

YU-IT23
AMERICA
2022-2023

PDF Version



CUTTING TOOLS



INDEXABLE INSERTS

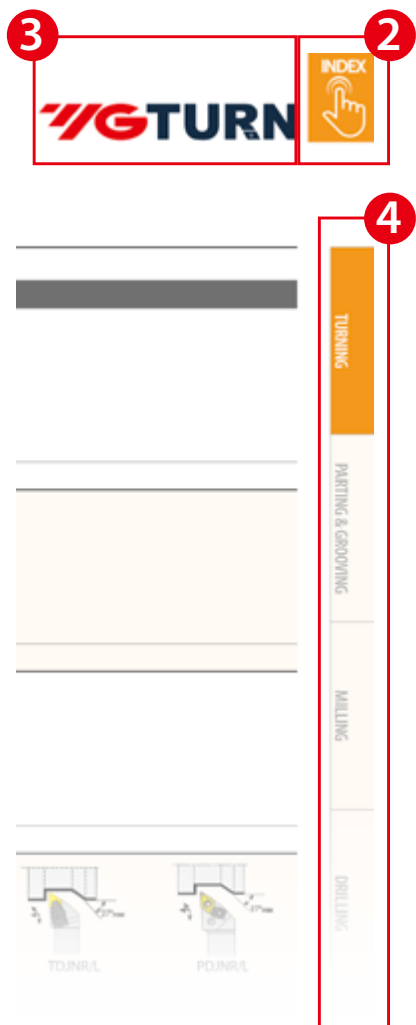
 YG-1 CO., LTD.

Contents		Page
1	External Turning Holder Code	4
1	Internal Turning Holder Code	6
	Insert ISO Code System	8
	Grade Naming System	10
	Turning Grades Map	11
	Turning Grades	12

Type	Series	Size & Thickness			Page
	CNMA	1204	1606	1906	62
	CNMG	1204	1606	1906	
	DNMA	1504	1506		65
	DNMG	1504	1506		
	KNUX		1604		68

Series	Turning Holder	
CCGT CCMT	Screw SCACRL	Screw SCLCRL
p. 80	p. 31	p. 31

6	7	8	9
3	2	-UG	YG3020
Insert thickness	Corner Radius	Chipbreaker Geometry	Grade

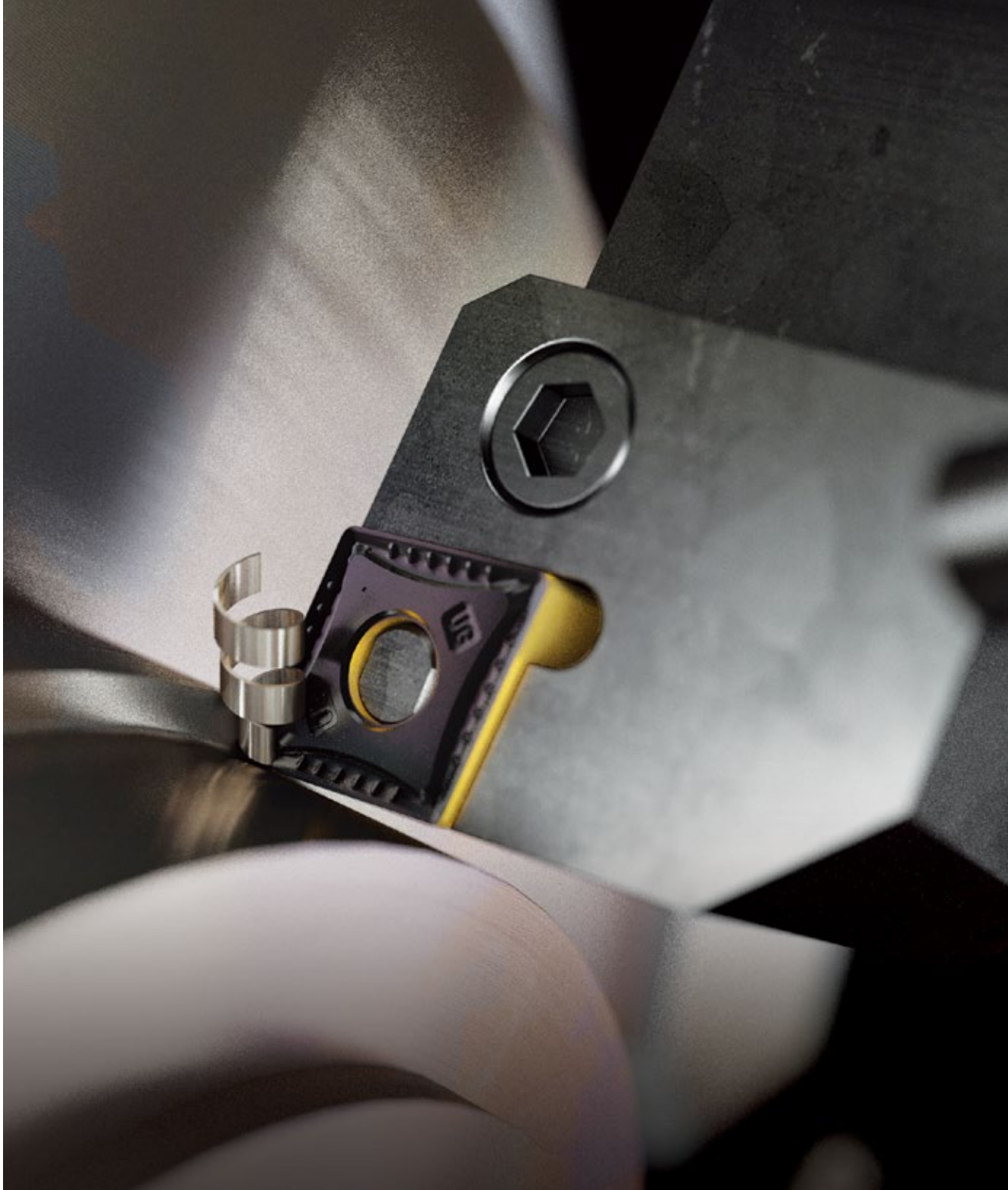


If you Click an icon or page number, you can easily find information as below;

- 1 Go to the page
- 2 Go to the Index
- 3 Go to the Overview
- 4 Go to the section
- 5 Watch the video



Contents		Page	
Turning	External Turning Holder Code	4	
	Insert ISO Code System	6	
	Grade Naming System	8	
	Turning Grades Map	9	
	Turning Grades	10	
	Turning Chip breakers	12	
	Application Guide	Steel Guide	15
		Surface Roughness Guide	21
		Trouble Shooting	22
		Inserts Overview	25
	Product	Negative Inserts	26
		Positive Inserts	52
	External Holders Overview	61	
	Product	External Holders	62
Parting & Grooving	Overview	68	
	Product	Parting & Grooving Inserts	69
Milling	Milling Cutter Code Keys	71	
	Insert ISO Code System	72	
	Milling Grades and Chip breakers	74	
	Milling Cutter Overview	76	
	Milling Inserts Overview	78	
	Product	Face Milling Cutters	79
		Face Milling Inserts	84
		Shoulder Milling Cutters	95
		Shoulder Milling Inserts	97
		Profiling Cutters	103
Profiling Inserts		104	
High Feed Milling Cutter		107	
High Feed Milling Inserts		110	
Drilling	Drilling Overview	114	
	Product	Drilling Inserts	115
Technical Information	ISO 13399 Terms	118	
	Hardness Conversion Table	119	
	Formulas	120	
	Material Groups	121	
	Comparison Chart - Turning	138	
	Comparison Chart - Milling	140	
	ISO ↔ ANSI	141	
	Search	142	



ISO TURNING

Product Overview

Application Guide

Turning Holders Overview

Turning Holders

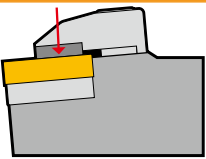
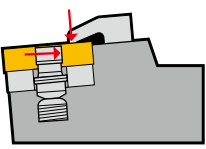
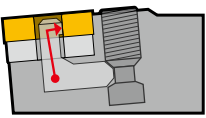
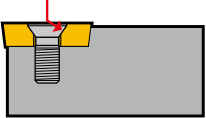
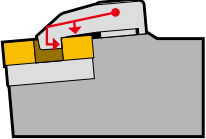
Turning Inserts Overview

Turning Inserts

External Turning Holder Code (Inch)

*Inch	1	2	3	4	5	6	7	8
	M	C	L	N	R	12	4	B
	Clamping System	Insert Shape (1st Letter of Insert)	Tool Style	Insert Clearance (2nd Letter of Insert)	Tool Hand	Shank Width(B) & Height(H)	Insert Size	Length (LF)

1 - Clamping System

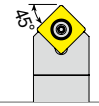
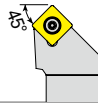
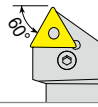
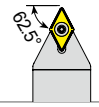

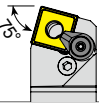
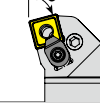
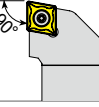
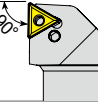
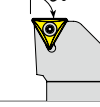
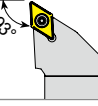
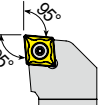
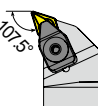
Symbol	System
C	 Top Clamp (No Clamping Hole Insert)
M	 Pin & Top Clamp (Straight Clamping Hole Insert)
P	 Lever Lock (Straight Clamping Hole Insert)
S	 Screw (Screw Clamping Hole Insert)
D (T)	 Hole Clamp (Straight Clamping Hole Insert)

2, 4 — Insert Compatibility *



* Related to Insert Designation to check compatibility

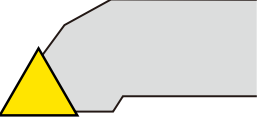
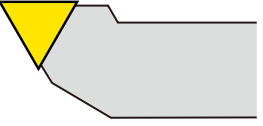

3 - Tool Style

Approach Angle (KAPR)	Side Direction		End Direction
	Straight Shank	Offset Shank	
45°	D 	S 	
60°		T 	
63°	N 		
72.5°	V 		
75°	B 		K 
90°	A 	G 	F 
93°		J 	U
95°		L (Both Directions) 	
107.5°		H 	

External Turning Holder Code (Inch)

*Inch	1	2	3	4	5	6	7	8
	M	W	L	N	R	16	3	D
	Clamping System	Insert Shape (1st Letter of Insert)	Tool Style	Insert Clearance (2nd Letter of Insert)	Tool Hand	Shank Width(B) & Height(H)	Insert Size	Length (LF)

5 - Hand Direction

Symbol	Hand Direction
R	Right Hand 
L	Left Hand 
N	Neutral 

7 - Insert Size *

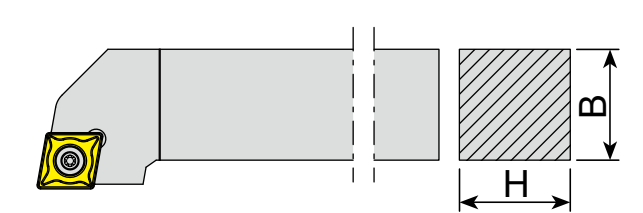
Example	is Compatible with...
MCLNR 12 4B	CNMG432
MTJNR 16 3B	TNMG331

* Related to Insert Designation to check compatibility

8 - Length (LF)

Symbol	Length (Inch)	Symbol	Length (Inch)
A	4.000	M	4.000
B	4.500	N	4.500
C	5.000	P	5.000
D	6.000	R	6.000
E	7.000	S	7.000
F	8.000	T	8.000
G	5.500	U	5.500
H	5.625	V	3.500
J	5.300	W	3.500
K	14.000	Y	3.750
L	6.800	X	Special

6 - Shank Height (H) Shank Width (B)



Number	Hight (H)	Width (B)	Number	Hight (H)	Width (B)
10	.625	.625	06	.375	.375
12	.75	.75	05	.3125	.3125
16	1.00	1.00	64	.75	1.00
20	1.25	1.25	66	1.75	1.50
24	1.50	1.50	85	1.00	1.25
32	2.00	2.00	86	1.00	1.50
08	.50	.50	91	1.25	1.50

Insert ISO Code System

*Metric : According to ISO 1832

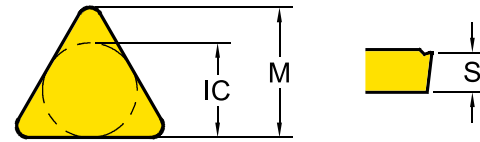
1	2	3	4	5	6	7	8	9
C	N	M	G	12	04	08	-UG	YG3020
Shape	Clearance	Tolerance	Clamping & Chipbreaker	Insert Size	Insert Thickness	Corner Radius	Chipbreaker Geometry	Grade

1 - Shape

Symbol	Shape	
H	Hexagonal	
O	Octagonal	
P	Pentagonal	
S	Square	
T	Triangular	
C	Rhombic 80°	
D	Rhombic 55°	
V	Rhombic 35°	
W	Trigon	
L	Rectangular	
K	Parallelogram 55°	
R	Round	

2 - Relief Angle (AN)

Symbol	Relief Angle (AN)	
N	No Relief Angle	
B	Relief 5°	
C	Relief 7°	
P	Relief 11°	
D	Relief 15°	
E	Relief 20°	
F	Relief 25°	
O	Special	



3 - Tolerance Class

Symbol	Inner Circle IC (inch)	Nose Height M (inch)	Thickness S (inch)
C	±.0010	±.0005	±.0010
E	±.001	±.0010	±.001
G	±.001	±.0010	±.005
H	±.0005	±.0005	±.0010
K*	±.002~.006*	±.0005	±.005
M*	±.002~.006*	±.003~.010*	±.005
U*	±.003~.010*	±.005~.015*	±.005

*Tolerance is differs by insert IC size. Please see ISO 1832

4 - Clamping & Chip breaker

Symbol	Clamping	Chipbreaker	Figure
N	No clamping hole	X	
R		One Face	
A	Cylindrical clamping hole	X	
M		One Face	
G		Both Faces	
W	Screw hole	X	
T		One Face	
U		Both Faces	
X		Special	

Insert ISO Code System

*Inch

1	2	3	4	5	6	7	8	9
C	N	M	G	4	3	2	-UG	YG3020
Shape	Clearance	Tolerance	Clamping & Chipbreaker	Insert Size	Insert Thickness	Corner Radius	Chipbreaker Geometry	Grade

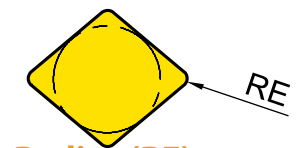
5 - Insert Size

Metric							Inner Circle IC (inch)	Inch
S	T	C	D	V	W	R		
06	11	06	07	11			1/4	2
07							5/16	2.5
09	16	09	11	16	06	09 (00)	3/8	3
12	22	12	15	22	08	12 (00)	1/2	4
15		16					5/8	5
19		19					3/4	6
25		25					1	8
						06 (M0)	.236	
						08 (M0)	.315	
						10 (M0)	.394	
						12 (M0)	.472	
						16 (M0)	.630	



6 - Insert Thickness (S)

Metric	Thickness - S (inch)	Inch
T1	5/64	1.2
02	3/32	1.5
03	1/8	2
T3	5/32	2.5
04	3/16	3
05	7/32	3.5
06	1/4	4
07	5/16	5
09	3/8	6



7 - Corner Radius (RE)

Metric	Corner Radius - RE (inch)	Inch
01	.004	0
02	.008	0.5
04	1/64	1
08	1/32	2
12	3/64	3
16	1/16	4
20	5/64	5
24	3/32	6

Grade Naming System

1	2	3	4	5	(6)
YG	3	0	2	0	(G)
YG Brand	Workpiece Material	Grade Version	Application Range (1st Digit)	Application Range (2nd Digit)	Minor Variation
Carbide CVD (4 Digits)	●	●	●	●	YG3020
Carbide PVD (3 Digits)	●	●	●		YG211
Carbide Uncoated (2 Digits)	●	●			YG10

1 - YG Brand

2 - Workpiece Material

Symbol	Workpiece Material	Turning	Milling	Drilling	Parting
1	K Cast Iron or N Non-Ferrous	●			
2	M Stainless Steel	●			
3	P Steel	●			
4	S Superalloys	●			
5	K Cast Iron or N Non-Ferrous		●	●	●
6	M Stainless Steel or Universal		●	●	●
7	P Steel		●	●	●
8	Universal	●			

3 — Grade Version

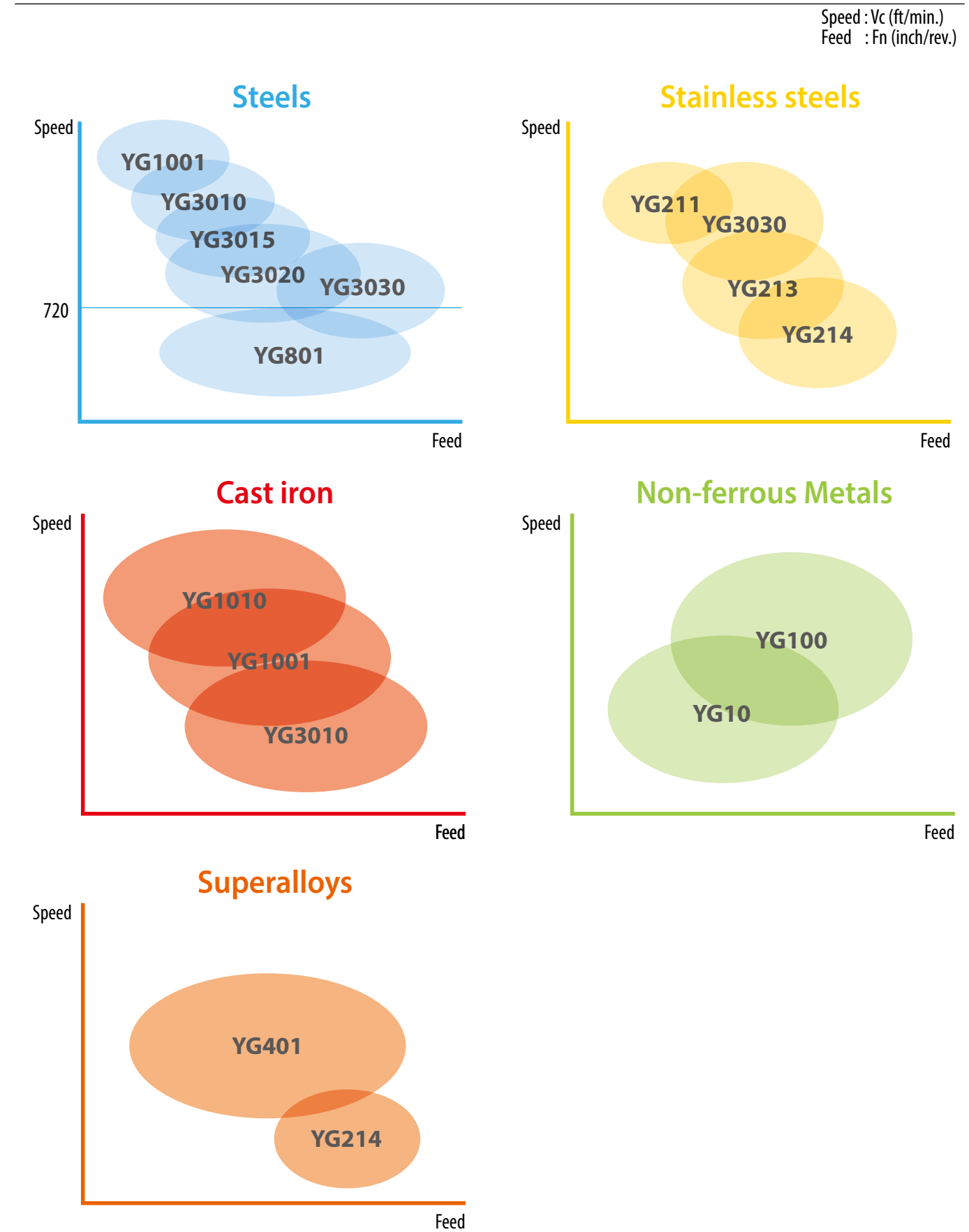
4 & 5 — Application Range

Symbol	Description
05	Stable Wear Resistant Grade Stable Application Continuous Cut Finishing
10	
15	
20	General Balanced Grade High Versatility General Application
25	
30	
35	Unstable Tougher Grade Unstable Application Interrupted Cut Chipping Resistance Roughing
40	
45	

(6) — (Minor Variation)

G — Gold Coated Version

Product Overview Turning Grades Map



Product Overview
Turning Grades

Turning Grades	P Steel				M Stainless steel			K Cast iron			N Non-ferrous		S Superalloys	
	P10	P20	P30	P40	M10	M20	M30	K10	K20	K30	N10	N20	S10	S20
CVD	YG1010							1010						
	YG1001	1001						1001						
	YG3010	3010						3010						
	YG3015	3015												
	YG3020		3020											
	YG3030			3030		3030								
PVD	YG801	801												
	YG211				211									
	YG213					213								
	YG214						214						214	
	YG401												401	
DLC	YG100										100			
-	YG10										10			

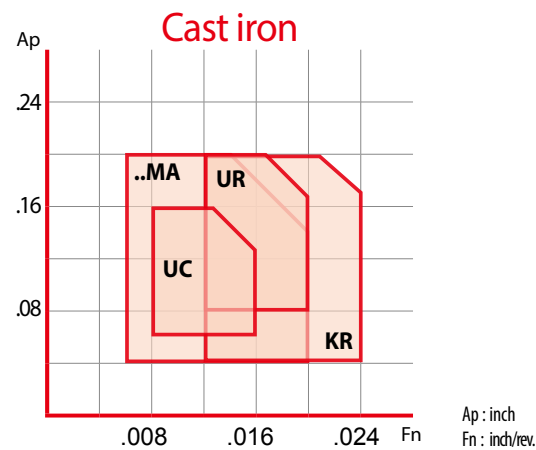
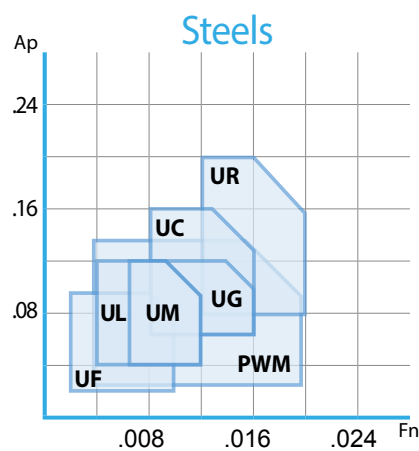
YG1010 K05 - K15		First Choice for Cast Iron <ul style="list-style-type: none"> Effective coating structure enables high speed machining Special post treatment for improved chipping resistance
YG1001 P01 - P10 K10 - K25		First Choice for Stable Machining of Cast Iron <ul style="list-style-type: none"> Substrate especially designed for high wear resistance Thick Al₂O₃ layer ensures good wear resistance at high cutting speeds including dry machining
YG3010 P05 - P20 K15 - K35		First Choice for Finishing Steels, and Ductile Cast iron <ul style="list-style-type: none"> Finishing and light machining of steel under in stable condition New Al₂O₃ coating technology and excellent surface smoothness increase wear resistance and chipping resistance
YG3015 P10 - P25		Balanced Productivity for Continuous Cut <ul style="list-style-type: none"> High wear resistance and improved toughness ensures high productivity with less trouble

Product Overview
Turning Grades

YG3020 P15 - P30		First Choice Grade for General Steel Application <ul style="list-style-type: none"> Substrate especially designed for good toughness Excellent surface smoothness increases wear resistance and reliability
YG3030 P20 - P35 M10 - M30		Interrupted Cutting of Steel and Stainless steel <ul style="list-style-type: none"> Substrate for heavy roughing in mild steel and low carbon alloy steel New Al₂O₃ technology and optimized surface treatment achieves a good balance between wear resistance and chipping resistance
YG801 P10 - P30		for Carbon Steel with Low Cutting Speed <ul style="list-style-type: none"> Recommended for mild steel and boring application Substrate and special PVD coating for excellent wear resistance
YG211 M05 - M25		High wear Resistance Grade for Stainless steel <ul style="list-style-type: none"> Finishing Stainless steel
YG213 M20 - M35		First Choice Grade on Low Cutting Speed of Stainless steel <ul style="list-style-type: none"> First choice on Stainless steel for Low cutting speed For Medium to low cutting speed
YG214 M30 - M40 S25 - S30		Heavy Interrupted cut for Stainless steel <ul style="list-style-type: none"> For Heavy Interrupted cut on Stainless steel Minimize risk of Mechanical fracture or Chipping
YG401 S10 - S20		PVD Turning Grade for HRSA <ul style="list-style-type: none"> Highly heat-resistant TiAlSiN structure for excellent wear resistance Greatly improved film coating realizes excellent boundary defect resistance Top coating layer provides a smooth surface and lubricant effect
YG100 N05 - N25		First Choice Grade for Aluminum with DLC Coating <ul style="list-style-type: none"> Submicron carbide for high wear resistance DLC coating minimizes Built Up Edge tendency. Improve tool life in sticky non-ferrous alloy
YG10 N05 - N25		Uncoated Grade for General Aluminum <ul style="list-style-type: none"> Substrate consisted of submicron carbide for high wear resistance Shining surface to prevent built up edge

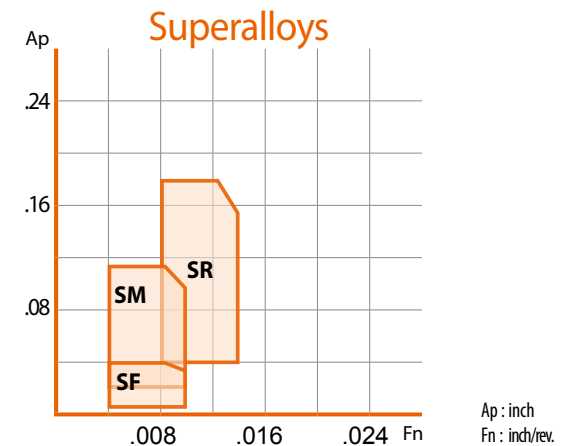
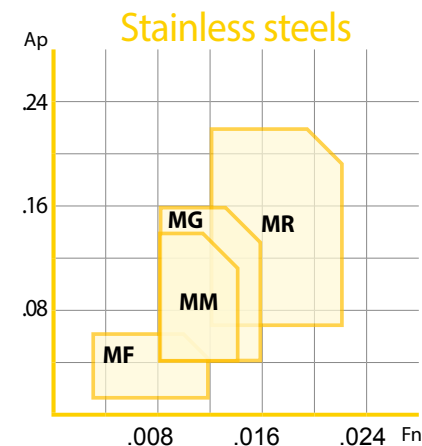
Turning Chip breakers - Negative

P	M	K	N	S		Feed									
						0	.004	.008	.012	.016	.020	.024			
P					UF	Finishing		Fn .002~.010 Ap .02~.10							
P					UL	Semi-finishing and Sticky materials		Fn .004~.012 Ap .04~.12							
P					UM	For Medium & Unstable conditions		Fn .006~.012 Ap .04~.12							
P					UG	First Choice for Medium (Stable application)		Fn .008~.016 Ap .06~.12							
P					PWM	Wiper-Medium		Fn .004~.020 Ap .02~.14							
P		K			UC	Medium Roughing and First choice for Cast iron		Fn .008~.016 Ap .06~.16							
P		K			UR	Roughing and Heavy interrupted cut		Fn .012~.020 Ap .08~.20							
		K			..MA	Cast iron Heavy Roughing		Fn .006~.020 Ap .04~.20							



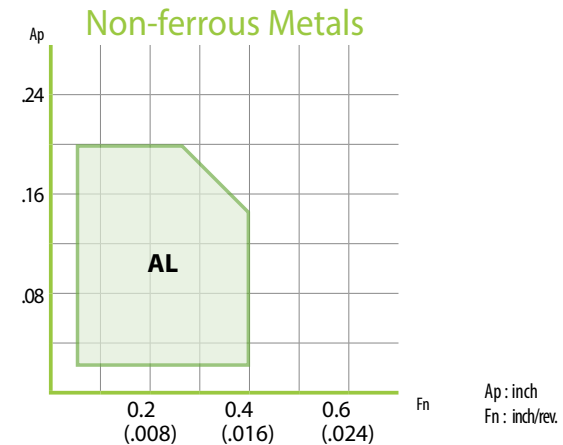
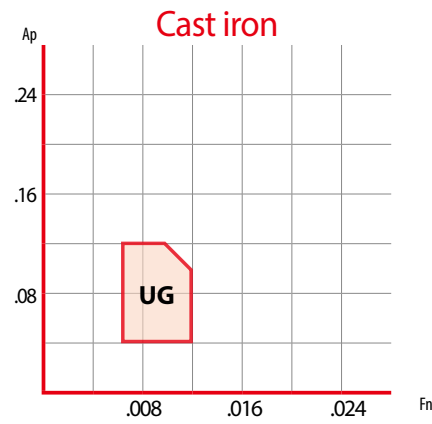
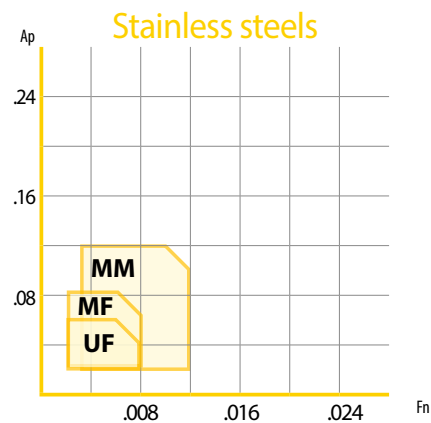
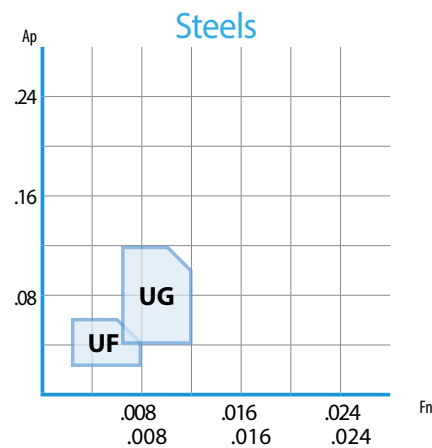
Turning Chip breakers - Negative

P	M	K	N	S		Feed									
						0	.004	.008	.012	.016	.020	.024			
		K			KR	Cast Iron Heavy Roughing		Fn .012~.024 Ap .04~.20							
	M			S	MF	Stainless steel Finishing		Fn 0.07~0.30 Ap 0.2~1.5							
P	M			S	MM	Stainless steel Medium		Fn 0.20~0.35 Ap 1.0~3.5							
	M			S	MG	General for Stainless steel		Fn 0.20~0.40 Ap 1.0~4.0							
	M			S	MR	Roughing for Stainless steel		Fn 0.30~0.55 Ap 1.8~5.5							
				S	SF	HRSA Finishing		Fn 0.10~0.25 Ap 0.2~1.0							
				S	SM	HRSA Medium		Fn 0.10~0.25 Ap 0.5~3.0							
				S	SR	Roughing for HRSA		Fn 0.20~0.35 Ap 1.0~4.5							



Turning Chip breakers - Positive

P M K N S					Feed						
					0	.004	.008	.012	.016	.020	.024
			N		AL Aluminum Application 						Fn .002~.016 Ap .02~.20
P	M				UF Finishing Application 						Fn .002~.008 Ap .02~.06
P		K			UG Medium Application 						Fn .006~.012 Ap .04~.12
	M				MF Stainless steel Finishing 						Fn .002~.008 Ap .02~.08
	M				MM Stainless steel Medium 						Fn .003~.012 Ap .02~.12
					0 .04 .08 .12 .16 .20 .24						Depth of Cut
											Ap (inch)



Steel Guide

Grade Recommendation based on Workpiece Material Condition

	Pre Machined Condition No Outer Skin Uniform hardness on material Has stable machining condition
	Welded Condition Soft / No Outer Skin Weld Bead Could be of Different Hardness than Actual Part Stock on Part could even except weld Seam during Machining causing shock loads
	Cast Condition Hard Outer Skin Could have Sand Inclusion, -if Green Sand Cast Component could have uneven Stock during machining
	Hot Rolled Condition Soft / No Outer Skin Usually heat treated before machine to reduce Hardness Component could have uneven Stock During Machining
	Forged Condition Soft Outer Skin Usually heat treated before machine to reduce Hardness Component could have uneven Stock during machining

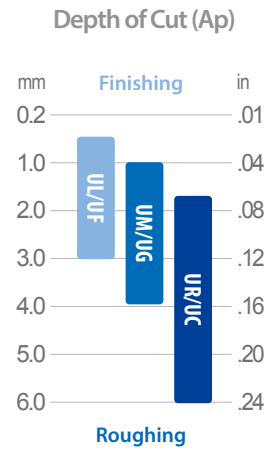
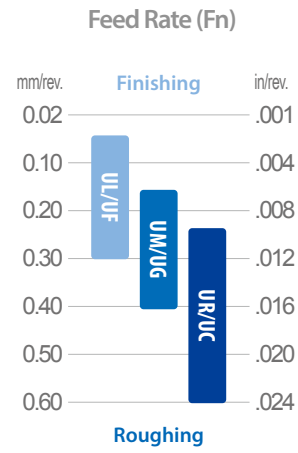
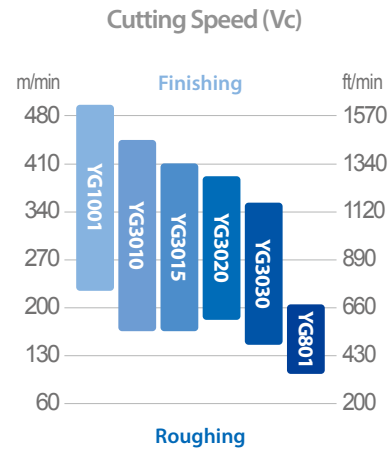


Chipbreaker, Feed Rate and Depth of Cut

		Sharp Edge	General	Strong Edge
Continuous				
General				
Heavy Interrupt				

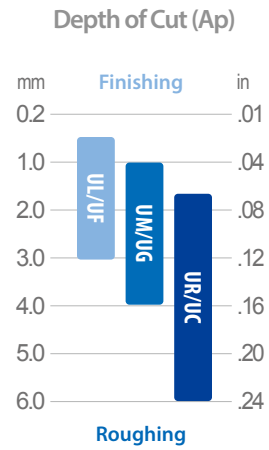
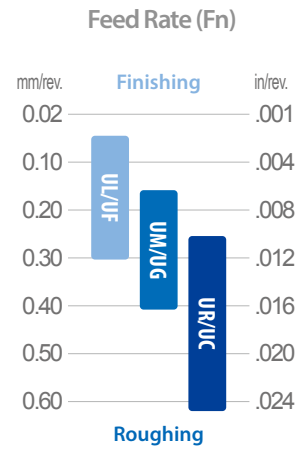
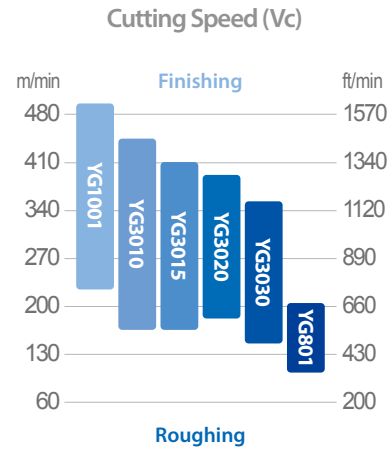
Application Guide Steel Guide

P Non Alloy Steel, About 0.15% C (Low Carbon Steel)										
VDI	JIS	DIN	Mat'l No.	AISI/ASTM	SS	AFNOR	UNI	UNE	BS	GOST
1	S15C	CK15	1.0401	1015	1350	XC18	C15	F.1110	080M15	15



First Choice Grade and Value
YG3010 - Vc 330m/min (1,080ft/min)
YG801 - Vc 170m/min (560ft/min)

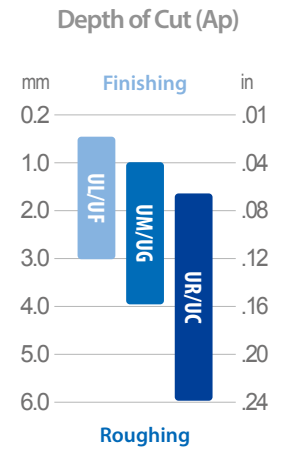
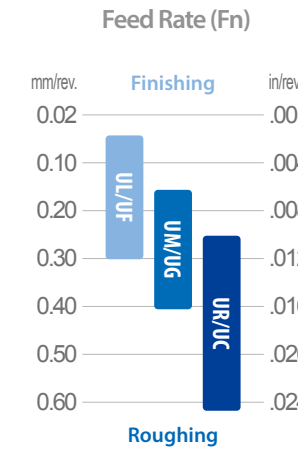
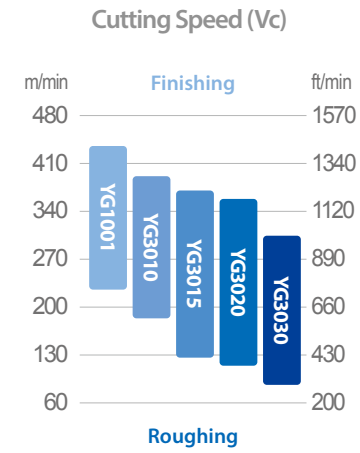
P Non Alloy Steel, About 0.45% C (Medium Carbon Steel)										
VDI	JIS	DIN	Mat'l No.	AISI/ASTM	SS	AFNOR	UNI	UNE	BS	GOST
2-3	S45C	C45	1.0503	1045	1672	XC42H1TS	C45	F.1140	060A47	45



First Choice Grade and Value
YG3010 - Vc 330m/min (1,080ft/min)
YG801 - Vc 170m/min (560ft/min)

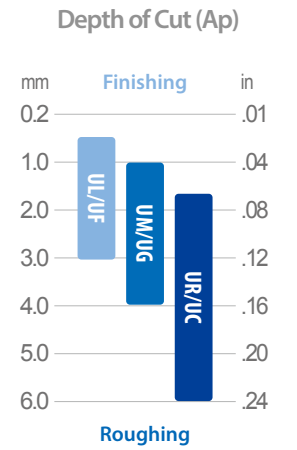
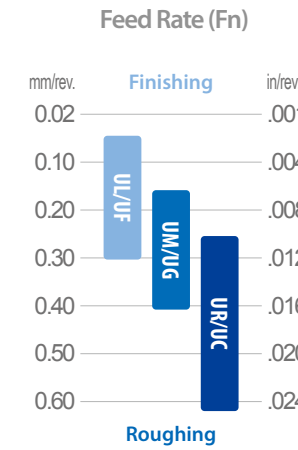
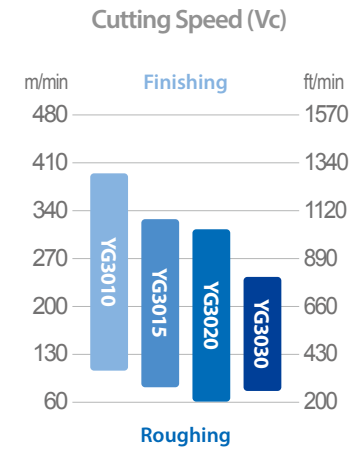
Application Guide Steel Guide

P Low-alloyed Steel										
VDI	JIS	DIN	Mat'l No.	AISI/ASTM	SS	AFNOR	UNI	UNE	BS	GOST
6-9	SCM440	42CrMo4	1.7225	4140	2244	42 CD 4	42CrMo4	F.1252	708M40	38HM



First Choice Grade and Value
YG3020 - Vc 240m/min (790ft/min)

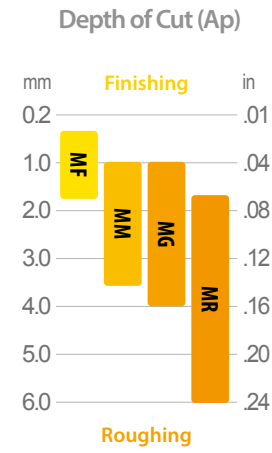
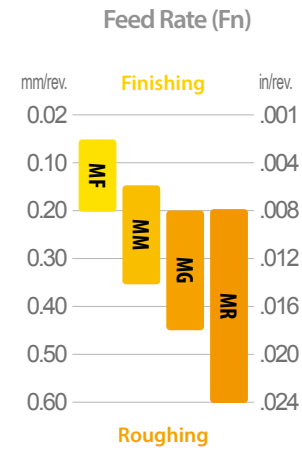
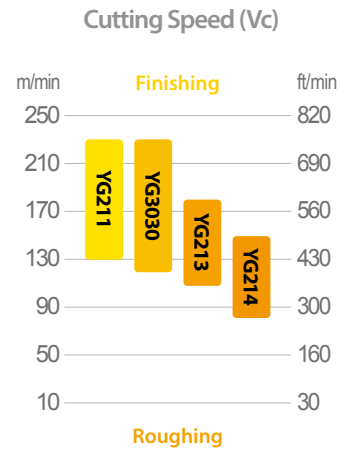
P High Alloyed Steel, and Tool Steel										
VDI	JIS	DIN	Mat'l No.	AISI/ASTM	SS	AFNOR	UNI	UNE	BS	GOST
10-11	SKD11	X155CrVMo121	1.2379	D2	2310	Z160CDV12	X165CrMoW12KU	F.5318	BD2	KH12MF



First Choice Grade and Value
YG3020 - Vc 230m/min (750ft/min)

Application Guide Stainless steel Guide

M	Ferritic / Martensitic Stainless									
VDI	JIS	DIN	Mat'l No.	AISI/ASTM	SS	AFNOR	UNI	UNE	BS	GOST
12-13	SUS430	X6Cr17	1.4016	430	2320	Z8C17	Z8C17	F3113	430S15	12C17

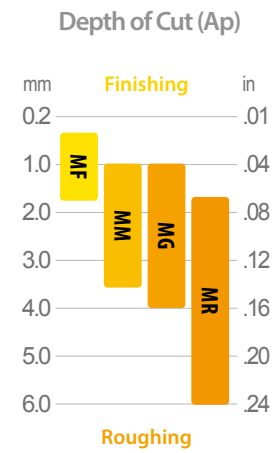
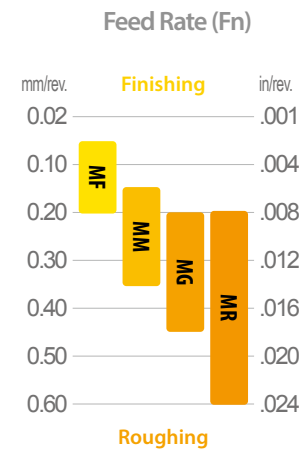
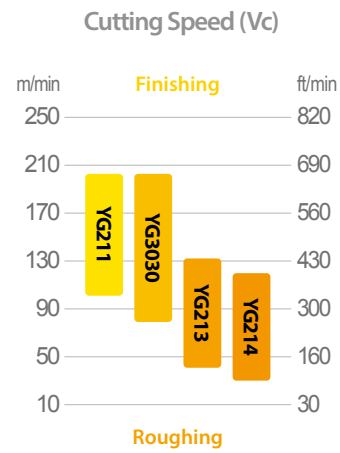


First Choice Grade and Value

Ferritic Stainless steel
YG3030 - Vc 200m/min (660ft/min)
YG213 - Vc 160m/min (520ft/min)

Martensitic
YG3030 - Vc 160m/min (520ft/min)
YG213 - Vc 130m/min (430ft/min)

M	Austenitic Stainless steel									
VDI	JIS	DIN	Mat'l No.	AISI/ASTM	SS	AFNOR	UNI	UNE	BS	GOST
14	SUS304	X5CrNi18 9	1.4350	304	2332	Z6CN18 09	X5CrNi18 10	F3551	304S15	03KH18N11

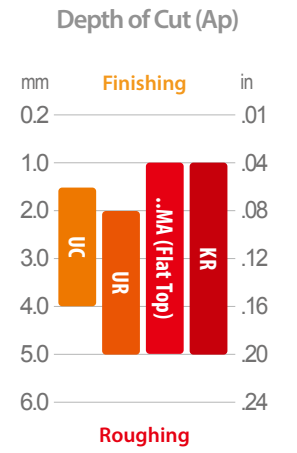
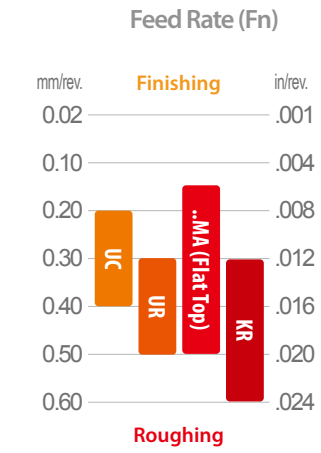
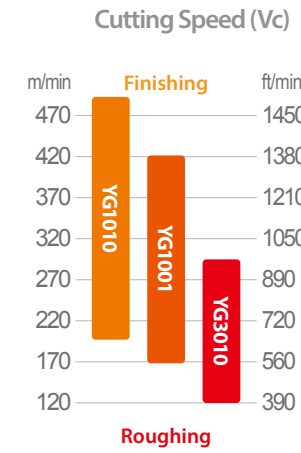


First Choice Grade and Value

YG3030 - Vc 180m/min (590ft/min)
YG213 - Vc 140m/min (460ft/min)

Application Guide Cast iron Guide

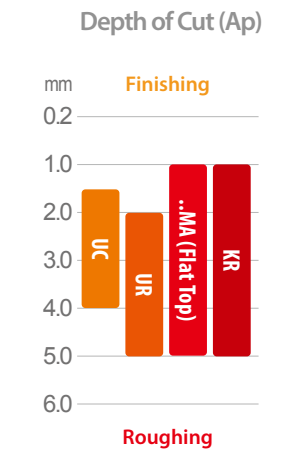
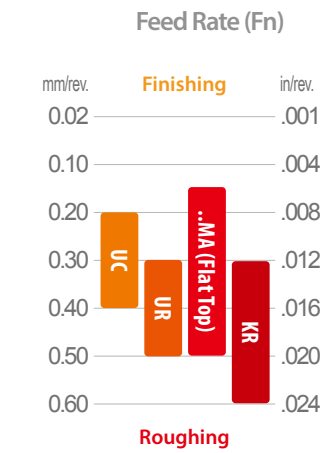
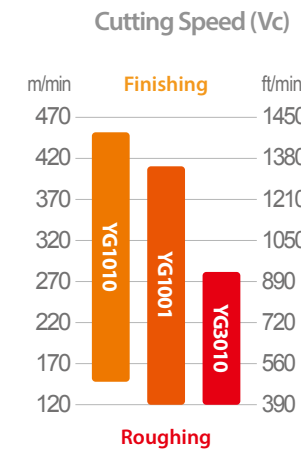
K	Grey cast iron									
VDI	JIS	DIN	Mat'l No.	AISI/ASTM	SS	AFNOR	UNI	UNE	BS	GOST
15-16	FC250	GG25	0.6025	A48 40 B	0125	Ft 25 D	G25	FG25	Grade 260	Sc 25



First Choice Grade and Value

YG1010 - Vc 370m/min (1,214ft/min)

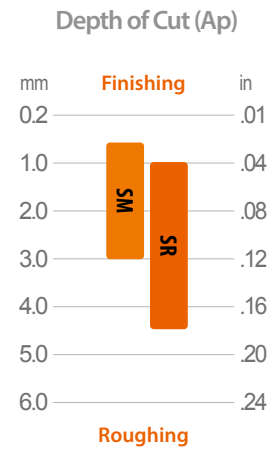
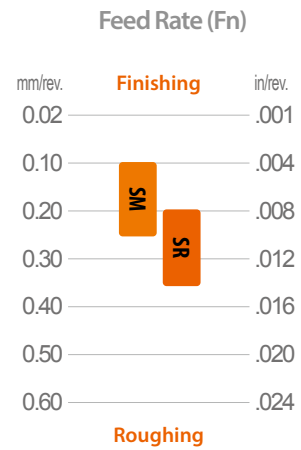
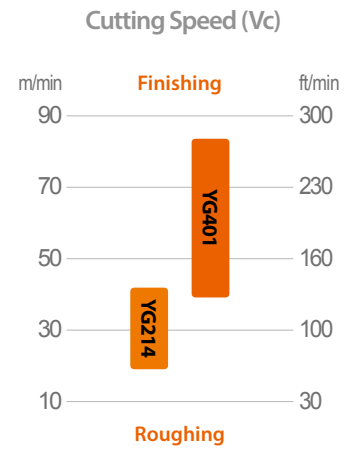
K	Nodular cast iron									
VDI	JIS	DIN	Mat'l No.	AISI/ASTM	SS	AFNOR	UNI	UNE	BS	GOST
17-18	FCD500	GGG50	0.7050	80-55-06	0.7050	FGS 500-7	GS 500-7	FGE50-7	SNG 500-7	Vc 50-2



First Choice Grade and Value

YG1010 - Vc 230m/min (755ft/min)

S Superalloys & Titanium Alloys										
VDI	DIN	Mat'l No.	AISI/ASTM	AFNOR	BS	UNS	Brands	UNE	BS	GOST
31~37	NCr19Fe19NbMo	2.4668	5383	NC19eNB	HR8	N07718	Inconel 718	F3113	430S15	12C17



First Choice Grade and Value
YG401 - Vc 50m/min (164ft/min)

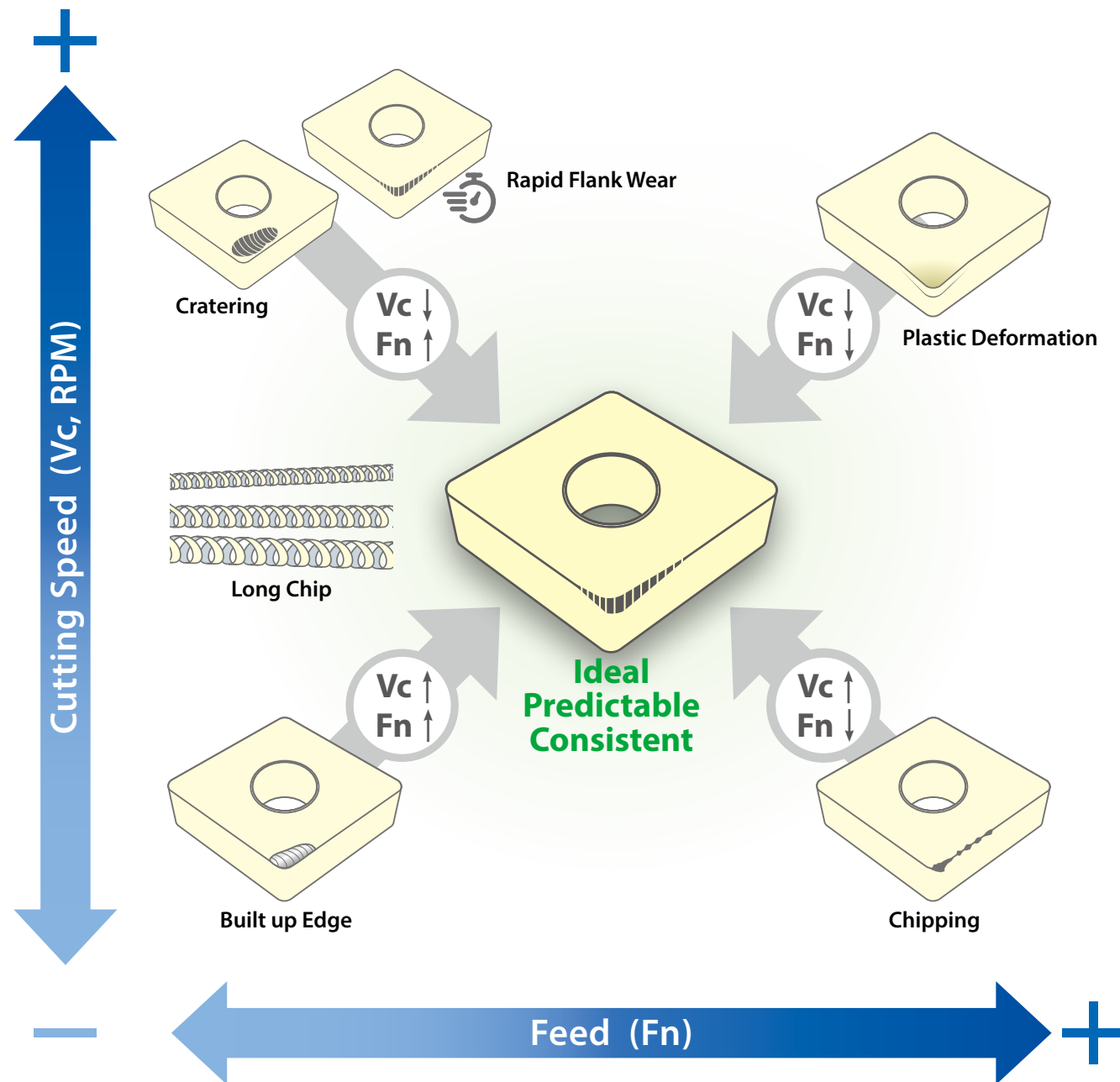
Trouble Shooting

Pattern	Reasons	Solutions
<p>Vibration</p>	<ul style="list-style-type: none"> - High radial or tangential force - Unstable condition 	<ul style="list-style-type: none"> - Lower depth of cut (ap) - Use sharper chipbreaker - Check stability, and position of tool and workpiece - Reduce the overhang (bigger and shorter tool)
<p>Bad Surface</p>	<ul style="list-style-type: none"> - Work material is damaged by chips - Feed is too high for corner radius 	<ul style="list-style-type: none"> - Different chipbreaker - Lower depth of cut (ap) - Lower feed - Bigger corner radius

Theoretical Surface Roughness

Ra / Rz μm (μ inch)	Insert Corner Radius Code ISO (ANSI)					
	ISO ANSI					
	02 (0)	04 (1)	08 (2)	12 (3)	16 (4)	24 (6)
Feed Rate mm/rev (inch/rev)						
0.4 / 1.6 (16 / 64)	0.05 (.002)	0.07 (.003)	0.1 (.004)	0.12 (.005)	0.14 (.006)	0.18 (.007)
1.6 / 6.3 (64 / 256)	0.1 (.004)	0.14 (.006)	0.2 (.008)	0.25 (.010)	0.28 (.011)	0.35 (.014)
3.2 / 12.5 (128 / 512)	0.14 (.006)	0.2 (.008)	0.28 (.011)	0.35 (.014)	0.4 (.016)	0.49 (.019)
6.3 / 25 (250 / 1000)	-	0.28 (.011)	0.4 (.016)	0.49 (.019)	0.57 (.022)	0.69 (.027)
8 / 32 (320 / 1280)	-	-	0.45 (.018)	0.55 (.022)	0.64 (.025)	0.78 (.031)

Trouble Shooting Guide map



Application Guide
Trouble Shooting

Pattern	Reasons	Solutions
<p>General Flank Wear</p> <p>Flank face near by corner is abraded</p>	<ul style="list-style-type: none"> - The most ideal wear - Consistent and predictable - General wear behavior when machining condition is normal 	
<p>Rapid Flank Wear</p> <p>Looks same as general flank wear, but happens quickly</p>	<p>Grade</p> <ul style="list-style-type: none"> - Not enough wear resistance - Too tough grade <p>Heat</p> <ul style="list-style-type: none"> - Cutting speed is too high - Not enough coolant 	<ul style="list-style-type: none"> - More wear resistant grade - Reduce the cutting speed (Vc, SFM, RPM or SFPM) - Optimize coolant - Increase Feed (Fn) if feed is low
<p>Plastic Deformation</p> <p>Deformed Edge</p>	<ul style="list-style-type: none"> - Excess thermal load - Excess mechanical load 	<ul style="list-style-type: none"> - Reduce cutting temperature - More wear resistant grade - Reduce the cutting speed (Vc, SFM, RPM or SFPM) - Lower feed (Fn) - Lower depth of cut (ap) - Optimize coolant
<p>Built up Edge</p> <p>Workpiece material is welded on the cutting edge</p>	<ul style="list-style-type: none"> - Sticky materials (low carbon steel, Stainless steel, non-ferrous metal, heat resistant super alloys) - Too low cutting speed 	<ul style="list-style-type: none"> - Increase cutting speed - Lower feed rate - Sharper chipbreaker & geometry - Use high pressure coolant - Use PVD grade - Use Positive Insert
<p>Cratering</p>	<p>Heat</p> <ul style="list-style-type: none"> - Cutting speed is too high - Too tough grade 	<ul style="list-style-type: none"> - Reduce cutting temperature - Lower cutting speed (Vc, SFM, RPM or SFPM) - Adjust Feed (Fn) - Harder grade

Pattern	Reasons	Solutions
<p>Chipping</p>	<ul style="list-style-type: none"> - Unstable machining condition (Vibration) - Grade is too hard / brittle - Grade is too sharp 	<ul style="list-style-type: none"> - Focus on stabilizing cutting condition - Reduce overhang (shorter and bigger tool) - Tougher grade - Tougher chipbreaker
<p>Thermal Crack</p>	<ul style="list-style-type: none"> - Thermal stress due to rapid change of temperature 	<ul style="list-style-type: none"> - Tougher grade - Lower cutting speed (Vc, SFM, RPM or SFPM) - Lower feed (Fn) - Sharper chipbreaker - Change coolant / dry cut
<p>Notching</p>	<ul style="list-style-type: none"> - Improved edge strength work piece has hardened skin 	<ul style="list-style-type: none"> - More wear resistant grade - Reduce the cutting speed (Vc, SFM, RPM or SFPM) - Adjust Feed (Fn) - Lower depth of cut (ap) - Optimize coolant - Go for tougher chipbreaker
<p>Breakage (Mechanical Fracture)</p>	<ul style="list-style-type: none"> - Mechanical load is too heavy (feed or depth is too high) - Heavy interrupted cut - Grade is too hard for work material - Unstable machining (vibration) - Cutting speed is too low - Impurities in work material 	<ul style="list-style-type: none"> - Lower feed (Fn) or depth of cut (ap) - Tougher grade - Reduce overhang and check stability of tool and work material - Higher cutting speed (Vc, SFM, RPM or SFPM)
<p>Long Chip</p>	<ul style="list-style-type: none"> - Feed is too low for chipbreaker - Depth of cut is too shallow for corner radius - Chip area (Fn x Ap) too low 	<ul style="list-style-type: none"> - Higher feed - Sharper chipbreaker - Higher depth of cut - Select a smaller corner radius

Turning Inserts Overview

Negative Inserts

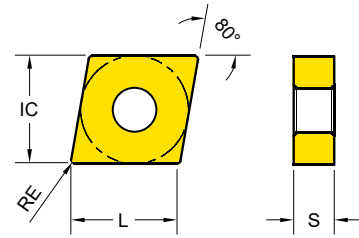
Shape	Series	Size & Thickness								Page	
C	CNMA				43			54	64	26	
	CNMG	32	33		43			54	64		86
	CNGG				43						
D	DNMA				43	44				31	
	DNMG		33		43	44					
	DNGG				43	44					
	DNUX				43	44				35	
K	KNUX						1604 (mm)			36	
S	SNMA				43			54	64	37	
	SNMG	32			43			54	64		86
T	TNMA		33							41	
	TNMG		33				43				
	TNUX		33							45	
V	VNMA		33							46	
	VNMG		33								
W	WNMA				43					48	
	WNMG		33		43						
	WNGG				43						

Positive Inserts

Shape	Series	Size & Thickness							Page
C	CCGT	21.5			32.5			43	52
	CCMT	21.5			32.5			43	
D	DCGT	21.5			32.5				54
	DCMT	21.5			32.5				
R	RCMT	0602	0803			10T3	1204		56
S	SCGT				32.5				57
	SCMT				32.5			43	
T	TCGT	21.5			32.5				58
	TCMT	21.5			32.5				
V	VBMT						33		59
	VCGT / VCMT		22				33		60

Turning Inserts - Negative

CNMG / CNGG / CNMA (80° Rhombic Negative)



Series L IC S table with values for CN** 32, 33, 43 and CN** 54, 64, 86.

EDP 2200.. Stock item Order made item

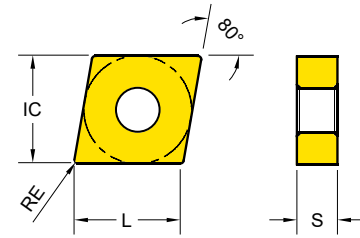
Material code table with columns K10, P05, P10, P15, P20, P30, P20, M15, M30, M40, S10, N20, N20.

Main table for CNMA and CNMG inserts with columns for Designation, RE, Fn, Ap, and material codes.

Cutting Speed table with columns for ISO, VDI, Sub Group, and Vc (ft/min) for various materials.

Turning Inserts - Negative

CNMG / CNGG / CNMA (80° Rhombic Negative)



Series L IC S table with values for CN** 32, 33, 43 and CN** 54, 64, 86.

EDP 2200.. Stock item Order made item

Material code table with columns K10, P05, P10, P15, P20, P30, P20, M15, M30, M40, S10, N20, N20.

Main table for CNMG inserts with columns for Designation, RE, Fn, Ap, and material codes.

Cutting Speed table with columns for ISO, VDI, Sub Group, and Vc (ft/min) for various materials.

Turning Inserts - Negative
CNMG / CNGG / CNMA (80° Rhombic Negative)

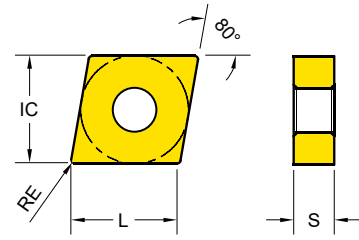


Table with 2 columns of series (CN** 32, 33, 43 and CN** 54, 64, 86) and 6 dimensions (L, IC, S).

EDP 2200.. ●: Stock item ○: Order made item

Legend table for material grades: K10, P05, P10, P15, P20, P30, M20, M15, M30, M40, S10, N20, N20.

Main table for CNMG inserts. Columns include Designation, RE, Fn, Ap, and various material grades (YG1010 to YG10).

Cutting Speed table for CNMG inserts. Columns include ISO, VDI, Sub Group, and Vc (ft/min) for various material groups.

Turning Inserts - Negative
CNMG / CNGG / CNMA (80° Rhombic Negative)

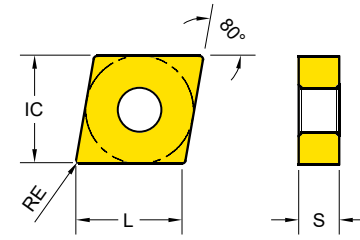


Table with 2 columns of series (CN** 32, 33, 43 and CN** 54, 64, 86) and 6 dimensions (L, IC, S).

EDP 2200.. ●: Stock item ○: Order made item

Legend table for material grades: K10, P05, P10, P15, P20, P30, M20, M15, M30, M40, S10, N20, N20.

Main table for CNMG inserts. Columns include Designation, RE, Fn, Ap, and various material grades (YG1010 to YG10).

Cutting Speed table for CNMG inserts. Columns include ISO, VDI, Sub Group, and Vc (ft/min) for various material groups.

Turning Inserts - Negative
DNMG / DNGG / DNMA (55° Rhombic Negative)

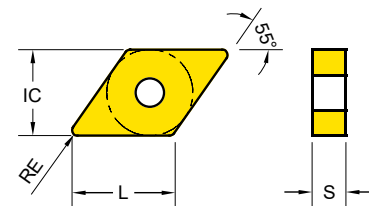


Table with 4 columns: Series, L, IC, S. Rows include DN.. 33, DN.. 43, and DN.. 44.

EDP 2200.. ●: Stock item ○: Order made item

Main table for DNGG and DNMG inserts. Columns include Designation, RE, Fn, Ap, and various material codes (YG1010, YG1001, etc.). Rows are categorized by finish type: -SF (HRSA Finishing), -SM (HRSA Medium), and -SR (HRSA Roughing).

Turning Inserts - Negative
DNUX (55° - Rhombic Negative)

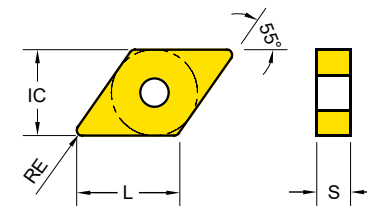


Table with 3 columns: Series, LE, IC. Rows include DNUX.. 43 and DNUX.. 44.

EDP 2200.. ●: Stock item ○: Order made item

Main table for DNUX inserts. Columns include Designation, RE, Fn, Ap, and various material codes (YG1010, YG1001, etc.). Rows are categorized by orientation: ..UX Left and ..UX Right.

Cutting Speed table for DNGG/DNMG. Columns: ISO, VDI, Sub Group, and various material codes. Rows list material groups like Non-Alloyed Steel, Ferritic & Martensitic, etc.

Cutting Speed table for DNUX. Columns: ISO, VDI, Sub Group, and various material codes. Rows list material groups like Non-Alloyed Steel, Ferritic & Martensitic, etc.

Turning Inserts - Negative
TNMG / TNMA (60° Triangle Negative)

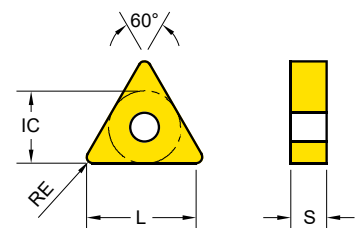


Table with 4 columns: Series, L, IC, S. Rows for TN** 33 and TN** 43.

EDP 2200.. ●: Stock item ○: Order made item

Main table for TNMG inserts with columns for Designation, RE, Fn, Ap, and various material codes (YG1010, YG1001, etc.).

UG Medium Machining at stable condition

UC Cast iron and Medium roughing

UR Roughing

Cutting Speed table for TNMG inserts showing Vc (ft/min) for various ISO and VDI subgroups.

Turning Inserts - Negative
TNMG / TNMA (60° Triangle Negative)

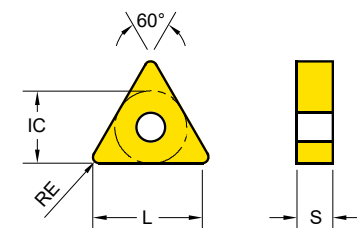


Table with 4 columns: Series, L, IC, S. Rows for TN** 33 and TN** 43.

EDP 2200.. ●: Stock item ○: Order made item

Main table for TNMG inserts with columns for Designation, RE, Fn, Ap, and various material codes (YG1010, YG1001, etc.).

MF Stainless steel Finishing

MM Stainless steel Medium

MG Stainless steel General

MR Stainless steel Roughing

Cutting Speed table for TNMG inserts showing Vc (ft/min) for various ISO and VDI subgroups.

Turning Inserts - Negative
TNMG / TNMA (60° Triangle Negative)

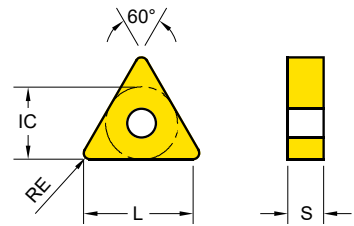


Table with 4 columns: Series, L, IC, S. Rows for TN** 33 and TN** 43.

EDP 2200.. ●: Stock item ○: Order made item

Main table for TNMG inserts with columns for Designation, RE, Fn, Ap, and various material codes (K10-N20).

Cutting Speed table for TNMG inserts showing Vc (ft/min) for various ISO, VDI, and Sub Groups.

Turning Inserts - Negative
TNUX (60° Triangle Negative)

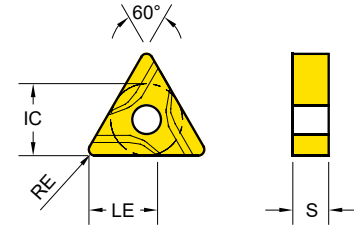


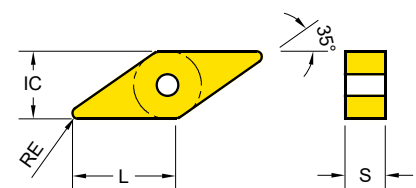
Table with 4 columns: Series, L, IC, S. Row for TNUX 33.

EDP 2200.. ●: Stock item ○: Order made item

Main table for TNUX inserts with columns for Designation, RE, Fn, Ap, and various material codes (K10-N20).

Cutting Speed table for TNUX inserts showing Vc (ft/min) for various ISO, VDI, and Sub Groups.

Turning Inserts - Negative
VNMG / VNMA (35° Rhombic Negative)



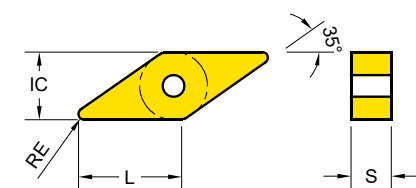
Series L IC S
VN** 33 .622 3/8 3/16

EDP 2200.. ●: Stock item ○: Order made item

Main table for VNMG/VNMA inserts with columns for Designation, RE, Fn, Ap, and various material codes (YG1010 to YG100).

Cutting Speed table showing Vc (ft/min) for various ISO and VDI subgroups across different material types.

Turning Inserts - Negative
VNMG / VNMA (35° Rhombic Negative)



Series L IC S
VN** 33 .622 3/8 3/16

EDP 2200.. ●: Stock item ○: Order made item

Main table for VNMG/VNMA inserts with columns for Designation, RE, Fn, Ap, and various material codes (YG1010 to YG100).

Cutting Speed table showing Vc (ft/min) for various ISO and VDI subgroups across different material types.

Turning Inserts - Negative

WNMG / WNGG / WNMA (80° Trigon Negative)

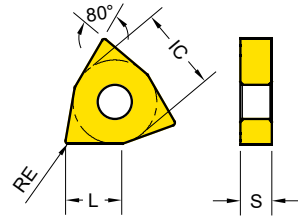


Table with columns Series, L, IC, S and rows WN** 33, WN** 43.

EDP 2200.. ●: Stock item ○: Order made item

Main table for WNMA and WNMG inserts with columns for Designation, RE, Fn, Ap, and various tool grades (YG1010 to YG10).

Cutting Speed table with columns ISO, VDI, Sub Group, and Vc (ft/min) for various materials.

Turning Inserts - Negative

WNMG / WNGG / WNMA (80° Trigon Negative)

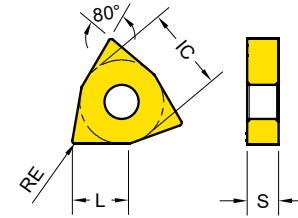


Table with columns Series, L, IC, S and rows WN** 33, WN** 43.

EDP 2200.. ●: Stock item ○: Order made item

Main table for WNMG inserts with columns for Designation, RE, Fn, Ap, and various tool grades (YG1010 to YG10).

Cutting Speed table with columns ISO, VDI, Sub Group, and Vc (ft/min) for various materials.



Turning Inserts - Positive
CCMT / CCGT (80° Rhombic Positive)

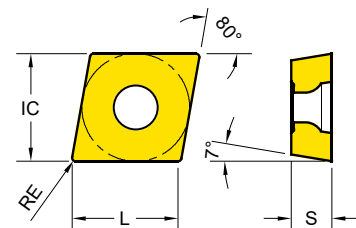


Table with 4 columns: Series, L, IC, S. Rows include CC** 21.5, CC** 32.5, and CC** 43 with their respective dimensions.

EDP 2200.. Stock item Order made item

Main table for CCMT / CCGT inserts, categorized by material type (-AL, -UF, -UG). Columns include Designation, RE, Fn, Ap, and a grid of stock/order status for various insert models.

Cutting Speed table showing Vc (ft/min) for various ISO/VDI subgroups across different insert models.

Turning Inserts - Positive
CCMT / CCGT (80° Rhombic Positive)

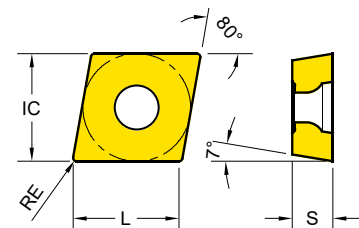


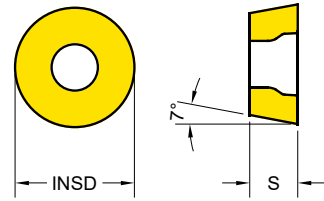
Table with 4 columns: Series, L, IC, S. Rows include CC** 21.5, CC** 32.5, and CC** 43 with their respective dimensions.

EDP 2200.. Stock item Order made item

Main table for CCMT / CCGT inserts, categorized by material type (-MF, -MM). Columns include Designation, RE, Fn, Ap, and a grid of stock/order status for various insert models.

Cutting Speed table showing Vc (ft/min) for various ISO/VDI subgroups across different insert models.

Turning Inserts - Positive RCMT (Round Positive)

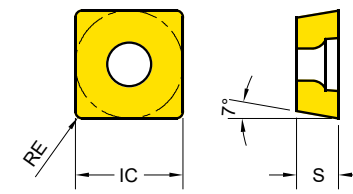


Series	INSD	S
RC** 0602	.236	3/32
RC** 0803	.315	1/8
RC** 10T3	.394	5/32
RC** 1204	.472	3/16

EDP 2200.. ●: Stock item ○: Order made item

RCMT	Designation	RE	Fn (in/rev.)	Ap (in)	K10	P05 K20	P10 K30	P15	P20	P30 M20	P20	M15 S10	M30 S20	M40 S30	S10	N20	N20	
					YG1010	YG1001	YG3010	YG3015	YG3020	YG3030	YG801	YG211	YG213	YG214	YG401	YG100	YG10	
 General	RCMT 0602M0	.118	.002~.010	.008~.047	●	○	●			●	●	○						
	RCMT 0803M0	.157	.002~.012	.020~.059	●	○	●			●	●	○						
	RCMT 10T3M0	.197	.004~.014	.020~.098	●	○	●			●	●	○						
	RCMT 1204M0	.236	.006~.018	.020~.118	●	○	●			●	●	○						
					2057	0374	0375			0376	1151	0023						
					2058	0377	0378			0379	1152	0024						
					2059	0380	0381			0382	1153	0021						
					1833	0383	0384			0385	1170	0022						

Turning Inserts - Positive SCMT/SCGT (Square Positive)



Series	IC	S
SC** 32.5	3/8	5/32
SC** 43	1/2	3/16

EDP 2200.. ●: Stock item ○: Order made item

SCGT SCMT	Designation	RE	Fn (in/rev.)	Ap (in)	K10	P05 K20	P10 K30	P15	P20	P30 M20	P20	M15 S10	M30 S20	M40 S30	S10	N20	N20	
					YG1010	YG1001	YG3010	YG3015	YG3020	YG3030	YG801	YG211	YG213	YG214	YG401	YG100	YG10	
 Aluminium	SCGT 32.51 -AL	1/64	.002~.010	.004~.197														●
	SCGT 32.52 -AL	1/32	.004~.014	.004~.197														
 Finishing	SCMT 32.51 -UF	1/64	.002~.010	.020~.079			●			●	●							
	SCMT 32.52 -UF	1/32	.002~.010	.039~.079			●			●	●							
 General	SCMT 32.51 -UG	1/64	.006~.012	.020~.098	●	○	●			●	●	○						
	SCMT 32.52 -UG	1/32	.006~.012	.031~.098	●	○	●			●	●	○						○
	SCMT 432 -UG	1/32	.006~.014	.031~.118	●	○	●			●	●							○
 Stainless steel Medium	SCMT 432 -MM	1/32	.006~.016	.040~.157														●

ISO	VDI	Sub Group	Cutting Speed Vc (ft/min)																							
			YG1010	YG1001	YG3010	YG3015	YG3020	YG3030	YG801	YG211	YG213	YG214	YG401	YG100	YG10											
P	1~5	Non-Alloyed Steel	-	-	720	1570	750	1480	660	1410	520	1250	430	1150	390	660	-	-	-	-	-	-	-	-		
	6~9	Low-Alloyed Steel	-	-	720	1380	590	1250	490	1150	460	1050	430	920	230	660	-	-	-	-	-	-	-	-		
	10~11	High-Alloyed Steel	-	-	-	-	200	660	300	590	200	430	230	360	-	-	-	-	-	-	-	-	-	-		
M	12~13	Ferritic & Martensitic	-	-	-	-	-	-	-	-	360	720	-	-	560	890	390	590	330	490	-	-	-	-		
	14	Austenitic Stainless Steel	-	-	-	-	-	-	-	-	160	490	-	-	490	750	130	520	330	490	-	-	-	-		
K	15~16	Grey Cast Iron	980	1480	820	1380	390	980	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	17~18	Nodular Cast Iron	390	1150	390	980	390	920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	820	3940	820	2620
S	31~37	Superalloys & Titanium	-	-	-	-	-	-	-	-	110	260	-	-	100	330	100	230	100	160	100	300	-	-	-	-
H	38~41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Turning Inserts - Positive
TCMT / TCGT (Triangle Positive)

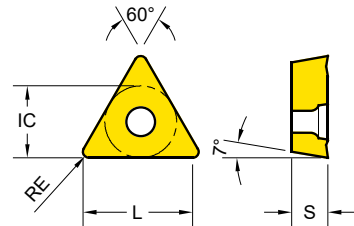


Table with columns Series, L, IC, S. Rows: TC** 21.5, TC** 32.5

EDP 2200.. Stock item Order made item

Main table for TCMT/TCGT inserts with columns for Designation, RE, Fn, Ap, and various material codes (YG1010, YG1001, etc.).

Cutting Speed table for TCMT/TCGT inserts with columns for ISO, VDI, Sub Group, and cutting speed ranges (Min, Max).

Turning Inserts - Positive
VBMT (35° Rhombic Positive)

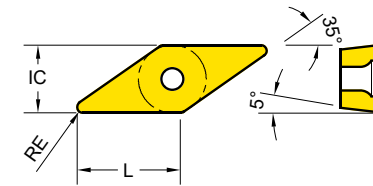


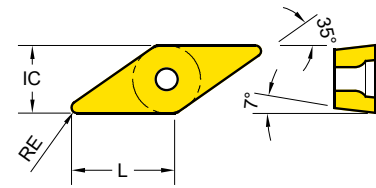
Table with columns Series, L, IC, S. Row: VB** 33

EDP 2200.. Stock item Order made item

Main table for VBMT inserts with columns for Designation, RE, Fn, Ap, and various material codes (YG1010, YG1001, etc.).

Cutting Speed table for VBMT inserts with columns for ISO, VDI, Sub Group, and cutting speed ranges (Min, Max).


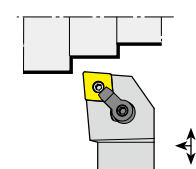

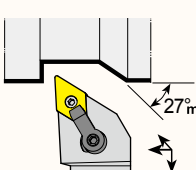

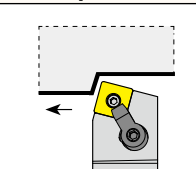
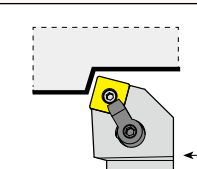
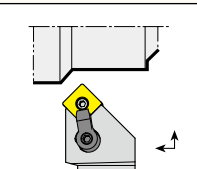

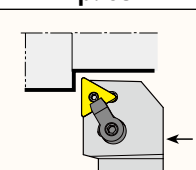
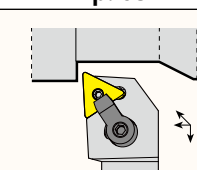

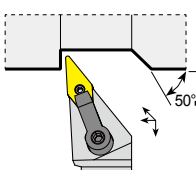

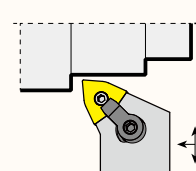
Turning Inserts - Positive
VCMT / VCGT (35° Rhombic Positive)



		Series		L	IC	S											
		VC** 33		.622	3/8	3/16											
		EDP 2200.. ●: Stock item ○: Order made item															
		K10	P05	P10	P15	P20	P30	P20	M15	M30	M40	S10	N20	N20			
		K20	K30			M20			S10	S20	S30						
VCMT / VCGT	Designation	RE	Fn (in/rev.)	Ap (in)	YG1010	YG1001	YG3010	YG3015	YG3020	YG3030	YG801	YG211	YG213	YG214	YG401	YG100	YG10
-AL Aluminum	VCMT 220-AL	.004	.001~.008	.008~.079													● 1041
	VCMT 220.5-AL	.008	.001~.008	.008~.079													● 1042
	VCMT 221-AL	1/64	.002~.010	.008~.118													● 1518
	VCMT 330.5-AL	.008	.001~.002	.020~.039													● 0418 ● 0417
	VCMT 331-AL	1/64	.002~.010	.020~.079													● 0336 ● 0087
	VCMT 332-AL	1/32	.004~.014	.039~.118													● 0420 ● 0419
-UF Finishing	VCMT 331-UF	1/64	.002~.010	.020~.079		● 0716		● 0421 ● 0955									
	VCMT 332-UF	1/32	.002~.010	.039~.079		● 0557		● 0558									
-UG General	VCMT 331-UG	1/64	.004~.008	.012~.098								○ 0060					
	VCMT 332-UG	1/32	.006~.012	.031~.098	● 1853	● 0946	● 0422 ● 0956	○ 0061									
-MF Stainless steel Finishing	VCMT 221-MF	1/64	.002~.008	.008~.078								● 2014 ● 2015 ● 2016 ● 2035					

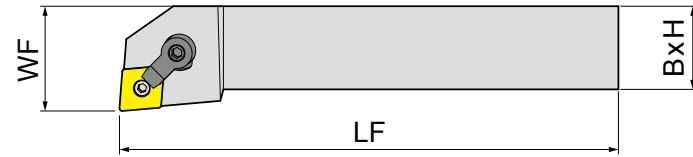
Cutting Speed			Vc (ft/min)																				
ISO	VDI	Sub Group	YG1010	YG1001	YG3010	YG3015	YG3020	YG3030	YG801	YG211	YG213	YG214	YG401	YG100	YG10								
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max					
P	1-5	Non-Alloyed Steel	-	-	720	1570	750	1480	660	1410	520	1250	430	1150	390	660	-	-					
	6-9	Low-Alloyed Steel	-	-	720	1380	590	1250	490	1150	460	1050	430	920	230	660	-	-					
	10-11	High-Alloyed Steel	-	-	-	-	200	660	300	590	200	430	230	360	-	-	-	-					
M	12-13	Ferritic & Martensitic	-	-	-	-	-	-	-	-	-	360	720	-	-	560	890	390	590	330	490	-	-
	14	Austenitic Stainless Steel	-	-	-	-	-	-	-	-	-	160	490	-	-	490	750	130	520	330	490	-	-
K	15-16	Grey Cast Iron	980	1480	820	1380	390	980	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	17-18	Nodular Cast Iron	390	1150	390	980	390	920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N	21-30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	820	3940	820	2620	-	-	-	-
S	31-37	Superalloys & Titanium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
H	38-41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Turning - Holder - External
External Holders Overview

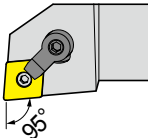
Series	Turning Holder		
 CNMA CNMG p. 26	 MCLNR/L Pin + Top Clamp p. 62		
 DNMA DNMG DNUG p. 31/35	 MDJNR/L Pin + Top Clamp p. 62		
 SNMA SNMG p. 37	 MSBNNR/L Pin + Top Clamp p. 63	 MSRNR/L Pin + Top Clamp p. 63	 MSSNR/L Pin + Top Clamp p. 63
 TNMA TNMG TNUG p. 41/45	 MTGNNR/L Pin + Top Clamp p. 64	 MTJNR/L Pin + Top Clamp p. 64	
 VNMA VNMG p. 46	 MVJNR/L Pin + Top Clamp p. 65		
 WNMA WNMG p. 48	 MWLNR/L Pin + Top Clamp p. 66		

Turning - Holder - External

External Holders for CN Insert**



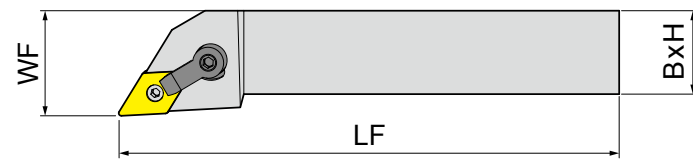
☐: p.26 Unit:inch

Series	Designation	EDP 2700.. R	EDP 2700.. L	H	B	WF	LF	Insert
 MCLNR/L (Pin + Top Clamp Type 95°)	MCLNR/L 12 4B	0369	0370	.75	.75	1	4.5	CN43
	MCLNR/L 16 4D	0358	0357	1.00	1.00	1.25	6	
	MCLNR/L 20 4D	0371	0372	1.25	1.25	1.5	6	

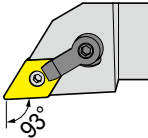
Series	Size	Clamp Screw	Pin	Shim	Allen Key
MCLNR/L	12 4B	MCS061025	MCP617	MSC43	MWR3
	16~20 4D	MCS061030	MCP617	MSC43	MWR3

Turning - Holder - External

External Holders for DN Insert**



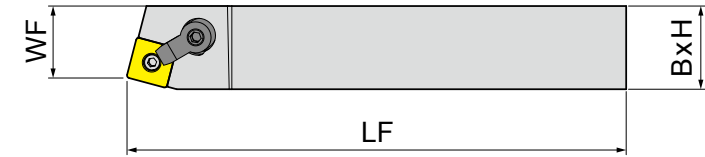
☐: p.31/35 Unit:inch

Series	Designation	EDP 2700.. R	EDP 2700.. L	H	B	WF	LF	Insert
 MDJNR/L (Pin + Top Clamp Type 95°)	MDJNR/L 12 4B	0373	0374	.75	.75	1	4.5	DN43
	MDJNR/L 16 4D	0360	0359	1.00	1.00	1.25	6	
	MDJNR/L 20 4D	0375	0376	1.25	1.25	1.5	6	

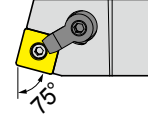
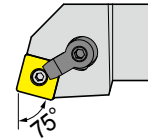
Series	Size	Clamp Screw	Pin	Shim	Allen Key
MDJNR/L	12 4B	MCS061025	MCP619	MSD43	MWR3
	16~20 4D	MCS061030	MCP619	MSD43	MWR3

Turning - Holder - External

External Holders for SN Insert**



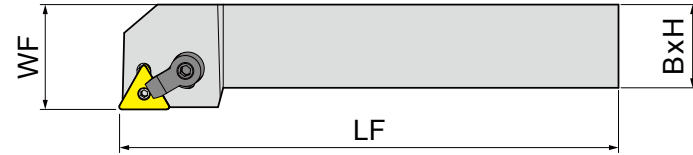
☐: p.37 Unit:inch

Series	Designation	EDP 2700.. R	EDP 2700.. L	H	B	WF	LF	Insert
 MSBNR/L (Pin + Top Clamp Type 95°)	MSBNR/L 16 4D	0362	0361	1.00	1.00	0.843	6	SN43
	MSRNR/L 16 4D	0395	0396	1.00	1.00	1.128	6	SN43
 MSRNR/L (Pin + Top Clamp Type 95°)	MSSNR/L 16 4D	0397	0398	1.00	1.00	0.912	6	SN43
	MSSNR/L 16 4D	0397	0398	1.00	1.00	0.912	6	SN43

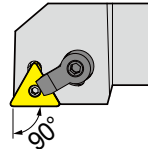
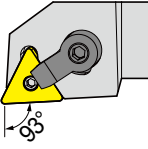
Series	Size	Clamp Screw	Pin	Shim	Allen Key
MSBNR/L	16 4D	MCS061030	MCP617	MSS43	MWR3
MSRNR/L	16 4D	MCS061030	MCP617	MSS43	MWR3
MSSNR/L	16 4D	MCS061030	MCP617	MSS43	MWR3

Turning - Holder - External

External Holders for TN Insert**



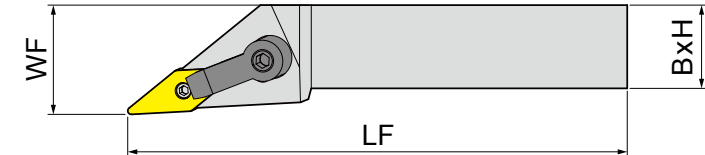
☐: p.41/45 Unit:inch

Series	Designation	EDP 2700.. R	L	H	B	WF	LF	Insert
 MTGNR/L (Pin + Top Clamp Type 95°)	MTGNR/L 16 4D	0364	0363	1.00	1.00	1.25	6	TN43
	MTJNR/L 12 3B	0377	0378	.75	.75	1	4.5	TN33
 MTJNR/L (Pin + Top Clamp Type 95°)	MTJNR/L 16 4D	0379	0380	1.00	1.00	1.25	6	TN43
	MTJNR/L 20 4D	0381	0382	1.25	1.25	1.5	6	

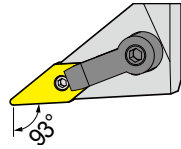
Series	Size	Clamp Screw	Pin	Shim	Allen Key
MTGNR/L	16 4D	MCS061025	MCP513	MST43	MWR3
MTJNR/L	12 3B	MCS061025	MCP513	MST33	MWR3
	16~20 4D	MCS061030	MCP617	MST43	MWR3

Turning - Holder - External

External Holders for VN Insert**

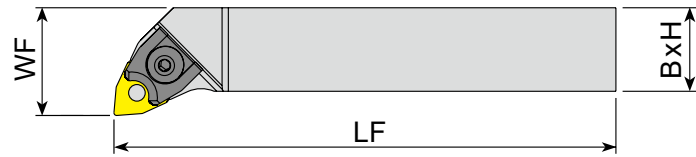


☐: p.46 Unit:inch

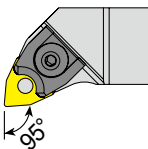
Series	Designation	EDP 2700.. R	L	H	B	WF	LF	Insert
 MVJNR/L (Pin + Top Clamp Type 95°)	MVJNR/L 12 3B	0383	0384	.75	.75	1	4.5	VN33
	MVJNR/L 16 3D	0366	0235	1.00	1.00	1.25	6	
	MVJNR/L 20 3D	0385	0237	1.25	1.25	1.5	6	

Series	Size	Clamp Screw	Pin	Shim	Allen Key
MVJNR/L	12~16 3..	MCS061025	MCP513	MSV33	MWR2, MWR3
	20 3D	MCS061030	MCP513	MSV33	MWR2, MWR3

External Holders for WN Insert**



: p. 48 Unit: inch

Series	Designation	EDP 2700..		H	B	WF	LF	Insert
		R	L					
 MWLNR/L (Pin + Top Clamp Type 95°)	MWLNR/L 12 3B	0387	0388	.75	.75	1	4.5	WN33
	MWLNR/L 16 3D	0389	0390	1.00	1.00	1.25	6	
	MWLNR/L 12 4B	0391	0392	.75	.75	1	4.5	WN43
	MWLNR/L 16 4D	0368	0367	1.00	1.00	1.25	6	
	MWLNR/L 20 4D	0393	0394	1.25	1.25	1.5	6	



PARTING & GROOVING

Parting & Grooving Overview

Parting & Grooving Inserts (TD.)

Series	Size	Clamp Screw	Pin	Shim	Allen Key
MWLNR/L	12 3B	MCS061025	MCP513	MSW33	MWR3
	16 3D	MCS061030	MCP513	MSW33	MWR3
	12 4B	MCS061025	MCP617	MSW43	MWR3
	16~20 4D	MCS061030	MCP617	MSW43	MWR3

Parting & Grooving Overview

Parting & Groove Turn Grades

Parting and Grooving Grades	P Steel				M Stainless steel				K Cast iron			N Non Ferrous		S Super Alloy	
	P10	P20	P30	P40	M10	M20	M30	M40	K10	K20	K30	N10	N20	S10	S20
PVD	YG602G (YG602)	602G				602G				602G					602G
	YG603					603									

YG602 P20 - P35 M20 - M40 K20 - K40 S15 - S25	PVD - TiAlN 	Universal grade for Parting & Groove Turn <ul style="list-style-type: none"> Ultra Dense TiAlN PVD Coating with optimal thermal resistance & strength Sub-Micron substrate designed for demanding application First Choice for General Application
YG602G P20 - P35 M20 - M40 K20 - K40 S15 - S25	PVD - TiAlN - TiN 	Universal grade for Parting & Groove Turn <ul style="list-style-type: none"> Ultra Dense TiAlN / TiN PVD Coating with optimal thermal resistance & strength Sub-Micron substrate designed for demanding application Good wear resistance at high cutting
YG603 M30 - M50	PVD - TiAlN 	PVD Parting & Grooving Grade for Stainless Steel <ul style="list-style-type: none"> Ultra high toughness substrate and strong adhesion Excellent cutting edge strength and chipping resistance Stable machinability and tool life for stainless steel

Parting & Grooving Inserts

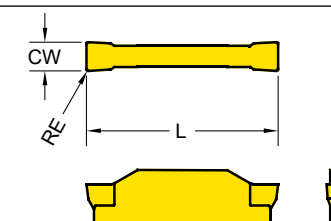
Inserts	TD. Series	2, 3, 4, 6

Parting & Grooving Chip breakers

-P TDP 	<ul style="list-style-type: none"> Parting & Grooving Low Feed for stainless steel and sticky material
-N TDN 	<ul style="list-style-type: none"> Parting & Grooving Medium Feed for general application
-Y TDY 	<ul style="list-style-type: none"> Turning & Grooving

Parting & Grooving - Inserts

Parting & Grooving Inserts



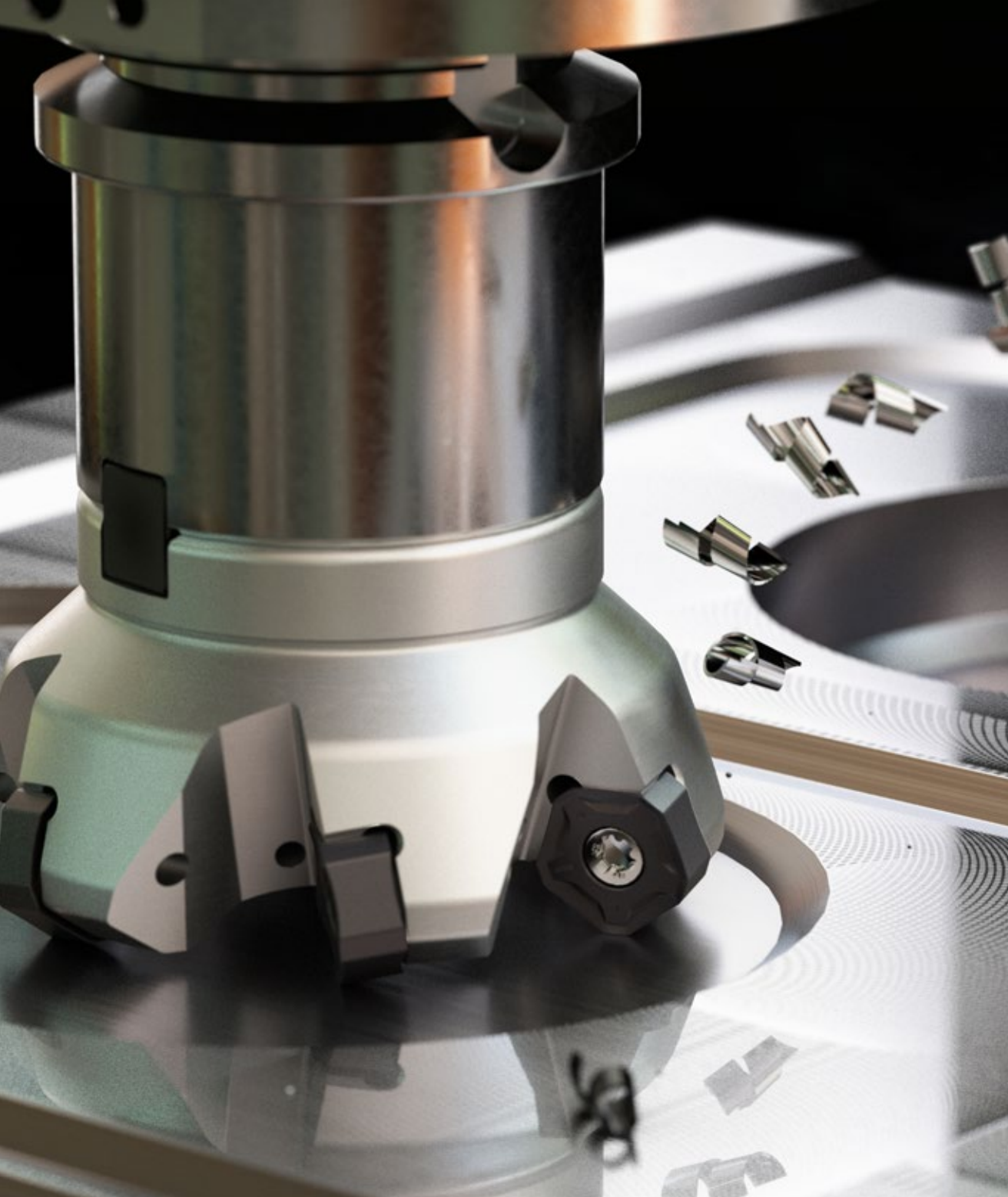
Series	L	CW
TD * 2	.787	.079
TD * 3	.787	.118
TD * 4	.787	.157
TD * 5	.787	.197
TD * 6	.787	.236

* CDX : Cutting Depth Maximum

● : Stock item ○ : Order made item

TD.	Designation	RE	Parting & Grooving		Turning		EDP 5200..		
			Fn (in/rev.)	CDX (in)	Fn (in/rev.)	Ap (in)	YG602	YG602G	YG603
-P Parting & Grooving (Positive)	TDP2002	.008	.002~.005	.748	-	-	●	○	●
	TDP3002	.008	.002~.006	.748	-	-	●	○	●
	TDP4003	.012	.002~.007	.748	-	-	●	○	●
	TDPR2002-6	.008	.002~.005	.748			●		●
	TDPR3002-6	.012	.002~.006	.748			●		●
	TDPL2002-6	.008	.002~.005	.748			●		●
-N Parting & Grooving (General)	TDPL3002-6	.012	.002~.006	.748			●		●
	TDN2002	.008	.002~.005	.748	-	-	●	○	●
	TDN3002	.008	.003~.009	.748	-	-	●	○	●
	TDN4003	.012	.003~.010	.748	-	-	●	○	●
	TDN5003	.012	.004~.014	.984			●		●
	TDNR2002-6	.008	.002~.005	.748			●		●
-Y Groove Turn	TDNR3002-6	.012	.003~.008	.748			●		●
	TDNL2002-6	.008	.002~.005	.748			●		●
	TDNL3002-6	.012	.003~.008	.748			●		●
	TDY3E-0.4	.016	.004~.008	.748	.004~.015	.020~.087		●	
	TDY4E-0.4	.016	.006~.010	.748	.004~.016	.020~.110		●	
	TDY5E-0.4		.008~.013	0.975	.004~.016	.020~.133	○		

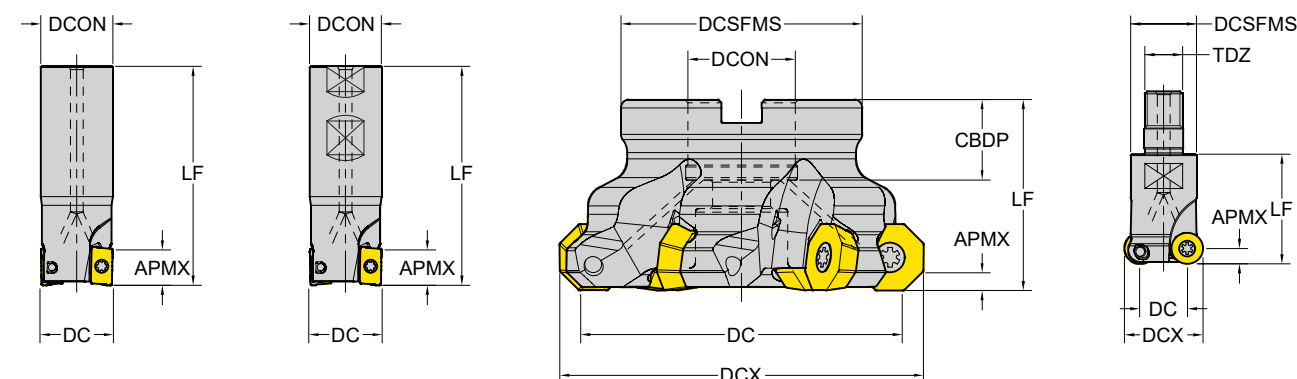
ISO	VDI	Sub Group	Cutting Speed Vc (ft/min.)			
			YG602G (YG602)		YG603	
			Min.	Max.	Min.	Max.
P	1~5	Non-Alloyed Steel	390	590		
	6~9	Low-Alloyed Steel	330	460		
	10~11	High-Alloyed Steel	260	360		
M	12~13	Ferritic & Martensitic	230	520	160	300
	14	Austenitic Stainless Steel	180	460	130	260
K	15~16	Grey Cast Iron	360	610		
	17~18	Nodular Cast Iron	360	460		
N	21~30	Non-Ferrous Metals (Al)	820	1440		
S	31~37	Superalloys & Titanium	80	150		
H	38~41	Hard Materials	80	160		



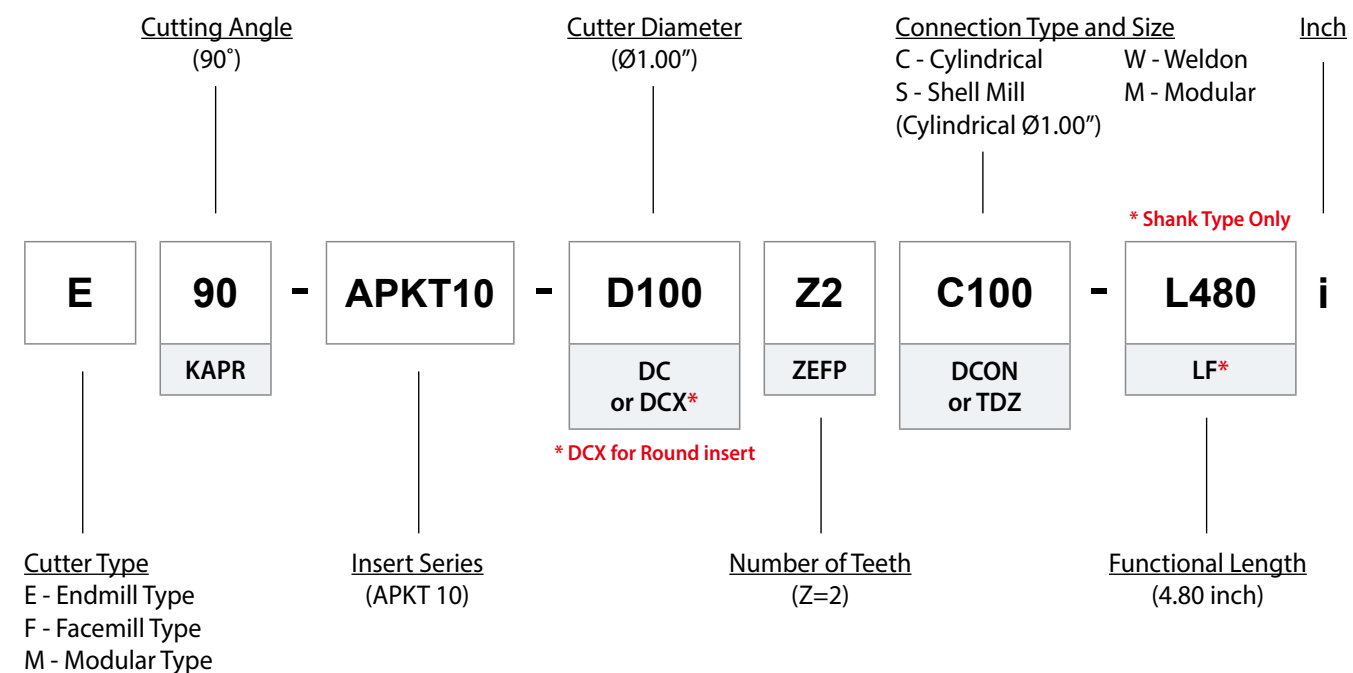
MILLING

- Product Overview
- Application Guide
- Milling Inserts & Cutter Overview
- Milling Inserts & Cutter

Code Keys - Milling Cutters



<C> Cylindrical <W> Weldon <S> Shell Mill <M> Modular



TURNING

PARTING & GROOVING

MILLING

DRILLING

TECHNICAL INFORMATION

Milling - Code System
Insert ISO Code System

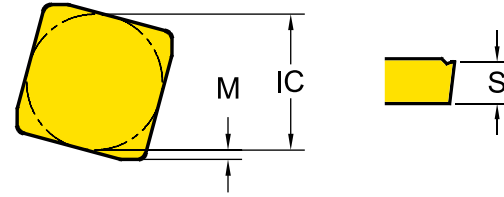
1 A Shape	2 P Relief Angle (AN)	3 K Tolerance	4 T Clamping & Chipbreaker	5 16 Insert Size	6 04 Insert Thickness (S)	7 08 CornerRadius
-------------------------------	---	-----------------------------------	--	--------------------------------------	---	---------------------------------------

1 - Shape

Symbol	Shape	
H	Hexagonal	
O	Octagonal	
P	Pentagonal	
S	Square	
T	Triangular	
V	Rhombic 35°	
W	Trigon	
L	Rectangular	
A	Parallelogram 80°	
R	Round	

2 - Relief Angle (AN)

Symbol	Relief Angle (AN)	
N	No Relief Angle	
B	Relief 5°	
C	Relief 7°	
P	Relief 11°	
D	Relief 15°	
E	Relief 20°	
F	Relief 25°	
O	Special	



3 - Tolerance Class

Symbol	Inner Circle IC (in)	Nose Height M (in)	Thickness S (in)
C	±.0010	±.0005	±.0010
E	±.001	±.0010	±.001
G	±.001	±.0010	±.005
H	±.0005	±.0005	±.0010
K*	±.002~.006*	±.0005	±.005
M*	±.002~.006*	±.003~.010*	±.005
U*	±.003~.010*	±.005~.015*	±.005

*Tolerance is different by insert IC size. Please see ISO 1832

4 - Clamping & Chipbreaker

Symbol	Clamping	Chipbreaker	Figure
N	No clamping hole	X	
R		One Face	
W	Screw Hole	X	
T		One Face	
U		Both Faces	
X		Special	

5 - Insert Size

* No Standard for milling insert size

6 - Insert Thickness

* No Standard for milling insert thickness

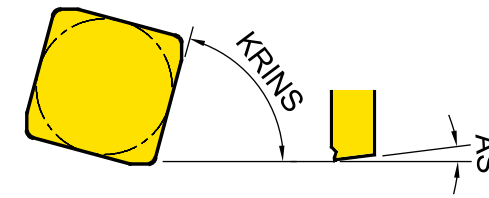
Milling - Code System
Insert ISO Code System

8 PDTR Corner Geometry	9 -TR Chipbreaker	10 YG602 Grade
--	---------------------------------------	------------------------------------

7 - Corner Radius (RE)

Symbol	Thickness - S (in)	Symbol	Thickness - S (in)
04	.016	16	.063
08	.031	20	.079
12	.047	24	.094

8 - Corner Geometry



8-1	8-2	8-3	8-4
P Cutting Edge Angle (KRINS)	D Wiper Edge Clearance (AS)	T Edge Condition	R Feed Direction

*Refer to page. 75 for -AL, -ST, -TR... types

8-1 - Cutting Edge Angle (KRINS)

Symbol	Cutting Edge Angle (KRINS)
P	90°
A	45°
D	60°
E	75°
F	85°
Z	Special

8-2 - Wiper Edge Clearance (AS)

Symbol	Wiper Edge Clearance (AS)
N	0°
P	11°
D	15°
E	20°
F	25°
Z	Special

8-3 - Edge Condition

Symbol	Edge Condition	
F	Sharp	
E	Rounded	
T	Chamfered	
S	Chamfered and Rounded	

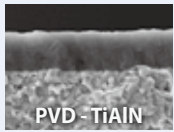
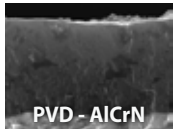
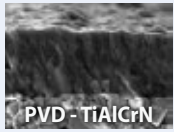
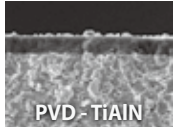
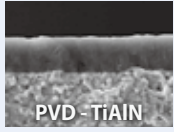
8-4 - Feed Direction

Symbol	Feed Direction	
R	Right-hand Insert	
N	Neutral Insert	
L	Left-hand Insert	

Milling Grades and Chip breakers

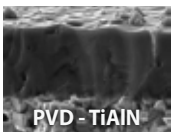
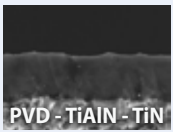
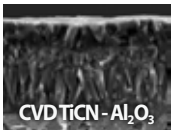
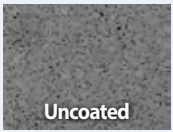
Milling Grades

Milling Grades	P Steel					M Stainless steel				K Cast iron				N Non-ferrous				S Superalloys				H Hardened steel		
	P05	P15	P25	P35	P45	M05	M15	M25	M35	K05	K15	K25	K35	N05	N15	N25	N35	S05	S15	S25	S35	H15	H25	H35
PVD	YG602		602				602				602								602					
	YG622		622								622												622	
	YG712	712																						
	YG713	713																						
	YG613		613				613												613					
	YG501										501													
CVD	YG5020										5020													
Uncoated	YG50												50											






<p>YG602</p> <p>P20 - P35 M20 - M40 K20 - K40 S15 - S25</p>  <p>PVD - TiAlN</p>	<p>Universal grade for General Milling Application</p> <ul style="list-style-type: none"> Ultra Dense PVD Coating with optimal thermal resistance & strength Sub-Micron substrate designed for demanding application
<p>YG622</p> <p>P20 - P40 K20 - K40 H10 - H20</p>  <p>PVD - AlCrN</p>	<p>Optimized Grade for High Alloyed or Prehardened Steel</p> <ul style="list-style-type: none"> Excellent hot hardness and oxidation resistance at high speed Smooth surface treatment technology provide to prevent thermal shock and chipping resistance
<p>YG712</p> <p>P10 - P30</p>  <p>PVD - TiAlCrN</p>	<p>Milling Grade for Medium of Steel Application</p> <ul style="list-style-type: none"> Superior wear resistance and excellent toughness in high speed machining Coating layer with high hardness and oxidation resistance
<p>YG713</p> <p>P15 - P25</p>  <p>PVD - TiAlN</p>	<p>Milling Grade for General Steel Application</p> <ul style="list-style-type: none"> Multi-layer TiAlN structure realizes stronger crater and flank wear resistance Fine-grained carbide and balanced substrate
<p>YG613</p> <p>P30 - P50 M30 - M40 S25 - S35</p>  <p>PVD - TiAlN</p>	<p>Milling Grade for Stainless Steel Application</p> <ul style="list-style-type: none"> New coating layer with high toughness and lubrication on ultra fine grain substrate with high toughness. The toughest substrates provides excellent cutting performance in stainless steel Prevents welding and chipping of heat-resistant alloy workpieces through a special coating layer

Milling Grades and Chip breakers

Milling Grades

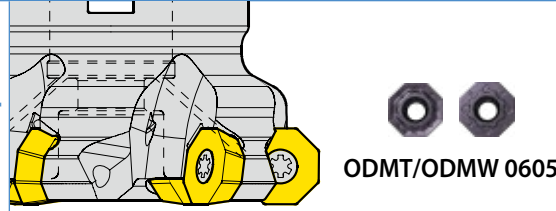
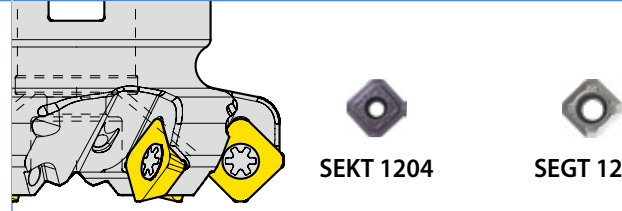
<p>YG501</p> <p>K05 - K25</p>  <p>PVD - TiAlN</p>	<p>Hard Milling grade for Cast Iron</p> <ul style="list-style-type: none"> High wear resistance substrate based on TiAlN PVD Coating Very good for cast Iron
<p>YG501G</p> <p>K05 - K25</p>  <p>PVD - TiAlN - TiN</p>	<p>Hard Milling grade for Cast Iron</p> <ul style="list-style-type: none"> High wear resistance substrate based on TiAlN / TiN PVD Coating Excellent performance for cast Iron at high cutting speed
<p>YG5020</p> <p>K01 - K30</p>  <p>CVD TiCN - Al₂O₃</p>	<p>CVD Milling grade for Cast Iron</p> <ul style="list-style-type: none"> CVD coating for Excellent wear resistance Improved Toughness for chipping resistance
<p>YG50</p> <p>N05 - N20</p>  <p>Uncoated</p>	<p>Uncoated Milling Grade for Aluminium</p> <ul style="list-style-type: none"> Submicron carbide substrate for high wear resistance Preventing built up edge with shining surface

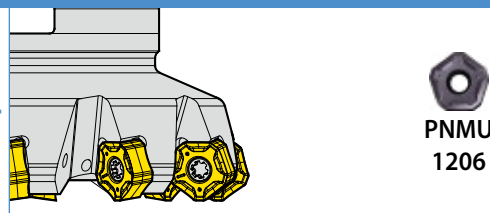
Milling Chip breakers

-AL		<ul style="list-style-type: none"> For Aluminum Very Sharp Geometry
-ST		<ul style="list-style-type: none"> For Stainless Steel, Super Alloy Sharp Geometry
General Inserts (No Description)		<ul style="list-style-type: none"> First Choice for General Application
-TR		<ul style="list-style-type: none"> For Hardened Steels Reinforced Geometry
...W / ...N		<ul style="list-style-type: none"> For Hardened Material and Cast Irons

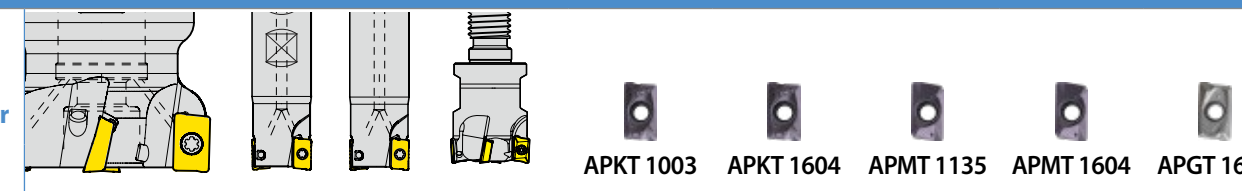
Milling Cutter Overview

Face Milling

	Positive Octagonal	Positive Square
Cutter	 ODMT/ODMW 0605	 SEKT 1204 SEGT 1204
APMX	.138	.236 .236
DC	Ø2.5~5.0	Ø1.5~6.0 Ø1.5~6.0
page	p. 79	p. 81

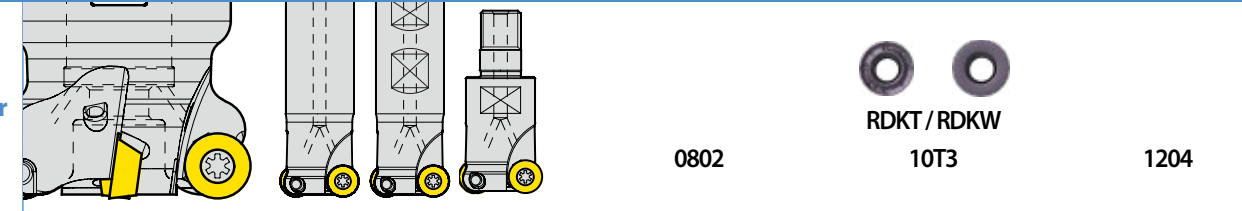
	Negative 10 Corner
Cutter	 PNMU 1206
APMX	4
DC	Ø50~125
page	p. 80

Shoulder Milling

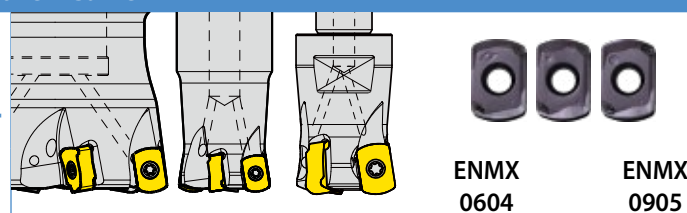
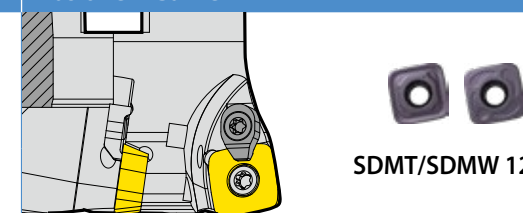
	2 Corner Positive
Cutter	 APKT 1003 APKT 1604 APMT 1135 APMT 1604 APGT 1604
APMX	.394 .630 .390 .630 .630
DC	Ø.625~2.0 Ø1.0~4.0 Ø.625~1.25 Ø1.25 Ø1.25
page	p. 95 - 96

Milling Overview


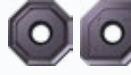


Profiling

	Round Positive
Cutter	 0802 RDKT / RDKW 10T3 1204
APMX	.157 .196 .236
DCX	Ø.75~1.0 Ø1.0~2.0 Ø1.0~2.5
page	p. 103

High Feed Milling

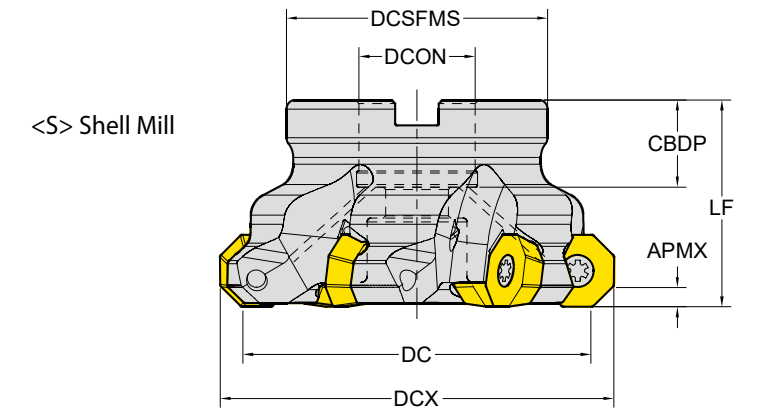
	Negative 4 Corner	Positive 4 Corner
Cutter	 ENMX 0604 ENMX 0905	 SDMT/SDMW 1204
APMX	0.9 1 1.5	1.8
DCX	Ø16~18 Ø20~50 Ø25~125	Ø32~100
page	p. 107 - 108	p. 109

Milling Inserts Overview

A 2 Corner	 Positive	ADKT	ADKT 1505	p. 97
		AOMT	AOMT 1236	p. 97
		APKT	APKT 1003, 1604	p. 98
		APMT	APMT 1135, 1504, 1604	p. 99
		APGT	APGT 1003, 1604	p. 100
E 4 Corner	 Negative	ENMX	ENMX 0604 ENMX 0905	p. 110
O Octagon	 Positive	ODMT / ODMW	ODMT / ODMW 0605	p. 82
		OFER	OFER 0704	p. 83
		OFMT	OFMT 05T3	
	 Negative	ONMU / ONHU	ONMU / ONHU 0806	p. 84
P 10 Corner	 Negative	PNMU	PNMU1206	p. 85
R Round	 Positive Round	RDKT / RDKW	RDKT 0802, 10T3, 1204, 1604 RDKW 0501, 0702, 0802, 10T3, 1204	p. 104
		RDMT / RDMW	RDMT 0802, 0803, 10T3, 1204 RDMW 0802, 10T3, 1204	p. 105
		RPMT / RPMW	RPMT 08T2, 10T3, 1204 RPMW 1003, 1204	p. 106
S Square	 High Feed	SDMT / SDMW	SDMT 1204, SDMW 1204	p. 112
		SEKT	SEKT 12T3, 1204	p. 88
	 Positive	SEGT	SEGT12T3, 1204	p. 89
		SEMT	SEMT1204, 13T3	p. 90
		SPMT	SPMT 1204	p. 93
		SDKN, SDCN (45°)	SDKN, SDCN 1203, 1504	p. 86
		SEKN / SEKR (45°)	SEKR, SEKN 1203	p. 87
		SPKN / SPKR / SPCN(75°)	SPKN 1203, 1504 SPKR 1203 SPCN 1203, 1504	p. 92
	 ISO	SPUN	SPUN 1203	p. 94
		 Negative	SNMX	SNMX1206
T Triangle	 ISO		TPKN / TPKR / TPCN(90°)	TPKN 1603, 2204 TPKR 1603, 2204 TPCN 2204
		TPUN	TPUN 1603	p. 102

Milling - Face Milling - Cutter Cutters for ODMT, ODMW

Entry Angle : 43°
8 Corner Positive



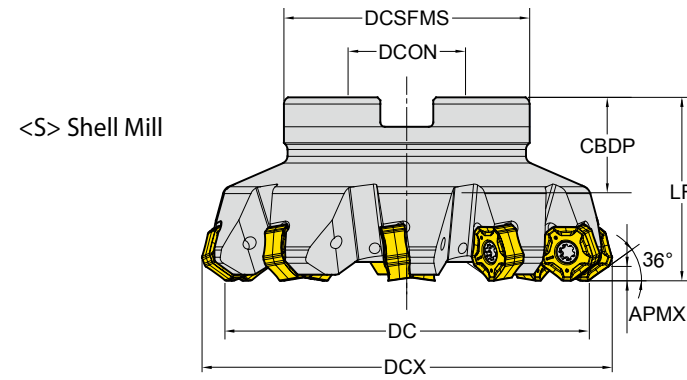
ZEFP : Effective Number of Cutting Edges
CICT : Number of Inserts
CBDP : Connection Bore Depth

o: p. 82 Unit: inch

Series	APMX	Designation	EDP 1700..	DC	DCX	ZEFP	LF	TYPE	DCON	CBDP	DCSFMS	PCD1	PCD2	⦿
ODMT ODMW 0605	.138	F43-ODMT06-D250Z5S075i	0040	2.50	2.88	5	1.575	Shellmill	.75	.79	2.00	-	-	●
		F43-ODMT06-D300Z6S100i	0041	3.00	3.55	6	1.750		1.00	.87	2.50	-	-	●
		F43-ODMT06-D400Z7S125i	0042	4.00	4.34	7	2.000		1.25	.98	3.00	-	-	●
		F43-ODMT06-D500Z8S150i	0043	5.00	5.32	8	2.380		1.50	1.14	3.65	-	-	●

Milling - Face Milling - Cutter
Cutters for PNMU

Entry Angle: 36°
10 Corner Negative



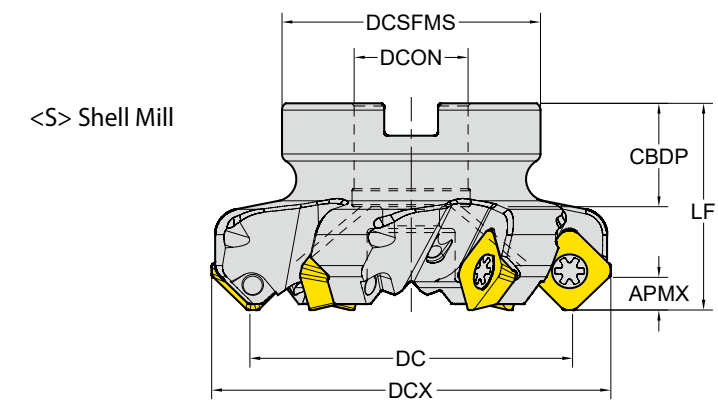
ZEFP : Effective Number of Cutting Edges
CICT : Number of Inserts
CBDP : Connection Bore Depth

□ : p. 85 Unit: inch

Series	APMX	Designation	EDP 1700..	DC	DCX	ZEFP	LF	TYPE	DCON	CBDP	DCSFMS	PCD1	PCD2	☉
PNMU 1206	.157	F36-PNMU12-D200Z4S075I	0468	2	2.50	4	1.575	Shell Mill	0.75	0.75	1.75	-	-	●
		F36-PNMU12-D250Z5S075I	0788	2.5	3.01	5	1.575		0.75	0.75	2	-	-	●
		F36-PNMU12-D300Z8S100I	0469	3	3.68	8	2		1	1.049	2.5	-	-	●
		F36-PNMU12-D400Z10S125I	0470	4	4.46	10	2		1.25	1.269	3	-	-	●
		F36-PNMU12-D600Z14S200I	0863	6	5.45	14	2.48		2.00	1.5	4.7	-	-	●

Milling - Face Milling - Cutter
Cutters for SEKT, SEGT

Entry Angle : 45°
4 Corner Positive



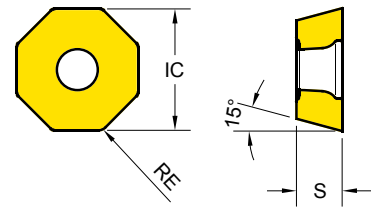
ZEFP : Effective Number of Cutting Edges
CICT : Number of Inserts
CBDP : Connection Bore Depth

□ : p. 88 Unit: inch

Series	APMX	Designation	EDP 1700..	DC	DCX	ZEFP	LF	TYPE	DCON	CBDP	DCSFMS	PCD1	PCD2	☉
SEKT SEGT 1204	.236	F45-SEKT12-D150Z4S050i	0060	1.50	2.06	4	1.575	Shellmill	.50	.71	1.25	-	-	●
		F45-SEKT12-D200Z5S075i	0061	2.00	2.57	5	1.575		.75	.74	1.75	-	-	●
		F45-SEKT12-D250Z4S075i	0062	2.50	3.06	4	1.575		.75	.75	2.19	-	-	●
		F45-SEKT12-D250Z6S075i	0063	2.50	3.06	6	1.575		.75	.75	2.19	-	-	●
		F45-SEKT12-D300Z4S100i	0064	3.00	3.56	4	1.75		1.00	.94	2.25	-	-	●
		F45-SEKT12-D300Z7S100i	0065	3.00	3.56	7	1.75		1.00	.94	2.25	-	-	●
		F45-SEKT12-D400Z8S125i	0066	4.00	4.56	8	2.00		1.25	1.22	3.00	-	-	●
		F45-SEKT12-D500Z10S150i	0067	5.00	5.56	10	2.38		1.50	1.38	3.65	-	-	●
F45-SEKT12-D600Z12S200i	0068	6.00	6.56	12	2.50	2.00	1.50	3.94	-	-	X			

Milling - Face Milling - Inserts

ODMT / ODMW - Face Milling Positive (8 Corners)



Series	IC	S
ODM* 0605	.626	.220

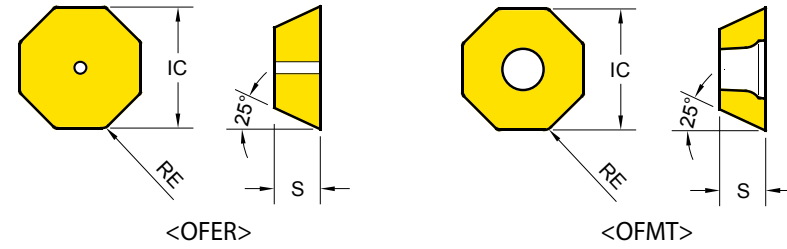
EDP 1200..
●: Stock item ○: Order made item

P25	P30	P20	P30	P40	K15	K20
M30				M35		
K30	K30			S30		
S20	H15					

	Designation	RE (in)	Fz (in/tooth)	BS (in)	EDP 1200..						
					YG602	YG622	YG712	YG713	YG613	YG501	YG5020
ODMT General	ODMT 060508	.031	.008~.014	-	● 0030	○ 0438		○ 0659	● 0675		
ODMW Hard Materials	ODMW 060508	.031	.010~.016	-	● 0031						

Milling - Face Milling - Inserts

OFER / OFMT - Face Milling Positive (8 Corners)



Series	IC	S
OFER 0704	.711	.188
OFMT 05T3	.501	.160

EDP 1200..
●: Stock item ○: Order made item

P25	P30	P20	P30	P40	K15	K20
M30				M35		
K30	K30			S30		
S20	H15					

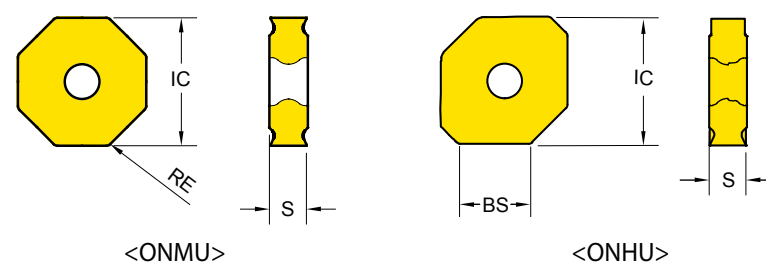
	Designation	RE (in)	Fz (in/tooth)	BS (in)	EDP 1200..						
					YG602	YG622	YG712	YG713	YG613	YG501	YG5020
OFER General	OFER 070405	.020	.009~.020	-	● 0209						
OFMT General	OFMT 05T308	.031	.006~.010	-	● 0032						

Cutting Speed			Vc (ft/min)													
ISO	VDI	Sub Group	YG602		YG622		YG712		YG713		YG613		YG501		YG5020	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	590	1250	460	1310	560	980	660	980	330	690	-	-	-	-
	6~9	Low-Alloyed Steel	390	980	390	1050	590	820	560	890	230	590	-	-	-	-
	10~11	High-Alloyed Steel	230	490	230	560	330	460	280	480	130	290	-	-	-	-
M	12~13	Ferritic & Martensitic	390	660	-	-	-	-	-	-	230	590	-	-	-	-
	14	Austenitic Stainless Steel	430	820	-	-	-	-	-	-	230	660	-	-	-	-
K	15~16	Grey Cast Iron	390	820	390	890	-	-	-	-	590	1150	660	1150	-	-
	17~18	Nodular Cast Iron	430	720	430	790	-	-	-	-	390	890	490	980	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	
S	31~37	Superalloys & Titanium	80	150	-	-	-	-	-	-	-	-	-	-	-	
H	38~41	Hard Materials	130	260	130	330	-	-	-	-	-	-	-	-	-	

Cutting Speed			Vc (ft/min)													
ISO	VDI	Sub Group	YG602		YG622		YG712		YG713		YG613		YG501		YG5020	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	590	1250	460	1310	560	980	660	980	330	690	-	-	-	-
	6~9	Low-Alloyed Steel	390	980	390	1050	590	820	560	890	230	590	-	-	-	-
	10~11	High-Alloyed Steel	230	490	230	560	330	460	280	480	130	290	-	-	-	-
M	12~13	Ferritic & Martensitic	390	660	-	-	-	-	-	-	230	590	-	-	-	-
	14	Austenitic Stainless Steel	430	820	-	-	-	-	-	-	230	660	-	-	-	-
K	15~16	Grey Cast Iron	390	820	390	890	-	-	-	-	590	1150	660	1150	-	-
	17~18	Nodular Cast Iron	430	720	430	790	-	-	-	-	390	890	490	980	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	
S	31~37	Superalloys & Titanium	80	150	-	-	-	-	-	-	-	-	-	-	-	
H	38~41	Hard Materials	130	260	130	330	-	-	-	-	-	-	-	-	-	

Milling - Face Milling - Inserts

ONMU / ONHU - Face Milling Negative (16 Corners)



Series	IC	S
ON*U 0806	.795	.228

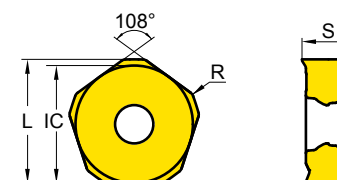
EDP 1200..
●: Stock item ○: Order made item

P25	P30	P20	P30	P40	K15	K20
M30	K30		M35			
S20	H15		S30			

ONMU ONHU	Designation	RE (in)	Fz (in/tooth)	BS (in)	YG602	YG622	YG712	YG713	YG613	YG501	YG5020
ONMU General	ONMU 080608	.031	.009~.020	-	● 0233	○ 0608		○ 0657	● 0670		● 0414
	ONMU 080612	.031	.009~.020	-					● 0615		● 0542
	ONMU 080620	.031	.009~.020	-							● 0707
ONHU Wiper Insert	ONHU 080612	.047	.003~.010	.417						● 0496	● 0482

Milling - Face Milling - Inserts

PNMU - Face Milling Negative (10 Corners)



Series	KRINS	IC	S
PNMU 1206	36°	.551	.230

EDP 1200..
●: Stock item ○: Order made item

P25	P30	P20	P30	P40	K15	K20
M30	K30		M35			
S20	H15		S30			

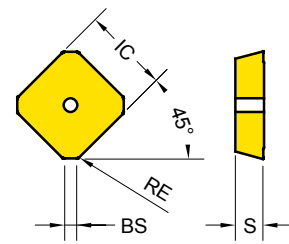
PNMU	Designation	RE (in)	Fz (in/tooth)	BS (in)	YG602	YG622	YG712	YG713	YG613	YG501G	YG5020
PNMU General	PNMU 1206ZNN	.031	.002~.012	0.08	● 0535		● 0596	○ 0645	● 0671	● 0538	● 0534

Cutting Speed			Vc (ft/min)													
ISO	VDI	Sub Group	YG602		YG622		YG712		YG713		YG613		YG501		YG5020	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	590	1250	460	1310	560	980	660	980	330	690	-	-	-	-
	6~9	Low-Alloyed Steel	390	980	390	1050	590	820	560	890	230	590	-	-	-	-
	10~11	High-Alloyed Steel	230	490	230	560	330	460	280	480	130	290	-	-	-	-
M	12~13	Ferritic & Martensitic	390	660	-	-	-	-	-	-	230	590	-	-	-	-
	14	Austenitic Stainless Steel	430	820	-	-	-	-	-	-	230	660	-	-	-	-
K	15~16	Grey Cast Iron	390	820	390	890	-	-	-	-	590	1150	660	1150	-	-
	17~18	Nodular Cast Iron	430	720	430	790	-	-	-	-	390	890	490	980	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S	31~37	Superalloys & Titanium	80	150	-	-	-	-	-	-	-	-	-	-	-	-
H	38~41	Hard Materials	130	260	130	330	-	-	-	-	-	-	-	-	-	-

Cutting Speed			Vc (ft/min)													
ISO	VDI	Sub Group	YG602		YG622		YG712		YG713		YG613		YG501		YG5020	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	590	1250	460	1310	560	980	660	980	330	690	-	-	-	-
	6~9	Low-Alloyed Steel	390	980	390	1050	590	820	560	890	230	590	-	-	-	-
	10~11	High-Alloyed Steel	230	490	230	560	330	460	280	480	130	290	-	-	-	-
M	12~13	Ferritic & Martensitic	390	660	-	-	-	-	-	-	230	590	-	-	-	-
	14	Austenitic Stainless Steel	430	820	-	-	-	-	-	-	230	660	-	-	-	-
K	15~16	Grey Cast Iron	390	820	390	890	-	-	-	-	590	1150	660	1150	-	-
	17~18	Nodular Cast Iron	430	720	430	790	-	-	-	-	390	890	490	980	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S	31~37	Superalloys & Titanium	80	150	-	-	-	-	-	-	-	-	-	-	-	-
H	38~41	Hard Materials	130	260	130	330	-	-	-	-	-	-	-	-	-	-

Milling - Face Milling - Inserts

SDKN / SDCN - Face Milling Positive (4 Corners ISO)



Series	AS	IC	S
SD** 42	15°	.500	.125
SD** 53	15°	.625	.187

EDP 1200..

●: Stock item ○: Order made item

P25	P30	P20	P30	P40	K15	K20
M30	K30		M35	S30		
S20	H15					

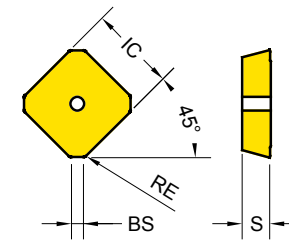
	SDKN SDCN	Designation	RE (in)	Fz (in/tooth)	BS (in)	Material							
						YG602	YG622	YG712	YG713	YG613	YG501	YG5020	
SDKN Hard Materials		SDKN 42 AETN	.020	.009~.014	.073	●							
		SDKN 42 AETN -GW	.051	.009~.014	.073	●							
		SDKN 42 AETN -PW	.016	.009~.014	.078	●							
		SDKN 53 AETN	.018	.009~.014	.079	●							
		SDKN 53 AETN -GW	.051	.009~.016	.081	●							
		SDKN 53 AETN -PW	.016	.009~.016	.077	●							
SDCN Ground insert		SDCN 42 AESN -M	-	.002~.008	.080			○					
		SDCN 53 AESN -M	-	.002~.008	.086			○					
		SDCN 53 AESN -MR	.039	.002~.008	.086			○					

- PW : for Improved Surface Roughness
- GW : Ground Wiper
- M : for Mold & Die
- MR : for Mold & Die Roughing

Cutting Speed			Vc (ft/min)													
ISO	VDI	Sub Group	YG602		YG622		YG712		YG713		YG613		YG501		YG5020	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	590	1250	460	1310	560	980	660	980	330	690	-	-	-	-
	6~9	Low-Alloyed Steel	390	980	390	1050	590	820	560	890	230	590	-	-	-	-
	10~11	High-Alloyed Steel	230	490	230	560	330	460	280	480	130	290	-	-	-	-
M	12~13	Ferritic & Martensitic	390	660	-	-	-	-	-	-	230	590	-	-	-	-
	14	Austenitic Stainless Steel	430	820	-	-	-	-	-	-	230	660	-	-	-	-
K	15~16	Grey Cast Iron	390	820	390	890	-	-	-	-	590	1150	660	1150	-	
	17~18	Nodular Cast Iron	430	720	430	790	-	-	-	-	390	890	490	980	-	
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	
S	31~37	Superalloys & Titanium	80	150	-	-	-	-	-	-	-	-	-	-	-	
H	38~41	Hard Materials	130	260	130	330	-	-	-	-	-	-	-	-	-	

Milling - Face Milling - Inserts

SEKR / SEKN - Face Milling Positive (4 Corners ISO)



Series	AS	IC	S
SEK* 42	20°	.500	.126

EDP 1200..

●: Stock item ○: Order made item

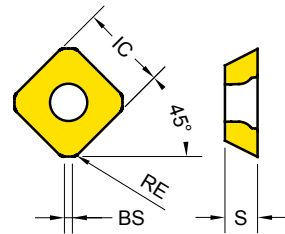
P25	P30	P20	P30	P40	K15	K20
M30	K30		M35	S30		
S20	H15					

	SEKR SEKN	Designation	RE (in)	Fz (in/tooth)	BS (in)	Material							
						YG602	YG622	YG712	YG713	YG613	YG501	YG5020	
SEKR General		SEKR 42 AFTN	.016	.006~.012	.055	●							
		SEKR 42 AFTN -PW	.016	.006~.012	.079	●							
SEKN Hard Materials		SEKN 42 AFTN	.016	.009~.014	.055	●							
		SEKN 42 AFTN -GW	.016	.009~.014	.079	●							
		SEKN 42 AFTN -PW	.016	.009~.014	.079	●							

- PW : for Improved Surface Roughness
- GW : Ground Wiper

Cutting Speed			Vc (ft/min)													
ISO	VDI	Sub Group	YG602		YG622		YG712		YG713		YG613		YG501		YG5020	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	590	1250	460	1310	560	980	660	980	330	690	-	-	-	-
	6~9	Low-Alloyed Steel	390	980	390	1050	590	820	560	890	230	590	-	-	-	-
	10~11	High-Alloyed Steel	230	490	230	560	330	460	280	480	130	290	-	-	-	-
M	12~13	Ferritic & Martensitic	390	660	-	-	-	-	-	-	230	590	-	-	-	-
	14	Austenitic Stainless Steel	430	820	-	-	-	-	-	-	230	660	-	-	-	-
K	15~16	Grey Cast Iron	390	820	390	890	-	-	-	-	590	1150	660	1150	-	
	17~18	Nodular Cast Iron	430	720	430	790	-	-	-	-	390	890	490	980	-	
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	
S	31~37	Superalloys & Titanium	80	150	-	-	-	-	-	-	-	-	-	-	-	
H	38~41	Hard Materials	130	260	130	330	-	-	-	-	-	-	-	-	-	

Milling - Face Milling - Inserts
SEKT - Face Milling Positive (4 Corners)



Series	IC	S
SEKT 1204	.500	.193
SEKT 12T3	.528	.157

EDP 1200..
 ●: Stock item ○: Order made item

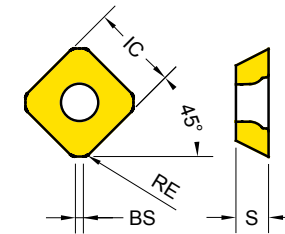
P25	P30	P20	P30	P40	K15	K20
M30	K30	M35	S30			
S20	H15					

SEKT 1204		Designation	RE (in)	Fz (in/tooth)	BS (in)	YG602	YG622	YG712	YG713	YG613	YG501	YG5020
SEKT 1204 General		SEKT 1204 AFTN	.043	.008~.014	.046	● 0055	○ 0416					
		SEKT 1204 -ST	.043	.003~.012	.079	● 0257	○ 0417					

SEKT 12T3		Designation	RE (in)	Fz (in/tooth)	BS (in)	YG602	YG622	YG712	YG713	YG613	YG501	YG5020
SEKT 12T3 General		SEKT 12T3 AGTN	.059	.006~.012	.051	● 0056	○ 0688					
		SEKT 12T3 -ST	.059	.003~.012	.079	● 0271				● 0689		

Cutting Speed			Vc (ft/min)													
ISO	VDI	Sub Group	YG602		YG622		YG712		YG713		YG613		YG501		YG5020	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	590	1250	460	1310	560	980	660	980	330	690	-	-	-	-
	6~9	Low-Alloyed Steel	390	980	390	1050	590	820	560	890	230	590	-	-	-	-
	10~11	High-Alloyed Steel	230	490	230	560	330	460	280	480	130	290	-	-	-	-
M	12~13	Ferritic & Martensitic	390	660	-	-	-	-	-	-	230	590	-	-	-	-
	14	Austenitic Stainless Steel	430	820	-	-	-	-	-	-	230	660	-	-	-	-
K	15~16	Grey Cast Iron	390	820	390	890	-	-	-	-	-	590	1150	660	1150	
	17~18	Nodular Cast Iron	430	720	430	790	-	-	-	-	-	390	890	490	980	
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	
S	31~37	Superalloys & Titanium	80	150	-	-	-	-	-	-	-	-	-	-	-	
H	38~41	Hard Materials	130	260	130	330	-	-	-	-	-	-	-	-	-	

Milling - Face Milling - Inserts
SEGT - Face Milling Positive (4 Corners)



Series	IC	S
SEGT 1204	.500	.193
SEGT 12T3	.528	.159

EDP 1200..
 ●: Stock item ○: Order made item

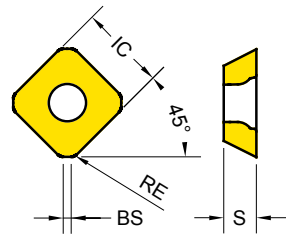
P25	P30	P20	P30	P40	K20	N15
M30	K30	M35	S30			
S20	H15					

SEGT 1204		Designation	RE (in)	Fz (in/tooth)	BS (in)	YG602	YG622	YG712	YG713	YG613	YG5020	YG50
-AL Aluminium		SEGT 1204-AL	.043	.004~.014	.079							● 0467

SEGT 12T3		Designation	RE (in)	Fz (in/tooth)	BS (in)	YG602	YG622	YG712	YG713	YG613	YG5020	YG50
-AL Aluminium		SEGT 12T3-AL	.059	.004~.014	.076							● 0468

Cutting Speed			Vc (ft/min)													
ISO	VDI	Sub Group	YG602		YG622		YG712		YG713		YG613		YG5020		YG50	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	590	1250	460	1310	560	980	660	980	330	690	-	-	-	-
	6~9	Low-Alloyed Steel	390	980	390	1050	590	820	560	890	230	590	-	-	-	-
	10~11	High-Alloyed Steel	230	490	230	560	330	460	280	480	130	290	-	-	-	-
M	12~13	Ferritic & Martensitic	390	660	-	-	-	-	-	-	230	590	-	-	-	-
	14	Austenitic Stainless Steel	430	820	-	-	-	-	-	-	230	660	-	-	-	-
K	15~16	Grey Cast Iron	390	820	390	890	-	-	-	-	-	660	1150	-	-	
	17~18	Nodular Cast Iron	430	720	430	790	-	-	-	-	-	490	980	-	-	
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	980	2620	
S	31~37	Superalloys & Titanium	80	150	-	-	-	-	-	-	-	-	-	-	-	
H	38~41	Hard Materials	130	260	130	330	-	-	-	-	-	-	-	-	-	

Milling - Face Milling - Inserts
SEMT - Face Milling Positive (4 Corners)



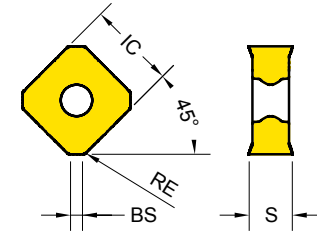
Series	IC	S
SEMT1204	.509	.201
SEMT13T3	.528	.157

EDP 1200..
 ●: Stock item ○: Order made item

P25	P30	P20	P30	P40	K15	K20
M30				M35		
K30	K30			S30		
S20	H15					

SEMT	Designation	RE (in)	Fz (in/tooth)	BS (in)	YG602	YG622	YG712	YG713	YG613	YG501	YG5020
SEMT 1204 General	SEMT 1204AFTN	.047	.010~.016	.049	● 0052						
	SEMT 13T3 AGSN	.059	.006~.012	.052	● 0203						

Milling - Face Milling - Inserts
SNMX - Face Milling Negative (8 Corners)



Series	IC	S
SNMX 1206	.500	.246

EDP 1200..
 ●: Stock item ○: Order made item

P25	P30	P20	P30	P40	K15	K15	K20
M30				M35			
K30	K30			S30			
S20	H15						

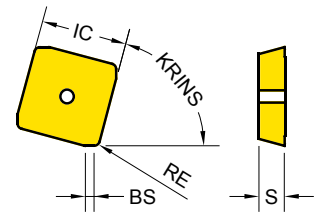
SNMX	Designation	RE (in)	Fz (in/tooth)	BS (in)	YG602	YG622	YG712	YG713	YG613	YG501	YG501G	YG5020
SNMX General	SNMX 1206 ANN	.031	.006~.013	.067	● 0231	○ 0453		○ 0658	● 0674		● 0478	● 0460
	SNMX 1206QNN	0.031	.006~.013	0.08						● 0686		

Cutting Speed			Vc (ft/min)													
ISO	VDI	Sub Group	YG602		YG622		YG712		YG713		YG613		YG501		YG5020	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	590	1250	460	1310	560	980	660	980	330	690	-	-	-	-
	6~9	Low-Alloyed Steel	390	980	390	1050	590	820	560	890	230	590	-	-	-	-
	10~11	High-Alloyed Steel	230	490	230	560	330	460	280	480	130	290	-	-	-	-
M	12~13	Ferritic & Martensitic	390	660	-	-	-	-	-	-	230	590	-	-	-	-
	14	Austenitic Stainless Steel	430	820	-	-	-	-	-	-	230	660	-	-	-	-
K	15~16	Grey Cast Iron	390	820	390	890	-	-	-	-	-	590	1150	660	1150	
	17~18	Nodular Cast Iron	430	720	430	790	-	-	-	-	-	390	890	490	980	
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	
S	31~37	Superalloys & Titanium	80	150	-	-	-	-	-	-	-	-	-	-	-	
H	38~41	Hard Materials	130	260	130	330	-	-	-	-	-	-	-	-	-	

Cutting Speed			Vc (ft/min)													
ISO	VDI	Sub Group	YG602		YG622		YG712		YG713		YG613		YG501(G)		YG5020	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	460	1250	460	1310	560	980	490	920	295	760	-	-	-	-
	6~9	Low-Alloyed Steel	390	980	390	1050	590	820	430	770	230	690	-	-	-	-
	10~11	High-Alloyed Steel	230	490	230	560	330	460	300	430	197	330	-	-	-	-
M	12~13	Ferritic & Martensitic	390	660	-	-	-	-	-	-	262	590	-	-	-	-
	14	Austenitic Stainless Steel	430	820	-	-	-	-	-	-	328	660	-	-	-	-
K	15~16	Grey Cast Iron	390	820	390	890	-	-	-	-	-	590	1150	660	1150	
	17~18	Nodular Cast Iron	430	720	430	790	-	-	-	-	-	390	890	490	980	
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	
S	31~37	Superalloys & Titanium	80	150	-	-	-	-	-	-	66	130	-	-	-	
H	38~41	Hard Materials	130	260	130	330	-	-	160	330	-	-	-	-	-	

Milling - Face Milling - Inserts

SPKN / SPKR / SPCN - Face Milling Positive (4 Corners ISO)



Series	KRINS	AS	IC	S
SP** 42	75°	11°	.500	.126
SP** 53	75°	11°	.625	.189

EDP 1200..

●: Stock item ○: Order made item

P25	P30	P20	P30	P40	K15	K20
M30	K30	S20	H15	M35	S30	

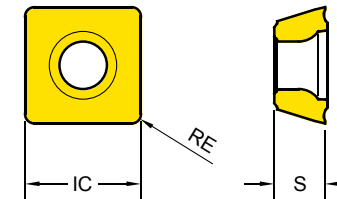
SPKR SPKN SPCN	Designation	RE (in)	Fz (in/tooth)	BS (in)	YG602	YG622	YG712	YG713	YG613	YG501	YG5020
SPKR General	SPKR 42 EDTR	.031	.006~.014	.055	● 0050						
	SPKR 42 EDTR -PW	.031	.006~.014	.061	● 0298						
SPKN Hard Materials	SPKN 42 EDTR	.031	.006~.013	.055	● 0048						
	SPKN 42 EDTR -GW	.024	.006~.011	.059	● 0280						
	SPKN 42 EDTR -PW	.031	.008~.014	.059	● 0279						
	SPKN 53 EDTR	.031	.006~.013	.051	● 0049						
	SPKN 53 EDTR -GW	.031	.010~.016	.087	● 0305						
	SPKN 53 EDTR -PW	.031	.010~.016	.084	● 0299						
SPCN Ground insert	SPCN 42 EDSR -M	.031	.004~.008	.072			● 0081				
	SPCN 42 EDSR -MR	.031	.004~.008	.070			● 0198				
	SPCN 53 EDSR -M	.031	.004~.008	.076			● 0098				
	SPCN 53 EDSR -MR	.031	.004~.008	.073			● 0199				

- PW : for Improved Surface Roughness
- GW : Ground Wiper
- M : for Mold & Die
- MR : for Mold & Die Roughing

Cutting Speed			Vc (ft/min)													
ISO	VDI	Sub Group	YG602		YG622		YG712		YG713		YG613		YG501		YG5020	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	590	1250	460	1310	560	980	660	980	330	690	-	-	-	-
	6~9	Low-Alloyed Steel	390	980	390	1050	590	820	560	890	230	590	-	-	-	-
	10~11	High-Alloyed Steel	230	490	230	560	330	460	280	480	130	290	-	-	-	-
M	12~13	Ferritic & Martensitic	390	660	-	-	-	-	-	-	230	590	-	-	-	-
	14	Austenitic Stainless Steel	430	820	-	-	-	-	-	-	230	660	-	-	-	-
K	15~16	Grey Cast Iron	390	820	390	890	-	-	-	-	590	1150	660	1150	-	-
	17~18	Nodular Cast Iron	430	720	430	790	-	-	-	-	390	890	490	980	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S	31~37	Superalloys & Titanium	80	150	-	-	-	-	-	-	-	-	-	-	-	-
H	38~41	Hard Materials	130	260	130	330	-	-	-	-	-	-	-	-	-	-

Milling - Face Milling - Inserts

SPMT - Universal Positive (4 Corners)



Series	AS	IC	S
SPMT 1204	11°	.500	.189

EDP 1200..

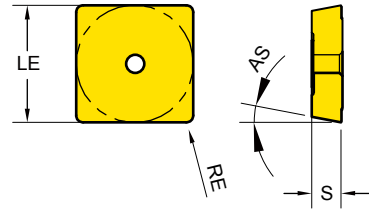
●: Stock item ○: Order made item

P25	P30	P20	P30	P40	K15	K20
M30	K30	S20	H15	M35	S30	

SPMT	Designation	RE (in)	Fz (in/tooth)	BS (in)	YG602	YG622	YG712	YG713	YG613	YG501	YG5020
SPMT General	SPMT 120408	.031	.006~.012	-	● 0223						

Cutting Speed			Vc (ft/min)													
ISO	VDI	Sub Group	YG602		YG622		YG712		YG713		YG613		YG501		YG5020	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	590	1250	460	1310	560	980	660	980	330	690	-	-	-	-
	6~9	Low-Alloyed Steel	390	980	390	1050	590	820	560	890	230	590	-	-	-	-
	10~11	High-Alloyed Steel	230	490	230	560	330	460	280	480	130	290	-	-	-	-
M	12~13	Ferritic & Martensitic	390	660	-	-	-	-	-	-	230	590	-	-	-	-
	14	Austenitic Stainless Steel	430	820	-	-	-	-	-	-	230	660	-	-	-	-
K	15~16	Grey Cast Iron	390	820	390	890	-	-	-	-	590	1150	660	1150	-	-
	17~18	Nodular Cast Iron	430	720	430	790	-	-	-	-	390	890	490	980	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S	31~37	Superalloys & Titanium	80	150	-	-	-	-	-	-	-	-	-	-	-	-
H	38~41	Hard Materials	130	260	130	330	-	-	-	-	-	-	-	-	-	-

Milling - Face Milling - Inserts
SPUN - Universal Positive (4 Corners ISO)



Series	AS	IC	S
SPUN 42	11°	.500	.126

EDP 1200..
●: Stock item ○: Order made item

P25	P30	P20	P30	P40	K15	K20
M30	K30	H15	S30	M35		
S20						

SPUN	Designation	RE (in)	Fz (in/tooth)	BS (in)	YG602	YG622	YG712	YG713	YG613	YG501	YG5020
	SPUN 422	.031	.006~.012	-	● 0224						

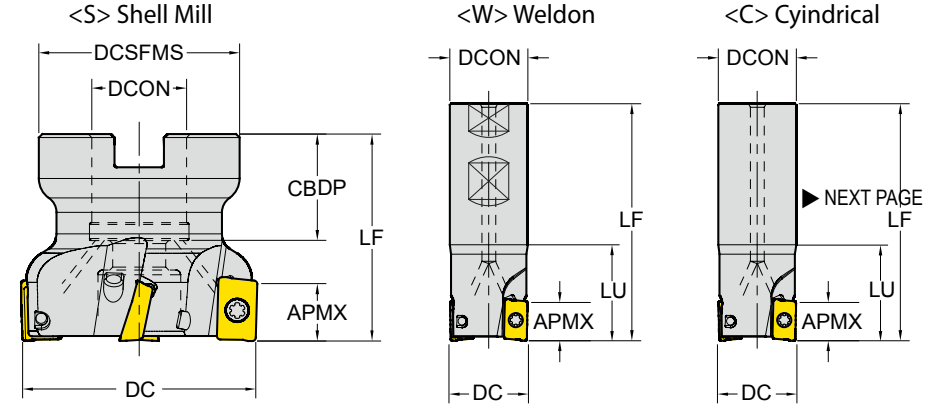
SPUN
General



Cutting Speed		Vc (ft/min)														
ISO	VDI	Sub Group	YG602		YG622		YG712		YG713		YG613		YG501		YG5020	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	590	1250	460	1310	560	980	660	980	330	690	-	-	-	-
	6~9	Low-Alloyed Steel	390	980	390	1050	590	820	560	890	230	590	-	-	-	-
	10~11	High-Alloyed Steel	230	490	230	560	330	460	280	480	130	290	-	-	-	-
M	12~13	Ferritic & Martensitic	390	660	-	-	-	-	-	-	230	590	-	-	-	-
	14	Austenitic Stainless Steel	430	820	-	-	-	-	-	-	230	660	-	-	-	-
K	15~16	Grey Cast Iron	390	820	390	890	-	-	-	-	590	1150	660	1150	-	-
	17~18	Nodular Cast Iron	430	720	430	790	-	-	-	-	390	890	490	980	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	
S	31~37	Superalloys & Titanium	80	150	-	-	-	-	-	-	-	-	-	-	-	
H	38~41	Hard Materials	130	260	130	330	-	-	-	-	-	-	-	-	-	

Milling - Shoulder Milling - Cutter
Cutters for APKT

Entry Angle : 90°
2 Corner Positive



ZEFP : Effective Number of Cutting Edges
CICT : Number of Inserts
CDBP : Connection Bore Depth

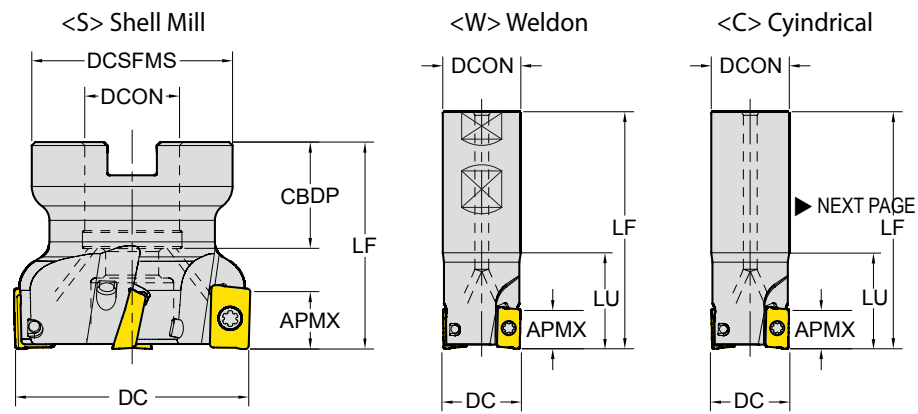
Unit: inch

Series	APMX	Designation	EDP 1700..	DC	ZEFP	LU	LF	TYPE	DCON	CDBP	DCSFMS	PCD1	PCD2	
APKT 1003	.350	E90-APKT10-D100Z4C075-L350i	0149	1.00	4	-	3.50	Cylindrical	.750	-	-	-	-	●
		E90-APKT10-D0625Z2W0625-L325i	0144	.625	2	-	3.25	Weldon	.625	-	-	-	-	●
		E90-APKT10-D075Z3W075-L320i	0146	.750	3	1.17	3.20		.750	-	-	-	-	●
		E90-APKT10-D100Z4W100-L350i	0148	1.00	4	-	3.50		1.00	-	-	-	-	●
		F90-APKT10-D150Z4S075i	0150	1.50	4	-	1.575	Shell Mill	.750	.750	1.34	-	-	●
		F90-APKT10-D200Z7S075i	0151	2.00	7	-	1.75		.750	.750	1.75	-	-	●
APKT 1604	.630	E90-APKT16-D100Z2C0875-L378i	0089	1.00	2	1.50	3.78	Cylindrical	.875	-	-	-	-	●
		E90-APKT16-D125Z3C100-L428i	0090	1.25	3	-	4.28		1.00	-	-	-	-	●
		E90-APKT16-D100Z2W100-L400i	0158	1.00	2	1.72	4.00	Weldon	1	-	-	-	-	●
		E90-APKT16-D100Z2W100-L1000i	0208	1.00	2	1.50	1.00		1	-	-	-	-	●
		E90-APKT16-D125Z3W100-L400i	0159	1.25	3	1.72	4.00		1	-	-	-	-	●
		E90-APKT16-D125Z3W125-L1000i	0205	1.25	3	1.50	1.00		1.25	-	-	-	-	●
		E90-APKT16-D125Z4W125-L1000i	0206	1.25	4	1.50	1.00	1.25	-	-	-	-	●	
		F90-APKT16-D200Z5S075i	0160	2.00	5	-	1.75	Shell Mill	.750	.750	1.75	-	-	●
		F90-APKT16-D250Z6S075i	0161	2.50	6	-	1.75		.750	.750	1.75	-	-	X
		F90-APKT16-D300Z7S100i	0162	3.00	7	-	2.00		1	.945	2.19	-	-	●
F90-APKT16-D400Z8S150i	0207	4.00	8	-	2.50	1.50	1.57		3.50	-	-	●		

▶ NEXT PAGE

Milling - Shoulder Milling - Cutter Cutters for APMT, APXT

Entry Angle : 90°
2 Corner Positive

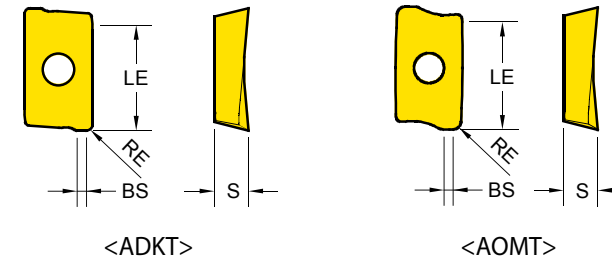


ZEFP : Effective Number of Cutting Edges
CICT : Number of Inserts
CDBP : Connection Bore Depth

□ : p. 99 / 100 Unit: inch

Series	APMX	Designation	EDP 1700..	DC	ZEFP	LU	LF	TYPE	DCON	CDBP	DCSFMS	PCD1	PCD2	☉
APMT 1135	.390	E90-APMT11-D0625Z2C0625-L400i	0098	.625	2	1.60	4.00	Cyindrical	.625	-	-	-	-	●
		E90-APMT11-D075Z2W075-L354i	0099	.750	2	1.17	3.54	Weldon	.750	-	-	-	-	●
		E90-APMT11-D100Z4W100-L428i	0100	1.00	4	1.32	4.28		1.00	-	-	-	-	●
		E90-APMT11-D125Z4W100-L428i	0101	1.25	4	1.32	4.28		1.00	-	-	-	-	●
APMT, APXT 1604	.630	E90-APMT16-D125Z3W125-L390i	0106	1.25	3	1.62	3.90	Weldon	1.25	-	-	-	-	●

Milling - Shoulder Milling - Inserts ADKT / AOMT - Shoulder Milling Positive (2 Corner)



Series	LE	IC	S
ADKT 1505	.539	.382	.228
AOMT 1236	.413	.260	.142

EDP 1200..
●: Stock item ○: Order made item

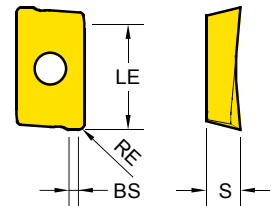
P25	P30	P20	P30	P40	K15	K20
M30	K30	S20	H15	M35	S30	

ADKT	Designation	RE (in)	Fz (in/tooth)	BS (in)	YG602	YG622	YG712	YG713	YG613	YG501	YG5020
ADKT General	ADKT 150508 PDTR	.031	.006~.012	.074	● 0220						

AOMT	Designation	RE (in)	Fz (in/tooth)	BS (in)	YG602	YG622	YG712	YG713	YG613	YG501	YG5020
AOMT General	AOMT 123604 PDTR	.016	.003~.009	.042	● 0217						
	AOMT 123608 PDTR	.031	.003~.009	.036	● 0218	○ 0709		○ 0708	● 0613		

Cutting Speed			Vc (ft/min)													
ISO	VDI	Sub Group	YG602		YG622		YG712		YG713		YG613		YG501		YG5020	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	590	1250	460	1310	560	980	660	980	330	690	-	-	-	-
	6~9	Low-Alloyed Steel	390	980	390	1050	590	820	560	890	230	590	-	-	-	-
	10~11	High-Alloyed Steel	230	490	230	560	330	460	280	480	130	290	-	-	-	-
M	12~13	Ferritic & Martensitic	390	660	-	-	-	-	-	-	230	590	-	-	-	-
	14	Austenitic Stainless Steel	430	820	-	-	-	-	-	-	230	660	-	-	-	-
K	15~16	Grey Cast Iron	390	820	390	890	-	-	-	-	-	590	1150	660	1150	
	17~18	Nodular Cast Iron	430	720	430	790	-	-	-	-	-	390	890	490	980	
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	
S	31~37	Superalloys & Titanium	80	150	-	-	-	-	-	-	-	-	-	-	-	
H	38~41	Hard Materials	130	260	130	330	-	-	-	-	-	-	-	-	-	

Milling - Shoulder Milling - Inserts
APKT - Shoulder Milling Positive (2 Corner)



Series	LE	IC	S
APKT 1003	.390	.264	.142
APKT 1604	.598	.370	.209

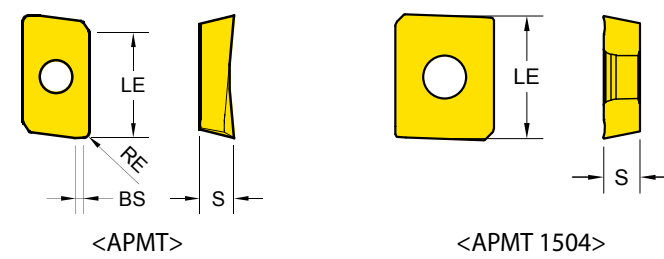
EDP 1200..
●: Stock item ○: Order made item

P25	P30	P20	P30	P40	K15	K20
M30	K30		M35			
S20	H15		S30			

APKT	Designation	RE (in)	Fz (in/tooth)	BS (in)	EDP 1200..						
					YG602	YG622	YG712	YG713	YG613	YG501	YG5020
General	APKT 100305 PDTR	.020	.006~.009	.034	●	○		○	●		
	APKT 100308 PDTR	.031	.006~.009	.035	●	○		○	●		
	APKT 100316 PDTR	.062	.006~.009	0.05	●	○			●		
	APKT 160404 PDTR	.016	.006~.010	.044	●			○	●		
	APKT 160408 PDTR	.031	.006~.012	.052	●			○	●		
	APKT 160412 PDTR	.047	.006~.013	.044	●			○			
	APKT 160416 PDTR	.063	.006~.013	.044	●			○			
	APKT 160424 PDTR	.094	.006~.015	.059	●			○			
-ST Stainless Steel Super Alloy	APKT 100305 -ST	.020	.003~.009	.034	●					●	
	APKT 100316 -ST	.062	.006~.009	0.05						●	
	APKT 160408 -ST	.031	.003~.010	.052	●					●	
-TR Hardened Steel	APKT 160404 -TR	.016	.010~.016	.083	●	○					
	APKT 160408 -TR	.031	.010~.016	.052	●	○		○			
	APKT 160412 -TR	.047	.010~.016	.094	●	○					
	APKT 160416 -TR	.063	.010~.016	.094	●	○					
APKT 160424 -TR	.094	.010~.016	.059	●	○						

Cutting Speed			Vc (ft/min)													
ISO	VDI	Sub Group	YG602		YG622		YG712		YG713		YG613		YG501		YG5020	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	590	1250	460	1310	560	980	660	980	330	690	-	-	-	-
	6~9	Low-Alloyed Steel	390	980	390	1050	590	820	560	890	230	590	-	-	-	-
	10~11	High-Alloyed Steel	230	490	230	560	330	460	280	480	130	290	-	-	-	-
M	12~13	Ferritic & Martensitic	390	660	-	-	-	-	-	-	230	590	-	-	-	-
	14	Austenitic Stainless Steel	430	820	-	-	-	-	-	-	230	660	-	-	-	-
K	15~16	Grey Cast Iron	390	820	390	890	-	-	-	-	590	1150	660	1150	-	-
	17~18	Nodular Cast Iron	430	720	430	790	-	-	-	-	390	890	490	980	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S	31~37	Superalloys & Titanium	80	150	-	-	-	-	-	-	-	-	-	-	-	-
H	38~41	Hard Materials	130	260	130	330	-	-	-	-	-	-	-	-	-	-

Milling - Shoulder Milling - Inserts
APMT - Shoulder Milling Positive (2 Corner)



Series	LE	IC	S
APMT 1135	.374	.244	.138
APMT 1604	.575	.362	.187
APMT 1504	.551	.500	.187

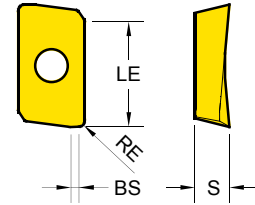
EDP 1200..
●: Stock item ○: Order made item

P25	P30	P20	P30	P40	K15	K20
M30	K30		M35			
S20	H15		S30			

APMT	Designation	RE (in)	Fz (in/tooth)	BS (in)	EDP 1200..						
					YG602	YG622	YG712	YG713	YG613	YG501	YG5020
General	APMT 113504 PDTR	.016	.006~.009	.050	●	○		○			
	APMT 113508 PDTR	.031	.006~.010	.042	●	○		○	●		
	APMT 160408 PDTR	.031	.006~.012	.044	●	○	●	○	●	●	
APMT 1504 General	APMT 1504	.031	.006~.011	-	●	○					

Cutting Speed			Vc (ft/min)													
ISO	VDI	Sub Group	YG602		YG622		YG712		YG713		YG613		YG501		YG5020	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	590	1250	460	1310	560	980	660	980	330	690	-	-	-	-
	6~9	Low-Alloyed Steel	390	980	390	1050	590	820	560	890	230	590	-	-	-	-
	10~11	High-Alloyed Steel	230	490	230	560	330	460	280	480	130	290	-	-	-	-
M	12~13	Ferritic & Martensitic	390	660	-	-	-	-	-	-	230	590	-	-	-	-
	14	Austenitic Stainless Steel	430	820	-	-	-	-	-	-	230	660	-	-	-	-
K	15~16	Grey Cast Iron	390	820	390	890	-	-	-	-	590	1150	660	1150	-	-
	17~18	Nodular Cast Iron	430	720	430	790	-	-	-	-	390	890	490	980	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S	31~37	Superalloys & Titanium	80	150	-	-	-	-	-	-	-	-	-	-	-	-
H	38~41	Hard Materials	130	260	130	330	-	-	-	-	-	-	-	-	-	-

Milling - Shoulder Milling - Inserts APGT Shoulder Milling Positive (2 Corner)



Series	LE	IC	S
AP*T 1135	.374	.244	.141
AP*T 1604	.575	.362	.189

EDP 1200..
●: Stock item ○: Order made item

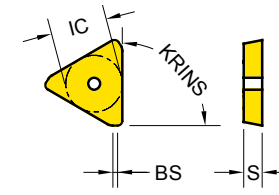
P25	P30	P20	P30	P40	K20	N15
M30	K30	M35	S30			
S20	H15					

APGT	Designation	RE (in)	Fz (in/tooth)	BS (in)	YG602	YG622	YG712	YG713	YG613	YG5020	YG50
	APGT100305-AL	.019	.002~.012	.056							● 0730
	APGT 160408-AL	.031	.004~.051	.070							● 0428

-AL
Aluminium



Milling - Shoulder Milling - Inserts TPKN / TPKR / TPCN - Shoulder Milling Positive (3 Corner ISO)



Series	KRINS	IC	S
TP** 32	90°	.375	.125
TP** 43	90°	.500	.187

EDP 1200..
●: Stock item ○: Order made item

P25	P30	P20	P30	P40	K15	K20
M30	K30	M35	S30			
S20	H15					

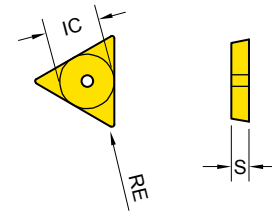
TPKR TPKN TPCN	Designation	RE (in)	Fz (in/tooth)	BS (in)	YG602	YG622	YG712	YG713	YG613	YG501	YG5020
TPKR General	TPKR 32 PDTR	.047	.006~.011	.047	● 0060				● 0690		
	TPKR 32 PDTR -PW	.024	.004~.008	.047	● 0300						
	TPKR 43 PDTR	.012	.007~.014	.067	● 0061				● 0715		
TPKN Hard Materials	TPKN 32 PDTR	-	.006~.012	.047	● 0062						
	TPKN 32 PDTR -GW	-	.006~.012	.064	● 0306						
	TPKN 32 PDTR -PW	-	.006~.011	.047	● 0302						
	TPKN 43 PDTR	-	.007~.012	.067	● 0063						
	TPKN 43 PDTR -GW	-	.009~.016	.098	● 0307						
	TPKN 43 PDTR -PW	-	.009~.016	.067	● 0303						
TPCN Ground insert	TPCN 43 PDSR -M	-	.002~.008	.069			● 0180				
	TPCN 43 PDSR -MR	-	.002~.008	.069			● 0202				

- PW : for Improved Surface Roughness
- GW : Ground Wiper
- M : for Mold & Die
- MR : for Mold & Die Roughing

Cutting Speed			Vc (ft/min)													
ISO	VDI	Sub Group	YG602		YG622		YG712		YG713		YG613		YG5020		YG50	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	590	1250	460	1310	560	980	660	980	330	690	-	-	-	-
	6~9	Low-Alloyed Steel	390	980	390	1050	590	820	560	890	230	590	-	-	-	-
	10~11	High-Alloyed Steel	230	490	230	560	330	460	280	480	130	290	-	-	-	-
M	12~13	Ferritic & Martensitic	390	660	-	-	-	-	-	-	230	590	-	-	-	-
	14	Austenitic Stainless Steel	430	820	-	-	-	-	-	-	230	660	-	-	-	-
K	15~16	Grey Cast Iron	390	820	390	890	-	-	-	-	660	1150	-	-	-	-
	17~18	Nodular Cast Iron	430	720	430	790	-	-	-	-	490	980	-	-	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	980	2620	
S	31~37	Superalloys & Titanium	80	150	-	-	-	-	-	-	-	-	-	-	-	
H	38~41	Hard Materials	130	260	130	330	-	-	-	-	-	-	-	-	-	

Cutting Speed			Vc (ft/min)													
ISO	VDI	Sub Group	YG602		YG622		YG712		YG713		YG613		YG501		YG5020	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	590	1250	460	1310	560	980	660	980	330	690	-	-	-	-
	6~9	Low-Alloyed Steel	390	980	390	1050	590	820	560	890	230	590	-	-	-	-
	10~11	High-Alloyed Steel	230	490	230	560	330	460	280	480	130	290	-	-	-	-
M	12~13	Ferritic & Martensitic	390	660	-	-	-	-	-	-	230	590	-	-	-	-
	14	Austenitic Stainless Steel	430	820	-	-	-	-	-	-	230	660	-	-	-	-
K	15~16	Grey Cast Iron	390	820	390	890	-	-	-	-	660	1150	660	1150		
	17~18	Nodular Cast Iron	430	720	430	790	-	-	-	-	390	890	490	980		
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	
S	31~37	Superalloys & Titanium	80	150	-	-	-	-	-	-	-	-	-	-	-	
H	38~41	Hard Materials	130	260	130	330	-	-	-	-	-	-	-	-	-	

Milling - Shoulder Milling - Inserts
TPUN - Universal Positive (3 Corners ISO)



Series	IC	S
TPUN 32	.375	.125

EDP 1200..
 ●: Stock item ○: Order made item

P25	P30	P20	P30	P40	K15	K20
M30	K30	H15	M35	S30		
S20						

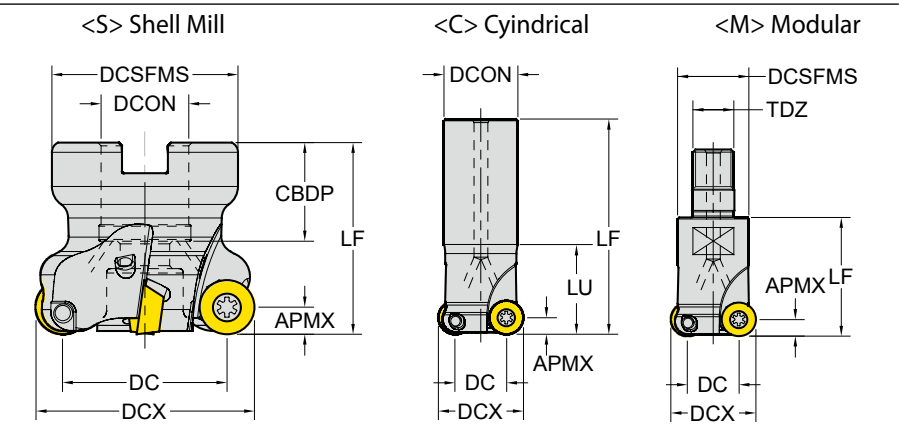
TPUN	Designation	RE (in)	Fz (in/tooth)	BS (in)	YG602	YG622	YG712	YG713	YG613	YG501	YG5020
	TPUN 322	.031	.003~.006	-	● 0064						

TPUN



Milling - Profiling - Cutter
Cutters for RDKT, RDKW

Round Positive



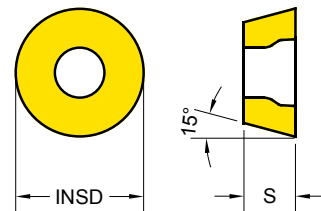
ZEFP : Effective Number of Cutting Edges
 CDBP : Connection Bore Depth

Unit : inch

Series	APMX	Designation	EDP 1700..	DC	DCX	ZEFP	LU	LF	TYPE	DCON /TDZ	CDBP	DCSFMS	Material
RDKT, RDKW 0802	.157	E-RDKT08-D075Z2C075-L700i	0044	.435	.75	2	1.5	7.00	Cyindrical	.75	-	-	●
		E-RDKT08-D100Z3C075-L700i	0045	.685	1.00	3	1.5	7.00		.75	-	-	●
		M-RDKT08-D075Z2M10i	0046	.435	.75	2	-	1.25	Modular	M10	-	-	●
		M-RDKT08-D100Z3M12i	0047	.685	1.00	3	-	1.50		M12	-	-	●
RDKT, RDKW 10T3	.196	E-RDKT10-D100Z2C100-L700i	0048	.606	1.00	2	1.5	7.00	Cyindrical	1	-	-	●
		M-RDKT10-D100Z3M12i	0049	.606	1.00	3	-	1.50		Modular	M12	-	0.827
		F-RDKT10-D150Z5S050i	0050	1.106	1.50	5	-	1.575	Shell Mill	.50	.63	1.25	●
		F-RDKT10-D200Z6S075i	0051	1.606	2.00	6	-	1.75		.75	.75	1.75	●
RDKT, RDKW 1204	.236	E-RDKT12-D100Z2C100-L700i	0052	.527	1.00	2	-	7.00	Cyindrical	1	-	-	●
		E-RDKT12-D125Z2C125-L800i	0053	.777	1.25	2	-	8.00		1.25	-	-	●
		E-RDKT12-D125Z3C125-L600i	0054	.777	1.25	3	-	6.00		1.25	-	-	●
		M-RDKT12-D100Z2M12i	0055	.527	1.00	2	-	1.50	Modular	M12	-	.827	●
		M-RDKT12-D125Z3M16i	0056	.777	1.25	3	-	1.75		M16	-	1.142	●
		F-RDKT12-D150Z4S050i	0057	1.027	1.50	4	-	1.575	Shell Mill	.50	.63	1.25	●
		F-RDKT12-D200Z5S075i	0058	1.527	2.00	5	-	1.75		.75	.75	1.75	
		F-RDKT12-D250Z6S075i	0059	2.027	2.50	6	-	1.75		.75	.75	1.75	

Cutting Speed		Vc (ft/min)															
ISO	VDI	Sub Group		YG602		YG622		YG712		YG713		YG613		YG501		YG5020	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel		590	1250	460	1310	560	980	660	980	330	690	-	-	-	-
	6~9	Low-Alloyed Steel		390	980	390	1050	590	820	560	890	230	590	-	-	-	-
	10~11	High-Alloyed Steel		230	490	230	560	330	460	280	480	130	290	-	-	-	-
M	12~13	Ferritic & Martensitic		390	660	-	-	-	-	-	-	230	590	-	-	-	-
	14	Austenitic Stainless Steel		430	820	-	-	-	-	-	-	230	660	-	-	-	-
K	15~16	Grey Cast Iron		390	820	390	890	-	-	-	-	-	590	1150	660	1150	
	17~18	Nodular Cast Iron		430	720	430	790	-	-	-	-	-	390	890	490	980	
N	21~30	Non-Ferrous Metals (Al)		-	-	-	-	-	-	-	-	-	-	-	-	-	
S	31~37	Superalloys & Titanium		80	150	-	-	-	-	-	-	-	-	-	-	-	
H	38~41	Hard Materials		130	260	130	330	-	-	-	-	-	-	-	-	-	

Milling - Profiling - Inserts
RDKT / RDKW - Profiling Positive (Round)



Series	INSD	S	Series	INSD	S
RDK* 0501	.197	.055	RDK* 10T3	.394	.157
RDK* 0702	.276	.094	RDK* 1204	.472	.189
RDK* 0802	.315	.094			

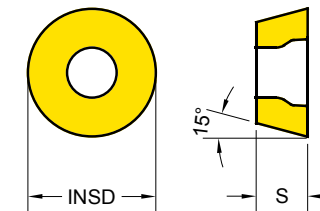
EDP 1200..
●: Stock item ○: Order made item

P25	P30	P20	P30	P40	K15	K20
M30				M35		
K30	K30			S30		
S20	H15					

RDKT RDKW	Designation	Fz (in/tooth)	YG602	YG622	YG712	YG713	YG613	YG501	YG5020
RDKT General	RDKT 0802M0	.006~.010	●						
	RDKT 10T3M0	.006~.011	●			○			
	RDKT 1204M0	.008~.012	●			○	●		
	RDKT 1604M0	.012~.024	●						
-ST Stainless Steel Super Alloy	RDKT 0802M0-ST	.003~.010	●						
	RDKT 10T3M0-ST	.003~.011	●				●		
	RDKT 1204M0-ST	.004~.012	●				●		
-TR Hardened Steel	RDKT 0802M0-TR	.007~.014	●	○					
	RDKT 10T3M0-TR	.009~.016	●	○					
	RDKT 1204M0-TR	.009~.016	●	○		○			
RDKW Hard Materials	RDKW 0501M0	.004~.008	●	○					
	RDKW 0702M0	.005~.010	●	○		○			
	RDKW 0802M0	.005~.010	●	○					
	RDKW 10T3M0	.006~.012	●	○					
	RDKW 1204M0	.006~.014	●	○		○			

Cutting Speed			Vc (ft/min)													
ISO	VDI	Sub Group	YG602		YG622		YG712		YG713		YG613		YG501		YG5020	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	590	1250	460	1310	560	980	660	980	330	690	-	-	-	-
	6~9	Low-Alloyed Steel	390	980	390	1050	590	820	560	890	230	590	-	-	-	-
	10~11	High-Alloyed Steel	230	490	230	560	330	460	280	480	130	290	-	-	-	-
M	12~13	Ferritic & Martensitic	390	660	-	-	-	-	-	-	230	590	-	-	-	-
	14	Austenitic Stainless Steel	430	820	-	-	-	-	-	-	230	660	-	-	-	-
K	15~16	Grey Cast Iron	390	820	390	890	-	-	-	-	590	1150	660	1150	-	-
	17~18	Nodular Cast Iron	430	720	430	790	-	-	-	-	390	890	490	980	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S	31~37	Superalloys & Titanium	80	150	-	-	-	-	-	-	-	-	-	-	-	-
H	38~41	Hard Materials	130	260	130	330	-	-	-	-	-	-	-	-	-	-

Milling - Profiling - Inserts
RDMT / RDMW - Profiling Positive (Round)



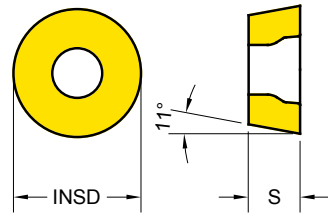
Series	INSD	S	Series	INSD	S
RDM* 0802	.315	.094	RDM* 10T3	.394	.156
RDM* 0803	.315	.125	RDM* 1204	.472	.187

EDP 1200..
●: Stock item ○: Order made item

P25	P30	P20	P30	P40	K15	K20
M30				M35		
K30	K30			S30		
S20	H15					

RDMT RDMW	Designation	Fz (in/tooth)	YG602	YG622	YG712	YG713	YG613	YG501	YG5020
RDMT General	RDMT 0802M0	.006~.010	●						
	RDMT 0803M0	.006~.010	●						
	RDMT 10T3M0	.007~.011	●						
	RDMT 1204M0	.008~.012	●						
RDMW Hard Materials	RDMW 0802M0	.002~.006	●						
	RDMW 10T3M0	.004~.010	●						
	RDMW 1204M0	.006~.012	●						

Cutting Speed			Vc (ft/min)													
ISO	VDI	Sub Group	YG602		YG622		YG712		YG713		YG613		YG501		YG5020	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	590	1250	460	1310	560	980	660	980	330	690	-	-	-	-
	6~9	Low-Alloyed Steel	390	980	390	1050	590	820	560	890	230	590	-	-	-	-
	10~11	High-Alloyed Steel	230	490	230	560	330	460	280	480	130	290	-	-	-	-
M	12~13	Ferritic & Martensitic	390	660	-	-	-	-	-	-	230	590	-	-	-	-
	14	Austenitic Stainless Steel	430	820	-	-	-	-	-	-	230	660	-	-	-	-
K	15~16	Grey Cast Iron	390	820	390	890	-	-	-	-	590	1150	660	1150	-	-
	17~18	Nodular Cast Iron	430	720	430	790	-	-	-	-	390	890	490	980	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S	31~37	Superalloys & Titanium	80	150	-	-	-	-	-	-	-	-	-	-	-	-
H	38~41	Hard Materials	130	260	130	330	-	-	-	-	-	-	-	-	-	-



Series	INSD	S	Series	INSD	S
RPM* 08T2	.315	.109	RPM* 1003	.394	.125
RPM* 10T3	.394	.156	RPM* 1204	.472	.187

EDP 1200..

●: Stock item ○: Order made item

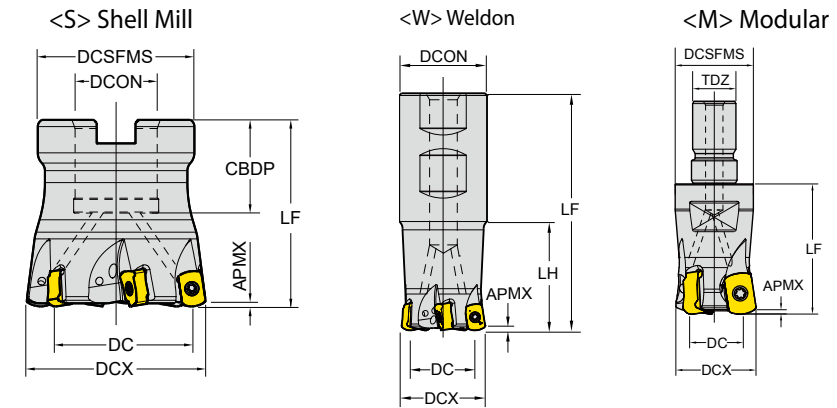
P25	P30	P20	P30	P40	K15	K20
M30	K30	H15	S30			

	YG602	YG622	YG712	YG713	YG613	YG501	YG5020
●							
○							

RPMT / RPMW	Designation	Fz (in/tooth)	YG602	YG622	YG712	YG713	YG613	YG501	YG5020
RPMT General	RPMT 08T2M0	.004~.009	●				○	●	
	RPMT 10T3M0	.006~.012	●				○	●	
	RPMT 1204M0	.008~.014	●	○	●	○	●	●	
-ST Stainless Steel Super Alloy	RPMT 1204M0-ST	.004~.012	●				●		
	RPMT 1204M0-TR	-				○			
-TR Hardened Steel	RPMT 1204M0-TR	-				○			
	RPMW 1003M0	.006~.012	●	○		○			
RPMW Hard Materials	RPMW 1204M0	.006~.014	●			○			

Cutting Speed			Vc (ft/min)													
ISO	VDI	Sub Group	YG602		YG622		YG712		YG713		YG613		YG501		YG5020	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1-5	Non-Alloyed Steel	590	1250	460	1310	560	980	660	980	330	690	-	-	-	-
	6-9	Low-Alloyed Steel	390	980	390	1050	590	820	560	890	230	590	-	-	-	-
	10-11	High-Alloyed Steel	230	490	230	560	330	460	280	480	130	290	-	-	-	-
M	12-13	Ferritic & Martensitic	390	660	-	-	-	-	-	-	230	590	-	-	-	-
	14	Austenitic Stainless Steel	430	820	-	-	-	-	-	-	230	660	-	-	-	-
K	15-16	Grey Cast Iron	390	820	390	890	-	-	-	-	590	1150	660	1150	-	-
	17-18	Nodular Cast Iron	430	720	430	790	-	-	-	-	390	890	490	980	-	-
N	21-30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S	31-37	Superalloys & Titanium	80	150	-	-	-	-	-	-	-	-	-	-	-	-
H	38-41	Hard Materials	130	260	130	330	-	-	-	-	-	-	-	-	-	-

Entry Angle : 10°
4 Corner Negative



ZEPF : Effective Number of Cutting Edges
CBDP : Connection Bore Depth

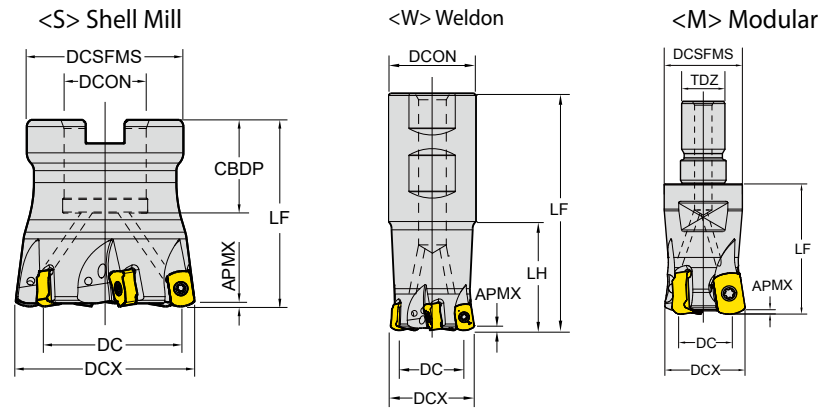
Unit : inch

Series	APMX	Designation	EDP 1700..	DC	DCX	ZEPF	LF	Type	D/CON /TDZ	LH	CBDP	DCSFMS	●
ENMX 0604	.04	EHF-ENMX06-D0625Z2W0625-L500I	0759	.334	.625	2	5.000	Weldon	.625	1.250	-	-	●
		EHF-ENMX06-D075Z3W075-L500I	0669	.460	.750	3	5.000		.750	2.000	-	-	●
		EHF-ENMX06-D100Z4W100-L550I	0670	.710	1.000	4	5.500		1.000	2.500	-	-	●
		EHF-ENMX06-D125Z5W125-L600I	0671	.960	1.250	5	6.000		1.250	3.000	-	-	●
		FHF-ENMX06-D150Z6S050I	0672	1.210	1.500	6	1.575	Shell Mill	.500	-	.750	1.340	●
		FHF-ENMX06-D200Z6S075I	0673	1.710	2.000	6	1.969		.750	-	.750	1.570	●
		FHF-ENMX06-D300Z10S100I	0760	2.710	3.000	10	2.480		1.000	-	1.024	2.835	●
		MHF-ENMX06-D0625Z2M08I	0761	.310	.625	2	1.000		M08	-	-	0.512	●
		MHF-ENMX06-D0705Z2M08I	0762	.410	.705	2	1.000	M08	-	-	0.512	●	
		MHF-ENMX06-D075Z3M10I	0763	.460	.750	3	1.250	M10	-	-	0.709	●	
		MHF-ENMX06-D083Z3M10I	0764	.540	.830	3	1.250	M10	-	-	0.709	●	
		MHF-ENMX06-D100Z4M12I	0765	.710	1.000	4	1.500	Modular	M12	-	-	0.827	●
		MHF-ENMX06-D1125Z4M12I	0766	.830	1.125	4	1.500		M12	-	-	0.827	●
		MHF-ENMX06-D125Z5M16I	0767	.960	1.250	5	1.750		M16	-	-	1.142	●
MHF-ENMX06-D1375Z5M16I	0768	1.080	1.375	5	1.750	M16	-		-	1.142	●		
MHF-ENMX06-D150Z6M16I	0769	1.210	1.500	6	1.750	M16	-	-	1.142	●			

Series	Series	EDP 1800..	Designation
ENMX 0604	Wrench	0218	TPWBTP08
	Screw	0206	TP082507-GS
	Handle	0189	DH-H4
	Bit	0190	DB-TP08

Milling - High Feed Milling - Cutter
Cutters for ENMX

Entry Angle : 10°
4 Corner Negative



ZEFP : Effective Number of Cutting Edges
CBDP : Connection Bore Depth

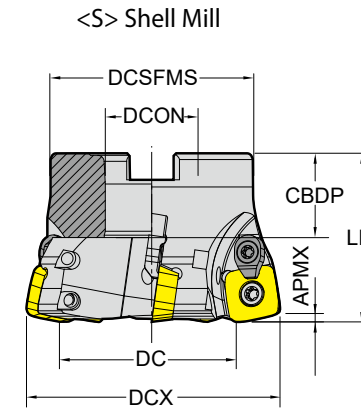
□ : p. 110 Unit : inch

Series	APMX	Designation	EDP 1700..	DC	DCX	ZEFP	LF	Type	DCON /TDZ	LH	CBDP	DCSFMS	⚡
ENMX 0905	.059	EHF-ENMX09-D100Z2W100-L550I	0777	.614	1.00	2	5.500	Cylindrical	1.00	2.50	-	-	●
		EHF-ENMX09-D125Z3W125-L600I	0778	.864	1.25	3	6		1.25	3.0	-	-	●
		EHF-ENMX09-D150Z4W125-L600I	0779	1.114	1.50	4	6		1.25	1.5	-	-	●
		FHF-ENMX09-D200Z5S075I	0780	1.614	2.00	5	1.969	Shell Mill	.75	-	0.750	1.75	●
		FHF-ENMX09-D250Z6S075I	0781	2.114	2.50	6	1.969		.75	-	0.750	2.204	●
		FHF-ENMX09-D300Z8S100I	0782	2.614	3.00	8	2.480		1.00	-	1.049	2.204	●
		FHF-ENMX09-D400Z10S125I	0783	3.614	4.00	10	2.480		1.25	-	1.260	3	●
		FHF-ENMX09-D600Z14S200I	0784	5.614	6.00	14	2.480		2.00	-	1.496	4.7	●
		MHF-ENMX09-D100Z2M12I	0852	.614	1.000	2	1.500		Modular	M12	-	-	0.827
		MHF-ENMX09-D1125Z2M12I	0853	.740	1.125	2	1.500	M12		-	-	0.827	●
		MHF-ENMX09-D125Z3M16I	0854	.864	1.250	3	1.750	M16		-	-	1.142	●
		MHF-ENMX09-D1375Z3M16I	0855	.990	1.375	3	1.750	M16		-	-	1.142	●
		MHF-ENMX09-D150Z4M16I	0856	1.114	1.500	4	1.750	M16		-	-	1.142	●

Series	Series	EDP 1800..	Designation
ENMX 0905	Wrench	0216	TPWBTP09
	Screw	0214	TP093510-GS
	Handle	0189	DH-H4
	Bit	0209	DB-TP09

Milling - High Feed Milling - Cutter
Cutters for SDMT, SDMW

Entry Angle : 10°
4 Corner Positive



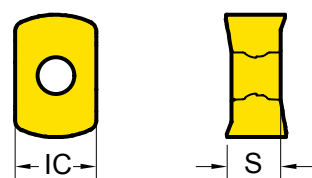
ZEFP : Effective Number of Cutting Edges
CBDP : Connection Bore Depth

□ : p. 112 Unit : mm

Series	APMX	Designation	EDP 1700..	DC	DCX	ZEFP	LF	TYPE	DCON /TDZ	CBDP	DCSFMS	⚡
SDMT SDMW 1204	.059	FHF-SD1204-D200Z5S075i	0388	2.000	2.00	5	2.00	Shellmill	.75	0.789	1.75	●
		FHF-SD1204-D250Z5S100i	0389	2.500	2.50	5	2.00		1.00	0.945	2.13	●
		FHF-SD1204-D300Z5S100i	0436	3.000	3.00	5	2.00		1.00	0.945	2.13	●
		FHF-SD1204-D300Z7S100i	0437	3.000	3.00	7	2.00		1.00	0.945	2.13	●
		FHF-SD1204-D400Z7S150i	0438	4.000	4.00	7	2.55		1.50	1.181	3.81	●
		FHF-SD1204-D400Z9S150i	0439	4.000	4.00	9	2.55		1.50	1.181	3.81	●

Milling - High Feed Milling - Inserts

ENMX - High Feed Negative (4 Corners)



Series	IC	S
ENMX0604	.248	.166
ENMX0905	.354	.213

EDP 1200..

●: Stock item ○: Order made item

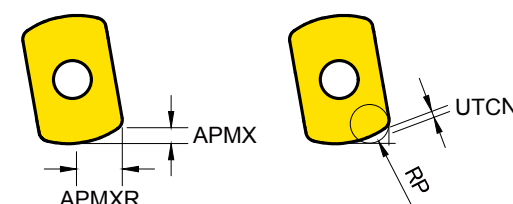
P25	P30	P20	P30	P40	K15	K20
M30	K30	H15	S30	M35		
S20	H15					

ENMX	Designation	RE (in)	Fz (in/tooth)	BS (in)	YG602	YG622	YG712	YG713	YG613	YG501	YG5020
ENMX General	ENMX 0604	-	.012~.079	-	● 0474	○ 0553			● 0606		
	ENMX 0905	-	.012~.098	-	● 0702	○ 0704			● 0703		
-ST Stainless Steel	ENMX 0604-ST	-	.012~.031	-	● 0623				● 0625		
	ENMX 0905-ST	-	.008~.047	-	● 0705				● 0706		
-TR Hardened Steel	ENMX 0604-TR	-	.012~.098	-	● 0459	○ 0552	● 0504	○ 0636			
	ENMX 0905-TR	-	.012~.118	-	● 0600	○ 0629		○ 0717			

Milling - High Feed Milling - Inserts

ENMX - High Feed Negative (4 Corners) Technical Information

ENMX 0604



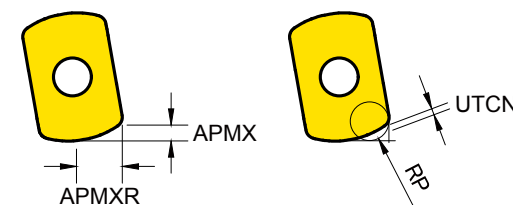
Unit: inch

RP Programmed Corner R	UTCN Uncut Thickness	Overcut
.079	.012	.000
.098	.007	.007
.118	.003	.014



DCX External Cutter Diameter	APMX Maximum Depth of Cut	APMXR Maximum Radial Depth of Cut	RMPX Maximum Ramping Angle(°)	RP Prograigned Corner Radius	UTCN Uncut Thickness	Diameter Minimum Cutting Diameter	Diameter Maximum Cutting Diameter	Pitch Helical Interpolation Pitch	Ae Enlarge Width
.625	.035	.137	3.4°	R.079	.011	.817	1.171	.035	.487
.750	.039	.145	2.0°	R.079	.012	1.067	1.421	.039	.612
1.00	.039	.145	1.2°	R.079	.012	1.567	1.921	.039	.862
1.25	.039	.145	0.9°	R.079	.012	2.067	2.421	.039	1.112
1.50	.039	.145	0.7°	R.079	.012	2.567	2.921	.039	1.362
2.00	.039	.145	0.5°	R.079	.012	3.567	3.921	.039	1.862
3.00	.039	.145	0.3°	R.079	.012	5.567	5.922	.039	2.862

ENMX 0905



Unit: inch

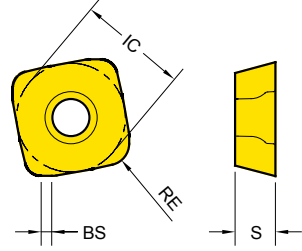
RP Programmed Corner R	UTCN Uncut Thickness	Overcut
.098	.022	.000
.118	.015	.004
.137	.009	0.01
.157	.004	.016
.177	.000	.019



DCX External Cutter Diameter	APMX Maximum Depth of Cut	APMXR Maximum Radial Depth of Cut	RMPX Maximum Ramping Angle(°)	RP Prograigned Corner Radius	UTCN Uncut Thickness	Diameter Minimum Cutting Diameter	Diameter Maximum Cutting Diameter	Pitch Helical Interpolation Pitch	Ae Enlarge Width
1.0	.059	.185	3.8°	R.098	.022	1.685	1.921	.059	.803
1.25	.059	.185	2.4°	R.098	.022	2.185	2.421	.059	1.053
1.5	.059	.185	1.7°	R.098	.022	2.685	2.921	.059	1.303
2.0	.059	.185	1.1°	R.098	.022	3.685	3.921	.059	1.803
2.5	.059	.185	0.8°	R.098	.022	4.685	4.921	.059	2.303
3.0	.059	.185	0.7°	R.098	.022	5.685	5.921	.059	2.803
4.0	.059	.185	0.4°	R.098	.022	7.685	7.921	.059	3.803
6.0	.059	.185	0.3°	R.098	.022	11.685	11.921	.059	5.803

Cutting Speed			Vc (ft/min)													
ISO	VDI	Sub Group	YG602		YG622		YG712		YG713		YG613		YG501		YG5020	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	590	1250	460	1310	560	980	660	980	330	690	-	-	-	-
	6~9	Low-Alloyed Steel	390	980	390	1050	590	820	560	890	230	590	-	-	-	-
	10~11	High-Alloyed Steel	230	490	230	560	330	460	280	480	130	290	-	-	-	-
M	12~13	Ferritic & Martensitic	390	660	-	-	-	-	-	-	230	590	-	-	-	-
	14	Austenitic Stainless Steel	430	820	-	-	-	-	-	-	230	660	-	-	-	-
K	15~16	Grey Cast Iron	390	820	390	890	-	-	-	-	-	590	1150	660	1150	
	17~18	Nodular Cast Iron	430	720	430	790	-	-	-	-	-	390	890	490	980	
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	
S	31~37	Superalloys & Titanium	80	150	-	-	-	-	-	-	-	-	-	-	-	
H	38~41	Hard Materials	130	260	130	330	-	-	-	-	-	-	-	-	-	

Milling - High Feed Milling - Inserts
SDMT / SDM W - High Feed Positive (4 Corners)

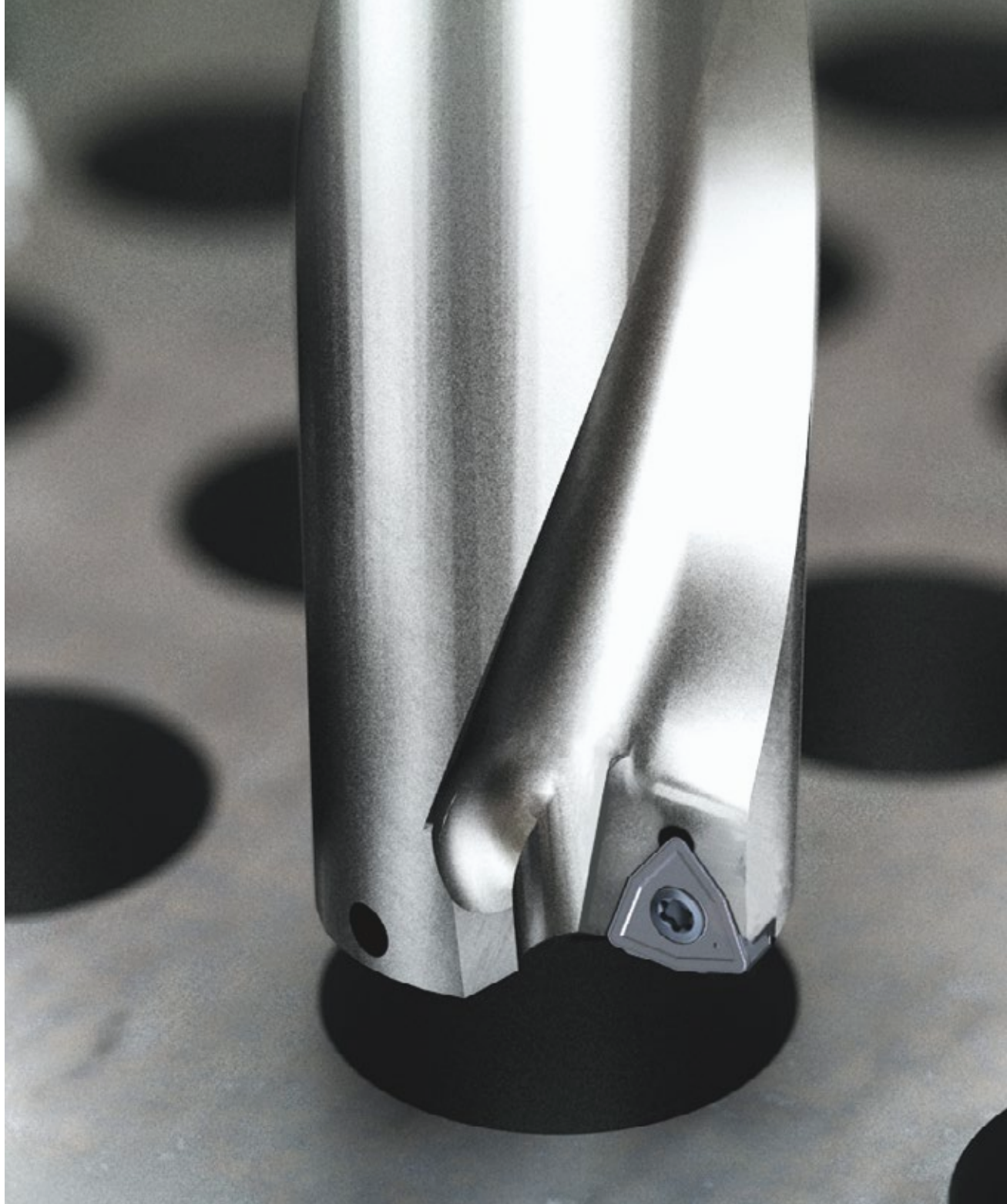


Series	IC	S
SDM* 1204	.500	.185

EDP 1200..
●: Stock item ○: Order made item

P25	P30	P20	P30	P40	K15	K20
M30	K30	H15	M35	S30		
S20						

SDMT SDM W	Designation	RE (in)	Fz (in/tooth)	BS (in)	YG602	YG622	YG712	YG713	YG613	YG501	YG5020
-ST Stainless Steel Super Alloy	SDMT 120420-ST	.075	.024~.047	.057	● 0274				● 0666		
SDM W Hard Materials	SDM W 120420	.075	.024~.055	.055	● 0273	○ 0341		○ 0634	● 0691		



DRILLING

- Drilling Overview
- Drilling Inserts (SPMX)
- Drilling Inserts (WCMX)

Cutting Speed			Vc (ft/min)													
ISO	VDI	Sub Group	YG602		YG622		YG712		YG713		YG613		YG501		YG5020	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	590	1250	460	1310	560	980	660	980	330	690	-	-	-	-
	6~9	Low-Alloyed Steel	390	980	390	1050	590	820	560	890	230	590	-	-	-	-
	10~11	High-Alloyed Steel	230	490	230	560	330	460	280	480	130	290	-	-	-	-
M	12~13	Ferritic & Martensitic	390	660	-	-	-	-	-	-	230	590	-	-	-	-
	14	Austenitic Stainless Steel	430	820	-	-	-	-	-	-	230	660	-	-	-	-
K	15~16	Grey Cast Iron	390	820	390	890	-	-	-	-	-	590	1150	660	1150	
	17~18	Nodular Cast Iron	430	720	430	790	-	-	-	-	-	390	890	490	980	
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	
S	31~37	Superalloys & Titanium	80	150	-	-	-	-	-	-	-	-	-	-	-	
H	38~41	Hard Materials	130	260	130	330	-	-	-	-	-	-	-	-	-	

Drilling Overview

Drilling Grades

Drilling Grades	P Steel					M Stainless steel					K Cast iron				
	P05	P15	P25	P35	P45	M05	M15	M25	M35	M45	K05	K15	K25	K35	K45
PVD	YG602			602				602						602	
	YG713		713												
	YG613				613			613							

YG602 P20 - P35 M20 - M40 K20 - K40 S15 - S25	PVD - TiAlN 	Universal grade for General Drilling Application <ul style="list-style-type: none"> Ultra Dense PVD Coating with optimal thermal resistance & strength Sub-Micron substrate designed for demanding application
YG713 P15 - P25	PVD - TiAlN 	Drilling Grade for General Steel Application <ul style="list-style-type: none"> Multi-layer TiAlN structure realizes stronger crater and flank wear resistance Fine-grained carbide and balanced substrate
YG613 P30 - P50 M30 - M50	PVD - TiAlN 	Drilling Grade for Stainless Steel Application <ul style="list-style-type: none"> New coating layer with high toughness and lubrication on ultra fine grain substrate with high toughness. The toughest substrates provides excellent cutting performance in stainless steel

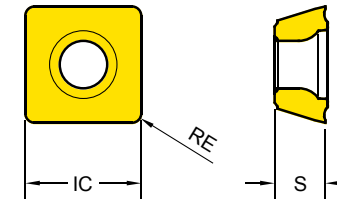
Universal Drilling Inserts

	4 Corner	SPMX Series	SPMX	05, 06, 07, 09, 11, 14
	ISO 3 Corner	WCMX Series	WCMX	03, 04, 05, 06, 08

Drilling Chip breakers

P	M	K	
	M		-ST <ul style="list-style-type: none"> Sharp Geometry Sticky Material, Stainless Steel
P	M	K	General Inserts (No Description) <ul style="list-style-type: none"> First Choice for General Application

Drilling - Inserts Drilling Inserts (SPMX)



Series	inch	
	IC	S
SPMX 0502	.197	.094
SPMX 0602	.236	.095
SPMX 07T3	.313	.156
SPMX 0904	.386	.169
SPMX 1104	.453	.189
SPMX 1405	.563	.205

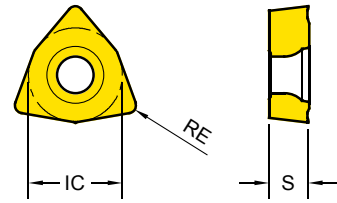
EDP 3200..			
P25	M30	P30	P40
K30	S20	M35	S30
YG602	YG713	YG613	

SPMX	Designation	Fn (in/rev.)	EDP 3200..		
			YG602	YG713	YG613
General	SPMX 050204	.003~.006	● 0005	○ 0062	● 0077
	SPMX 060204	.003~.006	● 0006	○ 0063	● 0078
	SPMX 07T308	.003~.006	● 0007	○ 0064	● 0061
	SPMX 090408	.003~.006	● 0008	○ 0065	● 0079
	SPMX 110408	.004~.007	● 0009	○ 0066	● 0080
	SPMX 140512	.004~.008	● 0010	○ 0067	
-ST Stainless Steel	SPMX 050204-ST	.001~.004	● 0011		● 0070
	SPMX 060204-ST	.002~.004	● 0012		● 0071
	SPMX 07T308-ST	.002~.004	● 0013		● 0068
	SPMX 090408-ST	.002~.005	● 0014		● 0072
	SPMX 110408-ST	.004~.007			● 0073
	SPMX 140512-ST	.004~.008			● 0074

●: Stock item ○: Order made item


			Cutting Speed					
			Vc (ft/min.)					
ISO	VDI	Sub Group	YG602		YG713		YG613	
			Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	590	1250	660	980	330	690
	6~9	Low-Alloyed Steel	390	980	560	890	230	590
	10~11	High-Alloyed Steel	230	490	280	480	130	295
M	12~13	Ferritic & Martensitic	390	660	-	-	230	590
	14	Austenitic Stainless Steel	430	820	-	-	230	660
K	15~16	Grey Cast Iron	390	820	-	-	-	-
	17~18	Nodular Cast Iron	430	720	-	-	-	-
S	31~35	Fe/Ni/Co-based HRSA	-	-	-	-	-	-
	36~37	Titanium alloys	-	-	-	-	-	-
H	38~41	Hard Materials	-	-	160	330	-	-

Drilling - Inserts
Drilling Inserts (WCMX)

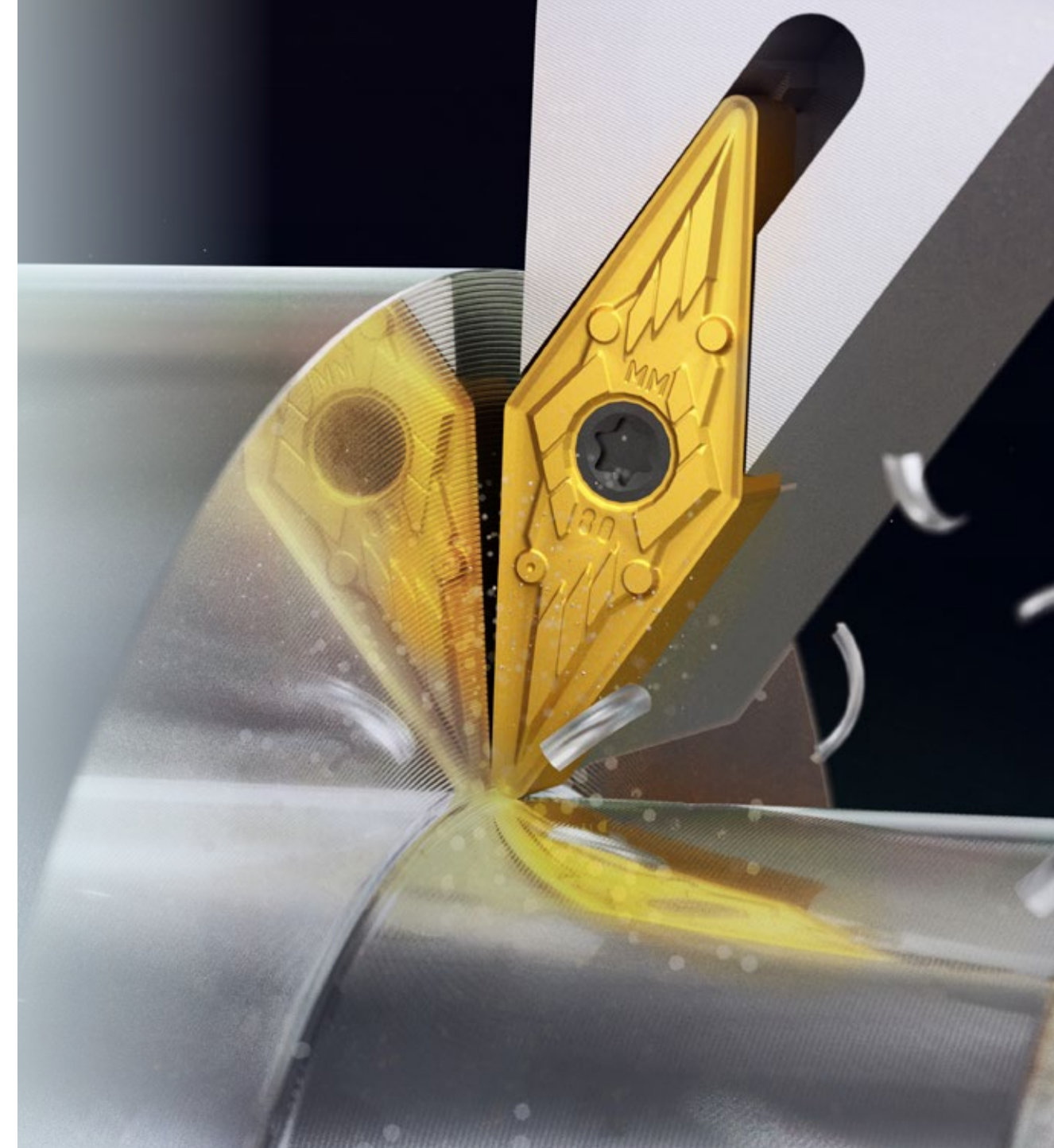


Series	inch	
	IC	S
WCMX 0302	.219	.094
WCMX 0402	.250	.094
WCMX 0503	.313	.125
WCMX 06T3	.375	.156
WCMX 0804	.500	.187

EDP 3200..		
P25	P30	P40
M30		M35
K30		S30
S20		

WCMX	Designation	Fn (in/rev.)	YG602	YG713	YG613
 <p>WCMX General</p>	WCMX 030208	.002~.005	● 0031	○ 0086	
	WCMX 040208	.002~.005	● 0003	○ 0087	
	WCMX 050308	.002~.006	● 0001	○ 0088	
	WCMX 06T308	.003~.006	● 0002	○ 0089	
	WCMX 080412	.003~.006	● 0004	○ 0090	● 0091

●: Stock item ○: Order made item



TECHNICAL INFORMATION

- ISO 13399 Terms
- Hardness Conversion Table
- ISO ↔ ANSI
- Formulas
- Material Groups
- Comparison Chart
- Search

Newly Added Products

Cutting Speed			Vc (ft/min.)					
ISO	VDI	Sub Group	YG602		YG713		YG613	
			Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	590	1250	660	980	330	690
	6~9	Low-Alloyed Steel	390	980	560	890	230	590
	10~11	High-Alloyed Steel	230	490	280	480	130	295
M	12~13	Ferritic & Martensitic	390	660	-	-	230	590
	14	Austenitic Stainless Steel	430	820	-	-	230	660
K	15~16	Grey Cast Iron	390	820	-	-	-	-
	17~18	Nodular Cast Iron	430	720	-	-	-	-
S	31~35	Fe/Ni/Co-based HRSA	-	-	-	-	-	-
	36~37	Titanium alloys	-	-	-	-	-	-
H	38~41	Hard Materials	-	-	160	330	-	-

Technical Information

ISO 13399 Terms

AN	Clearance angle major	INSD	Insert diameter
APMX	Depth of cut maximum	KAPR	Tool cutting edge angle
AS	Clearance angle wiper edge	KRINS	Cutting edge angle major
B	Shank width	KWW	Keyway width
BS	Wiper edge length	L	Cutting edge length
CBDP	Connection bore depth	LE	Cutting edge effective length
CDX	cutting depth maximum	LF	Functional length
CICT	Number of Inserts	LH	Head length
CW	Cutting width	LS	Shank length
CZC	Connection size code	LU	Usable length
DC	Cutting diameter	LUX	Usable length maximum
DCON	Connection diameter	M	Nose (or Wiper) Height
DCSFMS	Contact surface diameter machine side	OAL	Overall length
DCX	Cutting diameter maximum	RE	Corner radius
DMIN	Minimum bore diameter	RMPX	Maximum ramping angle
DMM	Shank diameter	RPMX	Rotational speed maximum
EPSR	Insert included angle	S	Insert thickness
H	Shank height	TDZ	Thread diameter size
HAND	Hand	WF	Functional width
IC	Inscribed circle diameter	ZEFP	Peripheral effective cutting edge count

Technical Information

Hardness Conversion Table

HB	HRc	HRB	HV	N/mm ²
199	15	93	199	667
203	16	94	201	680
208	17	95	210	696
212	18	95	218	706
216	19	96	222	716
223	20	97	227	755
229	21	98	235	775
233	22	99	241	794
240	23	100	247	824
245	24	100	252	838
250	25	101	255	853
255	26	102	258	870
262	27	103	262	880
264	28	103	271	892
271	29	104	277	941
277	30	105	285	971
290	31	106	292	990
300	32	107	303	1020
308	33	107	311	1035
314	34	108	320	1049
322	35	108	332	1089
331	36	109	342	1118
341	37	109	351	1157
348	38	110	361	1187
360	39	111	376	1236
373	40	111	388	1265
375	41	112	393	1314
388	42	113	406	1363
402	43	114	424	1390
415	44	114	438	1422
419	45	114	448	1447
430	46	115	458	1471
445	47	115	474	1520
456	48	116	490	1569
468	49	117	497	
469	50	117	505	
486	51	118	531	
504	52	118	549	
513	53	119	567	
534	54	120	589	
552	55		649	
572	56		694	
592	57		727	
601	58		746	
613	59			
627	60			
642	61			
658	62			
681	63			
695	64			
HB	HRc	HRB	HV	N/mm ²

Technical Information

Formulas

Formulas

Metric $V_c = D \times \text{RPM} \times 0.0031$ (m/min.) **Inch** $V_c = D \times \text{RPM} \times .262$ (ft/min.)

Cutting Speed (Vc)

Metric Vc to Inch Vc $\text{Inch Vc} = \text{Metric Vc} \times 3.28$ (ft/min.)

Inch Vc to Metric Vc $\text{Metric Vc} = \text{Inch Vc} \times .305$ (m/min.)

Turning Formulas

Spindle Speed (RPM)

Metric $\text{RPM} = V_c \times 318.3 \div D$ (rev./min.) **Inch**
 $\text{RPM} = V_c \times 3.82 \div D$ (rev./min.)

Feed Rate (Vf = Table Feed)

$V_f = F_n \times \text{RPM}$ (mm/min. or in./min.)

Feed per Revolution (Fn)

$F_n = V_f \div \text{RPM}$ (mm/rev. or in/rev.)

Metal Removal Rate (Q)

Metric $Q = V_c \times F_n \times A_p$ (cm³/min.) **Inch**
 $Q = V_c \times F_n \times A_p \times 12$ (in³/min.)

Cutting Time

$T = L \div V_f$ (min.)

Milling Formulas

Feed per Revolution (Fn)

$F_n = V_f \div \text{RPM}$ (mm/rev. or in/rev.)
 $= F_z \times \text{Number of tooth}$ (mm/rev. or in/rev.)

Feed per Tooth (Fz)

$F_z = V_f \div \text{RPM} \div \text{Number of tooth}$ (mm/rev. or in/rev.)
 $= F_n \div \text{Number of tooth}$ (mm/rev. or in/rev.)

Metal Removal Rate (Q)

Metric $Q = A_p \times A_e \times V_f \div 1000$ (cm³/min.) **Inch**
 $Q = A_p \times A_e \times V_f$ (in³/min.)

Cutting Time

$T = L \div V_f$ (min.)

Power Consumption (Pc)

Metric $P_c = A_p \times A_e \times V_f \times K_c \times 0.00000017$ (kW) **Inch**
 $P_c = A_p \times A_e \times V_f \times K_c \times 0.00000253$ (Hp)

Drilling Formulas

Power Consumption (Pc)

Metric $P_c = F_n \times V_c \times D \times K_c \times 0.0000042$ (kW) **Inch**
 $P_c = F_n \times V_c \times D \times K_c \times 0.0000076$ (Hp)

Torque (Mc)

Metric $M_c = P_c \times 9554.1 \div \text{RPM}$ (Nm) **Inch**
 $M_c = P_c \times 5255 \div \text{RPM}$ (lbf ft)

Thrust (T)

$T \cong 0.5 \times K_c \times DC/2 \times F_n \times \sin KAPR$ (N)

Terms

RPM (n)	Spindle Speed (Revolution per minute)
Vc	Cutting Speed
D	Work Diameter
Vf	Feed Rate (Table Feed)
Fn	Feed per Revolution
Ap	Depth of Cut
Q	Metal Removal Rate
L	Length of cut
T	Cutting Time (min.)

Technical Information

Material Groups

Please visit
globalyg1.com/mat
 for material search



ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRC	Examples	
P	1	Non-alloyed steel	About 0.15% C Annealed	125		S15C, C15, 1015	
	2		About 0.45% C Annealed	190	13	S45C, C45, 1045	
	3		About 0.45% C Quenched & tempered	250	25		
	4		About 0.75% C Annealed	270	28	SK5, Ck75, 1080	
	5		About 0.75% C Quenched & Tempered	300	32		
	6	Low-alloyed Steel	Annealed	180	10	SCM440, 42CrMo4, 410	
	7		Quenched & Tempered	275	29		
	8		Quenched & Tempered	300	32		
	9		Quenched & Tempered	350	38		
	10	High-alloyed steel, and tool steel	Annealed	200	15	SKD, D2	
	11		Quenched & Tempered	325	35	SKH, SUH, M42	
M	12	Stainless Steel	Ferritic / Martensitic Annealed	200	15	SUS 420, X40Cr13, 420	
	13		Martensitic Quenched & Tempered	240	23		
	14		Austenitic	180	10	SUS 316, 316, X5CrNiMo 17 12 2	
K	15	Grey cast iron	Pearlitic / Ferritic	180	10	FC, GG, EN-GJL-250	
	16		Pearlitic (Martensitic)	260	26		
	17	Nodular cast iron	Ferritic	160	3	FCD, GGG, EN-GJS-500-7	
	18		Pearlitic	250	25		
	19	Malleable cast iron	Ferritic	130		FCMW, FCMP, GTS, GJMB350-10	
20	Pearlitic		230	21			
N	21	Aluminum-wrought alloy	Not Curable	60		SAE 1000, AIMg 1, 3.3315	
	22		Curable Hardened	100		SAE 7050, AlCuMg 1, 3.1325	
	23		≤ 12% Si, Not Curable	75		ADC12, G-AISI12, 3.2581	
	24	Aluminum-cast, alloyed	≤ 12% Si, Curable Hardened	90		C4BS, G-AISI10Mg, 3.2381	
	25		> 12% Si, Not Curable	130			
	26	Copper and copper alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110		CuZn36Pb 3, 2.0375	
	27		CuZn, CuSnZn (Brass)	90		CuZn 15, 2.0240	
	28		CuSn, lead-free copper and electrolytic copper	100		G-CuZn40Fe, 2.0590	
	29	Non-metallic materials	Duroplastic, Fiber Reinforced Plastic			CFRP	
	30		Rubber, Wood, etc.				
S	31	Heat resistant super alloys	Fe Based Annealed	200	15	X12 NiCrSi 36-16, 1.4864	
	32		Aged	280	30		
	33		Annealed	250	25		Inconel 718, NiCr20TiAl, 2.4631
	34		Ni or Co Based Aged	350	38		NiCu30Al, 2.4375
	35		Cast	320	34		G-X120Mn12, 1.3401
	36	Titanium alloys	Pure Titanium	400 Rm			
37	Alpha + Beta Alloys Hardened		1050Rm		TiAl6V4, 3.7165		
H	38	Hardened steel	Hardened	550	55	SK3	
	39		Hardened	630	60		
	40	Chilled cast iron	400	42			
	41	Hardened cast iron	550	55			

Technical Information Material Groups

Please visit global.yg1.com/mat for material search

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	Material Description			Composition / Structure / Heat Treatment				HB	HRc	
				Non-alloyed steel			About 0.75% C, Annealed						
			<div style="display: flex; justify-content: space-between; width: 100%;"> P VDI 3323 4 </div>										
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands	
1.0603	S70C-CSP	C67	107	080A67		XC65		C67		G10700			
1.0605		C75	1075	144980HS				C75		G10740	75		
1.1203	S55C	CK55	1055	060A57		2C55	1655	C55	F.1150	G10550	55		
1.1209		C55R	1055	070M55		3C55		C55	F.1155	G10550			
1.1221	S58C	CK60	1060	060A62	43D	2C60	1678	C60	F.1150	G10640	60		
1.1231	S70C-CSP	C67E	1070	060A67		XC68	1770	C70	F5103	G10700	65GA		
1.1248	C75	C75E	1074	060A78		XC75	1774	C75	F5107	G10800	75(A)		
1.1269	SK5-CSP	C85E	1086			XC90		C90		G10900	85(A)		
1.1274	SUP4	CK101	1095	060 A 96	C 100S	XC100	1870	C100	F5117	G10950			
1.1545	SK3	C 105W1	W1	BW 2	C 105U	Y1 105	1880	C 100 KU	F5118		U10A		
1.1663	SK2	C125W	W112			Y2120					U13		

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	Material Description			Composition / Structure / Heat Treatment				HB	HRc	
				Non-alloyed steel			About 0.75% C, Quenched & Tempered						
			<div style="display: flex; justify-content: space-between; width: 100%;"> P VDI 3323 5 </div>										
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands	
1.0070		St 70-2	1055	Fe690-2FN	-	A70-2	1655	Fe 690	F.1150		55		
1.0535	S55C	C55	1055	070M55		1C55	1655	C55		J05000	55		
1.0601	S58C	C60	1060	060A62	43D	1C60		C60		G10600	60(G)		
1.1203	S55C	CK55	1055	060A57		2C55	1655	C55	F.1150	G10550	55		
1.1221	S58C	CK60	1060	060A62	43D	2C60	1678	C60	F.1150	G10640	60		
1.1274	SUP4	CK101	1095	060 A 96	C 100S	XC100	1870	C100	F5117	G10950			
1.1545	SK3	C 105W1	W1	BW 2	C 105U	Y1 105	1880	C 100 KU	F5118		U10A		
1.1663	SK2	C125W	W112			Y2120					U13		
1.5120		38MnSi4											
1.5710	SNC236	36NiCr6	3135	640A35	111A	35NCG							
1.7701		51CrMoV4				51CrMoV4							

Technical Information Material Groups

Please visit global.yg1.com/mat for material search

Mat'l No.	JIS	DIN	AISI/ASTM/SAE	Material Description			Composition / Structure / Heat Treatment				HB	HRc	
				Low-alloyed Steel			Annealed						
			<div style="display: flex; justify-content: space-between; width: 100%;"> P VDI 3323 6 </div>										
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands	
1.0116		St 37-3	A570 Gr.36	4360-40C	S 235 J2 G3	E24-3	1312	Fe 360 D1(2)	AE235D		ST3KP		
1.0904	SKH 1, SKT 4	55Si7	9255	250A53	45	55S7	2085	55Si8	56Si7	G92550	55S2		
1.0961	SUP7	60SiCr7	9262			60SC6		60SiCr8	60SiCr8	G92620			
1.2067		100Cr6	L3	BL3		Y100C6			100Cr6				
1.2108		90CrSi5	L1				2092	105WCr5					
1.2210		115CrV3	L2			100C3		107CrV3KU	F520L		11KHF		
1.2241		51CrV4											
1.2330	SCM435TK	35CrMo4	4135	708A37		34CD4	2234	35CrMo4			35KHM		
1.2419	SKS31	105WCr6		105WC13		105WC13	2140	10WCr6			CWG		
1.2510	SKS3	100MnCrW4	O1	BO1		90MWCv5	2140	95 MnWCr 5 KU	F5220		9KHVG		
1.2542		45WCrV7	S1	BS1			2710	45WCrV8KU			5CW25F		
1.2550		60WCrV7	S1			55WC20	2710	58WCr9KU			5KHV25F		
1.2713	SKT4	55NiCrMoV6	L6			55NCDV7			F5205		5C NM		
1.2721		50NiCr13	L6			55NCG6	2550		F528				
1.2842		90MnCrV8	O2	BO2		90MV8				T31502	9G2F		
1.3501		100Cr2	E50100										
1.3505	SUJ2	100Cr6	52100	25135	31	100C6	2258	100Cr6	F.1310		SC C 15		
1.5024		46Si7				45S7		46Si7	F.1451				
1.5025		51Si7	9259H		50Si7	51S7	2090	50Si7	F.1450				
1.5026		55Si7			56Si7	55S7	2085	55Si7	F.1440	G92550	55S2		
1.5027		60Si7	9260	251A60	60Si7	60S7		60Si7	F.1441	G92600	60S2		
1.5028	SUP7	65Si7	9260H										
1.5415	STFA 12	15Mo3	A204GrA	1503-243B		15D3	2912	16Mo3(KG)	F2601	K11820			
1.5419	SCPH11	20Mo4	4419	1503-243-430			2512	G20Mo5		G44190			
1.5423	SB450M	16Mo5	4520	1503-245-420				16Mo5(KG)	F2602	K11522			
1.5622		14Ni6	A350-LF5					14Ni6(KG)	F2641				
1.5732	SNC415(H)	14NiCr10	3415			14NC11		16NiCr11					
1.5752	SNC815(H)	14NiCr14	3310	655M13	36A	12NC15					20X2H4A		
1.6511	SUP10	36CrNiMo4	9840	816M40	110	40NCD3		36NiCrMo4(KB)			40CN2MA		
1.6523	SNCM220(H)	21NiCrMo2	8620	805M20	362	20NCD2	2506	20NiCrMo2			20C GNM		
1.6546	SNCM240	40NiCrMo2-2	8740	311-Tyre7				40NiCrMo2(KB)			38C GNM		
1.6566		17NiCrMo6-4											
1.6587		17CrNiMo6		820A16		18NCD6		14NiCrMo13					
1.6657		10NiCrMo13-4						14NiCrMo131					
1.7015	SCR415(H)	10Cr3	5015	523M15		12C3				G50150	15C		
1.7033	SCR430(H)	34Cr4	5132	530A32	18B	32C4		34Cr4(KB)		G51300	35C		
1.7035	SCR440(H)	41Cr4	5140	530M40	18	42C4	2245	41Cr4		G51400	40H		
1.7131	SCR415	16MnCr5	5115	527M17		16MC5	2511	16MnCr5		G51150	12KH2		
1.7139		16MnCr55					2127				18HG		
1.7176	SUP9(A)	55Cr3	5155	527A60	48	55C3	2253	55Cr3			50C GA		
1.7218	SCM420	25CrMo4	4130	CDS110		25CD4	2225	25CrMo4(KB)			20C M		
1.7220	SCM432	34CrMo4	4135	708 A 37		35CD4	2234	34CrMo4			35C M		
1.7223	SNB22-1	41CrMo4	4142					41CrMo4			40C FA		
1.7225	SCM 440 (H)	42CrMo4	4140	708 M 40	42 CrMo 4	42 CD 4	2244	42 CrMo 4	F.1252		38HM		
1.7228		55NiCrMoV6G		823M30	33		2512	653M31					
1.7262	SCM415(H)	15CrMo5				12CD4	2216	12CrMo4					
1.7321		20mCrR4					2625						
1.7335	SCM415(H)	13CrMo4-4	A182-F11	1501-620		15CD4-5	2216	14CrMo45			12C M		
1.7361		32CrMo12		722M24	40B	30CD12	2240	30CrMo12	F.124A				
1.7380		10CrMo9-10	A182F22	1501-622		12CD9-10	2218	12CrMo9			12KH8		



Technical Information Material Groups

Please visit globalyg1.com/mat for material search



Table with 13 columns: Mat'l No., JIS, DIN, AISI/ASTM/SAE, BS, EN, AFNOR, SS, UNI, UNE / IHA, UNS, GOST, Brands. VDI 3323 6. Material Description: Low-alloyed Steel. Composition / Structure / Heat Treatment: Annealed. HB: 180, HRc: 10.

Table with 13 columns: Mat'l No., JIS, DIN, AISI/ASTM/SAE, BS, EN, AFNOR, SS, UNI, UNE / IHA, UNS, GOST, Brands. VDI 3323 7. Material Description: Low-alloyed Steel. Composition / Structure / Heat Treatment: Quenched & Tempered. HB: 275, HRc: 29.

Table with 13 columns: Mat'l No., JIS, DIN, AISI/ASTM/SAE, BS, EN, AFNOR, SS, UNI, UNE / IHA, UNS, GOST, Brands. VDI 3323 8. Material Description: Low-alloyed Steel. Composition / Structure / Heat Treatment: Quenched & tempered. HB: 300, HRc: 32.



Technical Information Material Groups

Please visit globalyg1.com/mat for material search



Table with 13 columns: Mat'l No., JIS, DIN, AISI/ASTM/SAE, BS, EN, AFNOR, SS, UNI, UNE / IHA, UNS, GOST, Brands. VDI 3323 9. Material Description: Low-alloyed Steel. Composition / Structure / Heat Treatment: Quenched & Tempered. HB: 350, HRc: 38.

Table with 13 columns: Mat'l No., JIS, DIN, AISI/ASTM/SAE, BS, EN, AFNOR, SS, UNI, UNE / IHA, UNS, GOST, Brands. VDI 3323 10. Material Description: High-alloyed steel, and tool steel. Composition / Structure / Heat Treatment: Annealed. HB: 200, HRc: 15.

NEXT PAGE

Technical Information Material Groups

Please visit globaly1.com/mat for material search

Table with columns: Mat'l No., JIS, DIN, AISI/ASTM/SAE, BS, EN, AFNOR, SS, UNI, UNE / IHA, UNS, HB, HRc, Brands. Material description: High-alloyed steel, and tool steel. Heat treatment: Annealed. HB: 200, HRc: 15.

Table with columns: Mat'l No., JIS, DIN, AISI/ASTM/SAE, BS, EN, AFNOR, SS, UNI, UNE / IHA, UNS, HB, HRc, Brands. Material description: High-alloyed steel, and tool steel. Heat treatment: Quenched & Tempered. HB: 325, HRc: 35.

Technical Information Material Groups

Please visit globaly1.com/mat for material search

Table with columns: Mat'l No., JIS, DIN, AISI/ASTM/SAE, BS, EN, AFNOR, SS, UNI, UNE / IHA, UNS, HB, HRc, Brands. Material description: Stainless steel. Heat treatment: Ferritic / Martensitic, Annealed. HB: 200, HRc: 15.

Table with columns: Mat'l No., JIS, DIN, AISI/ASTM/SAE, BS, EN, AFNOR, SS, UNI, UNE / IHA, UNS, HB, HRc, Brands. Material description: Stainless steel. Heat treatment: Martensitic, Quenched & Tempered. HB: 240, HRc: 23.

Technical Information

Material Groups

Please visit
globalyg1.com/mat
for material search

M		VDI 3323 14		Material Description Stainless steel			Composition / Structure / Heat Treatment Austenitic					HB 180	HRC 10
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands	
1.4301	SUS 304	X5CrNi18-10	304	304S15		Z3CND18-09	2332		F3551	S30409	08C 18N10		
1.4305	SUS303	X10CrNiS18-10	303	303S21	58M	Z8CNF18-09	2346	X10CrNiS18.09	F3508	S30300	30C 18N11	ATI 303	
1.4306	SCS19	X2CrNi1911	304L	304C12	X3CrNi1810KD	Z2CN18-09	2352	GX2CrNi1910	F3503	S30403	03KH18N11	ATI 304L	
1.4308	SUS304L	GX6CrNi18-9	CF-8	304C15	58E	Z6CN18-10M	2333					CF-8	
1.4310	SUS 301	X10CrNi18-8	301	301S21		Z12CN17-07	2331	X2CrNi1807	F3517	S30100	07KH16N6	ATI 301	
1.4311	SUS304LN	X2CrNiN18 10	304LN	304S62		Z2CN18-10	2371	X2CrNiN1810	F3541	S30453	03KH18N11		
1.4312	SCS12	GX10CrNi188	305	302C25		Z10CN18-9M					10C 18N9L	ATI 305	
1.4350	SUS304	X5CrNi18-9	304	304S15	58E	Z6CN18-09	2332	X5CrNi1810	F3551	S30400		ATI 304	
1.4362		X2CrNiN234	S32304			Z2CN23-04AZ	2327			S32304		ATI 2304TM	
1.4371		X3CrMnNi18887	202	284S16		Z8CMN18-08-05							
1.4401	SUS316	X5CrNiMo17-12-2	316	316S13		Z3CND17-11-01	2347	X5CrNiMo17 12 2	F3534	S31600	08KH17H13M2T	ATI 316	
1.4404	SUS316L	X2CrNiMo17-13-2	316L	316S11		Z2CND17-12	2348	X2CrNiMo1712	F3533	S31603		ATI 316L	
1.4406	SUS316LN	X2CrNiMoN17122	316LN	316S61		Z2CND17-12AZ		X2CrNiMoN1712	F3542	S31653	07C 18N	ATI 316LN	
1.4408	SCS14	GX6CrNiMo18-10	CF-8M	316C16			2343	X7CrNiMo2010	F8414	J92900	10G25MSL		
1.4410	SCS 14A	GX10CrNiMo18-9				Z5CND20-12M	2328				S32750		
1.4429	SUS316LN	X2CrNiMoN17-13-3	316Ln	316S62		Z2CND17-13AZ	2375	X2CrNiMoN17133	F3543		03KH16N15M3		
1.4435	SUS316L	X2CrNiMo18143	316L	316S11		Z3CND17-12-03	2375	X2CrNiMo17 13 2	F3533	S31603	O3C 17N14M3		
1.4436	SUS316	X3CrNiMo17-13-3	316	316S19		Z6CND18-12-03	2343	X5CrNiMo17 12 2	F3543	S31600			
1.4438	SUS317L	X2CrNiMo18164	317L	317S12		Z2CND19-15-04	2367	X2CrNiMo18 16 4	F3539	S31703		ATI 317L	
1.4439		X2CrNiMoN17135	(S31726)			Z3CND18-14-06AZ							
1.4440		X2CrNiMo18-16											
1.4449	SUS317	X5CrNiMo17133	317	317S16				X5CrNiMo1815		S31700		ATI 317	
1.4460	SUS 329 J1	X8CrNiMo275	329				2324			S32900		10RES1	
1.4462	SUS329J3L	X2CrNiMoN2253		318S13		Z3CND22-05Az	2377			S31803		ATI 2205TM	
1.4500		X7NiCrMoCuNb2520				Z3NCDU25-20M				J95150			
1.4521	SUS444	X2CrMoTi18-2	443444				2326	X2CrMoTiN182	F3123				
1.4539		X1NiCrMoCuN25205				Z2NCDU25-20	2562			N08904		ATI 904L	
1.4541	SUS321	X14CrNiTi18-10	321	321S31		Z6CNT18-10	2337	X6CrNiTi18 11	F3523	S32100	06C 18N10T	ATI 321	
1.4542	SUS630	X5CrNiCuNb174	630			Z7CNU15-05						UGIMA 4542	
1.4545		Z7CNU15.05	15-SPH							S15500		ATI 15-5	
1.4547		X1CrNiMoN20187	S31254				2378			S31254		Uranus B256Mo	
1.4550	SUS347	X6CrNiNb18-10	347	347S17	58F	Z6CENN18-10	2338	X6CrNiNb18 11	F3552	S34700	08C 18N12B	ATI 347	
1.4552	SCS 21	GX7CrNiNb18-9				Z4CENN19-10M				J92710			
1.4568	SUS 631	X 7 CrNiAl 17 7		316S111		Z 9 CAN 17-7	2388	Z8CNA17-07		S17700	09C 17N11U1	17-7PH	
1.4571	SUS 316Ti	X6CrNiMoTi17-12-2	316Ti	320S31	58J	Z6NDT17-12	2350	X6CrNiMoTi17 12	F3535		10C 17N13M2T	ATI 316Ti	
1.4581	SCS 22	GX5CrNiMoNb18		318C17		Z4CNDNb18-12M							
1.4583		X6CrNiMoNb18-12	318	303S21		Z15CNS20-12		X15CrNiSi2 12					
1.4585		GX7CrNiMoCuNb1818						X6CrNiMoTi17 12		J94651			
1.4821		X20CrNiSi254				Z20CNS25-04				S44635			
1.4823		GX40CrNiSi274								J92605			
1.4828	SCS17	X15CrNiSi20-12	309	309S24	58C	Z15CNS20-12		F8414	S30900	20C 20N14S2		ATI 309	
1.4833	SUS 309S	X6CrNi2213	309S	309S13		Z15CN24-13				J93400			
1.4845	SUH310	X12CrNi25-21	310S	310S24		Z12CN25-20	2361	X6CrNi2520	F331	S31008	20C 23N18	ATI 310S	
1.4878	SUS321	X12CrNiTi18-9	321	321S20	58B	Z6CNT18-12(B)	2337	X6CrNiTi1811	F3553	S32100		ACX315	
1.4891		X5CrNiNb18-10	Ss30415				2372						
1.4893		X8CrNiNb11	S30815				2368						
1.4948		X6CrNi1811	304H	304S51		Z5CN18-09	2333			S30480			
1.4980		X5NiCrTi2515	660				2570			S66286		Incoloy A 286	
		X5NiCrN3525											
		X2CrNiMoN18134	S31753										
		X2CrNiMoN25227											

Technical Information

Material Groups

Please visit
globalyg1.com/mat
for material search

K		VDI 3323 15		Material Description Grey cast iron			Composition / Structure / Heat Treatment Pearlitic / Ferritic					HB 180	HRC 10
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands	
0.6010	FC100	GG10	A48 20 B	Grade 100	GJL-100	Ft 10 D	0100	G10	FG10		Sc 10		
0.6015	FC150	GG15	A48 25 B	Grade 150	GJL-150	Ft 15 D	0115	G15	FG15		Sc 15		
0.6020	FC200	GG20	A48 30 B	Grade 200	GJL-200	Ft 20 D	0120	G20	FG20	W06020	Sc 20		
0.6025	FC250	GG25	A48 40 B	Grade 250	GJL-250	Ft 25 D	0125	G25	FG25		Sc 25		
0.6660		GGL-NiCr 20 2	1050/700/7	Grade F2	GJLA-XNiCr 20-2	L-NC 202	0523	-		F41002		Ni-Resist 2	
1.4449	SUS317	X5CrNiMo17133	317	317S16				X5CrNiMo1815		S31700		ATI 317	

K		VDI 3323 16		Material Description Grey cast iron			Composition / Structure / Heat Treatment Pearlitic (Martensitic)					HB 260	HRC 26
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands	
0.6025	FC250	GG25	A48 40 B	Grade 260	GJL-250	Ft 25 D	0125	G25	FG25		Sc 25		
0.6030	FC300	GG30	A48 45 B	Grade 300	GJL-300	Ft 30 D	0130	G30	FG30		Sc 30		
0.6035	FC350	GG35	A48 50 B	Grade 350	GJL-350	Ft 35 D	0135	G35	FG35		Sc 35		
0.6040	FC400	GG40	A48 60 B	Grade 400	GJL-400	Ft 40 D	0140	G40	FC40		Sc 40		

K		VDI 3323 17		Material Description Nodular cast iron			Composition / Structure / Heat Treatment Ferritic					HB 160	HRC 3
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands	
0.7033	FCD350-22L	GGG35.3	-	350/22L40	GJS-350-22-LT	FGS 370-17	0717-15	-					
0.7040	FCD400	GGG40	60-40-18	SNG 420-12	GJS-400-15	FCS 400-12	0717-02	GS 400-12	FG E38-17	F32800	Vc 42-12		
0.7043	FCD 370	GGG40.3	60-40-18	SNG 370-17	GJS-400-18-LT	FGS 370-17	0717-12	GSO 42-17			Vc 42-12		
0.6040	FC400	GG40	A48 60 B	Grade 400	GJL-400	Ft 40 D	0140	G40	FC40		Sc 40		

K		VDI 3323 18		Material Description Nodular cast iron			Composition / Structure / Heat Treatment Pearlitic					HB 250	HRC 25
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands	
0.7050	FCD500	GGG50	80-55-06	SNG 500-7	GJS-500-7	FGS 500-7	0727-02	GS 500-7	FG E50-7	F33100	Vc 50-2		
0.7060	FCD600	GGG60	80-55-06	SNG 600-3	GJS-600-3	FGS 600-3	0732-03	GS 600-3	FG E60-2		Vc 60-2		
0.7070	FCD700	GGG70	100-70-03	SNG 700-2	GJS-700-2	FGS 700-2	0737-01	GS 700-2	FG 570-2	F34800	Vc 70-2		
0.7652	FCDANIMn 137	GGG NiMn 13-7	-	Grade S6	GJSA-XNiMn 13-7	FGS Ni13 Mn7	0772	-				Nodumag	
0.7660		GGG NiCr 20-2	A436 D2	Grade S2	GJSA-XNiCr 20-2	FGS Ni20 Cr2	0776	-				Ni-Resist D-2	

Technical Information Material Groups

Please visit
globalyg1.com/mat
for material search



Mat'l No.	JIS	DIN	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS		
08135	FCMW330	GTS-35	32510	B 340-12	GJMB350-10	MN 35-10	0815	GMN 35	GTS35		Kc 35-10	

Mat'l No.	JIS	DIN	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS		
08145	FCMW370	GTS-45	A220-40010	P 440-7	GJMB450-6	MN 450	0852	GMN 45				
08155	FCMP490	GTS-55	50005	P 510-4	GJMB-550-4	MP 50-5	0854	GMN 55			Kc 60-3	
08165	FCMP590	GTS-65	70003	P 570-3	GJMB-650-2	MN 650-3	0856	GMN 65				
08170	FCMP690	GTS-70	90001	P 690-2	GJMB-700-2	MN 700-2	0862	GMN 70			Kc 70-2	

Technical Information Material Groups

Please visit
globalyg1.com/mat
for material search



Mat'l No.	JIS	DIN	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS		
3.0205		Al99	Al99									
3.0255	(A1050)	Al99.5	1000	L31				A59050C			D1	
3.3315		AlMg1										

Mat'l No.	JIS	DIN	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS		
3.1325		AlCuMg1									AD35	
3.1655	A2011	AlCuSiPb										
3.2315		AlMgSi1									AK9	
3.4345		AlZnMgCu0.5	7050	L86				AZ4GU/9051		811-04		
3.4365	7075	AlZnMgCu1.5	7075	7075				7075		AlZn5.8MgCuCr	B95	

Mat'l No.	JIS	DIN	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS		
3.2163		G-AlSi9Cu3									VAL8	
3.2382		GD-AlSi10Mg										
3.2383		G-AlSi0Mg(Cu)	A360.2	LM9				4253				
3.2581		G-AlSi12										
3.3561		G-AlMg5										
3.5101		G-MgZn4sE1Zr1	ZE41	MAG5								
3.5103		MgSE3Zn27r1	EZ33	MAG6				G-TR3Z2				
3.5812		G-MgAl8Zn1	AZ81	NMAG1								
3.5912		G-MgAl9Zn1	AZ91	MAG7								
			A356-72	2789				NFA32-201				
A5052			356.1	LM25				4244			AK7	
		G-AlSi12	A413.2	LM6				4261				
ADC12		G-AlSi12(Cu)	A413.1	LM20				4260			AK12	
A6061		GD-AlSi12	A413.0					4247				
A7075		GD-AlSi8Cu3	A380.1	LM24				4250				

Technical Information Material Groups



Material Group N, VDI 3323 24. Material Description: Aluminum-cast, alloyed. Composition: ≤ 12% Si, Curable, Hardened. HB: 90, HRc: 90.

Material Group N, VDI 3323 26. Material Description: Copper and Copper Alloys (Bronze / Brass). Composition: Cutting alloys, PB>1%. HB: 110, HRc: 110.

Material Group N, VDI 3323 27. Material Description: Copper and copper alloys (Bronze / Brass). Composition: CuZn, CuSnZn (Brass). HB: 90, HRc: 90.

Material Group N, VDI 3323 28. Material Description: Copper and copper alloys (Bronze / Brass). Composition: CuSn, lead-free copper and electrolytic copper. HB: 100, HRc: 100.

Technical Information Material Groups



Material Group S, VDI 3323 31. Material Description: Heat resistant super alloys. Composition: Fe Based, Annealed. HB: 200, HRc: 15.

Material Group S, VDI 3323 32. Material Description: Heat resistant super alloys. Composition: Fe Based, Aged. HB: 280, HRc: 30.

Material Group S, VDI 3323 33. Material Description: Heat resistant super alloys. Composition: Ni or Co Based, Annealed. HB: 250, HRc: 25.

Material Group S, VDI 3323 34. Material Description: Heat resistant super alloys. Composition: Ni or Co Based, Aged. HB: 350, HRc: 38.

Technical Information

Material Groups

Please visit
global.yg1.com/mat
 for material search



Mat'l No.	JIS	DIN	Material Description			Composition / Structure / Heat Treatment					HB	HRc		
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS			Brands	
2.4669		NiCr15Fe7TiAl				NC15TNbA					N07750	320	34	Inconel X750
2.4685		G-NiMo28									N10665			Hastelloy B
2.4810		G-NiMo30												Hastelloy C
2.4973		NiCr19Co11MoTi	AMS 5399			NC19KDT						VTS-1		
3.7115		TiAl5Sn2									R54520	VT1-00		ATI Grade 6

Mat'l No.	JIS	DIN	Material Description			Composition / Structure / Heat Treatment					HB	HRc		
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS			Brands	
2.4674		NiCo15Cr10MoAlTi	AMS 5397								N13100	400 Rm		IN 100
3.7025		Ti1	R50250	2TA1							R50250			ATI 30 CP Gr. 1
3.7225		Ti1pd	R52250	TP1							R52250			

Mat'l No.	JIS	DIN	Material Description			Composition / Structure / Heat Treatment					HB	HRc		
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS			Brands	
3.7124		TiCu2				2TA21-24								
3.7145		TiAl6Sn2Zr4Mo2Si	R54620								R54620			
3.7165		TiAl6V4	AMS R56400	TA10-13		T-A6V						VT6		
3.7185		TiAl4Mo4Sn2		TA45-51										
3.7195		TiAl3V2.5									R56320			ATI 3-2.5
		TiAl4Mo4Sn4Si0.5												
		TiAl5Sn2.5	AMS R54520	TA14/17		T-A5E								
		Ti6Al4VELI	AMS R56401	TA11										

Technical Information

Material Groups

Please visit
global.yg1.com/mat
 for material search



Mat'l No.	JIS	DIN	Material Description			Composition / Structure / Heat Treatment					HB	HRc	
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS			Brands
1.1231	S70C-CSP	Ck 67	1070	060 A 67	C 67S	XC 68	1770	C 70	F 5103		70		
1.1248	C 75	Ck 75	1078, 1080	060 A 78	C 75S	XC 75	1774	C 75	F 5107		75		
1.1274	SUP 4	Ck 101	1095	060 A 96	C 100S	XC 100	1870	C 100	F 5117				
1.1545	SK 3	C 105W1	W1	BW 2	C 105U	Y1 105	1880	C 100 KU	F 5118		U10A		
1.2762		75CrMoNiW67	-	-	-	-	-	-	-				
1.3401	SCMnH1	GX120Mn12	A128(A)			Z120M12	2183	GX120Mn12	F8251		110G13L		
1.4021	SUS 420J1	X 20 Cr 13	420	420 S 37	X 20 Cr 13	Z 20 C 13	2303	X 20 Cr 13	F 5261		20KH13		ATI 420
1.4109	SUS 440 A	X 65 CrMo 14	440 A	-	X 70 CrMo 15	Z 70 D 14	-	-	-				ATI 440A
1.4112	SUS 440 B	X 90 CrMoV 18	440 B	409 S 19	X 90 CrMoV 18	Z 2 CND 18 05	2327	X CrTi 12					
1.4125	SUS 440 C	X 105 CrMo 17	440 C	-	X 105 CrMo 17	Z 100 CD 17	-	X 105 CrMo 17			95KH18		ATI 440C
1.6746		32NiCrMo14-5	-	832M31	32nicRmO145	35NCD14	-	-					
1.7176	SUP9(A)	55Cr3	5155	527A60	48	55C3	2253	55Cr3					
1.7225	SCM 440 (H)	42CrMo4	4140	708 M 40	42 CrMo 4	42 CD 4	2244	42 CrMo 4	F 1252		38HM		

Mat'l No.	JIS	DIN	Material Description			Composition / Structure / Heat Treatment					HB	HRc		
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS			Brands	
0.9620		GX260NiCr42	A532 IB	Grade 2 A	GJN-HV520	FB N14 Cr2 BC	0512	-		F45001		400	42	Ni-Hard2
0.9625		GX330NiCr42	A532 IA	Grade 2 B	GJN-HV550	FB N14 Cr2 HC	0513	-		F45000				Ni-Hard1
0.9630		GX300CrNiSi 9 5 2	A532 ID	Grade 2 C	GJN-HV600	FB C9 Ni5	0457	-		F45003				Ni-Hard 4
0.9640		GX300CrMoNi1521	-	-	-	-	-	-		F45005				
0.9650		GX260Cr27	-	Grade 3 D	-	-	0466	-						
0.9655		GX300CrNiMo271	-	Grade 3 E	-	-	-	-			20C 25N20S2			
1.4841	SUH 310	X 15 CrNiSi25-20	310	314S31	X 15 CrNiSi 25 20	Z15CNS25-20	-	-		S31400				Cronifer 2520

Mat'l No.	JIS	DIN	Material Description			Composition / Structure / Heat Treatment					HB	HRc	
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS			Brands
0.9635		GX300 CrMo 15 3	-	-	-	-	-	-					
0.9645		GX260 CrMoNi 20 21	-	-	-	-	-	-		F45007			

Technical Information

Comparison Chart - Turning Chip breakers

Negative Inserts

Material	YG	Sandvik	Iscar	Kenna metal	Seco	Walter	Mitsu bishi	Kyocera	Tungaloy	Sumi tomo	Taegutec	Korloy
STEEL	UF	PF	F3P NF	FF FN	F1 MF2	FP5	FH LP	GP PP	TF	FL SP	FG FA	VF HU
	UL		PP NF			FP5	FY SY	CQ VF	TSF	LU	FC FT	HC
	UM		TF	MN	M3	MP3	MP	HS	TM	GU UX	MC PC	VM GM
	UG	PM	GN M3P	MN	M3 MR3	MP5	MP MA	PS	TM	UG	MT PC	GR HR
	UC	PR	NR	MP RP	MR4	RP5	Standard	Standard	TH	UZ	MG-	B25
	UR	PR	NR R3P	UN RN MG-	MR3 MR6	RP7	RP MH RK	PT PH	THS	ME MU	RT	GR
	PWM	WF WMX WM WR	WF WG	FW MW RW	W-M3 W-MF5	NF NM	SW MW	WP WF WQ WE	AFW FW ASW SW	LUW SEW GUW	WS WA WT	VW LW
STAINLESS STEEL	MF	MF	SF	FF	MF1	NF4	LM	MQ	SF HRF	SU	EA ML	HA
	MM	MM	M3M	MP	MF3 MF4	NM4	MM	MS	SM	GU	EM	GS
	MG	MM	TF VL M3M	MPUP	MF4	MM5	MSGM	MUMS	SS	EXUP	ML	HSMM
	MR	MR	F3M	RF	M5	NR4	RM	MS MU	SH	EM	ET RT	RM
CAST IRON	UC	PR	NR	MP RP	MR4	MK5	Standard	Standard	All Round	UZ	MG-	B25
	UR	PR	NR R3P	UN RN MG-	MR3 MR6	RK5 RK7	RP MH RK	PT PH	CH	ME MU	RT	GR
	..MA			RP	MR7	..MA	MG-	C	CH	GZ	..MA	
SUPER ALLOYS	SF	SFXF	SFPFPP	FSLFUP	M1MF1	NF4NFT	FJLS	MQSKTK	SFHMM	EFUPEG	EAML	VP1VP2
	SM	SMXM	TF	MSGP	MF4MR3	NMSNMT	MS	MS	HRF	EX	EM	VP3
	SR	XMR	MR	RP	MR4	NRSNRT	RSGJ	MU	HRM	MU	ET	VP4

Positive Inserts

Material	YG	Sandvik	Iscar	Kenna metal	Seco	Walter	Mitsu bishi	Kyocera	Tungaloy	Sumi tomo	Taegutec	Korloy
STEEL	UF	PF	PF	LF UF	MF2	PF2 FP4	FM LM LP	GQ PP	01 PSF	FP	FG	HFP
	UG	PM		MF	MF3	MP4 FP6	MP Standard MM MV	HQ	PS PM	MU	MT	C25
STAINLESS STEEL	MF	MF MMC	PF SM, M3M 14	11 UF, GT-LF FP	F1 F2	FM4	FM LM	MQ	PSF PSS PS	FC SI LU SU	FG SA	VP1
	MM	MM	M3M SM	MP MF	M3	MM4 RM4	MM		PM	MU		VL
CAST IRON	UG	PM		UF	MF3	MK4 RK4	MP Standard MM MV	HQ	CM	MU	MT	C25
ALUMINUM	AL		AS	MF	AL	PF2 PM2	AZ	CF CK	AL	AG	FL	AK

Technical Information

Comparison Chart - Turning Grades

ISO	YG	Sandvik	Iscar	Kenna metal	Seco	Walter	Mitsu bishi	Kyocera	Tungaloy	Sumi tomo	Taegutec	Korloy
P10	YG3010		IC8005 IC428	KCP05 KC9105 KCP05B KCP10 KCP10B KC9110		WPP01 WPP10S	UE6110	CA5505 CA510	T9105 T9205	AC810P	TT8115	NC3010
P15	YG3015	GC4315 GC4215	IC8150 IC9015	KCP10	TP1501 TP1500		MC6015	CA5515 CA515	T9115 T9215	AC8015P	TT8115	NC3215
P20	YG3020 (YG801)	GC4325 GC4225	IC8250 IC9015	KCP25 KC9125 KCP25B	TP2501 TP2500	WPP20S	MC6025 UE6020	CA5525 CA525	T9125 T9225	AC8025P AC820P	TT8125	NC3220 NC3225 NC3120
P30	YG3030	GC4335 GC4235	IC8350 IC8025	KCP30 KCP30B KCP40B KC9140	TP3501 TP3500	WPP30S	MC6035 UE6035 VP15TF	CA5535 CA530 CR9025	T9135 T9235	AC8035P AC830P AC630M	TT5100 TT8135	NC3030 NC5330 PC3545
M10	YG211	GC2015 GC1115	IC807 IC6015 IC8150	KCU10 KCM15 KCM15B KC5010	CP200 TS2000	WSM10S	MC7015 VP10RT US7020	CA6515 PR930	T6120 AH110 AH8005 AH8015	AC610M	TT9215 TT5080	PC8105 PC8110
M20	YG3030	GC2025 GC1125	IC3028 IC8250	KCM25 KCM25B	TM2000 TS2500	WMP20S	MC7205 VP15TF VP20MF UP20M	CA6525	T6130 AH120 AH725 SH725 GH330	AC6030M AC610M AC520U	TT9225	PC8115 NC9115 PC5300
M30	YG213	GC2220	IC808 IC6025 IC8350	KCU25 KC5025	CP500	WSM20S WSM21	US735 MP7035 VP15RT VP20RT	PR1025 PR1125 PR1425 PR1535	AH630 SH730 GH730	AC6030M AC630M AC830P	TT9235 TT9020 TT9080	NC9125 NC5330 PC9030
M40	YG214	GC2035		KCM35 KCM35B	CP600 TM4000 TP40	WSM30S	US735 MP7035		AH645	AC6040M AC530U	TT9235 TT8020 TT8080	NC9135 PC5400
K10	YG1010	GC3205 GC3210	IC5005 IC5010	KCK05	TK1001 TK1000	WKK10S	MC5005 MC5015 UC5105 UC5115	CA4505 CA4010	T5105 T515	AC405K	TT7005	NC6205
K15	YG3010	GC3215	IC5100 IC8150	KCK15 KCK20	TK2001 TK2000	WKK20S WKK30S	UE6110 VP15TF	CA4515 CA4115 CA4120	T5125	AC415K AC420K	TT6300 TT7015 TT7025 TT7310	NC6210 NC6215
S10	YG401 (YG211)	GC1105 S05F H13A	IC807 IC808	K313 K68 KCS10 KCU10 KC5010	TS2000 TS2050 TS2500 CP200	WSM10S WS10	VP05RT MP9005 VP10RT MP9015	CA6515 PR1305 PR1310	AH110 AH120 AH8005 AH8015 AH905 SH730	AC510U	TT9215 TT5080	PC8105 PC8110 PC8115
S20	YG401 (YG213)	GC1115	IC806	KCU25 KC5025	890 883	WSM20S WSM21	VP15TF VP20RT	CA6525 PR1125 PR1325 PR1535	AH725	AC520U	TT9225 TT9080	NC9125 NC9135 PC5300
S30	YG214	GC1125			CP500 CP600	WSM30S		PR1125 PR1535			TT9235 TT8020 TT8080	PC5400

Comparison Chart - Milling Grades

ISO	YG-1	Sandvik	Seco	Kennametal	Iscar	Walter	Tungaloy	Mitsubishi	Taegutec	Korloy	Sumitomo	Kyocera
P20	YG712	GC4220 GC1130	T250M MP3000	KC715M KC522M KC635M	IC903	WKP25S WKP25 WAM10	T3130 GH330	MP8010 MP6120 MP6130 MP9120	TT7070 TT7080 TT7030	PC3700 PC3600 PC3500	ACP2000 ACZ310	PR730
	YG713	GC4230 GC4330	T350M F25M	KC525M	IC950 IC1008	WAM20 WAM30	AH710 AH120 T3225			PC210F	ACP200 ACZ330	PR830 PR630
P30	YG602	GC1030 GC4240	F30M	KC725M KC735M	IC900 IC808 IC908 IC330	WKP35G WKP35S	T3130 AH3035 AH110	VP15TF VP20RT MP9130	TT9030 TT9080	NC5330 PC5300 NCM325 NC5350	ACP3000	PR1025 PR1225
	YG613	GC4340 GC1040	F40M T60M	KCPM20 KC935M KCPM40	IC830 IC928	WKP45S WKP45X WSP45S	AH725 AH730 GH330 AH130 AH140	FH7020 VP30RT F7030	TT8020 TT8025 TT8080	NC5340 PC5400 NCM335	ACP300 ACZ350	PR1525 PR1230 PR660
M30	YG602	GC2030 GC1030	F25M	KC635M KC522M KC725M	IC330	WAM30 WXM35 WSM35	AH725 AH120 GH110 AH730	VP15TF MP7130 MP7030	TT9030 TT9080	PC210F PC5300 NCM325 NC5350	XCU2500 ACM100 ACP200 ACM300	PR1025 PR1225 PR1525 PR630
M35	YG613	GC2040	F30M F40M	KC722	IC928 IC328	WSP45	AH140 GH340	MP9030 MP7140 VP30RT	TT8080 TT8020	PC9530 NCM335 PC5400	ACP300 ACZ350 ACP400	PR660 PR1535 PR660
K20	YG5020	GC3220 GC1020	MK1500 MP1500	KC915M	DT7150 IC5100 IC418	WAK15	T1015	VP15TF	TT6290 TT7515 TT6800	NC5330 PC8110	XCK2000	PR1510 PR510
K15	YG501	GC3040	MK2050 MK2000	KCK15 KC520M	IC910 IC810	WKK25S WKP25	T1115 T1215 AH120	MP8010 MC5020	TT6080 TT6030	PC6510 NC5340	ACK200 ACZ310	PR1210 PR905
K30	YG622		MK3000			WKP35	GH110	VP20RT		NC5350 PC5300	ACK300	CA420M
S20	YG602	GC1025 GC1040	F40M MM4500	KC510M KCU30M	IC328 IC408	WSM35S		VP15TF VP30RT	TT9030 TT8020 TT9540	PC5300 PC5400 PC9540	AC520U	CA6535 PR620
S30	YG613	S30T S40T	MS2500	KC725M	IC903	WSM45S WSM45X		MP9130	TT8080 TT3540	UPC845		PR660 PR1535

ISO ↔ ANSI

ISO	ANSI	ISO	ANSI
AP.. 1504	AP.. 53	SN.. 120408	SN.. 432
CC.. 060204	CC.. 21.51	SN.. 120412	SN.. 433
CC.. 060208	CC.. 21.52	SN.. 120416	SN.. 434
CC.. 09T302	CC.. 32.50.5	SN.. 150612	SN.. 543
CC.. 09T304	CC.. 32.51	SP.. 1203	SP.. 42
CC.. 09T308	CC.. 32.52	SP.. 1504	SP.. 53
CC.. 120402	CC.. 430.5	SPUN 120308	SPUN 422
CC.. 120404	CC.. 431	TC.. 110204	TC.. 21.51
CC.. 120408	CC.. 432	TC.. 110208	TC.. 21.52
CC.. 120412	CC.. 433	TC.. 16T302	TC.. 32.50.5
CN.. 120404	CN.. 431	TC.. 16T304	TC.. 32.51
CN.. 120408	CN.. 432	TC.. 16T308	TC.. 32.52
CN.. 120412	CN.. 433	TN.. 160404	TN.. 331
CN.. 120416	CN.. 434	TN.. 160408	TN.. 332
CN.. 160608	CN.. 542	TN.. 160412	TN.. 333
CN.. 160612	CN.. 543	TN.. 220404	TN.. 431
CN.. 160616	CN.. 544	TN.. 220408	TN.. 432
CN.. 190608	CN.. 642	TN.. 220412	TN.. 433
CN.. 190612	CN.. 643	TN.. 220416	TN.. 434
CN.. 190616	CN.. 644	TNUX 160404	TNUX 331
DC.. 070204	DC.. 21.51	TNUX 160408	TNUX 332
DC.. 070208	DC.. 21.52	TP.. 1603	TP.. 32
DC.. 11T302	DC.. 32.50.5	TP.. 2204	TP.. 43
DC.. 11T304	DC.. 32.51	TPUN 160308	TPUN 322
DC.. 11T308	DC.. 32.52	VB.. 160404	VB.. 331
DN.. 150404	DN.. 431	VB.. 160408	VB.. 332
DN.. 150408	DN.. 432	VC.. 160402	VC.. 330.5
DN.. 150412	DN.. 433	VC.. 160404	VC.. 331
DN.. 150412	CN.. 433	VC.. 160408	VC.. 332
DN.. 150604	DN.. 441	VN.. 160404	VN.. 331
DN.. 150608	DN.. 442	VN.. 160408	VN.. 332
DN.. 150612	DN.. 443	VN.. 160412	VN.. 333
SC.. 09T304	SC.. 32.51	WN.. 060404	WN.. 331
SC.. 09T308	SC.. 32.52	WN.. 060408	WN.. 332
SC.. 120408	SC.. 432	WN.. 060412	WN.. 333
SD.. 1203	SD.. 42	WN.. 080404	WN.. 431
SD.. 120420	SD.. 435	WN.. 080408	WN.. 432
SD.. 1504	SD.. 53	WN.. 080412	WN.. 433
SE.. 1203	SE.. 42	WN.. 080416	WN.. 434
SN.. 120404	SN.. 431		

Search

INSERT

Description	Page
ADKT	97
AOMT	97
APKT	98
APMT	99
APGT	100
CCGT	52
CCMT	52
CNMA	26
CNMG	26
CNGG	26
DCGT	54
DCMT	54
DNMA	31
DNMG	31
DNGG	31
ENMX	110
KNUX	36
ODMT	82
ODMW	82
OFER	83
OFMT	83
ONHU	84
ONMU	84
RCMT	56
RDKT	104
RDKW	104
RDMT	105
RDMW	105
RPMT	106
RPMW	106
SCGT	57
SCMT	57
SDCN	86
SDKN	86

INSERT

Description	Page
SDMT	112
SDMW	112
SEKN	87
SEKR	87
SEKT	88
SEGT	89
SEMT	90
SNMA	37
SNMG	37
SNMX	91
SPCN	92
SPKN	92
SPKR	92
SPMT	93
SPMX	115
SPUN	94
TCGT	58
TCMT	58
TDN	69
TDP	69
TDY	69
TNMA	41
TNMG	41
TNUX	45
TPCN	101
TPKN	101
TPKR	101
TPUN	101
VBMT	59
VCMT	60
VCMT	60
VNMA	46
VNMG	46
WCMX	116

INSERT

Description	Page
WNMA	48
WNMG	48
WNGG	48

MILLING CUTTER

Description	Page
...-APKT10-...	95
...-APKT16-...	95
...-APMT11-...	96
...-ENMX06-...	107
...-ENMX09-...	108
...-ODMT06-...	79
-PNMU12-	80
...-RDKT08-...	103
...-RDKT10-...	103
...-RDKT12-...	103
...-SEKT12-...	81
...-SD1204-...	109

TURNING HOLDER

Description	Page
MCLNR/L	62
MDJNR/L	62
MSBNR/L	63
MSRNR/L	63
MSSNR/L	63
MTGNR/L	64
MTJNR/L	64
MVJNR/L	65
MWLNLR/L	66

HIGH QUALITY PRODUCTS and ON TIME DELIVERY for WORLD-WIDE CUSTOMERS

Since 1982, YG-1 has been committed to quality, innovation and the unique customer experience. Our performance and experience have granted YG-1 the global impression of one of the leading manufacturers of high quality cutting tool solutions. This global footprint expands over 75 countries, with international logistic centers, pledging to our customers to give the best service available today - and tomorrow.

EUROPE



ASIA PACIFIC



AMERICAS



AFRICA



YG-1 CO., LTD.

* For the more information on sales network, please contact the head office as below;

YG-1 HEAD OFFICE

13-40, Songdogwahak-ro 16beon-gil,
Yeonsu-gu, Incheon 21984, South Korea

Notice YG-1 Global head office is relocating from December 2020 to a new address as above;

Phone: +82-32-526-0909 www.yg1.kr

E-mail: yg1@yg1.kr

YG-1 USA

730 Corporate Woods Parkway, Vernon Hills, IL 60061 U.S.A.

Phone : 800-765-8665

Technical Assistance : 888-868-5988

www.yg1usa.com

YG-1 CO., LTD.

YG-1 USA

730 Corporate Woods Parkway,
Vernon Hills, IL 60061 U.S.A.

Phone : 800-765-8665

Technical Assistance : 888-868-5988

yg1usa.com

YG-1 CANADA INC.

3375 North Service Road, Unit A8
Burlington, Ontario, CANADA L7N 3G2

Phone: +1 905-335-2500

FAX: +1 905-335-4003

Customer Service: orders@yg1.ca

yg1.ca

GLOBAL HEADQUARTERS

13-40, Songdogwahak-ro 16beon-gil, Yeonsu-gu,
Incheon 21984, South Korea

Notice YG-1 Global head office is relocating from December 2020
to a new address as above;

Phone: +82-32-526-0909

yg1@yg1.kr | https://www.yg1.kr

Note The information is provided for reference only. Tool specifications are subject to change without prior notice.
Although we endeavor to supply accurate and timely information, there can be no guarantee to cover every particular application.
YG-1 or publishers are not liable for any damage for use of the information.



Search 'YG-1' on social media outlets