

2018

Contents



Carbide Inserts Catalogue

- *Milling Inserts*
- *Drilling Inserts*
- *Turning Inserts*
- *Grooving Inserts*

Advanced Manufacturing Process



PRESSING



SINTERING



GRINDING



HONING



COATING



INSPECTION

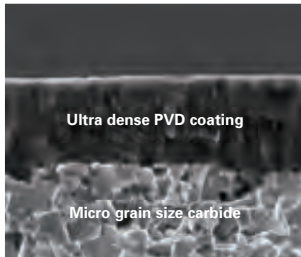
Universal Grades

Features of Grades

NICHE Universal grades, extremely efficient in covering materials including Steel, Stainless steels and Cast iron.

NP5330

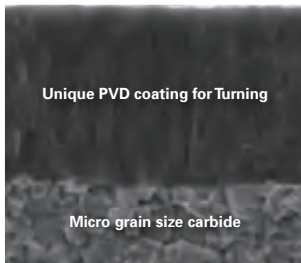
Unique Substrate / PVD coating for MILLING and DRILLING Application



- PVD coating with optimal thermal resistance & added strength
- Tough carbide substrate designed for demanding application

NP5020

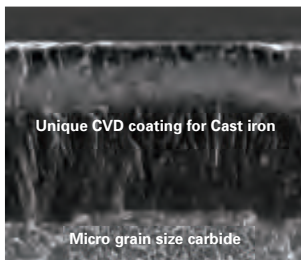
Unique Substrate / PVD coating for TURNING Application



- Substrate and PVD coating designed to balance edge strength & wear resistance.
- Excellent cutting performance under harsh machining condition.

NC6030

Unique Substrate / CVD coating for TURNING Application



- Thick coating optimized for Cast iron applications
- CVD coating with optimal thermal & wear resistance for turning applications.
- Exceptional cutting performance attributed to combination of carbide substrate and coating

Technical Formulas

Cutting speed (Vc) [m/min.]

$$V_c = \frac{D \cdot \pi \cdot n}{1000} \text{ [m/min.]}$$

Revolutions per minute (n) [rev./min.]

$$n = \frac{V_c \cdot 1000}{D \cdot \pi} \text{ [rev./min.]}$$

Feed rate (Vf) [rev./min.]

$$V_f = f_n \cdot n \text{ [rev./min.]}$$

Feed per tooth [mm/tooth]

$$f_z = \frac{V_f}{n \cdot z} \text{ [mm/tooth]}$$

Metal removal amount [cm³/min.]

$$Q = \frac{a_e \cdot a_p \cdot V_f}{1000} \text{ [cm³/min.]}$$

Power consumption [kW]









$$P_c = \frac{Q \cdot k_c}{60 \cdot 102 \cdot \eta} \text{ [rev./min.]}$$

Material designations & dimensions

ae	Width of cut [mm]
ap	Depth of cut [mm]
D	Cutter diameter [mm]
Dw	Work piece diameter [mm]
fz	Feed per tooth [mm/tooth]
π	Circular constant
kc	Specific cutting resistance [kgf/mm³]
n	Revolutions of spindle [min.⁻¹]
Pc	Power consumption [kW]
Q	Metal removal amount [cm³/min.]
Vc	Cutting speed [m/min.]
Vf	Feed rate [mm/min.]
fn	Feed per revolution [mm/rev.]
z	Effective number of edges [pcs.]
η	Mechanical efficiency [%]

Technical Information

Damage of Insert & Counter Measure

	Description	Solution
 Rapid Flank wear	<ol style="list-style-type: none"> 1. Inappropriate feed(f) rate 2. Cutting speed(s) too high 	<ol style="list-style-type: none"> 1. Adjust feed(f) rate according to depth(ap), width(ae) 2. Reduce cutting speed(s)
 Chipping	<ol style="list-style-type: none"> 1. Feed(f) rate too high 2. Cutting speed(s) too low 3. Vibration of holder & machine 	<ol style="list-style-type: none"> 1. Reduce feed(f) rate 2. Increase cutting speed(s) 3. Reduce the tool overhang & improve the rigidity of machine and workpiece
 Thermal crack	<ol style="list-style-type: none"> 1. Insufficient coolant 2. Cutting speed(s) too high 	<ol style="list-style-type: none"> 1. Check cooling system, supply enough coolant or use dry milling 2. Reduce cutting speed(s)
 Built-up edge	<ol style="list-style-type: none"> 1. Cutting speed(s) too low 2. Insufficient coolant 3. Not enough rake angle 	<ol style="list-style-type: none"> 1. Increase cutting speed(s) 2. Supply enough coolant 3. Increase rake angle of change inserts
 Notching	<ol style="list-style-type: none"> 1. Scaling or work hardening in workpiece surface area 2. Burrs in workpiece 	<ol style="list-style-type: none"> 1. Change/Vary cutting condition (feed & depth) 2. Change path or direction
 Fracture	<ol style="list-style-type: none"> 1. Wrong insert shape or corner radius 2. Corner radius too small 3. Cutting force fluctuation too high 	<ol style="list-style-type: none"> 1. Choose the insert with bigger corner or radius
 Cratering	<ol style="list-style-type: none"> 1. Insufficient coolant supply 2. Cutting speed(s) and feed(f) rate too high 	<ol style="list-style-type: none"> 1. Increase coolant supply or concentration 2. Reduce cutting speed(s) and feed(f) rate
 Plastic deformation	<ol style="list-style-type: none"> 1. Cutting speed(s) too high 2. Too much stress applied on the cutting edge 	<ol style="list-style-type: none"> 1. Reduce cutting speed(s) 2. Supply enough coolant 3. Choose insert with bigger corner radius

Technical Information

Trouble Shooting

Trouble	Cause	Counter measure			
		Cutting conditions			
		Cutting speed	Feed rate	Depth of cut	Coolant
Heat	Inappropriate cutting condition	↓	↓	↓	
Poor surface quality of machined surface	Premature insert wear	↓			●
	Chipping of cutting edge		↓	↓	
	Built up edge	↑	↑		●
	Inappropriate cutting condition	↑	↓	↓	●
	Chatter	↓	↓	↓	●
Change of cutting edge line	Inappropriate cutting condition	↓	↑		
Burr, Chipping (Steel, Aluminum)	Inappropriate cutting condition	↓	↑		●
Chipping of workpiece (Cast Iron)	Inappropriate cutting condition		↓	↓	
Burr (Mild steel)	Inappropriate cutting condition	↑	↓		●

- ↓ : decrease ↑ : increase ↓↑ : depends on status ● : use coolant

Universal Grades Comparison Chart

PVD MILLING and DRILLING

	ISO	Sub Group	NICHE	Sandvik	Kennametal	Seco	Iscar	Mitsubishi	Sumitomo	Tungaloy	Taegutec
MILLING	P	P10	NP5330	GC1010 GC1025	KC715M		IC250 IC808 IC908		ACP200		TT2510 TT7080
		P20	NP5330	GC1010 GC1025 GC2030	KC522M KC525M	F25M MP3000	IC250 IC808 IC908 IC928	MP6120 VP15TF	ACP200	AH725 AH120 AH330 GH330	TT2510 TT7080 TT9080
		P30	NP5330*	GC1010 GC1030 GC2030	KC725M KC530M	F25M MP3000 F30M	IC250 IC808 IC908 IC928	MP6120 VP15TF MP6130 VP30RT	ACP200 ACP300	AH725 AH120 AH130 GH130	TT8080 TT9080
		P40	NP5330*	GC1030	KC735M	F40M T60M		VP30RT	ACP300	AH140	TT8080 TT9080
	M	M10	NP5330*	GC1025 GC1030	KC715M		IC903				
		M20	NP5330*	GC1025 GC1030 GC1040 GC2030	KC730 KC522M KC525M	F25M MP3000	IC250 IC300 IC808 IC928	VP15TF MP7130 MP7030 VP20RT	ACP200	AH725 AH120 AH330 GH330	TT9080
		M30	NP5330	GC1040 GC2030	KC725M KC735M	F30M F40M MP3000	IC250 IC300 IC808 IC928	VP15TF MP7130 MP7030 VP20RT	ACP200 ACP300	AH120 AH725 GH130 GH340	TT8080 TT9080
		M40	NP5330			F40M		MP7140 VP30RT	ACP300	AH140	TT8080 TT9080
	K	K10	NP5330	GC1010	KC510M		IC350 IC810 IC900 IC910 IC950	MP8010		AH110 GH110 AH330	TT6080 TT7080
		K20	NP5330*	GC1010 GC1020	KC520M KC525M	MK2000	IC350 IC830 IC928	VP15TF VP20RT	ACK300	GH130	TT6080 TT7080
		K30	NP5330*	GC1020	KC725M KC735M		IC350 IC830 IC928	VP15TF VP20RT	ACK300		
	S	S10	NP5330*	GC1025	KC510M		IC903	MP9120 VP15TF			
		S20	NP5330*	GC1025 GC2030	KC522M KC525M		IC300 IC808 IC908 IC328	MP9120 VP15TF MP9130 MP9030			TT9080
		S30	NP5330	GC2030	KC725M	F40M	IC830 IC928				TT8080 TT9080
	H	H10	NP5330	GC1010 GC1030	KC635M	MH1000 F15M	IC900	VP15TF VP10H			TT2510 TT6080
		H20	NP5330	GC1010 GC1030	KC635M	F15M	IC900 IC808 IC908	VP15TF			TT2510 TT6080
		H30	NP5330		KC530M	MP3000 F30M	IC808 IC908 IC1008				

* Outstanding performance.

- Above chart is selected from a publication. We have not obtained approval from each company.

Universal Grades Comparison Chart

PVD TURNING / CVD for Cast Iron

	ISO	Sub Group	NICHE	Sandvik	Kennametal	Seco	Iscar	Mitsubishi	Sumitomo	Tungaloy	Taegutec
TURNING	P	P10	NP5020*	GC1525 GC1025	KC5010 KC5510 KU10T	CP200 TS2000	IC507 IC807 IC907	VP10MF		AH710	
		P20	NP5020*	GC1525 GC1025 GC1125	KC5025 KC5525 KC7215 KC7315 KU25T	CP250 TS2500	IC507 IC807 IC907 IC908 IC928	VP10RT VP20RT VP15TF VP20MF	AC520U	AH710 AH725	TT9020
		P30	NP5020*	GC1025 GC1125	KC7015 KC7020 KU25T KC7235	CP500	IC328 IC1008 IC3028	VP10RT VP20RT VP15TF VP20MF	AC530U	AH725 AH120 GH130	TT8020 TT9020
		P40	NP5020		KC7040 KC7140 KC7030	CP500	IC328 IC1008 IC3028		AC530U	AH740	TT8020 TT9020
	M	M10	NP5020*	GC1005 GC1025 GC1125 GC1105	KC5010 KC5510 KC6005 KC6015	CP200 TS2000	IC330 IC507 IC570 IC907	VP10MF		AH710	TT5080
		M20	NP5020*	GC1005 GC1025 GC1125 GC1105	KC5025 KC5525 KC7020 KC7025	CP250 TS2500 CP500	IC250 IC354 IC908 IC3028	VP10RT VP20RT VP15TF VP20MF	AC520U	AH710 AH120 GH730	TT5080 TT9020 TT9080
		M30	NP5020	GC1125 GC2035	KC7030 KC7225	CP500	IC328 IC928 IC3028	VP10RT VP20RT VP15TF VP20MF MP7035	AC520U AC530U	GH330 AH120 GH730	TT8020 TT9020 TT9080
		M40	NP5020	GC2035			IC328 IC928 IC3028	MP7035	AC530U	J740	TT8020 TT9080
	K	K10	NC6030	GC3210	KCK05	TK0501 TK1001	IC5005 IC428	MC5005	AC405K AC415K	T5105	TT7005 TT7015
		K20	NC6030	GC3225	KCK15	TK2001	IC5010 IC5005 IC428	MC5015	AC420K	T515 T5115	TT7015
		K30	NC6030	GC3225	KCK20	TK2001	IC5010	MC5015	AC820P	T5125	TT7015
	S	S10	NP5020*	GC1105 GC1005 GC1025	KC5010 KC5410 KC5510	CP200 CP250 TS2000 TS250	IC507 IC903	MP9005 MP9015 VP10RT	AU510U	AH905 AH110 AH120	TT5080
		S20	NP5020*	GC1025 GC1125	KC5025 KC5525	CP250 TS2500 CP500	IC300 IC808 IC908	MP9015 MT9015 VP20RT	AC510U AC520U	AH120 AH725	TT5080 TT9080
		S30	NP5020	GC1125				VP15TF	AC520U	AH725	TT8020 TT9080
	H	H10	NP5020	GC15 GC1125				VP15TF			
		H20	NP5020	GC1025 GC1515	KCU25 KC5525	CP500	IC808 IC908	VP15TF VP20RT	AC520U EH20Z	AH120	TT9080
		H30	NP5020	GC1525	KC5025						

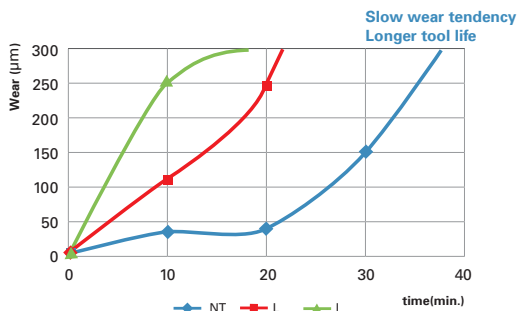
* Outstanding performance.

- Above chart is selected from a publication. We have not obtained approval from each company.

Universal Grades

Cutting Tool Performance

01. Test result for APKT 1003PDTR

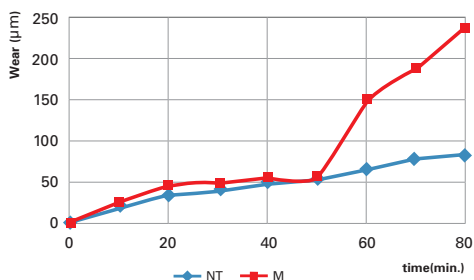


► Test Condition

Material (Alloy tool steel)	DIN : X100CrMoV5 1 AISI : D2 JIS : SKD11
Workpiece HB	210 ~ 220
Workpiece size	150 x 200 x 120
Vc(m/min.)	140
fz(mm/tooth)	0.1
ap/ae(mm)	8 / 3
Coolant	Dry

※ Test finishing wear value : 300μm(flank wear)

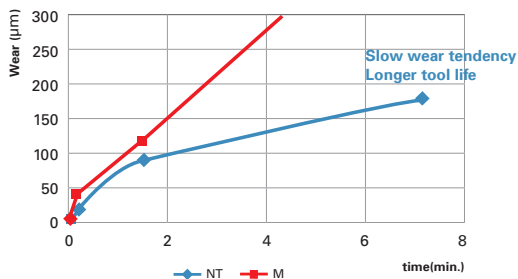
02. Test result for APMT 1135PDTR



► Test Condition

Material (Alloy steel)	DIN : 42CrMo4 AISI : 4140 JIS : SCM440
Workpiece HB	190 ~ 200
Workpiece size	300 x 60 x 150
Vc(m/min.)	180
fz(mm/tooth)	0.15
ap/ae(mm)	2 / 20
Coolant	Dry





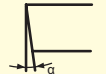


















03. Test result for RPMT 1204M0

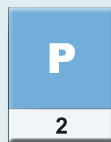
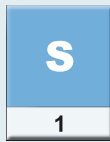


► Test Condition

Material (Alloy tool steel)	DIN : X100CrMoV5 1 AISI : D2 JIS : SKD11
Workpiece HB	210 ~ 230
Workpiece size	120 x 100 x 150
Vc(m/min.)	120
fz(mm/tooth)	0.23
ap/ae(mm)	1.5 / 20
Coolant	Dry

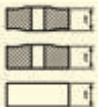
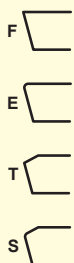
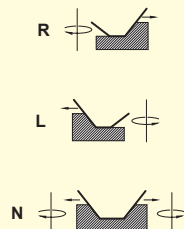
Milling Inserts Designation System-ISO

1. Insert Shape				2. Clearance Angle				4. Cross Section Shape		
										
A	B	C	D					A	F	G
				5°	7°	15°	20°			
E	H	K	L	B	C	D	E	M	N	R
				25°	30°	0°	11°	 C'Sink40°~60°	 C'Sink40°~60°	special
O	P	R	S	F	G	N	P	T	W	X
		special								
T	W	X								









3. Tolerance									
	Tolerance (mm)			I.C. Size (mm)					
	m	t	I.C.	6.35	9.525	12.7	15.875	19.05	25.4
A	± 0.005	± 0.025	± 0.025	●	●	●	●	●	●
C	± 0.013	± 0.025	± 0.025	●	●	●	●	●	●
E	± 0.025	± 0.025	± 0.025	●	●	●	●	●	●
F	± 0.005	± 0.025	± 0.013	●	●	●	●	●	●
G	± 0.025	± 0.13	± 0.025	●	●	●	●	●	●
H	± 0.013	± 0.025	± 0.013	●	●	●	●	●	●
K	± 0.013	± 0.025	± 0.05	●	●				
			± 0.08			●			
			± 0.10				●	●	
			± 0.13						●
M	± 0.08	± 0.13	± 0.05	●	●				
	± 0.13		± 0.08			●			
	± 0.15		± 0.10				●	●	
	± 0.18		± 0.13						●

Milling Inserts Designation System-ISO

6. Thickness (mm)	8. Edge Preparation	9. Cutting Direction	10. Chip Breaker																
			<div>For Application</div>																
<table><tr><th>t</th><th>mm</th></tr><tr><td>02</td><td>2.38</td></tr><tr><td>03</td><td>3.18</td></tr><tr><td>T3</td><td>3.97</td></tr><tr><td>04</td><td>4.76</td></tr><tr><td>06</td><td>6.35</td></tr><tr><td>07</td><td>7.94</td></tr><tr><td>09</td><td>9.52</td></tr></table>	t	mm	02	2.38	03	3.18	T3	3.97	04	4.76	06	6.35	07	7.94	09	9.52			
t	mm																		
02	2.38																		
03	3.18																		
T3	3.97																		
04	4.76																		
06	6.35																		
07	7.94																		
09	9.52																		

12	03	ED	T	R	CHIP BREAKER
5	6	7	8	9	10

5. Cutting Edge Length (mm)							7. Lead Angle & Relief Angle of Minor Cutting Edge	
I.C.	C	S	R	T	H	O		
L								
5.56				09				
6.35	06	06	06	11				
7.94	08			13				
9.525	09	09	09	16				
12.7	12	12	12	22	05	05		
15.875	16	15	15	27	09			
17.94						07		
19.05	19	19	19	33	10			
25.4	25	25	25					

Lead Angle		Relief Angle of minor cutting edge	
A	45°	B	5°
D	60°	C	7°
E	75°	D	15°
F	85°	E	20°
P	90°	F	25°
Z	Special	G	30°
		N	0°
		P	11°
		Z	Special

Milling Inserts


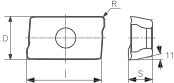

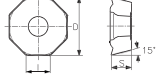

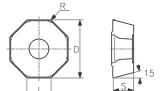

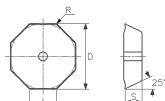

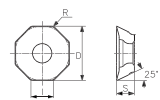
Unit : mm

Insert Shape	Designation	Dimensions					Feed* (mm/tooth)		D.O.C* ap (mm)		Geometry
		l	D	S	Ø	r	Min.	Max.	Min.	Max.	
	ADKT 1505 PDTR	14.42	9.67	5.80	15	0.8	0.10	0.32	0.50	14.00	
	AOMT 123604 PDTR	11.30	6.60	3.60	11	0.4	0.07	0.22	0.50	11.00	
	AOMT 123608 PDTR	11.30	6.60	3.60	11	0.8	0.07	0.22	0.50	11.00	
	APKT 1003 PDTR	10.58	6.70	3.60	11	0.5	0.07	0.26	0.50	9.00	
	APKT 100308 PDTR	10.50	6.70	3.50	11	0.8	0.07	0.26	0.50	9.00	
	APKT 1604 PDTR	16.32	9.40	5.27	11	0.8	0.10	0.32	0.50	15.00	
	APKT 160404 PDTR	16.30	9.40	5.27	11	0.4	0.10	0.32	0.50	15.00	
	APKT 160408 PDTR	16.30	9.40	5.27	11	0.8	0.10	0.32	0.50	15.00	
	APKT 160416 PDTR	16.30	9.40	5.27	11	1.6	0.10	0.32	0.50	15.00	
	APKT 160424 PDTR	16.30	9.40	5.27	11	2.4	0.10	0.32	0.50	15.00	
	APKT 160432 PDTR	16.30	9.40	5.27	11	3.2	0.10	0.32	0.50	15.00	
	APMT 1135 PDTR	10.69	6.20	3.50	11	0.4	0.07	0.24	0.50	10.00	
	APMT 113508 PDTR	11.18	6.20	3.50	11	0.8	0.07	0.24	0.50	10.00	
	APMT 1604 PDTR	16.25	9.22	4.76	11	0.8	0.09	0.30	0.50	15.00	
	APMT 1604 PDER	16.25	9.22	4.76	11	0.8	0.09	0.30	0.50	15.00	
	APMT 160408 PDTR	17.12	9.40	5.15	11	0.8	0.09	0.30	0.50	15.00	

* Feed and Depth of cut need to be adapted according to the Material Group. Please see on page 18~20.

- Product image shown on this catalogue may differ from actual products.

Unit : mm

Insert Shape	Designation	Dimensions					Feed* (mm/tooth)		D.O.C* ap (mm)		Geometry
		l	D	S	Θ	r	Min.	Max.	Min.	Max.	
	APXT 11T3 PDTR	11.40	6.61	3.63	11	0.5	0.07	0.26	0.50	9.00	
	ODMT 060508	6.60	15.88	5.50	15	0.8	0.12	0.54	0.40	4.00	
	ODMW 060508	6.60	15.88	5.50	15	0.8	0.12	0.58	0.40	4.00	
	OFER 070405	7.48	18.05	4.78	25	0.5	0.12	0.50	0.40	4.50	
	OFMT 05T308	5.27	12.70	4.02	25	0.8	0.12	0.51	0.40	4.00	

* Feed and Depth of cut need to be adapted according to the Material Group. Please see on page 21~23.
- Product image shown on this catalogue may differ from actual products.

Milling


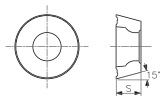

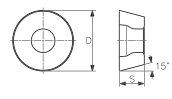

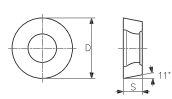

Drilling

Turning

Grooving

Milling Inserts

Unit : mm

Insert Shape	Designation	Dimensions					Feed* (mm/tooth)		D.O.C* ap (mm)		Geometry
		l	D	S	Ø	r	Min.	Max.	Min.	Max.	
	RDMT 0602M0	-	6.00	2.38	15	-	0.10	0.50	0.30	3.00	
	RDMT 0802M0	-	8.00	2.38	15	-	0.10	0.58	0.30	4.00	
	RDMT 0803M0	-	8.00	3.18	15	-	0.10	0.58	0.30	4.00	
	RDMT 10T3M0	-	10.00	3.97	15	-	0.10	0.64	0.30	5.00	
	RDMT 1204M0	-	12.00	4.76	15	-	0.14	0.74	0.30	6.00	
	RDMW 0602M0	-	6.00	2.38	15	-	0.10	0.48	0.30	3.00	
	RDMW 0802M0	-	8.00	2.38	15	-	0.10	0.58	0.30	4.00	
	RDMW 10T3M0	-	10.00	3.97	15	-	0.10	0.70	0.30	5.00	
	RDMW 1204M0	-	12.00	4.76	15	-	0.10	0.74	0.30	6.00	
	RPMT 08T2M0	-	8.00	2.78	11	-	0.10	0.58	0.30	4.00	
	RPMT 10T3M0	-	10.00	3.97	11	-	0.10	0.64	0.30	5.00	
	RPMT 1204M0	-	12.00	4.76	11	-	0.14	0.74	0.30	6.00	
	RPMW 1003M0	-	10.00	3.18	11	-	0.10	0.64	0.30	5.00	
	RPMW 1204M0	-	12.00	4.76	11	-	0.14	0.74	0.30	6.00	
	RPMX 1204M0	-	12.00	4.76	11	-	0.05	0.64	0.50	6.00	

* Feed and Depth of cut need to be adapted according to the Material Group. Please see on page 23~30.

- Product image shown on this catalogue may differ from actual products.

Unit : mm

Insert Shape	Designation	Dimensions					Feed* (mm/tooth)		D.O.C* ap (mm)		Geometry
		l	D	S	Ø	r	Min.	Max.	Min.	Max.	
	SEKN 1203 AFTN	-	12.70	3.18	20	-	0.10	0.46	0.50	7.00	
	SEKR 1203 AFTN	-	12.70	3.18	20	-	0.10	0.46	0.50	7.00	
	SEKT 12T3 AGTN	-	13.40	3.97	20	-	0.10	0.46	0.50	7.00	
	SEKT 1204 AFTN	-	12.70	4.94	20	-	0.10	0.46	0.50	7.00	
	SEMT 1204 AFTN	-	12.70	5.06	20	-	0.10	0.46	0.50	7.00	
	SEMT 13T3 AGSN	-	13.40	3.97	20	-	0.10	0.46	0.50	7.00	
	SPKN 1203 EDTR	-	12.70	3.18	11	-	0.10	0.43	0.50	7.00	
	SPKN 1504 EDTR	-	15.88	4.76	11	-	0.10	0.43	0.50	9.00	
	SPKR 1203 EDTR	-	12.70	3.18	11	-	0.10	0.43	0.50	7.00	

Feed and Depth of cut need to be adapted according to the Material Group. Please see on page 30~34.
- Product image shown on this catalogue may differ from actual products.

Milling


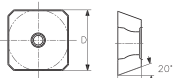

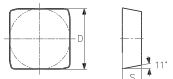

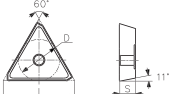

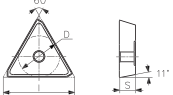

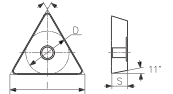
Drilling

Turning

Grooving

Milling Inserts

Unit : mm

Insert Shape	Designation	Dimensions					Feed* (mm/tooth)		D.O.C* ap (mm)		Geometry
		l	D	S	Ø	r	Min.	Max.	Min.	Max.	
	SPMT 09T308	-	9.53	3.71	11	0.8	0.04	0.22	0.50	9.00	
	SPMT 12T308	-	13.29	3.97	11	0.8	0.07	0.29	0.50	9.00	
	SPMT 120408	-	12.70	4.80	11	0.8	0.07	0.29	0.50	9.00	
	SPUN 120308	-	12.70	3.18	11	0.8	0.10	0.37	0.50	6.00	
	TPKN 1603 PDTR	16.50	9.53	3.18	11	-	0.08	0.27	0.50	12.00	
	TPKN 2204 PDTR	22.00	12.70	4.76	11	-	0.09	0.27	0.50	18.00	
	TPKR 1603 PDTR	16.50	9.53	3.18	11	-	0.09	0.22	0.50	12.00	
	TPKR 2204 PDTR	22.00	9.53	3.18	11	-	0.09	0.22	0.50	18.00	
	TPUN 160308	16.50	9.53	3.18	11	0.8	0.08	0.27	0.50	12.00	

* Feed and Depth of cut need to be adapted according to the Material Group. Please see on page 35~38.
 - Product image shown on this catalogue may differ from actual products.

Milling - Cutting Conditions

ADKT 1505..

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.18	0.32	0.25	190	330	250	0.5	14.0	4.0
	Low Alloy	200	0.15	0.25	0.20	150	240	200	0.5	14.0	4.0
	High Alloy	220	0.12	0.22	0.17	90	150	120	0.5	10.0	4.0
M	Austenitic	190	0.14	0.24	0.18	190	250	220	0.5	14.0	3.0
	Ferritic	220	0.12	0.20	0.16	140	220	180	0.5	14.0	3.0
	Martensitic	40 HRc	0.12	0.18	0.14	80	160	120	0.5	14.0	3.0
K	Nodular Cast Iron	150	0.18	0.32	0.24	150	230	190	0.5	15.0	4.0
	Grey Cast Iron	150	0.18	0.32	0.25	150	240	200	0.5	14.0	4.0
S	Heat Resistant and Super Alloys	240	0.12	0.18	0.15	25	45	35	0.5	11.0	3.0
H	Hardened Material	45 HRc	0.10	0.18	0.14	40	80	60	0.5	5.0	2.0

AOMT 1236..

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.14	0.22	0.15	190	330	220	0.5	11.0	2.0
	Low Alloy	200	0.11	0.18	0.13	150	210	180	0.5	11.0	2.0
	High Alloy	220	0.08	0.15	0.12	90	150	120	0.5	8.0	1.5
M	Austenitic	190	0.14	0.24	0.18	190	250	220	0.5	11.0	2.0
	Ferritic	220	0.12	0.20	0.16	140	220	180	0.5	9.0	3.0
	Martensitic	40 HRc	0.12	0.18	0.14	80	150	120	0.5	6.0	2.0
K	Nodular Cast Iron	150	0.12	0.24	0.18	140	230	190	0.5	9.0	2.0
	Grey Cast Iron	150	0.13	0.22	0.15	150	240	190	0.5	11.0	2.0
S	Heat Resistant and Super Alloys	240	0.08	0.13	0.10	25	45	30	0.5	8.0	1.5
H	Hardened Material	45 HRc	0.07	0.13	0.08	40	80	55	0.5	2.4	0.8

Milling

Drilling

Turning

Grooving

Milling - Cutting Conditions

APKT 1003 PDTR

Group	Material		Cutting Conditions								
	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.13	0.26	0.20	190	330	250	0.5	9.0	2.0
	Low Alloy	200	0.11	0.21	0.16	150	240	200	0.5	9.0	2.0
	High Alloy	220	0.08	0.18	0.13	90	150	120	0.5	6.4	1.5
M	Austenitic	190	0.11	0.21	0.16	190	250	220	0.5	9.0	2.0
	Ferritic	220	0.12	0.18	0.15	130	220	170	0.5	9.0	3.0
	Martensitic	40 HRc	0.12	0.18	0.14	70	140	110	0.5	6.0	2.0
K	Nodular Cast Iron	150	0.12	0.24	0.18	140	230	190	0.5	9.0	2.0
	Grey Cast Iron	150	0.13	0.26	0.20	150	240	200	0.5	9.0	2.0
S	Heat Resistant and Super Alloys	240	0.08	0.15	0.12	25	45	35	0.5	6.4	1.5
H	Hardened Material	45 HRc	0.07	0.15	0.11	40	80	60	0.5	3.2	1.0

APKT 1604..

Group	Material		Cutting Conditions								
	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.18	0.32	0.25	190	330	250	0.5	15.0	4.0
	Low Alloy	200	0.15	0.25	0.20	150	240	195	0.5	15.0	4.0
	High Alloy	220	0.12	0.22	0.17	90	150	120	0.5	10.7	4.0
M	Austenitic	190	0.14	0.24	0.18	190	250	220	0.5	15.0	3.0
	Ferritic	220	0.12	0.20	0.16	140	220	180	0.5	14.0	3.0
	Martensitic	40 HRc	0.12	0.18	0.14	80	160	120	0.5	14.0	3.0
K	Nodular Cast Iron	150	0.18	0.32	0.24	150	230	190	0.5	15.0	4.0
	Grey Cast Iron	150	0.18	0.32	0.24	150	240	190	0.5	15.0	4.0
S	Heat Resistant and Super Alloys	240	0.12	0.18	0.15	25	45	35	0.5	10.7	3.0
H	Hardened Material	45 HRc	0.10	0.18	0.14	40	80	60	0.5	5.4	2.0

APMT 1135..

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.13	0.22	0.18	190	330	250	0.5	10.0	2.0
	Low Alloy	200	0.11	0.18	0.15	150	240	200	0.5	10.0	2.0
	High Alloy	220	0.08	0.15	0.12	90	150	120	0.5	7.2	1.5
M	Austenitic	190	0.14	0.24	0.18	190	250	220	0.5	10.0	2.0
	Ferritic	220	0.12	0.2	0.16	130	220	170	0.5	9.0	3.0
	Martensitic	40 HRc	0.12	0.18	0.14	70	140	110	0.5	6.0	2.0
K	Nodular Cast Iron	150	0.12	0.22	0.18	140	230	190	0.5	10.0	2.0
	Grey Cast Iron	150	0.13	0.22	0.18	150	240	200	0.5	10.0	2.0
S	Heat Resistant and Super Alloys	240	0.08	0.13	0.11	25	45	35	0.5	7.2	1.5
H	Hardened Material	45 HRc	0.07	0.13	0.07	40	80	60	0.5	3.6	1.0

APMT 1604..

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.16	0.30	0.23	190	330	250	0.5	15.0	4.0
	Low Alloy	200	0.14	0.23	0.19	150	240	200	0.5	15.0	4.0
	High Alloy	220	0.11	0.20	0.16	90	150	120	0.5	10.7	4.0
M	Austenitic	190	0.14	0.23	0.19	190	250	220	0.5	15.0	4.0
	Ferritic	220	0.16	0.22	0.18	140	220	180	0.5	14.0	3.0
	Martensitic	40 HRc	0.14	0.22	0.16	70	140	100	0.5	14.0	3.0
K	Nodular Cast Iron	150	0.16	0.30	0.22	140	230	200	0.5	15.0	4.0
	Grey Cast Iron	150	0.16	0.30	0.22	150	240	200	0.5	15.0	4.0
S	Heat Resistant and Super Alloys	240	0.11	0.17	0.14	25	45	35	0.5	10.7	3.0
H	Hardened Material	45 HRc	0.09	0.17	0.13	40	80	60	0.5	5.4	2.0

Milling - Cutting Conditions

APXT 11T3..

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.13	0.26	0.20	190	330	250	0.5	9.0	2.0
	Low Alloy	200	0.11	0.21	0.16	150	240	200	0.5	9.0	2.0
	High Alloy	220	0.08	0.18	0.13	90	150	120	0.5	6.4	1.5
M	Austenitic	190	0.14	0.21	0.16	190	250	220	0.5	9.0	2.0
	Ferritic	220	0.12	0.18	0.15	130	220	170	0.5	9.0	3.0
	Martensitic	40 HRC	0.12	0.18	0.13	70	140	110	0.5	6.0	2.0
K	Nodular Cast Iron	150	0.12	0.24	0.20	140	230	190	0.5	9.0	2.0
	Grey Cast Iron	150	0.13	0.26	0.20	150	240	200	0.5	9.0	2.0
S	Heat Resistant and Super Alloys	240	0.08	0.15	0.12	25	45	35	0.5	6.4	1.5
H	Hardened Material	45 HRC	0.07	0.15	0.11	40	80	60	0.5	3.2	1.0

ODMT 0605..

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.22	0.54	0.38	190	330	250	0.5	4.0	2.5
	Low Alloy	200	0.18	0.43	0.31	150	240	195	0.5	4.0	2.5
	High Alloy	220	0.14	0.37	0.26	90	150	120	0.5	2.9	1.9
M	Austenitic	190	0.18	0.37	0.28	190	250	220	0.5	4.0	2.5
	Ferritic	220	0.18	0.32	0.24	130	210	170	0.5	4.0	2.5
	Martensitic	40 HRC	0.15	0.28	0.22	80	160	120	0.5	3.0	2.0
K	Nodular Cast Iron	150	0.24	0.48	0.34	140	230	190	0.5	4.5	3.0
	Grey Cast Iron	150	0.22	0.54	0.38	150	240	195	0.5	4.0	2.5
S	Heat Resistant and Super Alloys	240	0.14	0.31	0.23	25	45	35	0.5	2.9	1.9
H	Hardened Material	45 HRC	0.12	0.31	0.22	40	80	60	0.4	1.4	1.3

ODMW 0605..

Group	Material		Cutting Conditions								
	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.22	0.58	0.40	190	330	250	0.5	4.0	3.0
	Low Alloy	200	0.18	0.45	0.32	150	240	195	0.5	4.0	3.0
	High Alloy	220	0.14	0.40	0.27	90	150	120	0.5	2.9	2.3
K	Nodular Cast Iron	150	0.24	0.48	0.34	140	230	190	0.5	4.5	3.0
	Grey Cast Iron	150	0.22	0.58	0.40	150	240	195	0.5	4.0	3.0
H	Hardened Material	45 HRc	0.12	0.32	0.22	40	80	60	0.4	1.4	1.3

OFER 0704..

Group	Material		Cutting Conditions								
	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.22	0.50	0.37	190	300	250	0.5	4.5	3.0
	Low Alloy	200	0.18	0.40	0.30	150	210	195	0.5	4.5	3.0
	High Alloy	220	0.14	0.35	0.28	90	130	120	0.5	3.0	2.2
M	Austenitic	190	0.18	0.35	0.28	190	240	220	0.5	4.5	3.0
	Ferritic	220	0.18	0.32	0.24	140	220	160	0.5	4.0	3.0
	Martensitic	40 HRc	0.16	0.30	0.22	80	160	120	0.5	4.0	3.0
K	Nodular Cast Iron	150	0.24	0.48	0.34	140	230	190	0.5	4.5	3.0
	Grey Cast Iron	150	0.22	0.50	0.34	150	240	195	0.5	4.5	3.0
S	Heat Resistant and Super Alloys	240	0.14	0.28	0.25	25	45	35	0.5	3.0	2.2
H	Hardened Material	45 HRc	0.12	0.28	0.20	40	70	60	0.4	1.0	1.0

Milling - Cutting Conditions

OFMT 05T3..

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.22	0.51	0.37	190	330	250	0.5	3.5	2.5
	Low Alloy	200	0.18	0.40	0.29	150	240	195	0.5	3.5	2.5
	High Alloy	220	0.14	0.35	0.25	90	150	120	0.5	2.5	1.9
M	Austenitic	190	0.18	0.35	0.27	190	250	220	0.5	3.5	2.5
	Ferritic	220	0.18	0.30	0.24	130	210	160	0.5	4.0	2.5
	Martensitic	40 HRC	0.15	0.26	0.20	70	140	110	0.5	3.0	2.0
K	Nodular Cast Iron	150	0.22	0.50	0.36	140	230	190	0.5	3.5	2.5
	Grey Cast Iron	150	0.22	0.51	0.37	150	240	200	0.5	3.5	2.5
S	Heat Resistant and Super Alloys	240	0.14	0.29	0.22	25	45	35	0.5	2.5	1.9
H	Hardened Material	45 HRC	0.12	0.29	0.21	40	80	60	0.4	1.3	1.3

RDMT 0602M0

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.18	0.48	0.29	190	330	220	0.5	3.0	0.8
	Low Alloy	200	0.15	0.38	0.25	150	210	180	0.5	2.5	0.8
	High Alloy	220	0.12	0.33	0.23	90	130	120	0.5	2.2	0.6
M	Austenitic	190	0.15	0.38	0.25	190	250	220	0.5	2.5	0.8
	Ferritic	220	0.14	0.32	0.24	120	190	140	0.5	2.2	0.8
	Martensitic	40 HRC	0.12	0.28	0.22	80	140	120	0.5	2.0	0.8
K	Nodular Cast Iron	150	0.18	0.50	0.30	140	230	190	0.5	1.5	0.8
	Grey Cast Iron	150	0.18	0.50	0.30	150	240	190	0.5	1.5	0.8
S	Heat Resistant and Super Alloys	240	0.12	0.27	0.20	25	45	32	0.5	0.8	0.6
H	Hardened Material	45 HRC	0.10	0.27	0.18	40	80	60	0.3	0.6	0.4

RDMT 0802M0

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.18	0.64	0.35	190	330	250	0.5	4.0	0.8
	Low Alloy	200	0.15	0.50	0.30	150	240	195	0.5	3.0	0.8
	High Alloy	220	0.12	0.44	0.25	90	150	120	0.5	2.2	0.6
M	Austenitic	190	0.15	0.50	0.30	190	250	220	0.5	2.5	0.8
	Ferritic	220	0.16	0.34	0.24	120	190	140	0.5	2.2	0.8
	Martensitic	40 HRC	0.14	0.28	0.23	80	140	120	0.5	1.8	0.8
K	Nodular Cast Iron	150	0.18	0.54	0.32	140	230	190	0.5	1.8	0.8
	Grey Cast Iron	150	0.18	0.54	0.32	150	240	190	0.5	1.8	0.8
S	Heat Resistant and Super Alloys	240	0.12	0.32	0.24	25	45	35	0.5	1.0	0.6
H	Hardened Material	45 HRC	0.10	0.32	0.23	40	80	60	0.3	0.7	0.4

RDMT 0803M0

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.18	0.64	0.35	190	330	250	0.5	4.0	0.8
	Low Alloy	200	0.15	0.50	0.30	150	240	195	0.5	3.0	0.8
	High Alloy	220	0.12	0.44	0.25	90	150	120	0.5	2.2	0.6
M	Austenitic	190	0.15	0.50	0.30	190	250	220	0.5	2.5	0.8
	Ferritic	220	0.18	0.32	0.24	120	190	140	0.5	2.2	0.8
	Martensitic	40 HRC	0.16	0.28	0.23	80	140	120	0.5	1.8	0.8
K	Nodular Cast Iron	150	0.18	0.54	0.32	140	230	190	0.5	1.8	0.8
	Grey Cast Iron	150	0.18	0.54	0.32	150	240	190	0.5	1.8	0.8
S	Heat Resistant and Super Alloys	240	0.12	0.32	0.24	25	45	35	0.5	1.0	0.6
H	Hardened Material	45 HRC	0.10	0.32	0.23	40	80	60	0.3	0.7	0.4

Milling - Cutting Conditions

RDMT 10T3M0

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.18	0.64	0.35	190	330	250	0.5	5.0	1.0
	Low Alloy	200	0.15	0.50	0.30	150	240	200	0.5	4.0	1.0
	High Alloy	220	0.12	0.44	0.25	90	150	120	0.5	2.5	0.8
M	Austenitic	190	0.15	0.50	0.30	190	250	220	0.5	3.0	1.0
	Ferritic	220	0.18	0.34	0.24	120	190	140	0.5	2.5	1.0
	Martensitic	40 HRc	0.14	0.28	0.23	80	140	120	0.5	2.2	1.0
K	Nodular Cast Iron	150	0.16	0.60	0.34	140	230	190	0.5	2.2	1.0
	Grey Cast Iron	150	0.18	0.64	0.35	150	240	200	0.5	2.2	1.0
S	Heat Resistant and Super Alloys	240	0.12	0.36	0.24	25	45	35	0.5	1.2	0.5
H	Hardened Material	45 HRc	0.10	0.36	0.23	40	80	60	0.3	0.8	0.5

RDMT 1204M0

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.18	0.64	0.35	190	330	250	0.5	6.0	1.3
	Low Alloy	200	0.15	0.50	0.30	150	240	200	0.5	5.0	1.3
	High Alloy	220	0.12	0.44	0.25	90	150	120	0.5	3.8	1.0
M	Austenitic	190	0.15	0.50	0.30	190	250	220	0.5	3.5	1.3
	Ferritic	220	0.20	0.38	0.26	120	180	140	0.5	3.2	1.2
	Martensitic	40 HRc	0.16	0.30	0.24	80	150	120	0.5	2.5	1.2
K	Nodular Cast Iron	150	0.18	0.62	0.34	140	230	190	0.5	2.5	1.3
	Grey Cast Iron	150	0.18	0.64	0.34	150	240	200	0.5	2.5	1.3
S	Heat Resistant and Super Alloys	240	0.17	0.41	0.29	25	45	35	0.5	1.5	1.0
H	Hardened Material	45 HRc	0.14	0.41	0.28	40	80	60	0.3	1.0	0.7

RDMW 0602M0

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.18	0.64	0.41	190	330	260	0.5	4.0	0.8
	Low Alloy	200	0.15	0.50	0.33	150	240	195	0.5	3.0	0.8
	High Alloy	220	0.12	0.44	0.28	90	150	120	0.5	2.2	0.6
K	Nodular Cast Iron	150	0.18	0.52	0.32	140	220	180	0.5	1.5	0.8
	Grey Cast Iron	150	0.18	0.52	0.32	150	240	195	0.5	1.5	0.8
H	Hardened Material	45 HRc	0.10	0.32	0.23	40	80	60	0.3	0.6	0.4

RDMW 0802M0

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.18	0.64	0.41	190	330	260	0.5	4.0	0.8
	Low Alloy	200	0.15	0.50	0.33	150	240	195	0.5	3.5	0.8
	High Alloy	220	0.12	0.44	0.28	90	150	120	0.5	2.8	0.6
K	Nodular Cast Iron	150	0.18	0.56	0.34	140	220	180	0.5	2.5	0.8
	Grey Cast Iron	140	0.18	0.56	0.34	150	240	195	0.5	2.5	0.8
H	Hardened Material	45 HRc	0.10	0.32	0.23	40	80	60	0.3	0.8	0.4

RDMW 10T3M0

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.18	0.64	0.35	190	330	250	0.5	5.0	1.5
	Low Alloy	200	0.15	0.50	0.30	150	240	200	0.5	4.0	1.2
	High Alloy	220	0.12	0.44	0.25	90	150	120	0.5	2.5	0.8
K	Nodular Cast Iron	150	0.18	0.60	0.34	140	230	190	0.5	1.8	1.0
	Grey Cast Iron	150	0.18	0.64	0.35	150	240	200	0.5	1.8	1.0
H	Hardened Material	45 HRc	0.10	0.36	0.23	40	80	60	0.3	0.9	0.5

Milling - Cutting Conditions

RDMW 1204M0

Group	Material		Cutting Conditions								
	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.18	0.64	0.35	190	330	250	0.5	6.0	2.0
	Low Alloy	200	0.15	0.50	0.30	150	240	200	0.5	4.5	1.5
	High Alloy	220	0.12	0.44	0.25	90	150	120	0.5	3.0	1.0
K	Nodular Cast Iron	150	0.16	0.60	0.34	140	230	190	0.5	2.8	1.3
	Grey Cast Iron	150	0.18	0.64	0.35	150	240	200	0.5	2.8	1.3
H	Hardened Material	45 HRc	0.14	0.41	0.28	40	80	60	0.3	1.2	0.8

RPMT 08T2M0

Group	Material		Cutting Conditions								
	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.18	0.64	0.41	190	330	250	0.5	4.0	0.8
	Low Alloy	200	0.15	0.50	0.33	150	240	195	0.5	3.0	0.8
	High Alloy	220	0.12	0.44	0.28	90	150	120	0.5	2.2	0.6
M	Austenitic	190	0.15	0.50	0.33	190	250	220	0.5	2.5	0.8
	Ferritic	220	0.18	0.32	0.24	120	190	140	0.5	2.2	0.8
	Martensitic	40 HRc	0.16	0.28	0.24	80	140	120	0.5	1.8	0.8
K	Nodular Cast Iron	150	0.16	0.60	0.36	140	230	190	0.5	1.8	0.8
	Grey Cast Iron	150	0.18	0.64	0.40	150	240	195	0.5	1.8	0.8
S	Heat Resistant and Super Alloys	240	0.12	0.32	0.22	25	45	35	0.5	1.0	0.6
H	Hardened Material	45 HRc	0.10	0.32	0.21	40	80	60	0.3	0.7	0.4

RPMT 10T3M0

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.18	0.64	0.35	190	330	250	0.5	5.0	1.0
	Low Alloy	200	0.15	0.50	0.30	150	240	200	0.5	4.0	1.0
	High Alloy	220	0.12	0.44	0.25	90	150	120	0.5	2.5	0.8
M	Austenitic	190	0.15	0.50	0.30	190	250	220	0.5	3.0	1.0
	Ferritic	220	0.18	0.34	0.24	120	190	140	0.5	2.5	1.0
	Martensitic	40 HRC	0.14	0.28	0.23	80	140	120	0.5	2.2	1.0
K	Nodular Cast Iron	150	0.16	0.60	0.34	140	230	190	0.5	2.2	1.0
	Grey Cast Iron	150	0.18	0.64	0.35	150	240	200	0.5	2.2	1.0
S	Heat Resistant and Super Alloys	240	0.12	0.36	0.24	25	45	35	0.5	1.2	0.5
H	Hardened Material	45 HRC	0.10	0.36	0.23	40	80	60	0.3	0.8	0.5

RPMT 1204M0

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.18	0.64	0.35	190	330	250	0.5	6.0	1.3
	Low Alloy	200	0.15	0.50	0.30	150	240	195	0.5	5.0	1.3
	High Alloy	220	0.12	0.44	0.25	90	150	120	0.5	3.8	1.0
M	Austenitic	190	0.15	0.50	0.30	190	250	220	0.5	3.5	1.3
	Ferritic	220	0.20	0.38	0.26	120	180	140	0.5	3.2	1.2
	Martensitic	40 HRC	0.16	0.30	0.24	80	150	120	0.5	2.5	1.2
K	Nodular Cast Iron	150	0.16	0.60	0.34	140	230	190	0.5	2.5	1.3
	Grey Cast Iron	150	0.18	0.64	0.35	150	240	190	0.5	2.5	1.3
S	Heat Resistant and Super Alloys	240	0.13	0.30	0.29	25	50	38	0.5	1.5	1.0
H	Hardened Material	45 HRC	0.50	0.22	0.28	50	100	75	0.3	1.0	0.7

Milling - Cutting Conditions

RPMW 1003M0

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.18	0.64	0.35	190	330	250	0.5	5.0	1.0
	Low Alloy	200	0.15	0.50	0.30	150	240	200	0.5	4.0	1.0
	High Alloy	220	0.12	0.44	0.25	90	150	120	0.5	3.5	0.8
K	Nodular Cast Iron	150	0.18	0.60	0.34	140	230	190	0.5	2.5	1.0
	Grey Cast Iron	150	0.18	0.64	0.35	150	240	200	0.5	2.5	1.0
H	Hardened Material	45 HRc	0.10	0.36	0.23	40	80	60	0.3	0.9	0.8

RPMW 1204M0

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.18	0.64	0.35	190	330	250	0.5	6.0	1.3
	Low Alloy	200	0.15	0.50	0.30	150	240	200	0.5	5.0	1.3
	High Alloy	220	0.12	0.44	0.25	90	150	120	0.5	3.8	1.0
K	Nodular Cast Iron	150	0.16	0.60	0.34	140	230	190	0.5	3.0	1.3
	Grey Cast Iron	150	0.18	0.64	0.35	150	240	200	0.5	3.0	1.3
H	Hardened Material	45 HRc	0.14	0.41	0.28	40	80	60	0.3	1.5	1.0

RPMX 1204M0

Group	Material		Cutting Conditions								
	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.18	0.64	0.35	190	330	250	0.5	6.0	1.3
	Low Alloy	200	0.15	0.50	0.30	150	240	195	0.5	5.0	1.3
	High Alloy	220	0.12	0.44	0.25	90	150	120	0.5	3.8	1.0
M	Austenitic	190	0.18	0.50	0.36	190	250	220	0.5	3.5	1.3
	Ferritic	220	0.16	0.44	0.34	80	150	120	0.5	3.2	1.2
	Martensitic	40 HRC	0.14	0.38	0.28	150	240	195	0.5	2.5	1.2
K	Nodular Cast Iron	150	0.16	0.60	0.34	140	230	190	0.5	2.5	1.3
	Grey Cast Iron	150	0.18	0.64	0.35	150	240	200	0.5	2.5	1.3
S	Heat Resistant and Super Alloys	240	0.13	0.30	0.29	25	50	38	0.5	1.5	1.0
H	Hardened Material	45 HRC	0.50	0.22	0.28	50	100	75	0.3	1.0	0.7

SEKN 1203 AFTN

Group	Material		Cutting Conditions								
	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.18	0.46	0.32	190	330	250	0.5	7.0	3.0
	Low Alloy	200	0.15	0.36	0.26	150	240	195	0.5	7.0	3.0
	High Alloy	220	0.12	0.32	0.22	90	150	120	0.5	5.0	2.3
M	Austenitic	190	0.15	0.32	0.24	190	250	220	0.5	7.0	3.0
	Ferritic	220	0.18	0.30	0.23	130	210	160	0.5	4.0	2.5
	Martensitic	40 HRC	0.15	0.26	0.20	70	140	110	0.5	4.0	2.0
K	Nodular Cast Iron	150	0.16	0.44	0.30	140	230	190	0.5	7.0	3.0
	Grey Cast Iron	150	0.18	0.46	0.32	150	240	190	0.5	7.0	3.0
S	Heat Resistant and Super Alloys	240	0.10	0.26	0.18	30	60	35	0.5	5.0	2.3
H	Hardened Material	45 HRC	0.10	0.26	0.18	40	80	60	0.5	2.5	1.0

Milling - Cutting Conditions

SEKR 1203 AFTN

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.18	0.46	0.32	190	330	250	0.5	7.0	3.0
	Low Alloy	200	0.15	0.36	0.26	150	240	195	0.5	7.0	3.0
	High Alloy	220	0.12	0.32	0.22	90	150	120	0.5	5.0	2.3
M	Austenitic	190	0.15	0.32	0.24	190	250	220	0.5	7.0	3.0
	Ferritic	220	0.16	0.28	0.22	140	210	160	0.5	4.0	2.5
	Martensitic	40 HRc	0.14	0.26	0.20	70	140	110	0.5	4.0	2.0
K	Nodular Cast Iron	150	0.16	0.44	0.30	140	230	190	0.5	7.0	3.0
	Grey Cast Iron	150	0.18	0.46	0.32	150	240	190	0.5	7.0	3.0
S	Heat Resistant and Super Alloys	240	0.12	0.26	0.19	25	45	35	0.5	5.0	2.3
H	Hardened Material	45 HRc	0.10	0.26	0.18	40	80	60	0.5	2.5	1.5

SEKT 12T3 AGTN

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.18	0.46	0.30	190	330	250	0.5	7.0	3.0
	Low Alloy	200	0.15	0.36	0.25	150	240	200	0.5	7.0	3.0
	High Alloy	220	0.12	0.32	0.22	90	150	120	0.5	5.0	2.0
M	Austenitic	190	0.15	0.32	0.25	190	250	220	0.5	7.0	3.0
	Ferritic	220	0.16	0.28	0.22	140	210	160	0.5	4.0	2.5
	Martensitic	40 HRc	0.14	0.30	0.20	80	140	110	0.5	4.0	2.5
K	Nodular Cast Iron	150	0.16	0.44	0.28	140	230	190	0.5	7.0	3.0
	Grey Cast Iron	150	0.18	0.46	0.30	150	240	200	0.5	7.0	3.0
S	Heat Resistant and Super Alloys	240	0.12	0.26	0.19	25	45	35	0.5	5.0	2.3
H	Hardened Material	45 HRc	0.10	0.26	0.18	40	80	60	0.5	2.5	1.5

SEKT 1204 AFTN

Group	Material		Cutting Conditions								
	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.18	0.46	0.30	190	330	250	0.5	7.0	3.0
	Low Alloy	200	0.15	0.36	0.25	150	240	200	0.5	7.0	3.0
	High Alloy	220	0.12	0.32	0.22	90	150	120	0.5	5.0	2.0
M	Austenitic	190	0.15	0.32	0.25	190	250	220	0.5	7.0	3.0
	Ferritic	220	0.16	0.30	0.22	130	210	160	0.5	4.0	2.5
	Martensitic	40 HRC	0.14	0.30	0.20	80	140	110	0.5	4.0	2.5
K	Nodular Cast Iron	150	0.16	0.44	0.20	140	230	190	0.5	4.0	2.5
	Grey Cast Iron	150	0.18	0.46	0.30	150	240	200	0.5	7.0	3.0
S	Heat Resistant and Super Alloys	240	0.12	0.26	0.19	25	45	35	0.5	5.0	2.3
H	Hardened Material	45 HRC	0.10	0.26	0.18	40	80	60	0.5	2.5	1.5

SEMT 1204 AFTN

Group	Material		Cutting Conditions								
	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.18	0.46	0.30	190	330	250	0.5	7.0	3.0
	Low Alloy	200	0.15	0.36	0.25	150	240	200	0.5	7.0	3.0
	High Alloy	220	0.12	0.32	0.22	90	150	120	0.5	5.0	2.0
M	Austenitic	190	0.15	0.32	0.25	190	250	220	0.5	7.0	3.0
	Ferritic	220	0.16	0.30	0.22	130	210	160	0.5	4.0	2.5
	Martensitic	40 HRC	0.14	0.28	0.20	80	140	110	0.5	4.0	2.5
K	Nodular Cast Iron	150	0.16	0.44	0.28	140	230	190	0.5	7.0	3.0
	Grey Cast Iron	150	0.18	0.46	0.30	150	240	200	0.5	7.0	3.0
S	Heat Resistant and Super Alloys	240	0.12	0.26	0.19	25	45	35	0.5	5.0	2.3
H	Hardened Material	45 HRC	0.10	0.26	0.18	40	80	60	0.5	2.5	1.5

Milling - Cutting Conditions

SEMT 13T3 AGSN

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.18	0.46	0.30	190	330	250	0.5	7.0	3.0
	Low Alloy	200	0.15	0.36	0.25	150	240	200	0.5	7.0	3.0
	High Alloy	220	0.12	0.32	0.22	90	150	120	0.5	5.0	2.0
M	Austenitic	190	0.15	0.32	0.25	190	250	220	0.5	7.0	3.0
	Ferritic	220	0.16	0.30	0.22	140	210	150	0.5	4.0	2.5
	Martensitic	40 HRc	0.14	0.28	0.20	80	140	110	0.5	4.0	2.5
K	Nodular Cast Iron	150	0.16	0.44	0.30	140	130	190	0.5	7.0	3.0
	Grey Cast Iron	150	0.18	0.46	0.30	150	240	200	0.5	7.0	3.0
S	Heat Resistant and Super Alloys	240	0.12	0.26	0.19	25	45	35	0.5	5.0	2.3
H	Hardened Material	45 HRc	0.10	0.26	0.18	40	80	60	0.5	2.5	1.5

SPKN 1203 EDTR

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.18	0.43	0.30	190	330	250	0.5	7.0	3.0
	Low Alloy	200	0.15	0.34	0.25	150	240	200	0.5	7.0	3.0
	High Alloy	220	0.12	0.30	0.20	90	150	120	0.5	5.0	2.5
K	Nodular Cast Iron	150	0.18	0.42	0.30	140	230	190	0.5	7.0	3.0
	Grey Cast Iron	150	0.18	0.43	0.30	150	240	200	0.5	7.0	3.0
H	Hardened Material	45 HRc	0.10	0.24	0.17	40	80	60	0.5	2.5	1.5

SPKN 1504 EDTR

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.18	0.43	0.31	190	330	260	0.5	9.0	4.0
	Low Alloy	200	0.15	0.34	0.25	150	240	195	0.5	9.0	4.0
	High Alloy	220	0.12	0.30	0.21	90	150	120	0.5	6.5	3.0
K	Nodular Cast Iron	150	0.16	0.42	0.30	140	230	190	0.5	9.0	4.0
	Grey Cast Iron	150	0.18	0.43	0.31	150	240	190	0.5	9.0	4.0
H	Hardened Material	45 HRc	0.10	0.24	0.17	40	80	60	0.5	3.2	2.0

SPKR 1203 EDTR

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.18	0.38	0.25	190	330	250	0.5	7.0	3.0
	Low Alloy	200	0.15	0.30	0.20	150	240	200	0.5	7.0	3.0
	High Alloy	220	0.12	0.26	0.17	90	150	120	0.5	5.0	2.5
M	Austenitic	190	0.15	0.26	0.22	190	250	220	0.5	7.0	3.0
	Ferritic	220	0.16	0.26	0.20	130	210	160	0.5	4.0	2.5
	Martensitic	40 HRc	0.14	0.26	0.19	80	140	110	0.5	4.0	2.5
K	Nodular Cast Iron	150	0.16	0.34	0.28	140	230	190	0.5	7.0	3.0
	Grey Cast Iron	150	0.18	0.38	0.30	150	240	200	0.5	7.0	3.0
S	Heat Resistant and Super Alloys	240	0.12	0.22	0.17	25	45	35	0.5	5.0	2.3
H	Hardened Material	45 HRc	0.10	0.22	0.16	40	80	60	0.5	2.5	1.5

Milling - Cutting Conditions

SPMT 09T308

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.07	0.17	0.15	190	330	250	0.5	9.0	2.4
	Low Alloy	200	0.07	0.17	0.15	130	240	180	0.5	9.0	2.4
	High Alloy	220	0.07	0.15	0.13	60	150	130	0.5	6.5	1.8
M	Austenitic	190	0.08	0.14	0.12	160	250	220	0.5	9.0	2.4
	Ferritic	220	0.07	0.14	0.10	140	210	160	0.5	7.0	2.0
	Martensitic	40 HRC	0.06	0.12	0.09	80	160	120	0.5	7.0	1.5
K	Nodular Cast Iron	150	0.08	0.20	0.16	140	230	190	0.5	9.0	2.4
	Grey Cast Iron	150	0.06	0.22	0.18	150	240	200	0.5	9.0	2.4
S	Heat Resistant and Super Alloys	240	0.04	0.12	0.10	25	45	32	0.5	6.5	1.8
H	Hardened Material	45 HRC	0.04	0.12	0.10	40	80	60	0.5	3.2	1.2

SPMT 12T308

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.13	0.29	0.18	190	330	250	0.5	11.0	3.0
	Low Alloy	200	0.11	0.23	0.16	130	240	180	0.5	10.0	3.0
	High Alloy	220	0.08	0.20	0.14	60	150	130	0.5	8.0	2.3
M	Austenitic	190	0.12	0.23	0.16	160	250	220	0.5	9.0	3.0
	Ferritic	220	0.12	0.22	0.16	140	220	180	0.5	9.0	3.0
	Martensitic	40 HRC	0.11	0.18	0.14	80	150	120	0.5	6.8	2.0
K	Nodular Cast Iron	150	0.12	0.28	0.18	140	230	190	0.5	11.0	3.0
	Grey Cast Iron	150	0.13	0.29	0.18	150	240	200	0.5	11.0	3.0
S	Heat Resistant and Super Alloys	240	0.08	0.18	0.13	25	45	32	0.5	6.5	2.3
H	Hardened Material	45 HRC	0.07	0.16	0.11	40	80	60	0.5	3.2	1.5

SPMT 120408

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.13	0.29	0.18	190	330	250	0.5	11.0	3.0
	Low Alloy	200	0.11	0.23	0.16	130	240	180	0.5	10.0	3.0
	High Alloy	220	0.08	0.20	0.14	60	150	130	0.5	8.0	2.3
M	Austenitic	190	0.12	0.23	0.17	160	250	220	0.5	9.0	3.0
	Ferritic	220	0.12	0.22	0.16	140	220	180	0.5	9.0	3.0
	Martensitic	40 HRc	0.11	0.18	0.14	80	150	120	0.5	6.8	2.0
K	Nodular Cast Iron	150	0.13	0.28	0.18	160	230	190	0.5	11.0	3.0
	Grey Cast Iron	150	0.13	0.29	0.18	150	240	200	0.5	11.0	3.0
S	Heat Resistant and Super Alloys	240	0.08	0.18	0.13	25	45	32	0.5	6.5	2.3
H	Hardened Material	45 HRc	0.07	0.16	0.11	40	80	60	0.5	3.2	1.5

SPUN 120308

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.18	0.37	0.26	190	330	220	0.5	7.0	3.0
	Low Alloy	200	0.15	0.29	0.23	150	210	180	0.5	7.0	3.0
	High Alloy	220	0.12	0.25	0.21	90	130	120	0.5	5.0	2.3
K	Nodular Cast Iron	150	0.18	0.36	0.26	140	240	200	0.5	7.0	3.0
	Grey Cast Iron	150	0.18	0.36	0.26	140	240	200	0.5	7.0	3.0
H	Hardened Material	45 HRc	0.10	0.21	0.16	40	80	60	0.5	2.5	1.5

Milling - Cutting Conditions

TPKN 1603 PDTR

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.14	0.27	0.21	190	330	260	0.5	12.0	3.0
	Low Alloy	200	0.12	0.21	0.17	150	240	195	0.5	12.0	3.0
	High Alloy	220	0.10	0.19	0.15	90	150	120	0.5	8.6	2.5
K	Nodular Cast Iron	150	0.14	0.26	0.20	140	240	190	0.5	12.0	3.0
	Grey Cast Iron	150	0.14	0.27	0.21	150	240	190	0.5	12.0	3.0
H	Hardened Material	45 HRc	0.08	0.15	0.12	40	80	60	0.5	4.3	1.5

TPKN 2204 PDTR

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.16	0.27	0.22	190	330	260	0.5	18.0	4.0
	Low Alloy	200	0.14	0.21	0.18	150	240	195	0.5	18.0	4.0
	High Alloy	220	0.11	0.19	0.15	90	150	120	0.5	12.9	3.0
K	Nodular Cast Iron	150	0.16	0.26	0.20	150	240	190	0.5	18.0	4.0
	Grey Cast Iron	150	0.16	0.27	0.22	150	240	190	0.5	18.0	4.0
H	Hardened Material	45 HRc	0.09	0.15	0.12	40	80	60	0.5	6.4	2.0

TPUN 160308

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.14	0.27	0.20	190	330	220	0.5	12.0	3.0
	Low Alloy	200	0.12	0.21	0.17	150	210	180	0.5	12.0	3.0
	High Alloy	220	0.10	0.19	0.15	90	130	120	0.5	8.6	2.3
K	Nodular Cast Iron	150	0.14	0.26	0.20	240	240	200	0.5	12.0	3.0
	Grey Cast Iron	150	0.14	0.27	0.20	240	240	200	0.5	12.0	3.0
H	Hardened Material	45 HRc	0.08	0.15	0.12	80	80	60	0.5	4.3	1.5

TPKR 1603 PDTR




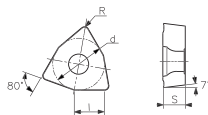
Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.16	0.22	0.19	190	330	260	0.5	12.0	3.0
	Low Alloy	200	0.14	0.18	0.16	150	240	195	0.5	12.0	3.0
	High Alloy	220	0.11	0.15	0.13	90	150	120	0.5	8.6	2.5
M	Austenitic	190	0.14	0.18	0.16	190	250	220	0.5	12.0	3.0
	Ferritic	220	0.12	0.17	0.13	130	210	180	0.5	9.0	3.0
	Martensitic	40 HRC	0.10	0.16	0.11	80	150	120	0.5	9.0	3.0
K	Nodular Cast Iron	150	0.16	0.22	0.18	140	240	190	0.5	12.0	3.0
	Grey Cast Iron	150	0.16	0.22	0.19	150	240	190	0.5	12.0	3.0
S	Heat Resistant and Super Alloys	240	0.11	0.13	0.12	25	45	35	0.5	8.6	2.3
H	Hardened Material	45 HRC	0.09	0.13	0.11	40	80	60	0.5	3.4	1.5

TPKR 2204 PDTR

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed fz (mm/tooth)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.16	0.22	0.19	190	330	260	0.5	18.0	4.0
	Low Alloy	200	0.14	0.18	0.16	150	240	195	0.5	18.0	4.0
	High Alloy	220	0.11	0.15	0.13	90	150	120	0.5	12.9	3.0
M	Austenitic	190	0.14	0.24	0.18	190	250	220	0.5	18.0	4.0
	Ferritic	220	0.12	0.22	0.17	130	210	180	0.5	12.0	3.5
	Martensitic	40 HRC	0.12	0.2	0.14	80	150	110	0.5	12.0	3.5
K	Nodular Cast Iron	150	0.16	0.22	0.18	150	240	195	0.5	18.0	4.0
	Grey Cast Iron	150	0.16	0.22	0.19	150	240	195	0.5	18.0	4.0
S	Heat Resistant and Super Alloys	240	0.11	0.13	0.12	25	45	35	0.5	12.9	3.0
H	Hardened Material	45 HRC	0.09	0.13	0.11	40	80	60	0.5	6.4	2.0

Drilling Inserts

Unit : mm

Insert Shape	Designation	Dimensions					Feed* f (mm/rev.)		Geometry
		l	D	S	θ	r	Min.	Max.	
	SPMX 050204	-	5.00	2.38	11	0.4	0.04	0.14	
	SPMX 060204	-	6.00	2.41	11	0.4	0.04	0.16	
	SPMX 07T308	-	7.94	3.97	11	0.8	0.06	0.16	
	SPMX 090408	-	9.80	4.30	11	0.8	0.06	0.16	
	SPMX 110408	-	11.50	4.90	11	0.8	0.06	0.16	
	SPMX 140512	-	14.30	5.30	11	1.2	0.06	0.18	
	WCMX 040208	-	6.35	2.38	7	0.8	0.05	0.14	
	WCMX 050308	-	7.94	3.18	7	0.8	0.06	0.16	
	WCMX 06T308	-	9.53	3.97	7	0.8	0.06	0.16	
	WCMX 080412	-	12.70	4.76	7	1.2	0.06	0.16	

* Feed and Depth of cut need to be adapted according to the Material Group. Please see on page 40~44.

- Product image shown on this catalogue may differ from actual products.

Drilling - Cutting Conditions

SPMX 050204

Material			Cutting Conditions					
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)		
			Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.06	0.12	0.10	180	270	220
	Low Alloy	200	0.06	0.12	0.10	120	230	175
	High Alloy	220	0.05	0.10	0.08	70	180	120
M	Austenitic	190	0.06	0.12	0.10	170	230	200
	Ferritic & Martensitic	220	0.04	0.10	0.07	50	130	80
K	Nodular Cast Iron	150	0.06	0.13	0.10	140	250	170
	Grey Cast Iron	150	0.07	0.11	0.09	140	220	180
S	Heat Resistant and Super Alloys	240	0.08	0.11	0.09	80	140	100
H	Hardened Material	45 HRC	0.06	0.10	0.08	90	130	110

SPMX 060204

Material			Cutting Conditions					
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)		
			Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.06	0.14	0.11	180	280	220
	Low Alloy	200	0.06	0.12	0.10	120	230	175
	High Alloy	220	0.05	0.10	0.08	70	180	120
M	Austenitic	190	0.06	0.12	0.10	170	230	200
	Ferritic & Martensitic	220	0.04	0.10	0.07	50	130	90
K	Nodular Cast Iron	150	0.06	0.13	0.10	150	250	180
	Grey Cast Iron	150	0.07	0.11	0.09	150	230	190
S	Heat Resistant and Super Alloys	240	0.06	0.12	0.10	90	130	100
H	Hardened Material	45 HRC	0.06	0.11	0.09	100	140	110

Milling

Drilling

Turning

Grooving

Drilling - Cutting Conditions

SPMX 07T308

Group	Material		Cutting Conditions					
	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)		
			Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.06	0.15	0.12	180	300	240
	Low Alloy	200	0.06	0.12	0.10	120	180	150
	High Alloy	220	0.06	0.10	0.08	80	180	120
M	Austenitic	190	0.06	0.12	0.10	170	230	200
	Ferritic & Martensitic	220	0.06	0.10	0.08	50	140	100
K	Nodular Cast Iron	150	0.08	0.14	0.10	150	250	180
	Grey Cast Iron	150	0.08	0.12	0.10	150	230	200
S	Heat Resistant and Super Alloys	240	0.06	0.13	0.10	90	130	100
H	Hardened Material	45 HRC	0.06	0.12	0.10	100	140	110

SPMX 090408

Group	Material		Cutting Conditions					
	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)		
			Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.08	0.16	0.12	180	300	250
	Low Alloy	200	0.08	0.14	0.10	120	180	150
	High Alloy	220	0.06	0.10	0.08	80	180	120
M	Austenitic	190	0.08	0.14	0.10	170	230	200
	Ferritic & Martensitic	220	0.08	0.14	0.10	50	150	100
K	Nodular Cast Iron	150	0.08	0.16	0.11	130	230	170
	Grey Cast Iron	150	0.08	0.12	0.10	150	230	200
S	Heat Resistant and Super Alloys	240	0.08	0.14	0.11	90	130	100
H	Hardened Material	45 HRC	0.07	0.13	0.11	100	140	110

SPMX 110408

Material			Cutting Conditions					
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)		
			Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.08	0.16	0.12	180	280	230
	Low Alloy	200	0.08	0.14	0.10	120	180	150
	High Alloy	220	0.06	0.10	0.08	80	180	120
M	Austenitic	190	0.08	0.14	0.10	170	230	200
	Ferritic & Martensitic	220	0.08	0.14	0.10	50	150	100
K	Nodular Cast Iron	150	0.08	0.16	0.12	130	230	170
	Grey Cast Iron	150	0.08	0.14	0.12	150	210	190
S	Heat Resistant and Super Alloys	240	0.08	0.15	0.13	90	130	100
H	Hardened Material	45 HRC	0.08	0.14	0.12	100	140	110

SPMX 140512

Material			Cutting Conditions					
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)		
			Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.08	0.16	0.12	180	270	230
	Low Alloy	200	0.08	0.14	0.10	110	170	140
	High Alloy	220	0.06	0.10	0.08	70	160	120
M	Austenitic	190	0.08	0.16	0.10	170	230	200
	Ferritic & Martensitic	220	0.08	0.14	0.10	50	150	100
K	Nodular Cast Iron	150	0.08	0.16	0.12	130	230	170
	Grey Cast Iron	150	0.08	0.16	0.12	150	210	190
S	Heat Resistant and Super Alloys	240	0.08	0.16	0.13	90	130	100
H	Hardened Material	45 HRC	0.08	0.15	0.12	100	140	110

Drilling - Cutting Conditions

WCMX 040208

Material			Cutting Conditions					
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)		
			Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.06	0.12	0.10	180	270	220
	Low Alloy	200	0.06	0.12	0.10	120	230	175
	High Alloy	220	0.05	0.10	0.08	70	180	120
M	Austenitic	190	0.06	0.12	0.10	170	230	200
	Ferritic & Martensitic	220	0.04	0.10	0.07	50	130	80
K	Nodular Cast Iron	150	0.06	0.13	0.10	140	250	170
	Grey Cast Iron	150	0.07	0.11	0.09	140	220	180
S	Heat Resistant and Super Alloys	240	0.08	0.11	0.09	80	140	100
H	Hardened Material	45 HRc	0.06	0.10	0.08	90	130	110

WCMX 050308

Material			Cutting Conditions					
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)		
			Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.06	0.14	0.10	180	300	220
	Low Alloy	200	0.06	0.12	0.10	120	250	180
	High Alloy	220	0.05	0.10	0.08	70	180	120
M	Austenitic	190	0.06	0.12	0.10	170	230	200
	Ferritic & Martensitic	220	0.04	0.10	0.80	50	130	90
K	Nodular Cast Iron	150	0.06	0.13	0.10	150	250	180
	Grey Cast Iron	150	0.08	0.12	0.10	140	230	190
S	Heat Resistant and Super Alloys	240	0.08	0.13	0.11	80	130	100
H	Hardened Material	45 HRc	0.06	0.12	0.10	90	140	110

WCMX 06T308

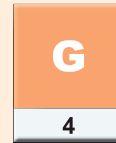
Material			Cutting Conditions					
	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)		
			Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.06	0.14	0.12	180	300	220
	Low Alloy	200	0.06	0.12	0.10	120	180	150
	High Alloy	220	0.06	0.10	0.08	80	180	120
M	Austenitic	190	0.06	0.12	0.10	170	230	200
	Ferritic & Martensitic	220	0.06	0.10	0.08	50	140	100
K	Nodular Cast Iron	150	0.08	0.14	0.10	150	250	180
	Grey Cast Iron	150	0.08	0.12	0.10	150	230	200
S	Heat Resistant and Super Alloys	240	0.08	0.13	0.11	80	130	100
H	Hardened Material	45 HRc	0.06	0.12	0.10	90	140	110

WCMX 080412

Material			Cutting Conditions					
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)		
			Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.08	0.16	0.12	180	280	230
	Low Alloy	200	0.08	0.14	0.10	110	180	150
	High Alloy	220	0.06	0.10	0.08	80	180	120
M	Austenitic	190	0.08	0.14	0.10	170	230	200
	Ferritic & Martensitic	220	0.08	0.14	0.10	50	150	100
K	Nodular Cast Iron	150	0.08	0.16	0.12	130	230	170
	Grey Cast Iron	150	0.08	0.14	0.12	150	210	190
S	Heat Resistant and Super Alloys	240	0.08	0.14	0.12	80	130	100
H	Hardened Material	45 HRc	0.06	0.12	0.10	90	140	110

Turning Inserts Designation System-ISO

1. Insert Shape				2. Clearance Angle				4. Cross Section Shape		
A	B	C	D	5°	7°	15°	20°			
				B	C	D	E			special
E	H	K	L	25°	30°	0°	11°	T	W	X
				F	G	N	P			
O	P	R	S							
			special							
T	V	W	X							



3. Tolerance

	Tolerance (mm)			I.C. Size (mm)					
	m	t	I.C.	6.35	9.525	12.7	15.875	19.05	25.4
A	± 0.005	± 0.025	± 0.025	●	●	●	●	●	●
C	± 0.013	± 0.025	± 0.025	●	●	●	●	●	●
E	± 0.025	± 0.025	± 0.025	●	●	●	●	●	●
F	± 0.005	± 0.025	± 0.013	●	●	●	●	●	●
G	± 0.025	± 0.13	± 0.025	●	●	●	●	●	●
H	± 0.013	± 0.025	± 0.013	●	●	●	●	●	●
K	± 0.013	± 0.025	± 0.05	●	●				
			± 0.08			●			
			± 0.10				●	●	
			± 0.13						●
M	± 0.08	± 0.13	± 0.05	●	●				
	± 0.13		± 0.08			●			
	± 0.15		± 0.10				●	●	
	± 0.18		± 0.13						●

Turning Inserts Designation System-ISO

5. Cutting Edge Length (mm)

I.C.	C	D	R	S	T	V	W	K	H
L									
3.97	03	04		03	06		02		
4.76	04	05		04	08	08			
5.56	05	06		05	09	09	03		
6.35	06	07		06	11	11	04		
7.94	08	09		07	13	13	05		
9.525	09	11	09	09	16	16	06	16	
12.7	12	15		12	22	22	08		05
15.875	16	19	15	15	27	27	10		
19.05	19	23	19	19	33	33	13		10
25.4	25	31	25	25	44	44	17		

6. Thickness (mm)



t	mm
02	2.38
03	3.18
T3	3.97
04	4.76
06	6.35
07	7.94
09	9.52

7. Nose Radius (mm)



r	mm
02	0.2
04	0.4
08	0.8
10	1.0
12	1.2
16	1.6
20	2.0

12

5

04

6

08

7

CHIP
BREAKER

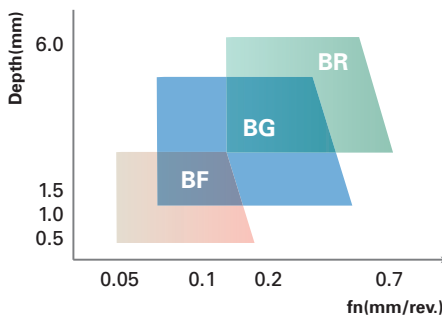
8

8. Chip Breaker

For Application

Turning Inserts Chip Breakers

Application area



- BR = Roughing operation
- BG = General purpose
- BF = Finishing operation

Turning Inserts

Unit : mm

Insert Shape	Designation	Dimensions				Feed* f (mm/rev.)		D.O.C* ap (mm)		Geometry
		l	D	S	r	Min.	Max.	Min.	Max.	
	CNMA 120408	12.90	12.70	4.76	0.8	0.20	0.80	0.80	6.00	
	CNMA 120412	12.90	12.70	4.76	1.2	0.20	0.70	1.20	6.00	
	CNMA 160612	12.90	15.88	6.35	1.2	0.20	0.70	1.20	6.00	
	CNMG 120404-BF	12.90	12.70	4.76	0.4	0.05	0.23	0.50	3.00	
	CNMG 120408-BF	12.90	12.70	4.76	0.8	0.05	0.23	0.80	3.00	
	CNMG 120404-BG	12.90	12.70	4.76	0.4	0.11	0.50	0.50	5.00	
	CNMG 120408-BG	12.90	12.70	4.76	0.8	0.11	0.50	0.80	5.00	
	CNMG 120412-BG	12.90	12.70	4.76	1.2	0.11	0.50	1.20	5.00	
	CNMG 120408-BR	12.90	12.70	4.76	0.8	0.11	0.50	0.80	6.00	
	CNMG 120412-BR	12.90	12.70	4.76	1.2	0.14	0.68	1.20	6.00	
	DNMG 110404-BF	11.60	9.53	4.76	0.4	0.05	0.23	0.50	3.00	
	DNMG 110408-BG	11.60	9.53	4.76	0.8	0.11	0.60	0.80	4.00	
	DNMG 150404-BF	15.50	12.70	4.76	0.4	0.05	0.23	0.50	3.00	
	DNMG 150408-BG	15.50	12.70	4.76	0.8	0.11	0.50	0.80	5.00	
	DNMG 150604-BF	15.50	12.70	6.35	0.4	0.05	0.23	0.50	3.00	
	DNMG 150608-BF	15.50	12.70	6.35	0.4	0.05	0.23	0.80	3.00	
	DNMG 150604-BG	15.50	12.70	6.35	0.4	0.11	0.50	0.50	5.00	
	DNMG 150608-BG	15.50	12.70	6.35	0.8	0.11	0.50	0.80	5.00	
	DNMG 150612-BG	15.50	12.70	6.35	1.2	0.11	0.50	1.20	6.00	
	DNMG 150612-BR	15.50	12.70	6.35	1.2	0.14	0.68	1.20	6.00	

* Feed and Depth of cut need to be adapted according to the Material Group. Please see on page 53~58.

- Product image shown on this catalogue may differ from actual products.

Unit : mm

Insert Shape	Designation	Dimensions				Feed* f (mm/rev.)		D.O.C.* ap (mm)		Geometry
		l	D	S	r	Min.	Max.	Min.	Max.	
	DNUX 150608 R	15.50	12.70	6.35	0.5	0.11	0.50	0.50	5.00	
	KNUX 160405 L	16.00	9.53	4.76	0.5	0.05	0.23	0.50	5.00	
	KNUX 160405 R	16.00	9.53	4.76	0.5	0.05	0.23	0.50	5.00	
	SNMA 120408	12.70	12.70	4.76	0.8	0.15	0.70	1.00	6.00	
	SNMA 120412	12.70	12.70	4.76	1.2	0.20	0.80	1.50	6.00	
	SNMG 120404-BF	12.70	12.70	4.76	0.4	0.16	0.70	0.50	5.00	
	SNMG 120408-BF	12.70	12.70	4.76	0.8	0.16	0.70	0.80	5.00	
	SNMG 120404-BG	12.70	12.70	4.76	0.4	0.16	0.70	0.50	5.00	
	SNMG 120408-BG	12.70	12.70	4.76	0.8	0.16	0.70	0.80	5.00	
	SNMG 120412-BG	12.70	12.70	4.76	1.2	0.16	0.70	1.20	5.00	
	SNMG 120408-BR	12.70	12.70	4.76	0.8	0.16	0.70	0.80	5.00	
	SNMG 120412-BR	12.70	12.70	4.76	1.2	0.19	0.95	1.20	6.00	
	TNMA 160408	16.50	9.53	4.76	0.8	0.10	0.40	1.00	4.00	
	TNMA 160412	16.50	9.53	4.76	1.2	0.10	0.50	1.50	4.50	

* Feed and Depth of cut need to be adapted according to the Material Group. Please see on page 58~61.
- Product image shown on this catalogue may differ from actual products.

Milling


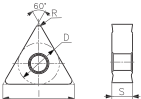

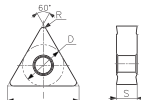

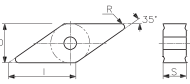

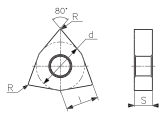
Drilling

Turning

Grooving

Turning Inserts

Unit : mm

Insert Shape	Designation	Dimensions				Feed* f (mm/rev.)		D.O.C* ap (mm)		Geometry
		l	D	S	r	Min.	Max.	Min.	Max.	
	TNMG 160404-BF	16.50	9.53	4.76	0.4	0.05	0.23	0.50	3.00	
	TNMG 160408-BG	16.50	9.53	4.76	0.8	0.11	0.50	0.80	5.00	
	TNMG 160412-BR	16.50	9.53	4.76	1.2	0.14	0.68	1.20	5.00	
	TNMG 220404-BF	22.00	12.70	4.76	0.4	0.05	0.23	0.50	3.00	
	TNMG 220408-BG	22.00	12.70	4.76	0.8	0.11	0.50	0.80	5.00	
	TNMG 220412-BR	22.00	12.70	4.76	1.2	0.14	0.68	1.20	7.00	
	TNUX 160404 L	16.50	9.53	4.76	0.4	0.05	0.23	0.50	3.00	
	TNUX 160404 R	16.50	9.53	4.76	0.4	0.05	0.23	0.50	3.00	
	TNUX 160408 L	16.50	9.53	4.76	0.8	0.11	0.50	0.80	5.00	
	TNUX 160408 R	16.50	9.53	4.76	0.8	0.11	0.50	0.80	5.00	
	VNMG 160404-BF	16.00	9.53	4.76	0.4	0.05	0.23	0.50	3.00	
	VNMG 160408-BG	16.00	9.53	4.76	0.8	0.10	0.40	0.80	4.00	
	VNMG 160412-BR	16.00	9.53	4.76	1.2	0.10	0.40	0.80	4.00	
	WNMA 080404	8.70	12.70	4.76	0.4	0.15	0.60	1.00	5.00	
	WNMA 080408	8.70	12.70	4.76	0.8	0.15	0.60	1.00	6.00	
	WNMA 080412	8.70	12.70	4.76	1.2	0.15	0.70	1.50	6.00	

* Feed and Depth of cut need to be adapted according to the Material Group. Please see on page 62~67.

- Product image shown on this catalogue may differ from actual products.

Unit : mm

Insert Shape	Designation	Dimensions				Feed* f (mm/rev.)		D.O.C* ap (mm)		Geometry
		I	D	S	r	Min.	Max.	Min.	Max.	
	WNMG 060404-BF	6.60	9.53	4.76	0.4	0.05	0.23	0.50	3.00	
	WNMG 060408-BG	6.60	9.53	4.76	0.8	0.11	0.50	0.80	3.00	
	WNMG 080404-BF	8.70	12.70	4.76	0.4	0.05	0.23	0.50	3.00	
	WNMG 080408-BF	8.70	12.70	4.76	0.8	0.11	0.50	0.80	3.50	
	WNMG 080404-BG	8.70	12.70	4.76	0.4	0.11	0.50	0.50	3.50	
	WNMG 080408-BG	8.70	12.70	4.76	0.8	0.11	0.50	0.80	3.50	
	WNMG 080412-BG	8.70	12.70	4.76	1.2	0.13	0.65	1.20	3.50	
	WNMG 080408-BR	8.70	12.70	4.76	0.8	0.11	0.50	0.80	3.50	
	WNMG 080412-BR	8.70	12.70	4.76	1.2	0.13	0.65	1.20	3.50	
	CCMT 060204-BF	6.50	6.35	2.38	0.4	0.04	0.20	0.50	2.10	
	CCMT 060208-BG	6.50	6.35	2.38	0.8	0.04	0.20	0.80	2.10	
	CCMT 09T304-BF	9.70	9.53	3.97	0.4	0.05	0.23	0.50	3.00	
	CCMT 09T308-BG	9.70	9.53	3.97	0.8	0.11	0.50	0.80	4.00	
	CCMT 120408-BG	12.90	12.70	4.76	0.8	0.11	0.50	0.80	5.00	
	DCMT 070204-BF	7.80	6.35	2.38	0.4	0.04	0.20	0.50	2.10	
	DCMT 11T304-BF	11.60	9.53	3.97	0.4	0.05	0.23	0.50	3.00	
	DCMT 11T308-BG	11.60	9.53	3.97	0.8	0.11	0.50	0.80	4.00	
	RCMT 0602M0	-	6.00	2.38	-	0.05	0.40	0.30	3.00	
	RCMT 0803M0	-	8.00	3.18	-	0.05	0.40	0.30	4.00	
	RCMT 10T3M0	-	10.00	3.97	-	0.05	0.40	0.30	5.00	
	RCMT 1204M0	-	12.00	4.76	-	0.05	0.40	0.50	6.00	

Feed and Depth of cut need to be adapted according to the Material Group. Please see on page 68~76.
- Product image shown on this catalogue may differ from actual products.

Milling


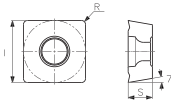

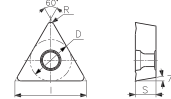

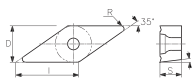

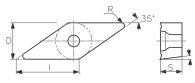
Drilling

Turning

Grooving

Turning Inserts

Unit : mm


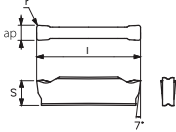
Insert Shape	Designation	Dimensions				Feed* f (mm/rev.)		D.O.C* ap (mm)		Geometry
		l	D	S	r	Min.	Max.	Min.	Max.	
	SCMT 09T304-BF	9.53	9.53	3.97	0.4	0.05	0.26	0.50	3.00	
	SCMT 09T308-BG	9.53	9.53	3.97	0.8	0.11	0.50	0.80	3.00	
	TCMT 110204-BF	11.00	6.35	2.38	0.4	0.04	0.20	0.50	2.10	
	TCMT 16T304-BF	16.50	9.53	3.97	0.4	0.05	0.23	0.50	3.00	
	TCMT 16T308-BG	16.50	9.53	3.97	0.8	0.11	0.43	0.80	5.00	
	VBMT 110304-BF	11.00	6.35	3.18	0.4	0.04	0.20	0.50	2.10	
	VBMT 160404-BF	16.00	9.53	4.76	0.4	0.05	0.23	0.50	3.00	
	VBMT 160408-BG	16.00	9.53	4.76	0.8	0.10	0.40	0.80	3.50	
	VCMT 110304-BF	11.00	6.35	3.18	0.4	0.04	0.20	0.50	2.10	
	VCMT 160404-BF	16.00	9.53	4.76	0.4	0.05	0.23	0.50	3.00	
	VCMT 160408-BG	16.00	9.53	4.76	0.8	0.10	0.40	0.80	3.50	

* Feed and Depth of cut need to be adapted according to the Material Group. Please see on page 77~82.

- Product image shown on this catalogue may differ from actual products.

Parting & Grooving

Unit : mm

Insert Shape	Designation	Dimensions				Feed* (mm/rev.)		Grooving Depth	Geometry
		ap	l	S	r	Min.	Max.	Max.	
	MGMN 2002-BN	2.00	16.00	3.50	0.2	0.05	0.15	14.00	 <p>- BN: General - BP: Sharp Edge</p>
	MGMN 2002-BP	2.00	16.00	3.50	0.2	0.05	0.15	14.00	
	MGMN 3004-BN	3.00	21.00	4.80	0.4	0.05	0.15	19.00	
	MGMN 3004-BP	3.00	21.00	4.80	0.4	0.05	0.15	19.00	
	MGMN 4004-BN	4.00	21.00	4.80	0.4	0.05	0.15	19.00	
	MGMN 4004-BP	4.00	21.00	4.80	0.4	0.05	0.15	19.00	
	MGMN 5008-BN	5.00	26.00	5.80	0.8	0.05	0.15	24.00	
	MGMN 5008-BP	5.00	26.00	5.80	0.8	0.05	0.15	24.00	

* Feed and Depth of cut need to be adapted according to the Material Group. Please see on page 83~86.
- Product image shown on this catalogue may differ from actual products.

Milling

Drilling

Turning

Grooving

Turning(Negative) - Cutting Conditions

CNMA 1204..

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
K	Nodular Cast Iron	150	0.20	0.78	0.50	130	380	250	0.5	6.0	3.00
	Grey Cast Iron	150	0.20	0.80	0.50	130	390	260	0.5	6.0	3.00

CNMA 1606..

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
K	Nodular Cast Iron	150	0.15	0.68	0.40	130	380	250	2.0	8.0	3.0
	Grey Cast Iron	150	0.15	0.70	0.40	130	390	260	2.0	8.0	3.0

CNMG 1204...-BF

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.11	0.23	0.17	180	330	300	0.2	3.0	2.0
	Low Alloy	200	0.10	0.20	0.15	120	280	250	0.2	2.5	2.0
	High Alloy	220	0.09	0.18	0.14	70	190	170	0.2	2.5	2.0
M	Austenitic	190	0.10	0.18	0.14	170	270	250	0.2	2.5	2.0
	Ferritic	220	0.10	0.16	0.14	130	210	180	0.2	2.5	2.0
	Martensitic	40 HRC	0.08	0.16	0.12	80	150	110	0.2	2.5	1.5
K	Nodular Cast Iron	150	0.08	0.20	0.14	160	280	240	0.2	3.0	2.0
	Grey Cast Iron	150	0.08	0.20	0.14	170	280	240	0.2	3.0	2.0
S	Heat Resistant and Super Alloys	240	0.09	0.15	0.12	25	50	35	0.2	2.0	2.0
H	Hardened Material	45 HRC	0.05	0.12	0.09	50	100	75	0.2	1.8	1.5

CNMG 1204...BG

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.21	0.50	0.35	180	330	250	0.5	5.0	3.0
	Low Alloy	200	0.21	0.45	0.30	120	280	200	0.5	5.0	3.0
	High Alloy	220	0.18	0.40	0.25	70	190	130	0.5	4.0	2.5
M	Austenitic	190	0.20	0.40	0.30	170	270	220	0.5	5.0	3.0
	Ferritic	220	0.18	0.40	0.26	130	210	170	0.5	5.0	3.0
	Martensitic	40 HRC	0.16	0.36	0.24	90	150	120	0.5	4.0	2.5
K	Nodular Cast Iron	150	0.15	0.58	0.34	170	250	200	0.5	5.0	3.0
	Grey Cast Iron	150	0.15	0.60	0.35	170	250	210	0.5	5.0	3.0
S	Heat Resistant and Super Alloys	240	0.20	0.35	0.28	25	50	38	0.5	3.0	2.0
H	Hardened Material	45 HRC	0.11	0.30	0.21	50	100	75	0.5	2.5	2.0

CNMG 1204...BR

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.26	0.68	0.47	180	330	250	0.7	6.0	4.0
	Low Alloy	200	0.26	0.61	0.44	120	280	200	0.7	6.0	4.0
	High Alloy	220	0.23	0.54	0.39	70	190	130	0.7	4.8	3.4
M	Austenitic	190	0.25	0.54	0.40	170	270	220	0.7	6.0	4.0
	Ferritic	220	0.24	0.50	0.38	130	210	180	0.7	6.0	4.0
	Martensitic	40 HRC	0.22	0.48	0.34	90	150	120	0.7	5.0	3.5
K	Nodular Cast Iron	150	0.20	0.78	0.50	160	240	200	0.7	6.0	4.0
	Grey Cast Iron	150	0.20	0.81	0.51	170	250	210	0.7	6.0	4.0
S	Heat Resistant and Super Alloys	240	0.25	0.47	0.36	25	45	35	0.7	3.6	2.7
H	Hardened Material	45 HRC	0.14	0.41	0.28	50	100	75	0.7	3.0	2.7

Turning(Negative) - Cutting Conditions

DNMG 1104...BF

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.11	0.23	0.17	180	330	300	0.2	3.0	2.0
	Low Alloy	200	0.10	0.20	0.15	120	280	250	0.2	2.5	2.0
	High Alloy	220	0.09	0.18	0.14	70	190	170	0.2	2.5	2.0
M	Austenitic	190	0.10	0.18	0.14	170	270	250	0.2	2.5	2.0
	Ferritic	220	0.10	0.18	0.14	130	200	170	0.2	2.5	2.0
	Martensitic	40 HRc	0.08	0.16	0.12	90	140	110	0.2	2.0	1.5
K	Nodular Cast Iron	150	0.08	0.20	0.14	160	240	230	0.2	3.0	2.0
	Grey Cast Iron	150	0.08	0.20	0.14	170	250	240	0.2	3.0	2.0
S	Heat Resistant and Super Alloys	240	0.09	0.15	0.12	25	50	35	0.2	2.0	2.0
H	Hardened Material	45 HRc	0.05	0.12	0.09	50	100	75	0.2	1.8	1.5

DNMG 1104...BG

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.21	0.50	0.35	180	330	250	0.5	5.0	3.0
	Low Alloy	200	0.21	0.45	0.30	120	280	200	0.5	5.0	3.0
	High Alloy	220	0.18	0.40	0.25	70	190	130	0.5	4.0	2.5
M	Austenitic	190	0.20	0.40	0.30	170	270	220	0.5	5.0	3.0
	Ferritic	220	0.20	0.38	0.30	130	200	170	0.5	5.0	3.0
	Martensitic	40 HRc	0.18	0.36	0.26	90	140	110	0.5	4.0	2.5
K	Nodular Cast Iron	150	0.15	0.58	0.34	160	240	200	0.5	5.0	3.0
	Grey Cast Iron	150	0.15	0.60	0.35	170	250	210	0.5	5.0	3.0
S	Heat Resistant and Super Alloys	240	0.20	0.35	0.28	25	50	38	0.5	3.0	2.0
H	Hardened Material	45 HRc	0.11	0.30	0.21	50	100	75	0.5	2.5	2.0

DNMG 1504...BF

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.11	0.23	0.19	180	330	290	0.2	3.0	2.0
	Low Alloy	200	0.10	0.20	0.14	120	280	250	0.2	2.5	2.0
	High Alloy	220	0.09	0.18	0.13	70	190	170	0.2	2.5	2.0
M	Austenitic	190	0.10	0.18	0.14	170	270	240	0.2	2.5	2.0
	Ferritic	220	0.10	0.16	0.14	130	200	170	0.2	2.5	2.0
	Martensitic	40 HRC	0.08	0.14	0.12	90	140	110	0.2	2.5	1.5
K	Nodular Cast Iron	150	0.08	0.20	0.18	160	240	220	0.2	3.0	2.0
	Grey Cast Iron	150	0.08	0.20	0.18	170	250	240	0.2	3.0	2.0
S	Heat Resistant and Super Alloys	240	0.09	0.15	0.12	25	50	40	0.2	2.0	2.0
H	Hardened Material	45 HRC	0.05	0.12	0.10	50	100	75	0.2	2.0	1.5

DNMG 1504...BG

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.21	0.50	0.36	180	330	250	0.5	5.0	3.0
	Low Alloy	200	0.21	0.45	0.33	120	280	200	0.5	5.0	3.0
	High Alloy	220	0.18	0.40	0.29	70	190	130	0.5	4.0	2.5
M	Austenitic	190	0.20	0.40	0.30	170	270	220	0.5	5.0	3.0
	Ferritic	220	0.20	0.38	0.28	130	200	170	0.5	5.0	3.0
	Martensitic	40 HRC	0.18	0.34	0.24	90	140	110	0.5	4.0	2.5
K	Nodular Cast Iron	150	0.15	0.58	0.36	160	240	200	0.5	5.0	3.0
	Grey Cast Iron	150	0.15	0.60	0.38	170	250	210	0.5	5.0	3.0
S	Heat Resistant and Super Alloys	240	0.20	0.35	0.28	25	45	35	0.5	3.0	2.0
H	Hardened Material	45 HRC	0.11	0.30	0.21	50	100	75	0.5	2.5	2.0

Turning(Negative) - Cutting Conditions

DNMG 1506...BF

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.11	0.23	0.19	180	330	290	0.2	3.0	2.0
	Low Alloy	200	0.10	0.20	0.14	120	280	250	0.2	2.5	2.0
	High Alloy	220	0.09	0.18	0.13	70	190	170	0.2	2.5	2.0
M	Austenitic	190	0.10	0.18	0.14	170	270	240	0.2	2.5	2.0
	Ferritic	220	0.10	0.16	0.14	130	200	170	0.2	2.5	2.0
	Martensitic	40 HRc	0.08	0.14	0.12	90	140	110	0.2	2.0	1.6
K	Nodular Cast Iron	150	0.08	0.20	0.18	160	240	220	0.2	3.0	2.0
	Grey Cast Iron	150	0.08	0.20	0.18	170	250	240	0.2	3.0	2.0
S	Heat Resistant and Super Alloys	240	0.09	0.15	0.12	25	50	40	0.2	2.0	2.0
H	Hardened Material	45 HRc	0.05	0.12	0.10	50	100	75	0.2	2.0	1.5

DNMG 1506...BG

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.21	0.50	0.36	180	330	250	0.5	5.0	3.0
	Low Alloy	200	0.21	0.45	0.33	120	280	200	0.5	5.0	3.0
	High Alloy	220	0.18	0.40	0.29	70	190	130	0.5	4.0	2.5
M	Austenitic	190	0.20	0.40	0.30	170	270	220	0.5	5.0	3.0
	Ferritic	220	0.20	0.38	0.28	130	200	170	0.5	5.0	3.0
	Martensitic	40 HRc	0.18	0.34	0.26	90	140	110	0.5	4.0	2.5
K	Nodular Cast Iron	150	0.14	0.58	0.36	160	240	200	0.5	5.0	3.0
	Grey Cast Iron	150	0.15	0.60	0.38	170	250	210	0.5	5.0	3.0
S	Heat Resistant and Super Alloys	240	0.20	0.35	0.28	25	45	35	0.5	3.0	2.0
H	Hardened Material	45 HRc	0.11	0.30	0.21	50	100	75	0.5	2.5	2.0

DNMG 1506..-BR

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.26	0.68	0.47	180	330	250	0.7	6.0	4.0
	Low Alloy	200	0.26	0.61	0.44	120	280	200	0.7	6.0	4.0
	High Alloy	220	0.23	0.54	0.39	70	190	130	0.7	4.8	3.4
M	Austenitic	190	0.25	0.54	0.40	170	270	220	0.7	6.0	4.0
	Ferritic	220	0.25	0.52	0.38	130	200	170	0.7	6.0	4.0
	Martensitic	40 HRC	0.22	0.48	0.34	90	140	110	0.7	4.5	3.0
K	Nodular Cast Iron	150	0.20	0.76	0.48	160	240	200	0.7	6.0	4.0
	Grey Cast Iron	150	0.20	0.80	0.50	170	250	210	0.7	6.0	4.0
S	Heat Resistant and Super Alloys	240	0.25	0.47	0.36	25	45	35	0.7	3.6	2.7
H	Hardened Material	45 HRC	0.14	0.41	0.28	50	100	75	0.7	3.0	2.7

DNMX 1506.. R/L

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.21	0.50	0.35	180	330	220	0.5	5.0	3.0
	Low Alloy	200	0.21	0.45	0.32	120	250	180	0.5	4.0	3.0
	High Alloy	220	0.18	0.40	0.30	70	150	120	0.5	4.0	2.5
M	Austenitic	190	0.20	0.40	0.36	170	270	190	0.5	5.0	3.0
	Ferritic	220	0.20	0.38	0.34	130	200	170	0.5	5.0	3.0
	Martensitic	40 HRC	0.18	0.38	0.30	90	140	110	0.5	4.0	2.5
K	Nodular Cast Iron	150	0.15	0.58	0.34	160	240	200	0.5	5.0	3.0
	Grey Cast Iron	150	0.15	0.60	0.35	170	250	200	0.5	5.0	3.0
S	Heat Resistant and Super Alloys	240	0.20	0.35	0.28	25	45	32	0.5	3.0	2.0
H	Hardened Material	45 HRC	0.11	0.30	0.25	50	100	80	0.5	2.5	2.0

Turning(Negative) - Cutting Conditions

KNUX 1604.. R/L

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.11	0.23	0.18	180	330	260	0.2	4.2	3.0
	Low Alloy	200	0.10	0.20	0.15	120	250	240	0.2	4.2	3.0
	High Alloy	220	0.09	0.16	0.56	70	150	140	0.2	4.2	2.0
M	Austenitic	190	0.10	0.18	0.15	170	270	260	0.2	4.2	3.0
	Ferritic	220	0.10	0.18	0.15	130	200	170	0.2	4.2	3.0
	Martensitic	40 HRC	0.10	0.16	0.15	90	140	110	0.2	3.6	2.4
K	Nodular Cast Iron	150	0.08	0.20	0.18	160	240	220	0.2	5.0	3.0
	Grey Cast Iron	150	0.08	0.20	0.18	170	250	240	0.2	5.0	3.0
S	Heat Resistant and Super Alloys	240	0.09	0.15	0.12	25	50	40	0.2	3.3	2.0
H	Hardened Material	45 HRC	0.05	0.12	0.11	50	100	90	0.2	3.0	1.8

SNMA 1204..

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
K	Nodular Cast Iron	150	0.15	0.76	0.34	130	380	250	1.0	6.0	2.5
	Grey Cast Iron	150	0.15	0.80	0.35	130	390	260	1.0	6.0	2.5

SNMG 1204...BF

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.30	0.70	0.55	180	330	250	0.2	4.0	2.1
	Low Alloy	200	0.30	0.63	0.47	120	280	200	0.2	4.0	2.1
	High Alloy	220	0.25	0.56	0.40	70	190	130	0.2	3.0	1.6
M	Austenitic	190	0.28	0.56	0.42	170	270	220	0.2	4.0	2.1
	Ferritic	220	0.26	0.52	0.40	130	200	170	0.2	4.0	2.1
	Martensitic	40 HRC	0.22	0.48	0.36	90	140	110	0.2	3.5	1.8
K	Nodular Cast Iron	150	0.20	0.80	0.52	160	240	200	0.2	4.0	2.1
	Grey Cast Iron	150	0.21	0.84	0.53	170	250	210	0.2	4.0	2.1
S	Heat Resistant and Super Alloys	240	0.28	0.49	0.39	25	45	35	0.2	2.0	1.1
H	Hardened Material	45 HRC	0.16	0.42	0.29	50	100	75	0.2	2.0	1.1

SNMG 1204...BG

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.30	0.70	0.50	180	330	250	0.5	5.0	3.0
	Low Alloy	200	0.30	0.63	0.47	120	280	200	0.5	5.0	3.0
	High Alloy	220	0.25	0.56	0.40	70	190	130	0.5	4.0	2.5
M	Austenitic	190	0.28	0.56	0.42	170	270	220	0.5	5.0	3.0
	Ferritic	220	0.26	0.52	0.38	130	200	170	0.5	5.0	3.0
	Martensitic	40 HRC	0.22	0.48	0.34	90	140	110	0.5	4.0	2.5
K	Nodular Cast Iron	150	0.20	0.80	0.52	160	240	200	0.5	5.0	3.0
	Grey Cast Iron	150	0.21	0.84	0.53	170	250	210	0.5	5.0	3.0
S	Heat Resistant and Super Alloys	240	0.28	0.49	0.39	25	45	35	0.5	3.0	2.0
H	Hardened Material	45 HRC	0.16	0.42	0.29	50	100	75	0.5	2.5	2.0

Turning(Negative) - Cutting Conditions

SNMG 1204...BR

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.37	0.95	0.65	180	330	250	0.7	6.0	4.0
	Low Alloy	200	0.37	0.86	0.60	120	280	200	0.7	6.0	4.0
	High Alloy	220	0.32	0.76	0.54	70	190	130	0.7	4.8	3.4
M	Austenitic	190	0.35	0.76	0.56	170	270	220	0.7	6.0	4.0
	Ferritic	220	0.32	0.72	0.52	130	200	170	0.7	6.0	4.0
	Martensitic	40 HRc	0.30	0.70	0.44	90	140	110	0.7	5.0	3.5
K	Nodular Cast Iron	150	0.28	1.10	0.70	160	240	200	0.7	6.0	4.0
	Grey Cast Iron	150	0.30	1.14	0.70	170	250	210	0.7	6.0	4.0
S	Heat Resistant and Super Alloys	240	0.35	0.67	0.51	25	45	35	0.7	3.6	2.7
H	Hardened Material	45 HRc	0.19	0.57	0.38	50	100	75	0.7	3.0	2.7

TNMA 1604..

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
K	Nodular Cast Iron	150	0.15	0.48	0.32	130	370	250	1.0	4.5	2.50
	Grey Cast Iron	150	0.15	0.50	0.35	130	390	260	1.0	4.5	2.50

TNMG 1604...BF

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.11	0.23	0.17	180	330	300	0.2	3.0	2.0
	Low Alloy	200	0.10	0.20	0.15	120	280	250	0.2	2.5	2.0
	High Alloy	220	0.09	0.18	0.14	70	190	170	0.2	2.5	2.0
M	Austenitic	190	0.10	0.18	0.14	170	270	250	0.2	2.5	2.0
	Ferritic	220	0.10	0.16	0.14	130	200	170	0.2	2.5	2.0
	Martensitic	40 HRc	0.10	0.16	0.12	90	140	110	0.2	2.0	1.5
K	Nodular Cast Iron	150	0.08	0.20	0.14	160	240	220	0.2	3.0	2.0
	Grey Cast Iron	150	0.08	0.20	0.14	170	250	240	0.2	3.0	2.0
S	Heat Resistant and Super Alloys	240	0.09	0.15	0.12	25	50	35	0.2	2.0	2.0
H	Hardened Material	45 HRc	0.05	0.12	0.09	50	100	75	0.2	1.8	1.5

TNMG 1604...BG

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.21	0.50	0.35	180	330	250	0.5	5.0	3.0
	Low Alloy	200	0.21	0.45	0.33	120	280	200	0.5	5.0	3.0
	High Alloy	220	0.18	0.40	0.29	70	190	130	0.5	4.0	2.5
M	Austenitic	190	0.20	0.40	0.30	170	270	220	0.5	5.0	3.0
	Ferritic	220	0.20	0.36	3.00	130	200	170	0.5	5.0	3.0
	Martensitic	40 HRc	0.20	0.34	0.26	90	140	110	0.5	4.0	2.5
K	Nodular Cast Iron	150	0.14	0.58	0.36	160	240	200	0.5	5.0	3.0
	Grey Cast Iron	150	0.15	0.60	0.38	170	250	210	0.5	5.0	3.0
S	Heat Resistant and Super Alloys	240	0.20	0.35	0.28	25	45	35	0.5	3.0	2.0
H	Hardened Material	45 HRc	0.11	0.30	0.21	50	100	75	0.5	2.5	2.0

Turning(Negative) - Cutting Conditions

TNMG 1604...-BR

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.26	0.68	0.47	180	330	250	0.7	5.0	4.0
	Low Alloy	200	0.26	0.61	0.44	120	280	200	0.7	5.0	4.0
	High Alloy	220	0.23	0.54	0.39	70	190	130	0.7	4.0	3.4
M	Austenitic	190	0.25	0.54	0.40	170	270	220	0.7	5.0	4.0
	Ferritic	220	0.25	0.52	0.38	130	200	170	0.7	5.0	4.0
	Martensitic	40 HRc	0.25	0.46	0.36	90	140	110	0.7	4.0	3.5
K	Nodular Cast Iron	150	0.16	0.68	0.34	160	240	200	0.7	5.0	4.0
	Grey Cast Iron	150	0.20	0.80	0.50	170	250	210	0.7	5.0	4.0
S	Heat Resistant and Super Alloys	240	0.25	0.47	0.36	25	45	35	0.7	3.0	2.7
H	Hardened Material	45 HRc	0.14	0.41	0.28	50	100	75	0.7	2.5	2.2

TNMG 2204...-BF

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.11	0.23	0.17	180	330	300	0.2	3.0	2.0
	Low Alloy	200	0.10	0.20	0.15	120	280	250	0.2	2.5	2.0
	High Alloy	220	0.09	0.18	0.14	70	190	170	0.2	2.5	2.0
M	Austenitic	190	0.10	0.18	0.14	170	270	250	0.2	2.5	2.0
	Ferritic	220	0.10	0.16	0.14	130	200	170	0.2	2.5	2.0
	Martensitic	40 HRc	0.08	0.16	0.12	90	140	110	0.2	2.0	1.5
K	Nodular Cast Iron	150	0.08	0.20	0.14	160	240	220	0.2	3.0	2.0
	Grey Cast Iron	150	0.08	0.20	0.14	170	250	240	0.2	3.0	2.0
S	Heat Resistant and Super Alloys	240	0.09	0.15	0.12	25	50	35	0.2	2.0	2.0
H	Hardened Material	45 HRc	0.05	0.12	0.09	50	100	75	0.2	1.8	1.5

TNMG 2204..-BG

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.21	0.50	0.36	180	330	250	0.5	7.0	3.0
	Low Alloy	200	0.21	0.45	0.33	120	280	200	0.5	7.0	3.0
	High Alloy	220	0.18	0.40	0.29	70	190	130	0.5	5.6	2.5
M	Austenitic	190	0.20	0.40	0.30	170	270	200	0.5	7.0	3.0
	Ferritic	220	0.20	0.38	0.30	130	200	170	0.5	7.0	3.0
	Martensitic	40 HRc	0.16	0.34	0.26	90	140	110	0.5	5.0	2.5
K	Nodular Cast Iron	150	0.16	0.58	0.36	160	240	200	0.5	7.0	3.0
	Grey Cast Iron	150	0.16	0.60	0.38	170	250	210	0.5	7.0	3.0
S	Heat Resistant and Super Alloys	240	0.20	0.35	0.28	25	45	35	0.5	4.2	2.0
H	Hardened Material	45 HRc	0.11	0.30	0.21	50	100	75	0.5	3.5	2.0

TNMG 2204..-BR

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.26	0.68	0.45	180	330	250	0.7	7.0	4.0
	Low Alloy	200	0.26	0.61	0.40	120	280	200	0.7	7.0	4.0
	High Alloy	220	0.23	0.54	0.39	70	190	130	0.7	5.6	3.4
M	Austenitic	190	0.25	0.54	0.40	170	270	180	0.7	7.0	4.0
	Ferritic	220	0.24	0.50	0.38	130	200	170	0.7	7.0	4.0
	Martensitic	40 HRc	0.20	0.44	0.32	90	140	110	0.5	6.0	3.5
K	Nodular Cast Iron	150	0.20	0.76	0.48	160	240	200	0.7	7.0	4.0
	Grey Cast Iron	150	0.20	0.80	0.50	170	250	210	0.7	7.0	4.0
S	Heat Resistant and Super Alloys	240	0.25	0.47	0.36	25	45	35	0.7	4.2	2.7
H	Hardened Material	45 HRc	0.14	0.41	0.28	50	100	75	0.7	3.5	2.2

Turning(Negative) - Cutting Conditions

TNUX 160404 R/L

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.11	0.23	0.17	180	330	300	0.2	3.0	2.0
	Low Alloy	200	0.10	0.20	0.15	120	280	250	0.2	2.5	2.0
	High Alloy	220	0.09	0.18	0.14	70	190	170	0.2	2.5	2.0
M	Austenitic	190	0.10	0.18	0.14	170	270	250	0.2	2.5	2.0
	Ferritic	220	0.10	0.16	0.14	130	200	170	0.2	2.5	2.0
	Martensitic	40 HRC	0.08	0.16	0.12	90	140	110	0.2	2.0	1.5
K	Nodular Cast Iron	150	0.08	0.20	0.14	160	240	220	0.2	3.0	2.0
	Grey Cast Iron	150	0.08	0.20	0.14	170	250	240	0.2	3.0	2.0
S	Heat Resistant and Super Alloys	240	0.09	0.15	0.12	25	50	35	0.2	2.0	2.0
H	Hardened Material	45 HRC	0.05	0.12	0.09	50	100	75	0.2	1.8	1.5

TNUX 160408 R/L

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.21	0.50	0.36	180	330	255	0.5	5.0	3.0
	Low Alloy	200	0.21	0.45	0.33	120	280	200	0.5	5.0	3.0
	High Alloy	220	0.18	0.40	0.29	70	190	130	0.5	4.0	2.5
M	Austenitic	190	0.20	0.40	0.30	170	270	220	0.5	5.0	3.0
	Ferritic	220	0.20	0.38	0.28	130	200	170	0.5	5.0	3.0
	Martensitic	40 HRC	0.16	0.34	0.24	90	140	110	0.5	4.0	2.5
K	Nodular Cast Iron	150	0.14	0.58	0.36	160	240	200	0.5	5.0	3.0
	Grey Cast Iron	150	0.16	0.60	0.38	170	250	210	0.5	5.0	3.0
S	Heat Resistant and Super Alloys	240	0.20	0.35	0.28	25	45	35	0.5	3.0	2.0
H	Hardened Material	45 HRC	0.11	0.30	0.21	50	100	75	0.5	2.5	2.0

VNMG 1604...BF

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.11	0.23	0.17	180	330	300	0.2	3.0	2.0
	Low Alloy	200	0.10	0.20	0.15	120	280	250	0.2	2.5	2.0
	High Alloy	220	0.09	0.18	0.14	70	190	170	0.2	2.5	2.0
M	Austenitic	190	0.10	0.18	0.14	170	270	250	0.2	2.5	2.0
	Ferritic	220	0.10	0.18	0.14	130	200	170	0.2	2.5	2.0
	Martensitic	40 HRC	0.08	0.16	0.12	90	140	120	0.2	2.0	1.5
K	Nodular Cast Iron	150	0.08	0.20	0.12	160	240	220	0.2	3.0	2.0
	Grey Cast Iron	150	0.08	0.20	0.14	170	250	240	0.2	3.0	2.0
S	Heat Resistant and Super Alloys	240	0.09	0.15	0.12	25	50	35	0.2	2.0	2.0
H	Hardened Material	45 HRC	0.05	0.12	0.09	50	100	75	0.2	1.8	1.5

VNMG 1604...BG

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.19	0.40	0.30	180	330	250	0.5	4.0	2.7
	Low Alloy	200	0.19	0.36	0.28	120	280	200	0.5	4.0	2.7
	High Alloy	220	0.16	0.32	0.24	70	190	130	0.5	3.2	2.3
M	Austenitic	190	0.18	0.32	0.25	170	270	200	0.5	4.0	2.7
	Ferritic	220	0.18	0.32	0.24	130	200	170	0.5	4.0	2.7
	Martensitic	40 HRC	0.16	0.28	0.20	90	140	110	0.5	3.5	2.5
K	Nodular Cast Iron	150	0.14	0.38	0.24	160	240	200	0.5	4.0	2.7
	Grey Cast Iron	150	0.14	0.48	0.31	170	250	210	0.5	4.0	2.7
S	Heat Resistant and Super Alloys	240	0.18	0.28	0.23	25	45	35	0.5	2.4	2.0
H	Hardened Material	45 HRC	0.10	0.24	0.17	50	100	75	0.5	2.0	1.8

Turning(Negative) - Cutting Conditions

VNMG 1604...BR

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.19	0.40	0.30	180	330	250	1.5	4.0	2.7
	Low Alloy	200	0.19	0.36	0.28	120	280	200	1.5	4.0	2.7
	High Alloy	220	0.16	0.32	0.24	70	190	130	1.5	3.2	2.3
M	Austenitic	190	0.18	0.32	0.25	170	270	200	1.5	4.0	2.7
	Ferritic	220	0.18	0.30	0.25	130	210	160	1.5	4.0	2.7
	Martensitic	40 HRC	0.16	0.26	0.22	90	140	110	1.5	3.5	2.5
K	Nodular Cast Iron	150	0.14	0.46	0.30	160	240	200	1.5	4.0	2.7
	Grey Cast Iron	150	0.14	0.48	0.31	170	250	210	1.5	4.0	2.7
S	Heat Resistant and Super Alloys	240	0.18	0.28	0.23	25	45	35	1.5	2.4	2.0
H	Hardened Material	45 HRC	0.10	0.24	0.17	50	100	75	1.5	2.0	1.8

WNMA 0804..

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
K	Nodular Cast Iron	150	0.20	0.76	0.32	130	380	250	0.7	6.0	2.00
	Grey Cast Iron	150	0.20	0.78	0.32	130	390	260	0.7	6.0	2.00

WNMG 0604...-BF

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.11	0.23	0.17	180	330	300	0.2	3.0	2.0
	Low Alloy	200	0.10	0.20	0.15	120	280	250	0.2	2.5	2.0
	High Alloy	220	0.09	0.18	0.14	70	190	170	0.2	2.5	2.0
M	Austenitic	190	0.10	0.18	0.14	170	270	250	0.2	2.5	2.0
	Ferritic	220	0.10	0.16	0.14	130	200	170	0.2	2.5	2.0
	Martensitic	40 HRC	0.08	0.16	0.12	90	150	120	0.2	2.5	2.0
K	Nodular Cast Iron	150	0.08	0.20	0.14	160	240	220	0.2	3.0	2.0
	Grey Cast Iron	150	0.08	0.20	0.14	170	250	240	0.2	3.0	2.0
S	Heat Resistant and Super Alloys	240	0.09	0.15	0.12	25	50	35	0.2	2.0	2.0
H	Hardened Material	45 HRC	0.05	0.12	0.09	50	100	75	0.2	1.8	1.5

WNMG 0604...-BG

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.21	0.50	0.36	180	330	250	0.5	2.5	2.2
	Low Alloy	200	0.21	0.45	0.33	120	280	200	0.5	2.5	2.2
	High Alloy	220	0.18	0.40	0.29	70	190	130	0.5	2.0	1.8
M	Austenitic	190	0.20	0.40	0.30	170	270	200	0.5	2.5	2.2
	Ferritic	220	0.18	0.38	0.28	130	200	170	0.5	2.5	2.2
	Martensitic	40 HRC	0.16	0.34	0.24	90	140	120	0.5	2.0	1.5
K	Nodular Cast Iron	150	0.14	0.58	0.36	160	240	200	0.5	2.5	2.2
	Grey Cast Iron	150	0.15	0.60	0.38	170	250	210	0.5	2.5	2.2
S	Heat Resistant and Super Alloys	240	0.20	0.35	0.28	25	45	30	0.5	1.5	1.5
H	Hardened Material	45 HRC	0.11	0.30	0.21	50	100	70	0.5	1.6	1.5

Turning(Negative) - Cutting Conditions

WNMG 0804...-BF

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.11	0.23	0.17	180	330	300	0.2	3.0	2.0
	Low Alloy	200	0.10	0.20	0.15	120	280	250	0.2	2.5	2.0
	High Alloy	220	0.09	0.18	0.14	70	190	170	0.2	2.5	2.0
M	Austenitic	190	0.10	0.18	0.14	170	270	250	0.2	2.5	2.0
	Ferritic	220	0.10	0.16	0.14	130	200	170	0.2	2.5	2.0
	Martensitic	40 HRc	0.08	0.16	0.12	90	140	120	0.2	2.0	1.5
K	Nodular Cast Iron	150	0.08	0.20	0.14	160	240	220	0.2	3.0	2.0
	Grey Cast Iron	150	0.08	0.20	0.14	170	250	240	0.2	3.0	2.0
S	Heat Resistant and Super Alloys	240	0.09	0.15	0.12	25	50	35	0.2	2.0	2.0
H	Hardened Material	45 HRc	0.05	0.12	0.09	50	100	75	0.2	1.8	1.5

WNMG 0804...-BG

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.21	0.50	0.36	180	330	250	0.5	3.5	2.4
	Low Alloy	200	0.21	0.45	0.33	120	280	200	0.5	3.5	2.4
	High Alloy	220	0.18	0.40	0.29	70	190	130	0.5	2.8	2.0
M	Austenitic	190	0.20	0.40	0.30	170	270	200	0.5	3.5	2.4
	Ferritic	220	0.18	0.38	0.28	130	200	170	0.5	3.5	2.4
	Martensitic	40 HRc	0.16	0.34	0.24	90	140	120	0.5	3.0	2.0
K	Nodular Cast Iron	150	0.15	0.58	0.36	160	240	200	0.5	3.5	2.4
	Grey Cast Iron	150	0.15	0.60	0.38	170	250	210	0.5	3.5	2.4
S	Heat Resistant and Super Alloys	240	0.20	0.35	0.28	25	45	30	0.5	2.1	1.6
H	Hardened Material	45 HRc	0.11	0.30	0.21	50	100	70	0.5	1.8	1.6

WNMG 0804...BR

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.25	0.65	0.45	180	330	250	0.7	3.5	3.0
	Low Alloy	200	0.25	0.59	0.40	120	280	200	0.7	3.5	3.0
	High Alloy	220	0.22	0.52	0.35	70	190	130	0.7	2.8	2.5
M	Austenitic	190	0.24	0.52	0.35	170	270	200	0.7	3.5	3.0
	Ferritic	220	0.24	0.48	0.34	130	200	170	0.7	3.5	3.0
	Martensitic	40 HRc	0.20	0.46	0.28	90	140	120	0.7	3.0	2.5
K	Nodular Cast Iron	150	0.18	0.74	0.42	160	240	200	0.7	3.5	3.0
	Grey Cast Iron	150	0.18	0.78	0.45	170	250	210	0.7	3.5	3.0
S	Heat Resistant and Super Alloys	240	0.24	0.46	0.35	25	45	30	0.7	2.1	2.0
H	Hardened Material	45 HRc	0.13	0.39	0.25	50	100	70	0.7	1.8	2.0

Milling

Drilling

Turning

Grooving

Turning(Positive) - Cutting Conditions

CCMT 060204-BF

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.08	0.20	0.14	180	330	300	0.2	2.1	1.0
	Low Alloy	200	0.08	0.17	0.13	120	280	250	0.2	1.8	1.0
	High Alloy	220	0.07	0.15	0.11	70	190	170	0.2	1.8	1.0
M	Austenitic	190	0.08	0.15	0.12	170	270	250	0.2	1.8	1.0
	Ferritic	220	0.09	0.18	0.15	130	200	170	0.2	1.8	1.0
	Martensitic	40 HRC	0.08	0.15	0.12	90	140	110	0.2	1.6	0.8
K	Nodular Cast Iron	150	0.06	0.12	0.11	160	240	200	0.2	2.1	1.0
	Grey Cast Iron	150	0.06	0.18	0.12	170	250	200	0.2	2.1	1.0
S	Heat Resistant and Super Alloys	240	0.08	0.13	0.07	25	50	35	0.2	1.4	1.0
H	Hardened Material	45 HRC	0.04	0.10	0.07	50	100	75	0.2	1.3	0.8

CCMT 060208-BG

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.08	0.20	0.14	180	330	250	0.4	2.1	1.2
	Low Alloy	200	0.08	0.17	0.13	120	280	200	0.4	1.8	1.2
	High Alloy	220	0.07	0.15	0.11	70	190	130	0.4	1.8	1.2
M	Austenitic	190	0.08	0.18	0.14	170	270	200	0.4	1.8	1.2
	Ferritic	220	0.08	0.15	0.12	130	200	170	0.4	1.8	1.2
	Martensitic	40 HRC	0.06	0.12	0.10	90	140	110	0.4	1.6	1.0
K	Nodular Cast Iron	150	0.06	0.18	0.12	160	240	200	0.4	2.1	1.2
	Grey Cast Iron	150	0.06	0.20	0.12	170	250	210	0.4	2.1	1.2
S	Heat Resistant and Super Alloys	240	0.08	0.13	0.07	25	50	30	0.4	1.4	1.2
H	Hardened Material	45 HRC	0.04	0.10	0.07	50	100	75	0.4	1.3	0.8

CCMT 09T304-BF

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.11	0.23	0.17	180	330	300	0.2	3.0	2.0
	Low Alloy	200	0.10	0.20	0.15	120	280	250	0.2	2.5	2.0
	High Alloy	220	0.09	0.18	0.14	70	190	170	0.2	2.5	2.0
M	Austenitic	190	0.10	0.18	0.14	170	270	250	0.2	2.5	2.0
	Ferritic	220	0.08	0.16	0.13	130	200	170	0.2	2.5	2.0
	Martensitic	40 HRC	0.06	0.14	0.10	90	140	110	0.2	2.0	1.5
K	Nodular Cast Iron	150	0.08	0.20	0.14	160	240	200	0.2	3.0	2.0
	Grey Cast Iron	150	0.10	0.22	0.16	170	250	210	0.2	3.0	2.0
S	Heat Resistant and Super Alloys	240	0.09	0.15	0.12	25	50	35	0.2	2.0	2.0
H	Hardened Material	45 HRC	0.05	0.12	0.09	50	100	75	0.2	1.8	1.5

CCMT 09T308-BG

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.21	0.50	0.36	180	330	255	0.5	5.0	3.0
	Low Alloy	200	0.21	0.45	0.33	120	280	200	0.5	5.0	3.0
	High Alloy	220	0.18	0.40	0.29	70	190	130	0.5	4.0	2.5
M	Austenitic	190	0.20	0.40	0.30	170	270	220	0.5	5.0	3.0
	Ferritic	220	0.16	0.36	0.28	130	200	170	0.5	5.0	3.0
	Martensitic	40 HRC	0.14	0.32	0.22	90	140	110	0.5	4.0	2.5
K	Nodular Cast Iron	150	0.14	0.54	0.36	160	240	200	0.5	5.0	3.0
	Grey Cast Iron	150	0.15	0.60	0.38	170	250	210	0.5	5.0	3.0
S	Heat Resistant and Super Alloys	240	0.20	0.35	0.28	25	45	35	0.5	3.0	2.0
H	Hardened Material	45 HRC	0.11	0.30	0.21	50	100	75	0.5	2.5	2.0

Turning(Positive) - Cutting Conditions

CCMT 120408-BG

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.21	0.50	0.36	180	330	255	0.5	5.0	3.0
	Low Alloy	200	0.21	0.45	0.33	120	280	200	0.5	5.0	3.0
	High Alloy	220	0.18	0.40	0.29	70	190	130	0.5	4.0	2.5
M	Austenitic	190	0.20	0.40	0.30	170	270	200	0.5	5.0	3.0
	Ferritic	220	0.16	0.36	0.28	130	200	170	0.5	5.0	3.0
	Martensitic	40 HRC	0.14	0.32	0.22	90	140	110	0.5	4.0	2.5
K	Nodular Cast Iron	150	0.14	0.56	0.36	160	240	200	0.5	5.0	3.0
	Grey Cast Iron	150	0.15	0.60	0.38	170	250	210	0.5	5.0	3.0
S	Heat Resistant and Super Alloys	240	0.20	0.35	0.28	25	45	35	0.5	3.0	2.0
H	Hardened Material	45 HRC	0.11	0.30	0.21	50	100	75	0.5	2.5	2.0

DCMT 070204-BF

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.08	0.20	0.14	180	330	300	0.2	2.1	1.0
	Low Alloy	200	0.08	0.17	0.13	120	280	250	0.2	1.8	1.0
	High Alloy	220	0.07	0.15	0.11	70	190	170	0.2	1.8	1.0
M	Austenitic	190	0.08	0.20	0.14	170	270	250	0.2	1.8	1.0
	Ferritic	220	0.08	0.18	0.12	130	200	170	0.2	1.8	1.0
	Martensitic	40 HRC	0.06	0.16	0.10	90	140	110	0.2	1.5	1.0
K	Nodular Cast Iron	150	0.06	0.18	0.12	160	240	200	0.2	2.1	1.0
	Grey Cast Iron	150	0.06	0.20	0.14	170	250	210	0.2	2.1	1.0
S	Heat Resistant and Super Alloys	240	0.08	0.13	0.11	25	50	35	0.2	1.4	1.0
H	Hardened Material	45 HRC	0.04	0.10	0.07	50	100	75	0.2	1.3	0.8

DCMT 11T304-BF

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.11	0.23	0.17	180	330	300	0.2	3.0	2.0
	Low Alloy	200	0.10	0.20	0.15	120	280	250	0.2	2.5	2.0
	High Alloy	220	0.09	0.18	0.12	70	190	170	0.2	2.5	2.0
M	Austenitic	190	0.10	0.20	0.15	170	270	250	0.2	2.5	2.0
	Ferritic	220	0.10	0.18	0.16	130	200	170	0.2	2.5	2.0
	Martensitic	40 HRC	0.08	0.16	0.12	90	140	110	0.2	2.0	1.5
K	Nodular Cast Iron	150	0.10	0.22	0.14	160	240	160	0.2	3.0	2.0
	Grey Cast Iron	150	0.10	0.20	0.16	170	250	210	0.2	3.0	2.0
S	Heat Resistant and Super Alloys	240	0.09	0.15	0.12	25	50	35	0.2	2.0	2.0
H	Hardened Material	45 HRC	0.05	0.12	0.09	50	100	75	0.2	1.8	1.5

DCMT 11T308-BG

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.21	0.50	0.36	180	330	255	0.5	4.0	3.0
	Low Alloy	200	0.21	0.45	0.33	120	280	200	0.5	4.0	3.0
	High Alloy	220	0.18	0.40	0.29	70	190	130	0.5	3.2	2.5
M	Austenitic	190	0.20	0.40	0.30	170	270	200	0.5	4.0	3.0
	Ferritic	220	0.19	0.36	0.26	130	200	170	0.5	4.0	3.0
	Martensitic	40 HRC	0.16	0.32	0.22	90	140	110	0.5	3.0	2.0
K	Nodular Cast Iron	150	0.15	0.56	0.34	160	240	200	0.5	4.0	3.0
	Grey Cast Iron	150	0.15	0.60	0.38	170	250	210	0.5	4.0	3.0
S	Heat Resistant and Super Alloys	240	0.20	0.35	0.28	25	45	35	0.5	2.4	2.0
H	Hardened Material	45 HRC	0.11	0.30	0.21	50	100	75	0.5	2.0	2.0

Turning(Positive) - Cutting Conditions

RCMT 0602M0

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.15	0.40	0.33	180	330	255	0.5	2.0	1.0
	Low Alloy	200	0.15	0.35	0.28	120	280	200	0.5	2.0	1.0
	High Alloy	220	0.13	0.35	0.28	70	190	130	0.5	2.0	1.0
M	Austenitic	190	0.14	0.35	0.30	170	270	220	0.5	2.0	1.0
	Ferritic	220	0.13	0.30	0.26	130	200	170	0.5	2.0	1.0
	Martensitic	40 HRC	0.10	0.26	0.22	90	140	110	0.5	2.0	1.0
K	Nodular Cast Iron	150	0.11	0.44	0.32	160	240	200	0.5	1.2	0.8
	Grey Cast Iron	150	0.12	0.45	0.34	170	250	210	0.5	2.0	1.0
S	Heat Resistant and Super Alloys	240	0.13	0.30	0.25	25	50	38	0.5	1.5	1.0
H	Hardened Material	45 HRC	0.05	0.22	0.14	50	100	75	0.5	1.2	0.9

RCMT 0803M0

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.15	0.40	0.33	180	330	255	0.5	2.4	1.2
	Low Alloy	200	0.15	0.35	0.28	120	280	200	0.5	2.4	1.2
	High Alloy	220	0.13	0.35	0.28	70	190	130	0.5	2.4	1.2
M	Austenitic	190	0.14	0.35	0.28	170	270	220	0.5	2.4	1.2
	Ferritic	220	0.14	0.34	0.26	130	200	170	0.5	2.4	1.2
	Martensitic	40 HRC	0.12	0.30	0.22	90	140	110	0.5	2.0	1.0
K	Nodular Cast Iron	150	0.10	0.42	0.32	160	240	200	0.5	2.4	1.2
	Grey Cast Iron	150	0.12	0.44	0.34	170	250	210	0.5	2.4	1.2
S	Heat Resistant and Super Alloys	240	0.13	0.30	0.25	25	50	38	0.5	1.8	1.2
H	Hardened Material	45 HRC	0.05	0.22	0.14	50	100	75	0.5	1.4	1.1

RCMT 10T3M0

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.15	0.40	0.33	180	330	255	0.5	2.8	1.4
	Low Alloy	200	0.15	0.35	0.28	120	280	200	0.5	2.8	1.4
	High Alloy	220	0.13	0.35	0.28	70	190	130	0.5	2.8	1.4
M	Austenitic	190	0.14	0.36	0.28	170	270	220	0.5	2.8	1.4
	Ferritic	220	0.14	0.35	0.26	130	200	170	0.5	2.8	1.4
	Martensitic	40 HRC	0.12	0.30	0.22	90	140	110	0.5	2.4	1.2
K	Nodular Cast Iron	150	0.12	0.40	0.30	160	240	200	0.5	2.8	1.4
	Grey Cast Iron	150	0.12	0.44	0.34	170	250	210	0.5	2.8	1.4
S	Heat Resistant and Super Alloys	240	0.13	0.30	0.25	25	50	38	0.5	2.1	1.4
H	Hardened Material	45 HRC	0.05	0.22	0.14	50	100	75	0.5	1.7	1.3

RCMT 1204M0

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.15	0.40	0.40	180	330	255	0.5	3.2	2.0
	Low Alloy	200	0.15	0.35	0.35	120	280	200	0.5	3.2	2.0
	High Alloy	220	0.13	0.35	0.35	70	190	130	0.5	3.2	2.0
M	Austenitic	190	0.14	0.38	0.28	170	270	220	0.5	3.2	2.0
	Ferritic	220	0.14	0.37	0.28	130	200	170	0.5	3.2	2.0
	Martensitic	40 HRC	0.14	0.34	0.24	90	140	110	0.5	3.0	1.8
K	Nodular Cast Iron	150	0.11	0.46	0.34	160	240	200	0.5	3.2	2.0
	Grey Cast Iron	150	0.11	0.46	0.36	170	250	210	0.5	3.2	2.0
S	Heat Resistant and Super Alloys	240	0.13	0.30	0.30	25	50	38	0.5	2.4	1.5
H	Hardened Material	45 HRC	0.05	0.22	0.20	50	100	75	0.5	1.9	1.8

Turning(Positive) - Cutting Conditions

SCMT 09T3...BF

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.11	0.26	0.19	180	330	300	0.2	4.0	2.5
	Low Alloy	200	0.10	0.23	0.17	120	280	250	0.2	3.3	2.5
	High Alloy	220	0.09	0.21	0.15	70	190	170	0.2	3.3	2.5
M	Austenitic	190	0.10	0.21	0.16	170	270	250	0.2	3.3	2.5
	Ferritic	220	0.10	0.18	0.15	130	200	170	0.2	3.3	2.5
	Martensitic	40 HRC	0.08	0.16	0.12	90	140	110	0.2	3.0	2.0
K	Nodular Cast Iron	150	0.08	0.22	0.16	160	240	200	0.2	4.0	2.5
	Grey Cast Iron	150	0.08	0.24	0.18	170	250	210	0.2	4.0	2.5
S	Heat Resistant and Super Alloys	240	0.09	0.17	0.13	25	50	35	0.2	2.7	2.0
H	Hardened Material	45 HRC	0.05	0.14	0.10	50	100	75	0.2	2.4	1.9

SCMT 09T3...BG

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.21	0.50	0.36	180	330	255	0.5	4.0	3.0
	Low Alloy	200	0.21	0.45	0.33	120	280	200	0.5	4.0	3.0
	High Alloy	220	0.18	0.40	0.29	70	190	130	0.5	3.2	2.5
M	Austenitic	190	0.20	0.40	0.30	170	270	220	0.5	4.0	3.0
	Ferritic	220	0.20	0.38	0.28	130	200	170	0.5	4.0	3.0
	Martensitic	40 HRC	0.16	0.34	0.24	90	140	110	0.5	3.5	2.5
K	Nodular Cast Iron	150	0.15	0.56	0.34	160	230	200	0.5	4.0	3.0
	Grey Cast Iron	150	0.15	0.60	0.38	170	250	210	0.5	4.0	3.0
S	Heat Resistant and Super Alloys	240	0.20	0.35	0.28	25	45	35	0.5	2.4	2.0
H	Hardened Material	45 HRC	0.11	0.30	0.21	50	100	75	0.5	2.0	2.0

TCMT 1102...BF

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.08	0.20	0.14	180	330	300	0.2	2.1	1.0
	Low Alloy	200	0.08	0.17	0.13	120	280	250	0.2	1.8	1.0
	High Alloy	220	0.07	0.15	0.11	70	190	170	0.2	1.8	1.0
M	Austenitic	190	0.08	0.18	0.12	170	270	250	0.2	1.8	1.0
	Ferritic	220	0.08	0.16	0.12	130	200	170	0.2	1.8	1.0
	Martensitic	40 HRC	0.06	0.14	0.10	90	140	110	0.2	1.5	0.8
K	Nodular Cast Iron	150	0.06	0.18	0.12	160	240	190	0.2	2.1	1.0
	Grey Cast Iron	150	0.06	0.20	0.12	170	250	210	0.2	2.1	1.0
S	Heat Resistant and Super Alloys	240	0.08	0.13	0.11	25	50	35	0.2	1.4	1.0
H	Hardened Material	45 HRC	0.04	0.10	0.07	50	100	75	0.2	1.3	0.8

TCMT 16T3...BF

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.11	0.23	0.20	180	330	300	0.2	3.0	2.0
	Low Alloy	200	0.10	0.20	0.15	120	280	250	0.2	2.5	2.0
	High Alloy	220	0.09	0.18	0.12	70	190	170	0.2	2.5	2.0
M	Austenitic	190	0.12	0.22	0.18	170	270	250	0.2	2.5	2.0
	Ferritic	220	0.10	0.18	0.15	130	200	170	0.2	2.5	2.0
	Martensitic	40 HRC	0.08	0.16	0.14	90	140	110	0.2	2.0	1.5
K	Nodular Cast Iron	150	0.08	0.20	0.16	160	240	200	0.2	3.0	2.0
	Grey Cast Iron	150	0.08	0.22	0.16	170	250	210	0.2	3.0	2.0
S	Heat Resistant and Super Alloys	240	0.09	0.15	0.11	25	45	35	0.2	2.0	2.0
H	Hardened Material	45 HRC	0.05	0.12	0.09	50	100	75	0.2	1.8	1.5

Turning(Positive) - Cutting Conditions

TCMT 16T308-BG

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.11	0.23	0.20	180	330	250	0.2	3.0	3.0
	Low Alloy	200	0.10	0.20	0.15	120	280	200	0.2	2.5	3.0
	High Alloy	220	0.09	0.18	0.12	70	190	130	0.2	2.5	2.5
M	Austenitic	190	0.10	0.20	0.16	170	270	220	0.2	2.5	2.0
	Ferritic	220	0.10	0.18	0.15	130	200	170	0.2	2.5	2.0
	Martensitic	40 HRC	0.08	0.16	0.14	90	140	110	0.2	2.0	1.5
K	Nodular Cast Iron	150	0.08	0.22	0.14	160	240	200	0.2	2.5	3.0
	Grey Cast Iron	150	0.08	0.20	0.15	170	250	210	0.2	2.5	3.0
S	Heat Resistant and Super Alloys	240	0.20	0.30	0.25	25	45	35	0.5	3.0	2.0
H	Hardened Material	45 HRC	0.11	0.26	0.19	50	100	75	0.5	2.5	2.0

VBMT 160404-BF

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.11	0.23	0.17	180	330	255	0.2	3.0	2.0
	Low Alloy	200	0.10	0.20	0.15	120	280	200	0.2	2.5	2.0
	High Alloy	220	0.09	0.18	0.14	70	190	130	0.2	2.5	2.0
M	Austenitic	190	0.10	0.18	0.14	170	270	220	0.2	2.5	2.0
	Ferritic	220	0.10	0.16	0.14	130	200	170	0.2	2.5	2.0
	Martensitic	40 HRC	0.08	0.16	0.12	90	140	120	0.2	2.0	1.5
K	Nodular Cast Iron	150	0.08	0.20	0.14	160	240	200	0.2	3.0	2.0
	Grey Cast Iron	150	0.08	0.22	0.14	170	250	210	0.2	3.0	2.0
S	Heat Resistant and Super Alloys	240	0.09	0.15	0.12	25	50	38	0.2	2.0	2.0
H	Hardened Material	45 HRC	0.05	0.12	0.09	50	100	75	0.2	1.8	1.5

VBMT 110304-BF

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.08	0.20	0.18	180	330	260	0.20	1.8	1.0
	Low Alloy	200	0.08	0.17	0.15	120	250	240	0.20	1.8	1.0
	High Alloy	220	0.07	0.14	0.12	70	150	140	0.20	1.8	1.0
M	Austenitic	190	0.08	0.16	0.12	170	270	260	0.20	1.8	1.0
	Ferritic	220	0.08	0.15	0.12	130	200	170	0.20	1.8	1.0
	Martensitic	40 HRC	0.06	0.14	0.10	90	140	110	0.20	1.5	0.8
K	Nodular Cast Iron	150	0.06	0.22	0.18	160	240	200	0.20	2.1	1.0
	Grey Cast Iron	150	0.06	0.22	0.18	170	250	240	0.20	2.1	1.0
S	Heat Resistant and Super Alloys	240	0.08	0.13	0.12	25	50	40	0.20	1.4	1.0
H	Hardened Material	45 HRC	0.04	0.10	0.11	50	100	90	0.20	1.3	0.8

VBMT 160408-BG

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.19	0.40	0.30	180	330	255	0.5	3.5	2.5
	Low Alloy	200	0.19	0.36	0.28	120	280	200	0.5	3.5	2.5
	High Alloy	220	0.16	0.32	0.24	70	190	130	0.5	2.8	2.1
M	Austenitic	190	0.18	0.32	0.26	170	270	220	0.5	3.5	2.5
	Ferritic	220	0.18	0.30	0.26	130	200	170	0.5	3.5	2.5
	Martensitic	40 HRC	0.14	0.28	0.22	90	140	110	0.5	3.0	2.2
K	Nodular Cast Iron	150	0.14	0.44	0.30	160	240	200	0.5	3.5	2.5
	Grey Cast Iron	150	0.14	0.48	0.31	170	250	210	0.5	3.5	2.5
S	Heat Resistant and Super Alloys	240	0.18	0.28	0.23	25	45	35	0.5	2.1	2.0
H	Hardened Material	45 HRC	0.10	0.24	0.17	50	100	75	0.5	1.8	1.6

Turning(Positive) - Cutting Conditions

VCMT 110304-BF

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.08	0.20	0.18	180	330	260	0.20	1.8	1.0
	Low Alloy	200	0.08	0.17	0.15	120	250	240	0.20	1.8	1.0
	High Alloy	220	0.07	0.14	0.12	70	150	140	0.20	1.8	1.0
M	Austenitic	190	0.08	0.15	0.12	170	270	260	0.20	1.8	1.0
	Ferritic	220	0.08	0.14	0.12	130	200	170	0.20	1.8	1.0
	Martensitic	40 HRC	0.06	0.14	0.10	90	140	110	0.20	1.5	0.8
K	Nodular Cast Iron	150	0.06	0.24	0.18	170	250	240	0.20	2.1	1.0
	Grey Cast Iron	150	0.06	0.24	0.17	170	250	240	0.20	2.1	1.0
S	Heat Resistant and Super Alloys	240	0.08	0.13	0.12	25	50	40	0.20	1.4	1.0
H	Hardened Material	45 HRC	0.04	0.10	0.11	50	100	90	0.20	1.3	0.8

VCMT 1604...-BF

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.11	0.23	0.17	180	330	255	0.2	3.0	2.0
	Low Alloy	200	0.10	0.20	0.15	120	280	200	0.2	2.5	2.0
	High Alloy	220	0.09	0.18	0.14	70	190	130	0.2	2.5	2.0
M	Austenitic	190	0.11	0.18	0.14	170	270	220	0.2	2.5	2.0
	Ferritic	220	0.10	0.16	0.14	130	200	170	0.2	2.5	2.0
	Martensitic	40 HRC	0.08	0.16	0.12	90	140	110	0.2	2.0	1.5
K	Nodular Cast Iron	150	0.08	0.20	0.14	160	240	200	0.2	3.0	2.0
	Grey Cast Iron	150	0.08	0.22	0.14	170	250	210	0.2	3.0	2.0
S	Heat Resistant and Super Alloys	240	0.09	0.15	0.12	25	50	38	0.2	2.0	2.0
H	Hardened Material	45 HRC	0.05	0.12	0.09	50	100	75	0.2	1.8	1.5

VCMT 1604...BG

Material			Cutting Conditions								
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)			Depth of Cut ap (mm)		
			Min.	Max.	Recommend	Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.19	0.40	0.30	180	330	255	0.5	3.5	2.5
	Low Alloy	200	0.19	0.36	0.28	120	280	200	0.5	3.5	2.5
	High Alloy	220	0.16	0.32	0.24	70	190	130	0.5	2.8	2.1
M	Austenitic	190	0.18	0.32	0.25	170	270	220	0.5	3.5	2.5
	Ferritic	220	0.16	0.30	0.25	130	200	170	0.5	3.5	2.5
	Martensitic	40 HRc	0.14	0.28	0.22	90	140	110	0.5	3.0	2.0
K	Nodular Cast Iron	150	0.14	0.46	0.30	160	240	200	0.5	3.5	2.5
	Grey Cast Iron	150	0.14	0.48	0.31	170	250	210	0.5	3.5	2.5
S	Heat Resistant and Super Alloys	240	0.18	0.28	0.23	25	45	35	0.5	2.1	2.0
H	Hardened Material	45 HRc	0.10	0.24	0.17	50	100	75	0.5	1.8	1.6

Milling

Drilling

Turning

Grooving

Parting & Grooving - Cutting Conditions

MGMN 2002-BN

Material			Cutting Conditions					
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)		
			Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.08	0.14	0.11	130	250	180
	Low Alloy	200	0.08	0.15	0.09	110	220	160
	High Alloy	220	0.07	0.13	0.07	40	120	80
M	Austenitic	190	0.08	0.14	0.07	100	180	140
	Ferritic & Martensitic	220	0.06	0.10	0.07	60	120	90
K	Nodular Cast Iron	150	0.06	0.12	0.08	120	210	120
	Grey Cast Iron	150	0.06	0.16	0.10	120	190	150
S	Heat Resistant and Super Alloys	240	0.06	0.10	0.06	40	70	50
H	Hardened Material	45 HRc	0.04	0.08	0.06	30	70	50

MGMN 2002-BP

Material			Cutting Conditions					
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)		
			Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.08	0.14	0.10	120	250	180
	Low Alloy	200	0.08	0.15	0.09	110	220	160
	High Alloy	220	0.07	0.13	0.08	40	120	80
M	Austenitic	190	0.08	0.14	0.08	100	180	140
	Ferritic & Martensitic	220	0.06	0.10	0.08	60	120	90
K	Nodular Cast Iron	150	0.06	0.14	0.10	120	210	120
	Grey Cast Iron	150	0.06	0.12	0.10	120	190	150
S	Heat Resistant and Super Alloys	240	0.07	0.10	0.08	40	70	50
H	Hardened Material	45 HRc	0.04	0.10	0.07	30	70	50

MGMN 3004-BN

Material			Cutting Conditions					
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)		
			Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.08	0.16	0.12	120	250	180
	Low Alloy	200	0.08	0.15	0.09	110	220	160
	High Alloy	220	0.07	0.13	0.08	40	120	80
M	Austenitic	190	0.08	0.14	0.08	100	180	140
	Ferritic & Martensitic	220	0.06	0.10	0.08	60	120	90
K	Nodular Cast Iron	150	0.06	0.14	0.10	120	210	120
	Grey Cast Iron	150	0.06	0.12	0.10	120	190	150
S	Heat Resistant and Super Alloys	240	0.07	0.10	0.08	40	70	50
H	Hardened Material	45 HRC	0.04	0.10	0.07	30	70	50

MGMN 3004-BP

Material			Cutting Conditions					
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)		
			Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.08	0.16	0.10	120	250	180
	Low Alloy	200	0.08	0.15	0.09	110	220	160
	High Alloy	220	0.07	0.13	0.08	40	120	80
M	Austenitic	190	0.08	0.14	0.08	100	180	140
	Ferritic & Martensitic	220	0.06	0.10	0.08	60	120	90
K	Nodular Cast Iron	150	0.06	0.14	0.10	120	210	120
	Grey Cast Iron	150	0.06	0.12	0.10	120		150
S	Heat Resistant and Super Alloys	240	0.07	0.10	0.08	40	70	50
H	Hardened Material	45 HRC	0.04	0.10	0.07	30	70	50

Parting & Grooving - Cutting Conditions

MGMN 4004-BN

Material			Cutting Conditions					
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)		
			Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.08	0.16	0.10	120	250	180
	Low Alloy	200	0.08	0.15	0.09	110	220	160
	High Alloy	220	0.07	0.13	0.08	40	120	80
M	Austenitic	190	0.08	0.14	0.08	100	180	140
	Ferritic & Martensitic	220	0.06	0.10	0.08	60	120	90
K	Nodular Cast Iron	150	0.06	0.14	0.10	120	210	120
	Grey Cast Iron	150	0.06	0.12	0.10	120	190	150
S	Heat Resistant and Super Alloys	240	0.07	0.10	0.08	40	70	50
H	Hardened Material	45 HRc	0.04	0.10	0.07	30	70	50

MGMN 4004-BP

Material			Cutting Conditions					
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)		
			Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.08	0.16	0.10	120	250	180
	Low Alloy	200	0.08	0.15	0.09	110	220	160
	High Alloy	220	0.07	0.13	0.08	40	120	80
M	Austenitic	190	0.08	0.14	0.08	100	180	140
	Ferritic & Martensitic	220	0.06	0.10	0.08	60	120	90
K	Nodular Cast Iron	150	0.06	0.14	0.10	120	210	120
	Grey Cast Iron	150	0.06	0.12	0.10	120	190	150
S	Heat Resistant and Super Alloys	240	0.07	0.10	0.08	40	70	50
H	Hardened Material	45 HRc	0.04	0.10	0.07	30	70	50

MGMN 5008-BN

Material			Cutting Conditions					
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)		
			Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.12	0.20	0.16	120	250	180
	Low Alloy	200	0.12	0.18	0.14	110	220	160
	High Alloy	220	0.08	0.14	0.10	40	120	80
M	Austenitic	190	0.08	0.14	0.08	100	180	140
	Ferritic & Martensitic	220	0.08	0.12	0.10	60	120	90
K	Nodular Cast Iron	150	0.06	0.14	0.10	120	210	120
	Grey Cast Iron	150	0.06	0.12	0.10	120	190	150
S	Heat Resistant and Super Alloys	240	0.06	0.12	0.08	40	70	50
H	Hardened Material	45 HRC	0.04	0.10	0.10	30	70	50

MGMN 5008-BP

Material			Cutting Conditions					
Group	Sub Group	Hardness (HB)	Feed f (mm/rev.)			Speed Vc (m/min.)		
			Min.	Max.	Recommend	Min.	Max.	Recommend
P	Non Alloy	120	0.12	0.20	0.16	120	250	180
	Low Alloy	200	0.12	0.18	0.14	110	220	160
	High Alloy	220	0.08	0.14	0.10	40	120	80
M	Austenitic	190	0.08	0.14	0.08	100	180	140
	Ferritic & Martensitic	220	0.08	0.12	0.10	60	120	90
K	Nodular Cast Iron	150	0.06	0.14	0.10	120	210	120
	Grey Cast Iron	150	0.06	0.12	0.10	120	190	150
S	Heat Resistant and Super Alloys	240	0.06	0.12	0.08	40	70	50
H	Hardened Material	45 HRC	0.04	0.10	0.10	30	70	50



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