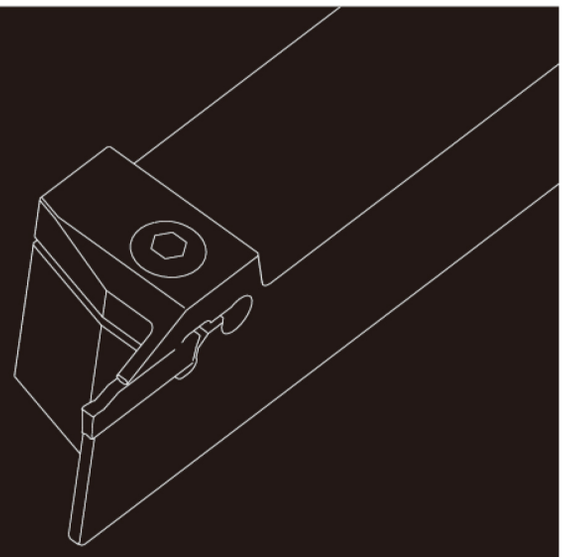
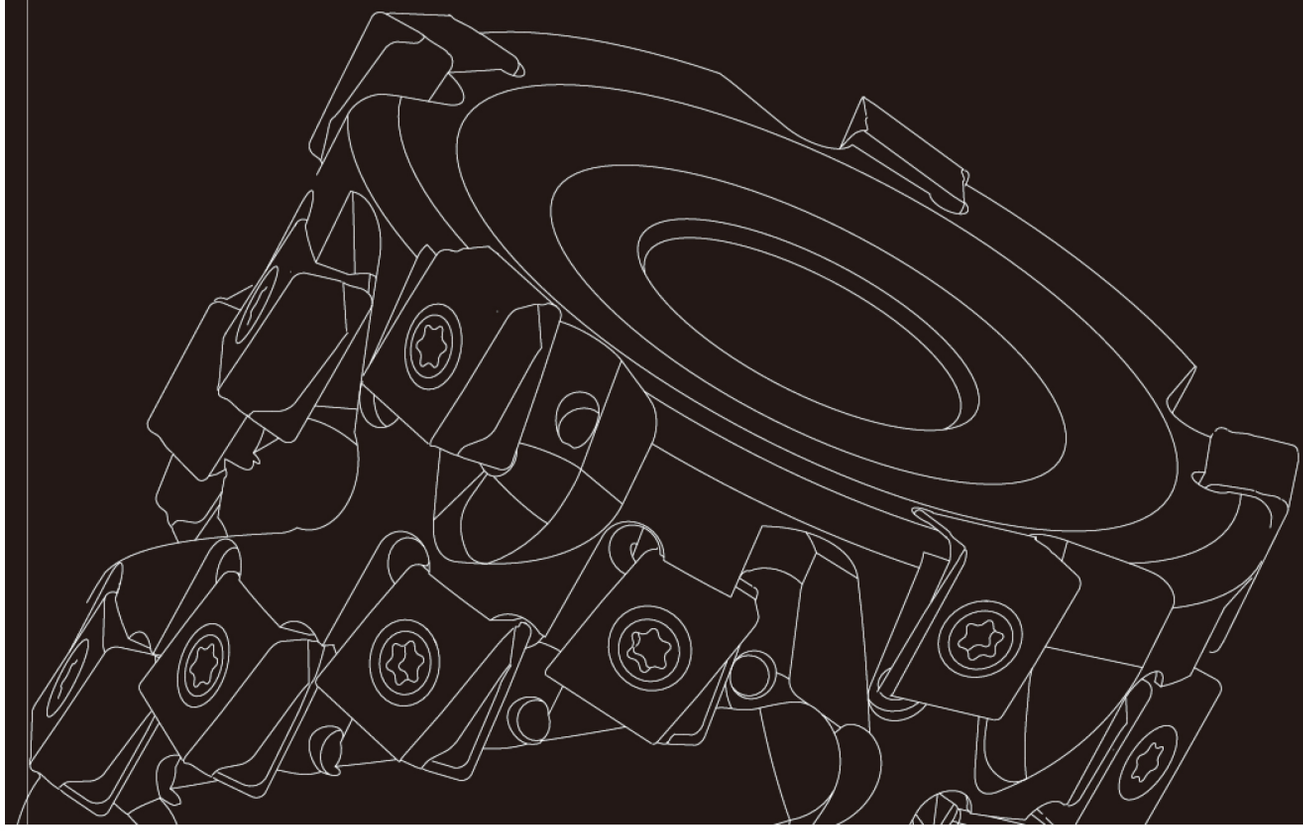


KAIKUN

Metal Cutting Tools Catalog



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15 años ofreciendo una amplia cobertura de herramientas de corte indexables confiables y calidad

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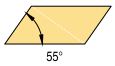
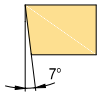
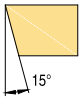
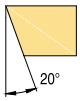
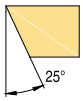
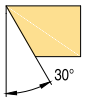
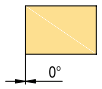
ISO Turning Insert Denomination System

C	N	M	G
1	2	3	4

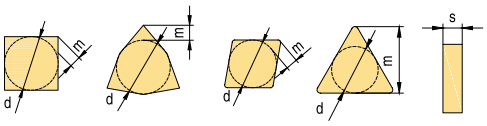
1-Shape/Code

A	B	C	D	E
				
85°	82°	80°	55°	75°
H	**K**	**L**	**M**	**O**
				
120°	55°	90°	86°	135°
P	**R**	**S**	**T**	**V**
				
108°	360°	90°	60°	35°
W	**Z**			
	Others			
80°				

2-Clearance Angle

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

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

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

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

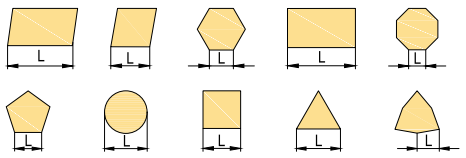
4-Type of Insert

A	B	C	F	G
	 70°-90°	 70°-90°		
H	**J**	**M**	**N**	**Q**
 70°-90°	 70°-90°			 40°-60°
R	**T**	**U**	**W**	**Z**
	 40°-60°	 40°-60°	 40°-60°	Special

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

5-Cutting Edge Length

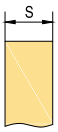
In.Circle Dimension (mm)	Insert shape C	D	R	S	T	V	W	K
3.97					06		02	
5.0			05					
5.56					09			
6.0		06						
6.35	06	07			11	11	04	
8.0			08					
9.525	09	11	09	09	16	16	06	16
10.0			10					
12.0			12					
12.7	12	15	12	12	22	22	08	
15.875	16		15	15	27			
16.0			16					
19.05	19		19	19	33			
20.0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



6-Thickness

Round down plus zero or T

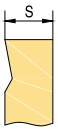
A, B, C, N, O, W



Example:

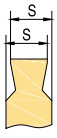
01 = 1.59
T1 = 1.98
02 = 2.38

H, M, R, T



03 = 3.18
T3 = 3.97
04 = 4.76
05 = 5.56
06 = 6.35
07 = 7.94

F, G, J, U



09 = 9.525
11 = 11.11
12 = 12.70
14 = 14.29
15 = 15.88

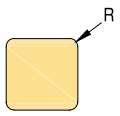
7-Nose Radius

Corner radius

Example

MO = Round insert (metric)

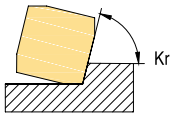
OO = Sharp
003 = 0.03
005 = 0.05
01 = 0.1
02 = 0.2
04 = 0.4
08 = 0.8
12 = 1.2
16 = 1.6
20 = 2.0
24 = 2.4
28 = 2.8
32 = 3.2
40 = 4.0
48 = 4.8
56 = 5.6
64 = 6.4
X = Others



Wiper

Approaching angle (kr)
A = 45
D = 60
E = 75
F = 85
G = 87
P = 90
Z = Others

Wiper clearance angle (an)
A = 3°
B = 5°
C = 7°
D = 15°
E = 20°
F = 25°
G = 30°
N = 0°
P = 11°
Z = Others



8-Edge Preparation

Code	Edge shape	Description
F		Sharp cutting edge
E		Honed cutting edge
T		T-land
S		T-land+Honed cutting edge

9-Chip Breaker Description

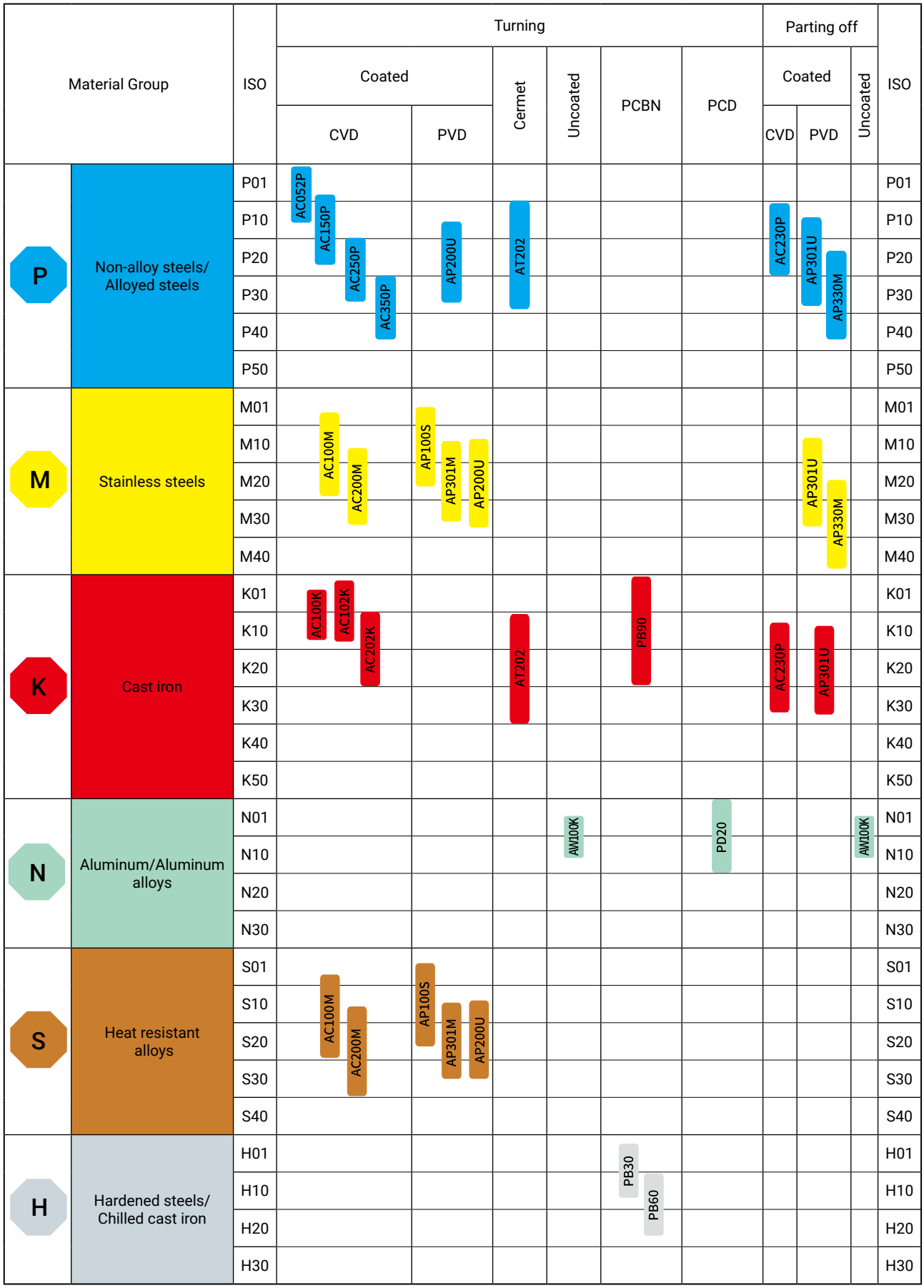
Refer to page: P28-43

Ground Positive Insert Example

CCET 09 T3 01 F P R - F

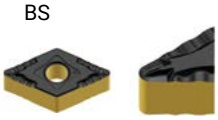
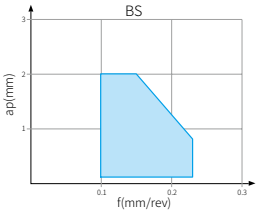
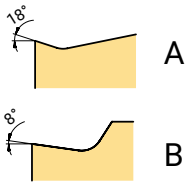
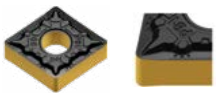
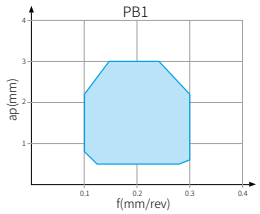
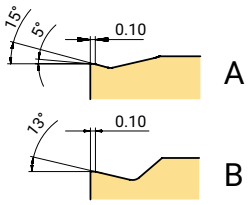
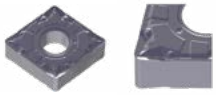
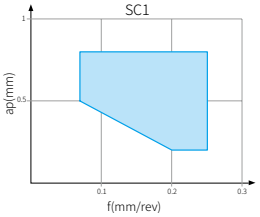
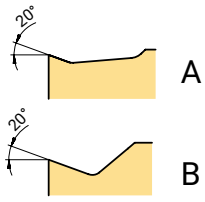
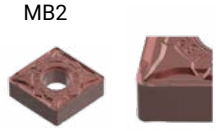
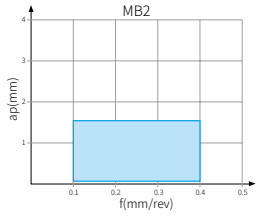
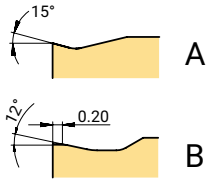
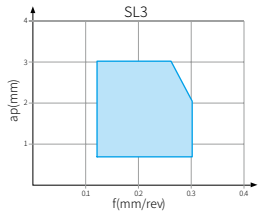
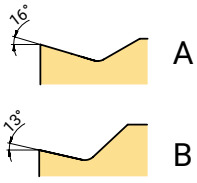
- F: E: Honing edge / F: Sharp edge
- P: P: Insert polishing treatment
- R: L: Left / R: Right
- F: Geometry

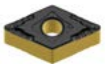
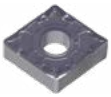
Turning Grade Application Guide

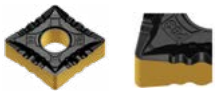
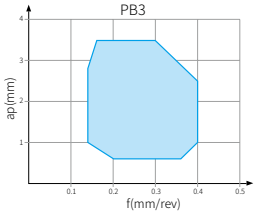
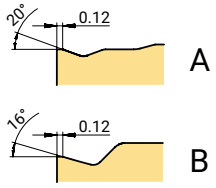
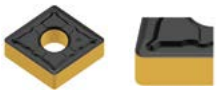
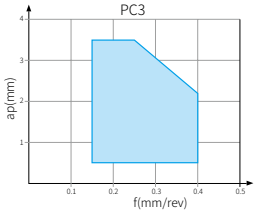
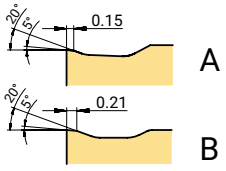
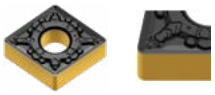
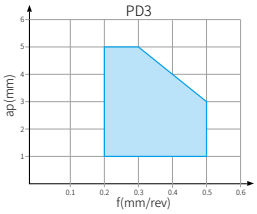
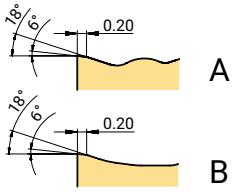
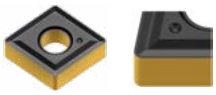
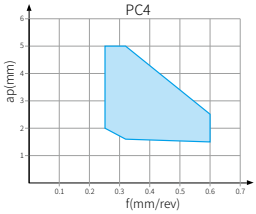
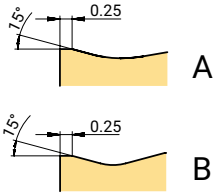
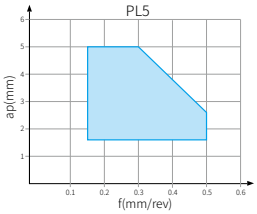
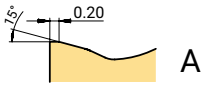


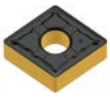
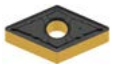
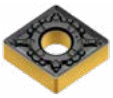
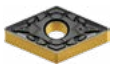
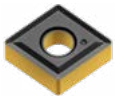
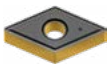
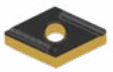
Overview of Turning Insert Geometries

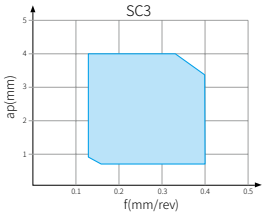
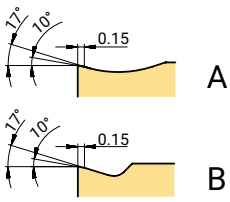
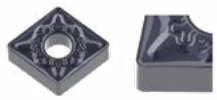
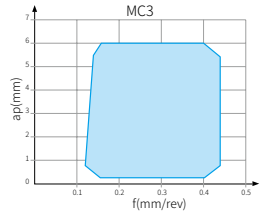
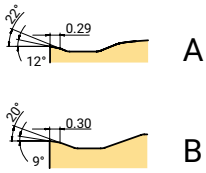
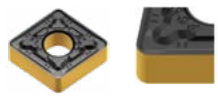
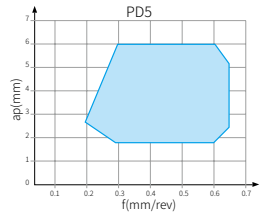
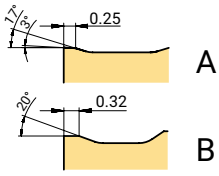
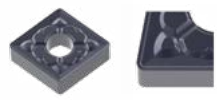
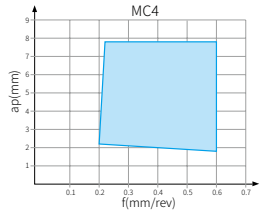
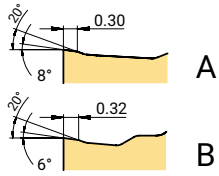
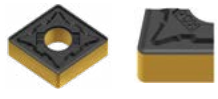
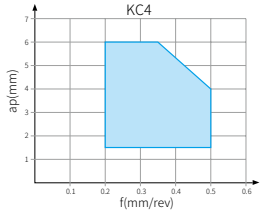
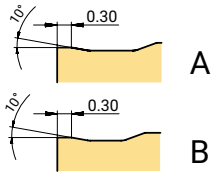
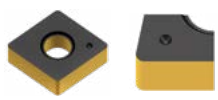
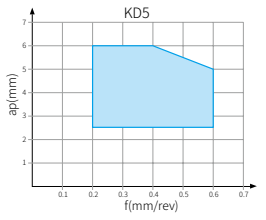
Negative Inserts

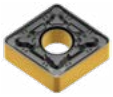
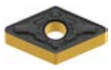
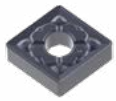
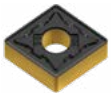
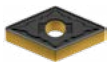
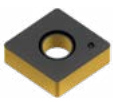
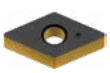
Application	Chip breaker	Features	Chip breaking range	Cross section geometry 
Profiling	BS 	**Finishing and semi-finishing profile turning** Suitable for turning with changing depth of cut. Smooth chip evacuation		
Finishing	PB1 	**1st choice for stainless steel finish turning** Light cutting chip breaker, low cutting force, suitable for machining slender shaft, thin wall and unstably clamped parts, good cutting performance		
	SC1 	**1st choice for heat resistant alloy finish turning** Excellent performance at low depth of cut.		
	MB2 	1st choice for stainless steel finish turning High positive rake angle reduced cutting force and built-up edge, can obtain much better surface quality. Very good chip breaking at low feed and cutting depth.		
Light cutting	SL3 	**Recommended for heat resistant alloy light turning.** Suitable for heat resistant alloy, Ti-alloy. Sharp and wavy cutting edge can get good surface finish and good chip breaking results.		

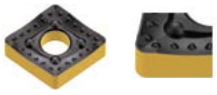
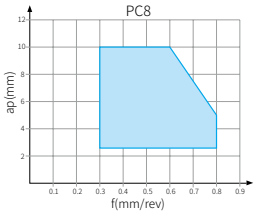
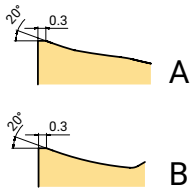
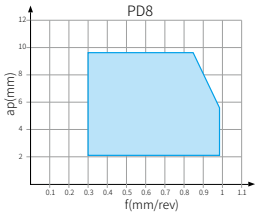
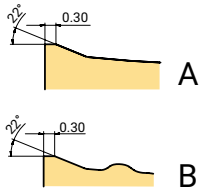
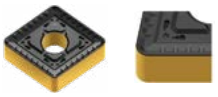
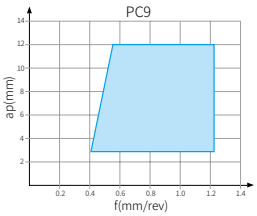
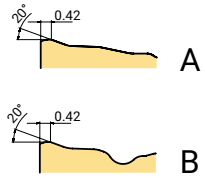
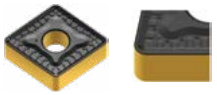
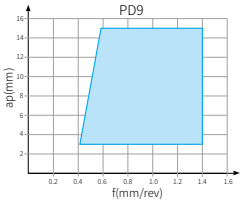
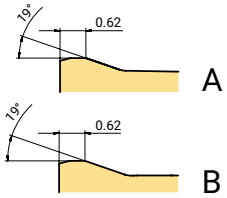
	80° Rhombus	55° Rhombus	90° Square	60° Triangle	35° Rhombus	80° Trigon	Round
		DNMG-BS  P54			VNMG-BS  P63		
	CNMG-PB1  P50	DNMG-PB1  P54	SNMG-PB1  P57	TNMG-PB1  P60	VNMG-PB1  P63	WNMG-PB1  P65	
	CNMG-SC1  P50	DNMG-SC1  P54		TNMG-SC1  P60	VNMG-SC1  P63	WNMG-SC1  P65	
	CNMG-MB2  P50	DNMG-MB2  P54	SNMG-MB2  P57	TNMG-MB2  P60	VNMG-MB2  P63	WNMG-MB2  P65	
	CNMG-SL3  P50	DNMG-SL3  P54	SNMG-SL3  P57	TNMG-SL3  P60	VNMG-SL3  P63	WNMG-SL3  P65	

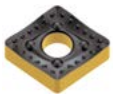
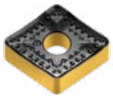
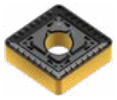
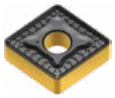
Application	Chip breaker	Features	Chip breaking range	Cross section geometry
Semi-finishing	PB3 	**1st choice for steel semi finish turning** The positive rake angle combined with small land guaranteed edge strength and sharpness, reduced the cutting force. The wavy side edge design has a good chip breaking result in out-copying turning on the shoulder, and in profile turning at different cutting depths.		
	PC3 	**Alternative chipbreaker for steel semi-finish turning** Unique geometry design offers wider chip breaking range. Double rake angle makes the cutting smoothly. Enhanced insert tip reduced crater wear.		
Medium	PD3 	**1st choice for steel medium turning** It has a strong chip control ability at low feed and cutting depth, and reduces crater wear. The chip breaking is also very good at high feed and cutting depth due to the geometry design. Double rake angle design makes sharp cutting edge and reduces cutting force.		
	PC4 	**1st choice for cast iron medium turning** **Alternative chipbreaker for carbon steel and alloy steel medium turning** Flat T-land guarantee the strength of cutting edge. This multi-purpose geometry can be used in universal applications.		
	PL5 	**1st choice for steel slender bar turning** Open chip breaker leads to smooth cutting with low cutting force, which is suitable for slender shaft turning.		

	80° Rhombus	55° Rhombus	90° Square	60° Triangle	35° Rhombus	80° Trigon	Round
	CNMG-PB3  P50	DNMG-PB3  P54		TNMG-PB3  P60	VNMG PB3  P63	WNMG-PB3  P65	
	CNMG-PC3  P50	DNMG-PC3  P55	SNMG-PC3  P57	TNMG-PC3  P60	VNMG-PC3  P63	WNMG-PC3  P65	
	CNMG-PD3  P50	DNMG-PD3  P55	SNMG-PD3  P57	TNMG-PD3  P60	VNMG-PD3  P64	WNMG-PD3  P66	
	CNMG-PC4  P51	DNMG-PC4  P56	SNMG-PC4  P58	TNMG-PC4  P61	VNMG-PC4  P64	WNMG-PC4  P66	
		DNMG-PL5  P55		TNMG-PL5  P60		WNMG-PL5  P66	

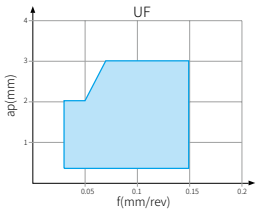
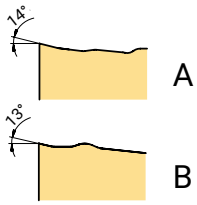
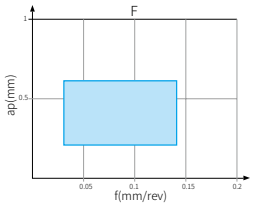
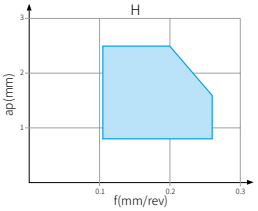
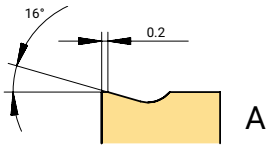
Application	Chip breaker	Features	Chip breaking range	Cross section geometry
Medium	SC3 	**1st choice for heat resistant alloy medium turning** Used in heat resistant alloy and titanium alloy medium turning. Large rake angle + small land width design, easy cutting, is also suitable for soft steel turning.		
	MC3 	**1st choice for stainless steel medium turning** Sharp cutting edge, low cutting force, wide chip breaking range and good chip removal ability.		
Roughing	PD5 	**Alternative chipbreaker for steel rough turning** A strong cutting edge. Double rake angle design effectively reduces the cutting force, can still have good chip breaking at small cutting depth.		
	MC4 	**Alternative chipbreaker for stainless steel and heat resistant alloy rough turning** Large chip breaker design, smooth chip evacuation, good chip breaking, with high metal removal rate.		
	KC4 	**1st choice for cast iron turning** It has strong cutting edge, reliable and stable performance.		
	KD5 	**1st choice for cast iron rough turning** High cutting edge strength, suitable for interrupt cutting and unstable cutting.		

	80° Rhombus	55° Rhombus	90° Square	60° Triangle	35° Rhombus	80° Trigon	Round
	CNMG-SC3  P51	DNMG-SC3  P55	SNMG-SC3  P57	TNMG-SC3  P60	VNMG-SC3  P64	WNMG-SC3  P66	
	CNMG-MC3  P51	DNMG-MC3  P55	SNMG-MC3  P57	TNMG-MC3  P61	VNMG-MC3  P64	WNMG-MC3  P66	
	CNMG-PD5  P52	DNMG-PD5  P56	SNMG-PD5  P58	TNMG-PD5  P61		WNMG-PD5  P67	
	CNMG-MC4  P51	DNMG-MC4  P56	SNMG-MC4  P58	TNMG-MC4  P61		WNMG-MC4  P67	
	CNMG-KC4  P52	DNMG-KC4  P56	SNMG-KC4  P58	TNMG-KC4  P61	VNMG-KC4  P64	WNMG-KC4  P67	
	CNMA-KD5  P52	DNMA-KD5  P56	SNMA-KD5  P59	TNMA-KD5  P62		WNMA-KD5  P67	

Application	Chip breaker	Features	Chip breaking range	Cross section geometry
Heavy roughing	PC8 	**Light cutting geometry for heavy turning** Positive rake angle and curved cutting edge design, low cutting force.		
	PD8 	**Heavy turning geometry for soft steel and stainless steel** The geometry design ensures low cutting force. Suitable for low power machine tools. Applied in steel, stainless steel and cast iron heavy turning.		
	PC9 	**1st choice for steel heavy rough turning** Wavy geometry is good for chip breaking. The geometry has a big space for chips, which is suitable for high metal removal rate.		
	PD9 	**Alternative chipbreaker for steel heavy rough turning** High edge strength is suitable for big cutting depth and high feed turning. High machining reliability.		

	80° Rhombus	55° Rhombus	90° Square	60° Triangle	35° Rhombus	80° Trigon	Round
	CNMM-PC8  P53						
	CNMM-PD8  P53		SNMM-PD8  P59	TNMM-PD8  P62			
	CNMM-PC9  P53		SNMM-PC9  P59				
	CNMM-PD9  P53		SNMM-PD9  P59				

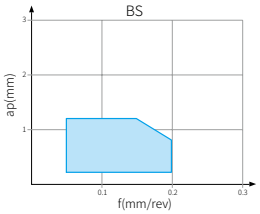
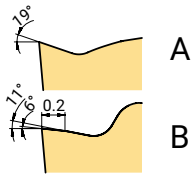
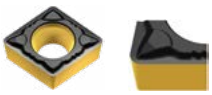
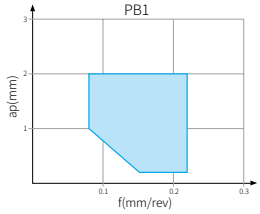
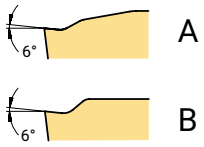
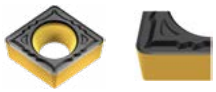
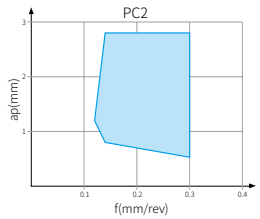
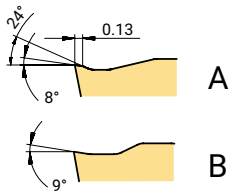
Negative Ground Insert

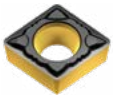
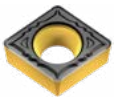
Application	Chip breaker	Features	Chip breaking range	Cross section geometry	
Finishing	UF 	**Suitable for precision turning** Low cutting forces, good chip breaking, suitable for finish turning.			
	F 	**Finish turning** Low cutting force, good chip control. The sharp edge produces a good surface finish.			
Semi-finishing-Rough machining	H 	**Light turning** Excellent chip control at low to medium feed rates. Strong edge strength.			

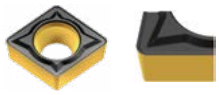
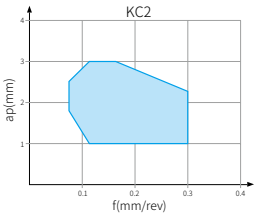
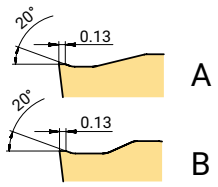
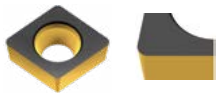
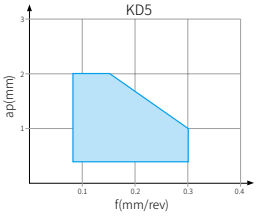
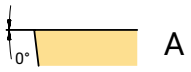
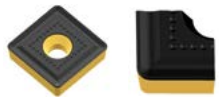
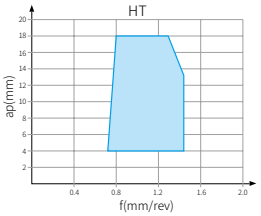
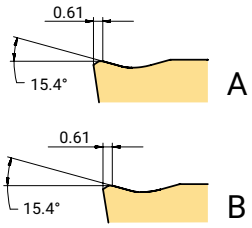
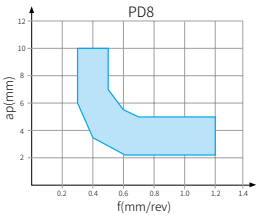
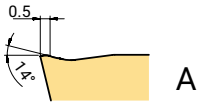
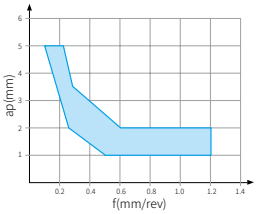
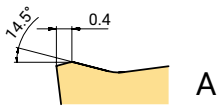
	80° Rhombus	55° Rhombus	90° Square	60° Triangle	35° Rhombus	80° Trigon	Round
				TNGG-UF  P62	VNGG-UF  P64		
				TNGG-F  P62			
				TNGG-H  P62			

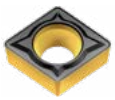
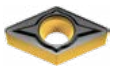
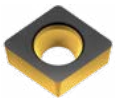
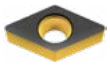
Overview of Turing Insert Geometry

Positive Pressed Insert

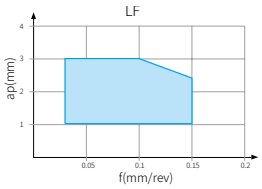
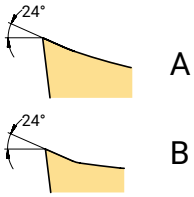
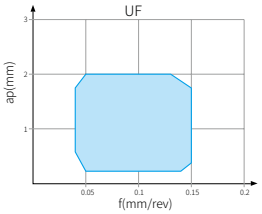
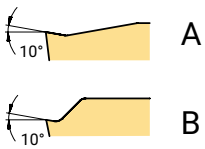
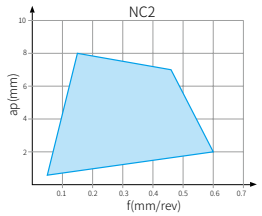
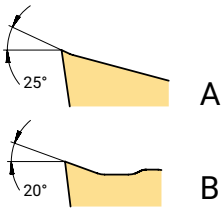
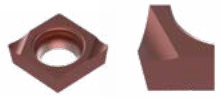
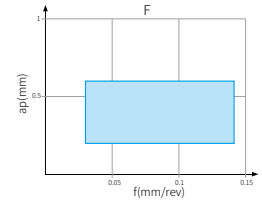
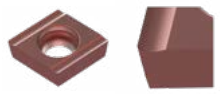
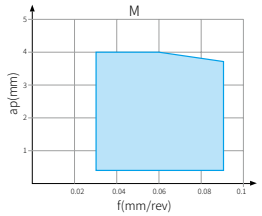
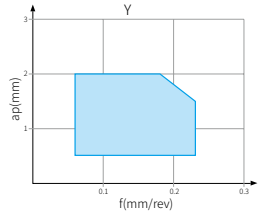
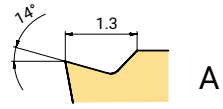
Application	Chip breaker	Features	Chip breaking range	Cross section geometry
Profiling	BS 	**Finish turning** Profile turning or turning with changing depth of cut, smooth chip evacuation.		
Finishing	PB1 	**1st choice for steel finish turning** Positive rake angle reduces cutting force and built-up edge, and obtains better surface finish and longer tool life. Also can be used in stainless steel turning.		
Semi-finishing	PC2 	**1st choice for steel and stainless steel semi-finish turning** Sharp geometry design ensures low cutting force, less built-up edge and excellent chip control.		

	80° Rhombus	55° Rhombus	90° Square	60° Triangle	35° Rhombus	80° Trigon	Round
					VBMT-BS  P85		
	CCMT-PB1 CPMT-PB1  P71	DCMT-PB1  P75	SCMT-PB1  P78	TCMT-PB1 TPMT-PB1  P80	VBMT-PB1 VCMT-PB1  P86		
	CCMT-PC2 CPMT-PC2  P71	DCMT-PC2  P75	SCMT-PC2  P78	TCMT-PC2 TPMT-PC2  P80	VBMT-PC2 VCMT-PC2  P86		

Application	Chip breaker	Features	Chip breaking range	Cross section geometry	
Medium	KC2 	**General purpose geometry for steel, stainless steel and cast iron turning** Suitable for medium and rough turning. Simple and durable chip breaker design, very good versatility and wide application range.			
Roughing	KD5 	**Geometry for cast iron rough turning** Suitable for unstable machining due to its strong cutting edge. Reduced chipping.			
	HT 	**Geometry for steel turning with large cutting depth** Open chip breaker is suitable for large cutting depth with smooth chip evacuation. Good cost efficiency.			
Semi-finishing	PD8 	**Geometry for carbon steel and alloy steel heavy turning** A wide chipbreaker avoid chip jam at big cutting depth. Chip control can be also good at small cutting depth.			
Medium	No code 	**Alternative chipbreaker for cast iron and alloy steel medium turning** Negative land and big rake angle design ensure cutting edge strength and sharpness.			

	80° Rhombus	55° Rhombus	90° Square	60° Triangle	35° Rhombus	80° Trigon	Round
	CCMT-KC2  P72	DCMT-KC2  P75	SCMT-KC2  P78	TCMT-KC2  P81	VBMT-KC2  P86		
	CCMW-KD5  P72	DCMW-KD5  P76	SCMW-KD5  P78	TCMW-KD5  P81			
			SCMT-HT  P78				
							RCMX-PD8  P90
							RCMX  P90

Positive Ground Insert

Application	Chip breaker	Features	Chip breaking range	Cross section geometry
Finishing	LF 	**Finish turning** Sharp cutting edge, low cutting force, suitable for Swiss-type automatic lathe with 2 direction machining.		
	UF 	**1st choice for heat resistant alloy turning** Peripheral ground finish turning inserts. High repeatability on insert positioning. Sharp cutting edge can achieve good machining tolerance.		
Semi-finishing	NC2 	**Choice for aluminium alloy turning** Very positive rake angle is designed for non-ferrous metal finish and semi-finish turning. It reduces the cutting force and make smooth chip evacuation. The polished rake surface, with reduced friction and built-up edge.		
Finishing	F 	**Choice for finish turning** Excellent chip control at low feed rate. Very low cutting force.		
Low feed	M 	**Suitable for medium turning in automatic lathes** Excellent chip control at low to medium feed rate. Reliable machining. Big rake angle avoid work hardening.		
Semi-finishing	Y 	**Choice for semi-finish rough turning in automatic lathe** The strong edge can be used in rough turning. Good chip control for low to medium feed rate		

	80° Rhombus	55° Rhombus	90° Square	60° Triangle	35° Rhombus	80° Trigon	Round
	CCGT-LF  P70	DCGT-LF  P74		TCGT-LF  P79	VBGT-LF VCGT-LF VPGT-LF  P84		
	CCGT-UF  P70	DCGT-UF  P74		TCGT-UF  P79	VBGT-UF VCGT-UF VPGT-UF  P84、85		
	CCGT-NC2  P71	DCGT-NC2  P75	SCGT-NC2  P78	TCGT-NC2  P79	VCGT-NC2  P85		RCGT-NC2  P90
	CCET-F  P73	DCET-F  P76		TBET-F TCET-F TPEH-F  P81、82、83	VBET-F VCET-F VPET-F  P86、87	WBET-F  P89	
	CCET-M  P73	DCET-M  P77		TCET-M  P83	VBET-M VPET-M  P87、88		
					VBET-Y  P88		

Turning Grade Description

Basic Grades for Turning

P Steel, cast steel, ferrite/martensite stainless steel and malleable cast iron

Basic grade

AC052P P05(P01-P15)

CVD coated grade, has good crater resistance and chipping resistance, which is recommanded for high productivity medium and rough turning in stable condition, can keep edge reliability in dry or wet machining with high temperature.

AC150P P15(P10-P25)

CVD coated grade, can be used in finish to rough turning on steel and cast steel, and is recommanded in continuous and light interrupted cutting where it can keep high metal removal rate.

AC250P P25(P20-P35)

CVD coated grade, 1st choice for steel turning, used in finish to rough turning on steel and cast steel. It's recommanded for ccontinuous and interrupted machining.

AC350P P35(P25-P45)

CVD coated grade, can be used in rough turning on steel and cast steel under poor conditions. Reliable cutting edge made this grade good for interrupted machining with high metal removal rate.

Supplemental grade

AP200U P25(P15-P35)

PVD coated grade, recommanded for finish turning on low carbon steel with low cutting speed or low feed.

AC200M P35(P25-P40)

CVD coated grade. Supplemental grade for steel turning with high toughness requests.

AT202 P15(P10-P20)

Uncoated cermet grade. It has excellent built-up edge resistance and chipping resistance which can be used in finish turning with good surface quality or low cutting force requests.

M Austenitic stainless steel, cast steel, manganese steel, alloyed cast iron, malleable cast iron and free cutting iron.

Basic grade

AC100M M15(M05-M20)

CVD coated grade. It's recommanded for finish machining and light rough machining. It's suitable for machining at medium to high cutting speed due to its heat resistance feature of wear resistant coating.

AC200M M25(M15-M30)

CVD coated grade, optimised for semi-finish to rough turning, can be used in interrupted machining in which it can keep edge reliability due to good thermal shock stability and mechanical shock resistance.

AP200U M25(M15-M35)

PVD coated grade, used in finish turning at low to medium speed and also in interrupted turning due to excellent thermal stability, outstanding performance in machining when sharp edge and edge toughness or good surface quality are requested.

AP301M M25(M15-M35)

PVD coated grade. Mainly used in machining steel and stainless steel small parts. It has excellent built-up edge resistance, good machining stability, can obtain good surface quality, and achieve longer tool life.

Supplemental grade

AP100S M15(M05-M25)

PVD coated grade, recommanded for finish turning due to its high hardness and resistance to plastic deformation.

K Cast iron, chilled cast iron and short chip malleable cast iron

Basic grade

AC100K K05(K01-K15)

CVD coated grade, has thick and smooth wear resistant coating and hard substrate, recommanded for grey cast iron high speed turning.

AC102K K05(K01-K15)

CVD coated grade, has thick and smooth wear resistant coating and hard substrate, recommanded for nodular cast iron high speed turning.

AC202K K15(K10-K30)

1st choice for cast iron turning. It can deal with interrupted cutting due to its high wear-resitant CVD coating, used in finish to rough turning on cast iron at low to medium cutting speed.

Supplemental grade

PB60 K15(K10-K30)

CBN grade. 1st choice for grey cast iron continuous and interrupted finish turning at high speed due to its good edge strength and wear resistance.

PB90 K10(K01-K20)

CBN grade. Suitable for grey cast iron and chilled cast iron interrupted finish turning due to its good edge strength and wear resistance.

AT202 K15(K10-K20)

Uncoated cermet grade. It has excellent built-up edge resistance and good plastic deformation resistance. It can be used in nodular cast iron finish turning when surface quality, small tolerance or low cutting force are requested..

N Non-ferrous metals

Basic grade

AW100K N15 (N05-N15)

Uncoated grade. It has both excellent wear resistance and sharp edge. Used in Al alloy rough to finish machining.

PD20 N10 (N01-N20)

PCD grade, used in non-ferrous material and non-metal material machining which can have longer tool life, completely clean cutting and good surface quality.

S Heat resistant alloys

Basic grade

AP100S S15(S05-S25)

1st choice for heat resistant alloy. PVD coated grade has high hardness and plastic deformation resistance, can keep high performance and good wear resistance.

AP200U S25(S15-S35)

PVD coated grade. Used in low cutting speed or light interrupted cutting. Suitable for semi-roughing or continuous machining for a short time due to its good notch wear resistance and anti-heat shock capability.

Supplemental grade

AC100M S15(S05-S20)

CVD coated grade, suitable for heat resistant alloy continuous high speed machining .

AC200M S25(S15-S35)

CVD coated grade, suitable for heat resistant alloy general machining.

H Hardened materials

Basic grade

PB30 H10(H05-H15)

CBN grade with low CBN content, is used in hardened steel continuous machining at high speed and light interrupted machining.

PB60 H15(H10-H25)

1st choice of CBN grade medium CBN content for hardened steel interrupted machining and continuous machining at medium speed.

PB90 H25 (H20-H30)

Extra-hard CBN grade. Supplemental choice for hardened steel interrupted machining due to its good edge toughness.

Cutting Data Recommandation--Negative Insert

Materials																	
ISO	Workpiece Materials			Brinell Hardness (HB)	Tensile strength (N/mm^2)	AT202			AC052P			AC150P			AC250P		
						f (mm/rev)			f (mm/rev)			f (mm/rev)			f (mm/rev)		
						0.1	0.4	0.6	0.1	0.4	0.6	0.1	0.4	0.6	0.1	0.4	0.6
P	Unalloyed steel	C ⩽ 0.25%	Annealed	125	428	200	100	70	620	450	330	485	360	270	380	260	210
		0.25 < C ⩽ 0.55%	Annealed	190	639	200	100	70	560	405	295	370	270	210	280	200	150
		0.25 < C ⩽ 0.55%	Heat-treated	210	708	200	80	50	400	280	200	260	220	170	200	160	135
		C > 0.55%	Annealed	190	639	200	80	50	530	385	275	270	220	160	240	160	125
		C > 0.55%	Heat-treated	300	1013	200	80	50	380	245	180	210	180	150	160	120	110
		Free cutting steel(short chip)	Annealed	220	745	200	80	50	600	420	300	440	310	250	340	220	175
	Low-alloyed steel	Annealed		175	591	180	80	50	610	410	285	350	260	220	240	175	135
		Heat-treated		300	1013	180	80	50	530	350	250	220	170	150	140	100	85
		Heat-treated		380	1282	180	80	50	330	230	175	160	120	100	100	70	55
		Heat-treated		430	1477	180	80	50	265	185	140	90	70				
	High-alloyed steel and high-alloyed tool steel	Annealed		200	675	160	80	50	445	295	215	330	230	150	210	145	85
		Hardened and tempered		300	1013	160	80	50	300	200	160	230	140	110	130	85	65
		Hardened and tempered		400	1361	150	80	50	220	140	105	80	70				
	Stainless steel	Ferritic/Martensite,Annealed		200	675										180	150	120
		Martensite,Heat-treated		330	1114										140	100	70
M	Stainless steel	Austenitic,hardened		200	675												
		Austenitic,precipitation hardened stainless steel(PH stainless steel)		300	1013												
		Austenitic,ferritic,duplex		230	778												
K	Malleable cast iron	Ferritic		200	400												
		Pearlitic		260	700												
	Grey cast iron	Low tensile strength		180	200												
		High tensile strength/Austenitic		245	350												
	Nodular cast iron	Ferritic		155	400												
		Pearlitic		265	700												
	GGV(CGI)			230	400												
N	Wrought aluminum alloy	Non-aging alloy		30	-												
		Aged alloy		100	340												
	Cast aluminum alloy	⩽ 12% Si, non-aging alloy		75	260												
		⩽ 12% Si, aged alloy		90	310												
		> 12% Si, non-aging alloy		130	450												
	Magnesium alloy			70	250												
	Copper and copper alloy(bronze/brass)	Unalloyed,electrolytic copper		100	340												
		Brass,bronze,red brass		90	310												
		Cu alloy,short chip		110	380												
		High tensile,Ampco alloy		300	1010												
S	Heat-resistant alloy	Fe-based	Annealed	200	680												
			Aged	280	940												
		Ni or Co based	Annealed	250	840												
			Aged	350	1180												
			Cast	320	1080												
	Titanium alloy	Pure Titanium		200	680												
		α and β alloy,aged		375	1260												
		β alloy		410	1400												
	Tungsten alloy			300	1010												
	Molybdenum alloy			300	1010												
H	Hardened steel	Hardened and tempered		50HRC													
		Hardened and tempered		55HRC													
		Hardened and tempered		60HRC													
	Chilled cast iron	Hardened and tempered		50HRC													

*The recommended cutting data always refer to general cutting conditions. The actual selection should be adjusted according to the factors such as machine rigidity, tool body, workpiece conditions and coolant（f should be adjust according to insert radius）

Turning grade																											
Initial value of cutting speed Vc(m/min)																											
	AC350P			AC100M			AC200M			AP200U			AC100K			AC102K			AC202K			AW100K			AP100S		
	f (mm/rev)																					f (mm/rev)			f (mm/rev)		
	0.1	0.4	0.6	0.1	0.4	0.6	0.1	0.4	0.6	0.1	0.4	0.6										0.1	0.2	0.4	0.1	0.3	0.5
	250	170	140							220	210																
	200	135	110							170	150																
	150	125	90							140	120																
	170	110	90							130	120																
	125	75	65																								
	220	145	115							190	170																
	200	165	150							130	110																
	135	90	70																								
	90	65	45																								
	180	150	85							120	80																
	110	85	65																								
	150	120	95	220	180	150	190	160	130	145	130	90															
	110	80	60	170	140	130	140	110	100	105	80	70															
				250	190	150	200	160	110	180	120	80													240	190	150
				180	160		150	120		110	90														150	85	
				190	170	130	160	130	100	120	100	70													170	145	100
													280	200	170	270	190	160	240	160	130						
													250	170	130	245	160	125	200	120	95						
													490	260	200	490	250	190	400	210	150						
													250	180	140	240	170	130	200	150	100						
													270	200	150	260	190	250	230	170	120						
													210	160	140	200	150	130	170	120	100						
				80	60	40	70	50	30	40	25														100	65	
				70	50	30	60	40	20	30	20														80	55	
				70	50	35	60	40	25	30	25														80	55	
				70	50	30	60	40	20	30	20														70	45	
				70	50	30	60	40	20	30	20														60	30	
																									200	180	140
																									90	55	45
																									55	35	30

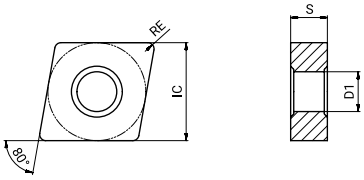
Cutting Data Recommandation--Positive Insert

ISO	Workpiece Materials			Brinell Hardness (HB)	Tensile strength (N/mm^2)	AT202 f (mm/rev)			AC052P f (mm/rev)			AC150P f (mm/rev)			AC250P f (mm/rev)		
						0.1	0.2	0.4	0.1	0.2	0.4	0.1	0.2	0.4	0.1	0.2	0.4
P	Unalloyed steel	C ⩽ 0.25%	Annealed	125	428	200	100	70	600	430	310	465	400	330	360	310	260
		0.25 < C ⩽ 0.55%	Annealed	190	639	200	100	70	540	385	275	360	330	260	290	250	190
		0.25 < C ⩽ 0.55%	Heat-treated	210	708	200	80	50	380	260	180	270	240	220	200	180	160
		C > 0.55%	Annealed	190	639	200	80	50	520	365	255	330	300	290	250	220	210
		C > 0.55%	Heat-treated	300	1013	200	80	50	360	225	160	210	180	170	160	130	120
		Free cutting steel(short chip)	Annealed	220	745	200	80	50	580	400	280	440	400	380	320	290	275
	Low-alloyed steel	Annealed		175	591	180	80	50	590	390	265	330	310	300	260	240	220
		Heat-treated		300	1013	180	80	50	510	330	230	180	170	160	135	120	100
		Heat-treated		380	1282	180	80	50	320	210	155	120	100	90	100	85	65
		Heat-treated		430	1477	180	80	50	265	165	120	80	70		65	55	
	High-alloyed steel and high-alloyed tool steel	Annealed		200	675	160	80	50	425	275	195	320	290	280	270	240	220
		Hardened and tempered		300	1013	160	80	50	280	180	140	200	170	150	170	140	120
		Hardened and tempered		400	1361	150	80	50	200	120	105	80	70		65	55	
	Stainless steel	Ferritic/Martensite,Annealed		200	675										190	170	150
		Martensite,Heat-treated		330	1114										90	80	60
M	Stainless steel	Austenitic,hardened		200	675												
		Austenitic,precipitation hardened stainless steel(PH stainless steel)		300	1013												
		Austenitic,ferritic,duplex		230	778												
K	Malleable cast iron	Ferritic		200	400												
		Pearlitic		260	700												
	Grey cast iron	Low tensile strength		180	200												
		High tensile strength/Austenitic		245	350												
	Nodular cast iron	Ferritic		155	400												
		Pearlitic		265	700												
	GGV(CGI)			230	400												
N	Wrought aluminum alloy	Non-aging alloy		30	-												
		Aged alloy		100	340												
	Cast aluminum alloy	⩽ 12% Si, non-aging alloy		75	260												
		⩽ 12% Si, aged alloy		90	310												
		> 12% Si, non-aging alloy		130	450												
	Magnesium alloy			70	250												
	Copper and copper alloy(bronze/brass)	Unalloyed,electrolytic copper		100	340												
		Brass,bronze,red brass		90	310												
		Cu alloy,short chip		110	380												
		High tensile,Ampco alloy		300	1010												
S	Heat-resistant alloy	Fe-based	Annealed	200	680												
			Aged	280	940												
		Ni or Co based	Annealed	250	840												
			Aged	350	1180												
			Cast	320	1080												
	Titanium alloy	Pure Titanium		200	680												
		α and β alloy,aged		375	1260												
		β alloy		410	1400												
	Tungsten alloy			300	1010												
	Molybdenum alloy			300	1010												
H	Hardened steel	Hardened and tempered		50HRC													
		Hardened and tempered		55HRC													
		Hardened and tempered		60HRC													
	Chilled cast iron	Hardened and tempered		50HRC													

*The recommended cutting data always refer to general cutting conditions. The actual selection should be adjusted according to the factors such as machine rigidity, tool body, workpiece conditions and coolant（f should be adjust according to insert radius）

Turning grade																										
Initial value of cutting speed Vc(m/min)																										
	AC350P			AC100M			AC200M			AP200U			AC100K			AC102K			AC202K			AW100K			AP100S		
	f (mm/rev)			f (mm/rev)			f (mm/rev)			f (mm/rev)			f (mm/rev)			f (mm/rev)			f (mm/rev)			f (mm/rev)			f (mm/rev)		
	0.1	0.2	0.4	0.1	0.2	0.4	0.1	0.2	0.4	0.1	0.2	0.4	0.1	0.2	0.4	0.1	0.2	0.4	0.1	0.2	0.4	0.1	0.2	0.4	0.1	0.2	0.4
	230	150	120							210	200																
	180	115	100							160	140																
	130	115	85							140	120																
	150	100	85							130	120																
	115	65	55																								
	210	135	105							190	170																
	190	155	130							130	110																
	125	80	65																								
	90	65	45																								
	170	140	75							120	80																
	100	80	60																								
	120	100	90	200	170	140	180	150	120	135	120	90															
	70	60	50	160	140	130	130	110	100	105	80	70															
				230	180	140	190	150	110	170	110	80													220	200	130
				170	150		140	110		100	80														160	140	
				180	160	130	150	120	100	110	90	70													170	150	110
													260	190	160	250	180	150	230	150	120						
													230	160	120	235	150	115	190	110	95						
													470	250	190	470	240	180	390	200	140						
													230	170	130	220	160	120	190	140	100						
													250	190	140	240	180	240	220	160	110						
													190	150	130	180	140	120	160	110	100						
																						750	600	300			
																						800	450	300			
																						500	300	200			
																						600	400	270			
																						400	300	250			
																						280	200	130			
				75	55	35	65	45	30	40	25														100	70	
				65	45	30	55	35	20	30	20														80	60	
				65	45	35	55	35	25	30	25														80	60	
				65	45	30	55	35	20	30	20														70	50	
				65	45	30	55	35	20	30	20														60	40	
										65	45	35															
										35	35	30															

Negative 80°（C）

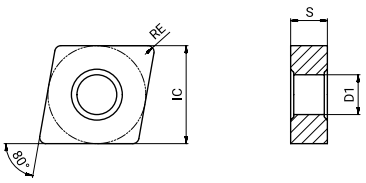


Dimension (mm)			
Product code	IC	S	D1
CN_1204_	12.7	4.76	5.16
CN_1606_	15.875	6.35	6.35
CN_1906_	19.05	6.35	7.94

Inserts		Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	●Good condition ●General condition ●Bad condition													
						●	●	●	◐	✱	●	◐	◐	◐	●	◐	✱	◐	●
						p					M				K			N	S
						AT202	AC052P	AC150P	AC250P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Finishing		**CNMG 120404E-PB1**	0.4	0.05-0.15	0.26-3.2	●		▲	▲										
		120408E-PB1	0.8	0.10-0.30	0.52-3.2	●		▲	▲										
		120412E-PB1	1.2	0.15-0.45	0.78-3.2			▲	▲										
		**CNMG 120404E-SC1**	0.4	0.07-0.18	0.20-0.8								●						
		120408E-SC1	0.8	0.10-0.25	0.20-0.8								●						
		**CNMG 120404E-MB2**	0.4	0.05-0.15	0.26-3.2						●	●	●						
		120408E-MB2	0.8	0.10-0.30	0.52-3.2						●	●	●						
Light cutting		**CNMG 120404E-SL3**	0.4	0.12-0.25	0.60-3.0								●						●
		120408E-SL3	0.8	0.15-0.30	0.80-3.0								●						●
Semi-finishing		**CNMG 120404E-PB3**	0.4	0.06-0.18	0.30-3.5	●		▲	▲										
		120408E-PB3	0.8	0.12-0.36	0.60-3.5	●	●	▲	▲										
		120412E-PB3	1.2	0.18-0.54	0.90-3.5	●	●	▲	▲										
		**CNMG 120404E-PC3**	0.4	0.07-0.20	0.34-3.9	●		▲	▲										
		120408E-PC3	0.8	0.14-0.40	0.68-3.9	●		▲	▲										
		120412E-PC3	1.2	0.20-0.60	1.02-3.9	●		▲	▲										
Medium		**CNMG 120404E-PD3**	0.4	0.08-0.22	0.40-4.3	●	●	▲	▲	●									
		120408E-PD3	0.8	0.15-0.44	0.80-4.3	●	●	▲	▲	●									
		120412E-PD3	1.2	0.23-0.66	1.20-4.3	●	●	▲	▲	●									
		160608E-PD3	0.8	0.15-0.44	0.80-5.3		●	▲	▲	●									
		160612E-PD3	1.2	0.23-0.66	1.20-5.3		●	▲	▲	●									
		190608E-PD3	0.8	0.15-0.44	0.80-6.4		●	▲	▲	●									
		190612E-PD3	1.2	0.23-0.66	1.20-6.4		●	▲	▲										
		190616E-PD3	1.6	0.30-0.66	1.60-6.4		●	▲	▲										

●: Stock available ▲: Stock available now but will be replaced in the future.

Negative 80°（C）

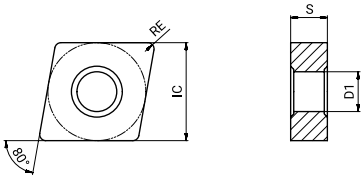


Dimension (mm)			
Product code	IC	S	D1
CN_1204_	12.7	4.76	5.16
CN_1606_	15.875	6.35	6.35
CN_1906_	19.05	6.35	7.94

Inserts		Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	● Good condition / ◐ General condition / ✱ Bad condition												
						p					M				K			N	S
						AT202	AC052P	AC150P	AC250P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Medium		**CNMG 120404E-SC3**	0.4	0.08-0.22	0.40-4.3						●	●	●						●
		120408E-SC3	0.8	0.15-0.44	0.80-4.3						●	●	●						●
		120412E-SC3	1.2	0.23-0.66	1.20-4.3						●	●	●						●
		160612E-SC3	1.2	0.23-0.66	1.20-5.3						●	●	●						●
		160616E-SC3	1.6	0.30-0.88	1.60-5.3						●	●	●						●
		190612E-SC3	1.2	0.23-0.66	1.20-6.4						●	●	●						●
		190616E-SC3	1.6	0.30-0.88	1.60-6.4						●	●	●						●
		**CNMG 120404E-MC3**	0.4	0.08-0.22	0.32-4.3						●	●	●						
		120408E-MC3	0.8	0.15-0.44	0.64-4.3						●	●	●						●
		120412E-MC3	1.2	0.23-0.66	0.96-4.3						●	●	●						
		120416E-MC3	1.6	0.30-0.88	1.28-4.3						●	●	●						
		160608E-MC3	0.8	0.15-0.44	0.64-5.3						●	●	●						
		160612E-MC3	1.2	0.23-0.66	0.96-5.3						●	●	●						
		190608E-MC3	0.8	0.15-0.44	0.64-6.4						●	●	●						
		190612E-MC3	1.2	0.23-0.66	0.96-6.4						●	●	●						
		**CNMG 120404E-PC4**	0.4	0.08-0.22	0.40-4.3			▲	▲							●	●		
		120408E-PC4	0.8	0.15-0.44	0.80-4.3		●	▲	▲							●	●		
		120412E-PC4	1.2	0.23-0.66	1.20-4.3		●	▲	▲							●	●		
		160612E-PC4	1.2	0.23-0.66	1.20-5.3		●	▲	▲							●	●		
		160616E-PC4	1.6	0.30-0.88	1.60-5.3		●	▲	▲							●	●		
		190612E-PC4	1.2	0.23-0.66	1.20-6.4		●	▲	▲							●	●		
Roughing		**CNMG 120408E-MC4**	0.8	0.20-0.60	1.20-6.4						●	●	●						●
		120412E-MC4	1.2	0.30-0.90	1.80-6.4						●	●	●						●
		160612E-MC4	1.2	0.30-0.90	1.80-8.1						●	●	●						●
		160616E-MC4	1.6	0.40-1.20	2.40-8.1						●	●	●						
		190612E-MC4	1.2	0.30-0.90	1.80-9.7						●	●	●						
		190616E-MC4	1.6	0.40-1.20	2.40-9.7						●	●	●						

●: Stock available ▲: Stock available now but will be replaced in the future.

Negative 80°（C）

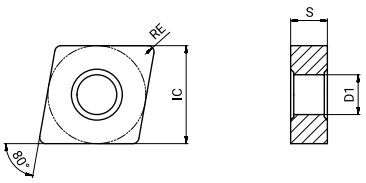


Dimension (mm)			
Product code	IC	S	D1
CN_0903_	9.525	3.18	3.81
CN_1204_	12.7	4.76	5.16
CN_1606_	15.875	6.35	6.35
CN_1906_	19.05	6.35	7.94

Inserts		Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	p: AT202	AC052P	AC150P	AC250P	AC350P	M: AC100M	AC200M	AP200U	AP301M	K: AC100K	AC102K	AC202K	N: AW100K	S: AP100S
				● Good condition		●	●	●	🤚	✖	●	🤚	🤚	🤚	●	🤚	✖	🤚	●
Roughing		**CNMG 090308E-KC4**	0.8	0.18-0.48	0.96-3.9											●	●		
		120404E-KC4	0.4	0.09-0.24	0.48-5.2											●	●		
		120408E-KC4	0.8	0.18-0.48	0.96-5.2										●	●	●		
		120412E-KC4	1.2	0.26-0.72	1.44-5.2										●	●	●		
		120416E-KC4	1.6	0.35-0.96	1.92-5.2											●	●		
		160608E-KC4	0.8	0.18-0.48	0.96-6.4											●	●		
		160612E-KC4	1.2	0.26-0.72	1.44-6.4											●	●		
		160616E-KC4	1.6	0.35-0.96	1.92-6.4											●	●		
		190608E-KC4	0.8	0.18-0.48	0.96-7.7											●	●		
		190612E-KC4	1.2	0.26-0.72	1.44-7.7											●	●		
		190616E-KC4	1.6	0.35-0.96	1.92-7.7											●	●		
		190624E-KC4	2.4	0.53-1.44	2.88-7.7											●	●		
		**CNMG 120408E-PD5**	0.8	0.20-0.60	1.20-6.4		●	▲	▲	●									
		120412E-PD5	1.2	0.30-0.90	1.80-6.4		●	▲	▲	●									
		160612E-PD5	1.2	0.30-0.90	1.80-8.1		●	▲	▲	●									
		160616E-PD5	1.6	0.40-1.20	2.40-8.1		●	▲	▲	●									
		160624E-PD5	2.4	0.60-1.80	3.60-8.1		●	▲	▲										
		190612E-PD5	1.2	0.30-0.90	1.80-9.7		●	▲	▲	●									
		190616E-PD5	1.6	0.40-1.20	2.40-9.7		●	▲	▲	●									
		**CNMA 120404E-KD5**	0.4	0.10-0.30	0.60-6.4											●	●		
		120408E-KD5	0.8	0.20-0.60	1.20-6.4										●	●	●		
		120412E-KD5	1.2	0.30-0.90	1.80-6.4										●	●	●		
		120416E-KD5	1.6	0.40-1.20	2.40-6.4										●	●	●		
		160608E-KD5	0.8	0.20-0.60	1.20-8.1											●	●		
		160612E-KD5	1.2	0.30-0.90	1.80-8.1										●	●	●		
		160616E-KD5	1.6	0.40-1.20	2.40-8.1										●	●	●		
		160620E-KD5	2.0	0.50-1.50	3.00-8.1											●	●		
		190608E-KD5	0.8	0.20-0.60	1.20-9.7										●	●	●		
		190612E-KD5	1.2	0.30-0.90	1.80-9.7										●	●	●		
		190616E-KD5	1.6	0.40-1.20	2.40-9.7										●	●	●		

●: Stock available ▲: Stock available now but will be replaced in the future.

Negative 80°（C）

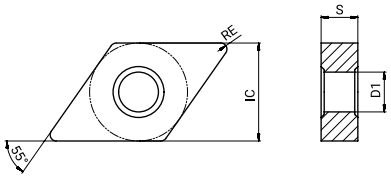


Dimension (mm)			
Product code	IC	S	D1
CN_1204_	12.7	4.76	5.16
CN_1606_	15.875	6.35	6.35
CN_1906_	19.05	6.35	7.94
CN_2507_	25.4	7.94	9.12
CN_2509_	25.4	9.53	9.12

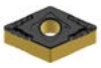
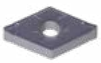
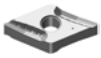
Inserts		Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	● Good condition ◐ General condition ✱ Bad condition													
						p					M				K			N	S
						AT202	AC052P	AC150P	AC250P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Heavy roughing		**CNMM 190616E-PC8**	1.6	0.32-0.64	2.88-7.7		●		▲										
		190624E-PC8	2.4	0.48-0.96	4.32-7.7		●		▲										
		**CNMM 120408E-PD8**	0.8	0.16-0.32	1.44-5.2		●	▲	▲	●									
		120412E-PD8	1.2	0.24-0.48	2.16-5.2		●	▲	▲	●									
		160612E-PD8	1.2	0.24-0.48	2.16-6.4		●	▲	▲	●									
		160616E-PD8	1.6	0.32-0.64	2.88-6.4		●	▲	▲	●									
		160624E-PD8	2.4	0.48-0.96	4.32-6.4		●	▲	▲	●									
		190612E-PD8	1.2	0.24-0.48	2.16-7.7		●	▲	▲	●									
		190616E-PD8	1.6	0.32-0.64	2.88-7.7		●	▲	▲	●									
		190624E-PD8	2.4	0.48-0.96	4.32-7.7		●	▲	▲	●									
		250724E-PD8	2.4	0.48-0.96	4.32-10.3		●	▲	▲	●									
		250924E-PD8	2.4	0.48-0.96	4.32-10.3		●	▲	▲	●									
		**CNMM 190612S-PC9**	1.2	0.26-0.60	2.40-9.7			▲	▲	●									
		190616S-PC9	1.6	0.35-0.80	3.20-9.7			▲	▲	●									
		190624S-PC9	2.4	0.53-1.20	4.80-9.7			▲	▲	●									
		250724S-PC9	2.4	0.53-1.20	4.80-12.9			▲	▲	●									
		250924S-PC9	2.4	0.53-1.20	4.80-12.9			▲	▲	●									
		**CNMM 190612S-PD9**	1.2	0.30-0.72	2.64-11.6			▲	▲	●									
		190616S-PD9	1.6	0.40-0.96	3.52-11.6			▲	▲	●									
		190624S-PD9	2.4	0.60-1.44	5.28-11.6			▲	▲	●									
		250724S-PD9	2.4	0.60-1.44	5.28-15.5			▲	▲										
		250924S-PD9	2.4	0.60-1.44	5.28-15.5			▲	▲	●									

●: Stock available ▲: Stock available now but will be replaced in the future.

Negative 55°（D）

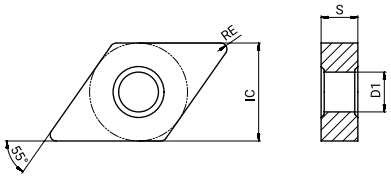


Dimension (mm)			
Product code	IC	S	D1
DN_1104_	9.525	4.76	3.81
DN_1504_	12.7	4.76	5.16
DN_1506_	12.7	6.35	5.16

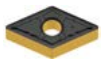
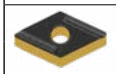
Inserts		Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	● Good condition / ◐ General condition / ✱ Bad condition													
						●	●	●	◐	✱	●	◐	◐	◐	●	◐	✱	◐	●
						p					M				K			N	S
						AT202	AC052P	AC150P	AC250P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Profiling		**DNMG 110408E-BS**	0.8	0.10-0.25	0.70-2.0		●												
Finishing		**DNMG 110404E-PB1**	0.4	0.05-0.15	0.26-2.3	●		▲	▲										
		150404E-PB1	0.4	0.05-0.15	0.26-3.1	●		▲	▲										
		150408E-PB1	0.8	0.10-0.30	0.52-3.1	●	●	▲	▲										
		150604E-PB1	0.4	0.05-0.15	0.26-3.1	●		▲	▲										
		150608E-PB1	0.8	0.10-0.30	0.52-3.1	●	●	▲	▲										
		**DNMG 150404E-SC1**	0.4	0.07-0.18	0.20-0.8								●						
		150408E-SC1	0.8	0.10-0.25	0.20-0.8								●						
		150604E-SC1	0.4	0.07-0.18	0.20-0.8								●						
		150608E-SC1	0.8	0.10-0.25	0.20-0.8								●						
		**DNMG 150404E-MB2**	0.4	0.05-0.15	0.26-2.9						●	●							●
		150408E-MB2	0.8	0.10-0.30	0.52-2.9						●	●							●
		150604E-MB2	0.4	0.05-0.15	0.26-2.9						●	●							●
		150608E-MB2	0.8	0.10-0.30	0.52-2.9						●	●							●
Light cutting		**DNMG 110408E-SL3**	0.8	0.12-0.30	0.80-2.5								●						●
		150404E-SL3	0.4	0.12-0.25	0.60-2.5								●						●
		150408E-SL3	0.8	0.12-0.30	0.80-2.5								●						●
		150604E-SL3	0.4	0.12-0.25	0.60-2.5								●						●
		150608E-SL3	0.8	0.12-0.30	0.80-2.5								●						●
Semi-finishing		**DNMG 150404R-M1T**	0.4	0.10-0.35	0.70-4.5	●													
		150404L-M1T	0.4	0.10-0.35	0.70-4.5	●													
		**DNMG 150404E-PB3**	0.4	0.06-0.18	0.30-3.1	●		▲	▲										
		150408E-PB3	0.8	0.12-0.36	0.60-3.1	●	●	▲	▲										
		150412E-PB3	1.2	0.18-0.54	0.90-3.1	●	●	▲	▲										
		150604E-PB3	0.4	0.06-0.18	0.30-3.1	●		▲	▲										
		150608E-PB3	0.8	0.12-0.36	0.60-3.1	●	●	▲	▲										
		150612E-PB3	1.2	0.18-0.54	0.90-3.1	●	●	▲	▲										

●: Stock available ▲: Stock available now but will be replaced in the future.

Negative 55°（D）

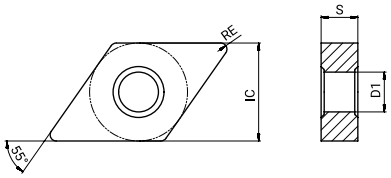


Dimension (mm)			
Product code	IC	S	D1
DN_1104_	9.525	4.76	3.81
DN_1504_	12.7	4.76	5.16
DN_1506_	12.7	6.35	5.16

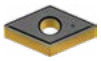
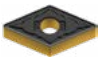
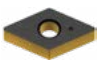
Inserts		Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	● Good condition ◖◗ General condition ✱ Bad condition													
						●	●	●	◖◗	✱	●	◖◗	◖◗	◖◗	●	◖◗	✱	◖◗	●
						p					M				K			N	S
						AT202	AC052P	AC150P	AC250P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Semi-finishing		**DNMG 110408E-PC3**	0.8	0.14-0.40	0.68-2.6			▲	▲										
		110412E-PC3	1.2	0.20-0.60	1.02-2.6			▲	▲										
		150404E-PC3	0.4	0.07-0.20	0.34-3.5	●		▲	▲										
		150408E-PC3	0.8	0.14-0.40	0.68-3.5	●		▲	▲										
		150412E-PC3	1.2	0.20-0.60	1.02-3.5	●		▲	▲										
		150604E-PC3	0.4	0.07-0.20	0.34-3.5	●		▲	▲										
		150608E-PC3	0.8	0.14-0.40	0.68-3.5	●		▲	▲										
		150612E-PC3	1.2	0.20-0.60	1.02-3.5	●		▲	▲										
Medium		**DNMG 110404E-PD3**	0.4	0.08-0.22	0.40-2.9	●		▲	▲										
		110408E-PD3	0.8	0.15-0.44	0.80-2.9	●	●	▲	▲										
		150404E-PD3	0.4	0.08-0.22	0.40-3.9	●		▲	▲										
		150408E-PD3	0.8	0.15-0.44	0.80-3.9	●	●	▲	▲	●									
		150412E-PD3	1.2	0.23-0.66	1.20-3.9		●	▲	▲	●									
		150604E-PD3	0.4	0.08-0.22	0.40-3.9			▲	▲										
		150608E-PD3	0.8	0.15-0.44	0.80-3.9		●	▲	▲	●									
		150612E-PD3	1.2	0.23-0.66	1.20-3.9		●	▲	▲	●									
		**DNMG 150608R-PL5**	0.8	0.15-0.44	0.80-3.9			▲	▲										
		**DNMG 150404E-SC3**	0.4	0.08-0.22	0.40-3.9						●	●	●						●
		150408E-SC3	0.8	0.15-0.44	0.80-3.9						●	●	●						●
		150412E-SC3	1.2	0.23-0.66	1.20-3.9						●	●	●						●
		150604E-SC3	0.4	0.08-0.22	0.40-3.9						●	●	●						●
		150608E-SC3	0.8	0.15-0.44	0.80-3.9						●	●	●						●
		150612E-SC3	1.2	0.23-0.66	1.20-3.9						●	●	●						●
		**DNMG 110404E-MC3**	0.4	0.08-0.22	0.32-2.9						●	●	●						
		110408E-MC3	0.8	0.15-0.44	0.64-2.9						●	●	●						
		150404E-MC3	0.4	0.08-0.22	0.32-3.9						●	●	●						
		150408E-MC3	0.8	0.15-0.44	0.64-3.9						●	●	●						
		150412E-MC3	1.2	0.23-0.66	0.96-3.9						●	●	●						
		150604E-MC3	0.4	0.08-0.22	0.32-3.9						●	●	●						
		150608E-MC3	0.8	0.15-0.44	0.64-3.9						●	●	●						
		150612E-MC3	1.2	0.23-0.66	0.96-3.9						●	●	●						

●: Stock available ▲: Stock available now but will be replaced in the future.

Negative 55°（D）

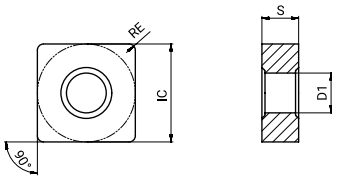


Dimension (mm)			
Product code	IC	S	D1
DN_1104_	9.525	4.76	3.81
DN_1504_	12.7	4.76	5.16
DN_1506_	12.7	6.35	5.16

				Machining conditions		● Good condition			◐ General condition					✱ Bad condition				
						●	●	●	◐	✱	●	◐	◐	◐	●	◐	✱	◐	●
Inserts		Product code	RE (mm)	Recommanded parameters		p					M				K			N	S
				f (mm/rev)	ap (mm)	AT202	AC052P	AC150P	AC250P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Medium		**DNMG 150404E-PC4**	0.4	0.08-0.22	0.40-3.9	●		▲	▲							●	●		
		150408E-PC4	0.8	0.15-0.44	0.80-3.9	●	●	▲	▲							●	●		
		150412E-PC4	1.2	0.23-0.66	1.20-3.9		●	▲	▲							●	●		
		150604E-PC4	0.4	0.08-0.22	0.40-3.9	●		▲	▲							●	●		
		150608E-PC4	0.8	0.15-0.44	0.80-3.9	●	●	▲	▲							●	●		
		150612E-PC4	1.2	0.23-0.66	1.20-3.9		●	▲	▲							●	●		
Roughing		**DNMG 150408E-MC4**	0.8	0.20-0.60	1.20-5.4						●	●	●						
		150412E-MC4	1.2	0.30-0.90	1.80-5.4						●	●	●						
		150608E-MC4	0.8	0.20-0.60	1.20-5.4						●	●	●						●
		150612E-MC4	1.2	0.30-0.90	1.80-5.4						●	●	●						●
		**DNMG 110404E-KC4**	0.4	0.09-0.24	0.48-3.5											●	●		
		110408E-KC4	0.8	0.18-0.48	0.96-3.5											●	●		
		150404E-KC4	0.4	0.09-0.24	0.48-4.6											●	●		
		150408E-KC4	0.8	0.18-0.48	0.96-4.6											●	●		
		150412E-KC4	1.2	0.26-0.72	1.44-4.6											●	●		
		150604E-KC4	0.4	0.09-0.24	0.48-4.6											●	●		
		150608E-KC4	0.8	0.18-0.48	0.96-4.6											●	●		
		150612E-KC4	1.2	0.26-0.72	1.44-4.6											●	●		
		**DNMG 150408E-PD5**	0.8	0.20-0.60	1.20-5.4		●	▲	▲	●									
		150412E-PD5	1.2	0.30-0.90	1.80-5.4		●	▲	▲	●									
		150416E-PD5	1.6	0.40-1.20	2.40-5.4		●	▲	▲										
		150608E-PD5	0.8	0.20-0.60	1.20-5.4		●	▲	▲	●									
		150612E-PD5	1.2	0.30-0.90	1.80-5.4		●	▲	▲	●									
		150616E-PD5	1.6	0.40-1.20	2.40-5.4		●	▲	▲	●									
		**DNMA 150404E-KD5**	0.4	0.10-0.30	0.60-5.4											●	●		
		150408E-KD5	0.8	0.20-0.60	1.20-5.4										●	●	●		
		150412E-KD5	1.2	0.30-0.90	1.80-5.4										●	●	●		
		150604E-KD5	0.4	0.10-0.30	0.60-5.4											●	●		
		150608E-KD5	0.8	0.20-0.60	1.20-5.4										●	●	●		
		150612E-KD5	1.2	0.30-0.90	1.80-5.4										●	●	●		

●: Stock available ▲: Stock available now but will be replaced in the future.

Negative 90°（S）

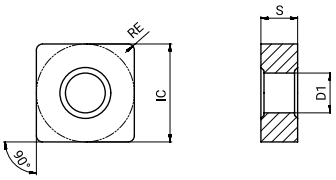


Dimension (mm)			
Product code	IC	S	D1
SN_1204_	12.7	4.76	5.16
SN_1506_	15.875	6.35	6.35
SN_1906_	19.05	6.35	7.94

Inserts		Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	● Good condition / ◐ General condition / ✱ Bad condition												
						●	●	●	◐	✱	●	◐	◐	◐	●	◐	✱	◐	●
						p					M				K			N	S
						AT202	AC052P	AC150P	AC250P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Finishing		**SNMG 120404E-PB1**	0.4	0.05-0.15	0.26-3.2	●		▲	▲										
		120408E-PB1	0.8	0.10-0.30	0.52-3.2	●	●	▲	▲										
		120412E-PB1	1.2	0.15-0.45	0.78-3.2		●	▲	▲										
		**SNMG 120404E-MB2**	0.4	0.05-0.15	0.26-3.2						●	●	●						●
		120408E-MB2	0.8	0.10-0.30	0.52-3.2						●	●	●						●
		120412E-MB2	1.2	0.15-0.45	0.78-3.2						●	●	●						●
Light cutting		**SNMG 120404E-SL3**	0.4	0.12-0.25	0.60-3.0								●						●
		120408E-SL3	0.8	0.15-0.30	0.80-3.0								●						●
		120412E-SL3	1.2	0.18-0.35	1.00-3.0								●						●
Semi-finishing		**SNMG 120404E-PC3**	0.4	0.07-0.20	0.34-3.8	●		▲	▲										
		120408E-PC3	0.8	0.14-0.40	0.68-3.8	●		▲	▲										
		120412E-PC3	1.2	0.20-0.60	1.02-3.8	●		▲	▲										
Medium		**SNMG 120404E-PD3**	0.4	0.08-0.22	0.40-4.2	●		▲	▲	●									
		120408E-PD3	0.8	0.15-0.44	0.80-4.2	●	●	▲	▲	●									
		120412E-PD3	1.2	0.23-0.66	1.20-4.2	●	●	▲	▲	●									
		190608E-PD3	0.8	0.15-0.44	0.80-6.3		●	▲	▲	●									
		**SNMG 120408E-SC3**	0.8	0.15-0.44	0.80-4.2						●	●	●						●
		120412E-SC3	1.2	0.23-0.66	1.20-4.2						●	●	●						●
		150612E-SC3	1.2	0.23-0.66	1.20-5.2						●	●	●						●
		150616E-SC3	1.6	0.30-0.88	1.60-5.2						●	●	●						●
		190612E-SC3	1.2	0.23-0.66	1.20-6.3						●	●	●						●
		**SNMG 120404-M3T**	0.4	0.20-0.40	1.0-4.0	●													
		120408-M3T	0.8	0.20-0.40	1.0-4.0	●													
		**SNMG 120404E-MC3**	0.4	0.08-0.22	0.32-4.2						●	●	●						
		120408E-MC3	0.8	0.15-0.44	0.64-4.2						●	●	●						
		120412E-MC3	1.2	0.23-0.66	0.96-4.2						●	●	●						
		150612E-MC3	1.2	0.23-0.66	0.96-5.2						●	●	●						
		150616E-MC3	1.6	0.30-0.88	1.28-5.2						●	●	●						
		190612E-MC3	1.2	0.23-0.66	0.96-6.3						●	●	●						
		190616E-MC3	1.6	0.30-0.88	1.28-6.3						●	●	●						

●: Stock available ▲: Stock available now but will be replaced in the future.

Negative 90°（S）

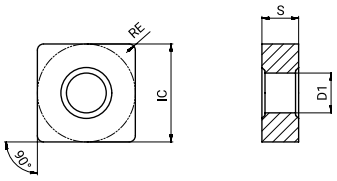


Dimension (mm)			
Product code	IC	S	D1
SN_0903_	9.525	3.18	3.81
SN_1204_	12.7	4.76	5.16
SN_1506_	15.875	6.35	6.35
SN_1906_	19.05	6.35	7.94

Inserts		Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	● Good condition ◐ General condition ✱ Bad condition													
						p					M				K			N	S
						AT202	AC052P	AC150P	AC250P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Medium		**SNMG 120404E-PC4**	0.4	0.08-0.22	0.40-4.2	●		▲	▲							●	●		
		120408E-PC4	0.8	0.15-0.44	0.80-4.2	●	●	▲	▲						●	●	●		
		120412E-PC4	1.2	0.23-0.66	1.20-4.2	●	●	▲	▲						●	●	●		
Roughing		**SNMG 120408E-MC4**	0.8	0.20-0.60	1.20-6.4						●	●	●						●
		120412E-MC4	1.2	0.30-0.90	1.80-6.4						●	●	●						●
		150612E-MC4	1.2	0.30-0.90	1.80-7.9						●	●	●						
		150616E-MC4	1.6	0.40-1.20	2.40-7.9						●	●	●						
		190612E-MC4	1.2	0.30-0.90	1.80-9.5						●	●	●						
		190616E-MC4	1.6	0.40-1.20	2.40-9.5						●	●	●						●
		**SNMG 090304E-KC4**	0.4	0.09-0.24	0.48-3.8														
		090308E-KC4	0.8	0.18-0.48	0.96-3.8														
		120404E-KC4	0.4	0.09-0.24	0.48-5.1											●	●		
		120408E-KC4	0.8	0.18-0.48	0.96-5.1											●	●		
		120412E-KC4	1.2	0.26-0.72	1.44-5.1											●	●		
		150608E-KC4	0.8	0.18-0.48	0.96-6.4											●	●		
		150612E-KC4	1.2	0.26-0.72	1.44-6.4											●	●		
		150616E-KC4	1.6	0.35-0.96	1.92-6.4											●	●		
		190608E-KC4	0.8	0.18-0.48	0.96-7.6											●	●		
		190612E-KC4	1.2	0.26-0.72	1.44-7.6											●	●		
		190616E-KC4	1.6	0.35-0.96	1.92-7.6											●	●		
		190624E-KC4	2.4	0.53-1.44	2.88-7.6														
		**SNMG 150608E-PD5**	0.8	0.20-0.60	1.20-7.9		●	▲	▲	●									
		150612E-PD5	1.2	0.30-0.90	1.80-7.9		●	▲	▲	●									
		150616E-PD5	1.6	0.40-1.20	2.40-7.9		●	▲	▲	●									
		190612E-PD5	1.2	0.30-0.90	1.80-9.5		●	▲	▲	●									
		190616E-PD5	1.6	0.40-1.20	2.40-9.5		●	▲	▲	●									

●: Stock available ▲: Stock available now but will be replaced in the future.

Negative 90°（S）



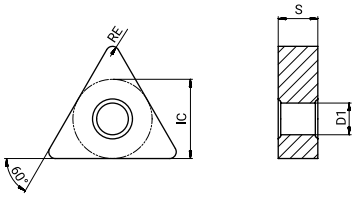
Dimension (mm)			
Product code	IC	S	D1
SN_1204_	12.7	4.76	5.16
SN_1506_	15.875	6.35	6.35
SN_1906_	19.05	6.35	7.94
SN_2507_	25.4	7.94	9.12
SN_2509_	25.4	9.52	9.12
SN_3109_	31.75	9.52	9.45

Machining conditions: ● Good condition ◐ General condition ✱ Bad condition

Inserts		Product code	RE (mm)	Recommanded parameters f (mm/rev)	Recommanded parameters ap (mm)	p AT202	p AC052P	p AC150P	p AC250P	p AC350P	M AC100M	M AC200M	M AP200U	M AP301M	K AC100K	K AC102K	K AC202K	N AW100K	S AP100S
Roughing		SNMA 120408E-KD5	0.8	0.20-0.60	1.20-6.4										●	●	●		
		120412E-KD5	1.2	0.30-0.90	1.80-6.4										●	●	●		
		120416E-KD5	1.6	0.40-1.20	2.40-6.4										●	●	●		
		150612E-KD5	1.2	0.30-0.90	1.80-7.9											●	●		
		150616E-KD5	1.6	0.40-1.20	2.40-7.9											●	●		
		190612E-KD5	1.2	0.30-0.90	1.80-9.5											●	●		
		190616E-KD5	1.6	0.40-1.20	2.40-9.5											●	●		
Heavy roughing		SNMM 120408E-PD8	0.8	0.16-0.32	1.44-5.1			▲	▲	●									
		120412E-PD8	1.2	0.24-0.48	2.16-5.1			▲	▲	●									
		150612E-PD8	1.2	0.24-0.48	2.16-6.4			▲	▲	●									
		150616E-PD8	1.6	0.32-0.64	2.88-6.4		●	▲	▲	●									
		190612E-PD8	1.2	0.24-0.48	2.16-7.6			▲	▲	●									
		190616E-PD8	1.6	0.32-0.64	2.88-7.6		●	▲	▲	●									
		190624E-PD8	2.4	0.48-0.96	4.32-7.6		●	▲	▲	●									
		250724E-PD8	2.4	0.48-0.96	4.32-10.2			▲	▲	●									
		250924E-PD8	2.4	0.48-0.96	4.32-10.2			▲	▲	●									
		SNMM 190612S-PC9	1.2	0.26-0.60	2.40-9.5			▲	▲										
		190616S-PC9	1.6	0.35-0.80	3.20-9.5			▲	▲	●									
		190624S-PC9	2.4	0.53-1.20	4.80-9.5			▲	▲	●									
		250724S-PC9	2.4	0.53-1.20	4.80-12.7			▲	▲	●									
		250924S-PC9	2.4	0.53-1.20	4.80-12.7			▲	▲	●									
		SNMH 310924S-PC9	2.4	0.53-1.20	4.80-15.9				▲	●									
		SNMM 190612S-PD9	1.2	0.30-0.72	2.64-11.4			▲	▲	●									
		190616S-PD9	1.6	0.40-0.96	3.52-11.4			▲	▲	●									
		190624S-PD9	2.4	0.60-1.44	5.28-11.4			▲	▲	●									
		250724S-PD9	2.4	0.60-1.44	5.28-15.2			▲	▲	●									
		250924S-PD9	2.4	0.60-1.44	5.28-15.2			▲	▲	●									
		SNMX 310924S-PD9	2.4	0.60-1.44	5.28-19.1				▲	●									

●: Stock available ▲: Stock available now but will be replaced in the future.

Negative 60°（T）

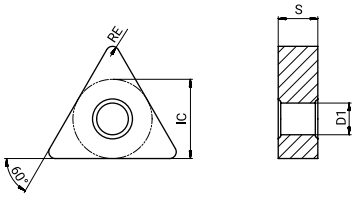


Dimension (mm)			
Product code	IC	S	D1
TN_1103_	6.35	3.18	2.26
TN_1604_	9.525	4.76	3.81
TN_2204_	12.7	4.76	5.16

Inserts		Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	● Good condition ◐ General condition ✱ Bad condition													
						●	●	●	◐	✱	●	◐	◐	◐	●	●	✱	◐	●
						p					M				K			N	S
						AT202	AC052P	AC150P	AC250P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Finishing		**TNMG 160404E-PB1**	0.4	0.05-0.15	0.26-3.1	●		▲	▲										
		160408E-PB1	0.8	0.10-0.30	0.52-3.1	●	●	▲	▲										
		160412E-PB1	1.2	0.15-0.45	0.78-3.1	●	●	▲	▲										
		**TNMG 160404E-SC1**	0.4	0.07-0.18	0.20-0.8								●						
		160408E-SC1	0.8	0.10-0.25	0.20-0.8								●						
		**TNMG 160404E-MB2**	0.4	0.05-0.15	0.26-3.1						●	●	●						●
		160408E-MB2	0.8	0.10-0.30	0.52-3.1						●	●	●						●
Light cutting		**TNMG 160404E-SL3**	0.4	0.12-0.25	0.60-3.0								●						●
		160408E-SL3	0.8	0.15-0.30	0.80-3.0								●						●
		160412E-SL3	1.2	0.18-0.30	1.00-3.0								●						●
Semi-finishing		**TNMG 160404R-M1T**	0.4	0.10-0.30	0.10-0.30	●													
		160404L-M1T	0.4	0.10-0.30	0.10-0.30	●													
		**TNMG 160404E-PB3**	0.4	0.06-0.18	0.30-3.3	●		▲	▲										
		160408E-PB3	0.8	0.12-0.36	0.60-3.3	●	●	▲	▲										
		160412E-PB3	1.2	0.18-0.54	0.90-3.3	●	●	▲	▲										
		**TNMG 160404E-PC3**	0.4	0.07-0.20	0.34-3.7	●		▲	▲										
		160408E-PC3	0.8	0.14-0.40	0.68-3.7	●		▲	▲										
		160412E-PC3	1.2	0.20-0.60	1.02-3.7	●		▲	▲										
Medium		**TNMG 160404E-PD3**	0.4	0.08-0.22	0.40-4.1	●		▲	▲	●									
		160408E-PD3	0.8	0.15-0.44	0.80-4.1	●	●	▲	▲	●									
		160412E-PD3	1.2	0.23-0.66	1.20-4.1	●	●	▲	▲	●									
		**TNMG 160404R-M2T**	0.4	0.10-0.30	0.70-3.5	●													
		160404L-M2T	0.4	0.10-0.30	0.70-3.5	●													
		**TNMG 160404R-PL5**	0.4	0.08-0.22	0.40-4.1	●		▲	▲										
		160408R-PL5	0.8	0.15-0.44	0.80-4.1	●	●	▲	▲										
		160404L-PL5	0.4	0.08-0.22	0.40-4.1	●		▲	▲										
		160408L-PL5	0.8	0.15-0.44	0.80-4.1	●	●	▲	▲										
		**TNMG 160404E-SC3**	0.4	0.08-0.22	0.40-4.1						●	●	●						●
		160408E-SC3	0.8	0.15-0.44	0.80-4.1						●	●	●						●
		160412E-SC3	1.2	0.23-0.66	1.20-4.1						●	●	●						●

●: Stock available ▲: Stock available now but will be replaced in the future.

Negative 60°（T）

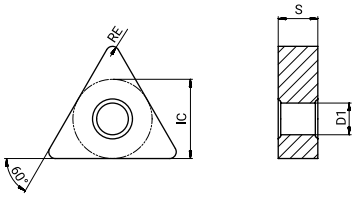


Dimension (mm)			
Product code	IC	S	D1
TN_1103_	6.35	3.18	2.26
TN_1604_	9.525	4.76	3.81
TN_2204_	12.7	4.76	5.16

Inserts		Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	p: AT202	p: AC052P	p: AC150P	p: AC250P	p: AC350P	M: AC100M	M: AC200M	M: AP200U	M: AP301M	K: AC100K	K: AC102K	K: AC202K	N: AW100K	S: AP100S
				● Good condition		●	●	●	◐	✱	●	◐	◐	◐	●	●	✱	◐	●
Medium		**TNMG 160404E-MC3**	0.4	0.08-0.22	0.32-4.1						●	●	●						
		160408E-MC3	0.8	0.15-0.44	0.64-4.1						●	●	●						
		160412E-MC3	1.2	0.23-0.66	0.96-4.1						●	●	●						
		220408E-MC3	0.8	0.15-0.44	0.64-4.9						●	●	●						●
		220412E-MC3	1.2	0.23-0.66	0.96-4.9						●	●	●						
		**TNMG 160404E-PC4**	0.4	0.08-0.22	0.40-4.1	●		▲	▲										
		160408E-PC4	0.8	0.15-0.44	0.80-4.1	●	●	▲	▲										
		160412E-PC4	1.2	0.23-0.66	1.20-4.1		●	▲	▲										
		220412E-PC4	1.2	0.23-0.66	1.20-4.9			▲	▲										
Roughing		**TNMG 160408E-MC4**	0.8	0.20-0.60	1.20-5.8						●	●	●						●
		160412E-MC4	1.2	0.30-0.90	1.80-5.8						●	●	●						●
		220408E-MC4	0.8	0.20-0.60	1.20-6.6						●	●	●						
		220412E-MC4	1.2	0.30-0.90	1.80-6.6						●	●	●						
		**TNMG 110304E-KC4**	0.4	0.09-0.24	0.48-3.3											●	●		
		160404E-KC4	0.4	0.09-0.24	0.48-4.9											●	●		
		160408E-KC4	0.8	0.18-0.48	0.96-4.9										●	●	●		
		160412E-KC4	1.2	0.26-0.72	1.44-4.9										●	●	●		
		160416E-KC4	1.6	0.35-0.96	1.92-4.9											●	●		
		220412E-KC4	1.2	0.26-0.72	1.44-6.0											●	●		
		220416E-KC4	1.6	0.35-0.96	1.92-6.0											●	●		
		**TNMG 160408E-PD5**	0.8	0.20-0.60	1.20-5.8		●	▲	▲	●									
		160412E-PD5	1.2	0.30-0.90	1.80-5.8		●	▲	▲	●									
		220408E-PD5	0.8	0.20-0.60	1.20-7.7		●	▲	▲	●									
		220412E-PD5	1.2	0.30-0.90	1.80-7.7		●	▲	▲	●									
		220416E-PD5	1.6	0.40-1.20	2.40-7.7		●	▲	▲	●									

●: Stock available ▲: Stock available now but will be replaced in the future.

Negative 60°（T）

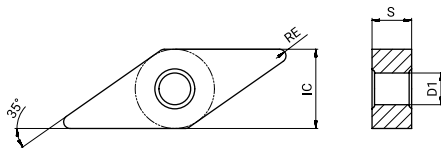


Dimension (mm)			
Product code	IC	S	D1
TN_1103_	6.35	3.18	2.26
TN_1604_	9.525	4.76	3.81
TN_2204_	12.7	4.76	5.16

Inserts Left-hand shown where it's applicable		Product code	RE (mm)	Recommanded parameters		Machining conditions	● Good condition	◐ General condition	✱ Bad condition										
							●	●	●	◐	✱	●	◐	◐	◐	●	●	✱	◐	●
							p					M				K			N	S
				f (mm/rev)	ap (mm)		AT202	AC052P	AC150P	AC250P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Roughing		TNMA 160404E-KD5	0.4	0.10-0.30	0.60-5.8												●	●		
		160408E-KD5	0.8	0.20-0.60	1.20-5.8											●	●	●		
		160412E-KD5	1.2	0.30-0.90	1.80-5.8											●	●	●		
		160416E-KD5	1.6	0.40-1.20	2.40-5.8											●	●	●		
		220408E-KD5	0.8	0.20-0.60	1.20-7.7												●	●		
		220412E-KD5	1.2	0.30-0.90	1.80-7.7												●	●		
		220416E-KD5	1.6	0.40-1.20	2.40-7.7												●	●		
Heavy roughing		TNMM 160408E-PD8	0.8	0.16-0.32	1.44-4.9					▲										
		160412E-PD8	1.2	0.24-0.48	2.16-4.9					▲										
		220408E-PD8	0.8	0.16-0.32	1.44-6.0					▲										
		220412E-PD8	1.2	0.24-0.48	2.16-6.0					▲										
		220416E-PD8	1.6	0.32-0.64	2.88-6.0					▲										
Finishing		TNGG 160401FP-UF	0.1	0.03-0.11	0.3-2.5										●					
		160402FP-UF	0.2	0.03-0.11	0.3-2.5										●					
		160404FP-UF	0.4	0.03-0.11	0.3-2.5										●					
		TNGG 160402FR-F	0.2	0.08-0.20	0.5-2.3										●					
		160402FL-F	0.2	0.08-0.20	0.5-2.3										●					
		160404FR-F	0.4	0.08-0.20	0.5-2.3										●					
		160404FL-F	0.4	0.08-0.20	0.5-2.3										●					
Semi-finishing–Roughing		TNGG 160404R-H	0.4	0.22-0.38	1.2-3.8										●					
		160404L-H	0.4	0.22-0.38	1.2-3.8										●					
		160408R-H	0.8	0.22-0.38	1.2-3.8										●					
		160408L-H	0.8	0.22-0.38	1.2-3.8										●					

●: Stock available ▲: Stock available now but will be replaced in the future.

Negative 35°（V）

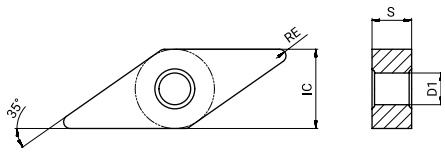


Dimension (mm)			
Product code	IC	S	D1
VN_1604_	9.525	4.76	3.81

Inserts		Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	p: AT202	p: AC052P	p: AC150P	p: AC250P	p: AC350P	M: AC100M	M: AC200M	M: AP200U	M: AP301M	K: AC100K	K: AC102K	K: AC202K	N: AW100K	S: AP100S
						● Good condition													
						●	●	●	◐	✱	●	◐	◐	◐	●	●	✱	◐	●
						p					M				K			N	S
Finishing		**VNMG 160404E-PB1**	0.4	0.05-0.15	0.26-2.1	●		▲	▲										
		160408E-PB1	0.8	0.10-0.30	0.52-2.1	●	●	▲	▲										
		**VNMG 160404E-SC1**	0.4	0.10-0.25	0.20-0.8								●						
		160408E-SC1	0.8	0.15-0.30	0.20-0.8								●						
		**VNMG 160404E-MB2**	0.4	0.05-0.15	0.26-2.1						●	●	●						●
		160408E-MB2	0.8	0.10-0.30	0.52-2.1						●	●	●						●
Light cutting		**VNMG 160404E-SL3**	0.4	0.10-0.20	0.60-2.5								●						●
		160408E-SL3	0.8	0.12-0.25	0.80-2.5								●						●
Profiling		**VNMG 160404E-BS**	0.4	0.08-0.20	0.20-2.0	●	●												
		160408E-BS	0.8	0.08-0.20	0.20-2.0	●	●												
Semi-finishing		**VNMG 160404E-PB3**	0.4	0.06-0.18	0.30-3.1	●		▲	▲										
		160408E-PB3	0.8	0.12-0.36	0.60-3.1	●	●	▲	▲										
		160412E-PB3	1.2	0.18-0.54	0.90-3.1	●	●	▲	▲										
		**VNMG 160404E-PC3**	0.4	0.07-0.20	0.34-3.3	●		▲	▲										
		160408E-PC3	0.8	0.14-0.40	0.68-3.3	●		▲	▲										
		160412E-PC3	1.2	0.20-0.60	1.02-3.3	●		▲	▲										

●: Stock available ▲: Stock available now but will be replaced in the future.

Negative 35°（V）

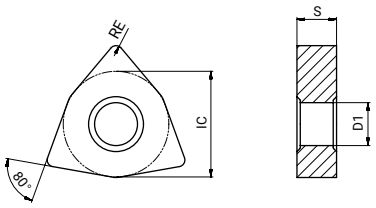


Dimension (mm)			
Product code	IC	S	D1
VN_1604_	9.525	4.76	3.81

Inserts		Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	p: AT202	p: AC052P	p: AC150P	p: AC250P	p: AC350P	M: AC100M	M: AC200M	M: AP200U	M: AP301M	K: AC100K	K: AC102K	K: AC202K	N: AW100K	S: AP100S
						● Good condition			◐ General condition	✱ Bad condition									
						●	●	●	◐	✱	●	◐	◐	◐	●	●	✱	◐	●
Medium		**VNMG 160404E-PD3**	0.4	0.08-0.22	0.40-3.3	●		▲	▲										
		160408E-PD3	0.8	0.15-0.44	0.80-3.3	●	●	▲	▲	●									
		160412E-PD3	1.2	0.23-0.66	1.20-3.3	●	●	▲	▲	●									
		**VNMG 160404-M3T**	0.4	0.20-0.40	1.0-4.0	●													
		160408-M3T	0.8	0.20-0.40	1.0-4.0	●													
		**VNMG 160404E-SC3**	0.4	0.08-0.22	0.40-3.3						●	●	●						●
		160408E-SC3	0.8	0.15-0.44	0.80-3.3						●	●	●						●
		160412E-SC3	1.2	0.23-0.66	1.20-3.3						●	●	●						●
		**VNMG 160404E-MC3**	0.4	0.08-0.22	0.32-3.3						●	●	●						
		160408E-MC3	0.8	0.15-0.44	0.64-3.3						●	●	●						
		**VNMG 160404E-PC4**	0.4	0.08-0.22	0.40-3.3	●		▲	▲							●	●		
		160408E-PC4	0.8	0.15-0.44	0.80-3.3	●	●	▲	▲							●	●		
		160412E-PC4	1.2	0.23-0.66	1.20-3.3	●	●	▲	▲							●	●		
Roughing		**VNMG 160404E-KC4**	0.4	0.09-0.24	0.48-3.3											●	●		
		160408E-KC4	0.8	0.18-0.48	0.96-3.3											●	●		
		160412E-KC4	1.2	0.26-0.72	1.44-3.3											●	●		
Finishing		**VNGG 160401FP-UF**	0.1	0.02-0.1	0.5-2.0									●					
		160402FP-UF	0.2	0.02-0.1	0.5-2.0									●					
		160404FP-UF	0.4	0.02-0.1	0.5-2.0									●					

●: Stock available ▲: Stock available now but will be replaced in the future.

Negative 80°（W）

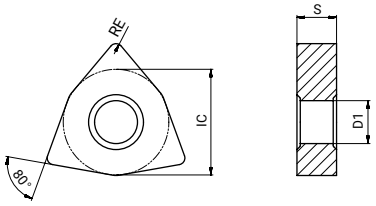


Dimension (mm)			
Product code	IC	S	D1
WN_0604_	9.525	4.76	3.81
WN_0804_	12.7	4.76	5.16

Inserts		Product code	RE (mm)	Recommanded parameters		Machining conditions: ● Good condition ◐ General condition ✱ Bad condition												
						●	●	●	◐	✱	●	◐	◐	◐	●	●	✱	◐	●
						p					M				K			N	S
				f (mm/rev)	ap (mm)	AT202	AC052P	AC150P	AC250P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Finishing		WNMG 080404-F1T	0.4	0.05-0.15	0.50-2.5	●													
		080408-F1T	0.8	0.05-0.15	0.50-2.5	●													
		WNMG 080404E-PB1	0.4	0.05-0.15	0.26-2.2	●		▲	▲										
		080408E-PB1	0.8	0.10-0.30	0.52-2.2	●	●	▲	▲										
		080412E-PB1	1.2	0.15-0.45	0.78-2.2	●	●	▲	▲										
		WNMG 080404E-SC1	0.4	0.10-0.25	0.20-0.8								●						
		080408E-SC1	0.8	0.15-0.30	0.20-0.8								●						
		WNMG 080404E-MB2	0.4	0.05-0.15	0.26-2.2						●	●							●
		080408E-MB2	0.8	0.10-0.30	0.52-2.2						●	●							●
Light cutting		WNMG 060404E-SL3	0.4	0.12-0.25	0.60-2.5								●						●
		060408E-SL3	0.8	0.15-0.25	0.80-2.5								●						●
		080404E-SL3	0.4	0.12-0.25	0.60-3.0								●						●
		080408E-SL3	0.8	0.15-0.25	0.80-3.0								●						●
		080412E-SL3	1.2	0.18-0.30	1.00-3.0								●						●
Semi-finishing		WNMG 080404E-PB3	0.4	0.06-0.18	0.30-2.3	●		▲	▲										
		080408E-PB3	0.8	0.12-0.36	0.60-2.3	●	●	▲	▲										
		080412E-PB3	1.2	0.18-0.54	0.90-2.3	●	●	▲	▲										
		WNMG 080404E-PC3	0.4	0.07-0.20	0.34-2.6	●		▲	▲										
		080408E-PC3	0.8	0.14-0.40	0.68-2.6	●		▲	▲										
		080412E-PC3	1.2	0.20-0.60	1.02-2.6	●		▲	▲										

●: Stock available ▲: Stock available now but will be replaced in the future.

Negative 80°（W）

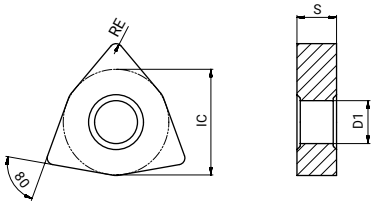


Dimension (mm)			
Product code	IC	S	D1
WN_0604_	9.525	4.76	3.81
WN_0804_	12.7	4.76	5.16

					Machining conditions		● Good condition			◐ General condition					✱ Bad condition				
							●	●	●	◐	✱	●	◐	◐	◐	●	●	✱	◐	●
	Inserts		Product code	RE (mm)	Recommanded parameters		p					M				K			N	S
					f (mm/rev)	ap (mm)	AT202	AC052P	AC150P	AC250P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Medium			WNMG 080404R-PL5	0.4	0.20-0.50	0.40-4.0				▲									
			080404L-PL5	0.4	0.20-0.50	0.40-4.0				▲									
			080408R-PL5	0.8	0.20-0.50	0.40-5.0				▲			●						
			080408L-PL5	0.8	0.20-0.50	0.40-5.0				▲			●						
			WNMG 060408E-PD3	0.8	0.15-0.44	0.80-2.1		●	▲	▲									
			080404E-PD3	0.4	0.08-0.22	0.40-2.9	●	●	▲	▲	●									
			080408E-PD3	0.8	0.15-0.44	0.80-2.9	●	●	▲	▲	●									
			080412E-PD3	1.2	0.23-0.66	1.20-2.9	●	●	▲	▲	●									
			WNMG 080404E-SC3	0.4	0.08-0.22	0.40-2.9						●	●	●						●
			080408E-SC3	0.8	0.15-0.44	0.80-2.9						●	●	●						●
			080412E-SC3	1.2	0.23-0.66	1.20-2.9						●	●	●						●
			WNMG 080404-M3T	0.4	0.20-0.40	1.0-4.0	●													
			080408-M3T	0.8	0.20-0.40	1.0-4.0	●													
			WNMG 060408E-MC3	0.8	0.15-0.44	0.64-2.1						●	●	●						
			060412E-MC3	1.2	0.23-0.66	0.96-2.1						●	●	●						
			080404E-MC3	0.4	0.08-0.22	0.32-2.9						●	●	●						
			080408E-MC3	0.8	0.15-0.44	0.64-2.9						●	●	●						●
			080412E-MC3	1.2	0.23-0.66	0.96-2.9						●	●	●						
			WNMG 080404E-PC4	0.4	0.08-0.22	0.40-2.9	●		▲	▲							●	●		
			080408E-PC4	0.8	0.15-0.44	0.80-2.9	●	●	▲	▲							●	●		
			080412E-PC4	1.2	0.23-0.66	1.20-2.9	●	●	▲	▲							●	●		

●: Stock available ▲: Stock available now but will be replaced in the future.

Negative 80°（W）

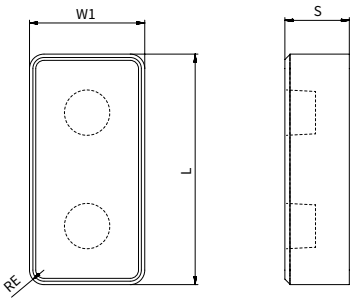


Dimension (mm)			
Product code	IC	S	D1
WN_0604_	9.525	4.76	3.81
WN_0804_	12.7	4.76	5.16

Inserts		Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	p: AT202	p: AC052P	p: AC150P	p: AC250P	p: AC350P	M: AC100M	M: AC200M	M: AP200U	M: AP301M	K: AC100K	K: AC102K	K: AC202K	N: AW100K	S: AP100S
				● Good condition ◐ General condition ✱ Bad condition		●	●	●	◐	✱	●	◐	◐	◐	●	●	✱	◐	●
Roughing		**WNMG 060408E-MC4**	0.8	0.20-0.60	1.20-3.3														
		060412E-MC4	1.2	0.30-0.90	1.80-3.3						●	●	●						
		080408E-MC4	0.8	0.20-0.60	1.20-4.3						●	●	●						●
		080412E-MC4	1.2	0.30-0.90	1.80-4.3						●	●	●						●
		**WNMG 060404E-KC4**	0.4	0.09-0.24	0.48-2.6											●	●		
		060408E-KC4	0.8	0.18-0.48	0.96-2.6											●	●		
		080404E-KC4	0.4	0.09-0.24	0.48-3.5											●	●		
		080408E-KC4	0.8	0.18-0.48	0.96-3.5										●	●	●		
		080412E-KC4	1.2	0.26-0.72	1.44-3.5										●	●	●		
		080416E-KC4	1.2	0.35-0.96	1.92-3.5											●	●		
		**WNMG 080408E-PD5**	0.8	0.20-0.60	1.20-4.3		●	▲	▲	●									
		080412E-PD5	1.2	0.30-0.90	1.80-4.3		●	▲	▲	●									
		**WNMA 080404E-KD5**	0.4	0.10-0.30	0.60-4.3											●	●		
		080408E-KD5	0.8	0.20-0.60	1.20-4.3										●	●	●		
		080412E-KD5	1.2	0.30-0.90	1.80-4.3										●	●	●		
		080416E-KD5	1.6	0.40-1.20	2.40-4.3											●	●		

●: Stock available ▲: Stock available now but will be replaced in the future.

Negative 90°（L）



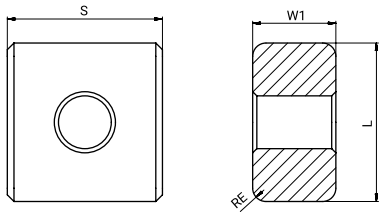
Dimension (mm)			
Product code	L	S	W1
LN_5014_	50.8	14.2	25.4

Inserts		Product code	RE (mm)	Machining conditions		● Good condition ◐ General condition ✱ Bad condition												
						●	●	◐	✱	●	◐	◐	◐	●	●	✱	◐	●
				Recommanded parameters		p				M				K			N	S
				f (mm/rev)	ap (mm)	AC052P	AC150P	AC250P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Heavy roughing		**LNMX 501432S-HE**	3.2	0.70-1.6	6.0-40.0				●									

●: Stock available ▲: Stock available now but will be replaced in the future.

Negative 90°（L）

Railway wheel re-turning

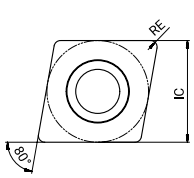


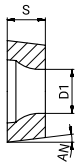
Dimension (mm)			
Product code	L	S	W1
LN_1919_	19.05	19.05	10
LN_3019_	30	30	12

Inserts		Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	● Good condition ◐ General condition ✱ Bad condition												
						●	●	◐	✱	●	◐	◐	◐	●	●	✱	◐	●
						p				M				K			N	S
						AC052P	AC150P	AC250P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Finishing		**LNMX 191940-AS**	4.0	0.7-1.2	2.0-10.0													
Medium		**LNMX 191940-AM**	4.0	0.7-1.2	2.0-10.0	●												
		LNMX 301940-AM	4.0	0.7-1.2	2.0-20.0													
		**LNMX 301940-AR**	4.0	0.7-1.2	2.0-20.0													

●: Stock available ▲: Stock available now but will be replaced in the future.

Positive 80°（C）



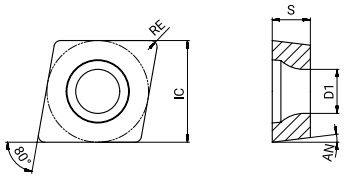


Dimension (mm)				
Product code	IC	S	D1	AN
CC_0602_	6.35	2.38	2.8	7°
CC_09T3_	9.525	3.97	4.4	7°

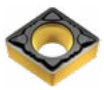
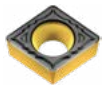
	Inserts	Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	● Good condition ◐ General condition ✱ Bad condition													
						●	●	●	◐	✱	●	◐	◐	◐	●	●	✱	◐	●
						p					M				K			N	S
						AT202	AC052P	AC150P	AC250P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Finishing		CCGT 060201FP-LF	<0.1	0.05-0.2	0.35-3.0									●					
		060202FP-LF	0.2	0.05-0.2	0.35-3.0									●					
		060204FP-LF	0.4	0.05-0.2	0.35-3.0									●					
		09T301FP-LF	<0.1	0.05-0.2	0.35-3.0									●					
		09T302FP-LF	0.2	0.05-0.2	0.35-3.0									●					
		09T304FP-LF	0.4	0.05-0.2	0.35-3.0									●					
		CCGT 060201FP-UF	0.1	0.02-0.15	0.10-1.4									●					
		060202FP-UF	0.2	0.02-0.15	0.10-1.4									●					
		060204FP-UF	0.4	0.03-0.20	0.10-1.4									●					
		09T301FP-UF	0.1	0.02-0.15	0.10-2.4									●					
		09T302FP-UF	0.2	0.02-0.15	0.10-2.4									●					
		09T304FP-UF	0.4	0.03-0.20	0.10-2.4									●					
		CCGT 060201F-UF	0.1	0.02-0.15	0.10-1.4									▲					
		060202F-UF	0.2	0.02-0.15	0.10-1.4									▲					
		060204F-UF	0.4	0.03-0.20	0.10-1.4									▲					
		09T301F-UF	0.1	0.02-0.15	0.10-2.4									▲					
		09T302F-UF	0.2	0.02-0.15	0.10-2.4									▲					
		09T304F-UF	0.4	0.03-0.20	0.10-2.4									▲					
		09T308F-UF	0.8	0.03-0.25	0.10-2.4									▲					
		CCGT 060201E-UF	0.1	0.02-0.15	0.10-1.4									●					●
		060202E-UF	0.2	0.02-0.15	0.10-1.4									●					●
		060204E-UF	0.4	0.03-0.20	0.10-1.4									●					●
		09T301E-UF	0.1	0.02-0.15	0.10-2.4									●					●
		09T302E-UF	0.2	0.02-0.15	0.10-2.4									●					●
		09T304E-UF	0.4	0.03-0.20	0.10-2.4									●					●
		09T308E-UF	0.8	0.03-0.25	0.10-2.4									●					●

●: Stock available ▲: Stock available now but will be replaced in the future.

Positive 80°（C）

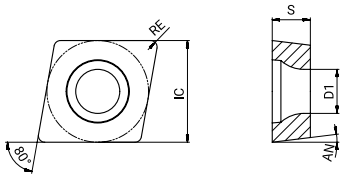


Dimension (mm)				
Product code	IC	S	D1	AN
CC_0602_	6.35	2.38	2.8	7°
CC_09T3_	9.525	3.97	4.4	7°
CC_1204_	12.7	4.76	5.5	7°
CP_0802_	7.94	2.38	3.4	11°
CP_0903_	9.525	3.18	4.4	11°

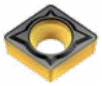
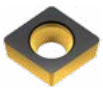
Inserts		Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	● Good condition ◐ General condition ✱ Bad condition												
																	N	S
						p					M				K			
						AT202	AC052P	AC150P	AC250P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Semi-Finishing		**CCGT 060204F-NC2**	0.4	0.05-0.20	0.32-2.9												●	
		09T302F-NC2	0.2	0.02-0.10	0.16-4.4												●	
		09T304F-NC2	0.4	0.05-0.20	0.32-4.4												●	
		09T308F-NC2	0.8	0.10-0.40	0.64-4.4												●	
		120404F-NC2	0.4	0.05-0.20	0.32-5.8												●	
		120408F-NC2	0.8	0.10-0.40	0.64-5.8												●	
Finishing		**CCMT 060202-F1T**	0.2	0.05-0.15	0.3-1.5	●												
		060204-F1T	0.4	0.05-0.15	0.3-1.5	●												
		**CCMT 060202E-PB1**	0.2	0.02-0.07	0.15-1.6	●		▲	▲		●	●	●						
		060204E-PB1	0.4	0.04-0.14	0.30-1.6	●		▲	▲		●	●	●						
		060208E-PB1	0.8	0.09-0.28	0.60-1.6	●		▲	▲		●	●	●						
		09T302E-PB1	0.2	0.02-0.07	0.15-2.4	●		▲	▲		●	●	●						
		09T304E-PB1	0.4	0.04-0.14	0.30-2.4	●		▲	▲		●	●	●						●
		09T308E-PB1	0.8	0.09-0.28	0.60-2.4	●		▲	▲		●	●	●						
		CPMT 080202E-PB1	0.2	0.02-0.07	0.15-2.0	●													
		080204E-PB1	0.4	0.04-0.14	0.30-2.0	●													
		090302E-PB1	0.2	0.02-0.07	0.15-2.4	●													
		090304E-PB1	0.4	0.04-0.14	0.30-2.4	●			▲										
		090308E-PB1	0.8	0.09-0.28	0.60-2.4	●			▲										
Semi-Finishing		**CCMT 060204E-PC2**	0.4	0.05-0.16	0.35-1.9	●		▲	▲		●	●	●						●
		060208E-PC2	0.8	0.10-0.32	0.70-1.9	●		▲	▲		●	●	●						●
		09T304E-PC2	0.4	0.05-0.16	0.35-2.9	●	●	▲	▲		●	●	●						●
		09T308E-PC2	0.8	0.10-0.32	0.70-2.9	●	●	▲	▲		●	●	●						●
		09T312E-PC2	1.2	0.16-0.48	1.05-2.9		●	▲	▲		●	●	●						
		120404E-PC2	0.4	0.05-0.16	0.35-3.9	●		▲	▲		●	●	●						●
		120408E-PC2	0.8	0.10-0.32	0.70-3.9	●		▲	▲		●	●	●						●
		120412E-PC2	1.2	0.16-0.48	1.05-3.9	●		▲	▲		●	●	●						●
		CPMT 090304E-PC2	0.4	0.05-0.15	0.35-2.9	●													
		090308E-PC2	0.8	0.10-0.32	0.70-2.9	●													

●: Stock available ▲: Stock available now but will be replaced in the future.

Positive 80°（C）

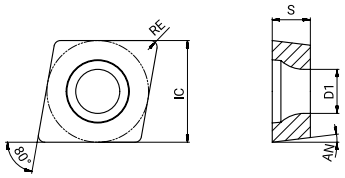


Dimension (mm)				
Product code	IC	S	D1	AN
CC_0301_	3.5	1.4	2.0	7°
CC_0602_	6.35	2.38	2.8	7°
CC_09T3_	9.525	3.97	4.4	7°
CC_1204_	12.7	4.76	5.5	7°

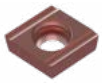
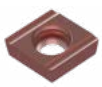
Inserts Left-hand shown where it's applicable		Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	● Good condition ◐ General condition ✱ Bad condition													
						p					M				K			N	S
						AT202	AC052P	AC150P	AC250P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Semi-Finishing		CCMT 09T304E-M2T	0.4	0.10-0.25	0.70-3.5	●													
		09T308E-M2T	0.8	0.10-0.25	0.70-3.5	●													
		CCMT 060204E-KC2	0.4	0.06-0.18	0.40-2.1	●		▲	▲	●	●	●	●			●	●		●
		060208E-KC2	0.8	0.12-0.36	0.80-2.1	●		▲	▲	●	●	●	●			●	●		
		09T304E-KC2	0.4	0.06-0.18	0.40-3.2	●		▲	▲	●	●	●	●		●	●	●		
		09T308E-KC2	0.8	0.12-0.36	0.80-3.2	●		▲	▲	●	●	●	●		●	●	●		
		120404E-KC2	0.4	0.06-0.18	0.40-4.3	●		▲	▲	●	●	●	●			●	●		
		120408E-KC2	0.8	0.12-0.36	0.80-4.3	●		▲	▲	●	●	●	●			●	●		
		120412E-KC2	1.2	0.18-0.54	1.20-4.3	●		▲	▲	●	●	●	●			●	●		
Roughing		CCMW 060204E-KD5	0.4	0.10-0.22	0.40-3.2											●	●		
		09T304E-KD5	0.4	0.10-0.22	0.40-4.8											●	●		
		09T308E-KD5	0.8	0.20-0.44	0.80-4.8											●	●		
		120404E-KD5	0.4	0.10-0.22	0.40-6.4											●	●		
		120408E-KD5	0.8	0.20-0.44	0.80-6.4											●	●		
		120412E-KD5	1.2	0.30-0.66	1.20-6.4											●	●		
Finishing		CCET 0301003FR-F	<0.03	0.01-0.05	0.1-0.3									●					
		0301003FL-F	<0.03	0.01-0.05	0.1-0.3									●					
		0301005FR-F	<0.05	0.01-0.05	0.1-0.3									●					
		0301005FL-F	<0.05	0.01-0.05	0.1-0.3									●					
		030101FR-F	<0.1	0.01-0.05	0.1-0.3									●					
		030101FL-F	<0.1	0.01-0.05	0.1-0.3									●					
		030102FR-F	<0.2	0.01-0.05	0.1-0.3									●					
		030102FL-F	<0.2	0.01-0.05	0.1-0.3									●					
		030104FR-F	<0.4	0.01-0.05	0.1-0.3									●					
		030104FL-F	<0.4	0.01-0.05	0.1-0.3									●					

●: Stock available ▲: Stock available now but will be replaced in the future.

Positive 80°（C）

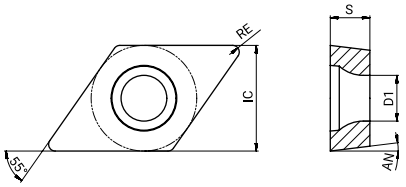


Dimension (mm)				
Product code	IC	S	D1	AN
CC_0401_	4.3	1.8	2.3	7°
CC_0602_	6.35	2.38	2.8	7°
CC_09T3_	9.525	3.97	4.4	7°

Inserts Left-hand shown where it's applicable		Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	● Good condition ◐ General condition ✱ Bad condition													
						●	●	●	◐	✱	●	◐	◐	◐	●	●	✱	◐	●
						p					M				K			N	S
						AT202	AC052P	AC150P	AC250P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Finishing		**CCET 0401003FR-F**	<0.03	0.01-0.06	0.1-0.4									●					
		0401003FL-F	<0.03	0.01-0.06	0.1-0.4									●					
		0401005FR-F	<0.05	0.01-0.06	0.1-0.4									●					
		0401005FL-F	<0.05	0.01-0.06	0.1-0.4									●					
		040101FR-F	<0.1	0.01-0.06	0.1-0.4									●					
		040101FL-F	<0.1	0.01-0.06	0.1-0.4									●					
		040102FR-F	<0.2	0.01-0.06	0.1-0.4									●					
		040102FL-F	<0.2	0.01-0.06	0.1-0.4									●					
		040104FR-F	<0.4	0.01-0.06	0.1-0.4									●					
		040104FL-F	<0.4	0.01-0.06	0.1-0.4									●					
Low feed		**CCET 0602003FR-M**	<0.03	0.02-0.10	0.5-2.5									●					
		0602003FL-M	<0.03	0.02-0.10	0.5-2.5									●					
		0602005FR-M	<0.05	0.02-0.10	0.5-2.5									●					
		0602005FL-M	<0.05	0.02-0.10	0.5-2.5									●					
		060201FR-M	<0.1	0.02-0.10	0.5-2.5									●					
		060201FL-M	<0.1	0.02-0.10	0.5-2.5									●					
		060202FR-M	<0.2	0.02-0.10	0.5-2.5									●					
		060202FL-M	<0.2	0.02-0.10	0.5-2.5									●					
		060204FR-M	<0.4	0.01-0.10	0.5-2.5									●					
		060204FL-M	<0.4	0.01-0.10	0.5-2.5									●					
		**CCET 09T3003FR-M**	<0.03	0.02-0.10	0.5-4.0									●					
		09T3003FL-M	<0.03	0.02-0.10	0.5-4.0									●					
		09T3005FR-M	<0.05	0.02-0.10	0.5-4.0									●					
		09T3005FL-M	<0.05	0.02-0.10	0.5-4.0									●					
		09T301FR-M	<0.1	0.02-0.10	0.5-4.0									●					
		09T301FL-M	<0.1	0.02-0.10	0.5-4.0									●					
		09T302FR-M	<0.2	0.02-0.10	0.5-4.0									●					
		09T302FL-M	<0.2	0.02-0.10	0.5-4.0									●					
		09T304FR-M	<0.4	0.02-0.10	0.5-4.0									●					
		09T304FL-M	<0.4	0.02-0.10	0.5-4.0									●					

●: Stock available ▲: Stock available now but will be replaced in the future.

Positive 55°（D）

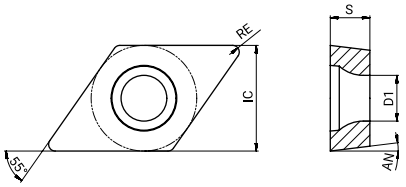


Dimension (mm)				
Product code	IC	S	D1	AN
DC_0702_	6.35	2.38	2.8	7°
DC_11T3_	9.525	3.97	4.4	7°

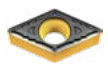
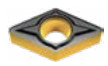
Inserts		Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	● Good condition ◐ General condition ✱ Bad condition													
						●	●	●	◐	✱	●	◐	◐	◐	●	●	✱	◐	●
						p					M				K			N	S
						AT202	AC052P	AC150P	AC250P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Finishing		DCGT 0702005FP-LF	<0.05	0.05-0.15	0.35-3.0									●					
		070201FP-LF	<0.1	0.05-0.2	0.35-3.0									●					
		070202FP-LF	0.2	0.05-0.2	0.35-3.0									●					
		070204FP-LF	0.4	0.05-0.2	0.35-3.0									●					
		11T301FP-LF	<0.1	0.05-0.2	0.35-3.0									●					
		11T302FP-LF	0.2	0.05-0.2	0.35-3.0									●					
		11T304FP-LF	0.4	0.05-0.2	0.35-3.0									●					
		DCGT 0702005FP-UF	<0.05	0.02-0.15	0.10-1.4									●					
		070201FP-UF	0.1	0.02-0.15	0.10-1.4									●					
		070202FP-UF	0.2	0.02-0.15	0.10-1.4									●					
		070204FP-UF	0.4	0.03-0.20	0.10-1.4									●					
		11T301FP-UF	0.1	0.02-0.15	0.10-2.4									●					
		11T302FP-UF	0.2	0.02-0.15	0.10-2.4									●					
		11T304FP-UF	0.4	0.03-0.20	0.10-2.4									●					
		DCGT 0702005F-UF	<0.05	0.02-0.15	0.10-1.4									▲					
		070201F-UF	0.1	0.02-0.15	0.10-1.4									▲					
		070202F-UF	0.2	0.02-0.15	0.10-1.4									▲					
		070204F-UF	0.4	0.03-0.20	0.10-1.4									▲					
		11T301F-UF	0.1	0.02-0.15	0.10-2.4									▲					
		11T302F-UF	0.2	0.02-0.15	0.10-2.4									▲					
		11T304F-UF	0.4	0.03-0.20	0.10-2.4									▲					
		DCGT 070201E-UF	0.1	0.02-0.15	0.10-1.4									●					●
		070202E-UF	0.2	0.02-0.15	0.10-1.4									●					●
		070204E-UF	0.4	0.03-0.20	0.10-1.4									●					●
		11T301E-UF	0.1	0.02-0.15	0.10-2.4									●					●
		11T302E-UF	0.2	0.02-0.15	0.10-2.4									●					●
		11T304E-UF	0.4	0.03-0.20	0.10-2.4									●					●

●: Stock available ▲: Stock available now but will be replaced in the future.

Positive 55°（D）

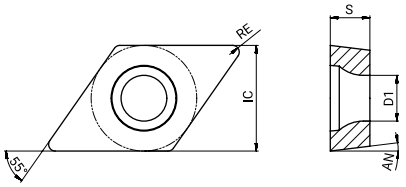


Dimension (mm)				
Product code	IC	S	D1	AN
DC_0702_	6.35	2.38	2.8	7°
DC_11T3_	9.525	3.97	4.4	7°

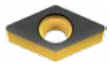
Inserts		Product code	RE (mm)	Recommanded parameters		Machining conditions: ● Good condition ⬍ General condition ⬌ Bad condition												
						●	●	●	⬍	⬌	●	⬍	⬍	⬍	●	●	⬌	⬍	●
						p					M				K			N	S
				f (mm/rev)	ap (mm)	AT202	AC052P	AC150P	AC250P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Semi-Finishing		**DCGT 070202F-NC2**	0.2	0.02-0.10	0.16-3.5													●	
		070204F-NC2	0.4	0.05-0.20	0.32-3.5													●	
		11T302F-NC2	0.2	0.02-0.10	0.16-5.2													●	
		11T304F-NC2	0.4	0.05-0.20	0.32-5.2													●	
		11T308F-NC2	0.8	0.10-0.40	0.64-5.2													●	
Finishing		**DCMT070202-F1T**	0.2	0.07-0.20	0.40-1.5	●													
		070204-F1T	0.4	0.07-0.20	0.40-1.5	●													
		11T302-F1T	0.2	0.07-0.20	0.40-1.5	●													
		11T304-F1T	0.4	0.10-0.25	0.60-1.5	●													
		11T308-F1T	0.8	0.10-0.25	0.60-1.5	●													
		**DCMT070202E-PB1**	0.2	0.02-0.07	0.15-1.5	●		▲	▲		●	●	●						
		070204E-PB1	0.4	0.04-0.14	0.30-1.5	●		▲	▲		●	●	●						
		11T302E-PB1	0.2	0.02-0.07	0.15-2.3	●		▲	▲		●	●	●						
		11T304E-PB1	0.4	0.04-0.14	0.30-2.3	●		▲	▲		●	●	●						
		11T308E-PB1	0.8	0.09-0.28	0.60-2.3	●		▲	▲		●	●	●						
Semi-Finishing		**DCMT070204E-PC2**	0.4	0.05-0.16	0.35-2.1	●		▲	▲		●	●	●						●
		070208E-PC2	0.8	0.10-0.32	0.70-2.1	●		▲	▲		●	●	●						●
		11T304E-PC2	0.4	0.05-0.16	0.35-3.1	●	●	▲	▲		●	●	●						●
		11T308E-PC2	0.8	0.10-0.32	0.70-3.1	●	●	▲	▲		●	●	●						●
		11T312E-PC2	1.2	0.16-0.48	1.05-3.1	●		▲	▲		●	●	●						●
		**DCMT11T304-M2T**	0.4	0.10-0.25	0.50-3.0	●													
		11T308-M2T	0.8	0.10-0.25	0.50-3.0	●													
Medium		**DCMT070204E-KC2**	0.4	0.06-0.18	0.40-2.3	●		▲	▲	●						●	●		
		070208E-KC2	0.8	0.12-0.36	0.80-2.3	●		▲	▲	●						●	●		
		11T304E-KC2	0.4	0.06-0.18	0.40-3.5	●		▲	▲	●						●	●		
		11T308E-KC2	0.8	0.12-0.36	0.80-3.5	●	●	▲	▲	●					●	●	●		
		11T312E-KC2	1.2	0.18-0.54	1.20-3.5		●	▲	▲	●						●	●		

●: Stock available ▲: Stock available now but will be replaced in the future.

Positive 55°（D）

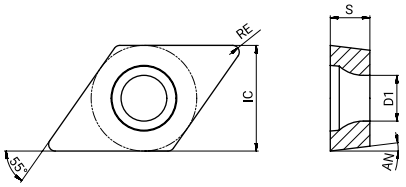


Dimension (mm)				
Product code	IC	S	D1	AN
DC_0702_	6.35	2.38	2.8	7°
DC_11T3_	9.525	3.97	4.4	7°

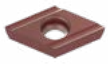
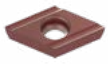
Inserts Left-hand shown where it's applicable		Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	● Good condition ◐ General condition ✱ Bad condition													
						p					M				K			N	S
						AT202	AC052P	AC150P	AC250P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Roughing		DCMW 070204E-KD5	0.4	0.06-0.18	0.40-3.9											●	●		
		070208E-KD5	0.8	0.12-0.36	0.80-3.9											●	●		
		11T304E-KD5	0.4	0.06-0.18	0.40-5.8											●	●		
		11T308E-KD5	0.8	0.12-0.36	0.80-5.8											●	●		
Finishing		DCET 0702003FR-F	<0.03	0.02-0.18	0.1-0.4									●					
		0702003FL-F	<0.03	0.02-0.18	0.1-0.4									●					
		0702005FR-F	<0.05	0.02-0.18	0.1-0.4									●					
		0702005FL-F	<0.05	0.02-0.18	0.1-0.4									●					
		070201FR-F	<0.1	0.02-0.18	0.1-0.4									●					
		070201FL-F	<0.1	0.02-0.18	0.1-0.4									●					
		070202FR-F	<0.2	0.02-0.18	0.1-0.4									●					
		070202FL-F	<0.2	0.02-0.18	0.1-0.4									●					
		070204FR-F	<0.4	0.02-0.18	0.1-0.4									●					
		070204FL-F	<0.4	0.02-0.18	0.1-0.4									●					
		DCET 11T3003FR-F	<0.03	0.02-0.20	0.1-0.4									●					
		11T3003FL-F	<0.03	0.02-0.20	0.1-0.4									●					
		11T3005FR-F	<0.05	0.02-0.20	0.1-0.4									●					
		11T3005FL-F	<0.05	0.02-0.20	0.1-0.4									●					
		11T301FR-F	<0.1	0.02-0.20	0.1-0.4									●					
		11T301FL-F	<0.1	0.02-0.20	0.1-0.4									●					
		11T302FR-F	<0.2	0.02-0.20	0.1-0.4									●					
		11T302FL-F	<0.2	0.02-0.20	0.1-0.4									●					
		11T304FR-F	<0.4	0.02-0.20	0.1-0.4									●					
		11T304FL-F	<0.4	0.02-0.20	0.1-0.4									●					

●: Stock available ▲: Stock available now but will be replaced in the future.

Positive 55°（D）

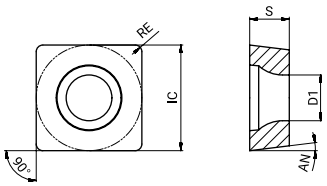


Dimension (mm)				
Product code	IC	S	D1	AN
DC_0702_	6.35	2.38	2.8	7°
DC_11T3_	9.525	3.97	4.4	7°

Inserts Left-hand shown where it's applicable		Product code	RE (mm)	Recommanded parameters f (mm/rev)	Recommanded parameters ap (mm)	Machining conditions: ● Good condition ◐ General condition ✱ Bad condition													
						●	●	●	◐	✱	●	◐	◐	◐	●	●	✱	◐	●
						p					M				K			N	S
						AT202	AC052P	AC150P	AC250P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Low feed		DCET 0702003FR-M	<0.03	0.01-0.08	0.5-2.8									●					
		0702003FL-M	<0.03	0.01-0.08	0.5-2.8									●					
		0702005FR-M	<0.05	0.01-0.08	0.5-2.8									●					
		0702005FL-M	<0.05	0.01-0.08	0.5-2.8									●					
		070201FR-M	<0.1	0.01-0.08	0.5-2.8									●					
		070201FL-M	<0.1	0.01-0.08	0.5-2.8									●					
		070202FR-M	<0.2	0.01-0.08	0.5-2.8									●					
		070202FL-M	<0.2	0.01-0.08	0.5-2.8									●					
		070204FR-M	<0.4	0.01-0.08	0.5-2.8									●					
		070204FL-M	<0.4	0.01-0.08	0.5-2.8									●					
		DCET 11T3003FR-M	<0.03	0.01-0.10	0.5-4.0									●					
		11T3003FL-M	<0.03	0.01-0.10	0.5-4.0									●					
		11T3005FR-M	<0.05	0.01-0.10	0.5-4.0									●					
		11T3005FL-M	<0.05	0.01-0.10	0.5-4.0									●					
		11T301FR-M	<0.1	0.01-0.10	0.5-4.0									●					
		11T301FL-M	<0.1	0.01-0.10	0.5-4.0									●					
		11T302FR-M	<0.2	0.01-0.10	0.5-4.0									●					
		11T302FL-M	<0.2	0.01-0.10	0.5-4.0									●					
		11T304FR-M	<0.4	0.01-0.10	0.5-4.0									●					
		11T304FL-M	<0.4	0.01-0.10	0.5-4.0									●					

●: Stock available ▲: Stock available now but will be replaced in the future.

Positive 90°（S）

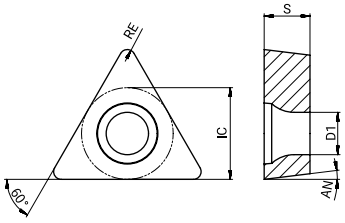


Dimension (mm)				
Product code	IC	S	D1	AN
SC_09T3_	9.525	3.97	4.4	7°
SC_1204_	12.7	4.76	5.5	7°
SC_3809_	38.1	9.525	9.8	7°

Inserts		Product code	RE (mm)	Recommanded parameters		Machining conditions	● Good condition	◐ General condition	✱ Bad condition										
							●	●	●	◐	✱	●	◐	◐	◐	●	●	✱	◐	●
							p					M				K			N	S
				f (mm/rev)	ap (mm)		AT202	AC052P	AC150P	AC250P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Semi-Finishing		**SCGT 09T308F-NC2**	0.8	0.10-0.40	0.64-4.3														●	
Finishing		**SCMT 09T304E-PB1**	0.4	0.04-0.14	0.30-2.4		●		▲	▲		●	●	●						
		09T308E-PB1	0.8	0.09-0.28	0.60-2.4		●		▲	▲		●	●	●						
		120404E-PB1	0.4	0.04-0.14	0.30-3.2				▲	▲		●	●	●						
Semi-Finishing		**SCMT 09T304E-PC2**	0.4	0.05-0.16	0.35-2.9		●		▲	▲		●	●	●						●
		09T308E-PC2	0.8	0.10-0.32	0.70-2.9		●		▲	▲		●	●	●						●
		120404E-PC2	0.4	0.05-0.16	0.35-3.8		●		▲	▲		●	●	●						●
		120408E-PC2	0.8	0.10-0.32	0.70-3.8		●	●	▲	▲		●	●	●						●
		120412E-PC2	1.2	0.16-0.48	1.05-3.8			●	▲	▲		●	●	●						●
		**SCMT 09T304-M2T**	0.4	0.10-0.25	0.70-3.5		●													
		09T308-M2T	0.8	0.10-0.25	0.70-3.5		●													
Medium		**SCMT 09T304E-KC2**	0.4	0.06-0.18	0.40-3.1		●		▲	▲	●						●	●		
		09T308E-KC2	0.8	0.12-0.36	0.80-3.1		●		▲	▲	●						●	●		
		120404E-KC2	0.4	0.06-0.18	0.40-4.2		●		▲	▲	●						●	●		
		120408E-KC2	0.8	0.12-0.36	0.80-4.2		●		▲	▲	●						●	●		
		120412E-KC2	1.2	0.18-0.54	1.20-4.2				▲	▲	●						●	●		
		**SCMW 09T304E-KD5**	0.4	0.10-0.22	0.40-4.8												●	●		
		09T308E-KD5	0.8	0.20-0.44	0.80-4.8											●	●	●		
		120404E-KD5	0.4	0.10-0.22	0.40-6.4												●	●		
		120408E-KD5	0.8	0.20-0.44	0.80-6.4												●	●		
		120412E-KD5	1.2	0.30-0.66	1.20-6.4											●	●	●		
Roughing		**SCMT 380932S-HT**	3.2	0.70-1.40	4.0-18.0						●									

●: Stock available ▲: Stock available now but will be replaced in the future.

Positive 60°（T）

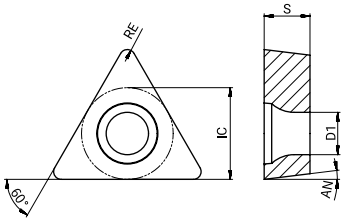


Dimension (mm)				
Product code	IC	S	D1	AN
TC_1102_	6.35	2.38	2.8	7°
TC_16T3_	9.525	3.97	4.4	7°

Inserts		Product code	RE (mm)	Recommanded parameters		Machining conditions: ● Good condition ⬍ General condition ✱ Bad condition												
						●	●	●	⬍	✱	●	⬍	⬍	⬍	●	●	✱	⬍	●
						p					M				K			N	S
				f (mm/rev)	ap (mm)	AT202	AC052P	AC150P	AC250P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Finishing		**TCGT 110201FP-LF**	<0.1	0.05-0.2	0.35-3.0									●					
		110202FP-LF	0.2	0.05-0.2	0.35-3.0									●					
		110204FP-LF	0.4	0.05-0.2	0.35-3.0									●					
		16T304FP-LF	0.4	0.05-0.2	0.35-3.0									●					
		**TCGT 110201FP-UF**	<0.1	0.02-0.15	0.10-2.4									●					
		110202FP-UF	0.2	0.02-0.15	0.20-2.4									●					
		110204FP-UF	0.4	0.03-0.20	0.20-2.4									●					
		16T304FP-UF	0.4	0.03-0.20	0.20-2.4									●					
		**TCGT 110201F-UF**	0.1	0.02-0.15	0.10-2.4									▲					
		110202F-UF	0.2	0.02-0.15	0.20-2.4									▲					
		110204F-UF	0.4	0.03-0.20	0.20-2.4									▲					
		16T304F-UF	0.4	0.03-0.20	0.20-2.4									▲					
		**TCGT 110201E-UF**	0.1	0.02-0.15	0.10-2.4									●					●
		110202E-UF	0.2	0.02-0.15	0.20-2.4									●					●
		110204E-UF	0.4	0.03-0.20	0.20-2.4									●					●
		16T304E-UF	0.4	0.03-0.20	0.20-2.4									●					●
Semi-Finishing		**TCGT 110204F-NC2**	0.4	0.05-0.20	0.32-4.9													●	
		16T304F-NC2	0.4	0.05-0.20	0.32-7.4													●	
		16T308F-NC2	0.8	0.10-0.40	0.64-7.4													●	

●: Stock available ▲: Stock available now but will be replaced in the future.

Positive 60°（T）



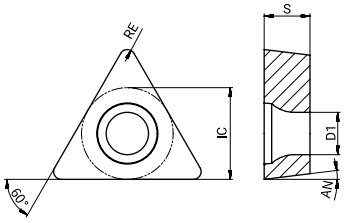
Dimension (mm)				
Product code	IC	S	D1	AN
TCMT_0902_	5.56	2.38	2.5	7°
TC_1102_	6.35	2.38	2.8	7°
TC_16T3_	9.525	3.97	4.4	7°

Dimension (mm)				
Product code	IC	S	D1	AN
TPMT_0902_	5.56	2.38	2.5	11°
TPMT_1103_	6.35	3.18	3.4	11°
TPMT_1603_	9.525	3.18	4.4	11°

Inserts		Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	p: AT202	p: AC052P	p: AC150P	p: AC250P	p: AC350P	M: AC100M	M: AC200M	M: AP200U	M: AP301M	K: AC100K	K: AC102K	K: AC202K	N: AW100K	S: AP100S
				Good condition		●	●	●	◐	✱	●	◐	◐	◐	●	●	✱	◐	●
Finishing		**TCMT 090204E-PB1**	0.4	0.04-0.14	0.30-1.9	●		▲	▲		●	●	●						
		110202E-PB1	0.2	0.02-0.07	0.15-2.2	●		▲	▲		●	●	●						
		110204E-PB1	0.4	0.04-0.14	0.30-2.2	●		▲	▲		●	●	●						
		110208E-PB1	0.8	0.09-0.28	0.60-2.2	●		▲	▲		●	●	●						
		16T304E-PB1	0.4	0.04-0.14	0.30-3.3	●		▲	▲		●	●	●						
		16T308E-PB1	0.8	0.09-0.28	0.60-3.3	●		▲	▲		●	●	●						
		**TPMT 090202E-PB1**	0.2	0.02-0.07	0.15-1.9	●													
		090204E-PB1	0.4	0.04-0.14	0.30-1.9	●													
		090208E-PB1	0.8	0.09-0.28	0.60-1.9	●													
		110302E-PB1	0.2	0.02-0.07	0.15-2.2	●													
		110304E-PB1	0.4	0.04-0.14	0.30-2.2	●													
		110308E-PB1	0.8	0.09-0.28	0.60-2.2	●													
		160304E-PB1	0.4	0.04-0.14	0.30-3.3	●													
		160308E-PB1	0.8	0.09-0.28	0.60-3.3	●													
Semi-Finishing		**TCMT 090204E-PC2**	0.4	0.05-0.16	0.35-2.6	●		▲	▲		●	●	●						●
		090208E-PC2	0.8	0.10-0.32	0.70-2.6	●		▲	▲		●	●	●						●
		110204E-PC2	0.4	0.05-0.16	0.35-3.0	●		▲	▲		●	●	●						●
		110208E-PC2	0.8	0.10-0.32	0.70-3.0	●		▲	▲		●	●	●						●
		16T304E-PC2	0.4	0.05-0.16	0.35-4.5	●		▲	▲		●	●	●						●
		16T308E-PC2	0.8	0.10-0.32	0.70-4.5	●	●	▲	▲		●	●	●						●
		16T312E-PC2	1.2	0.16-0.48	1.05-4.5			▲	▲		●	●	●						●
		TPMT 090204E-PC2	0.4	0.05-0.16	0.35-2.6	●		▲	▲		●	●	●						
		090208E-PC2	0.8	0.10-0.32	0.70-2.6	●		▲	▲		●	●	●						
		110304E-PC2	0.4	0.05-0.16	0.35-3.0	●		▲	▲		●	●	●						●
		110308E-PC2	0.8	0.10-0.32	0.70-3.0	●		▲	▲		●	●	●						
		160304E-PC2	0.4	0.10-0.25	0.60-2.0	●					●	●	●						
		160308E-PC2	0.8	0.10-0.25	0.60-2.0	●					●	●	●						

●: Stock available ▲: Stock available now but will be replaced in the future.

Positive 60°（T）

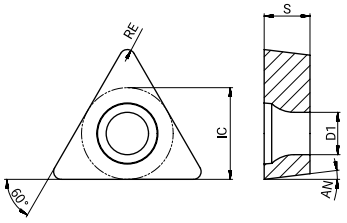


Dimension (mm)				
Product code	IC	S	D1	AN
TBET_0601_	3.97	1.59	2.3	5°
TCMT_0902_	5.56	2.38	2.5	7°
TC_1102_	6.35	2.38	2.8	7°
TC_16T3_	9.525	3.97	4.4	7°

Inserts Left-hand shown where it's applicable		Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	● Good condition ⬍ General condition ✱ Bad condition													
						●	●	●	⬍	✱	●	⬍	⬍	⬍	●	●	✱	⬍	●
						p					M				K			N	S
						AT202	AC052P	AC150P	AC250P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Semi-Finishing		**TCMT 110204-M2T**	0.4	0.10-0.25	0.60-2.0	●													
		110208-M2T	0.8	0.10-0.25	0.60-2.0	●													
		**16T304-M2T**	0.4	0.06-0.18	0.40-2.9	●													
		16T308-M2T	0.8	0.12-0.36	0.80-2.9	●													
Medium		**TCMT 090204E-KC2**	0.4	0.06-0.18	0.40-2.9	●	●	▲	▲		●	●	●			●	●		
		090208E-KC2	0.8	0.12-0.36	0.80-2.9	●	●	▲	▲		●	●	●			●	●		
		110204E-KC2	0.4	0.06-0.18	0.40-3.3	●	●	▲	▲		●	●	●			●	●		
		110208E-KC2	0.8	0.12-0.36	0.80-3.3	●	●	▲	▲		●	●	●			●	●		
		16T304E-KC2	0.4	0.06-0.18	0.40-4.9	●	●	▲	▲		●	●	●			●	●		
		16T308E-KC2	0.8	0.12-0.36	0.80-4.9	●	●	▲	▲		●	●	●			●	●		
		16T312E-KC2	1.2	0.18-0.54	1.20-4.9		●	▲	▲		●	●	●		●	●	●		
Roughing		**TCMW 110204E-KD5**	0.4	0.06-0.18	0.40-5.5											●	●		
		110208E-KD5	0.8	0.12-0.36	0.80-5.5											●	●		
		16T304E-KD5	0.4	0.06-0.18	0.40-8.2											●	●		
		16T308E-KD5	0.8	0.12-0.36	0.80-8.2											●	●		
Finishing		**TBET 0601003FR-F**	<0.03	0.03-0.08	0.1-0.5									●					
		0601003FL-F	<0.03	0.03-0.08	0.1-0.5									●					
		0601005FR-F	<0.05	0.03-0.08	0.1-0.5									●					
		0601005FL-F	<0.05	0.03-0.08	0.1-0.5									●					
		060101FR-F	<0.1	0.03-0.08	0.1-0.5									●					
		060101FL-F	<0.1	0.03-0.08	0.1-0.5									●					
		060102FR-F	<0.2	0.03-0.08	0.1-0.5									●					
		060102FL-F	<0.2	0.03-0.08	0.1-0.5									●					
		060104FR-F	<0.4	0.03-0.08	0.1-0.5									●					
		060104FL-F	<0.4	0.03-0.08	0.1-0.5									●					

●: Stock available ▲: Stock available now but will be replaced in the future.

Positive 60°（T）

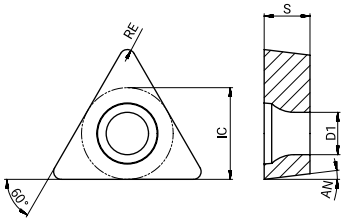


Dimension (mm)				
Product code	IC	S	D1	AN
TPEH_0802_	4.76	2.38	2.3	11°
TPEH_0902_	5.56	2.38	3.0	11°
TCET_1102_	6.35	2.41	2.8	11°

Inserts Left-hand shown where it's applicable		Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	● Good condition ◐ General condition ✱ Bad condition													
						●	●	●	◐	✱	●	◐	◐	◐	●	●	✱	◐	●
						p					M				K			N	S
						AT202	AC052P	AC150P	AC250P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Finishing		**TCET 110201FR-F**	<0.1	0.03-0.13	0.10-0.80									●					
		110201FL-F	<0.1	0.03-0.13	0.10-0.80									●					
		110202FR-F	<0.2	0.03-0.13	0.10-0.80									●					
		110202FL-F	<0.2	0.03-0.13	0.10-0.80									●					
		110204FR-F	<0.4	0.03-0.13	0.10-0.80									●					
		110204FL-F	<0.4	0.03-0.13	0.10-0.80									●					
		110208FR-F	<0.8	0.03-0.13	0.10-0.80									●					
		110208FL-F	<0.8	0.03-0.13	0.10-0.80									●					
		**TPEH 080201FR-F**	<0.1	0.01-0.10	0.1-0.8									●					
		080201FL-F	<0.1	0.01-0.10	0.1-0.8									●					
		080202FR-F	<0.2	0.01-0.10	0.1-0.8									●					
		080202FL-F	<0.2	0.01-0.10	0.1-0.8									●					
		080204FR-F	<0.4	0.01-0.10	0.1-0.8									●					
		080204FL-F	<0.4	0.01-0.10	0.1-0.8									●					
		**TPEH 090201FR-F**	<0.1	0.01-0.10	0.1-0.8									●					
		090201FL-F	<0.1	0.01-0.10	0.1-0.8									●					
		090202FR-F	<0.2	0.01-0.10	0.1-0.8									●					
		090202FL-F	<0.2	0.01-0.10	0.1-0.8									●					
		090204FR-F	<0.4	0.01-0.10	0.1-0.8									●					
		090204FL-F	<0.4	0.01-0.10	0.1-0.8									●					

●: Stock available ▲: Stock available now but will be replaced in the future.

Positive 60°（T）

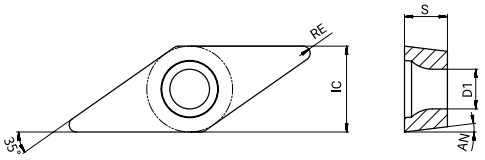


Dimension (mm)				
Product code	IC	S	D1	AN
TCET_0802_	4.76	2.38	2.3	7°
TCET_1103_	6.35	3.18	2.8	7°
TPEH_1103_	6.35	3.18	3.3	11°

Inserts Left-hand shown where it's applicable		Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	● Good condition ◐ General condition ✱ Bad condition													
						●	●	●	◐	✱	●	◐	◐	◐	●	●	✱	◐	●
						p					M				K			N	S
						AT202	AC052P	AC150P	AC250P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Finishing		TPEH 110302FR-F	<0.2	0.01-0.12	0.2-0.8									●					
		110302FL-F	<0.2	0.01-0.12	0.2-0.8									●					
		110304FR-F	<0.4	0.01-0.12	0.2-0.8									●					
		110304FL-F	<0.4	0.01-0.12	0.2-0.8									●					
		110308FR-F	<0.8	0.01-0.12	0.2-0.8									●					
		110308FL-F	<0.8	0.01-0.12	0.2-0.8									●					
Low feed		TCET 0802003FR-M	<0.03	0.01-0.08	0.5-2.5									●					
		0802003FL-M	<0.03	0.01-0.08	0.5-2.5									●					
		080201FR-M	<0.1	0.01-0.08	0.5-2.5									●					
		080201FL-M	<0.1	0.01-0.08	0.5-2.5									●					
		080202FR-M	<0.2	0.01-0.08	0.5-2.5									●					
		080202FL-M	<0.2	0.01-0.08	0.5-2.5									●					
		TCET 1103003FR-M	<0.03	0.02-0.10	0.5-4.0									●					
		1103003FL-M	<0.03	0.02-0.10	0.5-4.0									●					
		110301FR-M	<0.1	0.02-0.10	0.5-4.0									●					
		110301FL-M	<0.1	0.02-0.10	0.5-4.0									●					
		110302FR-M	<0.2	0.02-0.10	0.5-4.0									●					
		110302FL-M	<0.2	0.02-0.10	0.5-4.0									●					
		110304FR-M	<0.4	0.02-0.10	0.5-4.0									●					
		110304FL-M	<0.4	0.02-0.10	0.5-4.0									●					

●: Stock available ▲: Stock available now but will be replaced in the future.

Positive 35°（V）

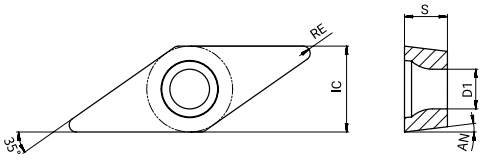


Dimension (mm)				
Product code	IC	S	D1	AN
VB_1103_	6.35	3.18	2.8	5°
VB_1604_	9.52	4.76	4.4	5°
VC_1103_	6.35	3.18	2.8	7°
VP_1103_	6.35	3.18	2.8	11°

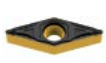
				Machining conditions		● Good condition			◐ General condition					✱ Bad condition					
						●	●	●	◐	✱	●	◐	◐	◐	●	●	✱	◐	●
	Inserts		Product code	RE (mm)	Recommanded parameters		p					M				K			N	S
					f (mm/rev)	ap (mm)	AT202	AC052P	AC150P	AC250P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Finishing			VBGT 1103005FP-LF	<0.05	0.05-0.2	0.35-3.0									●					
			110301FP-LF	<0.1	0.05-0.2	0.35-3.0									●					
			110302FP-LF	0.2	0.05-0.2	0.35-3.0									●					
			110304FP-LF	0.4	0.05-0.2	0.35-3.0									●					
			160401FP-LF	<0.1	0.05-0.2	0.35-3.0									●					
			160402FP-LF	0.2	0.05-0.2	0.35-3.0									●					
			VCGT 1103005FP-LF	<0.05	0.05-0.2	0.35-3.0									●					
			110301FP-LF	<0.1	0.05-0.2	0.35-3.0									●					
			110302FP-LF	0.2	0.05-0.2	0.35-3.0									●					
			110304FP-LF	0.4	0.05-0.2	0.35-3.0									●					
			VPGT 1103005FP-LF	<0.05	0.05-0.2	0.35-3.0									●					
			110301FP-LF	<0.1	0.05-0.2	0.35-3.0									●					
			110302FP-LF	0.2	0.05-0.2	0.35-3.0									●					
			VBGT 110301FP-UF	0.1	0.02-0.15	0.10-1.4									●					
			110302FP-UF	0.2	0.02-0.15	0.20-1.4									●					
			110304FP-UF	0.4	0.03-0.20	0.20-1.4									●					
			160401FP-UF	0.1	0.02-0.15	0.10-1.4									●					
			160402FP-UF	0.2	0.02-0.15	0.20-1.4									●					
			VBGT 110301F-UF	0.1	0.02-0.15	0.10-1.4									▲					
			110302F-UF	0.2	0.02-0.15	0.20-1.4									▲					
			110304F-UF	0.4	0.03-0.20	0.20-1.4									▲					
			160401F-UF	0.1	0.02-0.15	0.10-1.4									▲					
			160402F-UF	0.2	0.02-0.15	0.20-1.4									▲					
			VBGT 110301E-UF	0.1	0.02-0.15	0.10-1.4									●					●
			110302E-UF	0.2	0.02-0.15	0.20-1.4									●					●
			110304E-UF	0.4	0.03-0.20	0.20-1.4									●					●
			160401E-UF	0.1	0.02-0.15	0.10-1.4									●					●
			160402E-UF	0.2	0.02-0.15	0.20-1.4									●					●

●: Stock available ▲: Stock available now but will be replaced in the future.

Positive 35°（V）

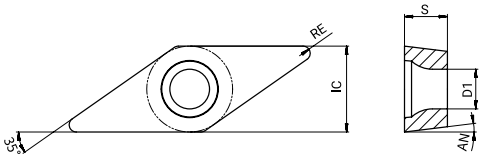


Dimension (mm)				
Product code	IC	S	D1	AN
VB_1103_	6.35	3.18	2.8	5°
VB_1604_	9.52	4.76	4.4	5°
VC_1103_	6.35	3.18	2.8	7°
VC_1604_	9.525	4.76	4.4	7°
VC_2205_	12.7	5.56	5.5	7°
VP_1103_	6.35	3.18	2.8	11°
VP_2205_	12.7	5.56	5.5	11°

Inserts		Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	● Good condition ◐ General condition ✱ Bad condition													
						●	●	●	◐	✱	●	◐	◐	◐	●	●	✱	◐	●
						p					M				K			N	S
						AT202	AC052P	AC150P	AC250P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Finishing		**VCGT 1103005FP-UF**	<0.05	0.02-0.15	0.10-1.4									●					
		110301FP-UF	0.1	0.02-0.15	0.10-1.4									●					
		110302FP-UF	0.2	0.02-0.15	0.20-1.4									●					
		110304FP-UF	0.4	0.03-0.20	0.20-1.4									●					
		**VCGT 1103005F-UF**	<0.05	0.02-0.15	0.10-1.4									▲					
		110301F-UF	0.1	0.02-0.15	0.10-1.4									▲					
		110302F-UF	0.2	0.02-0.15	0.20-1.4									▲					
		110304F-UF	0.4	0.03-0.20	0.20-1.4									▲					
		**VCGT 110301E-UF**	0.1	0.02-0.15	0.10-1.4									●					●
		110302E-UF	0.2	0.02-0.15	0.20-1.4									●					●
		110304E-UF	0.4	0.03-0.20	0.20-1.4									●					●
		**VPGT 110301FP-UF**	0.1	0.02-0.15	0.1-1.4									●					
		110302FP-UF	0.2	0.02-0.15	0.2-1.4									●					
		**VPGT 110301F-UF**	0.1	0.02-0.15	0.1-1.4									▲					
		110302F-UF	0.2	0.02-0.15	0.2-1.4									▲					
Semi-Finishing		**VCGT 110302F-NC2**	0.2	0.02-0.10	0.16-2.8													●	
		110304F-NC2	0.4	0.05-0.20	0.32-2.8													●	
		160404F-NC2	0.4	0.05-0.20	0.32-4.2													●	
		160408F-NC2	0.8	0.10-0.40	0.64-4.2													●	
		160412F-NC2	1.2	0.14-0.60	0.96-4.2													●	
		220530F-NC2	3.0	0.36-1.50	2.40-5.5													●	
		**VPGT 220520E-NC2**	2.0	0.24-1.0	1.60-5.5													●	
		VPGT 220520F-NC2	2.0	0.24-1.0	1.60-5.5													●	
Profiling machinging		**VBMT 110302E-BS**	0.2	0.10-0.32	0.70-2.1	●	●												
		110304E-BS	0.4	0.05-0.16	0.35-3.1	●	●												
		110308E-BS	0.8	0.10-0.32	0.70-3.1	●	●												
		160404E-BS	0.4	0.06-0.18	0.40-3.3	●	●												
		160408E-BS	0.8	0.12-0.36	0.80-3.3	●	●												
		160412E-BS	1.2	0.18-0.54	1.20-3.3	●	●												

●: Stock available ▲: Stock available now but will be replaced in the future.

Positive 35°（V）

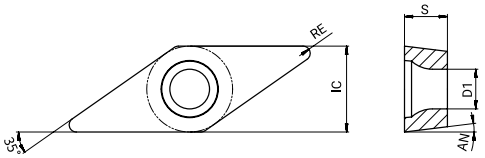


Dimension (mm)				
Product code	IC	S	D1	AN
VB_1103_	6.35	3.18	2.8	5°
VB_1604_	9.52	4.76	4.4	5°
VC_1103_	6.35	3.18	2.8	7°
VC_1604_	9.525	4.76	4.4	7°

Inserts Left-hand shown where it's applicable		Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	● Good condition ◐ General condition ✱ Bad condition													
						p					M				K			N	S
						AT202	AC052P	AC150P	AC250P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Finishing		**VBMT 110304E-PB1**	0.4	0.04-0.14	0.30-1.4	●		▲	▲		●	●	●						
		110308E-PB1	0.8	0.09-0.28	0.60-1.4	●		▲	▲		●	●	●						
		160402E-PB1	0.2	0.02-0.07	0.15-2.1	●		▲	▲		●	●	●						
		160404E-PB1	0.4	0.04-0.14	0.30-2.1	●		▲	▲		●	●	●						
		160408E-PB1	0.8	0.09-0.28	0.60-2.1	●		▲	▲		●	●	●						
		VCMT 160404E-PB1	0.4	0.04-0.14	0.30-2.1			▲	▲		●	●	●						
		160408E-PB1	0.8	0.09-0.28	0.60-2.1			▲	▲		●	●	●						
Semi-Finishing		**VBMT 110304E-PC2**	0.4	0.05-0.16	0.35-2.1	●		▲	▲		●	●	●						●
		110308E-PC2	0.8	0.10-0.32	0.70-2.1	●		▲	▲		●	●	●						●
		160404E-PC2	0.4	0.05-0.16	0.35-3.1	●	●	▲	▲		●	●	●						●
		160408E-PC2	0.8	0.10-0.32	0.70-3.1	●	●	▲	▲		●	●	●						●
		160412E-PC2	1.2	0.16-0.48	1.05-3.1		●	▲	▲		●	●	●						●
		VCMT 110304E-PC2	0.4	0.05-0.16	0.35-2.1			▲	▲		●	●	●						
		110308E-PC2	0.8	0.10-0.32	0.70-2.1			▲	▲		●	●	●						
		160404E-PC2	0.4	0.05-0.16	0.35-3.1			▲	▲		●	●	●						
		160408E-PC2	0.8	0.10-0.32	0.70-3.1			▲	▲		●	●	●						
Medium		**VBMT 160404E-KC2**	0.4	0.06-0.18	0.40-3.3	●		▲	▲		●	●	●			●	●		
		160408E-KC2	0.8	0.12-0.36	0.80-3.3	●	●	▲	▲		●	●	●			●	●		
		160412E-KC2	1.2	0.18-0.54	1.20-3.3	●	●	▲	▲		●	●	●			●	●		
Finishing		**VBET 1103003FR-F**	<0.03	0.01-0.18	0.1-0.3									●					
		1103003FL-F	<0.03	0.01-0.18	0.1-0.3									●					
		1103005FR-F	<0.05	0.01-0.18	0.1-0.3									●					
		1103005FL-F	<0.05	0.01-0.18	0.1-0.3									●					
		110301FR-F	<0.1	0.01-0.18	0.1-0.3									●					
		110301FL-F	<0.1	0.01-0.18	0.1-0.3									●					
		110302FR-F	<0.2	0.01-0.18	0.1-0.3									●					
		110302FL-F	<0.2	0.01-0.18	0.1-0.3									●					

●: Stock available ▲: Stock available now but will be replaced in the future.

Positive 35°（V）

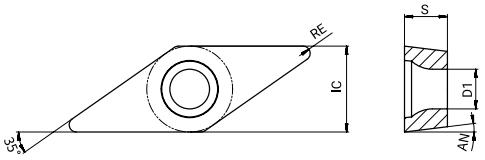


Dimension (mm)				
Product code	IC	S	D1	AN
VB_1103_	6.35	3.18	2.8	5°
VC_1103_	6.35	3.18	2.8	7°
VP_0802_	4.76	2.38	2.3	11°

Inserts Left-hand shown where it's applicable		Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	● Good condition ◐ General condition ✱ Bad condition													
						●	●	●	◐	✱	●	◐	◐	◐	●	●	✱	◐	●
						p					M				K			N	S
						AT202	AC052P	AC150P	AC250P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Low feed		VBET 1103005FR-M	<0.05	0.01-0.06	0.2-2.0									●					
		1103005FL-M	<0.05	0.01-0.06	0.2-2.0									●					
		110301FR-M	<0.1	0.01-0.06	0.2-2.0									●					
		110301FL-M	<0.1	0.01-0.06	0.2-2.0									●					
		110302FR-M	<0.2	0.01-0.06	0.2-2.0									●					
		110302FL-M	<0.2	0.01-0.06	0.2-2.0									●					
		110304FR-M	<0.4	0.01-0.06	0.2-2.0									●					
		110304FL-M	<0.4	0.01-0.06	0.2-2.0									●					
Finishing		VCET 1103005FR-F	<0.05	0.01-0.18	0.1-0.3									●					
		1103005FL-F	<0.05	0.01-0.18	0.1-0.3									●					
		110301FR-F	<0.1	0.01-0.18	0.1-0.3									●					
		110301FL-F	<0.1	0.01-0.18	0.1-0.3									●					
		110302FR-F	<0.2	0.01-0.18	0.1-0.3									●					
		110302FL-F	<0.2	0.01-0.18	0.1-0.3									●					
		110304FR-F	<0.4	0.01-0.18	0.1-0.3									●					
		110304FL-F	<0.4	0.01-0.18	0.1-0.3									●					
		VPET 080201FR-F	<0.1	0.02-0.15	0.05-0.2									●					
		080201FL-F	<0.1	0.02-0.15	0.05-0.2									●					
		080202FR-F	<0.2	0.02-0.15	0.05-0.2									●					
		080202FL-F	<0.2	0.02-0.15	0.05-0.2									●					

●: Stock available ▲: Stock available now but will be replaced in the future.

Positive 35°（V）

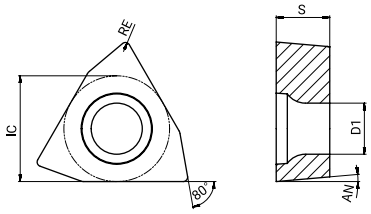


Dimension (mm)				
Product code	IC	S	D1	AN
VB_1103_	6.35	3.18	2.8	5°
VB_1604_	9.52	4.76	4.4	5°
VP_0802_	4.76	2.38	2.3	11°
VP_1103_	6.35	3.18	2.8	11°

				Machining conditions		● Good condition			◐ General condition					✱ Bad condition					
						●	●	●	◐	✱	●	◐	◐	◐	●	●	✱	◐	●
Inserts Left-hand shown where it's applicable		Product code	RE (mm)	Recommanded parameters		p					M				K			N	S
				f (mm/rev)	ap (mm)	AT202	AC052P	AC150P	AC250P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Low feed		**VPET 080201FR-M**	<0.1	0.01-0.06	0.2-1.5									●					
		080201FL-M	<0.1	0.01-0.06	0.2-1.5									●					
		080202FR-M	<0.2	0.01-0.06	0.2-1.5									●					
		080202FL-M	<0.2	0.01-0.06	0.2-1.5									●					
		**VPET 110301FR-M**	<0.1	0.01-0.06	0.2-2.0									●					
		110301FL-M	<0.1	0.01-0.06	0.2-2.0									●					
		110302FR-M	<0.2	0.01-0.06	0.2-2.0									●					
		110302FL-M	<0.2	0.01-0.06	0.2-2.0									●					
		110304FR-M	<0.4	0.01-0.06	0.2-2.0									●					
		110304FL-M	<0.4	0.01-0.06	0.2-2.0									●					
		VBET 1103003FR-Y	<0.03	0.08-0.22	0.5-1.8									●					
		1103003FL-Y	<0.03	0.08-0.22	0.5-1.8									●					
		1103005FR-Y	<0.05	0.08-0.22	0.5-1.8									●					
		1103005FL-Y	<0.05	0.08-0.22	0.5-1.8									●					
		110301FR-Y	<0.1	0.08-0.22	0.5-1.8									●					
		110301FL-Y	<0.1	0.08-0.22	0.5-1.8									●					
		**110302FR-Y**	<0.2	0.08-0.22	0.5-1.8									●					
		110302FL-Y	<0.2	0.08-0.22	0.5-1.8									●					
		110304FR-Y	<0.4	0.08-0.22	0.5-1.8									●					
		110304FL-Y	<0.4	0.08-0.22	0.5-1.8									●					
		VBET 160402FR-Y	<0.2	0.1-0.25	0.8-2.0									●					
		160402FL-Y	<0.2	0.1-0.25	0.8-2.0									●					
		160404FR-Y	<0.4	0.1-0.25	0.8-2.0									●					
		160404FL-Y	<0.4	0.1-0.25	0.8-2.0									●					
		160408FR-Y	0.8	0.1-0.25	0.8-2.0									●					
		160408FL-Y	0.8	0.1-0.25	0.8-2.0									●					

●: Stock available ▲: Stock available now but will be replaced in the future.

Positive 80°（W）

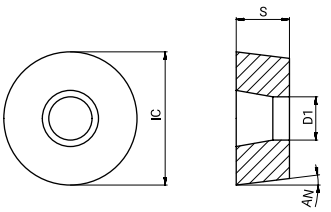


Dimension (mm)				
Product code	IC	S	D1	AN
WB_0601_	3.97	1.59	2.3	5°
WB_0802_	4.76	2.38	2.3	5°

Inserts Left-hand shown where it's applicable		Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	● Good condition ◐ General condition ✱ Bad condition													
						●	●	●	◐	✱	●	◐	◐	◐	●	●	✱	◐	●
						p					M				K			N	S
						AT202	AC052P	AC150P	AC250P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Finishing		**WBET 0601003FR-F**	<0.03	0.05-0.08	0.1-0.8									●					
		0601003FL-F	<0.03	0.05-0.08	0.1-0.8									●					
		060101FR-F	<0.1	0.05-0.08	0.1-0.8									●					
		060101FL-F	<0.1	0.05-0.08	0.1-0.8									●					
		060102FR-F	<0.2	0.05-0.08	0.1-0.8									●					
		060102FL-F	<0.2	0.05-0.08	0.1-0.8									●					
		060104FR-F	<0.4	0.05-0.08	0.1-0.8									●					
		060104FL-F	<0.4	0.05-0.08	0.1-0.8									●					
		**WBET 0802003FR-F**	<0.03	0.05-0.08	0.1-0.8									●					
		0802003FL-F	<0.03	0.05-0.08	0.1-0.8									●					
		080201FR-F	<0.1	0.05-0.08	0.1-0.8									●					
		080201FL-F	<0.1	0.05-0.08	0.1-0.8									●					
		080202FR-F	<0.2	0.05-0.08	0.1-0.8									●					
		080202FL-F	<0.2	0.05-0.08	0.1-0.8									●					
		080204FR-F	<0.4	0.05-0.08	0.1-0.8									●					
		080204FL-F	<0.4	0.05-0.08	0.1-0.8									●					

●: Stock available ▲: Stock available now but will be replaced in the future.

Positive Round Insert



Dimension (mm)				
Product code	IC	S	D1	AN
RCGT_0803_	3.18	8.0	3.4	7°
RCGT_1003_	3.18	10.0	4.4	7°
RCGT_10T3_	3.97	10.0	4.4	7°
RCMX_1003_	3.18	10.0	3.6	7°
RCMX_1204_	4.76	12.0	4.2	7°

Dimension (mm)				
Product code	IC	S	D1	AN
RCMX_1606_	6.35	16.0	5.2	7°
RCMX_2006_	6.35	20.0	6.5	7°
RCMX_2507_	7.94	25.0	7.2	7°
RCMX_3209_	9.525	32.0	9.6	7°

Inserts		Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	● Good condition / ◐ General condition / ✱ Bad condition												
						●	●	●	◐	✱	●	◐	◐	◐	●	●	✱	◐	●
						p					M				K			N	S
						AT202	AC052P	AC150P	AC250P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Semi-Finishing		RCGT 0803MOF-NC2	-	0.10-1.00	0.70-3.3													●	
		1003MOF-NC2	-	0.20-1.30	0.90-4.0													●	
		10T3MOF-NC2	-	0.20-1.30	0.90-4.0													●	
		RCMX 2006MOS-PD8	-	0.48-0.90	3.5-9.0			▲	▲										
		2507MOS-PD8	-	0.55-1.20	4.0-12.0			▲	▲										
		3209MOS-PD8	-	0.65-1.50	5.0-15.0			▲	▲										
Medium		RCMX 100300S	-	0.25-0.50	1.5-4.0			▲	▲										
		120400S	-	0.30-0.60	2.5-5.0		●	▲	▲										
		160600S	-	0.40-0.75	3.0-7.0		●	▲	▲										
		200600S	-	0.48-0.90	3.5-9.0		●	▲	▲										
		250700S	-	0.55-1.20	4.0-12.0		●	▲	▲										
		320900S	-	0.65-1.50	5.0-15.0		●	▲	▲										

●: Stock available ▲: Stock available now but will be replaced in the future.

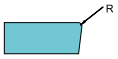
PCBN Insert Denomination System

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

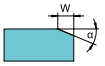
1-Standard ISO Denomination System

2-Cutting Edge Shape

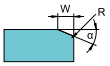
E--Honed



T--Land without honing



S----Land with honed



F----Sharp



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 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 edge
"-" ----Without chip breaker

8-Grade

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

PCBN Insert Grade Introduction

Grade	Feature	Application
PB30	Well balanced wear resistance and shock-resistance	Good versatilely. Suitable for continuous and light interrupted cutting of hardened steel
PB60	Excellent toughness	Mainly applied in medium interrupted cutting of hardened steel, interrupted and continuous cutting of powder metal and cast iron cutting.
PB90	Good wear resistance, toughness, and shock-resistance	K-mainly applied in cast iron cutting H-heavy interrupted cutting of hardened steel and powder metal machining

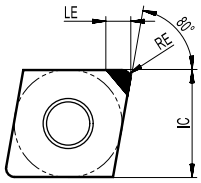
PCBN Recommended Cutting Parameter

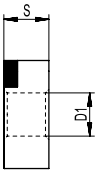
Grade	Material	Hardness	Cutting speed Vc(m/min)	Feed fn(mm/rev)	Cutting depth ap(mm)	Recommended application
PB30	Hardened steel	HRC58-62	150--250	0.03--0.2	0.05-0.3	Continuous
PB60	Hardened steel	HRC55-60	50--150	0.03--0.2	0.05-0.5	Interrupted
	Cast iron	HB180-220	150--450	0.03--0.3	0.30-0.5	Continuous / Interrupted
	Powder metal	-	200--500	0.03--0.3	0.10-0.3	Continuous / Interrupted
PB90	Hardened steel	HRC55-60	30--120	0.03--0.2	0.05-0.5	Heavy interrupted
	Cast iron	HB180-220	150--450	0.03--0.3	0.30-0.5	Continuous / Interrupted
	Powder metal	-	300--800	0.03--0.3	0.10-0.3	Continuous / Interrupted

Grade Application Guide

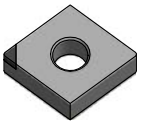
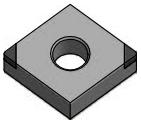
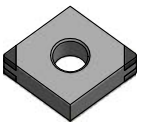
PCBN grade applications						
Material Group	Materials	ISO	Uncoated			ISO
			PB30	PB60	PB90	
P	unalloy steels / Alloyed steels	P01				P01
		P10				P10
		P20				P20
		P30				P30
		P40				P40
		P50				P50
M	Stainless steels	M01				M01
		M10				M10
		M20				M20
		M30				M30
		M40				M40
K	Cast iron	K01				K01
		K10			PB90	K10
		K20				K20
		K30				K30
		K40				K40
		K50				K50
N	Aluminum/ Aluminum alloys	N01				N01
		N10				N10
		N20				N20
		N30				N30
S	Heat resistant alloys	S01				S01
		S10				S10
		S20				S20
		S30				S30
		S40				S40
H	Hardened steels/ Chilled cast iron	H01	PB30			H01
		H10		PB60		H10
		H20				H20
		H30				H30

Negative 80° (C)



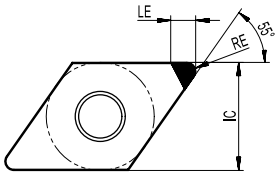


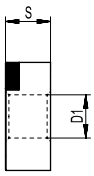
Dimension (mm)				
Product code	IC	S	LE	D1
CN_1204_	12.7	4.76	2.2	5.16

Inserts	Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	● Good condition ◐ General condition ✱ Bad condition: ●	◐	✱
					H		K
					PB30	PB60	PB90
	**CNGA 120402-S01020-SL-1**	0.2	0.03-0.3	0.05-0.5	●	●	●
	120404-S01020-SL-1	0.4	0.03-0.3	0.05-0.5	●	●	●
	120408-S01020-SL-1	0.8	0.03-0.3	0.05-0.5	●	●	●
	120412-S01020-SL-1	1.2	0.03-0.3	0.05-0.5	●	●	●
	**CNGA 120402-S01020-SL-2**	0.2	0.03-0.3	0.05-0.5	●	●	●
	120404-S01020-SL-2	0.4	0.03-0.3	0.05-0.5	●	●	●
	120408-S01020-SL-2	0.8	0.03-0.3	0.05-0.5	●	●	●
	120412-S01020-SL-2	1.2	0.03-0.3	0.05-0.5	●	●	●
	**CNGA 120402-S01020-SL-4**	0.2	0.03-0.3	0.05-0.5	●	●	●
	120404-S01020-SL-4	0.4	0.03-0.3	0.05-0.5	●	●	●
	120408-S01020-SL-4	0.8	0.03-0.3	0.05-0.5	●	●	●
	120412-S01020-SL-4	1.2	0.03-0.3	0.05-0.5	●	●	●

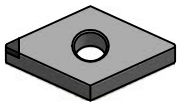
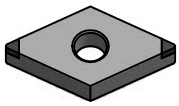
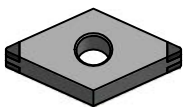
Marked: ● stock available

Negative 55° (D)



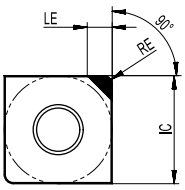


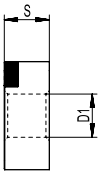
Dimension (mm)				
Product code	IC	S	LE	D1
DN_1504_	12.7	4.76	2.2	5.16
DN_1506_	12.7	6.35	2.2	5.16

Inserts	Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	● Good condition ◐ General condition ✱ Bad condition: ●	◐	✱
					H		K
					PB30	PB60	PB90
	**DNGA 150402-S01020-SL-1**	0.2	0.03-0.3	0.05-0.5	●	●	●
	150404-S01020-SL-1	0.4	0.03-0.3	0.05-0.5	●	●	●
	150408-S01020-SL-1	0.8	0.03-0.3	0.05-0.5	●	●	●
	150412-S01020-SL-1	1.2	0.03-0.3	0.05-0.5	●	●	●
	150602-S01020-SL-1	0.2	0.03-0.3	0.05-0.5	●	●	●
	150604-S01020-SL-1	0.4	0.03-0.3	0.05-0.5	●	●	●
	150608-S01020-SL-1	0.8	0.03-0.3	0.05-0.5	●	●	●
	150612-S01020-SL-1	1.2	0.03-0.3	0.05-0.5	●	●	●
	**DNGA 150402-S01020-SL-2**	0.2	0.03-0.3	0.05-0.5	●	●	●
	150404-S01020-SL-2	0.4	0.03-0.3	0.05-0.5	●	●	●
	150408-S01020-SL-2	0.8	0.03-0.3	0.05-0.5	●	●	●
	150412-S01020-SL-2	1.2	0.03-0.3	0.05-0.5	●	●	●
	150602-S01020-SL-2	0.2	0.03-0.3	0.05-0.5	●	●	●
	150604-S01020-SL-2	0.4	0.03-0.3	0.05-0.5	●	●	●
	150608-S01020-SL-2	0.8	0.03-0.3	0.05-0.5	●	●	●
	150612-S01020-SL-2	1.2	0.03-0.3	0.05-0.5	●	●	●
	**DNGA 150402-S01020-SL-4**	0.2	0.03-0.3	0.05-0.5	●	●	●
	150404-S01020-SL-4	0.4	0.03-0.3	0.05-0.5	●	●	●
	150408-S01020-SL-4	0.8	0.03-0.3	0.05-0.5	●	●	●
	150412-S01020-SL-4	1.2	0.03-0.3	0.05-0.5	●	●	●
	150602-S01020-SL-4	0.2	0.03-0.3	0.05-0.5	●	●	●
	150604-S01020-SL-4	0.4	0.03-0.3	0.05-0.5	●	●	●
	150608-S01020-SL-4	0.8	0.03-0.3	0.05-0.5	●	●	●
	150612-S01020-SL-4	1.2	0.03-0.3	0.05-0.5	●	●	●

Marked: ● stock available

Negative 90° (S)



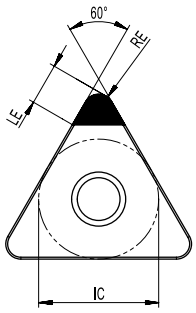


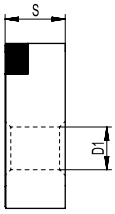
Dimension (mm)				
Product code	IC	S	LE	D1
SN_1204_	12.7	4.76	2.2	5.16

Inserts	Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	● Good condition ◐ General condition ✱ Bad condition: ●	◐	✱
					H		K
					PB30	PB60	PB90
	**SNGA 120402-S01020-SL-1**	0.2	0.03-0.3	0.05-0.5	●	●	●
	120404-S01020-SL-1	0.4	0.03-0.3	0.05-0.5	●	●	●
	120408-S01020-SL-1	0.8	0.03-0.3	0.05-0.5	●	●	●
	120412-S01020-SL-1	1.2	0.03-0.3	0.05-0.5	●	●	●
	**SNGA 120402-S01020-SL-4**	0.2	0.03-0.3	0.05-0.5	●	●	●
	120404-S01020-SL-4	0.4	0.03-0.3	0.05-0.5	●	●	●
	120408-S01020-SL-4	0.8	0.03-0.3	0.05-0.5	●	●	●
	120412-S01020-SL-4	1.2	0.03-0.3	0.05-0.5	●	●	●
	**SNGA 120402-S01020-SL-8**	0.2	0.03-0.3	0.05-0.5	●	●	●
	120404-S01020-SL-8	0.4	0.03-0.3	0.05-0.5	●	●	●
	120408-S01020-SL-8	0.8	0.03-0.3	0.05-0.5	●	●	●
	120412-S01020-SL-8	1.2	0.03-0.3	0.05-0.5	●	●	●

Marked: ● stock available

Negative 60° (T)



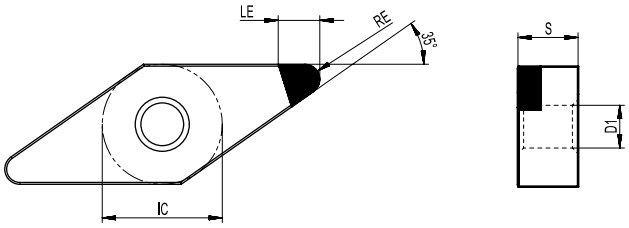


Dimension (mm)				
Product code	IC	S	LE	D1
TN_1604_	9.52	4.76	2.2	3.81

Inserts	Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	● Good condition ◐ General condition ✱ Bad condition: ●	◐	✱
					H		K
					PB30	PB60	PB90
	**TNGA 160402-S01020-SL-1**	0.2	0.03-0.3	0.05-0.5	●	●	●
	160404-S01020-SL-1	0.4	0.03-0.3	0.05-0.5	●	●	●
	160408-S01020-SL-1	0.8	0.03-0.3	0.05-0.5	●	●	●
	160412-S01020-SL-1	1.2	0.03-0.3	0.05-0.5	●	●	●
	**TNGA 160402-S01020-SL-3**	0.2	0.03-0.3	0.05-0.5	●	●	●
	160404-S01020-SL-3	0.4	0.03-0.3	0.05-0.5	●	●	●
	160408-S01020-SL-3	0.8	0.03-0.3	0.05-0.5	●	●	●
	160412-S01020-SL-3	1.2	0.03-0.3	0.05-0.5	●	●	●
	**TNGA 160402-S01020-SL-6**	0.2	0.03-0.3	0.05-0.5	●	●	●
	160404-S01020-SL-6	0.4	0.03-0.3	0.05-0.5	●	●	●
	160408-S01020-SL-6	0.8	0.03-0.3	0.05-0.5	●	●	●
	160412-S01020-SL-6	1.2	0.03-0.3	0.05-0.5	●	●	●

Marked: ● stock available

Negative 35° (V)

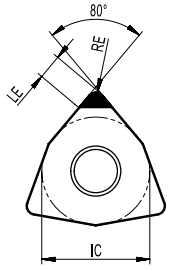


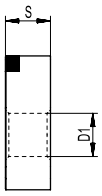
Dimension (mm)				
Product code	IC	S	LE	D1
VN_1604_	9.52	4.76	2.2	3.81

Inserts	Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	● Good condition ◐ General condition ✱ Bad condition: ●	◐	✱
					H		K
					PB30	PB60	PB90
	**VNGA 160402-S01020-SL-1**	0.2	0.03-0.3	0.05-0.5	●	●	●
	160404-S01020-SL-1	0.4	0.03-0.3	0.05-0.5	●	●	●
	160408-S01020-SL-1	0.8	0.03-0.3	0.05-0.5	●	●	●
	160412-S01020-SL-1	1.2	0.03-0.3	0.05-0.5	●	●	●
	**VNGA 160402-S01020-SL-2**	0.2	0.03-0.3	0.05-0.5	●	●	●
	160404-S01020-SL-2	0.4	0.03-0.3	0.05-0.5	●	●	●
	160408-S01020-SL-2	0.8	0.03-0.3	0.05-0.5	●	●	●
	160412-S01020-SL-2	1.2	0.03-0.3	0.05-0.5	●	●	●
	**VNGA 160402-S01020-SL-4**	0.2	0.03-0.3	0.05-0.5	●	●	●
	160404-S01020-SL-4	0.4	0.03-0.3	0.05-0.5	●	●	●
	160408-S01020-SL-4	0.8	0.03-0.3	0.05-0.5	●	●	●
	160412-S01020-SL-4	1.2	0.03-0.3	0.05-0.5	●	●	●

Marked: ● stock available

Negative 80° (W)



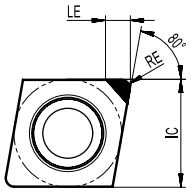


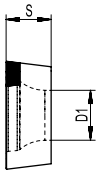
Dimension (mm)				
Product code	IC	S	LE	D1
WN_0804_	12.7	4.76	2.2	5.16

Inserts	Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	● Good condition ◐ General condition ✱ Bad condition: ●	◐	✱
					H		K
					PB30	PB60	PB90
	**WNGA 080402-S01020-SL-1**	0.2	0.03-0.3	0.05-0.5	●	●	●
	080404-S01020-SL-1	0.4	0.03-0.3	0.05-0.5	●	●	●
	080408-S01020-SL-1	0.8	0.03-0.3	0.05-0.5	●	●	●
	080412-S01020-SL-1	1.2	0.03-0.3	0.05-0.5	●	●	●
	**WNGA 080402-S01020-SL-3**	0.2	0.03-0.3	0.05-0.5	●	●	●
	080404-S01020-SL-3	0.4	0.03-0.3	0.05-0.5	●	●	●
	080408-S01020-SL-3	0.8	0.03-0.3	0.05-0.5	●	●	●
	080412-S01020-SL-3	1.2	0.03-0.3	0.05-0.5	●	●	●
	**WNGA 080402-S01020-SL-6**	0.2	0.03-0.3	0.05-0.5	●	●	●
	080404-S01020-SL-6	0.4	0.03-0.3	0.05-0.5	●	●	●
	080408-S01020-SL-6	0.8	0.03-0.3	0.05-0.5	●	●	●
	080412-S01020-SL-6	1.2	0.03-0.3	0.05-0.5	●	●	●

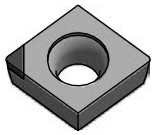
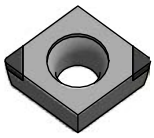
Marked: ● stock available

Positive 80° (C)



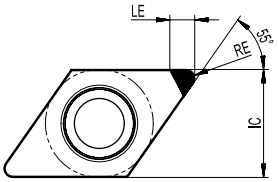


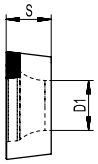
Dimension (mm)				
Product code	IC	S	LE	D1
CC_0602_	6.35	2.38	2.2	2.8
CC_09T3_	9.52	3.97	2.2	4.4
CC_1204_	12.7	4.76	2.2	5.5

Inserts	Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	● Good condition ◐ General condition ✱ Bad condition: ●	◐	✱
					H		K
					PB30	PB60	PB90
	**CCGW 060202-S01020-SL-1**	0.2	0.03-0.3	0.05-0.5	●	●	●
	060204-S01020-SL-1	0.4	0.03-0.3	0.05-0.5	●	●	●
	060208-S01020-SL-1	0.8	0.03-0.3	0.05-0.5	●	●	●
	09T302-S01020-SL-1	0.2	0.03-0.3	0.05-0.5	●	●	●
	09T304-S01020-SL-1	0.4	0.03-0.3	0.05-0.5	●	●	●
	09T308-S01020-SL-1	0.8	0.03-0.3	0.05-0.5	●	●	●
	120402-S01020-SL-1	0.2	0.03-0.3	0.05-0.5	●	●	●
	120404-S01020-SL-1	0.4	0.03-0.3	0.05-0.5	●	●	●
	120408-S01020-SL-1	0.8	0.03-0.3	0.05-0.5	●	●	●
	120412-S01020-SL-1	1.2	0.03-0.3	0.05-0.5	●	●	●
	**CCGW 060202-S01020-SL-2**	0.2	0.03-0.3	0.05-0.5	●	●	●
	060204-S01020-SL-2	0.4	0.03-0.3	0.05-0.5	●	●	●
	060208-S01020-SL-2	0.8	0.03-0.3	0.05-0.5	●	●	●
	09T302-S01020-SL-2	0.2	0.03-0.3	0.05-0.5	●	●	●
	09T304-S01020-SL-2	0.4	0.03-0.3	0.05-0.5	●	●	●
	09T308-S01020-SL-2	0.8	0.03-0.3	0.05-0.5	●	●	●
	120402-S01020-SL-2	0.2	0.03-0.3	0.05-0.5	●	●	●
	120404-S01020-SL-2	0.4	0.03-0.3	0.05-0.5	●	●	●
	120408-S01020-SL-2	0.8	0.03-0.3	0.05-0.5	●	●	●
	120412-S01020-SL-2	1.2	0.03-0.3	0.05-0.5	●	●	●

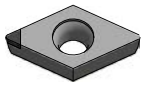
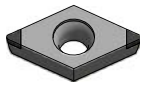
Marked: ● stock available

Positive 55° (D)



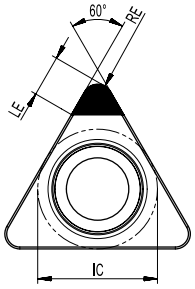


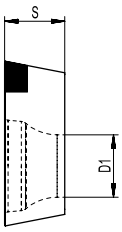
Dimension (mm)				
Product code	IC	S	LE	D1
DC_0702_	6.35	2.38	2.2	2.8
DC_11T3_	9.52	3.97	2.2	4.4

Inserts	Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	● Good condition ◐ General condition ✱ Bad condition		
					●	◐	✱
					H		K
					PB30	PB60	PB90
	**DCGW 070204-S01020-SL-1**	0.4	0.03-0.3	0.05-0.5	●	●	●
	070208-S01020-SL-1	0.8	0.03-0.3	0.05-0.5	●	●	●
	11T302-S01020-SL-1	0.2	0.03-0.3	0.05-0.5	●	●	●
	11T304-S01020-SL-1	0.4	0.03-0.3	0.05-0.5	●	●	●
	11T308-S01020-SL-1	0.8	0.03-0.3	0.05-0.5	●	●	●
	11T312-S01020-SL-1	1.2	0.03-0.3	0.05-0.5	●	●	●
	**DCGW 070202-S01020-SL-2**	0.2	0.03-0.3	0.05-0.5	●	●	●
	070204-S01020-SL-2	0.4	0.03-0.3	0.05-0.5	●	●	●
	070208-S01020-SL-2	0.8	0.03-0.3	0.05-0.5	●	●	●
	11T302-S01020-SL-2	0.2	0.03-0.3	0.05-0.5	●	●	●
	11T304-S01020-SL-2	0.4	0.03-0.3	0.05-0.5	●	●	●
	11T308-S01020-SL-2	0.8	0.03-0.3	0.05-0.5	●	●	●
	11T312-S01020-SL-2	1.2	0.03-0.3	0.05-0.5	●	●	●

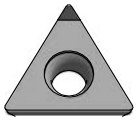
Marked: ● stock available

Positive 60° (T)



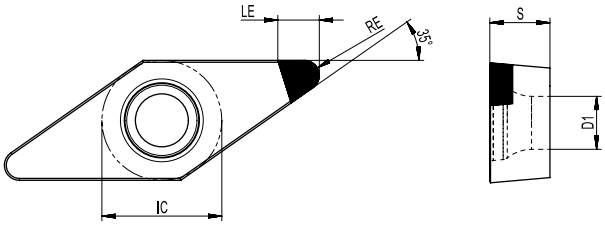


Dimension (mm)				
Product code	IC	S	LE	D1
TP_0802_	4.76	2.38	2.2	2.4
TP_0902_	5.56	2.38	2.2	2.8
TP_1103_	6.35	3.18	2.2	3.3
TP_1604_	9.52	4.76	2.2	4.4

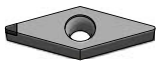
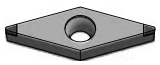
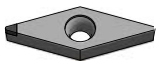
Inserts	Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	● Good condition ◐ General condition ✱ Bad condition: ●	◐	✱
					H		K
					PB30	PB60	PB90
	**TPGW 080202-S01020-SL-1**	0.2	0.03-0.3	0.05-0.5	●	●	●
	080204-S01020-SL-1	0.4	0.03-0.3	0.05-0.5	●	●	●
	090202-S01020-SL-1	0.2	0.03-0.3	0.05-0.5	●	●	●
	090204-S01020-SL-1	0.4	0.03-0.3	0.05-0.5	●	●	●
	090208-S01020-SL-1	0.8	0.03-0.3	0.05-0.5	●	●	●
	110302-S01020-SL-1	0.2	0.03-0.3	0.05-0.5	●	●	●
	110304-S01020-SL-1	0.4	0.03-0.3	0.05-0.5	●	●	●
	160402-S01020-SL-1	0.2	0.03-0.3	0.05-0.5	●	●	●
	160404-S01020-SL-1	0.4	0.03-0.3	0.05-0.5	●	●	●
	160408-S01020-SL-1	0.8	0.03-0.3	0.05-0.5	●	●	●
	**TPGW 080202-S01020-SL-3**	0.2	0.03-0.3	0.05-0.5	●	●	●
	080204-S01020-SL-3	0.4	0.03-0.3	0.05-0.5	●	●	●
	090202-S01020-SL-3	0.2	0.03-0.3	0.05-0.5	●	●	●
	090204-S01020-SL-3	0.4	0.03-0.3	0.05-0.5	●	●	●
	090208-S01020-SL-3	0.8	0.03-0.3	0.05-0.5	●	●	●
	110302-S01020-SL-3	0.2	0.03-0.3	0.05-0.5	●	●	●
	110304-S01020-SL-3	0.4	0.03-0.3	0.05-0.5	●	●	●
	160402-S01020-SL-3	0.2	0.03-0.3	0.05-0.5	●	●	●
	160404-S01020-SL-3	0.4	0.03-0.3	0.05-0.5	●	●	●
	160408-S01020-SL-3	0.8	0.03-0.3	0.05-0.5	●	●	●

Marked: ● stock available

Positive 35° (V)



Dimension (mm)				
Product code	IC	S	LE	D1
VB_1103_	6.35	3.18	2.2	2.8
VC_1103_	6.35	3.18	2.2	2.8
VB_1604_	9.52	4.76	2.2	4.4
VC_1604_	9.52	4.76	2.2	4.4

Inserts	Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	● Good condition ◐ General condition ✱ Bad condition: ●	◐	✱
					H		K
					PB30	PB60	PB90
	**VBGW 110302-S01020-SL-1**	0.2	0.03-0.3	0.05-0.5	●	●	●
	110304-S01020-SL-1	0.4	0.03-0.3	0.05-0.5	●	●	●
	110308-S01020-SL-1	0.8	0.03-0.3	0.05-0.5	●	●	●
	160402-S01020-SL-1	0.2	0.03-0.3	0.05-0.5	●	●	●
	160404-S01020-SL-1	0.4	0.03-0.3	0.05-0.5	●	●	●
	160408-S01020-SL-1	0.8	0.03-0.3	0.05-0.5	●	●	●
	**VBGW 110302-S01020-SL-2**	0.2	0.03-0.3	0.05-0.5	●	●	●
	110304-S01020-SL-2	0.4	0.03-0.3	0.05-0.5	●	●	●
	110308-S01020-SL-2	0.8	0.03-0.3	0.05-0.5	●	●	●
	160402-S01020-SL-2	0.2	0.03-0.3	0.05-0.5	●	●	●
	160404-S01020-SL-2	0.4	0.03-0.3	0.05-0.5	●	●	●
	160408-S01020-SL-2	0.8	0.03-0.3	0.05-0.5	●	●	●
	**VCGW 110302-S01020-SL-1**	0.2	0.03-0.3	0.05-0.5	●	●	●
	110304-S01020-SL-1	0.4	0.03-0.3	0.05-0.5	●	●	●
	110308-S01020-SL-1	0.8	0.03-0.3	0.05-0.5	●	●	●
	160402-S01020-SL-1	0.2	0.03-0.3	0.05-0.5	●	●	●
	160404-S01020-SL-1	0.4	0.03-0.3	0.05-0.5	●	●	●
	160408-S01020-SL-1	0.8	0.03-0.3	0.05-0.5	●	●	●
	**VCGW 110302-S01020-SL-2**	0.2	0.03-0.3	0.05-0.5	●	●	●
	110304-S01020-SL-2	0.4	0.03-0.3	0.05-0.5	●	●	●
	110308-S01020-SL-2	0.8	0.03-0.3	0.05-0.5	●	●	●
	160402-S01020-SL-2	0.2	0.03-0.3	0.05-0.5	●	●	●
	160404-S01020-SL-2	0.4	0.03-0.3	0.05-0.5	●	●	●
	160408-S01020-SL-2	0.8	0.03-0.3	0.05-0.5	●	●	●

Marked: ● stock available

PCD Insert Denomination System

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

1-Standard ISO Denomination system

2-Number of Cutting Edge

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

3-PCD Insert Structure

NL--Standard structure with tipped PCD



LL-- Full edge tipped PCD



4-Rake Angle

00----0°
05----5°
07-- 7°
10----10°

5-Cutting Edge Preparation

CB-- With chip breaker
WG--With wiper edge
"-" Without chip breaker

6-Grade

PD01----Fine grain PCD
PD10----Medium grain PCD
PD20----Coarse grain PCD

PCD Insert Grade Introduction

Grade	Feature	Application
PD20	Universal grade, balanced wear resistance and toughness	1st choice for general machining of aluminum alloys

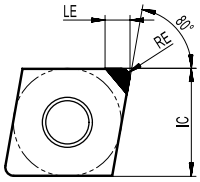
PCD Recommended Cutting Parameter

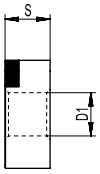
Grade	Material	Cutting speed Vc(m/min)	Feed f(mm/rev)	Cutting depth ap(mm)	Recommended application
PD20	Low-Si Aluminium Alloy (Si < 12%)	300-4000	0.03-0.2	0.05-0.5	Continuous/interrupted

Grade Application Guide

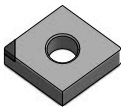
PCD insert applications				
Material Group	Materials	ISO	Uncoated PD20	ISO
P	unalloy steels / Alloyed steels	P01		P01
		P10		P10
		P20		P20
		P30		P30
		P40		P40
		P50		P50
M	Stainless steels	M01		M01
		M10		M10
		M20		M20
		M30		M30
		M40		M40
K	Cast iron	K01		K01
		K10		K10
		K20		K20
		K30		K30
		K40		K40
		K50		K50
N	Aluminum/ Aluminum alloys	N01	PD20	N01
		N10		N10
		N20		N20
		N30		N30
S	Heat resistant alloys	S01		S01
		S10		S10
		S20		S20
		S30		S30
		S40		S40
H	Hardened steels/ Chilled cast iron	H01		H01
		H10		H10
		H20		H20
		H30		H30

Negative 80° (C)

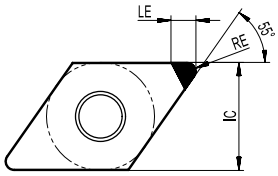


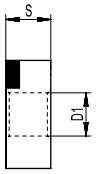


Dimension (mm)				
Product code	IC	S	LE	D1
CN_1204_	12.7	4.76	3.0	5.16

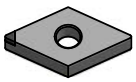
Inserts	Product code	RE (mm)	Machining conditions		● Good condition
			Recommanded parameters		N
			f (mm/rev)	ap (mm)	PD20
	**CNGA 120402-1-NL-00**	0.2	0.03-0.2	0.05-0.5	●
	120404-1-NL-00	0.4	0.03-0.2	0.05-0.5	●
	120408-1-NL-00	0.8	0.03-0.2	0.05-0.5	●

Negative 55° (D)



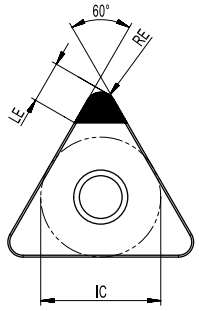


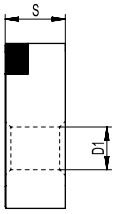
Dimension (mm)				
Product code	IC	S	LE	D1
DN_1504_	12.7	4.76	3.0	5.16

Inserts	Product code	RE (mm)	Machining conditions		● Good condition
			Recommanded parameters		N
			f (mm/rev)	ap (mm)	PD20
	**DNGA 150402-1-NL-00**	0.2	0.03-0.2	0.05-0.5	●
	150404-1-NL-00	0.4	0.03-0.2	0.05-0.5	●
	150408-1-NL-00	0.8	0.03-0.2	0.05-0.5	●

Marked: ● stock available

Negative 60° (T)

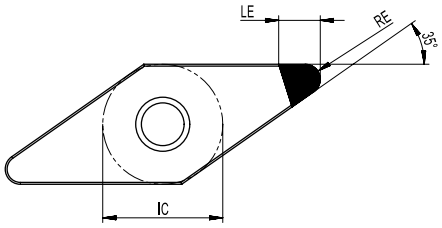


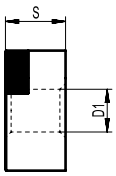


Dimension (mm)				
Product code	IC	S	LE	D1
TN_1604_	9.52	4.76	3.0	3.81

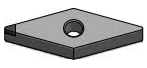
Inserts	Product code	RE (mm)	Machining conditions		● Good condition
			Recommanded parameters		●
			f (mm/rev)	ap (mm)	N
					PD20
	**TNGA 160402-1-NL-00**	0.2	0.03-0.2	0.05-0.5	●
	160404-1-NL-00	0.4	0.03-0.2	0.05-0.5	●
	160408-1-NL-00	0.8	0.03-0.2	0.05-0.5	●

Negative 35° (V)



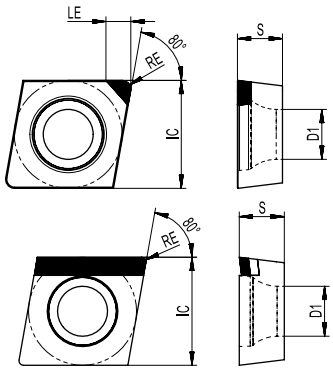


Dimension (mm)				
Product code	IC	S	LE	D1
VN_1604_	9.525	4.76	3.0	3.81

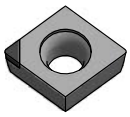
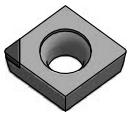
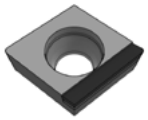
Inserts	Product code	RE (mm)	Machining conditions		● Good condition
			Recommanded parameters		●
			f (mm/rev)	ap (mm)	N
					PD20
	**VNGA 160402-1-NL-00**	0.2	0.03-0.2	0.05-0.5	●
	160404-1-NL-00	0.4	0.03-0.2	0.05-0.5	●
	160408-1-NL-00	0.8	0.03-0.2	0.05-0.5	●

Marked: ● stock available

Positive 80° (C)

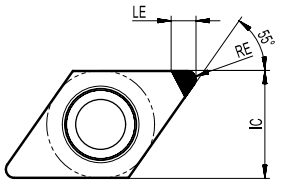


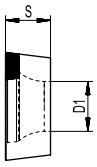
Dimension (mm)				
Product code	IC	S	LE	D1
CC_0602_	6.35	2.38	3.0	2.8
CC_09T3_	9.52	3.97	3.0	4.4
CC_1204_	12.7	4.76	3.0	5.5

Inserts	Product code	RE (mm)	Rake angle (°)	Machining conditions		● Good condition
						●
				Recommanded parameters		N
				f (mm/rev)	ap (mm)	PD20
	**CCGW 060202-1-NL-00**	0.2	0°	0.03-0.2	0.05-0.5	●
	060204-1-NL-00	0.4	0°	0.03-0.2	0.05-0.5	●
	09T302-1-NL-00	0.2	0°	0.03-0.2	0.05-0.5	●
	09T304-1-NL-00	0.4	0°	0.03-0.2	0.05-0.5	●
	09T308-1-NL-00	0.8	0°	0.03-0.2	0.05-0.5	●
	**CCGW 060202-1-NL-05**	0.2	5°	0.03-0.2	0.05-0.5	●
	060204-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	09T302-1-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	09T304-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	09T308-1-NL-05	0.8	5°	0.03-0.2	0.05-0.5	●
	120402-1-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	120404-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	120408-1-NL-05	0.8	5°	0.03-0.2	0.05-0.5	●
	**CCGW 060202L-1-LL-07**	0.2	7°	0.03-0.2	0.05-0.5	●
	060202R-1-LL-07	0.2	7°	0.03-0.2	0.05-0.5	●
	060204L-1-LL-07	0.4	7°	0.03-0.2	0.05-0.5	●
	060204R-1-LL-07	0.4	7°	0.03-0.2	0.05-0.5	●
	09T302L-1-LL-07	0.2	7°	0.03-0.2	0.05-0.5	●
	09T302R-1-LL-07	0.2	7°	0.03-0.2	0.05-0.5	●
	09T304L-1-LL-07	0.4	7°	0.03-0.2	0.05-0.5	●
	09T304R-1-LL-07	0.4	7°	0.03-0.2	0.05-0.5	●
	120404L-1-LL-07	0.4	7°	0.03-0.2	0.05-0.5	●
	120404R-1-LL-07	0.4	7°	0.03-0.2	0.05-0.5	●
	120408L-1-LL-07	0.8	7°	0.03-0.2	0.05-0.5	●
	120408R-1-LL-07	0.8	7°	0.03-0.2	0.05-0.5	●

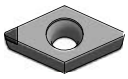
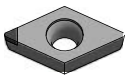
Marked: ● stock available

Positive 55° (D)

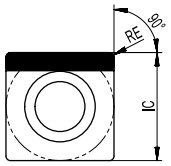


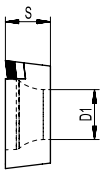


Dimension (mm)				
Product code	IC	S	LE	D1
DC_0702_	6.35	2.38	3.0	2.8
DC_11T3_	9.52	3.97	3.0	4.4

Inserts	Product code	RE (mm)	Rake angle (°)	Machining conditions: Recommanded parameters f (mm/rev)	Machining conditions: Recommanded parameters ap (mm)	● Good condition: N: PD20
						●
	**DCGW 070202-1-NL-00**	0.2	0°	0.03-0.2	0.05-0.5	●
	070204-1-NL-00	0.4	0°	0.03-0.2	0.05-0.5	●
	070208-1-NL-00	0.8	0°	0.03-0.2	0.05-0.5	●
	070202-1-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	070204-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	070208-1-NL-05	0.8	5°	0.03-0.2	0.05-0.5	●
	**DCGW 11T302-1-NL-05**	0.2	5°	0.03-0.2	0.05-0.5	●
	11T304-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	11T308-1-NL-05	0.8	5°	0.03-0.2	0.05-0.5	●

Positive 90° (S)



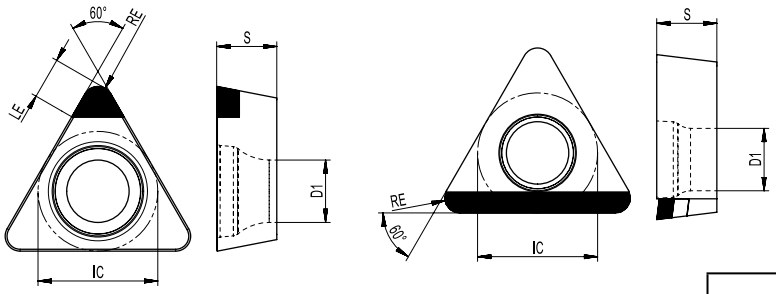


Dimension (mm)				
Product code	IC	S	LE	D1
SC_0602_	6.35	2.38	3.0	2.8
SC_09T3_	9.52	3.97	3.0	4.4
SC_1204_	12.7	4.76	3.0	5.5

Inserts	Product code	RE (mm)	Rake angle (°)	Machining conditions: Recommanded parameters f (mm/rev)	Machining conditions: Recommanded parameters ap (mm)	● Good condition: N: PD20
						●
	**SCGW 060204-1-LL-07**	0.4	7°	0.03-0.2	0.05-0.5	●
	09T304-1-LL-07	0.4	7°	0.03-0.2	0.05-0.5	●
	09T308-1-LL-07	0.8	7°	0.03-0.2	0.05-0.5	●
	120404-1-LL-07	0.4	7°	0.03-0.2	0.05-0.5	●
	120408-1-LL-07	0.8	7°	0.03-0.2	0.05-0.5	●

Marked: ● stock available

Positive 60° (T)

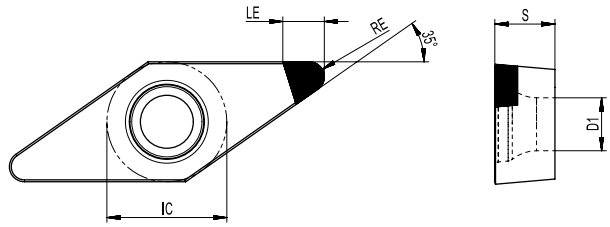


Dimension (mm)				
Product code	IC	S	LE	D1
TB_0601_	3.97	1.59	2.0	2.2
TC_0802_	4.76	2.38	3.0	2.4
TC_0902_	5.56	2.38	3.0	2.8
TC_1102_	6.35	2.38	3.0	2.8
TC_1103_	6.35	3.18	3.0	2.8
TC_16T3_	9.52	3.97	3.0	4.4
TP_0802_	4.76	2.38	3.0	2.4
TP_0902_	5.56	2.38	3.0	2.8
TP_1604_	9.52	4.76	3.0	4.4

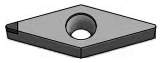
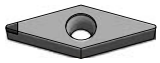
Inserts	Product code	RE (mm)	Rake angle (°)	Machining conditions		● Good condition
						●
				Recommanded parameters		N
				f (mm/rev)	ap (mm)	PD20
	**TBGW 060102-1-NL-05**	0.2	5°	0.03-0.2	0.05-0.5	●
	060104-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	**TCGW 110202-1-NL-00**	0.2	0°	0.03-0.2	0.05-0.5	●
	110204-1-NL-00	0.4	0°	0.03-0.2	0.05-0.5	●
	110302-1-NL-00	0.2	0°	0.03-0.2	0.05-0.5	●
	110304-1-NL-00	0.4	0°	0.03-0.2	0.05-0.5	●
	110308-1-NL-00	0.8	0°	0.03-0.2	0.05-0.5	●
	**TCGW 110202-1-NL-05**	0.2	5°	0.03-0.2	0.05-0.5	●
	110204-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	110302-1-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	110304-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	110308-1-NL-05	0.8	5°	0.03-0.2	0.05-0.5	●
	16T302-1-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	16T304-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	16T308-1-NL-05	0.8	5°	0.03-0.2	0.05-0.5	●
	**TPGW 080202-1-NL-00**	0.2	0°	0.03-0.2	0.05-0.5	●
	080204-1-NL-00	0.4	0°	0.03-0.2	0.05-0.5	●
	090202-1-NL-00	0.2	0°	0.03-0.2	0.05-0.5	●
	090204-1-NL-00	0.4	0°	0.03-0.2	0.05-0.5	●
	**TPGW 080202-1-NL-05**	0.2	5°	0.03-0.2	0.05-0.5	●
	080204-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	090202-1-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	090204-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	160402-1-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	160404-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	160408-1-NL-05	0.8	5°	0.03-0.2	0.05-0.5	●
	**TCGW 090202-1-LL-07**	0.2	7°	0.03-0.2	0.05-0.5	●
	090204-1-LL-07	0.4	7°	0.03-0.2	0.05-0.5	●
	110202-1-LL-07	0.2	7°	0.03-0.2	0.05-0.5	●
	110204-1-LL-07	0.4	7°	0.03-0.2	0.05-0.5	●
	16T304-1-LL-07	0.4	7°	0.03-0.2	0.05-0.5	●
	16T308-1-LL-07	0.8	7°	0.03-0.2	0.05-0.5	●

Marked: ● stock available

Positive 35° (V)



Dimension (mm)				
Product code	IC	S	LE	D1
VB_1103_	6.35	3.18	3.0	2.8
VB_1604_	9.52	4.76	3.0	4.4

Inserts	Product code	RE (mm)	Rake angle (°)	Machining conditions: Recommanded parameters f (mm/rev)	Machining conditions: Recommanded parameters ap (mm)	● Good condition / N / PD20
						●
						N
						PD20
	**VBGW 110302-1-NL-05**	0.2	5°	0.03-0.2	0.05-0.5	●
	110304-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	160402-1-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	160404-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	**VCGW 110302-1-NL-05**	0.2	5°	0.03-0.2	0.05-0.5	●
	110304-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	160402-1-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	160404-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●

Marked: ● stock available

CUTTING TOOL CATALOGUE

Milling Cutters 190

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Milling Cutter Denomination System

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

1. A--A Series

2-Machining Method	
Face milling	FM
Square Shoulder milling	SM
Profile milling	PM
High feed milling	HM
Side & face milling	DM
Thread milling	TM
Chamfer milling	CM
Finish milling	FF

3-Approach Angle (Kr)	
Figure	Angle
90	90°
88	88°
75	75°
60	60°
45	45°
42	42°
*	*
15	15°
0	Round insert

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 Type	
A	Arbor
W	Weldon shank
C	Cylindrical shank
N	Whistle notch shank
M	Screw clamping modular head

7-Coupling Size
22——Coupling diameter 22mm

8-Direction of Tool	
R	Right
L	Left
N	Neutral

9-Insert Info
SN12——SN12 series insert

10-Others	
C	Internal coolant
M	Wedge clamping type
S	Carbide shim type
No mark	Without internal coolant

Porcupine Cutter Denomination

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. A--A Series

2-Machining Method	
Porcupine milling cutter	PE

3-Approach Angle (Kr)	
90	90°
88	88°
75	75°
60	60°
45	45°
42	42°
*	*

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 Type	
A	Arbor
W	Weldon shank
C	Cylindrical shank
N	Whistle notch shank
M	Screw clamping modular head

7-Coupling Size
27--Connection diameter 27mm

8-Direction of Tool	
R	Right
L	Left
N	Neutral

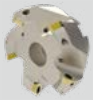
9-Insert Info
LN13--LN13 series insert

10-Max.Cutting Depth	
L30	30mm
L45	45mm
L56	56mm

11-Tool Type	
F	Full teeth
H	Half teeth

12-Others	
C	Internal coolant
No mark	Without internal coolant

Overview of Milling Products

Product family			AFM42-OD06 	AFM40-ON05 	AFM45-SD09 	AFM90-SD09 	AFM45-SD12 
Page			P202	P204	P206	P208	P210
Approach angle			42°	40°	45°	90°	45°
Max.ap（mm）			4.5	3.5	5	6	7
Diameter range（mm）			∅50-160	∅50-160	∅16-125	∅25-100	∅50-125
Insert type			OD..0605..	ON..0504..	SD..09T3..	SD..09T3..	SD..1204..
Application	Face milling		●	●	●	●	●
	Square Shoulder milling						
	Slot milling						
	Ramping		●		●		●
	Helical interpolate milling		●				
	Plunging						
	Profile milling						
	Chamfer milling		●		●		●
	Pocket milling		●				

Remark: ● Recommended application

Overview of Milling Products

Product family			AFM90-SD12 	AFM45-SN12 	AFM45-SN19 	AFM75-SN12 	AFM88-SN12 
Page			P212	P214	P214	P216	P218
Approach angle			90°	45°	45°	75°	88°
Max.ap（mm）			9	6.5	11	8	10
Diameter range（mm）			⌀50-125	⌀50-315	⌀160-250	⌀50-250	⌀50-315
Insert type			SD..1204..	SN..1206..	SN..1909..	SN..1206..	SN..1206..
Application	Face milling		●	●	●	●	●
	Square Shoulder milling						
	Slot milling						
	Ramping						
	Helical interpolate milling						
	Plunging						
	Profile milling						
	Chamfer milling						
	Pocket milling						

Remark: ● Recommended application

Overview of Milling Products

Product family			AFM45-XN07 	AFM45-XN09 	AFM45-XN09(W) 	AFF40-LN12 	AFF40-LN15 
Page			P220	P222	P222	P224	P224
Approach angle			45°	45°	45°	40°	40°
Max.ap（mm）			4.4	6	6	0.5	0.5
Diameter range（mm）			∅40-250	∅63-315	∅80-315	∅80-100	∅125-250
Insert type			XN..0705..	XN..0906..	XN..0906..	0N..0504.. LN..1204..	0N..0504.. LN..1506..
Application	Face milling		●	●	●	●	●
	Square Shoulder milling						
	Slot milling						
	Ramping						
	Helical interpolate milling						
	Plunging						
	Profile milling						
	Chamfer milling						
	Pocket milling						

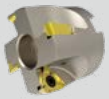
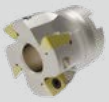
Remark: ● Recommended application

Overview of Milling Products

Product family			ASM90-LN12 	ASM90-LN09 	ASM90-LN13 	ASM90-LN16 	ASM90-WN08 
Page			P226	P228	P230	P232	P234
Approach angle			90°	90°	90°	90°	90°
Max.ap（mm）			5	8	12	15	7
Diameter range（mm）			∅63-250	∅20-80	∅40-315	∅63-160	∅40-250
Insert type			LN..1206..	LNHU 0904..	LNHU 1306..	LNHU 160708..	WNGU 0806..
Application	Face milling		●	●	●	●	●
	Square Shoulder milling		●	●	●	●	●
	Slot milling			●	●	●	
	Ramping						
	Helical interpolate milling						
	Plunging						
	Profile milling						
	Chamfer milling						
	Pocket milling						

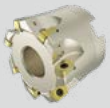
Remark: ● Recommended application

Overview of Milling Products

Product family			ASM90-WN08-N 	ASM90-AP17 	ASM90-TD15 	ASM90-AO12 	APE90-LN09 
Page			P236	P238	P240	P242	P244
Approach angle			90°	90°	90°	90°	90°
Max.ap（mm）			7	16	11	11	48
Diameter range（mm）			∅40-250	∅25-100	∅32-250	∅20-80	∅25-50
Insert type			WNMU 0806..	APKT 1705..	TD.T 1505..	AOMT 1204..	LNHU 0904..
Application	Face milling		●	●	●	●	●
	Square Shoulder milling		●	●	●	●	●
	Slot milling		●	●	●	●	
	Ramping			●	●	●	
	Helical interpolate milling			●	●	●	
	Plunging						
	Profile milling						
	Chamfer milling						
	Pocket milling			●	●	●	

Remark: ● Recommended application

Overview of Milling Products

Product family			APE90-LN13 	AHM20-LN06 	AHM25-LN10 	AHM15-XD09 	AHM15-XD12 
Page			P246	P248	P250	P252	P254
Approach angle			90°	20°	25°	15°	15°
Max.ap（mm）			56	0.65	1.2	1.5	2.5
Diameter range（mm）			∅40-80	∅16-63	∅25-125	∅25-50	∅32-125
Insert type			LNHU 1306..	LN..0604..	LN..1005..	XD..0904..	XD..1205..
Application	Face milling		●	●	●	●	●
	Square Shoulder milling		●				
	Slot milling			●	●	●	●
	Ramping			●	●	●	●
	Helical interpolate milling			●	●	●	●
	Plunging			●	●	●	●
	Profile milling						
	Chamfer milling						
	Pocket milling			●	●	●	●

Remark: ● Recommended application

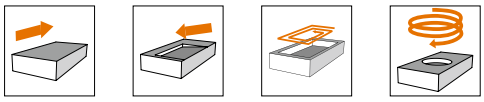
Overview of Milling Products

Product family			APM00-RP	APM00-RO08	APM00-RO10	APM00-RO12	APM00-RO16	APM00-RO20
								
Page			P256	P258	P260	P262	P264	P266
Approach angle			-	-	-	-	-	-
Max.ap（mm）			-	4	5	6	8	10
Diameter range（mm）			∅16-20	∅16-25	∅25-50	∅32-80	∅63-100	∅100-160
Insert type			RPM 080/100	RO.. 0803..	RO..10T3..	RO..1204..	RO..1605..	RO..2006..
Application	Face milling			●	●	●	●	●
	Square Shoulder milling							
	Slot milling							
	Ramping		●	●	●	●	●	●
	Helical interpolate milling			●	●	●	●	●
	Plunging							
	Profile milling		●	●	●	●	●	●
	Chamfer milling							
	Pocket milling			●	●	●	●	●

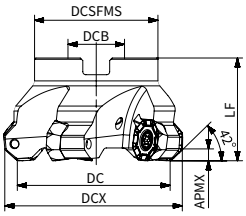
Remark: ● Recommended application

AFM42-OD06

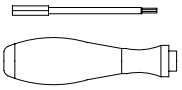
42 °Approaching angle face milling cutter







Product code	DC	DCX	DCB	DCSFMS	LF	APMX	Internal coolant	Z	Inserts
AFM42-050-Z04-A16R-OD06-C	50	60.4	16	40	40	4.5		4	OD..0605..
AFM42-063-Z05-A22R-OD06-C	63	73.4	22	48	40	4.5		5	
AFM42-080-Z05-A27R-OD06-C	80	90.4	27	62	50	4.5		5	
AFM42-080-Z06-A27R-OD06-C	80	90.4	27	62	50	4.5		6	
AFM42-100-Z06-A32R-OD06-C	100	110.4	32	80	50	4.5		6	
AFM42-100-Z07-A32R-OD06-C	100	110.4	32	80	50	4.5		7	
AFM42-125-Z07-A40R-OD06-C	125	135.4	40	87	63	4.5		7	
AFM42-125-Z08-A40R-OD06-C	125	135.4	40	87	63	4.5		8	
AFM42-160-Z10-A40R-OD06	160	170.4	40	107	63	4.5		10	

Dimension (mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
⌀50-160			5.0Nm
	SP04512043	DT-TP20	

Note: With internal coolant

Without internal coolant

Product code	Dimension (mm)		P			M	K		N
	Corner radius	Wiper length	AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AW100K
ODET 0605APFN-FM2	0.8	1.6							●
ODMT 060508EN-MM3	0.8	-	●	▲	▲		▲	●	
ODMT 060512EN-MM3	1.2	-	●						
ODHT 0605APEN-MM3	-	1.6	●	▲			▲	●	
ODEW 0605APSR-HR2	-	1.6					▲	●	
ODMW 060512EN-HR2	1.2	-					▲	●	

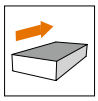
●: Stock available ▲: Stock available now but will be replaced in the future.

Materials				Cutting depth and feed							
				OD..0605..							
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	ap		Geometry					
						HR2		MM3		FM2	
						fz					
				(mm)							
				min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.20	4.50	0.15	0.40	0.12	0.35	-	-
		<950	<280								
	Alloyed steel	700-950	200-280			0.12	0.35	0.10	0.30	-	-
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230			-	-	0.08	0.28	-	-
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300								
K	Grey cast iron	700	220			0.15	0.40	0.12	0.35	-	-
	Nodular cast iron	880	260								
	Malleable cast iron	800	250								
N	Aluminum	260	75			-	-	-	-	0.10	0.35
	Aluminum alloy	447	130								
S	Fe-based alloy	943	280			-	-	-	-	-	-
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
H	Hardened steel	-	50-60HRC			0.10	0.25	-	-	-	-
	Chilled cast iron	-	55HRC								

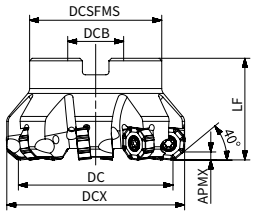
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

AFM40-ON05

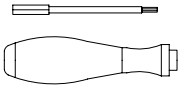
40° Approaching angle face milling cutter







Product code	DC	DCX	DCB	DCSFMS	LF	APMX	Internal coolant	Z	Inserts
AFM40-050-Z04-A22R-ON05-N-C	50	58.8	22	47	40	3.5	✓	4	ON..0504..
AFM40-050-Z06-A22R-ON05-N-C	50	58.8	22	47	40	3.5	✓	6	
AFM40-063-Z05-A22R-ON05-N-C	63	71.8	22	52	40	3.5	✓	5	
AFM40-063-Z06-A22R-ON05-N-C	63	71.8	22	52	40	3.5	✓	6	
AFM40-063-Z08-A22R-ON05-N-C	63	71.8	22	52	40	3.5	✓	8	
AFM40-080-Z06-A27R-ON05-N-C	80	88.8	27	62	50	3.5	✓	6	
AFM40-080-Z08-A27R-ON05-N-C	80	88.8	27	62	50	3.5	✓	8	
AFM40-080-Z09-A27R-ON05-N-C	80	88.8	27	62	50	3.5	✓	9	
AFM40-100-Z07-A32R-ON05-N-C	100	108.8	32	77	50	3.5	✓	7	
AFM40-100-Z09-A32R-ON05-N-C	100	108.8	32	77	50	3.5	✓	9	
AFM40-100-Z11-A32R-ON05-N-C	100	108.8	32	77	50	3.5	✓	11	
AFM40-125-Z07-A40R-ON05-N-C	125	133.8	40	90	63	3.5	✓	7	
AFM40-125-Z09-A40R-ON05-N-C	125	133.8	40	90	63	3.5	✓	9	
AFM40-125-Z14-A40R-ON05-N-C	125	133.8	40	90	63	3.5	✓	14	
AFM40-160-Z10-A40R-ON05-N	160	168.8	40	107	63	3.5	✗	10	

Dimension (mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
⌀50-160			4.0Nm
	SP040090	DT-TP15	

Note: ✓ With internal coolant
✗ Without internal coolant

Product code	Dimension (mm)		P			M	K		N
	Corner radius	Wiper length	AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AW100K
ONHU 050408-MM3	0.8	-	●						
ONMU 050408-MM4	0.8	-	●	▲			▲	●	
ONHU 0504ZNR-MM3	0.8	1.4	●						

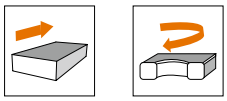
●: Stock available ▲: Stock available now but will be replaced in the future.

Materials				Cutting depth and feed					
				ON..0504..					
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	ap		Geometry			
						MM3		MM4	
						fz			
				(mm)					
				min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.20	3.50	0.10	0.25	0.15	0.35
		<950	<280						
	Alloyed steel	700-950	200-280						
		950-1200	280-355						
		1200-1400	355-415						
M	Duplex stainless steel	778	230			0.08	0.20	0.10	0.25
	Austenitic stainless steel	675	200						
	Precipitation-hardening stainless steel	1013	300						
K	Grey cast iron	700	220			0.10	0.25	0.15	0.35
	Nodular cast iron	880	260						
	Malleable cast iron	800	250						
N	Aluminum	260	75			-	-	-	-
	Aluminum alloy	447	130						
S	Fe-based alloy	943	280			-	-	-	-
	Co-based alloy	1076	320						
	Ni-based alloy	1177	350						
	Ti-alloy	1262	370						
H	Hardened steel	-	50-60HRC			-	-	-	-
	Chilled cast iron	-	55HRC						

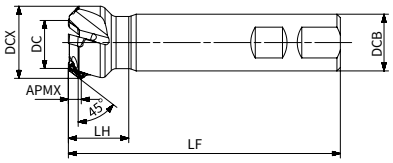
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

AFM45-SD09

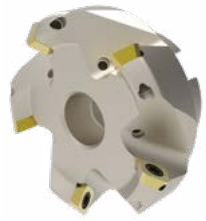
45° Approaching angle face milling cutter

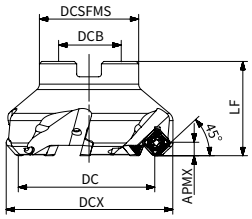




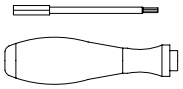


Product code	DC	DCX	DCB	LF	LH	APMX	Internal coolant	Z	Inserts
AFM45-016-Z02-W16R-SD09-C	16	25.2	16	90	25	5		2	SD..09T3..
AFM45-020-Z02-W20R-SD09-C	20	29.2	20	110	27	5		2	
AFM45-025-Z03-W25R-SD09-C	25	34	25	120	27	5		3	
AFM45-032-Z03-W32R-SD09-C	32	41	32	120	31	5		3	





Product code	DC	DCX	DCB	DCSFMS	LF	APMX	Internal coolant	Z	Inserts
AFM45-032-Z04-A16R-SD09-C	32	41.6	16	30	40	5		4	SD..09T3..
AFM45-040-Z05-A16R-SD09-C	40	49.6	16	35	40	5		5	
AFM45-050-Z05-A22R-SD09-C	50	59.6	22	42	40	5		5	
AFM45-050-Z06-A22R-SD09-C	50	59.6	22	42	40	5		6	
AFM45-063-Z05-A22R-SD09-C	63	72.6	22	42	40	5		5	
AFM45-063-Z07-A22R-SD09-C	63	72.6	22	42	40	5		7	
AFM45-080-Z06-A27R-SD09-C	80	89.6	27	42	50	5		6	
AFM45-080-Z09-A27R-SD09-C	80	89.6	27	42	50	5		9	
AFM45-100-Z07-A32R-SD09-C	100	109.6	32	80	50	5		7	
AFM45-100-Z11-A32R-SD09-C	100	109.6	32	80	50	5		11	
AFM45-125-Z08-A40R-SD09-C	125	134.6	40	87	63	5		8	

Dimension (mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
⌀16-32			3.5Nm
	ST040075	DT-T15	
⌀40-125	SP040090	DT-TP15	

Note: With internal coolant

Without internal coolant

Product code	Dimension (mm)		P			M	K		N
	Corner radius	Wiper length	AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AW100K
SDMT 09T304EN-MM3	0.4	-	●	▲	▲		▲		
SDMT 09T308EN-MM3	0.8	-	●	▲			▲		
SDGT 09T3PDER-MR6	0.8	1.2	●	▲				●	

●: Stock available ▲: Stock available now but will be replaced in the future.

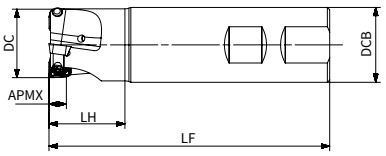
Materials				Cutting depth and feed			
				SD..09T3..			
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	ap		MM3	
				(mm)			
				min	max	min	max
P	Unalloyed steel	<600	<180	0.20	5.00	0.08	0.30
		<950	<280				
	Alloyed steel	700-950	200-280			0.05	0.28
		950-1200	280-355				
		1200-1400	355-415				
M	Duplex stainless steel	778	230			0.05	0.25
	Austenitic stainless steel	675	200				
	Precipitation-hardening stainless steel	1013	300				
K	Grey cast iron	700	220			0.08	0.30
	Nodular cast iron	880	260				
	Malleable cast iron	800	250				
N	Aluminum	260	75			-	-
	Aluminum alloy	447	130				
S	Fe-based alloy	943	280			-	-
	Co-based alloy	1076	320				
	Ni-based alloy	1177	350				
	Ti-alloy	1262	370				
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. Average chip thickness (hm)=fz x sinkr.

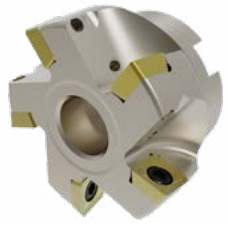
AFM90-SD09

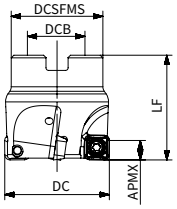
90° Approach angle face milling cutter



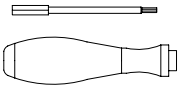


Product code	DC	DCB	LF	LH	APMX	Internal coolant	Z	Inserts
AFM90-025-Z02-W25R-SD09-C	25	25	120	27.7	6	✓	2	SD..09T3..
AFM90-032-Z03-W32R-SD09-C	32	32	120	32.5	6	✓	3	





Product code	DC	DCB	DCSFMS	LF	APMX	Internal coolant	Z	Inserts
AFM90-040-Z04-A16R-SD09-C	40	16	35	40	6	✓	4	SD..09T3..
AFM90-050-Z05-A22R-SD09-C	50	22	42	40	6	✓	5	
AFM90-063-Z06-A22R-SD09-C	63	22	48	40	6	✓	6	
AFM90-080-Z08-A27R-SD09-C	80	27	52	50	6	✓	8	
AFM90-100-Z10-A32R-SD09-C	100	32	80	50	6	✓	10	

Dimension (mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
⌀25-32			3.5Nm
	ST040075	DT-T15	
⌀40-100	SP040090	DT-TP15	

Note: ✓ With internal coolant
✗ Without internal coolant

Product code	Dimension (mm)		P			M	K		N
	Corner radius	Wiper length	AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AW100K
SDMT 09T304EN-MM3	0.4	-	●	▲	▲		▲		
SDMT 09T308EN-MM3	0.8	-	●	▲			▲		
SDGT 09T3PDER-MR6	0.8	1.2	●	▲				●	

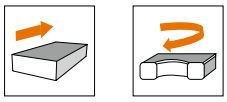
●: Stock available ▲: Stock available now but will be replaced in the future.

Materials				Cutting depth and feed					
				SD..09T3..					
				ap		Geometry			
						MR6		MM3	
						fz			
				(mm)					
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.20	6.00	0.10	0.35	0.08	0.30
		<950	<280						
	Alloyed steel	700-950	200-280			0.08	0.30	0.05	0.28
		950-1200	280-355						
		1200-1400	355-415						
M	Duplex stainless steel	778	230			-	-	0.05	0.25
	Austenitic stainless steel	675	200						
	Precipitation-hardening stainless steel	1013	300						
K	Grey cast iron	700	220			0.10	0.35	0.08	0.30
	Nodular cast iron	880	260						
	Malleable cast iron	800	250						
N	Aluminum	260	75			-	-	-	-
	Aluminum alloy	447	130						
S	Fe-based alloy	943	280			-	-	-	-
	Co-based alloy	1076	320						
	Ni-based alloy	1177	350						
	Ti-alloy	1262	370						
H	Hardened steel	-	50-60HRC			0.06	0.20	-	-
	Chilled cast iron	-	55HRC						

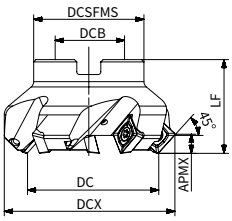
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

AFM45-SD12

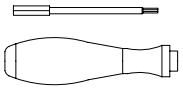
45° Approaching angle face milling cutter







Product code	DC	DCX	DCB	DCSFMS	LF	APMX	Internal coolant	Z	Inserts
AFM45-050-Z04-A22R-SD12-C	50	62.7	22	42	40	7		4	SD..1204..
AFM45-063-Z05-A22R-SD12-C	63	75.7	22	48	40	7		5	
AFM45-080-Z06-A27R-SD12-C	80	92.7	27	52	50	7		6	
AFM45-100-Z07-A32R-SD12-C	100	112.7	32	80	50	7		7	
AFM45-125-Z08-A40R-SD12-C	125	137.7	40	87	63	7		8	

Dimension (mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
⌀50-125			5.0Nm
	SP04511555	DT-TP20	

Note: With internal coolant

Without internal coolant

Product code	Dimension (mm)		P			M	K		N
	Corner radius	Wiper length	AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AW100K
SDMT 120408EN-MM4	0.8	-	●	▲			▲		
SDMT 120412EN-MM3	1.2	-	●		▲		▲		
SDKT 1204AEEN-MR2	-	1.5		▲				●	

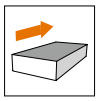
●: Stock available ▲: Stock available now but will be replaced in the future.

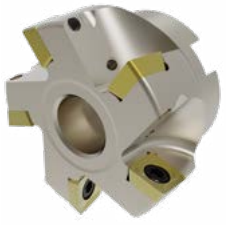
Materials				Cutting depth and feed							
				SD..1204..							
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	ap		MR2		MM4		MM3	
				(mm)							
				min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.20	7.00	0.15	0.30	0.15	0.30	0.12	0.28
		<950	<280								
	Alloyed steel	700-950	200-280			0.15	0.25	0.15	0.25	0.10	0.25
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230			0.12	0.25	0.10	0.25	0.08	0.20
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300								
K	Grey cast iron	700	220			0.10	0.22	0.10	0.25	0.12	0.28
	Nodular cast iron	880	260								
	Malleable cast iron	800	250								
N	Aluminum	260	75			-	-	-	-	-	-
	Aluminum alloy	447	130								
S	Fe-based alloy	943	280			-	-	-	-	0.08	0.20
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
H	Hardened steel	-	50-60HRC			-	-	-	-	-	-
	Chilled cast iron	-	55HRC								

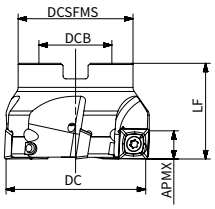
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

AFM90-SD12

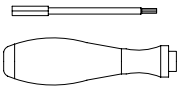
90° Approach angle face milling cutter







Product code	DC	DCB	DCSFMS	LF	APMX	Internal coolant	Z	Inserts
AFM90-050-Z04-A22R-SD12-C	50	22	42	40	9		4	SD..1204..
AFM90-063-Z05-A22R-SD12-C	63	22	48	40	9		5	
AFM90-080-Z06-A27R-SD12-C	80	27	52	50	9		6	
AFM90-100-Z08-A32R-SD12-C	100	32	80	50	9		8	
AFM90-125-Z10-A40R-SD12-C	125	40	87	63	9		10	

Dimension (mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
⌀50-125			5.0Nm
	SP04511555	DT-TP20	

Note: With internal coolant

Without internal coolant

Product code	Dimension (mm)		P			M	K		N
	Corner radius	Wiper length	AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AW100K
SDMT 120408EN-MM4	0.8	-	●	▲		●	▲		
SDMT 120412EN-MM3	1.2	-	●		▲		▲		
SDKT 1204AEEN-MR2	-	1.5		▲				●	

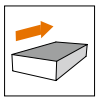
●: Stock available ▲: Stock available now but will be replaced in the future.

Materials				Cutting depth and feed					
				SD..1204..					
				ap		Geometry			
						MM4		MM3	
						fz			
				(mm)					
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.20	9.00	0.15	0.30	0.12	0.30
		<950	<280						
	Alloyed steel	700-950	200-280			0.15	0.25	0.10	0.25
		950-1200	280-355						
		1200-1400	355-415						
M	Duplex stainless steel	778	230			0.10	0.25	0.10	0.22
	Austenitic stainless steel	675	200						
	Precipitation-hardening stainless steel	1013	300						
K	Grey cast iron	700	220			0.10	0.25	0.12	0.30
	Nodular cast iron	880	260						
	Malleable cast iron	800	250						
N	Aluminum	260	75			-	-	-	-
	Aluminum alloy	447	130						
S	Fe-based alloy	943	280			-	-	0.10	0.20
	Co-based alloy	1076	320						
	Ni-based alloy	1177	350						
	Ti-alloy	1262	370						
H	Hardened steel	-	50-60HRC			0.08	0.25	-	-
	Chilled cast iron	-	55HRC						

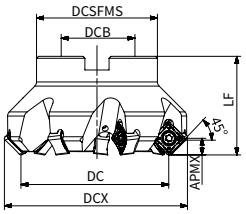
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

AFM45-SN12/SN19

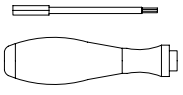
45° Approaching angle face milling cutter

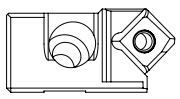
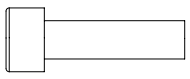
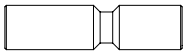






Product code	DC	DCX	DCB	DCSFMS	LF	APMX	Internal coolant	Z	Inserts
AFM45-050-Z04-A22R-SN12-N-C	50	63.9	22	47	40	6.5	✓	4	SN..1206ANN.. SN..1206..
AFM45-050-Z06-A22R-SN12-N-C	50	63.9	22	47	40	6.5	✓	6	
AFM45-063-Z04-A22R-SN12-N-C	63	76.9	22	52	40	6.5	✓	4	
AFM45-063-Z06-A22R-SN12-N-C	63	76.9	22	52	40	6.5	✓	6	
AFM45-063-Z08-A22R-SN12-N-C	63	76.9	22	52	40	6.5	✓	8	
AFM45-080-Z04-A27R-SN12-N-C	80	93.9	27	62	50	6.5	✓	4	
AFM45-080-Z05-A27R-SN12-N-C	80	93.9	27	62	50	6.5	✓	5	
AFM45-080-Z07-A27R-SN12-N-C	80	93.9	27	62	50	6.5	✓	7	
AFM45-100-Z06-A32R-SN12-N-C	100	113.9	32	77	50	6.5	✓	6	
AFM45-100-Z08-A32R-SN12-N-C	100	113.9	32	77	50	6.5	✓	8	
AFM45-125-Z07-A40R-SN12-N-C	125	138.9	40	90	63	6.5	✓	7	
AFM45-125-Z08-A40R-SN12-N-C	125	138.9	40	90	63	6.5	✓	8	
AFM45-125-Z10-A40R-SN12-N-C	125	138.9	40	90	63	6.5	✓	10	
AFM45-160-Z10-A40R-SN12-N	160	173.9	40	107	63	6.5	✗	10	
AFM45-200-Z14-A60R-SN12-N	200	213.9	60	130	63	6.5	✗	14	
AFM45-250-Z16-A60R-SN12-N	250	263.9	60	180	63	6.5	✗	16	
AFM45-315-Z14-A60R-SN12-M	315	328.5	60	220	63	6.5	✗	14	
AFM45-160-Z08-A40R-SN19	160	181.3	40	107	63	11	✗	8	
AFM45-200-Z10-A60R-SN19	200	221.3	60	130	63	11	✗	10	SN..1909ANN..
AFM45-250-Z12-A60R-SN19	250	271.3	60	180	63	11	✗	12	

Dimension (mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
⌀50-315(SN..1206ANN)			3.5Nm
	SP050120	DT-TP20	
⌀160-250(SN..1909ANN)	SP06018070	DT-TP25	5.0Nm

Cartridge	Cartridge screw	Cartridge screw wrench	Wedge	Wedge screw	Wedge screw wrench
					
C-SN1242-62-45	ACH622	LT-H5	AWG-6H-6	AWCH624	LT-H3

Note: ✓ With internal coolant
✗ Without internal coolant

Product code	Dimension (mm)		P			M	K		N
	Corner radius	Wiper length	AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AW100K
SNGX 1206ANN-MM3	0.4	1.8	●	▲	▲		▲	●	
SNGX 1206ANN-MM4	0.4	1.8	●	▲	▲	●	▲	●	
SNGX 1206ANN-MR6	0.4	1.8	●	▲	▲		▲	●	
SNGX 1206ANN-RR2	0.5	1.8	●	▲	▲		▲	●	
SNGX 1909ANN-MM3	0.4	2.9		▲					
SNGX 1909ANN-MR6	0.8	2.9		▲					
SNGX 120608-MM4	0.8	-	●	▲	▲		▲	●	
SNGX 120612-MM4	1.2	-	●						
SNMX 1206ANN-MM3	0.4	1.8	●	▲	▲		▲	●	
SNMX 1206ANN-MM4	0.4	1.8	●	▲	▲	●	▲	●	
SNMX 1206ANN-MR6	0.4	1.8	●	▲	▲		▲	●	
SNMX 120608-MM4	0.8	-	●	▲	▲		▲	●	
SNMX 120612-MM3	1.2	-	●	▲	▲		▲	●	
SNMX 120612-MM4	1.2	-	●	▲	▲		▲	●	
SNMX 120612R-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	0.5	1.8							●
SNHX 1206ANN-W	1.2	6.7	●				▲		

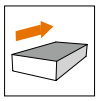
●: Stock available ▲: Stock available now but will be replaced in the future.

Materials				Cutting depth and feed											
				SN.. 1206..											
				ap		Geometry									
						MM3		MM4		MR6		RR2		FM2	
						fz									
						(mm)									
ISO	Material classification	Tensile strength (N/mm²)	Hardness (HB)	min	max	min	max	min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.20	6.50	0.15	0.35	0.18	0.38	0.18	0.40	0.18	0.45	-	-
		<950	<280												
	Alloyed steel	700-950	200-280			0.12	0.32	0.15	0.35	0.15	0.38	0.15	0.38	-	-
		950-1200	280-355												
		1200-1400	355-415												
M	Duplex stainless steel	778	230			0.12	0.30	0.12	0.32	-	-	-	-	-	-
	Austenitic stainless steel	675	200												
	Precipitation-hardening stainless steel	1013	300												
K	Grey cast iron	700	220			0.15	0.35	0.18	0.38	0.18	0.40	0.18	0.45	-	-
	Nodular cast iron	880	260												
	Malleable cast iron	800	250												
N	Aluminum	260	75			-	-	-	-	-	-	-	-	0.15	0.35
	Aluminum alloy	447	130												
S	Fe-based alloy	943	280			0.10	0.25	0.12	0.28	-	-	-	-	-	-
	Co-based alloy	1076	320												
	Ni-based alloy	1177	350												
	Ti-alloy	1262	370												
H	Hardened steel	-	50-60HRC			-	-	-	-	-	-	-	-	-	-
	Chilled cast iron	-	55HRC												

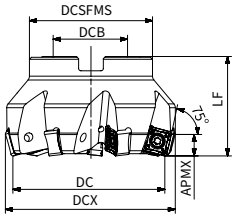
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

AFM75-SN12

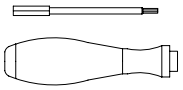
75° Approaching angle face milling cutter







Product code	DC	DCX	DCB	DCSFMS	LF	APMX	Internal coolant	Z	Inserts
AFM75-050-Z04-A22R-SN12-N-C	50	56.4	22	42	40	8	✓	4	SN..1206ENN.. SN..1206..
AFM75-063-Z06-A22R-SN12-N-C	63	69.4	22	52	40	8	✓	6	
AFM75-080-Z07-A27R-SN12-N-C	80	86.4	27	62	50	8	✓	7	
AFM75-100-Z08-A32R-SN12-N-C	100	106.4	32	67	50	8	✓	8	
AFM75-125-Z08-A40R-SN12-N-C	125	131.4	40	90	63	8	✓	8	
AFM75-125-Z10-A40R-SN12-N-C	125	131.4	40	90	63	8	✓	10	
AFM75-160-Z10-A40R-SN12-N	160	166.4	40	107	63	8	✗	10	
AFM75-200-Z14-A60R-SN12-N	200	206.4	60	130	63	8	✗	14	
AFM75-250-Z16-A60R-SN12-N	250	256.4	60	180	63	8	✗	16	

Dimension (mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
⌀50-250			3.5Nm
	SP050120	DT-TP20	

Note: ✓ With internal coolant
✗ Without internal coolant

Product code	Dimension (mm)		P			M	K		N
	Corner radius	Wiper length	AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AW100K
SNGX 1206ENN-MM3	0.8	1.2	●	▲	▲		▲	●	
SNGX 1206ENN-MM4	0.8	1.2	●	▲	▲		▲	●	
SNGX 1206ENN-MR6	0.8	1.2	●	▲	▲		▲	●	
SNGX 120608-MM4	0.8	-	●	▲	▲		▲	●	
SNGX 120612-MM4	1.2	-	●						
SNMX 1206ENN-MM4	0.8	1.2			▲			●	
SNMX 120608-MM4	0.8	-	●	▲	▲		▲	●	
SNMX 120612-MM3	1.2	-	●	▲	▲		▲	●	
SNMX 120612-MM4	1.2	-	●	▲	▲		▲	●	
SNMX 120612R-MM4	1.2	-	●	▲	▲	●	▲	●	
SNMX 120612-MR6	1.2	-	●	▲	▲		▲	●	
SNMX 120612-RR2	1.2	-	●	▲	▲		▲	●	
SNMX 120620-MM4	2.0	-	●	▲	▲		▲	●	
SNMX 120620-RR2	2.0	-	●	▲	▲		▲	●	
SNHX 1206ENN-W	0.6	1.2	●				▲		

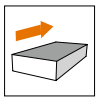
●: Stock available ▲: Stock available now but will be replaced in the future.

Materials				Cutting depth and feed									
				SN..1206..									
				ap		Geometry							
						MM3		MM4		MR6		RR2	
						fz							
						(mm)							
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	min	max	min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.20	8.00	0.12	0.32	0.19	0.35	0.15	0.38	0.18	0.40
		<950	<280										
	Alloyed steel	700-950	200-280			0.10	0.30	0.12	0.32	0.10	0.35	0.15	0.35
		950-1200	280-355										
		1200-1400	355-415										
M	Duplex stainless steel	778	230			0.10	0.28	0.10	0.30	-	-	-	-
	Austenitic stainless steel	675	200										
	Precipitation-hardening stainless steel	1013	300										
K	Grey cast iron	700	220			0.12	0.32	0.15	0.35	0.12	0.35	0.18	0.40
	Nodular cast iron	880	260										
	Malleable cast iron	800	250										
N	Aluminum	260	75			-	-	-	-	-	-	-	-
	Aluminum alloy	447	130										
S	Fe-based alloy	943	280			0.10	0.22	0.10	0.25	-	-	-	-
	Co-based alloy	1076	320										
	Ni-based alloy	1177	350										
	Ti-alloy	1262	370										
H	Hardened steel	-	50-60HRC			-	-	-	-	-	-	-	-
	Chilled cast iron	-	55HRC										

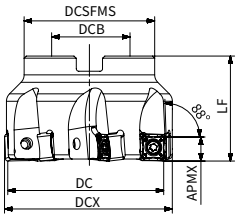
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

AFM88-SN12

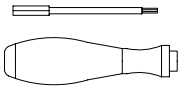
88° Approaching angle face milling cutter

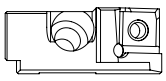
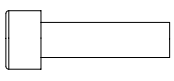
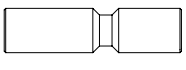






Product code	DC	DCX	DCB	DCSFMS	LF	APMX	Internal coolant	Z	Inserts
AFM88-050-Z04-A22R-SN12-N-C	50	51.2	22	42	40	10	✓	4	SN..1206ZNN.. SN..1206..
AFM88-063-Z04-A22R-SN12-N-C	63	64.2	22	52	40	10	✓	4	
AFM88-063-Z06-A22R-SN12-N-C	63	64.2	22	62	40	10	✓	6	
AFM88-080-Z04-A27R-SN12-N-C	80	81.2	27	62	50	10	✓	4	
AFM88-080-Z07-A27R-SN12-N-C	80	81.2	27	62	50	10	✓	7	
AFM88-100-Z08-A32R-SN12-N-C	100	101.2	32	77	50	10	✓	8	
AFM88-100-Z11-A32R-SN12-N-C	100	101.2	32	77	50	10	✓	11	
AFM88-125-Z10-A40R-SN12-N-C	125	126.2	40	90	63	10	✓	10	
AFM88-125-Z13-A40R-SN12-N-C	125	126.2	40	90	63	10	✓	13	
AFM88-160-Z12-A40R-SN12-N	160	161.2	40	108	63	10	✗	12	
AFM88-200-Z14-A60R-SN12-N	200	201.2	60	130	63	10	✗	14	
AFM88-250-Z12-A60R-SN12-M	250	250.9	60	180	63	10	✗	12	
AFM88-315-Z14-A60R-SN12-M	315	315.9	60	220	63	10	✗	14	

Dimension (mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
⌀50-315			3.5Nm
	SP050120	DT-TP20	

Cartridge	Cartridge screw	Cartridge screw wrench	Wedge	Wedge screw	Wedge screw wrench
					
C-SN1242-62-88	ACH622	LT-H5	AWG-6H-6	AWCH624	LT-H3

Note: ✓ With internal coolant
✗ Without internal coolant

Product code	Dimension (mm)		P			M	K		N
	Corner radius	Wiper length	AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AW100K
SNGX 1206ZNN-MM3	0.8	1.2	●	▲	▲		▲	●	
SNGX 1206ZNN-MM4	0.8	1.2	●	▲	▲	●	▲	●	
SNGX 1206ZNN-MR6	0.8	1.2	●	▲	▲		▲	●	
SNGX 120608-MM4	0.8	-	●	▲	▲		▲	●	
SNGX 120612-MM4	1.2	-	●						
SNMX 120608-MM4	0.8	-	●	▲	▲		▲	●	
SNMX 120612-MM3	1.2	-	●	▲	▲		▲	●	
SNMX 120612-MM4	1.2	-	●	▲	▲		▲	●	
SNMX 120612R-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	0.8	1.2							●
SNHX 1206ZNN-W	1.0	4.4	●				▲		

●: Stock available ▲: Stock available now but will be replaced in the future.

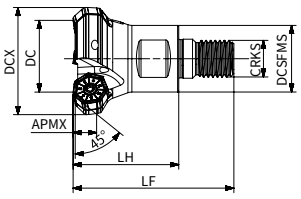
Materials				Cutting depth and feed											
				SN.. 1206..											
				ap		Geometry									
						MM3		MM4		MR6		RR2		FM2	
						fz									
						(mm)									
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	min	max	min	max	min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.20	10.00	0.12	0.32	0.19	0.35	0.15	0.38	0.18	0.40	-	-
		<950	<280												
	Alloyed steel	700-950	200-280			0.10	0.30	0.12	0.32	0.10	0.35	0.15	0.35	-	-
		950-1200	280-355												
		1200-1400	355-415												
M	Duplex stainless steel	778	230			0.10	0.28	0.10	0.30	-	-	-	-	-	-
	Austenitic stainless steel	675	200												
	Precipitation-hardening stainless steel	1013	300												
K	Grey cast iron	700	220			0.12	0.32	0.15	0.35	0.12	0.35	0.18	0.40	-	-
	Nodular cast iron	880	260												
	Malleable cast iron	800	250												
N	Aluminum	260	75			-	-	-	-	-	-	-	-	0.12	0.32
	Aluminum alloy	447	130												
S	Fe-based alloy	943	280			0.10	0.22	0.10	0.25	-	-	-	-	-	-
	Co-based alloy	1076	320												
	Ni-based alloy	1177	350												
	Ti-alloy	1262	370												
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. Average chip thickness (hm)=fz x sinkr.

AFM45-XN07

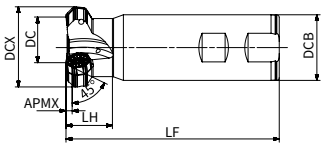
45° Approaching angle face milling cutter





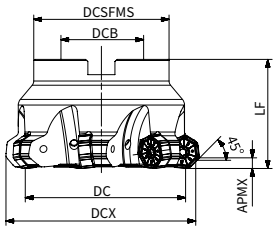
Product code	DC	DCX	CRKS	DCSFMS	LF	LH	APMX	Internal coolant	Z	Inserts
AFM45-040-Z03-M16R-XN07-C	40	49.3	M16	29	70	43	4.4		3	XN..0705..





Product code	DC	DCX	DCB	LF	LH	APMX	Internal coolant	Z	Inserts
AFM45-040-Z03-W40R-XN07-C	40	49.8	40	130	28.3	4.4		3	XN..0705..

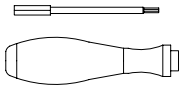
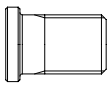
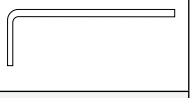




Product code	DC	DCX	DCB	DCSFMS	LF	APMX	Internal coolant	Z	Inserts
AFM45-040-Z03-A16R-XN07-C	40	49.7	16	35	40	4.4		3	XN..0705..
AFM45-050-Z04-A22R-XN07-C	50	59.7	22	42	40	4.4		4	
AFM45-050-Z05-A22R-XN07-C	50	59.7	22	42	40	4.4		5	
AFM45-063-Z05-A22R-XN07-C	63	72.7	22	48	40	4.4		5	
AFM45-063-Z06-A22R-XN07-C	63	72.7	22	48	40	4.4		6	
AFM45-080-Z06-A27R-XN07-C	80	89.7	27	62	50	4.4		6	
AFM45-080-Z07-A27R-XN07-C	80	89.7	27	62	50	4.4		7	
AFM45-100-Z07-A32R-XN07-C	100	109.7	32	77	50	4.4		7	
AFM45-100-Z08-A32R-XN07-C	100	109.7	32	77	50	4.4		8	
AFM45-125-Z08-A40R-XN07-C	125	134.7	40	87	63	4.4		8	
AFM45-125-Z10-A40R-XN07-C	125	134.7	40	87	63	4.4		10	
AFM45-160-Z09-A40R-XN07	160	169.7	40	107	63	4.4		9	
AFM45-160-Z12-A40R-XN07	160	169.7	40	107	63	4.4		12	
AFM45-200-Z14-A60R-XN07	200	209.3	60	130	63	4.4		14	
AFM45-250-Z14-A60R-XN07-S	250	259.6	60	180	63	4.4		14	

Note: With internal coolant

Without internal coolant

Dimension (mm)	Spare parts					
Cutter diameter	Screw	Wrench	Shim	Shim screw	Shim screw wrench	Torque
⌀40-250						3.5Nm
	SP035120H	DT-TP15	S-XN07030	SS050085F	LT-H3.5	

Product code	Dimension (mm)		P			M	K		N
	corner radius	Wiper length	AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AW100K
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	●				▲		

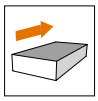
●: Stock available ▲: Stock available now but will be replaced in the future.

Materials				Cutting depth and feed							
				XN.. 0705..							
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	ap		Geometry					
						MM3		MM4		MR6	
						fz					
				(mm)							
				min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.20	4.40	0.15	0.35	0.18	0.38	0.18	0.40
		<950	<280								
	Alloyed steel	700-950	200-280			0.12	0.32	0.15	0.35	0.15	0.38
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230			0.12	0.30	0.12	0.32	-	-
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300								
K	Grey cast iron	700	220			0.15	0.35	0.18	0.38	0.18	0.40
	Nodular cast iron	880	260								
	Malleable cast iron	800	250								
N	Aluminum	260	75			-	-	-	-	-	-
	Aluminum alloy	447	130								
S	Fe-based alloy	943	280			0.10	0.25	0.12	0.28	-	-
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
H	Hardened steel	-	50-60HRC			-	-	-	-	-	-
	Chilled cast iron	-	55HRC								

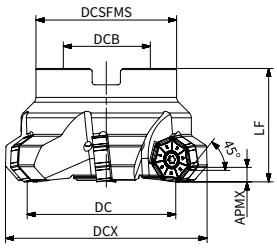
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

AFM45-XN09

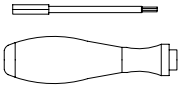
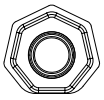
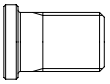
45° Approaching angle face milling cutter







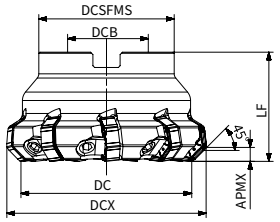
Product code	DC	DCX	DCB	DCSFMS	LF	APMX	Internal coolant	Z	Inserts
AFM45-063-Z05-A22R-XN09-C	63	75.2	22	48	40	6	✓	5	XN..0906..
AFM45-080-Z06-A27R-XN09-C	80	92.2	27	62	50	6	✓	6	
AFM45-100-Z07-A32R-XN09-C	100	112.2	32	80	50	6	✓	7	
AFM45-100-Z08-A32R-XN09-C	100	112.2	32	80	50	6	✓	8	
AFM45-125-Z08-A40R-XN09-C	125	137.2	40	87	63	6	✓	8	
AFM45-125-Z10-A40R-XN09-C	125	137.2	40	87	63	6	✓	10	
AFM45-160-Z09-A40R-XN09	160	172.2	40	107	63	6	✗	9	
AFM45-160-Z11-A40R-XN09	160	172.2	40	107	63	6	✗	11	
AFM45-200-Z12-A60R-XN09	200	212.2	60	130	63	6	✗	12	
AFM45-250-Z12-A60R-XN09-S	250	262.8	60	180	63	6	✗	12	
AFM45-315-Z14-A60R-XN09-S	315	328.2	60	240	63	6	✗	14	

Dimension (mm)	Spare parts					
Cutter diameter	Screw	Wrench	Shim	Shim screw	Shim screw wrench	Torque
⌀63-315						5.0Nm
	SP050130	DT-TP20	S-XN09040	SS080100F	LT-H5	

AFM45-XN09-W

45° Wedge clamping face milling cutter

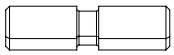




Product code	DC	DCX	DCB	DCSFMS	LF	APMX	Internal coolant	Z	Inserts
AFM45-080-Z09-A27R-XN09-W	80	92.7	27	62	50	6	✗	9	XN..0906..
AFM45-100-Z12-A32R-XN09-W	100	112.7	32	80	50	6	✗	12	
AFM45-125-Z16-A40R-XN09-W	125	137.7	40	87	63	6	✗	16	
AFM45-125-Z16-A40L-XN09-W	125	137.7	40	87	63	6	✗	16	
AFM45-160-Z20-A40R-XN09-W	160	172.7	40	107	63	6	✗	20	
AFM45-160-Z20-A40L-XN09-W	160	172.7	40	107	63	6	✗	20	
AFM45-200-Z26-A60R-XN09-W	200	212.7	60	130	63	6	✗	26	
AFM45-200-Z26-A60L-XN09-W	200	212.7	60	130	63	6	✗	26	
AFM45-250-Z30-A60R-XN09-W	250	262.7	60	170	63	6	✗	30	
AFM45-315-Z39-A60R-XN09-W	315	327.7	60	250	63	6	✗	39	

Note: ✓ With internal coolant

✗ Without internal coolant

Dimension (mm)	Spare parts			
Cutter diameter	Wedge	Screw	Wrench	Touque
⌀80-315				7.0Nm
	AWG-8H	WD080320F	LT-H4	

Product code	Dimension (mm)		P			M	K		N
	Corner radius	Wiper length	AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AW100K
XNGU 0906ANN-MM3	0.8	1.4	●	▲	▲		▲		
XNGU 0906ANN-MM4	0.8	1.4	●	▲	▲		▲		
XNMU 0906ANN-MR6	0.8	1.4	●				▲	●	
XNMF 0906ANN-MR6	0.8	1.4					▲	●	
XNMU 090612-MM4	1.2	-	●	▲		●	▲	●	
XNGX 0906ANN-W	1.0	7.5	●				▲		

●: Stock available ▲: Stock available now but will be replaced in the future.

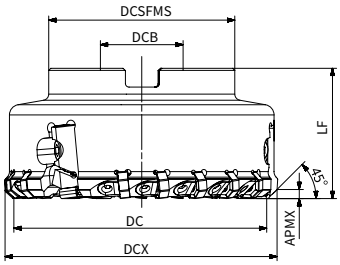
Materials				Cutting depth and feed							
				XN..0906..							
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	ap		Geometry					
						MM3		MM4		MR6	
						fz					
				(mm)							
				min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.20	6.00	0.15	0.35	0.18	0.38	0.18	0.40
		<950	<280								
	Alloyed steel	700-950	200-280			0.12	0.32	0.15	0.35	0.15	0.38
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230			0.12	0.30	0.12	0.32	-	-
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300								
K	Grey cast iron	700	220			0.15	0.35	0.18	0.38	0.18	0.40
	Nodular cast iron	880	260								
	Malleable cast iron	800	250								
N	Aluminum	260	75			-	-	-	-	-	-
	Aluminum alloy	447	130								
S	Fe-based alloy	943	280			0.10	0.25	0.12	0.28	-	-
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
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. Average chip thickness (hm)=fz x sinkr.

AFF40-LN12/LN15

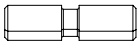
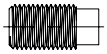
Cast iron finishing milling cutter

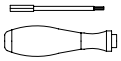




Product code	DC	DCX	DCB	DCSFMS	LF	APMX	Internal coolant	*Z	Number of Wiper insert	Inserts
AFF40-080-Z08-A27R-LN12	80	88.4	27	65	50	0.5		8+2	2	ONHF 050408-MM3 LNHQ 120408FN-W
AFF40-100-Z10-A32R-LN12	100	108.4	32	80	50	0.5		10+2	2	
AFF40-125-Z15-A40R-LN15	125	133.4	40	90	63	0.5		15+3	3	ONHF 050408-MM3 LNHQ 150416FN-W
AFF40-160-Z18-A40R-LN15	160	168.4	40	120	63	0.5		18+3	3	
AFF40-200-Z24-A60R-LN15	200	208.4	60	160	63	0.5		24+3	3	
AFF40-250-Z30-A60R-LN15	250	258.4	60	200	63	0.5		30+3	3	

*means 8pcs rough inserts+2pcs finish inserts

Dimension (mm)	Spare parts				
Cutter diameter	Wedge	Wedge locking screw	Wiper insert locking screw	Wiper insert adjusting screw	Wiper cartridge locking screw
∅80-250					
	AWG-6H-13B	WD060200	SP040085H	AH050100F	SH060250

Dimension (mm)	Spare parts					
Cutter diameter	Wedge screw wrench	Wiper insert screw wrench	Wiper insert adjusting screw wrench	Wiper insert cartridge locking screw wrench	Wiper cartridge	
∅80-250						
	LT-H3	DT-TP10	LT-H2.5	LT-H5	∅80-100	∅125-250
					C-LN1235-2545	C-LN1535-2545

Note: With internal coolant

Without internal coolant

Product code	Dimension (mm)		P		M	K		H
	Corner radius	Wiper length	AP251U	AP351U	AP403M	AC301K	AP251K	AP151H
ONHF 050408-MM3	0.8	-						●
LNHQ 120408FN-W	0.8	-						●
LNHQ 150416FN-W	1.6	-						●

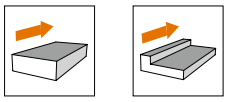
●: Stock available ▲: Stock available now but will be replaced in the future.

Materials				Cutting depth and feed			
				ONHF..05 + LNHQ..12/15			
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	ap		Geometry MM3 + W fz	
				(mm)			
				min	max	min	max
K	Grey cast iron	700	220	0.20	0.50	0.08	0.25
	Nodular cast iron	880	260				
	Malleable cast iron	800	250				

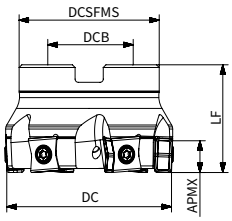
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

ASM90-LN12

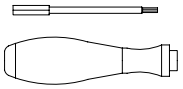
Square shoulder milling cutter







Product code	DC	DCB	DCSFMS	LF	APMX	Internal coolant	Z	Inserts
ASM90-063-Z06-A22R-LN12-C	63	22	52	40	5	✓	6	LN..1206..
ASM90-063-Z06-A22L-LN12-C	63	22	52	40	5	✓	6	
ASM90-063-Z08-A22R-LN12	63	22	52	40	5	✗	8	
ASM90-063-Z08-A22L-LN12	63	22	52	40	5	✗	8	
ASM90-080-Z08-A27R-LN12-C	80	27	62	50	5	✓	8	
ASM90-080-Z08-A27L-LN12-C	80	27	62	50	5	✓	8	
ASM90-080-Z10-A27R-LN12	80	27	62	50	5	✗	10	
ASM90-080-Z10-A27L-LN12	80	27	62	50	5	✗	10	
ASM90-100-Z09-A32R-LN12	100	32	78	50	5	✗	9	
ASM90-100-Z09-A32L-LN12	100	32	78	50	5	✗	9	
ASM90-100-Z13-A32R-LN12	100	32	78	50	5	✗	13	
ASM90-100-Z13-A32L-LN12	100	32	78	50	5	✗	13	
ASM90-125-Z10-A40R-LN12	125	40	90	63	5	✗	10	
ASM90-125-Z10-A40L-LN12	125	40	90	63	5	✗	10	
ASM90-125-Z16-A40R-LN12	125	40	90	63	5	✗	16	
ASM90-125-Z16-A40L-LN12	125	40	90	63	5	✗	16	
ASM90-160-Z13-A40R-LN12	160	40	107	63	5	✗	13	
ASM90-160-Z13-A40L-LN12	160	40	107	63	5	✗	13	
ASM90-160-Z21-A40R-LN12	160	40	107	63	5	✗	21	
ASM90-160-Z21-A40L-LN12	160	40	107	63	5	✗	21	
ASM90-200-Z16-A60R-LN12	200	60	130	63	5	✗	16	
ASM90-200-Z16-A60L-LN12	200	60	130	63	5	✗	16	
ASM90-200-Z26-A60R-LN12	200	60	130	63	5	✗	26	
ASM90-200-Z26-A60L-LN12	200	60	130	63	5	✗	26	
ASM90-250-Z20-A60R-LN12	250	60	180	63	5	✗	20	
ASM90-250-Z20-A60L-LN12	250	60	180	63	5	✗	20	
ASM90-250-Z32-A60R-LN12	250	60	180	63	5	✗	32	
ASM90-250-Z32-A60L-LN12	250	60	180	63	5	✗	32	

Dimension (mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
⌀63-250			3.5Nm
	SP040112	DT-TP15	

Note: ✓ With internal coolant
✗ Without internal coolant

Product code	Dimension (mm)		P			M	K		N
	Corner radius	Wiper length	AP251U	AP351U	AC301P	AP403M	AC151K	AP251K	AW100K
LNET 1206-MM4	0.8	2.5	●			●	●	●	

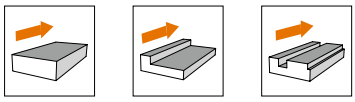
●: Stock available ▲: Stock available now but will be replaced in the future.

Materials				Cutting depth and feed			
				LN..1206..			
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	ap		MM4	
				(mm)			
				min	max	min	max
P	Unalloyed steel	<600	<180	0.20	5.00	0.08	0.35
		<950	<280				
	Alloyed steel	700-950	200-280			0.08	0.30
		950-1200	280-355				
		1200-1400	355-415				
M	Duplex stainless steel	778	230			0.05	0.25
	Austenitic stainless steel	675	200				
	Precipitation-hardening stainless steel	1013	300				
K	Grey cast iron	700	220			0.10	0.35
	Nodular cast iron	880	260				
	Malleable cast iron	800	250				
N	Aluminum	260	75			-	-
	Aluminum alloy	447	130				
S	Fe-based alloy	943	280			0.05	0.20
	Co-based alloy	1076	320				
	Ni-based alloy	1177	350				
	Ti-alloy	1262	370				
H	Hardened steel	-	50-60HRC			-	-
	Chilled cast iron	-	55HRC				

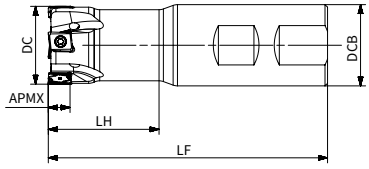
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

ASM90-LN09

Square shoulder milling cutter

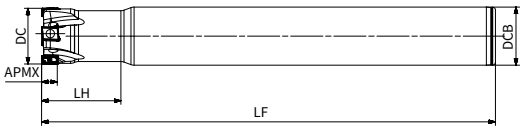




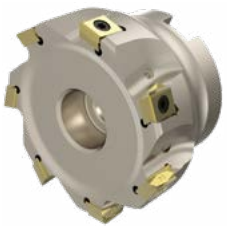


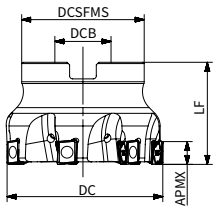
Product code	DC	DCB	LF	LH	APMX	Internal coolant	Z	Inserts
ASM90-025-Z03-W25R-LN09-C	25	25	100	39	8	✓	3	LNHU 0904..
ASM90-025-Z04-W25R-LN09-C	25	25	100	39	8	✓	4	
ASM90-032-Z04-W32R-LN09-C	32	32	110	44	8	✓	4	
ASM90-032-Z05-W32R-LN09-C	32	32	110	44	8	✓	5	
ASM90-040-Z04-W32R-LN09-C	40	32	110	25	8	✓	4	
ASM90-040-Z06-W32R-LN09-C	40	32	110	25	8	✓	6	





Product code	DC	DCB	LF	LH	APMX	Internal coolant	Z	Inserts
ASM90-020-Z02-C20R-LN09-L110	20	20	110	30	8	✗	2	LNHU 0904..
ASM90-020-Z03-C20R-LN09-L110	20	20	110	30	8	✗	3	
ASM90-021-Z02-C20R-LN09-L200	21	20	200	30	8	✗	2	
ASM90-025-Z03-C25R-LN09-L200-C	25	25	200	34	8	✓	3	
ASM90-025-Z04-C25R-LN09-L200-C	25	25	200	34	8	✓	4	
ASM90-026-Z03-C25R-LN09-L200-C	26	25	200	34	8	✓	3	
ASM90-028-Z03-C25R-LN09-L110-C	28	25	110	34	8	✓	3	
ASM90-032-Z04-C32R-LN09-L250-C	32	32	250	45	8	✓	4	
ASM90-032-Z05-C32R-LN09-L250-C	32	32	250	45	8	✓	5	
ASM90-033-Z04-C32R-LN09-L250-C	33	32	250	45	8	✓	4	

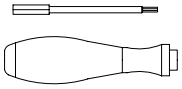




Product code	DC	DCB	LF	DCSFMS	APMX	Internal coolant	Z	Inserts
ASM90-040-Z04-A16R-LN09-C	40	16	40	35	8	✓	4	LNHU 0904..
ASM90-040-Z06-A16R-LN09-C	40	16	40	35	8	✓	6	
ASM90-050-Z05-A22R-LN09-C	50	22	40	42	8	✓	5	
ASM90-050-Z07-A22R-LN09-C	50	22	40	42	8	✓	7	
ASM90-063-Z07-A22R-LN09-C	63	22	40	48	8	✓	7	
ASM90-063-Z10-A22R-LN09-C	63	22	40	48	8	✓	10	
ASM90-080-Z09-A27R-LN09-C	80	27	50	62	8	✓	9	
ASM90-080-Z13-A27R-LN09-C	80	27	50	62	8	✓	13	

Note: ✓ With internal coolant

✗ Without internal coolant

Dimension (mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
⌀20-80			1.8Nm
	SP030083	DT-TP09	

Product code	Dimension (mm)		P			M	K		N
	Corner radius	Wiper length	AP251U	AP351U	AP351M	AP403M	AC301K	AP251K	AW100K
LNHU 090404ER-FM2	0.4	1.85							●
LNHU 090404ER-MM3	0.4	1.85		▲		●			
LNHU 090404ER-MR2	0.4	1.85	●	▲		●	▲	●	
LNHU 090404ER-MM4	0.4	1.85	●		●	●		●	
LNHU 090408ER-MM4	0.8	1.3	●		●	●		●	
LNHU 090408ER-MR2	0.8	1.3	●	▲		●	▲	●	
LNHU 090408ER-MM3	0.8	1.3	●		●	●		●	
LNHU 090412ER-MR2	1.2	1.0	●			●	▲		
LNHU 090416ER-MR2	1.6	0.65	●			●	▲		
LNHU 090420ER-MR2	2.0	0.65	●			●	▲		
LNHU 0904PDER-W	0.4	3.6	●				▲		

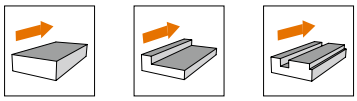
●: Stock available ▲: Stock available now but will be replaced in the future.

Materials				Cutting depth and feed							
				LNHU 0904..							
				ap		Geometry					
						MR2		MM4		FM2	
						fz					
						(mm)					
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.20	8.00	0.08	0.28	0.08	0.25	-	-
		<950	<280								
	Alloyed steel	700-950	200-280			0.06	0.22	0.06	0.20	-	-
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230			0.06	0.22	0.06	0.20	-	-
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300								
K	Grey cast iron	700	220			0.08	0.30	0.08	0.28	-	-
	Nodular cast iron	880	260								
	Malleable cast iron	800	250								
N	Aluminum	260	75			-	-	-	-	0.06	0.25
	Aluminum alloy	447	130								
S	Fe-based alloy	943	280			-	-	0.08	0.15	-	-
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
H	Hardened steel	-	50-60HRC			-	-	-	-	-	-
	Chilled cast iron	-	55HRC								

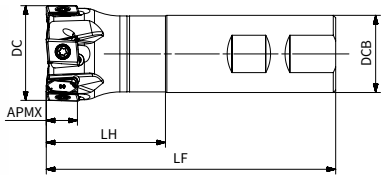
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

ASM90-LN13

Square shoulder milling cutter

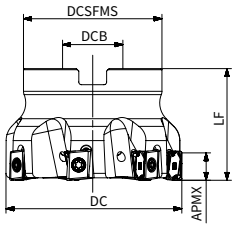




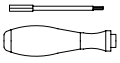
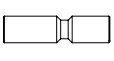
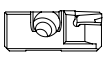
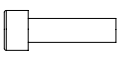


Product code	DC	DCB	LF	LH	APMX	Internal coolant	Z	Inserts
ASM90-040-Z05-W32R-LN13-C	40	32	120	49	12	✓	5	LNHU 1306..





Product code	DC	DCB	LF	DCSFMS	APMX	Internal coolant	Z	Inserts
ASM90-040-Z04-A16R-LN13-C	40	16	40	35	12	✓	4	LNHU 1306..
ASM90-040-Z05-A16R-LN13-C	40	16	40	35	12	✓	5	
ASM90-050-Z05-A22R-LN13-C	50	22	40	42	12	✓	5	
ASM90-050-Z06-A22R-LN13-C	50	22	40	42	12	✓	6	
ASM90-063-Z04-A22R-LN13-C	63	22	40	48	12	✓	4	
ASM90-063-Z06-A22R-LN13-C	63	22	40	48	12	✓	6	
ASM90-063-Z08-A22R-LN13-C	63	22	40	48	12	✓	8	
ASM90-080-Z05-A27R-LN13-C	80	27	50	62	12	✓	5	
ASM90-080-Z07-A27R-LN13-C	80	27	50	62	12	✓	7	
ASM90-080-Z10-A27R-LN13-C	80	27	50	62	12	✓	10	
ASM90-100-Z07-A32R-LN13-C	100	32	50	80	12	✓	7	
ASM90-100-Z09-A32R-LN13-C	100	32	50	80	12	✓	9	
ASM90-100-Z13-A32R-LN13-C	100	32	50	80	12	✓	13	
ASM90-125-Z09-A40R-LN13-C	125	40	63	87	12	✓	9	
ASM90-125-Z11-A40R-LN13-C	125	40	63	87	12	✓	11	
ASM90-125-Z16-A40R-LN13-C	125	40	63	87	12	✓	16	
ASM90-160-Z09-A40R-LN13	160	40	63	107	12	✗	9	
ASM90-160-Z13-A40R-LN13	160	40	63	107	12	✗	13	
ASM90-200-Z12-A60R-LN13	200	60	63	140	12	✗	12	
ASM90-250-Z12-A60R-LN13-M	250	60	63	180	12	✗	12	
ASM90-315-Z14-A60R-LN13-M	315	60	63	220	12	✗	14	

Dimension (mm)	Spare parts								
Cutter diameter	Screw	Wrench	Wedge	Wedge wrench	Wedge screw	Cartridge	Cartridge wrench	Cartridg escrew	Torque
⌀40-315									3.5Nm
	SP040115	DT-TP15	AWG-6H-6	LT-H3	AWCH624	C-LN1342-62-90	LT-H5	ACH622	

Note: ✓ With internal coolant

✗ Without internal coolant

Product code	Dimension (mm)		P			M	K		N
	Corner radius	Wiper length	AP251U	AP351U	AP351M	AP403M	AC301K	AP251K	AW100K
LNHU 130608ER-FM2	0.8	2.7							●
LNHU 130608ER-MM3	0.8	2.7		▲		●			
LNHU 130608ER-MM4	0.8	2.7	●		●	●		●	
LNHU 130608ER-MR2	0.8	2.7	●	▲	●	●	▲	●	
LNHU 130612ER-MM4	1.2	2.3	●		●	●		●	
LNHU 130612ER-MR2	1.2	2.3	●	▲	●	●	▲		
LNHU 130616ER-MR2	1.6	1.9	●	▲	●	●	▲	●	
LNHU 130620ER-MR2	2.0	1.5	●	▲	●	●			
LNHU 130624ER-MR2	2.4	1.0		▲	●	●			
LNHU 130631ER-MR2	3.1	0.4		▲	●	●	▲		
LNHU 1306PDR-W	0.8	5.6	●				▲		

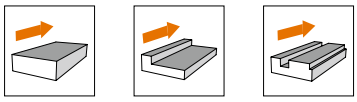
●: Stock available ▲: Stock available now but will be replaced in the future.

Materials				Cutting depth and feed					
				LNHU..1306..					
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	ap		Geometry			
						MM3		MR2	
						fz			
				(mm)					
				min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.3	12.00	0.10	0.30	0.12	0.35
		<950	<280						
	Alloyed steel	700-950	200-280			0.08	0.25	0.10	0.30
		950-1200	280-355						
		1200-1400	355-415						
M	Duplex stainless steel	778	230			0.06	0.20	0.08	0.25
	Austenitic stainless steel	675	200						
	Precipitation-hardening stainless steel	1013	300						
K	Grey cast iron	700	220			-	-	0.12	0.35
	Nodular cast iron	880	260						
	Malleable cast iron	800	250						
N	Aluminum	260	75			-	-	-	-
	Aluminum alloy	447	130						
S	Fe-based alloy	943	280			0.06	0.18	0.08	0.22
	Co-based alloy	1076	320						
	Ni-based alloy	1177	350						
	Ti-alloy	1262	370						
H	Hardened steel	-	50-60HRC			-	-	0.08	0.20
	Chilled cast iron	-	55HRC						

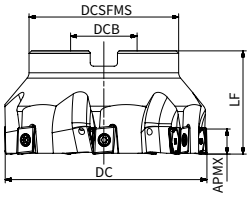
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

ASM90-LN16

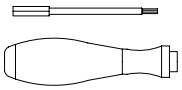
Square shoulder milling cutter







Product code	DC	DCB	LF	DCSFMS	APMX	Internal coolant	Z	Inserts
ASM90-063-Z04-A22R-LN16-C	63	22	40	52	15	✓	4	LNHU 1607..
ASM90-080-Z05-A27R-LN16-C	80	27	50	62	15	✓	5	
ASM90-100-Z06-A32R-LN16-C	100	32	50	80	15	✓	6	
ASM90-125-Z07-A40R-LN16-C	125	40	63	87	15	✓	7	
ASM90-160-Z08-A40R-LN16	160	40	63	107	15	✗	8	

Dimension (mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
∅63-160			5Nm
	ST05013063	DT-T20	

Note: ✓ With internal coolant
✗ Without internal coolant

Product code	Dimension (mm)		P			M	K		N
	Corner radius	Wiper length	AP251U	AP351U	AP351M	AP403M	AC301K	AP251K	AW100K
LNHU 160708ER-MR2	0.8	1.97	●	▲			▲	●	
LNHU 160716ER-MR2	1.6	1.5	●				▲		

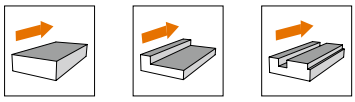
●: Stock available ▲: Stock available now but will be replaced in the future.

Materials				Cutting depth and feed			
				LNHU 1607..			
				ap		Geometry	
						MR2	
						fz	
				(mm)			
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	min	max	min	max
P	Unalloyed steel	<600	<180	0.30	15.00	0.10	0.30
		<950	<280				
	Alloyed steel	700-950	200-280			0.08	0.28
		950-1200	280-355				
		1200-1400	355-415				
M	Duplex stainless steel	778	230			0.08	0.25
	Austenitic stainless steel	675	200				
	Precipitation-hardening stainless steel	1013	300				
K	Grey cast iron	700	220			0.10	0.30
	Nodular cast iron	880	260				
	Malleable cast iron	800	250				
N	Aluminum	260	75			-	-
	Aluminum alloy	447	130				
S	Fe-based alloy	943	280			-	-
	Co-based alloy	1076	320				
	Ni-based alloy	1177	350				
	Ti-alloy	1262	370				
H	Hardened steel	-	50-60HRC			-	-
	Chilled cast iron	-	55HRC				

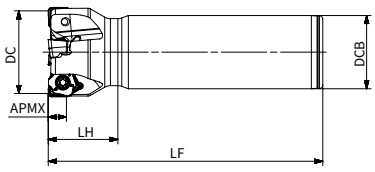
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

ASM90-WN08

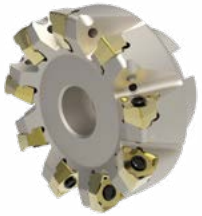
Square shoulder milling cutter

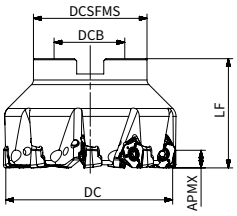




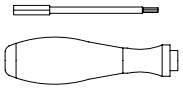


Product code	DC	DCB	LF	LH	APMX	Internal coolant	Z	Inserts
ASM90-040-Z03-W32R-WN08-C	40	32	120	31	7	✓	3	WNGU 0806..
ASM90-040-Z04-W32R-WN08-C	40	32	120	31	7	✓	4	





Product code	DC	DCB	LF	DCSFMS	APMX	Internal coolant	Z	Inserts
ASM90-050-Z04-A22R-WN08-C	50	22	40	42	7	✓	4	WNGU 0806..
ASM90-050-Z05-A22R-WN08-C	50	22	40	42	7	✓	5	
ASM90-063-Z04-A22R-WN08-C	63	22	40	48	7	✓	4	
ASM90-063-Z06-A22R-WN08-C	63	22	40	48	7	✓	6	
ASM90-063-Z07-A22R-WN08-C	63	22	40	48	7	✓	7	
ASM90-080-Z05-A27R-WN08-C	80	27	50	62	7	✓	5	
ASM90-080-Z07-A27R-WN08-C	80	27	50	62	7	✓	7	
ASM90-080-Z09-A27R-WN08-C	80	27	50	62	7	✓	9	
ASM90-100-Z06-A32R-WN08-C	100	32	50	80	7	✓	6	
ASM90-100-Z08-A32R-WN08-C	100	32	50	80	7	✓	8	
ASM90-100-Z11-A32R-WN08-C	100	32	50	80	7	✓	11	
ASM90-125-Z07-A40R-WN08-C	125	40	63	87	7	✓	7	
ASM90-125-Z11-A40R-WN08-C	125	40	63	87	7	✓	11	
ASM90-125-Z13-A40R-WN08-C	125	40	63	87	7	✓	13	
ASM90-160-Z08-A40R-WN08	160	40	63	107	7	✗	8	
ASM90-160-Z12-A40R-WN08	160	40	63	107	7	✗	12	
ASM90-200-Z14-A60R-WN08	200	60	63	140	7	✗	14	
ASM90-250-Z16-A60R-WN08	250	60	63	180	7	✗	16	

Dimension (mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
⌀40-250			3.5Nm
	SP040090	DT-TP15	

Note: ✓ With internal coolant

✗ Without internal coolant

Product code	Dimension (mm)		P				M	K		N	H
	Corner radius	Wiper length	AP251U	AP351U	AP351M	AP401U	AP403M	AC301K	AP251K	AW100K	AP151H
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	●					●			

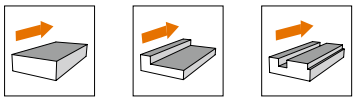
●: Stock available ▲: Stock available now but will be replaced in the future.

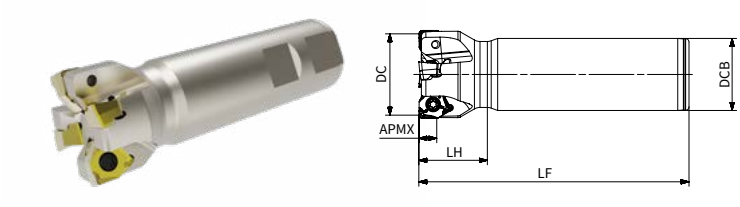
Materials				Cutting depth and feed									
				WNGU..0806..									
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	ap		Geometry							
						FM2		MM3		MM4		MR2	
						fz							
				(mm)									
				min	max	min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.60	8.00	-	-	0.12	0.25	0.12	0.28	0.12	0.30
		<950	<280										
	Alloyed steel	700-950	200-280					0.10	0.20	0.10	0.25	0.10	0.28
		950-1200	280-355										
		1200-1400	355-415										
M	Duplex stainless steel	778	230					0.08	0.18	0.08	0.18	-	-
	Austenitic stainless steel	675	200										
	Precipitation-hardening stainless steel	1013	300										
K	Grey cast iron	700	220					0.12	0.20	0.10	0.28	0.15	0.30
	Nodular cast iron	880	260										
	Malleable cast iron	800	250										
N	Aluminum	260	75			0.10	0.24	-	-	-	-	-	-
	Aluminum alloy	447	130										
S	Fe-based alloy	943	280			-	-	0.12	0.13	0.10	0.15	-	-
	Co-based alloy	1076	320										
	Ni-based alloy	1177	350										
	Ti-alloy	1262	370										
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. Average chip thickness (hm)=fz x sinkr.

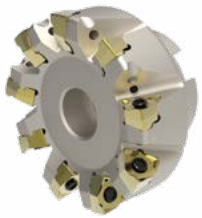
ASM90-WN08-N

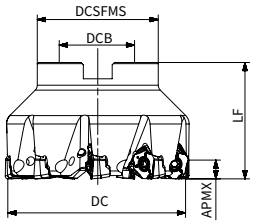
Square shoulder milling cutter



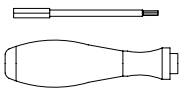


Product code	DC	DCB	LF	LH	APMX	Internal coolant	Z	Inserts
ASM90-040-Z03-W32R-WN08-N-C	40	32	120	30	8	✓	3	WNMU 0806..
ASM90-040-Z04-W32R-WN08-N-C	40	32	120	30	8	✓	4	





Product code	DC	DCB	LF	DCSFMS	APMX	Internal coolant	Z	Inserts
ASM90-050-Z04-A22R-WN08-N-C	50	22	40	42	7	✓	4	WNMU 0806..
ASM90-050-Z05-A22R-WN08-N-C	50	22	40	42	7	✓	5	
ASM90-063-Z04-A22R-WN08-N-C	63	22	40	48	7	✓	4	
ASM90-063-Z06-A22R-WN08-N-C	63	22	40	48	7	✓	6	
ASM90-063-Z07-A22R-WN08-N-C	63	22	40	48	7	✓	7	
ASM90-080-Z05-A27R-WN08-N-C	80	27	50	62	7	✓	5	
ASM90-080-Z07-A27R-WN08-N-C	80	27	50	62	7	✓	7	
ASM90-080-Z09-A27R-WN08-N-C	80	27	50	62	7	✓	9	
ASM90-100-Z06-A32R-WN08-N-C	100	32	50	80	7	✓	6	
ASM90-100-Z08-A32R-WN08-N-C	100	32	50	80	7	✓	8	
ASM90-100-Z11-A32R-WN08-N-C	100	32	50	80	7	✓	11	
ASM90-125-Z07-A40R-WN08-N-C	125	40	63	87	7	✓	7	
ASM90-125-Z11-A40R-WN08-N-C	125	40	63	87	7	✓	11	
ASM90-125-Z13-A40R-WN08-N-C	125	40	63	87	7	✓	13	
ASM90-160-Z08-A40R-WN08-N	160	40	63	107	7	✗	8	
ASM90-160-Z12-A40R-WN08-N	160	40	63	107	7	✗	12	
ASM90-200-Z14-A60R-WN08-N	200	60	63	140	7	✗	14	
ASM90-250-Z16-A60R-WN08-N	250	60	63	180	7	✗	16	

Dimension (mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
⌀40-250			3.5Nm
	SP040112	DT-TP15	

Note: ✓ With internal coolant
✗ Without internal coolant

Product code	Dimension (mm)		P		M	K	
	Corner radius	Wiper length	AP251U	AP351M	AP403M	AC301K	AP251K
WNMU 080608R-MR2	0.8	2.3	●	●	●	▲	●
WNMU 080608R-MM4	0.8	2.3	●	●	●	▲	●
WNMU 080608R-MM3	0.8	2.3	●	●	●	▲	●
WNMU 080612R-MR2	1.2	1.19	●	●		▲	●
WNMU 080612R-MM4	1.2	1.18	●	●	●		●
WNMU 080616R-MR2	1.6	0.81	●		●		
WNMU 080616R-MM4	1.6	0.8	●		●		

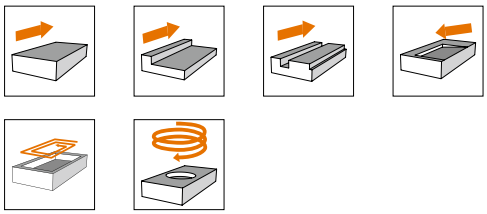
●: Stock available ▲: Stock available now but will be replaced in the future.

Materials				Cutting depth and feed							
				WNMU 0806..							
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	ap		MM3		MM4		MR2	
				(mm)							
				min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.60	8.00	0.12	0.25	0.12	0.28	0.12	0.30
		<950	<280								
	Alloyed steel	700-950	200-280			0.10	0.20	0.10	0.25	0.10	0.28
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230			0.08	0.18	0.08	0.18	-	-
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300								
K	Grey cast iron	700	220			0.12	0.20	0.10	0.28	0.15	0.30
	Nodular cast iron	880	260								
	Malleable cast iron	800	250								
S	Fe-based alloy	943	280			0.12	0.13	0.10	0.15	-	-
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
H	Hardened steel	-	50-60HRC			-	-	-	-	-	-
	Chilled cast iron	-	55HRC								

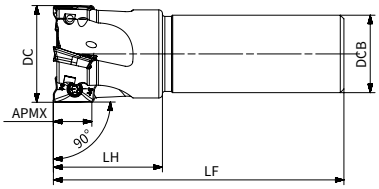
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

ASM90-AP17

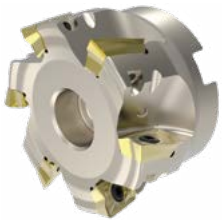
Square shoulder milling cutter

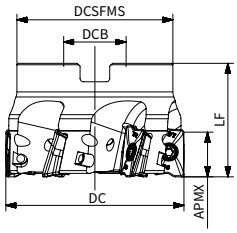






Product code	DC	DCB	LF	LH	APMX	Internal coolant	Z	Inserts
ASM90-025-Z02-C25R-AP17-L100-C	25	25	100	39	16		2	APKT 1705..
ASM90-032-Z03-C32R-AP17-L110-C	32	32	110	40	16		3	
ASM90-032-Z03-C32R-AP17-L200-C	32	32	200	40	16		3	
ASM90-040-Z04-C32R-AP17-L120-C	40	32	120	45	16		4	





Product code	DC	DCB	LF	DCSFMS	APMX	Internal coolant	Z	Inserts
ASM90-050-Z05-A22R-AP17-C	50	22	40	45	16		5	APKT 1705..
ASM90-063-Z06-A22R-AP17-C	63	22	40	55	16		6	
ASM90-080-Z06-A27R-AP17-C	80	27	50	62	16		6	
ASM90-100-Z08-A32R-AP17-C	100	32	50	78	16		8	

Dimension (mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
⌀25	SP040084	DT-TP15	4.0Nm
⌀32-100	SP040100H		

Note: With internal coolant
Without internal coolant

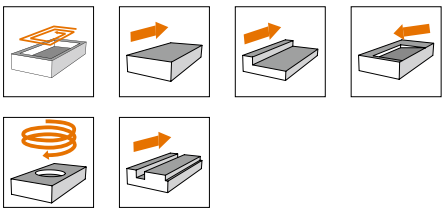
Product code	Dimension (mm)		P			M	K		S	N
	Corner radius	Wiper length	AP251U	AP351U	AP351M	AP403M	AC301K	AP251K	AP403S	AW100K
APKT 1705PDER-DT	0.8	2.16	●	▲		●		●		●
APKT 170516R-DT	1.6	1.7	●					●		
APKT 170524R-DT	2.4	0.95	●		●	●		●		
APKT 170530R-DT	3.0	0.48	●		●	●		●		
APKT 170540R-DT	4.0	-	●		●	●				

●: Stock available ▲: Stock available now but will be replaced in the future.

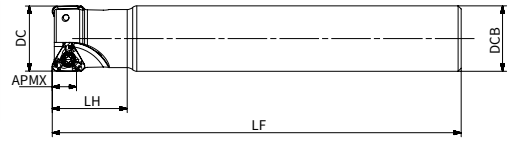
Materials				Cutting depth and feed			
				APKT..1705..			
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	ap		DT fz	
				(mm)			
				min	max	min	max
P	Unalloyed steel	<600	<180	0.10	16.00	0.08	0.25
		<950	<280				
	Alloyed steel	700-950	200-280			0.06	0.22
		950-1200	280-355				
		1200-1400	355-415				
M	Duplex stainless steel	778	230			0.06	0.20
	Austenitic stainless steel	675	200				
	Precipitation-hardening stainless steel	1013	300				
K	Grey cast iron	700	220			0.08	0.25
	Nodular cast iron	880	260				
	Malleable cast iron	800	250				
N	Aluminum	260	75			0.06	0.30
	Aluminum alloy	447	130				
S	Fe-based alloy	943	280			0.06	0.18
	Co-based alloy	1076	320				
	Ni-based alloy	1177	350				
	Ti-alloy	1262	370				
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. Average chip thickness (hm)=fz x sinkr.

ASM90-TD15
Square shoulder milling cutter

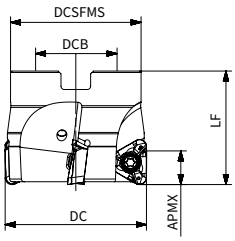






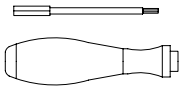
Product code	DC	DCB	LF	LH	APMX	Internal coolant	Z	Inserts
ASM90-032-Z02-C32R-TD15-C	32	32	110	37	11		2	TD.T 1505..
ASM90-032-Z02-C32R-TD15-L200-C	32	32	200	37	11		2	
ASM90-040-Z03-C32R-TD15-C	40	32	120	38	11		3	
ASM90-040-Z03-C32R-TD15-L200-C	40	32	200	38	11		3	

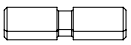
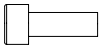
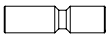




Product code	DC	DCB	LF	DCSFMS	APMX	Internal coolant	Z	Inserts
ASM90-040-Z04-A16R-TD15-C	40	16	40	35	11		4	TD.T 1505..
ASM90-050-Z04-A22R-TD15-C	50	22	40	42	11		4	
ASM90-050-Z05-A22R-TD15-C	50	22	40	42	11		5	
ASM90-063-Z04-A22R-TD15-C	63	22	40	48	11		4	
ASM90-063-Z05-A22R-TD15-C	63	22	40	48	11		5	
ASM90-063-Z06-A22R-TD15-C	63	22	40	48	11		6	
ASM90-080-Z05-A27R-TD15-C	80	27	50	62	11		5	
ASM90-080-Z06-A27R-TD15-C	80	27	50	62	11		6	
ASM90-080-Z07-A27R-TD15-C	80	27	50	62	11		7	
ASM90-100-Z06-A32R-TD15-C	100	32	50	80	11		6	
ASM90-100-Z08-A32R-TD15-C	100	32	50	80	11		8	
ASM90-125-Z07-A40R-TD15-C	125	40	63	87	11		7	
ASM90-125-Z09-A40R-TD15-C	125	40	63	87	11		9	
ASM90-160-Z08-A40R-TD15	160	40	63	107	11		8	
ASM90-160-Z10-A40R-TD15	160	40	63	107	11		10	
ASM90-200-Z09-A60R-TD15	200	60	63	140	11		9	
ASM90-250-Z11-A60-TD15-M	250	60	63	180	11		11	

Note: With internal coolant
Without internal coolant

Dimension (mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
⌀32-250			3.5Nm
	SP040100H	DT-TP15	

Mounting bolt	Mounting bolt wrench	Cartridge screw	Cartridge screw wrench	Wedge	Wedge screw	Wedge screw wrench	Cartridge
							
WD080300	LT-H4	ACH622	LT-H5	AWG-6H-6	AWCH624	LT-H3	C-TD1540-62-90

Product code	Dimension (mm)		P		M	K		N
	Corner radius	Wiper length	AP251U	AP351M	AP403M	AC301K	AP251K	AW100K
TDMT 150508R-MM4	0.8	1.49	●	●	●	▲	●	
TDMT 150512R-MM4	1.2	1	●	●	●	▲	●	
TDMT 150516R-MM4	1.6	0.93	●	●	●	▲	●	
TDMT 150520R-MM4	2	0.71	●		●		●	
TDMT 150524R-MM4	2.4	0.59	●		●		●	
TDMT 150531R-MM4	3.1	0.4	●		●		●	
TDMT 150540R-MM4	4	0.4	●		●		●	
TDMT 150508R-MM3	0.8	1.49	●		●		●	
TDHT 150508R-MM4	0.8	1.5	●				●	

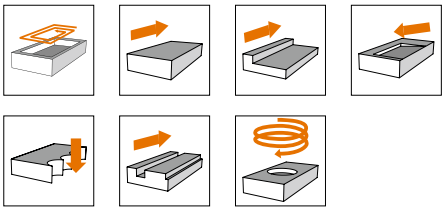
●: Stock available ▲: Stock available now but will be replaced in the future.

Materials				Cutting depth and feed			
				TD.T 1505..			
				ap		fz	
				(mm)			
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	min	max	min	max
P	Unalloyed steel	<600	<180	0.10	11.00	0.08	0.25
		<950	<280				
	Alloyed steel	700-950	200-280			0.06	0.22
		950-1200	280-355				
		1200-1400	355-415				
M	Duplex stainless steel	778	230			0.06	0.20
	Austenitic stainless steel	675	200				
	Precipitation-hardening stainless steel	1013	300				
K	Grey cast iron	700	220			0.08	0.25
	Nodular cast iron	880	260				
	Malleable cast iron	800	250				
N	Aluminum	260	75			0.06	0.30
	Aluminum alloy	447	130				
S	Fe-based alloy	943	280			0.06	0.18
	Co-based alloy	1076	320				
	Ni-based alloy	1177	350				
	Ti-alloy	1262	370				
H	Hardened steel	-	50-60HRC			-	-
	Chilled cast iron	-	55HRC				

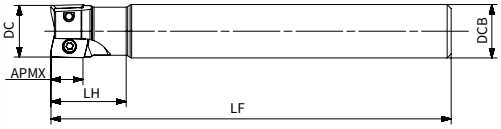
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

ASM90-AO12

Square shoulder milling cutter

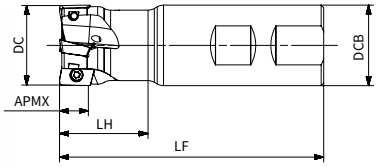






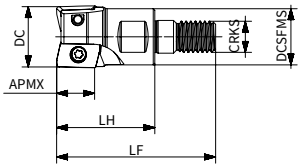
Product code	DC	DCB	LF	LH	APMX	Internal coolant	Z	Inserts
ASM90-020-Z02-C20R-AO12-L150-C	20	20	150	28	11		2	AO.T 1204..
ASM90-025-Z03-C25R-AO12-L170-C	25	25	170	33	11		3	
ASM90-032-Z04-C32R-AO12-L250-C	32	32	250	35	11		4	





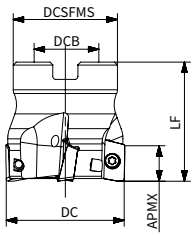
Product code	DC	DCB	LF	LH	APMX	Internal coolant	Z	Inserts
ASM90-020-Z02-W20R-AO12-C	20	20	85	30	11		2	AO.T 1204..
ASM90-025-Z03-W20R-AO12-C	25	20	95	35	11		3	
ASM90-032-Z04-W32R-AO12-C	32	32	105	40	11		4	
ASM90-040-Z04-W32R-AO12-C	40	32	120	45	11		4	





Product code	DC	LF	LH	CRKS	DCSFMS	APMX	Internal coolant	Z	Inserts
ASM90-020-Z02-M10R-AO12-C	20	51	31	M10	18	11		2	AO.T 1204..
ASM90-025-Z03-M12R-AO12-C	25	59	37	M12	23	11		3	
ASM90-032-Z04-M16R-AO12-C	32	72	48	M16	29	11		4	
ASM90-035-Z04-M16R-AO12-C	35	72	48	M16	29	11		4	

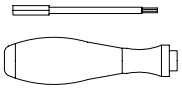




Product code	DC	DCB	LF	DCSFMS	APMX	Internal coolant	Z	Inserts
ASM90-040-Z04-A16R-AO12-C	40	16	40	35	11		4	AO.T 1204..
ASM90-050-Z05-A22R-AO12-C	50	22	40	42	11		5	
ASM90-050-Z07-A22R-AO12-C	50	22	40	42	11		7	
ASM90-063-Z06-A22R-AO12-C	63	22	40	48	11		6	
ASM90-063-Z08-A22R-AO12-C	63	22	40	48	11		8	
ASM90-080-Z07-A27R-AO12-C	80	27	50	62	11		7	
ASM90-080-Z10-A27R-AO12-C	80	27	50	62	11		10	

Note: With internal coolant

Without internal coolant

Dimension (mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
⌀20-32	SP035078		4.0Nm
⌀40-80	SP035086	DT-TP10	

Product code	Dimension (mm)		P		M	K		S
	Corner radius	Wiper length	AP251U	AP351M	AP403M	AC301K	AP251K	AP403S
AOGU 120408ER-MM3	0.8	-	●	●	●			●
AOMT 120408ER-MM4	0.8	1.56	●	●	●		●	●
AOMT 120412ER-MM4	1.2	1.18		●	●			●
AOMT 120416ER-MM4	1.6	1.16		●	●			●
AOMT 120420ER-MM4	2.0	0.96	●	●	●			●
AOMT 120424ER-MM4	2.4	0.93	●	●	●			●
AOMT 120431ER-MM4	3.1	0.59		●	●			●
AOMT 120440ER-MM4	4.0	0.75		●	●			●

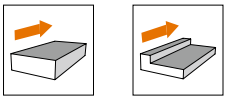
●: Stock available ▲: Stock available now but will be replaced in the future.

Materials				Cutting depth and feed			
				AO.T 1204..			
				ap		fz	
				(mm)			
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	min	max	min	max
P	Unalloyed steel	<600	<180	0.10	11.00	0.08	0.25
		<950	<280				
	Alloyed steel	700-950	200-280			0.06	0.22
		950-1200	280-355				
		1200-1400	355-415				
M	Duplex stainless steel	778	230			0.06	0.20
	Austenitic stainless steel	675	200				
	Precipitation-hardening stainless steel	1013	300				
K	Grey cast iron	700	220			0.08	0.25
	Nodular cast iron	880	260				
	Malleable cast iron	800	250				
N	Aluminum	260	75			0.06	0.30
	Aluminum alloy	447	130				
S	Fe-based alloy	943	280			0.06	0.18
	Co-based alloy	1076	320				
	Ni-based alloy	1177	350				
	Ti-alloy	1262	370				
H	Hardened steel	-	50-60HRC			-	-
	Chilled cast iron	-	55HRC				

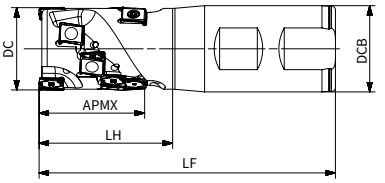
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

APE90-LN09

Square shoulder porcupine milling cutter

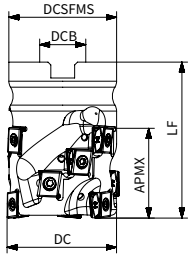






Product code	DC	DCB	LF	LH	APMX	Internal coolant	Z	Row	Insert QTY	Inserts
APE90-025-Z02-W25R-LN09-L32-F-C	25	25	100	43	32		2	4	8	LNHU 0904..
APE90-032-Z02-W32R-LN09-L32-F-C	32	32	105	44	32		2	4	8	
APE90-032-Z02-W32R-LN09-L40-F-C	32	32	110	50	40		2	5	10	
APE90-040-Z03-W40R-LN09-L40-F-C	40	40	125	55	40		3	5	15	
APE90-040-Z03-W40R-LN09-L48-F-C	40	40	130	59	48		3	6	18	

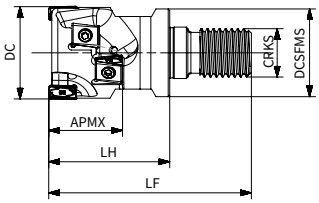




Product code	DC	DCB	LF	DCSFMS	APMX	Internal coolant	Clamping screw	Z	Row	Insert QTY	Inserts
APE90-040-Z03-A16R-LN09-L32-F-C	40	16	55	38	32		SH080400	3	4	12	LNHU 0904..
APE90-040-Z03-A16R-LN09-L40-F-C	40	16	65	38	40		SH080500	3	5	15	
APE90-050-Z04-A22R-LN09-L48-F-C	50	22	75	47.5	48		SH100550	4	6	24	

Clamping screw	Product code	Screw type	Clamping torque
	SH080400	M8*40	41Nm
	SH080500	M8*50	41Nm
	SH100550	M10*55	81Nm

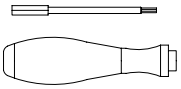




Product code	DC	LF	LH	CRKS	DCSFMS	APMX	Internal coolant	Z	Row	Insert QTY	Inserts
APE90-025-Z02-M12R-LN09-L24-F-C	25	64	40	M12	23	24		2	3	6	LNHU 0904..
APE90-032-Z02-M16R-LN09-L24-F-C	32	67	40	M16	30	24		2	3	6	
APE90-032-Z02-M16R-LN09-L32-F-C	32	77	50	M16	30	32		2	4	8	

Note: With internal coolant

Without internal coolant

Dimension (mm)	Spare parts			
Cutter diameter	Screw	Wrench	Wrench	Torque
⌀25-50				1.8Nm
	SP030083	DT-TP09	AFW-15/24	

Product code	Dimension (mm)		P			M	K		N
	Corner radius	Wiper length	AP251U	AP351U	AP351M	AP403M	AC301K	AP251K	AW100K
LNHU 090404ER-FM2	0.4	1.85							●
LNHU 090404ER-MM3	0.4	1.85		▲		●			
LNHU 090404ER-MR2	0.4	1.85	●	▲		●	▲	●	
LNHU 090404ER-MM4	0.4	1.85	●		●	●		●	
LNHU 090408ER-MM4	0.8	1.3	●		●	●		●	
LNHU 090408ER-MR2	0.8	1.3	●	▲		●	▲	●	
LNHU 090408ER-MM3	0.8	1.3	●		●	●		●	
LNHU 090412ER-MR2	1.2	1.0	●			●	▲		
LNHU 090416ER-MR2	1.6	0.65	●			●	▲		
LNHU 090420ER-MR2	2.0	0.65	●			●	▲		
LNHU 0904PDER-W	0.4	3.6	●					●	

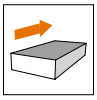
●: Stock available ▲: Stock available now but will be replaced in the future.

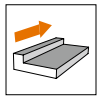
Materials				Cutting depth and feed							
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	LNHU..0904..							
				ap		MM3		MR2		FM2	
						fz					
				(mm)							
				min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.20	48.00	0.06	0.22	0.08	0.25	-	-
		<950	<280								
	Alloyed steel	700-950	200-280			0.05	0.18	0.06	0.20	-	-
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230			0.05	0.18	0.06	0.18	-	-
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300								
K	Grey cast iron	700	220			0.05	0.22	0.08	0.25	-	-
	Nodular cast iron	880	260								
	Malleable cast iron	800	250								
N	Aluminum	260	75			-	-	-	-	0.06	0.25
	Aluminum alloy	447	130								
S	Fe-based alloy	943	280			0.05	0.15	-	-	-	-
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
H	Hardened steel	-	50-60HRC			-	-	0.05	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 coolant. Average chip thickness (hm)=fz x sinkr.

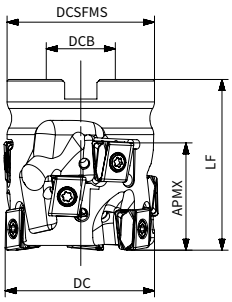
APE90-LN13

Square shoulder porcupine milling cutter



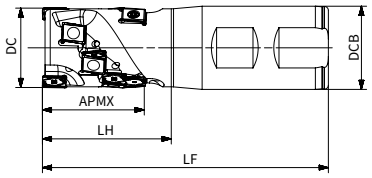






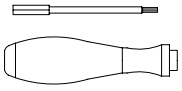
Product code	DC	DCB	LF	DCSFMS	APMX	Internal coolant	Clamping screw	Z	Row	Insert QTY	Inserts
APE90-040-Z02-A16R-LN13-L34-F-C	40	16	55	39	34		SH100400	2	3	6	LNHU 1306..
APE90-040-Z02-A16R-LN13-L45-F-C	40	16	65	39	45		SH100450	2	4	8	
APE90-050-Z03-A22R-LN13-L34-F-C	50	22	55	47.5	34		SH100400	3	3	9	
APE90-050-Z03-A22R-LN13-L45-F-C	50	22	65	47.5	45		SH100450	3	4	12	
APE90-063-Z04-A27R-LN13-L56-F-C	63	27	80	59.5	56		SH120600	4	5	20	
APE90-063-Z04-A27R-LN13-L45-F-C	63	27	70	59.5	45		SH120500	4	4	16	
APE90-080-Z05-A32R-LN13-L56-F-C	80	32	85	75.6	56		SH160650	5	5	25	





Product code	DC	DCB	LF	LH	APMX	Internal coolant	Z	Row	Insert QTY	Inserts
APE90-040-Z02-W40R-LN13-L34-F-C	40	40	120	54	34		2	3	6	LNHU 1306..
APE90-040-Z02-W40R-LN13-L45-F-C	40	40	135	64	45		2	4	8	

Clamping screw	Product code	Screw type	Clamping torque
	SH080400	M8*40	41N-m
	SH080500	M8*50	41N-m
	SH100550	M10*55	81N-m
	SH100400	M10*40	81N-m
	SH100450	M10*45	81N-m
	SH120500	M12*50	142N-m
	SH120600	M12*60	142N-m
	SH160650	M16*65	350N-m

Dimension (mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
⌀40-80			3.5Nm
	SP040115	DT-TP15	

Note: With internal coolant

Without internal coolant

Product code	Dimension (mm)		P			M	K		N
	Corner radius	Wiper length	AP251U	AP351U	AP351M	AP403M	AC301K	AP251K	AW100K
LNHU 130608ER-FM2	0.8	2.7							●
LNHU 130608ER-MM3	0.8	2.7		▲		●			
LNHU 130608ER-MM4	0.8	2.7	●		●	●		●	
LNHU 130608ER-MR2	0.8	2.7	●	▲	●	●	▲	●	
LNHU 130612ER-MM4	1.2	2.3	●		●	●		●	
LNHU 130612ER-MR2	1.2	2.3	●	▲	●	●	▲	●	
LNHU 130616ER-MR2	1.6	1.9	●	▲	●	●		●	
LNHU 130620ER-MR2	2.0	1.5		▲	●	●	▲		
LNHU 130624ER-MR2	2.4	1.0		▲	●	●	▲		
LNHU 130631ER-MR2	3.1	0.4		▲	●	●	▲		
LNHU 1306PDR-W	0.8	5.6	●					●	

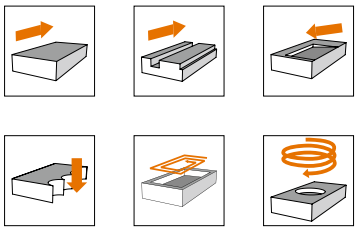
●: Stock available ▲: Stock available now but will be replaced in the future.

Materials				Cutting depth and feed							
				LNHU..1306..							
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	ap		MM3		MR2		FM2	
						fz					
				(mm)							
				min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.30	85	0.10	0.28	0.10	0.30	-	-
		<950	<280								
	Alloyed steel	700-950	200-280			0.08	0.25	0.08	0.28	-	-
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230			0.08	0.22	0.08	0.25	-	-
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300								
K	Grey cast iron	700	220			-	-	0.10	0.32	-	-
	Nodular cast iron	880	260								
	Malleable cast iron	800	250								
N	Aluminum	260	75			-	-	-	-	0.08	0.30
	Aluminum alloy	447	130								
S	Fe-based alloy	943	280			0.06	0.18	0.08	0.22	-	-
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
H	Hardened steel	-	50-60HRC			-	-	0.06	0.15	-	-
	Chilled cast iron	-	55HRC								

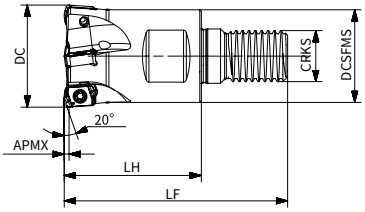
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

AHM20-LN06

20° Approaching angle high feed milling cutter

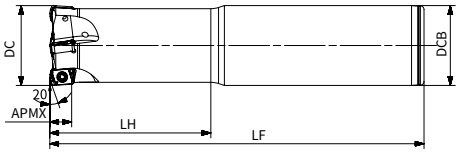




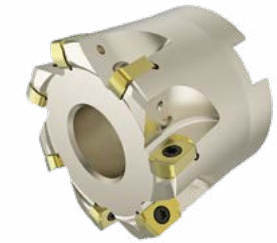


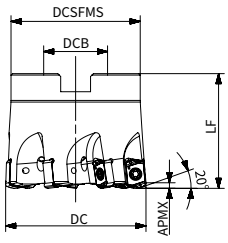
Product code	DC	CRKS	DCSFMS	LF	LH	APMX	Internal coolant	Z	Inserts
AHM20-016-Z02-M08R-LN06-C	16	M8	14.5	42	25	0.65		2	LN..0604..
AHM20-017-Z02-M08R-LN06-C	17	M8	14.5	42	25	0.65		2	
AHM20-020-Z03-M10R-LN06-C	20	M10	18	51	30	0.65		3	
AHM20-021-Z03-M10R-LN06-C	21	M10	18	51	30	0.65		3	
AHM20-025-Z04-M12R-LN06-C	25	M12	23	59	35	0.65		4	
AHM20-026-Z03-M12R-LN06-C	26	M12	23	59	35	0.65		3	
AHM20-026-Z04-M12R-LN06-C	26	M12	23	59	35	0.65		4	
AHM20-032-Z04-M16R-LN06-C	32	M16	23	70	43	0.65		4	
AHM20-032-Z05-M16R-LN06-C	32	M16	29	70	43	0.65		5	
AHM20-033-Z05-M16R-LN06-C	33	M16	29	70	43	0.65		5	
AHM20-035-Z05-M16R-LN06-C	35	M16	29	70	43	0.65		5	
AHM20-040-Z06-M16R-LN06-C	40	M16	29	70	43	0.65		6	





Product code	DC	DCB	LF	LH	APMX	Internal coolant	Z	Inserts
AHM20-016-Z02-C16R-LN06-L100-C	16	16	100	30	0.65		2	LN..0604..
AHM20-017-Z02-C16R-LN06-L150-C	17	16	150	21	0.65		2	
AHM20-020-Z03-C20R-LN06-L130-C	20	20	130	30	0.65		3	
AHM20-021-Z03-C20R-LN06-L160-C	21	20	160	26	0.65		3	
AHM20-025-Z03-C25R-LN06-L140-C	25	25	140	56	0.65		3	
AHM20-026-Z03-C25R-LN06-L180-C	26	25	180	31	0.65		3	
AHM20-032-Z04-C32R-LN06-L150-C	32	32	150	66	0.65		4	
AHM20-033-Z04-C32R-LN06-L200-C	33	32	200	31	0.65		4	
AHM20-035-Z05-C32R-LN06-L200-C	35	32	200	31	0.65		5	

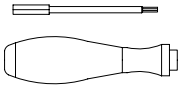




Product code	DC	DCB	DCSFMS	LF	APMX	Internal coolant	Z	Inserts
AHM20-040-Z06-A16R-LN06-C	40	16	35	40	0.65		6	LN..0604..
AHM20-050-Z07-A22R-LN06-C	50	22	45	40	0.65		7	
AHM20-052-Z07-A22R-LN06-C	52	22	45	40	0.65		7	
AHM20-063-Z08-A22R-LN06-C	63	22	52	40	0.65		8	

Note: With internal coolant

Without internal coolant

Dimension (mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
⌀16-63			1.0Nm
	SP02506450H	DT-TP08	

Product code	Dimension (mm)		P			M	K		S	H
	Corner radius	Wiper length	AP251U	AP351U	AP351M	AP403M	AC301K	AP251K	AP403S	AP151H
LNMX 060410R-MM3	1.0	-	●	▲		●			●	●
LNMX 060410R-MM4	1.0	-	●	▲		●			●	●
LNMX 060410R-MM4N	1.0	-	●	▲		●	▲		●	●

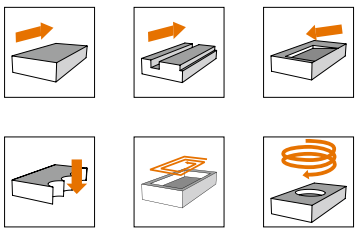
●: Stock available ▲: Stock available now but will be replaced in the future.

Materials				Depth(width) of cut and feed rate							
				LN..0604..							
				High feed milling				Plunging			
				ap		fz		ae		fz	
				(mm)							
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.30	0.65	0.30	1.00	0.50	4.00	0.08	0.15
		<950	<280								
	Alloyed steel	700-950	200-280			0.30	1.00			0.06	0.12
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230			0.25	0.80			0.06	0.12
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300								
K	Grey cast iron	700	220			0.30	1.00			0.08	0.15
	Nodular cast iron	880	260								
	Malleable cast iron	800	250								
N	Aluminum	260	75			-	-			-	-
	Aluminum alloy	447	130								
S	Fe-based alloy	943	280			0.25	0.60			0.06	0.10
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
H	Hardened steel	-	50-60HRC			0.25	0.60			0.06	0.10
	Chilled cast iron	-	55HRC								

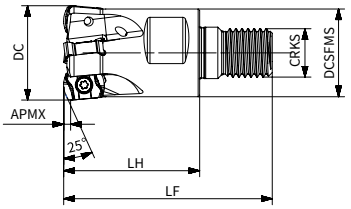
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

AHM25-LN10

25° Approaching angle high feed milling cutter

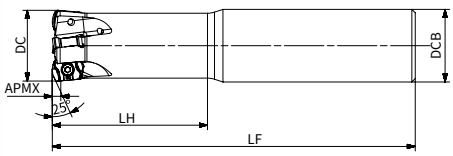






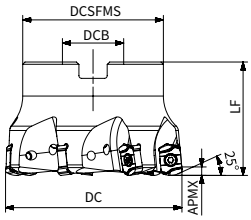
Product code	DC	CRKS	DCSFMS	LF	LH	APMX	Internal coolant	Z	Inserts
AHM25-025-Z02-M12R-LN10-C	25	M12	23	61	39	1.2		2	LN..1005..
AHM25-025-Z03-M12R-LN10-C	25	M12	23	61	39	1.2		3	
AHM25-026-Z03-M12R-LN10-C	26	M12	23	61	39	1.2		3	
AHM25-032-Z03-M16R-LN10-C	32	M16	29	69	45	1.2		3	
AHM25-032-Z04-M16R-LN10-C	32	M16	29	69	45	1.2		4	
AHM25-033-Z04-M16R-LN10-C	33	M16	29	69	45	1.2		4	





Product code	DC	DCB	LF	LH	APMX	Internal coolant	Z	Inserts
AHM25-025-Z02-C25R-LN10-L150-C	25	25	150	70	1.2		2	LN..1005..
AHM25-025-Z03-C25R-LN10-L150-C	25	25	150	70	1.2		3	
AHM25-026-Z03-C25R-LN10-L150-C	26	25	150	30	1.2		3	
AHM25-026-Z03-C25R-LN10-L220-C	26	25	220	30	1.2		3	
AHM25-032-Z03-C32R-LN10-L160-C	32	32	160	70	1.2		3	
AHM25-032-Z04-C32R-LN10-L160-C	32	32	160	70	1.2		4	
AHM25-033-Z04-C32R-LN10-L180-C	33	32	180	30	1.2		4	
AHM25-033-Z04-C32R-LN10-L250-C	33	32	250	30	1.2		4	

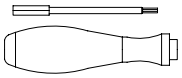




Product code	DC	DCB	DCSFMS	LF	APMX	Internal coolant	Z	Inserts
AHM25-040-Z04-A16R-LN10-C	40	16	38	40	1.2		4	LN..1005..
AHM25-040-Z05-A16R-LN10-C	40	16	38	40	1.2		5	
AHM25-050-Z05-A22R-LN10-C	50	22	45	40	1.2		5	
AHM25-050-Z07-A22R-LN10-C	50	22	45	40	1.2		7	
AHM25-063-Z06-A22R-LN10-C	63	22	52	40	1.2		6	
AHM25-063-Z08-A22R-LN10-C	63	22	52	40	1.2		8	
AHM25-080-Z07-A27R-LN10-C	80	27	62	50	1.2		7	
AHM25-080-Z09-A27R-LN10-C	80	27	62	50	1.2		9	
AHM25-100-Z08-A32R-LN10-C	100	32	78	50	1.2		8	
AHM25-100-Z10-A32R-LN10-C	100	32	78	50	1.2		10	
AHM25-125-Z12-A40R-LN10-C	125	40	90	63	1.2		12	

Note: With internal coolant

Without internal coolant

Dimension (mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
⌀25-125			3.0Nm
	SP035087H	DT-TP10	

Product code	Dimension (mm)		P			M	K		S	H
	Corner radius	Wiper length	AP251U	AP351U	AP351M	AP403M	AC301K	AP251K	AP403S	AP151H
LNMX 100512R-MM3	1.2	-	●	▲	●	●			●	●
LNMX 100512R-MM4	1.2	-	●	▲		●			●	●

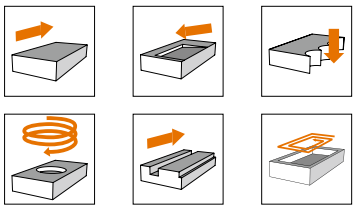
●: Stock available ▲: Stock available now but will be replaced in the future.

Materials				Depth(width) of cut and feed rate							
				LN.. 1005..							
				High feed milling				Plunging			
				ap		fz		ae		fz	
				(mm)							
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.30	1.2	0.30	1.00	0.50	4.00	0.08	0.15
		<950	<280								
	Alloyed steel	700-950	200-280			0.30	1.00			0.06	0.12
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230			0.25	0.80			0.06	0.12
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300			0.25	0.60				
K	Grey cast iron	700	220			0.30	1.00			0.08	0.15
	Nodular cast iron	880	260								
	Malleable cast iron	800	250								
N	Aluminum	260	75			-	-			-	-
	Aluminum alloy	447	130								
S	Fe-based alloy	943	280			0.25	0.60			0.06	0.10
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
H	Hardened steel	-	50-60HRC			0.25	0.60			0.06	0.10
	Chilled cast iron	-	55HRC								

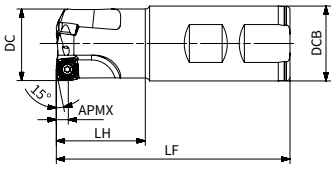
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

AHM15-XD09

15° Approaching angle high feed milling cutter

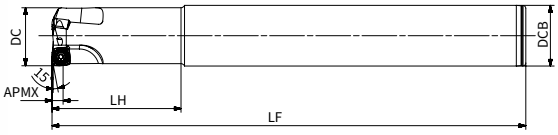






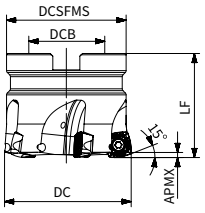
Product code	DC	DCB	LF	LH	APMX	Internal coolant	Z	Inserts
AHM15-025-Z02-W25R-XD09-C	25	25	96	38	1.5		2	XD..0904..
AHM15-032-Z03-W32R-XD09-C	32	32	100	38	1.5		3	



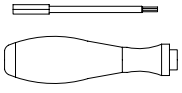


Product code	DC	DCB	LF	LH	APMX	Internal coolant	Z	Inserts
AHM15-025-Z02-C25R-XD09-C	25	25	200	49	1.5		2	XD..0904..
AHM15-026-Z02-C25R-XD09-L180-C	26	25	180	29	1.5		2	
AHM15-032-Z03-C32R-XD09-C	32	32	250	69	1.5		3	





Product code	DC	DCB	DCSFMS	LF	APMX	Internal coolant	Z	Inserts
AHM15-040-Z03-A16R-XD09-C	40	16	35	32	1.5		3	XD..0904..
AHM15-040-Z04-A16R-XD09-C	40	16	35	32	1.5		4	
AHM15-040-Z05-A16R-XD09-C	40	16	35	32	1.5		5	
AHM15-050-Z05-A22R-XD09-C	50	22	46	40	1.5		5	
AHM15-050-Z06-A22R-XD09-C	50	22	46	40	1.5		6	

Dimension (mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
⌀25-50			3.0Nm
	SP035086	DT-TP10	

Note: With internal coolant
Without internal coolant

Product code	Dimension (mm)		P			M	K		S
	Corner radius	Wiper length	AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AP403S
XDLT 090408ER-MM3	0.8	1.3	●	▲	▲		▲		●
XDMW 090408ER-HR2	0.8	1.3					▲		

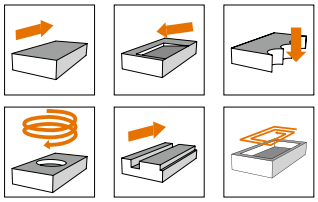
●: Stock available ▲: Stock available now but will be replaced in the future.

Materials				Depth(width) of cut and feed rate							
				XD..0904..							
				High feed milling				Plunging			
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	ap		fz		ae		fz	
				(mm)							
				min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.20	1.50	0.30	1.50	0.00	7.00	0.05	0.15
		<950	<280								
	Alloyed steel	700-950	200-280			0.30	1.50			0.05	0.12
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230			0.20	0.80			0.05	0.10
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300			0.10	0.40			0.05	0.08
K	Grey cast iron	700	220			0.30	1.50			0.05	0.15
	Nodular cast iron	880	260								
	Malleable cast iron	800	250								
N	Aluminum	260	75			-	-			-	-
	Aluminum alloy	447	130								
S	Fe-based alloy	943	280			0.10	0.50			0.05	0.10
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
H	Hardened steel	-	50-60HRC			0.30	1.00			0.05	0.10
	Chilled cast iron	-	55HRC								

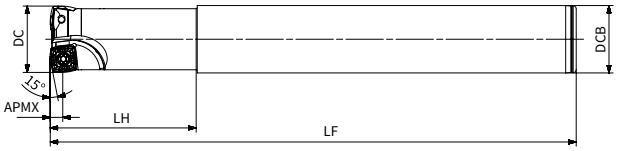
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

AHM15-XD12

15° Approaching angle high feed milling cutter

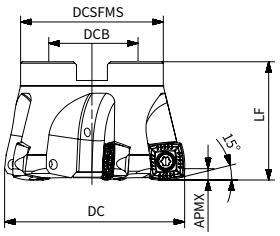






Product code	DC	DCB	LF	LH	APMX	Internal coolant	Z	Inserts
AHM15-032-Z02-C32R-XD12-C	32	32	250	70	2.5		2	XD..1205..

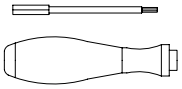




Product code	DC	DCB	DCSFMS	LF	APMX	Internal coolant	Z	Inserts
AHM15-052-Z03-A22R-XD12-C	52	22	45	40	2.5		3	
AHM15-052-Z04-A22R-XD12-C	52	22	45	40	2.5		4	
AHM15-052-Z05-A22R-XD12-C	52	22	45	40	2.5		5	
AHM15-063-Z04-A22R-XD12-C	63	22	48	40	2.5		4	
AHM15-063-Z05-A22R-XD12-C	63	22	48	40	2.5		5	
AHM15-063-Z04-60A22R-XD12-C	63	22	60	40	2.5		4	
AHM15-063-Z05-60A22R-XD12-C	63	22	60	40	2.5		5	
AHM15-066-Z04-A27R-XD12-C	66	27	50	45	2.5		4	
AHM15-066-Z05-A27R-XD12-C	66	27	50	45	2.5		5	
AHM15-066-Z04-63A27R-XD12-C	66	27	63	45	2.5		4	
AHM15-066-Z05-63A27R-XD12-C	66	27	63	45	2.5		5	
AHM15-080-Z05-A27R-XD12-C	80	27	55	50	2.5		5	XD..1205..
AHM15-080-Z08-A27R-XD12-C	80	27	55	50	2.5		8	
AHM15-080-Z05-76A27R-XD12-C	80	27	76	50	2.5		5	
AHM15-080-Z08-76A27R-XD12-C	80	27	76	50	2.5		8	
AHM15-100-Z06-A32R-XD12-C	100	32	80	50	2.5		6	
AHM15-100-Z09-A32R-XD12-C	100	32	80	50	2.5		9	
AHM15-100-Z06-96A32R-XD12-C	100	32	96	50	2.5		6	
AHM15-100-Z09-96A32R-XD12-C	100	32	96	50	2.5		9	
AHM15-125-Z08-A40R-XD12-C	125	40	89	63	2.5		8	
AHM15-125-Z11-A40R-XD12-C	125	40	89	63	2.5		11	
AHM15-125-Z08-100A40R-XD12-C	125	40	100	63	2.5		8	
AHM15-125-Z11-100A40R-XD12-C	125	40	100	63	2.5		11	

Note: With internal coolant

Without internal coolant

Dimension (mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
⌀32-125			3.5Nm
	SP040112	DT-TP15	

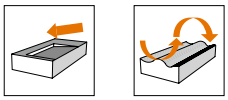
Product code	Dimension (mm)		P			M	K		N
	Corner radius	Wiper length	AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AW100K
XDLT 120508ER-MM3	0.8	2.2	●	▲	▲		▲	●	●
XDLT 120512ER-MM3	1.2	2.2	●	▲	▲		▲	●	
XDMW 120508ER-HR2	0.8	2.2	●				▲		

●: Stock available ▲: Stock available now but will be replaced in the future.

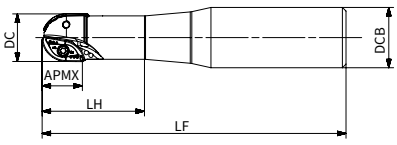
Materials				Depth(width) of cut and feed rate							
				XD..1205..							
				High feed milling				Plunging			
				ap		fz		ae		fz	
				(mm)							
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.50	2.50	0.30	2.00	0.00	10.00	0.06	0.18
		<950	<280								
	Alloyed steel	700-950	200-280			0.30	2.00			0.06	0.15
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230			0.20	1.00			0.06	0.12
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300			0.10	0.60			0.05	0.10
K	Grey cast iron	700	220			0.30	2.00			0.06	0.18
	Nodular cast iron	880	260								
	Malleable cast iron	800	250								
N	Aluminum	260	75			-	-			-	-
	Aluminum alloy	447	130								
S	Fe-based alloy	943	280			0.30	2.00			0.05	0.12
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
H	Hardened steel	-	50-60HRC			0.30	1.00			0.05	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 coolant. Average chip thickness (hm)=fz x sinkr.

APM00-RP
Profile milling



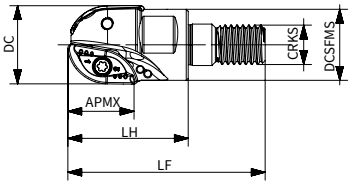




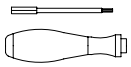
Product code	DC	DCB	LF	LH	APMX	Internal coolant	Z	Inserts
APM00-016-Z02-C20R-RP080-L120-C	16	20	120	35	14		2	RPM 080ER-MM4
APM00-020-Z02-C25R-RP100-L126-C	20	25	126	43	18		2	RPM 100ER-MM4
APM00-020-Z02-C25R-RP100-L176-C	20	25	176	43	18		2	

APM00-RP
Profile milling





Product code	DC	LF	LH	CRKS	DCSFMS	APMX	Internal coolant	Z	Inserts
APM00-016-Z02-M10R-RP080-C	16	49	28	M10	15	14		2	RPM 080ER-MM4
APM00-020-Z02-M10R-RP100-C	20	50	30	M10	15	18		2	RPM 100ER-MM4

Dimension (mm)	Spare parts			
Cutter diameter	Screw	Wrench	Wrench	Torque
⌀16				1.8Nm
	SP02506450H	DT-TP08	AFW-15	
⌀20	SP030072H	DT-TP09		

Note: With internal coolant
Without internal coolant

Product code	Dimension (mm)		P		M		K	S
	Corner radius	Wiper length	AP251U	AP351U	AP401U	AP351M	AP351K	AP403S
RPM 080ER-MM4	8	-	●	▲	●	●		●
RPM 100ER-MM4	10	-	●	▲	●	●		●

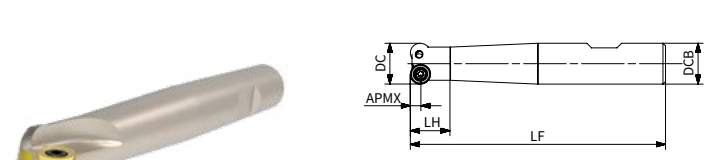
●: Stock available ▲: Stock available now but will be replaced in the future.

Materials				Cutting depth and feed			
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	RPM....			
				ap		MM4 fz	
				(mm)			
				min	max	min	max
P	Unalloyed steel	<600	<180	0.20	15.00	0.10	0.20
		<950	<280				
	Alloyed steel	700-950	200-280			0.10	0.18
		950-1200	280-355				
		1200-1400	355-415				
M	Duplex stainless steel	778	230			0.10	0.18
	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				
N	Aluminum	260	75			-	-
	Aluminum alloy	447	130				
S	Fe-based alloy	943	280			0.06	0.12
	Co-based alloy	1076	320				
	Ni-based alloy	1177	350				
	Ti-alloy	1262	370				
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. Average chip thickness (hm)=fz x sinkr.

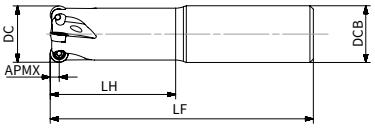
APM00-RO08
Profile milling





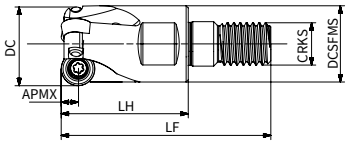
Product code	DC	DCB	LF	LH	APMX	Internal coolant	Z	Inserts
APM00-016-Z02-W16R-RO08-L100	16	16	100	15.6	4		2	RO..0803..



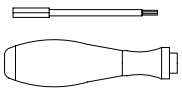


Product code	DC	DCB	LF	LH	APMX	Internal coolant	Z	Inserts
APM00-025-Z04-C25R-RO08-L116-C	25	25	116	55.3	4		4	RO..0803..





Product code	DC	CRKS	DCSFMS	LF	LH	APMX	Internal coolant	Z	Inserts
APM00-020-Z03-M10R-RO08-C	20	M10	18	49.5	30	4		3	RO..0803..

Dimension (mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
⌀16-25			2.0Nm
	SP030072H	DT-TP09	

Note: With internal coolant
Without internal coolant

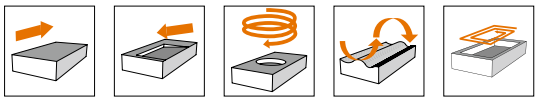
Product code	Dimension (mm)		P			M	K		S
	IC	S	AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AP403S
ROHT 0803MOE-MM3	8	3.18				●			●

●: Stock available ▲: Stock available now but will be replaced in the future.

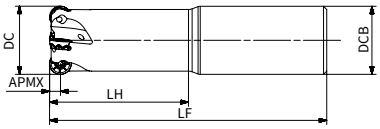
Materials				Cutting depth and feed					
				RO..0803..					
				MM3					
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	ap		fz			
						0.1 < ap ⩽ 1		1 < ap ⩽ 4	
				(mm)					
				min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.50	4.00	0.15	0.50	0.08	0.30
		<950	<280						
	Alloyed steel	700-950	200-280			0.12	0.45	0.06	0.28
		950-1200	280-355						
		1200-1400	355-415						
M	Duplex stainless steel	778	230			0.10	0.40	0.06	0.25
	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						
N	Aluminum	260	75			0.10	0.35	0.06	0.25
	Aluminum alloy	447	130						
S	Fe-based alloy	943	280			-	-	-	-
	Co-based alloy	1076	320						
	Ni-based alloy	1177	350						
	Ti-alloy	1262	370						
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. Average chip thickness (hm)=fz x sinkr.

APM00-RO10
Profile milling

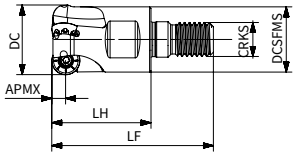






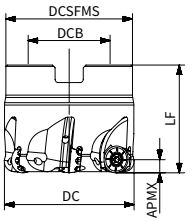
Product code	DC	DCB	LF	LH	APMX	Internal coolant	Z	Inserts
APM00-025-Z03-C25R-RO10-L225-C	25	25	225	56.2	5		3	R0..10T3..
APM00-032-Z04-C32R-RO10-L130-C	32	32	130	65	5		4	



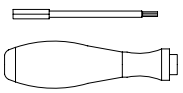


Product code	DC	CRKS	DCSFMS	LF	LH	APMX	Internal coolant	Z	Inserts
APM00-025-Z03-M12R-RO10-C	25	M12	23	59	35	5		3	R0..10T3..
APM00-032-Z04-M16R-RO10-C	32	M16	29	70	43	5		4	





Product code	DC	DCB	DCSFMS	LF	APMX	Internal coolant	Z	Inserts
APM00-040-Z05-A16R-RO10-C	40	16	35	40	5		5	R0..10T3..
APM00-050-Z06-A22R-RO10-C	50	22	47	40	5		6	

Dimension (mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
⌀25-50			2.0Nm
	SP030072H	DT-TP09	

Note: With internal coolant
Without internal coolant

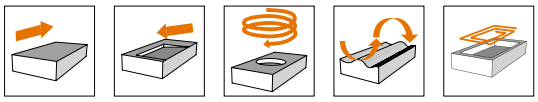
Product code	Dimension (mm)		P			M	K		S
	IC	S	AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AP403S
ROHT 10T3M8E-MM3	10	3.97				●			●
ROMT 10T3M4E-MR6	10	3.97				●			●

●: Stock available ▲: Stock available now but will be replaced in the future.

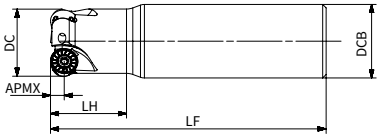
Materials				Cutting depth and feed									
				RO..10T3..									
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	ap		MM3				MR6			
						fz				fz			
						0.1 < ap ⩽ 1.2		1.2 < ap ⩽ 5		0.1 < ap ⩽ 1.2		1.2 < ap ⩽ 5	
				(mm)									
				min	max	min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.80	5.00	0.15	0.55	0.10	0.30	0.15	0.60	0.10	0.32
		<950	<280										
	Alloyed steel	700-950	200-280			0.12	0.50	0.08	0.28	0.12	0.55	0.08	0.30
		950-1200	280-355										
		1200-1400	355-415										
M	Duplex stainless steel	778	230			0.10	0.45	0.08	0.25	0.10	0.50	0.08	0.28
	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										
N	Aluminum	260	75			-	-	-	-	-	-	-	-
	Aluminum alloy	447	130										
S	Fe-based alloy	943	280			0.10	0.40	0.08	0.25	-	-	-	-
	Co-based alloy	1076	320										
	Ni-based alloy	1177	350										
	Ti-alloy	1262	370										
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. Average chip thickness (hm)=fz x sinkr.

APM00-RO12
Profile milling

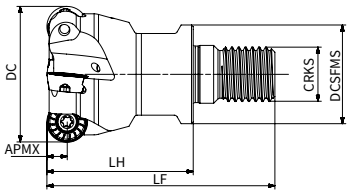






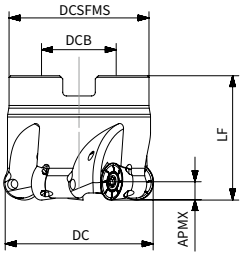
Product code	DC	DCB	LF	LH	APMX	Internal coolant	Z	Inserts
APM00-032-Z03-C32R-RO12-L120-C	32	32	120	33	6		3	RO..1204..



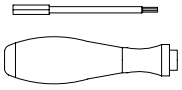


Product code	DC	CRKS	DCSFMS	LF	LH	APMX	Internal coolant	Z	Inserts
APM00-040-Z04-M16R-RO12-C	40	M16	29	70	43	6		4	RO..1204..





Product code	DC	DCB	DCSFMS	LF	APMX	Internal coolant	Z	Inserts
APM00-040-Z04-A16R-RO12-C	40	16	35	40	6		4	RO..1204..
APM00-050-Z05-A22R-RO12-C	50	22	45	40	6		5	
APM00-063-Z06-A22R-RO12-C	63	22	48	40	6		6	
APM00-080-Z07-A27R-RO12-C	80	27	62	50	6		7	

Dimension (mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
⌀32-80			4.0Nm
	SP040085H	DT-TP10	

Note: With internal coolant
Without internal coolant

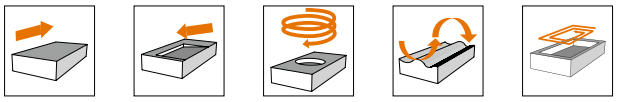
Product code	Dimension (mm)		P			M	K		S
	IC	S	AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AP403S
ROHT 1204M4E-MM3	12	4.76				●			●
ROHT 1204M6E-MM3	12	4.76				●			●
ROMT 1204M6E-MR6	12	4.76				●			●

●: Stock available ▲: Stock available now but will be replaced in the future.

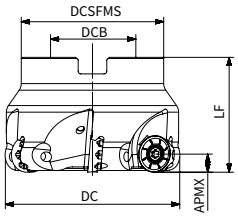
Materials				Cutting depth and feed									
				RO..1204..									
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	ap		MM3				MR6			
						fz							
						0.1 < ap ⩽ 1.5		1.5 < ap ⩽ 6		0.1 < ap ⩽ 1.5		1.5 < ap ⩽ 6	
				(mm)									
				min	max	min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.80	6.00	0.18	0.60	0.12	0.32	0.18	0.65	0.12	0.35
		<950	<280										
	Alloyed steel	700-950	200-280			0.15	0.55	0.10	0.30	0.15	0.60	0.10	0.32
		950-1200	280-355										
		1200-1400	355-415										
M	Duplex stainless steel	778	230			0.12	0.50	0.10	0.28	0.12	0.55	0.10	0.30
	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										
N	Aluminum	260	75			-	-	-	-	-	-	-	-
	Aluminum alloy	447	130										
S	Fe-based alloy	943	280			0.12	0.45	0.10	0.28	-	-	-	-
	Co-based alloy	1076	320										
	Ni-based alloy	1177	350										
	Ti-alloy	1262	370										
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. Average chip thickness (hm)=fz x sinkr.

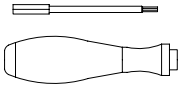
APM00-RO16
Profile milling







Product code	DC	DCB	DCSFMS	LF	APMX	Internal coolant	Z	Inserts
APM00-063-Z05-A22R-RO16-C	63	22	48	40	8		5	RO..1605..
APM00-080-Z06-A27R-RO16-C	80	27	62	50	8		6	
APM00-100-Z07-A32R-RO16-C	100	32	80	50	8		7	

Dimension (mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
⌀63-100			5.0Nm
	SP050120	DT-TP20	

Note: With internal coolant
Without internal coolant

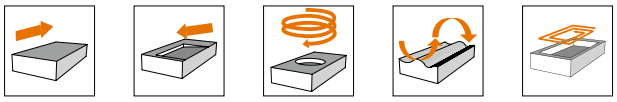
Product code	Dimension (mm)		P			M	K		S
	IC	S	AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AP403S
ROHT 1605M8E-MM3	16	5.56				●			●
ROMT 1605M6E-MR6	16	5.56				●			●

●: Stock available ▲: Stock available now but will be replaced in the future.

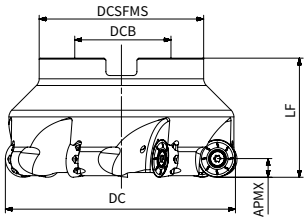
Materials				Cutting depth and feed									
				RO..1605..									
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	ap		MM3				MR6			
						fz							
						0.1 < ap ⩽ 1.5		1.5 < ap ⩽ 8		0.1 < ap ⩽ 1.5		1.5 < ap ⩽ 8	
				(mm)									
				min	max	min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.80	8.00	0.20	0.65	0.12	0.35	0.20	0.68	0.12	0.38
		<950	<280										
	Alloyed steel	700-950	200-280			0.18	0.60	0.10	0.32	0.18	0.65	0.10	0.35
		950-1200	280-355										
		1200-1400	355-415										
M	Duplex stainless steel	778	230			0.15	0.55	0.10	0.30	0.15	0.58	0.10	0.32
	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										
N	Aluminum	260	75			-	-	-	-	-	-	-	-
	Aluminum alloy	447	130										
S	Fe-based alloy	943	280			0.15	0.50	0.10	0.30	-	-	-	-
	Co-based alloy	1076	320										
	Ni-based alloy	1177	350										
	Ti-alloy	1262	370										
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. Average chip thickness (hm)=fz x sinkr.

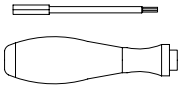
APM00-RO20
Profile milling







Product code	DC	DCB	DCSFMS	LF	APMX	Internal coolant	Z	Inserts
APM00-100-Z06-A32R-RO20-C	100	32	80	50	10		6	RO..2006..
APM00-125-Z07-A40R-RO20-C	125	40	87	63	10		7	
APM00-160-Z08-A40R-RO20	160	40	107	63	10		8	

Dimension (mm)	Spare parts		
Cutter diameter	Screw	Wrench	Torque
⌀100-160			7.0Nm
	ST060180	DT-T25	

Note: With internal coolant
Without internal coolant

Product code	Dimension (mm)		P			M	K		S
	IC	S	AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AP403S
ROHT 2006M8E-MM3	20	6.35				●			●
ROMT 2006M8E-MR6	20	6.35				●			●

●: Stock available ▲: Stock available now but will be replaced in the future.

Materials				Cutting depth and feed									
				RO..2006..									
				ap		MM3				MR6			
						fz							
						0.1 < ap ⩽ 2.5		2.5 < ap ⩽ 10		0.1 < ap ⩽ 2.5		2.5 < ap ⩽ 10	
				(mm)									
ISO	Material classification	Tensile strength (N/mm²)	Hardness (HB)	min	max	min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	1.00	10.00	0.20	0.70	0.15	0.38	0.20	0.80	0.15	0.40
		<950	<280										
	Alloyed steel	700-950	200-280			0.18	0.65	0.12	0.35	0.18	0.70	0.12	0.38
		950-1200	280-355										
		1200-1400	355-415										
M	Duplex stainless steel	778	230			0.15	0.60	0.12	0.32	0.15	0.65	0.12	0.35
	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										
N	Aluminum	260	75			-	-	-	-	-	-	-	-
	Aluminum alloy	447	130										
S	Fe-based alloy	943	280			0.15	0.55	0.12	0.32	-	-	-	-
	Co-based alloy	1076	320										
	Ni-based alloy	1177	350										
	Ti-alloy	1262	370										
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. Average chip thickness (hm)=fz x sinkr.

Milling Insert Denomination System

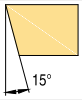
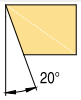
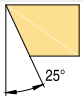
A	O	M	T
1	2	3	4

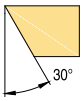
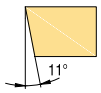
1- Shape/Code

A	H	M	O	R
				
85°	120°	86°	135°	360°

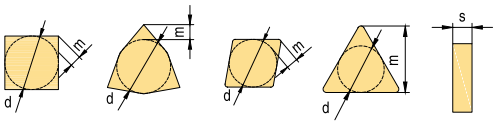
S	T	Z	X
			Special
90°	60°	86°	

2- Clearance Angle

C	D	E	F
			
7°	15°	20°	25°

G	N	P	O
			Other clearance angle
30°	0°	11°	

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	± 0,13
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- Clamping Type

A	B	C	F	G
				
	70°-90°	70°-90°		

H	J	M	N	Q
				
70°-90°	70°-90°			40°-60°

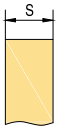
R	T	U	W	Z
				Special
	40°-60°	40°-60°	40°-60°	

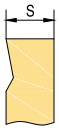
12	04	08	E	R	-	MM4
5	6	7	8	9	-	10

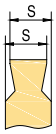
5- Cutting Edge Length

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			

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

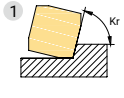
7-Corner Radius and Wiper Edge





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 Approach angle(Entering angle) (kr)
A = 45°
D = 60°
E = 75°
F = 85°
P = 90°
Z = Others

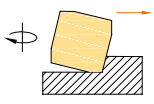
2 Clearance angle of wiper edge (n)
A = 3°
B = 5°
C = 7°
D = 15°
E = 20°
F = 25°
G = 30°
N = 0°
P = 11°
Z = Others

8- Edge Preparation



F — Sharp cutting edge
E — Honed cutting edge
T — Negative land
K — Double negative land
S — Negative land +honed
P — Double negative land +honed

9-Hand of Tool



R — Right hand
L — Left hand
N — Neutral

10-Geometry Refers to Geometry Introduction

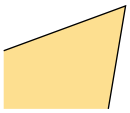
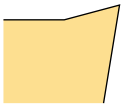
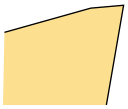
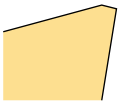
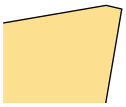
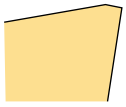
Marked: if it has corner radius, the information needs to put between thickness and wipers.
Example: APET 160408PDFR-FM2

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	General purpose	Medium machining	Roughing	Heavy roughing	Roughing
P	Unalloyed 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	-	-	◐	●	●	●	●
N	Aluminum	260	75	●	-	-	-	-	-	-
	Aluminum alloy	447	130	●	-	-	-	-	-	-
S	Fe-based alloy	943	280	-	●	◐	◐	-	-	-
	Co-based alloy	1076	320	-	●	◐	◐	-	-	-
	Ni-based alloy	1177	350	-	●	◐	◐	-	-	-
	Ti-alloy	1262	370	-	●	◐	◐	-	-	-
H	Hardened steel	-	50-60HRC	-	-	◐	●	-	-	-
	Chilled cast iron	-	55HRC	-	-	◐	●	-	-	-

● 1st choice
◐ 2nd choice
- Inapplicable

Milling Geometry Introduction

Insert geometry	Edge shape	Application
FM2		▪ Low cutting force, for weak machining condition ▪ Sharp geometry ▪ For aluminium material machining
MM3		▪ Low cutting force, for weak machining condition ▪ Sharp geometry ▪ For steel, stainless-steel and heat resistant alloy machining.
MM4		▪ For medium machining condition ▪ Universal geometry ▪ For machining most materials
MR2		▪ For medium or better machining condition ▪ Universal geometry ▪ For machining most materials
MR6		▪ For stable machining condition ▪ Roughing geometry ▪ For machining most materials
HR2		▪ For stable machining condition ▪ Roughing geometry ▪ Mainly for cast iron machining
RR2		▪ For stable machining condition ▪ Heavy roughing geometry ▪ Mainly for cast iron and steel machining
IT		▪ Sharp geometry, for specified product
DT		▪ Universal geometry, for specified product

Grade Application Guide

Milling grade ISO group														
Material Group	Materials	ISO	coated											ISO
			PVD	PVD	PVD	PVD	PVD	PVD	PVD	PVD	CVD	CVD	Uncoated	
P	unalloy steels / Alloyed steels	P01												P01
		P05												P05
		P10												P10
		P15	AP251U											P15
		P20												P20
		P25									AC301P			P25
		P30		AP351U										P30
		P35			AP351M									P35
		P40												P40
		P45												P45
		P50												P50
M	Stainless steels	M01												M01
		M05												M05
		M10												M10
		M15	AP251U											M15
		M20												M20
		M25												M25
		M30			AP351M									M30
		M35					AP403S	AP403M						M35
		M40												M40
		M45												M45
		M50												M50
K	Cast iron	K01												K01
		K05												K05
		K10		AP151H							AC301K			K10
		K15	AP251K											K15
		K20												K20
		K25												K25
		K30												K30
		K35												K35
		K40												K40
		K45												K45
		K50												K50
N	Aluminum/ Aluminum alloys	N01												N01
		N05												N05
		N10											AW100K	N10
		N15												N15
		N20												N20
		N25												N25
		N30												N30
S	Heat resistant alloys	S01												S01
		S05												S05
		S10												S10
		S15												S15
		S20												S20
		S25												S25
		S30		AP351M										S30
		S35												S35
		S40			AP403S	AP403M								S40
		S45												S45
		S50												S50
H	Hardened steels/ Chilled cast iron	H01												H01
		H05												H05
		H10	AP151H											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)	AP251U	AP351U	AP351M	AP401U	AP403S	AP403M	AC301P	AC301K	AP251K	AP151H	AW100K
P	Unalloyed 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	-	-	-	-	-	-	-	●	●	●	-
N	Aluminum	260	75	-	-		-			-	-	-	-	●
	Aluminum alloy	447	130	-	-		-			-	-	-	-	●
S	Fe-based alloy	943	280	-	◐	●	◐	●	●	-	-	-	-	-
	Co-based alloy	1076	320	-	◐	●	◐	●	●	-	-	-	-	-
	Ni-based alloy	1177	350	-	◐	●	◐	●	●	-	-	-	-	-
	Ti-alloy	1262	370	-	◐	●	◐	●	●	-	-	-	-	◐
H	Hardened steel	-	50-60HRC	-	-		-			-	-	-	●	-
	Chilled cast iron	-	55HRC	-	-		-			-	-	-	●	-

● 1st choice
◐ 2nd choice
- Inapplicable

Milling Grade Description

Grade for Normal Milling

P Steel, alloyed steel, unalloyed steel

Basic grade

AP251U P25(P15-P35)

PVD-coated grade, suitable for most applications. First choice for steel machining. It is recommended to be used in rough to finish machining of steel under stable working conditions, good for dry and wet machining with small cutting width, complex tool path and sticky materials.

AC301P P35(P25-P40)

CVD coated grade is suitable for big cutting depth, medium to high speed milling of steel under bad machining conditions.

Supplemental grade

AP351M P35(P25-P45)

PVD coated grade, medium hardness substrate, which is a supplement for AP251U in steel milling when high-toughness is requested.

AP351U P35(P30-P45)

PVD coated grade, medium hardness substrate, which is a supplement for AP251U in steel milling when high-toughness is requested.

M Stainless steel, austenite stainless steel, martensite stainless steel

Basic grade

AP351M M35(M25-M45)

PVD coated grade is used for milling stainless steel and steel at medium and low speed under bad machining conditions.

AP403M M35(M35-M50)

Ultra-thick PVD coated grade is the first choice for stainless steel milling. It is suitable for rough milling of stainless steel under bad machining conditions.

Supplemental grade

AP251U M25(M15-M35)

PVD coated grade is used in rough and finish milling of stainless steel under very stable machining conditions.

AP403S M15(M35-M50)

PVD coated grade, the substrate has both toughness and red hardness characteristics, and is suitable for rough milling of stainless steel under bad machining conditions. Milling at low cutting speed can get longer tool life.

AP351U M35(M30-M45)

PVD coated grade, medium hardness substrate, which is a supplement for AP251U in steel milling when high-toughness is requested. On the way to phase out.

K Cast iron, grey cast iron, nodular cast iron

Basic grade

AC301K K25(K10-K35)

CVD coated grade, suitable for semi-finish milling and rough milling of grey cast iron at medium and high cutting speed, Recommended for dry cutting conditions, can achieve longer tool life.

AP251K K25(K15-K40)

PVD coated grade is suitable for semi-finish and rough milling of grey cast iron and nodular cast iron at medium and low cutting speed, and has good tool life under dry and wet conditions.

Supplemental grade

AP151H K15(K10-K20)

PVD coated grade is suitable for finish milling of grey cast iron and nodular cast iron, which can get constant surface quality and longer tool life.

N Non-ferrous metals

Basic grade

AW100K N15 (N10-N20)

Uncoated grade, combined with sharp cutting edge, used in aluminum alloy milling.

S Heat resistant alloy

Basic grade

AP403S S15(S35-S50)

PVD coated grade, the substrate has both toughness and red hardness characteristics, and is the first choice for titanium alloy machining, as well as the machining of heat resistant alloy under weak rigidity. It is applicable to the milling at low cutting speed and can get longer tool life.

Supplemental grade

AP351M S35(S25-S45)

PVD coated grade is suitable for semi-finishing to light rough machining of heat resistant alloy and titanium alloys.

AP403M S35(S35-S50)

The super-thick PVD coated grade is suitable for low-speed milling of heat resistant alloy and titanium alloys when high toughness is requested, especially in case of large cutting width.

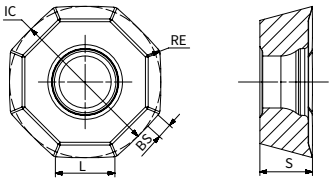
H Hard material, hardened steel

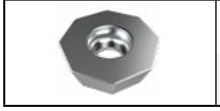
Basic grade

AP151H H15(H10-H20)

PVD coated grade, suitable for milling hardened steel, can be used in rough and finish milling, meeting the needs of most occasions.

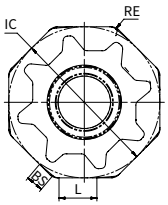
OD..06
Positive octagonal milling inserts

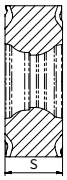


Inserts	Product code	Machining conditions: ● Good condition, ◐ General condition, ✱ Bad condition												
		●	◐	◐	✱	●	●	●						
		Dimension (mm)					P			M	K		N	
		L	IC	S	RE	BS	AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AW100K	
	**ODET 0605APFN-FM2**	6	16	5.56	0.8	1.6							●	
	**ODMT 060508EN-MM3**	6	16	5.56	0.8	-	●	▲	▲		▲	●		
	ODMT 060512EN-MM3	6	16	5.56	1.2	-	●							
	ODHT 0605APEN-MM3	6	16	5.56	0.8	1.6	●	▲			▲	●		
	**ODEW 0605APSR-HR2**	6	16	5.56	-	1.6					▲	●		
	ODMW 060512EN-HR2	6	16	5.56	1.2	-					▲	●		

●: Stock available ▲: Stock available now but will be replaced in the future.

ON..05
Negative octagonal milling inserts

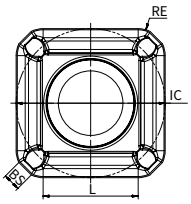




Inserts	Product code	Machining conditions					● Good condition ⬌ General condition ✱ Bad condition						
							●	⬌	⬌	✱	●	●	●
		Dimension (mm)					P			M	K		N
		L	IC	S	RE	BS	AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AW100K
	**ONHU 050408-MM3**	4	12.7	4.76	0.8	-	●						
	ONMU 050408-MM4	4	12.7	4.76	0.8	-	●	▲			▲	●	
	**ONHU 0504ZNR-MM3**	4	12.7	4.76	0.8	1.4	●						

●: Stock available ▲: Stock available now but will be replaced in the future.

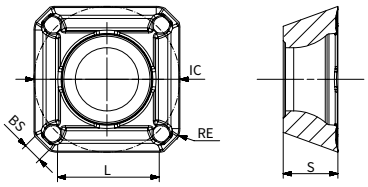
SD..09/12
Positive square milling inserts



Inserts	Product code	Machining conditions					● Good condition ◐ General condition ✱ Bad condition						
							●	◐	◐	✱	●	●	●
		Dimension (mm)					P			M	K		N
		L	IC	S	RE	BS	AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AW100K
	**SDMT 09T304EN-MM3**	8.7	9.525	3.97	0.4	-	●	▲	▲		▲		
	SDMT 09T308EN-MM3	7.9	9.525	3.97	0.8	-	●	▲			▲		
	SDMT 120408EN-MM4	11.1	12.7	4.76	0.8	-	●	▲		●	▲		
	SDMT 120412EN-MM3	10.3	12.7	4.76	1.2	-	●	●	▲		▲		
	**SDKT 1204AEEN-MR2**	8.1	12.7	4.76	-	2		▲				●	
	**SDGT 09T3PDER-MR6**	6.7	9.525	3.97	0.8	1.2	●	▲			●	●	

●: Stock available ▲: Stock available now but will be replaced in the future.

SE..12
Positive square milling inserts

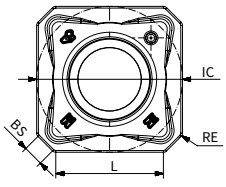


Inserts	Product code	Machining conditions					● Good condition ◖◗ General condition ✱ Bad condition						
							●	◖◗	◖◗	✱	●	●	●
		Dimension (mm)					P			M	K		N
		L	IC	S	RE	BS	AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AW100K
	**SEKT 1204AFER-MR2**	8.9	12.7	4.91	1.2	1.8	●	▲					

●: Stock available ▲: Stock available now but will be replaced in the future.

SN..12/19

Negative short wiper milling inserts(applicable to AFM45-SN12/SN19 milling cutter)

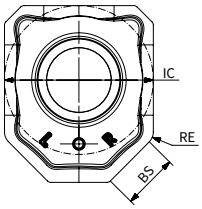


Inserts	Product code	Machining conditions: Dimension (mm) L	IC	S	RE	BS	● Good condition ◐ General condition ✱ Bad condition: ●	◐	◐	✱	●	●	●
							P			M	K		N
							AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AW100K
	**SNHX 1206ANN-FM2**	9.3	12.7	6.25	0.5	1.8							●
	SNGX 1206ANN-MM3	9.4	12.7	6.25	0.4	1.8	●	▲	▲		▲	●	
	SNGX 1206ANN-MM4	9.4	12.7	6.25	0.4	1.8	●	▲	▲	●	▲	●	
	SNGX 1206ANN-MR6	9.4	12.7	6.25	0.4	1.8	●	▲	▲		▲	●	
	SNGX 1206ANN-RR2	9.3	12.7	6.25	0.5	1.8	●	▲	▲		▲	●	
	SNMX 1206ANN-MM3	9.4	12.7	6.25	0.4	1.8	●	▲	▲		▲	●	
	SNMX 1206ANN-MM4	9.4	12.7	6.25	0.4	1.8	●	▲	▲	●	▲	●	
	SNMX 1206ANN-MR6	9.4	12.7	6.25	0.4	1.8	●	▲	▲		▲	●	
	SNGX 1909ANN-MM3	14.2	19.05	8.55	0.4	2.9		▲					
	SNGX 1909ANN-MR6	14.2	19.05	8.55	0.8	2.9		▲					

●: Stock available ▲: Stock available now but will be replaced in the future.

SNHX12

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

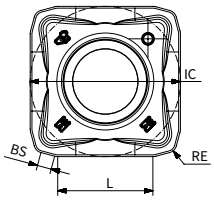


Inserts	Product code	Machining conditions: Dimension (mm) L	IC	S	RE	BS	● Good condition ◐ General condition ✱ Bad condition: ●	◐	◐	✱	●	●	●
							P			M	K		N
							AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AW100K
	**SNHX 1206ANN-W**	-	12.7	6.25	1.2	6.7	●				▲		

●: Stock available ▲: Stock available now but will be replaced in the future.

SN..12

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

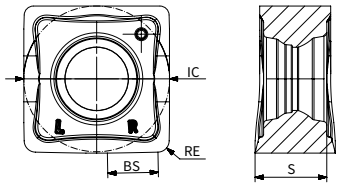


Inserts	Product code	L	IC	S	RE	BS	AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AW100K
		Machining conditions					● Good condition ⬌ General condition ✱ Bad condition						
							●	⬌	⬌	✱	●	●	●
		Dimension (mm)					P			M	K		N
	**SNGX 1206ENN-MM3**	8.1	12.7	6.35	0.8	1.2	●	▲	▲		▲	●	
	SNGX 1206ENN-MM4	8.1	12.7	6.35	0.8	1.2	●	▲	▲		▲	●	
	SNGX 1206ENN-MR6	8.1	12.7	6.35	0.8	1.2	●	▲	▲		▲	●	
	SNMX 1206ENN-MM4	8.1	12.7	6.35	0.8	1.2			▲			●	

●: Stock available ▲: Stock available now but will be replaced in the future.

SNHX12

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

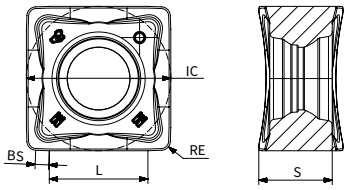


Inserts	Product code	L	IC	S	RE	BS	AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AW100K
		Machining conditions					● Good condition ⬌ General condition ✱ Bad condition						
							●	⬌	⬌	✱	●	●	●
		Dimension (mm)					P			M	K		N
	**SNHX 1206ENN-W**	-	12.7	6.25	0.6	1.2	●				▲		

●: Stock available ▲: Stock available now but will be replaced in the future.

SN..12

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

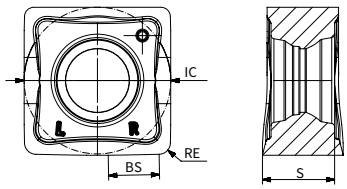


Inserts	Product code	L	IC	S	RE	BS	AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AW100K
		Machining conditions					● Good condition ◐ General condition ✱ Bad condition						
							●	◐	◐	✱	●	●	●
		Dimension (mm)					P			M	K		N
	**SNHX 1206ZNN-FM2**	8.7	12.7	6.45	0.8	1.2							●
	SNGX 1206ZNN-MM4	8.7	12.7	6.45	0.8	1.2	●	▲	▲	●	▲	●	
	SNGX 1206ZNN-MR6	8.7	12.7	6.45	0.8	1.2	●	▲	▲		▲	●	
	SNGX 1206ZNN-MM3	8.7	12.7	6.45	0.8	1.2	●	▲	▲		▲	●	
	SNMX 1206ZNN-MM4	8.7	12.7	6.45	0.8	1.2	●			●		●	

●: Stock available ▲: Stock available now but will be replaced in the future.

SNHX12

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

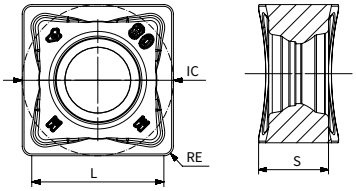


Inserts	Product code	L	IC	S	RE	BS	AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AW100K
		Machining conditions					● Good condition ◐ General condition ✱ Bad condition						
							●	◐	◐	✱	●	●	●
		Dimension (mm)					P			M	K		N
	**SNHX 1206ZNN-W**	-	12.7	6.25	1.0	4.4	●				▲		

●: Stock available ▲: Stock available now but will be replaced in the future.

SN..12

Negative square milling inserts with corner radius

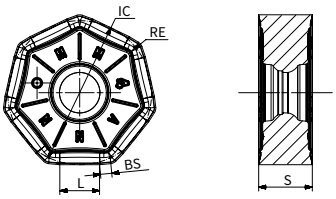


Inserts	Product code	Machining conditions					● Good condition ⬌ General condition ✱ Bad condition						
							●	⬌	⬌	✱	●	●	●
		Dimension (mm)					P			M	K		N
		L	IC	S	RE	BS	AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AW100K
	**SNGX 120608-MM4**	11.1	12.7	6.4	0.8	-	●	▲	▲		▲	●	
	SNGX 120612-MM4	10.3	12.7	6.4	1.2	-	●						
	**SNMX 120608-MM4**	11.1	12.7	6.4	0.8	-	●	▲	▲		▲	●	
	SNMX 120612-MM3	10.3	12.7	6.4	1.2	-	●	▲	▲		▲	●	
	SNMX 120612-MM4	10.3	12.7	6.4	1.2	-	●	▲	▲		▲	●	
	SNMX 120612-MR6	10.3	12.7	6.4	1.2	-	●	▲	▲		▲	●	
	SNMX 120612-RR2	10.3	12.7	6.4	1.2	-	●	▲	▲		▲	●	
	SNMX 120620-MM4	8.7	12.7	6.4	2.0	-	●	▲	▲		▲	●	
	SNMX 120620-RR2	8.7	12.7	6.4	2.0	-	●	▲	▲		▲	●	
	**SNMX 120612R-MM4**	8.7	12.7	6.4	1.2	-	●	▲	▲	●	▲	●	

●: Stock available ▲: Stock available now but will be replaced in the future.

XN..07/09ANN

Negative heptagonal milling inserts with short wiper

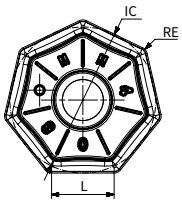


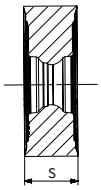
Inserts	Product code	Machining conditions: Dimension (mm) L	IC	S	RE	BS	● Good condition ⊕ General condition ✱ Bad condition: P AP251U	P AP351U	P AC301P	M AP403M	K AC301K	K AP251K	N AW100K
							●	⊕	⊕	✱	●	●	●
	**XNGU 0705ANN-MM3**	7	14.5	5	0.8	1.1	●	▲			▲		
	**XNGU 0705ANN-MM4**	7	14.5	5	0.8	1.1	●				▲		
	XNMU 0705ANN-MM4	7	14.5	5	0.8	1.1	●	▲	▲		▲	●	
	**XNMU 0705ANN-MR6**	7	14.5	5	0.8	1.1	●	▲			▲	●	
	**XNGU 0906ANN-MM3**	9.2	19	5.875	0.8	1.4	●	▲	▲		▲		
	**XNGU 0906ANN-MM4**	9.2	19	5.875	0.8	1.4	●	▲	▲		▲		
	**XNMU 0906ANN-MR6**	9.2	19	5.875	0.8	1.4	●				▲	●	

●: Stock available ▲: Stock available now but will be replaced in the future.

XN..07/09

Negative heptagonal milling inserts with corner radius



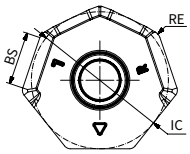


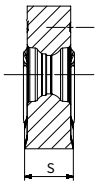
Inserts	Product code	Dimension (mm)					Machining conditions ● Good condition ⬌ General condition ✱ Bad condition						
							●	⬌	⬌	✱	●	●	●
							P			M	K		N
		L	IC	S	RE	BS	AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AW100K
	**XNMU 070508-MM4**	7	14.5	5	0.8	-	●	▲		●	▲	●	
	XNMU 090612-MM4	9.2	19	5.875	1.2	-	●	▲		●	▲	●	

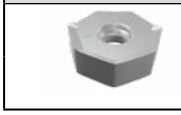
●: Stock available ▲: Stock available now but will be replaced in the future.

XNGX 07/09ANN-W

Negative milling inserts with long wiper

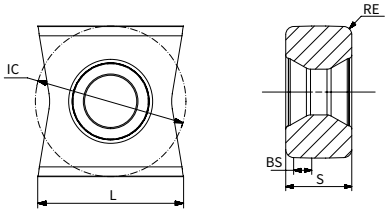




Inserts	Product code	Dimension (mm)					Machining conditions ● Good condition ⬌ General condition ✱ Bad condition						
							●	⬌	⬌	✱	●	●	●
		L	IC	S	RE	BS	AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AW100K
	**XNGX 0705ANN-W**	6	15	5	1.0	1.1	●				▲		
	XNGX 0906ANN-W	7.5	19.05	5.88	1.0	1.4	●				▲		

●: Stock available ▲: Stock available now but will be replaced in the future.

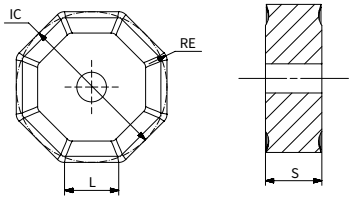
LNET 12
Square shoulder milling inserts



Inserts	Product code	Machining conditions: ● Good condition, ◐ General condition, ✱ Bad condition												
							●	◐	◐	✱	●	●	●
		Dimension (mm)					P			M	K		N
		L	IC	S	RE	BS	AP251U	AP351U	AC301P	AP403M	AC151K	AP251K	AW100K
	**LNET 1206-MM4**	12.3	12.7	6.35	0.8	2.5	●			●	●	●	

●: Stock available ▲: Stock available now but will be replaced in the future.

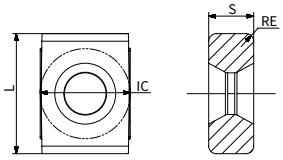
ON05/LN12/LN15
Cast iron finishing machining inserts



Inserts	Product code	Dimension (mm)				Machining conditions: ● Good condition, ⇕ General condition, ✱ Bad condition					
						●	⇕	✱	●	●	●
						P		M	K		H
		L	IC	S	RE	AP251U	AP351U	AP403M	AC301K	AP251K	AP151H
	**ONHF 050408-MM3**	5.3	12.7	4.76	0.8						●

●: Stock available ▲: Stock available now but will be replaced in the future.

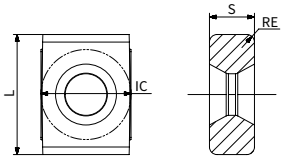
LN12
Cast iron finishing wiper insert



Inserts	Product code	Dimension (mm)				Machining conditions: ● Good condition, ⇕ General condition, ✱ Bad condition					
						●	⇕	✱	●	●	●
						P		M	K		H
		L	IC	S	RE	AP251U	AP351U	AP403M	AC301K	AP251K	AP151H
	**LNHQ 120408FN-W**	12.7	9.525	4.76	0.8						●

●: Stock available ▲: Stock available now but will be replaced in the future.

LN15
Cast iron finishing wiper insert

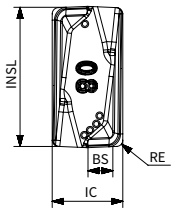


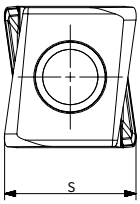
Inserts	Product code	Dimension (mm)				Machining conditions: ● Good condition, ⇕ General condition, ✱ Bad condition					
						●	⇕	✱	●	●	●
						P		M	K		H
		L	IC	S	RE	AP251U	AP351U	AP403M	AC301K	AP251K	AP151H
	**LNHQ 150416FN-W**	15.875	9.525	4.76	1.6						●

●: Stock available ▲: Stock available now but will be replaced in the future.

LNHU 0904..

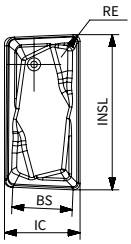
Negative square shoulder milling inserts

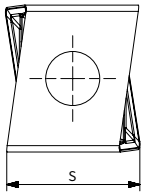


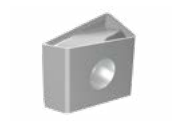


Inserts	Product code	Dimension (mm)					Machining conditions: ● Good condition, ⧓ General condition, ✱ Bad condition						
							●	⧓	⧓	✱	●	●	●
							P			M	K		N
		INSL	IC	S	RE	BS	AP251U	AP351U	AP351M	AP403M	AC301K	AP251K	AW100K
	**LNHU 090404ER-FM2**	9	4.5	8.49	0.4	1.85							●
	LNHU 090404ER-MM3	9	4.5	8.49	0.4	1.85		▲		●			
	LNHU 090404ER-MR2	9	4.5	8.49	0.4	1.85	●	▲		●	▲	●	
	LNHU 090404ER-MM4	9	4.5	8.5	0.4	1.85	●		●	●		●	
	LNHU 090408ER-MM4	9	4.5	8.5	0.8	1.45	●		●	●		●	
	LNHU 090408ER-MR2	9	4.5	8.4	0.8	0.98	●	▲		●	▲	●	
	LNHU 090408ER-MM3	9	4.5	8.5	0.8	1.45	●		●	●		●	
	LNHU 090412ER-MR2	9	4.5	8.31	1.2	1.0	●			●	▲		
	LNHU 090416ER-MR2	9	4.5	8.22	1.6	0.65	●			●	▲		
	LNHU 090420ER-MR2	9	4.5	8.12	2.00	0.65	●			●	▲		

●: Stock available ▲: Stock available now but will be replaced in the future.



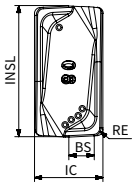


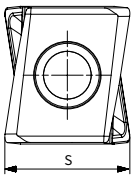
Inserts	Product code	Dimension (mm)					Machining conditions: ● Good condition, ⧓ General condition, ✱ Bad condition						
							●	⧓	⧓	✱	●	⧓	●	●
							P			M	K			N
		INSL	IC	S	RE	BS	AP251U	AP351U	AP351M	AP403M	AC301K	AP251K	AP351K	AW100K
	**LNHU 0904PDER-W**	9.2	4.5	8.38	0.4	3.6	●				▲			

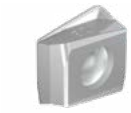
●: Stock available ▲: Stock available now but will be replaced in the future.

LNHU 1306..

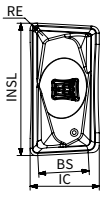
Negative square shoulder milling inserts

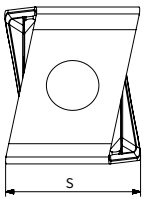


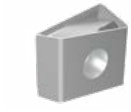


Inserts	Product code	Machining conditions: ● Good condition, ⇔ General condition, ✱ Bad condition												
		●	⇔	⇔	✱	●	●	●						
		Dimension (mm)					P			M	K			N
		INSL	IC	S	RE	BS	AP251U	AP351U	AP351M	AP403M	AC301K	AP251K	AW100K	
	**LNHU 130608ER-FM2**	13.02	6.8	8.49	0.8	2.7							●	
	LNHU 130608ER-MM3	13.02	6.8	11.85	0.8	2.7		▲		●				
	LNHU 130608ER-MM4	13.02	6.8	11.85	0.8	2.7	●		●	●		●		
	LNHU 130608ER-MR2	13.02	6.8	11.85	0.8	2.7	●	▲	●	●	▲	●		
	LNHU 130612ER-MM4	13.02	6.8	11.74	1.2	2.3	●		●	●		●		
	LNHU 130612ER-MR2	13.02	6.8	11.73	1.2	1.3	●	▲	●	●	▲	●		
	LNHU 130616ER-MR2	13.02	6.8	11.6	1.6	1.9	●	▲	●	●		●		
	LNHU 130620ER-MR2	13.02	6.8	11.52	2	1.5		▲	●	●	▲			
	LNHU 130624ER-MR2	13.02	6.8	11.4	2.4	1.0		▲	●	●	▲			
	LNHU 130631ER-MR2	13.02	6.8	11.23	3.1	0.4		▲	●	●	▲			

●: Stock available ▲: Stock available now but will be replaced in the future.



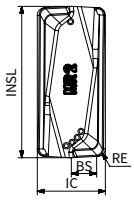


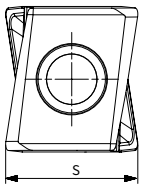
Inserts	Product code	Machining conditions: ● Good condition, ⇔ General condition, ✱ Bad condition												
		●	⇔	⇔	✱	●	⇔	●	●					
		Dimension (mm)					P			M	K			N
		INSL	IC	S	RE	BS	AP251U	AP351U	AP351M	AP403M	AC301K	AP251K	AP351K	AW100K
	**LNHU 1306PDR-W**	13.39	6.8	11.63	0.8	5.2	●						●	

●: Stock available ▲: Stock available now but will be replaced in the future.

LNHU 1607..

Negative square shoulder milling inserts



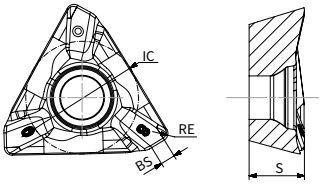


Inserts	Product code	Machining conditions: Dimension (mm) INSL	IC	S	RE	BS	P: AP251U	P: AP351U	P: AP351M	M: AP403M	K: AC301K	K: AP251K	N: AW100K
		Machining conditions					● Good condition	◐ General condition	◐ General condition	✱ Bad condition	●	●	●
	**LNHU 160708ER-MR2**	16	7.2	15.1	0.8	1.97	●	▲			▲	●	
	LNHU 160716ER-MR2	16	7.2	14.94	1.6	1.5	●				▲		

●: Stock available ▲: Stock available now but will be replaced in the future.

TDMT 1505..

Positive square shoulder triangle milling inserts

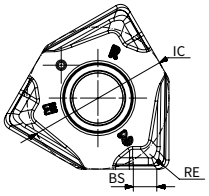


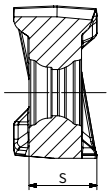
Inserts	Product code	Machining conditions				● Good condition ◐ General condition ✱ Bad condition						
						●	◐	◐	✱	●	●	●
		Dimension (mm)				P			M	K		N
		IC	S	RE	BS	AP251U	AP351U	AP351M	AP403M	AC301K	AP251K	AW100K
	**TDMT 150508R-MM4**	11.4	5.6	0.8	1.49	●		●	●	▲	●	
	TDMT 150512R-MM4	11.4	5.6	1.2	1.0	●		●	●	▲	●	
	TDMT 150516R-MM4	11.4	5.6	1.6	0.93	●		●	●	▲	●	
	TDMT 150520R-MM4	11.4	5.6	2.0	0.71	●			●		●	
	TDMT 150524R-MM4	11.4	5.6	2.4	0.59	●			●		●	
	TDMT 150531R-MM4	11.4	5.56	3.1	0.4	●			●		●	
	TDMT 150540R-MM4	11.4	5.56	4.0	0.4	●			●		●	
	TDMT 150508R-MM3	11.4	5.56	0.8	1.49	●			●		●	
	TDHT 150508R-MM4	11.4	5.6	0.8	1.5	●					●	

●: Stock available ▲: Stock available now but will be replaced in the future.

WNGU 0806..

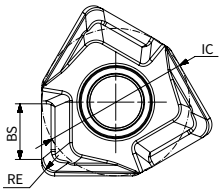
Negative square shoulder milling inserts

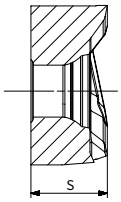


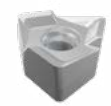


Inserts	Product code	Machining conditions: Dimension (mm) IC	S	RE	BS	● Good condition ⊕ General condition ✱ Bad condition	P: AP251U	P: AP351U	P: AP351M	M: AP401U	M: AP403M	K: AC301K	K: AP251K	N: AW100K	H: AP151H
	**WNHU 080608R-FM2**	12.5	6.45	0.8	2.0									●	
	WNGU 080604R-MM3	12.5	6.44	0.4	2.2			▲	●	▲					
	WNGU 080608R-MM3	12.5	6.45	0.8	2.0	●	▲	●	▲	●			●		
	WNGU 080604R-MM4	12.5	6.44	0.4	2.2	●	▲	●	▲				●		
	WNGU 080608R-MM4	12.5	6.44	0.8	2.0	●	▲	●	▲			▲	●		●
	WNGU 080612R-MM4	12.5	6.44	1.2	1.6	●	▲	●	▲						
	WNGU 080616R-MM4	12.5	6.44	1.6	1.2	●	▲	●	▲						
	WNGU 080608R-MR2	12.5	6.45	0.8	2.0	●	▲	●		●	▲		●		
	WNGU 080612R-MR2	12.5	6.44	1.2	1.6	●		●					●		
	WNGU 080616R-MR2	12.5	6.45	1.6	1.2	●		●					●		

●: Stock available ▲: Stock available now but will be replaced in the future.



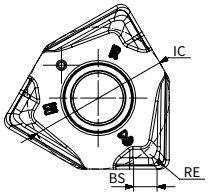


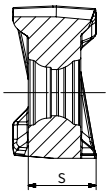
Inserts	Product code	Machining conditions: Dimension (mm) IC	S	RE	BS	● Good condition ⊕ General condition ✱ Bad condition	P: AP301U	P: AP251U	P: AP351U	P: AP351M	M: AP403M	K: AC301K	N: AW100K
	**WNHX 0806ZZR-W**	12.5	6.47	1.1	4.71		●					▲	

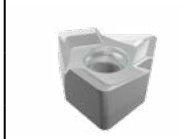
●: Stock available ▲: Stock available now but will be replaced in the future.

WNMU 0806..

Negative square shoulder milling inserts



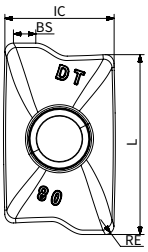


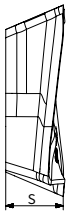
Inserts	Product code	Machining conditions: ● Good condition, ⬌ General condition, ✱ Bad condition				●	⬌	✱	●	●
		Dimension (mm)				P		M	K	
		IC	S	RE	BS	AP251U	AP351M	AP403M	AC301K	AP251K
	**WNMU 080608R-MR2**	12.5	6.6	0.8	2.3	●	●	●	▲	●
	WNMU 080608R-MM4	12.5	6.58	0.8	2.3	●	●	●	▲	●
	WNMU 080608R-MM3	12.5	6.58	0.8	2.3	●	●	●	▲	●
	WNMU 080612R-MR2	12.5	6.47	1.2	1.19	●	●		▲	●
	WNMU 080612R-MM4	12.5	6.47	1.2	1.18	●	●	●		●
	WNMU 080616R-MR2	12.5	6.5	1.6	0.81	●		●		
	WNMU 080616R-MM4	12.5	6.5	1.6	0.8	●		●		

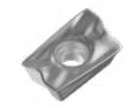
●: Stock available ▲: Stock available now but will be replaced in the future.

APKT 1705..-DT..

Positive square shoulder milling inserts



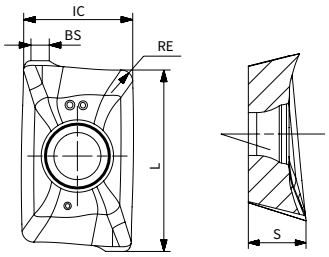


Inserts	Product code	Dimension (mm)					Machining conditions: ● Good condition, ⬌ General condition, ✱ Bad condition							
							●	⬌	⬌	✱	●	●	●	✱
							P			M	K		N	S
		L	IC	S	RE	BS	AP251U	AP351U	AP351M	AP403M	AC301K	AP251K	AW100K	AP403S
	**APKT 1705PER-DT**	17.4	10.76	5.63	0.8	2.16	●	▲		●		●	●	
	APKT 170516R-DT	17.4	10.74	5.63	1.6	1.72	●					●		
	APKT 170524R-DT	17.4	10.76	5.63	2.4	0.95	●		●	●		●		
	APKT 170530R-DT	17.4	10.76	5.63	3.0	1.48	●		●	●		●		
	APKT 170540R-DT	17.4	10.76	5.63	4.0	-	●		●	●				

●: Stock available ▲: Stock available now but will be replaced in the future.

APKT 1003.IT

Positive square shoulder milling inserts

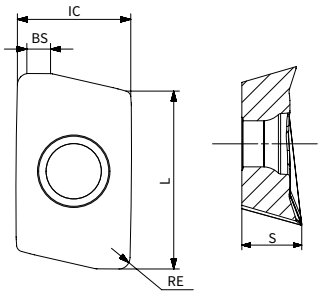


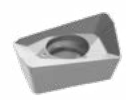
Inserts	Product code	Machining conditions: ● Good condition, ⬌ General condition, ✱ Bad condition												
							●	⬌	⬌	✱	●	●	●	✱
		Dimension (mm)					P			M	K		N	S
		L	IC	S	RE	BS	AP251U	AP351U	AP351M	AP403M	AC301K	AP251K	AW100K	AP403S
	**APKT 1003PDER-IT**	10.79	6.66	3.77	0.8	1.06	●	▲		●			●	

●: Stock available ▲: Stock available now but will be replaced in the future.

AOMT 1204..-MM4..

Positive square shoulder milling inserts

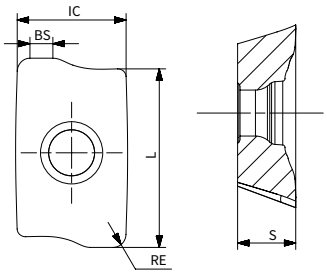


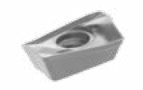
Inserts	Product code	Dimension (mm)					Machining conditions: ● Good condition, ⬮ General condition, ✱ Bad condition					
							●	⬮	⬮	✱	●	✱
							P			M	K	S
		L	IC	S	RE	BS	AP251U	AP351U	AP351M	AP403M	AP251K	AP403S
	**AOMT 120408ER-MM4**	12.8	8.15	5.07	0.8	1.56	●		●	●	●	●
	AOMT 120412ER-MM4	12.8	8.15	5.07	1.2	1.18			●	●		●
	AOMT 120416ER-MM4	12.8	8.15	5.07	1.6	1.2			●	●		●
	AOMT 120420ER-MM4	12.8	8.15	5.07	2.0	1.0	●		●	●		●
	AOMT 120424ER-MM4	12.8	8.15	5.07	2.4	0.9	●		●	●		●
	AOMT 120431ER-MM4	12.8	8.15	5.07	3.1	0.6			●	●		●
	AOMT 120440ER-MM4	12.8	8.15	5.07	4.0	0.8			●	●		●

●: Stock available ▲: Stock available now but will be replaced in the future.

ADMT 11T3..-MM4..

Positive square shoulder milling inserts

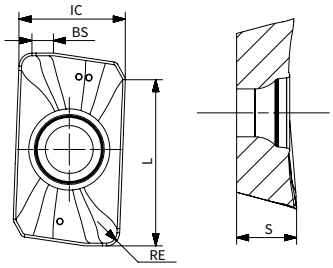


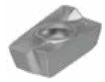
Inserts	Product code	Dimension (mm)					Machining conditions: ● Good condition ⇔ General condition ✱ Bad condition					
							●	⇔	⇔	✱	●	✱
							P			M	K	S
		L	IC	S	RE	BS	AP251U	AP351U	AP351M	AP403M	AP251K	AP403S
	**ADMT 11T304R-MM4**	11	6.92	3.59	0.4	1.1	●		●	●	●	●
	ADMT 11T308R-MM4	11	6.92	3.59	0.8	1.41	●	▲	●	●	●	●
	ADMT 11T308R-MM3	11	6.92	3.59	0.8	1.3	●		●	●	●	
	ADMT 11T312R-MM4	11	6.92	3.59	1.2	0.8	●		●	●	●	●
	ADMT 11T316R-MM4	11	6.92	3.59	1.6	0.4	●		●	●	●	
	ADMT 11T320R-MM4	11	6.92	3.59	2.0	0.23	●	▲	●	●	●	●
	ADMT 11T324R-MM4	11	6.92	3.59	2.4	0.21	●		●	●	●	●
	ADMT 11T331R-MM4	11	6.92	3.59	3.1	0.63	●		●	●	●	

●: Stock available ▲: Stock available now but will be replaced in the future.

APMT..

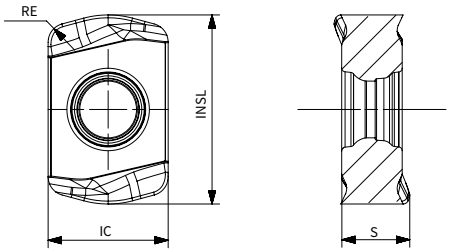
Positive square shoulder milling inserts



Inserts	Product code	Dimension (mm)					Machining conditions: ● Good condition, ⬍ General condition, ✱ Bad condition						
							●	⬍	⬍	✱	●	●	●
							P			M	K		H
		L	IC	S	RE	BS	AP251U	AP351U	AP351M	AP403M	AC301K	AP251K	AP151H
	**APMT 1135PDER**	9.7	6.27	3.5	0.8	1.25	●	▲	●			●	●
	APMT 113508PDER	9.7	6.17	3.5	0.8	0.85	●	▲				●	
	**APMT 1604PDER**	12.7	9.37	5.17	0.8	1.54	●		●			●	●

●: Stock available ▲: Stock available now but will be replaced in the future.

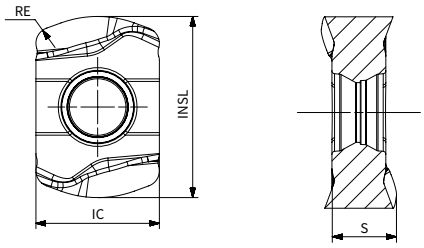
LN..06
High feed milling inserts



Inserts	Product code	Dimension (mm)				Machining conditions: ● Good condition ◐ General condition ✱ Bad condition								
						●	◐	◐	✱	●	●	●	✱	●
						P			M	K		N	S	H
		INSL	IC	S	RE	AP251U	AP351U	AP351M	AP403M	AC301K	AP251K	AW100K	AP403S	AP151H
	**LNMX 060410R-MM3**	10	6.35	3.6	1.0	●	▲		●				●	●
	**LNMX 060410R-MM4**	10	6.35	3.6	1.0	●	▲		●				●	●
	LNMX 060410R-MM4N	10	6.35	3.6	1.0	●	▲		●	▲			●	●

●: Stock available ▲: Stock available now but will be replaced in the future.

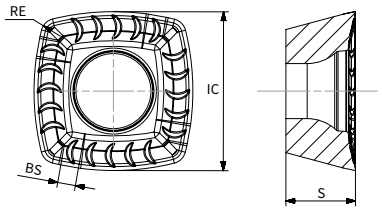
LN..10
High feed milling inserts



Inserts	Product code	Dimension (mm)				Machining conditions: ● Good condition ◐ General condition ✱ Bad condition								
						●	◐	◐	✱	●	●	●	✱	●
						P			M	K		N	S	H
		INSL	IC	S	RE	AP251U	AP351U	AP351M	AP403M	AC301K	AP251K	AW100K	AP403S	AP151H
	**LNMX 100512R-MM3**	13.5	9.2	4.55	1.2	●	▲	●	●				●	●
	**LNMX 100512R-MM4**	13.5	9.2	4.55	1.2	●	▲		●				●	●

●: Stock available ▲: Stock available now but will be replaced in the future.

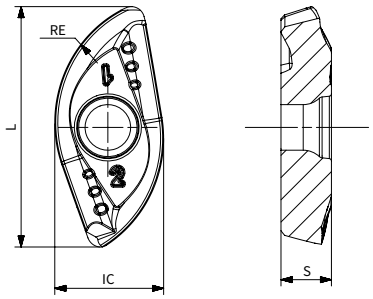
XD..09/12
High feed milling inserts



Inserts	Product code	Machining conditions: Dimension (mm) IC	S	RE	BS	P: AP251U	P: AP351U	P: AC301P	K: AC301K	K: AP251K	S: AP403S
						● Good condition	◐ General condition	◐ General condition	● Good condition	● Good condition	✱ Bad condition
	**XDLT 090408ER-MM3**	9.525	4.76	0.8	1.3	●	▲	▲	▲		●
	XDLT 120508ER-MM3	12.7	5.56	0.8	2.2	●	▲	▲	▲	●	●
	XDLT 120512ER-MM3	12.7	5.56	1.2	2.2	●	▲	▲	▲	●	
	**XDMW 090408ER-HR2**	9.525	4.76	0.8	1.3				▲		
	XDMW 120508ER-HR2	12.7	5.56	0.8	2.2	●			▲		

●: Stock available ▲: Stock available now but will be replaced in the future.

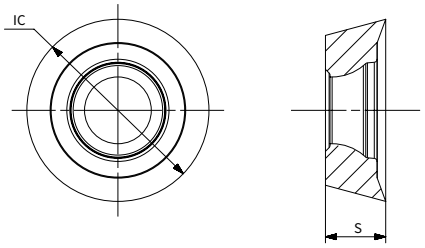
RPM ...MM4
Profile milling inserts

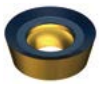
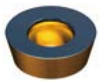
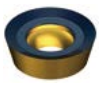
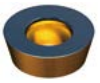


Inserts	Product code	Dimension (mm)				Machining conditions: ● Good condition ◐ General condition ✱ Bad condition					
						●	◐	✱	●	●	✱
						P		M	K		S
		L	IC	S	RE	AP251U	AP351M	AP403M	AC301K	AP251K	AP403S
	**RPM 080ER-MM4**	14.76	6.89	3.21	8.0	●	●	●			●
	RPM 100ER-MM4	18.85	8.62	3.89	10	●	●				●

●: Stock available ▲: Stock available now but will be replaced in the future.

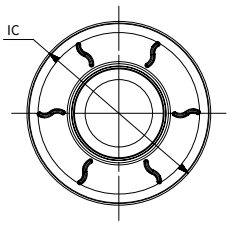
RD/RP
Round inserts

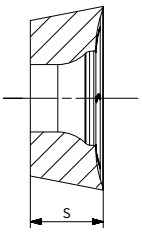


Inserts	Product code	Machining conditions: Dimension (mm) IC	S	● Good condition ◐ General condition ✱ Bad condition						
				●	◐	◐	✱	●	●	●
				P			M	K		H
				AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AP151H
	**RDHT 0702MOE-MM3**	7	2.38	●						
	RDHT 1003MOE-MM3	10	3.18	●						
	RDHT 12T3MOE-MM3	12	3.97	●	▲	▲		▲	●	
	RDHT 1606MOE-MM3	16	6.35	●	▲	▲		▲	●	
	RDHT 1604MOE-MM3	16	4.76	●	▲				●	
	**RDHW 0702MOS-HR2**	7	2.38	●	▲	▲		▲	●	
	RDHW 1003MOS-HR2	10	3.18	●	▲	▲		▲	●	
	RDHW 12T3MOS-HR2	12	3.97	●	▲	▲		▲	●	
	RDHW 1606MOS-HR2	16	6.35	●					●	
	**RDMT 0702MOE-MM3**	7	2.38					▲		
	RDMT 1003MOE-MM3	10	3.18	●	▲	▲		▲		
	RDMT 12T3MOE-MM3	12	3.97	●		▲		▲		
	RDMT 1606MOE-MM3	16	6.35	●		▲		▲		
	RDMT 1604MOE-MM3	16	4.76			▲		▲		
	**RDMW 1204MOE-HR2**	12	4.76	●	▲					
	RDMW 1606MOE-HR2	16	6.35					▲		
	**RPMW 1003MOE-HR2**	10	3.18	●	▲					●
	RPMW 10T3MOE-HR2	10	3.97	●	▲					●
	**RPMT 1204MOE**	12	4.76	●	▲					●

●: Stock available ▲: Stock available now but will be replaced in the future.

RO..T
Profile milling inserts





Inserts	Product code	Machining conditions: Dimension (mm) IC	S	● Good condition ◐ General condition ✱ Bad condition: ●	◐	◐	✱	●	●	✱
				P			M	K		S
				AP251U	AP351U	AC301P	AP403M	AC301K	AP251K	AP403S
	**ROHT 0803MOE-MM3**	8	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				●			●
	**ROMT 10T3M4E-MR6**	10	3.97				●			●
	ROMT 1204M6E-MR6	12	4.76				●			●
	ROMT 1605M6E-MR6	16	5.56				●			●
	ROMT 2006M8E-MR6	20	6.35				●			●

●: Stock available ▲: Stock available now but will be replaced in the future.

Cutting Parameter Recommendation Table

Materials																		
ISO	Material classification			Brinell hardness (HB)	Tensile strength Rm(N/mm²)	AP251U			AC301P			AP351U			AP351M			
						PVD			CVD			PVD			PVD			
						P15-P35			P25-40			P30-P45			P20-P40			
						M15-M35			–			M25-M35			M20-M40			
						–			–			S25-S35			–			
						–			–			–			S20-S40			
						–			–			–			–			
						–			–			–			–			
						1/10	1/5	1/1	1/10	1/5	1/1	1/10	1/5	1/1	1/10	1/5	1/1	
P	Unalloyed steel	C ⩽ 0.25%	Annealed	125	428	320	280	240	380	300	260	280	240	200				
		0.25 < C ⩽ 0.55%	Annealed	190	639	290	240	200	350	250	220	250	210	170				
		0.25 < C ⩽ 0.55%	Heat-treated	210	708	260	210	170	310	220	190	230	180	140				
		C > 0.55%	Annealed	190	639	290	240	200	350	250	220	250	210	170				
		C > 0.55%	Heat-treated	300	1013	210	170	130	250	170	150	160	130	100				
		Free cutting steel (short-chip)	Annealed	220	745	250	200	160	300	210	180	220	170	130				
	Low-alloyed steel	Annealed		175	591	290	250	200	340	300	250	270	230	180				
		Heat-treated		285	960	250	210	160	290	250	200	230	190	140				
		Heat-treated		380	1282	230	190	140	250	210	160	210	170	120				
		Heat-treated		430	1477	190	150	110	210	170	130	170	130	90				
	High-alloyed steel and high-alloyed tool steel	Annealed		200	675	220	190	160	240	210	180	200	170	140				
		Hardened and tempered		300	1013	170	140	110	190	160	130	150	130	90				
		Hardened and tempered		400	1361	150	120	90	160	130	100	130	100	70				
	Stainless steel	Ferritic/martensitic, annealed		200	675	190	160	130	200	170	140	160	140	110	180	150	120	
		Martensitic, heat-treated		330	1114	160	120	90	170	140	110	140	110	80	150	120	90	
M	Stainless steel	Austenitic, quench hardened		200	675	180	150	120				170	140	110	170	150	120	
		Austenitic, precipitation hardened (PH)		300	1013	160	130	100				150	120	90	150	130	100	
		Austenitic/ferritic, duplex		230	778	170	140	110				160	130	100	160	140	110	
K	Malleable cast iron	Ferritic		200	400													
		Pearlitic		260	700													
	Grey cast iron	Low tensile strength		180	200													
		High tensile strength/austenitic		245	350													
	Nodular cast iron	Ferritic		155	400													
		Pearlitic		265	700													
	GGV(CGI)			230	400													
N	Wrought aluminium alloys	Non-aging		30	-													
		Aged		100	340													
	Cast aluminium alloys	⩽ 12% Si, non-aging		75	260													
		⩽ 12% Si, aged		90	310													
		> 12% Si, non-aging		130	450													
	Magnesium alloys			70	250													
	Copper and copper alloys	Unalloyed, electrolytic copper		100	340													
		Brass, bronze, red brass		90	310													
		Cu alloys, short-chipping		110	380													
		High-tensile, Ampco alloy		300	1010													
S	Heat-resistant alloys	Fe-based	Annealed	200	680							90	80	70	100	90	80	
			Hardened	280	940							75	60	50	80	70	60	
		Ni or Co based	Annealed	250	840							80	55	45	70	60	50	
			Hardened	350	1180							60	50	35	60	50	40	
			Cast	320	1080							60	55	40	65	55	45	
	Titanium alloys	Pure titanium		200	680							110	90	80	120	100	90	
		α and β alloys, hardened		375	1260							50	40	30	55	45	35	
		β alloys		410	1400							50	40	30	55	45	35	
	Tungsten alloys			300	1010							65	60	50	70	65	55	
	Molybdenum alloys			300	1010							65	60	50	70	65	55	
H	Hardened steel	Hardened and tempered		50HRC														
		Hardened and tempered		55HRC														
		Hardened and tempered		60HRC														
	Chilled cast iron	Hardened and tempered		50HRC														

*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. Average chip thickness (hm)=fz x sinkr.

Milling grade application range																					
	AP403M			AP401U			AP403S			AC301K			AP251K			AP151H			AW100K		
	PVD			PVD			PVD			CVD			PVD			PVD			Uncoated		
	P30-P45			P20-P40			–			–			–			–			–		
	M30-M45			M20-M40			M30-M45			–			–			–			–		
	–			–			–			K10-K35			K15-K40			K15-K40			–		
	S30-S45			–			S30-S45			–			–			–			–		
	–			–			–			–			–			–			N05-N15		
	–			–			–			H15-H25			–			H15-H25			–		
Feed(mm/z)-according to the value of ae/Dc																					
	1/10	1/5	1/1	1/10	1/5	1/1	1/10	1/5	1/1	1/10	1/5	1/1	1/10	1/5	1/1	1/10	1/5	1/1	1/10	1/5	1/1
Cutting speed (m/min)																					
	170	140	110	160	140	110															
	140	110	80	140	110	80															
	160	140	110	160	140	110	190	160	140												
	140	120	90	150	130	90	170	140	120												
	150	130	100	150	130	100	160	130	110												
										240	210	180	220	190	160	180	150	120			
										220	190	160	200	170	140	160	130	100			
										280	250	220	260	230	200	210	180	150			
										240	210	180	210	190	160	180	150	120			
										260	230	200	240	210	180	190	160	130			
										190	160	130	170	140	110	150	120	90			
										200	170	140	180	150	120	160	130	100			
																			2200	2200	2000
																			1800	1800	1600
																			600	600	500
																			500	500	400
																			280	280	200
																			400	400	300
																			300	300	250
																			200	200	160
	95	85	75				110	100	90												
	80	65	55				90	80	70												
	85	60	50				80	70	60												
	65	55	35				75	65	50												
	65	60	45				75	65	55												
	120	95	85				120	100	90												
	50	40	30				60	50	40												
	50	40	30				60	50	40												
	70	60	50				70	65	60												
	70	60	50				70	65	60												
										70	60	50				65	55	45			
																60	50	40			
																60	50	40			

Technical Information

CUTTING TOOL CATALOGUE

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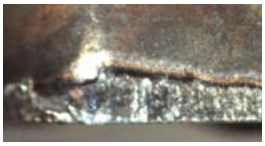
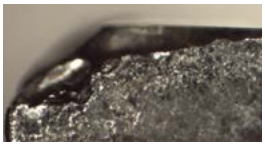
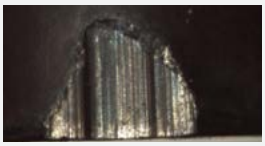
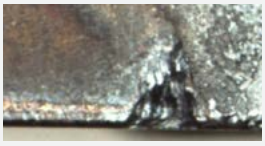
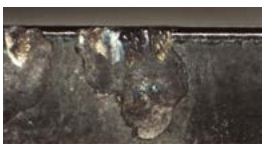
Hardness Conversion Table 491
Material Conversion Table 493

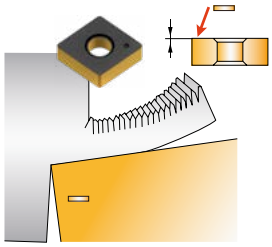
Turning Insert Common Failure Mode & Solutions

Failtures	Picture	Analysis	Solution
Flank wear		• Tool material is too soft • Excessive cutting speed • Too small clearance angle • Too low feed rate • Insufficient cooling	• Choose high wear-resistant insert grade • Reduce cutting speed • Enlarge clearance angle • Increase feed rate
Crater wear		• Tool material is too soft • Excessive cutting speed • Excessive feed rate	• Choose high wear-resistant insert grade • Reduce cutting speed • Reduce feed rate • Increase the flow of coolant
Chipping		• Tool material is too hard • Too low cutting edge strength	• Choose tougher grade • Enhance cutting edge strength
Plastic deformation		• Tool material is too soft • Too fast cutting speed • Excessive cutting depth & feed rate • Insufficient cooling	• Choose high wear-resistant insert grade • Reduce cutting speed • Reduce cutting depth & feed rate • Choose good thermal conductivity grade • Increase the flow of coolant
Built-up edge		• Too low cutting speed • Cutting edge not sharp • Unsuitable grade • Insufficient cooling	• Increase cutting speed • Choose sharp geometry • Choose less adhesion grade • Increase the flow of coolant
Mechanical wear		• Excessive feed rate and cutting depth • Vibration	• Choose tougher grade • Choose a smaller approach angle • Choose bigger corner radius • Change to high rigidity holder
Thermal cracking		• Excessive cutting heat change on edge	• Choose dry cutting or adequate cooling • Choose tougher grade
Notch wear		• Excessive feed rate & cutting speed • Tool material is too soft	• Choose high wear-resistane grade • Select a small entering angle • Reduce cutting speed
Coating peeling		• Sticky chip on the cutting edge • Chip evacuation failure	• Enlarge rake angle for a sharp edge • Use chip breaker with bigger chip space

Negative and Positive Insert Comparison

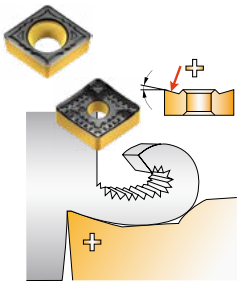
Negative insert

- Double/single sided
- High strength edge
- Zero clearance angle
- First choice for external turning
- For heavy cutting conditions



Positive insert

- Single sided
- Low cutting forces
- With clearance angle
- 1st choice for boring and turning on slender parts

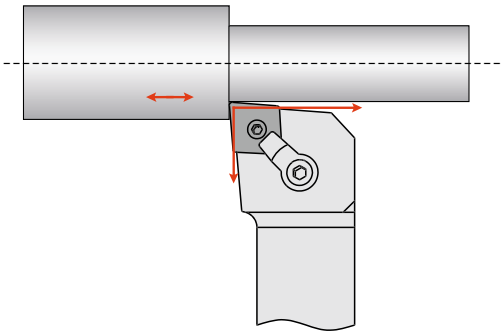


Effects of Approach Angle

Approach angle Kr is the angle between cutting edge and feed direction. It's an important angle in turning that will affect:

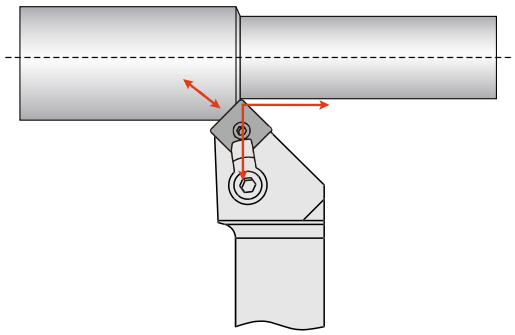
- Chip formation
- Cutting force direction
- Cutting edge length

Large Approach Angle



- Cutting forces along with axis, less tendency for vibration.
- Can turn against the shoulder
- Higher cutting forces at the entrance and exit of cut
- It is easy to get notching wear in heat resistant alloy and hard materials

Small Approach Angle



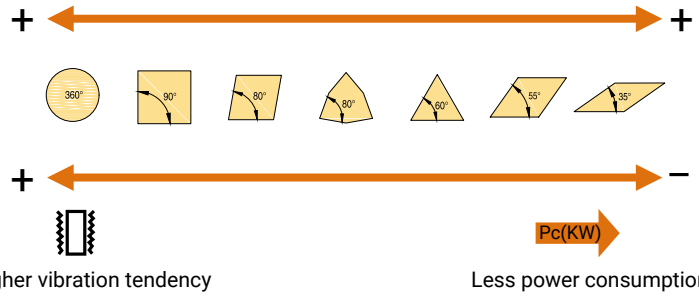
- Reduced the load on the cutting edge.
- Produced a thinner chip, higher feed rate can be used
- Reduced notch wear
- Cannot turn against a shoulder.
- Forces are directed to both axial and radial-vibration tendencies.

Insert Shape

Insert shape should be selected according to the approach angle accessibility of the tool. The largest point angle should be applied to get insert strength and reliability.

Larger point angle and higher cutting edge strength to the left.

Higher edge accessibility and operational versatility to the right.



Higher vibration tendency

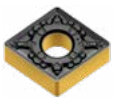
Less power consumption

Factors affecting insert shape selection

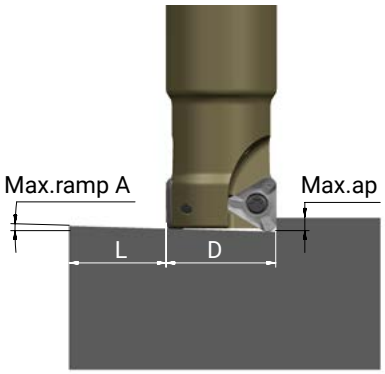
Insert shape	R	S 90°	C 80°	W 80°	T 60°	D 55°	V 35°
							
Roughing (strength)	●	●	●	▲	▲		
Light roughing/semi finishing (number of cutting edges)		▲	●	●	●	●	
Finishing (number of cutting edges)			▲	▲	●	●	●
Vibration tendency				▲	●	●	●
Longitudinal turning (feed direction)			●	▲	▲	●	●
Profiling (accessibility)			▲	▲	▲	●	●
Facing (feed direction)	▲	●	●	●	▲	▲	
Operational versatility	▲		●	▲	▲	●	▲
Limited machine power			▲	▲	●	●	●
Hard material	●	●					
Interrupted machining	●	●	▲	▲	▲		
Large approach angle			●	●	●	●	
Small approach angle	●	●		●	●		

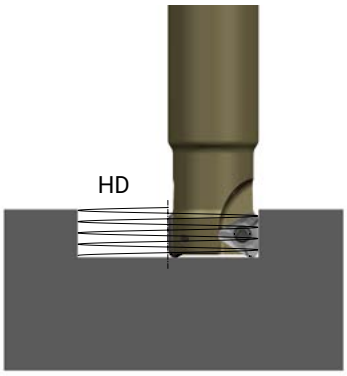
Marked: ● Most suitable ▲ Suitable

C-style 80°inserts are frequently used as it's suitable for the most applications.



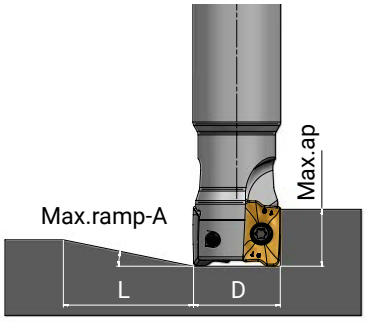
TD15 Milling Cutter Series

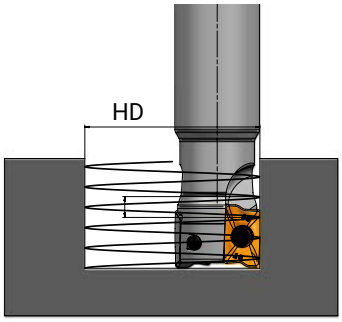




Cutter Dia(D)	Straight Ramping			Circular interpolate milling		
	Max.ramp-A	Min.length-L(mm)	Max.ap (mm)	Min.Dia. (HD)	Max.Dia. (HD)	Max.pitch (rev)
32	1.4°	479	11.5	53.5		1.4
					64	2.1
40	1.0°	633	11.5	70.1		1.5
					80	1.3
50	0.8°	824	11.5	90.1		1.5
					100	1.9
63	0.6°	1073	11.5	116.1		1.5
					126	1.8
80	0.5°	1399	11.5	150.3		1.5
					160	1.8
100	0.3°	2144	11.5	190.5		1.3
					200	1.4
125	0.3°	2262	11.5	240.3		1.6
					250	1.7
160	0.2°	2933	11.5	310.3		1.6
					320	1.7
200	0.2°	3692	11.5	390.3		1.6
					400	1.7

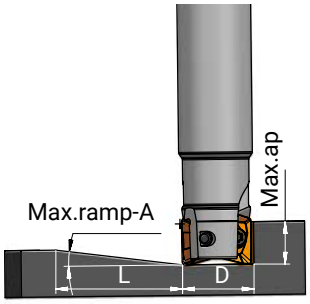
AP17 Milling Cutter Series

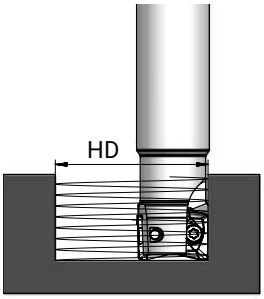




Cutter Dia(D)	Straight Ramping			Circular interpolate milling		
	Max.ramp-A	Min.length-L(mm)	Max.ap (mm)	Min.Dia. (HD)	Max.Dia. (HD)	Max.pitch (rev)
25	5.0°	184	16.1	30.6		1.3
					50	5.8
32	9.0°	102	16.1	44.6		5.3
					64	13.5
40	5.0°	184	16.1	40.6		4.8
					80	9.3
50	4.4°	209	16.1	80.6		6.3
					100	10.3
63	3.2°	288	16.1	106.6		6.5
					126	9.4
80	2.3°	401	16.1	140.6		6.5
					160	8.6
100	1.8°	513	16.1	180.6		6.8
					200	8.4

AO12 Milling Cutter Series



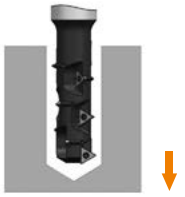


Cutter Dia(D)	Straight Ramping			Circular interpolate milling		
	Max.ramp-A	Min.length-L(mm)	Max.ap (mm)	Min.Dia. (HD)	Max.Dia. (HD)	Max.pitch (rev)
16	8.1	77.0	11	17		0.4
					32	6.1
20	5.3	119.6	11	25		1.2
					40	4.9
25	3.6	175.6	11	35		1.7
					50	4.2
32	1.7	378.0	11	49		1.3
					64	2.5
35	1.5	424.5	11	55		1.4
					70	2.4
40	1.3	468.9	11	65		1.6
					80	2.5
50	1.3	501.5	11	85		2.0
					100	2.9
63	0.9	708.6	11	111		2.0
					126	2.6
80	0.7	875.2	11	145		2.2
					160	2.7

Guideline for ATM 60 Series Thread Milling Holder



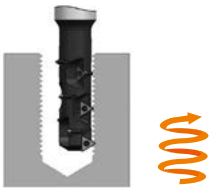
1. Positioning the milling cutter above core hole, check and adjust the length.



2. Get down to the request depth and check the radius.



3. Circular interpolate cutting.



4.Milling the thread by using circular interpolation until the pitch is fully machined.



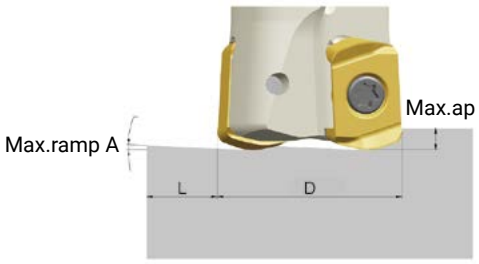
5. Circular interpolate cutting and retracting.



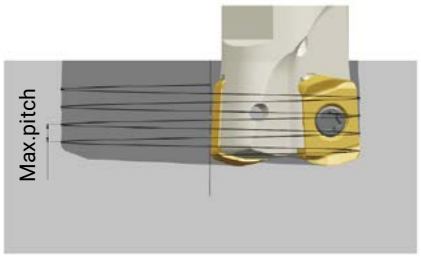
6. Back to start position.

LN06 Milling Cutter Series

Straight Ramping

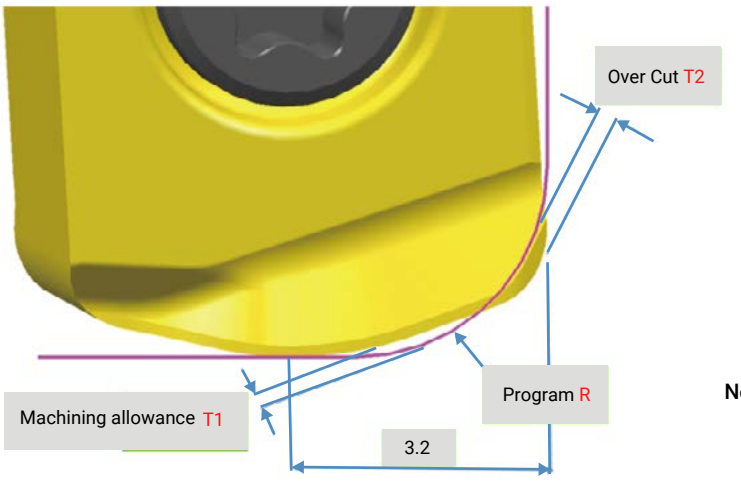


Circular interpolate milling



Cutter Dia(D)	Straight Ramping			Circular interpolate milling		
	Max.ramp-A	Max.ap(mm)	Min.length-L(mm)	Min.Dia.(HD)	Max.Dia.(HD)	Max.pitch (rev)
⌀16	2.9°	0.65	13.8	23	32	0.65
⌀17	2.6°	0.65	15.4	25	34	0.65
⌀20	1.9°	0.65	21.1	31	40	0.65
⌀21	1.8°	0.65	22.3	33	42	0.65
⌀25	1.3°	0.65	30.8	41	50	0.65
⌀26	1.3°	0.65	30.8	43	52	0.65
⌀32	0.9°	0.65	44.6	55	64	0.65
⌀33	0.9°	0.65	44.6	57	66	0.65
⌀40	0.7°	0.65	57.3	71	80	0.65
⌀50	0.5°	0.65	80.2	91	100	0.65
⌀63	0.4°	0.65	100.3	117	126	0.65

NC Program Radius



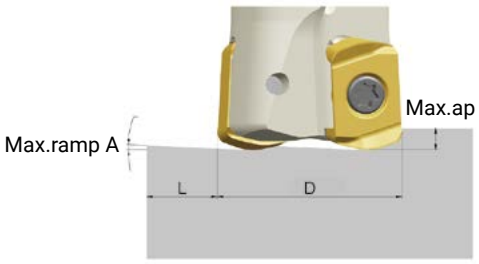
Technical information for NC program

Program R	Machining allowance T1	Over-Cut T2
R1.5	0.43	0
R2.0	0.29	0.06
R2.5	0.15	0.24

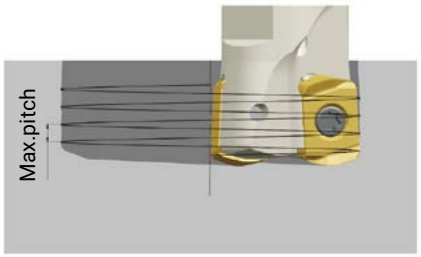
Note: Over cut won't occur when program R is set at R1.5

LN10 Milling Cutter Series

Straight Ramping

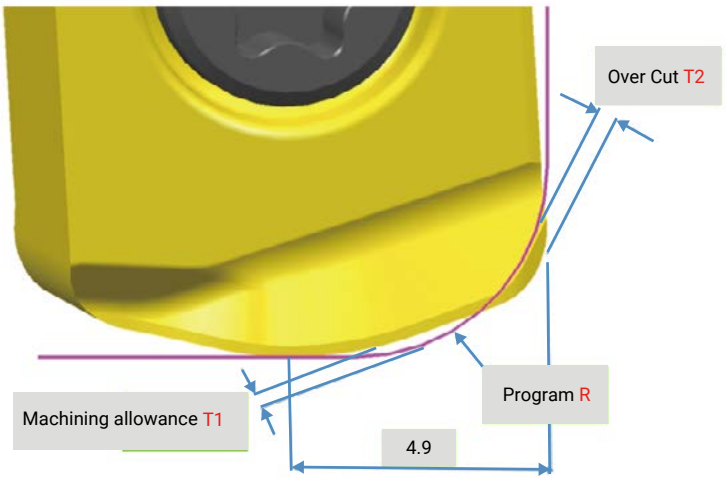


Circular interpolate milling



Cutter Dia(D)	Straight Ramping			Circular interpolate milling		
	Max.ramp-A	Max.ap(mm)	Min.length-L(mm)	Min.Dia.(HD)	Max.Dia.(HD)	Max.pitch (rev)
⌀25	3.7°	1.2	6.9	34	50	1.2
⌀26	3.4°	1.2	7.9	36	52	1.2
⌀32	2.3°	1.2	15	48	64	1.2
⌀33	2.2°	1.2	16	50	66	1.2
⌀35	2.0°	1.2	18	54	70	1.2
⌀40	1.6°	1.2	23	64	80	1.2
⌀50	1.2°	1.2	33	84	100	1.2
⌀63	0.9°	1.2	46	110	126	1.2
⌀80	0.6°	1.2	63	144	160	1.2
⌀100	0.5°	1.2	83	184	200	1.2
⌀125	0.4°	1.2	108	234	250	1.2

NC Program Radius



Technical information for NC program

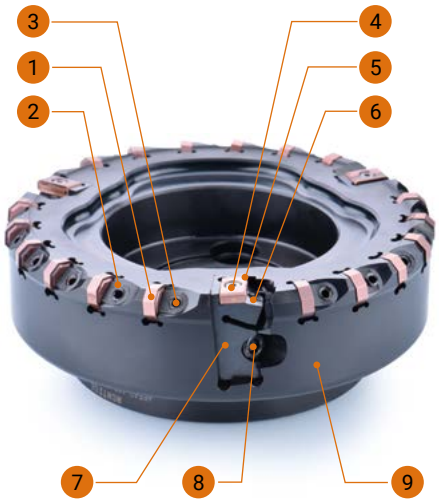
Program R	Machining allowance T1	Over-Cut T2
R2.3	0.57	0
R2.5	0.53	0.03
R3.0	0.37	0.15

Note: Over cut won't occur when program R is set at R2.3

Installation and Adjustment Method for Cast Iron Finishing Milling Cutter

1.Clean wiper cartridge (7), completely release adjusting screw(6).
2.Clean each insert pocket, cartridge pocket, clean inserts and cartridges.
3.Install roughing inserts(1), wiper cartridges(7) and use finger to push them to the locating surface and lock the screws.
4. Install wiper inserts (5).
5.Measure the axial run out of each roughing and wiper insert.
6.Adjusting wiper inserts height through adjusting screw(6).
7.Wiper inserts Max. run out should be higher than roughing inserts by 0.03-0.06mm.

1.Roughing inserts(ON..05..)
2.Locking wedge
3.Double-headed wedge Locking screws
4.Wiper insert clamping screw
5.Wiper insert (LN12/15)



6.Adjusting screw
7.Wiper insert cartridge
8.Locking screw for wiper cartridge
9.Cutter

Grade Comparison Table for Turning

CVD coating grade

Classification		KAIKUN	SANDVIK	KENNAMETAL	SECO	WALTER	ISCAR	TAEGUTEC	MITSUBISHI	TUNGALOY	SUMITOMO	KYOCERA	KORLOY	ZCC.CT	PRAMET	GESAC
P	P01	AC052P	GC4305 GC4205	KCP05B KCP05 KC9105	TP0501 TP0500	WPP05S WPP05	IC8005 IC428	TT8105	UE6005 UE6105	T9005 T9105	AC810P	CA510 CA5505	NC3010		T9310	GP1105
	P10	AC150P	GC4415 GC4315	KCP10B KCP10 KC9110	TP1501 TP1500	WPP10S WPP10	IC9150 IC9015 IC8150	TT8115	UE6110 MC6015 MY5015	T9115 T9215	AC810P AC700G	CA515 CA5515	NC3215	YBC152 YBC151	T9315	GP1115
	P20	AC250P	GC4425 GC4325	KCP25B KC9125	TP2501 TP2500	WPP20S WPP20	IC8250 IC9025 IC9250	TT8125 TT5100	UE6020 MC6025	T9225 T9125	AC8025P AC820P AC2000	CA025P CA525 CA5525	NC3220 NC3225 NC3120	YBC251 YBC252	T9325	GP1125
	P30	AC350P	GC4335	KCP40B KCP40 KC9240	TP300 TP3500	WPP30S WPP30	IC8350 IC9350	TT8135 TT7100	MC6035 UE6035 UH6400	T9135 T9035	AC830P AC630M	CA530 CA5535	NC3030 NC500H NC5330	YBC351 YBC352	T9335	GP1135
M	M10	AC100M	GC2015 GC1515	KCM15 KCM15M			IC6015	TT9215	MC7015 US7020	T6120 T6020	AC610M AC6020M	CA6515	NC9020	YBM151 YBM153		GM1115
	M20	AC200M	GC2025	KCM25	TM2000	WMP20S	IC6025	TT9225	MC7025	T6130	AC630M AC6020M	CA6525	NC9025	YBM251 YBM253	T7325	GM1125
	M30			KCM35 KC9045 KC9245	TM4000			TT9235	MC7035 US735					YBM253		
K	K05	AC100K AC102K	GC3205 GC3210	KCK05 KCK05B	TK0501 TK1001 TK1000	WKK10S WAK10	IC5005 IC9007	TT7005	MC5005 UC5105	T505 T5105	AC405K AC410K	CA310 CA4505	NC6205	YBD052 YBD102	T5305	GK1115
	K20	AC202K ACK15A	GC3215	KCK15 KCK20 KC9315 KC9320	TK2001 TK2000	WKK20S WAK20	IC5010	TT7310 TT7015	MC5015 UC5115	T515 T5115 T5125	AC415K AC420K AC700G	CA315 CA320 CA4515	NC6210 NC6215	YBD152C YBD152	T5315	GK1120 GK1125

Grade Comparison Table for Turning

PVD coating grade

Classification		KAIKUN	SANDVIK	KENNAMETAL	SECO	WALTER	ISCAR	TAEGUTEC	MITSUBISHI	TUNGALOY	SUMITOMO	KYOCERA	KORLOY	ZCC.CT	PRAMET	GESAC
P	P10	AP100S	GC1025	KC5010 KC5510 KU10T	CP200	WSM10S WSM10	IC507 IC807 IC907		MS6015 VP10MF	AH710	ACZ150 ACZ310	PR930 PR1115 PR1215	PC8110 PC230	YBG102	T6130 T8310 T8315	
	P20	AP200U AP301M	GC1020 GC1025 GC1125 GC4125	KC5025 KC5525 KC7215 KC7315 KU25T	CP250	WSM20S WSM20	IC507 IC807 IC907	TT5030	VP15TF VP20MF VP20RT UP20M	AH7025 AH725 SH725	ACZ330 AC520U	PR1225 PR1625 PR1725	PC8115 PC5300	YBG202	6630	GA4230
	P30		GC1145 GC2145	KC7235 KC7140 KC7040	CP500	WSM30S WSM30	IC328 IC928 IC3028		VP15TF VP20MF UP20M	GH330 AH740 AH9030	AC530U ACZ350	PR1535	PC3545		6640 T8330 T8030"	
M	M10	AP100S	GC1105 GC1115 GC15	KC5510 KC5010	TS2000 TH1000 CP200	WSM10 WSM10S	IC520 IC907 IC808	TT5080	VP10RT VP10MF	AH710	AC510U ACZ150	PR1215 PR1225	PC8110		T6310 T8310 T8315	GS3115
	M20	AP200U AP301M	GC1125 GC4125 GC1025 GC30	KC5025 KC5525 KCU25	CP500	WSM20 WSM20S	IC308 IC908 IC3028 IC830	TT9080	VP15TF VP20RT VP20MF	AH725 AH630 GH330 GH730 SH725 SH730	AC520U ACZ310 AC1030U	PR930 PR1215 RP1225 PR1725 PR1525	PC8115 PC5300	YBG202 YBG205	T8330	GS3125
	M30		GC2035 GC2030	KC7030 KC7225	CP600	WSM30 WSM30S	IC228 IC328 IC928	TT9020 TT8020	MP7035	AH130* AH645*	AC6040 AC530U ACZ330 ACZ350	PR1535	PC9030 PC5400		T8345	GM3225
K	K05		GC1010	KC5010 KC7210	TS2000 CP200		IC807 IC910 IC507 IC908"		VP05RT	GH110 AH110	EH10Z EH510Z AC510U	PR905 PR1215			T8310	
	K20		GC1020 GC1120	KC5025 KC5525 KC7215 KC7315	TS2500 CP200 CP250		IC508 IC908	TT5030	VP10RT VP15TF VP20RT	AH120 AH725	ACZ310 AC520U AC530U AC1030U	PR905 PR1215	PC5300		T8315	GA4230
	K30		GC1030	KC7225	CP500		IC508 IC908"		VP15TF VP20RT		ACZ310				T8330	
S	S10	AP100S	GC1105 GC1115	KC5510 KC5010	CP200 TH1000 TS2000	WSM01 WSM10S	IC808 IC807 IC907	TT5080	VP05RT VP10RT MP9005	AH110 AH905 AH8005	AC510U AC5015S	PR005S PR1305 PR1310	PC8105	YBG102	T6310	GS3115
	S20	AP200U AP301M	GC1025 GC1125	KC5525 KC5025	CP500 TS2500	WSM20 WSM20S	IC808 IC908	TT9080	VP15TF VP20RT MP9015	AH120 AH8015 AH725	AC520U AC5025S	PR015S PR1325 PR1535	PC8115	YBG105 YBG202	6630	GS3125
	S30		GC1125			WSM30 WSM30S	IC328	TT9080 TT8020	MP9025	AH725	AC520U	PR1535	PC5400	YBG212	6640	

Grade Comparison Table for Turning

Uncoated grade

Classification		KAIKUN	SANDVIK	KENNAMETAL	SECO	WALTER	ISCAR	TAEGUTEC	MITSUBISHI	TUNGALOY	SUMITOMO	KYOCERA	KORLOY	ZCC.CT	PRAMET	GESAC
N	N10	AW100K	H10	K313	H15	WK1	IC20	K10	HTI10	TH10	EH10	KW10 GW05	H01	YD101		GN9115

Cermet

Classification		KAIKUN	SANDVIK	KENNAMETAL	SECO	WALTER	ISCAR	TAEGUTEC	MITSUBISHI	TUNGALOY	SUMITOMO	KYOCERA	KORLOY	ZCC.CT	PRAMET	GESAC
P	P10	AT202	CT5015 CT525 GC1525*	KT175 HT2 KTP10*	TP1020 CM CMP	WTA43* WTA41*	IC20N IC520N	CT3000 PV3010*	NX2525 AP25N* VP25N*	NS9530 NS520 GT9530* GT530*	T1200A T1500Z*	TN60 TN620 TN6020 PV720*	CN2000 CN20 CC1500* CN1500*	NG151 YNG151C*		GP91TM GT31TM*
K	K10	AT202	CT5015	HTX KT315* KTP10*				CT3000	NX2525 AP25N* VP25N*	NS530 GT530*	T1200A T2000Z*	TN610 PV710* PV7005*	CN1500*	YNG151 YNG151C*		GP91TM GT31TM*

Grade Comparison Table for Turning

CBN

Classification		KAIKUN	SANDVIK	KENNAMETAL	SECO	WALTER	ISCAR	TAEGUTEC	MITSUBISHI	TUNGALOY	SUMITOMO	KYOCERA	KORLOY	ZCC.CT	PRAMET	GESAC
K	K10	PB90			CBN20 CBN600				MB4120 MBS140	BX950 BX90S	BN7000 BNS800		DBN350			
H	H10	PB30	CB7105 CB7050"	KBH10 KB1615 KB5610	CBN150 CBN060K CBN200	WCB30	IB50	TB610	MB8025 MB825	BXA40 BC330 BX360						
	H20	PB60	CB7025 CB7525	KBH20 KB1340	CBN350 CBN500	WCB50	IB55	TB650	MB8025	BX380						
	H30		CB7525	KB5630			IB55	TB670	MB835	BX380						

PCD

Classification		KAIKUN	SANDVIK	KENNAMETAL	SECO	WALTER	ISCAR	TAEGUTEC	MITSUBISHI	TUNGALOY	SUMITOMO	KYOCERA	KORLOY	ZCC.CT	PRAMET	GESAC
N	N20	PD20		KD1425	PCD30 PCD30M	WDN10			MD230	DX110 DX120	DA1000 DA2200	KPD001 KPD010 KPD230 KPD250				DNN130P

Grade Comparison for Milling Grade

Classification		KAIKUN	SANDVIK	KENNAMETAL	SECO	WALTER	ISCAR	TAEGUTEC	MITSUBISHI	TUNGALOY	SUMITOMO	KYOCERA	KORLOY	ZCC.CT
P	P10		GC1025 GC1010	KC715M		WXM15			F7010		ACP100	PR1225	PC33525	YBG252
	P20	AP251U	GC1130 GC1030 GC4220 GC4020 GC4030	KC522M KC525M KCPM20	MP1500 T250M T25M T20M	WKP25S	IC330 IC250 IC950 IC520M	TT7080 TT7030	MC7020 MP6120 MV1020 UP20M F7030	T313W AH725	ACP200 ACP2000 ACP2500	PR1525 PR1225 PR1230	PC3535 PC3500	YBC301 YBC302 YBM251 YBG202 YBG252
	P30	AP351U AP351M AC301P	GC1130 GC4040 GC4230 GC4330	KC994M KC725M KC792M KC530M	MP2500 T250M T25M F25M F30M	WSM35S WSM36 WKP35S WKP35G	IC330 IC328 IC830 IC908	TT9080 TT9030 TT7080	MP6130 VP15TF VP30RT F7030	T3130 GH330 AH120 AH330 AH730	AC230 ACP300	PR1230 PR1535	PC5300 PC9530 PC3600	YBM351 YBM251 YBM301 YBG302
	P40	AP403M	GC4040 GC4240 GC4340	KC735M	MP300 T350M T60M T25M	WKP45S WSP46	IC635 IC928 IC4050	TT9030	VP30RT	AH140	AC230 ACZ330 ACZ350		PC9530	YBC302 YBG302 YBG351
M	M10		GC1025 GC1030	KC522M				TT9300	F7010	T6120 T6020	ACM100 ACM200	PR1225	NC5330	YBG252
	M20	AP251U	GC2030 GC2334 GC2044 S30T	KC730M KC525M	MS2050 MP2500 T250M T25M F20M	WXM15	IC380 IC908 IC928	TT9300	MC7020 VP15TF VP20RT MP7030 MP7130	T6130	ACM200 ACP200 ACU2500	PR1525 PR1225	PC5300 PC3545 PC9530	YBM251 YBM253 YBC302 YBG205 YBG252
	M30	AP351U AP351M	GC1040 GC2040 S40T	KC994M KC725M KCPK30	T350M T250M F40M	WSM35S WSM36	IC380 IC328 IC330	TT9080 TT8020	F7030 VP30RT MO7140		ACM300 ACP300 ACZ350	CA6535 PR1535	PC3545 PC5300	YBC302 YBG351 YBG302
	M40	AP403M			MM4500	WKP45S WSP46	IC830	TT8080 TT8020 TT9300	VP30RT		ACZ350		PC9530	YBG302
K	K01				MH1000		IC5100 IC4100			T505 T5105	ACK100			
	K10		GC1010 GC3220 K15W	KCK15 KC915M	MK1500 T150M F15M	WXM15 WAK15 WSN10	IC5100 IC4010 IC910 IC810	K10	MP8010 MC5020 MV1020 VP10RT	T515 T5115 T5125	ACK2000 ACK200 AC211	PR1500 PR1210 PR905	PC215K	YBD152 YBG102 YBG252
	K20	AP251K AP351K AC301K	GC1020 GC3020 GC3330 GC3334	KCC520M KC920M KC925M	MP1500 T250M MK2000 MK2050	WKP25S WKK25S	IC810 IC910 IC928	TT6080 TT7515	VP15TF VP20RT	AH120 AH725 T1215	EH20Z ACZ310 ACK300 ACK3000	CA420M PR1210 CA415D PR905	PC6510 PC5300	YBD152 YBD252 YBG152
	K30		GC3040 GC4040	KC930M	MK3000 T250M	WKP35S	IC928	TT7515		GH130				YBD252 YBG152
S	S10		GC1030 GC1025 GC1010	KC510M	MS2050		IC903 IC807 IC808 IC908	K10	MP9120 VP15TF		ACM100 ACM200	CA6535 PR1535 PR1210		YBG202 YBS203
	S20		GC1030 GC2030 GC1130	KC525M	MP2050	WSM35S WSM36	IC903 IC807 IC808 IC908 IC830	TT9080 TT9030 TT5525	MP9120 VP15TF MP9130 MP9030		ACU2500 ACM200	CA6535 PR1535 PR1210		YBS203 YBS303
	S30	AP403S	GC2040 S40T	KC725M KCSMN40	F40M	WSP45S WSP46 WSM42X WMP45G	IC328 IC330	TT8080 TT8020 TT9300	MP9140		ACM300	PR1535		YBS303

Chip Breaker Comparison Table for Negative Turning Insert

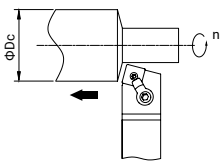
ISO Classification	Application	KAITKUN	SANDVIK	KENNAMETAL	SECO	WALTER	ISCAR	TAEGUTEC	MITSUBISHI	TUNGALOY	SUMITOMO	KYOCERA	KORLOY	ZCC.CT
P	Finishing	PB1	QF	FF	FF1 MF2 FF2	NF3 FP5	SF F3P	FS FA FLP FG FC	FP FH FY FS	TF	FA FB FL SU	GP PP XP XF	VG VL VF	SF DF
	Semi finishing	PB3 PC3	PF LC	FN	MF5	NS6	NF	MLP	C SA SH	TSF	LU SX NSE	CQ XQ HQ	VC HC	NM
	Medium	PL5	K		UX			V FS	ES 2G	S	GX HM	LD ST	SH	
		PD3	PM PMC QM	MN CT	M3	NM4 MP5	M3P TF PP	MT MC MP MGP	MA MP MV MH	TM ZM AM NM	GU UX UG UP	GS PS PG	VM LP MP	PM DM
		PC4			M4			MG-	Standard	Standard	UZ	Standard	B25	
	Roughing	PD5	PR	RN RP RW	M5 M6 MR7	NM6 NM9 RP5 RP7	NR R3P	RT RGP	RP GH	TH	MU, MX	PT GT	HR GR	DR ER
	Heavy roughing	PD8 PC8	PR QR	RM	R4 R5	NR6 NRF	MH	RX RH	HZ HL	TRS	HG MP		GH	DR
		PC9	HR	RP	R7 R8	NR8		HT HD	HX HR	TU TUS	HF		VT	HDR
		PD9		RH	RR9	NRR	HR	HY HZ	HV		HU HW		VH	HPR
M	Finishing	SC1 MB2	MF	FF LF FP	MF2	NF NF4 FM5	NF F3M	FG EA SF	LS FS SA	SS TF SF HRF	SU EF	MQ	VP1	EF
	Semi finishing	SL3		MS	MF1	MS3	PP	ML	MJ	28	UP	TK	HA	
		MC3	MM MMC	MP UP	MF4 MF3	NM NM4	M3M	EM MP	MS GM MM MA	HRM SM SA	EX GU	MS MU SU	HS	EM
	Roughing	MC4	MR MMR	RP	M5 MR7	NR4 RM5	R3M MR	ET	RM GH	TU SH	MU	HU	VM	ER
K	Medium	PC4	KM	UN CT	M4	MK5 NM5 NM6	NR	Standard	MK GK Standard	CM Standard	UZ MU	KG Standard	B25	Standard
	Roughing	KC4 KD5	KR	RP- NMA	MR7 Plane	RK5 RK7 Plane	Plane	KT RT Plane	GH RK Plane	CH Plane	GZ	ZS GC KH PH Plane	GR VR VK- Plane	DR
N	Semi finishing		QM 23	MS MP			PP	ML	MJ	P	UP GX AG	A3 AH	HA	
S	Finishing	SC1 MB2	MF SF	FS	MF2	NF4	NF	EA SF"	FS LS	TF	SU	MQ SQ	VP1	EF
	Medium	SL3		MS	MF1	MS3	PP	ML	MJ	28	UP	TK	HA	
		SC3	SM SMC	UP	MR3	NMS NMT	TF	MP SU MK	MS	HMM SA HRM	EG EX	MS MU	VP3	NM
	Roughing	MC4	SR SMR	RP	MR4	NRS NRT	NR		GJ RS		MU	SG	VM	SNR

Chip Breaker Comparison Table for Positive Turning Insert

ISO Classification	Application	KAIKUN	SANDVIK	KENNAMETAL	SECO	WALTER	ISCAR	TAEGUTEC	MITSUBISHI	TUNGALOY	SUMITOMO	KYOCERA	KORLOY	ZCC.CT
P	Finishing	LF										CK		
		UF PB1 BS	UF PF	11 UF	FF1 MF2	PF4 FP4	PF	FA FG FX	FV FP	PF	FP LU	GP VF	VL	HF
	Semi finishing	PC2	PM UM	LF MF	F2 M5	FP6 PS5 MP4	SM 14	PC	MP MV	PM 23 24	SU SC	HQ XQ GK	HMP	HM
	Roughing	KC2	PR			PM5 RP4	17 19	MT	no code		MU		C25	
M	Finishing	PB1	MF UF	11 UF	FF1 MF2	PF4 FM4	PF	FA FG	FM FV LM	PF	LU	MQ	VL	EF
	Semi finishing	PC2	MM UM	LF MF	F2 M5	PS5 MM4	SM 14	FM	MV MM	PS PM	SC SU	MS	MP	EM
	Roughing	KC2	MR UR			PM5 RM4	17	MT			MU	MU	C25	HR
K	Semi finishing	KC2	KM	MF	F2 M3	MK4	14	MT PMR	MK	CM	MU		C25	HM
	Roughing	KD5	KR		M5	RK4 RK6 Plane		CMX		Plane				HR
N	Semi finishing	NC2	AL	HP	AL	PM2	AF, AS	FL	AZ	AL	AW, AG	AH	AK, AR	LH
S	Finishing	UF PB1	MF	HP	F1	PF5 PF4	PF	FA	FJ		LU	MQ	VP1 VL	NF NGF
	Medium	PC2	MM UM	LF	F2	PS5 PM5	SM	FG	MS	PS	SU	HQ	MP	
	Roughing													SNR

Turning Machining Formula

● **Cutting speed**



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

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

● **Feed speed**

$$Vf = f * n (mm/min)$$

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

● **Chip thickness**

$$h = f * sinkr (mm)$$

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

● **Chip width**

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

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

● **Chip area**

$$A = h * b = ap * f (mm^2)$$

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

● **Cutting force**

$$Fc = Kc * ap * f (N)$$

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

● **Cutting power**

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

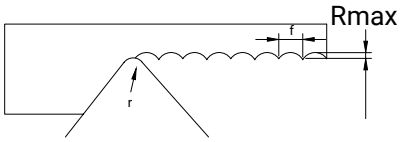
Pmot:Cutting power(KW) Kc:Unit cutting force(N/mm^2)
Vc:Cutting speed(m/min) ap:Axial depth of cut (mm)
f:Feed rate(mm/rev) η:Mechanical efficiency

● **Chip removal**

$$Q = ap * f * Vc (cm^3/min)$$

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

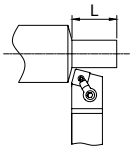
● **Theoretic surface roughness**



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

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

● **Work time**



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

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

Milling General Formula

● **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

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

Cutter in excentric site

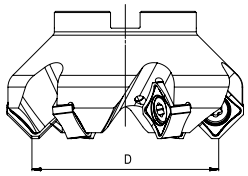
$$\psi s = 90^\circ + \arcsin\frac{ae-(Dc/2)}{(Dc/2)} [^\circ]$$

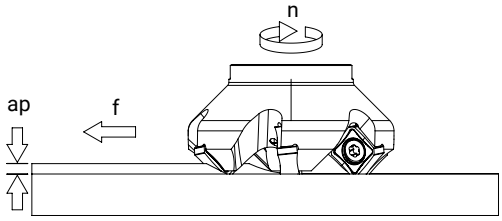
ψs:Pressure angle ae:Cutting width
Dc:Cutter diameter(mm)

● **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)





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

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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

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
P	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	-
	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	-

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	GB	DIN	W.-nr	AISI/SAE	BS	EN	AFNOR	SS	UNI	UNE	JIS
P	Structural steel										
	-	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)
	30CrMo	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

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	GB	DIN	W.-nr	AISI/SAE	BS	EN	AFNOR	SS	UNI	UNE	JIS
P	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	-
	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	Country and standard									
	China	International	Germany	U.S.A.	U.K.	France	Sweden	Italy	Spain	Japan
	GB	DIN	W.-nr	AISI/SAE	BS	AFNOR	SS	UNI	UNE	JIS
N	Al-based alloy									
	ZAlSi7Mg	Al-Si7Mg(Fe)	~AlSi7Mg	356	LM25	A-S7G	4244	3599	-	AC4C
	ZAlSi7MgA	Al-Si7Mg	AlSi7Mg	A356.0	2L99	A-S7G03	-	8024	-	AC4C
	ZAlSi12	Al-Si12	AlSi12	413;B413.0	LM6	A-S13	4261	4514	-	AC3A
	ZAlSi9Mg	~Al-Si10Mg	AlSi9Mg	360	LM9	A-S9G;A-S10G	4253	3051	-	AC4A
	-	Al-Si5	AlSi5Mg	A 443.0	-	-	-	5077	-	-
	-	Al-Si5Fe	-	B443.0	-	-	-	GD-AlSi5Fe	-	-
	-	(AlSi7Fe)	-	A444.0	-	-	-	-	-	-
	-	Al-Si12Fe	-	413	LM20	~A-S12	4260	5079	-	ADC1

ISO	Country and standard									
	China	International	Germany	U.S.A.	U.K.	France	Sweden	Italy	Spain	Japan
	GB	DIN	W.-nr	AISI/SAE	BS	AFNOR	SS	UNI	UNE	JIS
S	Ni-based alloy									
	-	S-NiCr13A16MoNb	LW2 4670	5391	mar – 46	NC12AD	-	-	-	-
	-	NiCo15Cr10MoAlTi	LW2 4674	AMS 5397	-	-	-	-	-	-
	-	NiFe35Cr14MoTi	LW2.4662	5660	-	ZSNCDT42	-	-	-	-
	-	NiCr19Fe19NbMo	LW2.4668	5383	HR8	NC19eNB	-	-	-	-
	-	NiCr20TiAk	2.4631	-	Hr401.601	NC20TA	-	-	-	-
	-	NiCr19Co11MoTi	2.4973	AMS 5399	-	NC19KDT	-	-	-	-
	-	NiCr19Fe19NbMo	LW2.4668	AMS 5544	-	NC20K14	-	-	-	-
	-	-	2.4603	5390A	-	NC22FeD	-	-	-	-
	-	NiCr22Mo9Nb	2.4856	5666	-	NC22FeDNB	-	-	-	-
	-	NiCr20Ti	2.4630	-	HR5.203-4	NC20T	-	-	-	-
	-	NiCu30AL3Ti	2.4375	4676	3072-76	-	-	-	-	-
	Co-based alloy									
	-	CoCr20W15Ni	-	5537C,AMS	-	KC20WN	-	-	-	-
	-	CoCr22W14Ni	LW2.4964	5772	-	KC22WN	-	-	-	-
	Ti-alloy									
	-	TiAl5Sn2.5	3.7115.1	UNS R54520	TA14/17	T-A5E	-	-	-	-
	-	-	-	-	-	UNS R56400	-	-	-	-
	-	TiAl6V4	3.7165.1	-	TA10-13/ TA28	UNS R56401	-	T-A6V	-	-
	-	TiAl5V5Mo5Cr3	-	-	-	-	-	-	-	-
	-	TiAl4Mo4Sn4Si0.5	3.7185	-	-	-	-	-	-	-