR/L

Kr=95°



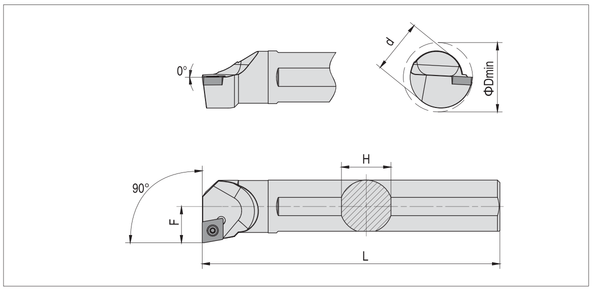


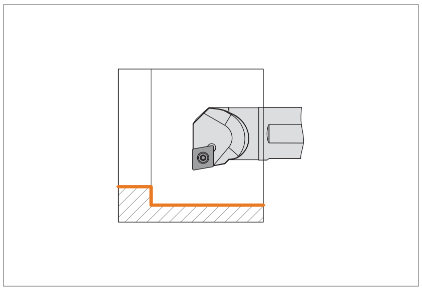
Designation	Dimensions (mm)					Inserts
	d	F	L	h	Dmin	
S16Q-PWLNR/L06	16	11	180	15	20	WN..0604..
S20R-PWLNR/L06	20	13	200	18	25	WN..0604..
S25S-PWLNR/L08	25	17	250	23	32	WN..0804..
S32T-PWLNR/L08	32	22	300	30	40	WN..0804..
S40U-PWLNR/L08	40	27	350	37	50	WN..0804..
S50V-PWLNR/L08	50	35	400	46	63	WN..0804..

Designation	Shim	Lever	Elastic pin	Screw	Wrench
					
S16Q-PWLNR/L06	ALSW 32	ALL 0903	ALP 09	ALH06-170	AWH 2.5
S20R-PWLNR/L06	ALSW 32	ALL 0903	ALP 09	ALH06-170	AWH 2.5
S25S-PWLNR/L08	-	ALL 1204N	-	ALH06-134	AWH 2.5
S32T-PWLNR/L08	ALSW 43	ALL 1204	ALP 12	ALH08-210	AWH 3
S40U-PWLNR/L08	ALSW 43	ALL 1204	ALP 12	ALH08-210	AWH 3
S50V-PWLNR/L08	ALSW 43	ALL 1204	ALP 12	ALH08-210	AWH 3

SCFCR/L

Kr=90°



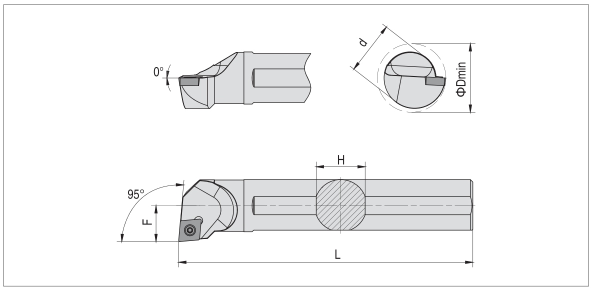


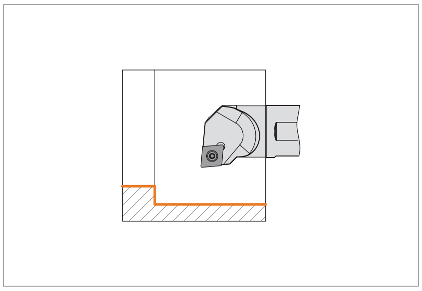
Designation	Dimensions (mm)					Inserts
	d	F	L	h	Dmin	
S08H-SCFCR/L06	8	6	100	7	11	CC..0602..
S10K-SCFCR/L06	10	7	125	9	13	CC..0602..
S12K-SCFCR/L06	12	9	125	11	16	CC..0602..
S12M-SCFCR/L06	12	9	150	11	16	CC..0602..
S16M-SCFCR/L09	16	11	150	15	20	CC..09T3..
S16R-SCFCR/L09	16	11	200	15	20	CC..09T3..
S20Q-SCFCR/L09	20	13	180	18	25	CC..09T3..
S20S-SCFCR/L09	20	13	250	18	25	CC..09T3..
S25R-SCFCR/L12	25	17	200	23	32	CC..1204..
S25T-SCFCR/L12	25	17	300	23	32	CC..1204..
S32S-SCFCR/L12	32	22	250	30	40	CC..1204..
S32U-SCFCR/L12	32	22	350	30	40	CC..1204..

Designation	Screw	Wrench
S08H-SCFCR/L06	AST025-65	AWF-T07
S10K-SCFCR/L06	AST025-65	AWF-T07
S12K-SCFCR/L06	AST025-65	AWF-T07
S12M-SCFCR/L06	AST025-65	AWF-T07
S16M-SCFCR/L09	AST035-80	AWF-T15
S16R-SCFCR/L09	AST035-80	AWF-T15
S20Q-SCFCR/L09	AST035-80	AWF-T15
S20S-SCFCR/L09	AST035-80	AWF-T15
S25R-SCFCR/L12	AST040-110	AWF-T15
S25T-SCFCR/L12	AST040-110	AWF-T15
S32S-SCFCR/L12	AST040-110	AWF-T15
S32U-SCFCR/L12	AST040-110	AWF-T15

SCLCR/L

Kr=95°



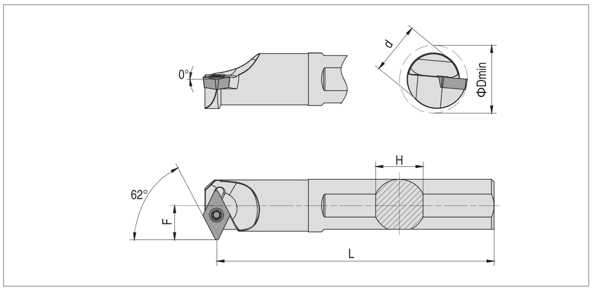


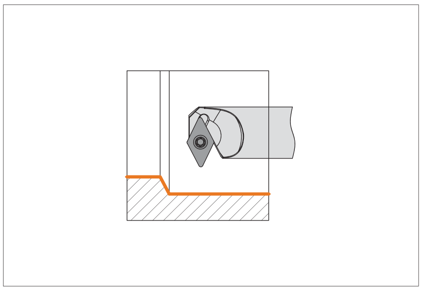
Designation	Dimensions (mm)					Inserts
	d	F	L	h	Dmin	
S08H-SCLCR/L06	8	6	100	7	11	CC..0602..
S10K-SCLCR/L06	10	7	125	9	13	CC..0602..
S12K-SCLCR/L06	12	9	125	11	16	CC..0602..
S12M-SCLCR/L06	12	9	150	11	16	CC..0602..
S16M-SCLCR/L09	16	11	150	15	20	CC..09T3..
S16R-SCLCR/L09	16	11	200	15	20	CC..09T3..
S20Q-SCLCR/L09	20	13	180	18	25	CC..09T3..
S20S-SCLCR/L09	20	13	250	18	25	CC..09T3..
S25R-SCLCR/L12	25	17	200	23	32	CC..1204..
S25T-SCLCR/L12	25	17	300	23	32	CC..1204..
S32S-SCLCR/L12	32	22	250	30	40	CC..1204..
S32U-SCLCR/L12	32	22	350	30	40	CC..1204..
S40T-SCLCR/L12	40	27	300	37	50	CC..1204..
S40V-SCLCR/L12	40	27	400	37	50	CC..1204..

Designation	Screw	Wrench
S08H-SCLCR/L06	AST-025-65	AWF-T07
S10K-SCLCR/L06	AST-025-65	AWF-T07
S12K-SCLCR/L06	AST-025-65	AWF-T07
S12M-SCLCR/L06	AST-025-65	AWF-T07
S16M-SCLCR/L09	AST035-80	AWF-T15
S16R-SCLCR/L09	AST035-80	AWF-T15
S20Q-SCLCR/L09	AST035-80	AWF-T15
S20S-SCLCR/L09	AST035-80	AWF-T15
S25R-SCLCR/L12	AST040-110	AWF-T15
S25T-SCLCR/L12	AST040-110	AWF-T15
S32S-SCLCR/L12	AST040-110	AWF-T15
S32U-SCLCR/L12	AST040-110	AWF-T15
S40T-SCLCR/L12	AST040-110	AWF-T15
S40V-SCLCR/L12	AST040-110	AWF-T15

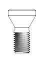
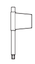
SDNCR/L

Kr=62°



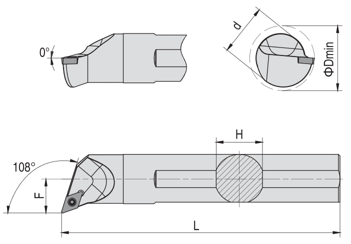


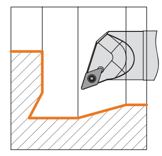
Designation	Dimensions (mm)					Inserts
	d	F	L	h	Dmin	
S12K-SDNCR/L07	12	9	125	11	16	DC..0702..
S16M-SDNCR/L07	16	11	150	15	20	DC..0702..
S20Q-SDNCR/L11	20	13	180	18	25	DC..11T3..
S25R-SDNCR/L11	25	17	200	23	32	DC..11T3..

Designation	Screw	Wrench
		
S12K-SDNCR/L07	AST025-65	AWF-T07
S16M-SDNCR/L07	AST025-65	AWF-T07
S20Q-SDNCR/L11	AST035-80	AWF-T15
S25R-SDNCR/L11	AST035-80	AWF-T15

SDQCR/L

Kr=108°



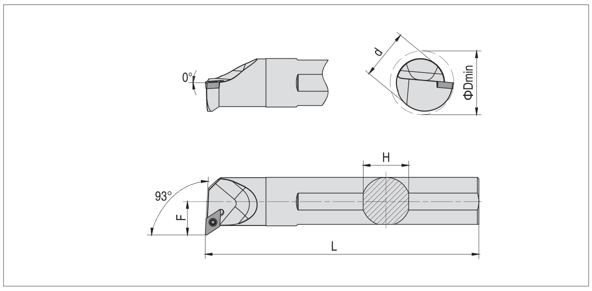


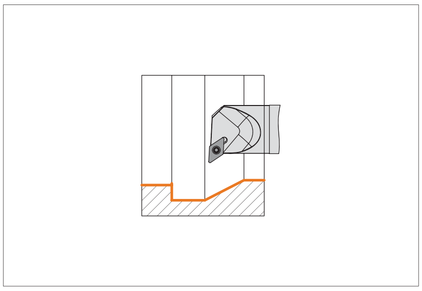
Designation	Dimensions (mm)					Inserts
	d	F	L	h	Dmin	
S10K-SDQCR/L07	10	7	125	9	13	DC..0702..
S12K-SDQCR/L07	12	9	125	11	16	DC..0702..
S12M-SDQCR/L07	12	9	150	11	16	DC..0702..
S16M-SDQCR/L07	16	11	150	15	20	DC..0702..
S16R-SDQCR/L07	16	11	200	15	20	DC..0702..
S20Q-SDQCR/L11	20	13	180	18	25	DC..11T3..
S20S-SDQCR/L11	20	13	250	18	25	DC..11T3..
S25R-SDQCR/L11	25	17	200	23	32	DC..11T3..
S25T-SDQCR/L11	25	17	300	23	32	DC..11T3..
S32S-SDQCR/L11	32	22	250	30	40	DC..11T3..
S32U-SDQCR/L11	32	22	350	30	40	DC..11T3..

Designation	Screw	Wrench
S10K-SDQCR/L07	AST025-65	AWF-T07
S12K-SDQCR/L07	AST025-65	AWF-T07
S12M-SDQCR/L07	AST025-65	AWF-T07
S16M-SDQCR/L07	AST025-65	AWF-T07
S16R-SDQCR/L07	AST025-65	AWF-T07
S20Q-SDQCR/L11	AST035-80	AWF-T15
S20S-SDQCR/L11	AST035-80	AWF-T15
S25R-SDQCR/L11	AST035-80	AWF-T15
S25T-SDQCR/L11	AST035-80	AWF-T15
S32S-SDQCR/L11	AST035-80	AWF-T15
S32U-SDQCR/L11	AST035-80	AWF-T15

SDUCR/L

Kr=93°



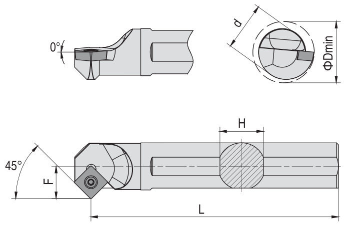


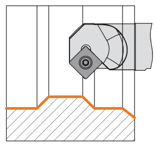
Designation	Dimensions (mm)					Inserts
	d	F	L	h	Dmin	
S10K-SDUCR/L07	10	7	125	9	13	DC..0702..
S12K-SDUCR/L07	12	9	125	11	16	DC..0702..
S12M-SDUCR/L07	12	9	150	11	16	DC..0702..
S16M-SDUCR/L07	16	11	150	15	20	DC..0702..
S16R-SDUCR/L07	16	11	200	15	20	DC..0702..
S20Q-SDUCR/L11	20	13	180	18	25	DC..11T3..
S20S-SDUCR/L11	20	13	250	18	25	DC..11T3..
S25R-SDUCR/L11	25	17	200	23	32	DC..11T3..
S25T-SDUCR/L11	25	17	300	23	32	DC..11T3..
S32S-SDUCR/L11	32	22	250	30	40	DC..11T3..
S32U-SDUCR/L11	32	22	350	30	40	DC..11T3..
S40T-SDUCR/L11	40	27	300	37	50	DC..11T3..
S40V-SDUCR/L11	40	27	400	37	50	DC..11T3..

Designation	Screw	Wrench
S10K-SDUCR/L07	AST025-65	AWF-T07
S12K-SDUCR/L07	AST025-65	AWF-T07
S12M-SDUCR/L07	AST025-65	AWF-T07
S16M-SDUCR/L07	AST025-65	AWF-T07
S16R-SDUCR/L07	AST025-65	AWF-T07
S20Q-SDUCR/L11	AST035-80	AWF-T15
S20S-SDUCR/L11	AST035-80	AWF-T15
S25R-SDUCR/L11	AST035-80	AWF-T15
S25T-SDUCR/L11	AST035-80	AWF-T15
S32S-SDUCR/L11	AST035-80	AWF-T15
S32U-SDUCR/L11	AST035-80	AWF-T15
S40T-SDUCR/L11	AST035-80	AWF-T15
S40V-SDUCR/L11	AST035-80	AWF-T15

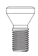
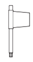
SSSCR/L

Kr=45°



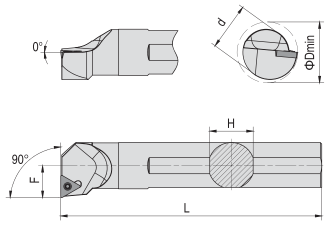


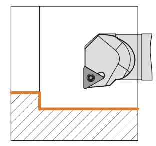
Designation	Dimensions (mm)					Inserts
	d	F	L	h	Dmin	
S16M-SSSCR/L09	16	11	150	15	20	SC..09T3..
S20Q-SSSCR/L09	20	13	180	18	25	SC..09T3..
S25R-SSSCR/L12	25	17	200	23	32	SC..1204..

Designation	Screw	Wrench
		
S16M-SSSCR/L09	AST035-80	AWF-T15
S20Q-SSSCR/L09	AST035-80	AWF-T15
S25R-SSSCR/L12	AST040-110	AWF-T15

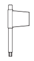
STFCR/L

Kr=90°



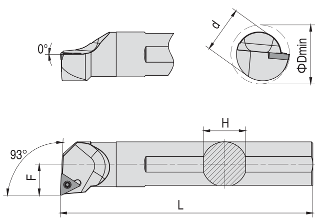


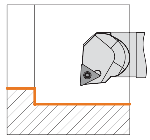
Designation	Dimensions (mm)					Inserts
	d	F	L	h	Dmin	
S10K-STFCR/L11	10	7	125	9	13	TC/TP..1102..
S12K-STFCR/L11	12	9	125	11	16	TC/TP..1102..
S12M-STFCR/L11	12	9	150	11	16	TC/TP..1102..
S16M-STFCR/L11	16	11	150	15	20	TC/TP..1102..
S16R-STFCR/L11	16	11	200	15	20	TC/TP..1102..
S20Q-STFCR/L16	20	13	180	18	25	TC/TP..16T3..
S20S-STFCR/L16	20	13	250	18	25	TC/TP..16T3..
S25R-STFCR/L16	25	17	200	23	32	TC/TP..16T3..
S25T-STFCR/L16	25	17	300	23	32	TC/TP..16T3..
S32S-STFCR/L16	32	22	250	30	40	TC/TP..16T3..
S32U-STFCR/L16	32	22	350	30	40	TC/TP..16T3..

Designation	Screw	Wrench
		
S10K-STFCR/L11	AST025-65	AWF-T07
S12K-STFCR/L11	AST025-65	AWF-T07
S12M-STFCR/L11	AST025-65	AWF-T07
S16M-STFCR/L11	AST025-65	AWF-T07
S16R-STFCR/L11	AST025-65	AWF-T07
S20Q-STFCR/L16	AST035-80	AWF-T15
S20S-STFCR/L16	AST035-80	AWF-T15
S25R-STFCR/L16	AST035-80	AWF-T15
S25T-STFCR/L16	AST035-80	AWF-T15
S32S-STFCR/L16	AST035-80	AWF-T15
S32U-STFCR/L16	AST035-80	AWF-T15

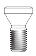
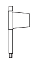
STLCR/L

Kr=93°



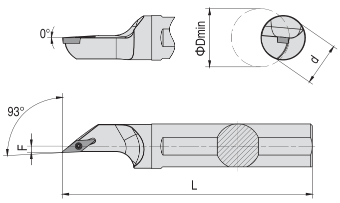


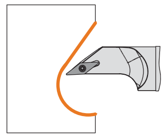
Designation	Dimensions (mm)					Inserts
	d	F	L	h	Dmin	
S10K-STLCR/L11	10	7	125	9	13	TC/TP..1102..
S12K-STLCR/L11	12	9	125	11	16	TC/TP..1102..
S16M-STLCR/L11	16	11	150	15	20	TC/TP..1102..
S20Q-STLCR/L16	20	13	180	18	25	TC/TP..16T3..
S20S-STLCR/L16	20	13	250	18	25	TC/TP..16T3..
S25R-STLCR/L16	25	17	200	23	32	TC/TP..16T3..
S25T-STLCR/L16	25	17	300	23	32	TC/TP..16T3..

Designation	Screw	Wrench
		
S10K-STLCR/L11	AST025-65	AWF-T07
S12K-STLCR/L11	AST025-65	AWF-T07
S16M-STLCR/L11	AST025-65	AWF-T07
S20Q-STLCR/L16	AST035-80	AWF-T15
S20S-STLCR/L16	AST035-80	AWF-T15
S25R-STLCR/L16	AST035-80	AWF-T15
S25T-STLCR/L16	AST035-80	AWF-T15

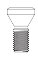
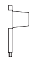
SVJCR/L

Kr=93°



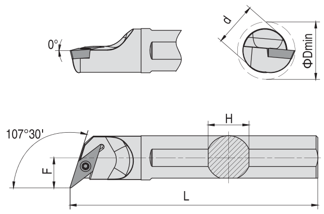


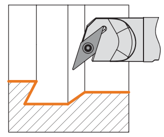
Designation	Dimensions (mm)					Inserts
	d	F	L	h	Dmin	
S20Q-SVJCR/L11E	20	2	180	18	25	VB/VC..1103..
S20S-SVJCR/L11E	20	2	250	18	25	VB/VC..1103..
S25R-SVJCR/L11E	25	3.5	200	23	32	VB/VC..1103..
S25T-SVJCR/L11E	25	3.5	300	23	32	VB/VC..1103..

Designation	Screw	Wrench
		
S20Q-SVJCR/L11E	AST025-65	AWF-T07
S20S-SVJCR/L11E	AST025-65	AWF-T07
S25R-SVJCR/L11E	AST025-65	AWF-T07
S25T-SVJCR/L11E	AST025-65	AWF-T07

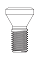
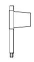
SVQCR/L

Kr=107°30'



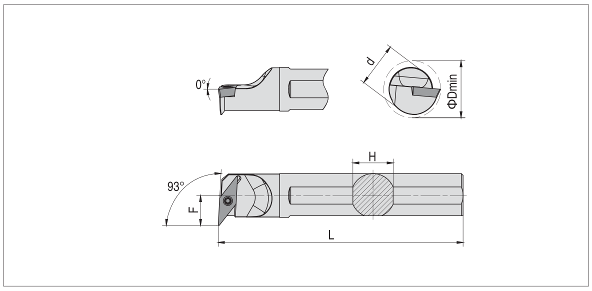


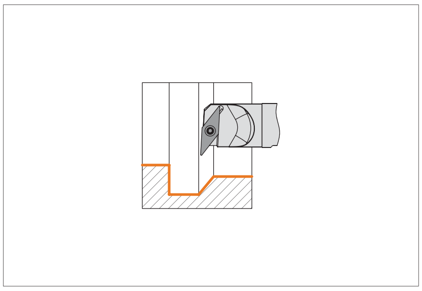
Designation	Dimensions (mm)					Inserts
	d	F	L	h	Dmin	
S16M-SVQCR/L11	16	11	150	15	20	VB/VC..1103..
S16R-SVQCR/L11	16	11	200	15	20	VB/VC..1103..
S20Q-SVQCR/L11	20	13	180	18	25	VB/VC..1103..
S20S-SVQCR/L11	20	13	250	18	25	VB/VC..1103..
S25R-SVQCR/L16	25	17	200	23	32	VB/VC..1604..
S25T-SVQCR/L16	25	17	300	23	32	VB/VC..1604..

Designation	Screw	Wrench
		
S16M-SVQCR/L11	AST025-65	AWF-T07
S16R-SVQCR/L11	AST025-65	AWF-T07
S20Q-SVQCR/L11	AST025-65	AWF-T07
S20S-SVQCR/L11	AST025-65	AWF-T07
S25R-SVQCR/L16	AST035-80	AWF-T15
S25T-SVQCR/L16	AST035-80	AWF-T15

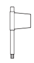
SVUCR/L

Kr=93°



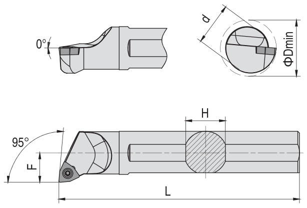


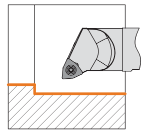
Designation	Dimensions (mm)					Inserts
	d	F	L	h	Dmin	
S16M-SVUCR/L11	16	11	150	15	20	VB/VC..1103..
S16R-SVUCR/L11	16	11	200	15	20	VB/VC..1103..
S20Q-SVUCR/L11	20	13	180	18	25	VB/VC..1103..
S20S-SVUCR/L11	20	13	250	18	25	VB/VC..1103..
S25R-SVUCR/L16	25	17	200	23	32	VB/VC..1604..
S25T-SVUCR/L16	25	17	300	23	32	VB/VC..1604..

Designation	Screw	Wrench
		
S16M-SVUCR/L11	AST025-65	AWF-T07
S16R-SVUCR/L11	AST025-65	AWF-T07
S20Q-SVUCR/L11	AST025-65	AWF-T07
S20S-SVUCR/L11	AST025-65	AWF-T07
S25R-SVUCR/L16	AST035-80	AWF-T15
S25T-SVUCR/L16	AST035-80	AWF-T15

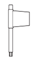
SWLCR/L

Kr=95°





Designation	Dimensions (mm)					Inserts
	d	F	L	h	Dmin	
S10K-SWLCR/L04	10	7	125	9	13	WC..0402..
S12K-SWLCR/L04	12	9	125	11	16	WC..0402..
S16M-SWLCR/L06	16	11	150	15	20	WC..06T3..
S20Q-SWLCR/L06	20	13	180	18	25	WC..06T3..

Designation	Screw	Wrench
		
S10K-SWLCR/L04	AST025-65	AWF-T07
S12K-SWLCR/L04	AST025-65	AWF-T07
S16M-SWLCR/L06	AST035-100	AWF-T15
S20Q-SWLCR/L06	AST035-100	AWF-T15

Note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CUTTING TOOL CATALOGUE

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Grooving inserts

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Grooving holders

Grooving Holder Designation System

A	T	S	E	R	32 / 25	25	-	4	T25	-	40	-	80	-	SW
1	2	3	4	5	6 / 7	8	-	9	10	-	11	-	12	-	13

1-Company name

ACHTECK

2-Application

G	Grooving
T	Turning

3- Shape of holder head

S:Straight-180° 

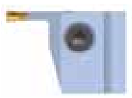
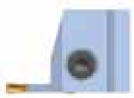
U:Under cut-45° 

P:Perpendicular-90° 

4-Machining type

E: External
I: Internal
F: Facing

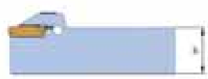
5-Hand of tool

	L:Left hand
	R:Right hand

6-Holder diameter

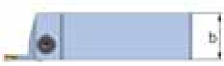
20=20.0mm
25=25.0mm
32=32.0mm

7-Holder height



20=20.0mm
25=25.0mm
32=32.0mm

8-Holder width



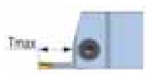
20=20.0mm
25=25.0mm
32=32.0mm

9-Insert width

2=2.0mm
3=3.0mm
4=4.0mm

10-ap

T25=Max 25mm



11-Minimum cutting diameter

40=40.0mm

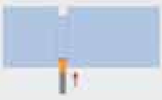
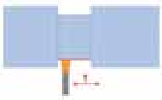
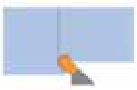
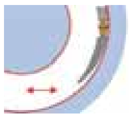
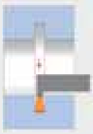
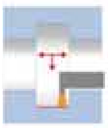
12-Maximum cutting diameter

80=80.0mm

13-Special code

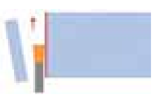
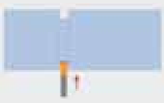
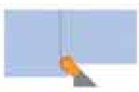
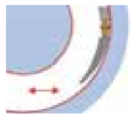
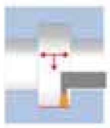
SW:For swiss machine
OB:Outside bulge holders
C:With internal coolant
D:Reinforced holders

Overview of Grooving Holders

Application \ Holder			External grooving				Face grooving
			ATSER/L	ATSER/L-D	ATSER/L-SW	AGUER/L	ATSFR/L
							
External grooving	Parting off		●	●	●		
	Grooving		●	●	●		
	Turning		●	●	●		
	Profiling		●	●	●		
	Under cut					●	
Face grooving	Grooving						●
	Turning						●
Internal machining	Grooving						
	Turning						

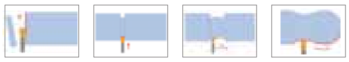
Marked: ● Best choice

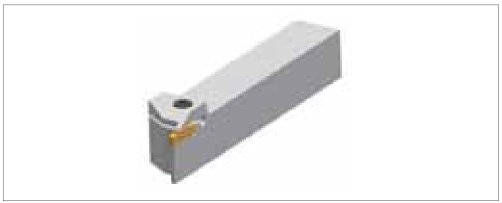
Overview of Grooving Holders

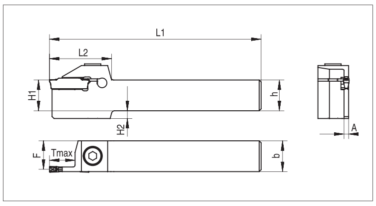
Holder / Application			Face grooving				Internal machining
			ATSFR/L-OB	AGSFR/L	AGPFR/L	ATPFR/L	ATPIR/L
							
External grooving	Parting off						
	Grooving						
	Turning						
	Profiling						
	Under cut						
Face grooving	Grooving		●	●	●	●	
	Turning		●	●	●	●	
Internal machining	Grooving						●
	Turning						●

Marked: ● Best choice

ATSER/L External Turning and Grooving



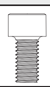
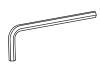




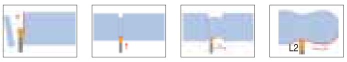
Designation		h	b	H1	H2	A	L1	L2	F	Tmax	Inserts*
ATSER/L	1616-2T08	16	16	16	4	1.8	110	32	15.1	8	ACD/ACS/ATD
	1616-2T12	16	16	16	4	1.8	110	32	15.1	12	
	1616-2T17	16	16	16	4	1.8	110	38	15.1	17	
	2020-2T08	20	20	20	0	1.8	125	32	19.1	8	
	2020-2T12	20	20	20	0	1.8	125	32	19.1	12	
	2020-2T17	20	20	20	0	1.8	125	38	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	
	2525-2T17	25	25	25	0	1.8	150	38	24.1	17	
ATSER/L	1616-3T09	16	16	16	4	2.4	110	32	14.8	9	
	1616-3T12	16	16	16	4	2.4	110	32	14.8	12	
	1616-3T20	16	16	16	4	2.4	110	38	14.8	20	
	2020-3T09	20	20	20	0	2.4	125	32	18.8	9	
	2020-3T12	20	20	20	0	2.4	125	32	18.8	12	
	2020-3T20	20	20	20	0	2.4	125	38	18.8	20	
	2525-3T09	25	25	25	0	2.4	150	32	23.8	9	
	2525-3T12	25	25	25	0	2.4	150	32	23.8	12	
	2525-3T20	25	25	25	0	2.4	150	38	23.8	20	
	2525-3T25	25	25	25	0	2.4	150	45	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	45	14.5	25	
	2020-4T10	20	20	20	0	3.0	125	32	18.5	10	
	2020-4T15	20	20	20	0	3.0	125	32	18.5	15	
	2020-4T25	20	20	20	0	3.0	125	45	18.5	25	
	2525-4T10	25	25	25	0	3.0	150	32	23.5	10	
	2525-4T15	25	25	25	0	3.0	150	32	23.5	15	
	2525-4T25	25	25	25	0	3.0	150	45	23.5	25	
ATSER/L	2020-5T12	20	20	20	0	4.0	125	38	18.1	12	
	2020-5T20	20	20	20	0	4.0	125	38	18.1	20	
	2525-5T12	25	25	25	0	4.0	150	38	23.1	12	
	2525-5T20	25	25	25	0	4.0	150	38	23.1	20	
	2525-5T32	25	25	25	0	4.0	150	55	23.0	32	
ATSER/L	2020-6T12	20	20	20	0	5.0	125	38	17.6	12	
	2020-6T20	20	20	20	0	5.0	125	40	17.6	20	
	2525-6T12	25	25	25	7	5.0	150	38	22.6	12	
	2525-6T20	25	25	25	7	5.0	150	40	22.6	20	
	2525-6T32	25	25	25	7	5.0	150	55	22.5	32	

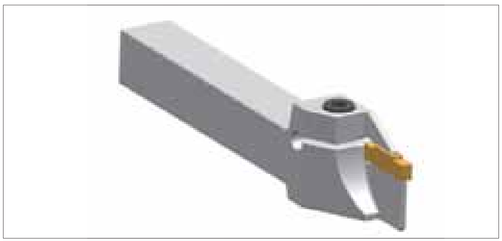
(Dimension(mm): h, b, H1, H2, A, L1, L2, F, Tmax)

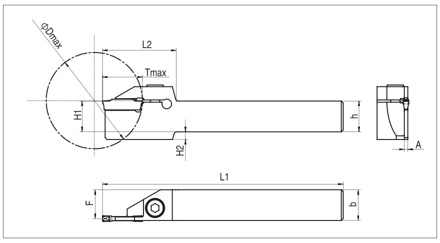
Inserts*:ACD/ACS series only applied for grooving, parting off

Holder designation	Screw designation 	Wrench designation 
ATSER/L 1616-2/3	ASH M5x0.8x16	AWH 4
ATSER/L 2020-2/3	ASH M5x0.8x20	AWH 4
ATSER/L 2525-2/3	ASH M5x0.8x25	AWH 4
ATSER/L 1616-4/5	ASH M6x1.0x16	AWH 5
ATSER/L 2020-4/5	ASH M6x1.0x20	AWH 5
ATSER/L 2525-4/5	ASH M6x1.0x25	AWH 5
ATSER/L 2020-6	ASH M8x1.25x20	AWH 6
ATSER/L 2525-6	ASH M8x1.25x25	AWH 6

ATSER/L-D Reinforced External Turning and Grooving

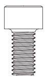






Designation		Dimension(mm)										Inserts*
		h	b	H1	H2	A	L1	L2	F	Tmax	Dmax	
ATSER/L	1010-2T15-D40	10	10	10	6	1.8	125	32	9.1	15	40	ACD/ACS/ATD
	1212-2T15-D40	12	12	12	4	1.8	125	32	11.1	15	40	
	1616-2T20-D45	16	16	16	4	1.8	125	38	15.1	20	45	
	2020-2T20-D45	20	20	20	0	1.8	125	38	19.1	20	45	
	2525-2T20-D45	25	25	25	0	1.8	150	38	24.1	20	45	
	1212-3T15-D40	12	12	12	4	2.4	125	32	10.8	15	40	
	1616-3T20-D45	16	16	16	4	2.4	125	32	14.8	20	45	
	2020-3T20-D45	20	20	20	0	2.4	125	32	18.8	20	45	
	2525-3T20-D45	25	25	25	0	2.4	150	32	23.8	20	45	
	2525-3T25-D60	25	25	25	7	2.4	150	45	23.8	25	60	

Inserts*:ACD/ACS series only applied for grooving, parting off

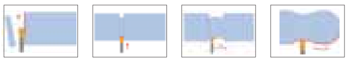
Holder designation	Screw designation	Wrench designation
		
ATSER/L 1010-2	ASH M5x0.8x16	AWH 4
ATSER/L 1212-2/3	ASH M5x0.8x16	AWH 4
ATSER/L 1616-2/3	ASH M5x0.8x16	AWH 4
ATSER/L 2020-2/3	ASH M5x0.8x16	AWH 4
ATSER/L 2525-2/3	ASH M5x0.8x16	AWH 4

Machined maximum diameter of workpiece

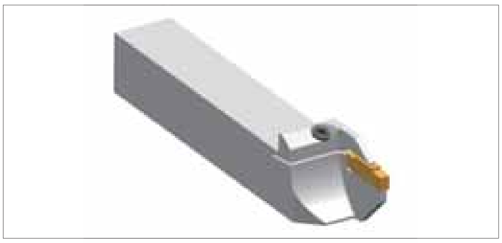
Designation		Workpiece diameter	Tmax																	
			8	9	10	11	12	13	14	15	17	18	19	20	21	22	23	24	25
ATSER/L	1010-2T15-D40	Dmax	∞	∞	∞	265	120	78	58	40	-	-	-	-	-	-	-	-	-
	1212-2T15-D40		∞	∞	∞	265	120	78	58	40	-	-	-	-	-	-	-	-	-
	1616-2T20-D45		∞	∞	∞	∞	∞	430	190	125	75	64	55	45	-	-	-	-	-
	2020-2T20-D45		∞	∞	∞	∞	∞	430	190	125	75	64	55	45	-	-	-	-	-
	2525-2T20-D45		∞	1465	340	190	135	105	85	75	60	55	50	45	-	-	-	-	-
	1212-3T15-D40		∞	∞	∞	265	120	78	58	40	-	-	-	-	-	-	-	-	-
	1616-3T20-D45		∞	∞	∞	∞	∞	430	190	125	75	64	55	45	-	-	-	-	-
	2020-3T20-D45		∞	∞	∞	∞	∞	430	190	125	75	64	55	45	-	-	-	-	-
	2525-3T20-D45		∞	1465	340	190	135	105	85	75	60	55	50	45	-	-	-	-	-
	2525-3T25-D60		∞	∞	∞	∞	∞	∞	∞	∞	415	235	165	130	105	90	80	70	60

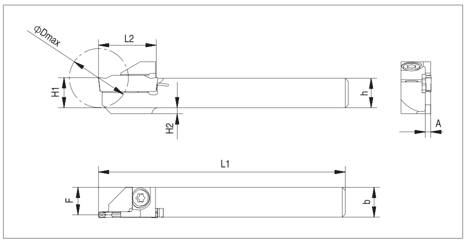
“ ∞ ” : Infinite diameter

Grooving holders



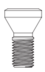
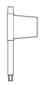
ATSER/L-SW External Turning and Grooving Holder for Swiss Lathe



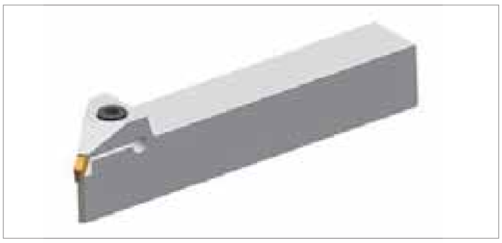


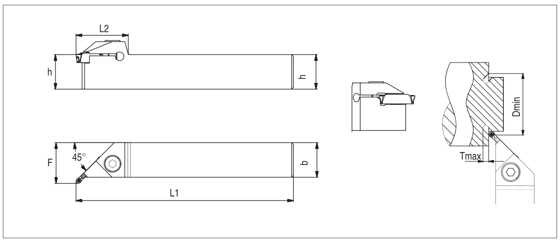
Designation		Dimension(mm)									Inserts*
		h	b	H1	H2	A	L1	L2	F	Dmax	
ATSER/L	1010-2D20-SW	10	10	10	2	1.8	125	20	9.1	20	ACD/ACS/ATD
	1212-2D24-SW	12	12	12	2	1.8	125	20	11.1	24	
	1414-2D24-SW	14	14	14	0	1.8	125	20	13.1	24	
	1616-2D32-SW	16	16	16	0	1.8	125	25	15.1	32	
	1212-3D24-SW	12	12	12	2	2.4	125	20	10.8	24	
	1616-3D32-SW	16	16	16	0	2.4	125	25	14.8	32	
	1616-3D38-SW	16	16	16	0	2.4	125	27	14.8	38	
	2020-3D45-SW	20	20	20	0	2.4	125	24	18.8	45	

Inserts*:ACD/ACS series only applied for grooving, parting off

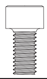
Holder designation	Screw designation	Wrench designation
		
ATSER/L-SW	AST 4125-60B	AWF-T15

AGUER/L External Under Cutting

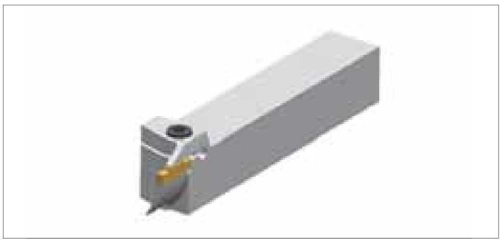


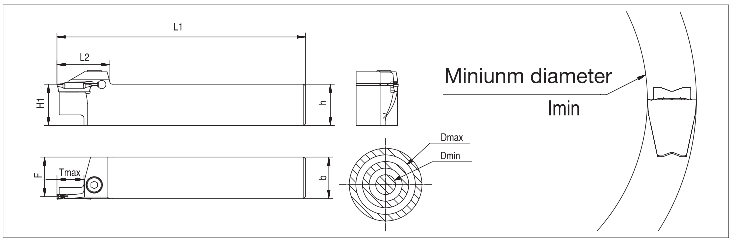


Designation		Insert Dimension (mm)	Dimension(mm)								Inserts*
			h	b	H1	L1	L2	F	Tmax	Dmin	
AGUER/L	1616-3	2,3	16	16	16	110	29.5	18.8	3	60	ATD
	1616-4	4	16	16	16	110	29.5	18.8	3	55	
	2020-3	2,3	20	20	20	125	29.5	22.8	3	60	
	2020-4	4	20	20	20	125	29.5	22.8	3	55	
	2525-3	2,3	25	25	25	150	29.5	27.8	3	60	
	2525-4	4	25	25	25	150	29.5	27.8	3	55	
	2525-6	5,6	25	25	25	150	32.5	28.0	3.5	55	

Holder designation	Screw designation	Wrench designation
		
AGUER/L 1616-3	ASH M5x0.8x16	AWH 4
AGUER/L 2020-3	ASH M5x0.8x20	AWH 4
AGUER/L 2525-3	ASH M5x0.8x25	AWH 4
AGUER/L 1616-4	ASH M6x1.0x16	AWH 5
AGUER/L 2020-4	ASH M6x1.0x20	AWH 5
AGUER/L 2525-4/6	ASH M6x1.0x25	AWH 5

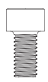
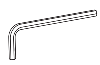
ATSFR/L Face Grooving and Turning

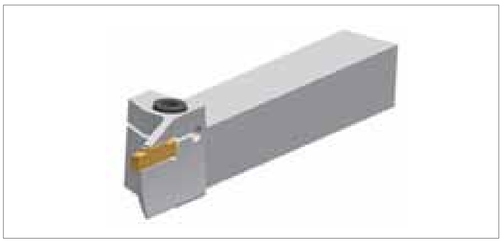


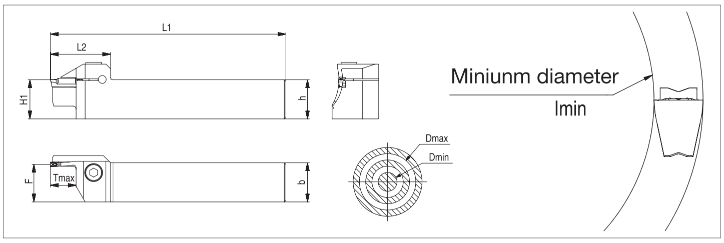
Designation		Designation(mm)									Miniunm machining diameter of face grooving inserts lmin(mm)					Inserts*
		h	b	H1	L1	L2	F	Tmax	Dmin	Dmax	CS	CM	CH	TS	TM	
ATSFR/L	2525-3T10-35-45	25	25	25	150	32	23.95	10	35	45	-	-	-	24	24	ACD/ACS/ATD
	2525-3T10-40-55	25	25	25	150	32	23.95	10	40	55						
	2525-3T15-45-65	25	25	25	150	32	23.95	15	45	65						
	2525-3T15-55-85	25	25	25	150	32	23.95	15	55	85	79	79	79			
	2525-4T15-35-50	25	25	25	150	32	23.55	15	35	50	-	-	42	22	22	
	2525-4T15-45-65	25	25	25	150	32	23.55	15	45	65						
	2525-4T15-55-85	25	25	25	150	32	23.55	15	55	85						
	2525-5T20-50-80	25	25	25	150	40	23.05	20	50	80	-	-	50	-	-	
	2525-5T20-70-110	25	25	25	150	40	23.05	20	70	110						
	2525-5T20-100-150	25	25	25	150	40	23.05	20	100	150						
	2525-5T20-140-200	25	25	25	150	40	23.05	20	140	200						
	2525-6T20-50-85	25	25	25	150	40	22.55	20	50	85	-	-	48	-	-	
	2525-6T20-75-150	25	25	25	150	40	22.55	20	75	150						
	2525-6T20-140-250	25	25	25	150	40	22.55	20	140	250						
	2525-6T20-200-000	25	25	25	150	40	22.55	20	200	∞						

Inserts*: ACD/ACS series only applied for grooving

Holder designation	Screw designation	Wrench designation
		
ATSFR/L 2525-3	ASH M5x0.8x25	AWH 4
ATSFR/L 2525-4	ASH M6x1.0x25	AWH 5
ATSFR/L 2525-5/6	ASH M8x1.25x25	AWH 6

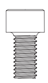
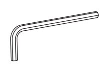
ATSFR/L-OB Face Grooving and Turning(Outside Bluge Type)

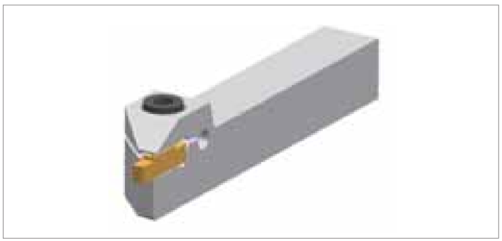


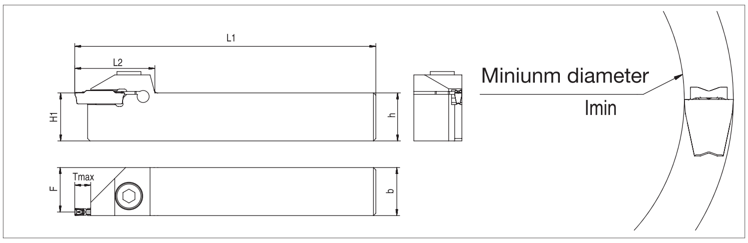
Designation		Designation(mm)									Miniunm machining diameter of face grooving inserts lmin(mm)					Inserts*
		h	b	H1	L1	L2	F	Tmax	Dmin	Dmax	CS	CM	CH	TS	TM	
ATSFR/L	2020-3T10-30-40-OB	20	20	20	140	31	18.95	10	30	40	-	-	-	24	24	ACD/ACS/ATD
	2020-3T10-35-50-OB	20	20	20	140	31	18.95	10	35	50						
	2020-3T15-45-70-OB	20	20	20	140	35	18.95	15	45	70						
	2020-3T15-65-100-OB	20	20	20	140	35	18.95	15	65	100	79	79	79			
	2020-4T10-20-30-OB	20	20	20	140	31	18.55	10	20	30	-	-	-	22	22	
	2020-4T10-25-35-OB	20	20	20	140	31	18.55	10	25	35						
	2020-4T16-30-45-OB	20	20	20	140	36	18.55	16	30	45			42			
	2020-4T16-35-50-OB	20	20	20	140	36	18.55	16	35	50						
	2020-4T16-45-70-OB	20	20	20	140	36	18.55	16	45	70						
	2020-4T16-65-120-OB	20	20	20	140	36	18.55	16	65	120						
	2020-4T16-115-200-OB	20	20	20	140	36	18.55	16	115	200						
	2525-3T10-35-50-OB	25	25	25	150	38	23.95	10	35	50		-	-	24	24	
	2525-3T15-45-70-OB	25	25	25	150	38	23.95	15	45	70						
	2525-3T15-65-100-OB	25	25	25	150	38	23.95	15	65	100	79	79	79			
	2525-4T10-25-35-OB	25	25	25	150	39	23.55	10	25	35	-	-	-	22	22	
	2525-4T20-30-45-OB	25	25	25	150	39	23.55	20	30	45			42			
	2525-4T20-35-50-OB	25	25	25	150	39	23.55	20	35	50						
	2525-4T20-45-70-OB	25	25	25	150	39	23.55	20	45	70						
	2525-4T20-65-125-OB	25	25	25	150	39	23.55	20	65	125						
	2525-4T20-115-200-OB	25	25	25	150	39	23.55	20	115	200						
	2525-4T20-190-000-OB	25	25	25	150	39	23.55	20	190	∞						
	2525-5T25-50-80-OB	25	25	25	150	49	23.05	25	50	80	-	-	50	-	-	
	2525-5T15-50-80-OB	25	25	25	150	41	23.05	15	50	80						
	2525-5T25-70-110-OB	25	25	25	150	49	23.05	25	70	110						
	2525-5T15-70-110-OB	25	25	25	150	49	23.05	15	70	110						
	2525-5T25-100-150-OB	25	25	25	150	49	23.05	25	100	150						
	2525-5T25-140-200-OB	25	25	25	150	49	23.05	25	140	200						
	2525-5T25-190-000-OB	25	25	25	150	49	23.05	25	190	∞						
	2525-6T25-50-70-OB	25	25	25	150	49	22.55	25	50	70	-	-	48	-	-	
	2525-6T25-60-100-OB	25	25	25	150	49	22.55	25	60	100						
	2525-6T25-90-180-OB	25	25	25	150	49	22.55	25	90	180						
	2525-6T25-170-400-OB	25	25	25	150	49	22.55	25	170	400						
	2525-6T25-390-000-OB	25	25	25	150	49	22.55	25	390	∞						

Inserts*: ACD/ACS series only applied for grooving

Holder designation	Screw designation	Wrench designation
		
ATSFR/L-OB 2525-3	ASH M6x1.0x25	AWH 5
ATSFR/L-OB 2525-4	ASH M6x1.0x25	AWH 5
ATSFR/L-OB 2525-5/6	ASH M8x1.25x25	AWH 6

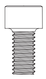
AGSFR/L External Face Grooving and Turning



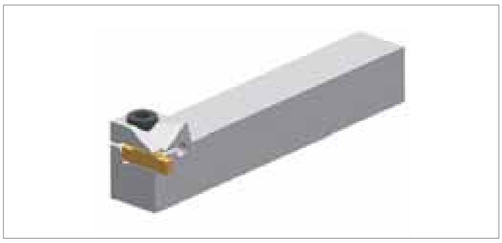


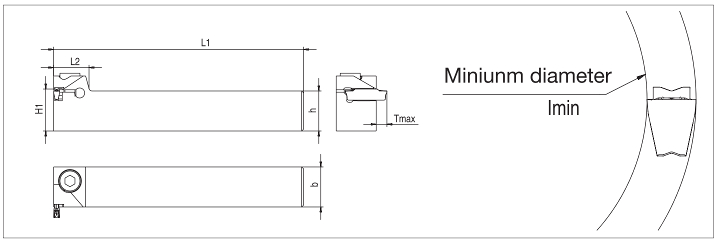
Designation		Insert size (mm)	Designation(mm)							Miniunm machining diameter of face grooving inserts Imin(mm)					Inserts*
			h	b	H1	L1	L2	F	Tmax	CS	CM	CH	TS	TM	
AGSFR/L	1616-4	2,3,4	16	16	16	110	32	14.5	4.6	-	-	42	22	22	ACD/ACS/ATD
	2020-4	2,3,4	20	20	20	125	32	18.5	4.6	-	-	42	22	22	
	2020-6	5,6	20	20	20	125	38	17.6	4.6	-	-	48	-	-	
	2525-4	2,3,4	25	25	25	150	32	23.5	4.6	-	-	42	22	22	
	2525-6	5,6	25	25	25	150	38	22.6	4.6	-	-	48	-	-	

Inserts*: 1. ACD/ACS series only applied for grooving
2. When selecting the face grooving holder, please choose the initial grooving diameter within spec the holder's diameter range(Dmin-Dmax)

Holder designation	Screw designation	Wrench designation
		
AGSFR/L 1616-4	ASH M6x1.0x16	AWH 5
AGSFR/L 2020-4/6	ASH M6x1.0x20	AWH 5
AGSFR/L 2525-4/6	ASH M6x1.0x25	AWH 5

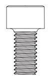
AGPFR/L Face Shallow Perpendicular Grooving and Face Turning



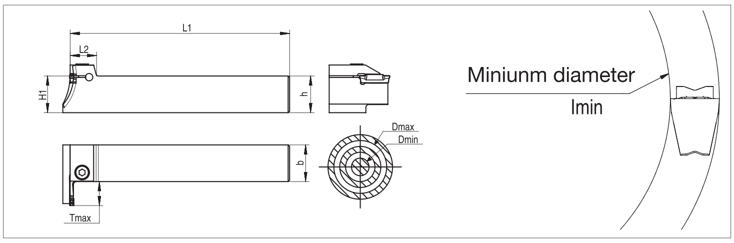
Designation		Insert size (mm)	Designation(mm)						Miniunm machining diameter of face grooving inserts Imin(mm)					Inserts*
			h	b	H1	L1	L2	Tmax	CS	CM	CH	TS	TM	
AGPFR/L	2020-4	2,3,4	20	20	20	125	20	4.6	-	-	42	22	22	ACD/ACS/ATD
	2525-4	2,3,4	25	25	25	150	20	4.6	-	-	42	22	22	
	2525-6	5,6	25	25	25	150	25	4.6	-	-	48	-	-	

Inserts*: 1. ACD/ACS series only applied for grooving
2. When you select the grooving holder for face turning, please confirm the cutting diameter rang(Dmin-Dmax)of tools, and the minium cutting diameter of insert.

Holder designation	Screw designation	Wrench designation
		
AGPFR/L 2020-4	ASH M6x1.0x20	AWH 5
AGPFR/L 2525-4/6	ASH M6x1.0x25	AWH 5

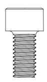
Grooving holders

ATPFR/L Face Grooving and Turning

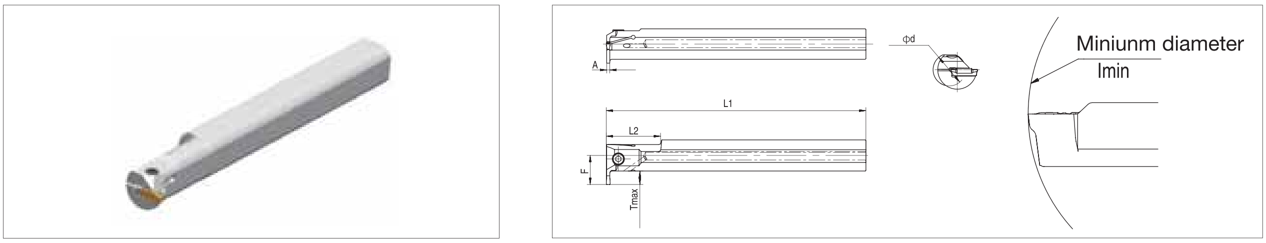


Designation		Designation(mm)								Miniunm machining diameter of face grooving inserts Imin(mm)					Inserts*
		h	b	H1	L1	L2	Tmax	Dmin	Dmax	CS	CM	CH	TS	TM	
	ATPFR/L 2525-3T10-30-40	25	25	25	150	18	10	30	40						
	ATPFR/L 2525-3T10-35-50	25	25	25	150	18	10	35	50	-	-	-	24	24	
	ATPFR/L 2525-3T15-45-60	25	25	25	150	18	15	45	60						
	ATPFR/L 2525-3T15-55-85	25	25	25	150	18	15	55	85	79	79	79			
	ATPFR/L 2525-4T12-25-40	25	25	25	150	18.5	12	25	40			-			
	ATPFR/L 2525-4T15-35-50	25	25	25	150	18.5	15	35	50	-	-		22	22	
	ATPFR/L 2525-4T15-45-60	25	25	25	150	18.5	15	45	60			42			
	ATPFR/L 2525-4T15-55-85	25	25	25	150	18.5	15	55	85						
ATPFR/L	ATPFR/L 2525-5T20-50-80	25	25	25	150	22	20	50	80						ACD/ACS/ATD
	ATPFR/L 2525-5T20-70-110	25	25	25	150	22	20	70	110						
	ATPFR/L 2525-5T20-100-150	25	25	25	150	22	20	100	150	-	-	50	-	-	
	ATPFR/L 2525-5T20-140-200	25	25	25	150	22	20	140	200						
	ATPFR/L 2525-5T20-190-000	25	25	25	150	22	20	190	∞						
	ATPFR/L 2525-6T20-50-85	25	25	25	150	22	20	50	85						
	ATPFR/L 2525-6T20-75-150	25	25	25	150	22	20	75	150	-	-	48	-	-	
	ATPFR/L 2525-6T20-140-250	25	25	25	150	22	20	140	250						
	ATPFR/L 2525-6T20-240-000	25	25	25	150	22	20	240	∞						

Inserts*:1. ACD/ACS series only applied for grooving

Holder designation	Screw designation	Wrench designation
		
ATPFR/L2525-3	ASH M5x0.8x25	AWH 4
ATPFR/L2525-4	ASH M6x1.0x25	AWH 5
ATPFR/L2525-5/6	ASH M8x1.25x25	AWH 6

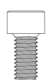
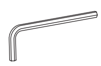
ATPIR/L Internal Grooving, Turning and Profiling



Designation		Designation(mm)							Machining miniunm diameter of internal grooving insertslmin(mm)							Inserts*
		d	A	L1	L2	F	Tmax	Dmin	CS	CM	CH	TS	TM	RM	RA	
ATPIR/L	20-2T6-25-C	20	1.6	160	40	15.8	6	25	-	-	-	-	-	-	-	ACD/ACS/ATD
	25-2T5-25-C	25	1.6	200	40	17.5	5	25								
	20-3T6-25-C	20	2.1	160	40	15.8	6	25	-	-	-	25	25	25	-	
	25-3T5-25-C	25	2.1	200	40	17.5	5	25								
	25-3T8-32-C	25	2.4	200	40	21.5	8	32								
	32-3T5-30-C	32	2.1	250	60	19.8	5	30								
	32-3T10-40-C	32	2.4	200	60	27.0	10	40								
	40-3T12-50-C	40	2.4	300	65	33.0	12	50	45	45	45					
	20-4T6-25-C	20	3.0	160	40	15.8	6	25	-	-	-	25	25	25	-	
	25-4T5-25-C	25	2.9	200	40	17.5	5	25								
	25-4T8-32-C	25	3.0	200	40	21.5	8	32								
	32-4T5-30-C	32	2.9	250	60	20.8	5	30								
	32-4T10-40-C	32	3.0	250	60	27.0	10	40								
	40-4T12-50-C	40	3.0	300	65	33.0	12	50			45					
	50-4T14-60-C	50	3.0	350	70	40.0	14	60			45					
	25-5T5-31-C	25	3.9	200	40	17.3	5	31	-	-	-	-	-	-	-	
	32-5T5-31-C	32	3.9	250	60	20.8	5	31								
	32-5T10-40-C	32	3.9	250	60	27.0	10	40								
	40-5T12-50-C	40	3.9	300	65	33.0	12	50			45					
	50-5T14-60-C	50	3.9	350	70	40.0	14	60			45					
	32-6T5-31-C	32	4.9	250	60	20.8	5	32	-	-	-	-	-	--	-	
	32-6T10-40-C	32	4.9	250	60	27.0	10	40								
	40-6T12-50-C	40	4.9	300	65	33.0	12	50			45					
	50-6T14-60-C	50	4.9	350	70	40.0	14	60								

Inserts*:1. ACD/ACS series only applied for grooving

2. When you select the grooving holder for face turning, please confirm the cutting diameter rang(Dmin-Dmax)of tools, and the minium cutting diameter of insert.

Holder designation	Screw designation	Wrench designation
		
ATPIR/L 20-2/3/4	ASH M5x0.8x12	AWH 4
ATPIR/L 25-2/3/4	ASH M5x0.8x16	AWH 4
ATPIR/L 32-3/4	ASH M5x0.8x16	AWH 4
ATPIR/L 40-3/4	ASH M5x0.8x16	AWH 4
ATPIR/L 50-4	ASH M5x0.8x20	AWH 4
ATPIR/L 25-5	ASH M6x1.0x16	AWH 5
ATPIR/L 32-5/6/8	ASH M6x1.0x20	AWH 5
ATPIR/L 40/50-5/6/8	ASH M6x1.0x25	AWH 5

Insert Designation System

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

1-Company name
ACHTECK

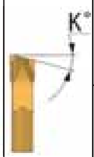
2-Application	
C	Grooving/Parting off
T	Turning/Grooving

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

4-Insert width	
	2=2.0mm 3=3.0mm 4=4.0mm

5-Corner radius	
	02=0.2mm 03=0.3mm 04=0.4mm

6-Geometry	
	CS CM CH TS

7-Cutting edge angle	
	6
	15

8-Hand of tool	
	L:Left
	R:Right

Insert Designation System(Grinded Class)

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

1-Company name
Achteck

2- Application	
T	Grooving/Parting off

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

4-Insert width	
	215=2.15mm 145=1.45mm

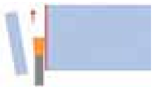
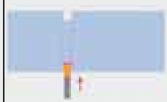
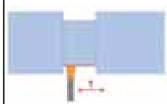
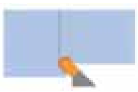
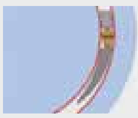
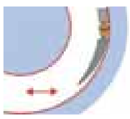
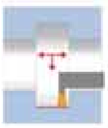
5-Application
E:External F:Facing I:Internal

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

7-Application limited	
G	Only applied for grooving

8-Hand of tool	
	L:Left
	R:Right

Overview of Grooving Inserts

Application \ Insert			ACD			ATD				
			CS	CM	CH	TS	TM	RM	RA	Grinded inserts
										
External grooving	Parting off		●	●	●	◐	◐			
	Grooving		●	●	●	●	●	◐	◐	●
	Turning					●	●	●	◐	◐
	Profiling							●	●	◐
	Under cut							●	◐	◐
Face grooving	Grooving		◐	◐	◐	●	●			●
	Turning					●	●			◐
Internal machining	Grooving		◐	◐	◐	●	●			●
	Turning					●	●			◐

Marked: ● Best choice
◐ 2nd choice

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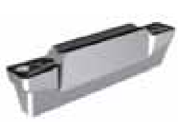
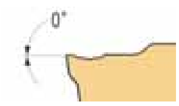
Grooving inserts

Insert Geometry Introduction

Inserts	Geometry	Shape of cutting edge	Description
	**CS**		1. Applied for parting off & grooving on stainless steels, super-alloy and low carbon steel 2. For low feed rate application
	**CM**		1. Applied for parting off & grooving on low carbon steels and stainless steels 2. For sticky material, pipe fittings, thin-walled parts parting off, low cutting force 3. For low to medium feed rate
	**CH**		1. Applied for parting off and grooving on steels, alloy steel and stainless steels 2. Strong cutting edge 3. For medium to high feed rate
	**TS**		1. Multifunctional insert for external,internal turning and grooving, parting off and face grooving and face turning 2. Excellent chip control 3. For low and medium feed rate
	**TM**		1. Multifunctional insert for external, internal turning and grooving, parting off and 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 on aluminum alloys 2. High positive rake angle and sharp cutting edge 3. Grinded inserts with high precision

Grade Application Guide

Grooving grade ISO group					
Material group	Materials	ISO	PVD coated AP301U	Uncoated AW100K	ISO
		P01			P01
		P05			P05
		P10			P10
		P15			P15
P		P20			P20
	Non-alloyed steel/ Alloyed steel	P25	AP301U		P25
		P30			P30
		P35			P35
		P40			P40
		P45			P45
		P50			P50
		M01			M01
		M05			M05
		M10			M10
		M15			M15
M		M20			M20
	Stainless steel	M25	AP301U		M25
		M30			M30
		M35			M35
		M40			M40
		M45			M45
		K01			K01
		K05			K05
		K10			K10
		K15			K15
K		K20			K20
	Cast iron	K25	AP301U		K25
		K30			K30
		K35			K35
		K40			K40
		K45			K45
		K50			K50
		S01			S01
		S05			S05
		S10			S10
		S15			S15
S	High temperature alloys	S20			S20
		S25			S25
		S30			S30
		S35			S35
		S40			S40
		N01			N01
		N05			N05
		N10		AW100K	N10
N	Aluminum/Aluminum alloy	N15			N15
		N20			N20
		N25			N25
		N30			N30
		H01			H01
		H05			H05
		H10			H10
H	Hardened steel/ Chilled cast iron	H15			H15
		H20			H20
		H25			H25
		H30			H30

Grade Application Guide

Materials				Grooving grade application	
				PVD coated	Uncoated
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	AP301U	AW100K
P	Non-alloyed steel	<600	<180	●	-
		<950	<280	●	-
	Alloyed steel	700-950	200-280	●	-
		950-1200	280-355	●	-
		1200-1400	355-415	●	-
M	Duplex stainless steel	778	230	●	-
	Austenitic stainless steel	675	200	●	-
	Precipitation-hardening stainless steel	1013	300	●	-
K	Grey cast iron	700	220	◐	-
	Nodular cast iron	880	260	◐	-
	Malleable cast iron	800	250	◐	-
S	Fe-based alloy	943	280	-	-
	Co-based alloy	1076	320	-	-
	Ni-based alloy	1177	350	-	-
	Ti-alloy	1262	370	-	-
N	Aluminum	260	75	-	●
	Aluminum alloy	447	130	-	●
H	Hardened steel	-	50-60HRC	-	-
	Chilled cast iron	-	55HRC	-	-

● Best choice
◐ 2nd choice
- Inapplicable

Grooving Grade Description

AP301U

Coating: PVD coating

Suitable for steel, stainless steel and high-temp alloys. Medium hardness and submicron carbide substrate with multi nano layered PVD coating. High wear resitance and good toughness. Excellent grade for grooving

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

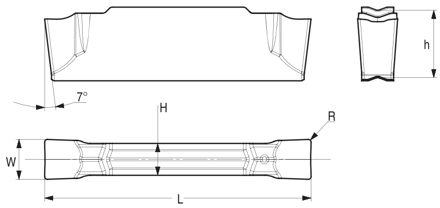
Uncoated ultra-fine grained structure substrate, special treated cutting edge, suitable for aluminum alloys.

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-ended inserts applied for parting off and grooving

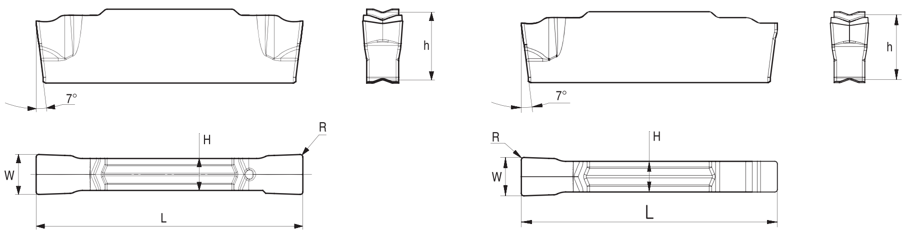


Inserts	Designation	Cutting parameter		Dimension(mm)					Grade	
		Tmax	Feed (mm/rev)	W	R	L	H	h	AP301U	AW100K
	ACD 202-CS	19.7	0.04-0.13	2	0.2	20	1.7	5.1	●	
	ACD 302-CS	19.7	0.05-0.15	3	0.2	20	2.4	5.1	●	

Marked: ● Stock available
○ Produced by order

Parting Off-Grooving Series

CM: Double-ended, single-ended inserts applied for parting off and grooving



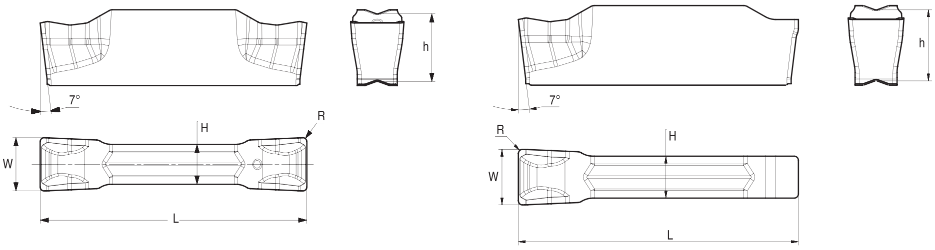
Inserts	Designation	Cutting parameter		Dimension(mm)					Grade	
		Tmax	Feed (mm/rev)	W	R	L	H	h	AP301U	AW100K
	ACD 202-CM	19.7	0.04-0.15	2	0.2	20.0	1.7	5.1	●	
	ACD 202-CM-6R	19.7	0.03-0.09	2	0.2	20.7	1.7	5.1	○	
	ACD 202-CM-6L	19.7	0.03-0.09	2	0.2	20.7	1.7	5.1	○	
	ACD 202-CM-15R	19.7	0.03-0.09	2	0.2	21.0	1.7	5.1	○	
	ACD 202-CM-15L	19.7	0.03-0.09	2	0.2	21.0	1.7	5.1	○	
	ACD 302-CM	19.7	0.05-0.16	3	0.2	20.0	2.4	5.1	●	
	ACD 302-CM-6R	19.7	0.04-0.14	3	0.2	20.7	2.4	5.1	○	
	ACD 302-CM-6L	19.7	0.04-0.14	3	0.2	20.7	2.4	5.1	○	
	ACD 302-CM-15R	19.7	0.04-0.14	3	0.2	21.0	2.4	5.1	○	
	ACD 302-CM-15L	19.7	0.04-0.14	3	0.2	21.0	2.4	5.1	○	
	ACD 403-CM	19.7	0.06-0.18	4	0.3	20.0	3.0	5.1	○	
	ACD 403-CM-4R	19.7	0.05-0.16	4	0.3	20.7	3.0	5.1	○	
	ACD 403-CM-4L	19.7	0.05-0.16	4	0.3	20.7	3.0	5.1	○	
	ACD 503-CM	24.7	0.06-0.20	5	0.3	25.0	4.0	5.0	○	
	ACD 503-CM-4R	24.7	0.06-0.18	5	0.3	25.7	4.0	5.0	○	
	ACD 503-CM-4L	24.7	0.06-0.18	5	0.3	25.7	4.0	5.0	○	
	ACD 603-CM	29.7	0.06-0.22	6	0.3	30.0	5.0	5.0	○	
	ACS 202-CM	-	0.04-0.15	2	0.2	20.0	1.7	5.1	○	
	ACS 302-CM	-	0.05-0.16	3	0.2	20.0	2.4	5.1	○	
	ACS 403-CM	-	0.06-0.18	4	0.3	20.0	3.0	5.1	○	
	ACS 503-CM	-	0.06-0.20	5	0.3	25.0	4.0	5.0	○	
	ACS 603-CM	-	0.06-0.22	6	0.3	30.0	5.0	5.0	○	

Remark: 1. If R/L type inserts are selected, the feed rate should be reduced by 20-40%.
2. ACS single-sided insert Tmax, determined by the holder

Marked: ● Stock available
○ Produced by order

Parting Off-Grooving Series

CH: Double-ended, single-ended inserts applied for parting off and grooving



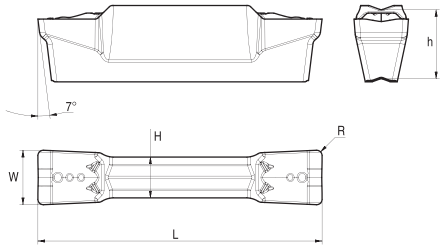
Inserts	Designation	Cutting parameter		Dimension(mm)					Grade	
		Tmax	Feed (mm/rev)	W	R	L	H	h	AP301U	AW100K
	ACD 202-CH	19.7	0.05-0.20	2	0.2	20.0	1.7	5.1	●	
	ACD 202-CH-6R	19.7	0.04-0.16	2	0.2	20.7	1.7	5.1	○	
	ACD 202-CH-6L	19.7	0.04-0.16	2	0.2	20.7	1.7	5.1	○	
	ACD 202-CH-15R	19.7	0.04-0.15	2	0.2	21.0	1.7	5.1	○	
	ACD 202-CH-15L	19.7	0.04-0.15	2	0.2	21.0	1.7	5.1	○	
	ACD 302-CH	19.7	0.07-0.25	3	0.2	20.0	2.4	5.1	●	
	ACD 302-CH-6R	20.7	0.05-0.20	3	0.2	20.7	2.4	5.1	○	
	ACD 302-CH-6L	21.7	0.05-0.20	3	0.2	20.7	2.4	5.1	○	
	ACD 302-CH-15R	20.0	0.05-0.18	3	0.2	21.0	2.4	5.1	○	
	ACD 302-CH-15L	20.0	0.05-0.18	3	0.2	21.0	2.4	5.1	○	
	ACD 403-CH	19.0	0.08-0.30	4	0.3	20.0	3.0	5.1	●	
	ACD 403-CH-4R	19.7	0.06-0.25	4	0.3	20.7	3.0	5.1	○	
	ACD 403-CH-4L	19.7	0.06-0.25	4	0.3	20.7	3.0	5.1	○	
	ACD 503-CH	24.0	0.09-0.35	5	0.3	25.0	4.0	5.0	●	
	ACD 503-CH-4R	24.7	0.08-0.30	5	0.3	25.7	4.0	5.0	○	
	ACD 503-CH-4L	25.7	0.08-0.30	5	0.3	25.7	4.0	5.0	○	
	ACD 603-CH	24.0	0.12-0.40	6	0.3	25.0	5.0	5.0	○	
	ACD 804-CH	29.0	0.15-0.45	8	0.4	30.0	6.0	6.1	○	
	ACS 202-CH	-	0.05-0.20	2	0.2	20.0	1.7	5.1	○	
	ACS 302-CH	-	0.07-0.25	3	0.2	20.0	2.4	5.1	○	
	ACS 403-CH	-	0.08-0.30	4	0.3	20.0	3.0	5.1	○	
	ACS 503-CH	-	0.09-0.35	5	0.3	20.0	4.0	5.0	○	
	ACS 603-CH	-	0.12-0.40	6	0.3	25.0	5.0	5.0	○	

Remark: 1. If R/L type inserts are selected, the feed rate should be reduced by 20-40%.
2. ACS single-sided insert Tmax, determined by the holder

Marked: ● Stock available
○ Produced by order

Grooving-Turning Series

TS: Double-ended inserts applied for external, internal, face turning, grooving and parting off

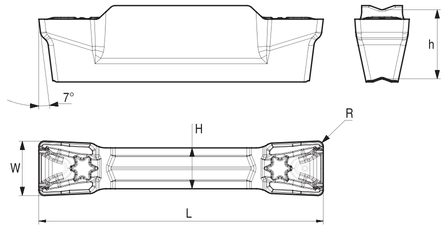


Inserts	Designation	Cutting parameter				Dimension(mm)					Grade	
		Grooving	Tmax	Turning		W	R	L	H	h	AP301U	AW100K
		Feed (mm/rev)		Feed (mm/rev)	Ap (mm)							
	ATD 203-TS	0.04-0.20	19.7	0.12-0.19	0.40-1.50	2	0.3	20.7	1.7	5.1	○	
	ATD 303-TS	0.05-0.25	19.7	0.15-0.23	0.45-2.00	3	0.3	20.7	2.2	5.1	●	
	ATD 404-TS	0.06-0.27	19.7	0.18-0.25	0.50-2.50	4	0.4	20.7	3.0	5.1	●	
	ATD 408-TS	0.06-0.27	19.7	0.18-0.25	1.00-2.50	4	0.8	20.7	3.0	5.1	●	
	ATD 504-TS	0.07-0.30	24.7	0.20-0.30	0.55-3.50	5	0.4	25.7	4.0	5.0	●	
	ATD 508-TS	0.07-0.30	24.7	0.20-0.30	1.00-3.50	5	0.8	25.7	4.0	5.0	○	
	ATD 604-TS	0.10-0.40	24.7	0.22-0.45	0.65-3.80	6	0.4	25.7	5.0	5.0	○	
	ATD 608-TS	0.10-0.40	24.7	0.22-0.45	1.00-3.80	6	0.8	25.7	5.0	5.0	○	
	ATD 808-TS	0.12-0.45	30.5	0.28-0.50	1.00-4.50	8	0.8	31.5	6.0	6.1	○	

Marked: ● Stock available
○ Produced by order

Grooving-Turning Series

TM: Double-ended inserts applied for external, internal, face turning, grooving and parting off

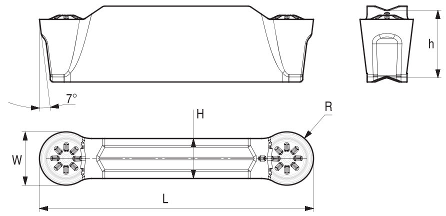


Inserts	Designation	Cutting parameter				Dimension(mm)					Grade	
		Grooving	Tmax	Turning		W	R	L	H	h	AP301U	AW100K
		Feed (mm/rev)		Feed (mm/rev)	Ap (mm)							
	ATD 304-TM	0.10-0.25	19.7	0.15-0.22	0.50-2.0	3	0.4	20.7	2.2	5.1	●	
	ATD 404-TM	0.15-0.30	19.7	0.18-0.27	0.50-2.50	4	0.4	20.7	3.0	5.1	●	
	ATD 408-TM	0.15-0.30	19.7	0.18-0.27	1.00-2.50	4	0.8	20.7	3.0	5.1	●	
	ATD 504-TM	0.18-0.35	24.7	0.20-0.35	0.55-3.50	5	0.4	25.7	4.0	5.0	●	
	ATD 508-TM	0.18-0.35	24.7	0.20-0.35	1.00-3.50	5	0.8	25.7	4.0	5.0	○	
	ATD 604-TM	0.20-0.45	24.7	0.22-0.45	0.65-4.00	6	0.4	25.7	5.0	5.0	○	
	ATD 608-TM	0.20-0.45	24.7	0.22-0.45	1.00-4.00	6	0.8	25.7	5.0	5.0	○	
	ATD 808-TM	0.22-0.50	30.5	0.28-0.50	1.00-5.00	8	0.8	31.5	6.0	6.1	○	
	ATD 812-TM	0.22-0.50	30.5	0.28-0.50	1.50-5.00	8	1.2	31.5	6.0	6.1	○	

Marked: ● Stock available
○ Produced by order

Grooving-Turning Series

RM: Double-ended round inserts applied for external turning, grooving and profiling

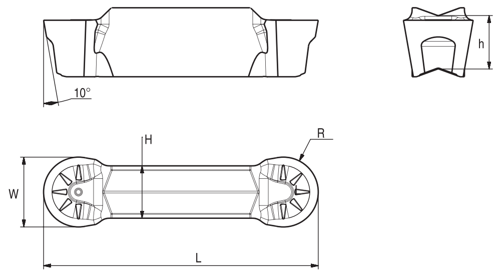


Inserts	Designation	Cutting parameter			Dimension(mm)					Grade	
		Grooving	Turning								
		Feed (mm/rev)	Feed (mm/rev)	Ap (mm)	W	R	L	H	h	AP301U	AW100K
	ATD 210-RM	0.06-0.15	0.12-0.25	0.4-1.0	2	1.0	20.7	1.7	5.1	●	
	ATD 315-RM	0.08-0.18	0.15-0.30	0.5-1.5	3	1.5	20.7	2.2	5.1	●	
	ATD 420-RM	0.10-0.20	0.18-0.35	0.6-2.0	4	2.0	20.7	3.0	5.1	●	
	ATD 525-RM	0.12-0.25	0.20-0.40	0.7-2.5	5	2.5	25.7	4.0	5.0	●	
	ATD 630-RM	0.15-0.30	0.25-0.50	0.9-3.0	6	3.0	25.7	5.0	5.0	●	
	ATD 840-RM	0.18-0.35	0.30-0.60	1.0-4.0	8	4.0	31.5	6.0	6.1	○	

Marked: ● Stock available
○ Produced by order

Grooving-Turning Series

RA: Double-ended grinding round inserts applied for aluminium wheels turning and profiling

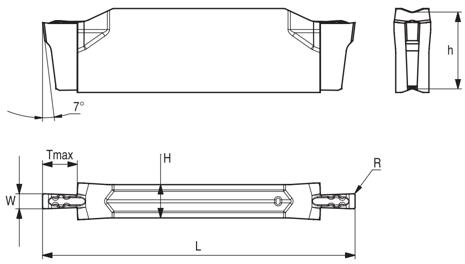


Inserts	Designation	Cutting parameter			Dimension(mm)					Grade	
		Grooving	Turning								
		Feed (mm/rev)	Feed (mm/rev)	Ap (mm)	W	R	L	H	h	AP301U	AW100K
	ATD 315-RA	0.08-0.18	0.15-0.30	0.5-1.5	3	1.5	20.7	2.2	5.1		○
	ATD 420-RA	0.10-0.25	0.20-0.45	0.6-0.2	4	2.0	20.7	3.0	5.1		○
	ATD 525-RA	0.11-0.28	0.20-0.50	0.7-2.5	5	2.5	25.7	4.0	5.0		○
	ATD 630-RA	0.12-0.30	0.22-0.60	0.9-3.0	6	3.0	25.7	5.0	5.0		○
	ATD 840-RA	0.15-0.40	0.25-0.65	1.0-4.0	8	4.0	31.5	6.0	6.1		○

Marked: ● Stock available
○ Produced by order

Grooving Series

Grinded inserts applied for grooving



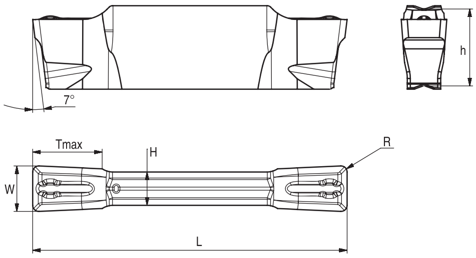
Inserts	Designation	Cutting parameter	Dimension(mm)						Grade	
		Grooving								
		Feed (mm/rev)	W	R	Tmax	H	h	L	AP301U	AW100K
	ATD 100E000G	0.02-0.05	1.00	0.00	2.00	2.20	5.1	20.700	●	
	ATD 104E000G	0.02-0.05	1.04	0.00	2.00	2.20	5.1	20.700	●	
	ATD 120E000G	0.03-0.05	1.20	0.00	2.00	2.20	5.1	20.700	●	
	ATD 125E010G	0.03-0.05	1.25	0.10	2.00	2.20	5.1	20.700	●	
	ATD 135E000G	0.03-0.05	1.35	0.00	2.00	2.20	5.1	20.700	●	
	ATD 140E000G	0.03-0.06	1.40	0.00	2.00	2.20	5.1	20.700	●	
	ATD 145E010G	0.03-0.06	1.45	0.10	2.00	2.20	5.1	20.700	●	
	ATD 147E000G	0.03-0.06	1.47	0.00	2.50	2.20	5.1	20.700	●	
	ATD 150E010G	0.03-0.06	1.50	0.10	2.50	2.20	5.1	20.700	●	
	ATD 157E015G	0.03-0.07	1.57	0.15	2.70	2.20	5.1	20.700	●	
	ATD 170E010G	0.03-0.07	1.70	0.10	3.00	2.20	5.1	20.700	●	
	ATD 178E018G	0.03-0.07	1.78	0.18	3.00	2.20	5.1	20.700	●	
	ATD 196E015G	0.04-0.09	1.96	0.15	3.00	2.20	5.1	20.700	●	
	ATD 200E020G	0.04-0.09	2.00	0.20	3.00	2.20	5.1	20.700	●	
	ATD 215E010G	0.04-0.10	2.15	0.10	3.00	2.20	5.1	20.700	●	
	ATD 222E015G	0.04-0.10	2.22	0.15	3.50	2.20	5.1	20.700	●	
	ATD 230E020G	0.04-0.10	2.30	0.20	3.50	2.20	5.1	20.700	●	
	ATD 100E050G	0.03-0.06	1.00	0.50	2.00	2.20	5.1	20.700	●	
	ATD 140E070G	0.04-0.07	1.40	0.70	2.00	2.20	5.1	20.700	●	
	ATD 157E079G	0.04-0.08	1.57	0.78	2.70	2.20	5.1	20.700	●	
	ATD 200E100G	0.05-0.11	2.00	1.00	3.00	2.20	5.1	20.700	●	
	ATD 239E120G	0.06-0.12	2.39	1.19	-	2.20	5.1	20.700	●	
	*ATD 115E000G	0.02-0.05	1.15	0.00	2.00	2.20	5.1	20.700	●	
	*ATD 130E000G	0.03-0.05	1.30	0.00	2.00	2.20	5.1	20.700	●	
	*ATD 165E010G	0.03-0.07	1.65	0.10	2.70	2.20	5.1	20.700	●	
	*ATD 190E010G	0.04-0.09	1.90	0.10	3.00	2.20	5.1	20.700	●	
	*ATD 215E010G	0.04-0.10	2.15	0.10	3.00	2.20	5.1	20.700	●	

1. * Specialized for circlip groove
2. When you select the insert with width of 1.78mm or even below, please pay attention to the A value of tool holder.

Marked: ● Stock available
○ Produced by order

Grooving-Turning Series

Grinded inserts applied for turning and grooving

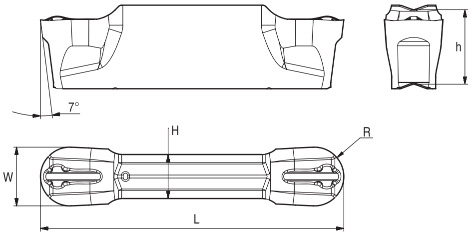


Inserts	Designation	Cutting parameter			Dimension(mm)						Grade	
		Grooving	Turning									
		Feed (mm/rev)	Feed (mm/rev)	Ap (mm)	W	R	Tmax	H	h	L	AP301U	AW100K
	ATD 265E015	0.04-0.12	0.10-0.18	0.20-1.80	2.65	0.15	-	2.20	5.1	20.700	●	
	ATD 300E020	0.06-0.14	0.11-0.20	0.30-2.00	3.00	0.20	-	2.20	5.1	20.700	●	
	ATD 300E040	0.06-0.15	0.15-0.23	0.50-2.20	3.00	0.40	-	2.20	5.1	20.700	●	
	ATD 400E040	0.08-0.19	0.16-0.30	0.50-2.50	4.00	0.40	-	3.00	5.1	20.700	●	
	ATD 400E080	0.08-0.19	0.16-0.30	1.00-2.50	4.00	0.80	-	3.00	5.1	20.700	●	
	ATD 415E015	0.08-0.19	0.16-0.30	0.20-2.50	4.15	0.15	-	3.00	5.1	20.700	●	
	ATD 478E055	0.10-0.20	0.20-0.35	0.60-2.60	4.78	0.55	-	4.00	5.0	25.700	●	
	ATD 500E040	0.10-0.20	0.20-0.35	0.50-2.60	5.00	0.40	-	4.00	5.0	25.700	●	
	ATD 500E080	0.10-0.20	0.22-0.35	1.00-3.00	5.00	0.80	-	4.00	5.0	25.700	●	
	ATD 515E015	0.10-0.22	0.22-0.35	0.20-3.00	5.15	0.15	-	4.00	5.0	25.700	●	
	ATD 555E055	0.12-0.28	0.23-0.40	0.60-3.00	5.55	0.55	-	5.00	5.0	25.700	●	
	ATD 600E080	0.12-0.30	0.25-0.45	1.00-3.50	6.00	0.80	-	5.00	5.0	25.700	●	
	ATD 600E120	0.12-0.30	0.25-0.45	1.30-3.50	6.00	1.20	-	5.00	5.0	25.700	●	
	ATD 635E080	0.13-0.30	0.25-0.45	1.00-3.50	6.35	0.80	-	5.00	5.0	25.700	●	

Marked: ● Stock available
○ Produced by order

Grooving-Turning Series

Grinded inserts for external turning, grooving and profiling



Inserts	Designation	Cutting parameter			Dimension(mm)						Grade	
		Grooving	Turning									
		Feed (mm/rev)	Feed (mm/rev)	Ap (mm)	W	R	Tmax	H	h	L	AP301U	AW100K
	ATD 300E150	0.08-0.19	0.15-0.30	0.00-1.50	3.00	1.50	-	2.20	5.1	20.700	●	
	ATD 400E200	0.10-0.20	0.18-0.35	0.00-2.00	4.00	2.00	-	3.00	5.1	20.700	●	
	ATD 478E239	0.12-0.24	0.22-0.45	0.00-2.40	4.78	2.39	-	4.00	5.0	25.700	●	
	ATD 500E250	0.12-0.24	0.22-0.45	0.00-2.50	5.00	2.50	-	4.00	5.0	25.700	●	
	ATD 600E300	0.15-0.30	0.25-0.50	0.00-3.00	6.00	3.00	-	5.00	5.0	25.700	●	

Marked: ● Stock available
○ Produced by order

Cutting Parameter Recommended Table of Parting Off and Grooving Application

Materials				Grooving grade application range					
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	PVD coated			Uncoated		
				AP301U			AW100K		
				P15-35			-		
				M15-35			-		
				K15-35			-		
				-			-		
				-			N05-15		
				-			-		
				Feed（mm/rev）					
				Min	Med	Max	Min	Med	Max
				Cutting speed Vc（m/min）					
P	Non-alloyed steel	<600	<180	180	145	130	-	-	-
		<950	<280	145	130	115	-	-	-
	Alloyed steel	700-950	200-280	130	115	100	-	-	-
		950-1200	280-355	115	100	80	-	-	-
		1200-1400	355-415	170	90	105	-		-
M	Duplex stainless steel	778	230	135	110	85	-	-	-
	Austenitic stainless steel	675	200	165	135	105	-	-	-
	Precipitation-hardening stainless steel	1013	300	155	120	80	-	-	-
K	Grey cast iron	700	220	185	140	95	-	-	-
	Nodular cast iron	880	260	145	110	80	-	-	-
	Malleable cast iron	800	250	115	90	65	-	-	-
S	Fe-based alloy	943	280	-	-	-	-	-	-
	Co-based alloy	1076	320	-		-	-	-	-
	Ni-based alloy	1177	350	-	-	-	-	-	-
	Ti-alloy	1262	370	-	-	-	-	-	-
N	Aluminum	260	75	-	-	-	850	500	200
	Aluminum alloy	447	130	-	-	-	450	250	40
H	Hardened steel	-	50-60HRC	-	-	-	-	-	-
	Chilled cast iron	-	55HRC	-	-	-	-	-	-

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

Cutting Parameter Recommended Table of Turning Application

Materials				Grooving grade application range					
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	PVD coated			Uncoated		
				AP301U			AW100K		
				P15-35			-		
				M15-35			-		
				K15-35			-		
				-			-		
				-			N05-15		
				-			-		
				Feed（mm/rev）					
				Min	Med	Max	Min	Med	Max
				Cutting speed Vc（m/min)					
P	Non-alloyed steel	<600	<180	200	180	160	-	-	-
		<950	<280	180	160	140	-	-	-
	Alloyed steel	700-950	200-280	160	140	120	-	-	-
		950-1200	280-355	140	120	100	-	-	-
		1200-1400	355-415	130	110	90	-	-	-
M	Duplex stainless steel	778	230	170	140	110	-	-	-
	Austenitic stainless steel	675	200	205	170	130	-	-	-
	Precipitation-hardening stainless steel	1013	300	195	150	100	-	-	-
K	Grey cast iron	700	220	230	195	120	-	-	-
	Nodular cast iron	880	260	180	140	95	-	-	-
	Malleable cast iron	800	250	145	110	80	-	-	-
S	Fe-based alloy	943	280	-	-	-	-	-	-
	Co-based alloy	1076	320	-	-	-	-	-	-
	Ni-based alloy	1177	350	-	-	-	-	-	-
	Ti-alloy	1262	370	-	-	-	-	-	-
N	Aluminum	260	75	-	-	-	1000	600	240
	Aluminum alloy	447	130	-	-	-	540	300	60
H	Hardened steel	-	50-60HRC	-	-	-	-	-	-
	Chilled cast iron	-	55HRC	-	-	-	-	-	-

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

Note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CUTTING TOOL CATALOGUE

Milling cutters

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Milling inserts

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Milling Cutter Designation 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. Cutting method	
Face milling	FM
Shoulder milling	SM
Profile milling	PM
High feed milling	HM
Three-sided edge milling	DM
Thread milling	TM
Chamfer milling	CM

3. Approch angle (Kr)	
Figure	Angle
90	90
88	88
75	75
60	60
45	45
42	42
•	•
•	•
•	•
15	15
00	Round insert

4. Cutter dia.	
025	25mm
080	80mm
•	•
•	•
250	250mm

5. Number of teeth	
Z02	2 teeth
•	•
Z05	5 teeth
•	•
Z30	30 teeth

6. Connection	
A	Arbor
W	Weldon shank
C	Cylinder shank
N	Whistle notch shank
M	Screw clamped with modular head

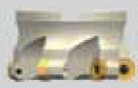
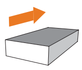
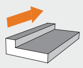
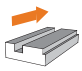
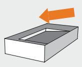
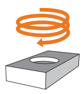
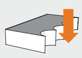
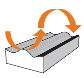
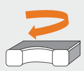
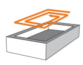
7. Connection Size
22——Connection diameter 22mm

8. Hand of tool	
R	Right
L	Left
N	Neutral

9. Insert
SN12——SN12 series insert

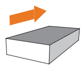
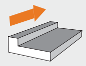
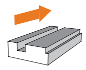
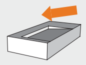
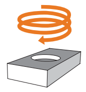
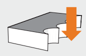
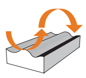
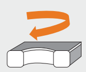
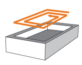
10. Others	
C	Example: C-internal coolant
No mark	No mark no coolant

Overview of Milling Cutters

Series			ASM90-LN13 	AFM42-OD04 	AFM42-OD06 	AFM40-ON05 	APM00-RD12 
Approach angle			90°	42°	42°	40°	-
Max. depth of cut(mm)			12	3.5	4.5	3	6
Diameter range(mm)			φ40-φ160	φ32-φ125	φ50-φ160	φ50-φ160	φ52-φ80
Insert designation			LN..1306..	OD..0404..	OD..0605..	ON..0504..	RD..12T3..
Application	Face milling		●	●	●	●	●
	Shoulder Milling		●				
	Slot and groove milling		●				
	Ramping			●	●		●
	Helical ramping			●	●		●
	Plunging						
	Profile milling						●
	Chamfer milling			●	●		
	Cavity milling			●	●		

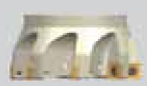
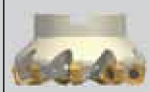
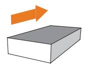
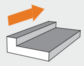
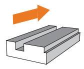
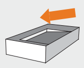
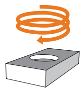
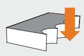
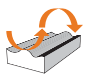
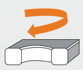
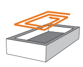
Marked: ● Best choice

Overview of Milling Cutters

Series			APM00-RD16 	AFM45-SD09 	AFM75-SD09 	AFM90-SD09 	AFM45-SD12 
Approach angle			-	45°	75°	90°	45°
Max. depth of cut(mm)			8	5	6	6	7
Diameter range(mm)			ϕ52-ϕ100	ϕ32-ϕ125	ϕ40-ϕ100	ϕ40-ϕ100	ϕ50-ϕ125
Insert designation			RD..1606..	SD..09T3..	SD..09T3..	SD..09T3..	SD..1204..
Application	Face milling		●	●	●	●	●
	Shoulder Milling						
	Slot and groove milling					●	
	Ramping		●	●	●	●	●
	Helical ramping		●			●	
	Plunging					●	
	Profile milling		●				
	Chamfer milling			●			●
	Cavity milling						

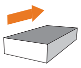
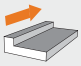
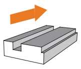
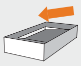
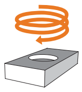
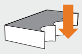
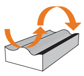
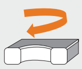
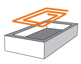
Marked: ● Best choice

Overview of Milling Cutters

Series			AFM75-SD12 	AFM90-SD12 	AFM45-SN12 	AFM45-SN19 	AFM75-SN12 
Approach angle			75°	90°	45°	45°	75°
Max. depth of cut(mm)			8	9	6.5	11	8
Diameter range(mm)			Φ50-Φ125	Φ50-Φ125	Φ50-Φ250	Φ160-Φ250	Φ50-Φ250
Insert designation			SD..1204..	SD..1204..	SN..1206..	SN..1909..	SN..1206..
Application	Face milling		●	●	●	●	●
	Shoulder Milling						
	Slot and groove milling			●			
	Ramping		●	●			
	Helical ramping			●			
	Plunging			●			
	Profile milling						
	Chamfer milling						
	Cavity milling						

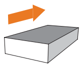
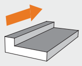
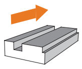
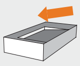
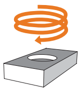
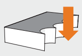
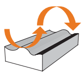
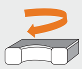
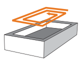
Marked: ● Best choice

Overview of Milling Cutters

Series			AFM88-SN12 	ASM90-WN08 	AHM15-XD09 	AHM15-XD12 	AFM45-XN07 
Approach angle			88°	90°	15°	15°	45°
Max. depth of cut(mm)			10	7	1.5	2.5	4
Diameter range(mm)			Φ50-Φ200	Φ50-Φ160	Φ40-Φ50	Φ52-Φ125	Φ40-Φ160
Insert designation			SN..1206..	WN..0806..	XD..0904..	XD..1205..	XN..0705..
Application	Face milling		●	●	●	●	●
	Shoulder Milling			●			
	Slot and groove milling			●	●	●	
	Ramping				●	●	
	Helical ramping				●	●	
	Plunging			●	●	●	
	Profile milling						
	Chamfer milling						
	Cavity milling						

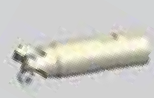
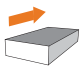
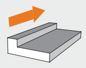
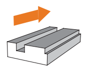
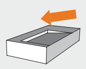
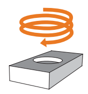
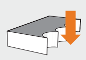
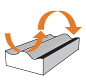
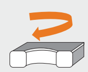
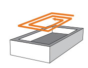
Marked: ● Best choice

Overview of Milling Cutters

Series			AFM45-XN09(C) 	AFM45-XN09(W) 	AFM45-XN07 	AFM45-XN07 	
Approach angle			45°	45°	45°	45°	
Max. depth of cut(mm)			6	6	4	4	
Diameter range(mm)			Φ63-Φ200	Φ80-Φ200	Φ40	Φ40	
Insert designation			XN..0906..	XN..0906..	XN..0705..	XN..0705..	
Application	Face milling		●	●	●	●	
	Shoulder Milling						
	Slot and groove milling						
	Ramping						
	Helical ramping						
	Plunging						
	Profile milling						
	Chamfer milling						
	Cavity milling						

Marked: ● Best choice

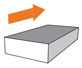
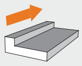
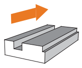
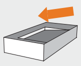
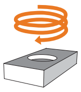
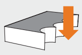
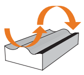
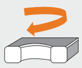
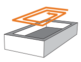
Overview of Milling Cutters

Series			ASM90-LN13 	AFM42-OD04 	AFM42-OD04 	APM00-RD07 	APM00-RD10 
Approach angle			90°	42°	42°	-	-
Max. depth of cut(mm)			12	3.5	3.5	3.5	5
Diameter range(mm)			ф40	ф32	ф32	ф16-ф20	ф20-ф25
Insert designation			LN..1306..	OD..0404..	OD..0404..	RD..0702..	RD..1003..
Application	Face milling		●	●	●	●	●
	Shoulder Milling		●				
	Slot and groove milling		●				
	Ramping			●	●	●	●
	Helical ramping			●	●	●	●
	Plunging						
	Profile milling					●	●
	Chamfer milling			●	●		
	Cavity milling			●	●		

Marked: ● Best choice

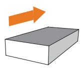
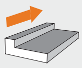
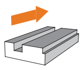
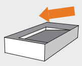
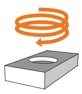
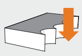
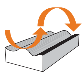
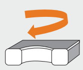
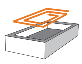
ACHTECK

Overview of Milling Cutters

Series			APM00-RD12 	APM00-RD16 	AFM45-SD09 	AFM75-SD09 	AFM90-SD09 
Approach angle			-	-	45°	75°	90°
Max. depth of cut(mm)			6	8	5	6	6
Diameter range(mm)			ф25-ф32	ф32	ф16-ф32	ф25-ф32	ф25-ф32
Insert designation			RD..12T3..	RD..1606..	SD..09T3..	SD..09T3..	SD..09T3..
Application	Face milling		●	●	●	●	●
	Shoulder Milling						
	Slot and groove milling						●
	Ramping		●	●	●	●	●
	Helical ramping		●	●			●
	Plunging						●
	Profile milling		●	●			
	Chamfer milling				●		
	Cavity milling						

Marked: ● Best choice

Overview of Milling Cutters

Series			AFM75-SD12 	ASM90-WN08 	AHM15-XD09 	AHM15-XD09 	AHM15-XD12 
Approach angle			75°	90°	15°	15°	15°
Max. depth of cut(mm)			8	7	1.5	1.5	2.5
Diameter range(mm)			Φ32-Φ40	Φ40	Φ25-Φ32	Φ25-Φ32	Φ32
Insert designation			SD..1204..	WN..0806..	XD..0904..	XD..0904..	XD..1205..
Application	Face milling		●	●	●	●	●
	Shoulder Milling			●			
	Slot and groove milling			●	●	●	●
	Ramping		●		●	●	●
	Helical ramping				●	●	●
	Plunging			●	●	●	●
	Profile milling						
	Chamfer milling						
	Cavity milling						

Marked: ● Best choice

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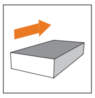
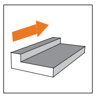
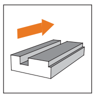
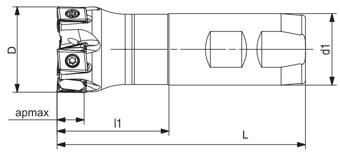
Milling cutters

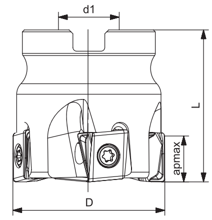
ASM90-LN13-C

90° square shoulder milling cutter

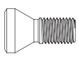
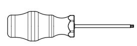






Designation	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
ASM90-040-Z5-W32R-LN13-C	40	32	120	50	12		5	LNHU 1306

Designation	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
ASM90-040-Z04-A16R-LN13-C	40	16	40	-	12		4	LNHU 1306
ASM90-040-Z05-A16R-LN13-C	40	16	40	-	12		5	
ASM90-050-Z05-A22R-LN13-C	50	22	40	-	12		5	
ASM90-050-Z06-A22R-LN13-C	50	22	40	-	12		6	
ASM90-063-Z06-A22R-LN13-C	63	22	40	-	12		6	
ASM90-063-Z08-A22R-LN13-C	63	22	40	-	12		8	
ASM90-080-Z07-A27R-LN13-C	80	27	50	-	12		7	
ASM90-080-Z10-A27R-LN13-C	80	27	50	-	12		10	
ASM90-100-Z09-A32R-LN13-C	100	32	50	-	12		9	
ASM90-100-Z13-A32R-LN13-C	100	32	50	-	12		13	
ASM90-125-Z11-A40R-LN13-C	125	40	63	-	12		11	
ASM90-125-Z16-A40R-LN13-C	125	40	63	-	12		16	
ASM90-160-Z13-A40R-LN13	160	40	63	-	12		13	

Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
ф40-160	 AST4112-60	 ADT-T15	3.5Nm

Note:  With internal coolant
 Without internal coolant

<table>
<tr><th rowspan="3">Designation</th><th colspan="2">Dimension(mm)</th><th colspan="7">Grades</th></tr>
<tr><th rowspan="2">Insert corner radius</th><th rowspan="2">Wiper length</th><th colspan="2">CVD coated</th><th colspan="4">PVD coated</th><th>Uncoated</th></tr>
<tr><th>AC301P</th><th>AC301K</th><th>AP301U</th><th>AP351U</th><th>AP401U</th><th>AP351K</th><th>AW100K</th></tr>
<tr><td>LNHU 130608ER-MR2</td><td>0.8</td><td>2.7</td><td></td><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td><td></td></tr>
<tr><td>LNHU 130612ER-MR2</td><td>1.2</td><td>2.3</td><td></td><td></td><td></td><td>●</td><td>●</td><td></td><td></td></tr>
<tr><td>LNHU 130616ER-MR2</td><td>1.6</td><td>1.9</td><td></td><td>○</td><td></td><td>○</td><td>○</td><td></td><td></td></tr>
<tr><td>LNHU 130620ER-MR2</td><td>2.0</td><td>1.5</td><td></td><td></td><td></td><td>○</td><td>○</td><td></td><td></td></tr>
<tr><td>LNHU 130624ER-MR2</td><td>2.4</td><td>1.0</td><td></td><td></td><td></td><td>○</td><td>○</td><td></td><td></td></tr>
<tr><td>LNHU 130631ER-MR2</td><td>3.1</td><td>0.4</td><td></td><td></td><td></td><td>○</td><td>○</td><td></td><td></td></tr>
<tr><td>LNHU 130608ER-MM3</td><td>0.8</td><td>2.7</td><td></td><td></td><td></td><td></td><td>●</td><td></td><td></td></tr>
</table>

Marked: ● Stock available ○ Produced by order

<table>
<tr><th colspan="4">Materials</th><th colspan="4">Cutting depth and feed</th></tr>
<tr><th rowspan="5">ISO</th><th rowspan="5">Material classification</th><th rowspan="5">Tensile strength (N/mm^2)</th><th rowspan="5">Hardness (HB)</th><th colspan="4">LNHU1306...</th></tr>
<tr><th colspan="4">MR2</th></tr>
<tr><th colspan="2">ap</th><th colspan="2">fz</th></tr>
<tr><th colspan="4">(mm)</th></tr>
<tr><th>min</th><th>max</th><th>min</th><th>max</th></tr>
<tr><td rowspan="5">P</td><td rowspan="2">Non-alloyed steel</td><td><600</td><td><180</td><td rowspan="17">0.6</td><td rowspan="17">12</td><td>0.12</td><td>0.24</td></tr>
<tr><td><950</td><td><280</td><td>0.12</td><td>0.18</td></tr>
<tr><td rowspan="3">Alloyed steel</td><td>700-950</td><td>200-280</td><td>0.12</td><td>0.18</td></tr>
<tr><td>950-1200</td><td>280-355</td><td>0.12</td><td>0.14</td></tr>
<tr><td>1200-1400</td><td>355-415</td><td>0.12</td><td>0.14</td></tr>
<tr><td rowspan="3">M</td><td>Duplex stainless steel</td><td>778</td><td>230</td><td>0.12</td><td>0.16</td></tr>
<tr><td>Austenitic stainless steel</td><td>675</td><td>200</td><td>0.12</td><td>0.15</td></tr>
<tr><td>Precipitation-hardening stainless steel</td><td>1013</td><td>300</td><td>0.12</td><td>0.14</td></tr>
<tr><td rowspan="3">K</td><td>Grey cast iron</td><td>700</td><td>220</td><td>0.12</td><td>0.30</td></tr>
<tr><td>Nodular cast iron</td><td>880</td><td>260</td><td>0.12</td><td>0.24</td></tr>
<tr><td>Malleable cast iron</td><td>800</td><td>250</td><td>0.12</td><td>0.18</td></tr>
<tr><td rowspan="4">S</td><td>Fe-based alloy</td><td>943</td><td>280</td><td>0.12</td><td>0.14</td></tr>
<tr><td>Co-based alloy</td><td>1076</td><td>320</td><td>0.12</td><td>0.14</td></tr>
<tr><td>Ni-based alloy</td><td>1177</td><td>350</td><td>0.12</td><td>0.14</td></tr>
<tr><td>Ti-alloy</td><td>1262</td><td>370</td><td>0.12</td><td>0.14</td></tr>
<tr><td rowspan="2">N</td><td>Aluminum</td><td>260</td><td>75</td><td rowspan="2" colspan="2">-</td></tr>
<tr><td>Aluminum alloy</td><td>447</td><td>130</td></tr>
<tr><td rowspan="2">H</td><td>Hardened steel</td><td>-</td><td>50-60HRC</td><td rowspan="2" colspan="4">-</td></tr>
<tr><td>Chilled cast iron</td><td>-</td><td>55HRC</td></tr>
</table>

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

Milling cutters

ACHTECK

NEW
PRODUCT！

APE90-LN13

Porcupine Milling Cutter

Porcupine Milling Cutter Naming System

A	PE	90	-	063	-	Z04	-	A	27	R	-	LN13	-	L56	-	F	-	C
1	2	3		4		5		6	7	8		9		10		11		12

1-Achteck

2-Machining type	
PE	Porcupine milling
SM	Square shoulder milling
PM	Profile milling
HM	High feed milling
DM	Side and face milling

3-Approch angle (Kr)	
Figure	Angle
90	90°
88	88°
60	60°
45	45°

4-Cutter dia.	
025	25mm
063	63mm
080	80mm
.	.
250	250mm

5-Number of teeth	
Z02	2 teeth
Z04	4 teeth
Z05	5 teeth
.	.
Z30	30 teeth

6-Connection	
A	Arbor
W	Weldon shank
C	Cylinder shank
N	Whistle noich shank
M	Screw modular

7-Connection size	
27	Connection diameter 27mm

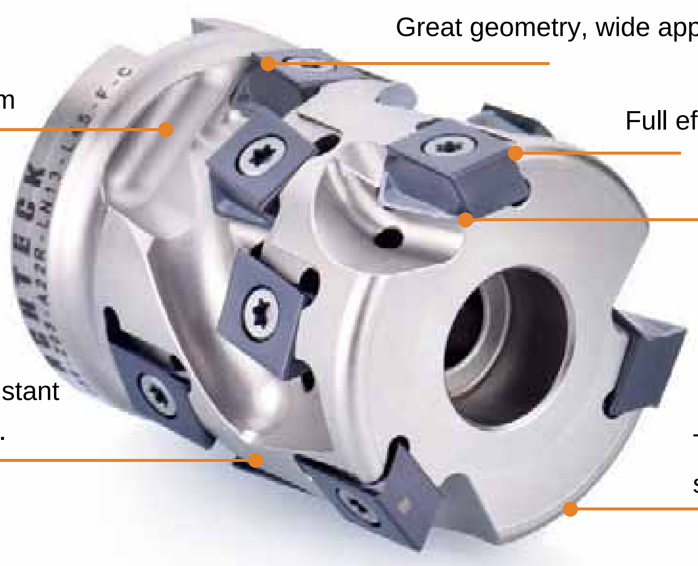
8-Hand of tool	
R	Right
L	Left
N	Neutral

9-Insert	
LN13	LN13 series insert

10-Valid cutting edge length Max	
L30	30mm
L45	45mm
L56	56mm

11-Cutter type	
F	Full teeth
H	Half teeth

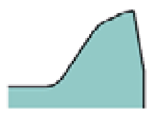
12-Other	
-C	With internal coolant
No mark	Without internal coolant



APE90-LN13 Porcupine Milling Cutter

- Porcupine cutter with tangential mounted standard LN13 double-sided inserts with 4 cutting edges. Efficient, economic and strong application solution problem solver.
- Suitable for 2D-profiling, square shoulder milling with big ap. Even for face milling in combination with wiper insert.
- Accurate through coolant holes for each insert.
- Two sorts of interfaces. Weldon type and shell mill (Arbor).
- Weldon interface with diameter 40mm
- Shell mill (Arbor) interface with diameter 40-80mm apmax
- Weldon interface: apmax = 45mm
- Shell mill (Arbor) interface: apmax = 56mm
- All Corner radius inserts can be mounted in the first-row, without modify the cutter body.
- Corner radius inserts: R0.8/1.2/1.6/2.0/2.4/3.1

Chip breaker Features

Chip breaker name	Edge Preparation	Feature
MR2		• 35°rake angle; • Can used for most of materials; • For medium machining conditions;

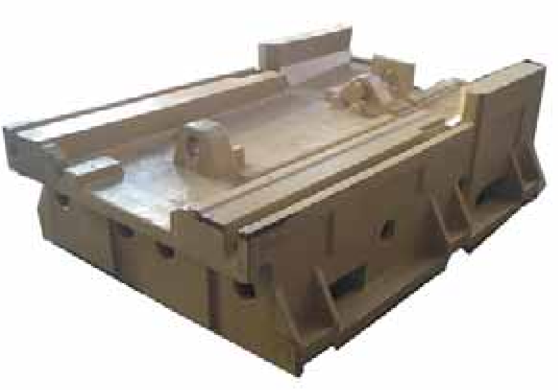
Grade application

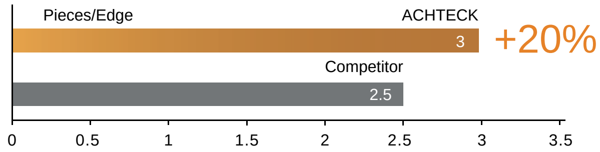
Grade	Coating	Material					
		P	M	K	S	N	H
AP301U	PVD	●	◐		○		
AP351U	PVD	●	◐		○		
AP401U	PVD		●		◐		
AC301K	CVD			●			◐
AP351K	PVD			●			

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

Case stories

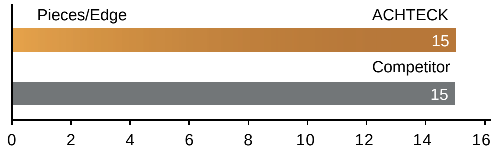
Work piece:Base
Material:HT300
Insert:LNHU 130608ER-MR2 AC301K
Cutter description:APE90-040-Z02-W40R-LN13-L34-F-C
Machining type: Rough milling track surface
Cutting parameters:Vc=150m/min,ap=15mm,fz=0.14
Dry cutting





20% increase in spanlife of porcupine cutter

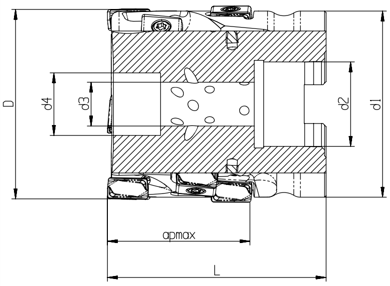
Work piece:Punch
Material:QT600
Insert:LNHU 130608ER-MR2 AC301K
Cutter description:APE90-063-Z04-A27R-LN13-L56-F-C
Machining type:Rough milling rectangular surface
Cutting parameters:Vc=158m/min,ap=35mm,ae=5mm,fz=0.15
Wet cutting



20% cost reduction per unit

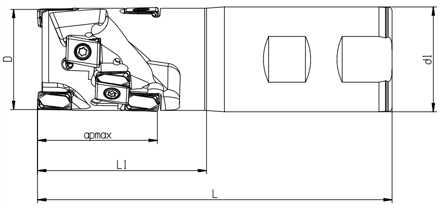
Cutter stock item

APE90-LN13-C Arbor cutter

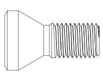
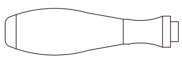


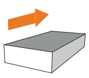
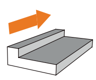
Designation	Dimension							Coolant	Z	Segment	Total Inserts	Insert
	D	d1	L	d2	d3	d4	apmax					
APE90-040-Z02-A16R-LN13-L34-F-C	40	39	55	16	9	15	34		2	3	6	LNHU 1306
APE90-040-Z02-A16R-LN13-L45-F-C	40	39	65	16	9	15	45		2	4	8	
APE90-050-Z03-A22R-LN13-L34-F-C	50	47.5	55	22	11	18	34		3	3	9	
APE90-050-Z03-A22R-LN13-L45-F-C	50	47.5	65	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	85	32	18	26	56		5	5	25	

APE90-LN13-C Weldon shank



Designation	Dimension					Coolant	Z	Segment	Total Inserts	Insert
	D	d1	L1	L	apmax					
APE90-040-Z02-W40R-LN13-L34-F-C	40	40	54	120	34		2	3	6	LNHU 1306
APE90-040-Z02-W40R-LN13-L45-F-C	40	40	64	135	45		2	4	8	

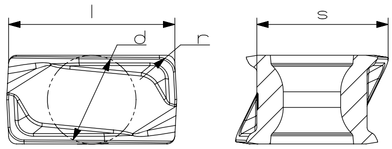
Dimension	Cutter spare parts			
Cutter diameter	Screw	Wrench		Torque
Φ40-Φ80	AST4112-60	ADT-T15		3.5Nm
		ADT-G16	BIT-T15	
				

Application	
Facing	Shouldering
	

Remark : represent for coolant
represent for no coolant

Insert stock item

LNHU 1306



Insert	Designation	Dimensions				Grades						
						CVD coated		PVD coated				Uncoated
		l	d	s	r	AC301P	AC301K	AP301U	AP351U	AP401M	AP351K	AW100K
	LNHU 130608R-FM2	13.02	6.8	10.11	0.8							●
	LNHU 130608R-MM3	13.02	6.8	10.19	0.8					●		
	LNHU 130608R-MR2	13.02	6.8	10.15	0.8	●	●	●	●	●	●	
	LNHU 130612R-MR2	13.02	6.8	10.09	1.2		●		●	●		
	LNHU 130616R-MR2	13.02	6.8	10.03	1.6		●		●	●		
	LNHU 130620R-MR2	13.02	6.8	9.99	2.0				●	●		
	LNHU 130624R-MR2	13.02	6.8	9.92	2.4				●	●		
	LNHU 130631R-MR2	13.02	6.8	9.83	3.1		●		●	●		

Remarked：● represent for standard stock

Recommended cutting speed by materials

Machined Materials				Achteck Milling Grades Application Ranges																		Cutting depth and feed					
ISO	Material classification	Tensile strength (N/mm²)	Hardness (HB)	AC301K			AP351K			AP301U			AP351U			AP401M			AW100K			APE90-LN13					
				CVD			PVD			PVD			PVD			PVD			-								
				-			-			P15-35			P30-45			P25-35			-								
				-			-			M15-35			M25-35			M30-45			-			Cutter diameter					
				K10-40			K15-40			-			-			-			-			Φ40-80					
				-			-			S30-45			S30-45			S30-45			-			apmax					
				-			-			-			-			-			N05-15			34-56					
				-			-			-			-			-			-			Geometry					
				Feed(mm/z)																		MM3			MR2		
				Min	Med	Max	Min	Med	Max	Min	Med	Max	Min	Med	Max	Min	Med	Max	Min	Med	Max	Min	-	Max	Min	-	Max
				Cutting speed(m/min)																		Feed(mm/z)					
P	Non-alloyed steel	<600	<180							450	340	290	230	205	170	450	340	290				0.10	-	0.20	0.10	-	0.22
		<950	<280							320	240	200	200	180	160	320	240	200				0.10	-	0.16	0.10	-	0.18
	Alloyed steel	700-950	200-280							290	210	185	200	155	110	290	210	185				0.10	-	0.16	0.10	-	0.18
		950-1200	280-355							280	210	200	180	130	90	280	210	200				0.10	-	0.14	0.10	-	0.16
		1200-1400	355-415							210	170	110	140	105	70	210	170	110				0.10	-	0.14	0.10	-	0.16
M	Duplex stainless steel	778	230							165	150	130	270	215	155	150	115	85				0.10	-	0.16	0.10	-	0.18
	Austenitic stainless steel	675	200							270	185	90	260	180	90	185	140	105				0.10	-	0.14	0.10	-	0.14
	Precipitation-hardening stainless steel	1013	300							300	225	165	170	150	110	125	95	70				0.10	-	0.14	0.10	-	0.14
K	Grey cast iron	700	220	480	310	140	390	280	130	290	220	150													0.12	-	0.22
	Nodular cast iron	880	260	450	295	140	350	250	120	180	130	70													0.12	-	0.20
	Malleable cast iron	800	250	336	220	100	270	200	100	390	300	190													0.12	-	0.18
S	Fe based alloy	943	280							50	40	30	45	40	30	50	40	30				0.08	-	0.12	0.10	-	0.14
	Co based alloy	1076	320							45	38	30	45	40	30	45	38	30				0.08	-	0.12	0.10	-	0.14
	Ni based alloy	1177	350							45	38	30	45	40	30	45	38	30				0.08	-	0.12	0.10	-	0.14
	Ti-alloy	1262	370							100	75	30	100	70	45	100	75	30				0.08	-	0.12	0.10	-	0.14
N	Aluminum	260	75																50	40	30						
	Aluminum alloy	447	130																45	38	30						
H	Hardened steel	-	48-55HRC							70	50	40													0.08	-	0.12
	Chilled cast iron	-	55HRC							65	50	40													0.10	-	0.12

* The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, work piece clamping and cooants. Average chip thinckness(hm = fz x Sin KappaR)

Note

ACHTECK

NEW
PRODUCT !

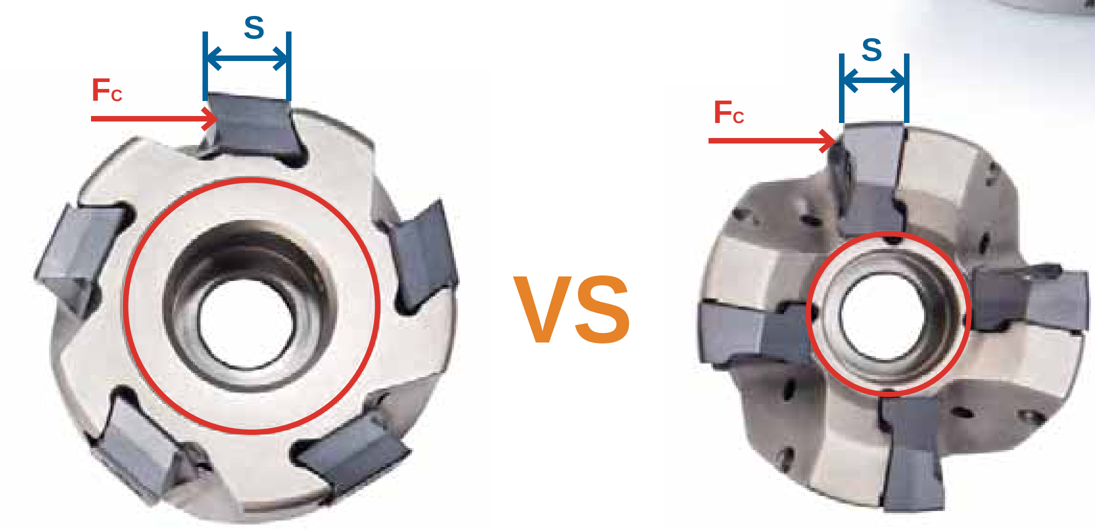
ASM90-LN09

Shoulder Milling Cutter

Achteck is launching a new set of 90° shoulder milling cutter with inserts of LN09 and max ap 8mm.Tangential mounted double-sided inserts with 4 cutting edges, 90 ° approach angle is an very good choice for shoulder milling. The insert geometries, FM2 (uncoated), MR2 and MM3 are developed with Achteck's latest CVD and PVD coating technologies, which achieve better performance and surface quality, suitable for steels, stainless steels, cast iron and high temperature alloy.

ASM90-LN09 Shoulder Milling Cutter

- 90° shoulder milling cutter, cutter dia.: Φ25-Φ63MM
- Different pitch design, coarse pitch applied for sloting and shoulder milling, and close pitch for shoulder milling
- General geometry MR2, with a wiper design and wildly application, to get better surface roughness
- Geometry MM3 suitable for stable condition and light cutting
- Geometry FM2 designed for N-Material application
- Double-side insert with 4 cutting edges, strong cutting edges to achieve high productivity. Various cutter connector: arbor type, cylinder type, weldon type.
- Positive rake angle for smooth and light cutting
- Corner radius: R0.4/0.8/1.2/1.6/2.0
- High precision axial and radial run-out.

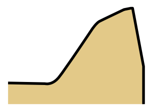
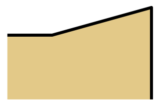
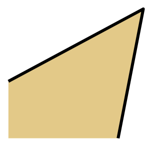


LN09 insert tangential mounted

Other insert radial mounted

- Advantages of tangential-mounted insert cutters：
  - Arbor area greatly increased, the rigidity of cutter body is strengthened;
  - In the direction of force bearing, insert with large thickness resist bigger cutting force.

Chip breaker Features

Chip breaker name	Edge Preparation	Feature
MR2		• General; • For most materials; • For medium machining;
MM3		• Easy-to-cut; • For good machining condition; • For semi-finishing and finishing;
FM2		• Sharp; • For aluminum machining; • Sharp cutting edge with low cutting force;

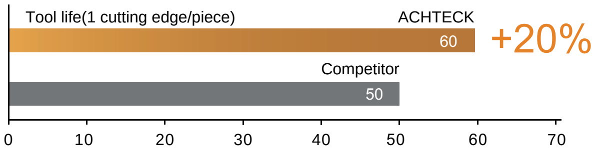
Grade application

Grade	Coating	Material					
		P	M	K	S	N	H
AP301U	PVD	●	◐		○		
AP351U	PVD	●	◐		○		
AP401M	PVD		●		◐		
AC301K	CVD			●			◐
AP351K	PVD			●			
AW100K	Uncoated					●	

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

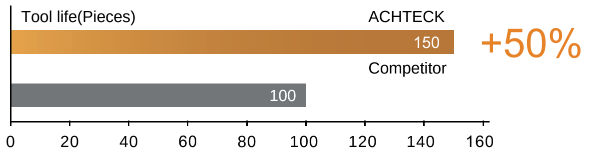
Case stories

Work piece: Turbine housing
Material: 1.4837
Insert: LNHU 090408ER-MR2 AP351U
Cutter description: ASM90-032-Z04-W32R-LN09-C
Machining type: Boss mounting surface
Cutting parameters: Vc=100m/min,ap=3mm,ae=20mm,fz=0.11
Dry cutting



Result comparison: ACHTECK's tool life extends 20% than competitors'

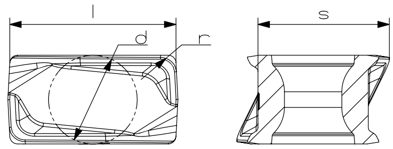
Work piece: Engine block
Material: HT250
Insert: LNHU 090408ER-MR2 AP351K
Cutter description: ASM90-032-Z04-W32R-LN09-C
Machining type: Boss on side of the block
Cutting parameters: Vc=171m/min,ap=7.5mm,ae=16mm,fz=0.13
Wet cutting



Result comparison: ACHTECK's tool life extends 50% than competitors'

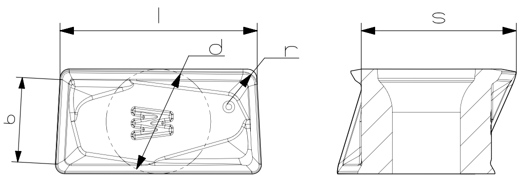
Insert stock item

LNHU 0904



Insert	Designation	Dimensions				Grades						
						CVD coated	PVD coated					Uncoated
		l	d	s	r	AC301P	AC301K	AP301U	AP351U	AP401M	AP351K	AW100K
	LNHU 090404ER-FM2	9	4.5	7.50	0.4							●
	LNHU 090404ER-MM3	9	4.5	7.50	0.4					●		
	LNHU 090404ER-MR2	9	4.5	7.50	0.4		●	●	●	●	●	
	LNHU 090408ER-MR2	9	4.5	7.45	0.8		●	●	●	●	●	
	LNHU 090412ER-MR2	9	4.5	7.40	1.2		●	●		●		
	LNHU 090416ER-MR2	9	4.5	7.35	1.6		●	●		●		
	LNHU 090420ER-MR2	9	4.5	7.31	2.0		●	●		●		

Wiper Insert

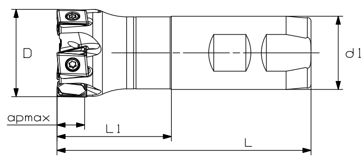


Insert	Designation	Dimensions					Grades						
							CVD coated	PVD coated					Uncoated
		b	l	d	s	r	AC301P	AC301K	AP301U	AP351U	AP401M	AP351K	AW100K
	LNHU 090404ER-W	3.6	9.24	4.5	7.40	0.4		●	●				

Remarked：● Represent for standard stock

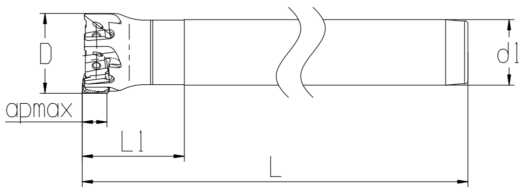
Cutter stock item

ASM90-LN09 Weldon shank



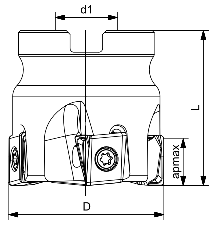
Designation	Dimension					Coolant	Z	Insert
	D	d1	L	L1	apmax			
ASM90-025-Z03-W25R-LN09-C	25	25	100	45	8.0		3	LNHU 0904
ASM90-025-Z04-W25R-LN09-C	25	25	100	45	8.0		4	
ASM90-032-Z04-W32R-LN09-C	32	32	110	50	8.0		4	
ASM90-032-Z05-W32R-LN09-C	32	32	110	50	8.0		5	
ASM90-040-Z04-W32R-LN09-C	40	32	110	25	8.0		4	
ASM90-040-Z06-W32R-LN09-C	40	32	110	25	8.0		6	

ASM90-LN09 Cylinder shank holder

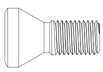
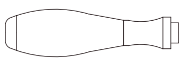


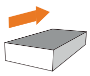
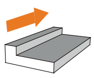
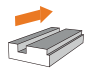
Designation	Dimension					Coolant	Z	Insert
	D	d1	L	L1	apmax			
ASM90-025-Z03-C25R-LN09-L200-C	25	25	200	40	8.0		3	LNHU 0904
ASM90-025-Z04-C25R-LN09-L200-C	25	25	200	40	8.0		4	
ASM90-032-Z04-C32R-LN09-L250-C	32	32	250	50	8.0		4	
ASM90-032-Z05-C32R-LN09-L250-C	32	32	250	50	8.0		5	

ASM90-LN09 Arbor cutter



Designation	Dimension					Coolant	Z	Insert
	D	d1	L	ISO	apmax			
ASM90-040-Z04-A16R-LN09-C	40	16	40	A	8.0		4	LNHU 0904
ASM90-040-Z06-A16R-LN09-C	40	16	40	A	8.0		6	
ASM90-050-Z05-A22R-LN09-C	50	22	40	A	8.0		5	
ASM90-050-Z07-A22R-LN09-C	50	22	40	A	8.0		7	
ASM90-063-Z07-A22R-LN09-C	63	22	40	A	8.0		7	
ASM90-063-Z10-A22R-LN09-C	63	22	40	A	8.0		10	

Dimension	Cutter spare parts			
Cutter diameter	Screw	Wrench		Torque
Φ25-Φ63	AST3083-60	ADT-T09		1.8Nm
		ADT-G16	BIT-T09	
				

Application		
Facing	Shoulder milling	Groove milling
		

Remark : represent for coolant
represent for no coolant

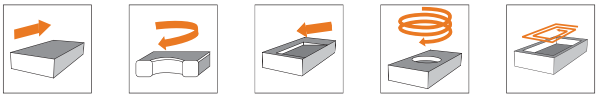
Recommended cutting speed by materials

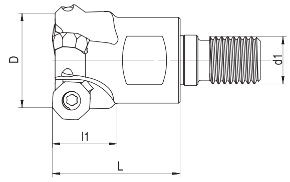
Machined Materials				Achteck Milling Grades Application Ranges																		Cutting depth and feed					
ISO	Material classification	Tensile strength (N/mm²)	Hardness (HB)	AC301K			AP351K			AP301U			AP351U			AP401M			AW100K			ASM90-LN09					
				CVD			PVD			PVD			PVD			PVD			-								
				-			-			P15-35			P30-45			P20-35			-								
				-			-			M15-35			M25-35			M30-45			-			Cutter diameter					
				K10-40			K15-40			-			-			-			-			Φ25-63					
				-			-			S30-45			S30-45			S30-45			-			apmax					
				-			-			-			-			-			N05-15			0.3-8					
				-			-			-			-			-			-			Geometry					
				Feed(mm/z)																		MM3			MR2		
				Min	Med	Max	Min	Med	Max	Min	Med	Max	Min	Med	Max	Min	Med	Max	Min	Med	Max	Min	-	Max	Min	-	Max
				Cutting speed(m/min)																		Feed(mm/z)					
P	Non-alloyed steel	<600	<180							450	340	290	230	205	170	450	340	290				0.10	-	0.18	0.10	-	0.20
		<950	<280							320	240	200	200	180	160	320	240	200				0.10	-	0.16	0.10	-	0.18
	Alloyed steel	700-950	200-280							290	210	185	200	155	110	290	210	185				0.10	-	0.16	0.10	-	0.18
		950-1200	280-355							280	210	200	180	130	90	280	210	200				0.10	-	0.14	0.10	-	0.16
		1200-1400	355-415							210	170	110	140	105	70	210	170	110				0.10	-	0.14	0.10	-	0.16
M	Duplex stainless steel	778	230							165	150	130	270	215	155	150	115	85				0.08	-	0.16	0.10	-	0.18
	Austenitic stainless steel	675	200							270	185	90	260	180	90	185	140	105				0.08	-	0.14	0.10	-	0.14
	Precipitation-hardening stainless steel	1013	300							300	225	165	170	150	110	125	95	70				0.08	-	0.14	0.10	-	0.14
K	Grey cast iron	700	220	480	310	140	390	280	130	290	220	150													0.10	-	0.20
	Nodular cast iron	880	260	450	295	140	350	250	120	180	130	70													0.10	-	0.20
	Malleable cast iron	800	250	500	365	230	270	200	100	390	300	190													0.10	-	0.18
S	Fe based alloy	943	280							50	40	30	45	40	30	50	40	30				0.07	-	0.12	0.08	-	0.12
	Co based alloy	1076	320							45	38	30	45	40	30	45	38	30				0.07	-	0.12	0.08	-	0.12
	Ni based alloy	1177	350							45	38	30	45	40	30	45	38	30				0.07	-	0.12	0.08	-	0.12
	Ti-alloy	1262	370							100	75	30	100	70	45	100	75	30				0.07	-	0.12	0.08	-	0.12
N	Aluminum	260	75																50	40	30						
	Aluminum alloy	447	130																45	38	30						
H	Hardened steel	-	48-55HRC							70	50	40													0.08	-	0.12
	Chilled cast iron	-	55HRC							65	50	40													0.10	-	0.12

* The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, work piece clamping and cooants. Average chip thinckness(hm = fz x Sin KappaR)
* When slotting , ap=1/2apmax

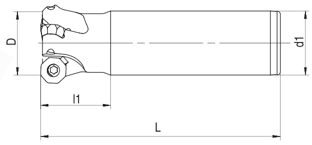
AFM42-OD04

42 ° Approaching angle milling cutter for face milling

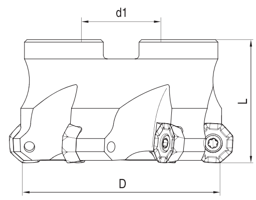




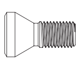
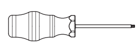
Designation	D	d1	L	apmax	Internal coolant	Z	Inserts
AFM42-032-Z03-M16R-OD04-C	32	M16	43	3.5		3	OD..0404



Designation	D	d1	L	apmax	Internal coolant	Z	Inserts
AFM42-032-Z03-W32R-OD04-C	32	32	120	3.5		3	OD..0404



Designation	D	d1	L	apmax	Internal coolant	Z	Inserts
AFM42-040-Z04-A16R-OD04-C	40	16	40	3.5		4	OD..0404
AFM42-050-Z05-A16R-OD04-C	50	16	40	3.5		5	
AFM42-063-Z05-A22R-OD04-C	63	22	40	3.5		5	
AFM42-063-Z06-A22R-OD04-C	63	22	40	3.5		6	
AFM42-080-Z06-A27R-OD04-C	80	27	50	3.5		6	
AFM42-080-Z08-A27R-OD04-C	80	27	50	3.5		8	
AFM42-100-Z07-A32R-OD04-C	100	32	50	3.5		7	
AFM42-100-Z08-A32R-OD04-C	100	32	50	3.5		8	
AFM42-125-Z08-A40R-OD04-C	125	40	63	3.5		8	
AFM42-125-Z10-A40R-OD04-C	125	40	63	3.5		10	

Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
ϕ32-125	 AST4112-60	 ADT-T15	3.5Nm

Note: With internal coolant
Without internal coolant

Designation	Dimension(mm)		Grades						
	Insert corner radius	Wiper length	CVD coated		PVD coated				Uncoated
			AC301P	AC301K	AP301U	AP351U	AP401U	AP351K	AW100K
ODET 0404APFN-FM2	-	1.2							●
ODHT 0404APEN-MM3	-	1.2		●	●	●	●		
ODEW 0404APSR-HR2	-	1.2		●	●			●	
ODMW 040408EN-HR2	0.8	-		●				●	
ODMT 040408EN-MM3	0.8	-		●		●	●		

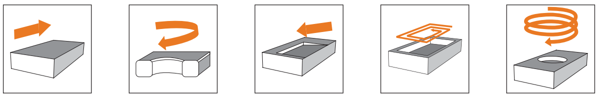
Marked: ● Stock available ○ Produced by order

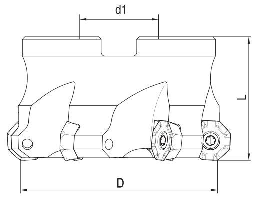
Materials				Cutting depth and feed							
				OD..0404							
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	ap		Geometry					
						HR2		MM3		FM2	
						fz					
				min	max	min	max	min	max	min	max
P	Non-alloyed steel	<600	<180	0.20	3.50	0.30	0.50	0.20	0.35	0.10	0.15
		<950	<280								
	Alloyed steel	700-950	200-280			0.27	0.40	0.20	0.30	0.10	0.15
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230			0.20	0.35	0.15	0.25	0.05	0.15
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300			0.15	0.25	0.10	0.20	0.05	0.10
K	Grey cast iron	700	220			0.30	0.35	0.15	0.25	-	
	Nodular cast iron	880	260								
	Malleable cast iron	800	250								
S	Fe-based alloy	943	280			0.15	0.25	0.10	0.20	0.05	0.10
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
N	Aluminum	260	75			-		-		0.10	0.30
	Aluminum alloy	447	130								
H	Hardened steel	-	50-60HRC	-		-		-		-	
	Chilled cast iron	-	55HRC								

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

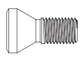
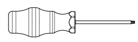
AFM42-OD06

42 ° Approaching angle milling cutter for face milling





Designation	D	d1	L	apmax	Internal coolant	Z	Inserts
AFM42-050-Z04-A16R-OD06-C	50	16	40	4.5		4	OD..0605
AFM42-063-Z05-A22R-OD06-C	63	22	40	4.5		5	
AFM42-080-Z05-A27R-OD06-C	80	27	50	4.5		5	
AFM42-080-Z06-A27R-OD06-C	80	27	50	4.5		6	
AFM42-100-Z06-A32R-OD06-C	100	32	50	4.5		6	
AFM42-100-Z07-A32R-OD06-C	100	32	50	4.5		7	
AFM42-125-Z07-A40R-OD06-C	125	40	63	4.5		7	
AFM42-125-Z08-A40R-OD06-C	125	40	63	4.5		8	
AFM42-160-Z10-A40R-OD06	160	40	63	4.5		10	

Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
ϕ50-160	 AST4512-43	 ADT-T20	5.0Nm

Note: With internal coolant
Without internal coolant

Designation	Dimension(mm)		Grades						
	Insert corner radius	Wiper length	CVD coated		PVD coated				Uncoated
			AC301P	AC301K	AP301U	AP351U	AP401U	AP351K	AW100K
ODET 0605APFN-FM2	-	1.6							●
ODMT 060508EN-MM3	0.8	-	●	●	●	●	●	●	
ODMT 060512EN-MM3	1.2	-			●				
ODHT 0605APEN-MM3	-	1.6		●	●	●	●		
ODEW 0605APSR-HR2	-	1.6		●				●	
ODEW 0605APSRN-HR2	-	1.6		●				●	
ODMW 060512EN-HR2	1.2	-		●				●	

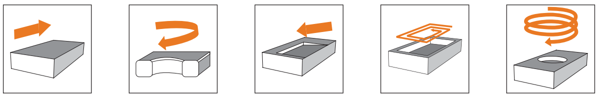
Marked: ● Stock available ○ Produced by order

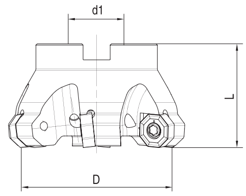
Materials				Cutting depth and feed							
				OD..0605							
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	ap		Geometry					
						HR2		MM3		FM2	
						fz					
				min	max	min	max	min	max	min	max
P	Non-alloyed steel	<600	<180	0.20	4.50	0.30	0.70	0.20	0.35	0.08	0.15
		<950	<280								
	Alloyed steel	700-950	200-280			0.27	0.50	0.20	0.35	0.08	0.15
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230			0.27	0.40	0.15	0.25	0.05	0.15
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300			0.15	0.30	0.10	0.20	0.05	0.10
K	Grey cast iron	700	220			0.30	0.45	0.15	0.30	-	
	Nodular cast iron	880	260								
	Malleable cast iron	800	250								
S	Fe-based alloy	943	280			0.17	0.25	0.10	0.20	0.05	0.10
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
N	Aluminum	260	75			-		-		0.05	0.35
	Aluminum alloy	447	130								
H	Hardened steel	-	50-60HRC	0.20	1.50	0.06	0.12	-		-	
	Chilled cast iron	-	55HRC								

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

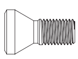
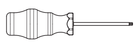
AFM40-ON05

40 ° Approaching angle milling cutter for face milling





Designation	D	d1	L	apmax	Internal coolant	Z	Inserts
AFM40-050-Z06-A22R-ON05-C	50	22	40	3.5		6	ON..0504
AFM40-063-Z06-A22R-ON05-C	63	22	40	3.5		6	
AFM40-063-Z08-A22R-ON05-C	63	22	40	3.5		8	
AFM40-080-Z06-A27R-ON05-C	80	27	50	3.5		6	
AFM40-080-Z08-A27R-ON05-C	80	27	50	3.5		8	
AFM40-080-Z09-A27R-ON05-C	80	27	50	3.5		9	
AFM40-100-Z07-A32R-ON05-C	100	32	50	3.5		7	
AFM40-100-Z09-A32R-ON05-C	100	32	50	3.5		9	
AFM40-100-Z11-A32R-ON05-C	100	32	50	3.5		11	
AFM40-125-Z07-A32R-ON05-C	125	40	63	3.5		7	
AFM40-125-Z09-A40R-ON05-C	125	40	63	3.5		9	
AFM40-125-Z14-A40R-ON05-C	125	40	63	3.5		14	
AFM40-160-Z10-A40R-ON05	160	40	63	3.5		10	

Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
ϕ50-160	 AST409-60	 ADT-T15	4.0Nm

Note: With internal coolant
Without internal coolant

Designation	Dimension(mm) Insert corner radius	Dimension(mm) Wiper length	Grades CVD coated AC301P	Grades CVD coated AC301K	Grades PVD coated AP301U	Grades PVD coated AP351U	Grades PVD coated AP401U	Grades PVD coated AP351K	Grades Uncoated AW100K
ONHU 050408-MM3	0.8	-			●				
ONMU 050408-MM4	0.8	-			●	●		●	
ONHU 050408AEN-MM3	0.8	1.6			●	●		●	
ONHU 050408AEN-MM4	0.8	1.6				●		●	
ONHU 0504ZNR-MM3	0.8	1.4			●				

Marked: ● Stock available ○ Produced by order

<table>
<tr><th colspan="4">Materials</th><th colspan="6">Cutting depth and feed</th></tr>
<tr><th rowspan="5">ISO</th><th rowspan="5">Material classification</th><th rowspan="5">Tensile strength (N/mm^2)</th><th rowspan="5">Hardness (HB)</th><th colspan="6">ON..0504</th></tr>
<tr><th colspan="2" rowspan="3">ap</th><th colspan="4">Geometry</th></tr>
<tr><th colspan="2">MM3</th><th colspan="2">MM4</th></tr>
<tr><th colspan="4">fz</th></tr>
<tr><th>min</th><th>max</th><th>min</th><th>max</th><th>min</th><th>max</th></tr>
<tr><td rowspan="5">P</td><td rowspan="2">Non-alloyed steel</td><td><600</td><td><180</td><td rowspan="15">0.50</td><td rowspan="15">3.50</td><td rowspan="5">0.10</td><td rowspan="5">0.25</td><td rowspan="5">0.18</td><td rowspan="5">0.35</td></tr>
<tr><td><950</td><td><280</td></tr>
<tr><td rowspan="3">Alloyed steel</td><td>700-950</td><td>200-280</td></tr>
<tr><td>950-1200</td><td>280-355</td></tr>
<tr><td>1200-1400</td><td>355-415</td></tr>
<tr><td rowspan="3">M</td><td>Duplex stainless steel</td><td>778</td><td>230</td><td rowspan="3">0.10</td><td rowspan="3">0.20</td><td rowspan="3">0.18</td><td rowspan="3">0.25</td></tr>
<tr><td>Austenitic stainless steel</td><td>675</td><td>200</td></tr>
<tr><td>Precipitation-hardening stainless steel</td><td>1013</td><td>300</td></tr>
<tr><td rowspan="3">K</td><td>Grey cast iron</td><td>700</td><td>220</td><td colspan="2" rowspan="3">-</td><td rowspan="3">0.18</td><td rowspan="3">0.35</td></tr>
<tr><td>Nodular cast iron</td><td>880</td><td>260</td></tr>
<tr><td>Malleable cast iron</td><td>800</td><td>250</td></tr>
<tr><td rowspan="4">S</td><td>Fe-based alloy</td><td>943</td><td>280</td><td rowspan="4">0.10</td><td rowspan="4">0.15</td><td rowspan="4">0.15</td><td rowspan="4">0.25</td></tr>
<tr><td>Co-based alloy</td><td>1076</td><td>320</td></tr>
<tr><td>Ni-based alloy</td><td>1177</td><td>350</td></tr>
<tr><td>Ti-alloy</td><td>1262</td><td>370</td></tr>
<tr><td rowspan="2">N</td><td>Aluminum</td><td>260</td><td>75</td><td colspan="2" rowspan="2">-</td><td colspan="2" rowspan="2">-</td><td colspan="2" rowspan="2">-</td></tr>
<tr><td>Aluminum alloy</td><td>447</td><td>130</td></tr>
<tr><td rowspan="2">H</td><td>Hardened steel</td><td>-</td><td>50-60HRC</td><td colspan="2" rowspan="2">-</td><td colspan="2" rowspan="2">-</td><td colspan="2" rowspan="2">-</td></tr>
<tr><td>Chilled cast iron</td><td>-</td><td>55HRC</td></tr>
</table>

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

NEW
PRODUCT！

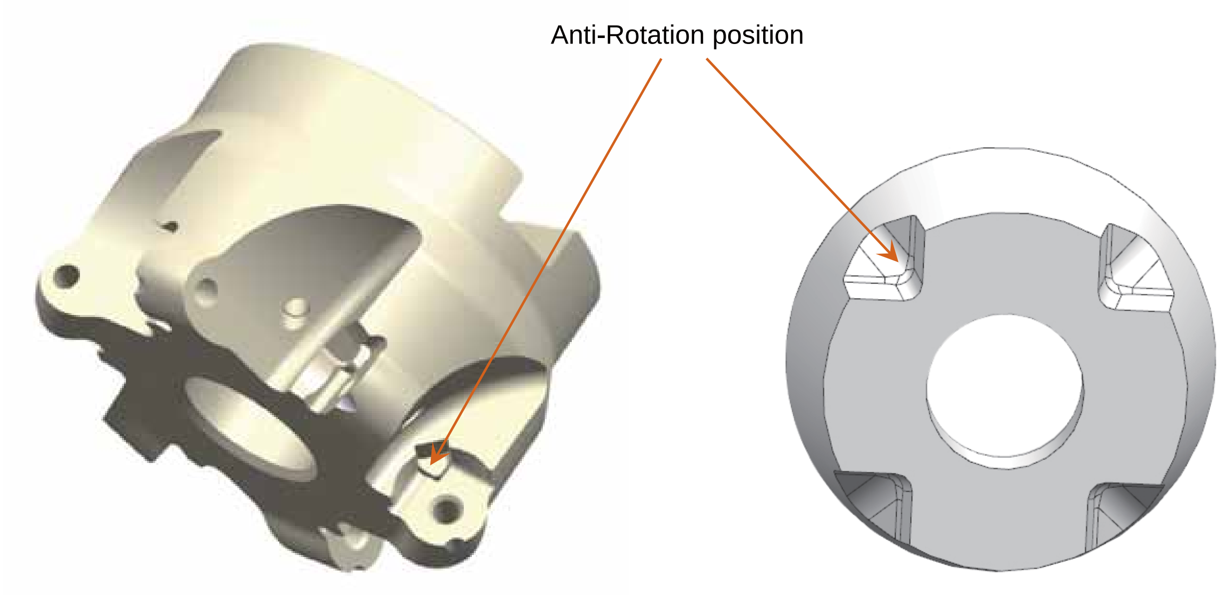
APM00-RO

Profiling Mills

ACHTECK launched its latest RO series profiling milling line, they are focused on Aerospace and Energy industry profiling cutting, such as Nickel base alloy, Titanium alloy and difficult to machine stainless steel. The latest proprietary patented PVD coating technology combined with 2 types geometry of MM3 and MR6, has outstanding performance and wide applicability

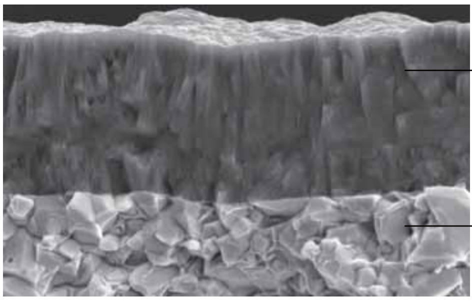
Product Features

- Cutter diameter range from Φ25mm to Φ160mm
- Multiple Chuck connection types: Screw connection interface, Cylinder shank and Arbor cutter
- Inserts has Anti-Rotation positioning function
- With MM3 geometry, fine ground flank and optimized cutting edge treatment, all these enable the cutter to have longer tool life
- New AP403S grade can fully cover Stainless Steel and Super Alloy machining



AP403S grade introduction

AP403S is the preferred grade for Nickel base super Alloy milling, and also suitable for Titanium alloy and Stainless Steel milling.



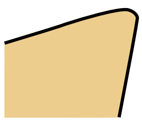
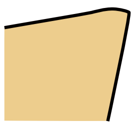
- Adopt material with high toughness and excellent high temperature resistant performance new substrate
- The usage of new generation PVD superhard coating, have super smooth surface, low friction coefficient features
- It still maintains good impact resistance and high cutting tool life even under complex and harsh working conditions such as strong impact and serious oxidation workpiece

Grades introduction and application range recommendation

Grade	Coating	Material					
		P	M	K	S	N	H
AP403S	PVD		◐		●		

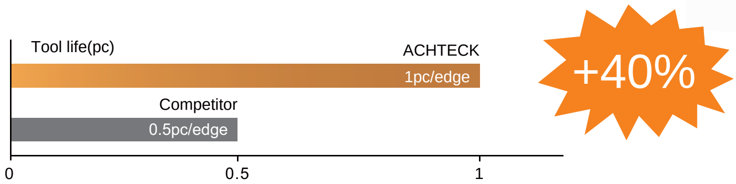
● Marked：1st Choice ◐ Marked：2nd Choice ○ Marked：Supplementary application

Geometry Introduction

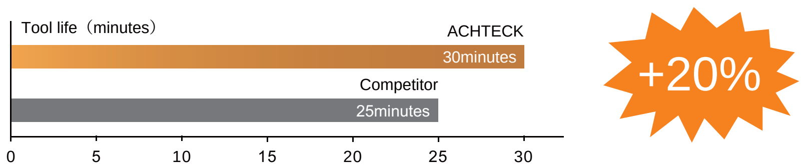
Geometry	Cutting Edge Shapes	Application conditions recommended
MM3		• Sharp • Relaively good working condition • Low cutting force (suitable for low power machine condition) • Medium feed rate
MR6		• Strong • For poor operating conditions • Highest machining stability • Higher feed rate

Case Study

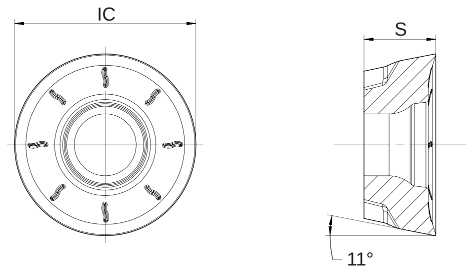
Workpiece: Turbine blade
Materials：X12CrNiMoV12-2
Inserts：ROMT 1204M6E-MR6 AP403S
Cutter：APM00-040-Z04-A16R-RO12-C
Machining process name: Airfoil roughing
Cutting parameters：Vc=198m/min,fz=0.25mm/z,ap=1.5mm
Coolant supply：yes



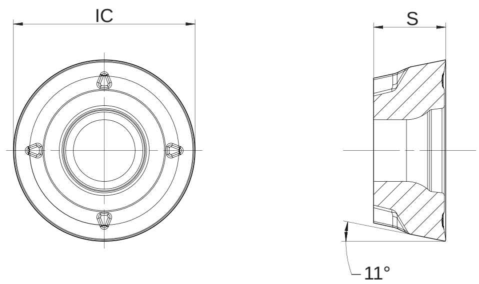
Workpiece：Aircraft landing gear
Materials：Ti5553
Insert：ROHT 1204M4E-MM3 AP403S
Cutter：APM00-063-Z06-A22R-RO12-C
Machining process：Face Milling
Cutting parameters：Vc=30m/min, fz=0.3mm/z, ap=1.5mm
Coolant supply：yes



Inserts Stock Status



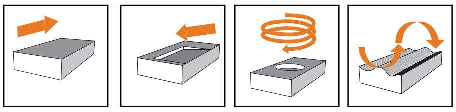
Inserts	Model	Size		Grades						
				CVD coated		PVD coated				Uncoated
		IC	S	AC301P	AC301K	AP301U	AP351U	AP401M	AP403S	AW100K
	ROHT 0803M0E-MM3	08	3.18						●	
	ROHT 10T3M8E-MM3	10	3.97						●	
	ROHT 1204M4E-MM3	12	4.76						●	
	ROHT 1204M6E-MM3	12	4.76						●	
	ROHT 1605M8E-MM3	16	5.56						●	
	ROHT 2006M8E-MM3	20	6.35						●	

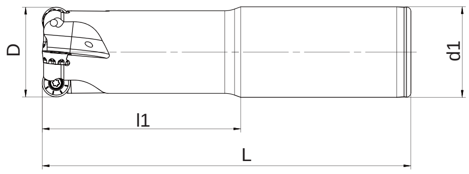


Inserts	Model	Size		Grades						
				CVD coated		PVD coated				Uncoated
		IC	S	AC301P	AC301K	AP301U	AP351U	AP401M	AP403S	AW100K
	ROMT 10T3M4E-MR6	10	3.97						●	
	ROMT 1204M6E-MR6	12	4.76						●	
	ROMT 1605M6E-MR6	16	5.56						●	
	ROMT 2006M8E-MR6	20	6.35						●	

● 代表常规库存

APM00-RO Cylinder shank holder





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<tr><th rowspan="2">Designation</th><th colspan="5">Dimension</th><th rowspan="2">Coolant</th><th rowspan="2">Z</th><th rowspan="2">Insert</th></tr>
<tr><th>D</th><th>d1</th><th>L</th><th>l1</th><th>apmax</th></tr>
<tr><td>APM00-025-Z04-C25R-RO08-L116-C</td><td>25</td><td>25</td><td>116</td><td>60</td><td>4</td><td></td><td>4</td><td>RO 08</td></tr>
<tr><td>APM00-025-Z03-C25R-RO10-L225-C</td><td>25</td><td>25</td><td>225</td><td>60</td><td>5</td><td></td><td>3</td><td rowspan="2">RO 10</td></tr>
<tr><td>APM00-032-Z04-C32R-RO10-L130-C</td><td>32</td><td>32</td><td>130</td><td>70</td><td>5</td><td></td><td>4</td></tr>
<tr><td>APM00-032-Z03-C32R-RO12-L120-C</td><td>32</td><td>32</td><td>120</td><td>40</td><td>6</td><td></td><td>3</td><td>RO 12</td></tr>
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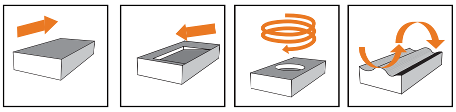
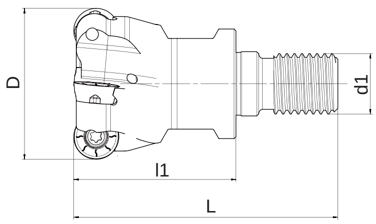
APM00-RO Screw type holder





<table>
<tr><th rowspan="2">Designation</th><th colspan="5">Dimension</th><th rowspan="2">Coolant</th><th rowspan="2">Z</th><th rowspan="2">Insert</th></tr>
<tr><th>D</th><th>d1</th><th>L</th><th>l1</th><th>apmax</th></tr>
<tr><td>APM00-025-Z03-M12R-RO10-C</td><td>25</td><td>M12</td><td>59</td><td>35</td><td>5</td><td></td><td>3</td><td rowspan="2">RO 10</td></tr>
<tr><td>APM00-032-Z04-M16R-RO10-C</td><td>32</td><td>M16</td><td>70</td><td>43</td><td>5</td><td></td><td>4</td></tr>
<tr><td>APM00-040-Z04-M16R-RO12-C</td><td>40</td><td>M16</td><td>70</td><td>43</td><td>6</td><td></td><td>4</td><td>RO 12</td></tr>
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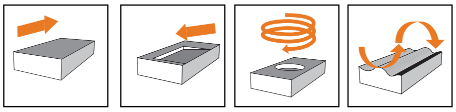
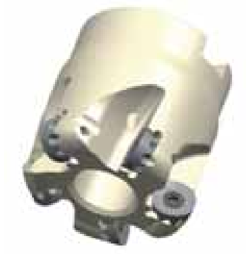
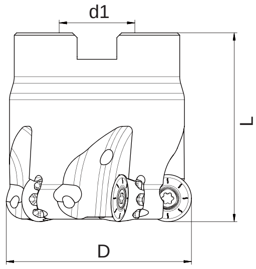
Remark : represent for coolant
represent for no coolant

APM00-R020 Arbor type cutter



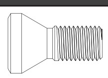


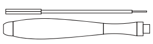


Designation	Dimension					Coolant	Z	Insert
	D	d1	L	l1	apmax			
APM00-040-Z05-A16R-RO10-C	40	16	40	-	5		5	RO 10
APM00-050-Z06-A22R-RO10-C	50	22	40	-	5		6	
APM00-040-Z04-A16R-RO12-C	40	16	40	-	6		4	RO 12
APM00-050-Z05-A22R-RO12-C	50	22	40	-	6		5	
APM00-063-Z06-A22R-RO12-C	63	22	40	-	6		6	
APM00-080-Z07-A27R-RO12-C	80	27	50	-	6		7	
APM00-063-Z05-A22R-RO16-C	63	22	40	-	8		5	RO 16
APM00-080-Z06-A27R-RO16-C	80	27	50	-	8		6	
APM00-100-Z07-A32R-RO16-C	100	32	50	-	8		7	
APM00-100-Z06-A32R-RO20-C	100	32	50	-	10		6	RO 20
APM00-125-Z07-A40R-RO20-C	125	40	63	-	10		7	
APM00-160-Z08-A40R-RO20	160	40	63	-	10		8	

Remark : represent for coolant
represent for no coolant

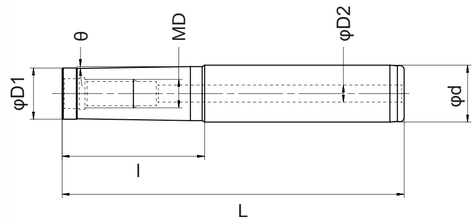
Spare parts Accessories

Spare Parts	Inserts Model	RO.T 0803	RO.T 10T3	RO.T 1204	RO.T 1605	RO.T 2006
	Tightening Screw	SP030062	SP030072H	SP040085H	SP050120	SP060121
	Tightening torque	2.0Nm	2.0Nm	4.0Nm	5.0Nm	7.0Nm

Appendices	Inserts Model	RO.T 0803	RO.T 10T3	RO.T 1204	RO.T 1605	RO.T 2006
	Screw Wrench	DT-TP09	DT-TP09	DT-TP15	DT-TP20	DT-TP25
	Cutter head installation wrench	φ20 AFW-15	φ25 AFW-19 / φ32 AFW-24	φ40 AFW-24		

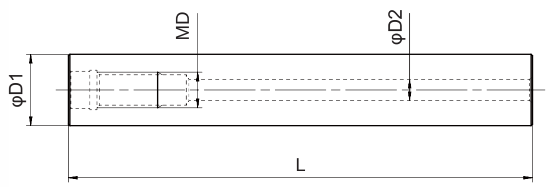
Shank Stock models(for Screw types cutter)

1-Head taper structure



Designation	Dimension						materials
	MD	φd	φD1	φD2	L	l	
AMS-M10-030-100-20T	M10	20	18	6	100	30	Steel
AMS-M10-050-120-20T	M10	20	18	6	120	50	Steel
AMC-M10-090-150-20T	M10	20	18	6	150	90	Carbide
AMC-M10-140-200-20T	M10	20	18	6	200	140	Carbide
AMS-M12-030-110-25T	M12	25	22.5	6	110	30	Steel
AMS-M12-050-130-25T	M12	25	22.5	6	130	50	Steel
AMC-M12-120-180-25T	M12	25	22.5	6	180	120	Carbide
AMC-M12-140-250-25T	M12	25	22.5	6	250	140	Carbide
AMS-M16-035-125-32T	M16	32	28.5	8	125	35	Steel
AMS-M16-055-145-32T	M16	32	28.5	8	145	55	Steel
AMC-M16-120-200-32T	M16	32	28.5	8	200	120	Carbide
AMC-M16-180-260-32T	M16	32	28.5	8	260	180	Carbide

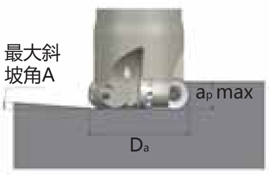
2-Straight Shank



Designation	Dimension				materials
	MD	φD1	φD2	L	
AMC-M10-130-20S	M10	20	6	130	Carbide
AMC-M10-250-20S	M10	20	6	250	Carbide
AMC-M12-145-25S	M12	25	6	145	Carbide
AMC-M12-285-25S	M12	25	6	285	Carbide
AMC-M16-157-32S	M16	32	8	157	Carbide
AMC-M16-287-32S	M16	32	8	287	Carbide

Ramping Milling parameters

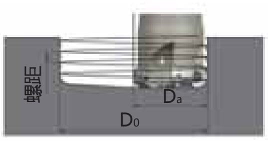
Ramping



Da (mm)	Maximum angle A (°) Indexible inserts diameter d (mm) d8	d10	d12	d16	d20
25	3.2	6.5			
32		3.0	4.2		
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
125					0.9
160					0.7
ap max(mm)	6.6	8.8	10.7	14	17.2

Helical Ramping Milling parameters

Actual Helical Ramping data on workpiece



Diameter range of the hole that can be milled by one pass（mm）

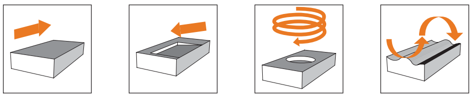
Da (mm)	Indexible inserts diameter d（mm） d8		d10		d12		d16		d20	
	DO min (mm)	DO max (mm)	DO min (mm)	DO max (mm)	DO min (mm)	DO max (mm)	DO min (mm)	DO max (mm)	DO min (mm)	DO max (mm)
25	36.5	50	32	50						
32			46	64	42.5	64				
40			62	80	59	80				
50			82	100	78.5	100	97.5	126		
63					104.5	126	131.5	160		
80					138	160	171.5	200		
100									165.5	200
125									215.5	250
160									285.5	320

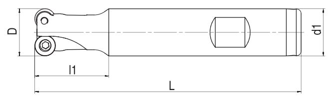
Cutting data Recommended

Machined Materials				Achteck Milling Application Ranges			Cutting depth and feed																	
ISO	Machined Materials	Tensile strength (N/mm²)	Hardness (HB)	AP403S			APM00-RO08		APM00-RO10				APM00-RO12				APM00-RO16				APM00-RO20			
				PVD																				
				-																				
				M30-40			Cutter diameter																	
				-			Φ25		Φ25-Φ50				Φ40-Φ80				Φ63-Φ100				Φ100-Φ160			
				S30-40			apmax																	
				-			4		5				6				8				10			
				-			Geometry																	
				ae/Dc			MM3		MM3		MM6		MM3		MM6		MM3		MM6		MM3		MM6	
				1/10	1/5	1/1	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
				Cutting speed(m/min)			Feed(mm/z)																	
P	Non-alloyed steel	<600	<180				0.05	0.30	0.05	0.30	0.10	0.30	0.05	0.45	0.10	0.50	0.10	0.45	0.10	0.50	0.10	0.45	0.10	0.50
		<950	<280				0.05	0.28	0.05	0.28	0.10	0.28	0.05	0.42	0.10	0.48	0.10	0.42	0.10	0.48	0.10	0.42	0.10	0.48
	Alloyed steel	700-950	200-280				0.05	0.28	0.05	0.28	0.10	0.28	0.05	0.42	0.10	0.48	0.10	0.42	0.10	0.48	0.10	0.42	0.10	0.48
		950-1200	280-355				0.05	0.26	0.05	0.26	0.10	0.26	0.05	0.40	0.10	0.46	0.10	0.40	0.10	0.46	0.10	0.40	0.10	0.46
		1200-1400	355-415				0.05	0.26	0.05	0.26	0.10	0.26	0.05	0.40	0.10	0.46	0.10	0.40	0.10	0.46	0.10	0.40	0.10	0.46
M	Duplex stainless steel	778	230	215	195	165	0.05	0.28	0.05	0.28	0.10	0.28	0.05	0.40	0.10	0.46	0.10	0.40	0.10	0.46	0.10	0.40	0.10	0.46
	Austenitic stainless steel	675	200	180	160	130	0.05	0.26	0.05	0.26	0.10	0.26	0.05	0.40	0.10	0.44	0.10	0.40	0.10	0.44	0.10	0.40	0.10	0.44
	Precipitation-hardening stainless steel	1013	300	180	180	150	0.05	0.26	0.05	0.26	0.10	0.26	0.05	0.40	0.10	0.44	0.10	0.40	0.10	0.44	0.10	0.40	0.10	0.44
K	Grey cast iron	700	220																					
	Nodular cast iron	880	260																					
	Malleable cast iron	800	250																					
S	Fe based alloy	943	280	75	55	45	0.04	0.24	0.04	0.24	0.10	0.24	0.04	0.36	0.10	0.40	0.10	0.36	0.10	0.40	0.10	0.36	0.10	0.40
	Co based alloy	1076	320	55	50	40	0.04	0.24	0.04	0.24	0.10	0.24	0.04	0.36	0.10	0.40	0.10	0.36	0.10	0.40	0.10	0.36	0.10	0.40
	Ni based alloy	1177	350	50	45	40	0.04	0.24	0.04	0.24	0.10	0.24	0.04	0.36	0.10	0.40	0.10	0.36	0.10	0.40	0.10	0.36	0.10	0.40
	Ti-alloy	1262	370	40	35	30	0.04	0.24	0.04	0.24	0.10	0.24	0.04	0.36	0.10	0.40	0.10	0.36	0.10	0.40	0.10	0.36	0.10	0.40
N	Aluminum	260	75																					
	Aluminum alloy	447	130																					
H	Hardened steel	-	48-55HRC																					
	Chilled cast iron	-	55HRC																					

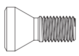
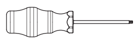
* The recommended cutting conditons always refer to general conditons. These cutting conditons should be adjusted according to the practical machine rigidity, tools, work piece clamping and coolants.

APM00-RD07
Profile milling cutter





Designation	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
APM00-016-Z02-W16R-RD07-C	16	16	90	25	3.5		2	RD..0702
APM00-020-Z03-W20R-RD07-C	20	20	110	30	3.5		3	

Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
ф16-20	 AST25060-60S	 ADT-T08	1.0Nm

Note: With internal coolant
Without internal coolant

Designation	Dimension(mm)	Grades						
	Insert corner radius	CVD coated		PVD coated				Uncoated
		AC301P	AC301K	AP301U	AP351U	AP401U	AP351K	AW100K
RDHW 0702MOS-HR2	3.5	●	●	●	●		●	
RDMT 0702MOE-MM3	3.5	●	●	●				
RDHT 0702MOE-MM3	3.5			●				

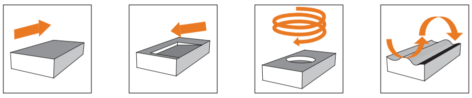
Marked: ● Stock available ○ Produced by order

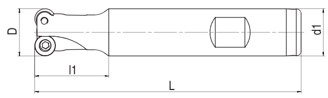
Materials				Cutting depth and feed							
				RD..0702..							
				Medium machining				Finishing			
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	ap		fz		ap		fz	
				(mm)							
				min	max	min	max	min	max	min	max
P	Non-alloyed steel	<600	<180	0.50	1.20	0.06	0.12	0.10	0.50	0.04	0.10
		<950	<280								
	Alloyed steel	700-950	200-280	0.50	1.00	0.06	0.10			0.03	0.10
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230	0.50	1.00	0.05	0.10			0.04	0.08
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300	0.50	0.80	0.05	0.08			0.03	0.08
K	Grey cast iron	700	220	0.50	1.00	0.06	0.10			0.04	0.10
	Nodular cast iron	880	260								
	Malleable cast iron	800	250								
S	Fe-based alloy	943	280	0.50	0.80	0.05	0.08			0.05	0.08
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
N	Aluminum	260	75	0.50	1.00	0.05	0.10			0.04	0.15
	Aluminum alloy	447	130								
H	Hardened steel	-	50-60HRC	-		-				0.03	0.04
	Chilled cast iron	-	55HRC								

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

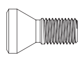
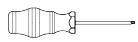
Milling cutters

APM00-RD10
Profile milling cutter





Designation	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
APM00-020-Z02-W20R-RD10-C	20	20	110	30	5	With internal coolant	2	RD..1003
APM00-025-Z02-W25R-RD10-C	25	25	120	30	5	With internal coolant	2	

Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
ф20-25	 AST409-60	 ADT-T15	4.0Nm

Note: With internal coolant
Without internal coolant

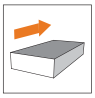
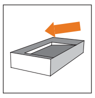
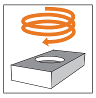
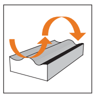
Designation	Dimension(mm) Insert corner radius	Grades CVD coated AC301P	CVD coated AC301K	PVD coated AP301U	PVD coated AP351U	PVD coated AP401U	PVD coated AP351K	Uncoated AW100K
RDHW 1003MOS-HR2	5	●	●	●	●		●	
RDMT 1003MOE-MM3	5	●	●	●	●			
RDHT 1003MOE-MM3	5			●				

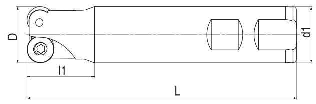
Marked: ● Stock available ○ Produced by order

Materials				Cutting depth and feed RD..1003.. (mm)											
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	Roughing ap min	Roughing ap max	Roughing fz min	Roughing fz max	Medium machining ap min	Medium machining ap max	Medium machining fz min	Medium machining fz max	Finishing ap min	Finishing ap max	Finishing fz min	Finishing fz max
P	Non-alloyed steel	<600	<180	2.50	5.00	0.12	0.25	0.80	2.50	0.10	0.20	0.10	0.80	0.05	0.14
		<950	<280												
	Alloyed steel	700-950	200-280	2.50	4.00	0.10	0.22			0.08	0.18			0.05	0.12
		950-1200	280-355												
		1200-1400	355-415												
M	Duplex stainless steel	778	230	-		-				0.08	0.14			0.05	0.12
	Austenitic stainless steel	675	200												
	Precipitation-hardening stainless steel	1013	300							0.08	0.10			0.05	0.10
K	Grey cast iron	700	220	2.50	4.00	0.10	0.22			0.08	0.18			0.05	0.12
	Nodular cast iron	880	260												
	Malleable cast iron	800	250												
S	Fe-based alloy	943	280	-		-				0.08	0.10			0.05	0.10
	Co-based alloy	1076	320												
	Ni-based alloy	1177	350												
	Ti-alloy	1262	370												
N	Aluminum	260	75	2.50	5.00	0.05	0.12			0.05	0.12			0.05	0.12
	Aluminum alloy	447	130												
H	Hardened steel	-	50-60HRC	-		-		0.50	1.00	0.05	0.08	0.10	0.50	0.03	0.05
	Chilled cast iron	-	55HRC												

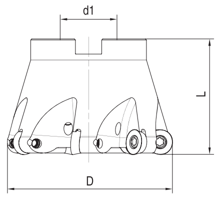
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolants.

APM00-RD12
Profile milling cutter

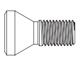
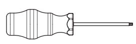







Designation	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
APM00-025-Z02-W25R-RD12T3-C	25	25	120	30	6		2	RD..12T3
APM00-032-Z03-W32R-RD12T3-C	32	32	120	40	6		3	

Designation	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
APM00-052-Z05-A22R-RD12T3-C	52	22	40	-	6		5	RD..12T3
APM00-066-Z06-A27R-RD12T3-C	66	27	50	-	6		6	
APM00-080-Z07-A27R-RD12T3-C	80	27	50	-	6		7	

Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
ϕ25-80			4.0Nm
	AST409-60	ADT-T15	

Note: With internal coolant
Without internal coolant

Designation	Dimension(mm) Insert corner radius	Grades CVD coated AC301P	AC301K	PVD coated AP301U	AP351U	AP401U	AP351K	Uncoated AW100K
RDHW 12T3MOS-HR2	6	●	●	●	●		●	
RDMW 12T3MOS-HR2	6		●					
RDMT 12T3MOE-MM3	6	●	●	●				
RDHT 12T3MOE-MM3	6	●	●	●	●		●	

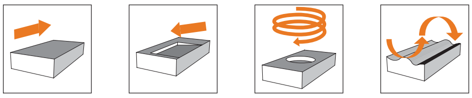
Marked: ● Stock available ○ Produced by order

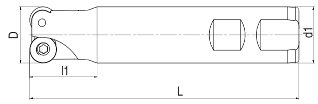
Materials				Cutting depth and feed RD..12T3.. (mm)											
				Roughing				Medium machining				Finishing			
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	ap min	ap max	fz min	fz max	ap min	ap max	fz min	fz max	ap min	ap max	fz min	fz max
P	Non-alloyed steel	<600	<180	3.00	6.00	0.25	0.40			0.22	0.32			0.10	0.18
		<950	<280												
	Alloyed steel	700-950	200-280	3.00	6.00	0.22	0.35			0.20	0.30			0.10	0.16
		950-1200	280-355												
		1200-1400	355-415												
M	Duplex stainless steel	778	230	-		-				0.08	0.16			0.08	0.12
	Austenitic stainless steel	675	200												
	Precipitation-hardening stainless steel	1013	300							0.08	0.14			0.08	0.10
K	Grey cast iron	700	220	3.00	6.00	0.22	0.35	0.80	3.00	0.20	0.30	0.10	0.80	0.10	0.12
	Nodular cast iron	880	260												
	Malleable cast iron	800	250												
S	Fe-based alloy	943	280	-		-				0.06	0.12			0.08	0.12
	Co-based alloy	1076	320												
	Ni-based alloy	1177	350												
	Ti-alloy	1262	370												
N	Aluminum	260	75	3.00	6.00	0.06	0.12			0.05	0.14			0.06	0.12
	Aluminum alloy	447	130												
H	Hardened steel	-	50-60HRC	-		-		0.50	1.00	0.05	0.08	0.10	0.50	0.03	0.05
	Chilled cast iron	-	55HRC												

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

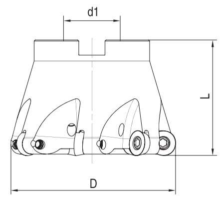
Milling cutters

APM00-RD16
Profile milling cutter

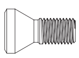
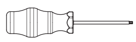




Designation	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
APM00-032-Z02-W32R-RD16-C	32	32	120	40	8		2	RD..1606



Designation	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
APM00-052-Z04-A22R-RD16-C	52	22	40	-	8		4	RD..1606
APM00-066-Z05-A27R-RD16-C	66	27	50	-	8		5	
APM00-080-Z06-A27R-RD16-C	80	27	50	-	8		6	
APM00-100-Z07-A32R-RD16-C	100	32	50	-	8		7	

Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
ϕ32-100	 AST5126-60	 ADT-T20	5.0Nm

Note: With internal coolant
Without internal coolant

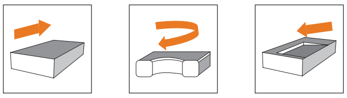
Designation	Dimension(mm) Insert corner radius	Grades CVD coated AC301P	AC301K	PVD coated AP301U	AP351U	AP401U	AP351K	Uncoated AW100K
RDHW 1606MOS-HR2	8			●			●	
RDMW 1606MOE-HR2	8		●					
RDMT 1606MOE-MM3	8	●	●	●				
RDHT 1606MOE-MM3	8	●	●	●	●		●	

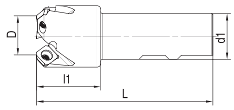
Marked: ● Stock available ○ Produced by order

Materials				Cutting depth and feed RD..1606.. (mm)											
				Roughing				Medium machining				Finishing			
				ap		fz		ap		fz		ap		fz	
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	min	max	min	max	min	max	min	max	min	max	min	max
P	Non-alloyed steel	<600	<180	4.00	8.00	0.33	0.55	0.80	4.00	0.25	0.35	0.10	0.80	0.10	0.18
		<950	<280												
	Alloyed steel	700-950	200-280	4.00	8.00	0.30	0.45			0.22	0.33			0.10	0.16
		950-1200	280-355												
		1200-1400	355-415												
M	Duplex stainless steel	778	230	-		-				0.15	0.18			0.08	0.12
	Austenitic stainless steel	675	200												
	Precipitation-hardening stainless steel	1013	300							0.08	0.14			0.08	0.12
K	Grey cast iron	700	220	4.00	8.00	0.30	0.40			0.10	0.16			0.10	0.16
	Nodular cast iron	880	260												
	Malleable cast iron	800	250												
S	Fe-based alloy	943	280	-		-				0.08	0.12			0.08	0.12
	Co-based alloy	1076	320												
	Ni-based alloy	1177	350												
	Ti-alloy	1262	370												
N	Aluminum	260	75	4.00	8.00	0.06	0.12			0.06	0.12			0.06	0.12
	Aluminum alloy	447	130												
H	Hardened steel	-	50-60HRC	-		-		0.50	1.50	0.05	0.10	0.10	0.50	0.03	0.06
	Chilled cast iron	-	55HRC												

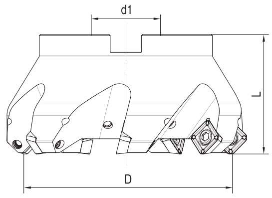
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolants.

AFM45-SD09
45 ° Approaching angle milling cutter for face milling

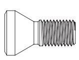
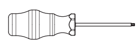




Designation	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
AFM45-016-Z02-W16R-SD09-C	16	16	90	25	5		2	SD..09T3
AFM45-020-Z02-W20R-SD09-C	20	20	110	30	5		2	
AFM45-025-Z03-W25R-SD09-C	25	25	120	30	5		3	
AFM45-032-Z03-W32R-SD09-C	32	32	120	35	5		3	



Designation	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
AFM45-032-Z04-A16R-SD09-C	32	16	40	-	5		4	SD..09T3
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-Z08-A40R-SD09-C	125	40	63	-	5		8	

Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
ф16-32			3.5Nm
	AST4075-60	ADT-T15	
ф40-125	AST409-60	ADT-T15	

Note: With internal coolant
Without internal coolant

Designation	Dimension(mm) Insert corner radius	Dimension(mm) Wiper length	Grades CVD coated AC301P	Grades CVD coated AC301K	Grades PVD coated AP301U	Grades PVD coated AP351U	Grades PVD coated AP401U	Grades PVD coated AP351K	Grades Uncoated AW100K
SDMT 09T304EN-MM3	0.4	-	●	●	●	●			
SDMT 09T308EN-MM3	0.8	-	●	●	●	●			
SDGT 09T3AEEN-MM4	-	1.4		●	●	●		●	
SDMW 09T308EN-HR2	0.8	-		●	●				
SDHW 09T3AESN-HR2	-	1.5		●	●			●	

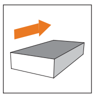
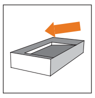
Marked: ● Stock available ○ Produced by order

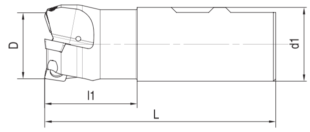
Materials				Cutting depth and feed SD..09T3..							
				HR2				MM3			
				ap		fz		ap		fz	
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	min (mm)	max (mm)	min (mm)	max (mm)	min (mm)	max (mm)	min (mm)	max (mm)
P	Non-alloyed steel	<600	<180			0.12	0.30			0.05	0.30
		<950	<280								
	Alloyed steel	700-950	200-280			0.12	0.25			0.05	0.30
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230			0.12	0.22			0.05	0.22
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300			-				-	
K	Grey cast iron	700	220			0.12	0.25			0.05	0.25
	Nodular cast iron	880	260	3.00	5.00			0.20	2.50		
	Malleable cast iron	800	250								
S	Fe-based alloy	943	280			-				-	
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
N	Aluminum	260	75			-				-	
	Aluminum alloy	447	130								
H	Hardened steel	-	50-60HRC			-				-	
	Chilled cast iron	-	55HRC								

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

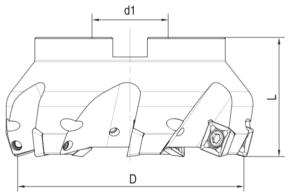
AFM75-SD09

75° Approach angle milling cutter for face milling

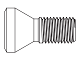
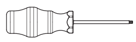





Designation	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
AFM75-025-Z02-W25R-SD09-C	25	25	96	40	6		2	SD..09T3
AFM75-032-Z03-W32R-SD09-C	32	32	100	40	6		3	

Designation	D	d1	L	l1	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-A22R-SD09-C	63	22	40	-	6		6	
AFM75-080-Z08-A27R-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
ф25-32	 AST4075-60	 ADT-T15	3.5Nm
ф40-100	AST409-60	ADT-T15	

Note: With internal coolant
Without internal coolant

Designation	Dimension(mm)		Grades						
	Insert corner radius	Wiper length	CVD coated		PVD coated				Uncoated
			AC301P	AC301K	AP301U	AP351U	AP401U	AP351K	AW100K
SDMT 09T304EN-MM3	0.4	-	●	●	●	●			
SDMT 09T308EN-MM3	0.8	-	●	●	●	●			
SDMW 09T308EN-HR2	0.8	-		●	●				

Marked: ● Stock available ○ Produced by order

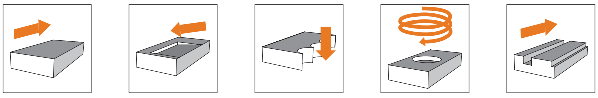
Materials				Cutting depth and feed							
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	SD..09T3..							
				HR2				MM3			
				ap		fz		ap		fz	
				(mm)							
				min	max	min	max	min	max	min	max
P	Non-alloyed steel	<600	<180	3.00	7.00	0.10	0.24	0.20	2.50	0.05	0.30
		<950	<280								
	Alloyed steel	700-950	200-280			0.10	0.20			0.05	0.30
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230			0.10	0.18			0.05	0.22
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300			-				-	
K	Grey cast iron	700	220			0.10	0.20			0.05	0.25
	Nodular cast iron	880	260								
	Malleable cast iron	800	250								
S	Fe-based alloy	943	280			-				-	
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
N	Aluminum	260	75			-				-	
	Aluminum alloy	447	130								
H	Hardened steel	-	50-60HRC			-				-	
	Chilled cast iron	-	55HRC								

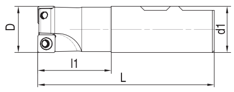
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolants.

Milling cutters

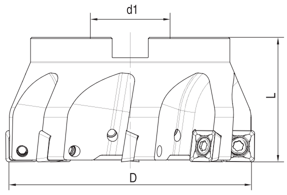
AFM90-SD09

90° Approach angle milling cutter for face milling

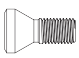
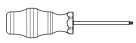




Designation	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
AFM90-025-Z02-W25R-SD09-C	25	25	120	30	6		2	SD..09T3
AFM90-032-Z03-W32R-SD09-C	32	32	120	35	6		3	



Designation	D	d1	L	l1	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-A22R-SD09-C	63	22	40	-	6		6	
AFM90-080-Z08-A27R-SD09-C	80	27	50	-	6		8	
AFM90-100-Z10-A32R-SD09-C	100	32	50	-	6		10	

Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
ф25-32			3.5Nm
	AST4075-60	ADT-T15	
ф40-100	AST409-60	ADT-T15	

Note: With internal coolant
Without internal coolant

ACHTECK

Designation	Dimension(mm)		Grades						
	Insert corner radius	Wiper length	CVD coated		PVD coated				Uncoated
			AC301P	AC301K	AP301U	AP351U	AP401U	AP351K	AW100K
SDMT 09T304EN-MM3	0.4	-	●	●	●	●			
SDMT 09T308EN-MM3	0.8	-	●	●	●	●			
SDGT 09T3PDER-MR6	0.8	1.2		●	●	●		●	
SDMW 09T308EN-HR2	0.8	-		●	●				

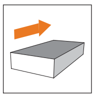
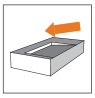
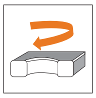
Marked: ● Stock available ○ Produced by order

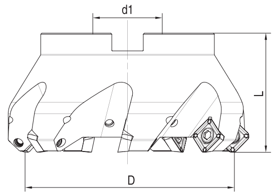
Materials				Cutting depth and feed							
				SD..09T3..							
				HR2				MM3			
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	ap		fz		ap		fz	
				(mm)							
				min	max	min	max	min	max	min	max
P	Non-alloyed steel	<600	<180	3.00	8.00	0.10	0.24	0.20	2.50	0.05	0.30
		<950	<280								
	Alloyed steel	700-950	200-280			0.10	0.20			0.05	0.30
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230			0.10	0.18			0.05	0.22
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300			-				-	
K	Grey cast iron	700	220			0.10	0.20			0.05	0.25
	Nodular cast iron	880	260								
	Malleable cast iron	800	250								
S	Fe-based alloy	943	280			-				-	
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
N	Aluminum	260	75			-				-	
	Aluminum alloy	447	130								
H	Hardened steel	-	50-60HRC			-				-	
	Chilled cast iron	-	55HRC								

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

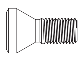
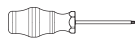
Milling cutters

AFM45-SD12
45° Approach angle milling cutter for face milling



Designation	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
AFM45-050-Z04-A22R-SD12-C	50	22	40	-	7	With internal coolant	4	SD..1204
AFM45-063-Z05-A22R-SD12-C	63	22	40	-	7	With internal coolant	5	
AFM45-080-Z06-A27R-SD12-C	80	27	50	-	7	With internal coolant	6	
AFM45-100-Z07-A32R-SD12-C	100	32	50	-	7	With internal coolant	7	
AFM45-125-Z08-A40R-SD12-C	125	40	63	-	7	With internal coolant	8	

Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
ϕ50-125			5.0Nm
	AST45115-55	ADT-T20	

Note: With internal coolant
Without internal coolant

Designation	Dimension(mm)		Grades						
	Insert corner radius	Wiper length	CVD coated		PVD coated				Uncoated
			AC301P	AC301K	AP301U	AP351U	AP401U	AP351K	AW100K
SDMT 120408EN-MM4	0.8	-		●	●	●		●	
SDMT 120412EN-MM3	1.2	-	●	●	●	●			
SDKT 1204AEEN-MR2	-	1.5	●	●	●	●		●	
SDHT 1204AEEN-MR6	-	1.5		●	●	●		●	
SDMW 120412EN-HR2	1.2	-		●	●			●	
SDHW 1204AESN-HR2	-	2		●	●			●	

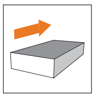
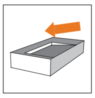
Marked: ● Stock available ○ Produced by order

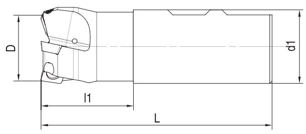
Materials				Cutting depth and feed															
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	SD..1204..															
				HR2				MR2				MR6				MM3			
				ap		fz		ap		fz		ap		fz		ap		fz	
				(mm)															
				min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max
P	Non-alloyed steel	<600	<180	3.00	6.00	0.20	0.45	1.00	3.00	0.15	0.30	1.00	6.00	0.15	0.35	0.20	3.00	0.05	0.30
		<950	<280																
	Alloyed steel	700-950	200-280			0.20	0.35			0.15	0.25			0.15	0.35			0.05	0.30
		950-1200	280-355																
		1200-1400	355-415																
M	Duplex stainless steel	778	230			0.15	0.30			0.15	0.25			0.15	0.27			0.05	0.22
	Austenitic stainless steel	675	200																
	Precipitation-hardening stainless steel	1013	300			-				0.15	0.20			-				-	
K	Grey cast iron	700	220			0.15	0.30			0.10	0.22			0.15	0.30			0.05	0.28
	Nodular cast iron	880	260																
	Malleable cast iron	800	250																
S	Fe-based alloy	943	280			-				-				-				-	
	Co-based alloy	1076	320																
	Ni-based alloy	1177	350																
	Ti-alloy	1262	370																
N	Aluminum	260	75			-				-				-				-	
	Aluminum alloy	447	130																
H	Hardened steel	-	50-60HRC			-				-				-				-	
	Chilled cast iron	-	55HRC																

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

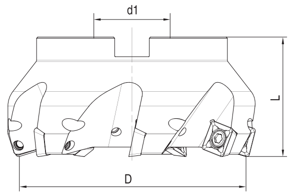
Milling cutters

AFM75-SD12
75° Approach angle milling cutter for face milling

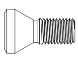
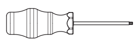





Designation	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
AFM75-032-Z02-W32R-SD12-C	32	32	114	49	8		2	SD..1204
AFM75-040-Z03-W32R-SD12-C	40	32	114	49	8		3	

Designation	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
AFM75-050-Z04-A22R-SD12-C	50	22	40	-	8		4	SD..1204
AFM75-063-Z05-A22R-SD12-C	63	22	40	-	8		5	
AFM75-080-Z06-A27R-SD12-C	80	27	50	-	8		6	
AFM75-100-Z07-A32R-SD12-C	100	32	50	-	8		7	
AFM75-125-Z08-A40R-SD12-C	125	40	63	-	8		8	

Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
ϕ32-125			5.0Nm
	AST45115-55	ADT-T20	

Note: With internal coolant
Without internal coolant

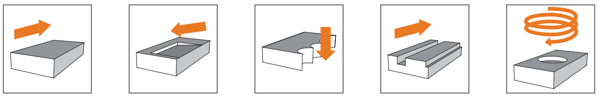
Designation	Dimension(mm) Insert corner radius	Dimension(mm) Wiper length	Grades CVD coated AC301P	Grades CVD coated AC301K	Grades PVD coated AP301U	Grades PVD coated AP351U	Grades PVD coated AP401U	Grades PVD coated AP351K	Grades Uncoated AW100K
SDMT 120408EN-MM4	0.8	-		●	●	●		●	
SDMT 120412EN-MM3	1.2	-	●	●	●	●			
SDMW 120412EN-HR2	1.2	-		●	●			●	

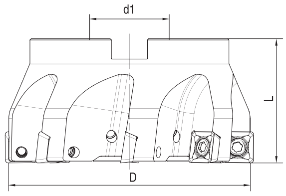
Marked: ● Stock available ○ Produced by order

<table>
<tr><th colspan="4">Materials</th><th colspan="8">Cutting depth and feed</th></tr>
<tr><th rowspan="5">ISO</th><th rowspan="5">Material classification</th><th rowspan="5">Tensile strength (N/mm^2)</th><th rowspan="5">Hardness (HB)</th><th colspan="8">SD..1204..</th></tr>
<tr><th colspan="4">HR2</th><th colspan="4">MM3</th></tr>
<tr><th colspan="2">ap</th><th colspan="2">fz</th><th colspan="2">ap</th><th colspan="2">fz</th></tr>
<tr><th colspan="8">(mm)</th></tr>
<tr><th>min</th><th>max</th><th>min</th><th>max</th><th>min</th><th>max</th><th>min</th><th>max</th></tr>
<tr><td rowspan="5">P</td><td rowspan="2">Non-alloyed steel</td><td><600</td><td><180</td><td rowspan="19">3.00</td><td rowspan="19">10.00</td><td rowspan="2">0.16</td><td rowspan="2">0.36</td><td rowspan="19">0.20</td><td rowspan="19">3.00</td><td rowspan="2">0.15</td><td rowspan="2">0.30</td></tr>
<tr><td><950</td><td><280</td></tr>
<tr><td rowspan="3">Alloyed steel</td><td>700-950</td><td>200-280</td><td rowspan="3">0.16</td><td rowspan="3">0.30</td><td rowspan="3">0.15</td><td rowspan="3">0.30</td></tr>
<tr><td>950-1200</td><td>280-355</td></tr>
<tr><td>1200-1400</td><td>355-415</td></tr>
<tr><td rowspan="3">M</td><td>Duplex stainless steel</td><td>778</td><td>230</td><td rowspan="2">0.12</td><td rowspan="2">0.24</td><td rowspan="2">0.15</td><td rowspan="2">0.22</td></tr>
<tr><td>Austenitic stainless steel</td><td>675</td><td>200</td></tr>
<tr><td>Precipitation-hardening stainless steel</td><td>1013</td><td>300</td><td colspan="2">-</td><td colspan="2">-</td></tr>
<tr><td rowspan="3">K</td><td>Grey cast iron</td><td>700</td><td>220</td><td rowspan="3">0.12</td><td rowspan="3">0.24</td><td rowspan="3">0.15</td><td rowspan="3">0.28</td></tr>
<tr><td>Nodular cast iron</td><td>880</td><td>260</td></tr>
<tr><td>Malleable cast iron</td><td>800</td><td>250</td></tr>
<tr><td rowspan="4">S</td><td>Fe-based alloy</td><td>943</td><td>280</td><td colspan="2" rowspan="4">-</td><td colspan="2" rowspan="4">-</td></tr>
<tr><td>Co-based alloy</td><td>1076</td><td>320</td></tr>
<tr><td>Ni-based alloy</td><td>1177</td><td>350</td></tr>
<tr><td>Ti-alloy</td><td>1262</td><td>370</td></tr>
<tr><td rowspan="2">N</td><td>Aluminum</td><td>260</td><td>75</td><td colspan="2" rowspan="2">-</td><td colspan="2" rowspan="2">-</td></tr>
<tr><td>Aluminum alloy</td><td>447</td><td>130</td></tr>
<tr><td rowspan="2">H</td><td>Hardened steel</td><td>-</td><td>50-60HRC</td><td colspan="2" rowspan="2">-</td><td colspan="2" rowspan="2">-</td></tr>
<tr><td>Chilled cast iron</td><td>-</td><td>55HRC</td></tr>
</table>

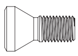
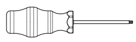
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolants.

AFM90-SD12
90° Approach angle milling cutter for face milling





Designation	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
AFM90-050-Z04-A22R-SD12-C	50	22	40	-	9		4	
AFM90-063-Z05-A22R-SD12-C	63	22	40	-	9		5	
AFM90-080-Z06-A27R-SD12-C	80	27	50	-	9		6	SD..1204
AFM90-100-Z08-A32R-SD12-C	100	32	50	-	9		8	
AFM90-125-Z10-A40R-SD12-C	125	40	63	-	9		10	

Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
ϕ50-125			5.0Nm
	AST45115-55	ADT-T20	

Note: With internal coolant
Without internal coolant

Designation	Dimension(mm) Insert corner radius	Dimension(mm) Wiper length	Grades CVD coated AC301P	Grades CVD coated AC301K	Grades PVD coated AP301U	Grades PVD coated AP351U	Grades PVD coated AP401U	Grades PVD coated AP351K	Grades Uncoated AW100K
SDMT 120408EN-MM4	0.8	-		●	●	●		●	
SDMT 120412EN-MM3	1.2	-	●	●	●	●			
SDGT 1204PDER-MR6	0.8	1.6		●	●	●		●	
SDMW 120412EN-HR2	1.2	-		●	●			●	

Marked: ● Stock available ○ Produced by order

<table>
<tr><th colspan="4">Materials</th><th colspan="8">Cutting depth and feed</th></tr>
<tr><th rowspan="5">ISO</th><th rowspan="5">Material classification</th><th rowspan="5">Tensile strength (N/mm^2)</th><th rowspan="5">Hardness (HB)</th><th colspan="8">SD..1204..</th></tr>
<tr><th colspan="4">HR2</th><th colspan="4">MM3</th></tr>
<tr><th colspan="2">ap</th><th colspan="2">fz</th><th colspan="2">ap</th><th colspan="2">fz</th></tr>
<tr><th colspan="4">(mm)</th><th colspan="4">(mm)</th></tr>
<tr><th>min</th><th>max</th><th>min</th><th>max</th><th>min</th><th>max</th><th>min</th><th>max</th></tr>
<tr><td rowspan="5">P</td><td rowspan="2">Non-alloyed steel</td><td><600</td><td><180</td><td rowspan="19">3.00</td><td rowspan="19">11.00</td><td rowspan="2">0.16</td><td rowspan="2">0.36</td><td rowspan="19">0.20</td><td rowspan="19">3.00</td><td rowspan="2">0.15</td><td rowspan="2">0.30</td></tr>
<tr><td><950</td><td><280</td></tr>
<tr><td rowspan="3">Alloyed steel</td><td>700-950</td><td>200-280</td><td rowspan="3">0.16</td><td rowspan="3">0.30</td><td rowspan="3">0.15</td><td rowspan="3">0.30</td></tr>
<tr><td>950-1200</td><td>280-355</td></tr>
<tr><td>1200-1400</td><td>355-415</td></tr>
<tr><td rowspan="3">M</td><td>Duplex stainless steel</td><td>778</td><td>230</td><td rowspan="2">0.12</td><td rowspan="2">0.24</td><td rowspan="2">0.15</td><td rowspan="2">0.22</td></tr>
<tr><td>Austenitic stainless steel</td><td>675</td><td>200</td></tr>
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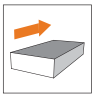
<tr><td rowspan="3">K</td><td>Grey cast iron</td><td>700</td><td>220</td><td rowspan="3">0.12</td><td rowspan="3">0.24</td><td rowspan="3">0.15</td><td rowspan="3">0.28</td></tr>
<tr><td>Nodular cast iron</td><td>880</td><td>260</td></tr>
<tr><td>Malleable cast iron</td><td>800</td><td>250</td></tr>
<tr><td rowspan="4">S</td><td>Fe-based alloy</td><td>943</td><td>280</td><td rowspan="4" colspan="2">-</td><td rowspan="4" colspan="2">-</td></tr>
<tr><td>Co-based alloy</td><td>1076</td><td>320</td></tr>
<tr><td>Ni-based alloy</td><td>1177</td><td>350</td></tr>
<tr><td>Ti-alloy</td><td>1262</td><td>370</td></tr>
<tr><td rowspan="2">N</td><td>Aluminum</td><td>260</td><td>75</td><td rowspan="2" colspan="2">-</td><td rowspan="2" colspan="2">-</td></tr>
<tr><td>Aluminum alloy</td><td>447</td><td>130</td></tr>
<tr><td rowspan="2">H</td><td>Hardened steel</td><td>-</td><td>50-60HRC</td><td rowspan="2" colspan="2">-</td><td rowspan="2" colspan="2">-</td></tr>
<tr><td>Chilled cast iron</td><td>-</td><td>55HRC</td></tr>
</table>

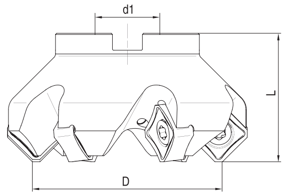
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolants.

Milling cutters

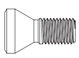
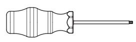
AFM45-SN12/SN19

45° Approach angle milling cutter for face milling





Designation	D	d1	L	apmax	Internal coolant	Z	Inserts
AFM45-050-Z04-A22R-SN12-C	50	22	40	6.5		4	
AFM45-050-Z06-A22R-SN12-C	50	22	40	6.5		6	
AFM45-063-Z06-A22R-SN12-C	63	22	40	6.5		6	
AFM45-063-Z08-A22R-SN12-C	63	22	40	6.5		8	
AFM45-080-Z05-A27R-SN12-C	80	27	50	6.5		5	
AFM45-080-Z07-A27R-SN12-C	80	27	50	6.5		7	
AFM45-100-Z06-A32R-SN12-C	100	32	50	6.5		6	SNGX 1206ANN SN ☐ X1206..
AFM45-100-Z08-A32R-SN12-C	100	32	50	6.5		8	
AFM45-125-Z08-A40R-SN12-C	125	40	63	6.5		8	
AFM45-125-Z10-A40R-SN12-C	125	40	63	6.5		10	
AFM45-160-Z10-A40R-SN12	160	40	63	6.5		10	
AFM45-160-Z12-A40R-SN12	160	40	63	6.5		12	
AFM45-200-Z14-A60R-SN12	200	60	63	6.5		14	
AFM45-250-Z16-A60R-SN12	250	60	63	6.5		16	
AFM45-160-Z08-A40R-SN19	160	40	63	11		8	
AFM45-200-Z10-A60R-SN19	200	60	63	11		10	SNGX1909ANN
AFM45-250-Z12-A60R-SN19	250	60	63	11		12	

Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
ф50-250(SN..1206ANN)			
	AST411-60W-M	ADT-T15	3.5Nm
ф160-250(SN..1909ANN)	AST618-70	ADT-T25	5.0Nm

Note: With internal coolant

Without internal coolant

Designation	Dimension(mm)		Grades						
	Insert corner radius	Wiper length	CVD coated		PVD coated				Uncoated
			AC301P	AC301K	AP301U	AP351U	AP401U	AP351K	AW100K
SNGX 1206ANN-MM3	-	1.8	●	●	●	●		●	
SNGX 1206ANN-MM4	-	1.8	●	●	●	●		●	
SNGX 1206ANN-MR6	-	1.8	●	●	●	●		●	
SNGX 1206ANN-RR2	-	1.8	●	●	●	●		●	
SNGX 1909ANN-MM3	-	2.9			●	●			
SNGX 1909ANN-MR6	-	2.9				●			
SNGX 120608-MM4	0.8	-	●	●	●	●		●	
SNGX 120612-MM4	1.2	-			●				
SNMX 120612-MM3	1.2	-	●	●	●	●		●	
SNMX 120612-MM4	1.2	-	●	●	●	●		●	
SNMX 120612-MR6	1.2	-	●	●	●	●		●	
SNMX 120612-RR2	1.2	-	●	●	●	●		●	
SNMX 120620-MM4	2.0	-	●	●	●	●		●	
SNMX 120620-RR2	2.0	-	●	●	●	●		●	
SNHX 1206ANN-FM2	-	1.8							●
SNHX 1206ANN-W	-	6.7		●	●				

Marked: ● Stock available ○ Produced by order

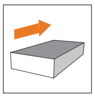
Materials				Cutting depth and feed											
				SNGX 1206..											
ISO	Material classification	Tensile strength (N/mm²)	Hardness (HB)	ap		MM3		MM4		MR6		RR2		FM2	
						fz		fz		fz		fz		fz	
				min	max	min	max	min	max	min	max	min	max	min	max
P	Non-alloyed steel	<600	<180	0.60	6-7	0.12	0.40	0.18	0.45	-		-		-	
		<950	<280							0.22	0.50	0.27	0.55	-	
	Alloyed steel	700-950	200-280			0.10	0.35	0.15	0.40	0.20	0.45	0.25	0.50	-	
		950-1200	280-355			0.10	0.25	0.15	0.35	0.18	0.40	0.22	0.45	-	
		1200-1400	355-415			-		0.12	0.25	0.15	0.30	0.18	0.35	-	
M	Duplex stainless steel	778	230			0.15	0.40	0.22	0.35	-		-		-	
	Austenitic stainless steel	675	200			0.12	0.35	0.18	0.35	0.20	0.40	0.24	0.45	-	
	Precipitation-hardening stainless steel	1013	300			0.12	0.25	0.15	0.30	-		-		-	
K	Grey cast iron	700	220			0.15	0.40	0.18	0.50	0.22	0.60	0.26	0.70	-	
	Nodular cast iron	880	260			0.15	0.35	0.18	0.45	0.22	0.50	0.26	0.60	-	
	Malleable cast iron	800	250			0.18	0.40	0.22	0.50	0.26	0.60	0.30	0.60	-	
S	Fe-based alloy	943	280			0.10	0.25	0.12	0.30	0.15	0.35	0.18	0.35	-	
	Co-based alloy	1076	320			-		0.04	0.13	0.04	0.15	-		-	
	Ni-based alloy	1177	350			0.04	0.15	0.07	0.20	0.12	0.22	-		-	
	Ti-alloy	1262	370			0.06	0.20	0.10	0.25	-		-		-	
N	Aluminum	260	75			-		-		-		-		0.1	0.3
	Aluminum alloy	447	130			-		-		-		-		0.1	0.24
H	Hardened steel	-	50-60HRC			0.06	0.15	0.10	0.20	0.12	0.25	0.15	0.30	-	
	Chilled cast iron	-	55HRC												

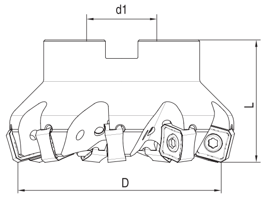
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolants.

Milling cutters

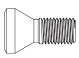
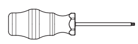
AFM75-SN12

75° Approach angle milling cutter for face milling





Designation	D	d1	L	apmax	Internal coolant	Z	Inserts
AFM75-050-Z04-A22R-SN12-C	50	22	40	8.0		4	SNGX1206ENN SN ☐ X1206..
AFM75-063-Z06-A22R-SN12-C	63	22	40	8.0		6	
AFM75-080-Z05-A27R-SN12-C	80	27	50	8.0		5	
AFM75-080-Z07-A27R-SN12-C	80	27	50	8.0		7	
AFM75-100-Z06-A32R-SN12-C	100	32	50	8.0		6	
AFM75-100-Z08-A32R-SN12-C	100	32	50	8.0		8	
AFM75-125-Z08-A40R-SN12-C	125	40	63	8.0		8	
AFM75-125-Z10-A40R-SN12-C	125	40	63	8.0		10	
AFM75-160-Z10-A40R-SN12	160	40	63	8.0		10	
AFM75-160-Z12-A40R-SN12	160	40	63	8.0		12	
AFM75-200-Z16-A60R-SN12	200	60	63	8.0		16	
AFM75-250-Z16-A60R-SN12	250	60	63	8.0		16	

Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
ф50-250			3.5Nm
	AST411-60W-M	ADT-T15	

Note: With internal coolant
Without internal coolant

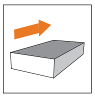
Designation	Dimension(mm)		Grades						
	Insert corner radius	Wiper length	CVD coated		PVD coated				Uncoated
			AC301P	AC301K	AP301U	AP351U	AP401U	AP351K	AW100K
SNGX 1206ENN-MM3	-	1.2	●	●	●	●		●	
SNGX 1206ENN-MM4	-	1.2	●	●	●	●		●	
SNGX 1206ENN-MR6	-	1.2	●	●	●	●		●	
SNGX 120608-MM4	0.8	-	●	●	●	●		●	
SNGX 120612-MM4	1.2	-			●				
SNMX 120612-MM3	1.2	-	●	●	●	●		●	
SNMX 120612-MM4	1.2	-	●	●	●	●		●	
SNMX 120612-MR6	1.2	-	●	●	●	●		●	
SNMX 120612-RR2	1.2	-	●	●	●	●		●	
SNMX 120620-MM4	2.0	-	●	●	●	●		●	
SNMX 120620-RR2	2.0	-	●	●	●	●		●	

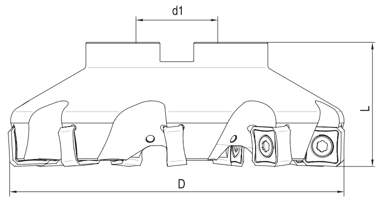
Marked: ● Stock available ○ Produced by order

Materials				Cutting depth and feed									
				SNGX 1206..									
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	ap		MM3		MM4		MR6		RR2	
						fz		fz		fz		fz	
				min	max	min	max	min	max	min	max	min	max
P	Non-alloyed steel	<600	<180	0.80	8-9.5	0.09	0.29	0.13	0.33	-		-	
		<950	<280							0.16	0.37	0.20	0.40
	Alloyed steel	700-950	200-280			0.07	0.26	0.11	0.29	0.15	0.33	0.18	0.37
		950-1200	280-355			0.07	0.18	0.11	0.26	0.13	0.29	0.16	0.33
		1200-1400	355-415			-		0.09	0.18	0.11	0.22	0.13	0.26
M	Duplex stainless steel	778	230			0.11	0.29	0.16	0.26	-		-	
	Austenitic stainless steel	675	200			0.09	0.26	0.13	0.26	0.15	0.29	0.18	0.33
	Precipitation-hardening stainless steel	1013	300			0.09	0.18	0.11	0.22	-		-	
K	Grey cast iron	700	220			0.11	0.29	0.13	0.37	0.16	0.44	0.19	0.51
	Nodular cast iron	880	260			0.11	0.26	0.13	0.33	0.16	0.37	0.19	0.44
	Malleable cast iron	800	250			0.13	0.29	0.16	0.37	0.19	0.44	0.22	0.44
S	Fe-based alloy	943	280			0.07	0.18	0.09	0.22	0.11	0.26	0.13	0.26
	Co-based alloy	1076	320			-		0.03	0.10	0.03	0.11	-	
	Ni-based alloy	1177	350			0.03	0.11	0.05	0.15	0.09	0.16	-	
	Ti-alloy	1262	370			0.04	0.15	0.07	0.18	-		-	
N	Aluminum	260	75			-		-		-		-	
	Aluminum alloy	447	130			-		-		-		-	
H	Hardened steel	-	50-60HRC			0.06	0.11	0.07	0.15	0.09	0.18	0.11	0.22
	Chilled cast iron	-	55HRC										

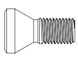
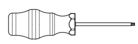
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolants.

AFM88-SN12
88° Approach angle milling cutter for face milling





Designation	D	d1	L	apmax	Internal coolant	Z	Inserts
AFM88-050-Z04-A22R-SN12-C	50	22	40	10.0		4	SNGX1206ZNN SN ☐ X1206..
AFM88-063-Z06-A22R-SN12-C	63	22	40	10.0		6	
AFM88-063-Z08-A22R-SN12-C	63	22	40	10.0		8	
AFM88-080-Z07-A27R-SN12-C	80	27	50	10.0		7	
AFM88-080-Z09-A27R-SN12-C	80	27	50	10.0		9	
AFM88-100-Z08-A32R-SN12-C	100	32	50	10.0		8	
AFM88-100-Z11-A32R-SN12-C	100	32	50	10.0		11	
AFM88-125-Z10-A40R-SN12-C	125	40	63	10.0		10	
AFM88-125-Z13-A40R-SN12-C	125	40	63	10.0		13	
AFM88-160-Z12-A40R-SN12	160	40	63	10.0		12	
AFM88-160-Z16-A40R-SN12	160	40	63	10.0		16	
AFM88-200-Z14-A60R-SN12	200	60	63	10.0		14	
AFM88-200-Z20-A60R-SN12	200	60	63	10.0		20	

Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
ϕ50-200			3.5Nm
	AST411-60W-M	ADT-T15	

Note: With internal coolant
Without internal coolant

Designation	Dimension(mm)		Grades						
	Insert corner radius	Wiper length	CVD coated		PVD coated				Uncoated
			AC301P	AC301K	AP301U	AP351U	AP401U	AP351K	AW100K
SNGX 1206ZNN-MM3	-	1.2	●	●	●	●		●	
SNGX 1206ZNN-MM4	-	1.2	●	●	●	●		●	
SNGX 1206ZNN-MR6	-	1.2	●	●	●	●		●	
SNGX 120608-MM4	0.8	-	●	●	●	●		●	
SNGX 120612-MM4	1.2	-			●				
SNMX 120612-MM3	1.2	-	●	●	●	●		●	
SNMX 120612-MM4	1.2	-	●	●	●	●		●	
SNMX 120612-MR6	1.2	-	●	●	●	●		●	
SNMX 120612-RR2	1.2	-	●	●	●	●		●	
SNMX 120620-MM4	2.0	-	●	●	●	●		●	
SNMX 120620-RR2	2.0	-	●	●	●	●		●	
SNHX 1206ZNN-FM2	-	1.2							●
SNHX 1206ZNN-W	1.0	4.4		●	●				

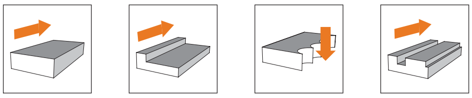
Marked: ● Stock available ○ Produced by order

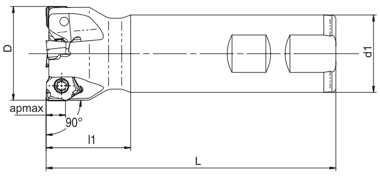
Materials				Cutting depth and feed												
				SNGX 1206..												
ISO	Material classification	Tensile strength (N/mm²)	Hardness (HB)	ap		MM3		MM4		MR6		RR2		FM2		
						fz		fz		fz		fz		fz		
				min	max	min	max	min	max	min	max	min	max	min	max	
P	Non-alloyed steel	<600	<180	0.8	8.5-10	0.08	0.28	0.13	0.32	-		-		-		
		<950	<280							0.16	0.35	0.19	0.39	-		
	Alloyed steel	700-950	200-280			0.07	0.25	0.11	0.28	0.14	0.45	0.18	0.35	-		
		950-1200	280-355			0.07	0.18	0.11	0.25	0.13	0.40	0.16	0.32	-		
		1200-1400	355-415			-		0.08	0.18	0.11	0.30	0.13	0.25	-		
M	Duplex stainless steel	778	230			0.11	0.28	0.16	0.25	-		-		-		
	Austenitic stainless steel	675	200			0.08	0.25	0.13	0.25	0.14	0.40	0.17	0.32	-		
	Precipitation-hardening stainless steel	1013	300			0.08	0.18	0.11	0.21	-		-		-		
K	Grey cast iron	700	220			0.11	0.28	0.13	0.35	0.16	0.60	0.18	0.49	-		
	Nodular cast iron	880	260			0.11	0.25	0.13	0.32	0.16	0.50	0.18	0.42	-		
	Malleable cast iron	800	250			0.13	0.28	0.16	0.35	0.18	0.60	0.21	0.42	-		
S	Fe-based alloy	943	280			0.07	0.18	0.08	0.21	0.11	0.35	0.13	0.25	-		
	Co-based alloy	1076	320			-		0.03	0.09	0.03	0.15	-		-		
	Ni-based alloy	1177	350			0.03	0.11	0.05	0.14	0.08	0.22	-		-		
	Ti-alloy	1262	370			0.04	0.14	0.07	0.18	-		-		-		
N	Aluminum	260	75			-		-		-		-		0.1	0.25	
	Aluminum alloy	447	130			-		-		-		-		0.1	0.2	
H	Hardened steel	-	50-60HRC			0.04	0.11	0.07	0.14	0.08	0.25	0.11	0.21	-		
	Chilled cast iron	-	55HRC													

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

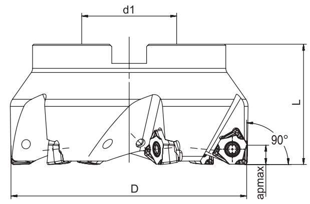
ASM90-WN08-C

90° square shoulder milling cutter

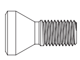
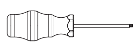




Designation	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
ASM90-040-Z03-W32R-WN08-C	40	32	120	35	8.0		3	WN.U 0806
ASM90-040-Z04-W32R-WN08-C	40	32	120	35	8.0		4	



Designation	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
ASM90-050-Z04-A22R-WN08-C	50	22	40	-	8.0		4	WN.U 0806
ASM90-050-Z05-A22R-WN08-C	50	22	40	-	8.0		5	
ASM90-063-Z06-A22R-WN08-C	63	22	40	-	8.0		6	
ASM90-063-Z07-A22R-WN08-C	63	22	40	-	8.0		7	
ASM90-080-Z07-A27R-WN08-C	80	27	50	-	8.0		7	
ASM90-080-Z09-A27R-WN08-C	80	27	50	-	8.0		9	
ASM90-100-Z08-A32R-WN08-C	100	32	50	-	8.0		8	
ASM90-100-Z11-A32R-WN08-C	100	32	50	-	8.0		11	
ASM90-125-Z11-A40R-WN08-C	125	40	63	-	8.0		11	
ASM90-125-Z13-A40R-WN08-C	125	40	63	-	8.0		13	
ASM90-160-Z12-A40R-WN08	160	40	63	-	8.0		12	

Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
ф40-160	 AST4085-60	 ADT-T15	3.5Nm

Note: With internal coolant

Without internal coolant

Designation	Dimension(mm)		Grades					
	Insert corner radius	Wiper length	CVD coated		PVD coated			Uncoated
			AC301P	AC301K	AP301U	AP351U	AP351K	AW100K
WNHU 080608R-FM2	0.8	2.0						●
WNGU 080604R-MM3	0.4	2.2	●	●		●		
WNGU 080608R-MM3	0.8	2.0				●		
WNGU 080604R-MM4	0.4	2.2	●			●	●	
WNGU 080608R-MM4	0.8	2.0	●	●		●		
WNGU 080612R-MM4	1.2	1.6		●		●		
WNGU 080616R-MM4	1.6	1.2		●		●		
WNGU 080608R-MR2	0.8	2.0	●	●	●	●	●	
WNGU 080612R-MR2	1.2	1.6		●		●		
WNGU 080616R-MR2	1.6	1.2		●		●		
WNHX 0806ZZR-W	1.0	4.8		●	●			

Marked: ● Stock available ○ Produced by order

Materials				Cutting depth and feed									
				WNGU0806									
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	ap		FM2 fz		MM3 fz		MM4 fz		MR2 fz	
				min	max	min	max	min	max	min	max	min	max
P	Non-alloyed steel	<600	<180							0.10	0.28		
		<950	<280					0.12	0.22	0.10	0.26	0.15	0.30
	Alloyed steel	700-950	200-280										
		950-1200	280-355					0.12	0.18	0.10	0.20	0.15	0.26
		1200-1400	355-415									0.15	0.22
M	Duplex stainless steel	778	230					0.12	0.18	0.10	0.20	0.15	0.24
	Austenitic stainless steel	675	200					0.12	0.16	0.10	0.18	0.15	0.20
	Precipitation-hardening stainless steel	1013	300					0.12	0.12	0.10	0.13		
K	Grey cast iron	700	220					0.12-	0.20	0.10	0.28	0.15	0.30
	Nodular cast iron	880	260	0.6	8								
	Malleable cast iron	800	250					0.12	0.18	0.10	0.24	0.15	0.26
S	Fe-based alloy	943	280					0.12	0.13	0.10	0.15		
	Co-based alloy	1076	320					0.12	0.12	0.10	0.13		
	Ni-based alloy	1177	350										
	Ti-alloy	1262	370					0.12	0.13	0.10	0.15		
N	Aluminum	260	75			0.10	0.24						
	Aluminum alloy	447	130			0.10	0.24						
H	Hardened steel	-	50-60HRC										
	Chilled cast iron	-	55HRC										

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

ACHTECK

NEW
PRODUCT !

AHM20-LN06

High Feed Milling Cutter

Achteck is launching a new high feed mini milling cutter, which is mounted negative, double sided four cutting edges insert. It provides a very good high feed milling solution.

The new cutter with a 20 degree kappa angle is ideal choice for high feed milling. Two kinds of geometry MM3, MM4 combined with Achteck's PVD coating technology provide exceptional performance. It can achieve excellent performance, good tool life and better surface finish quality. And can cover steel, stainless steel, cast iron, superalloy materials machining.

Product Features

- The insert has 4 cutting edges, gives a good economical solution.
- With optimized micro geometry edge, produced by selective production method, the MM3 geometry in combination with AP301U, AP401U grade, are suitable for stable condition, light cutting application and especially for more exotic materials. Predictable tool life and expected surface finish quality.
- The MM4 geometry has a strong cutting edge design for high efficiency machining.
- Max depth of cut 1.0mm.

- Approach angle 20 degree, brings ability for higher feed rates and more efficient machining processing.
- Introduced in a wide range of cutter diameters, from diameter 16mm to 63mm.
- The cutter design has a variety of interface forms: the screw modular type, the cylindrical type and the shell mill(Arbor) .
- Carbide shanks can be easily used for machining processing applications, such as large cutting depth and long overhanging. Smooth chip removal and minimal vibration.

Chip breaker Features

Chip breaker name	Edge Preparation	Feature
MM4		• For general machining • Can be used for 1st choice
MM3		• For better working conditions and finishing • Low cutting force (for low power machine)

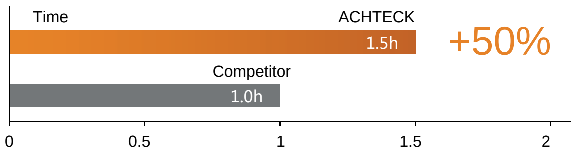
Grade application

Grade	Coating	Material					
		P	M	K	S	N	H
AP301U	PVD	●	◐		○		
AP351U	PVD	●	◐		○		
AP401U	PVD		●		◐		

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

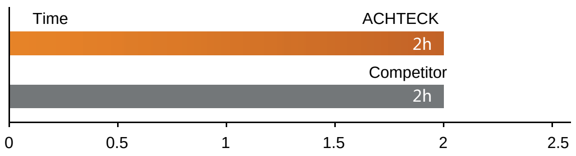
Case stories

Work piece:Die mould
Material:Alloy steel
Hardness:HB280
Insert:LNMX 060410R-MM4 AP301U
Cutter description:AHM20-020-Z03-C20R-LN06-L130-C
Cutting parameters:Vc=188m/min,fz=0.56mm/z
ap=0.8mm，Dry cutting



+50%

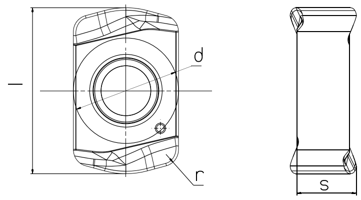
Work piece:Die mould
Material:Alloy steel
Hardness:HB280
Insert:LNMX 060410R-MM4 AP351U
Cutter description:AHM20-016-Z02-C16R-LN06-L100-C
Cutting parameters:Vc=160m/min,fz=0.60mm/z
ap=0.8mm，Dry cutting



The same processing time, the cost per piece is reduced by 20%

Insert stock item

LNMX 06

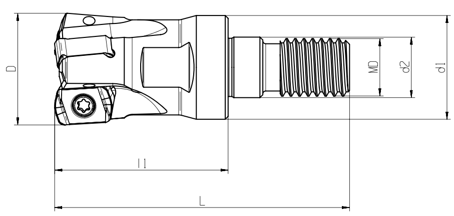


Insert	Designation	Dimensions (mm)				Grades						
						CVD coated		PVD coated				Un-coated
		l	d	s	r	AC301P	AC301K	AP301U	AP351U	AP401U	AP351K	AW100K
	LNMX 060410R-MM3	10	6.35	3.6	1.0			●	●	●		
	LNMX 060410R-MM4	10	6.35	3.6	1.0			●	●			

Remark：● represent for standard stock

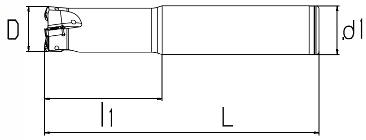
Cutter stock item

AHM20-LN06-C (Screw modular)



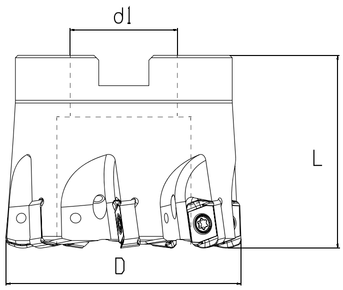
Designation	Dimension(mm)							Coolant	Z	Insert
	D	d1	d2	MD	L	l1	apmax			
AHM20-016-Z02-M08R-LN06-C	16	14.5	8.5	M08	42	25	1.0		2	LNMX 0604
AHM20-017-Z02-M08R-LN06-C	17	14.5	8.5	M08	42	25	1.0		2	
AHM20-020-Z03-M10R-LN06-C	20	18	10.5	M10	51	30	1.0		3	
AHM20-021-Z03-M10R-LN06-C	21	18	10.5	M10	51	30	1.0		3	
AHM20-025-Z04-M12R-LN06-C	25	23	12.5	M12	59	35	1.0		4	
AHM20-026-Z04-M12R-LN06-C	26	23	12.5	M12	59	35	1.0		4	
AHM20-032-Z05-M16R-LN06-C	32	29	17	M16	70	43	1.0		5	
AHM20-033-Z05-M16R-LN06-C	33	29	17	M16	70	43	1.0		5	
AHM20-035-Z05-M16R-LN06-C	35	29	17	M16	70	43	1.0		6	
AHM20-040-Z06-M16R-LN06-C	40	29	17	M16	70	43	1.0		6	

AHM20-LN06-C (Cylinderical type)

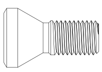
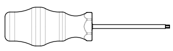



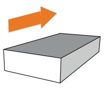
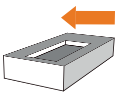
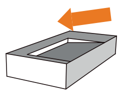
Designation	Dimension(mm)					Coolant	Z	Insert
	D	d1	L	l1	apmax			
AHM20-016-Z02-C16R-LN06-L100-C	16	16	100	30	1.0		2	LNMX 0604
AHM20-017-Z02-C16R-LN06-L150-C	17	16	150	25	1.0		2	
AHM20-020-Z03-C20R-LN06-L130-C	20	20	130	50	1.0		3	
AHM20-021-Z03-C20R-LN06-L160-C	21	20	160	30	1.0		3	
AHM20-025-Z03-C25R-LN06-L140-C	25	25	140	60	1.0		3	
AHM20-026-Z03-C25R-LN06-L180-C	26	25	180	35	1.0		3	
AHM20-032-Z04-C32R-LN06-L150-C	32	32	150	70	1.0		4	
AHM20-033-Z04-C32R-LN06-L200-C	33	32	200	35	1.0		4	
AHM20-035-Z05-C32R-LN06-L200-C	35	32	200	35	1.0		5	

AHM20-LN06-C (Shell mill)

Designation	Dimension(mm)					Coolant	Z	Insert
	D	d1	L	l1	apmax			
AHM20-040-Z06-A16R-LN06-C	40	16	40	-	1.0		6	LNMX 0604
AHM20-050-Z07-A22R-LN06-C	50	22	40	-	1.0		7	
AHM20-052-Z07-A22R-LN06-C	52	22	40	-	1.0		7	
AHM20-063-Z08-A22R-LN06-C	63	22	40	-	1.0		8	

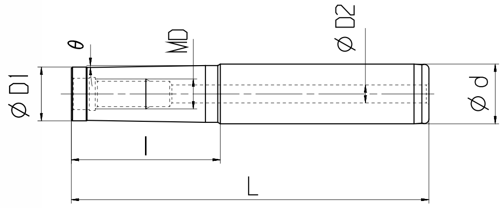
Dimension	Cutter spare parts		
Cutter diameter	Screw	Wrench	Torque
φ16-φ63	AST25064-50P	ADT-T08	1.0Nm
			

Application		
Face milling	Cavity milling	Ramp milling
		

Remark : represent for coolant
represent for no coolant

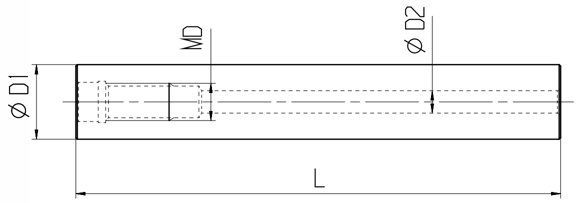
Shank stock item(used for screw modular type cutter)

1-Taper head shank



Designation	Dimension(mm)						Materials
	MD	φd	φD1	φD2	L	l	
AMS-M08-020-080-16T	M8	16	14.5	5	80	20	Steel
AMS-M08-040-100-16T	M8	16	14.5	5	100	40	Steel
AMC-M08-080-150-16T	M8	16	14.5	5	150	80	Carbide
AMC-M08-150-200-16T	M8	16	14.5	5	200	150	Carbide
AMS-M10-030-100-20T	M10	20	18	6	100	30	Steel
AMS-M10-050-120-20T	M10	20	18	6	120	50	Steel
AMC-M10-090-150-20T	M10	20	18	6	150	90	Carbide
AMC-M10-140-200-20T	M10	20	18	6	200	140	Carbide
AMS-M12-030-110-25T	M12	25	22.5	6	110	30	Steel
AMS-M12-050-130-25T	M12	25	22.5	6	130	50	Steel
AMC-M12-120-180-25T	M12	25	22.5	6	180	120	Carbide
AMC-M12-140-250-25T	M12	25	22.5	6	250	140	Carbide
AMS-M16-035-125-32T	M16	32	28.5	8	125	35	Carbide
AMS-M16-055-145-32T	M16	32	28.5	8	145	55	Steel
AMC-M16-120-200-32T	M16	32	28.5	8	200	120	Steel
AMC-M16-180-260-32T	M16	32	28.5	8	260	180	Carbide

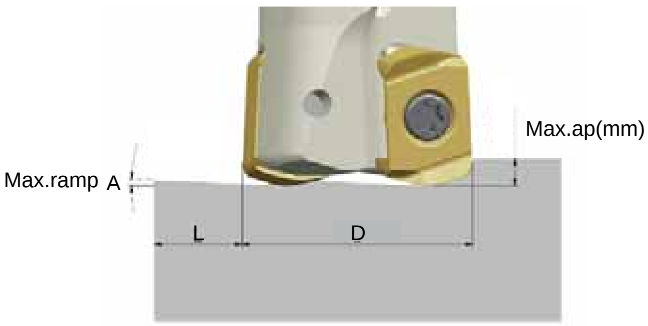
2-Straight shank



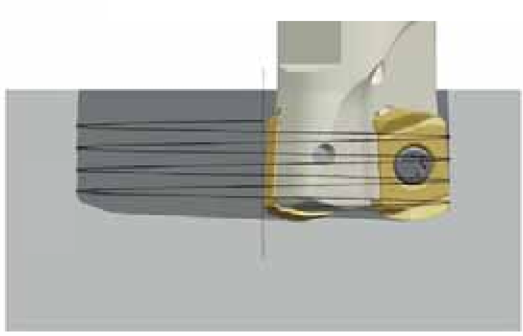
Designation	Dimension(mm)				Materials
	MD	φD1	φD2	L	
AMC-M08-105-16S	M8	16	5	105	Carbide
AMC-M08-160-16S	M8	16	5	160	Carbide
AMC-M10-130-20S	M10	20	6	130	Carbide
AMC-M10-250-20S	M10	20	6	250	Carbide
AMC-M12-145-25S	M12	25	6	145	Carbide
AMC-M12-285-25S	M12	25	6	285	Carbide
AMC-M16-157-32S	M16	32	8	157	Carbide
AMC-M16-287-32S	M16	32	8	287	Carbide

Technical information

Straight Ramping

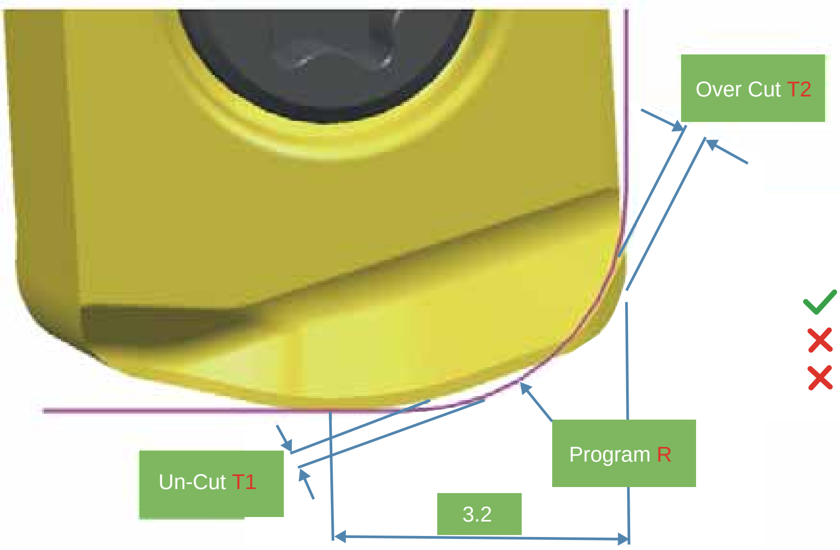


Helical Ramping



Cutter Dia(D)	Straight ramp down			Helical Ramping	
	Max.ramp-A	Max.ap(mm)	Min.length-L(mm)	Min.Dia.(mm)	Max.Dia(mm)
φ16	2.9°	0.7	13.8	23	32
φ17	2.6°	0.7	15.4	25	34
φ20	1.9°	1.0	30.1	31	40
φ21	1.8°	1.0	31.8	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	81.8	71	80
φ50	0.5°	1.0	114.5	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	0.43	0
R2.0	0.29	0.06
R2.5	0.15	0.24

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

Recommended cutting speed by materials

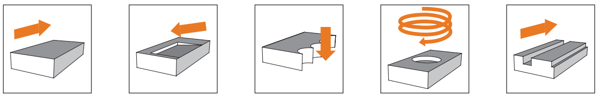
Machined Materials				Achteck Milling Grades Application Ranges									Cutting depth and feed rate								
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	AP301U			AP351U			AP401U			LNMX 0604								
				PVD			PVD			PVD						Chip breaker					
				P15-35			P30-45			P20-40						MM3			MM4		
				M15-35			M30-45			M20-40											
				-			-			-											
				-			-			-											
				-			S30-45			S20-40											
				-			-			-											
				Feed rate(mm/z)																	
				Min	Med	Max	Min	Med	Max	Min	Med	Max	ap(mm)			Feed rate(mm/z)					
				Cutting speed(m/min)									Min	-	Max	Min	-	Max	Min	-	Max
P	Non-alloyed steel	<600	<180	450	340	290	230	205	170				0.1		-1.0	0.30	-	2.00	0.30	-	2.00
		<950	<280	320	240	200	200	180	160												
	Alloyed steel	700-950	200-280	290	210	185	200	155	110												
		950-1200	280-355	280	210	200	180	130	90												
		1200-1400	355-415	210	170	110	140	105	70												
M	Duplex stainless steel	778	230	165	150	130	270	215	155	150	115	85				0.30	-	2.00	0.30	-	2.00
	Austenitic stainless steel	675	200	270	185	90	260	180	90	185	140	105									
	Precipitation-hardening stainless steel	1013	300	300	225	165	170	150	110	125	95	70									
K	Grey cast iron	700	220																		
	Nodular Cast iron	880	260																		
	Malleable cast iron	800	250																		
S	Fe based alloy	943	280																		
	Co based alloy	1076	320																		
	Ni based alloy	1177	350																		
	Ti-alloy	1262	370																		
N	Aluminum	260	75																		
	Aluminum alloy	447	130																		
H	Hardened steel	-	50-60HRC																		
	Chilled cast iron	-	55HRC																		

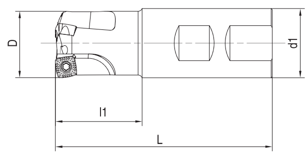
* The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, work piece clamping and cooants.

* When slotting , ap=1/2apmax

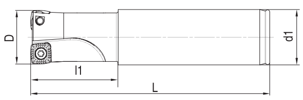
AHM15-XD09

15° Approach angle milling cutter for high feed

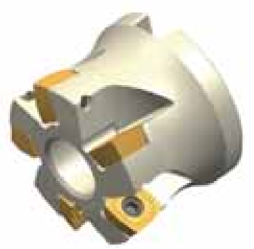


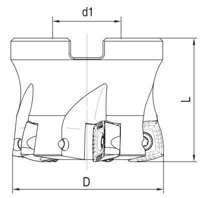


Designation	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
AHM15-025-Z02-W25R-XD09-C	25	25	96	40	1.5		2	XD..0904
AHM15-032-Z03-W32R-XD09-C	32	32	100	40	1.5		3	

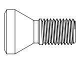
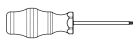


Designation	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
AHM15-025-Z02-C25R-XD09-C	25	25	200	50	1.5		2	XD..0904
AHM15-032-Z03-C32R-XD09-C	32	32	250	70	1.5		3	





Designation	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
AHM15-040-Z03-A16R-XD09-C	40	16	32	-	1.5		3	XD..0904
AHM15-040-Z04-A16R-XD09-C	40	16	32	-	1.5		4	
AHM15-040-Z05-A16R-XD09-C	40	16	32	-	1.5		5	
AHM15-050-Z05-A22R-XD09-C	50	22	40	-	1.5		5	
AHM15-050-Z06-A22R-XD09-C	50	22	40	-	1.5		6	

Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
φ25-50			3.0Nm
	AST35084-60	ADT-T10	

Note: Please refer to P330 for programming information of high feed milling cutter.

Note: With internal coolant
Without internal coolant

Designation	Dimension(mm)		Grades						
			CVD coated		PVD coated				Uncoated
	Insert corner radius	Wiper length	AC301P	AC301K	AP301U	AP351U	AP401U	AP351K	AW100K
XDLT 090408ER-MM3	0.8	1.3			●				
XDMW 090408ER-HR2	0.8	1.3		●					

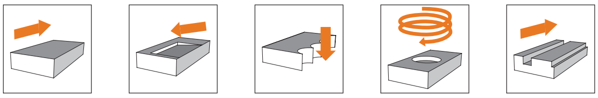
Marked: ● Stock available ○ Produced by order

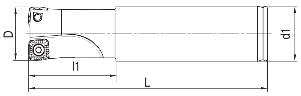
Materials				Cutting depth and feed XD..0904.. (mm)											
				Profile milling				Shoulder Milling				Plunging			
				ap		fz		ap		fz		ap		fz	
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	min	max	min	max	min	max	min	max	min	max	min	max
P	Non-alloyed steel	<600	<180			0.30	2.00			0.30	1.50			0.10	0.20
		<950	<280												
	Alloyed steel	700-950	200-280												
		950-1200	280-355			0.30	2.00			0.30	1.50			0.10	0.15
		1200-1400	355-415												
M	Duplex stainless steel	778	230			0.20	1.00			0.20	0.80			0.10	0.16
	Austenitic stainless steel	675	200												
	Precipitation-hardening stainless steel	1013	300			0.05	0.60			0.10	0.40			0.05	0.08
K	Grey cast iron	700	220												
	Nodular cast iron	880	260	0.20	1.50	0.30	2.00	0.20	1.50	0.30	1.50	0.20	6.00	0.10	0.20
	Malleable cast iron	800	250												
S	Fe-based alloy	943	280												
	Co-based alloy	1076	320			0.20	0.80			0.10	0.50			0.05	0.10
	Ni-based alloy	1177	350												
	Ti-alloy	1262	370												
N	Aluminum	260	75			0.30	1.00			0.30	1.00			0.10	0.30
	Aluminum alloy	447	130												
H	Hardened steel	-	50-60HRC			0.30	1.00			0.30	1.00			0.08	0.12
	Chilled cast iron	-	55HRC												

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

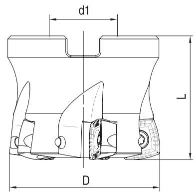
AHM15-XD12

15° Approach angle milling cutter for high feed

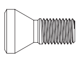
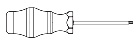




Designation	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
AHM15-032-Z02-C32R-XD12-C	32	32	250	70	2.5		2	XD..1205



Designation	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
AHM15-052-Z03-A22R-XD12-C	52	22	40	-	2.5		3	
AHM15-052-Z04-A22R-XD12-C	52	22	40	-	2.5		4	
AHM15-052-Z05-A22R-XD12-C	52	22	40	-	2.5		5	
AHM15-063-Z04-60A22R-XD12-C	63	22	40	-	2.5		4	
AHM15-063-Z05-60A22R-XD12-C	63	22	40	-	2.5		5	
AHM15-066-Z04-63A27R-XD12-C	66	27	45	-	2.5		4	
AHM15-066-Z05-63A27R-XD12-C	66	27	45	-	2.5		5	XD..1205
AHM15-080-Z05-76A27R-XD12-C	80	27	50	-	2.5		5	
AHM15-080-Z08-76A27R-XD12-C	80	27	50	-	2.5		8	
AHM15-100-Z06-96A32R-XD12-C	100	32	50	-	2.5		6	
AHM15-100-Z09-96A32R-XD12-C	100	32	50	-	2.5		9	
AHM15-125-Z08-100A40R-XD12-C	125	40	63	-	2.5		8	
AHM15-125-Z11-100A40R-XD12-C	125	40	63	-	2.5		11	

Dimension(mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
ф32-125	 AST4112-60	 ADT-T15	3.5Nm

Note: Please refer to P330 for programming information of high feed milling cutter.

Note: With internal coolant
Without internal coolant

Designation	Dimension(mm)		Grades						
	Insert corner radius	Wiper length	CVD coated		PVD coated				Uncoated
			AC301P	AC301K	AP301U	AP351U	AP401U	AP351K	AW100K
XDLT 120508ER-MM3	0.8	2.2	●	●	●	●		●	
XDLT 120512ER-MM3	1.2	2.2	●	●	●	●		●	
XDMW 120508ER-HR2	0.8	2.2		●	●				

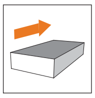
Marked: ● Stock available ○ Produced by order

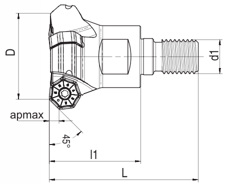
Materials				Cutting depth and feed											
				XD..1205..											
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	Profile milling				Shoulder Milling				Plunging			
				ap		fz		ap		fz		ap		fz	
				(mm)											
				min	max	min	max	min	max	min	max	min	max	min	max
P	Non-alloyed steel	<600	<180			0.30	3.00			0.30	2.00			0.10	0.25
		<950	<280												
	Alloyed steel	700-950	200-280			0.30	3.00			0.30	2.00			0.10	0.18
		950-1200	280-355												
		1200-1400	355-415												
M	Duplex stainless steel	778	230			0.20	1.20			0.20	1.00			0.12	0.18
	Austenitic stainless steel	675	200												
	Precipitation-hardening stainless steel	1013	300			0.02	0.08			0.10	0.60			0.05	0.10
K	Grey cast iron	700	220												
	Nodular cast iron	880	260	0.50	2.50	0.30	3.00	0.50	2.00	0.30	2.00	0.50	9.00	0.30	2.00
	Malleable cast iron	800	250												
S	Fe-based alloy	943	280			0.20	1.00			0.30	2.00			0.10	0.25
	Co-based alloy	1076	320												
	Ni-based alloy	1177	350												
	Ti-alloy	1262	370												
N	Aluminum	260	75			0.30	1.50			0.30	1.50			0.10	0.40
	Aluminum alloy	447	130												
H	Hardened steel	-	50-60HRC			0.30	1.00			0.30	1.00			0.08	0.15
	Chilled cast iron	-	55HRC												

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

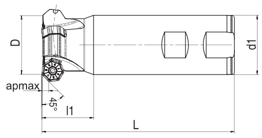
AFM45-XN07

45° Approach angle milling cutter for face milling

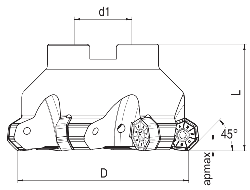




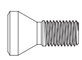
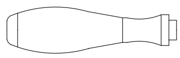
Designation	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
AFM45-040-Z03-M16R-XN07-C	40	16	70	43	4.4		3	XN.U 0705



Designation	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
AFM45-040-Z03-W40R-XN07-C	40	40	130	35	4.4		3	XN.U 0705



Designation	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
AFM45-040-Z03-A16R-XN07-C	40	16	40	-	4.4		3	XN.U 0705
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-Z05-A22R-XN07-C	63	22	40	-	4.4		5	
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	50	-	4.4		7	
AFM45-100-Z07-A32R-XN07-C	100	32	50	-	4.4		7	
AFM45-100-Z08-A32R-XN07-C	100	32	50	-	4.4		8	
AFM45-125-Z08-A40R-XN07-C	125	40	63	-	4.4		8	
AFM45-125-Z10-A40R-XN07-C	125	40	63	-	4.4		10	
AFM45-160-Z09-A40R-XN07	160	40	63	-	4.4		9	
AFM45-160-Z12-A40R-XN07	160	40	63	-	4.4		12	

Dimension(mm)	Spare parts			
Cutter diameter	Screw	Wrench		Torque
φ40-80 φ100-160				3.5Nm
	AST35120-60M	ADT-G16	BIT-T15	
		ADT-T15		

Note: With internal coolant
Without internal coolant

Designation	Dimension(mm)		Grades					
	Insert corner radius	Wiper length	CVD coated		PVD coated			
			AC301P	AC301K	AP301U	AP351U	AP401U	AP351K
XNGU 0705ANN-MM3	0.8	1.1		●	●	●		
XNGU 0705ANN-MM4	0.8	1.1		●	●			
XNMU 0705ANN-MM4	0.8	1.1	●	●	●	●		●
XNMU 0705ANN-MR6	0.8	1.1		●	●	●		●
XNMU 070508-MM4	0.8	-		●		●	●	●
XNGX 0705ANN-W	1.0	6		●	●			

Marked: ● Stock available ○ Produced by order

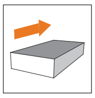
Materials				Cutting depth and feed							
				XN.. 0705..							
ISO	Material classification	Tensile strength (N/mm²)	Hardness (HB)	ap		MM3		MM4		MR6	
						fz		ap		fz	
				(mm)							
				min	max	min	max	min	max	min	max
P	Non-alloyed steel	<600	<180	0.6	3.6-4.4	0.11	0.38	0.18	0.45	-	
		<950	<280							0.22	0.50
	Alloyed steel	700-950	200-280			0.10	0.35	0.15	0.40	0.20	0.45
		950-1200	280-355			0.10	0.25	0.15	0.35	0.18	0.40
		1200-1400	355-415			-		0.12	0.25	0.15	0.30
M	Duplex stainless steel	778	230			0.15	0.35	0.20	0.35	-	
	Austenitic stainless steel	675	200			0.12	0.35	0.18	0.35	0.20	0.40
	Precipitation-hardening stainless steel	1013	300			0.12	0.25	0.15	0.30	-	
K	Grey cast iron	700	220			0.15	0.38	0.18	0.45	0.22	0.55
	Nodular cast iron	880	260			0.15	0.35	0.18	0.45	0.22	0.50
	Malleable cast iron	800	250			0.18	0.35	0.20	0.40	0.25	0.50
S	Fe-based alloy	943	280			0.10	0.25	0.12	0.25	-	
	Co-based alloy	1076	320			-		0.04	0.13	-	
	Ni-based alloy	1177	350			0.04	0.15	0.07	0.20		
	Ti-alloy	1262	370			0.06	0.20	0.10	0.25	-	
N	Aluminum	260	75			-		-		-	
	Aluminum alloy	447	130			-		-		-	
H	Hardened steel	-	50-60HRC			-		-		-	
	Chilled cast iron	-	55HRC								

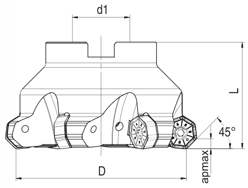
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolants.

Milling cutters

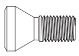
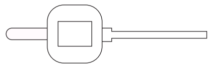
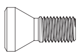
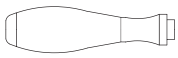
AFM45-XN09

45° Approach angle milling cutter for face milling



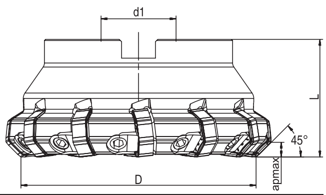


Designation	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
AFM45-063-Z05-A22R-XN09-C	63	22	40	-	6.0		5	XN.U 0906
AFM45-080-Z06-A27R-XN09-C	80	27	50	-	6.0		6	
AFM45-100-Z07-A32R-XN09-C	100	32	50	-	6.0		7	
AFM45-100-Z08-A32R-XN09-C	100	32	50	-	6.0		8	
AFM45-125-Z08-A40R-XN09-C	125	40	63	-	6.0		8	
AFM45-125-Z10-A40R-XN09-C	125	40	63	-	6.0		10	
AFM45-160-Z09-A40R-XN09	160	40	63	-	6.0		9	
AFM45-160-Z12-A40R-XN09	160	40	63	-	6.0		12	
AFM45-200-Z12-A60R-XN09	200	60	63	-	6.0		12	
AFM45-200-Z16-A60R-XN09	200	60	63	-	6.0		16	

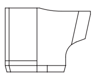
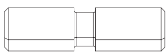
Dimension(mm)	spare parts			
Cutter diameter	Screw	Wrench		Torque
φ63-80				5.0Nm
	AST513-60	AWT-T20		
φ63-200				
	AST513-60	ADT-G16	BIT-T20	
		ADT-T20		

AFM45-XN09-W

45° face milling cutter with wedge clamping



Designation	D	d1	L	l1	apmax	Internal coolant	Z	Inserts
AFM45-080-Z09-A27R-XN09-W	80	27	50	-	6.0		9	XN.U 0906
AFM45-100-Z12-A32R-XN09-W	100	32	50	-	6.0		12	
AFM45-125-Z16-A40R-XN09-W	125	40	63	-	6.0		16	
AFM45-125-Z16-A40L-XN09-W	125	40	63	-	6.0		16	
AFM45-160-Z20-A40R-XN09-W	160	40	63	-	6.0		20	
AFM45-160-Z20-A40L-XN09-W	160	40	63	-	6.0		20	
AFM45-200-Z26-A60R-XN09-W	200	60	63	-	6.0		26	
AFM45-200-Z26-A60L-XN09-W	200	60	63	-	6.0		26	

Dimension(mm)	Spare parts			
Cutter diameter	Wedge	Screw	Wrench	Torque
φ80-200				7.0Nm
	AWG-8H	AWS830F	AWH4	

Note:  With internal coolant

 Without internal coolant

Designation	Dimension(mm) Insert corner radius	Dimension(mm) Wiper length	Grades CVD coated AC301P	Grades CVD coated AC301K	Grades PVD coated AP301U	Grades PVD coated AP351U	Grades PVD coated AP401U	Grades PVD coated AP351K
XNGU 0906ANN-MM3	0.8	1.4	●	●	●	●		
XNGU 0906ANN-MM4	0.8	1.4	●	●	●	●		
XNMU 0906ANN-MR6	0.8	1.4		●	●			●
XNMU 090612-MM4	1.2	-		●	●	●	●	●

Marked: ● Stock available ○ Produced by order

Materials				Cutting depth and feed XN..0906.. (mm)							
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	ap min	ap max	MM3 fz min	MM3 fz max	MM4 ap min	MM4 ap max	MR6 fz min	MR6 fz max
P	Non-alloyed steel	<600	<180			0.11	0.38	0.18	0.45	-	
		<950	<280							0.22	0.50
	Alloyed steel	700-950	200-280			0.10	0.35	0.15	0.40	0.20	0.45
		950-1200	280-355			0.10	0.25	0.15	0.35	0.18	0.40
		1200-1400	355-415			-		0.12	0.25	0.15	0.30
M	Duplex stainless steel	778	230			0.15	0.35	0.20	0.35	-	
	Austenitic stainless steel	675	200			0.12	0.35	0.18	0.35	0.20	0.40
	Precipitation-hardening stainless steel	1013	300			0.12	0.25	0.15	0.30	-	
K	Grey cast iron	700	220			0.15	0.38	0.18	0.45	0.22	0.55
	Nodular cast iron	880	260	0.6	5.0-6.0	0.15	0.35	0.18	0.45	0.22	0.50
	Malleable cast iron	800	250			0.18	0.35	0.20	0.40	0.25	0.50
S	Fe-based alloy	943	280			0.10	0.25	0.12	0.25	-	
	Co-based alloy	1076	320			-		0.04	0.13	-	
	Ni-based alloy	1177	350			0.04	0.15	0.07	0.20		
	Ti-alloy	1262	370			0.06	0.20	0.10	0.25	-	
N	Aluminum	260	75			-		-		-	
	Aluminum alloy	447	130			-		-		-	
H	Hardened steel	-	50-60HRC			-		-		-	
	Chilled cast iron	-	55HRC								

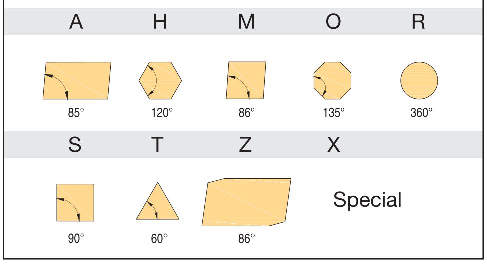
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolants.

Milling cutters

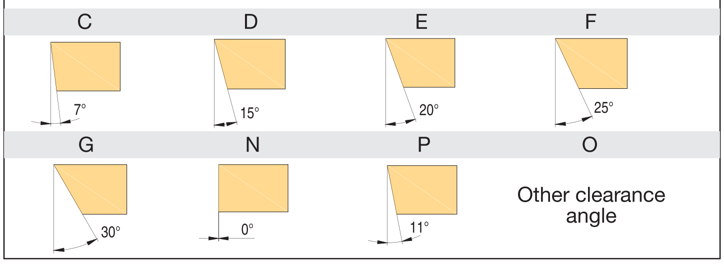
Milling Insert Designation System

A	P	F	W
1	2	3	4

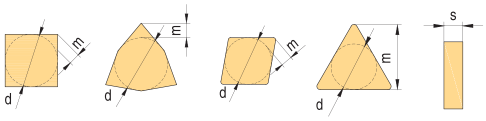
1- Shape/Code



2- Clearance Angle



3- Tolerance



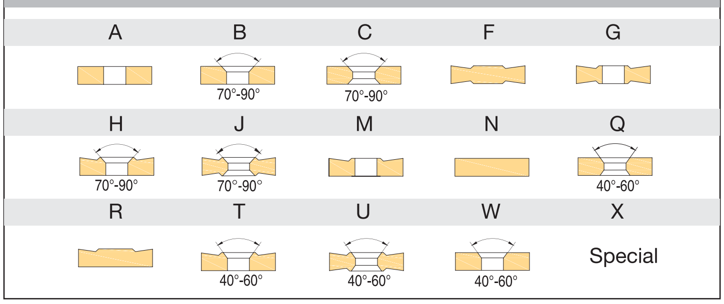
Class	Unit	In.Circle.Dimension d	Tool nose height m	Thickness s
A	mm	± 0,025	± 0,005	± 0,025
C	mm	± 0,025	± 0,013	± 0,025
E	mm	± 0,025	± 0,025	± 0,025
F	mm	± 0,013	± 0,005	± 0,025
G	mm	± 0,025	± 0,025	± 0,13
H	mm	± 0,013	± 0,013	± 0,025
J	mm	*	± 0,005	± 0,025
K	mm	*	± 0,013	± 0,025
L	mm	*	± 0,025	± 0,025
M	mm	*	*	± 0,127
U	mm	*	*	± 0,127
N	mm	*	*	± 0,025

* For details refer to right and below tables

Shape : C, E, H, M, O, P, S, T, R, W				
IC	d		m	
	J,K,L,M,N	U	M, N	U
4.76	± 0,05	± 0,08	± 0,08	± 0,13
5.56	± 0,05	± 0,08	± 0,08	± 0,13
6	± 0,05	± 0,08	± 0,08	± 0,13
6.35	± 0,05	± 0,08	± 0,08	± 0,13
7.94	± 0,05	± 0,08	± 0,08	± 0,13
8	± 0,05	± 0,08	± 0,08	± 0,13
9.525	± 0,05	± 0,08	± 0,08	± 0,13
10	± 0,05	± 0,08	± 0,08	± 0,13
12	± 0,08	± 0,13	± 0,13	± 0,2
12.7	± 0,08	± 0,13	± 0,13	± 0,2
15.875	± 0,1	± 0,18	± 0,15	± 0,27
16	± 0,1	± 0,18	± 0,15	± 0,27
19.05	± 0,1	± 0,18	± 0,15	± 0,27
20	± 0,1	± 0,18	± 0,15	± 0,27
25	± 0,13	± 0,25	± 0,18	± 0,38
25.4	± 0,13	± 0,25	± 0,18	± 0,38
31.75	± 0,15	± 0,25	± 0,2	± 0,38
32	± 0,15	± 0,25	± 0,2	± 0,38

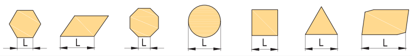
M&N class	D shape		V shape	
IC	d	m	d	m
5.56	± 0,05	± 0,11		
6.35	± 0,05	± 0,11	± 0,05	± 0,16
7.94	± 0,05	± 0,11	± 0,05	± 0,16
9.525	± 0,05	± 0,11	± 0,05	± 0,16
12.7	± 0,08	± 0,15	± 0,08	± 0,2
15.875	± 0,10	± 0,18	± 0,10	± 0,27
19.05	± 0,10	± 0,18	± 0,10	± 0,27

4- Clamp type



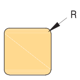
16	04	PD	S	R	-	FM2
5	6	7	8	9	-	10

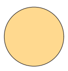
5- Cutting edge length



In.Circle. Dimension (mm)	H	M	O	R	S	T	Z
3.180						05	
3.970						06	
5.000				05			
5.560						09	
6.000				06			
6.350						11	
7.940						13	
8.000				08			
9.525				09	09	16	
10.000				10			
12.000				12			
12.700			04	12	12	22	
15.875				15	15	27	
16.000			06	16			
19.050				19	19	33	
20.000				20			
25.000				25	25		
25.400				25			
31.750				31			
32.000				32			

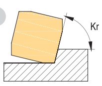
7-Corner radius and wiper

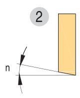




00 = sharp	24 = 2.4
01 = 0.1	28 = 2.8
02 = 0.2	32 = 3.2
04 = 0.4	40 = 4.0
08 = 0.8	48 = 4.8
12 = 1.2	56 = 5.6
16 = 1.6	64 = 6.4
20 = 2.0	X = others

Round insert:MO refers to metric dia. size

1 

2 

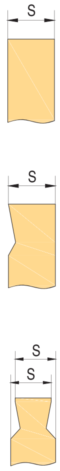
1 Approach angle(Entering angle)

(kr)
A = 45
D = 60
E = 75
F = 85
P = 90
Z = others

2 Clearance angle of wiper

(n)
A = 3
B = 5
C = 7
D = 15
E = 20
F = 25
G = 30
N = 0
P = 11
Z = others

6- Insert Thickness



01=1.59mm
T1=1.98mm
02=2.38mm
T2=2.78mm
03=3.18mm
T3=3.97mm
04=4.76mm
05=5.56mm
06=6.35mm
07=7.94mm
09=9.52mm

8-Cutting edge shape

F

Sharp cutting edge

E

Honing cutting edge

T

Negative Land

K

Double negative land

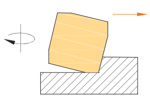
S

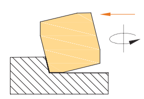
Negative Land +Honed

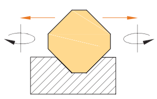
P

Double negative land +Honed

9-Hand of tool

R

Right hand

L

Left hand

N

Neutral

10 Chip breakers refers to page P258

Marked: if it has corner radius, the information needs to put between thickness and wipers.
Example: APET 160408PDFR-FM2

ACHTECK

www.achtecktool.com

Milling inserts

Geometry Application Guide

Materials				Milling geometry application table						
				FM2	MM3	MM4	MR2	MR6	RR2	HR2
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	Suitable for machining aluminium alloy	Light cutting machining	General type	Medium machining	Roughing machining	Heavy roughing machining	Roughing machining
P	Non-alloyed steel	<600	<180	-	◐	●	●	●	-	-
		<950	<280	-	◐	●	●	●	-	-
	Alloyed steel	700-950	200-280	-	◐	●	●	●	-	-
		950-1200	280-355	-	◐	●	●	●	-	-
		1200-1400	355-415	-	◐	●	●	●	-	-
M	Duplex stainless steel	778	230	-	◐	●	◐	-	-	-
	Austenitic stainless steel	675	200	-	◐	●	◐	-	-	-
	Precipitation-hardening stainless steel	1013	300	-	◐	●	◐	-	-	-
K	Grey cast iron	700	220	-	-	◐	●	●	●	●
	Nodular cast iron	880	260	-	-	◐	●	●	●	●
	Malleable cast iron	800	250	-	-	◐	●	●	●	●
S	Fe-based alloy	943	280	-	●	◐	◐	-	-	-
	Co-based alloy	1076	320	-	●	◐	◐	-	-	-
	Ni-based alloy	1177	350	-	●	◐	◐	-	-	-
	Ti-alloy	1262	370	-	●	◐	◐	-	-	-
N	Aluminum	260	75	●	-	-	-	-	-	-
	Aluminum alloy	447	130	●	-	-	-	-	-	-
H	Hardened steel	-	50-60HRC	-	-	-	-	-	-	-
	Chilled cast iron	-	55HRC	-	-	-	-	-	-	-

● Best choice
◐ 2nd choice
- Inapplicable

Grade Application Guide

Milling grade ISO group

Group	Materials	ISO	PVD AP301U	PVD AP351U	PVD AP401U	CVD AC301P	CVD AC301K	PVD AP351K	Uncoated AW100K	ISO
P	Non-alloy steel/alloyed steel	P01								P01
		P05								P05
		P10								P10
		P15	AP301U							P15
		P20	AP301U		AP401U					P20
		P25	AP301U		AP401U	AC301P				P25
		P30	AP301U	AP351U	AP401U	AC301P				P30
		P35	AP301U	AP351U	AP401U	AC301P				P35
		P40		AP351U	AP401U	AC301P				P40
		P45		AP351U						P45
		P50								P50
M	Stainless steel	M01								M01
		M05								M05
		M10								M10
		M15	AP301U							M15
		M20	AP301U		AP401U					M20
		M25	AP301U		AP401U	AC301P				M25
		M30	AP301U	AP351U	AP401U	AC301P				M30
		M35	AP301U	AP351U	AP401U	AC301P				M35
		M40		AP351U	AP401U	AC301P				M40
		M45		AP351U						M45
K	Cast iron	K01								K01
		K05								K05
		K10					AC301K			K10
		K15					AC301K	AP351K		K15
		K20					AC301K	AP351K		K20
		K25					AC301K	AP351K		K25
		K30					AC301K	AP351K		K30
		K35					AC301K	AP351K		K35
		K40						AP351K		K40
		K45								K45
S	High temperature alloys	S01								S01
		S05								S05
		S10								S10
		S15								S15
		S20			AP401U					S20
		S25			AP401U					S25
		S30		AP351U	AP401U					S30
		S35		AP351U	AP401U					S35
		S40		AP351U	AP401U					S40
		S45		AP351U						S45
N	Aluminum/ Aluminum alloys	N01								N01
		N05							AW100K	N05
		N10							AW100K	N10
		N15							AW100K	N15
		N20								N20
		N25								N25
		N30								N30
H	Hardened steels/ Chilled cast iron	H01								H01
		H05								H05
		H10								H10
		H15								H15
		H20								H20
		H25								H25
		H30								H30

Grade Application Guide

Materials				Milling grade application						
				PVD coated			CVD coated		PVD coated	Uncoated
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	AP301U	AP351U	AP401U	AC301P	AC301K	AP351K	AW100K
P	Non-alloyed steel	<600	<180	●	●	◐	●	◐	-	-
P	Non-alloyed steel	<950	<280	●	●	◐	●	◐	-	-
P	Alloyed steel	700-950	200-280	●	●	◐	●	◐	-	-
P	Alloyed steel	950-1200	280-355	●	●	◐	●	◐	-	-
P	Alloyed steel	1200-1400	355-415	●	●	◐	●	◐	-	-
M	Duplex stainless steel	778	230	◐	●	●	◐	-	-	-
M	Austenitic stainless steel	675	200	◐	●	●	◐	-	-	-
M	Precipitation-hardening stainless steel	1013	300	◐	●	●	◐	-	-	-
K	Grey cast iron	700	220	-	-	-	-	●	●	-
K	Nodular cast iron	880	260	-	-	-	-	●	●	-
K	Malleable cast iron	800	250	-	-	-	-	●	●	-
S	Fe-based alloy	943	280	-	◐	●	-	-	-	◐
S	Co-based alloy	1076	320	-	◐	●	-	-	-	◐
S	Ni-based alloy	1177	350	-	◐	●	-	-	-	◐
S	Ti-alloy	1262	370	-	◐	●	-	-	-	◐
N	Aluminum	260	75	-	-	-	-	-	-	●
N	Aluminum alloy	447	130	-	-	-	-	-	-	●
H	Hardened steel	-	50-60HRC	-	-	-	-	-	-	-
H	Chilled cast iron	-	55HRC	-	-	-	-	-	-	-

● Best choice
◐ 2nd choice
- Inapplicable

Milling Grade Description

AP301U

Coating: PVD coating

Suitable for steel, stainless steel and high-temp alloy material. 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 applications. 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. Roughing applications. 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-finishing appliation. High strength carbide substrate with CVD coating multi-layer, 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. Finishing, semi-finishing and roughing applications. High strength and wear resistance carbide substrate with CVD coating multi-layer, controllable layer structure and high adhesive strength.

<table>
<tr><th colspan="12">Application range</th></tr>
<tr><td>ISO classification</td><td>01</td><td>05</td><td>10</td><td>15</td><td>20</td><td>25</td><td>30</td><td>35</td><td>40</td><td>45</td><td>50</td></tr>
<tr><td>P</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>M</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>K</td><td></td><td></td><td colspan="6">AC301K</td><td></td><td></td><td></td></tr>
<tr><td>S</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>N</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>H</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

Remark: Best choice

AP351K

Coating: PVD coating

Suitable for nodular cast iron. Finishing, semi-finishing and roughing applications. High strength and wear resistance carbide substrate with Nanostructured PVD coating in controllable layer, high coating adhesion, wear resistance and oxidation resistance.

<table>
<tr><th colspan="12">Application range</th></tr>
<tr><td>ISO classification</td><td>01</td><td>05</td><td>10</td><td>15</td><td>20</td><td>25</td><td>30</td><td>35</td><td>40</td><td>45</td><td>50</td></tr>
<tr><td>P</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>M</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>K</td><td></td><td></td><td></td><td colspan="6">AP351K</td><td></td><td></td></tr>
<tr><td>S</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>N</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>H</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

Remark: Best choice

AW100K

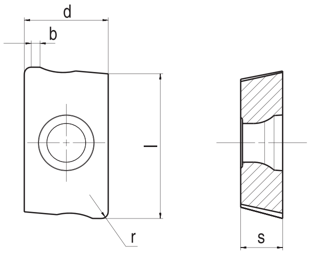
Coating: Uncoated

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

<table>
<tr><th colspan="12">Application range</th></tr>
<tr><td>ISO classification</td><td>01</td><td>05</td><td>10</td><td>15</td><td>20</td><td>25</td><td>30</td><td>35</td><td>40</td><td>45</td><td>50</td></tr>
<tr><td>P</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>M</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>K</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>S</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>N</td><td></td><td colspan="3">AW100K</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>H</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

Remark: Best choice

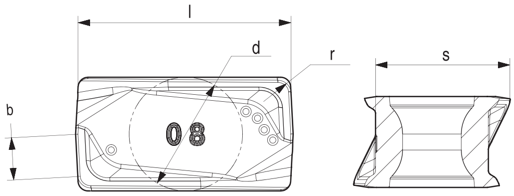
AP..
Positive milling inserts



Inserts	Designation	Dimension(mm)					Grades						
		l	d	s	r	b	CVD coated		PVD coated				Uncoated
							AC301P	AC301K	AP301U	AP351U	AP401U	AP351K	AW100K
	APMT 1135PDER	11.31	-	3.5	0.8	1.25			●	●			
	APMT 1604PDER	17.32	-	5.17	0.8	1.54			●	●			

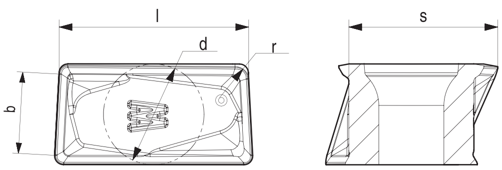
Marked: ● Stock available
○ Produced by order

LN..13
Tangential milling inserts



Inserts	Designation	Dimension(mm)					Grades						
		l	d	s	r	b	CVD coated		PVD coated				Uncoated
							AC301P	AC301K	AP301U	AP351U	AP401U	AP351K	AW100K
	LNHU 130608ER-MR2	13.2	6.8	10.15	0.8	2.7		●	●	●	●	●	
	LNHU 130612ER-MR2	13.2	6.8	10.90	1.2	2.3				●	●		
	LNHU 130616ER-MR2	13.2	6.8	10.05	1.6	1.9		○		○	○		
	LNHU 130620ER-MR2	13.2	6.8	9.99	2.0	1.5				○	○		
	LNHU 130624ER-MR2	13.2	6.8	9.92	2.4	1.0				○	○		
	LNHU 130631ER-MR2	13.2	6.8	9.86	3.1	0.4				○	○		
	LNHU 130608ER-MM3	13.2	6.8	10.12	0.8	2.7					●		

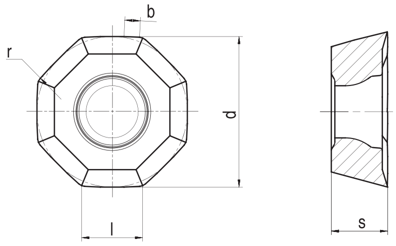
Tangential milling wiper inserts



Inserts	Designation	Dimension(mm)					Grades						
		l	d	s	r	b	CVD coated		PVD coated				Uncoated
							AC301P	AC301K	AP301U	AP351U	AP401U	AP351K	AW100K
	LNHU 1306PDER-W	13.39	6.8	10.02	0.8	5.6		●	●				

Marked: ● Stock available
○ Produced by order

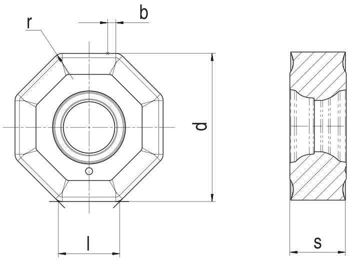
OD..04/06
Positive octagonal milling inserts



Inserts	Designation	Dimensions (mm)					Grades						
		l	d	s	r	b	CVD coated		PVD coated				Uncoated
							AC301P	AC301K	AP301U	AP351U	AP401U	AP351K	AW100K
	ODET 0404APFN-FM2	4	12.7	4.76	-	1.2							●
	ODET 0605APFN-FM2	6	16	5.56	-	1.6							●
	ODHT 0404APEN-MM3	4	12.7	4.76	-	1.2		●	●	●	●		
	ODMT 040408EN-MM3	4	12.7	4.76	0.8	-		●		●	●		
	ODMT 060508EN-MM3	6	16	5.56	0.8	-	●	●	●	●	●	●	
	ODMT 060512EN-MM3	6	16	5.56	1.2	-			●				
	ODHT 0605APEN-MM3	6	16	5.56	-	1.6		●	●	●	●		
	ODEW 0404APSR-HR2	4	12.7	4.76	-	1.2		●	●			●	
	ODEW 0605APSR-HR2	6	16	5.56	-	1.6		●				●	
	ODEW 0605APSRN-HR2	6	16	5.56	-	1.6		●				●	
	ODMW 040408EN-HR2	4	12.7	4.76	0.8	-		●				●	
	ODMW 060512EN-HR2	6	16	5.56	1.2	-		●				●	

Marked: ● Stock available
○ Produced by order

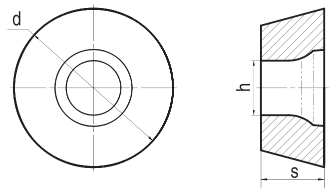
ON..05
Negative octagonal milling inserts

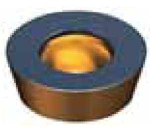


Inserts	Designation	Dimensions (mm)					Grades						
		l	d	s	r	b	CVD coated		PVD coated				Uncoated
							AC301P	AC301K	AP301U	AP351U	AP401U	AP351K	AW100K
	ONHU 050408-MM3	4.00	12.70	4.76	0.8	-			●				
	ONMU 050408-MM4	4.00	12.70	4.76	0.8	-			●	●		●	
	ONHU 050408AEN-MM3	4.00	12.70	4.76	0.8	0.7			●	●		●	
	ONHU 050408AEN-MM4	4.00	12.70	4.76	0.8	0.7				●		●	
	ONHU 0504ZNR-MM3	4.00	12.70	4.76	0.8	1.4			●				

Marked: ● Stock available
○ Produced by order

RD/RP
E shape round inserts

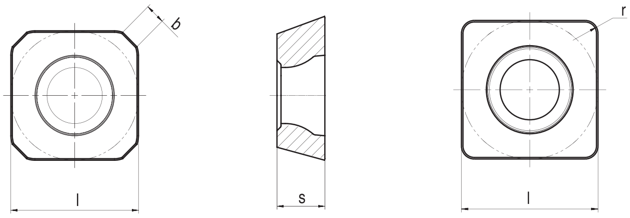


Inserts	Designation	Dimensions (mm)		Grades						
				CVD coated		PVD coated				Uncoated
		l	s	AC301P	AC301K	AP301U	AP351U	AP401U	AP351K	AW100K
	RDHT 0702MOE-MM3	7	2.38			●				
	1003MOE-MM3	10	3.18			●				
	12T3MOE-MM3	12	3.97	●	●	●	●		●	
	1606MOE-MM3	16	6.35	●	●	●	●		●	
	1604MOE-MM3	16	4.76			●	●		●	
	RDHW 0702MOS-HR2	7	2.38	●	●	●	●		●	
	1003MOS-HR2	10	3.18	●	●	●	●		●	
	12T3MOS-HR2	12	3.97	●	●	●	●		●	
	1606MOS-HR2	16	6.35			●			●	
	RDMT 0702MOE-MM3	7	2.38	●	●	●				
	1003MOE-MM3	10	3.18	●	●	●	●			
	12T3MOE-MM3	12	3.97	●	●	●				
	1606MOE-MM3	16	6.35	●	●	●				
	1604MOE-MM3	16	4.76	●	●					
	RDMW 12T3MOS-HR2	12	3.97		●					
	1204MOE-HR2	12	4.76		●		●			
	1606MOE-HR2	16	6.35		●					
	1604MOS-HR2	16	4.76		●	●				
	RPMW 1003MOE-HR2	10	3.18			●	●			
	10T3MOE-HR2	10	3.97			●	●			
	RPMT 1204MOE	12	4.76			●	●			

Marked: ● Stock available
○ Produced by order

SC..09/12

Positive square milling inserts

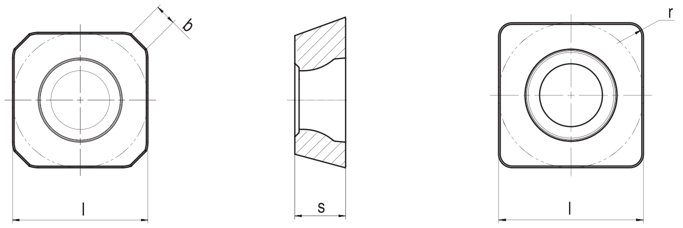


Inserts	Designation	Dimensions (mm)				Grades						
		l	s	r	b	CVD coated		PVD coated				Uncoated
						AC301P	AC301K	AP301U	AP351U	AP401U	AP351K	AW100K
	SCMT 09T304EN-MM3	9.525	3.97	0.4	-	●	●	●				
	SCMT 120412EN-MM3	12.7	4.76	1.2	-		●	●				
	SCMT 12M512EN-MM3	12.7	5	1.2	-		●	●				
	SCHT 1204ACEN-MR6	12.7	4.76	-	1.5			●	●			
	SCHT 12M5ACEN-MR6	12.7	5	-	1.5			●	●			
	SCMW 12M512EN-HR2	12.7	5	1.2	-		●					

Marked: ● Stock available
○ Produced by order

SD..09/12

Positive square milling inserts

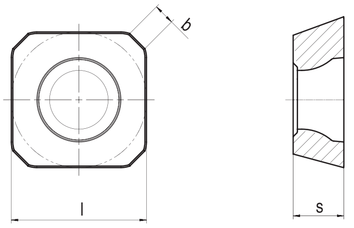


Inserts	Designation	Dimensions (mm)				Grades						
		l	s	r	b	CVD coated		PVD coated				Uncoated
						AC301P	AC301K	AP301U	AP351U	AP401U	AP351K	AW100K
	SDMT 09T304EN-MM3	9.525	3.97	0.4	-	●	●	●	●			
	SDMT 09T308EN-MM3	9.525	3.97	0.8	-	●	●	●	●			
	SDMT 09T320-MM4	9.525	3.97	2.0	-					●		
	SDMT 120408EN-MM4	12.7	4.76	0.8	-		●	●	●		●	
	SDMT 120412EN-MM3	12.7	4.76	1.2	-	●	●	●	●			
	SDGT 09T3AEEN-MM4	9.525	3.97	-	1.5		●	●	●		●	
	SDKT 1204AEEN-MR2	12.7	4.76	-	2.0	●	●	●	●		●	
	SDGT 09T3PDER-MR6	9.525	3.97	0.8	1.2		●	●	●		●	
	SDGT 1204PDER-MR6	12.7	4.76	0.8	1.6		●	●	●		●	
	SDHT 1204AEEN-MR6	12.7	4.76	0.8	2.0		●	●	●		●	
	SDMW 09T308EN-HR2	9.525	3.97	0.8	-		●	●				
	SDHW 09T3AESN-HR2	9.525	3.97	-	1.5		●	●			●	
	SDMW 120412EN-HR2	12.7	4.76	1.2	-		●	●			●	
	SDHW 1204AESN-HR2	12.7	4.76	-	2.0		●	●			●	

Marked: ● Stock available
○ Produced by order

SE..12

Positive square milling inserts

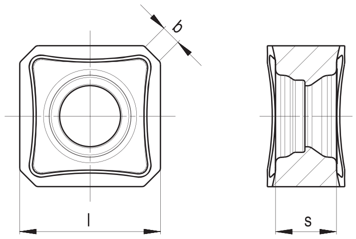


Inserts	Designation	Dimensions (mm)				Grades						
						CVD coated		PVD coated				Uncoated
		l	s	r	b	AC301P	AC301K	AP301U	AP351U	AP401U	AP351K	AW100K
	SEKT 1204AFER-MR2	12.7	4.91	1.2	1.8	●	●	●	●		●	

Marked: ● Stock available
○ Produced by order

SNGX12/19

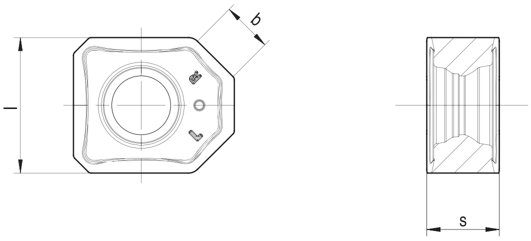
Negative short wiper milling inserts(applied for AFM45-SN12 milling cutter)



Inserts	Designation	Dimensions (mm)			Grades						
					CVD coated		PVD coated				Uncoated
		l	s	b	AC301P	AC301K	AP301U	AP351U	AP401U	AP351K	AW100K
	SNHX 1206ANN-FM2	12.7	6.98	1.8							●
	SNGX 1206ANN-MM3	12.7	6.98	1.8	●	●	●	●		●	
	SNGX 1206ANN-MM4	12.7	6.98	1.8	●	●	●	●		●	
	SNGX 1206ANN-MR6	12.7	6.98	1.8	●	●	●	●		●	
	SNGX 1206ANN-RR2	12.7	6.98	1.8	●	●	●	●		●	
	SNGX 1909ANN-MM3	19.05	9.52	2.9			●	●			
	SNGX 1909ANN-MR6	19.05	9.52	2.9				●			

SNHX12

Negative long wiper milling inserts(applied for AFM45-SN12 milling cutter)

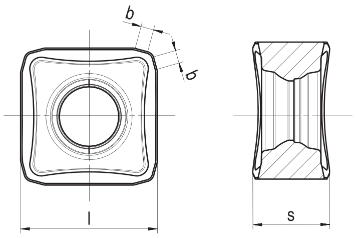


Inserts	Designation	Dimensions (mm)			Grades						
					CVD coated		PVD coated				Uncoated
		l	s	b	AC301P	AC301K	AP301U	AP351U	AP401U	AP351K	AW100K
	SNHX 1206ANN-W	12.7	6.98	6.7		●	●				

Marked: ● Stock available
○ Produced by order

SNGX12

Negative short wiper milling inserts(applied for AFM75-SN12 milling cutter)

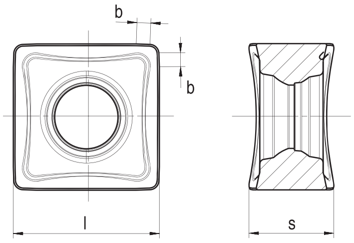


Inserts	Designation	Dimensions (mm)			Grades						
		l	s	b	CVD coated		PVD coated				Uncoated
					AC301P	AC301K	AP301U	AP351U	AP401U	AP351K	AW100K
	SNGX 1206ENN-MM3	12.7	6.98	1.2	●	●	●	●		●	
	SNGX 1206ENN-MM4	12.7	6.98	1.2	●	●	●	●		●	
	SNGX 1206ENN-MR6	12.7	6.98	1.2	●	●	●	●		●	

Marked: ● Stock available
○ Produced by order

SNGX12

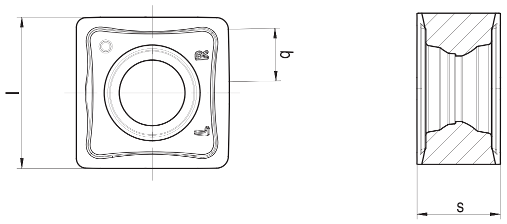
Negative short wiper milling inserts(applied for AFM88-SN12 milling cutter)



Inserts	Designation	Dimensions (mm)			Grades						
		l	s	b	CVD coated		PVD coated				Uncoated
					AC301P	AC301K	AP301U	AP351U	AP401U	AP351K	AW100K
	SNHX 1206ZNN-FM2	12.7	7.63	0.8							●
	SNGX 1206ZNN-MM4	12.7	6.98	1.2	●	●	●	●		●	
	SNGX 1206ZNN-MR6	12.7	6.98	1.2	●	●	●	●		●	
	SNGX 1206ZNN-MM3	12.7	6.98	1.2	●	●	●	●		●	

SNHX12

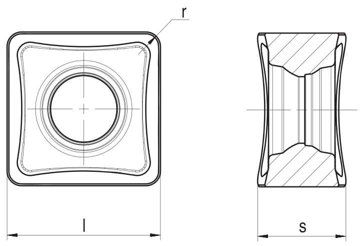
Negative long wiper milling inserts(applied for AFM88-SN12 milling cutter)



Inserts	Designation	Dimensions (mm)			Grades						
		l	s	b	CVD coated		PVD coated				Uncoated
					AC301P	AC301K	AP301U	AP351U	AP401U	AP351K	AW100K
	SNHX 1206ZNN-W	12.7	6.98	4.4		●	●				

Marked: ● Stock available
○ Produced by order

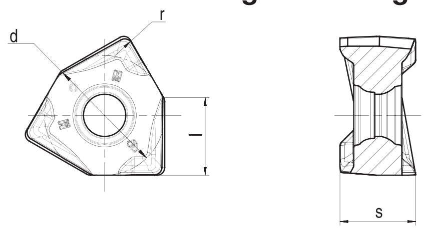
SN ☐ X12
Negative square milling inserts with corner radius



Inserts	Designation	Dimensions (mm)			Grades						
					CVD coated		PVD coated				Uncoated
		l	s	r	AC301P	AC301K	AP301U	AP351U	AP401U	AP351K	AW100K
	SNGX 120608-MM4	12.7	6.98	0.8	●	●	●	●		●	
	SNGX 120612-MM4	12.7	6.98	1.2			●				
	SNMX 120612-MM3	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	●	●	●	●		●	

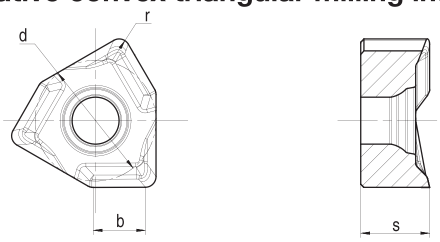
Marked: ● Stock available
○ Produced by order

WN..08
Negative convex triangular milling inserts



Inserts	Designation	Dimensions (mm)				Grades					
		l	d	s	r	CVD coated		PVD coated			Uncoated
						AC301P	AC301K	AP301U	AP351U	AP351K	AW100K
	WNHU 080608R-FM2	8	12.5	7.88	0.8						●
	WNGU 080604R-MM3	8	12.5	7.88	0.4	●	●		●		
	WNGU 080608R-MM3	8	12.5	7.88	0.8				●		
	WNGU 080604R-MM4	8	12.5	7.88	0.4	●			●	●	
	WNGU 080608R-MM4	8	12.5	7.88	0.8	●	●		●		
	WNGU 080612R-MM4	8	12.5	7.88	1.2		●		●		
	WNGU 080616R-MM4	8	12.5	7.88	1.6		●		●		
	WNGU 080608R-MR2	8	12.5	7.88	0.8	●	●	●	●	●	
	WNGU 080612R-MR2	8	12.5	7.88	1.2		●		●		
	WNGU 080616R-MR2	8	12.5	7.88	1.6		●		●		

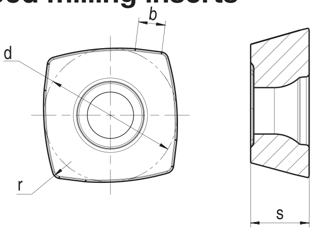
WNGU 08
Negative convex triangular milling inserts with wiper

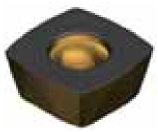


Inserts	Designation	Dimensions (mm)				Grades					
		d	b	s	r	CVD coated		PVD coated			Uncoated
						AC301P	AC301K	AP301U	AP351U	AP351K	AW100K
	WNHX 0806ZZR-W	11.3	4.8	6.47	1.0		●	●			

Marked: ● Stock available
○ Produced by order

XD..09/12
High feed milling inserts

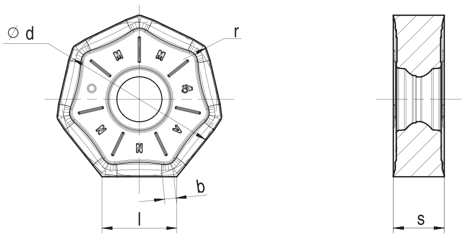


Inserts	Designation	Dimensions (mm)				Grades						
						CVD coated		PVD coated				Uncoated
		d	s	r	b	AC301P	AC301K	AP301U	AP351U	AP401U	AP351K	AW100K
	XDLT 090408ER-MM3	9.525	4.76	0.8	1.3			●				
	120508ER-MM3	12.7	5.56	0.8	2.2	●	●	●	●		●	
	120512ER-MM3	12.7	5.56	1.2	2.2	●	●	●	●		●	
	XDMW 090408ER-HR2	9.525	4.76	0.8	1.3		●					
	120508ER-HR2	12.7	5.56	0.8	2.2		●	●				

Marked: ● Stock available
○ Produced by order

XN ☐ U07/09ANN

Negative heptagonal milling inserts with short wiper

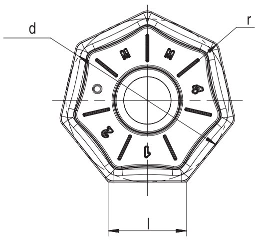


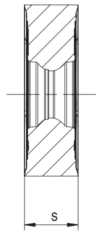
Inserts	Designation	Dimensions (mm)					Grades					
							CVD coated		PVD coated			
		l	d	s	r	b	AC301P	AC301K	AP301U	AP351U	AP401U	AP351K
	XNGU 0705ANN-MM3	7.0	14.5	5.4	0.8	1.1		●	●	●		
	XNGU 0705ANN-MM4	7.0	14.5	5.4	0.8	1.1		●	●			
	XNMU 0705ANN-MM4	7.0	14.5	5.4	0.8	1.1	●	●	●	●		●
	XNMU 0705ANN-MR6	7.0	14.5	5.4	0.8	1.1		●	●	●		●
	XNGU 0906ANN-MM3	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
○ Produced by order

XN ☐ U 07/09

Negative heptagonal milling inserts with corner radius

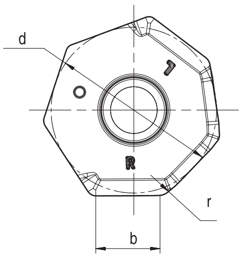


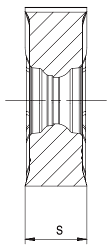


Inserts	Designation	Dimensions (mm)					Grades					
							CVD coated		PVD coated			
		l	d	s	r	b	AC301P	AC301K	AP301U	AP351U	AP401U	AP351K
	XNMU 070508-MM4	7.0	14.5	5.40	0.8	-		●		●	●	●
	XNMU 090612-MM4	9.2	19.0	6.25	1.2	-		●	●	●	●	●

XNGX 0705ANN-W

Negative milling inserts with long wiper





Inserts	Designation	Dimensions (mm)					Grades					
							CVD coated		PVD coated			
		l	d	s	r	b	AC301P	AC301K	AP301U	AP351U	AP401U	AP351K
	XNGX 0705ANN-W	-	15	5.4	1.0	6		●	●			

Marked: ● Stock available
○ Produced by order

Cutting Parameter Recommended Table

Materials				Milling grade application range																				
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	PVD coated			PVD coated			PVD coated			CVD coated			CVD coated			PVD coated			Uncoated		
				AP301U			AP351U			AP401U			AC301P			AC301K			AP351K			AW100K		
				P15-35			P30-45			P20-40			P25-40						-			-		
				M15-35			M30-45			M20-40			M25-40			-			-			-		
				-			-			-			-			K10-35			K15-40			-		
				-			S30-45			S20-40			-			-			-					
				-			-			-			-			-			-			N05-15		
				-			-			-			-			-			-			-		
				Feed (mm/rev)																				
				0.1	0.3	0.5	0.1	0.3	0.5	0.1	0.3	0.5	0.1	0.3	0.5	0.1	0.3	0.5	0.1	0.3	0.5	0.1	0.3	0.5
				Cutting speed Vc (m/min)																				
P	Non-alloyed steel	<600	<180	450	340	290	230	205	170				430	230	120									
		<950	<280	320	240	200	200	180	160				380	220	120									
	Alloyed steel	700-950	200-280	290	210	185	200	155	110				340	240	120									
		950-1200	280-355	280	210	200	180	130	90				260	150	80									
		1200-1400	355-415	210	170	110	140	105	70				145	105	65									
M	Duplex stainless steel	778	230	165	150	130	270	215	155	150	115	85	225	180	125									
	Austenitic stainless steel	675	200	270	185	90	260	180	90	185	140	105	210	145	75									
	Precipitation-hardening stainless steel	1013	300	300	225	165	170	150	110	125	95	70	140	130	90									
K	Grey cast iron	700	220													480	310	140	390	280	130			
	Nodular cast iron	880	260													450	295	140	420	300	140			
	Malleable cast iron	800	250													500	365	230	430	290	230			
S	Fe-based alloy	943	280				45	40	30															
	Co-based alloy	1076	320				45	40	30															
	Ni-based alloy	1177	350				45	40	30															
	Ti-alloy	1262	370				100	70	45															
N	Aluminum	260	75																			2750	1525	300
	Aluminum alloy	447	130																			2000	1125	250
H	Hardened steel	-	50-60HRC																					
	Chilled cast iron	-	55HRC																					

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

Note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HP-3D220-S32-S07

CUTTING TOOL CATALOGUE

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Drilling holders

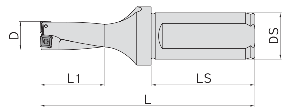
Drilling Holder Designation System

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

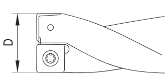
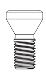
1	HP	Machining method	Represent for high efficiency machining			
2	2D	Length-diameter ratio	2D, 3D, 4D,			
3	255	Tool diameter	255-25.5mm, 500-50mm			
4	S32	Shank diameter	S20=20mm	S25=25mm	S32=32mm	S40=40mm
5	S07	Inserts shape and edge length	Insert shape "S", means the cutting edge length 7mm, if insert shape "W", the code is "W07"			

DP Series Drilling Holder

Length-diameter ratio: 2D

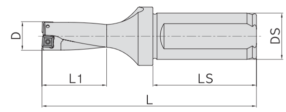


Designation	Dimension(mm)					Inserts
	D	L_1	L	D_S	L_S	
HP-2D130-S20-S05	13.0	29	99	20	50	SPMT 050204E-DP
HP-2D135-S20-S05	13.5	30	100	20	50	
HP-2D140-S20-S05	14.0	31	101	20	50	
HP-2D145-S20-S05	14.5	32	102	20	50	
HP-2D150-S20-S05	15.0	33	103	20	50	
HP-2D155-S25-S06	15.5	34	115	25	56	SPMT 060204E-DP
HP-2D160-S25-S06	16.0	35	116	25	56	
HP-2D165-S25-S06	16.5	36	117	25	56	
HP-2D170-S25-S06	17.0	37	118	25	56	
HP-2D175-S25-S06	17.5	38	119	25	56	
HP-2D180-S25-S06	18.0	39	120	25	56	
HP-2D185-S25-S06	18.5	40	121	25	56	
HP-2D190-S25-S06	19.0	41	122	25	56	
HP-2D195-S25-S06	19.5	42	123	25	56	
HP-2D200-S25-S06	20.0	43	124	25	56	
HP-2D205-S25-S06	20.5	44	125	25	56	
HP-2D210-S25-S06	21.0	45	126	25	56	
HP-2D215-S25-S06	21.5	46	127	25	56	
HP-2D220-S32-S07	22.0	47	137	32	60	SPMT 07T308E-DP
HP-2D225-S32-S07	22.5	48	138	32	60	
HP-2D230-S32-S07	23.0	49	139	32	60	
HP-2D235-S32-S07	23.5	50	140	32	60	
HP-2D240-S32-S07	24.0	51	141	32	60	
HP-2D245-S32-S07	24.5	52	142	32	60	
HP-2D250-S32-S07	25.0	53	143	32	60	
HP-2D255-S32-S07	25.5	54	144	32	60	
HP-2D260-S32-S07	26.0	55	145	32	60	
HP-2D265-S32-S07	26.5	56	146	32	60	
HP-2D270-S32-S07	27.0	57	147	32	60	
HP-2D275-S32-S07	27.5	58	148	32	60	

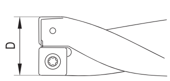
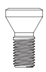
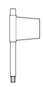
Dimensions (mm)	Spare parts	
Holder diameter	Screw	Wrench
		
13-15	AST2043-60	AWF-T06
15.5-21.5	AST2255-60	AWF-T06
22-27.5	AST25065-60S	AWF-T08

DP Series Drilling Holder

Length-diameter ratio: 2D

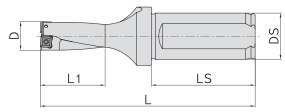


Designation	Dimension(mm)					Inserts
	D	L_1	L	D_S	L_S	
HP-2D280-S32-S09	28.0	59	149	32	60	SPMT 090408E-DP
HP-2D285-S32-S09	28.5	60	150	32	60	
HP-2D290-S32-S09	29.0	61	151	32	60	
HP-2D295-S32-S09	29.5	63	153	32	60	
HP-2D300-S32-S09	30.0	65	155	32	60	
HP-2D310-S32-S09	31.0	67	157	32	60	
HP-2D320-S32-S09	32.0	69	159	32	60	
HP-2D330-S32-S09	33.0	71	161	32	60	
HP-2D340-S40-S11	34.0	73	178	40	70	SPMT 110408E-DP
HP-2D350-S40-S11	35.0	75	180	40	70	
HP-2D360-S40-S11	36.0	77	182	40	70	
HP-2D370-S40-S11	37.0	79	184	40	70	
HP-2D380-S40-S11	38.0	81	186	40	70	
HP-2D390-S40-S11	39.0	83	188	40	70	
HP-2D400-S40-S11	40.0	85	190	40	70	
HP-2D410-S40-S11	41.0	87	192	40	70	
HP-2D420-S40-S14	42.0	89	194	40	70	SPMT 140512E-DP
HP-2D430-S40-S14	43.0	91	196	40	70	
HP-2D440-S40-S14	44.0	93	198	40	70	
HP-2D450-S40-S14	45.0	95	200	40	70	
HP-2D460-S40-S14	46.0	97	202	40	70	
HP-2D470-S40-S14	47.0	99	204	40	70	
HP-2D480-S40-S14	48.0	101	206	40	70	
HP-2D490-S40-S14	49.0	103	208	40	70	
HP-2D500-S40-S14	50.0	105	210	40	70	

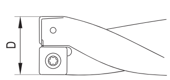
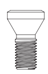
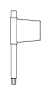
Dimensions (mm)	Spare parts	
Holder diameter	Screw	Wrench
		
28-33	AST35084-60H	AWF-T15
34-41	AST410-60H	AWF-T15
42-50	AST5126-60	AWF-T20

DP Series Drilling Holder

Length-diameter ratio: 3D

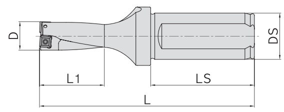


Designation	Dimension(mm)					Inserts
	D	L_1	L	D_S	L_S	
HP-3D130-S20-S05	13.0	42	112	20	50	SPMT 050204E-DP
HP-3D135-S20-S05	13.5	44	114	20	50	
HP-3D140-S20-S05	14.0	45	115	20	50	
HP-3D145-S20-S05	14.5	47	117	20	50	
HP-3D150-S20-S05	15.0	48	118	20	50	
HP-3D155-S25-S06	15.5	50	131	25	56	SPMT 060204E-DP
HP-3D160-S25-S06	16.0	51	132	25	56	
HP-3D165-S25-S06	16.5	53	134	25	56	
HP-3D170-S25-S06	17.0	54	135	25	56	
HP-3D175-S25-S06	17.5	56	137	25	56	
HP-3D180-S25-S06	18.0	57	138	25	56	
HP-3D185-S25-S06	18.5	59	140	25	56	
HP-3D190-S25-S06	19.0	60	141	25	56	
HP-3D195-S25-S06	19.5	62	143	25	56	
HP-3D200-S25-S06	20.0	63	144	25	56	
HP-3D205-S25-S06	20.5	65	146	25	56	
HP-3D210-S25-S06	21.0	66	147	25	56	
HP-3D215-S25-S06	21.5	68	149	25	56	
HP-3D220-S32-S07	22.0	69	159	32	60	SPMT 07T308E-DP
HP-3D225-S32-S07	22.5	71	161	32	60	
HP-3D230-S32-S07	23.0	72	162	32	60	
HP-3D235-S32-S07	23.5	74	164	32	60	
HP-3D240-S32-S07	24.0	75	165	32	60	
HP-3D245-S32-S07	24.5	77	167	32	60	
HP-3D250-S32-S07	25.0	78	168	32	60	
HP-3D255-S32-S07	25.5	80	170	32	60	
HP-3D260-S32-S07	26.0	81	171	32	60	
HP-3D265-S32-S07	26.5	83	173	32	60	
HP-3D270-S32-S07	27.0	84	174	32	60	
HP-3D275-S32-S07	27.5	86	176	32	60	

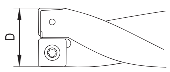
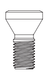
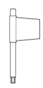
Dimensions (mm)	Spare parts	
Holder diameter	Screw	Wrench
		
13-15	AST2043-60	AWF-T06
15.5-21.5	AST2255-60	AWF-T06
22-27.5	AST25065-60S	AWF-T08

DP Series Drilling Holder

Length-diameter ratio: 3D



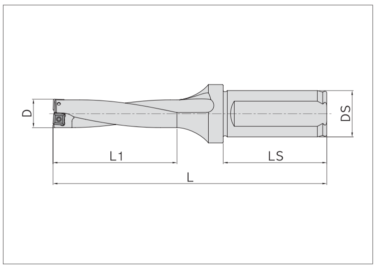
Designation	Dimension(mm)					Inserts
	D	L_1	L	D_S	L_S	
HP-3D280-S32-S09	28.0	87	177	32	60	SPMT 090408E-DP
HP-3D285-S32-S09	28.5	89	179	32	60	
HP-3D290-S32-S09	29.0	90	180	32	60	
HP-3D295-S32-S09	29.5	93	183	32	60	
HP-3D300-S32-S09	30.0	95	185	32	60	
HP-3D310-S32-S09	31.0	98	188	32	60	
HP-3D320-S32-S09	32.0	101	191	32	60	
HP-3D330-S32-S09	33.0	104	194	32	60	
HP-3D340-S40-S11	34.0	107	212	40	70	SPMT 110408E-DP
HP-3D350-S40-S11	35.0	110	215	40	70	
HP-3D360-S40-S11	36.0	113	218	40	70	
HP-3D370-S40-S11	37.0	116	221	40	70	
HP-3D380-S40-S11	38.0	119	224	40	70	
HP-3D390-S40-S11	39.0	122	227	40	70	
HP-3D400-S40-S11	40.0	125	230	40	70	
HP-3D410-S40-S11	41.0	128	233	40	70	
HP-3D420-S40-S14	42.0	131	236	40	70	SPMT 140512E-DP
HP-3D430-S40-S14	43.0	134	239	40	70	
HP-3D440-S40-S14	44.0	137	242	40	70	
HP-3D450-S40-S14	45.0	140	245	40	70	
HP-3D460-S40-S14	46.0	143	248	40	70	
HP-3D470-S40-S14	47.0	146	251	40	70	
HP-3D480-S40-S14	48.0	149	254	40	70	
HP-3D490-S40-S14	49.0	152	257	40	70	
HP-3D500-S40-S14	50.0	155	260	40	70	

Dimensions (mm)	Spare parts	
Holder diameter	Screw	Wrench
		
28-33	AST35084-60H	AWF-T15
34-41	AST410-60H	AWF-T15
42-50	AST5126-60	AWF-T20

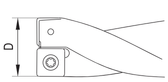
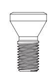
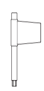
Drilling holders

DP Series Drilling Holder

Length-diameter ratio： 4D

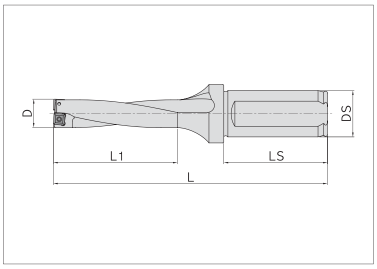


Designation	Dimension(mm)					Inserts
	D	L_1	L	D_S	L_S	
HP-4D130-S20-S05	13.0	55	125	20	50	SPMT 050204E-DP
HP-4D135-S20-S05	13.5	57	127	20	50	
HP-4D140-S20-S05	14.0	59	129	20	50	
HP-4D145-S20-S05	14.5	61	131	20	50	
HP-4D150-S20-S05	15.0	63	133	20	50	
HP-4D155-S25-S06	15.5	65	146	25	56	SPMT 060204E-DP
HP-4D160-S25-S06	16.0	67	148	25	56	
HP-4D165-S25-S06	16.5	69	150	25	56	
HP-4D170-S25-S06	17.0	71	152	25	56	
HP-4D175-S25-S06	17.5	73	154	25	56	
HP-4D180-S25-S06	18.0	75	156	25	56	
HP-4D185-S25-S06	18.5	77	158	25	56	
HP-4D190-S25-S06	19.0	79	160	25	56	
HP-4D195-S25-S06	19.5	81	162	25	56	
HP-4D200-S25-S06	20.0	83	164	25	56	
HP-4D205-S25-S06	20.5	85	166	25	56	
HP-4D210-S25-S06	21.0	87	168	25	56	
HP-4D215-S25-S06	21.5	89	170	25	56	
HP-4D220-S32-S07	22.0	91	181	32	60	SPMT 07T308E-DP
HP-4D225-S32-S07	22.5	93	183	32	60	
HP-4D230-S32-S07	23.0	95	185	32	60	
HP-4D235-S32-S07	23.5	97	187	32	60	
HP-4D240-S32-S07	24.0	99	189	32	60	
HP-4D245-S32-S07	24.5	101	191	32	60	
HP-4D250-S32-S07	25.0	103	193	32	60	
HP-4D255-S32-S07	25.5	105	195	32	60	
HP-4D260-S32-S07	26.0	107	197	32	60	
HP-4D265-S32-S07	26.5	109	199	32	60	
HP-4D270-S32-S07	27.0	111	201	32	60	
HP-4D275-S32-S07	27.5	113	203	32	60	

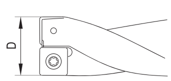
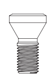
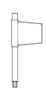
Dimensions (mm)	Spare parts	
Holder diameter	Screw	Wrench
		
13-15	AST2043-60	AWF-T06
15.5-21.5	AST2255-60	AWF-T06
22-27.5	AST25065-60S	AWF-T08

DP Series Drilling Holder

Length-diameter ratio: 4D



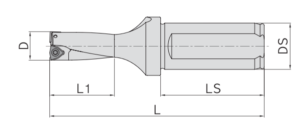
Designation	Dimension(mm)					Inserts
	D	L_1	L	D_S	L_S	
HP-4D280-S32-S09	28.0	115	205	32	60	SPMT 090408E-DP
HP-4D285-S32-S09	28.5	117	207	32	60	
HP-4D290-S32-S09	29.0	120	210	32	60	
HP-4D295-S32-S09	29.5	123	213	32	60	
HP-4D300-S32-S09	30.0	125	215	32	60	
HP-4D310-S32-S09	31.0	129	219	32	60	
HP-4D320-S32-S09	32.0	133	223	32	60	
HP-4D330-S32-S09	33.0	137	227	32	60	
HP-4D340-S40-S11	34.0	141	246	40	70	SPMT 110408E-DP
HP-4D350-S40-S11	35.0	145	250	40	70	
HP-4D360-S40-S11	36.0	149	254	40	70	
HP-4D370-S40-S11	37.0	153	258	40	70	
HP-4D380-S40-S11	38.0	157	262	40	70	
HP-4D390-S40-S11	39.0	161	266	40	70	
HP-4D400-S40-S11	40.0	165	270	40	70	
HP-4D410-S40-S11	41.0	169	274	40	70	
HP-4D420-S40-S14	42.0	173	278	40	70	SPMT 140512E-DP
HP-4D430-S40-S14	43.0	177	282	40	70	
HP-4D440-S40-S14	44.0	181	286	40	70	
HP-4D450-S40-S14	45.0	185	290	40	70	
HP-4D460-S40-S14	46.0	189	294	40	70	
HP-4D470-S40-S14	47.0	193	298	40	70	
HP-4D480-S40-S14	48.0	197	302	40	70	
HP-4D490-S40-S14	49.0	201	306	40	70	
HP-4D500-S40-S14	50.0	205	310	40	70	

Dimensions (mm)	Spare parts	
Holder diameter	Screw	Wrench
		
28-33	AST35084-60H	AWF-T15
34-41	AST410-60H	AWF-T15
42-50	AST5126-60	AWF-T20

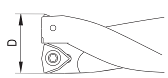
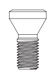
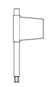
Drilling holders

DG Series Drilling Holder

Length-diameter ratio: 2D

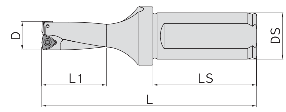


Designation	Dimension(mm)					Inserts
	D	L_1	L	D_S	L_S	
HP-2D160-S25-W03	16.0	35	116	25	56	WCMT 030204E-DG
HP-2D165-S25-W03	16.5	36	117	25	56	
HP-2D170-S25-W03	17.0	37	118	25	56	
HP-2D175-S25-W03	17.5	38	119	25	56	
HP-2D180-S25-W03	18.0	39	120	25	56	
HP-2D185-S25-W03	18.5	40	121	25	56	
HP-2D190-S25-W03	19.0	41	122	25	56	
HP-2D195-S25-W03	19.5	42	123	25	56	
HP-2D200-S25-W03	20.0	43	124	25	56	
HP-2D205-S25-W04	20.5	44	125	25	56	WCMT 040204E-DG
HP-2D210-S25-W04	21.0	45	126	25	56	
HP-2D215-S25-W04	21.5	46	127	25	56	
HP-2D220-S25-W04	22.0	47	128	25	56	
HP-2D225-S25-W04	22.5	48	129	25	56	
HP-2D230-S25-W04	23.0	49	130	25	56	
HP-2D235-S25-W04	23.5	50	131	25	56	
HP-2D240-S25-W04	24.0	51	132	25	56	
HP-2D245-S25-W04	24.5	52	133	25	56	
HP-2D250-S25-W04	25.0	53	134	25	56	
HP-2D255-S32-W05	25.5	54	144	32	60	WCMT 050308E-DG
HP-2D260-S32-W05	26.0	55	145	32	60	
HP-2D265-S32-W05	26.5	56	146	32	60	
HP-2D270-S32-W05	27.0	57	147	32	60	
HP-2D275-S32-W05	27.5	58	148	32	60	
HP-2D280-S32-W05	28.0	59	149	32	60	
HP-2D285-S32-W05	28.5	60	150	32	60	
HP-2D290-S32-W05	29.0	61	151	32	60	
HP-2D295-S32-W05	29.5	62	152	32	60	
HP-2D300-S32-W05	30.0	63	153	32	60	

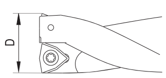
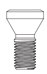
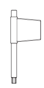
Dimensions (mm)	Spare parts	
Holder diameter	Screw	Wrench
		
16-20	AST22045-55	AWF-T06
20.5-25	AST25055-50	AWF-T08
25.5-30	AST307-55	AWF-T08

DG Series Drilling Holder

Length-diameter ratio: 2D



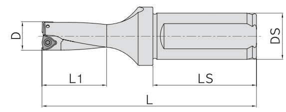
Designation	Dimension(mm)					Inserts
	D	L_1	L	D_S	L_S	
HP-2D310-S32-W06	31.0	65	155	32	60	WCMT 06T308E-DG
HP-2D320-S32-W06	32.0	67	157	32	60	
HP-2D330-S32-W06	33.0	69	159	32	60	
HP-2D340-S32-W06	34.0	71	161	32	60	
HP-2D350-S32-W06	35.0	73	163	32	60	
HP-2D360-S32-W06	36.0	75	165	32	60	
HP-2D370-S32-W06	37.0	77	167	32	60	
HP-2D380-S32-W06	38.0	79	169	32	60	
HP-2D390-S32-W06	39.0	81	171	32	60	
HP-2D400-S32-W06	40.0	83	173	32	60	
HP-2D410-S32-W06	41.0	85	175	32	60	
HP-2D420-S40-W08	42.0	87	192	40	70	WCMT 080408E-DG
HP-2D430-S40-W08	43.0	89	194	40	70	
HP-2D440-S40-W08	44.0	91	196	40	70	
HP-2D450-S40-W08	45.0	93	198	40	70	
HP-2D460-S40-W08	46.0	95	200	40	70	
HP-2D470-S40-W08	47.0	97	202	40	70	
HP-2D480-S40-W08	48.0	99	204	40	70	
HP-2D490-S40-W08	49.0	101	206	40	70	
HP-2D500-S40-W08	50.0	103	208	40	70	
HP-2D510-S40-W08	51.0	105	210	40	70	
HP-2D520-S40-W08	52.0	107	212	40	70	
HP-2D530-S40-W08	53.0	109	214	40	70	
HP-2D540-S40-W08	54.0	111	216	40	70	
HP-2D550-S40-W08	55.0	113	218	40	70	
HP-2D560-S40-W08	56.0	115	220	40	70	
HP-2D470-S40-W08	57.0	117	222	40	70	
HP-2D580-S40-W08	58.0	119	224	40	70	

Dimensions (mm)	Spare parts	
Holder diameter	Screw	Wrench
		
31-41	AST3509-55	AWF-T15
42-58	AST4101-60W	AWF-T15

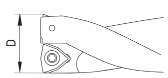
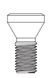
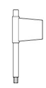
Drilling holders

DG Series Drilling Holder

Length-diameter ratio：3D

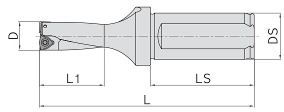


Designation	Dimension(mm)					Inserts
	D	L_1	L	D_S	L_S	
HP-3D160-S25-W03	16.0	51	132	25	56	
HP-3D165-S25-W03	16.5	53	134	25	56	
HP-3D170-S25-W03	17.0	54	135	25	56	
HP-3D175-S25-W03	17.5	56	137	25	56	
HP-3D180-S25-W03	18.0	57	138	25	56	WCMT 030204E-DG
HP-3D185-S25-W03	18.5	59	140	25	56	
HP-3D190-S25-W03	19.0	60	141	25	56	
HP-3D195-S25-W03	19.5	62	143	25	56	
HP-3D200-S25-W03	20.0	63	144	25	56	
HP-3D205-S25-W04	20.5	65	146	25	56	
HP-3D210-S25-W04	21.0	66	147	25	56	
HP-3D215-S25-W04	21.5	68	149	25	56	
HP-3D220-S25-W04	22.0	69	150	25	56	
HP-3D225-S25-W04	22.5	71	152	25	56	
HP-3D230-S25-W04	23.0	72	153	25	56	WCMT 040204E-DG
HP-3D235-S25-W04	23.5	74	155	25	56	
HP-3D240-S25-W04	24.0	75	156	25	56	
HP-3D245-S25-W04	24.5	77	158	25	56	
HP-3D250-S25-W04	25.0	78	159	25	56	
HP-3D255-S32-W05	25.5	80	170	32	60	
HP-3D260-S32-W05	26.0	81	171	32	60	
HP-3D265-S32-W05	26.5	83	173	32	60	
HP-3D270-S32-W05	27.0	84	174	32	60	
HP-3D275-S32-W05	27.5	86	176	32	60	
HP-3D280-S32-W05	28.0	87	177	32	60	WCMT 050308E-DG
HP-3D285-S32-W05	28.5	89	179	32	60	
HP-3D290-S32-W05	29.0	90	180	32	60	
HP-3D295-S32-W05	29.5	92	182	32	60	
HP-3D300-S32-W05	30.0	93	183	32	60	

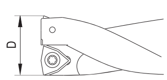
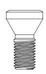
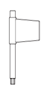
Dimensions (mm)	Spare parts	
Holder diameter	Screw	Wrench
		
16-20	AST22045-55	AWF-T06
20.5-25	AST25055-50	AWF-T08
25.5-30	AST307-55	AWF-T08

DG Series Drilling Holder

Length-diameter ratio: 3D

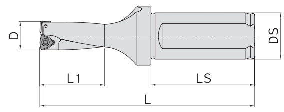


Designation	Dimension(mm)					Inserts
	D	L_1	L	D_S	L_S	
HP-3D310-S32-W06	31.0	96	186	32	60	WCMT 06T308E-DG
HP-3D320-S32-W06	32.0	99	189	32	60	
HP-3D330-S32-W06	33.0	102	192	32	60	
HP-3D340-S32-W06	34.0	105	195	32	60	
HP-3D350-S32-W06	35.0	108	198	32	60	
HP-3D360-S32-W06	36.0	111	201	32	60	
HP-3D370-S32-W06	37.0	114	204	32	60	
HP-3D380-S32-W06	38.0	117	207	32	60	
HP-3D390-S32-W06	39.0	120	210	32	60	
HP-3D400-S32-W06	40.0	123	213	32	60	
HP-3D410-S32-W06	41.0	126	216	32	60	
HP-3D420-S40-W08	42.0	129	234	40	70	WCMT 080408E-DG
HP-3D430-S40-W08	43.0	132	237	40	70	
HP-3D440-S40-W08	44.0	135	240	40	70	
HP-3D450-S40-W08	45.0	138	243	40	70	
HP-3D460-S40-W08	46.0	141	246	40	70	
HP-3D470-S40-W08	47.0	144	249	40	70	
HP-3D480-S40-W08	48.0	147	252	40	70	
HP-3D490-S40-W08	49.0	150	255	40	70	
HP-3D500-S40-W08	50.0	153	258	40	70	
HP-3D510-S40-W08	51.0	156	261	40	70	
HP-3D520-S40-W08	52.0	159	264	40	70	
HP-3D530-S40-W08	53.0	162	267	40	70	
HP-3D540-S40-W08	54.0	165	270	40	70	
HP-3D550-S40-W08	55.0	168	273	40	70	
HP-3D560-S40-W08	56.0	171	276	40	70	
HP-3D470-S40-W08	57.0	174	279	40	70	
HP-3D580-S40-W08	58.0	177	282	40	70	

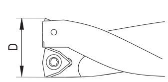
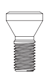
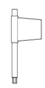
Dimensions (mm)	Spare parts	
Holder diameter	Screw	Wrench
		
31-41	AST3509-55	AWF-T15
42-58	AST4101-60W	AWF-T15

DG Series Drilling Holder

Length-diameter ratio: 4D

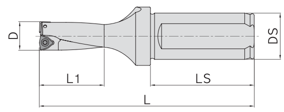


Designation	Dimension(mm)					Inserts
	D	L_1	L	D_S	L_S	
HP-4D160-S25-W03	16.0	67	148	25	56	WCMT 030204E-DG
HP-4D165-S25-W03	16.5	69	150	25	56	
HP-4D170-S25-W03	17.0	71	152	25	56	
HP-4D175-S25-W03	17.5	73	154	25	56	
HP-4D180-S25-W03	18.0	75	156	25	56	
HP-4D185-S25-W03	18.5	77	158	25	56	
HP-4D190-S25-W03	19.0	79	160	25	56	
HP-4D195-S25-W03	19.5	81	162	25	56	
HP-4D200-S25-W03	20.0	83	164	25	56	
HP-4D205-S25-W04	20.5	85	166	25	56	WCMT 040204E-DG
HP-4D210-S25-W04	21.0	87	168	25	56	
HP-4D215-S25-W04	21.5	89	170	25	56	
HP-4D220-S25-W04	22.0	91	172	25	56	
HP-4D225-S25-W04	22.5	93	174	25	56	
HP-4D230-S25-W04	23.0	95	176	25	56	
HP-4D235-S25-W04	23.5	97	178	25	56	
HP-4D240-S25-W04	24.0	99	180	25	56	
HP-4D245-S25-W04	24.5	101	182	25	56	
HP-4D250-S25-W04	25.0	103	184	25	56	
HP-4D255-S32-W05	25.5	105	195	32	60	WCMT 050308E-DG
HP-4D260-S32-W05	26.0	107	197	32	60	
HP-4D265-S32-W05	26.5	109	199	32	60	
HP-4D270-S32-W05	27.0	111	201	32	60	
HP-4D275-S32-W05	27.5	113	203	32	60	
HP-4D280-S32-W05	28.0	115	205	32	60	
HP-4D285-S32-W05	28.5	117	207	32	60	
HP-4D290-S32-W05	29.0	119	209	32	60	
HP-4D295-S32-W05	29.5	121	211	32	60	
HP-4D300-S32-W05	30.0	123	213	32	60	

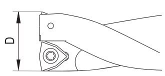
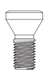
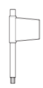
Dimension(mm)	Spare parts	
Holder diameter	Screw	Wrench
		
16-20	AST22045-55	AWF-T06
20.5-25	AST25055-50	AWF-T08
25.5-30	AST307-55	AWF-T08

DG Series Drilling Holder

Length-diameter ratio: 4D



Designation	Dimension(mm)					Inserts
	D	L_1	L	D_S	L_S	
HP-4D310-S32-W06	31.0	127	217	32	60	WCMT 06T308E-DG
HP-4D320-S32-W06	32.0	131	221	32	60	
HP-4D330-S32-W06	33.0	135	225	32	60	
HP-4D340-S32-W06	34.0	139	229	32	60	
HP-4D350-S32-W06	35.0	143	233	32	60	
HP-4D360-S32-W06	36.0	147	237	32	60	
HP-4D370-S32-W06	37.0	151	241	32	60	
HP-4D380-S32-W06	38.0	155	245	32	60	
HP-4D390-S32-W06	39.0	159	249	32	60	
HP-4D400-S32-W06	40.0	163	253	32	60	
HP-4D410-S32-W06	41.0	167	257	32	60	
HP-4D420-S40-W08	42.0	171	276	40	70	WCMT 080408E-DG
HP-4D430-S40-W08	43.0	175	280	40	70	
HP-4D440-S40-W08	44.0	179	284	40	70	
HP-4D450-S40-W08	45.0	183	288	40	70	
HP-4D460-S40-W08	46.0	187	292	40	70	
HP-4D470-S40-W08	47.0	191	296	40	70	
HP-4D480-S40-W08	48.0	195	300	40	70	
HP-4D490-S40-W08	49.0	199	304	40	70	
HP-4D500-S40-W08	50.0	203	308	40	70	
HP-4D510-S40-W08	51.0	207	312	40	70	
HP-4D520-S40-W08	52.0	211	316	40	70	
HP-4D530-S40-W08	53.0	215	320	40	70	
HP-4D540-S40-W08	54.0	219	324	40	70	
HP-4D550-S40-W08	55.0	223	328	40	70	
HP-4D560-S40-W08	56.0	227	332	40	70	
HP-4D470-S40-W08	57.0	231	336	40	70	
HP-4D580-S40-W08	58.0	235	340	40	70	

Dimension(mm)	Spare parts	
Holder diameter	Screw	Wrench
		
31-41	AST3509-55	AWF-T15
42-58	AST4101-60W	AWF-T15

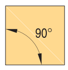
Drilling holders

Drilling Insert Designation System

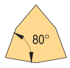
S	P	M	T
1	2	3	4

1-Shape/Code

S

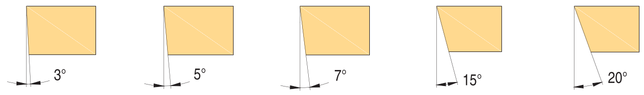


W

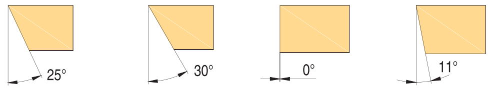


2-Clearance angle

A B C D E

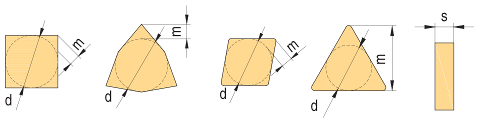


F G N P O



O: Other clearance angle

3-Tolerance



Class	Unit	In.C .Dimension d	Nose height m	Thickness s
A	mm	± 0,025	± 0,005	± 0,025
C	mm	± 0,025	± 0,013	± 0,025
E	mm	± 0,025	± 0,025	± 0,025
F	mm	± 0,013	± 0,005	± 0,025
G	mm	± 0,025	± 0,025	± 0,13
H	mm	± 0,013	± 0,013	± 0,025
J	mm	*	± 0,005	± 0,025
K	mm	*	± 0,013	± 0,025
L	mm	*	± 0,025	± 0,025
M	mm	*	*	± 0,127
U	mm	*	*	± 0,127
N	mm	*	*	± 0,025

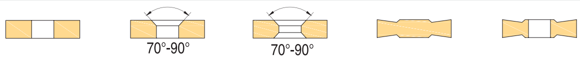
* For details refer to right and below tables

Shape : C, E, H, M, O, P, S, T, R, W				
IC	d		m	
	J,K,L,M,N	U	M, N	U
4.76	± 0,05	± 0,08	± 0,08	± 0,13
5.56	± 0,05	± 0,08	± 0,08	± 0,13
6	± 0,05	± 0,08	± 0,08	± 0,13
6.35	± 0,05	± 0,08	± 0,08	± 0,13
7.94	± 0,05	± 0,08	± 0,08	± 0,13
8	± 0,05	± 0,08	± 0,08	± 0,13
9.525	± 0,05	± 0,08	± 0,08	± 0,13
10	± 0,05	± 0,08	± 0,08	± 0,13
12	± 0,08	± 0,13	± 0,13	± 0,2
12.7	± 0,08	± 0,13	± 0,13	± 0,2
15.875	± 0,1	± 0,18	± 0,15	± 0,27
16	± 0,1	± 0,18	± 0,15	± 0,27
19.05	± 0,1	± 0,18	± 0,15	± 0,27
20	± 0,1	± 0,18	± 0,15	± 0,27
25	± 0,13	± 0,25	± 0,18	± 0,38
25.4	± 0,13	± 0,25	± 0,18	± 0,38
31.75	± 0,15	± 0,25	± 0,2	± 0,38
32	± 0,15	± 0,25	± 0,2	± 0,38

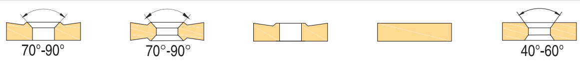
M&N shape	D shape		V shape	
IC	d	m	d	m
5.56	± 0,05	± 0,11		
6.35	± 0,05	± 0,11	± 0,05	± 0,16
7.94	± 0,05	± 0,11	± 0,05	± 0,16
9.525	± 0,05	± 0,11	± 0,05	± 0,16
12.7	± 0,08	± 0,15	± 0,08	± 0,2
15.875	± 0,10	± 0,18	± 0,10	± 0,27
19.05	± 0,10	± 0,18	± 0,10	± 0,27

4-Clamp type

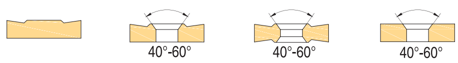
A B C F G



H J M N Q



R T U W X



X: Special

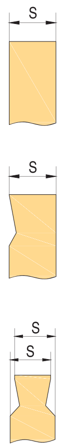
06	02	04	E	-	DP
5	6	7	8	-	9

5- Cutting edge length

In.Circle. Dimension (mm)	S Code	S Length	W Code	W Length
5.56			03	3.8
6.35	06	6.35	04	4.3
7.94			05	5.4
8.0	08	8.0		
9.525	09	9.525	06	6.5
12.7	12	12.7	08	8.7

6-Insert thickness

Thickness illustration | Thickness mark



Insert thickness "S" refers to the distance between cutting edge nose and bottom

Example		
00	=	0.79
T0	=	0.99
01	=	1.59
T1	=	1.98
02	=	2.38
T2	=	2.58
03	=	3.18
T3	=	3.97
04	=	4.76
T4	=	4.96
05	=	5.56
T5	=	5.95
06	=	6.35
07	=	7.94
09	=	9.53
11	=	11.11
12	=	12.70
14	=	14.29
15	=	15.88

7- Corner radius

Example		
04	=	0.4
08	=	0.8
12	=	1.2

8- Cutting edge shape

Example	Illustration
E	Honing cutting edge
F	Sharp cutting edge
T	Negative Land

9- Chip breaker code

DP

DU/DG

10. Chip breakers' information refer to page 342

Geometry Application Guide

DP

1. DP chip breaker have high efficiency. Suitable for short hole high feed drilling
2. Strong square insert with reinforced chip breaker that's gets excellent hole straightness
3. Drilling body with helical flute provides excellent chip evacuation and high hole precision.

DU/DG

1. Indexable insert with 80° angle and radial fitting angle makes perfect balance for the cutting force.
2. General chip breaker in two types of grades are suitable for P,M,K,S materials, especially for soft materials.
3. Achieves fine surface roughness
4. It's suitable for rotating and non-rotating machining

Grade Application Guide

Group	Materials	ISO	Drilling insert grade ISO group: PVD coated AP301U	PVD coated AP351U	CVD coated AC301P	ISO
P	Non-alloy steels / Alloyed steels	P01				P01
		P05				P05
		P10				P10
		P15	AP301U			P15
		P20	AP301U			P20
		P25	AP301U		AC301P	P25
		P30	AP301U	AP351U	AC301P	P30
		P35	AP301U	AP351U	AC301P	P35
		P40		AP351U	AC301P	P40
		P45		AP351U		P45
		P50				P50
M	Stainless steels	M01				M01
		M05				M05
		M10				M10
		M15	AP301U			M15
		M20	AP301U			M20
		M25	AP301U			M25
		M30	AP301U	AP351U		M30
		M35	AP301U	AP351U		M35
		M40		AP351U		M40
		M45		AP351U		M45
K	Cast iron	K01				K01
		K05				K05
		K10				K10
		K15				K15
		K20				K20
		K25				K25
		K30				K30
		K35				K35
		K40				K40
		K45				K45
S	High temperature alloys	S01				S01
		S05				S05
		S10				S10
		S15				S15
		S20				S20
		S25				S25
		S30		AP351U		S30
		S35		AP351U		S35
		S40		AP351U		S40
		S45		AP351U		S45
N	Aluminum/ Aluminum alloys	N01				N01
		N05				N05
		N10				N10
		N15				N15
		N20				N20
		N25				N25
		N30				N30
H	Hardened steels/ Chilled cast iron	H01				H01
		H05				H05
		H10				H10
		H15				H15
		H20				H20
		H25				H25
		H30				H30

Grade Application Guide

Materials				PVD coated	PVD coated	CVD coated
				AP301U	AP351U	AC301P
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	Priority		
P	Non-alloyed steel	<600	<180	●	●	●
		<950	<280	●	●	●
	Alloyed steel	700-950	200-280	●	●	●
		950-1200	280-355	●	●	●
		1200-1400	355-415	●	●	●
M	Duplex stainless steel	778	230	◐	●	-
	Austenitic stainless steel	675	200	◐	●	-
	Precipitation-hardening stainless steel	1013	300	◐	●	-
K	Grey cast iron	700	220	-	-	-
	Nodular cast iron	880	260	-	-	-
	Malleable cast iron	800	250	-	-	-
S	Fe-based alloy	943	280	-	◐	-
	Co-based alloy	1076	320	-	◐	-
	Ni-based alloy	1177	350	-	◐	-
	Ti-alloy	1262	370	-	◐	-
N	Aluminum	260	75	-	-	-
	Aluminum alloy	447	130	-	-	-
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 and high-temp alloy material. 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. 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

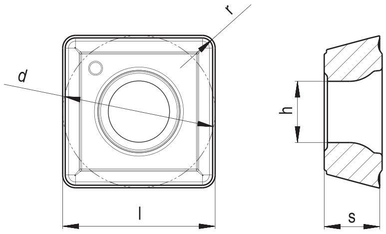
Suitable for steel and cast iron. High strength and wear resistance carbide substrate with CVD coating multi-layer, controllable layer structure and high adhesive strength.

<table>
<tr><th colspan="12">Application range</th></tr>
<tr><td>ISO classification</td><td>01</td><td>05</td><td>10</td><td>15</td><td>20</td><td>25</td><td>30</td><td>35</td><td>40</td><td>45</td><td>50</td></tr>
<tr><td>P</td><td></td><td></td><td></td><td></td><td></td><td colspan="4">AC301P</td><td></td><td></td></tr>
<tr><td>M</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>K</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>S</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>N</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>H</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

Remark: Best choice

2nd choice

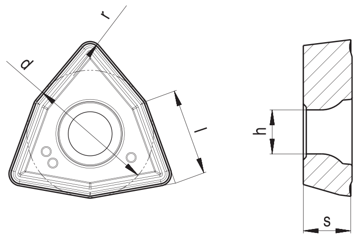
SPMT-DP drilling insert



Insert	Designation	Dimension(mm)					Grades						
		l	d	s	r	h	CVD coated		PVD coated				Uncoated
							AC301P	AC301K	AP301U	AP351U	AP401U	AP351K	AW100K
	**SPMT 050204E-DP**	5	5	2.38	0.4	2.25	●		●	●			
	SPMT 060204E-DP	6	6	2.38	0.4	2.61	●		●	●			
	SPMT 07T308E-DP	7.94	7.94	3.97	0.8	2.85	●		●	●			
	SPMT 090408E-DP	9.8	9.8	4.3	0.8	4.05	●		●	●			
	SPMT 110408E-DP	11.5	11.5	4.8	0.8	4.45	●		●	●			
	SPMT 140512E-DP	14.3	14.3	5.2	1.2	5.75	●		●	●			

Marked: ● Stock available

WCMT-DU drilling insert

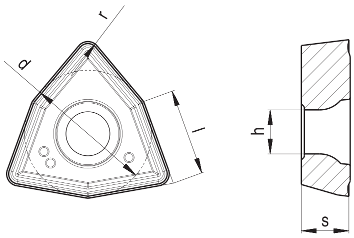


Insert	Designation	Dimension(mm)					Grades						
		l	d	s	r	h	CVD coated		PVD coated				Uncoated
							AC301P	AC301K	AP301U	AP351U	AP401U	AP351K	AW100K
	WCMT 030208E-DU	3.8	5.56	2.38	0.8	2.8			●	●			
	WCMT 040208E-DU	4.3	6.35	2.38	0.8	3.0			●	●			
	WCMT 050308E-DU	5.4	7.94	3.18	0.8	3.4			●	●			
	WCMT 06T308E-DU	6.5	9.525	3.97	0.8	3.9			●	●			
	WCMT 080412E-DU	8.7	12.7	4.76	1.2	4.4			●	●			

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

Marked: ● Stock available

WCMT-DG drilling insert



Insert	Designation	Dimension(mm)					Grades						
		l	d	s	r	h	CVD coated		PVD coated				Uncoated
							AC301P	AC301K	AP301U	AP351U	AP401U	AP351K	AW100K
	WCMT 030204E-DG	3.8	5.56	2.38	0.4	2.5			●	●			
	WCMT 040204E-DG	4.3	6.35	2.38	0.4	2.8			●	●			
	WCMT 050308E-DG	5.4	7.94	3.18	0.8	3.4			●	●			
	WCMT 06T308E-DG	6.5	9.525	3.97	0.8	3.9			●	●			
	WCMT 080408E-DG	8.7	12.7	4.76	0.8	5.5			●	●			

Marked: ● Stock available

Cutting Parameter Recommended Table

Materials				SP drilling insert series grade aplication range & cutting parameter recommended														
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	AP301U			AP351U			AC301P			Feed (mm/rev)					
				PVD coated			PVD coated			CVD coated								
				P15-35			P30-45			P25-40								
				M15-35			M30-45			-								
				-			-			-								
				-			S 30-45			-								
				-			-			-								
				-			-			-								
				Feed (mm/rev)														
				Min	Med	Max	Min	Med	Max	Min	Med	Max	ϕ13mm ~ ϕ15 mm	ϕ15.5mm ~ ϕ21.5mm	ϕ22mm ~ 27.5mm	ϕ28mm ~ ϕ33 mm	ϕ34mm ~ ϕ41mm	ϕ42mm ~ ϕ50 mm
				Cutting speed (m/min)									SPMT 050204E-DP	SPMT 060204E-DP	SPMT 07T308E-DP	SPMT 090408E-DP	SPMT 110408E-DP	SPMT 140512E-DP
P	Non-alloyed steel	<600	<180	260	240	224	220	185	150	200	175	150	0.05-0.08	0.06-0.10	0.06-0.12	0.07-0.13	0.08-0.15	0.08-0.16
		<950	<280	250	210	170	200	170	140	190	162.5	135	0.06-0.12	0.08-0.15	0.10-0.18	0.12-0.22	0.12-0.24	0.13-0.25
	Alloyed steel	700-950	200-280	240	200	160	190	160	130	180	150	120	0.06-0.10	0.08-0.14	0.10-0.18	0.12-0.22	0.12-0.23	0.13-0.24
		950-1200	280-355	210	170	130	170	130	90	160	130	100	0.06-0.12	0.08-0.15	0.10-0.18	0.12-0.22	0.12-0.24	0.13-0.25
		1200-1400	355-415	170	140	110	160	120	80	140	110	80	0.06-0.10	0.08-0.14	0.10-0.18	0.12-0.22	0.12-0.23	0.13-0.24
M	Duplex stainless steel	778	230	260	200	140	180	135	90	-	-	-	0.05-0.10	0.06-0.12	0.08-0.15	0.09-0.16	0.10-0.17	0.11-0.18
	Austenitic stainless steel	675	200	220	170	120	120	65	60	-	-	-	0.05-0.10	0.06-0.12	0.08-0.15	0.09-0.16	0.10-0.17	0.11-0.18
	Precipitation-hardening stainless steel	1013	300	180	140	100	90	65	40	-	-	-	-	-	-	-	-	-
K	Grey cast iron	700	220	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Nodular cast iron	880	260	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Malleable cast iron	800	250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S	Fe-based alloy	943	280	-	-	-	40	30	20	-	-	-	-	-	-	-	-	-
	Co-based alloy	1076	320	-	-	-	35	25	15	-	-	-	-	-	-	-	-	-
	Ni-based alloy	1177	350	-	-	-	35	25	15	-	-	-	-	-	-	-	-	-
	Ti-alloy	1262	370	-	-	-	40	30	20	-	-	-	0.05-0.10	0.06-0.14	0.08-0.18	0.10-0.22	0.14-0.23	0.15-0.24
N	Aluminum	260	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Aluminum alloy	447	130	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
H	Hardened steel	·	50-60HRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chilled cast iron	·	55HRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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

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Cutting Parameter Recommended Table

Materials				WC drilling insert series grade aplication range & cutting parameter recommended													
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	AP301U			AP351U			AC301P			Feed (mm/rev)				
				PVD caoted			PVD caoted			CVD caoted							
				P15-35			P30-45			P25-40							
				M15-35			M30-45			-							
				-			-			-							
				-			S 30-45			-							
				-			-			-							
				-			-			-							
				Feed (mm/rev)													
				Min	Med	Max	Min	Med	Max	Min	Med	Max	ф16mm ~ ф20 mm	ф20.5mm ~ ф25mm	ф25.5mm ~ 30 mm	ф31mm ~ ф41 mm	ф41mm ~ ф58 mm
				Cutting speed (m/min)									WCMT 030204E-DU/DG	WCMT 040204E-DU/DG	WCMT 050308E-DU/DG	WCMT 06T308E-DU/DG	WCMT 080408E-DU/DG
P	Non-alloyed steel	<600	<180	260	240	224	220	185	150	200	175	150	0.04-0.065	0.07-0.09	0.07-0.10	0.08-0.11	0.09-0.13
		<950	<280	250	210	170	200	170	140	190	162.5	135	0.05-0.07	0.09-0.09	0.07-0.10	0.08-0.11	0.09-0.13
	Alloyed steel	700-950	200-280	240	200	160	190	160	130	180	150	120	0.05-0.09	0.065-0.14	0.08-0.16	0.10-0.18	0.10-0.20
		950-1200	280-355	210	170	130	170	130	90	160	130	100	0.04-0.07	0.065-0.11	0.07-0.14	0.09-0.15	0.10-0.18
		1200-1400	355-415	170	140	110	160	120	80	140	110	80	0.04-0.065	0.05-0.9	0.07-0.10	0.08-0.12	0.09-0.13
M	Duplex stainless steel	778	230	260	200	140	180	135	90	-	-	-	0.04-0.07	0.065-0.11	0.08-0.14	0.08-0.11	0.09-0.13
	Austenitic stainless steel	675	200	220	170	120	120	65	60	-	-	-	0.04-0.065	0.065-0.10	0.08-0.12	0.08-0.10	0.08-0.11
	Precipitation-hardening stainless steel	1013	300	180	140	100	90	65	40	-	-	-	-	-	-	-	-
K	Grey cast iron	700	220	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Nodular cast iron	880	260	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Malleable cast iron	800	250	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S	Fe-based alloy	943	280	-	-	-	40	30	20	-	-	-	-	-	-	-	-
	Co-based alloy	1076	320	-	-	-	35	25	15	-	-	-	-	-	-	-	-
	Ni-based alloy	1177	350	-	-	-	35	25	15	-	-	-	-	-	-	-	-
	Ti-alloy	1262	370	-	-	-	40	30	20	-	-	-	0.05-0.10	0.06-0.11	0.07-0.12	0.08-0.13	0.08-0.14
N	Aluminum	260	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Aluminum alloy	447	130	-	-	-	-	-	-	-	-	-	-	-	-	-	-
H	Hardened steel	-	50-60HRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chilled cast iron	-	55HRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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

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Technical Guide

CUTTING TOOL CATALOGUE

Technical guide

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Grade Conversion Table

Turning

ISO classification	Material classification	ACHTECK	COROMANT	ISCAR	KENNAMETAL	KORLOY	KYOCERA	MITSUBISHI	SECO	SUMITOMO	TAEGUTEC	TUNGALOY	WALTER	ZCC
P	P10	AC150P	GC4315 GC4215	IC8150	KCP10 KC9110	NC3010 NC3015	CA515 CA5515	MC6015 UE6110	TP1500 TP1501	AC810P AC700G	TT8115	T9115 T9015	WPP10S WPP10	YBC152 YBC151
	P20	AC250P	GC4325 GC4225	IC8250	KCP25 KC9215	NC3220 NC3120	CA525 CA5525	MC6025 UE6020	TP2500 TP2501	AC8025P AC820P	TT8125	T9125 T9025	WPP20S WPP20	YBC251 YBC252
	P30	AC350P	GC4335 GC4235	IC8350	KCP30 KCP40 KC9040	NC3030 NC500H	CA5535	MC6035 UE6035	TP3500	AC830P	TT8135 TT8020*	T9135 T9035	WPP30S WPP30	YBC351 YBC352
M	M10	AP100S*	GC2015 GC1105*	IC907* IC807*	KCM15 KC5510* KCU10*	PC8110*	CA6515 PR1305* PR1310* PR1215*	MC7015 US7020 VP10RT* MP9005*	TS2000* TH1000* CP200*	AC610M AC6020M AC510U*	TT9215 TT5080*	AH110* AH905* AH8005*	WSM10* WSM10S*	YBM151 YBG102* YBG105*
	M20	AP301M*	GC2025 GC1115* GC15*	IC908* IC887*	KCM25 KC5525* KCU25*	NC9025 PC5300*	CA6525 PR930* PR1025* RP1225* PR1325*	MC7025 VP15TF* MP9015*	TM2000 CP500*	AC620M AC6030M AC520U*	TT9225 TT9080*	T6120 T6020 AH120* AH630* AH8015*	WSM20* WSM20S* WMP20S	YBM251 YBG202* YBG212* YBG205*
K	K10	AC100K	GC3205 GC3005	IC5005	KCK05	NC6205	CA4505 CA4010	MC5005 UC5105	TK1001 TK1000	AC405K AC410K	TT7005	T505	WKK10S WAK10	YBD052
	K20	AC150K ACK15A	GC3210 GC3215	IC5010	KCK15 KC9315	NC6110	CA4515 CA415	MC5015 UC5115	TK2001 TK2000	AC415K AC700G	TT7310 TT7015	T5115 T515	WKK20S WAK20	YBD152C YBD152
S	S10	AP100S*	GCS05F GC1105* GC1115*	IC807* IC907*	KCU10* KC5510* KC5010	PC8110*	PR1305* PR1310*	VP10RT* MP9005*	TH1000* TH1500* TS2000*	AC510U*	TT5080*	AH110* AH905* AH8005*	WSM10*	YBG102* YBG105*
	S20	AP301M*	GC15* GC1115*	IC808* IC908*	KCU20* KC5525* KC5025*	PC5300*	PR1025* PR1225* PR1325*	VP15TF* MP9015*	CP500*	AC520U*	TT9080*	AH120* AH8015*	WSM20*	YBG212* YBG202* YBG205*
N	N10	AW100K	H10	IC20	K68 K313	H01	KW10	HTI10	KX	H1	K10	TH10	WK1	YD101

"*" PVD coating grades

Turning Chip Breaker Conversion Table

Negative turning insert

ISO classification	Application	ACHTECK	COROMANT	ISCAR	DURACARB	KENNAMETAL	KORLOY	KYOCERA	MITSUBISHI	SECO	SUMITOMO	TAEGUTEC	TUNGALOY	VALENITE	WALTER	ZCC
P	Finishing	PB1		SF		FF, FS	HU, VL	DP, GP, PP VF	FH	FF1, FF2	FA FL	FA, FS FX	TF, 01 ZF	F2	FP5	SF
P	Finishing	PB1	QF	NF, F3P	41	FP LF, FN	VG, VF VQ	XF XP HQ	LP SH FY	MF2	SU SE	FG FM	NS, 11 TS, AS TSF		NF4	NF DF
P	Semi-finishing	PB3	PF, XF		43		VB, VC, HC	CQ, PQ CJ	SA		LU	FC, FT			NS6	NM
P	Medium machining	PL5	K						ES	UX	GX, HM	VF, DNUX FS	S			
P	Medium machining				52	MN	HC	GS		MR3		MC	ASW		MP3	PM
P	Medium machining		QM, 23, LC SM, -NGP, 23 SR, SMR	PP TF	42	MS, MP UP, P, -NGP RP	HA VP3 VM	XQ, XS A3, AH MS, MU	MJ, SY MS GJ	MF4, MF5 M5, MR3, MR4	UP, GX, AG EG, EX, UP MU	ML MP	P HMM, SA	M2	NMS, NMT NRS, NRT	
P	Medium machining	PC3	PM, XM QM	M3P VL	45	P	VM HS, GS	PG PS	MP, MV MA	MF3 MF5, M3	GE GU	PC	TM	M2	MP5 NM4	PM
P	Medium machining	PD3	HM, XMR	GN	46	MP RP, RM	HM, GM	HS CS			UX, UG	MT		M3	NM6 NM9	DM
P	Medium machining	PC4		MG-	53	UN	B25	MG- C	MG-	M4 MR4	UZ	MG-	33, 37, 38 DM, MG-		MG-	MG-
P	Roughing machining	PD5	PR	NR, R3P		RN	HR, GR	PT, GT PH, HT	MH GH, RP	M5 MR7, M6	ME MU, MX	RT	TH	R3	NR4, RP5	DR
P	Heavy machining	PD8	PR			RM		PX				RX			NRF	
P	Heavy machining		QR MR	R3P NM		MR, RP	GH	HX	HZ	R6, RR9 R4, R5, 37 RR6	MP HG HP	RH	TRS 57	R6	NR6	
P	Heavy machining	PC9	HR, 31			RH	VT		HCS HX, HBS	R8, 56, 57 R7	HF HU	HT, HD	65 TU		NRR	ER HDR
P	Heavy machining	PD9					VH		HV, HDS, HXD		HW	HY, HZ				
M	Finishing	MB2	MF	SF, F3M	41	FP	HA, VP2	MQ, GU	FS, LM	MF1	SU	EA, SF	SF	F5	NF4	EF
M	Medium machining	MC3	MM	M3M	42	MP, UP	GS, HS	MS, MU	MS, GM, MA	MF4	EX, UP, GU	EM	SS, S		NM4	EM
M	Roughing machining	MC4	MR	R3M	45	RP	VM	HU	RM	MR6, MF5	MU, HM	ET	SM	M5	NR4 NRS	ER
K	Medium machining	PC4		MG-	53	RP		C	MG-, GK	M5		MG-	MG-		NM5, RK5	MG-
K	Roughing machining	KC4 KD5	KR			UN	GR	ZS, GC	GX, RK	MR7	GZ	KT RT	CH		RK7	DR
S	Finishing	MB2	SF	SF		FS	VP1	MQ	FJ	MF1	EF	EA, SF		F5	NF4	NF
S	Medium machining	SC3	SGF SM, -NGP, 23 SR, SMR	PP TF	42	MS UP, P, -NGP RP	VP2 VP3 VM	MS, MU	MJ MS GJ	M1 MF4, MF5 M5, MR3, MR4	SU EG, EX, UP MU	ML MP, SU, MK	HMM, SA	M2	NFT NMS, NMT NRS, NRT	NM
S	Roughing machining	MC4	MR	R3M	45	RP	VM	HU	RM	MR6,MF5	MU,HM	ET	SM	M5	NR4 NRS	ER

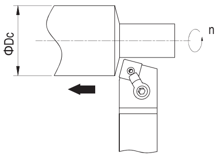
Turning Chip Breaker Conversion Table

Positive turning insert

ISO classification	Application	ACHTECK	COROMANT	DURACARB	ISCAR	KENNAMETAL	KORLOY	KYOCERA	MITSUBISHI	SECO	SUMITOMO	TAEGUTEC	TUNGALOY	VALENITE	WALTER	ZCC
P M K	Finishing		PF, UF		38, PF	UF, 11, GM	VL, VF, HFP	XP GK, GP, DP VF	FV	FF1	LU FP	FA FX	01, PF, PSF		PF4, PF5	SF HF
		PB1 PC2						CF, GF GQ CK	SMG		FC	SA	JS			
			UM XF	51	SM 16, GT-	FP LF	VF HMP, C05	XQ GX	SQ, SV	F1	FK SU SC, SK	FG		PM3 PM4	PS5	HM
	Semi-finishing	PC2	PM	41		MP		HQ				PC FM	PSS PS			EF EM
	Medium machining	KC2	XM PR, UR XR	52	14, 17 19, MT-	MF	C25	MT-	MQ, MV MT- G	F2	SF, MU	MT	PM	PM5	PM5 E47, MT-	HR
N	Semi-finishing	NC2	AL	AU	AF, AS	HP	AK, AR	AH	AZ	AL	AW, AG	FL	AL	IL	PM2	LH

Turning Machining Formula

● Cutting speed



$$Vc = \frac{\pi * Dc * n}{1000} \text{ (m/min)}$$

Vc:Cutting speed(m/min) π: ≈3.14
Dc:Workpiece diameter(mm) n:Spindle speed(rev/min)

● Feed speed

$$Vf = f * n \text{ (mm/min)}$$

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

● Chip thickness

$$h = f * \text{sinkr (mm)}$$

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

● Chip width

$$b = \frac{ap}{\text{sinkr}} \text{ (m/min)}$$

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

● Chip area

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

A:Chip area(mm^2) ap:Axial depth of cut (mm)
f:Feed rate(mm/rev)

● Cutting force

$$Fc = Kc * ap * f \text{ (N)}$$

Fc:Cutting force(N) Kc:Unit cutting force(N/mm^2)
ap:Axial depth of cut (mm) f:Feed rate(mm/rev)

● Cutting power

$$Pmot = \frac{Kc * Vc * ap * f}{60000 * \eta} \text{ (KW)}$$

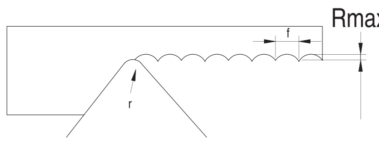
Pmot:Cutting power(KW) Kc:Unit cutting force(N/mm^2)
Vc:Cutting speed(m/min) ap:Axial depth of cut (mm)
f:Feed rate(mm/rev) η :Mechanical efficiency

● Chip removal

$$Q = ap * f * Vc \text{ (cm}^3\text{/min)}$$

Q:Chip removal(cm^3/min) ap:Axial depth of cut (mm)
f:Feed rate(mm/rev) Vc:Cutting speed(m/min)

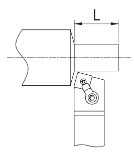
● Theoretic surface roughness



$$Rmax = \frac{f^2}{8 * r} * 1000 \text{ (um)}$$

Rmax:Theoretic surface roughness (um)
f:Feed rate(mm/rev) r:Corner radius (mm)

● Work time



$$Tc = \frac{L}{f * n} \text{ (min)}$$

Tc:Work time f:Feed rate(mm/rev)
n:Spindle speed(rev/min) L: Working length(mm)

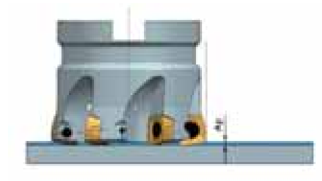
Turning Insert Normal Failtures & Solutions

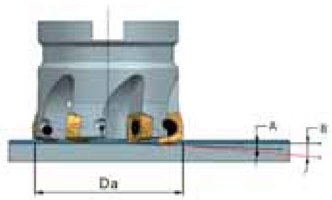
Failtures	Pic.	analysis	Solution
Flank wear		• Tool materials too soft • Excessive cutting speed • Less clearance angle • Less feed rate • Insufficient cooling	• Choosing high wear-resistance insert grade • Reduce cutting speed • Enlarge clearance angle • Increase feed rate
Crater wear		• Tool materials 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 stronge 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 lead 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

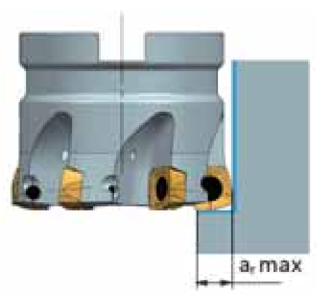
ISO classification	ACHTECK	COROMANT	ISCAR	KENNAMETAL	KORLOY	KYOCERA	MITSUBISHI	SECO	SUMITOMO	TAEGUTEC	TUNGALOY	WALTER
P	AP301U AC301P	GC4220 GC4230	IC950	KC522M KC635M	PC3600 PC3500 PC3535 PC3525	PR630 PR660 PR730	VP15TF	MP1500 MP2500 T250M		TT7080 TT7030	T3130 AH330	WKP25 WAM10 WAM20
P	AP351U	GC1030 GC4240	IC808 IC908	KC522M KC635M KC725M	PC5300 NC5330 PC9530	PR9925 PR830	VP15TF VP20RT	F30M MP3000	ACP2000	TT9080 TT9030	AH120 AH725 AH730 GH330	WAM30
P	AP401U	GC1040	IC830 IC330 IC928	KC735M KC935M	PC3545		VP30RT FH7020X F7030	F40M MP2500	ACP300 ACZ350	TT8020 TT7800 TT8080	AH140 T3130 AH130	WKP235 WXP45 WSP45
M S	AP301U	GC1030 GC2030	IC808 IC908	KC635M	PC5300 NC5330 PC9530	PR730 PR830 PR925 PR1025	VP15TF	MP2500 F30M	ACP2000	TT9300 TT9080	T3130 AH725 AH120	WAM30 WXM35
M S	AP351U	GC2040 S40T	IC830 IC330 IC928	KC7725M	PC3545 PC5300	PR1225 PR905	VP30RT MP9030 F7030	F40M MM4500 MS2500	ACP300 EH20Z EH520Z	TT8020 TT8080	AH130 AH140 SH730	WXM35 WSM35 WSP45
K	AC301K AP351K	GC3220 GC4220	IC810 IC910	KCK15 KC520M	PC6510 PC215K PC5300	PR905 PR510 PR610	MC5020 VP15TF MP8010	MK2050 MK2000 MK3000	ACK2000 ACK3000 ACZ310	TT6080	T1115 AH120 GH110	WKP25 WKP35

High Feed Cutter AHM15-XD Application Information

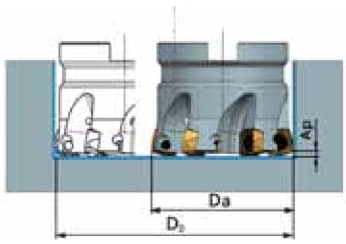
Face milling	Maximum milling depth ap(mm)		
	apmax	XD..0904	XD..1205
		1.5	2.5

Ramping	Maximum bevel				
	Da (mm)	XD..0904		XD..1205	
		Maximum bevel A	Maximum bevel B	Maximum bevel A	Maximum bevel B
	25	2.80°	6.30°	-	-
	32	1.50°	5.00°	-	-
	40	0.80°	2.70°	-	-
	52	-	-	0.8°	2.7°
	63	-	-	0.6°	1.8°
	66	-	-	0.45°	1.8°
	100	-	-	0.32°	1.45°
	125	-	-	0.24°	1.06°

A=Maximum bevel angle of full flat contact B= Maximum bevel of full contact + radius

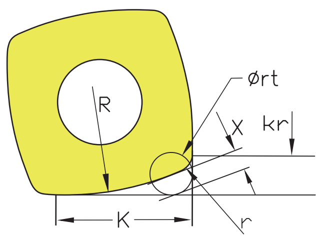
Plunging	Maximum milling depth a_r (mm)		
	Da(mm)	XD..0904	XD..1205
	25	6.0	Maximum bevel A
	32	6.0	-
	40	6.0	-
	50	6.0	-
	52	-	9.0
	63	-	9.0
	66	-	9.0
	80	-	9.0
	100		9.0
	25	-	9.0

Helical ramping	Diameter range of hole that can be milled in one pass (mm)				
	Da (mm)	XD..0904		XD..1205	
		D_o min (mm)	D_o max (mm)	D_o min (mm)	D_o max (mm)
	25	30	50	-	-
	32	51	64	-	-
	40	67	80	-	-
	50	87	100	-	-
	52	-	-	87.2	104
	63	-	-	109.2	126
	66	-	-	115.2	132
	80	-	-	143.2	160
	100	-	-	183.2	200
	25	-	-	233.2	250



Programming Information

Helical ramping							
	Indexable insert	R	r	rt	k	kr	x
	XD..090408	17	0.8	2.0	6.5	1.9	1.47
	XD..120508	22.8	0.8	2.5	8.4	2.4	1.00
	XD..120512	20	1.2	3.0	8.3	2.8	0.86
	XD..120520	20	2.0	3.0	8.0	3.4	0.90



When programmed with the theoretical tool radius "rt", 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.

Milling General Recommendation

● Cutting speed

$$Vc = \frac{\pi * Dc * n}{1000} \text{ (m/min)}$$

Vc:Cutting speed(m/min) π: ≈3.14
Dc:Cutter diameter(mm) n:Spindle speed(rev/min)

● Spindle speed

$$n = \frac{1000 * Vc}{\pi * Dc} \text{ (rev/min)}$$

Vc:Cutting speed(m/min) π: ≈3.14
Dc:Cutter diameter(mm) n:Spindle speed(rev/min)

● Feed speed

$$Vf = fz * n * Z \text{ (mm/min)}$$

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

● Feed rate per rev.

$$fz = \frac{Vf}{n * Z} \text{ (mm/z)}$$

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.

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

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

● Time of cut

$$Tc = \frac{L}{Vf} \text{ (min)}$$

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

● Horse power

$$Hp = \frac{Pmot}{0.75}$$

Hp:Horse power Pmot:Cutting power(KW)

● Power demand

$$Pmot = \frac{ap * ae * Vf * Kc}{6 * 10^7 * \eta} \text{ (KW)}$$

Pmot:Cutting power(KW) ap:Cutting depth ae:Cutting width
Kc:Unit cutting force(N/mm²) η :Machine efficiency coefficient(0.7-0.95)

● Average chip thickness

$$hm = \frac{114.7 * fz * sink * (ae/Dc)}{\psi s} \text{ (mm)}$$

hm:Average chip thickness fz:Feed per tooth(mm/z)
ae:Cutting width Dc:Cutter diameter(mm) ψs:Pressure angle

● Feed force

Cutter in the center site

$$\psi s = 2 * \arcsin\left(\frac{ae}{Dc}\right) \ [°]$$

Cutter in excentric site

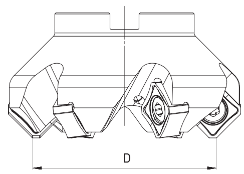
$$\psi s = 90° + \arcsin \frac{ae-(Dc/2)}{(Dc/2)} \ [°]$$

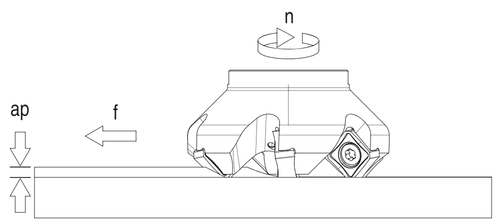
ψs:Pressure angle ae:Cutting width
Dc:Cutter diameter(mm)

● Chip removal

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

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





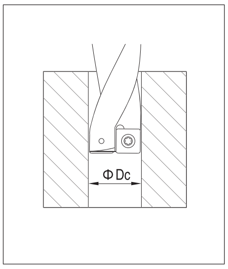
Drilling General Recommendation

● Cutting speed

$$Vc = \frac{\pi * Dc * n}{1000} \ (m/min)$$

Vc:Cutting speed(m/min) π:≈3.14

Dc:Drill diameter(mm) n:Spindle speed(rev/min)



● Spindle speed

$$n = \frac{1000 * Vc}{\pi * Dc} \ (rev/min)$$

Vc:Cutting speed(m/min) π: ≈3.14

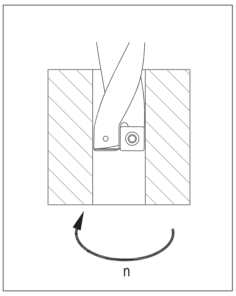
Dc:Drill diameter(mm) n:Spindle speed(rev/min)

● Feed speed

$$Vf = fz * n * Z \ (mm/min)$$

Vf:Feed speed(mm/min) fz:Feed per tooth(mm/z)

n:Spindle speed(rev/min) Z:Number of teeth

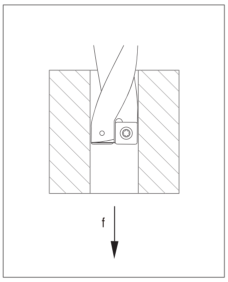


● Feed per tooth

$$fz = \frac{Vf}{n * Z} \ (mm/z)$$

fz:Feed per tooth(mm/z) Vf:Feed speed(mm/min)

n:Spindle speed(rev/min) Z:Number of teeth



● Feed rate per rev.

$$f = \frac{Vf}{n} \ (mm/rev)$$

f:Feed rate per rev.(mm/rev) Vf:Feed speed(mm/min)

n:Spindle speed(rev/min)

● Chip removal

$$Q = \frac{Vf * \pi * Dc^2}{4 * 1000} \ (cm^3/min)$$

Q:Chip removal(cm^3/min) Vf:Feed speed(mm/min)

π: ≈ 3.14 Dc:Drill diameter(mm)

● Horsepowe

$$Hp = \frac{Pmot}{0.75}$$

Hp:Horsepowe Pmot:Cutting power(KW)

● Power demand

$$Pmot = \frac{Q * Kc}{60000 * \eta} \ (KW)$$

Pmot:Cutting power(KW) Q:Chip removal(cm^3/min)

Kc:Unit cutting force(N/mm^2)

η:Machine efficiency coefficient (0.7-0.95)

● Torque

$$Mc = \frac{Dc^2 * Kc * f}{8000} \ (N*m)$$

Mc:Torque Dc:Drill diameter(mm)

Kc:Unit cutting force(N/mm^2) f:Feed rate per rev.(mm/rev)

● Feed force

$$Ff = 0.63 * \frac{f * Dc * Kc}{2} \ (N)$$

Ff:Feed force f:Feed rate per rev.(mm/rev)

Dc:Drill diameter(mm) Kc:Unit cutting force(N/mm^2)

● Cutting thickness

$$h = fz * sink \ (mm)$$

h:Cutting thickness(mm) fz:Feed rate(mm/rev)

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 brale HRA	B scale 100kgf 1/16in ball HRB	C scale 150kgf diamond brale HRC	D scale 100kgf diamond brale HRD		
-	-	1865	92.0	-	80	-	-	-
-	-	1787	91.5	-	79	-	-	-
-	-	1710	91.0	-	78	-	-	-
-	-	1633	90.5	-	77	-	-	-
-	-	1556	90.0	-	76	-	-	-
-	-	1478	89.5	-	75	-	-	-
-	-	1400	89.0	-	74	-	-	-
-	-	1323	88.5	-	73	-	-	-
-	-	1245	88.0	-	72	-	-	-
-	-	1160	87.0	-	71	-	-	-
-	-	1076	86.5	-	70	-	-	-
-	-	1004	86.0	-	69	-	-	-
-	-	940	85.6	-	68.0	76.9	97	-
-	-	920	85.3	-	67.5	76.5	96	-
-	-	900	85.0	-	67.0	76.1	95	-
-	767	880	84.7	-	66.4	75.7	93	-
-	757	860	84.4	-	65.9	75.3	92	-
-	745	840	84.1	-	65.3	74.8	91	-
-	733	820	83.8	-	64.7	74.3	90	-
-	722	800	93.4	-	64.0	73.8	88	-
-	712	-	-	-	-	-	-	-
-	710	780	83.0	-	63.3	73.3	87	-
-	698	760	82.6	-	62.5	72.6	86	-
-	684	740	82.2	-	61.8	72.1	-	-
-	682	737	82.2	-	61.7	72.0	84	-
-	670	720	81.8	-	61.0	71.5	83	-
-	656	700	81.3	-	60.1	70.8	-	-
-	653	697	81.2	-	60.0	70.7	81	-
-	647	690	81.1	-	59.7	70.5	-	-
-	638	680	80.8	-	59.2	70.1	80	-
-	630	670	80.6	-	58.8	69.8	-	-
-	627	667	80.5	-	58.7	69.7	79	-
-	601	640	79.8	-	57.3	68.7	77	-
-	578	615	79.1	-	56.0	67.7	75	-
-	555	591	78.4	-	54.7	66.7	73	210
-	534	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
429	429	455	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	396	70.6	-	40.4	55.7	54	129
363	363	383	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)	36.6	52.8	50	115
331	331	350	68.1	(108.5)	36.6	51.9	48	112
321	321	339	67.5	(108.0)	34.3	51.0	47	108
311	311	328	66.9	(107.5)	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	(105.5)	29.9	47.6	-	97
277	277	292	64.6	(104.5)	28.8	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 brale HRA	B scale 100kgf 1/16in ball HRB	C scale 150kgf diamond brale HRC	D scale 100kgf diamond brale HRD		
269	269	284	64.1	(104.0)	28	45.9	40	91
262	262	276	63.6	(103.0)	27	45.0	39	89
255	255	269	63.0	(102.0)	25	44.2	38	86
248	248	261	62.5	(101.0)	24	43.2	37	84
241	241	253	61.8	100	23	42.0	36	82
235	235	247	61.4	99	22	41.4	35	80
229	229	241	60.8	98.2	21	40.5	34	78
223	223	234	-	97.3	(18.8)	-	-	
217	217	228	-	96.4	(17.5)	-	33	74
212	212	222	-	95.5	(16.0)	-	-	72
207	207	218	-	94.6	(15.2)	-	32	70
201	201	212	-	93.8	(13.8)	-	31	69
197	197	207	-	92.8	(12.7)	-	30	67
192	192	202	-	91.9	(11.5)	-	29	65
187	187	196	-	90.7	(10.0)	-	-	63
183	183	192	-	90	(9.0)	-	28	63
179	179	188	-	89	(8.0)	-	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	(0.9)		-	53
149	149	156	-	80.8		-	23	51
143	143	150	-	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

General technical information

Material Conversion Table

ISO	Country and standard										
	China	International	Germany	U.S.A.	U.K.		France	Sweden	Italy	Spain	Japan
	GB	DIN	W.-nr	AISI/SAE	BS	EN	AFNOR	SS	UNI	UNE	JIS
	Structural steel										
	15	C15	1.0401	1015	080M15	-	CC12	1350	C15C16	F.111	-
	20	C22	1.0402	1020	050A20	2C	CC20	1450	C20C21	F.112	-
	35	C35	1.0501	1035	060A35	-	CC35	1550	C35	F.113	-
	45	C45	1.0503	1045	080M40	-	CC45	1650	C45	F.114	-
	55	C55	1.0535	1055	070M55	-	-	1655	C55	-	-
	60	C60	1.0601	1060	080A62	43D	CC55	-	C60	-	-
	Y15	9SMn28	1.0715	1213	230M07	-	S250	1912	CF9SMn28	11SMn28	SUM22
	-	9SMnPb28	1.0718	12L13	-	-	S250Pb	1914	CF9MnPb28	11SMnPb28	SUM22L
	-	10SPb20	1.0722	-	-	-	10PbF2	-	CF10Pb20	10SPb20	-
	-	35S20	1.0726	1140	212M36	8M	35MF4	1957	-	F210G	-
	Y13	9SMn36	1.0736	1215	240M07	1B	S300	-	CF9SMn36	12SMn35	-
	-	9SMnPb36	1.0737	12L14	-	-	S300Pb	1926	CF9SMnPb36	12SMnP35	-
	55Si2Mn	55Si9	1.0904	9255	250A53	45	55S7	2085	55Si8	56Si7	-
	-	60SiCr7	1.0961	9262	-	-	60SC7	-	60SiCr8	60SiCr8	-
P	15	Ck15	1.1141	1015	080M15	32C	XC12	1370	C16	C15K	S15C
	40Mn	40Mn4	1.1157	1039	150M36	15	35M5	-	-	-	-
	25	Ck25	1.1158	1025	-	-	-	-	-	-	S25C
	35Mn2	36Mn5	1.1167	1335	-	-	40Mn5	2120	-	36Mn5	SMn438(H)
	30Mn	28Mn6	1.117	1330	150M28	14A	20M5	-	C28Mn	-	SCMn1
	35Mn	Cf35	1.1183	1035	060A35	-	XS38TS	1572	C36	-	S35C
	Ck45	45	1.1191	1045	080M46	-	XC42	1672	C45	C45K	S45C
	55	Ck55	1.1203	1055	070M55	-	XC45	-	C50	C55K	S55C
	50	Cf53	1.1213	1050	060A52	-	XC48TS	1674	C53	-	S50C
	60Mn	Ck60	1.1221	1060	080A62	43D	XC60	1678	C60	-	S58C
	-	Ck101	1.1274	1095	060A96	-	-	1870	-	-	SUP4
	-	X120Mn12	1.3401	-	Z120M12	-	X120M12	-	XG120Mn12	X120Mn12	SCMnH/1
	GCr15	100Cr6	1.3505	52100	534A99	31	100C6	2258	100Cr6	F.131	SUJ2
	-	15Mo3	1.5415	ASTM A204Gr.A	1501-240	-	15D3	2912	16Mo3KW	16Mo3	-
	-	16Mo5	1.5426	4520	1503-245-420	-	-	-	16Mo5	16Mo5	-
	-	14Ni6	1.5622	ASTM A350LF5	-	-	16N6	-	14Ni6	15Ni6	-
	-	X8Ni9	1.5662	ASTM A353	1501-509; 510	-	-	-	X10Ni9	XBNi09	-

Material Conversion Table

ISO	Country and standard										
	China	International	Germany	U.S.A.	U.K.		France	Sweden	Italy	Spain	Japan
	GB	DIN	W.-nr	AISI/SAE	BS	EN	AFNOR	SS	UNI	UNE	JIS
	Structural steel										
P	-	12Ni19	1.5680	2515	-	-	Z18N5	-	-	-	-
	-	36NiCr6	1.5710	3135	640A35	111A	35NC6	-	-	-	SNC236
	-	14NiCr10	1.5732	3415	-	-	14NC11	-	16NiCr11	15NiCr11	SNC415 (H)
	-	14NiCr14	1.5752	34153310	655M13655A12	36A	12NC15	-	-	-	SNC815 (H)
	-	36CrNiMo4	1.6511	9840	816M40	110	40NCD3	-	38CrNiMo4 (KB)	35CrNiMo4	-
	-	21NiCrMo2	1.6523	8620	850M20	362	20NCD2	2503	20NiCrMo2	20NiCrMo2	SNCCM220 (H)
	-	40NiCrMo2	1.6546	8740	311-Type7	-	-	-	40NiCrMo2 (KB)	40NiCrMo2	SNC240
	40CrNiMoA	34CrNiMo6	1.6582	4340	817M40	24	35NCD6	2541	35CrNiMo6 (KB)	-	-
	-	17CrNiMo6	1.6587	-	820A16	-	18NCD6	-	-	14CrNiMo1	-
	15Cr	15Cr3	1.7015	5015	523M15	-	12C3	-	-	-	SCr415(H)
	35Cr	34Cr4	1.7033	5132	530A32	18B	32C4	-	34Cr4(KB)	35Cr4	SCr430(H)
	40Cr	41Cr4	1.7035	5140	530M40	18	42C4	-	41Cr4	42Cr4	SCr440(H)
	40Cr	42Cr4	1.7045	5140	-	-	-	2245	-	42Cr4	SCr440
	18CrMn	16MnCr15	1.7131	5115	(527M20)	-	16MC5	2511	16MnCr15	16MnCr15	-
	20CrMn	55Cr3	1.7176	5155	527A60	48	55C3	-	-	-	SUP9(A)
	30CrMn	25CrMo4	1.7218	4130	1717CDS110	-	25CD4	2225	25CrMo4 (KB)	55Cr3	SCM420; SCM430
	35CrMo	34CrMo4	1.7220	4137;4135	708A37	19B	35CD4	2234	35CrMo4	34CrMo4	SCM432; SCRRM3
	40CrMoA	41CrMo4	1.7223	4140;4142	708M40	19A	42CD4TS	2244	41CrMo4	41CrMo4	SCM440
	42CrMo 42CrMnMo	42CrMo4	1.7225	4140	708M40	19A	42CD4	2244	42CrMo4	42CrMo4	SCM440(H)
	-	15CrMo5	1.7262	-	-	-	12CD4	2216	-	12CrMo4	SCM415(H)
	-	13CrMo44	1.7335	ASTMA182F11; F12	1501-620Gr.27	-	15CD3.5; 15CD4.5	-	14CrMo44	14CrMo45	-
	-	32CrMo12	1.7361	-	722M24	40B	30CD12	2240	32CrMo12	F.124.A	-
	-	10CrMo910	1.7380	ASTMA182F.22	1501-622Gr.31;45	-	12CD9;10	2218	12CrMo9,10	TU.H	-
	-	14MoV63	1.7715	-	1503-660-440	-	-	-	-	13MoCrV6	-
	50CrVA	50CrV4	1.8159	6150	735A50	47	50CV4	2230	50CrV4	51CrV4	SUP10
	-	41CrAlMo7	1.8509	-	905M39	41B	40CAD6,12	2940	41CrAlMo7	41CrAlMo7	-
	-	39CrMoV139	1.8523	-	897M39	40C	-	-	36CrMoV12	-	-

Material Conversion Table

ISO	Country and standard										
	China	International	Germany	U.S.A.	U.K.		France	Sweden	Italy	Spain	Japan
	GB	DIN	W.-nr	AISI/SAE	BS	EN	AFNOR	SS	UNI	UNE	JIS
	Tool steel										
	T10	C105W1	1.1545	W.110	-	-	Y1105	1880	C98KU C100KU	F.515 F.516	-
	T12A	C125W	1.1663	W.112	-	-	Y2120	-	C120KU	(C120)	SK20
	GCr15	100Cr6	1.2067	L3	BL3	-	Y100C6	-	-	100Cr6	-
	Cr12	X210Cr12	1.2080	D3	BD3	-	Z200Cr12	-	X210Cr13KU X250Cr12KU	X210Cr12	SKD1
	4Cr5MoVSi	X40CrMoV5 1	1.2344	H13	BH13	-	Z40CDV5	2242	X35CrMoV05KU X40CrMoV51KU	X40CrMoV5	SKD61
	Cr6WV	X100CrMoV5 1	1.2363	A2	BA2	-	Z100CDV5	2260	X100CrMoV51KU	X100CrMoV5	SKD12
	CrWMo	105WCr6	1.2419	-	-	-	105WC13	2140	10WCr6 107WCr5KU	105WCr5	SKS31 SKS2 SKS3
	Cr12W	X210CrW12	1.2436	-	-	-	-	2312	X215CrW12 1KU	X210CrW12	SKD2
	5CrNiMo	45WCrV7	1.2542	S1	BS1	-	-	2710	45WCrV8KU	45WCrSi8	-
P	3Cr2W8V	X30WCrV93 X30WCrV93KU	1.2581	H21	BH21	-	Z30WCV9	-	X28W09KU X30WCrV9 3KU	X30WCrV9	SKD5
	Cr12MoV	X165CrMoV 12	1.2601	-	-	-	-	2310	X165CrMoW12KU	X160CrMoV12	SKD11
	5CrNiMo	55NiCrMoV6	1.2713	L6	-	-	55NCDV7	-	-	F.250.S	SKT4
	V	100V1	1.2833	W210	BW2	-	Y1105V	-	-	-	SKS43
	W6Mo5Cr4V2Co5	S6-5-2-5	1.3243	-	-	-	Z85WDKCV	2723	HS6-5-2-5	HS6-5-2-5	SKH55
	W18Cr4VCo5	S18-1-2-5	1.3255	T4	BT4	-	Z80WKCV 10-05-04-01	-	X78WCo1805KU	HS18-1-1-5	SKH3
	W6Mo5Cr4V2	S6-5-2	1.3343	M2	BM2	-	Z85WDCV 06-05-04-02	2722	X82WMo0605KU	HS6-5-2	SKH9
	-	S2-9-2	1.3348	M7	-	- Z -	Z100WCWV 09-02-04-02	2782	HS2-9-2	HS2-9-2	-
	W18Cr4V	S18-0-1	1.3355	T1	BT1	-	Z80WCV 18-04-01	-	X75W18KU	HS18-0-1	SKH2
	W6Mo5Cr4V3	S6-5-3	-	M3	-	-	-	-	-	-	SKH52
	-	-	-	M42	BM42	-	-	-	-	-	SKH59

Material Conversion Table

ISO	Country and standard										
	China	International	Germany	U.S.A.	U.K.		France	Sweden	Italy	Spain	Japan
	GB	DIN	W.-nr	AISI/SAE	BS	EN	AFNOR	SS	UNI	UNE	JIS
M	Stainless steel										
	0Cr13; 1Cr12	403	1.4000	403	403S17	-	Z6C13	2301	X6Cr13	F.3110	SUS403
	-	-	1.4001	-	-	-	-	-	-	F.8401	-
	1Cr13	410	1.4006	410	410S21	56A	X12Cr13	2302	X12Cr13	F.3401	SUS410
	1Cr17	430	1.4016	430	430S15	60	X8Cr17	220	X8Cr17	F.3113	SUS430
	2Cr13	410	1.4021	40	S62	56B;56C	X20C13	-	X20C13	F.3401	SUS410
	-	-	1.4027	-	420C29	56B	-	-	-	-	SCS2
	4Cr13	-	1.4034	-	420S45	56D	X40Cr14	2304	X40Cr14	F.3405	SUS420J2
	1Cr17Ni2	431	1.4057	431	431S29	57	X16CNi16	2321	X16CNi16	F.3427	SUS431
	Y1Cr17	430F	1.4104	430F	-	-	X10CrS17	2383	X10CrS17	F.3117	SUS430F
	1Cr17Mo	434	1.4113	434	434S17	-	X8CrMo17	2325	X8CrMo17	-	SUS434
	-	-	1.4313	-	425C11	-	-	-	-	-	SCS5
	-	-	1.4408	-	316C16	-	-	-	-	F.8414	SCS14
	4Cr9Si2	HW3	1.4718	HW3	401S45	52	X45CrSi8	-	X45CrSi8	F.322	SUH1
	0Cr13Al	405	1.4724	405	403S17	-	X10CrAl12	-	X10CrAl12	F.311	SUS405
	Cr17	430	1.4742	430	430S15	60	X8Cr17	-	X8Cr17	F.3113	SUS430
	8Cr20Si2Ni	HNV6	1.4757	HNV6	443S65	59	X80CrSiNi20	-	X80CrSiNi20	F.320V	SUH4
	2Cr25N	446	1.4762	446	-	-	X16Cr26	2322	X16Cr26	-	SUH446
	Austenitic stainless steel										
	0Cr18Ni9	X5CrNi1810	1.4301	304	304S15	58E	Z6CN18.09	2332	X5CrNi1810	F.3551 F.3541; F.3504	SUS304
	1Cr18Ni9MoZr	X10CrNiS189	1.4305	303	303S21	58M	Z10CNF18.09	2346	X10CrNiS18.09	F.3508	SUS303
	0Cr19Ni10	X2CrNi1911	1.4306	304L	304S12	-	Z2CN18.10	2352	X2CrNi18.11	F.3503	SCS19
	-	G-X6CrNi189	1.4308	-	304C15	-	Z6CN18.10M	-	-	-	SCS13
	Cr17Ni17	X12CrNi177	1.4310	301	-	-	Z12CN17.07	2331	X12CrNi1707	F.3517	SUS301
	-	X2CrNiN1810	1.4311	304LN	304S62	-	Z2CN18.10	2371	-	-	SUS304LN
	0Cr19Ni9	X5CrNi189	1.4350	304	304S31	58E	Z6CN18.09	-	X5CrNi1810	-	SUS304
	0Cr17Ni11Mo2	X5CrNi Mo1712	1.4401	316	316S16	Z6CND 17.11	1.4401	2347	X5CrNiMo1712	F.3543	SUS316
	00Cr17Ni13Mo2	X2CrNi MoN17133	1.4429	316LN	-	-	Z2CND17.13	2375	-	-	SUS316LN
	0Cr27Ni12Mo3	X2CrNi Mo18143	1.4435	316L	316S12	-	Z2CDN17.13	2353	X2CrNiMo1713	-	SCS16
	00Cr19Ni13Mo3	X2CrNi Mo17133	1.4438	317L	317S12	-	Z2CND19.15	2367	X2CrNiMo18.16	-	SUS317L
	-	X8CrNiMo275	1.4460	329L	-	-	-	2324	-	-	SUS329L; SCH11; SCS11

Material Conversion Table

ISO	Country and standard										
	China	International	Germany	U.S.A.	U.K.		France	Sweden	Italy	Spain	Japan
	GB	DIN	W.-nr	AISI/SAE	BS	EN	AFNOR	SS	UNI	UNE	JIS
M	Austenitic stainless steel										
	1Cr18Ni9Ti	X6CrNi Ti1810	1.4541	321	2337	321S12	Z6CNT18.10	58B	X6CrNiTi1811	F.3553	SUS321
	1Cr18Ni11Nb	X6CrNi Nb1810	1.4550	347	347S17	58F	Z6CNNb18.1	2338	X6CrNiTi1811	F.3552	SUS347
	Cr18Ni12Mo2Ti	X6CrNi MoTi17122	1.4571	316Ti	320S17	58J	Z6NDT17.12	2350	X6CrNiMoTi17	F.3535	-
	-	G-X5CrNi MoNb1810	1.4581	-	318C7	-	Z4CNDNb1812M	-	XG8CrNiMo18	-	SCS22
	Cr17Ni12Mo3Nb	X10CrNi MoNb1812	1.4583	318	-	-	Z6CNDNb1713B	-	X6CrNiMoTiNb17	-	-
	1Cr23Ni13	X15CrNi Si2012	1.4828	309	309S24	-	Z15CNS20.1	-	-	-	SUH309
	0Cr25Ni20	X12CrNi2521	1.4845	310S	310S24	-	Z12CN2520	2361	X6CrNi2520	F.331	SUH310
	Cr15Ni36W3Ti	X12NiCr Si3616	1.4864	330	-	-	Z12CNS35.1	-	-	-	SUH330
	-	G-X40NiCr Si3818	1.4865	-	330C11	-	-	-	XG50NiCr3919	-	SCH15
	5Cr2Mn9Ni4N	X53CrMn NiN219	1.4871	EV8	349S54; 321S12	- 58B	Z52CMN21.0	-	X53CrMnNiN219	-	SUH35
	1Cr18Ni9Ti	X12CrNi Ti189	1.4878	321	321S320	58C	Z6CNT18.12	-	X6CrNiTi1811	F.3523	SU321

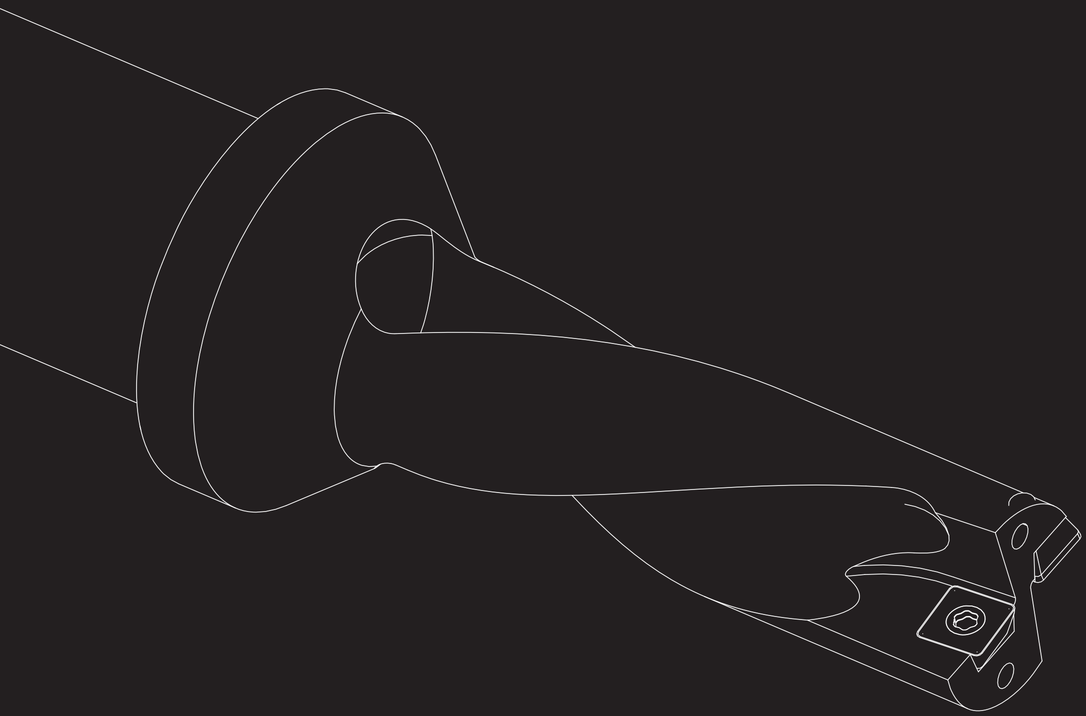
ISO	Country and standard								
	China	Germany	U.S.A.	U.K.	France	Sweden	Italy	Spain	Japan
	GB	W.-nr	AISI/SAE	EN	AFNOR	SS	UNI	UNE	JIS
K	Nodular cast iron								
	QT400-18	GGG40	60-40-18	400/17	FGS370-17	0717-02	GS370-17	FGE38-17	FCD400
	QT450-10	--	65-45-12	420/12	FGS400-12	--	GS400-12	FGE42-12	FCD450
	QT500-7	GGG50	70-50-05	500/7	FGS500-7	0727-02	GS500-7	FGE50-7	FCD500
	QT600-3	GGG60	80-60-03	600/7	FGS600-2	0732-03	GS600-2	FGE60-2	FCD600
	QT700-2	GGG70	100-70-03	700/2	FGS700-2	0737-01	GS700-2	FGE70-2	FCD700
	QT800-2	GGG80	120-90-02	800/2	FGS800-2	0864-03	GS800-2	FGE80-2	FCD800
	QT900-2	--	--	900/2	--	--	--	--	--
	Grey cast iron								
	--	GG40	NO.60	--	FGL400	0140	--	--	
	HT350	GG35	NO.50	350	FGL350	0135	G35	FG35	FC350
	HT300	GG30	NO.45	300	FGL300	0130	G30	FG30	FC300
	HT250	GG25	NO.35	250	FGL250	0125	G25	FG25	FC250
	HT200	GG20	NO.30	200	FGL200	0120	G20	FG20	FC200
	HT150	GG15	NO.20	150	FGL150	0115	G15	FG15	FC150
	HT100	--	--	100	--	0110	G10	--	FC100

Material Conversion Table

ISO	China	International	Germany	U.S.A.	U.K.	France	Sweden	Italy	Spain	Japan
	Country and standard									
	GB	DIN	W.-nr	AISI/SAE	BS	AFNOR	SS	UNI	UNE	JIS
N	Al based alloy									
N	ZAlSi7Mg	Al-Si7Mg(Fe)	~AlSi7Mg	356	LM25	A-S7G	4244	3599	-	AC4C
N	ZAlSi7MgA	Al-Si7Mg	AlSi7Mg	A356.0	2L99	A-S7G03	-	8024	-	AC4C
N	ZAlSi12	Al-Si12	AlSi12	413;B413.0	LM6	A-S13	4261	4514	-	AC3A
N	ZAlSi9Mg	~Al-Si10Mg	AlSi9Mg	360	LM9	A-S9G;A-S10G	4253	3051	-	AC4A
N	-	Al-Si5	AlSi5Mg	A 443.0	-	-	-	5077	-	-
N	-	Al-Si5Fe	-	B443.0	-	-	-	GD-AlSi5Fe	-	-
N	-	(AlSi7Fe)	-	A444.0	-	-	-	-	-	-
N	-	Al-Si12Fe	-	413	LM20	~A-S12	4260	5079	-	ADC1

ISO	China	International	Germany	U.S.A.	U.K.	France	Sweden	Italy	Spain	Japan
	Country and standard									
	GB	DIN	W.-nr	AISI/SAE	BS	AFNOR	SS	UNI	UNE	JIS
S	Ni based alloy									
S	-	S-NiCr13A16MoNb	LW2 4670	5391	mar - 46	NC12AD	-	-	-	-
S	-	NiCo15Cr10MoAlTi	LW2 4674	AMS 5397	-	-	-	-	-	-
S	-	NiFe35Cr14MoTi	LW2.4662	5660	-	ZSNCDT42	-	-	-	-
S	-	NiCr19Fe19NbMo	LW2.4668	5383	HR8	NC19eNB	-	-	-	-
S	-	NiCr20TiAk	2.4631	-	Hr401.601	NC20TA	-	-	-	-
S	-	NiCr19Co11MoTi	2.4973	AMS 5399	-	NC19KDT	-	-	-	-
S	-	NiCr19Fe19NbMo	LW2.4668	AMS 5544	-	NC20K14	-	-	-	-
S	-	-	2.4603	5390A	-	NC22FeD	-	-	-	-
S	-	NiCr22Mo9Nb	2.4856	5666	-	NC22FeDNB	-	-	-	-
S	-	NiCr20Ti	2.4630	-	HR5.203-4	NC20T	-	-	-	-
S	-	NiCu30AL3Ti	2.4375	4676	3072-76	-	-	-	-	-
S	Co based alloy									
S	-	CoCr20W15Ni	-	5537C,AMS	-	KC20WN	-	-	-	-
S	-	CoCr22W14Ni	LW2.4964	5772	-	KC22WN	-	-	-	-
S	Ti-alloy									
S	-	TiAl5Sn2.5	3.7115.1	UNS R54520	TA14/17	T-A5E	-	-	-	-
S	-	-	-	-	-	UNS R56400	-	-	-	-
S	-	TiAl6V4	3.7165.1	-	TA10-13/TA28	UNS R56401	-	T-A6V	-	-
S	-	TiAl5V5Mo5Cr3	-	-	-	-	-	-	-	-
S	-	TiAl4Mo4Sn4Si0.5	3.7185	-	-	-	-	-	-	-

Note



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