

YE-IT20
EUROPE
2020/2021



CUTTING TOOLS



INDEXABLE INSERTS

 **YG-1 CO., LTD.**

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ISO TURNING

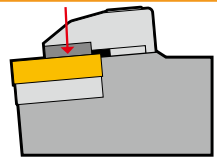
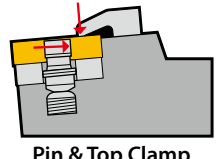
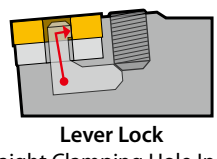
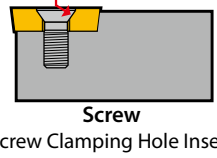
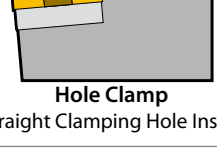
- Product Overview
- Application Guide
- Turning Holders Overview
- Turning Holders
- Turning Inserts Overview
- Turning Inserts

Turning - Name Code System
External Turning Holder Code (Metric)

*Metric

1	2	3	4	5	6	7	8	9	10
P	C	L	N	R	25	25	M	12	(C)
Clamping System	Insert Shape (1st Letter of Insert)	Tool Style	Insert Clearance (2nd Letter of Insert)	Tool Hand	Shank Height (H)	Shank Width (B)	Length (LF)	Insert Size	(Optional Clamp)

1 - Clamping System

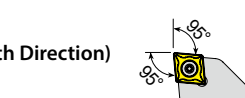
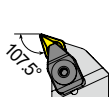
Symbol	System
C	 Top Clamp (No Clamping Hole Insert)
M	 Pin & Top Clamp (Straight Clamping Hole Insert)
P	 Lever Lock (Straight Clamping Hole Insert)
S	 Screw (Screw Clamping Hole Insert)
T (D, A)	 Hole Clamp (Straight Clamping Hole Insert)

2, 4 — Insert Compatibility *



* Related to Insert Designation to check compatibility

3 - Tool Style

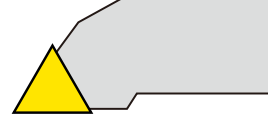
Approach Angle (KAPR)	Side Direction		End Direction
	Straight Shank	Offset Shank	
45°	D 	S 	
60°		T 	
63°	N 		
72.5°	V 		
75°	B 		K 
90°	A 	G 	F 
93°		J 	U 
95°		L (Both Direction) 	
107.5°		H 	

Turning - Name Code System
External Turning Holder Code (Metric)

*Metric

1	2	3	4	5	6	7	8	9
S	D	J	C	R	20	20	K	11
Clamping System	Insert Shape (1st Letter of Insert)	Tool Style	Insert Clearance (2nd Letter of Insert)	Tool Hand	Shank Height (H)	Shank Width (B)	Length (LF)	Insert Size

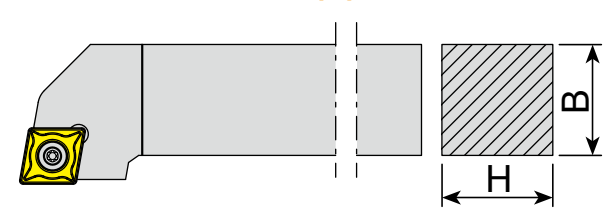
5 - Hand Direction

Symbol	Hand Direction
R	Right Hand 
L	Left Hand 
N	Neutral 

8 - Length (LF)

Symbol	Length (mm)	Symbol	Length (mm)
E	70	Q	180
F	80	R	200
H	100	S	250
K	125	T	300
M	150	U	350
P	170	V	400

6, 7 - Shank Height (H)
Shank Width (B)



9 - Insert Size *

Examples	is Compatible with...
PCLNR 2525M 12	CNMG 120408
SCLCR 2020K 09	CCMT 09T308
TWLNLR 2525M 08	WNMG 080408

* Related to Insert Designation to check compatibility

(10 - Optional Clamp)

Symbol	Optional Clamp
C	Included

Turning - Name Code System
Internal Turning Holder Code (Metric)

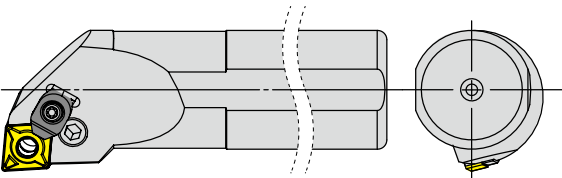
*Metric

1	2	3		4	5	6	7	8	9	10
A	32	S	-	P	W	L	N	R	12	(C)
Coolant & Material	Shank Diameter (DCON)	Legth (LF)		Clamping System	Insert Shape (1st Letter of Insert)	Tool Style	Insert Clearance (2nd Letter of Insert)	Tool Hand	Insert Size	(Optional Clamp)

1 - Coolant and Tool Material

Symbol	Internal Coolant	Tool Material
A	O	Steel
S	X	
E	O	Carbide

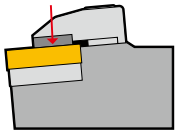
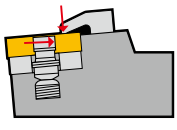
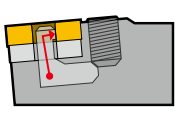
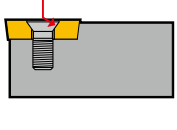
2 - Shank Diameter (DCON)



3 - Length (LF)

Symbol	Length (mm)	Symbol	Length (mm)
E	70	Q	180
F	80	R	200
H	100	S	250
K	125	T	300
M	150	U	350
P	170	V	400

4 - Clamping System

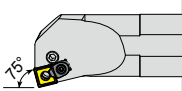
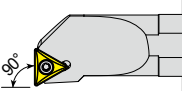
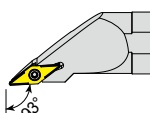
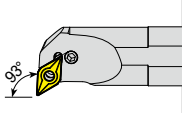
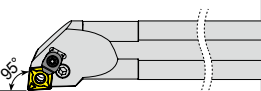
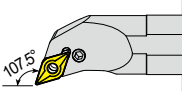
Symbol	System
C	 Top Clamp (No Clamping Hole Insert)
M	 Pin & Top Clamp (Straight Clamping Hole Insert)
P	 Lever Lock (Straight Clamping Hole Insert)
S	 Screw (Screw Clamping Hole Insert)
T (D, A)	 Hole Clamp (Straight Clamping Hole Insert)

Turning - Name Code System
Internal Turning Holder Code (Metric)

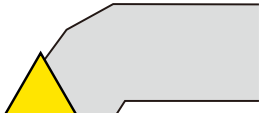
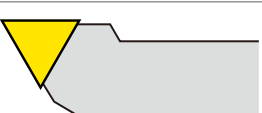
*Metric

1	2	3		4	5	6	7	8	9
A	25	R	-	S	C	L	C	R	09
Coolant & Material	Shank Diameter (DCON)	Legth (LF)		Clamping System	Insert Shape (1st Letter of Insert)	Tool Style	Insert Clearance (2nd Letter of Insert)	Tool Hand	Insert Size

6 - Tool Style

Approach Angle (KAPR)	Side Direction	End Direction
	Offset Shank	
75°		K 
90°		F 
93°	J 	U 
95°	L (Both Direction) 	
107.5°		Q 

8 - Hand Direction

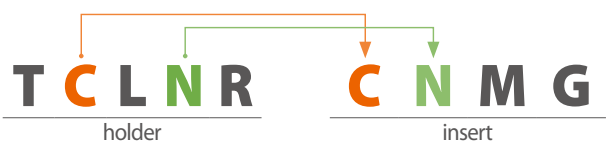
Symbol	Hand Direction
R	Right Hand 
L	Left Hand 
N	Neutral 

9 - Insert Size *

Examples	is Compatible with...
PCLNR 2525M 12	CNMG 120408
SCLCR 2020K 09	CCMT 09T308
TWLNR 2525M 08	WNMG 080408

* Related to Insert Designation to check compatibility

5, 7 - Insert Compatibility *



* Related to Insert Designation to check compatibility

(10 - Optional Clamp)

Symbol	Optional Clamp
C	Included

Insert ISO Code System

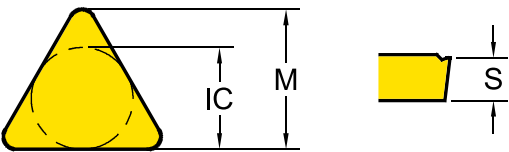
*Metric : According to ISO 1832

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

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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	



3 - Tolerance Class

Symbol	Inner Circle IC (mm)	Nose Height M (mm)	Thickness S (mm)
C	± 0.025	± 0.013	± 0.025
E	± 0.025	± 0.025	± 0.025
G	± 0.025	± 0.025	± 0.13
H	± 0.013	± 0.013	± 0.025
K*	± 0.05~0.15*	± 0.013	± 0.025
M*	± 0.05~0.15*	± 0.08~0.2*	± 0.13
U*	± 0.08~0.25*	± 0.13~0.38*	± 0.13

*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	
A	Cylindrical Clamping hole	X	
M		One Face	
G		Both Faces	
W	Screw Hole	X	
T		One Face	
U		Both Faces	
X		Special	

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	

Insert ISO Code System

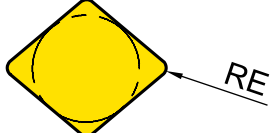
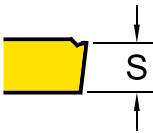
*Inch

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

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5 - Insert Size

Metric							Inner Circle IC (mm)	Inch
S	T	C	D	V	W	R		
06	11	06	07	11			6.35	2
07							7.94	2.5
09	16	09	11	16	06	09 (00)	9.525	3
12	22	12	15	22	08	12 (00)	12.7	4
15		16					15.875	5
19		19					19.05	6
25		25					25.4	8
						06 (M0)	6	
						08 (M0)	8	
						10 (M0)	10	
						12 (M0)	12	
						16 (M0)	16	



6 - Insert Thickness (S)

Metric	Thickness - S (mm)	Inch
T1	1.98	1.2
02	2.38	1.5
03	3.18	2
T3	3.97	2.5
04	4.76	3
05	5.56	3.5
06	6.35	4
07	7.94	5
09	9.525	6

7 - Corner Radius (RE)

Metric	Corner Radius - RE (mm)	Inch
01	0.1	0
02	0.2	0.5
04	0.4	1
08	0.8	2
12	1.2	3
16	1.6	4
20	2.0	5
24	2.4	6

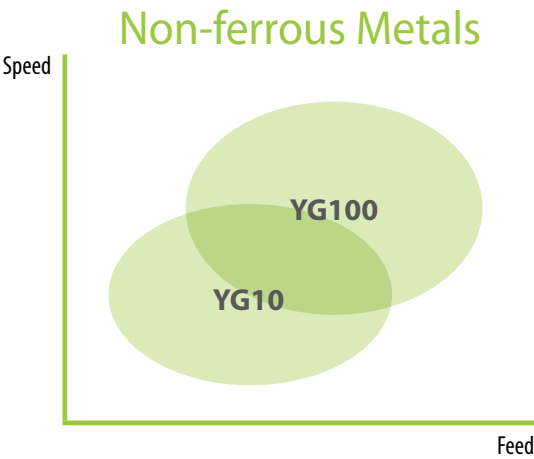
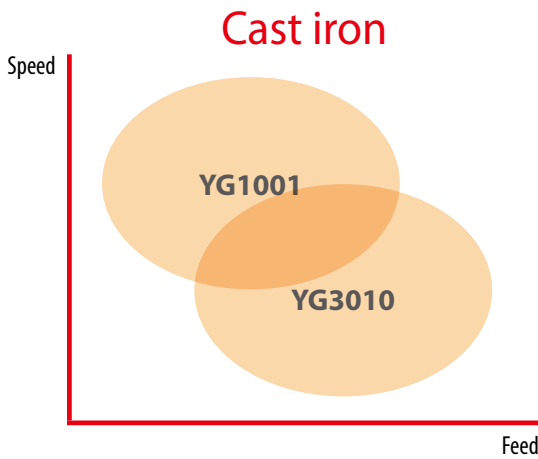
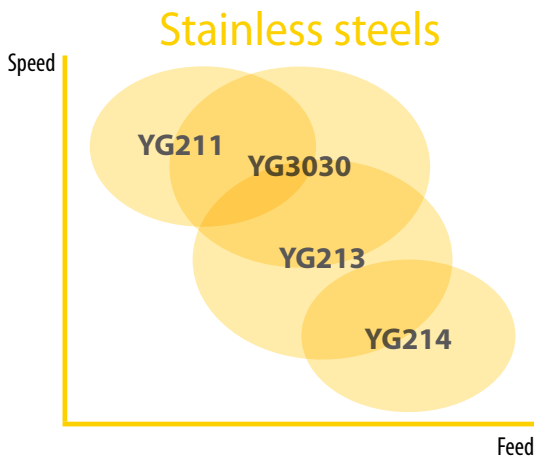
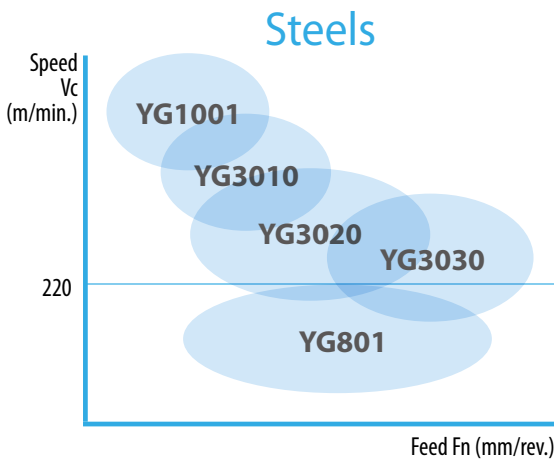
Product Overview
Turning Grades

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	YG1001	1001							1001						
	YG3010	3010							3010						
	YG3020		3020												
	YG3030			3030		3030									
PVD	YG801	801													
	YG211					211								211	
	YG213						213							213	
	YG214							214							214
DLC	YG100											100			
-	YG10											10			

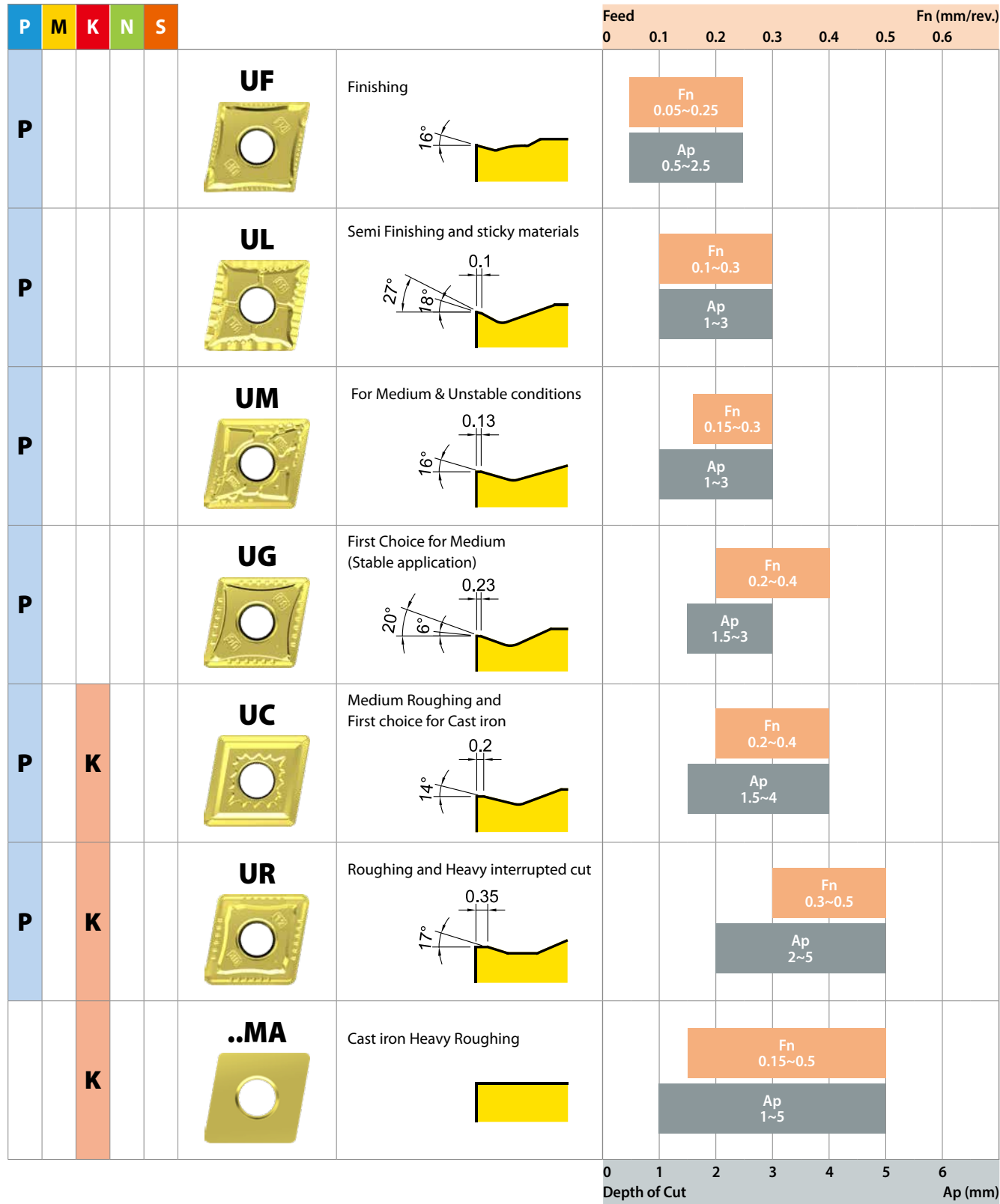
YG1001 P01 - P10 K10 - K25		First choice for stable machining of Cast iron - Substrate especially designed for high wear resistance - Thick Al₂O₃ layer ensures good wear resistance at high cutting speeds including dry machining
YG3010 P05 - P20 K15 - K35		First choice for Finishing Steels, and Ductile Cast iron - Finishing and light machining of steel under in stable condition - New Al₂O₃ coating technology and excellent surface smoothness increase wear resistance and chipping resistance
YG3020 P15 - P30		First Choice grade for general Steel application - Substrate especially designed for good toughness - Excellent surface smoothness increases wear resistance and reliability
YG3030 P20 - P35 M10 - M30		Interrupted cut of Steel and Stainless steel - Heavy interrupted cut for Steel - High cutting speed for Stainless steel
YG801 P10 - P30		for Carbon Steel with Low cutting speed - Recommended for mild steel and boring application - Substrate and special PVD coating for excellent wear resistance
YG100 N05 - N25		First Choice grade for aluminum with DLC coating - 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 - Substrate consisted of submicron carbide for high wear resistance - Shining surface to prevent built up edge

Product Overview
Turning Grade Map

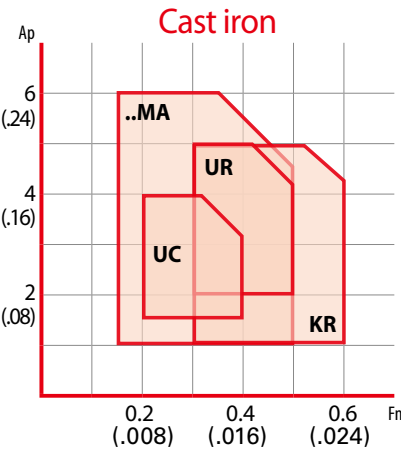
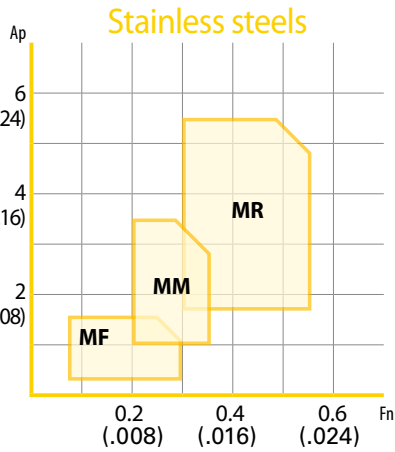
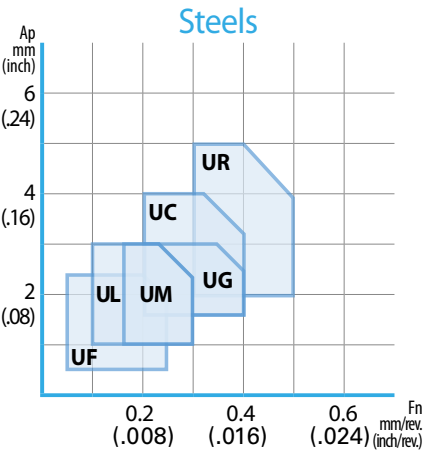
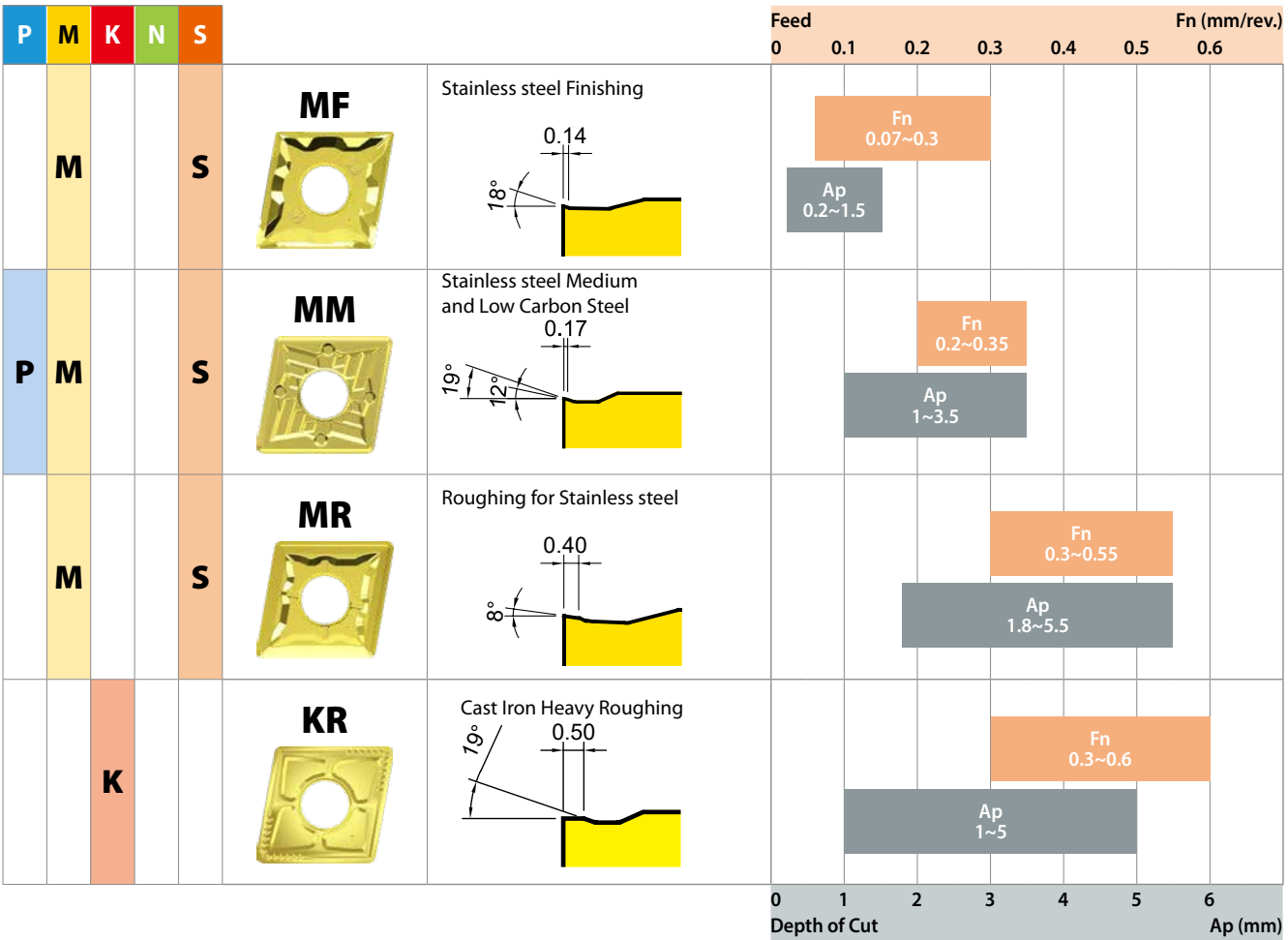
YG211 M05 - M25 S05 - S20		High wear resistance grade for Super alloys and Stainless steel - Finishing Stainless steel - Finishing Super alloys and Titanium
YG213 M20 - M35 S15 - S25		First Choice Grade on low cutting speed of Stainless steel - First choice on Stainless steel for Low cutting speed - For Medium to low cutting speed
YG214 M30 - M40 S25 - S30		Heavy Interrupted cut for Stainless steel - For Heavy Interrupted cut on Stainless steel - Minimize risk of Mechanical fracture or Chipping

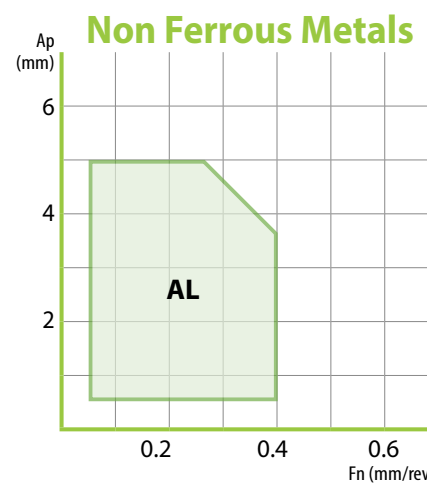
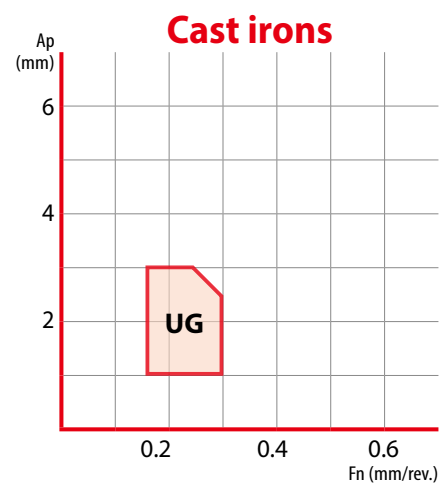
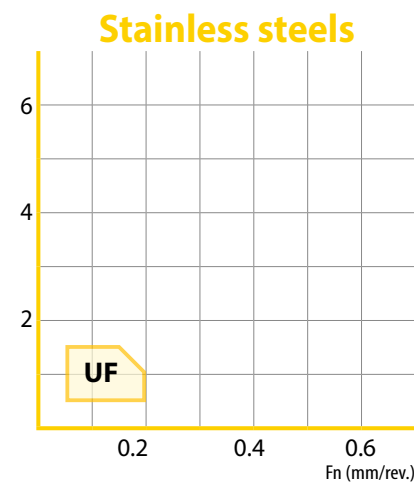
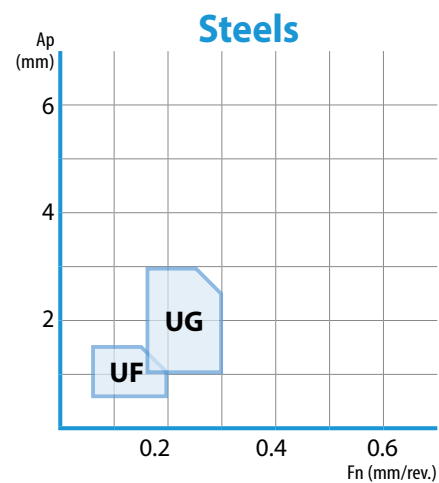
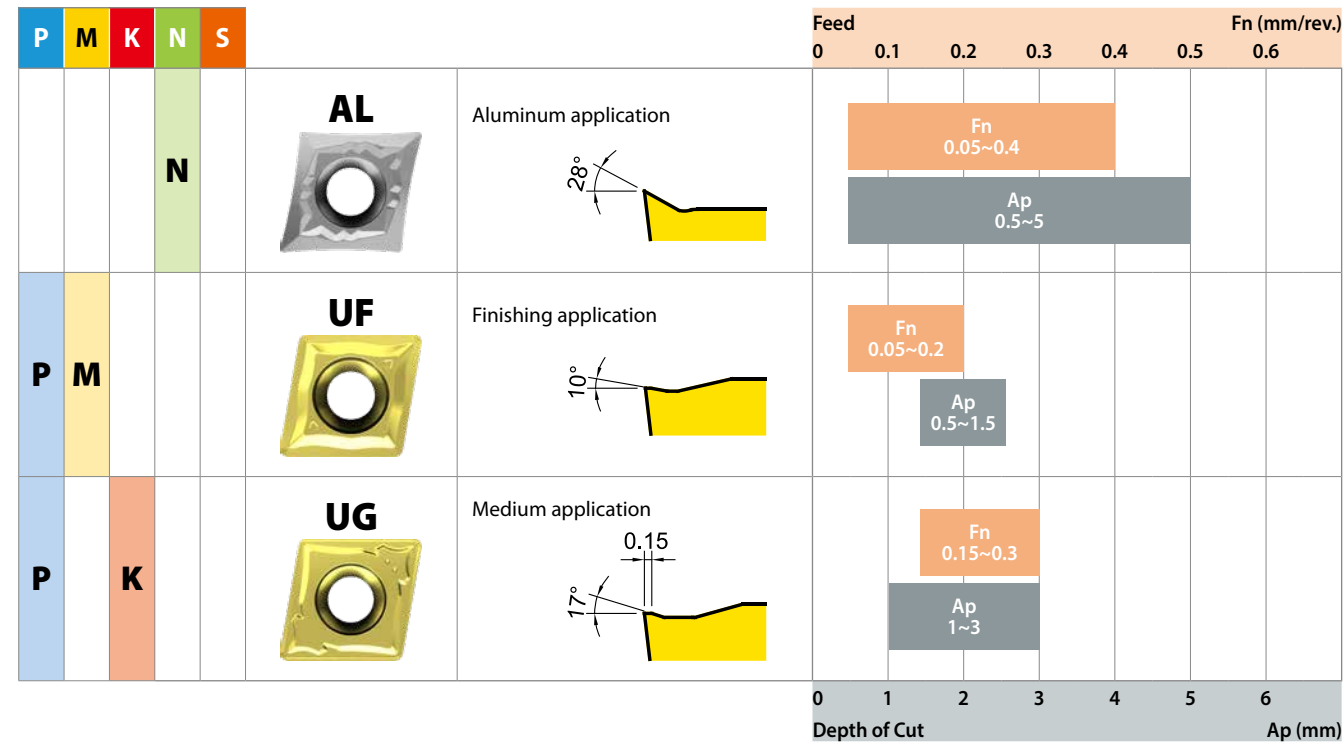


Product Overview
Turning Chipbreakers - Negative



Product Overview
Turning Chipbreakers - Negative

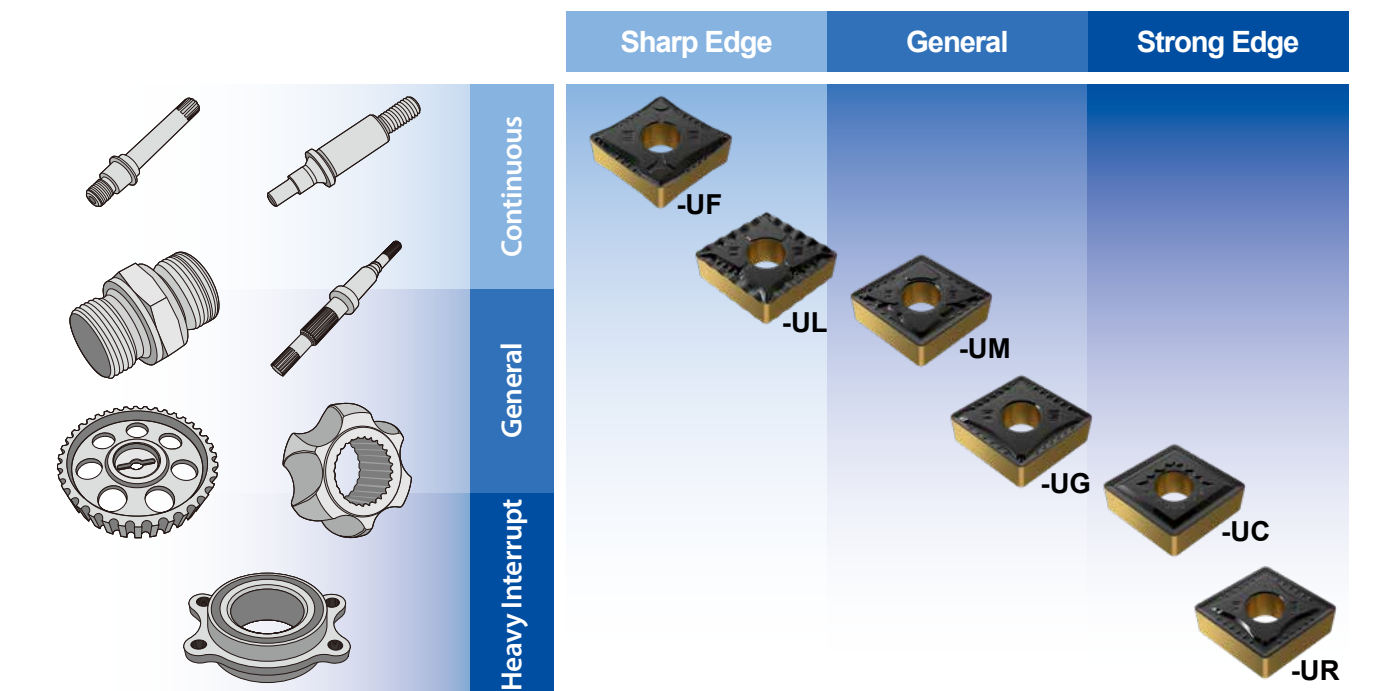




Grade Recommendation based on Workpiece Material Condition

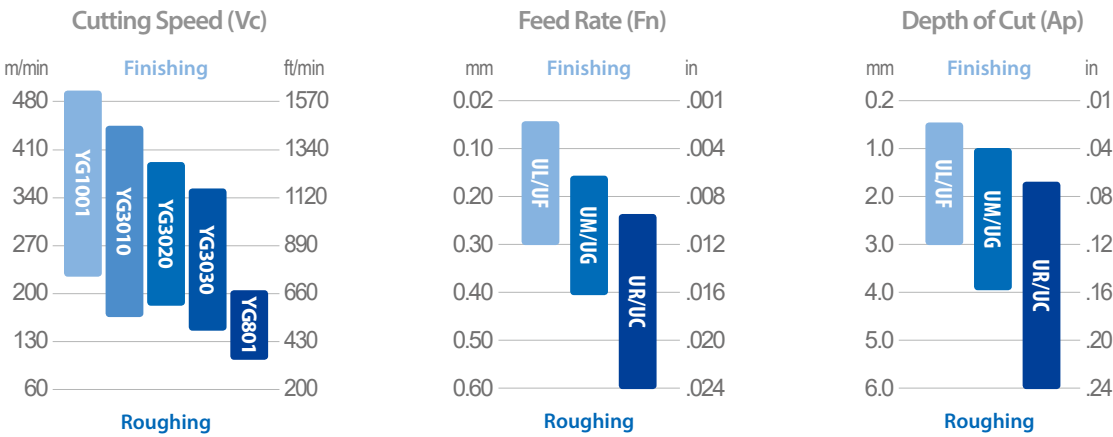


Chipbreaker, Feed Rate and Depth of Cut



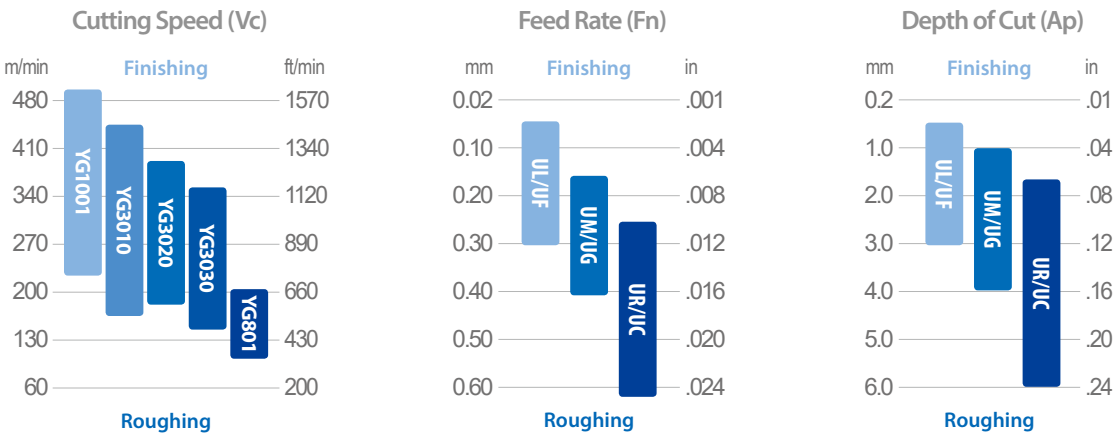
Application Guide
Steel Guide

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)

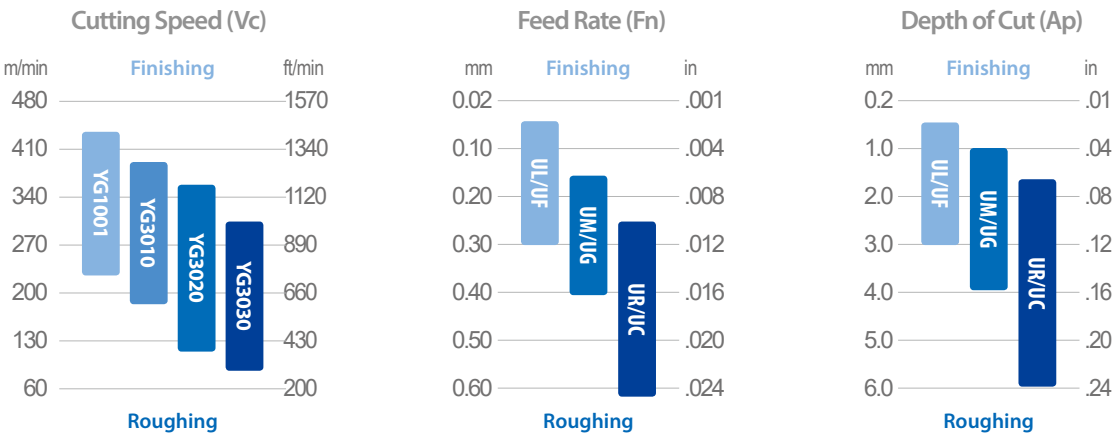
P	Non Alloy Steel, About 0.45% C (Medium Carbon Steel)									
VDI	JIS	DIN	Mat'l No.	AISI/ASTM	SS	AFNOR	UNI	UNE	BS	GOST
2~3	S45C	C45	1.0503	1045	1672	XC42H1TS	C45	F.1140	060A47	45



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

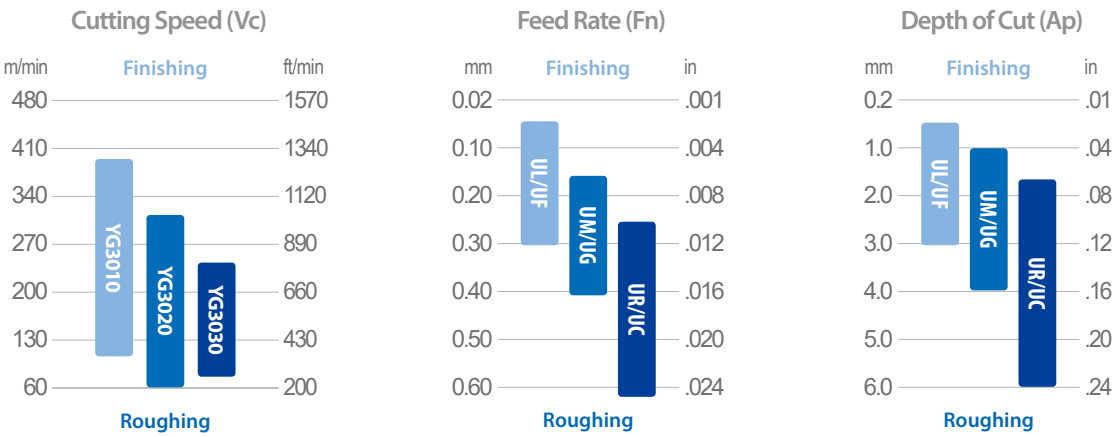
Application Guide
Steel Guide

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)

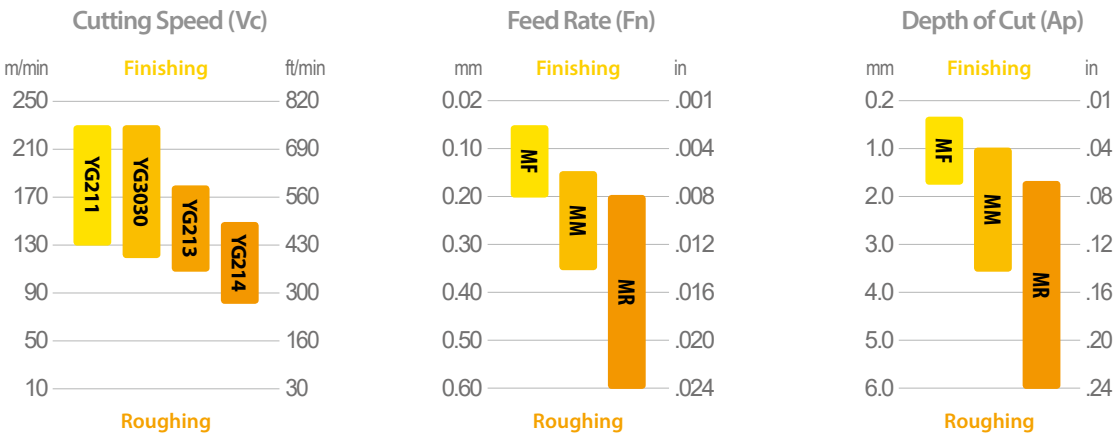
P	High Alloyed Steel, and Tool Steel									
VDI	JIS	DIN	Mat'l No.	AISI/ASTM	SS	AFNOR	UNI	UNE	BS	GOST
10~11	SKD11	X155CrVMo121	1.2379	D2	2310	Z160CDV12	X165CrMoW12KU	F.5318	BD2	KH12MF



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)

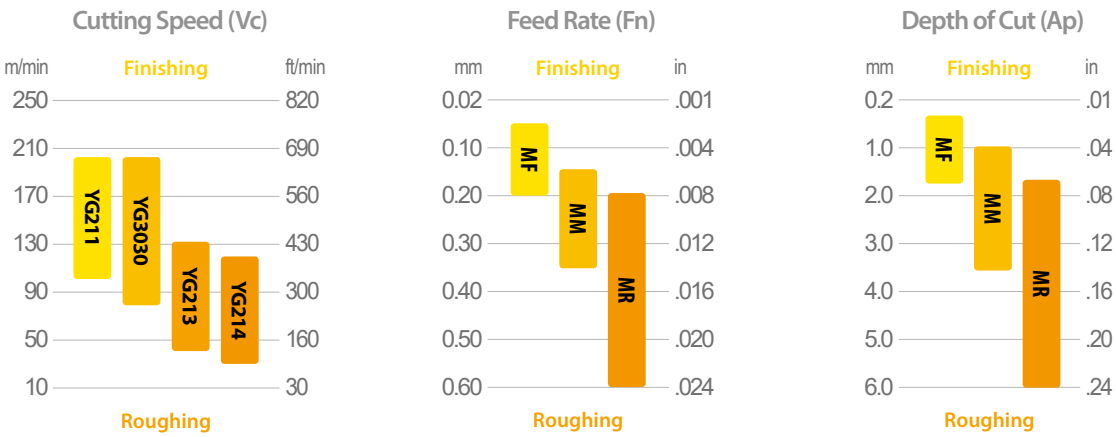
YG213 - Vc 160m/min (520ft/min)

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



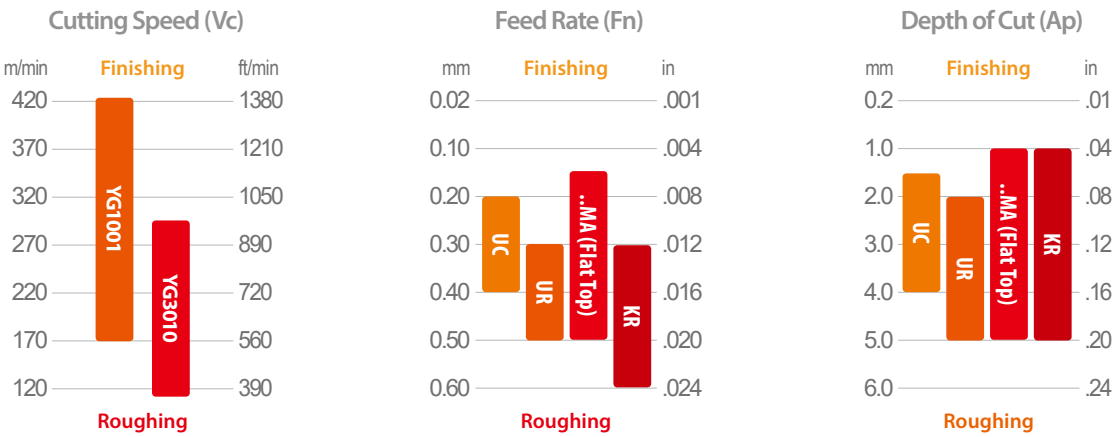
First Choice Grade and Value

YG3030 - Vc 180m/min (590ft/min)

YG213 - Vc 140m/min (460ft/min)

Application Guide
Cast iron Guide

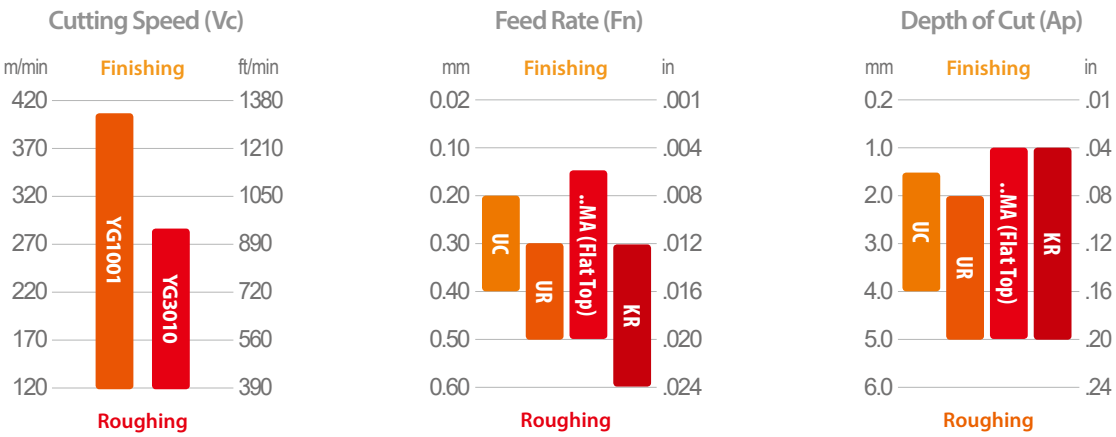
K	Grey cast iron									
VDI	JIS	DIN	Mat'l No.	AISI/ASTM	SS	AFNOR	UNI	UNE	BS	GOST
15~16	FC250	GG25	0.6025	A48 40 B	0125	Ft 25 D	G25	FG25	Grade 260	Sc 25



First Choice Grade and Value

YG1001 - Vc 350m/min (1,150ft/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	FG E50-7	SNG 500-7	Vc 50-2



First Choice Grade and Value

YG3010 - Vc 220m/min (720ft/min)

Formulas

Cutting Speed (Vc)	Metric $Vc = D \times RPM \times 0.0031 \text{ (m/min)}$
	Inch $Vc = D \times RPM \times .262 \text{ (ft/min)}$
	Metric Vc to Inch Vc $\text{Inch Vc} = \text{Metric Vc} \times 3.28 \text{ (ft/min)}$
	Inch Vc to Metric Vc $\text{Metric Vc} = \text{Inch Vc} \times .305 \text{ (m/min)}$
Spindle Speed (RPM)	Metric $RPM = Vc \times 318.3 \div D \text{ (rev/min)}$
	Inch $RPM = Vc \times 3.82 \div D \text{ (rev/min)}$
Feed Rate (Vf = Table Feed)	$Vf = Fn \times RPM \text{ (mm/min or in/min)}$
Feed per Revolution (Fn)	$Fn = Vf \div RPM \text{ (mm/min or in/min)}$
Metal Removal Rate (Q)	Metric $Q = Vc \times Fn \times Ap \text{ (cm}^3\text{/min)}$
	Inch $Q = Vc \times Fn \times Ap \times 12 \text{ (in}^3\text{/min)}$
Cutting Time	$T = L \div Vf \text{ (min)}$

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)

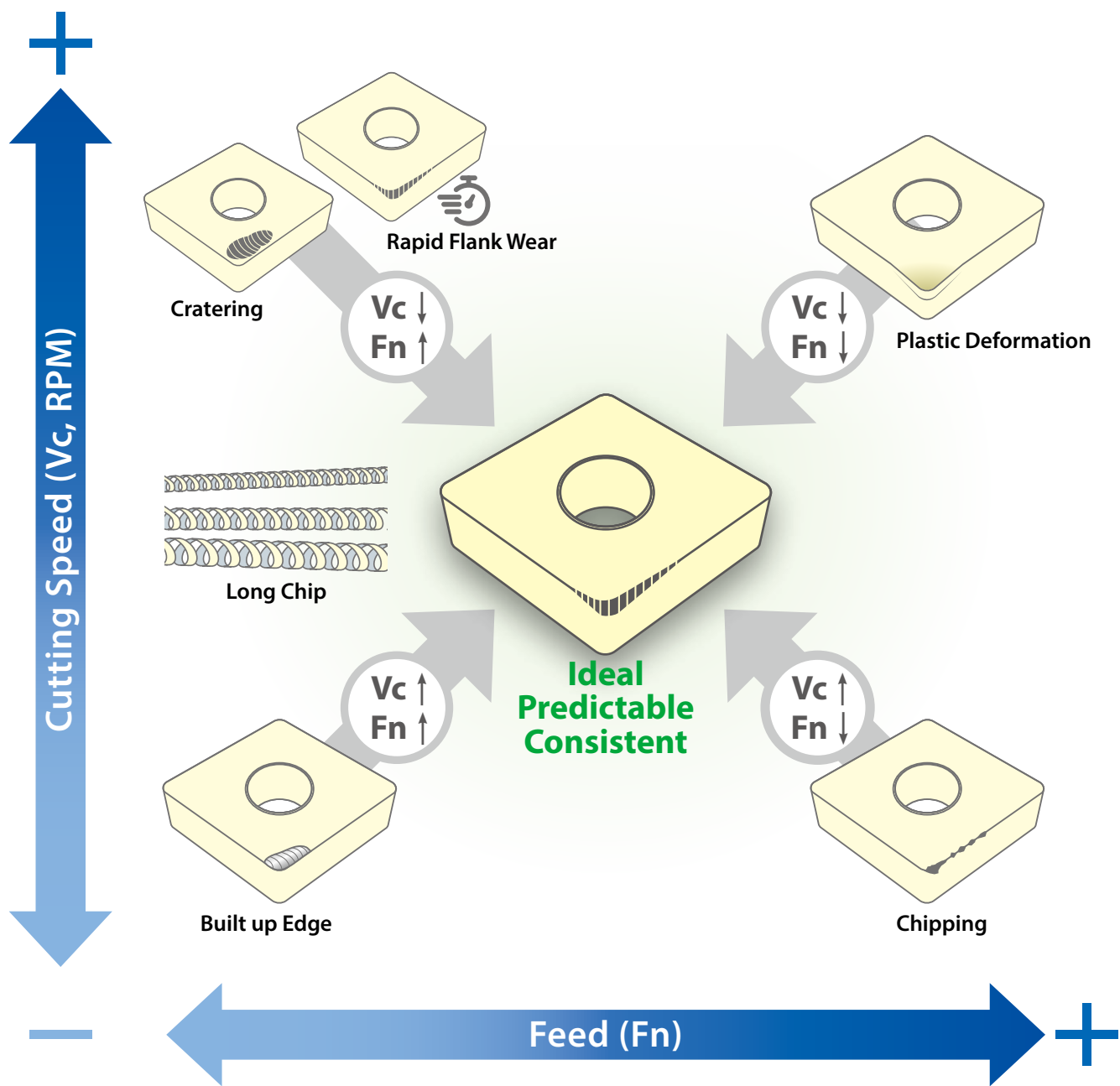
Trouble Shooting

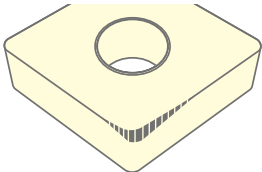
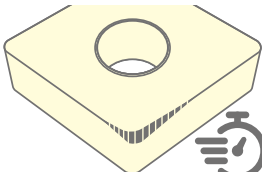
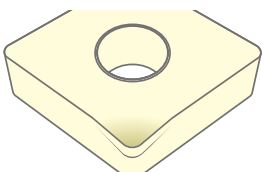
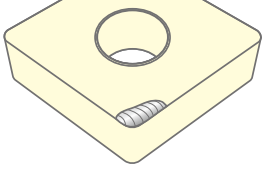
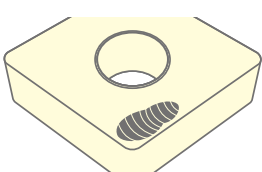
Pattern	Reasons	Solutions
Vibration 	- High radial or tangential force - Unstable condition	- Lower depth of cut (ap) - Use sharper chipbreaker - Check stability, and position of tool and workpiece - Reduce the overhang (bigger and shorter tool)
Bad Surface 	- Work material is damaged by chips - Feed is too high for corner radius	- Different chipbreaker - Lower depth of cut (ap) - Lower feed - Bigger corner radius

Theoretical Surface Roughness

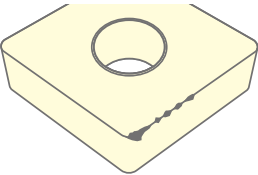
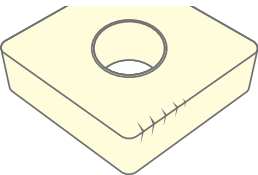
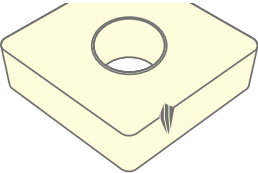
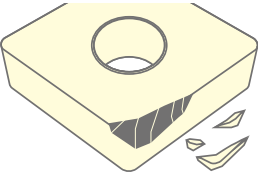
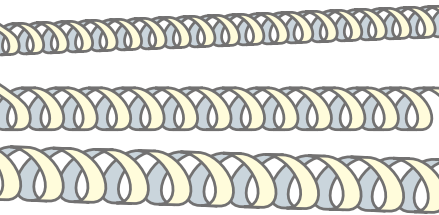
Ra / Rz μm (μ inch)	Insert Corner Radius Code ISO (ANSI)					
	02 (0)	04 (1)	08 (2)	12 (3)	16 (4)	24 (6)
	Feed Rate mm/rev (inch/rev)					
0.4 / 1.6 (16 / 64)	0.05 (.002)	0.07 (.003)	0.1 (.004)	0.12 (.005)	0.14 (.006)	0.18 (.007)
1.6 / 6.3 (64 / 256)	0.1 (.004)	0.14 (.006)	0.2 (.008)	0.25 (.010)	0.28 (.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

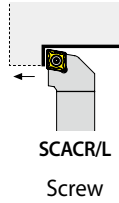
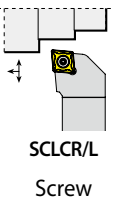
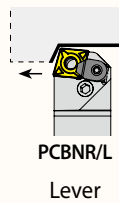
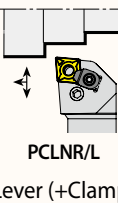
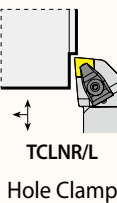
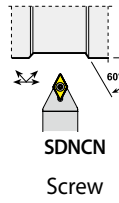
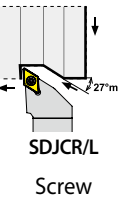
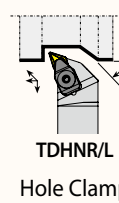
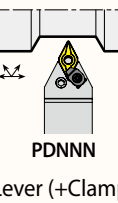
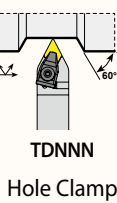
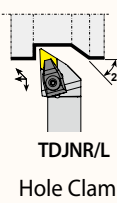
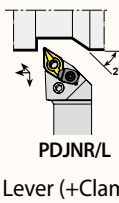
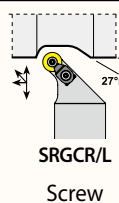
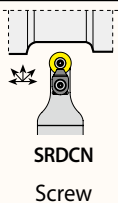
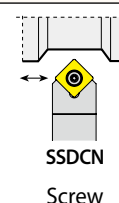
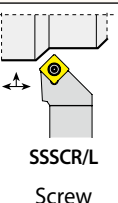


Pattern	Reasons	Solutions
General Flank Wear  Flank face near by corner is abraded	- The most ideal wear - Consistent and predictable - General wear behavior when machining condition is normal	
Rapid Flank Wear  Looks same as general flank wear, but happens quickly	Grade - Not enough wear resistance - Too tough grade Heat - Cutting speed is too high - Not enough coolant	- More wear resistant grade - Reduce the cutting speed (Vc, SFM, RPM or SFPM) - Optimize coolant - Increase Feed (Fn) if feed is low
Plastic Deformation  Deformed Edge	- Excess thermal load - Excess mechanical load	- 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
Built up Edge  Workpiece material is welded on the cutting edge	- Sticky materials (low carbon steel, Stainless steel, non-ferrous metal, heat resistant super alloys) - Too low cutting speed	- Increase cutting speed - Lower feed rate - Sharper chipbreaker & geometry - Use high pressure coolant - Use PVD grade - Use Positive Insert
Cratering 	Heat - Cutting speed is too high - Too tough grade	- Reduce cutting temperature - Lower cutting speed (Vc, SFM, RPM or SFPM) - Adjust Feed (Fn) - Harder grade

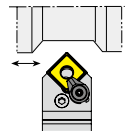
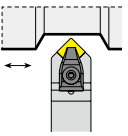
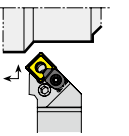
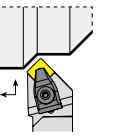
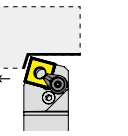
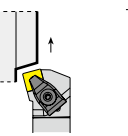
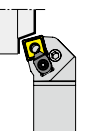
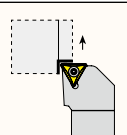
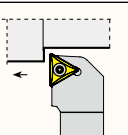
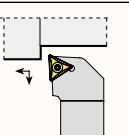
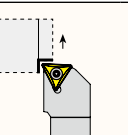
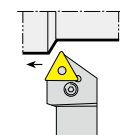
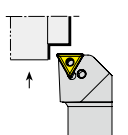
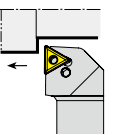
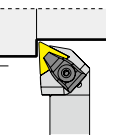
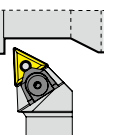
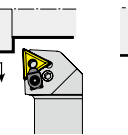
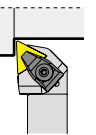
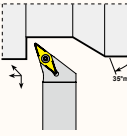
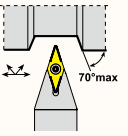
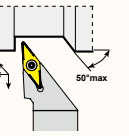
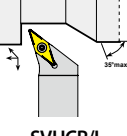
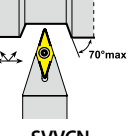
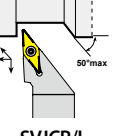
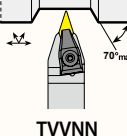
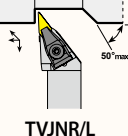
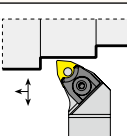
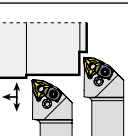
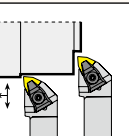
Application Guide
Trouble Shooting

Pattern	Reasons	Solutions
Chipping 	- Unstable machining condition (Vibration) - Grade is too hard / brittle - Grade is too sharp	- Focus on stabilizing cutting condition - Reduce overhang (shorter and bigger tool) - Tougher grade - Tougher chipbreaker
Thermal Crack 	- Thermal stress due to rapid change of temperature	- Tougher grade - Lower cutting speed (Vc, SFM, RPM or SFPM) - Lower feed (Fn) - Sharper chipbreaker - Change coolant / dry cut
Notching 	- Improved edge strength work piece has hardened skin	- 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
Breakage (Mechanical Fracture) 	- 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	- 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)
Long Chip 	- Feed is too low for chipbreaker - Depth of cut is too shallow for corner radius - Chip area (Fn x Ap) too low	- Higher feed - Sharper chipbreaker - Higher depth of cut - Select a smaller corner radius

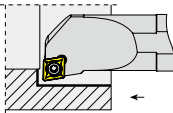
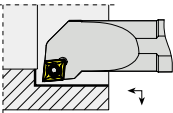
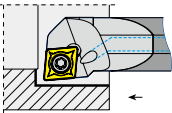
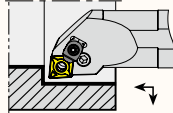
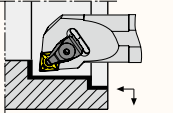
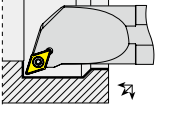
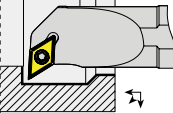
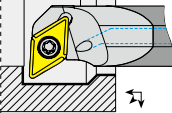
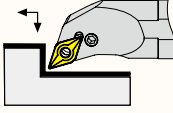
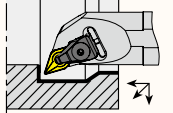
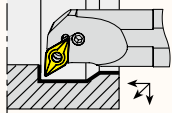
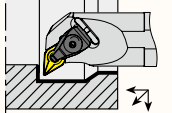
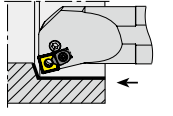
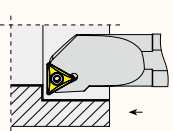
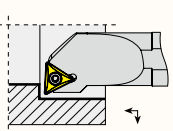
Turning - Holder - External
External Holders Overview

Series	Turning Holder			
 CCGT CCMT p. 78	 SCACR/L Screw p. 29	 SCLCR/L Screw p. 29		
 CNMA CNMG p. 60	 PCBNR/L Lever p. 30	 PCLNR/L Lever (+Clamp) p. 30	 TCLNR/L Hole Clamp p. 30	
 DCGT DCMT p. 79	 SDNCN Screw p. 31	 SDJCR/L Screw p. 31		
 DNMA DNMG p. 63	 TDHNR/L Hole Clamp p. 32	 PDNNN Lever (+Clamp) p. 32	 TDNNN Hole Clamp p. 32	 TDJNR/L Hole Clamp p. 32
				 PDJNR/L Lever (+Clamp) p. 32
 KNUX p. 66	 CKJNR/L Top Clamp p. 33			
 RCMT p. 80	 SRGCR/L Screw p. 34	 SRDCN Screw p. 34		
 SCMT p. 81	 SSDCN Screw p. 35	 SSSCR/L Screw p. 35		

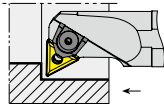
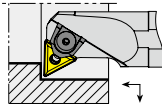
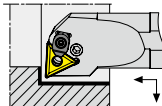
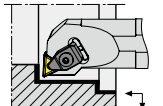
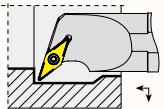
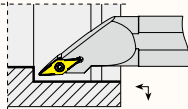
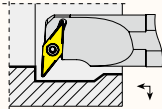
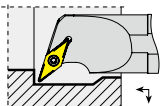
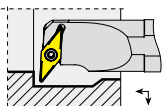
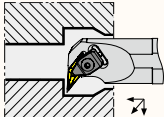
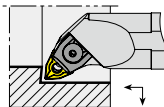
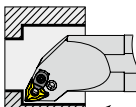
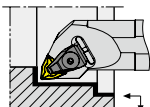
Turning - Holder - External
External Holders Overview

Series		Turning Holder						
	SNMA SNMG							
		PSDNN Lever (+Clamp)	TSDNN Hole Clamp	PSSNR/L Lever (+Clamp)	TSSNR/L Hole Clamp	PSBNR/L Lever (+Clamp)	TSKNR/L Hole Clamp	PSKNR/L Lever (+Clamp)
		p. 67	p. 36	p. 36	p. 36	p. 36	p. 36	p. 36
	TCGT TCMT							
		STFCR/L Screw	STGCR/L Screw	STJCR/L Screw	STUCR/L Screw			
		p. 82	p. 37	p. 37	p. 37	p. 37		
	TNMA TNMG TNUX							
		PTTNR/L Lever (+Clamp)	PTFNR/L Lever (+Clamp)	PTGNR/L Lever (+Clamp)	TTGNR/L Hole Clamp	MTJNR/L Pin + Clamp	PTJNR/L Lever (+Clamp)	TTJNR/L Hole Clamp
		p. 69	p. 38	p. 38	p. 38	p. 38	p. 39	p. 39
	VBMT							
		SVHBR/L Screw	SVVBN Screw	SVJBR/L Screw				
		p. 83	p. 40	p. 40	p. 40			
	VCGT VCMT							
		SVHCR/L Screw	SVVCN Screw	SVJCR/L Screw				
		p. 84	p. 41	p. 41	p. 41			
	VNMA VNMG							
		TVVNN Hole Clamp	TVJNR/L Hole Clamp					
		p. 73	p. 42	p. 42				
	WNMA WNMG							
		MWLNR/L Pin + Clamp	PWLNR/L Lever (+Clamp)	TWLNR/L Hole Clamp				
		p. 75	p. 43	p. 43	p. 43			

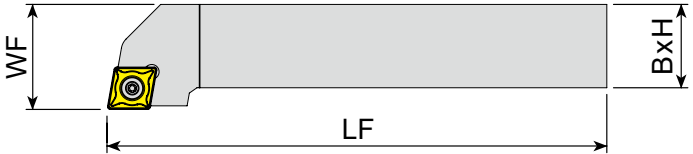
Turning - Holder - Internal
Internal Holders Overview

Series		Turning Holder			
	CCGT CCMT				
		..SCFCR/L Screw	..SCLCR/L Screw	E..SCLCR/L Screw	
p. 78		p. 44	p. 45	p. 45	
	CNMA CNMG				
		..PCLNR/L Lever (+Clamp)	..TCLNR/L Hole Clamp		
p. 60		p. 46	p. 46		
	DCGT DCMT				
		..SDQCR/L Screw	..SDUCR/L Screw	E..SDUCR/L Screw	
p. 79		p. 47	p. 48	p. 48	
	DNMA DNMG				
		..PDQNR/L Lever (+Clamp)	..TDQNR/L Hole Clamp	..PDUNR/L Lever (+Clamp)	..TDUNR/L Hole Clamp
p. 63		p. 49	p. 49	p. 49	p. 49
	SNMA SNMG				
		..PSKNR/L Lever (+Clamp)			
p. 67		p. 50			
	TCGT TCMT				
		..STFCR/L Screw	..STUCR/L Screw		
p. 82		p. 51	p. 51		

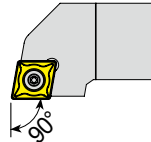
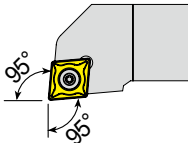
Turning - Holder - Internal
Internal Holders Overview

Series		Turning Holder			
	TNMA TNMG TNUX				
		..MTFNR/L Pin + Clamp	..MTUNR/L Pin + Clamp	..PTUNR/L Lever (+Clamp)	..TTUNR/L Hole Clamp
p. 69		p. 52	p. 52	p. 53	p. 53
	VBMT				
		..SVQBR/L Screw	..SVJBR/L Screw	..SVUBR/L Screw	
p. 83		p. 54	p. 54	p. 54	
	VCGT VCMT				
		..SVQCR/L Screw	..SVUCR/L Screw		
p. 84		p. 55	p. 55		
	VNMA VNMG				
		..TVUNR/L Hole Clamp			
p. 73		p. 56			
	WNMA WNMG				
		..MWLNR/L Pin + Clamp	..PWLNR/L Lever (+Clamp)	..TWLNR/L Hole Clamp	
p. 75		p. 57	p. 57	p. 58	

Turning - Holder - External
External Holders for CC** Insert

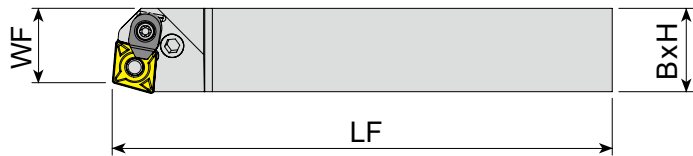


: p. 78 unit:mm

Series	Designation	EDP 2700..		H	B	WF	LF	Insert
	SCACR/L 0808E 06	0675	0676	08	08	10	70	CC0602
	SCLCR/L 0808E 06	0689	0690	08	08	10	70	CC0602
	SCLCR/L 1010E 06	0691	-	10	10	12	70	
	SCLCR/L 1010E 09	0692	0693	10	10	12	70	
	SCLCR/L 1212F 09	0089	0090	12	12	16	80	CC09T3
	SCLCR/L 1616H 09	0091	0092	16	16	20	100	
	SCLCR/L 2020K 09	0093	0094	20	20	25	125	
	SCLCR/L 2525M 09	0694	0695	25	25	32	150	CC1204
	SCLCR/L 1616H 12	0696	-	16	16	20	100	
	SCLCR/L 2020K 12	0095	0096	20	20	25	125	
	SCLCR/L 2525M 12	0097	0098	25	25	32	150	

Series	Size	Screw	Shim	Shim Screw	Torx Key
SCACR/L	..06	Y4008-M2.5x6	-	-	Y80-T08
	..06	Y4008-M2.5x6	-	-	Y80-T08
	..1010..09	Y4015-M3x9	-	-	Y80-T15
SCLCR/L	..1212..09	Y4015-M3.5x11	-	-	Y80-T15
	..1616~2525..09	Y4015-M3.5x14	YAACN-2-0001	YAAV-06-M3.5x11	Y80-T15
	..1616..12	Y1020-M5x11	-	-	Y80-T20
	..2020~2525..12	Y1020-M4.5x16	YAACN-2-0003	YAAV-07-M4.5x13	Y80-T20

Turning - Holder - External
External Holders for CN** Insert

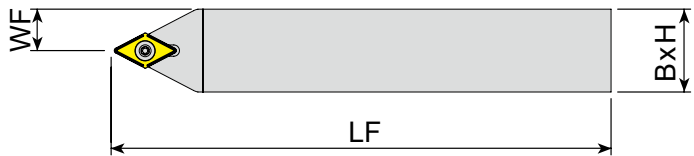


* 'C' Letter at Last : Optional Clamp Included : p. 60 unit:mm

Series	Designation	EDP 2700.. R L		H	B	WF	LF	Insert
 PCBNR/L (Lever Type 75°)	PCBNR/L 2525M 16C	0444	0445	25	25	22	150	CN1606
	PCBNR/L 3232P 16C	0446	0447	32	32	27	170	
	PCBNR/L 3232P 19C	0448	0449	32	32	37	170	CN1906
	PCBNR/L 4040S 19C	0450	0451	40	40	37	250	
 PCLNR/L (Lever Type 95°)	PCLNR/L 1616H 12	0464	0465	16	16	20	100	CN1204
	PCLNR/L 2020K 12C	0466	0467	20	20	25	125	
	PCLNR/L 2525M 12C	0468	0469	25	25	32	150	
	PCLNR/L 3232P 12C	0470	0471	32	32	40	170	CN1606
	PCLNR/L 2525M 16C	0472	0473	25	25	32	150	
	PCLNR/L 3232P 16C	0474	0475	32	32	40	170	CN1906
	PCLNR/L 2525M 19C	0476	0477	25	25	32	150	
	PCLNR/L 3232P 19C	0478	0479	32	32	40	170	
 TCLNR/L (Hole Clamp Type 95°)	PCLNR/L 4040S 19C	0480	0481	40	40	50	250	CN1606
	TCLNR/L 2020K 12	0482	0483	20	20	25	125	
	TCLNR/L 2525M 12	0484	0485	25	25	32	150	
	TCLNR/L 3232P 12	0486	0487	32	32	40	170	
	TCLNR/L 2525M 16	0492	0493	25	25	32	150	
	TCLNR/L 3232P 16	0494	-	32	32	40	170	

Series	Size	Lever	Lever Screw	Clamp	Clamp Screw	Upper Ring	Lower Ring	Shim	Shim Screw	Shim Pin	Allen Key
PCBNR/L	..16C	YAPL-04	YALV-04-M8x22	YACK-09	YAAV-05-M6x15	-	-	YAACN-3-0002	-	YAAV-03	YAAL-03-3
	..19C	YAPL-05	YALV-05-M10x27	YACK-09	YAAV-05-M6x15	-	-	YAACN-3-0003	-	YAAV-04	YAAL-05-4
PCLNR/L	..12	YAPL-02	YALV-03-M8x19	-	-	-	-	YAACN-3-0001	-	YAAV-02	YAAL-03-3
	..2020~3232..12C	YAPL-02	YALV-03-M8x19	YACK-05	Y4015-M4x11	-	-	YAACN-3-0001	-	YAAV-02	YAAL-03-3
	..16C	YAPL-04	YALV-04-M8x22	YACK-09	YAAV-05-M6x15	-	-	YAACN-3-0002	-	YAAV-03	YAAL-03-3
	..19C	YAPL-05	YALV-05-M10x27	YACK-09	YAAV-05-M6x15	-	-	YAACN-3-0003	-	YAAV-04	YAAL-05-4
TCLNR/L	..12	-	-	YATK-02	YAKV-30-M6x22	YABPL-01	YAS-01	YAACN-3-0001	YAAV-02-M5x12	-	YAAL-03-3
	..16	-	-	YATK-04	YAKV-19-M7x25	YABPL-02	-	YAACN-3-0002	YAAV-05-M6x15	-	YAAL-05-4

Turning - Holder - External
External Holders for DC** Insert

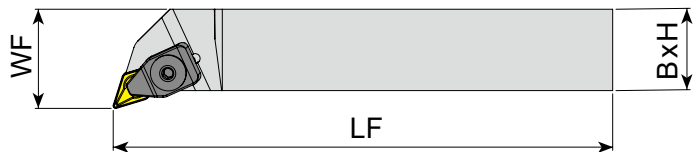


: p. 79 unit:mm

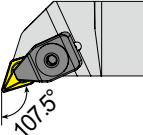
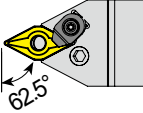
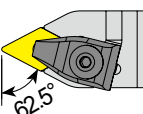
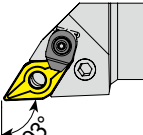
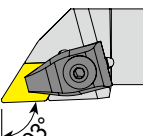
Series	Designation	EDP 2700.. R L		H	B	WF	LF	Insert
 SDNCN (Screw Type 62.5°)	SDNCN 0808E 07	0723		08	08	4	70	DC0702
	SDNCN 1010E 07	0724		10	10	5	70	
	SDNCN 1212F 07	0123		12	12	6	80	
	SDNCN 1616H 07	0725		16	16	8	100	DC11T3
	SDNCN 1616H 11	0124		16	16	8	100	
	SDNCN 2020K 11	0125		20	20	10	125	
	SDNCN 2525M 11	0126		25	25	12.5	150	DC0702
	SDNCN 3232P 11	0726		32	32	16	170	
 SDJCR/L (Screw Type 93°)	SDJCR/L 0808E 07	0713	0714	08	08	10	70	DC0702
	SDJCR/L 1010E 07	0715	0716	10	10	12	70	
	SDJCR/L 1212F 07	0113	0114	12	12	16	80	
	SDJCR/L 1616H 07	0717	0718	16	16	20	100	DC11T3
	SDJCR/L 1616H 11	0117	0118	16	16	20	100	
	SDJCR/L 2020K 11	0119	0120	20	20	25	125	
	SDJCR/L 2525M 11	0719	0720	25	25	32	150	DC11T3
	SDJCR/L 3232P 11	0721	0722	32	32	40	170	

Series	Size	Screw	Shim	Shim Screw	Torx Key
SDNCN	..07	Y4008-M2.5x6	-	-	Y80-T08
	..11	Y4015-M3.5x14	YAADN-2-0001	YAAV-06-M3.5x11	Y80-T15
SDJCR/L	..07	Y4008-M2.5x6	-	-	Y80-T08
	..11	Y4015-M3.5x14	YAADN-2-0001	YAAV-06-M3.5x11	Y80-T15

Turning - Holder - External
External Holders for DN** Insert

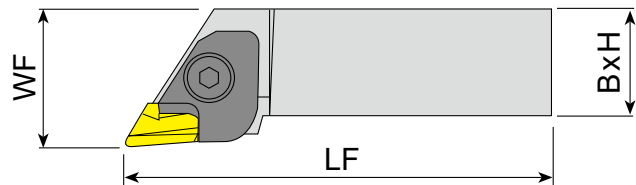


* 'C' Letter at Last : Optional Clamp Included  : p. 63 unit:mm

Series		Designation	EDP 2700.. R L		H	B	WF	LF	Insert
	TDHNR/L (Hole Clamp Type 107.5°)	TDHNR/L 2020K 15	0495	0496	20	20	25	125	DN1506
		TDHNR/L 2525M 15	0497	0498	25	25	32	150	
	PDNNN (Lever Type 62.5°)	PDNNN 2020K 15C	0515		20	20	10	125	DN1506
		PDNNN 2525M 15C	0516		25	25	12.5	150	
		PDNNN 3232P 15C	0517		32	32	16	170	
	TDNNN (Hole Clamp Type 62.5°)	TDNNN 2020K 15	0518		20	20	10	125	DN1506
		TDNNN 2525M 15	0519		25	25	12.5	150	
		TDNNN 3232P 15	0520		32	32	16	170	
	PDJNR/L (Lever Type 93°)	PDJNR/L 2020K 15C	0500	0501	20	20	25	125	DN1506
		PDJNR/L 2525M 15C	0502	0503	25	25	32	150	
		PDJNR/L 3232P 15C	0504	0505	32	32	40	170	
	TDJNR/L (Hole Clamp Type 93°)	PDJNR/L 4040S 15C	-	0506	40	40	50	250	DN1506
		TDJNR/L 2020K 15	0507	0508	20	20	25	125	
		TDJNR/L 2525M 15	0509	0510	25	25	32	150	
		TDJNR/L 3232P 15	0511	0512	32	32	40	170	
		TDJNR/L 4040S 15	0513	0514	40	40	50	250	

Series	Size	Lever	Lever Screw	Clamp	Clamp Screw	Upper Ring	Lower Ring	Shim	Shim Screw	Shim Pin	Allen Key
TDHNR/L	..15	-	-	YATK-02	YAKV-30-M6x22	YABPL-01	YAS-01	YAADN-3-0001	YAAV-02-M5x12	-	YAAL-03-3
PDNNN	..15C	YAPL-03	YALV-03-M8x19	YACK-05	Y4015-M4x11	-	-	YAADN-3-0001	-	YAAY-02	YAAL-03-3
TDNNN	..15	-	-	YATK-02	YAKV-30-M6x22	YABPL-01	YAS-01	YAADN-3-0001	YAAV-02-M5x12	-	YAAL-03-3
PDJNR/L	..15C	YAPL-03	YALV-03-M8x19	YACK-05	Y4015-M4x11	-	-	YAADN-3-0001	-	YAAY-02	YAAL-03-3
TDJNR/L	..15	-	-	YATK-02	YAKV-30-M6x22	YABPL-01	YAS-01	YAADN-3-0001	YAAV-02-M5x12	-	YAAL-03-3

Turning - Holder - External
External Holders for KN** Insert

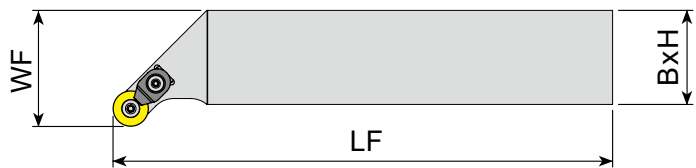


 : p. 66 unit:mm

Series		Designation	EDP 2700.. R L		H	B	WF	LF	Insert
	CKJNR/L (Top Clamp Type 93°)	CKJNR/L 2525M 16	0152	0153	25	25	31.5	150	KNUX1604
		CKJNR/L 3232P 16	0154	0155	32	32	40	170	

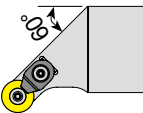
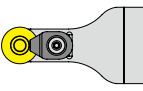
Series	Size	Clamp	Clamp Screw	Spring	Upper Ring	Shim	Shim Screw	Allen Key
CKJNR	..16	YACK-01-R	YAKV-06-M6x20	YAKY-02	YABPL-01	YAKS-16-R	YAAV-01-M3x10	YAAL-05-4
CKJNL	..16	YACK-01-L	YAKV-06-M6x20	YAKY-02	YABPL-01	YAKS-16-L	YAAV-01-M3x10	YAAL-05-4

Turning - Holder - External
External Holders for RC** Insert



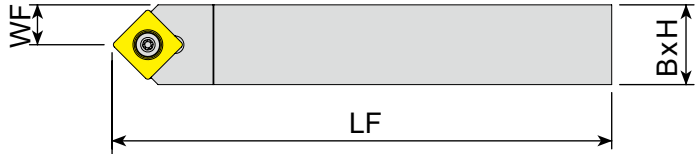
* 'C' Letter at Last : Optional Clamp Included

□ : p. 80 unit:mm

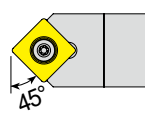
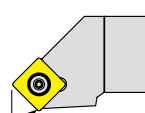
Series	Designation	EDP 2700.. R L		H	B	WF	LF	Insert
 SRGCR/L (Screw Type 90°)	SRGCR/L 1616H 06	0739	0740	16	16	20	100	RC0602
	SRGCR/L 2020K 06	0741	0742	20	20	25	125	
	SRGCR/L 1616H 08C	0743	0744	16	16	32	100	RC0803
	SRGCR/L 2020K 08C	0745	0746	20	20	25	125	
	SRGCR/L 2525M 08C	0747	0748	25	25	32	150	RC10T3
	SRGCR/L 1616H 10C	0749	0750	16	16	20	100	
	SRGCR/L 2020K 10C	0751	0752	20	20	25	125	RC1204
	SRGCR/L 2525M 10C	0753	0754	25	25	32	150	
	SRGCR/L 3232P 10C	0755	0756	32	32	40	170	RC1204
	SRGCR/L 2020K 12C	0757	0758	20	20	25	125	
	SRGCR/L 2525M 12C	0759	0760	25	25	32	150	RC1204
	SRGCR/L 3232P 12C	0761	0762	32	32	40	170	
 SRDCN (Screw Type 90°)	SRDCN 1616H 06	0162		16	16	8	100	RC0602
	SRDCN 2020K 06	0163		20	20	10	125	
	SRDCN 2525M 06	0164		25	25	12.5	150	RC0803
	SRDCN 1616H 08C	0727		16	16	8	100	
	SRDCN 2020K 08C	0728		20	20	10	125	RC10T3
	SRDCN 2525M 08C	0729		25	25	12.5	150	
	SRDCN 1616H 10C	0730		16	16	8	100	RC1204
	SRDCN 2020K 10C	0731		20	20	10	125	
	SRDCN 2525M 10C	0732		25	25	12.5	150	RC1204
	SRDCN 3232P 10C	0733		32	32	16	170	
	SRDCN 2020K 12C	0734		20	20	10	125	RC1204
	SRDCN 2525M 12C	0735		25	25	12.5	150	
	SRDCN 3232P 12C	0736		32	32	16	170	

Series	Size	Clamp	Clamp Screw	Screw	Torx Key
SRGCR/L	..06	-	-	Y3008-M2.5x6	Y80-T08
	..1616..08C	YACK-15	Y4015-M3.5x11	Y3008-M3x8	Y80-T08
	..10C	YACK-15	Y4015-M3.5x11	Y3008-M3x8	Y80-T15
	..12C	YACK-05	Y4015-M4x11	Y4015-M3.5x11	Y80-T15
SRDCN	..06	-	-	Y3008-M2.5x6	Y80-T08
	..08C	YACK-15	Y4015-M3.5x11	Y3008-M3x8	Y80-T08
	..10C	YACK-15	Y4015-M3.5x11	Y4015-M3.5x11	Y80-T15
	..12C	YACK-05	Y4015-M4x11	Y4015-M3.5x11	Y80-T15

Turning - Holder - External
External Holders for SC** Insert

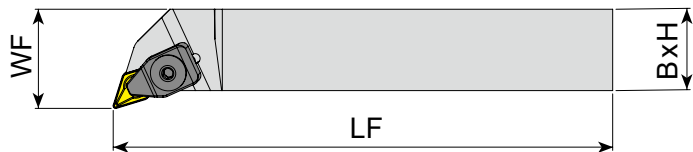


□ : p. 81 unit:mm

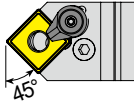
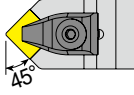
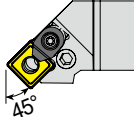
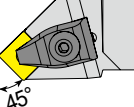
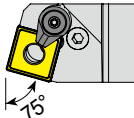
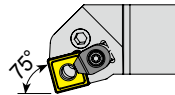
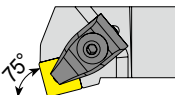
Series	Designation	EDP 2700.. R L		H	B	WF	LF	Insert
 SSDCN (Screw Type 45°)	SSDCN 1212F 09	0148		12	12	6	80	SC09T3
	SSDCN 1616H 09	0149		16	16	8	100	
	SSDCN 2020K 09	0770		20	20	10	125	SC1204
	SSDCN 1616H 12	0771		16	16	8	100	
	SSDCN 2020K 12	0150		20	20	10	125	SC1204
	SSDCN 2525M 12	0151		25	25	12.5	150	
 SSSCR/L (Screw Type 45°)	SSSCR/L 1212F 09	0772	0773	12	12	16	80	SC09T3
	SSSCR/L 1616H 09	0774	0775	16	16	20	100	
	SSSCR/L 2020K 09	0776	0777	20	20	25	125	SC1204
	SSSCR/L 1616H 12	0778	0779	16	16	20	100	
	SSSCR/L 2020K 12	0780	0781	20	20	25	125	SC1204
	SSSCR/L 2525M 12	0782	0783	25	25	32	150	

Series	Size	Screw	Shim	Shim Screw	Torx Key
SSDCN	..1212..09	Y4015-M3.5x11	-	-	Y80-T15
	..1616~2020..09	Y4015-M3.5x14	YAASN-2-0001	YAAV-06-M3.5x11	Y80-T15
	..1616..12	Y4020-M4.5x12	YAASN-2-0004	YAAV-10-M4.5x8	Y80-T20
	..2020~2525..12	Y1020-M4.5x16	YAASN-2-0004	YAAV-07-M4.5x13	Y80-T20
SSSCR/L	..1212..09	Y4015-M3.5x11	-	-	Y80-T15
	..1616~2020..09	Y4015-M3.5x14	YAASN-2-0001	YAAV-06-M3.5x11	Y80-T15
	..1616..12	Y4020-M4.5x12	YAASN-2-0004	YAAV-10-M4.5x8	Y80-T20
	..2020~2525..12	Y1020-M4.5x16	YAASN-2-0004	YAAV-07-M4.5x13	Y80-T20

Turning - Holder - External
External Holders for SN** Insert

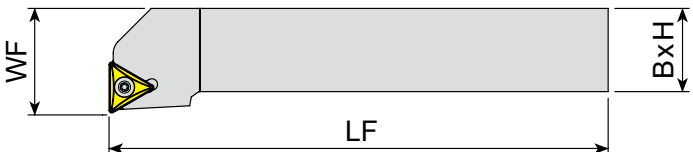


* 'C' Letter at Last : Optional Clamp Included  : p. 67 unit:mm

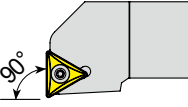
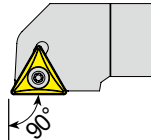
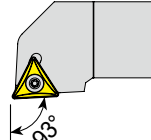
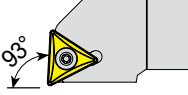
Series	Designation	EDP 2700.. R L		H	B	WF	LF	Insert
 PSDNN (Lever Type 45°)	PSDNN 2020K 12C	0530		20	20	10	125	SN1204
	PSDNN 2525M 12C	0531		25	25	12.5	150	
	PSDNN 3232P 12C	0532		32	32	16	170	
 TSDNN (Hole Clamp Type 45°)	TSDNN 1616H 12	0533		16	16	8	100	SN1204
	TSDNN 2020K 12	0534		20	20	10	125	
	TSDNN 2525M 12	0535		25	25	12.5	150	
 PSSNR/L (Lever Type 45°)	TSDNN 3232P 12	0536		32	32	16	170	SN1204
	PSSNR/L 2020K 12C	0548	0549	20	20	25	125	
	PSSNR/L 2525M 12C	0550	0551	25	25	32	150	
 TSSNR/L (Hole Clamp Type 45°)	PSSNR/L 3232P 12C	0552	0553	32	32	40	170	SN1204
	TSSNR/L 2020K 12	0554	0555	20	20	25	125	
	TSSNR/L 2525M 12	0556	0557	25	25	32	150	
 PSBNR/L (Lever Type 75°)	TSSNR/L 3232P 12	0558	0559	32	32	40	170	SN1204
	PSBNR/L 2020K 12	0430	0525	20	20	17	125	
	PSBNR/L 2525M 12C	0526	0527	25	25	22	150	
 PSKNR/L (Lever Type 75°)	PSKNR/L 2020K 12C	0537		20	20	25	125	SN1204
	PSKNR/L 2525M 12C	0538	0539	25	25	32	150	
	PSKNR/L 3232P 12C	0540	0541	32	32	40	170	
 TSKNR/L (Hole Clamp Type 75°)	TSKNR/L 2020K 12	0542	0543	20	20	25	125	SN1204
	TSKNR/L 2525M 12	0544	0545	25	25	32	150	
	TSKNR/L 3232P 12	0546	0547	32	32	40	170	

Series	Size	Lever	Lever Screw	Clamp	Clamp Screw	Upper Ring	Lower Ring	Shim	Shim Screw	Shim Pin	Allen Key
PSDNN	..12C	YAPL-02	YALV-03-M8x19	YACK-05	Y4015-M4x11	-	-	YAASN-3-0004	-	YAAY-02	YAAL-03-3
TSDNN	..12	-	-	YATK-02	YAKV-30-M6x22	YABPL-01	YAS-01	YAASN-3-0004	YAAV-02-M5x12	-	YAAL-03-3
PSSNR/L	..12C	YAPL-02	YALV-03-M8x19	YACK-05	Y4015-M4x11	-	-	YAASN-3-0004	-	YAAY-02	YAAL-03-3
TSSNR/L	..12	-	-	YATK-02	YAKV-30-M6x22	YABPL-01	YAS-01	YAASN-3-0004	YAAV-02-M5x12	-	YAAL-03-3
PSBNR/L	..12	YAPL-02	YALV-03-M8x19	-	-	-	-	YAASN-3-0004	-	YAAY-02	YAAL-03-3
	..12C	YAPL-02	YALV-03-M8x19	YACK-05	Y4015-M4x11	-	-	YAASN-3-0004	-	YAAY-02	YAAL-03-3
PSKNR/L	..12C	YAPL-02	YALV-03-M8x19	YACK-05	Y4015-M4x11	-	-	YAASN-3-0004	-	YAAY-02	YAAL-03-3
TSKNR/L	..12	-	-	YATK-02	YAKV-30-M6x22	YABPL-01	YAS-01	YAASN-3-0004	YAAV-02-M5x12	-	YAAL-03-3

Turning - Holder - External
External Holders for TC** Insert

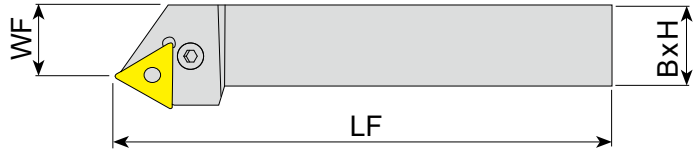


 : p. 82 unit:mm

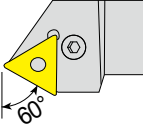
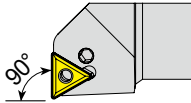
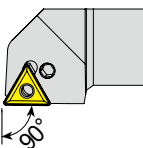
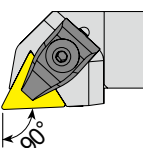
Series	Designation	EDP 2700.. R L		H	B	WF	LF	Insert
 STFCR/L (Screw Type 90°)	STFCR/L 1212F 11	0099	0100	12	12	16	80	TC1102
	STFCR/L 1616H 11	0101	0102	16	16	20	100	
	STFCR/L 1616H 16	0105	0106	16	16	20	100	TC16T3
	STFCR/L 2020K 16	0107	0108	20	20	25	125	
	STFCR/L 2525M 16	0109	0110	25	25	32	150	
 STGCR/L (Screw Type 90°)	STFCR/L 3232P 16	0784	0785	32	32	40	170	TC1102
	STGCR/L 1212F 11	0786	0787	12	12	16	80	
	STGCR/L 1616H 11	0433	0788	16	16	20	100	TC16T3
	STGCR/L 1616H 16	0789	0790	16	16	20	100	
	STGCR/L 2020K 16	0434	0791	20	20	25	125	
 STJCR/L (Screw Type 93°)	STGCR/L 2525M 16	0792	0793	25	25	32	150	TC1102
	STGCR/L 3232P 16	0794	0795	32	32	40	170	
	STJCR/L 1212F 11	0796	0797	12	12	16	80	TC16T3
	STJCR/L 1616H 11	0798	0799	16	16	20	100	
	STJCR/L 1616H 16	0800	0801	16	16	20	100	
 STUCR/L (Screw Type 93°)	STJCR/L 2020K 16	0802	0803	20	20	25	125	TC1102
	STJCR/L 2525M 16	0804	0805	25	25	32	150	
	STJCR/L 3232P 16	0806	0807	32	32	40	170	TC16T3
	STUCR/L 1212F 11	0808	0809	12	12	16	80	
	STUCR/L 1616H 11	0810	0811	16	16	20	100	
	STUCR/L 2020K 16	0812	0813	20	20	25	125	TC1102
	STUCR/L 2525M 16	0814	0815	25	25	32	150	
	STUCR/L 3232P 16	0816	0817	32	32	40	170	TC16T3

Series	Size	Screw	Shim	Shim Screw	Torx Key
STFCR/L	..11	Y4008-M2.5x6	-	-	Y80-T08
	..16	Y4015-M3.5x14	YAATN-2-0001	YAAV-06-M3.5x11	Y80-T15
STGCR/L	..11	Y4008-M2.5x6	-	-	Y80-T08
	..16	Y4015-M3.5x14	YAATN-2-0001	YAAV-06-M3.5x11	Y80-T15
STJCR/L	..11	Y4008-M2.5x6	-	-	Y80-T08
	..16	Y4015-M3.5x14	YAATN-2-0001	YAAV-06-M3.5x11	Y80-T15
STUCR/L	..11	Y4008-M2.5x6	-	-	Y80-T08
	..16	Y4015-M3.5x14	YAATN-2-0001	YAAV-06-M3.5x11	Y80-T15

Turning - Holder - External
External Holders for TN** Insert



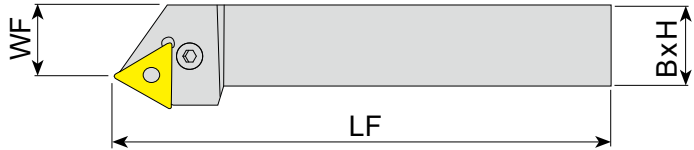
* 'C' Letter at Last : Optional Clamp Included  : p. 69 unit:mm

Series	Designation	EDP 2700.. R L	H	B	WF	LF	Insert
 PTTNR/L (Lever Type 60°)	PTTNR/L 2020K 16	0429 0621	20	20	17	125	TN1604
	PTTNR/L 2525M 16	0622 0623	25	25	21.5	150	
	PTTNR/L 2525M 22C	0626 0627	25	25	20.5	150	TN2204
	PTTNR/L 3232P 22C	0628 0629	32	32	29	170	
 PTFNR/L (Lever Type 90°)	PTFNR/L 1616H 16	0560 0561	16	16	20	100	TN1604
	PTFNR/L 2020K 16	0049 0050	20	20	25	125	
	PTFNR/L 2525M 16	0051 0052	25	25	32	150	
	PTFNR/L 3232P 16	0562 0563	32	32	40	170	
 PTGNR/L (Lever Type 90°)	PTFNR/L 3232P 22C	0566 0567	32	32	40	170	TN2204
	PTGNR/L 1616H 16	0568 0569	16	16	20	100	TN1604
	PTGNR/L 2020K 16	0055 0056	20	20	25	125	
	PTGNR/L 2525M 16	0057 0058	25	25	32	150	
 TTGNR/L (Hole Clamp Type 90°)	PTGNR/L 2525M 22C	0570 0571	25	25	32	150	TN2204
	PTGNR/L 3232P 22C	0572 0573	32	32	40	170	
	TTGNR/L 2020K 16	0574 0575	20	20	25	125	TN1604
	TTGNR/L 2525M 16	0576 0577	25	25	32	150	
	TTGNR/L 3232P 16	0578 0579	32	32	40	170	
	TTGNR/L 2525M 22	0580 0581	25	25	32	150	TN2204
	TTGNR/L 3232P 22	0582 0583	32	32	40	170	
	TTGNR/L 4040S 22	0584 -	40	40	50	250	

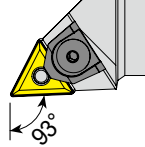
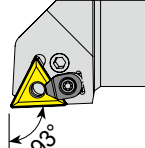
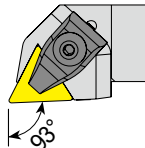
▶ NEXT PAGE

Series	Size	Lever	Lever Screw	Clamp	Clamp Screw	Upper Ring	Lower Ring	Pin	Shim	Shim Screw	Shim Pin	Allen Key
PTTNR/L	..16	YAPL-01	YALV-02-M6x17	-	-	-	-	-	YAATN-3-0025	-	YAAY-01	YAAL-02-2.5
	..22C	YAPL-02	YALV-03-M8x19	YACK-05	Y4015-M4x11	-	-	-	YAATN-3-0015	-	YAAY-02	YAAL-03-3
PTFNR/L	..16	YAPL-01	YALV-02-M6x17	-	-	-	-	-	YAATN-3-0025	-	YAAY-01	YAAL-02-2.5
	..22C	YAPL-02	YALV-03-M8x19	YACK-05	Y4015-M4x11	-	-	-	YAATN-3-0015	-	YAAY-02	YAAL-03-3
PTGNR/L	..16	YAPL-01	YALV-02-M6x17	-	-	-	-	-	YAATN-3-0025	-	YAAY-01	YAAL-02-2.5
	..22C	YAPL-02	YALV-03-M8x19	YACK-05	Y4015-M4x11	-	-	-	YAATN-3-0015	-	YAAY-02	YAAL-02-2.5
TTGNR/L	..16	-	-	YATK-01	YAKV-01-M5x22	YABPL-01	-	-	YAATN-2-0002	YAAV-03-M5x12	-	YAAL-03-3
	..22	-	-	YATK-02	YAKV-30-M6x22	YABPL-01	YAS-01	-	YAATN-3-0015	YAAV-02-M5x12	-	YAAL-03-3

Turning - Holder - External
External Holders for TN** Insert

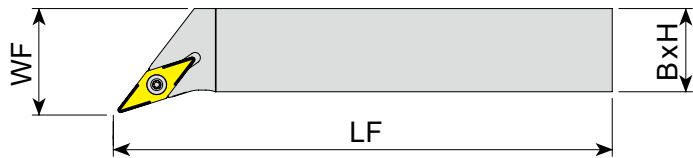


* 'C' Letter at Last : Optional Clamp Included  : p. 69 unit:mm

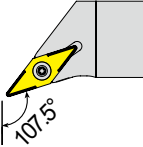
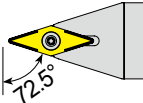
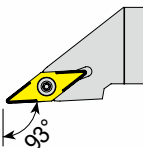
Series	Designation	EDP 2700.. R L	H	B	WF	LF	Insert
 MTJNR/L (Pin + Top Clamp Type 93°)	MTJNR/L 2020K 16	0585 0586	20	20	25	125	TN1604
	MTJNR/L 2525M 16	0587 0588	25	25	32	150	
	MTJNR/L 3232P 16	0589 0590	32	32	40	170	TN2204
	MTJNR/L 2525M 22	0591 0592	25	25	32	150	
	MTJNR/L 3232P 22	0593 0594	32	32	40	170	
	MTJNR/L 4040S 22	0595 0596	40	40	50	250	
 PTJNR/L (Lever Type 93°)	PTJNR/L 1616H 16	0597 0598	16	16	20	100	TN1604
	PTJNR/L 2020K 16	0599 0600	20	20	25	125	
	PTJNR/L 2525M 16	0601 0602	25	25	32	150	
	PTJNR/L 3232P 16	0603 0604	32	32	40	170	
	PTJNR/L 2525M 22C	0605 0606	25	25	32	150	TN2204
	PTJNR/L 3232P 22C	0607 0608	32	32	40	170	
 TTJNR/L (Hole Clamp Type 93°)	TTJNR/L 2020K 16	0609 0610	20	20	25	125	TN1604
	TTJNR/L 2525M 16	0611 0612	25	25	32	150	
	TTJNR/L 3232P 16	0613 0614	32	32	40	170	
	TTJNR/L 2525M 22	0615 0616	25	25	32	150	TN2204
	TTJNR/L 3232P 22	0617 0618	32	32	40	170	

Series	Size	Lever	Lever Screw	Clamp	Clamp Screw	Upper Ring	Lower Ring	Pin	Shim	Shim Screw	Shim Pin	Allen Key
MTJNR/L	..16	-	-	YAMK-04	YAKV-30-M6x22	YABPL-01	YAS-01	YAPM-01	YAATN-2-0002	-	-	YAAL-03-3
	..22	-	-	YAMK-04	YAKV-30-M6x22	YABPL-01	YAS-01	YAPM-02	YAATN-3-0015	-	-	YAAL-03-3
PTJNR/L	..16	YAPL-01	YALV-02-M6x17	-	-	-	-	-	YAATN-3-0025	-	YAAY-01	YAAL-02-2.5
	..22C	YAPL-02	YALV-03-M8x19	YACK-05	Y4015-M4x11	-	-	-	YAATN-3-0015	-	YAAY-02	YAAL-03-3
TTJNR/L	..16	-	-	YATK-01	YAKV-01-M5x22	YABPL-01	-	-	YAATN-2-0002	YAAV-03-M5x12	-	YAAL-03-3
	..22	-	-	YATK-02	YAKV-30-M6x22	YABPL-01	YAS-01	-	YAATN-3-0015	YAAV-02-M5x12	-	YAAL-03-3

Turning - Holder - External
External Holders for VB** Insert

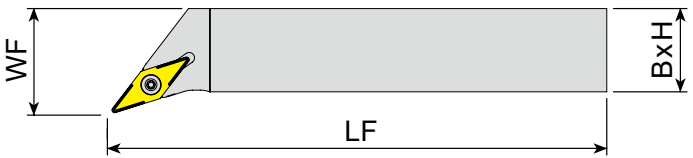


□: p. 83 unit:mm

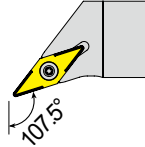
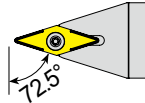
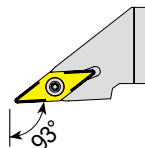
Series	Designation	EDP 2700.. R L		H	B	WF	LF	Insert
 SVHBR/L (Screw Type 107.5°)	SVHBR/L 2020K 16	0818	0819	20	20	25	125	VB1604
	SVHBR/L 2525M 16	0820	0821	25	25	32	150	
	SVHBR/L 3232P 16	0822	0823	32	32	40	170	
 SVVBN (Screw Type 72.5°)	SVVBN 2020K 16	0131		20	20	10	125	VB1604
	SVVBN 2525M 16	0132		25	25	12.5	150	
	SVVBN 3232P 16	0827		32	32	16	170	
 SVJBR/L (Screw Type 93°)	SVJBR/L 1616H 16	0824	0825	16	16	20	100	VB1604
	SVJBR/L 2020K 16	0127	0128	20	20	25	125	
	SVJBR/L 2525M 16	0129	0130	25	25	32	150	
	SVJBR/L 3232P 16	0436	0826	32	32	40	170	

Series	Size	Screw	Shim	Shim Screw	Torx Key
SVHBR/L	..16	Y4015-M3.5x14	YAAVN-2-0002	YAAV-06-M3.5x11	Y80-T15
SVVBN	..16	Y4015-M3.5x14	YAAVN-2-0002	YAAV-06-M3.5x11	Y80-T15
SVJBR/L	..16	Y4015-M3.5x14	YAAVN-2-0002	YAAV-06-M3.5x11	Y80-T15

Turning - Holder - External
External Holders for VC** Insert

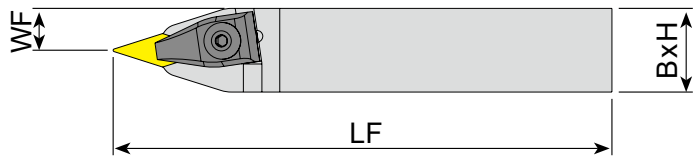


□: p. 84 unit:mm

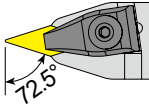
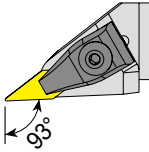
Series	Designation	EDP 2700.. R L		H	B	WF	LF	Insert
 SVHCR/L (Screw Type 107.5°)	SVHCR/L 2020K 16	0828	0829	20	20	25	125	VC1604
	SVHCR/L 2525M 16	0830	0831	25	25	32	150	
	SVHCR/L 3232P 16	0832	0833	32	32	40	170	
 SVVCN (Screw Type 72.5°)	SVVCN 2525M 16	0147		25	25	12.5	150	VC1604
	SVVCN 3232P 16	0838		32	32	16	170	
 SVJCR/L (Screw Type 93°)	SVJCR/L 1212F 16	0834	0835	12	12	16	80	VC1604
	SVJCR/L 2020K 16	0139	0140	20	20	25	125	
	SVJCR/L 2525M 16	0141	0142	25	25	32	150	
	SVJCR/L 3232P 16	0836	0837	32	32	40	170	

Series	Size	Screw	Shim	Shim Screw	Torx Key
SVHCR/L	..16	Y4015-M3.5x14	YAAVN-2-0002	YAAV-06-M3.5x11	Y80-T15
SVVCN	..16	Y4015-M3.5x14	YAAVN-2-0002	YAAV-06-M3.5x11	Y80-T15
SVJCR/L	..1212..16	Y4015-M3.5x11	-	-	Y80-T15
	..2020~3232..16	Y4015-M3.5x14	YAAVN-2-0002	YAAV-06-M3.5x11	Y80-T15

Turning - Holder - External
External Holders for VN** Insert

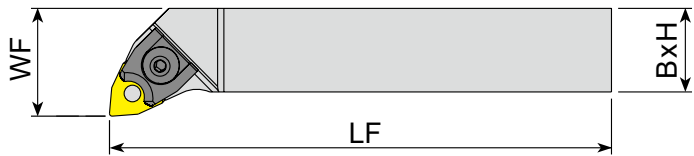


□ : p. 73 unit:mm

Series	Designation	EDP 2700.. R L	H	B	WF	LF	Insert
 TVVNN (Hole Clamp Type 72.5°)	TVVNN 2020K 16	0642	20	20	10	125	VN1604
	TVVNN 2525M 16	0643	25	25	12.5	150	
	TVVNN 3232P 16	0644	32	32	16	170	
 TVJNR/L (Hole Clamp Type 93°)	TVJNR/L 2020K 16	0636 0637	20	20	25	125	VN1604
	TVJNR/L 2525M 16	0638 0639	25	25	32	150	
	TVJNR/L 3232P 16	0640 0641	32	32	40	170	

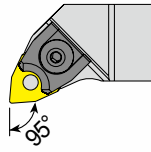
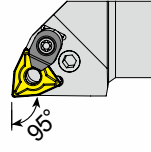
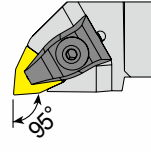
Series	Size	Clamp	Clamp Screw	Upper Ring	Lower Ring	Shim	Shim Screw	Allen Key
TVVNN	..16	YATK-03	YAKV-30-M6x22	YABPL-01	YAS-01	YAAVN-2-0002	YAAV-04-M5x12	YAAL-03-3
TVJNR/L	..16	YATK-03	YAKV-30-M6x22	YABPL-01	YAS-01	YAAVN-2-0002	YAAV-04-M5x12	YAAL-03-3

Turning - Holder - External
External Holders for WN** Insert



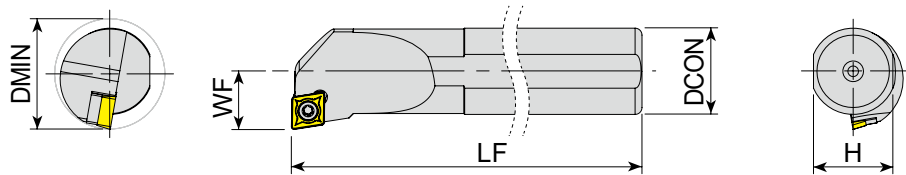
* 'C' Letter at Last : Optional Clamp Included

□ : p. 75 unit:mm

Series	Designation	EDP 2700.. R L	H	B	WF	LF	Insert
 MWLNR/L (Pin + Top Clamp Type 95°)	MWLNR/L 1616H 06	0645 0646	16	16	20	100	WN0604
	MWLNR/L 2020K 06	0021 0022	20	20	25	125	
	MWLNR/L 2525M 06	0023 0024	25	25	32	150	
	MWLNR/L 2020K 08	0025 0026	20	20	25	125	WN0804
	MWLNR/L 2525M 08	0027 0028	25	25	32	150	
	MWLNR/L 3232P 08	0029 0030	32	32	40	170	
 PWLNR/L (Lever Type 95°)	PWLNR/L 1616H 06	0647 0648	16	16	20	100	WN0604
	PWLNR/L 2020K 06	0649 0650	20	20	25	125	
	PWLNR/L 2525M 06	0651 0652	25	25	32	150	
	PWLNR/L 1616H 08	0653 0654	16	16	20	100	WN0804
	PWLNR/L 2020K 08C	0655 0656	20	20	25	125	
	PWLNR/L 2525M 08C	0657 0658	25	25	32	150	
 TWLNR/L (Hole Clamp Type 95°)	PWLNR/L 3232P 08C	0659 0660	32	32	40	170	WN0804
	TWLNR/L 1616H 06	0661 0662	16	16	20	100	
	TWLNR/L 2020K 06	0663 0664	20	20	25	125	
	TWLNR/L 2525M 06	0665 0666	25	25	32	150	WN0804
	TWLNR/L 2020K 08	0667 0668	20	20	25	125	
	TWLNR/L 2525M 08	0669 0670	25	25	32	150	
	TWLNR/L 3232P 08	0671 0672	32	32	40	170	
	TWLNR/L 4040S 08	0673 0674	40	40	50	250	

Series	Size	Lever	Lever Screw	Clamp	Clamp Screw	Upper Ring	Lower Ring	Pin	Shim	Shim Screw	Shim Pin	Allen Key
MWLNR/L	..06	-	-	YAMK-01	YAKV-04-M5x17	-	-	YAPM-08	-	-	-	YAAL-03-3
	..08	-	-	YAMK-05	YAKV-03-M6x22	YABPL-01	YAS-01	YAPM-02	YAAWN-3-0001	-	-	YAAL-03-3
PWLNR/L	..06	YAPL-01	YALV-02-M6x17	-	-	-	-	-	YAAWN-SW317	-	YAAY-01	YAAL-02-2.5
	..08	YAPL-02	YALV-03-M8x19	-	-	-	-	-	YAAWN-3-0001	-	YAAY-02	YAAL-03-3
	..08C	YAPL-02	YALV-03-M8x19	YACK-05	Y4015-M4x11	-	-	-	YAAWN-3-0001	-	YAAY-02	YAAL-03-3
TWLNR/L	..06	-	-	YATK-01	YAKV-01-M5x22	YABPL-01	-	-	YAAWN-SW317	YAAV-01-M3x10	-	YAAL-03-3
	..08	-	-	YATK-02	YAKV-30-M6x22	YABPL-01	YAS-01	-	YAAWN-3-0001	YAAV-02-M5x12	-	YAAL-03-3

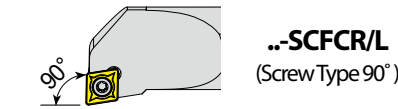
Turning - Holder - Internal
Internal Holders for CC** Insert



□: p. 78 unit:mm

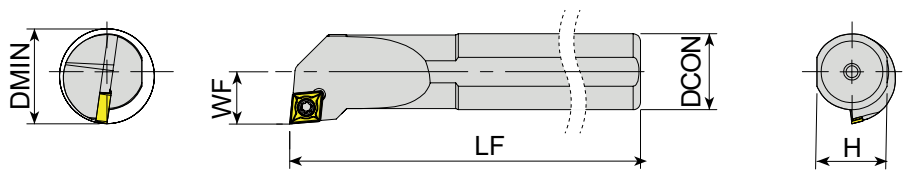
Series		Designation	EDP 2700.. R L	DMIN	DCON	H	WF	LF	Insert
X	S08H - SCFCR/L 06	1102	1103	11	08	7.3	6	100	CC0602
		1104	1105	13	10	9	7	125	
		1106	1107	16	12	11	9	125	
X	S12K - SCFCR/L 06	1108	1109	16	12	11	9	125	CC09T3
		1110	1111	20	16	14.8	11	170	
		1112	1113	25	20	18.3	13	200	
		1114	1115	32	25	23	17	250	
X	S25S - SCFCR/L 12	1116	-	32	25	23	17	250	CC1204

▶ NEXT PAGE



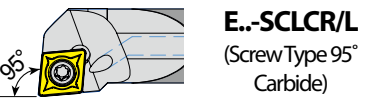
Series	Size	Screw	Shim	Shim Screw	Torx Key
..SCFCR/L	..06	Y4008-M2.5x6	-	-	Y80-T08
	..12..09	Y4015-M3.5x8	-	-	Y80-T15
	..16~20..09	Y4015-M3.5x9	-	-	Y80-T15
	..25..09	Y4015-M3.5x12	YAACN-2-0001	YAAV-08-M3.5x8	Y80-T15
	..12	Y4020-M4.5x12	YAACN-2-0003	YAAV-10-M4.5x8	Y80-T20

Turning - Holder - Internal
Internal Holders for CC** Insert



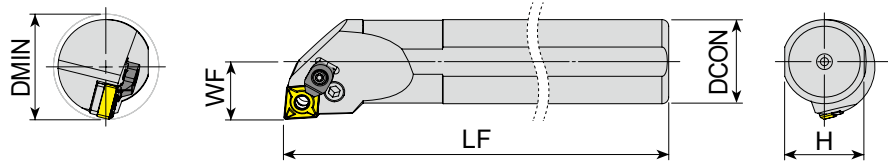
□: p. 78 unit:mm

Series		Designation	EDP 2700.. R L	DMIN	DCON	H	WF	LF	Insert
●	A08H - SCLCR/L 06	1117	1118	11	08	7.3	6	100	CC0602
		1119	1120	13	10	9	7	100	
		1121	1122	16	12	11	9	100	
X	S08H - SCLCR/L 06	1133	1134	11	08	7.3	6	100	CC0602
		1135	1136	13	10	9	7	125	
		1137	1138	16	12	11	9	125	
		1139	1140	20	16	14.8	11	170	
●	A16M - SCLCR/L 09	1123	1124	20	16	14.8	11	150	CC09T3
		1125	1126	25	20	18.3	13	170	
		1127	1128	32	25	23	17	200	
		1129	1130	40	32	30	22	250	
X	S12K - SCLCR/L 09	1141	1142	16	12	11	9	125	CC09T3
		-	1143	20	16	14.8	11	170	
		1144	1145	25	20	18.3	13	200	
		1146	1147	32	25	23	17	250	
●	S32T - SCLCR/L 09	1148	1149	40	32	30	22	300	CC1204
		1131	1132	32	25	23	17	200	
		1150	1151	32	25	23	17	250	
		1152	1153	40	32	30	22	300	
X	S40U - SCLCR/L 12	1154	1155	50	40	37.5	27	350	CC1204
●	E08K - SCLCR/L 06	0325	1156	11	08	7.3	6	125	CC0602
		1157	1158	16	12	11	9	180	
		0329	1159	20	16	14.8	11	200	
		1160	1161	24	20	18.3	13	250	



Series	Size	Screw	Shim	Shim Screw	Torx Key
..SCLCR/L	..06	Y4008-M2.5x6	-	-	Y80-T08
	..12..09	Y4015-M3.5x8	-	-	Y80-T15
	..16~20..09	Y4015-M3.5x9	-	-	Y80-T15
	..25~32..09	Y4015-M3.5x12	YAACN-2-0001	YAAV-08-M3.5x8	Y80-T15
	..25~32..12	Y4020-M4.5x12	YAACN-2-0003	YAAV-10-M4.5x8	Y80-T20
E..SCLCR/L	..40..12	Y1020-M4.5x16	YAACN-2-0003	YAAV-07-M4.5x13	Y80-T20
	..06	Y4008-M2.5x6	-	-	Y80-T08
	..09	Y4015-M3.5x9	-	-	Y80-T15

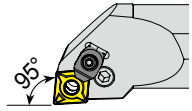
Turning - Holder - Internal
Internal Holders for CN** Insert



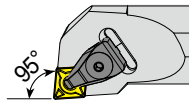
* 'C' Letter at Last : Optional Clamp Included

□ : p. 60 unit:mm

Series	Designation	EDP 2700.. R L	DMIN	DCON	H	WF	LF	Insert
●	A25R - PCLNR/L 12C	0839 0840	32	25	23	17	200	CN1204
	A32S - PCLNR/L 12C	0841 0842	40	32	30	22	250	
	A40T - PCLNR/L 12C	0843 0844	50	40	37.5	27	300	
	A50U - PCLNR/L 12C	0845 0846	63	50	47	35	350	
	S25S - PCLNR/L 12C	0863 0864	32	25	23	17	250	
	S32T - PCLNR/L 12C	0865 0866	40	32	30	22	300	
	S40U - PCLNR/L 12C	0867 0868	50	40	37.5	27	350	
	S50V - PCLNR/L 12C	0869 0870	63	50	47	35	400	
	A32S - PCLNR/L 16C	0847 0848	40	32	30	22	250	
	A40T - PCLNR/L 16C	0849 0850	50	40	37.5	27	300	
X	A50U - PCLNR/L 16C	0851 0852	63	50	47	35	350	CN1606
	S32T - PCLNR/L 16C	0871 0872	40	32	30	22	300	
	S40U - PCLNR/L 16C	0873 0874	50	40	37.5	27	350	
	S50V - PCLNR/L 16C	0875 0876	63	50	47	35	400	
●	A40T - PCLNR/L 19C	0853 0854	50	40	37.5	27	300	CN1906
	A50U - PCLNR/L 19C	0855 0856	63	50	47	35	350	
	S40U - PCLNR/L 19C	0877 0878	50	40	37.5	27	350	
	S50V - PCLNR/L 19C	0879 0880	63	50	47	35	400	
X	S25S - TCLNR/L 12	0881 0882	32	25	23	17	250	CN1204
	S32T - TCLNR/L 12	0883 0884	40	32	30	22	300	
	S40U - TCLNR/L 12	0885 0886	50	40	37.5	27	350	
	S50V - TCLNR/L 12	0887 0888	63	50	47	35	400	
X	S32T - TCLNR/L 16	0889 0890	40	32	30	22	300	CN1606
	S40U - TCLNR/L 16	0891 0892	50	40	37.5	27	350	
	S50V - TCLNR/L 16	0893 0894	63	50	47	35	400	



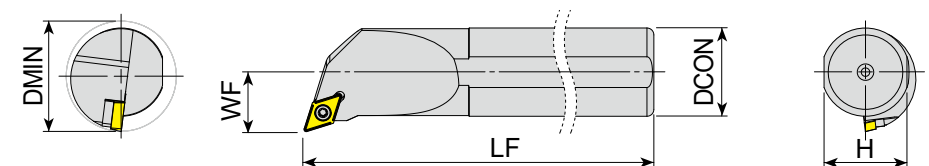
..PCLNR/L
(Lever Type 95°)



..TCLNR/L
(Hole Clamp Type 95°)

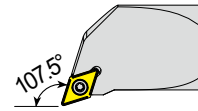
Series	Size	Lever	Lever Screw	Clamp	Clamp Screw	Upper Ring	Lower Ring	Shim	Shim Screw	Shim Pin	Allen Key
..PCLNR/L	..25..12C	YAPL-02	YALV-08-M8x16	YACK-05	Y4015-M4x11	-	-	YAACN-3-0001	-	YAAY-02	YAAL-03-3
	..32~50..12C	YAPL-02	YALV-03-M8x19	YACK-05	Y4015-M4x11	-	-	YAACN-3-0001	-	YAAY-02	YAAL-03-3
	..16C	YAPL-04	YALV-04-M8x22	YACK-09	YAAV-05-M6x15	-	-	YAACN-3-0002	-	YAAY-03	YAAL-03-3
	..19C	YAPL-05	YALV-05-M10x27	YACK-09	YAAV-05-M6x15	-	-	YAACN-3-0003	-	YAAY-04	YAAL-05-4
..TCLNR/L	..25..12	-	-	YATK-02	YAKV-30-M6x22	YABPL-01	YAS-01	YAACN-3-0001	YAAV-13-M5x8	-	YAAL-03-3
	..32~50..12	-	-	YATK-02	YAKV-30-M6x22	YABPL-01	YAS-01	YAACN-3-0001	YAAV-02-M5x12	-	YAAL-03-3
	..16	-	-	YATK-04	YAKV-19-M7x25	YABPL-02	-	YAACN-3-0002	YAAV-05-M6x15	-	YAAL-05-4

Turning - Holder - Internal
Internal Holders for DC** Insert



□ : p. 79 unit:mm

Series	Designation	EDP 2700.. R L	DMIN	DCON	H	WF	LF	Insert
●	A10H - SDQCR/L 07	1172 1173	13	10	9	7	100	DC0702
	A12H - SDQCR/L 07	1174 1175	16	12	11	9	100	
	A16M - SDQCR/L 07	1176 1177	20	16	14.8	11	150	
	A20P - SDQCR/L 07	1178 1179	25	20	18.3	13	170	
	S10K - SDQCR/L 07	1188 1189	13	10	9	7	125	
	S12K - SDQCR/L 07	1190 1191	16	12	11	9	125	
	S16P - SDQCR/L 07	1192 1193	20	16	14.8	11	170	
	S20R - SDQCR/L 07	1194 1195	25	20	18.3	13	200	
	A16M - SDQCR/L 11	1180 1181	20	16	14.8	11	150	
	A20P - SDQCR/L 11	1182 1183	25	20	18.3	13	170	
●	A25R - SDQCR/L 11	1184 1185	32	25	23	17	200	DC11T3
	A32S - SDQCR/L 11	1186 1187	40	32	30	22	250	
	S16P - SDQCR/L 11	1196 1197	20	16	14.8	11	170	
	S20R - SDQCR/L 11	1198 1199	25	20	18.3	13	200	
X	S25S - SDQCR/L 11	1200 1201	32	25	23	17	250	DC11T3
	S32T - SDQCR/L 11	1202 1203	40	32	30	22	300	
	S40U - SDQCR/L 11	1204 1205	50	40	37.5	27	350	DC11T3



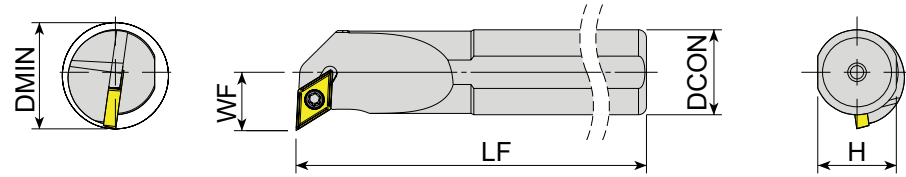
..SDQCR/L
(Screw Type 107.5°)

▶ NEXT PAGE

Series	Size	Screw	Shim	Shim Screw	Torx Key
..SDQCR/L	..07	Y4008-M2.5x6	-	-	Y80-T08
	..16..11	Y4015-M3.5x9	-	-	Y80-T15
	..20..11	Y4015-M3.5x11	-	-	Y80-T15
	..25..11	Y4015-M3.5x12	YAADN-2-0001	YAAV-08-M3.5x8	Y80-T15
	..32..11	Y4015-M3.5x14	YAADN-2-0001	YAAV-06-M3.5x11	Y80-T15

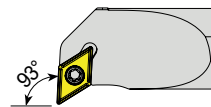
Turning - Holder - Internal

Internal Holders for DC** Insert

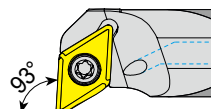


□: p. 79 unit:mm

Series	Designation	EDP 2700.. R L	DMIN	DCON	H	WF	LF	Insert
●	A10H - SDUCR/L 07	1206 1207	13	10	9	8	100	DC0702
	A12H - SDUCR/L 07	1208 1209	16	12	11	9	100	
	A16M - SDUCR/L 07	1210 1211	20	16	14.8	11	150	
	A20P - SDUCR/L 07	1212 1213	25	20	18.3	13	170	
	S10K - SDUCR/L 07	1222 1223	13	10	9	8	125	
	S12K - SDUCR/L 07	1224 1225	16	12	11	9	125	
	S16P - SDUCR/L 07	1226 1227	20	16	14.8	11	170	
	S20R - SDUCR/L 07	1228 1229	25	20	18.3	13	200	
	A16M - SDUCR/L 11	1214 1215	20	16	14.8	11	150	
	A20P - SDUCR/L 11	1216 1217	25	20	18.3	13	170	
X	A25R - SDUCR/L 11	1218 1219	32	25	23	17	200	DC11T3
	A32S - SDUCR/L 11	1220 1221	40	32	30	22	250	
	S16P - SDUCR/L 11	1230 1231	20	16	14.8	11	170	
	S20R - SDUCR/L 11	1232 1233	25	20	18.3	13	200	
	S25S - SDUCR/L 11	1234 1235	32	25	23	17	250	
	S32T - SDUCR/L 11	1236 1237	40	32	30	22	300	
	S40U - SDUCR/L 11	1238 1239	50	40	37.5	27	350	
	S50V - SDUCR/L 11	- 1240	63	50	47	35	400	
	E10M - SDUCR/L 07	1241 1242	13	10	9	8	150	DC0702
	E12Q - SDUCR/L 07	1243 1244	16	12	11	9	180	
●	E16R - SDUCR/L 11	0339 1245	20	16	14.8	11	200	DC11T3
	E20S - SDUCR/L 11	1246 1247	23	20	18.3	12	250	



..SDUCR/L
(Screw Type 93°)

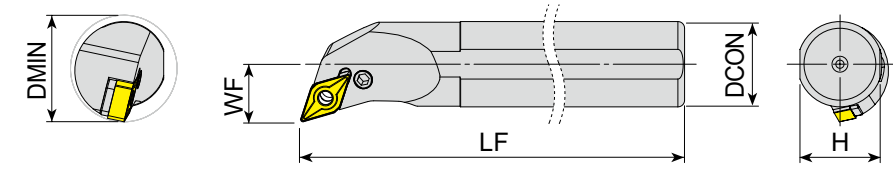


E..SDUCR/L
(Screw Type 93°
Carbide)

Series	Size	Screw	Shim	Shim Screw	Torx Key
..SDUCR/L	..07	Y4008-M2.5x6	-	-	Y80-T08
	..16..11	Y4015-M3.5x9	-	-	Y80-T15
	..20..11	Y4015-M3.5x11	-	-	Y80-T15
	..25..11	Y4015-M3.5x12	YAADN-2-0001	YAAV-08-M3.5x8	Y80-T15
	..32..11	Y4015-M3.5x14	YAADN-2-0001	YAAV-06-M3.5x11	Y80-T15
E.SDUCR/L	..07	Y4008-M2.5x6	-	-	Y80-T08
	..11	Y4015-M3.5x9	-	-	Y80-T15

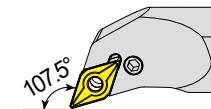
Turning - Holder - Internal

Internal Holders for DN** Insert

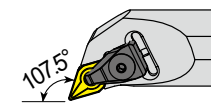


□: p. 63 unit:mm

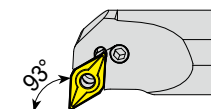
Series	Designation	EDP 2700.. R L	DMIN	DCON	H	WF	LF	Insert
●	A32S - PDQNR/L 1504	0895 -	40	32	30	22	250	DN1504
	A40T - PDQNR/L 1504	0896 -	50	40	37.5	27	300	
	S32T - PDQNR/L 1504	0903 -	40	32	30	22	300	
	S40U - PDQNR/L 1504	0904 -	50	40	37.5	27	350	
	S50V - PDQNR/L 1504	0905 -	63	50	47	35	400	
X	A32S - PDQNR/L 15	0897 0898	40	32	30	22	250	DN1506
	A40T - PDQNR/L 15	0899 0900	50	40	37.5	27	300	
	A50U - PDQNR/L 15	0901 0902	63	50	47	35	350	
	S32T - PDQNR/L 15	0906 0907	40	32	30	22	300	
	S40U - PDQNR/L 15	0908 0909	50	40	37.5	27	350	
●	S50V - PDQNR/L 15	0910 0911	63	50	47	35	400	DN1506
	S25S - TDQNR/L 15	0912 0913	32	25	23	17	250	
	S32T - TDQNR/L 15	0914 0915	40	32	30	22	300	
	S40U - TDQNR/L 15	0916 0917	50	40	37.5	27	350	
	S50V - TDQNR/L 15	0918 0919	63	50	47	35	400	
X	A32S - PDUNR/L 15	0920 0921	40	32	30	22	250	DN1506
	A40T - PDUNR/L 15	0922 0923	50	40	37.5	27	300	
	A50U - PDUNR/L 15	0924 0925	63	50	47	35	350	
	S25S - PDUNR/L 15	0934 0935	32	25	23	19	250	
	S32T - PDUNR/L 15	0936 0937	40	32	30	22	300	
●	S40U - PDUNR/L 15	0938 0939	50	40	37.5	27	350	DN1506
	S50V - PDUNR/L 15	0940 0941	63	50	47	35	400	
	S25S - TDUNR/L 15	0942 0943	34	25	23	17	250	
	S32T - TDUNR/L 15	0944 0945	40	32	30	22	300	
	S40U - TDUNR/L 15	0946 0947	50	40	37.5	27	350	
●	S50V - TDUNR/L 15	0948 0949	63	50	47	35	400	DN1506



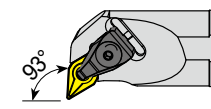
..PDQNR/L
(Lever Type 107.5°)



..TDQNR/L
(Hole Clamp
Type 107.5°)



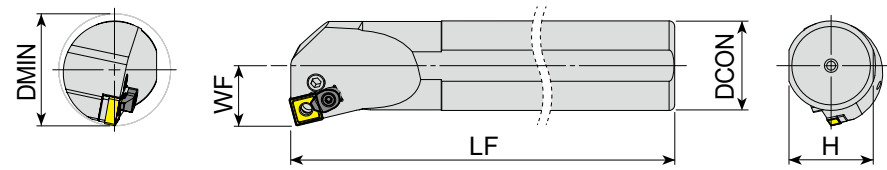
..PDUNR/L
(Lever Type 93°)



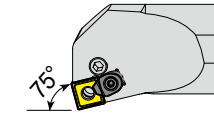
..TDUNR/L
(Hole Clamp Type 93°)

Series	Size	Lever	Lever Screw	Clamp	Clamp Screw	Upper Ring	Lower Ring	Shim	Shim Screw	Shim Pin	Allen Key
..PDQNR/L	..15	YAPL-03	YALV-03-M8x19	-	-	-	-	YAADN-3-0001	-	YAAY-02	YAAL-03-3
	..1504	YAPL-03	YALV-03-M8x19	-	-	-	-	YAADN-2-0003	-	YAAY-02	YAAL-03-3
..TDQNR/L	..25..15	-	-	YATK-02	YAKV-30-M6x22	YABPL-01	-	YAADN-3-0001	YAAV-13-M5x8	-	YAAL-03-3
	..32~50..15	-	-	YATK-02	YAKV-30-M6x22	YABPL-01	YAS-01	YAADN-3-0001	YAAV-02-M5x12	-	YAAL-03-3
..PDUNR/L	..25..15	YAPL-03	YALV-08-M8x16	-	-	-	-	YAADN-3-0001	-	YAAY-02	YAAL-03-3
	..32~50..15	YAPL-03	YALV-03-M8x19	-	-	-	-	YAADN-3-0001	-	YAAY-02	YAAL-03-3
..TDUNR/L	..25..15	-	-	YATK-02	YAKV-30-M6x22	YABPL-01	YAS-01	YAADN-3-0001	YAAV-13-M5x8	-	YAAL-03-3
	..32~50..15	-	-	YATK-02	YAKV-30-M6x22	YABPL-01	YAS-01	YAADN-3-0001	YAAV-02-M5x12	-	YAAL-03-3

Turning - Holder - Internal
Internal Holders for SN** Insert

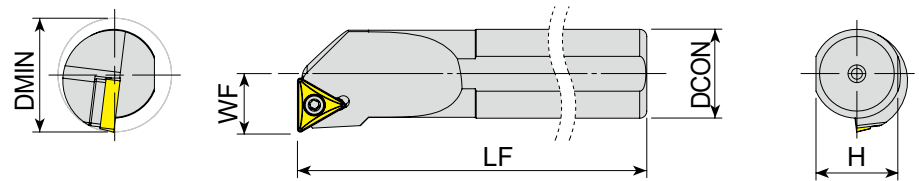


* 'C' Letter at Last : Optional Clamp Included  : p. 67 unit:mm

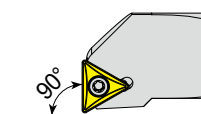
Series		Designation	EDP 2700.. R L	DMIN	DCON	H	WF	LF	Insert
 ..-PSKNR/L (Lever Type 75°)	X	S25S - PSKNR/L 12C	0958 0959	32	25	23	17	250	SN1204
		S32T - PSKNR/L 12C	0960 0961	40	32	30	22	300	

Series	Size	Lever	Lever Screw	Clamp	Clamp Screw	Shim	Shim Pin	Allen Key
..PSKNR/L	..25..12C	YAPL-02	YALV-08-M8x16	YACK-05	Y4015-M4x11	YAASN-3-0004	YAAY-02	YAAL-03-3
	..32..12C	YAPL-02	YALV-03-M8x19	YACK-05	Y4015-M4x11	YAASN-3-0004	YAAY-02	YAAL-03-3

Turning - Holder - Internal
Internal Holders for TC** Insert

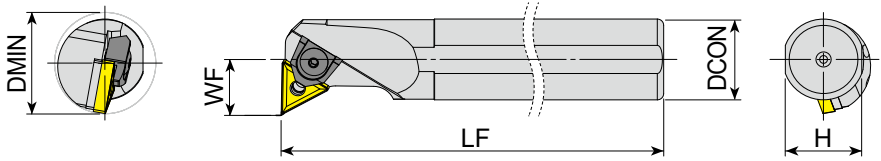


 : p. 82 unit:mm

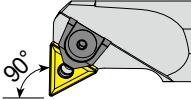
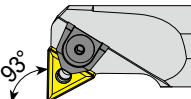
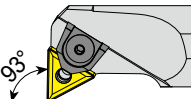
Series		Designation	EDP 2700.. R L	DMIN	DCON	H	WF	LF	Insert
 ..-STFCR/L (Screw Type 90°)	X	S12K - STFCR/L 11	1264 1265	17	12	11	9	125	TC1102
		S16P - STFCR/L 11	1266 1267	20	16	14.8	11	170	
		S20R - STFCR/L 11	1268 1269	25	20	18.3	13	200	
	X	S16P - STFCR/L 16	1270 1271	20	16	14.8	11	170	TC16T3
		S20R - STFCR/L 16	1272 1273	25	20	18.3	13	200	
		S25S - STFCR/L 16	1274 1275	32	25	23	17	250	
		S32T - STFCR/L 16	1276 1277	40	32	30	22	300	
		S40U - STFCR/L 16	1278 -	50	40	37.5	27	350	
	X	S12K - STUCR/L 11	1279 1280	17	12	11	9	125	TC1102
		S16P - STUCR/L 11	1281 1282	20	16	14.8	11	170	
		S20R - STUCR/L 11	1283 1284	25	20	18.3	13	200	
	X	S16P - STUCR/L 16	1285 1286	20	16	14.8	11	170	TC16T3
		S20R - STUCR/L 16	1287 1288	25	20	18.3	13	200	
		S25S - STUCR/L 16	1289 1290	32	25	23	17	250	
		S32T - STUCR/L 16	1291 1292	40	32	30	22	300	
		S40U - STUCR/L 16	1293 1294	50	40	37.5	27	350	

Series	Size	Screw	Shim	Shim Screw	Torx Key
..STFCR/L	..12~20..11	Y4008-M2.5x6	-	-	Y80-T08
	..16..16	Y4015-M3.5x9	-	-	Y80-T15
	..20..16	Y4015-M3.5x11	-	-	Y80-T15
	..25..16	Y4015-M3.5x14	YAATN-2-0001	YAAV-08-M3.5x8	Y80-T15
	..32~40..16	Y4015-M3.5x14	YAATN-2-0001	YAAV-06-M3.5x11	Y80-T15
..STUCR/L	..11	Y4008-M2.5x6	-	-	Y80-T08
	..16..16	Y4015-M3.5x9	-	-	Y80-T15
	..20..16	Y4015-M3.5x11	-	-	Y80-T15
	..25..16	Y4015-M3.5x14	YAATN-2-0001	YAAV-08-M3.5x8	Y80-T15
	..32~40..16	Y4015-M3.5x14	YAATN-2-0001	YAAV-06-M3.5x11	Y80-T15

Turning - Holder - Internal
Internal Holders for TN** Insert



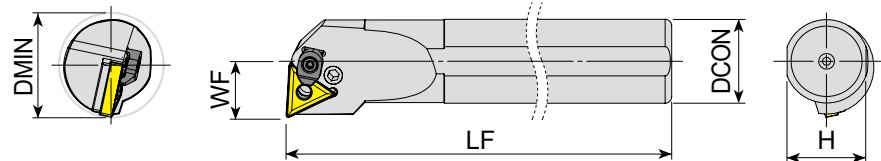
□ : p. 69 unit:mm

Series		Designation	EDP 2700.. R L	DMIN	DCON	H	WF	LF	Insert
	X	..-MTFNR/L (Pin + Top Clamp Type 90°)							
		S20R - MTFNR/L 16	0972 -	25	20	18.3	14	200	TN1604
		S25S - MTFNR/L 16	0973 0974	32	25	23	17	250	
		S32T - MTFNR/L 16	0975 0976	40	32	30	22	300	
		S40U - MTFNR/L 16	0977 0978	50	40	37.5	27	350	
	X	..-MTFNR/L (Pin + Top Clamp Type 93°)							
		S32T - MTFNR/L 22	0979 0980	40	32	30	22	300	TN2204
		S40U - MTFNR/L 22	0981 0982	50	40	37.5	27	350	
		S50V - MTFNR/L 22	0983 -	63	50	47	35	400	
	X	..-MTUNR/L (Pin + Top Clamp Type 93°)							
		S20R - MTUNR/L 16	0998 0999	25	20	18.3	13	200	TN1604
		S25S - MTUNR/L 16	1000 1001	32	25	23	17	250	
		S32T - MTUNR/L 16	1002 1003	40	32	30	22	300	
		S40U - MTUNR/L 16	1004 1005	50	40	37.5	27	350	
		S50V - MTUNR/L 16	1006 1007	63	50	47	35	400	

► NEXT PAGE

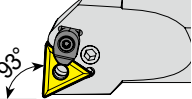
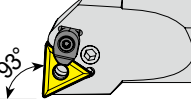
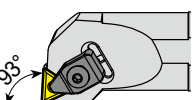
Series	Size	Lever	Lever Screw	Clamp	Clamp Screw	Upper Ring	Lower Ring	Pin	Shim	Shim Screw	Shim Pin	Allen Key
..MTFNR/L	..20..16	-	-	YAMK-02	YAKV-17-M5x15	-	-	YAPM-03	-	-	-	YAAL-03-3
	..25..16	-	-	YAMK-04	YAKV-30-M6x22	YABPL-01	YAS-01	YAPM-14	YAATN-2-0002	-	-	YAAL-03-3
	..32~40..16	-	-	YAMK-04	YAKV-30-M6x22	YABPL-01	YAS-01	YAPM-01	YAATN-2-0002	-	-	YAAL-03-3
	..22	-	-	YAMK-04	YAKV-30-M6x22	YABPL-01	YAS-01	YAPM-02	YAATN-3-0015	-	-	YAAL-03-3
..MTUNR/L	..20..16	-	-	YAMK-02	YAKV-17-M5x15	-	-	YAPM-03	-	-	-	YAAL-03-3
	..25..16	-	-	YAMK-04	YAKV-30-M6x22	YABPL-01	YAS-01	YAPM-14	YAATN-2-0002	-	-	YAAL-03-3
	..32~50..16	-	-	YAMK-04	YAKV-30-M6x22	YABPL-01	YAS-01	YAPM-01	YAATN-2-0002	-	-	YAAL-03-3

Turning - Holder - Internal
Internal Holders for TN** Insert



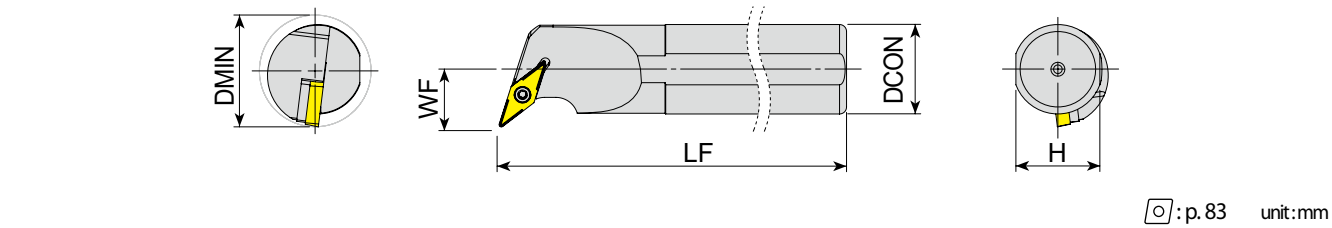
* 'C' Letter at Last : Optional Clamp Included

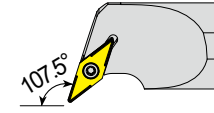
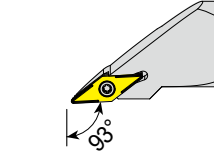
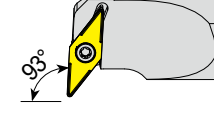
□ : p. 69 unit:mm

Series		Designation	EDP 2700.. R L	DMIN	DCON	H	WF	LF	Insert
	X	..-PTUNR/L (Lever Type 93°)							
		S16P - PTUNR/L 16	1014 1015	20	16	14.8	11	170	TN1604
		S20R - PTUNR/L 16	1016 1017	25	20	18.3	13	200	
		S25S - PTUNR/L 16C	1018 1019	32	25	23	17	250	
		S32T - PTUNR/L 16C	1020 1021	40	32	30	22	300	
	X	..-PTUNR/L (Lever Type 93°)							
		S40U - PTUNR/L 16C	1022 1023	50	40	37.5	27	350	TN2204
		S32T - PTUNR/L 22C	1024 1025	40	32	30	22	300	
		S40U - PTUNR/L 22C	1026 1027	50	40	37.5	27	350	
		S50V - PTUNR/L 22C	1028 1029	63	50	47	35	400	
	X	..-TTUNR/L (Hole Clamp Type 93°)							
		S25S - TTUNR/L 16	1030 1031	32	25	23	17	250	TN1604
		S32T - TTUNR/L 16	1032 1033	40	32	30	22	300	
		S25S - TTUNR/L 22	1034 1035	32	25	23	17	250	
		S32T - TTUNR/L 22	1036 1037	40	32	30	22	300	
		S40U - TTUNR/L 22	1038 1039	50	40	37.5	27	350	TN2204
		S50V - TTUNR/L 22	1040 1041	63	50	47	35	400	

Series	Size	Lever	Lever Screw	Clamp	Clamp Screw	Upper Ring	Lower Ring	Pin	Shim	Shim Screw	Shim Pin	Allen Key
..PTUNR/L	..16..16	YAPL-08	YALV-07-M6x13	-	-	-	-	-	-	-	YAAY-07	YAAL-02-2.5
	..20..16	YAPL-01	YALV-01-M6x14	-	-	-	-	-	YAATN-3-0025	-	YAAY-01	YAAL-02-2.5
	..16C	YAPL-01	YALV-02-M6x17	YACK-05	Y4015-M4x11	-	-	-	YAATN-3-0025	-	YAAY-01	YAAL-02-2.5
	..22C	YAPL-02	YALV-03-M8x19	YACK-05	Y4015-M4x11	-	-	-	YAATN-3-0015	-	YAAY-02	YAAL-03-3
..TTUNR/L	..16	-	-	YATK-01	YAKV-01-M5x22	YABPL-01	-	-	YAATN-2-0002	YAAV-03-M5x12	-	YAAL-03-3
	..22	-	-	YATK-02	YAKV-30-M6x22	YABPL-01	YAS-01	-	YAATN-3-0015	YAAV-02-M5x12	-	YAAL-03-3

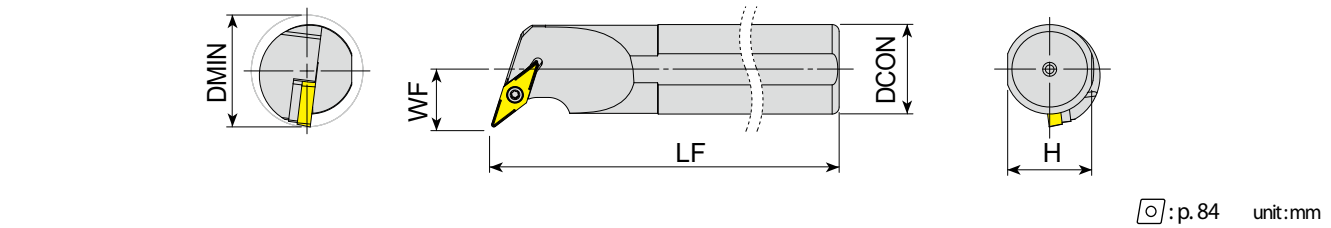
Turning - Holder - Internal
Internal Holders for VB** Insert

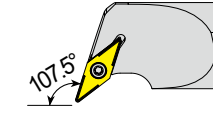
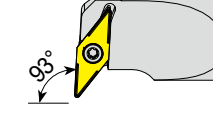


Series		Designation	EDP 2700.. R L		DMIN	DCON	H	WF	LF	Insert
 ..-SVQBR/L (Screw Type 107.5°)	●	A20Q - SVQBR/L 16	1299	1300	30	20	18.3	20	180	VB1604
	●	A25S - SVQBR/L 16	1301	1302	32	25	23	17	250	
		A32S - SVQBR/L 16	1303	1304	40	32	30	22	250	
		S25S - SVQBR/L 16	1305	1306	32	25	23	17	250	
	X	S32T - SVQBR/L 16	1307	1308	40	32	30	22	300	
		S40U - SVQBR/L 16	1309	1310	50	40	37.5	27	350	
 ..-SVJBR/L (Screw Type 93°)		S25S - SVJBR/L 16	1295	1296	32	25	23	17	250	VB1604
	X	S32T - SVJBR/L 16	1297	1298	40	32	30	22	300	
 ..-SVUBR/L (Screw Type 93°)	●	A20Q - SVUBR/L 16	1311	-	30	20	18.3	20	180	VB1604
	●	A32S - SVUBR/L 16	1312	1313	40	32	30	22	250	
		S25S - SVUBR/L 16	1314	1315	32	25	23	19	250	
	X	S32T - SVUBR/L 16	1316	1317	40	32	30	22	300	
		S40U - SVUBR/L 16	1318	1319	50	40	37.5	27	350	

Series	Size	Screw	Shim	Shim Screw	Torx Key
..SVQBR/L	..20..16	Y4015-M3.5x11	-	-	Y80-T15
	..25..16	Y4015-M3.5x14	YAAVN-2-0002	YAAV-06-M3.5x11	Y80-T15
	..25..16	Y4015-M3.5x14	YAAVN-2-0002	YAAV-08-M3.5x8	Y80-T15
	..32~40..16	Y4015-M3.5x14	YAAVN-2-0002	YAAV-06-M3.5x11	Y80-T15
..SVJBR/L	..16	Y4015-M3.5x12	YAAVN-2-0002	YAAV-08-M3.5x8	Y80-T15
..SVUBR/L	..20..16	Y4015-M3.5x11	-	-	Y80-T15
	..25~40..16	Y4015-M3.5x14	YAAVN-2-0002	YAAV-06-M3.5x11	Y80-T15

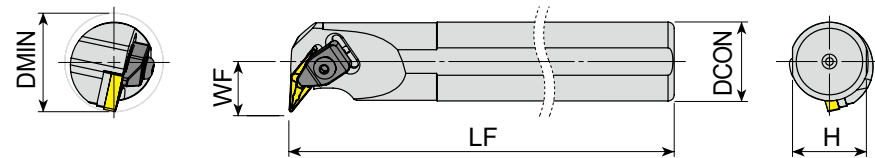
Turning - Holder - Internal
Internal Holders for VC** Insert



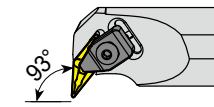
Series		Designation	EDP 2700.. R L		DMIN	DCON	H	WF	LF	Insert
 ..-SVQCR/L (Screw Type 107.5°)		S25S - SVQCR/L 16	1320	1321	32	25	23	17	250	VC1604
	X	S32T - SVQCR/L 16	1322	1323	40	32	30	22	300	
		S40U - SVQCR/L 16	1324	1325	50	40	37.5	27	350	
 ..-SVUCR/L (Screw Type 93°)	●	A25R - SVUCR/L 16	1326	-	32	25	23	19	200	VC1604
		S25S - SVUCR/L 16	1327	1328	32	25	23	19	250	
	X	S32T - SVUCR/L 16	1329	1330	40	32	30	22	300	
		S40U - SVUCR/L 16	1331	1332	50	40	37.5	27	350	

Series	Size	Screw	Shim	Shim Screw	Torx Key
..SVQCR/L	..25..16	Y4015-M3.5x14	YAAVN-2-0002	YAAV-08-M3.5x8	Y80-T15
	..32~40..16	Y4015-M3.5x14	YAAVN-2-0002	YAAV-06-M3.5x11	Y80-T15
..SVUCR/L	..16	Y4015-M3.5x14	YAAVN-2-0002	YAAV-06-M3.5x11	Y80-T15

Turning - Holder - Internal
Internal Holders for VN** Insert

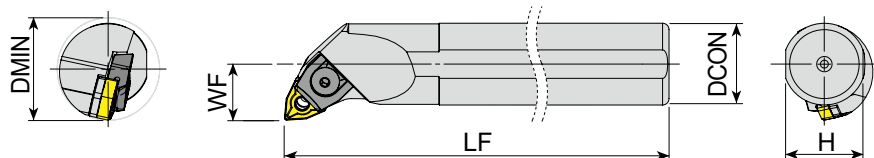


□ : p. 73 unit:mm

Series	Designation	EDP 2700.. R L		DMIN	DCON	H	WF	LF	Insert
 ..TVUNR/L (Hole Clamp Type 93°)	S25S - TVUNR/L 16	1042	1043	36	25	23	20	250	VN1604
	S32T - TVUNR/L 16	1044	1045	40	32	30	22	300	
	S40U - TVUNR/L 16	1046	1047	50	40	37.5	27	350	

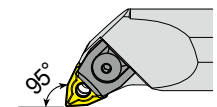
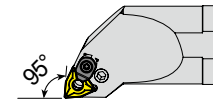
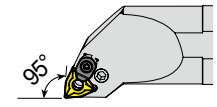
Series	Size	Clamp	Clamp Screw	Upper Ring	Shim	Shim Screw	Allen Key
..TVUNR/L	..16	YATK-01	YAKV-01-M5x22	YABPL-01	YAAVN-2-0002	YAAV-04-M5x12	YAAL-03-3

Turning - Holder - Internal
Internal Holders for WN** Insert



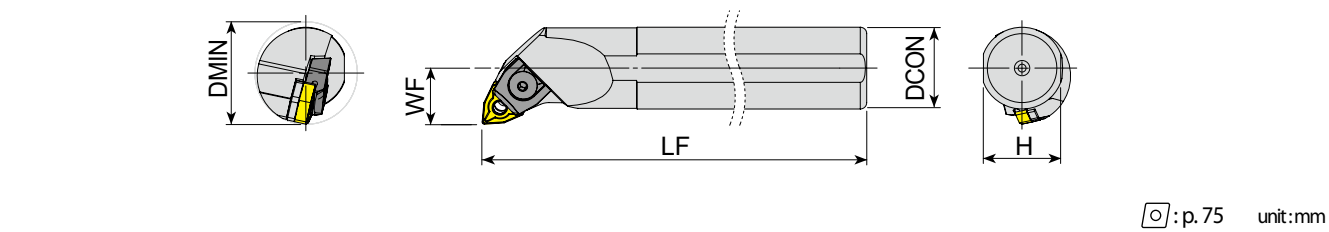
* 'C' Letter at Last : Optional Clamp Included

□ : p. 75 unit:mm

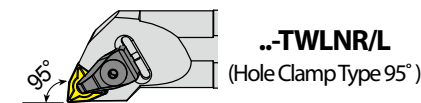
Series	Designation	EDP 2700.. R L		DMIN	DCON	H	WF	LF	Insert
 ..MWLNR/L (Pin + Top Clamp Type 95°)	S16P - MWLNR/L 06	1064	1065	20	16	14.8	11	170	WN0604
	X S20R - MWLNR/L 06	1066	1067	25	20	18.3	13	200	
	S25S - MWLNR/L 06	1068	1069	32	25	23	17	250	
	S25S - MWLNR/L 08	1070	1071	32	25	23	17	250	
 ..PWLNR/L (Lever Type 95°)	X S32T - MWLNR/L 08	1072	1073	40	32	30	22	300	WN0804
	S40U - MWLNR/L 08	1074	1075	50	40	37.5	27	350	
	A20P - PWLNR/L 06	1048	1049	25	20	18.3	13	170	
	● A25R - PWLNR/L 06	1050	1051	32	25	23	17	200	
 ..PWLNR/L (Lever Type 95°)	A32S - PWLNR/L 06	1052	1053	40	32	30	22	250	WN0604
	S20R - PWLNR/L 06	1076	1077	25	20	18.3	13	200	
	X S25S - PWLNR/L 06	1078	1079	32	25	23	17	250	
	S32T - PWLNR/L 06	1080	1081	40	32	30	22	300	
	A25R - PWLNR/L 08C	1054	1055	32	25	23	17	200	WN0804
	● A32S - PWLNR/L 08C	1056	1057	40	32	30	22	250	
	A40T - PWLNR/L 08C	1058	1059	50	40	37.5	27	300	
	A50U - PWLNR/L 08C	1060	1061	63	50	47	35	350	
	S25S - PWLNR/L 08C	1082	1083	32	25	23	17	250	
	X S32T - PWLNR/L 08C	1084	1085	40	32	30	22	300	
	S40U - PWLNR/L 08C	1086	1087	50	40	37.5	27	350	
	S50V - PWLNR/L 08C	1088	1089	63	50	47	35	400	

Series	Size	Lever	Lever Screw	Clamp	Clamp Screw	Upper Ring	Lower Ring	Pin	Shim	Shim Screw	Shim Pin	Allen Key
..MWLNR/L	..16..06	-	-	YAMK-01	YAKV-17-M5x15	-	-	YAPM-09	-	-	-	-
	..20..06	-	-	YAMK-01	YAKV-04-M5x17	-	-	YAPM-10	-	-	-	-
	..25..06	-	-	YAMK-01	YAKV-04-M5x17	-	-	YAPM-08	-	-	-	-
	..25..08	-	-	YAMK-05	YAKV-27-M6x20	YABPL-01	YAS-01	YAPM-04	YAAWN-3-0001	-	-	YAAL-03-3
	..32~40..08	-	-	YAMK-05	YAKV-03-M6x22	YABPL-01	YAS-01	YAPM-02	YAAWN-3-0001	-	-	YAAL-03-3
..PWLNR/L	..20..06	YAPL-01	YALV-01-M6x14	-	-	-	-	-	YAAWN-SW317	-	YAAY-01	YAAL-02-2.5
	..25~32..06	YAPL-01	YALV-02-M6x17	-	-	-	-	-	YAAWN-SW317	-	YAAY-01	YAAL-02-2.5
	..08C	YAPL-02	YALV-03-M8x19	YACK-05	Y4015-M4x11	-	-	-	YAAWN-3-0001	-	YAAY-02	YAAL-03-3

Turning - Holder - Internal
Internal Holders for WN** Insert



Series		Designation	EDP 2700.. R L	DMIN	DCON	H	WF	LF	Insert
X	●	S25S - TWLNR/L 06	1090 1091	32	25	23	17	250	WN0604
		S32T - TWLNR/L 06	1092 1093	40	32	30	22	300	
		A40T - TWLNR/L 08	1062 -	50	40	37.5	27	300	WN0804
		A50U - TWLNR/L 08	1063 -	63	50	47	35	350	
X	●	S25S - TWLNR/L 08	1094 1095	32	25	23	17	250	
		S32T - TWLNR/L 08	1096 1097	40	32	30	22	300	
		S40U - TWLNR/L 08	1098 1099	50	40	37.5	27	350	
		S50V - TWLNR/L 08	1100 1101	63	50	47	35	400	



Series	Size	Lever	Lever Screw	Clamp	Clamp Screw	Upper Ring	Lower Ring	Pin	Shim	Shim Screw	Shim Pin	Allen Key
..TWLNR/L	..06	-	-	YATK-01	YAKV-01-M5x22	YABPL-01	-	-	YAAWN-SW317	YAAV-01-M3x10	-	YAAL-03-3
	..25..08	-	-	YATK-02	YAKV-30-M6x22	YABPL-01	YAS-01	-	YAAWN-3-0001	YAAV-13-M5x8	-	YAAL-03-3
	..32~50..08	-	-	YATK-02	YAKV-30-M6x22	YABPL-01	YAS-01	-	YAAWN-3-0001	YAAV-02-M5x12	-	YAAL-03-3

Turning Inserts Overview

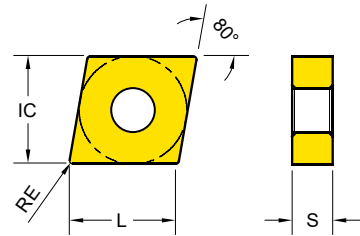
Negative Inserts

Shape	Series	Size				Page
C	CNMA	12	16	19		60
	CNMG	12	16	19		
D	DNMA	1504	1506			63
	DNMG	1504	1506			
K	KNUX	16				66
S	SNMA	12	15			67
	SNMG	12				
T	TNMA	16				69
	TNMG	16	22			
	TNUX	16				72
V	VNMA	16				73
	VNMG	16				
W	WNMA		08			75
	WNMG	06	08			

Positive Inserts

Shape	Series	Size				Page
C	CCGT		09	12		78
	CCMT	06	09	12		
D	DCGT		11			79
	DCMT	07	11			
R	RCMT	06	08	10	12	80
S	SCMT	09	12			81
T	TCGT		16			82
	TCMT	11	16			
V	VBMT	16				83
	VCGT / VCMT	16				84

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



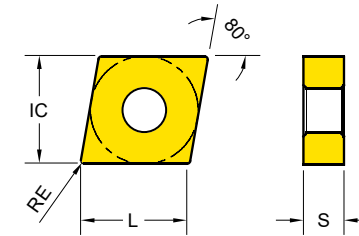
Series	L	IC	S
CN** 1204	12	12.7	4.76
CN** 1606	16	15.875	6.35
CN** 1906	19	19.05	6.35

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

CNMA CNMG	Designation	RE	Fn (mm/rev.)	Ap (mm)	P05	P10	P20	P30	P20	M15	M30	M40	N20	N20
					K10	K20	M20	S10	S20	S30	N20	N20	N20	N20
..MA Cast iron	CNMA 120404	0.4	0.15~0.5	0.5~2.5	●	●	●	●	●	●	●	●	●	●
	CNMA 120408	0.8	0.15~0.5	1~3.5	●	●	●	●	●	●	●	●	●	●
	CNMA 120412	1.2	0.15~0.5	1.5~5	●	●	●	●	●	●	●	●	●	●
	CNMA 160612	1.2	0.15~0.5	1.5~5	●	●	●	●	●	●	●	●	●	●
	CNMA 160616	1.6	0.15~0.5	2~5	●	●	●	●	●	●	●	●	●	●
	CNMA 190616	1.6	0.15~1	3~10	●	●	●	●	●	●	●	●	●	●
-UF Finishing	CNMG 120404 - UF	0.4	0.05~0.25	0.5~1.5	●	●	●	●	●	●	●	●	●	●
	CNMG 120408 - UF	0.8	0.05~0.25	1~2.5	●	●	●	●	●	●	●	●	●	●
-UL Light Machining and Sticky Material	CNMG 120404 - UL	0.4	0.1~0.3	0.5~2	●	●	●	●	●	●	●	●	●	●
	CNMG 120408 - UL	0.8	0.1~0.3	1~3	●	●	●	●	●	●	●	●	●	●
	CNMG 120412 - UL	1.2	0.1~0.3	1.5~3.5	●	●	●	●	●	●	●	●	●	●
-UM Medium Machining Unstable condition	CNMG 120404 - UM	0.4	0.15~0.3	0.5~1.5	●	●	●	●	●	●	●	●	●	●
	CNMG 120408 - UM	0.8	0.15~0.3	0.5~2	●	●	●	●	●	●	●	●	●	●
	CNMG 120412 - UM	1.2	0.15~0.3	1.5~3.0	●	●	●	●	●	●	●	●	●	●

Cutting Speed			Vc (m/min.)																
ISO	VDI	Sub Group	YG1001	YG3010	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10							
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max			
P	1~5	Non-Alloyed Steel	220	480	170	450	180	380	150	350	120	200	-	-	-	-	-	-	
	6~9	Low-Alloyed Steel	220	420	180	380	110	350	90	300	70	200	-	-	-	-	-	-	
	10~11	High-Alloyed Steel	-	-	100	330	60	300	70	250	-	-	-	-	-	-	-	-	
M	12~13	Ferritic & Martensitic	-	-	-	-	-	-	120	230	-	-	130	230	110	180	80	150	
	14	Austenitic Stainless Steel	-	-	-	-	-	-	80	200	-	-	100	200	40	130	30	120	
K	15~16	Grey Cast Iron	170	420	120	300	-	-	-	-	-	-	-	-	-	-	-	-	
	17~18	Nodular Cast Iron	120	410	120	280	-	-	-	-	-	-	-	-	-	-	-	-	
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	350	1200	250	800
S	31~37	Superalloys & Titanium	-	-	-	-	-	-	35	80	-	-	30	90	20	40	20	40	
H	38~41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

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



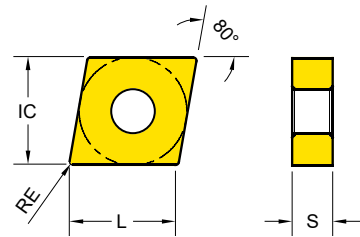
Series	L	IC	S
CN** 1204	12	12.7	4.76
CN** 1606	16	15.875	6.35
CN** 1906	19	19.05	6.35

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

CNMA CNMG	Designation	RE	Fn (mm/rev.)	Ap (mm)	P05	P10	P20	P30	P20	M15	M30	M40	N20	N20
					K10	K20	M20	S10	S20	S30	N20	N20	N20	N20
-UG Medium Machining at stable condition	CNMG 120404 - UG	0.4	0.2~0.4	0.5~2	●	●	●	●	●	●	●	●	●	●
	CNMG 120408 - UG	0.8	0.2~0.4	1~3	●	●	●	●	●	●	●	●	●	●
	CNMG 120412 - UG	1.2	0.2~0.4	1.5~4	●	●	●	●	●	●	●	●	●	●
	CNMG 160608 - UG	0.8	0.20~0.40	1.5~5.0	●	●	●	●	●	●	●	●	●	●
	CNMG 160612 - UG	1.2	0.2~0.4	1.5~5	●	●	●	●	●	●	●	●	●	●
	CNMG 160616 - UG	1.6	0.2~0.4	1.8~5	●	●	●	●	●	●	●	●	●	●
-UC Cast iron and Medium roughing	CNMG 120404 - UC	0.4	0.2~0.4	0.5~2.5	●	●	●	●	●	●	●	●	●	●
	CNMG 120408 - UC	0.8	0.2~0.4	1~4	●	●	●	●	●	●	●	●	●	●
	CNMG 120412 - UC	1.2	0.2~0.4	1.5~4.5	●	●	●	●	●	●	●	●	●	●
-UR Roughing	CNMG 120408 - UR	0.8	0.3~0.5	1~4	●	●	●	●	●	●	●	●	●	●
	CNMG 120412 - UR	1.2	0.3~0.5	1.5~5	●	●	●	●	●	●	●	●	●	●
	CNMG 120416 - UR	1.6	0.3~0.5	2~5	●	●	●	●	●	●	●	●	●	●
	CNMG 160612 - UR	1.2	0.3~0.5	1.5~5	●	●	●	●	●	●	●	●	●	●
	CNMG 160616 - UR	1.6	0.3~0.5	2~5	●	●	●	●	●	●	●	●	●	●
	CNMG 190608 - UR	0.8	0.3~0.8	3.0~9.0	●	●	●	●	●	●	●	●	●	●
	CNMG 190612 - UR	1.2	0.3~0.8	3~9	●	●	●	●	●	●	●	●	●	●
	CNMG 190616 - UR	1.6	0.3~0.8	3.0~9.0	●	●	●	●	●	●	●	●	●	●

Cutting Speed			Vc (m/min.)																
ISO	VDI	Sub Group	YG1001	YG3010	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10							
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max			
P	1~5	Non-Alloyed Steel	220	480	170	450	180	380	150	350	120	200	-	-	-	-	-	-	
	6~9	Low-Alloyed Steel	220	420	180	380	110	350	90	300	70	200	-	-	-	-	-	-	
	10~11	High-Alloyed Steel	-	-	100	330	60	300	70	250	-	-	-	-	-	-	-	-	
M	12~13	Ferritic & Martensitic	-	-	-	-	-	-	120	230	-	-	130	230	110	180	80	150	
	14	Austenitic Stainless Steel	-	-	-	-	-	-	80	200	-	-	100	200	40	130	30	120	
K	15~16	Grey Cast Iron	170	420	120	300	-	-	-	-	-	-	-	-	-	-	-	-	
	17~18	Nodular Cast Iron	120	410	120	280	-	-	-	-	-	-	-	-	-	-	-	-	
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	350	1200	250	800
S	31~37	Superalloys & Titanium	-	-	-	-	-	-	35	80	-	-	30	90	20	40	20	40	
H	38~41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

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



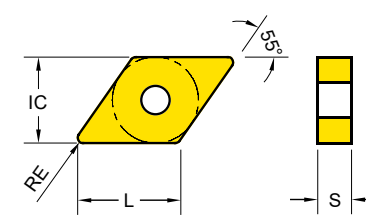
Series	L	IC	S
CN** 1204	12	12.7	4.76
CN** 1606	16	15.875	6.35
CN** 1906	19	19.05	6.35

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

	CNMA CNMG	Designation	RE	Fn (mm/rev.)	Ap (mm)	P05	P10	P20	P30	P40	M15	M30	M40	N20	N20
						K10	K20	M20	M20	M20	S10	S20	S30	N20	N20
-MF  Stainless steel Finishing		CNMG 120404 - MF	0.4	0.07 ~ 0.3	0.2 ~ 1.5						●	●			
		CNMG 120408 - MF	0.8	0.07 ~ 0.3	0.2 ~ 1.5						●	●	●		
											●	●	●		
-MM  Stainless steel Medium		CNMG 120404 - MM	0.4	0.2 ~ 0.35	0.5 ~ 3						●	●			
		CNMG 120408 - MM	0.8	0.2 ~ 0.35	1 ~ 3.5			●	●	●	●	●	●		
		CNMG 120412 - MM	1.2	0.2 ~ 0.35	1.5 ~ 3.5			●	●	●	●	●	●		
-MR  Stainless steel Roughing		CNMG 120408 - MR	0.8	0.3 ~ 0.55	1.2 ~ 5.5				●		●	●	●		
		CNMG 120412 - MR	1.2	0.3 ~ 0.55	1.5 ~ 5.5				●		●	●	●		
									●		●	●	●		
-KR  Cast Iron Heavy Roughing		CNMG 120408 - KR	0.8	0.30 ~ 0.60	1.0 ~ 5.0	●									
		CNMG 120412 - KR	1.2	0.30 ~ 0.60	1.5 ~ 5.0	●									

Cutting Speed			Vc (m/min.)																			
ISO	VDI	Sub Group	YG1001	YG3010	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10										
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max				
P	1~5	Non-Alloyed Steel	220	480	170	450	180	380	150	350	120	200	-	-	-	-	-	-	-	-		
	6~9	Low-Alloyed Steel	220	420	180	380	110	350	90	300	70	200	-	-	-	-	-	-	-	-		
	10~11	High-Alloyed Steel	-	-	100	330	60	300	70	250	-	-	-	-	-	-	-	-	-	-		
M	12~13	Ferritic & Martensitic	-	-	-	-	-	-	120	230	-	-	130	230	110	180	80	150	-	-	-	-
	14	Austenitic Stainless Steel	-	-	-	-	-	-	80	200	-	-	100	200	40	130	30	120	-	-	-	-
K	15~16	Grey Cast Iron	170	420	120	300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	17~18	Nodular Cast Iron	120	410	120	280	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	350	1200	250	800	
S	31~37	Superalloys & Titanium	-	-	-	-	-	-	35	80	-	-	30	90	20	40	20	40	-	-	-	-
H	38~41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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



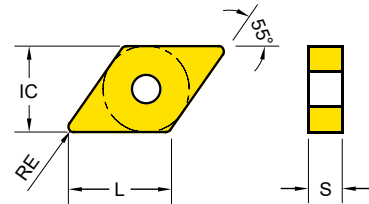
Series	L	IC	S
DN** 1504	14	12.7	4.76
DN** 1506	14	12.7	6.35

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

	DNMA DNMG	Designation	RE	Fn (mm/rev.)	Ap (mm)	P05	P10	P20	P30	P40	M15	M30	M40	N20	N20
						K10	K20	M20	M20	M20	S10	S20	S30	N20	N20
..MA  Cast iron		DNMA 150408	0.8	0.15 ~ 0.5	1 ~ 3	●									
		DNMA 150412	1.2	0.15 ~ 0.5	1.5 ~ 4	●									
		DNMA 150608	0.8	0.15 ~ 0.5	1 ~ 3	●									
		DNMA 150612	1.2	0.15 ~ 0.5	1.5 ~ 4	●									
-UF  Finishing		DNMG 150404 - UF	0.4	0.05 ~ 0.25	0.5 ~ 1.5			●	●	●	●				
		DNMG 150604 - UF	0.4	0.05 ~ 0.25	1 ~ 2			●	●	●	●				
		DNMG 150608 - UF	0.8	0.05 ~ 0.25	1.5 ~ 3.5			●	●	●	●				
-UL  Light Machining and Sticky Material		DNMG 150404 - UL	0.4	0.10 ~ 0.3	0.5 ~ 3.0			●	●	●					
		DNMG 150408 - UL	0.8	0.10 ~ 0.3	1.0 ~ 3.0			●	●	●					
		DNMG 150412 - UL	1.2	0.10 ~ 0.3	1.5 ~ 3.0			●	●	●					
		DNMG 150604 - UL	0.4	0.1 ~ 0.3	0.5 ~ 2			●	●	●					
		DNMG 150608 - UL	0.8	0.1 ~ 0.3	1.5 ~ 3			●	●	●					
		DNMG 150612 - UL	1.2	0.10 ~ 0.3	1.5 ~ 3.0			●	●	●					
-UM  Medium Machining Unstable condition		DNMG 150408 - UM	0.8	0.15 ~ 0.3	1.0 ~ 3.0			●	●	●					
		DNMG 150412 - UM	1.2	0.15 ~ 0.3	1.5 ~ 4			●	●	●					
		DNMG 150608 - UM	0.8	0.15 ~ 0.3	0.5 ~ 2			●	●	●					
		DNMG 150612 - UM	1.2	0.15 ~ 0.3	1.5 ~ 3.0			●	●	●					

Cutting Speed			Vc (m/min.)															
ISO	VDI	Sub Group	YG1001	YG3010	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10						
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	220	480	170	450	180	380	150	350	120	200	-	-	-	-	-	-
	6~9	Low-Alloyed Steel	220	420	180	380	110	350	90	300	70	200	-	-	-	-	-	-
	10~11	High-Alloyed Steel	-	-	100	330	60	300	70	250	-	-	-	-	-	-	-	-
M	12~13	Ferritic & Martensitic	-	-	-	-	-	-	120	230	-	-	130	230	110	180	80	150
	14	Austenitic Stainless Steel	-	-	-	-	-	-	80	200	-	-	100	200	40	130	30	120
K	15~16	Grey Cast Iron	170	420	120	300	-	-	-	-	-	-	-	-	-	-	-	-
	17~18	Nodular Cast Iron	120	410	120	280	-	-	-	-	-	-	-	-	-	-	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	350	1200
S	31~37	Superalloys & Titanium	-	-	-	-	-	-	35	80	-	-	30	90	20	40	20	40
H	38~41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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



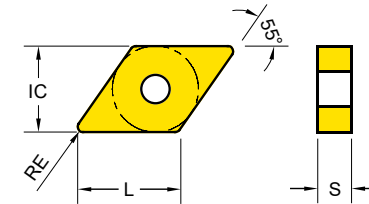
Series	L	IC	S
DN** 1504	14	12.7	4.76
DN** 1506	14	12.7	6.35

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

DNMA DNMG	Designation	RE	Fn (mm/rev.)	Ap (mm)	P05	P10	P20	P30	P20	M15	M30	M40	N20	N20
					K10	K20	M20	S10	S20	S30	N20	N20	N20	N20
-UG Medium Machining at stable condition	DNMG 150404 - UG	0.4	0.2~0.4	0.5~3.0			●							
	DNMG 150408 - UG	0.8	0.2~0.4	1~2.5	●	●	●	●	●					
	DNMG 150412 - UG	1.2	0.2~0.4	1.5~3	●		●	●						
	DNMG 150604 - UG	0.4	0.2~0.4	0.5~2			●	●	●					
	DNMG 150608 - UG	0.8	0.2~0.4	1~3	●	●	●	●	●					
	DNMG 150612 - UG	1.2	0.2~0.4	1.5~3.5	●	●	●	●	●					
-UC Cast iron and Medium roughing	DNMG 150408 - UC	0.8	0.2~0.4	1~3	●	●	●	●						
	DNMG 150412 - UC	1.2	0.2~0.4	1.5~3.5	●	●	●	●						
	DNMG 150608 - UC	0.8	0.2~0.4	1~3	●	●	●	●						
	DNMG 150612 - UC	1.2	0.2~0.4	1.5~3.5	●	●	●	●						
-UR Roughing	DNMG 150408 - UR	0.8	0.3~0.5	1~3.5		●								
	DNMG 150412 - UR	1.2	0.3~0.5	1.5~4		●								
	DNMG 150608 - UR	0.8	0.3~0.5	1.0~5.0	●	●	●							
	DNMG 150612 - UR	1.2	0.3~0.5	1.5~4	●	●	●	●						

Cutting Speed			Vc (m/min.)											
ISO	VDI	Sub Group	YG1001	YG3010	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10		
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	220	480	170	450	180	380	150	350	120	200	-	-
	6~9	Low-Alloyed Steel	220	420	180	380	110	350	90	300	70	200	-	-
	10~11	High-Alloyed Steel	-	-	100	330	60	300	70	250	-	-	-	-
M	12~13	Ferritic & Martensitic	-	-	-	-	-	-	120	230	-	-	130	230
	14	Austenitic Stainless Steel	-	-	-	-	-	-	80	200	-	-	100	200
K	15~16	Grey Cast Iron	170	420	120	300	-	-	-	-	-	-	-	-
	17~18	Nodular Cast Iron	120	410	120	280	-	-	-	-	-	-	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	350	1200
S	31~37	Superalloys & Titanium	-	-	-	-	-	-	35	80	-	-	30	90
H	38~41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-

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



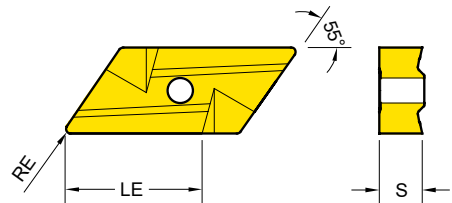
Series	L	IC	S
DN** 1504	14	12.7	4.76
DN** 1506	14	12.7	6.35

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

DNMA DNMG	Designation	RE	Fn (mm/rev.)	Ap (mm)	P05	P10	P20	P30	P20	M15	M30	M40	N20	N20
					K10	K20	M20	S10	S20	S30	N20	N20	N20	N20
-MF Stainless steel Finishing	DNMG 150404 - MF	0.4	0.07~0.3	0.2~1.5										
	DNMG 150408 - MF	0.8	0.07~0.3	0.2~1.5			●							
	DNMG 150604 - MF	0.4	0.07~0.3	0.2~1.5						●				
	DNMG 150608 - MF	0.8	0.07~0.3	0.2~1.5						●				
-MM Stainless steel Medium	DNMG 150404 - MM	0.4	0.2~0.35	0.5~3			●			●	●			
	DNMG 150408 - MM	0.8	0.2~0.35	1~3.5			●			●	●			
	DNMG 150412 - MM	1.2	0.2~.35	1.5~3.5			●			●	●			
	DNMG 150604 - MM	0.4	0.2~0.35	0.5~3			●			●	●			
	DNMG 150608 - MM	0.8	0.2~0.35	1~3.5			●			●	●			
	DNMG 150612 - MM	1.2	0.2~0.35	1.5~3.5			●			●	●			
-MR Stainless steel Roughing	DNMG 150408 - MR	0.8	0.3~0.55	2.0~5.5						●	●			
	DNMG 150412 - MR	1.2	0.3~0.55	2.0~5.5							●	●		
	DNMG 150608 - MR	0.8	0.3~0.55	2.0~5.5							●	●		
	DNMG 150612 - MR	1.2	0.3~0.55	2.0~5.5							●	●		

Cutting Speed			Vc (m/min.)											
ISO	VDI	Sub Group	YG1001	YG3010	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10		
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	220	480	170	450	180	380	150	350	120	200	-	-
	6~9	Low-Alloyed Steel	220	420	180	380	110	350	90	300	70	200	-	-
	10~11	High-Alloyed Steel	-	-	100	330	60	300	70	250	-	-	-	-
M	12~13	Ferritic & Martensitic	-	-	-	-	-	-	120	230	-	-	130	230
	14	Austenitic Stainless Steel	-	-	-	-	-	-	80	200	-	-	100	200
K	15~16	Grey Cast Iron	170	420	120	300	-	-	-	-	-	-	-	-
	17~18	Nodular Cast Iron	120	410	120	280	-	-	-	-	-	-	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	350	1200
S	31~37	Superalloys & Titanium	-	-	-	-	-	-	35	80	-	-	30	90
H	38~41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-

Turning Inserts - Negative
KNUX (55° - 2 Corners Single Side)



Series	LE	S
KN** 1604	15	4.76

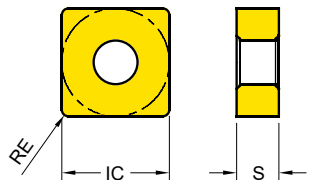
EDP 2200..

● : Stock item ○ : Order item

KNUX		Designation	RE	Fn (mm/rev.)	Ap (mm)	EDP 2200..									
						P05 K10	P10 K20	P20	P30 M20	P20	M15 S10	M30 S20	M40 S30	N20	N20
						YG1001	YG3010	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10
..UX Left		KNUX 160405 L	0.5	0.1 ~ 0.4	0.5 ~ 6		● 0249	● 0250	● 0251	● 0079					
..UX Right		KNUX 160405 R	0.5	0.1 ~ 0.4	0.5 ~ 6		● 0252	● 0253	● 0254	● 0080					

Cutting Speed			Vc (m/min.)											
ISO	VDI	Sub Group	YG1001	YG3010	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10		
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	220	480	170	450	180	380	150	350	120	200	-	-
	6~9	Low-Alloyed Steel	220	420	180	380	110	350	90	300	70	200	-	-
	10~11	High-Alloyed Steel	-	-	100	330	60	300	70	250	-	-	-	-
M	12~13	Ferritic & Martensitic	-	-	-	-	-	-	120	230	-	-	130	230
	14	Austenitic Stainless Steel	-	-	-	-	-	-	80	200	-	-	100	200
K	15~16	Grey Cast Iron	170	420	120	300	-	-	-	-	-	-	-	-
	17~18	Nodular Cast Iron	120	410	120	280	-	-	-	-	-	-	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	350	1200
S	31~37	Superalloys & Titanium	-	-	-	-	35	80	-	-	30	90	20	40
H	38~41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-

Turning Inserts - Negative
SNMG / SNMA (90° Negative)



		Series		IC	S
		SN** 1204		12.7	4.76
		SN** 1506		15.875	6.35

RE

IC

S

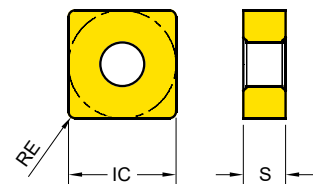
EDP 2200..

● : Stock item ○ : Order made item

		P05	P10	P20	P30	P20	M15	M30	M40	N20	N20			
		K10	K20	M20	M20	M20	S10	S20	S30	N20	N20			
SNMA	Designation	RE	Fn (mm/rev.)	Ap (mm)	YG1001	YG3010	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10
..MA	 SNMA 120408	0.8	0.15~0.5	1~3.5	● 0027									
	SNMA 120412	1.2	0.15~0.5	1.5~5	● 0028									
	Cast iron	SNMA 150612	1.2	0.15~0.5	1.5~5	● 0729								
-UF	 SNMG 120404 - UF	0.4	0.05~0.25	0.5~1.5					● 0029					
	Finishing													
-UL	 SNMG 120404 - UL	0.4	0.10~0.30	0.5~3.0			● 0747							
	Light Machining and sticky material	SNMG 120408 - UL	0.8	0.1~0.3	1~3	● 0389	● 0390	● 0391						
-UM	 SNMG 120408 - UM	0.8	0.15~0.30	1.0~3.0	● 0739	● 0784	● 0740							
	For Medium & Unstable conditions													
-UG	 SNMG 120408 - UG	0.8	0.2~0.4	1~3	● 0141	● 0142	● 0143	● 0030						
	Medium Machining at stable condition	SNMG 120412 - UG	1.2	0.2~0.4	1.5~4	● 0258	● 0259	● 0260						
	SNMG 120416 - UG	1.6	0.2~0.40	2.0~3.0	● 0744									
-UC	 SNMG 120408 - UC	0.8	0.2~0.4	1~4	● 0073	● 0125	● 0106	● 0126						
	Cast iron and Medium roughing	SNMG 120412 - UC	1.2	0.2~0.4	1.5~4.5	● 0074		● 0128						

Cutting Speed			Vc (m/min.)											
ISO	VDI	Sub Group	YG1001	YG3010	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10		
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	220	480	170	450	180	380	150	350	120	200	-	-
	6~9	Low-Alloyed Steel	220	420	180	380	110	350	90	300	70	200	-	-
	10~11	High-Alloyed Steel	-	-	100	330	60	300	70	250	-	-	-	-
M	12~13	Ferritic & Martensitic	-	-	-	-	-	-	120	230	-	-	130	230
	14	Austenitic Stainless Steel	-	-	-	-	-	-	80	200	-	-	100	200
K	15~16	Grey Cast Iron	170	420	120	300	-	-	-	-	-	-	-	-
	17~18	Nodular Cast Iron	120	410	120	280	-	-	-	-	-	-	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	350	1200
S	31~37	Superalloys & Titanium	-	-	-	-	35	80	-	-	30	90	20	40
H	38~41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-

Turning Inserts - Negative SNMG / SNMA (90° Negative)



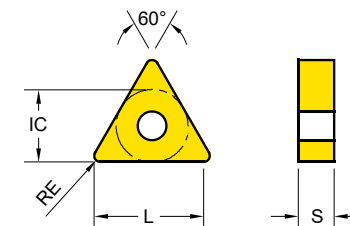
Series	IC	S
SN** 1204	12.7	4.76

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

	Designation	RE	Fn (mm/rev.)	Ap (mm)	P05	P10	P20	P30	P20	M15	M30	M40	N20	N20
					K10	K20	M20	S10	S20	S30	N20	N20	N20	N20
-UR  Roughing	SNMG 120408 - UR	0.8	0.3 ~ 0.5	1 ~ 4.5	●	○	○	○	○	○	○	○	○	○
	SNMG 120412 - UR	1.2	0.3 ~ 0.5	1.5 ~ 5	○	○	○	○	○	○	○	○	○	○
-MF  Stainless steel Finishing	SNMG 120408 - MF	0.8	0.07 ~ 0.3	0.2 ~ 1.5	○	○	○	○	○	○	○	○	○	○
	SNMG 120412 - MF	1.2	0.07 ~ 0.3	0.2 ~ 1.5	○	○	○	○	○	○	○	○	○	○
-MM  Stainless steel Medium	SNMG 120408 - MM	0.8	0.2 ~ 0.35	1 ~ 3.5	○	○	○	○	○	○	○	○	○	○
	SNMG 120412 - MM	1.2	0.2 ~ 0.35	1.5 ~ 3.5	○	○	○	○	○	○	○	○	○	○
-MR  Stainless steel Roughing	SNMG 120408 - MR	0.8	0.3 ~ 0.55	0.15 ~ 5.5	○	○	○	○	○	○	○	○	○	○
	SNMG 120412 - MR	1.2	0.3 ~ 0.55	0.15 ~ 5.5	○	○	○	○	○	○	○	○	○	○
-KR  Cast Iron Heavy Roughing	SNMG 120416 - KR	1.6	0.30 ~ 0.60	2.0 ~ 5.0	○	○	○	○	○	○	○	○	○	○

Cutting Speed			Vc (m/min.)											
ISO	VDI	Sub Group	YG1001	YG3010	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10	YG10	YG10
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	220	480	170	450	180	380	150	350	120	200	-	-
	6~9	Low-Alloyed Steel	220	420	180	380	110	350	90	300	70	200	-	-
	10~11	High-Alloyed Steel	-	-	100	330	60	300	70	250	-	-	-	-
M	12~13	Ferritic & Martensitic	-	-	-	-	-	-	120	230	-	-	130	230
	14	Austenitic Stainless Steel	-	-	-	-	-	-	80	200	-	-	100	200
K	15~16	Grey Cast Iron	170	420	120	300	-	-	-	-	-	-	-	-
	17~18	Nodular Cast Iron	120	410	120	280	-	-	-	-	-	-	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	350	1200
S	31~37	Superalloys & Titanium	-	-	-	-	-	-	35	80	-	-	30	90
H	38~41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-

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



Series	L	IC	S
TN** 1604	15.7	9.525	4.76
TN** 2204	22	12.7	4.76

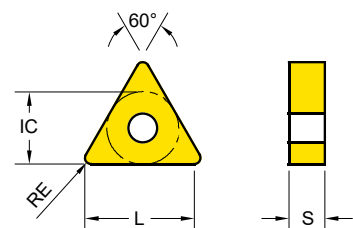
EDP 2200.. ● : Stock item ○ : Order made item

	Designation	RE	Fn (mm/rev.)	Ap (mm)	P05	P10	P20	P30	P20	M15	M30	M40	N20	N20
					K10	K20	M20	S10	S20	S30	N20	N20	N20	N20
..MA  Cast iron	TNMA 160408	0.8	0.15 ~ 0.5	1 ~ 3	○	○	○	○	○	○	○	○	○	○
	TNMA 160412	1.2	0.15 ~ 0.5	1.5 ~ 4	○	○	○	○	○	○	○	○	○	○
-UF  Finishing	TNMG 160404 - UF	0.4	0.05 ~ 0.25	1 ~ 2	○	○	○	○	○	○	○	○	○	○
	TNMG 160408 - UF	0.8	0.05 ~ 0.25	1.5 ~ 3.5	○	○	○	○	○	○	○	○	○	○
	TNMG 160412 - UF	1.2	0.05 ~ 0.25	1.5 ~ 3.5	○	○	○	○	○	○	○	○	○	○
	TNMG 220404 - UF	0.4	0.1 ~ 0.35	1 ~ 4	○	○	○	○	○	○	○	○	○	○
-UL  Light Machining and sticky material	TNMG 160408 - UL	0.8	0.1 ~ 0.3	1 ~ 3	○	○	○	○	○	○	○	○	○	○
	TNMG 160412 - UL	1.2	0.1 ~ 0.3	1.5 ~ 3.5	○	○	○	○	○	○	○	○	○	○
-UM  Medium Machining Unstable condition	TNMG 160408 - UM	0.8	0.15 ~ 0.3	0.5 ~ 2	○	○	○	○	○	○	○	○	○	○
	TNMG 160412 - UM	1.2	0.15 ~ 0.3	1.5 ~ 3	○	○	○	○	○	○	○	○	○	○

Cutting Speed			Vc (m/min.)											
ISO	VDI	Sub Group	YG1001	YG3010	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10	YG10	YG10
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	220	480	170	450	180	380	150	350	120	200	-	-
	6~9	Low-Alloyed Steel	220	420	180	380	110	350	90	300	70	200	-	-
	10~11	High-Alloyed Steel	-	-	100	330	60	300	70	250	-	-	-	-
M	12~13	Ferritic & Martensitic	-	-	-	-	-	-	120	230	-	-	130	230
	14	Austenitic Stainless Steel	-	-	-	-	-	-	80	200	-	-	100	200
K	15~16	Grey Cast Iron	170	420	120	300	-	-	-	-	-	-	-	-
	17~18	Nodular Cast Iron	120	410	120	280	-	-	-	-	-	-	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	350	1200
S	31~37	Superalloys & Titanium	-	-	-	-	-	-	35	80	-	-	30	90
H	38~41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-

Turning Inserts - Negative

TNMG / TNMA (60° Negative)



Series	L	IC	S
TN** 1604	15.7	9.525	4.76
TN** 2204	22	12.7	4.76

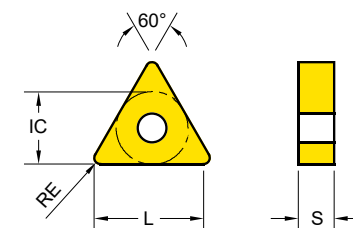
EDP 2200.. ● : Stock item ○ : Order made item

	TNMA TNMG	Designation	RE	Fn (mm/rev.)	Ap (mm)	P05	P10	P20	P30	M15	M30	M40	N20	N20
						K10	K20	M20	P20	S10	S20	S30	N20	N20
-UG  Medium Machining at Stable condition		TNMG 160404 - UG	0.4	0.2~0.4	0.5~2	●	●	●	●					
		TNMG 160408 - UG	0.8	0.2~0.4	1~3	●	●	●	●	●				
		TNMG 160412 - UG	1.2	0.2~0.4	1.5~3	●	●	●	●					
		TNMG 220408 - UG	0.8	0.25~0.6	1~4	●	●	●	●					
-UC  Cast iron and Medium roughing		TNMG 160404 - UC	0.4	0.2~0.4	0.5~2.5	●	●	●	●					
		TNMG 160408 - UC	0.8	0.2~0.4	1~3	●	●	●	●					
		TNMG 160412 - UC	1.2	0.2~0.4	1.5~3.5	●	●	●	●					
-UR  Roughing		TNMG 160408 - UR	0.8	0.30~0.50	1.0~5.0	●	●	●						
		TNMG 160412 - UR	1.2	0.3~0.5	1.5~3	●	●	●	●	●				
		TNMG 220412 - UR	1.2	0.30~0.65	1.5~4	●	●	●	●	●				
		TNMG 220416 - UR	1.6	0.3~0.65	2~4	●	●	●	●					

Cutting Speed			Vc (m/min.)											
ISO	VDI	Sub Group	YG1001	YG3010	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10		
			Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max
P	1~5	Non-Alloyed Steel	220 480	170 450	180 380	150 350	120 200	- -	- -	- -	- -	- -	- -	- -
	6~9	Low-Alloyed Steel	220 420	180 380	110 350	90 300	70 200	- -	- -	- -	- -	- -	- -	- -
	10~11	High-Alloyed Steel	- -	100 330	60 300	70 250	- -	- -	- -	- -	- -	- -	- -	- -
M	12~13	Ferritic & Martensitic	- -	- -	- -	120 230	- -	130 230	110 180	80 150	- -	- -	- -	- -
	14	Austenitic Stainless Steel	- -	- -	- -	80 200	- -	100 200	40 130	30 120	- -	- -	- -	- -
K	15~16	Grey Cast Iron	170 420	120 300	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	17~18	Nodular Cast Iron	120 410	120 280	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
N	21~30	Non-Ferrous Metals (Al)	- -	- -	- -	- -	- -	- -	- -	- -	350 1200	250 800	- -	- -
S	31~37	Superalloys & Titanium	- -	- -	- -	35 80	- -	30 90	20 40	20 40	- -	- -	- -	- -
H	38~41	Hard Materials	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -

Turning Inserts - Negative

TNMG / TNMA (60° Negative)



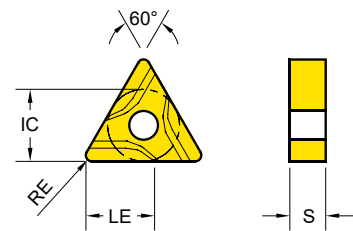
Series	L	IC	S
TN** 1604	15.7	9.525	4.76
TN** 2204	22	12.7	4.76

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

	TNMA TNMG	Designation	RE	Fn (mm/rev.)	Ap (mm)	P05	P10	P20	P30	M15	M30	M40	N20	N20
						K10	K20	M20	P20	S10	S20	S30	N20	N20
-MF  Stainless steel Finishing		TNMG 160404 - MF	0.4	0.05~0.3	0.2~1.5					●	●			
		TNMG 160408 - MF	0.8	0.05~0.3	0.15~1.5					●	●	●		
-MM  Stainless steel Medium		TNMG 160404 - MM	0.4	0.2~0.35	0.5~3					●	●			
		TNMG 160408 - MM	0.8	0.15~0.3	1~3.5					●	●			
		TNMG 160412 - MM	1.2	0.15~0.3	1.5~3.5					●	●			
-MR  Stainless steel Roughing		TNMG 160408 - MR	0.8	0.30~0.55	2.0~5.5					●	●			
		TNMG 160412 - MR	1.2	0.30~0.55	2.0~5.5						●	●		

Cutting Speed			Vc (m/min.)											
ISO	VDI	Sub Group	YG1001	YG3010	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10		
			Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max
P	1~5	Non-Alloyed Steel	220 480	170 450	180 380	150 350	120 200	- -	- -	- -	- -	- -	- -	- -
	6~9	Low-Alloyed Steel	220 420	180 380	110 350	90 300	70 200	- -	- -	- -	- -	- -	- -	- -
	10~11	High-Alloyed Steel	- -	100 330	60 300	70 250	- -	- -	- -	- -	- -	- -	- -	- -
M	12~13	Ferritic & Martensitic	- -	- -	- -	120 230	- -	130 230	110 180	80 150	- -	- -	- -	- -
	14	Austenitic Stainless Steel	- -	- -	- -	80 200	- -	100 200	40 130	30 120	- -	- -	- -	- -
K	15~16	Grey Cast Iron	170 420	120 300	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	17~18	Nodular Cast Iron	120 410	120 280	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
N	21~30	Non-Ferrous Metals (Al)	- -	- -	- -	- -	- -	- -	- -	- -	350 1200	250 800	- -	- -
S	31~37	Superalloys & Titanium	- -	- -	- -	35 80	- -	30 90	20 40	20 40	- -	- -	- -	- -
H	38~41	Hard Materials	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -

Turning Inserts - Negative TNUX (60° Negative)



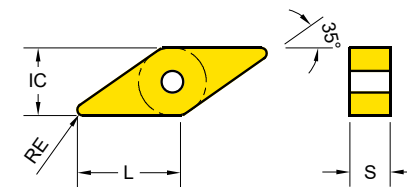
Series	LE	IC	S
TN** 1604	9.4	9.525	4.76

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

					P05	P10	P20	P30	P20	M15	M30	M40	N20	N20
					K10	K20		M20		S10	S20	S30		
TNUX					YG1001	YG3010	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10
..UX Left		TNUX 160404 L	0.4	0.1 ~ 0.3	0.5 ~ 4	● 0412	● 0413		● 0043					
		TNUX 160408 L	0.8	0.1 ~ 0.4	0.5 ~ 6	● 0414	● 0415	● 0675	● 0045	● 0731				
..UX Right		TNUX 160404 R	0.4	0.1 ~ 0.3	0.5 ~ 4	● 0288	● 0289		● 0044					
		TNUX 160408 R	0.8	0.1 ~ 0.4	0.5 ~ 6	● 0291	● 0292	● 0293	● 0046					

Cutting Speed			Vc (m/min.)													
ISO	VDI	Sub Group	YG1001	YG3010	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10				
			Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max			
P	1~5	Non-Alloyed Steel	220 480	170 450	180 380	150 350	120 200	- -	- -	- -	- -	- -				
	6~9	Low-Alloyed Steel	220 420	180 380	110 350	90 300	70 200	- -	- -	- -	- -	- -				
	10~11	High-Alloyed Steel	- -	100 330	60 300	70 250	- -	- -	- -	- -	- -	- -				
M	12~13	Ferritic & Martensitic	- -	- -	- -	120 230	- -	130 230	110 180	80 150	- -	- -				
	14	Austenitic Stainless Steel	- -	- -	- -	80 200	- -	100 200	40 130	30 120	- -	- -				
K	15~16	Grey Cast Iron	170 420	120 300	- -	- -	- -	- -	- -	- -	- -	- -				
	17~18	Nodular Cast Iron	120 410	120 280	- -	- -	- -	- -	- -	- -	- -	- -				
N	21~30	Non-Ferrous Metals (Al)	- -	- -	- -	- -	- -	- -	- -	- -	350 1200	250 800				
S	31~37	Superalloys & Titanium	- -	- -	- -	35 80	- -	30 90	20 40	20 40	- -	- -				
H	38~41	Hard Materials	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -				

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



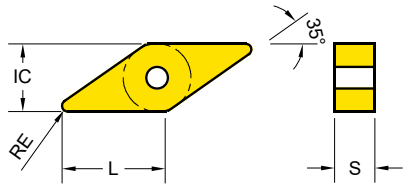
Series	L	IC	S
VN** 1604	15.8	9.525	4.76

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

					P05	P10	P20	P30	P20	M15	M30	M40	N20	N20		
					K10	K20		M20		S10	S20	S30				
VNMA		Designation	RE	Fn (mm/rev.)	Ap (mm)	YG1001	YG3010	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10	
..MA		VNMA 160408	0.8	0.15 ~ 0.5	1 ~ 3	● 0162										
		Cast iron														
-UF		VNMG 160404 - UF	0.4	0.05 ~ 0.25	0.5 ~ 2		● 0306	● 0307	● 0308	● 0049						
		VNMG 160408 - UF	0.8	0.05 ~ 0.25	1 ~ 2.5		● 0309	● 0310	● 0311							
		Finishing														
-UL		VNMG 160408 - UL	0.8	0.10 ~ 0.30	1 ~ 2.5		● 0428	● 0429								
		Medium Machining and sticky material														
-UM		VNMG 160412 - UM	1.2	0.15 ~ 0.3	1.5 ~ 3		● 0736	● 0737								
		Medium Machining Unstable condition														
-UG		VNMG 160408 - UG	0.8	0.2 ~ 0.4	1 ~ 3	● 0462	● 0312	● 0313	● 0314	● 0050						
		Medium Machining at stable condition														

Cutting Speed			Vc (m/min.)													
ISO	VDI	Sub Group	YG1001	YG3010	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10				
			Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max			
P	1~5	Non-Alloyed Steel	220 480	170 450	180 380	150 350	120 200	- -	- -	- -	- -	- -				
	6~9	Low-Alloyed Steel	220 420	180 380	110 350	90 300	70 200	- -	- -	- -	- -	- -				
	10~11	High-Alloyed Steel	- -	100 330	60 300	70 250	- -	- -	- -	- -	- -	- -				
M	12~13	Ferritic & Martensitic	- -	- -	- -	120 230	- -	130 230	110 180	80 150	- -	- -				
	14	Austenitic Stainless Steel	- -	- -	- -	80 200	- -	100 200	40 130	30 120	- -	- -				
K	15~16	Grey Cast Iron	170 420	120 300	- -	- -	- -	- -	- -	- -	- -	- -				
	17~18	Nodular Cast Iron	120 410	120 280	- -	- -	- -	- -	- -	- -	- -	- -				
N	21~30	Non-Ferrous Metals (Al)	- -	- -	- -	- -	- -	- -	- -	- -	350 1200	250 800				
S	31~37	Superalloys & Titanium	- -	- -	- -	35 80	- -	30 90	20 40	20 40	- -	- -				
H	38~41	Hard Materials	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -				

Turning Inserts - Negative
VNMG (35° Negative)



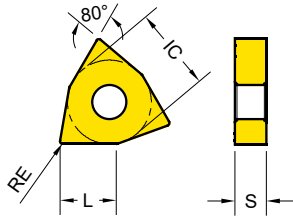
Series	L	IC	S
VN** 1604	15.8	9.525	4.76

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

					P05	P10	P20	P30	P20	M15	M30	M40	N20	N20
					K10	K20		M20		S10	S20	S30		
VNMG					YG1001	YG3010	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10
-UC		VNMG 160404 - UC	0.4	0.2 ~ 0.4	0.5 ~ 2.5		●							
	Cast iron and Medium roughing	VNMG 160408 - UC	0.8	0.2 ~ 0.4	1 ~ 3	●	●	●	●					
						0094	0424	0425	0426					
-UR		VNMG 160412 - UR	1.2	0.3 ~ 0.5	1.2 ~ 3		●	●	●	●				
	Roughing						0430	0431	0432	0051				
-MF		VNMG 160408 - MF	0.8	0.05 ~ 0.3	0.2 ~ 1.5				●	●				
	Stainless steel Finishing								0830	0829				
-MM		VNMG 160404 - MM	0.4	0.2 ~ 0.35	0.5 ~ 3.5					●	●			
	Stainless steel Medium	VNMG 160408 - MM	0.8	0.2 ~ 0.35	0.5 ~ 3.5					0661	0662			
											0663	0664		
-MR		VNMG 160408 -MR	0.8	0.30 ~ 0.55	2.0 ~ 5.5				●		●			
	Stainless steel Roughing								0832		0831			

Cutting Speed			Vc (m/min.)											
ISO	VDI	Sub Group	YG1001	YG3010	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10		
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	220	480	170	450	180	380	150	350	120	200	-	-
	6~9	Low-Alloyed Steel	220	420	180	380	110	350	90	300	70	200	-	-
	10~11	High-Alloyed Steel	-	-	100	330	60	300	70	250	-	-	-	-
M	12~13	Ferritic & Martensitic	-	-	-	-	-	-	120	230	-	-	130	230
	14	Austenitic Stainless Steel	-	-	-	-	-	-	80	200	-	-	100	200
K	15~16	Grey Cast Iron	170	420	120	300	-	-	-	-	-	-	-	-
	17~18	Nodular Cast Iron	120	410	120	280	-	-	-	-	-	-	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	350	1200
S	31~37	Superalloys & Titanium	-	-	-	-	35	80	-	-	30	90	20	40
H	38~41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-

Turning Inserts - Negative
WNMG / WNMA (80° Trigonal Negative)



Series	L	IC	S
WN** 0604	5.7	9.525	4.76
WN** 0804	7.8	12.7	4.76

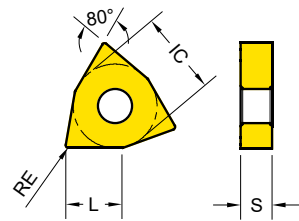
EDP 2200.. ● : Stock item ○ : Order made item

					P05	P10	P15	P20	P30	P20	M15	M30	M40	N20	N20
					K10	K20			M20		S10	S20	S30		
WNMA WNMG	Designation	RE	Fn (mm/rev.)	Ap (mm)	YG1001	YG3010	YG3015	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10
..MA  Cast iron	WNMA 080404	0.4	0.15 ~ 0.5	0.5 ~ 2.5	● 0052										
	WNMA 080408	0.8	0.15 ~ 0.5	1 ~ 3.5	● 0053	● 0433									
	WNMA 080412	1.2	0.15 ~ 0.5	1.5 ~ 5	● 0054	● 0434									
-UF  Finishing	WNMG 060404 - UF	0.4	0.05 ~ 0.2	0.5 ~ 1.5		● 0435		● 0436	● 0437	● 0058					
	WNMG 080404 - UF	0.4	0.05 ~ 0.25	0.5 ~ 2		● 0315		● 0316	● 0317	● 0055					
	WNMG 080408 - UF	0.8	0.05 ~ 0.25	1 ~ 2.5		● 0321		● 0322	● 0323						
-UL  Light Machining and sticky material	WNMG 060408 - UL	0.8	0.1 ~ 0.3	1 ~ 2.5		● 0439		● 0440	● 0441						
	WNMG 080408 - UL	0.8	0.1 ~ 0.3	1 ~ 3		● 0324		● 0325	● 0326						
-UM  Medium Machining at unstable condition	WNMG 060404 - UM	0.4	0.15 ~ 0.30	1.0 ~ 2.5		● 0741		● 0785	● 0742						
	WNMG 060408 - UM	0.8	0.15 ~ 0.3	1 ~ 2		● 0600		● 0601							
	WNMG 080404 - UM	0.4	0.15 ~ 0.30	0.5 ~ 3.0		● 0786		● 0787	● 0788						
	WNMG 080408 - UM	0.8	0.15 ~ 0.3	1 ~ 3	● 0470	● 0327		● 0328	● 0329						
	WNMG 080412 - UM	1.2	0.15 ~ 0.3	1.5 ~ 3				● 0598	● 0712						
	WNMG 080416 - UM	1.6	0.15 ~ 0.3	2 ~ 3.5				● 0584	● 0713						

Cutting Speed			Vc (m/min.)											
ISO	VDI	Sub Group	YG1001	YG3010	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10		
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	220	480	170	450	180	380	150	350	120	200	-	-
	6~9	Low-Alloyed Steel	220	420	180	380	110	350	90	300	70	200	-	-
	10~11	High-Alloyed Steel	-	-	100	330	60	300	70	250	-	-	-	-
M	12~13	Ferritic & Martensitic	-	-	-	-	-	-	120	230	-	-	130	230
	14	Austenitic Stainless Steel	-	-	-	-	-	-	80	200	-	-	100	200
K	15~16	Grey Cast Iron	170	420	120	300	-	-	-	-	-	-	-	-
	17~18	Nodular Cast Iron	120	410	120	280	-	-	-	-	-	-	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	350	1200
S	31~37	Superalloys & Titanium	-	-	-	-	35	80	-	-	30	90	20	40
H	38~41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-

Turning Inserts - Negative

WNMG / WNMA (80° Trigonal Negative)



Series	L	IC	S
WN** 0604	5.7	9.525	4.76
WN** 0804	7.8	12.7	4.76

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

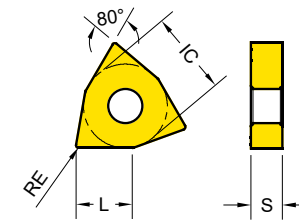
	Designation	RE	Fn (mm/rev.)	Ap (mm)	P05	P10	P15	P20	P30	P20	M15	M30	M40	N20	N20
					K10	K20			M20		S10	S20	S30		
WNMA WNMG					YG1001	YG3010	YG3015	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10
					●	●	●	●	●	●	●	●	●	●	●
					0697			0438		0059					
						0318		0319	0320						
					0463	0147	0582	0148	0149	0056					
-UG Medium Machining at stable condition	WNMG 060408 - UG	0.8	0.2~0.4	1~2.5	●										
	WNMG 080404 - UG	0.4	0.2~0.4	1.5~2.5		●		●	●						
	WNMG 080408 - UG	0.8	0.2~0.4	1~3.5	●	0147	0582	0148	0149	0056					
	WNMG 080412 - UG	1.2	0.2~0.4	1.5~3.5	●	0503		0490							
	WNMG 080416 - UG	1.6	0.2~0.4	2~4				0583							
-UC Cast iron and Medium roughing	WNMG 080404 - UC	0.4	0.25~0.4	0.5~3.5	●	0133		0110	0134						
	WNMG 080408 - UC	0.8	0.2~0.4	1~4	●	0135	0733	0111	0136						
	WNMG 080412 - UC	1.2	0.2~0.4	1.5~4.5	●	0137	0630	0112	0138						
	WNMG 080416 - UC	1.6	0.20~0.40	2.0~4.0				0743							
					0097										
-UR Roughing	WNMG 080408 - UR	0.8	0.3~0.5	1.2~5	●	0465		0471	0472						
	WNMG 080412 - UR	1.2	0.3~0.5	1.5~5	●	0442	0631	0443	0444	0057					
	WNMG 080416 - UR	1.6	0.3~0.5	2~5	●	0469		0725	0714						
					0464										
					0467										

* YG3015 = Vc 90~430 m/min

Cutting Speed			Vc (m/min.)											
ISO	VDI	Sub Group	YG1001	YG3010	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10		
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	220	480	170	450	180	380	150	350	120	200	-	-
	6~9	Low-Alloyed Steel	220	420	180	380	110	350	90	300	70	200	-	-
	10~11	High-Alloyed Steel	-	-	100	330	60	300	70	250	-	-	-	-
M	12~13	Ferritic & Martensitic	-	-	-	-	-	-	120	230	130	230	110	180
	14	Austenitic Stainless Steel	-	-	-	-	-	-	80	200	100	200	40	130
K	15~16	Grey Cast Iron	170	420	120	300	-	-	-	-	-	-	-	-
	17~18	Nodular Cast Iron	120	410	120	280	-	-	-	-	-	-	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	350	1200
S	31~37	Superalloys & Titanium	-	-	-	-	-	-	35	80	30	90	20	40
H	38~41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-

Turning Inserts - Negative

WNMG / WNMA (80° Trigonal Negative)



Series	L	IC	S
WN** 0604	5.7	9.525	4.76
WN** 0804	7.8	12.7	4.76

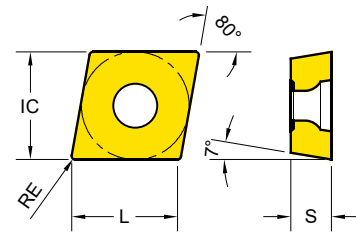
EDP 2200.. ● : Stock item ○ : Order made item

	Designation	RE	Fn (mm/rev.)	Ap (mm)	P05	P10	P15	P20	P30	P20	M15	M30	M40	N20	N20
					K10	K20			M20		S10	S20	S30		
WNMA WNMG					YG1001	YG3010	YG3015	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10
					●	●	●	●	●	●	●	●	●	●	●
					0833										
								0834		0667	0668				
										0617	0618				
-MF Stainless steel Finishing	WNMG 060404 - MF	0.4	0.07~0.30	0.2~1.5											
	WNMG 080404 - MF	0.4	0.07~0.3	0.15~1.5											
	WNMG 080408 - MF	0.8	0.07~0.3	0.2~1.5											
-MM Stainless steel Medium	WNMG 080404 - MM	0.4	0.2~0.35	0.5~3.5							0571	0572			
	WNMG 080408 - MM	0.8	0.2~0.35	1~3.5				0491		0497	0498				
	WNMG 080412 - MM	1.2	0.2~0.35	1.5~3.5						0612	0615				
-MR Stainless steel Roughing	WNMG 060412 - MR	1.2	0.2~0.5	1.2~4							0616				
	WNMG 080408 - MR	0.8	0.30~0.55	2.0~5.5							0619	0620	0835		
	WNMG 080412 - MR	1.2	0.30~0.55	2.0~5.5							0665	0666	0836		
-KR Cast Iron Heavy Roughing	WNMG 080408 - KR	0.8	0.30~0.60	1.0~5.0	●										
	WNMG 080412 - KR	1.2	0.30~0.60	1.5~5.0	●										
					0720										
					0522										

* YG3015 = Vc 90~430 m/min

Cutting Speed			Vc (m/min.)											
ISO	VDI	Sub Group	YG1001	YG3010	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10		
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	220	480	170	450	180	380	150	350	120	200	-	-
	6~9	Low-Alloyed Steel	220	420	180	380	110	350	90	300	70	200	-	-
	10~11	High-Alloyed Steel	-	-	100	330	60	300	70	250	-	-	-	-
M	12~13	Ferritic & Martensitic	-	-	-	-	-	-	120	230	130	230	110	180
	14	Austenitic Stainless Steel	-	-	-	-	-	-	80	200	100	200	40	130
K	15~16	Grey Cast Iron	170	420	120	300	-	-	-	-	-	-	-	-
	17~18	Nodular Cast Iron	120	410	120	280	-	-	-	-	-	-	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	350	1200
S	31~37	Superalloys & Titanium	-	-	-	-	-	-	35	80	30	90	20	40
H	38~41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-

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



Series	L	IC	S
CC** 0602	6.2	6.35	2.38
CC** 09T3	9.2	9.525	3.97
CC** 1204	12.4	12.7	4.76

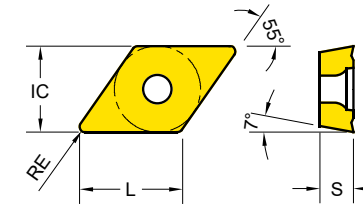
EDP 2200.. ● : Stock item ○ : Order made item

	CCGT CCMT	Designation	RE	Fn (mm/rev.)	Ap (mm)	P05 K10	P10 K20	P20	P30 M20	P20	M15 S10	M30 S20	M40 S30	N20	N20
						YG1001	YG3010	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10
-AL 	Aluminum	CCGT 09T302 - AL	0.2	0.02 ~ 0.08	0.5 ~ 1									● 0339	● 0340
		CCGT 09T304 - AL	0.4	0.05 ~ 0.25	0.5 ~ 2									● 0081	● 0330
		CCGT 09T308 - AL	0.8	0.1 ~ 0.35	1 ~ 3									● 0082	● 0331
		CCGT 120402 - AL	0.2	0.04 ~ 0.15	0.1 ~ 1									● 0473	● 0474
		CCGT 120404 - AL	0.4	0.04 ~ 0.2	0.3 ~ 1.5									● 0475	● 0476
		CCGT 120408 - AL	0.8	0.04 ~ 0.2	0.6 ~ 2.5									● 0477	● 0478
-UF 	Finishing	CCMT 060204 - UF	0.4	0.05 ~ 0.2	0.5 ~ 1.5		● 0163	● 0164	● 0165						
		CCMT 09T304 - UF	0.4	0.05 ~ 0.2	0.5 ~ 2		● 0169	● 0170							
-UG 	General	CCMT 060204 - UG	0.4	0.1 ~ 0.25	0.5 ~ 2		● 0166	● 0167	● 0168	● 0006					
		CCMT 060208 - UG	0.8	0.1 ~ 0.25	0.8 ~ 2		● 0479	● 0683	● 0684	● 0009					
		CCMT 09T304 - UG	0.4	0.15 ~ 0.3	0.5 ~ 2		● 0172	● 0173	● 0174	● 0007					
		CCMT 09T308 - UG	0.8	0.15 ~ 0.3	0.8 ~ 2.5	● 0445	● 0150	● 0151	● 0152	● 0008					
		CCMT 120404 - UG	0.4	0.15 ~ 0.35	0.5 ~ 2.5		● 0175	● 0176							
		CCMT 120408 - UG	0.8	0.15 ~ 0.35	0.8 ~ 3.5		● 0153	● 0154	● 0155	● 0005					
		CCMT 120412 - UG	1.2	0.15 ~ 0.35	1.2 ~ 3.5		● 0483								

* YG3015 = Vc 90~430 m/min

Cutting Speed			Vc (m/min.)													
ISO	VDI	Sub Group	YG1001 Min Max	YG3010 Min Max	YG3020 Min Max	YG3030 Min Max	YG801 Min Max	YG211 Min Max	YG213 Min Max	YG214 Min Max	YG100 Min Max	YG10 Min Max				
P	1~5	Non-Alloyed Steel	220 480	170 450	180 380	150 350	120 200	- -	- -	- -	- -	- -	- -	- -	- -	- -
	6~9	Low-Alloyed Steel	220 420	180 380	110 350	90 300	70 200	- -	- -	- -	- -	- -	- -	- -	- -	- -
	10~11	High-Alloyed Steel	- -	100 330	60 300	70 250	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
M	12~13	Ferritic & Martensitic	- -	- -	- -	120 230	- -	130 230	110 180	80 150	- -	- -	- -	- -	- -	- -
	14	Austenitic Stainless Steel	- -	- -	- -	80 200	- -	100 200	40 130	30 120	- -	- -	- -	- -	- -	- -
K	15~16	Grey Cast Iron	170 420	120 300	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	17~18	Nodular Cast Iron	120 410	120 280	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
N	21~30	Non-Ferrous Metals (Al)	- -	- -	- -	- -	- -	- -	- -	- -	350 1200	250 800	- -	- -	- -	- -
S	31~37	Superalloys & Titanium	- -	- -	- -	35 80	- -	30 90	20 40	20 40	- -	- -	- -	- -	- -	- -
H	38~41	Hard Materials	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -

Turning Inserts - Positive DCMT / DCGT (55° Positive)



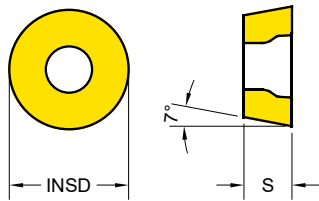
Series	L	IC	S
DC** 0702	7.5	6.35	2.38
DC** 11T3	11.2	9.525	3.97

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

	DCGT DCMT	Designation	RE	Fn (mm/rev.)	Ap (mm)	P05 K10	P10 K20	P20	P30 M20	P20	M15 S10	M30 S20	M40 S30	N20	N20
						YG1001	YG3010	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10
-AL 	Aluminum	DCGT 11T302 - AL	0.2	0.02 ~ 0.08	0.5 ~ 1									● 0341	● 0342
		DCGT 11T304 - AL	0.4	0.05 ~ 0.25	0.5 ~ 2									● 0083	● 0332
		DCGT 11T308 - AL	0.8	0.1 ~ 0.3	1 ~ 2.5									● 0084	● 0333
-UF 	Finishing	DCMT 070204 - UF	0.4	0.05 ~ 0.2	0.5 ~ 1.5		● 0207	● 0208							
		DCMT 11T304 - UF	0.4	0.05 ~ 0.25	0.5 ~ 2		● 0213	● 0214							
		DCMT 11T308 - UF	0.8	0.05 ~ 0.25	1 ~ 2.5		● 0219	● 0220							
-UG 	General	DCMT 070204 - UG	0.4	0.1 ~ 0.25	0.5 ~ 1.5		● 0210	● 0211		● 0013					
		DCMT 070208 - UG	0.8	0.1 ~ 0.25	0.8 ~ 1.5		● 0484	● 0717							
		DCMT 11T304 - UG	0.4	0.15 ~ 0.3	0.5 ~ 2	● 0677	● 0216	● 0217		● 0014					
		DCMT 11T308 - UG	0.8	0.15 ~ 0.3	0.8 ~ 2.5	● 0678	● 0222	● 0223	● 0224	● 0015					

Cutting Speed			Vc (m/min.)													
ISO	VDI	Sub Group	YG1001 Min Max	YG3010 Min Max	YG3020 Min Max	YG3030 Min Max	YG801 Min Max	YG211 Min Max	YG213 Min Max	YG214 Min Max	YG100 Min Max	YG10 Min Max				
P	1~5	Non-Alloyed Steel	220 480	170 450	180 380	150 350	120 200	- -	- -	- -	- -	- -	- -	- -	- -	- -
	6~9	Low-Alloyed Steel	220 420	180 380	110 350	90 300	70 200	- -	- -	- -	- -	- -	- -	- -	- -	- -
	10~11	High-Alloyed Steel	- -	100 330	60 300	70 250	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
M	12~13	Ferritic & Martensitic	- -	- -	- -	120 230	- -	130 230	110 180	80 150	- -	- -	- -	- -	- -	- -
	14	Austenitic Stainless Steel	- -	- -	- -	80 200	- -	100 200	40 130	30 120	- -	- -	- -	- -	- -	- -
K	15~16	Grey Cast Iron	170 420	120 300	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	17~18	Nodular Cast Iron	120 410	120 280	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
N	21~30	Non-Ferrous Metals (Al)	- -	- -	- -	- -	- -	- -	- -	- -	350 1200	250 800	- -	- -	- -	- -
S	31~37	Superalloys & Titanium	- -	- -	- -	35 80	- -	30 90	20 40	20 40	- -	- -	- -	- -	- -	- -
H	38~41	Hard Materials	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -

Turning Inserts - Positive
RCMT (Round Positive)

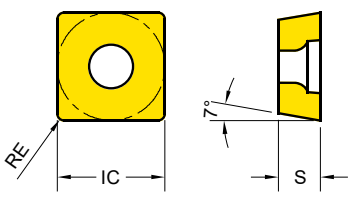


Series	INSD	S
RC** 0602	6	2.38
RC** 0803	8	3.18
RC** 10T3	10	3.97
RC** 1204	12	4.76

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

RCMT	Designation	RE	Fn (mm/rev.)	Ap (mm)	P05	P10	P20	P30	P20	M15	M30	M40	N20	N20
					K10	K20	M20	S10	S20	S30	N20	N20	N20	N20
 General	RCMT 0602M0	3	0.05 ~ 0.25	0.2 ~ 1.2	●	●	●	●	●	●	●	●	●	●
	RCMT 0803M0	4	0.05 ~ 0.3	0.5 ~ 1.5	●	●	●	●	●	●	●	●	●	●
	RCMT 10T3M0	5	0.1 ~ 0.35	0.5 ~ 2.5	●	●	●	●	●	●	●	●	●	●
	RCMT 1204M0	6	0.15 ~ 0.45	0.5 ~ 3	●	●	●	●	●	●	●	●	●	●

Turning Inserts - Positive
SCMT (Square Positive)



Series	IC	S
SC** 09T3	9.525	3.97
SC** 1204	12.7	4.76

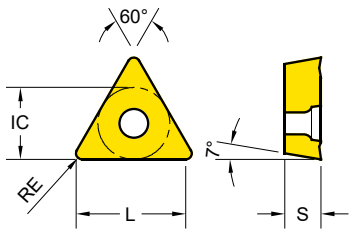
EDP 2200.. ● : Stock item ○ : Order made item

SCMT	Designation	RE	Fn (mm/rev.)	Ap (mm)	P05	P10	P20	P30	P20	M15	M30	M40	N20	N20
					K10	K20	M20	S10	S20	S30	N20	N20	N20	N20
 Finishing	SCMT 09T304 - UF	0.4	0.05 ~ 0.25	0.5 ~ 2	●	●	●	●	●	●	●	●	●	●
	SCMT 09T304 - UG	0.4	0.15 ~ 0.3	1 ~ 2.5	●	●	●	●	●	●	●	●	●	●
 General	SCMT 09T308 - UG	0.8	0.15 ~ 0.3	1 ~ 2.5	●	●	●	●	●	●	●	●	●	●
	SCMT 120408 - UG	0.8	0.15 ~ 0.35	1 ~ 3.5	●	●	●	●	●	●	●	●	●	●
					●	●	●	●	●	●	●	●	●	●

Cutting Speed			Vc (m/min.)											
ISO	VDI	Sub Group	YG1001	YG3010	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10		
			Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max
P	1~5	Non-Alloyed Steel	220 480	170 450	180 380	150 350	120 200	- -	- -	- -	- -	- -	- -	- -
	6~9	Low-Alloyed Steel	220 420	180 380	110 350	90 300	70 200	- -	- -	- -	- -	- -	- -	- -
	10~11	High-Alloyed Steel	- -	100 330	60 300	70 250	- -	- -	- -	- -	- -	- -	- -	- -
M	12~13	Ferritic & Martensitic	- -	- -	- -	120 230	- -	130 230	110 180	80 150	- -	- -	- -	- -
	14	Austenitic Stainless Steel	- -	- -	- -	80 200	- -	100 200	40 130	30 120	- -	- -	- -	- -
K	15~16	Grey Cast Iron	170 420	120 300	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	17~18	Nodular Cast Iron	120 410	120 280	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
N	21~30	Non-Ferrous Metals (Al)	- -	- -	- -	- -	- -	- -	- -	- -	350 1200	250 800	- -	- -
S	31~37	Superalloys & Titanium	- -	- -	- -	35 80	- -	30 90	20 40	20 40	- -	- -	- -	- -
H	38~41	Hard Materials	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -

Cutting Speed			Vc (m/min.)											
ISO	VDI	Sub Group	YG1001	YG3010	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10		
			Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max
P	1~5	Non-Alloyed Steel	220 480	170 450	180 380	150 350	120 200	- -	- -	- -	- -	- -	- -	- -
	6~9	Low-Alloyed Steel	220 420	180 380	110 350	90 300	70 200	- -	- -	- -	- -	- -	- -	- -
	10~11	High-Alloyed Steel	- -	100 330	60 300	70 250	- -	- -	- -	- -	- -	- -	- -	- -
M	12~13	Ferritic & Martensitic	- -	- -	- -	120 230	- -	130 230	110 180	80 150	- -	- -	- -	- -
	14	Austenitic Stainless Steel	- -	- -	- -	80 200	- -	100 200	40 130	30 120	- -	- -	- -	- -
K	15~16	Grey Cast Iron	170 420	120 300	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
	17~18	Nodular Cast Iron	120 410	120 280	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
N	21~30	Non-Ferrous Metals (Al)	- -	- -	- -	- -	- -	- -	- -	- -	350 1200	250 800	- -	- -
S	31~37	Superalloys & Titanium	- -	- -	- -	35 80	- -	30 90	20 40	20 40	- -	- -	- -	- -
H	38~41	Hard Materials	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -

Turning Inserts - Positive
TCMT / TCGT (Triangle Positive)

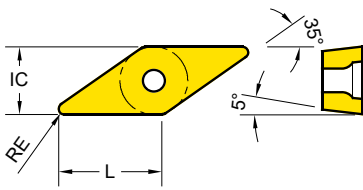


Series	L	IC	S
TC** 1102	10.3	6.35	2.38
TC** 16T3	15.6	9.525	3.97

					EDP 2200..											
					P05	P10	P20	P30	P20	M15	M30	M40	N20	N20		
					K10	K20		M20		S10	S20	S30				
TCGT TCMT	Designation	RE	Fn (mm/rev.)	Ap (mm)	YG1001	YG3010	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10		
-AL  Aluminum	TCGT 16T302 - AL	0.2	0.02 ~ 0.05	0.5 ~ 1									● 0343	● 0344		
	TCGT 16T304 - AL	0.4	0.05 ~ 0.25	0.5 ~ 2									● 0085	● 0334		
	TCGT 16T308 - AL	0.8	0.1 ~ 0.35	1 ~ 3									● 0086	● 0335		
-UF  Finishing	TCMT 110204 - UF	0.4	0.05 ~ 0.2	0.5 ~ 2		● 0395	● 0396									
	TCMT 16T304 - UF	0.4	0.05 ~ 0.25	0.5 ~ 3		● 0397	● 0398		● 0033							
	TCMT 16T308 - UF	0.8	0.05 ~ 0.25	0.8 ~ 3		● 0624	● 0625									
-UG  General	TCMT 110204 - UG	0.4	0.15 ~ 0.25	0.5 ~ 1.5	● 0728				● 0032							
	TCMT 110208 - UG	0.8	0.15 ~ 0.25	0.8 ~ 2		● 0485	● 0715									
	TCMT 16T304 - UG	0.4	0.15 ~ 0.3	0.5 ~ 2	● 0679	● 0267	● 0268									
	TCMT 16T308 - UG	0.8	0.15 ~ 0.3	0.8 ~ 3	● 0457	● 0156	● 0157	● 0158	● 0034							

Cutting Speed			Vc (m/min.)											
ISO	VDI	Sub Group	YG1001	YG3010	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10		
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	220	480	170	450	180	380	150	350	120	200	-	-
	6~9	Low-Alloyed Steel	220	420	180	380	110	350	90	300	70	200	-	-
	10~11	High-Alloyed Steel	-	-	100	330	60	300	70	250	-	-	-	-
M	12~13	Ferritic & Martensitic	-	-	-	-	-	-	120	230	-	-	130	230
	14	Austenitic Stainless Steel	-	-	-	-	-	-	80	200	-	-	100	200
K	15~16	Grey Cast Iron	170	420	120	300	-	-	-	-	-	-	-	-
	17~18	Nodular Cast Iron	120	410	120	280	-	-	-	-	-	-	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	350	1200
S	31~37	Superalloys & Titanium	-	-	-	-	35	80	-	-	30	90	20	40
H	38~41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-

Turning Inserts - Positive
VBMT (35° Positive)

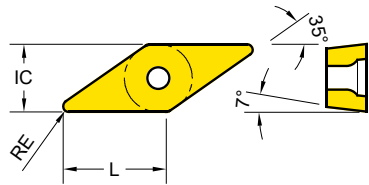


Series	L	IC	S
VB** 1604	15.8	9.525	4.76

					EDP 2200..											
					P05	P10	P20	P30	P20	M15	M30	M40	N20	N20		
					K10	K20		M20		S10	S20	S30				
VBMT	Designation	RE	Fn (mm/rev.)	Ap (mm)	YG1001	YG3010	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10		
-UF  Finishing	VBMT 160404 - UF	0.4	0.05 ~ 0.25	0.5 ~ 2		● 0294	● 0295									
	VBMT 160408 - UF	0.8	0.05 ~ 0.25	0.5 ~ 3		● 0300	● 0301									
-UG  General	VBMT 160404 - UG	0.4	0.15 ~ 0.30	0.5 ~ 2.5	● 0682	● 0297	● 0298		● 0047							
	VBMT 160408 - UG	0.8	0.2 ~ 0.4	1 ~ 3	● 0681	● 0303	● 0304	● 0305	● 0048							

Cutting Speed			Vc (m/min.)											
ISO	VDI	Sub Group	YG1001	YG3010	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10		
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	220	480	170	450	180	380	150	350	120	200	-	-
	6~9	Low-Alloyed Steel	220	420	180	380	110	350	90	300	70	200	-	-
	10~11	High-Alloyed Steel	-	-	100	330	60	300	70	250	-	-	-	-
M	12~13	Ferritic & Martensitic	-	-	-	-	-	-	120	230	-	-	130	230
	14	Austenitic Stainless Steel	-	-	-	-	-	-	80	200	-	-	100	200
K	15~16	Grey Cast Iron	170	420	120	300	-	-	-	-	-	-	-	-
	17~18	Nodular Cast Iron	120	410	120	280	-	-	-	-	-	-	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	350	1200
S	31~37	Superalloys & Titanium	-	-	-	-	35	80	-	-	30	90	20	40
H	38~41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-

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



Series	L	IC	S
VC** 1604	15.8	9.525	4.76

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

						P05	P10	P20	P30	P20	M15	M30	M40	N20	N20
						K10	K20		M20		S10	S20	S30		
VCMT		Designation	RE	Fn (mm/rev.)	Ap (mm)	YG1001	YG3010	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10
-AL	 Aluminum	VCMT 160402 - AL	0.2	0.02 ~ 0.05	0.5 ~ 1									● 0417	● 0418
		VCMT 160404 - AL	0.4	0.05 ~ 0.25	0.5 ~ 2									● 0087	● 0336
		VCMT 160408 - AL	0.8	0.1 ~ 0.35	1 ~ 3									● 0419	● 0420
-UF	 Finishing	VCMT 160404 - UF	0.4	0.05 ~ 0.25	0.5 ~ 3		● 0716	● 0421							
-UG	 General	VCMT 160404 - UG	0.4	0.15 ~ 0.30	0.5 ~ 2.5					● 0060					
		VCMT 160408 - UG	0.8	0.15 ~ 0.30	1 ~ 3			● 0422		● 0061					



PARTING & GROOVING

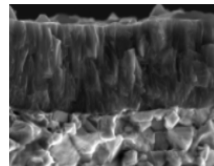
Parting & Grooving Overview
Parting & Grooving Inserts (TD.)

Cutting Speed			Vc (m/min.)																			
ISO	VDI	Sub Group	YG1001		YG3010		YG3020		YG3030		YG801		YG211		YG213		YG214		YG100		YG10	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	220	480	170	450	180	380	150	350	120	200	-	-	-	-	-	-	-	-	-	-
	6~9	Low-Alloyed Steel	220	420	180	380	110	350	90	300	70	200	-	-	-	-	-	-	-	-	-	-
	10~11	High-Alloyed Steel	-	-	100	330	60	300	70	250	-	-	-	-	-	-	-	-	-	-	-	-
M	12~13	Ferritic & Martensitic	-	-	-	-	-	-	120	230	-	-	130	230	110	180	80	150	-	-	-	-
	14	Austenitic Stainless Steel	-	-	-	-	-	-	80	200	-	-	100	200	40	130	30	120	-	-	-	-
K	15~16	Grey Cast Iron	170	420	120	300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	17~18	Nodular Cast Iron	120	410	120	280	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	350	1200	250	800
S	31~37	Superalloys & Titanium	-	-	-	-	-	-	35	80	-	-	30	90	20	40	20	40	-	-	-	-
H	38~41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Parting & Grooving
Parting & Grooving Overview

Parting & Groove Turn Grades

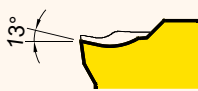
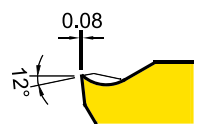
Parting and Grooving Grades		P Steel				M Stainless steel			K Cast iron			N Non Ferrous		S Super Alloy	
		P10	P20	P30	P40	M10	M20	M30	K10	K20	K30	N10	N20	S10	S20
PVD	YG602G (YG602)			602G				602G			602G				602G

YG602G (YG602)	PVD - TiAlN		Universal grade for Parting & Groove Turn • Ultra Dense PVD Coating with optimal thermal resistance & strength • Sub-Micron substrate designed for demanding application • YG602G : First Choice for Low Cutting Speed, Soft and Sticky Material with Low Hardness • YG602 : First Choice for General Application
			
	P20 - P35	M20 - M40	
	K20 - K40	S15 - S25	

Parting & Grooving Inserts

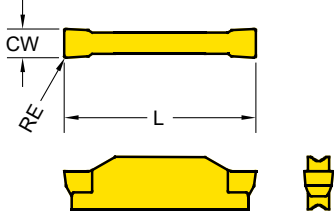
	TD. Series	Inserts	2, 3, 4
		TDN TDP TDY	

Parting & Grooving Chipbreakers

-P TDP			• Parting & Grooving (Positive)
-N TDN			• Parting & Grooving (General)
-Y TDY			• Turning, Parting & Grooving

Parting & Grooving - Inserts
Parting & Grooving Inserts (TD.)

		Series	L	CW
		TD* 2	20	2
		TD* 3	20	3
		TD* 4	20	4



* CDX : Cutting Depth Maximum

● : Stock item ○ : Order made item

TD.	Designation	RE	Parting & Grooving		Side Turning		EDP 5200..	
			Fn (mm/rev.)	CDX (mm)	Fn (mm/rev.)	Ap (mm)	YG602	YG602G
 Parting & Grooving (Positive)	TDP2002	0.2	0.04~0.12	19			● 0012	○ 0036
	TDP3002	0.2	0.05~0.16	19			● 0029	○ 0030
	TDP4003	0.3	0.06~0.18	19			● 0023	○ 0038
 Parting & Grooving (General)	TDN2002	0.2	0.06~0.18	19			● 0010	○ 0035
	TDN3002	0.2	0.07~0.22	19			● 0024	○ 0025
	TDN4003	0.3	0.08~0.25	19			● 0022	○ 0037
 Groove Turn	TDY3E - 0.4	0.4	0.10~0.20	19	0.10~0.38	0.50~2.20	○ 0019	● 0027
	TDY4E - 0.4	0.4	0.15~0.26	19	0.10~0.40	0.50~2.80		● 0020

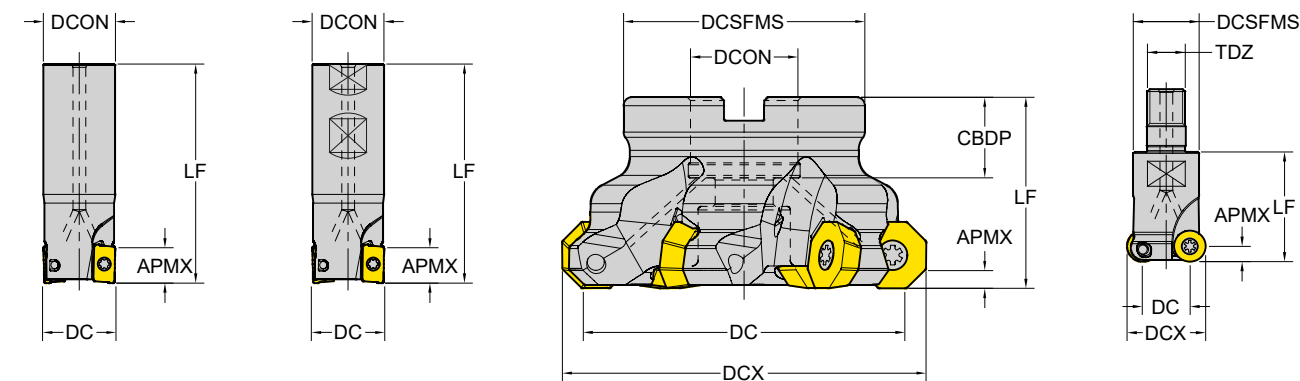
Cutting Speed			Vc (m/min.)	
ISO	VDI	Sub Group	YG602G (YG602)	
			Min.	Max.
P	1~5	Non-alloyed steel	90	180
	6~9	Low-alloyed steel	80	120
	10~11	High-alloyed steel	80	110
M	12~13	Ferritic & martensitic stainless steel	70	160
	14	Austenitic stainless steel	55	140
K	15~16	Grey cast iron	110	185
	17~18	Nodular cast iron	110	140
N	21~30	Non-ferrous metals (al)	250	440
S	31~37	Superalloys & Titanium	25	45
H	38~41	Hard materials	25	50



MILLING

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

Code Keys - Milling Cutters

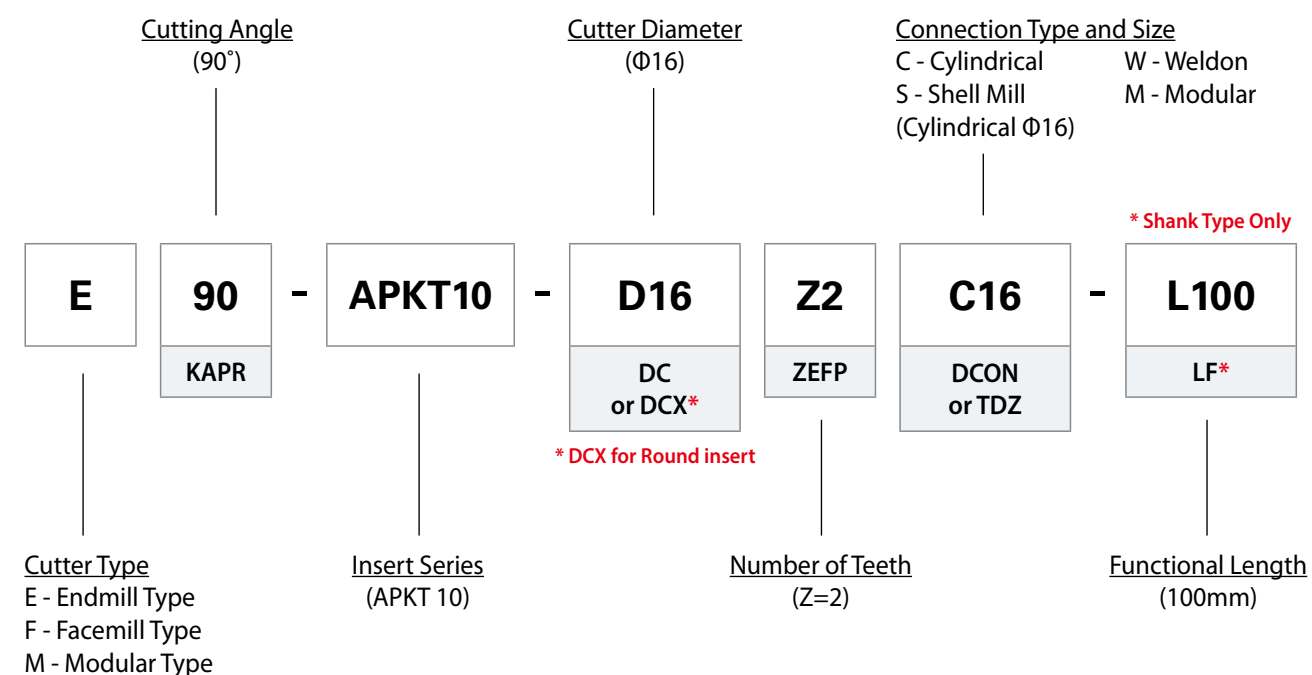


<C> Cylindrical

<W> Weldon

<S> Shell Mill

<M> Modular



Milling - Code System

Insert ISO Code System

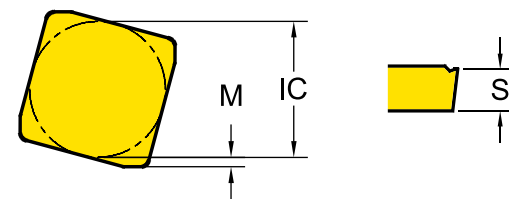
1 A Shape	2 P Relief Angle (AN)	3 K Tolerance	4 T Clamping & Chipbreaker	5 16 Insert Size	6 04 Insert Thickness (S)	7 08 CornerRadius
------------------------	------------------------------------	----------------------------	---	-------------------------------	--	--------------------------------

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 (mm)	Nose Height M (mm)	Thickness S (mm)
C	± 0.025	± 0.013	± 0.025
E	± 0.025	± 0.025	± 0.025
G	± 0.025	± 0.025	± 0.13
H	± 0.013	± 0.013	± 0.025
K*	± 0.05~0.15*	± 0.013	± 0.025
M*	± 0.05~0.15*	± 0.08~0.2*	± 0.13
U*	± 0.08~0.25*	± 0.13~0.38*	± 0.13

*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

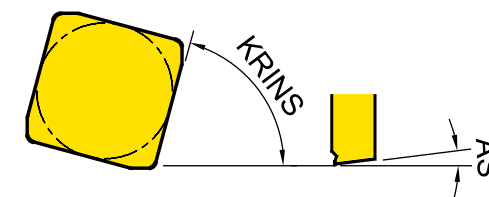
* No Standard for milling insert thickness

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

7 - Corner Radius (RE)

Symbol	Corner Radius - RE (mm)	Symbol	Corner Radius - RE (mm)
04	0.4	16	1.6
08	0.8	20	2.0
12	1.2	24	2.4

8 - Corner Geometry



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

*Refer to page. 95 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

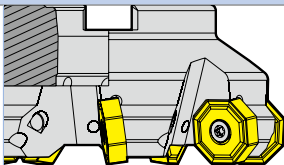
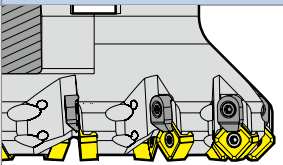
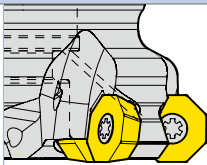
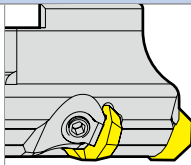
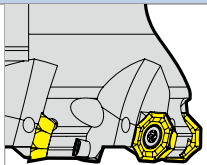
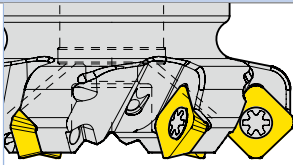
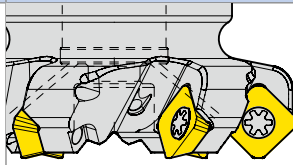
Symbol	Edge Condition	
F	Sharp	
E	Rounded	
T	Chamfered	
S	Chamfered and Rounded	

8-4 - Feed Direction

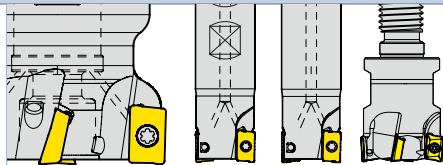
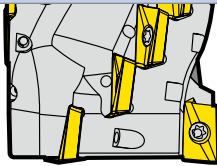
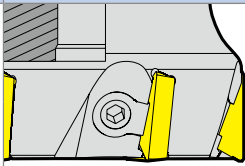
Symbol	Feed Direction	
R	Right-hand Insert	
N	Neutral Insert	
L	Left-hand Insert	

Milling Overview

Face Milling

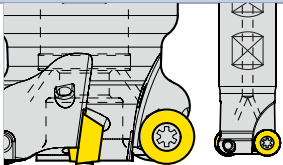
Negative Octagonal			Negative Square			
Cutter		 ONMU 0806		 SNMX 1206		
APMX		5.5		6		
DC		Φ63~315		Φ50~200		
page		p. 96		p. 97		
Positive Octagonal						
Cutter		 ODMT/ODMW 0605		 OFER 0704		 OFMT 05T3
APMX		4		5		3
DC		Φ63~125		Φ63~160		Φ50~125
page		p. 98		p. 99		p. 98
Positive Square			ISO			
Cutter		 SEKT 1204	 SEKT 12T3		 SPKN/SPKR/SPCN 1203	
APMX		6	6		8	
DC		Φ40~160	Φ50~160		Φ50~200	
page		p. 100			p. 101	

Shoulder Milling

2 Corner Positive													
Cutter			ADKT 1505		AOMT 1236		APKT 1003		APKT 1604		APMT 1135		APMT 1604
APMX		15		12		10		16		10		16	
DC		Φ25~125		Φ16~50		Φ16~100		Φ25~200		Φ16~80		Φ25~80	
page		p. 113		p. 113		p.114-115		p.116-117		p. 73		p. 73	
2 Corner Positive Helical (Long Edge)				ISO									
Cutter			APKT 1003					TPKN/TPKR/TPCN 1603	TPKN/TPKR/TPCN 2204				
APMX		37~55			12		18						
DC		Φ25~40			Φ50~125		Φ63~315						
page		p. 119			p. 120								

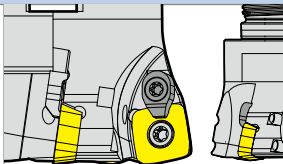
Milling Overview

Profiling

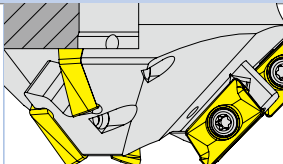
Round Positive					
Cutter					
		RDKT/RDKW		RPMT/RPMW	
APMX		0802		10T3	
DC		4		5	
page		p. 126		p. 126	

		1204		08T2	
		6		4	
		Φ25~100		Φ20~25	
		p. 127		p. 128	
				10T3	
		5		5	
		Φ25~32		Φ25~32	
		p. 128		p. 128	
				1204	
		6		6	
		Φ32~80		Φ32~80	
		p. 128		p. 128	

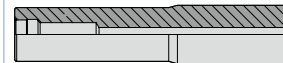
High Feed Milling

Positive 4 Corner	
Cutter	
	SDMT/SDMW 1204
APMX	6
DC	Φ50~200
page	p. 133

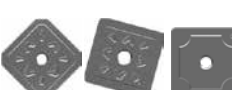
Taper Milling

2 Corner Positive Helical (Long Edge)	
Cutter	
	APKT 1604
KAPR	15° 45° 60° 75°
page	p. 135

Modular Shank

Modular Shank for Modular Head	
Cutter	
	M08 ~ M16
page	p. 137

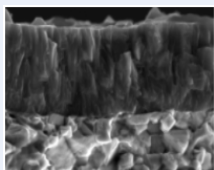
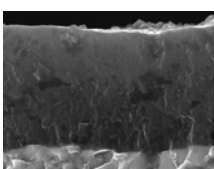
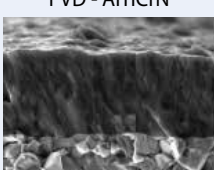
Milling Inserts Overview

A 2 Corner	 Positive	ADKT	ADKT 1505	p. 121
		AOMT	AOMT 1236	p. 121
		APKT	APKT 1003, 1604	p. 122
		APMT	APMT 1135, 1504, 1604	p. 123
O Octagon	 Positive	ODMT / ODMW	ODMT / ODMW 0605	p. 102
		OFER	OFER 0704	p. 103
		OFMT	OFMT 05T3	
	 Negative	ONMU / ONHU	ONMU / ONHU 0806	p. 104
R Round	 Positive Round	RDKT / RDKW	RDKT 0802, 10T3, 1204 RDKW 0501, 0702, 0802, 10T3, 1204	p. 129
		RDMT / RDMW	RDMT 0802, 0803, 10T3, 1204 RDMW 0802, 10T3, 1204	p. 130
	 Positive 3 Corner	RPMT / RPMW	RPMT 08T2, 10T3, 1204 RPMW 1003, 1204	p. 131
		RBEX50	RBEX50	P. 132
S Square	 High Feed	SDMT / SDMW	SDMT 1204, SDMW 1204	p. 134
		SEKT	SEKT 12T3, 1204	p. 107
	 Positive	SEMT	SEMT1204, 13T3	P. 108
		SPMT	SPMT 1204	p. 111
		SDKN (45°)	SDKN 1203, 1504	p. 105
		SEKN / SEKR (45°)	SEKN 1203 / SEKR 1203	p. 106
	 ISO	SPKN / SPKR / SPCN(75°)	SPKN 1203, 1504 SPKR 1203 SPCN 1203, 1504	p. 110
		SPUN	SPUN 1203	
	 Negative	SNMX	SNMX1206	p. 109
T Triangle	 ISO	TPKN / TPKR / TPCN(90°)	TPKN 1603, 2204 TPKR 1603, 2204 TPCN 2204	p. 124
		TPUN	TPUN 160308	p. 125

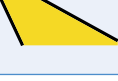
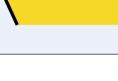
Milling Grades and Chipbreakers

Milling Grades

Milling Grades	P Steel				M Stainless Steel				K Cast Iron				N Non Ferrous				S Super Alloy			
	P05	P15	P25	P35	M05	M15	M25	M35	K05	K15	K25	K35	N05	N15	N25	N35	S05	S15	S25	S35
PVD	602				602				602								602			
	622								622											
	712																			

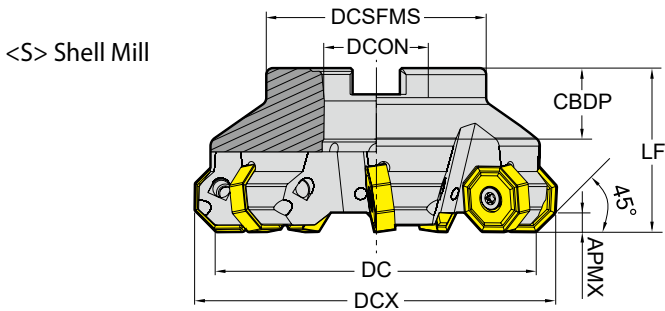
YG602 P20 - P35 M20 - M40 K20 - K40 S15 - S25	PVD - TiAlN 	Universal grade for General Milling Application • Ultra Dense PVD Coating with optimal thermal resistance & strength • Sub-Micron substrate designed for demanding application
YG622 P20 - P40 K20 - K40	PVD - TiAlN 	Optimized Grade for High Alloyed or Prehardened Steel Excellent hot hardness and oxidation resistance at high speed
YG712 P10 - P30	PVD - AlTiCrN 	General Milling Grade for Steel

Milling Chipbreakers

-AL		• For Aluminum • Very Sharp Geometry
-ST		• For Stainless Steel, Super Alloy • Sharp Geometry
General Inserts (No Description)		• First Choice for General Application
-TR		• For Hardened Steels • Reinforced Geometry
...W / ...N		• For Hardened Material and Cast Irons

Milling - Face Milling - Cutter
Cutters for ONMU

Cutting Angle : 45°
16 Corner Negative



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

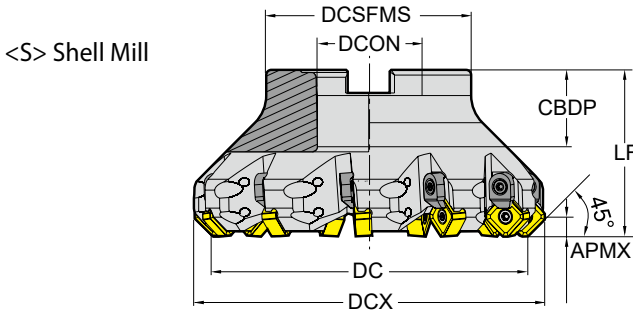
□: p. 104 unit:mm

Series	APMX	Designation	EDP 1700..	DC	DCX	ZEFP	LF	TYPE	DCON	CBDP	DCSFMS	PCD1	PCD2	
ONMU 0806	5.5	F45 - ONMU08 - D63Z5S22	0493	63	75	5	40	Shellmill	22	22	49	-	-	●
		F45 - ONMU08 - D80Z6S27	0494	80	92	6	50		27	25	58	-	-	●
		F45 - ONMU08 - D100Z7S32	0495	100	112	7	50		32	26	67	-	-	●
		F45 - ONMU08 - D125Z8S40 - WOC	0496	125	137	8	63		40	32	87	-	-	X
		F45 - ONMU08 - D160Z10S40 - WOC	0497	160	172	10	63		40	32	107	66.7	-	X
		F45 - ONMU08 - D200Z12S60 - WOC	0498	200	212	12	63		60	40	130	101.6	-	X
		F45 - ONMU08 - D315Z16S60 - WOC	0499	315	327	16	63		60	40	220	101.6	177.8	X

► ONHU is Available for Wiper Insert

Milling - Face Milling - Cutter
Cutters for SNMX

Cutting Angle : 45°
8 Corner Negative



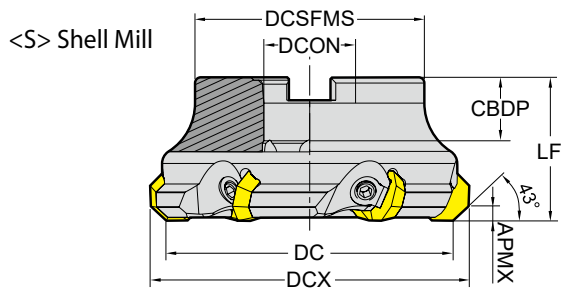
ZEFP : Effective Number of Cutting Edges
CICT : Number of Inserts
CDBP : Connection Bore Depth

□: p. 109 unit:mm

Series	APMX	Designation	EDP 1700..	DC	DCX	ZEFP	LF	TYPE	DCON	CBDP	DCSFMS	PCD1	PCD2	
SNMX 1206	6.0	F45 - SNMX12 - D50Z4S22	0506	50	63	4	42	Shellmill	22	22	42	-	-	●
		F45 - SNMX12 - D50Z5S22	0507	50	63	5	42		22	22	42	-	-	●
		F45 - SNMX12 - D63Z6S22	0508	63	76	6	42		22	22	48	-	-	●
		F45 - SNMX12 - D63Z7S22	0509	63	76	7	42		22	22	48	-	-	●
		F45 - SNMX12 - D80Z7S27	0510	80	93	7	52		27	25	58	-	-	●
		F45 - SNMX12 - D80Z8S27	0511	80	93	8	52		27	25	58	-	-	●
		F45 - SNMX12 - D100Z10S32	0512	100	113	10	52		32	26	67	-	-	●
		F45 - SNMX12 - D100Z8S32	0513	100	113	8	52		32	26	67	-	-	●
		F45 - SNMX12 - D125Z11S40 - WOC	0514	125	138	11	65		40	32	80	-	-	X
		F45 - SNMX12 - D160Z12S40 - WOC	0515	160	173	12	65		40	32	110	66.7	-	X
		F45 - SNMX12 - D200Z14S60 - WOC	0516	200	213	14	65		60	40	130	101.6	-	X

Milling - Face Milling - Cutter
Cutters for OFER

Cutting Angle : 43°
8 Corner Positive



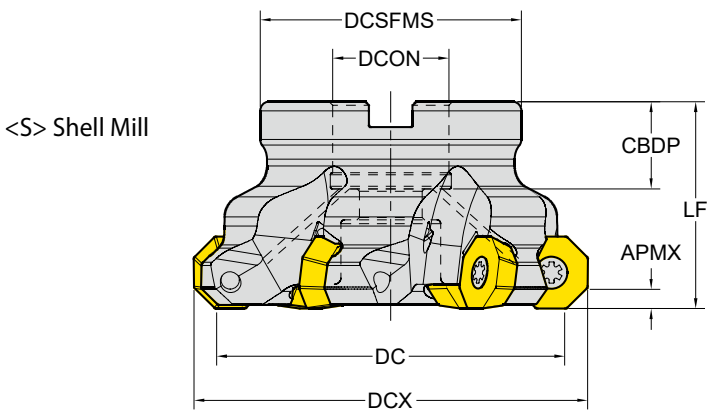
ZEFP : Effective Number of Cutting Edges
CICT : Number of Inserts
CDBP : Connection Bore Depth

: p. 103 unit:mm

Series	APMX	Designation	EDP 1700..	DC	DCX	ZEFP	LF	TYPE	DCON	CBDP	DCSFMS	PCD1	PCD2	
OFER 0704	5.0	F43 - OFER07 - D63Z4S22 - WOC	0484	63	75	4	45	Shellmill	22	22	48	-	-	X
		F43 - OFER07 - D80Z5S27 - WOC	0485	80	92	5	50		27	25	58	-	-	X
		F43 - OFER07 - D100Z6S32 - WOC	0486	100	112	6	50		32	26	80	-	-	X
		F43 - OFER07 - D125Z8S40 - WOC	0487	125	137	8	63		40	32	85	-	-	X
		F43 - OFER07 - D160Z9S40 - WOC	0488	160	172	9	63		40	32	110	66.7	-	X

Milling - Face Milling - Cutter
Cutters for ODMT, ODMW, OFMT

Cutting Angle : 43°
8 Corner Positive

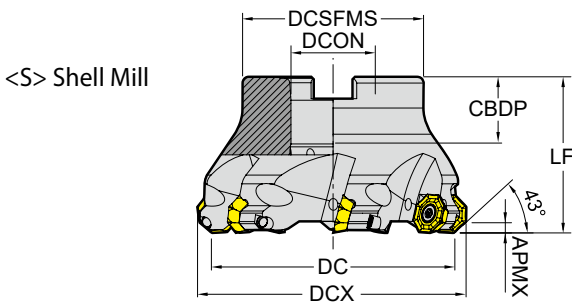


ZEFP : Effective Number of Cutting Edges
CICT : Number of Inserts
CDBP : Connection Bore Depth

: p. 102 unit:mm

Series	APMX	Designation	EDP 1700..	DC	DCX	ZEFP	LF	TYPE	DCON	CBDP	DCSFMS	PCD1	PCD2	
ODMT ODMW 0605	3.5	F43 - ODMT06 - D63Z5S22	0001	63	73	5	40	Shellmill	22	20	50	-	-	●
		F43 - ODMT06 - D80Z6S27	0002	80	90	6	50		27	23	56	-	-	●
		F43 - ODMT06 - D100Z7S32	0003	100	110	7	50		32	26	78	-	-	●
		F43 - ODMT06 - D125Z8S40	0004	125	135	8	63		40	28	89	-	-	●

Cutting Angle : 43°
8 Corner Positive

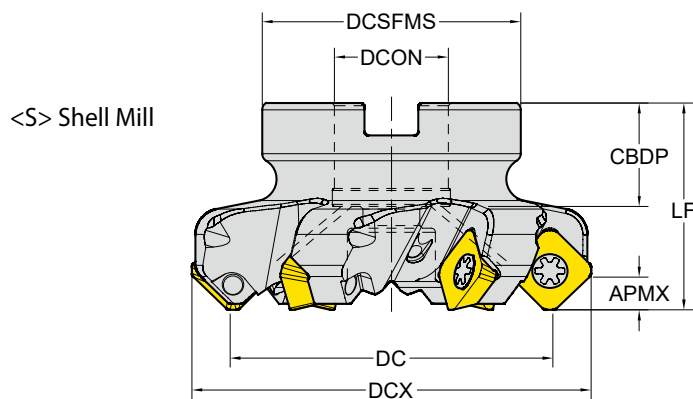


: p. 103 unit:mm

Series	APMX	Designation	EDP 1700..	DC	DCX	ZEFP	LF	TYPE	DCON	CBDP	DCSFMS	PCD1	PCD2	
OFMT 05T3	3.0	F43 - OFMT05 - D50Z5S22	0489	50	58	5	40	Shellmill	22	22	42	-	-	●
		F43 - OFMT05 - D63Z6S22	0490	63	71	6	40		22	22	48	-	-	●
		F43 - OFMT05 - D80Z7S27	0491	80	88	7	50		27	25	58	-	-	●
		F43 - OFMT05 - D125Z9S40 - WOC	0492	125	133	9	63		40	32	85	-	-	X

Milling - Face Milling - Cutter
Cutters for SEKT

Cutting Angle : 45°
4 Corner Positive



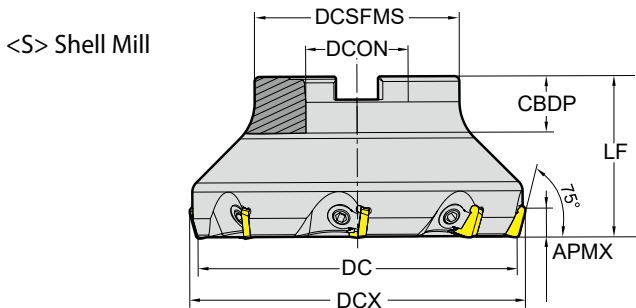
ZEFP : Effective Number of Cutting Edges
CICT : Number of Inserts
CDBP : Connection Bore Depth

□: p. 107 unit:mm

Series	APMX	Designation	EDP 1700..	DC	DCX	ZEFP	LF	TYPE	DCON	CBDP	DCSFMS	PCD1	PCD2	🔹
SEKT 12T3	6.0	F45 - SE12T3 - D50Z4S22	0500	50	63	4	40	Shellmill	22	22	48	-	-	●
		F45 - SE12T3 - D63Z5S22	0501	63	76	5	40		22	22	48	-	-	●
		F45 - SE12T3 - D80Z6S27	0502	80	93	6	50		27	25	58	-	-	●
		F45 - SE12T3 - D100Z7S32	0503	100	113	7	50		32	26	65	-	-	●
		F45 - SE12T3 - D125Z8S40 - WOC	0504	125	138	8	63		40	32	85	-	-	X
		F45 - SE12T3 - D160Z10S40 - WOC	0505	160	173	10	63		40	32	110	66.7	-	X
SEKT 1204	6.0	F45 - SEKT12 - D40Z4S16	0031	40	54	4	40	Shellmill	16	18	32	-	-	●
		F45 - SEKT12 - D50Z5S22	0032	50	64	5	40		22	20	48	-	-	●
		F45 - SEKT12 - D63Z4S22	0033	63	77	4	40		22	20	50	-	-	●
		F45 - SEKT12 - D63Z6S22	0034	63	77	6	40		22	20	50	-	-	●
		F45 - SEKT12 - D80Z4S27	0035	80	94	4	50		27	22	56	-	-	●
		F45 - SEKT12 - D80Z7S27	0036	80	94	7	50		27	22	56	-	-	●
		F45 - SEKT12 - D100Z8S32	0037	100	114	8	50		32	25	78	-	-	●
		F45 - SEKT12 - D125Z10S40	0038	125	139	10	63		40	29	90	-	-	●
		F45 - SEKT12 - D160Z12S40	0039	160	174	12	63		40	30	114	-	-	X

Milling - Face Milling - Cutter
Cutters for SPKN, SPKR, SPCN

Cutting Angle : 75°
4 Corner Positive ISO



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

□: p. 110 unit:mm

Series	APMX	Designation	EDP 1700..	DC	DCX	ZEFP	LF	TYPE	DCON	CBDP	DCSFMS	PCD1	PCD2	🔹
SPKN SPKR SPCN 1203	8.0	F75 - SPKN12 - D50Z4S22 - WOC	0611	50	56	4	40	Shellmill	22	22	42	-	-	X
		F75 - SPKN12 - D63Z5S22 - WOC	0612	63	69	5	40		22	22	48	-	-	X
		F75 - SPKN12 - D80Z6S27 - WOC	0613	80	86	6	50		27	25	58	-	-	X
		F75 - SPKN12 - D100Z7S32 - WOC	0614	100	106	7	50		32	26	65	-	-	X
		F75 - SPKN12 - D125Z8S40 - WOC	0615	125	131	8	63		40	32	80	-	-	X
		F75 - SPKN12 - D160Z9S40 - WOC	0616	160	166	9	63		40	32	110	66.7	-	X
		F75 - SPKN12 - D200Z12S60 - WOC	0617	200	206	12	63		60	40	130	101.6	-	X

Milling - Face Milling - Inserts
ODMT, ODMW - Face Milling Positive (8 Corners)

		Series	IC	S
		ODM* 0605	15.9	5.6

		EDP 1200..		
		P25	P30	P20
		M30		
		K30	K30	
		S20		

● : Stock item
○ : Order made item

ODMT ODMW	Designation	RE (mm)	Fz (mm/tooth)	BS (mm)	EDP 1200..		
					YG602	YG622	YG712
ODMT General	ODMT 060508	0.8	0.21 ~ 0.35		● 0030		
ODMW Hard Materials	ODMW 060508	0.8	0.26 ~ 0.40		● 0031		

Cutting Speed			Vc (m/min.)					
ISO	VDI	Sub Group	YG602		YG622		YG712	
			Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	140	380	140	400	170	300
	6~9	Low-Alloyed Steel	120	300	120	320	180	250
	10~11	High-Alloyed Steel	70	150	70	170	100	140
M	12~13	Ferritic & Martensitic	120	200	-	-	-	-
	14	Austenitic Stainless Steel	130	250	-	-	-	-
K	15~16	Grey Cast Iron	120	250	120	270	-	-
	17~18	Nodular Cast Iron	130	220	130	240	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-
S	31~37	Superalloys & Titanium	25	45	-	-	-	-
H	38~41	Hard Materials	40	80	40	100	-	-

Milling - Face Milling - Inserts
OFER, OFMT - Face Milling Positive (8 Corners)

		Series	IC	S
		OFER 0704	18.05	4.78
		OFMT 05T3	12.73	4.06

		EDP 1200..		
		P25	P30	P20
		M30		
		K30	K30	
		S20		

● : Stock item
○ : Order made item

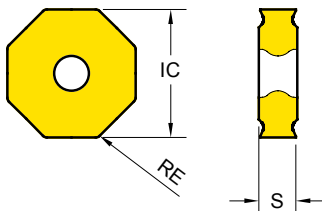
OFER	Designation	RE (mm)	Fz (mm/tooth)	BS (mm)	EDP 1200..		
					YG602	YG622	YG712
OFER General	OFER 070405	0.5	0.22 ~ 0.50		● 0209		

OFMT	Designation	RE (mm)	Fz (mm/tooth)	BS (mm)	EDP 1200..		
					YG602	YG622	YG712
OFMT General	OFMT 05T308	0.8	0.15 ~ 0.25		● 0032		

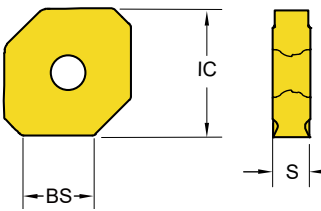
Cutting Speed			Vc (m/min.)					
ISO	VDI	Sub Group	YG602		YG622		YG712	
			Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	140	380	140	400	170	300
	6~9	Low-Alloyed Steel	120	300	120	320	180	250
	10~11	High-Alloyed Steel	70	150	70	170	100	140
M	12~13	Ferritic & Martensitic	120	200	-	-	-	-
	14	Austenitic Stainless Steel	130	250	-	-	-	-
K	15~16	Grey Cast Iron	120	250	120	270	-	-
	17~18	Nodular Cast Iron	130	220	130	240	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-
S	31~37	Superalloys & Titanium	25	45	-	-	-	-
H	38~41	Hard Materials	40	80	40	100	-	-

Milling - Face Milling - Inserts
ONMU / ONHU - Face Milling Negative (16 Corners)

		Series	IC	S
		ON*U 0806	20.2	5.8



<ONMU>



<ONHU>

● : Stock item
○ : Order made item

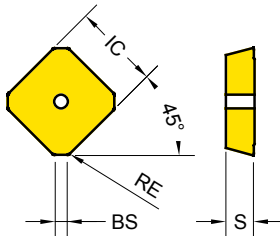
EDP 1200..
P25 P30 P20
M30
K30 K30 K15
S20
YG602 YG622 YG712 YG5020

ONMU ONHU	Designation	RE (mm)	Fz (mm/tooth)	BS (mm)	YG602	YG622	YG712	YG5020
ONMU General	ONMU 080608	0.8	0.22 ~ 0.50		● 0233			● 0414
ONHU Wiper Insert	ONHU 080612		0.22 ~ 0.50	10.6				● 0482

Cutting Speed			Vc (m/min.)							
ISO	VDI	Sub Group	YG602		YG622		YG712		YG5020	
			Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	140	380	140	400	170	300	-	-
	6~9	Low-Alloyed Steel	120	300	120	320	180	250	-	-
	10~11	High-Alloyed Steel	70	150	70	170	100	140	-	-
M	12~13	Ferritic & Martensitic	120	200	-	-	-	-	-	-
	14	Austenitic Stainless Steel	130	250	-	-	-	-	-	-
K	15~16	Grey Cast Iron	120	250	120	270	-	-	200	350
	17~18	Nodular Cast Iron	130	220	130	240	-	-	150	300
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-
S	31~37	Superalloys & Titanium	25	45	-	-	-	-	-	-
H	38~41	Hard Materials	40	80	40	100	-	-	-	-

Milling - Face Milling - Inserts
SDKN / CN - Face Milling Positive (4 Corners ISO)

					Series		AS	IC	S
					SD** 1203		15°	12.7	3.18
					SD** 1504		15°	15.88	4.76



					EDP 1200..		
					P25	P30	P20
					M30		
					K30	K30	
					S20		

● : Stock item
○ : Order made item

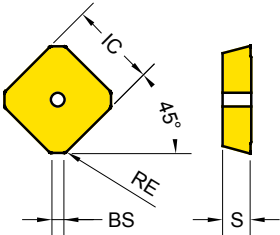
SDKN SDCN	Designation	RE (mm)	Fz (mm/tooth)	BS (mm)	EDP 1200..		
					YG602	YG622	YG712
SDKN Hard Materials	SDKN 1203 AETN	0.5	0.22 ~ 0.35	1.85	● 0058		
	SDKN 1504 AETN	0.45	0.22 ~ 0.40	2	● 0059		
	SDKN 1203 AETN - PW	0.4	0.22 ~ 0.35	1.98	● 0253		
	SDKN 1504 AETN - PW	0.4	0.22 ~ 0.40	1.95	● 0288		
	SDKN 1203 AETN - GW	1.3	0.2 ~ 0.4	1.85	● 0251		
	SDKN 1504 AETN - GW	1.3	0.19 ~ 0.38	2.05	● 0286		
SDCN Ground insert	SDCN 1203 AESN - M		0.18 ~ 0.36	2.04			● 0135
	SDCN 1504 AESN - M		0.18 ~ 0.36	2.19			● 0150
	SDCN 1504 AESN - MR	1	0.18 ~ 0.36	2.19			● 0201

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

Cutting Speed			Vc (m/min.)							
ISO	VDI	Sub Group	YG602		YG622		YG712			
			Min	Max	Min	Max	Min	Max		
P	1~5	Non-Alloyed Steel	140	380	140	400	170	300		
	6~9	Low-Alloyed Steel	120	300	120	320	180	250		
	10~11	High-Alloyed Steel	70	150	70	170	100	140		
M	12~13	Ferritic & Martensitic	120	200	-	-	-	-		
	14	Austenitic Stainless Steel	130	250	-	-	-	-		
K	15~16	Grey Cast Iron	120	250	120	270	-	-		
	17~18	Nodular Cast Iron	130	220	130	240	-	-		
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-		
S	31~37	Superalloys & Titanium	25	45	-	-	-	-		
H	38~41	Hard Materials	40	80	40	100	-	-		

Milling - Face Milling - Inserts
SEKR / N - Face Milling Positive (4 Corners ISO)

		Series	AS	IC	S
		SEK* 1203	20°	12.7	3.2



		EDP 1200..		
		P25	P30	P20
		M30		
		K30	K30	
		S20		

● : Stock item
○ : Order made item

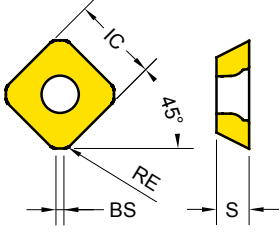
SEKR SEKN		Designation	RE (mm)	Fz (mm/tooth)	BS (mm)	YG602	YG622	YG712
SEKR General		SEKR 1203 AFTN	0.4	0.14 ~ 0.30	1.4	● 0051		
		SEKR 1203 AFTN -PW	0.4	0.14 ~ 0.30	1.4	● 0296		
SEKN Hard Materials		SEKN 1203 AFTN	0.4	0.22 ~ 0.35	1.4	● 0054		
		SEKN 1203 AFTN -PW	0.4	0.22 ~ 0.35	1.4	● 0297		
		SEKN 1203 AFTN -GW	0.4	0.23 ~ 0.35	2	● 0304		

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

Cutting Speed			Vc (m/min.)					
ISO	VDI	Sub Group	YG602		YG622		YG712	
			Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	140	380	140	400	170	300
	6~9	Low-Alloyed Steel	120	300	120	320	180	250
	10~11	High-Alloyed Steel	70	150	70	170	100	140
M	12~13	Ferritic & Martensitic	120	200	-	-	-	-
	14	Austenitic Stainless Steel	130	250	-	-	-	-
K	15~16	Grey Cast Iron	120	250	120	270	-	-
	17~18	Nodular Cast Iron	130	220	130	240	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-
S	31~37	Superalloys & Titanium	25	45	-	-	-	-
H	38~41	Hard Materials	40	80	40	100	-	-

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

		Series	IC	S
		SEKT 1204	12.7	4.9
		SEKT 12T3	13.4	4



		EDP 1200..		
		P25	P30	P20
		M30		
		K30	K30	
		S20		

● : Stock item
○ : Order made item

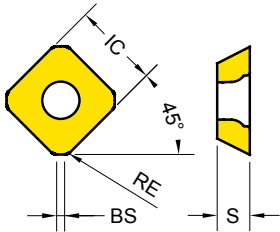
SEKT 1204		Designation	RE (mm)	Fz (mm/tooth)	BS (mm)	YG602	YG622	YG712
SEKT 1204 General		SEKT 1204 AFTN	1.1	0.20 ~ 0.35	1.18	● 0055		
-ST Stainless Steel Super Alloy		SEKT 1204 - ST	1.1	0.08 ~ 0.30	1.18	● 0257		

SEKT 12T3		Designation	RE (mm)	Fz (mm/tooth)	BS (mm)	YG602	YG622	YG712
SEKT 12T3 General		SEKT 12T3 AGTN	1.5	0.15 ~ 0.30	1.3	● 0056		
-ST Stainless Steel Super Alloy		SEKT 12T3 - ST	1.5	0.08 ~ 0.30	1.3	● 0271		

Cutting Speed			Vc (m/min.)					
ISO	VDI	Sub Group	YG602		YG622		YG712	
			Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	140	380	140	400	170	300
	6~9	Low-Alloyed Steel	120	300	120	320	180	250
	10~11	High-Alloyed Steel	70	150	70	170	100	140
M	12~13	Ferritic & Martensitic	120	200	-	-	-	-
	14	Austenitic Stainless Steel	130	250	-	-	-	-
K	15~16	Grey Cast Iron	120	250	120	270	-	-
	17~18	Nodular Cast Iron	130	220	130	240	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-
S	31~37	Superalloys & Titanium	25	45	-	-	-	-
H	38~41	Hard Materials	40	80	40	100	-	-

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

		Series		IC	S
		SEMT1204		12.92	5.1
		SEMT13T3		13.4	4.0



EDP 1200..
P25 P30 P20
M30
K30 K30
S20

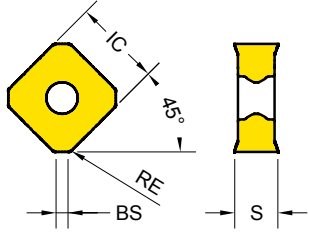
● : Stock item
○ : Order made item

SEMT	Designation	RE (mm)	Fz (mm/tooth)	BS (mm)	YG602	YG622	YG712
SEMT 1204 General	SEMT 1204 AFTN	1.2	0.25 ~ 0.5	1.24	● 0052		
SEMT 13T3 General	SEMT 13T3 AGSN	1.5	0.15 ~ 0.3	1.31	● 0203		

Cutting Speed			Vc (m/min.)					
ISO	VDI	Sub Group	YG602		YG622		YG712	
			Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	140	380	140	400	170	300
	6~9	Low-Alloyed Steel	120	300	120	320	180	250
	10~11	High-Alloyed Steel	70	150	70	170	100	140
M	12~13	Ferritic & Martensitic	120	200	-	-	-	-
	14	Austenitic Stainless Steel	130	250	-	-	-	-
K	15~16	Grey Cast Iron	120	250	120	270	-	-
	17~18	Nodular Cast Iron	130	220	130	240	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-
S	31~37	Superalloys & Titanium	25	45	-	-	-	-
H	38~41	Hard Materials	40	80	40	100	-	-

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

		Series		IC	S
		SNMX 1206		12.7	6.25



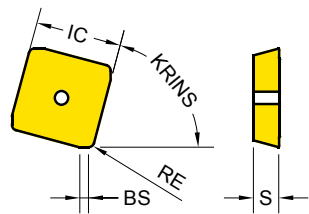
EDP 1200..
P25 P30 P20
M30
K30 K30
S20

● : Stock item
○ : Order made item

SNMX	Designation	RE (mm)	Fz (mm/tooth)	BS (mm)	YG602	YG622	YG712
SNMX General	SNMX 1206 ANN	0.8	0.16 ~ 0.34	1.7	● 0231		

Cutting Speed			Vc (m/min.)					
ISO	VDI	Sub Group	YG602		YG622		YG712	
			Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	140	380	140	400	170	300
	6~9	Low-Alloyed Steel	120	300	120	320	180	250
	10~11	High-Alloyed Steel	70	150	70	170	100	140
M	12~13	Ferritic & Martensitic	120	200	-	-	-	-
	14	Austenitic Stainless Steel	130	250	-	-	-	-
K	15~16	Grey Cast Iron	120	250	120	270	-	-
	17~18	Nodular Cast Iron	130	220	130	240	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-
S	31~37	Superalloys & Titanium	25	45	-	-	-	-
H	38~41	Hard Materials	40	80	40	100	-	-

Milling - Face Milling - Inserts
SPKN / R/ CN - Face Milling Positive (4 Corners ISO)



Series	KRINS	AS	IC	S
SP** 1203	75°	11°	12.7	3.18
SP** 1504	75°	11°	15.88	4.76

EDP 1200..		
P25	P30	P20
M30		
K30	K30	
S20		

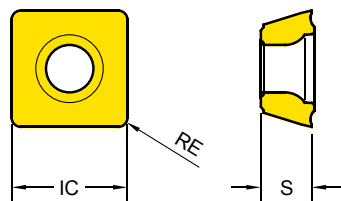
● : Stock item
○ : Order made item

SPKR SPKN SPCN	Designation	RE (mm)	Fz (mm/tooth)	BS (mm)	YG602	YG622	YG712
SPKR General	SPKR 1203 EDTR	0.8	0.15 ~ 0.35	1.4	● 0050		
	SPKR 1203 EDTR -PW	0.8	0.15 ~ 0.35	1.4	● 0298		
SPKN Hard Materials	SPKN 1203 EDTR	0.8	0.16 ~ 0.34	1.4	● 0048		
	SPKN 1504 EDTR		0.15 ~ 0.34	1.3	● 0049		
	SPKN 1203 EDTR - PW	0.8	0.20 ~ 0.35	1.4	● 0279		
	SPKN 1504 EDTR - PW		0.25 ~ 0.40	1.3	● 0299		
	SPKN 1203 EDTR - GW	0.6	0.25 ~ 0.5	1.51	● 0280		
	SPKN 1504 EDTR - GW	0.8	0.25 ~ 0.5	2.2	● 0305		
SPCN Ground insert	SPCN 1203 EDSR - M	0.8	0.2 ~ 0.4	1.82			● 0081
	SPCN 1203 EDSR - MR	0.8	0.2 ~ 0.4	1.77			● 0198
	SPCN 1504 EDSR - M	0.8	0.2 ~ 0.4	1.92			● 0098
	SPCN 1504 EDSR - MR	0.8	0.2 ~ 0.4	1.86			● 0199

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

Cutting Speed			Vc (m/min.)					
ISO	VDI	Sub Group	YG602		YG622		YG712	
			Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	140	380	140	400	170	300
	6~9	Low-Alloyed Steel	120	300	120	320	180	250
	10~11	High-Alloyed Steel	70	150	70	170	100	140
M	12~13	Ferritic & Martensitic	120	200	-	-	-	-
	14	Austenitic Stainless Steel	130	250	-	-	-	-
K	15~16	Grey Cast Iron	120	250	120	270	-	-
	17~18	Nodular Cast Iron	130	220	130	240	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-
S	31~37	Superalloys & Titanium	25	45	-	-	-	-
H	38~41	Hard Materials	40	80	40	100	-	-

Milling - Face Milling - Inserts
SPMT - Universal Positive (4 Corners)



Series	AS	IC	S
SPMT 1204	11°	12.7	4.81

EDP 1200..		
P25	P30	P20
M30		
K30	K30	
S20		

● : Stock item
○ : Order made item

SPMT	Designation	RE (mm)	Fz (mm/tooth)	BS (mm)	YG602	YG622	YG712
SPMT General	SPMT 120408	0.8	0.15 ~ 0.3		● 0223		

Cutting Speed			Vc (m/min.)					
ISO	VDI	Sub Group	YG602		YG622		YG712	
			Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	140	380	140	400	170	300
	6~9	Low-Alloyed Steel	120	300	120	320	180	250
	10~11	High-Alloyed Steel	70	150	70	170	100	140
M	12~13	Ferritic & Martensitic	120	200	-	-	-	-
	14	Austenitic Stainless Steel	130	250	-	-	-	-
K	15~16	Grey Cast Iron	120	250	120	270	-	-
	17~18	Nodular Cast Iron	130	220	130	240	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-
S	31~37	Superalloys & Titanium	25	45	-	-	-	-
H	38~41	Hard Materials	40	80	40	100	-	-

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

Technical drawing of a SPUN 1203 insert. The top view shows a square insert with a central hole, labeled with dimension LE. The side view shows the insert's profile, labeled with dimension RE, and the cutting edge angle AS. The thickness of the insert is labeled S.

Series	AS	IC	S
SPUN 1203	11°	12.7	3.2

EDP 1200..

P25 P30 P20

M30

K30

S20

● : Stock item

○ : Order made item

K30

S20

K30

S20

K30

S20

K30

S20

K30

S20

K30

S20

K30

S20

K30

S20

SPUN

Designation

RE
(mm)

Fz
(mm/tooth)

BS
(mm)

YG602

YG622

YG712

SPUN 120308

0.8

●
0224

SPUN
General

Image of a SPUN 120308 insert, showing a square shape with a central hole and rounded corners.

Milling - Shoulder Milling - Cutter
Cutters for ADKT, AOMT

Cutting Angle : 90°
2 Corner Positive

<S> Shell Mill

<W> Weldon

<M> Modular

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

unit:mm

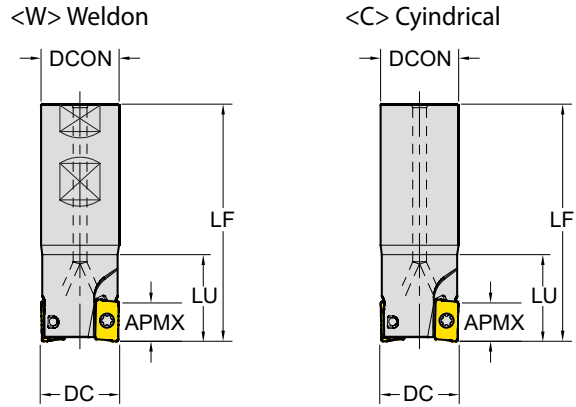
Series	APMX	Designation	EDP 1700..	DC	ZEFP	LU	LF	TYPE	DCON	CDBP	DCSFMS	PCD1	PCD2	
ADKT 1505	15.0	E90 - ADKT15 - D25Z2W25 - L150 - WOC	0517	25	2	50	150	Weldon	25	-	-	-	-	X
		E90 - ADKT15 - D30Z3W25 - L150 - WOC	0518	30	3	40	150		25	-	-	-	-	X
		E90 - ADKT15 - D32Z3W32 - L150 - WOC	0519	32	3	50	150		32	-	-	-	-	X
		F90 - ADKT15 - D40Z4S16	0520	40	4	-	40	Shellmill	16	20	36	-	-	●
		F90 - ADKT15 - D50Z5S22	0521	50	5	-	40		22	22	42	-	-	●
		F90 - ADKT15 - D63Z6S22	0522	63	6	-	40		22	22	48	-	-	●
		F90 - ADKT15 - D80Z7S27	0523	80	7	-	50		27	25	58	-	-	●
		F90 - ADKT15 - D100Z8S32	0524	100	8	-	50		32	26	65	-	-	●
		F90 - ADKT15 - D125Z9S40 - WOC	0525	125	9	-	63		40	32	80	-	-	X

Cutting Speed			Vc (m/min.)					
ISO	VDI	Sub Group	YG602		YG622		YG712	
			Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	140	380	140	400	170	300
	6~9	Low-Alloyed Steel	120	300	120	320	180	250
	10~11	High-Alloyed Steel	70	150	70	170	100	140
M	12~13	Ferritic & Martensitic	120	200	-	-	-	-
	14	Austenitic Stainless Steel	130	250	-	-	-	-
K	15~16	Grey Cast Iron	120	250	120	270	-	-
	17~18	Nodular Cast Iron	130	220	130	240	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-
S	31~37	Superalloys & Titanium	25	45	-	-	-	-
H	38~41	Hard Materials	40	80	40	100	-	-

Series	APMX	Designation	EDP 1700..	DC	ZEFP	LU	LF	TYPE	DCON /TDZ	CDBP	DCSFMS	PCD1	PCD2	
AOMT 1236	12.0	E90 - AOMT12 - D16Z2W16 - L150 - WOC	0526	16	2	50	150	Weldon	16	-	-	-	-	X
	12.0	E90 - AOMT12 - D25Z3W25 - L150 - WOC	0527	25	3	50	150		25	-	-	-	-	X
	12.0	E90 - AOMT12 - D32Z4W32 - L150 - WOC	0528	32	4	50	150		32	-	-	-	-	X
	12.0	F90 - AOMT12 - D50Z5S22	0529	50	5	-	40	Shellmill	22	22	42	-	-	●
	12.0	M90 - AOMT12 - D16Z2M08 - WOC	0530	16	2	-	30	Modular	M08	-	14.8	-	-	X
	12.0	M90 - AOMT12 - D20Z3M10 - WOC	0531	20	3	-	35		M10	-	18	-	-	X

Milling - Shoulder Milling - Cutter
Cutters for APKT

Cutting Angle : 90°
2 Corner Positive



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

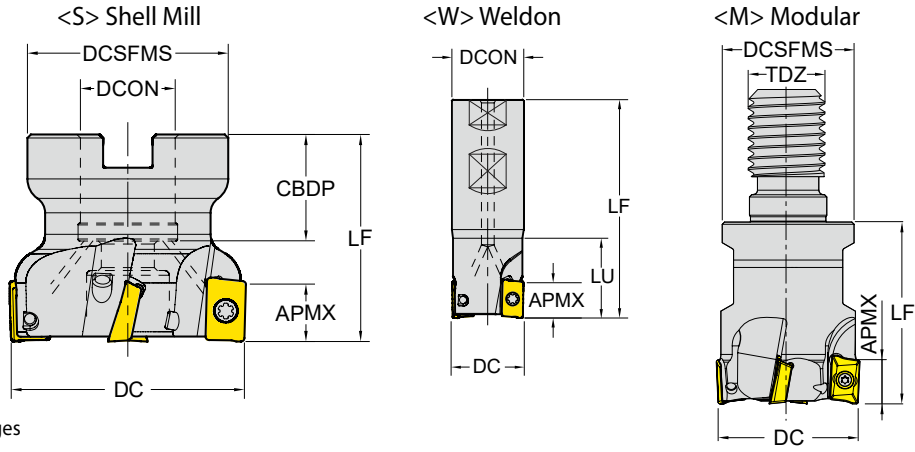
□: p. 122 unit:mm

Series	APMX	Designation	EDP 1700..	DC	ZEFP	LU	LF	TYPE	DCON	CBDP	DCSFS	PCD1	PCD2	
APKT 1003	10.0	E90 - APKT10 - D16Z2C16 - L100	0083	16	2	-	100	Cylindrical	16	-	-	-	-	●
		E90 - APKT10 - D16Z2C16 - L120	0532	16	2	30	120		16	-	-	-	-	●
		E90 - APKT10 - D16Z2C16 - L150	0154	16	2	50	150		16	-	-	-	-	●
		E90 - APKT10 - D16Z2C16 - L200	0533	16	2	100	200		16	-	-	-	-	●
		E90 - APKT10 - D20Z2C20 - L250	0534	20	2	150	250		20	-	-	-	-	●
		E90 - APKT10 - D20Z3C20 - L100	0535	20	3	30	100		20	-	-	-	-	●
		E90 - APKT10 - D20Z3C20 - L120	0085	20	3	-	120		20	-	-	-	-	●
		E90 - APKT10 - D20Z3C20 - L150	0536	20	3	50	150		20	-	-	-	-	●
		E90 - APKT10 - D20Z3C20 - L200	0270	20	3	100	200		20	-	-	-	-	●
		E90 - APKT10 - D25Z3C25 - L100	0537	25	3	30	100		25	-	-	-	-	●
		E90 - APKT10 - D25Z3C25 - L120	0186	25	3	30	120		25	-	-	-	-	●
		E90 - APKT10 - D30Z4C25 - L100	0122	30	4	30	100	Weldon	25	-	-	-	-	●
		E90 - APKT10 - D30Z4C25 - L120	0086	30	4	30	120		25	-	-	-	-	●
		E90 - APKT10 - D32Z4C25 - L100	0538	32	4	35	100		25	-	-	-	-	●
		E90 - APKT10 - D32Z4C25 - L150 - WOC	0539	32	4	35	150		25	-	-	-	-	X
		E90 - APKT10 - D12Z1W16 - L100	0540	12	1	30	100		16	-	-	-	-	●
		E90 - APKT10 - D14Z1W16 - L100	0541	14	1	30	100		16	-	-	-	-	●
		E90 - APKT10 - D16Z2W16 - L100	0542	16	2	30	100		16	-	-	-	-	●
		E90 - APKT10 - D16Z2W16 - L85	0082	16	2	-	85		16	-	-	-	-	●
		E90 - APKT10 - D18Z2W16 - L100	0543	18	2	30	100		16	-	-	-	-	●

▶ NEXT PAGE

Milling - Shoulder Milling - Cutter
Cutters for APKT

Cutting Angle : 90°
2 Corner Positive



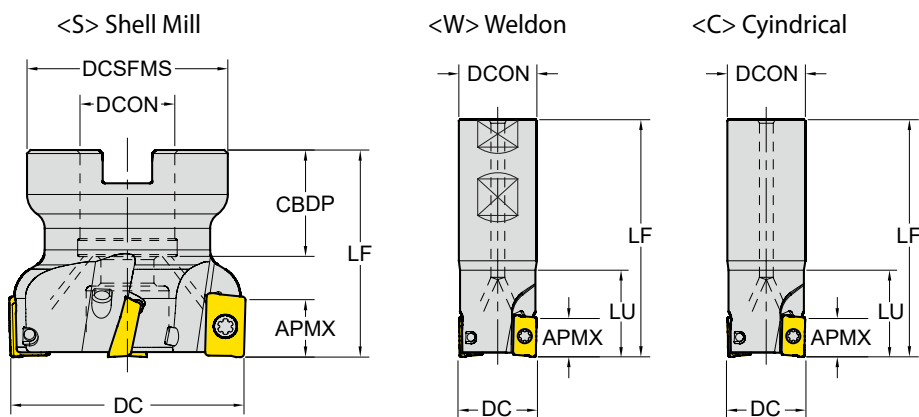
ZEFP : Effective Number of Cutting Edges
CICT : Number of Inserts
CBDP : Connection Bore Depth

□: p. 122 unit:mm

Series	APMX	Designation	EDP 1700..	DC	ZEFP	LU	LF	TYPE	DCON /TDZ	CBDP	DCSFS	PCD1	PCD2	
APKT 1003	10.0	E90 - APKT10 - D20Z3W20 - L100	0461	20	3	30	100	Weldon	20	-	-	-	-	●
		E90 - APKT10 - D20Z3W20 - L90	0084	20	3	-	90		20	-	-	-	-	●
		E90 - APKT10 - D22Z3W20 - L100	0544	22	3	30	100		20	-	-	-	-	●
		E90 - APKT10 - D25Z3W25 - L100	0545	25	3	30	100		25	-	-	-	-	●
		E90 - APKT10 - D25Z4W25 - L100	0546	25	4	30	100		25	-	-	-	-	●
		E90 - APKT10 - D32Z4W32 - L150 - WOC	0547	32	4	50	150		32	-	-	-	-	X
		F90 - APKT10 - D40Z4S16	0087	40	4	-	40	Shellmill	16	18	34	-	-	●
		F90 - APKT10 - D40Z5S16	0472	40	5	-	40		16	20	36	-	-	●
		F90 - APKT10 - D50Z6S22	0215	50	6	-	40		22	22	42	-	-	●
		F90 - APKT10 - D50Z7S22	0088	50	7	-	40		22	20	42	-	-	●
		F90 - APKT10 - D63Z7S22	0548	63	7	-	40		22	22	48	-	-	●
		F90 - APKT10 - D80Z8S27	0549	80	8	-	50		27	25	58	-	-	●
		F90 - APKT10 - D100Z9S32	0550	100	9	-	50		32	26	65	-	-	●
		M90 - APKT10 - D16Z2M08	0551	16	2	-	30	Modular	M08	-	14.75	-	-	●
		M90 - APKT10 - D20Z3M10	0552	20	3	-	30		M10	-	18	-	-	●
		M90 - APKT10 - D25Z3M12	0553	25	3	-	35		M12	-	21	-	-	●
		M90 - APKT10 - D32Z4M16	0554	32	4	-	35		M16	-	29	-	-	●
		M90 - APKT10 - D40Z5M16	0555	40	5	-	43		M16	-	29	-	-	●
		M90 - APKT10 - D42Z5M16	0556	42	5	-	43		M16	-	29	-	-	●

Milling - Shoulder Milling - Cutter
Cutters for APKT

Cutting Angle : 90°
2 Corner Positive



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

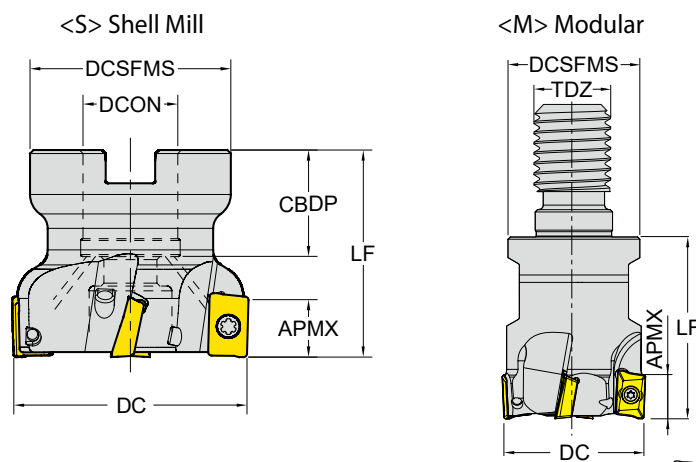
p. 122 unit:mm

Series	APMX	Designation	EDP 1700..	DC	ZEFP	LU	LF	TYPE	DCON	CBDP	DCSFMS	PCD1	PCD2	
APKT 1604	16.0	E90 - APKT16 - D25Z2C20 - L100	0091	25	2	-	100	Cylindrical	20	-	-	-	-	●
		E90 - APKT16 - D25Z2C20 - L100 - WOC	0243	25	2	35	100		20	-	-	-	-	X
		E90 - APKT16 - D25Z2C25 - L250 - WOC	0557	25	2	100	250		25	-	-	-	-	X
		E90 - APKT16 - D32Z2C32 - L250 - WOC	0558	32	2	100	250		32	-	-	-	-	X
		E90 - APKT16 - D32Z3C25 - L110	0094	32	3	-	110		25	-	-	-	-	●
		E90 - APKT16 - D32Z3C25 - L200	0559	32	3	40	200		25	-	-	-	-	●
		E90 - APKT16 - D32Z3C32 - L150 - WOC	0250	32	3	50	150		32	-	-	-	-	X
		E90 - APKT16 - D32Z3C32 - L250 - WOC	0560	32	3	100	250		32	-	-	-	-	X
		E90 - APKT16 - D40Z4C32 - L150 - WOC	0561	40	4	40	150		32	-	-	-	-	X
		E90 - APKT16 - D25Z2W25 - L100	0562	25	2	35	100	Weldon	25	-	-	-	-	●
		E90 - APKT16 - D25Z2W25 - L110	0092	25	2	-	110		25	-	-	-	-	●
		E90 - APKT16 - D28Z3W25 - L100	0563	28	3	40	100		25	-	-	-	-	●
		E90 - APKT16 - D30Z3W25 - L110	0564	30	3	40	110		25	-	-	-	-	●
		E90 - APKT16 - D32Z3W25 - L110	0093	32	3	-	110		25	-	-	-	-	●
		E90 - APKT16 - D32Z3W32 - L110	0565	32	3	40	110		32	-	-	-	-	●
		E90 - APKT16 - D36Z3W32 - L110	0566	36	3	40	110		32	-	-	-	-	●
		F90 - APKT16 - D40Z4S16	0275	40	4	-	40	Shellmill	16	20	36	-	-	●
		F90 - APKT16 - D50Z5S22	0095	50	5	-	40		22	20	45	-	-	●

▶ NEXT PAGE

Milling - Shoulder Milling - Cutter
Cutters for APKT

Cutting Angle : 90°
2 Corner Positive



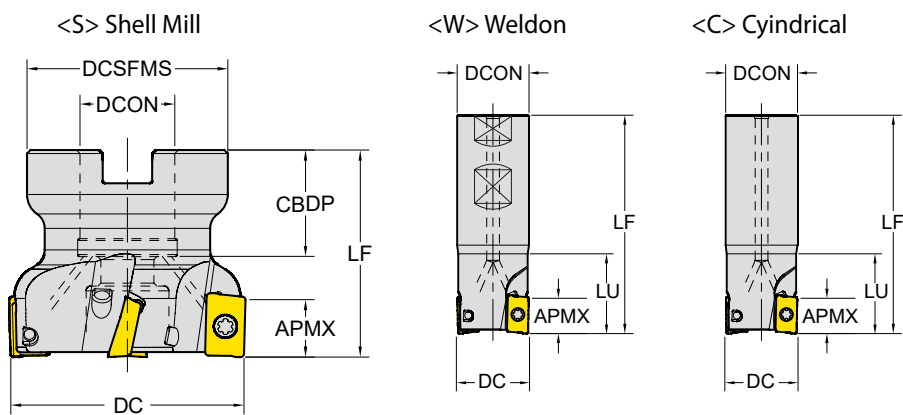
ZEFP : Effective Number of Cutting Edges
CICT : Number of Inserts
CDBP : Connection Bore Depth

p. 122 unit:mm

Series	APMX	Designation	EDP 1700..	DC	ZEFP	LU	LF	TYPE	DCON /TDZ	CBDP	DCSFMS	PCD1	PCD2	
APKT 1604	16.0	F90 - APKT16 - D52Z5S22	0567	52	5	-	40	Shellmill	22	22	42	-	-	●
		F90 - APKT16 - D63Z6S22	0096	63	6	-	40		22	20	50	-	-	●
		F90 - APKT16 - D80Z7S27	0097	80	7	-	50		27	23	56	-	-	●
		F90 - APKT16 - D100Z8S32	0181	100	8	-	50		32	26	65	-	-	●
		F90 - APKT16 - D125Z9S40 - WOC	0238	125	9	-	63		40	32	80	-	-	X
		F90 - APKT16 - D160Z10S40 - WOC	0568	160	10	-	63		40	32	110	66.7	-	X
		F90 - APKT16 - D200Z12S60 - WOC	0569	200	12	-	63		60	40	130	101.6	-	X
		M90 - APKT16 - D25Z2M12	0570	25	2	-	43	Modular	M12	-	21	-	-	●
		M90 - APKT16 - D32Z3M16	0571	32	3	-	43		M16	-	29	-	-	●
		M90 - APKT16 - D42Z4M16	0572	42	4	-	43		M16	-	29	-	-	●

Milling - Shoulder Milling - Cutter
Cutters for APMT

Cutting Angle : 90°
2 Corner Positive



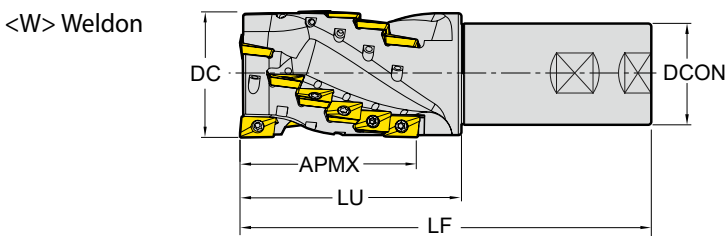
ZEFP : Effective Number of Cutting Edges
CICT : Number of Inserts
CBDP : Connection Bore Depth

p. 123 unit:mm

Series	APMX	Designation	EDP 1700..	DC	ZEFP	LU	LF	TYPE	DCON	CBDP	DCSFMS	PCD1	PCD2	
APMT 1135	10.0	E90 - APMT11 - D16Z2C16 - L120	0102	16	2	-	120	Cylindrical	16	-	-	-	-	●
		E90 - APMT11 - D20Z2C20 - L120	0103	20	2	-	120		20	-	-	-	-	●
		E90 - APMT11 - D25Z4C25 - L150	0104	25	4	-	150		25	-	-	-	-	●
		E90 - APMT11 - D32Z4W25 - L110	0105	32	4	-	110	Weldon	25	-	-	-	-	●
APMT 1604	16.0	E90 - APMT16 - D25Z2C25 - L120	0107	25	2	-	120	Cylindrical	25	-	-	-	-	●
		E90 - APMT16 - D32Z3W32 - L110	0108	32	3	-	110	Weldon	32	-	-	-	-	●
		F90 - APMT16 - D50Z5S22	0109	50	5	-	40	Shellmill	22	20	42	-	-	●
		F90 - APMT16 - D63Z6S22	0110	63	6	-	40		22	20	50	-	-	●
		F90 - APMT16 - D80Z7S27	0111	80	7	-	50		27	23	56	-	-	●

Milling - Shoulder Milling - Helical Cutter
Cutters for APKT

Cutting Angle : 90°
2 Corner Positive



ZEFP : Effective Number of Cutting Edges
CICT : Number of Inserts

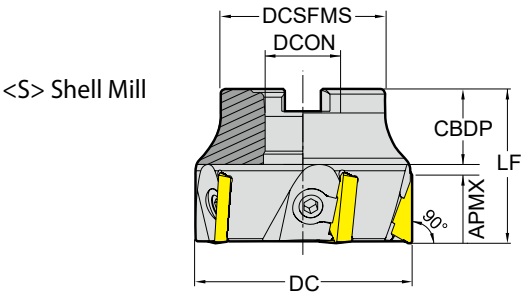
p. 122 unit:mm

Series	APMX	Designation	EDP 1700..	DC	ZEFP	CICT*	LU	LF	TYPE	DCON	
APKT 1003	37.0	E90 - APKT10 - D25AP37Z208W25 - L105	0573	25	2	8	50	105	Weldon	25	●
	46.0	E90 - APKT10 - D32AP46Z315W32 - L115	0574	32	3	15	55	115		32	●
	55.0	E90 - APKT10 - D40AP55Z318W32 - L130	0575	40	3	18	70	130		32	●

*: No. of inserts

Milling - Shoulder Milling - Cutter
Cutters for TPKN, TPKR, TPCN

Cutting Angle : 90°
3 Corner Positive ISO

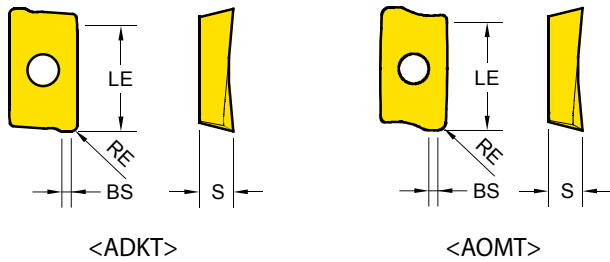


ZEFP : Effective Number of Cutting Edges
CICT : Number of Inserts
CDBP : Connection Bore Depth

unit:mm

Series	APMX	Designation	EDP 1700..	DC	ZEFP	LU	LF	TYPE	DCON	CBDP	DCSFMS	PCD1	PCD2	
TPKN TPKR TPCN 1603	12.0	F90 - TPKN16 - D50Z4S22 - WOC	0618	50	4	-	40	Shellmill	22	22	42	-	-	X
		F90 - TPKN16 - D63Z6S22 - WOC	0619	63	6	-	45		22	22	48	-	-	X
		F90 - TPKN16 - D80Z7S27 - WOC	0620	80	7	-	50		27	25	58	-	-	X
		F90 - TPKN16 - D125Z8S40 - WOC	0621	125	8	-	63		40	32	80	-	-	X
TPKN TPKR TPCN 2204	18.0	F90 - TPKN22 - D63Z5S22 - WOC	0622	63	5	-	45	Shellmill	22	22	48	-	-	X
		F90 - TPKN22 - D80Z6S27 - WOC	0623	80	6	-	50		27	25	58	-	-	X
		F90 - TPKN22 - D100Z7S32 - WOC	0624	100	7	-	50		32	26	65	-	-	X
		F90 - TPKN22 - D125Z8S40 - WOC	0625	125	8	-	63		40	32	80	-	-	X
		F90 - TPKN22 - D160Z9S40 - WOC	0626	160	9	-	63		40	32	110	66.7	-	X
		F90 - TPKN22 - D200Z12S60 - WOC	0627	200	12	-	63		60	40	130	101.6	-	X
		F90 - TPKN22 - D250Z15S60 - WOC	0628	250	15	-	63		60	40	160	101.6	-	X
		F90 - TPKN22 - D315Z18S60 - WOC	0629	315	18	-	63		60	40	220	101.6	177.8	X

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



Series	LE	IC	S
ADKT 1505	13.7	9.7	5.8
AOMT 1236	10.5	6.6	3.6

EDP 1200..			
P25	P30	P20	
M30	K30	K30	
S20			

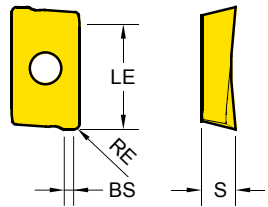
● : Stock item
○ : Order made item

ADKT	Designation	RE (mm)	Fz (mm/tooth)	BS (mm)	YG602	YG622	YG712
ADKT General	ADKT 150508 PDTR	0.8	0.16 ~ 0.30	1.87	● 0220		

AOMT	Designation	RE (mm)	Fz (mm/tooth)	BS (mm)	YG602	YG622	YG712
AOMT General	AOMT 123604 PDTR	0.4	0.08 ~ 0.22	1.07	● 0217		
	AOMT 123608 PDTR	0.8	0.08 ~ 0.24	0.91	● 0218		

Cutting Speed			Vc (m/min.)					
ISO	VDI	Sub Group	YG602		YG622		YG712	
			Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	140	380	140	400	170	300
	6~9	Low-Alloyed Steel	120	300	120	320	180	250
	10~11	High-Alloyed Steel	70	150	70	170	100	140
M	12~13	Ferritic & Martensitic	120	200	-	-	-	-
	14	Austenitic Stainless Steel	130	250	-	-	-	-
K	15~16	Grey Cast Iron	120	250	120	270	-	-
	17~18	Nodular Cast Iron	130	220	130	240	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-
S	31~37	Superalloys & Titanium	25	45	-	-	-	-
H	38~41	Hard Materials	40	80	40	100	-	-

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



Series	LE	IC	S
APKT 1003	9.9	6.7	3.6
APKT 1604	15.2	9.4	5.3

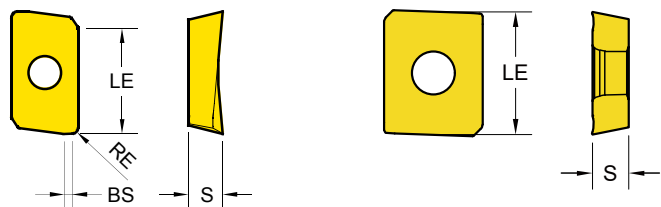
EDP 1200..		
P25	P30	P20
M30		
K30	K30	
S20		

● : Stock item
○ : Order made item

APKT	Designation	RE (mm)	Fz (mm/tooth)	BS (mm)	YG602	YG622	YG712
APKT General	APKT 100305 PDTR	0.5	0.15 ~ 0.24	0.86	● 0005		
	APKT 100308 PDTR	0.8	0.15 ~ 0.24	0.9	● 0004		
	APKT 160404 PDTR	0.4	0.15 ~ 0.25	1.11	● 0003		
	APKT 160408 PDTR	0.8	0.15 ~ 0.30	1.32	● 0001		
	APKT 160412 PDTR	1.2	0.15 ~ 0.32	1.13	● 0002		
	APKT 160416 PDTR	1.6	0.15 ~ 0.34	1.13	● 0006		
	APKT 160424 PDTR	2.4	0.15 ~ 0.28		● 0255		
-ST Stainless Steel Super Alloy	APKT 100305 - ST	0.5	0.08 ~ 0.22	0.86	● 0278		
	APKT 160408 - ST	0.8	0.08 ~ 0.25	1.32	● 0270		
-TR Hardened Steel	APKT 160404 - TR	0.4	0.26 ~ 0.40	2.12	● 0492		
	APKT 160408 - TR	0.8	0.26 ~ 0.40	1.32	● 0256	● 0337	
	APKT 160412 - TR	1.2	0.26 ~ 0.40	2.4	● 0493		
	APKT 160416 - TR	1.6	0.26 ~ 0.40	2.4	● 0472		
	APKT 160424 - TR	2.4	0.26 ~ 0.40	1.5	● 0494		

Cutting Speed			Vc (m/min.)					
ISO	VDI	Sub Group	YG602		YG622		YG712	
			Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	140	380	140	400	170	300
	6~9	Low-Alloyed Steel	120	300	120	320	180	250
	10~11	High-Alloyed Steel	70	150	70	170	100	140
M	12~13	Ferritic & Martensitic	120	200	-	-	-	-
	14	Austenitic Stainless Steel	130	250	-	-	-	-
K	15~16	Grey Cast Iron	120	250	120	270	-	-
	17~18	Nodular Cast Iron	130	220	130	240	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-
S	31~37	Superalloys & Titanium	25	45	-	-	-	-
H	38~41	Hard Materials	40	80	40	100	-	-

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



Series	LE	IC	S
APMT 1135	9.5	6.2	3.5
APMT 1604	14.6	9.2	4.76
APMT 1504	14	12.7	4.76

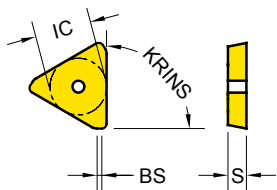
EDP 1200..		
P25	P30	P20
M30		
K30	K30	
S20		

● : Stock item
○ : Order made item

APMT	Designation	RE (mm)	Fz (mm/tooth)	BS (mm)	YG602	YG622	YG712
APMT General	APMT 113504 PDTR	0.4	0.15 ~ 0.22	1.26	● 0009		
	APMT 113508 PDTR	0.8	0.15 ~ 0.25	1.07	● 0010		
	APMT 160408 PDTR	0.8	0.16 ~ 0.30	1.11	● 0008		● 0423
APMT 1504 General	APMT 1504		0.14 ~ 0.28		● 0276	● 0445	

Cutting Speed			Vc (m/min.)					
ISO	VDI	Sub Group	YG602		YG622		YG712	
			Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	140	380	140	400	170	300
	6~9	Low-Alloyed Steel	120	300	120	320	180	250
	10~11	High-Alloyed Steel	70	150	70	170	100	140
M	12~13	Ferritic & Martensitic	120	200	-	-	-	-
	14	Austenitic Stainless Steel	130	250	-	-	-	-
K	15~16	Grey Cast Iron	120	250	120	270	-	-
	17~18	Nodular Cast Iron	130	220	130	240	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-
S	31~37	Superalloys & Titanium	25	45	-	-	-	-
H	38~41	Hard Materials	40	80	40	100	-	-

Milling - Shoulder Milling - Inserts
TPKN / KR / CN - Shoulder Milling Positive (3 Corner ISO)



Series	KRINS	IC	S
TP** 1603	90°	9.53	3.18
TP** 2204	90°	12.7	4.76

EDP 1200..			
P25	P30	P20	
M30			
K30	K30		
S20			

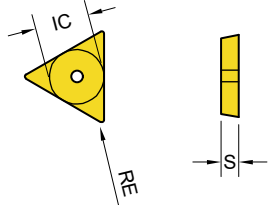
● : Stock item
○ : Order made item

TPKR TPKN TPCN	Designation	RE (mm)	Fz (mm/tooth)	BS (mm)	YG602	YG622	YG712
TPKR General	TPKR 1603 PDTR		0.15 ~ 0.28	1.2	● 0060		
	TPKR 1603 PDTR -PW		0.15 ~ 0.28	1.2	● 0300		
	TPKR 2204 PDTR		0.18 ~ 0.35	1.7	● 0061		
	TPKR 2204 PDTR -PW		0.18 ~ 0.35	1.7	● 0301		
TPKN Hard Materials	TPKN 1603 PDTR		0.15 ~ 0.30	1.2	● 0062		
	TPKN 2204 PDTR		0.17 ~ 0.30	1.7	● 0063		
	TPKN 1603 PDTR -PW		0.20 ~ 0.35	1.2	● 0302		
	TPKN 2204 PDTR -PW		0.24 ~ 0.40	1.7	● 0303		
	TPKN 1603 PDTR-GW		0.15 ~ 0.3	1.62	● 0306		
	TPKN 2204 PDTR-GW		0.24 ~ 0.4	2.49	● 0307		
TPCN Ground insert	TPCN 2204 PDSR -M		0.2 ~ 0.4	1.76			● 0180
	TPCN 2204 PDSR -MR		0.2 ~ 0.4	1.76			● 0202

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

Cutting Speed			Vc (m/min.)					
ISO	VDI	Sub Group	YG602		YG622		YG712	
			Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	140	380	140	400	170	300
	6~9	Low-Alloyed Steel	120	300	120	320	180	250
	10~11	High-Alloyed Steel	70	150	70	170	100	140
M	12~13	Ferritic & Martensitic	120	200	-	-	-	-
	14	Austenitic Stainless Steel	130	250	-	-	-	-
K	15~16	Grey Cast Iron	120	250	120	270	-	-
	17~18	Nodular Cast Iron	130	220	130	240	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-
S	31~37	Superalloys & Titanium	25	45	-	-	-	-
H	38~41	Hard Materials	40	80	40	100	-	-

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



Series	IC	S
TPUN 1603	9.53	3.18

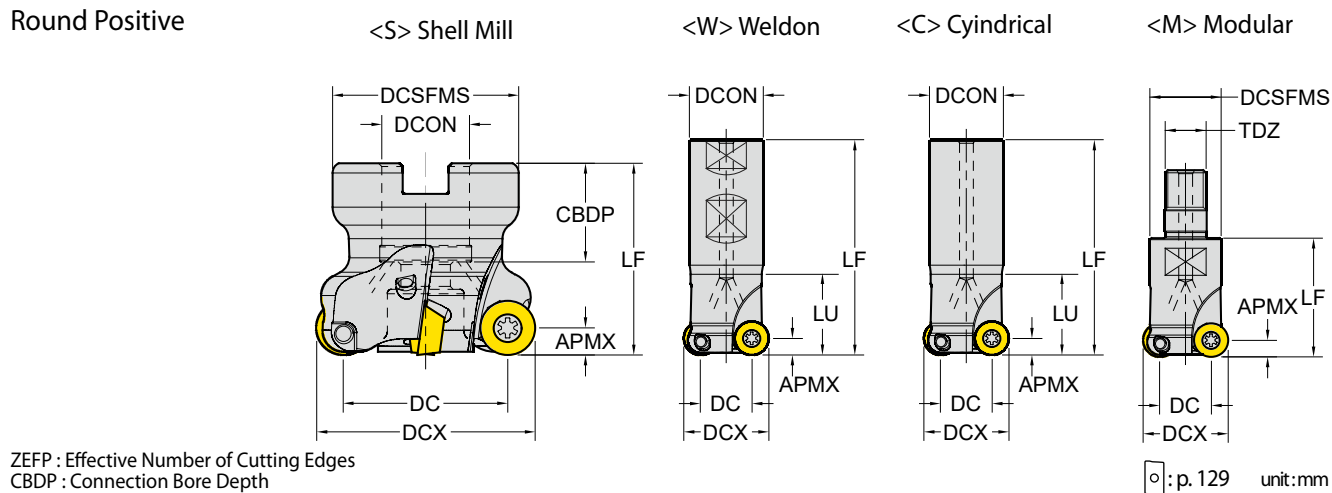
EDP 1200..			
P25	P30	P20	
M30			
K30	K30		
S20			

● : Stock item
○ : Order made item

TPUN	Designation	RE (mm)	Fz (mm/tooth)	BS (mm)	YG602	YG622	YG712
TPUN	TPUN 160308	0.8	0.08 ~ 0.15		● 0064		

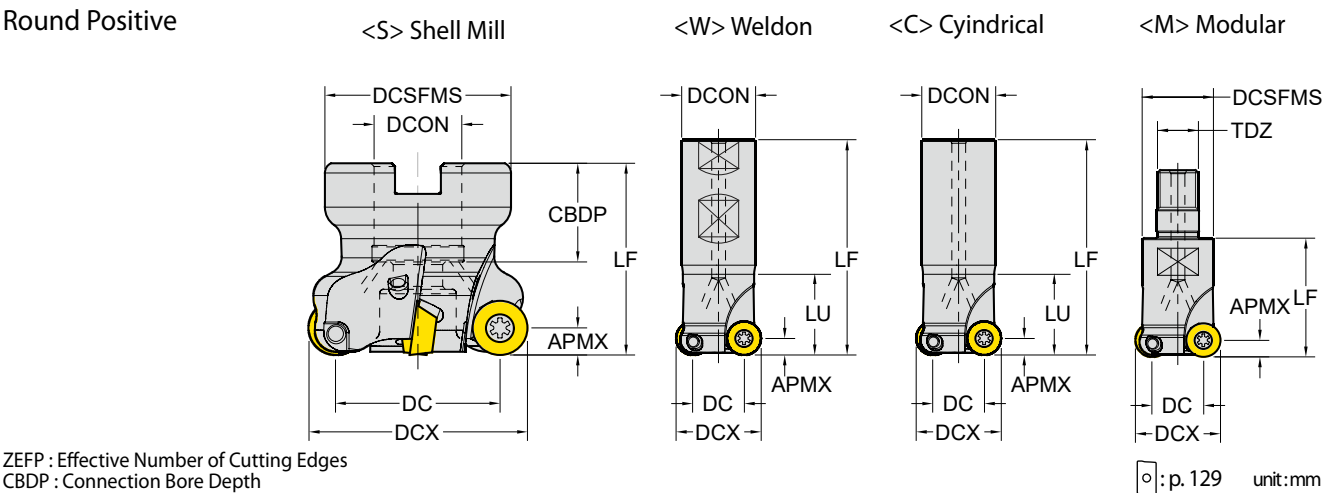
Cutting Speed			Vc (m/min.)					
ISO	VDI	Sub Group	YG602		YG622		YG712	
			Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	140	380	140	400	170	300
	6~9	Low-Alloyed Steel	120	300	120	320	180	250
	10~11	High-Alloyed Steel	70	150	70	170	100	140
M	12~13	Ferritic & Martensitic	120	200	-	-	-	-
	14	Austenitic Stainless Steel	130	250	-	-	-	-
K	15~16	Grey Cast Iron	120	250	120	270	-	-
	17~18	Nodular Cast Iron	130	220	130	240	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-
S	31~37	Superalloys & Titanium	25	45	-	-	-	-
H	38~41	Hard Materials	40	80	40	100	-	-

Milling - Profiling - Cutter
Cutters for RDKT, RDKW



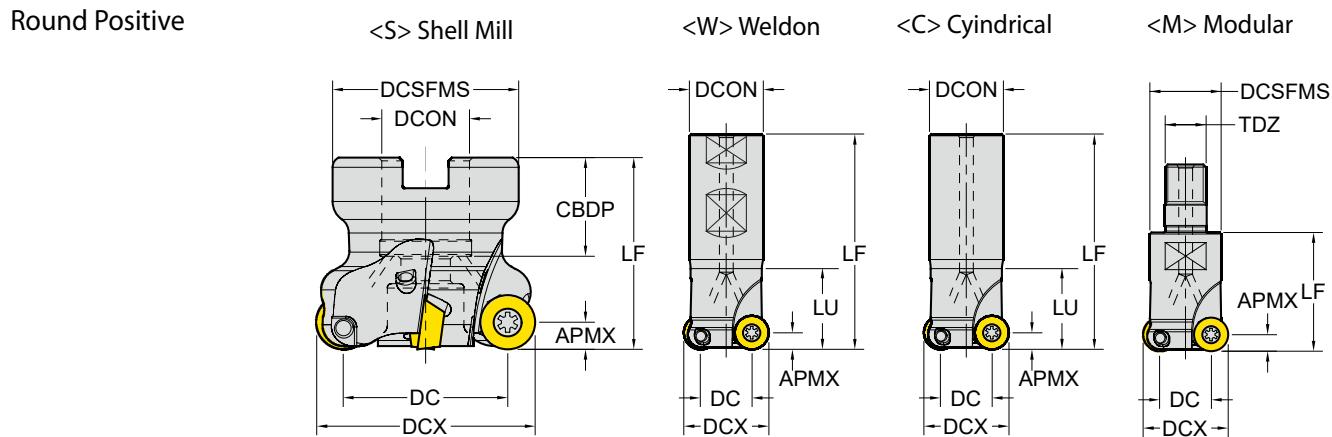
Series	APMX	Designation	EDP 1700..	DC	DCX	ZEFP	LU	LF	TYPE	DCON /TDZ	CDBP	DCSFMS	
RDKT RDKW 0802	4.0	E - RDKT08 - D16Z2C16 - L160	0005	8	16	2	-	160	Cylindrical	16	-	-	●
		E - RDKT08 - D20Z2C20 - L180	0007	12	20	2	-	180		20	-	-	●
		E - RDKT08 - D25Z3C20 - L180	0009	17	25	3	-	180		20	-	-	●
		M - RDKT08 - D16Z2M08	0010	8	16	2	-	23	Modular	M08	-	13	●
		M - RDKT08 - D20Z2M10	0011	12	20	2	-	30		M10	-	18	●
		M - RDKT08 - D25Z3M12	0012	17	25	3	-	35		M12	-	21	●
RDKT RDKW 10T3	5.0	E - RDKT10 - D20Z2C20 - L150 - WOC	0576	10	20	2	60	150	Cylindrical	20	-	-	X
		E - RDKT10 - D20Z2C20 - L180	0013	10	20	2	-	180		20	-	-	●
		E - RDKT10 - D25Z2C25 - L150 - WOC	0299	15	25	2	60	150		25	-	-	X
		E - RDKT10 - D25Z2C25 - L180	0015	15	25	2	-	180		25	-	-	●
		E - RDKT10 - D20Z2W20 - L150 - WOC	0577	10	20	2	60	150	Weldon	20	-	-	X
		E - RDKT10 - D25Z2W25 - L150 - WOC	0578	15	25	2	60	150		25	-	-	X
		E - RDKT10 - D32Z3W32 - L150 - WOC	0579	22	32	3	60	150		32	-	-	X
		F - RDKT10 - D40Z5S16	0019	30	40	5	-	40	Shellmill	16	18	34	●
		F - RDKT10 - D50Z5S22	0580	40	50	5	-	50		22	22	42	●
		F - RDKT10 - D50Z6S22	0020	40	50	6	-	50		22	22	42	●
		F - RDKT10 - D63Z6S22	0581	53	63	6	-	50		22	22	48	●
		M - RDKT10 - D20Z2M10	0017	10	20	2	-	30	Modular	M10	-	18	●
		M - RDKT10 - D25Z3M12	0018	15	25	3	-	35		M12	-	21	●

Milling - Profiling - Cutter
Cutters for RDKT, RDKW



Series	APMX	Designation	EDP 1700..	DC	DCX	ZEFP	LU	LF	TYPE	DCON /TDZ	CDBP	DCSFMS	
RDKT RDKW 1204	6.0	E - RDKT12 - D25Z2C25 - L180	0021	13	25	2	-	180	Cylindrical	25	-	-	●
		E - RDKT12 - D32Z2C32 - L200	0023	20	32	2	-	200		32	-	-	●
		E - RDKT12 - D32Z3C32 - L160	0024	20	32	3	-	160		32	-	-	●
		E - RDKT12 - D32Z3C32 - L160 - WOC	0582	20	32	3	70	160		32	-	-	X
		E - RDKT12 - D33Z3C32 - L160 - WOC	0583	21	33	3	70	160	Weldon	32	-	-	X
		E - RDKT12 - D32Z3W32 - L160 - WOC	0584	20	32	3	50	160		32	-	-	X
		F - RDKT12 - D40Z4S16	0028	28	40	4	-	40	Shellmill	16	18	34	●
		F - RDKT12 - D50Z5S22	0029	38	50	5	-	50		22	22	42	●
		F - RDKT12 - D52Z5S22	0585	40	52	5	-	50		22	22	42	●
		F - RDKT12 - D63Z6S22	0030	51	63	6	-	50		22	20	48	●
		F - RDKT12 - D80Z7S27	0586	68	80	7	-	50	Modular	27	25	58	●
		F - RDKT12 - D100Z7S32	0587	88	100	7	-	50		32	26	65	●
		F - RDKT12 - D100Z8S32	0588	88	100	8	-	50		32	26	65	●
		M - RDKT12 - D25Z2M12	0026	13	25	2	-	35		M12	-	21	●
		M - RDKT12 - D32Z3M16	0027	20	32	3	-	42		M16	-	29	●
		M - RDKT12 - D42Z4M16	0589	30	42	4	-	43		M16	-	29	●

Milling - Profiling - Cutter
Cutters for RPMT, RPMW

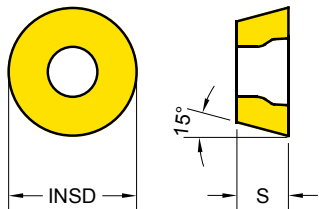


ZEFP : Effective Number of Cutting Edges
CDBP : Connection Bore Depth

unit:mm

Series	APMX	Designation	EDP 1700..	DC	DCX	ZEFP	LU	LF	TYPE	DCON /TDZ	CBDP	DCSFMS	
RPMT RPMW 08T2	4.0	E - RPMT08 - D20Z2W20 - L150	0590	12	20	2	60	150	Weldon	20	-	-	●
		E - RPMT08 - D25Z3W25 - L200	0591	17	25	3	100	200		25	-	-	●
		M - RPMT08 - D20Z2M10	0592	12	20	2	-	30	Modular	M10	-	18	●
RPMT RPMW 10T3	5.0	E - RPMT10 - D25Z2W25 - L200	0593	15	25	2	100	200	Weldon	25	-	-	●
		M - RPMT10 - D25Z2M12	0594	15	25	2	-	35		M12	-	21	●
		M - RPMT10 - D32Z3M16	0595	22	32	3	-	43	Modular	M16	-	29	●
RPMT RPMW 1204	6.0	E - RPMT12 - D32Z3W32 - L150	0596	20	32	3	60	150	Weldon	32	-	-	●
		E - RPMT12 - D32Z3W32 - L200	0597	20	32	3	100	200		32	-	-	●
		F - RPMT12 - D50Z4S22	0598	38	50	4	-	50	Shellmill	22	22	42	●
		F - RPMT12 - D52Z5S22	0599	40	52	5	-	50		22	22	42	●
		F - RPMT12 - D63Z5S22	0600	51	63	5	-	50		22	22	48	●
		F - RPMT12 - D80Z6S27	0601	68	80	6	-	50		27	25	58	●
		M - RPMT12 - D32Z3M16	0602	20	32	3	-	43	Modular	M16	-	29	●
		M - RPMT12 - D40Z4M16	0603	28	40	4	-	43		M16	-	29	●

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



Series	INSD	S
RDK* 0501	5	1.4
RDK* 0702	7	2.4
RDK* 0802	8	2.4
RDK* 10T3	10	4.0
RDK* 1204	12	4.8

EDP 1200..

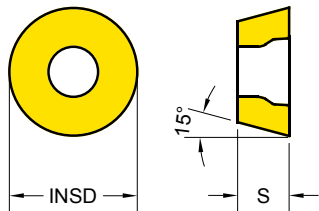
P25	P30	P20
M30		
K30	K30	
S20		

● : Stock item
○ : Order made item

RDKT RDKW	Designation	Fz (mm/tooth)	YG602	YG622	YG712
RDKT General	RDKT 0802M0	0.15 ~ 0.25	● 0035		
	RDKT 10T3M0	0.15 ~ 0.28	● 0041		
	RDKT 1204M0	0.20 ~ 0.30	● 0034		
-ST Stainless Steel Super Alloy	RDKT 0802M0 - ST	0.08 ~ 0.25	● 0292		
	RDKT 10T3M0 - ST	0.08 ~ 0.28	● 0293		
	RDKT 1204M0 - ST	0.10 ~ 0.30	● 0294		
-TR Hardened Steel	RDKT 0802M0 - TR	0.18 ~ 0.35	● 0284	● 0339	
	RDKT 10T3M0 - TR	0.22 ~ 0.40	● 0285	● 0338	
	RDKT 1204M0 - TR	0.22 ~ 0.40	● 0272	● 0340	
RDKW Hard Materials	RDKW 0501M0	0.10 ~ 0.20	● 0207		
	RDKW 0702M0	0.12 ~ 0.25	● 0208		
	RDKW 0802M0	0.13 ~ 0.25	● 0043		
	RDKW 10T3M0	0.16 ~ 0.30	● 0040		
	RDKW 1204M0	0.16 ~ 0.35	● 0042		

Cutting Speed			Vc (m/min.)					
ISO	VDI	Sub Group	YG602		YG622		YG712	
			Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	140	380	140	400	170	300
	6~9	Low-Alloyed Steel	120	300	120	320	180	250
	10~11	High-Alloyed Steel	70	150	70	170	100	140
M	12~13	Ferritic & Martensitic	120	200	-	-	-	-
	14	Austenitic Stainless Steel	130	250	-	-	-	-
K	15~16	Grey Cast Iron	120	250	120	270	-	-
	17~18	Nodular Cast Iron	130	220	130	240	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-
S	31~37	Superalloys & Titanium	25	45	-	-	-	-
H	38~41	Hard Materials	40	80	40	100	-	-

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



Series	INSD	S
RDM* 0802	8	2.38
RDM* 0803	8	3.18
RDM* 10T3	10	3.97
RDM* 1204	12	4.76

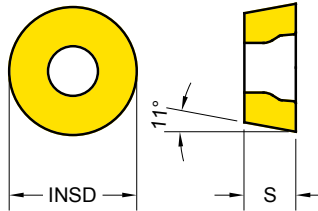
EDP 1200..			
P25	P30	P20	
M30			
K30	K30		
S20			

● : Stock item
○ : Order made item

RDMT RDMW		Designation	Fz (mm/tooth)	YG602	YG622	YG712
RDMT General		RDMT 0802M0	0.15 ~ 0.25	● 0245		
		RDMT 0803M0	0.15 ~ 0.25	● 0225		
		RDMT 10T3M0	0.18 ~ 0.28	● 0246		
		RDMT 1204M0	0.2 ~ 0.3	● 0226		
RDMW Hard Materials		RDMW 0802M0	0.05 ~ 0.15	● 0227		
		RDMW 10T3M0	0.1 ~ 0.25	● 0228		
		RDMW 1204M0	0.16 ~ 0.3	● 0229		

Cutting Speed			Vc (m/min.)					
ISO	VDI	Sub Group	YG602		YG622		YG712	
			Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	140	380	140	400	170	300
	6~9	Low-Alloyed Steel	120	300	120	320	180	250
	10~11	High-Alloyed Steel	70	150	70	170	100	140
M	12~13	Ferritic & Martensitic	120	200	-	-	-	-
	14	Austenitic Stainless Steel	130	250	-	-	-	-
K	15~16	Grey Cast Iron	120	250	120	270	-	-
	17~18	Nodular Cast Iron	130	220	130	240	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-
S	31~37	Superalloys & Titanium	25	45	-	-	-	-
H	38~41	Hard Materials	40	80	40	100	-	-

Milling - Profiling - Inserts
RPMT / W - Profiling Positive (Round)



Series	INSD	S
RPM* 08T2	8	2.78
RPM* 10T3	10	3.97
RPM* 1204	12	4.76

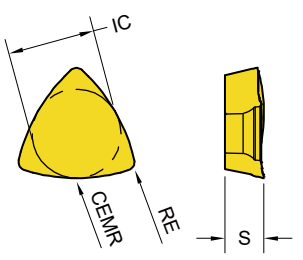
EDP 1200..			
P25	P30	P20	
M30			
K30	K30		
S20			

● : Stock item
○ : Order made item

RPMT RPMW		Designation	Fz (mm/tooth)	YG602	YG622	YG712
RPMT General		RPMT 08T2M0	0.10 ~ 0.24	● 0038		
		RPMT 10T3M0	0.16 ~ 0.30	● 0036		
		RPMT 1204M0	0.20 ~ 0.35	● 0037		● 0415
		RPMT 1204M0 - ST	0.10 ~ 0.30	● 0230		
-ST Stainless Steel Super Alloy						
RPMW Hard Materials		RPMW 1003M0	0.16 ~ 0.30	● 0204		
		RPMW 1204M0	0.16 ~ 0.35	● 0039		

Cutting Speed			Vc (m/min.)					
ISO	VDI	Sub Group	YG602		YG622		YG712	
			Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	140	380	140	400	170	300
	6~9	Low-Alloyed Steel	120	300	120	320	180	250
	10~11	High-Alloyed Steel	70	150	70	170	100	140
M	12~13	Ferritic & Martensitic	120	200	-	-	-	-
	14	Austenitic Stainless Steel	130	250	-	-	-	-
K	15~16	Grey Cast Iron	120	250	120	270	-	-
	17~18	Nodular Cast Iron	130	220	130	240	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-
S	31~37	Superalloys & Titanium	25	45	-	-	-	-
H	38~41	Hard Materials	40	80	40	100	-	-

Milling - Profiling - Inserts
RBEX50 - Profiling / Highfeed (3 Corner)

			Series	CEMR	IC	S
			RBEX50	25	12.7	5.55
						
			EDP 1200..			
			P25 P30 P20			
			M30			
			K30 K30			
			S20			
			YG602 YG622 YG712			
			● : Stock item ○ : Order made item			
RBEX50			Designation	RE (mm)		
			RBEX 50	1.2	0277	0443
						

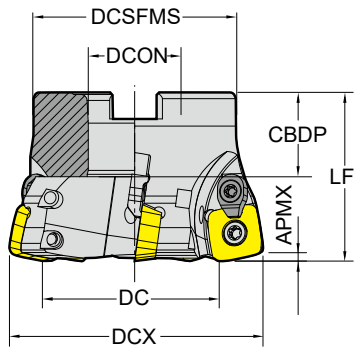
RBEX50
General

Cutting Speed			Vc (m/min.)					
ISO	VDI	Sub Group	YG602		YG622		YG712	
			Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	140	380	140	400	170	300
	6~9	Low-Alloyed Steel	120	300	120	320	180	250
	10~11	High-Alloyed Steel	70	150	70	170	100	140
M	12~13	Ferritic & Martensitic	120	200	-	-	-	-
	14	Austenitic Stainless Steel	130	250	-	-	-	-
K	15~16	Grey Cast Iron	120	250	120	270	-	-
	17~18	Nodular Cast Iron	130	220	130	240	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-
S	31~37	Superalloys & Titanium	25	45	-	-	-	-
H	38~41	Hard Materials	40	80	40	100	-	-

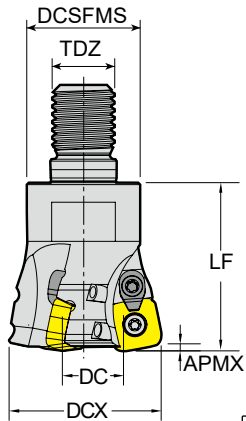
Milling - High Feed Milling - Cutter
Cutters for SDMT, SDMW

Cutting Angle : 10°
4 Corner Positive

<S> Shell Mill



<M> Modular

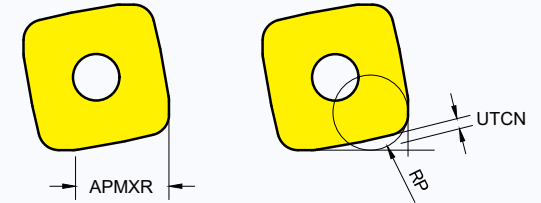


ZEFP : Effective Number of Cutting Edges
CDBP : Connection Bore Depth

p. 134 unit:mm

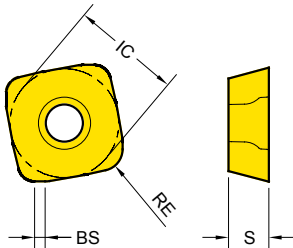
Series	APMX	Designation	EDP 1700..	DC	DCX	ZEFP	LF	TYPE	DCON /TDZ	CBDP	DCSFMS	
SDMT SDMW 1204	1.8	FHF - SDMW12 - D50Z4S22	0604	32.4	50	4	40	Shellmill	22	22	42	●
		FHF - SDMW12 - D63Z5S22	0605	45.4	63	5	40		22	22	48	●
		FHF - SDMW12 - D80Z6S27	0606	62.4	80	6	50		27	25	58	●
		FHF - SDMW12 - D100Z8S32	0607	82.4	100	8	50		32	26	65	●
		MHF - SDMW12 - D32Z2M16	0608	14.4	32	2	43	Modular	M16	-	29	●
		MHF - SDMW12 - D40Z3M16	0609	22.4	40	3	43		M16	-	29	●

Technical Information

	APMXR	RP	UTCN
	Radial AP Max	Programmed Corner R	Uncut Thickness
	8.6	R3.5	0.94

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

		Series	IC	S
		SDM* 1204	12.7	4.7



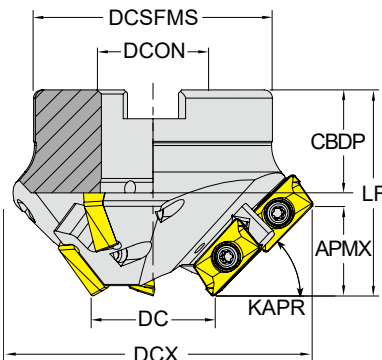
						EDP 1200..		
						P25	P30	P20
						M30		
						K30	K30	
						S20		
SDMT	Designation	RE (mm)	Fz (mm/tooth)	BS (mm)	YG602	YG622	YG712	
-ST Stainless Steel Super Alloy	SDMT 120420-ST	1.9	0.60 ~ 1.20	1.45	● 0274			
SDMW Hard Materials	SDMW 120420	1.9	0.60 ~ 1.40	1.4	● 0273	● 0341		

Cutting Speed			Vc (m/min.)					
ISO	VDI	Sub Group	YG602		YG622		YG712	
			Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	140	380	140	400	170	300
	6~9	Low-Alloyed Steel	120	300	120	320	180	250
	10~11	High-Alloyed Steel	70	150	70	170	100	140
M	12~13	Ferritic & Martensitic	120	200	-	-	-	-
	14	Austenitic Stainless Steel	130	250	-	-	-	-
K	15~16	Grey Cast Iron	120	250	120	270	-	-
	17~18	Nodular Cast Iron	130	220	130	240	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-
S	31~37	Superalloys & Titanium	25	45	-	-	-	-
H	38~41	Hard Materials	40	80	40	100	-	-

Milling - Taper Milling - Cutter
Cutters for APKT

2 Corner Positive

<S> Shell Mill



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

p. 136 unit:mm

Series	KAPR	APMX	Designation	EDP 1700..	DC	DCX	ZEFP	CICT	LF	TYPE	DCON	CBDP	DCSFMS	
APKT 1604	15	8.0	F15 - APKT16 - D35AP8Z306S27	0630	35	93	3	6	50	Shellmill	27	25	58	●
	45	21.5	F45 - APKT16 - D35AP21Z306S27	0631	35	77	3	6	50		27	25	58	●
	60	26.5	F60 - APKT16 - D35AP26Z306S22	0632	35	65	3	6	50		22	22	48	●
	75	29.5	F75 - APKT16 - D35AP29Z306S22	0633	35	50	3	6	50		22	22	42	●

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

Series	LE	IC	S
APKT 1604	15.2	9.4	5.3

EDP 1200..

P25 P30 P20

M30

K30 K30

S20

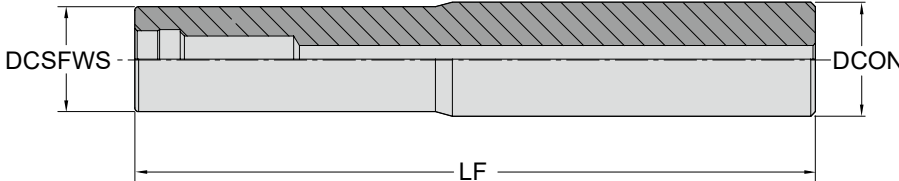
● : Stock item

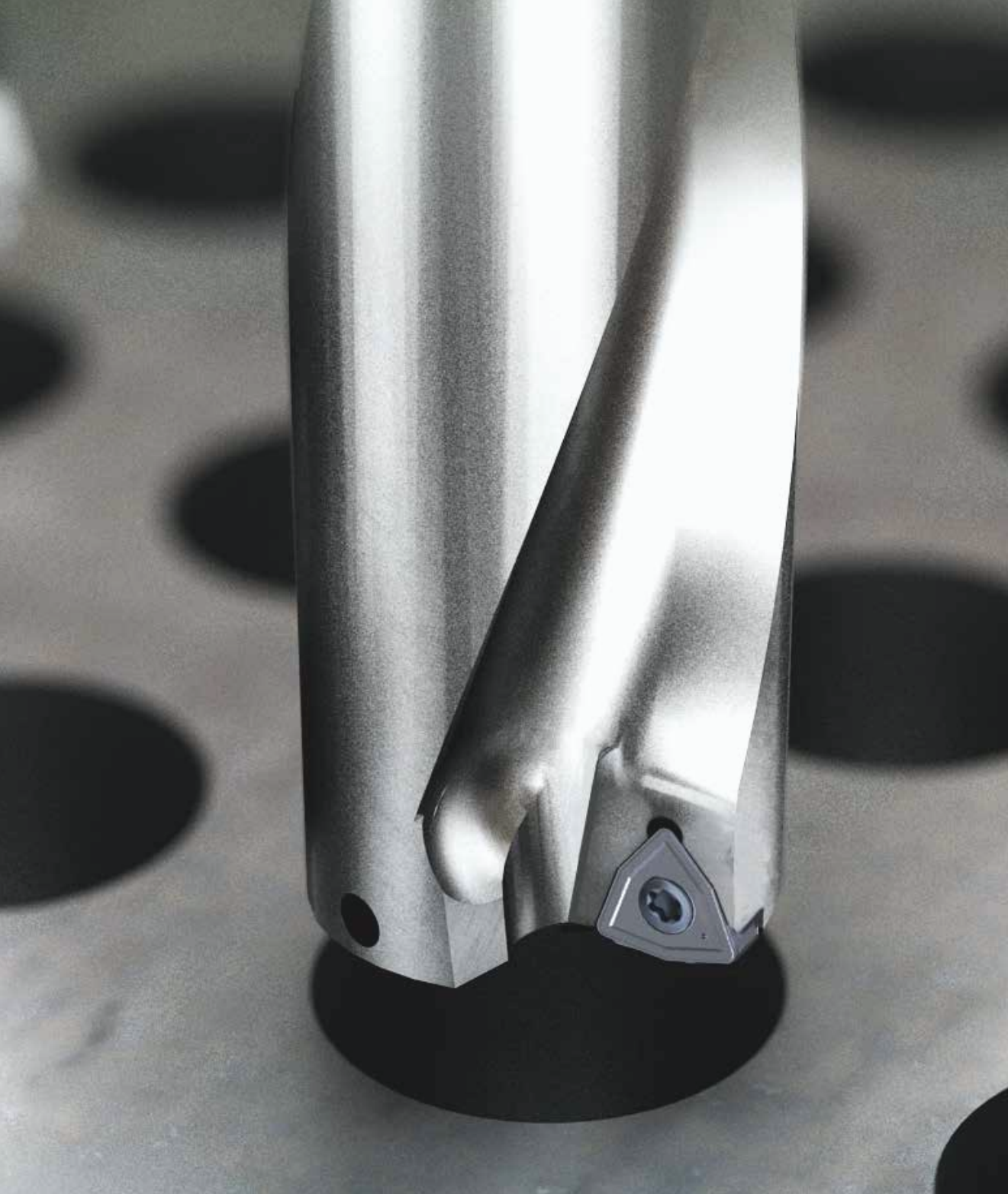
○ : Order made item

APKT	Designation	RE (mm)	Fz (mm/tooth)	BS (mm)	YG602	YG622	YG712
APKT General 	APKT 160408 PDTR	0.8	0.15 ~ 0.30	1.32	● 0001		
-ST Stainless Steel Super Alloy 	APKT 160408 - ST	0.8	0.08 ~ 0.25	1.32	● 0270		
-TR Hardened Steel 	APKT 160408 - TR	0.8	0.26 ~ 0.40	1.32	● 0256	● 0337	

Cutting Speed			Vc (m/min.)					
ISO	VDI	Sub Group	YG602		YG622		YG712	
			Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	140	380	140	400	170	300
	6~9	Low-Alloyed Steel	120	300	120	320	180	250
	10~11	High-Alloyed Steel	70	150	70	170	100	140
M	12~13	Ferritic & Martensitic	120	200	-	-	-	-
	14	Austenitic Stainless Steel	130	250	-	-	-	-
K	15~16	Grey Cast Iron	120	250	120	270	-	-
	17~18	Nodular Cast Iron	130	220	130	240	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-
S	31~37	Superalloys & Titanium	25	45	-	-	-	-
H	38~41	Hard Materials	40	80	40	100	-	-

Milling - Modular Shank
Modular Shanks

						
		unit:mm				
Series	Designation	EDP 1700..	DCSFWS	LF	TYPE	DCON
M08	EM - M08 - D16ZC16 - L100	0634	16	100	Cylindrical	16
	EM - M08 - D16ZC16 - L130	0635	16	130		16
M10	EM - M10 - D20ZC20 - L130	0636	20	130	Cylindrical	20
M12	EM - M12 - D25ZC25 - L150	0637	25	150	Cylindrical	25
	EM - M12 - D25ZC25 - L200	0638	25	200		25
	EM - M12 - D25ZC25 - L250	0639	25	250		25
M16	EM - M16 - D32ZC32 - L150	0640	32	150	Cylindrical	32
	EM - M16 - D32ZC32 - L200	0641	32	200		32
	EM - M16 - D32ZC32 - L250	0642	32	250		32
	EM - M16 - D32ZC32 - L300	0643	32	300		32



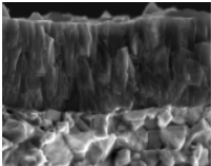
DRILLING

Drilling Overview
Drill Holder
Drilling Inserts (SPMX)
Drilling Inserts (WCMX)

Drilling Overview

Drilling Grades

Drilling Grades		P Steel				M Stainless Steel				K Cast Iron			
		P05	P15	P25	P35	M05	M15	M25	M35	K05	K15	K25	K35
PVD	YG602			602				602				602	

YG602 P20 - P35 K20 - K40	M20 - M40 S15 - S25	PVD - TiAlN			Universal grade for General Drilling Application • Ultra Dense PVD Coating with optimal thermal resistance & strength • Sub-Micron substrate designed for demanding application

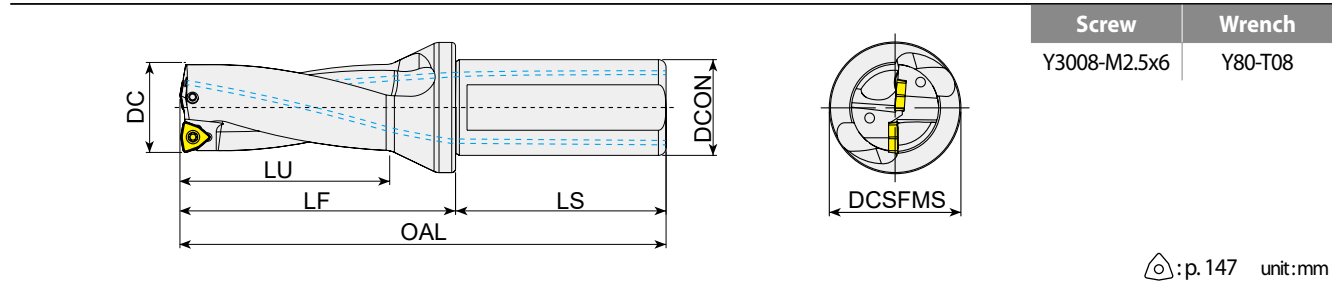
Universal Drilling Inserts

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

Drilling Chipbreakers

P	M	K	-ST		• Sharp Geometry • Sticky Material, Stainless Steel
	M				
P	M	K	General Inserts (No Description)		• First Choice for General Application

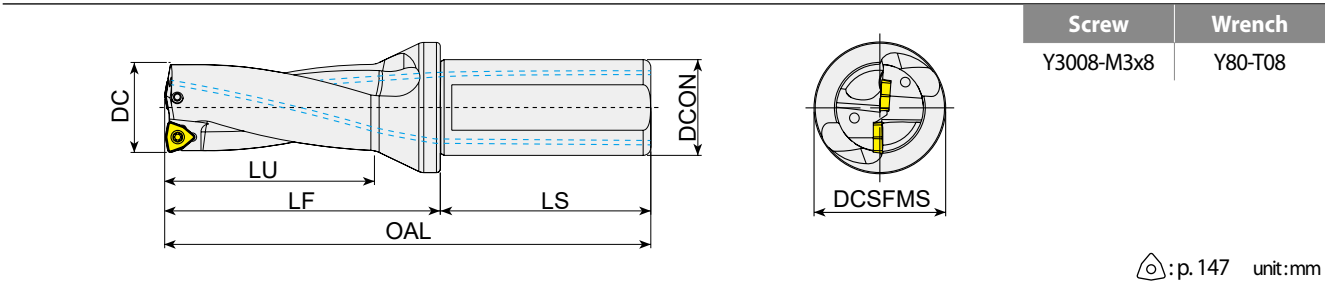
Drilling - Drill Holder
WCMX 040208 Drill (DC 20~23.5)



unit:mm

Series	DC	LU	Designation	EDP 3700..	LF	OAL	DCON	DCSFMS	LS
WCMX 040208	20	40	YGWC2 - 20S25F040 - 04	0257	62	118	25	34	56
		60	YGWC3 - 20S25F060 - 04	0300	82	138			
		80	YGWC4 - 20S25F080 - 04	0343	102	158			
	20.5	40	YGWC2 - 20.5S25F040 - 04	0726	62	118			
		60	YGWC3 - 20.5S25F060 - 04	0727	82	138			
	21	42	YGWC2 - 21S25F042 - 04	0258	64	120			
		63	YGWC3 - 21S25F063 - 04	0301	85	141			
		84	YGWC4 - 21S25F084 - 04	0344	106	162			
	21.5	42	YGWC2 - 21.5S25F042 - 04	0728	64	120			
		63	YGWC3 - 21.5S25F063 - 04	0729	85	141			
	22	44	YGWC2 - 22S25F044 - 04	0259	66	122			
		66	YGWC3 - 22S25F066 - 04	0302	88	144			
		88	YGWC4 - 22S25F088 - 04	0345	110	166			
	22.5	44	YGWC2 - 22.5S25F044 - 04	0730	66	122			
		66	YGWC3 - 22.5S25F066 - 04	0731	88	144			
		88	YGWC4 - 22.5S25F088 - 04	0732	110	166			
	23	46	YGWC2 - 23S25F046 - 04	0260	68	124			
		69	YGWC3 - 23S25F069 - 04	0303	91	147			
	23.5	92	YGWC4 - 23S25F092 - 04	0346	114	170			
		46	YGWC2 - 23.5S25F046 - 04	0733	68	124			
		69	YGWC3 - 23.5S25F069 - 04	0734	91	147			

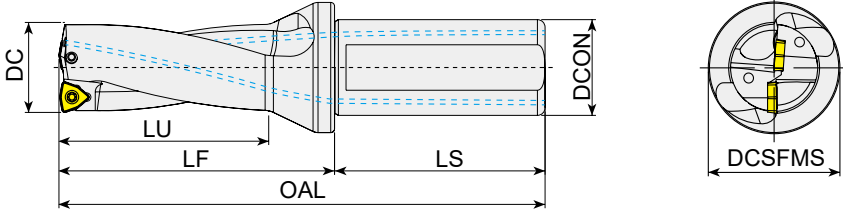
Drilling - Drill Holder
WCMX 050308 Drill (DC 24~29.5)



unit:mm

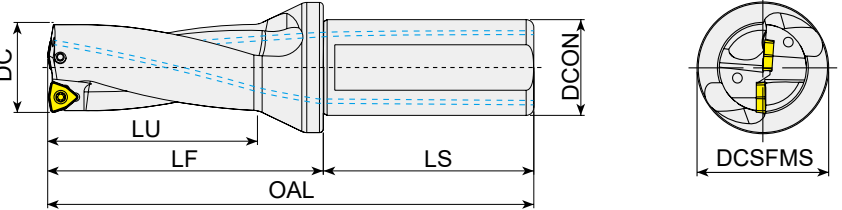
Series	DC	LU	Designation	EDP 3700..	LF	OAL	DCON	DCSFMS	LS
WCMX 050308	24	48	YGWC2 - 24S25F048 - 05	0261	70	126	25	34	56
		72	YGWC3 - 24S25F072 - 05	0304	94	150			
		96	YGWC4 - 24S25F096 - 05	0347	118	174			
	24.5	48	YGWC2 - 24.5S25F048 - 05	0735	70	126			
		72	YGWC3 - 24.5S25F072 - 05	0736	94	150			
	25	50	YGWC2 - 25S25F050 - 05	0262	72	128			
		75	YGWC3 - 25S25F075 - 05	0305	97	153			
		100	YGWC4 - 25S25F100 - 05	0251	122	178			
	25.5	50	YGWC2 - 25.5S25F050 - 05	0737	72	128			
		75	YGWC3 - 25.5S25F075 - 05	0738	97	153			
	26	52	YGWC2 - 26S25F052 - 05	0263	74	130			
		78	YGWC3 - 26S25F078 - 05	0306	100	156			
		104	YGWC4 - 26S25F104 - 05	0349	126	182			
	26.5	52	YGWC2 - 26.5S25F052 - 05	0739	74	130			
		78	YGWC3 - 26.5S25F078 - 05	0741	100	156			
		104	YGWC4 - 26.5S25F104 - 05	0742	126	182			
	27	54	YGWC2 - 27S25F054 - 05	0264	76	132			
		81	YGWC3 - 27S25F081 - 05	0307	103	159			
		108	YGWC4 - 27S25F108 - 05	0350	130	186			
	27.5	54	YGWC2 - 27.5S25F054 - 05	0743	76	132			
		81	YGWC3 - 27.5S25F081 - 05	0744	103	159			
	28	56	YGWC2 - 28S25F056 - 05	0265	78	134			
		84	YGWC3 - 28S25F084 - 05	0308	106	162			
		112	YGWC4 - 28S25F112 - 05	0351	134	190			
	28.5	56	YGWC2 - 28.5S25F056 - 05	0745	78	134			
		84	YGWC3 - 28.5S25F084 - 05	0746	106	162			
		112	YGWC4 - 28.5S25F112 - 05	0747	134	190			
	29	58	YGWC2 - 29S25F058 - 05	0266	80	136			
		87	YGWC3 - 29S25F087 - 05	0309	109	165			
		116	YGWC4 - 29S25F116 - 05	0352	138	194			
	29.5	58	YGWC2 - 29.5S25F058 - 05	0748	80	136			
		87	YGWC3 - 29.5S25F087 - 05	0749	109	165			

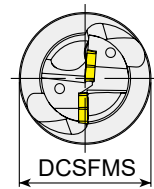
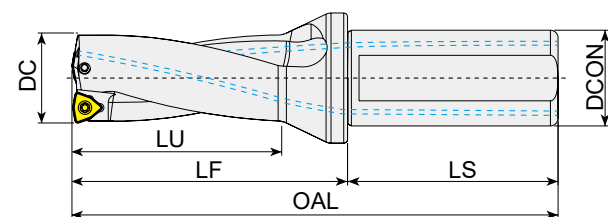
Drilling - Drill Holder
WCMX 06T308 Drill (DC 30~44.5)

										Screw	Wrench
										Y3010-M3.5x9	Y80-T10
											
△:p.147 unit:mm											
Series	DC	LU	Designation	EDP 3700..	LF	OAL	DCON	DCSFMS	LS		
WCMX 06T308	30	60	YGWC2 - 30S32F060 - 06	0267	87	147	32	44	60		
		90	YGWC3 - 30S32F090 - 06	0310	117	177					
		120	YGWC4 - 30S32F120 - 06	0353	147	207					
	30.5	90	YGWC3 - 30.5S32F090 - 06	0750	117	177					
		62	YGWC2 - 31S32F062 - 06	0268	89	149					
	31	93	YGWC3 - 31S32F093 - 06	0311	120	180					
		124	YGWC4 - 31S32F124 - 06	0354	151	211					
	31.5	93	YGWC3 - 31.5S32F093 - 06	0751	120	180					
		64	YGWC2 - 32S32F064 - 06	0269	91	151					
	32	96	YGWC3 - 32S32F096 - 06	0312	123	183					
		128	YGWC4 - 32S32F128 - 06	0252	155	215					
	32.5	96	YGWC3 - 32.5S32F096 - 06	0752	123	183					
		66	YGWC2 - 33S32F066 - 06	0753	93	153					
	33	99	YGWC3 - 33S32F099 - 06	0754	126	186					
		132	YGWC4 - 33S32F132 - 06	0755	159	219					
	33.5	99	YGWC3 - 33.5S32F099 - 06	0756	126	186					
		132	YGWC4 - 33.5S32F132 - 06	0757	159	219					
	34	68	YGWC2 - 34S32F068 - 06	0271	95	155					
		102	YGWC3 - 34S32F102 - 06	0314	129	189					
	34.5	136	YGWC4 - 34S32F136 - 06	0357	163	223					
		102	YGWC3 - 34.5S32F102 - 06	0758	129	189					
	35	70	YGWC2 - 35S32F070 - 06	0272	97	157					
		105	YGWC3 - 35S32F105 - 06	0315	132	192					
	35.5	140	YGWC4 - 35S32F140 - 06	0358	167	227					
		105	YGWC3 - 35.5S32F105 - 06	0759	132	192					
	36	72	YGWC2 - 36S32F072 - 06	0273	99	159					
		108	YGWC3 - 36S32F108 - 06	0316	135	195					
	36.5	144	YGWC4 - 36S32F144 - 06	0359	171	231					
		108	YGWC3 - 36.5S32F108 - 06	0760	135	195					
	37	74	YGWC2 - 37S32F074 - 06	0274	101	161					
		111	YGWC3 - 37S32F111 - 06	0317	138	198					
	37	148	YGWC4 - 37S32F148 - 06	0360	175	235					

▶ NEXT PAGE

Drilling - Drill Holder
WCMX 06T308 Drill (DC 30~44.5)

										Screw	Wrench
										Y3010-M3.5x9	Y80-T10
											
△:p.147 unit:mm											
Series	DC	LU	Designation	EDP 3700..	LF	OAL	DCON	DCSFMS	LS		
WCMX 06T308	37.5	111	YGWC3 - 37.5S32F111 - 06	0761	138	198	32	44	60		
		76	YGWC2 - 38S32F076 - 06	0275	103	163					
	38	114	YGWC3 - 38S32F114 - 06	0318	141	201					
		152	YGWC4 - 38S32F152 - 06	0361	179	239					
	38.5	114	YGWC3 - 38.5S32F114 - 06	0762	141	201					
		152	YGWC4 - 38.5S32F152 - 06	0763	179	239					
	39	78	YGWC2 - 39S32F078 - 06	0276	105	165					
		117	YGWC3 - 39S32F117 - 06	0319	144	204					
	39.5	156	YGWC4 - 39S32F156 - 06	0362	183	243					
		117	YGWC3 - 39.5S32F117 - 06	0764	144	204					
	40	80	YGWC2 - 40S32F080 - 06	0277	107	167					
		120	YGWC3 - 40S32F120 - 06	0320	147	207					
	40.5	160	YGWC4 - 40S32F160 - 06	0363	187	247					
		120	YGWC3 - 40.5S32F120 - 06	0765	147	207					
	41	82	YGWC2 - 41S32F082 - 06	0278	109	169					
		123	YGWC3 - 41S32F123 - 06	0321	150	210					
	41.5	164	YGWC4 - 41S32F164 - 06	0364	191	251					
		123	YGWC3 - 41.5S32F123 - 06	0766	150	210					
	42	84	YGWC2 - 42S32F084 - 06	0279	111	171					
		126	YGWC3 - 42S32F126 - 06	0322	153	213					
	42.5	168	YGWC4 - 42S32F168 - 06	0365	195	255					
		126	YGWC3 - 42.5S32F126 - 06	0767	153	213					
	43	86	YGWC2 - 43S32F086 - 06	0280	113	173					
		129	YGWC3 - 43S32F129 - 06	0323	156	216					
	43.5	172	YGWC4 - 43S32F172 - 06	0366	199	259					
		129	YGWC3 - 43.5S32F129 - 06	0768	156	216					
	44	88	YGWC2 - 44S32F088 - 06	0281	115	175					
		132	YGWC3 - 44S32F132 - 06	0324	159	219					
	44.5	176	YGWC4 - 44S32F176 - 06	0367	203	263					
		132	YGWC3 - 44.5S32F132 - 06	0769	159	219					

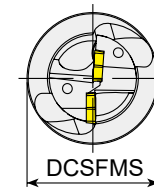
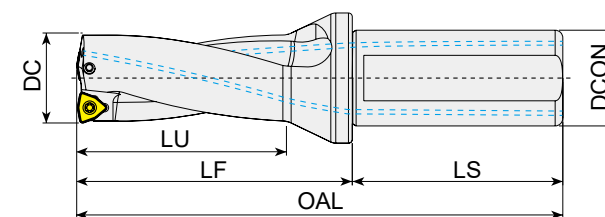


Screw	Wrench
Y4015-M4x11	Y80-T15

: p. 147 unit:mm

Series	DC	LU	Designation	EDP 3700..	LF	OAL	DCON	DCSFMS	LS
WCMX 080412	45	90	YGWC2 - 45S40F090 - 08	0282	122	192	40	54	70
		135	YGWC3 - 45S40F135 - 08	0325	167	237			
		180	YGWC4 - 45S40F180 - 08	0368	212	282			
	45,5	135	YGWC3 - 45.5S40F135 - 08	0770	167	237			
	46	92	YGWC2 - 46S40F092 - 08	0283	124	194			
		138	YGWC3 - 46S40F138 - 08	0326	170	240			
		184	YGWC4 - 46S40F184 - 08	0369	216	286			
	47	94	YGWC2 - 47S40F094 - 08	0284	126	196			
		141	YGWC3 - 47S40F141 - 08	0327	173	243			
		188	YGWC4 - 47S40F188 - 08	0370	220	290			
	48	96	YGWC2 - 48S40F096 - 08	0285	128	198			
		144	YGWC3 - 48S40F144 - 08	0328	176	246			
		192	YGWC4 - 48S40F192 - 08	0371	224	294			
	49	98	YGWC2 - 49S40F098 - 08	0286	130	200			
		147	YGWC3 - 49S40F147 - 08	0329	179	249			
		196	YGWC4 - 49S40F196 - 08	0372	228	298			
	50	100	YGWC2 - 50S40F100 - 08	0287	132	202			
		150	YGWC3 - 50S40F150 - 08	0330	182	252			
200		YGWC4 - 50S40F200 - 08	0373	232	302				
51	102	YGWC2 - 51S40F102 - 08	0288	134	204				

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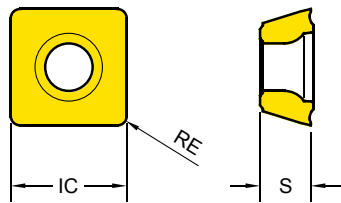


Screw	Wrench
Y4015-M4x11	Y80-T15

:p. 147 unit:mm

Series	DC	LU	Designation	EDP 3700..	LF	OAL	DCON	DCSFMS	LS
WCMX 080412	51	153	YGWC3 - 51S40F153 - 08	0331	185	255	40	54	70
	52	104	YGWC2 - 52S40F104 - 08	0289	136	206			
		53	156	YGWC3 - 52S40F156 - 08	0332	188			
	54		106	YGWC2 - 53S40F106 - 08	0290	138			
		55	159	YGWC3 - 53S40F159 - 08	0333	191			
	56		108	YGWC2 - 54S40F108 - 08	0291	140			
		57	162	YGWC3 - 54S40F162 - 08	0334	194			
	58		110	YGWC2 - 55S40F110 - 08	0292	142			
		59	165	YGWC3 - 55S40F165 - 08	0335	197			
	60		112	YGWC2 - 56S40F112 - 08	0293	144			
		61	168	YGWC3 - 56S40F168 - 08	0336	200			
	62		114	YGWC2 - 57S40F114 - 08	0294	146			
		63	171	YGWC3 - 57S40F171 - 08	0337	203			
	64		116	YGWC2 - 58S40F116 - 08	0295	148			
		65	174	YGWC3 - 58S40F174 - 08	0338	206			
	66		118	YGWC2 - 59S40F118 - 08	0771	150			
		67	177	YGWC3 - 59S40F177 - 08	0772	209			
	68		120	YGWC2 - 60S40F120 - 08	0773	152			
		69	180	YGWC3 - 60S40F180 - 08	0774	212			

Drilling - Inserts
Drilling Inserts (SPMX)

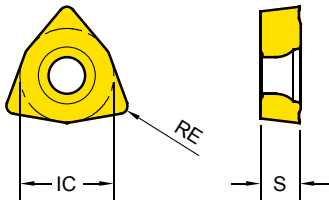


Series	Metric	
	IC	S
SPMX 0502	5.00	2.38
SPMX 0602	6.00	2.41
SPMX 07T3	7.94	3.97
SPMX 0904	9.80	4.30
SPMX 1104	11.50	4.90
SPMX 1405	14.30	5.30

EDP 3200..			
SPMX	Designation	Fn (mm/rev.)	YG602
SPMX General	SPMX 050204	0.07 ~ 0.14	● 0005
	SPMX 060204	0.08 ~ 0.14	● 0006
	SPMX 07T308	0.08 ~ 0.16	● 0007
	SPMX 090408	0.08 ~ 0.16	● 0008
	SPMX 110408	0.10 ~ 0.18	● 0009
	SPMX 140512	0.10 ~ 0.20	● 0010
-ST Stainless Steel	SPMX 050204 - ST	0.03 ~ 0.10	● 0011
	SPMX 060204 - ST	0.04 ~ 0.11	● 0012
	SPMX 07T308 - ST	0.04 ~ 0.11	● 0013
	SPMX 090408 - ST	0.05 ~ 0.12	● 0014

Cutting Speed			Vc (m/min.)	
ISO	VDI	Sub Group	YG602	
			Min	Max
P	1~5	Non-Alloyed Steel	140	380
	6~9	Low-Alloyed Steel	120	300
	10~11	High-Alloyed Steel	70	150
M	12~13	Ferritic & Martensitic	120	200
	14	Austenitic Stainless Steel	130	250
K	15~16	Grey Cast Iron	120	250
	17~18	Nodular Cast Iron	130	220

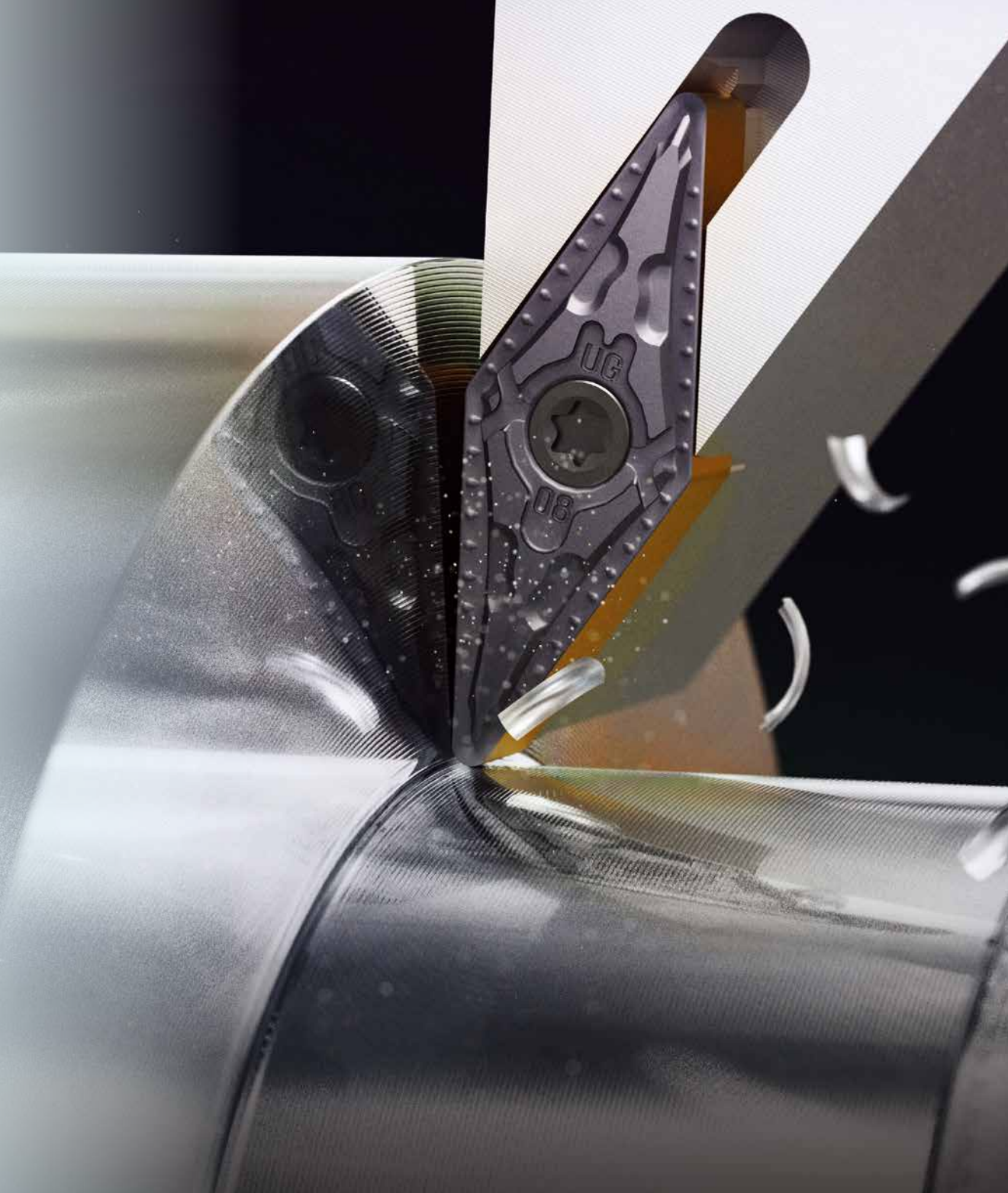
Drilling - Inserts
Drilling Inserts (WCMX)



Series	Metric	
	IC	S
WCMX 0402	6.35	2.38
WCMX 0503	7.94	3.18
WCMX 06T3	9.53	3.97
WCMX 0804	12.70	4.76

EDP 3200..			
WCMX	Designation	Fn (mm/rev.)	YG602
WCMX General	WCMX 040208	0.05 ~ 0.11	● 0003
	WCMX 050308	0.06 ~ 0.14	● 0001
	WCMX 06T308	0.08 ~ 0.14	● 0002
	WCMX 080412	0.08 ~ 0.14	● 0004

Cutting Speed			Vc (m/min.)	
ISO	VDI	Sub Group	YG602	
			Min	Max
P	1~5	Non-Alloyed Steel	140	380
	6~9	Low-Alloyed Steel	120	300
	10~11	High-Alloyed Steel	70	150
M	12~13	Ferritic & Martensitic	120	200
	14	Austenitic Stainless Steel	130	250
K	15~16	Grey Cast Iron	120	250
	17~18	Nodular Cast Iron	130	220



TECHNICAL INFORMATION

ISO 13399 Terms
Hardness Conversion Table
Material Groups
Comparison Chart
Search

Technical Information ISO 13399 Terms

AN	Clearance angle major	INS D	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
Material Groups

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRC	Examples	Page
P	1	Non-alloyed steel	About 0.15% C	Annealed	125		S15C, C15, 1015	152
	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	159
	13		Martensitic	Quenched & Tempered	240	23		
	14		Austenitic		180	10		
K	15	Grey cast iron	Pearlitic / Ferritic		180	10	FC, GG, EN-GJL-250	161
	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	163
	22		Curable	Hardened	100		SAE 7050, AlCuMg 1, 3.1325	
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		ADC12, G-AISI12, 3.2581	
	24		≤ 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	165
	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	167
	39			Hardened	630	60		
	40	Chilled cast iron		Cast	400	42		
	41	Hardened cast iron		Hardened	550	55		

Technical Information
Material Groups

Please visit
globalyg1.com/mat
for material search



P	VDI 3323 1		Material Description			Composition / Structure / Heat Treatment					HB	HRc
			Non-alloyed steel			About 0.15% C, Annealed					125	
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.0037	STKM 12 C	St 37-2	-	4360 40 B	S235JR	E24-2	1311	Fe 360 B			16D	
1.0038	STKM 12 A	St 37-3	A570.36	4360 40 C	S275J2G3	E28-3	1312	Fe 360 D FF			ST14KP	
1.0045	SM 490 YA	S 355 JR	-	-	S 1207	E36-2	-	Fe 510 BFN				
1.0050	SS 50	St 50-2	A570 Gr. 50	4360 50 B	E 295	A50-2	2172	Fe 490			ST5PS	
1.0060	SM 58	St 60-2	A572 Gr. 65	4360 55 E	-	A60-2	1650	Fe 60-2			ST6PS	
1.0114		S 235 J0	-	En 40C	S 235 J0	E24-3		Fe 360 CFN				
1.0143		S 275 J0	-	-	S 275 J0	E28-3	1414	Fe 430 C				
1.0144	SM41C, SM400	St 44-3 N	A573 Gr. 81	4360 43C	S 275 J2 G3	E28-3	1412	Fe 430 D FF			ST14KP	
1.0149		Ro St 44-2	-	43C	S 275 J0 H	-	1412	Fe430C				
1.0301	S10C	C10	1010	045M10	C10	34C10, XC10		C10	F.1511	G10100	10	
1.0330	SPCC	St 12	-	DC 01	Fe P01	DC 01/Fe P01	1142	Fe P01			15KP	
1.0335	SPHE	D D 13 (StW 24)	A622(1008)	H S 3	DD 13	3C		FeP13			08KP	
1.0338	SPCE	St 4	A620(1008)	14491CR	Fe P04	Fe 14	1147	DC04/FeP04			08JU	
1.0345	SPV 50	P235 GH	A516 Gr. 65	P 235 GH	P 235 GH	A 37 CP	1330	Fe E 235		K02503		
1.0401	S15C	C15	1015	080M15	-	C18RR, XC18	1350	C15, C16	F.1110	G10170	15	
1.0402	S20C	C22	1020	050 A 20	1 C 22	C20	1450	C 20	F.1120	G10200	20	
1.0425	SPV315	P265GH/HII				A42CP	1430	Fe4101KW		K02801	16K	
1.0443	SC 450	GS-45	A2765-35	A1		E23-45M	1305					
1.0539		S355NH				TSE355-4	2134	Fe510B				
1.0545		S355N		4360-50E		E355R	2334	FeE355KG				
1.0546		S355NL		4360-50EE		E355FP	2135	FeE355KT				
1.0547		S355J0H		4360-50C		TSE355-3	2172	Fe510C				
1.0549		S355NLH					2135	Fe510D				
1.0553	SM 520 M	St52-3U	A14880-40	4360-50C		320-560M	1606	Fe510C				
1.0562	SM490A	St E 355	A633 Gr. C	P 355 N		FeE355KGN	2132	Fe E 355 KG		K12000	15GF	
1.0565		W St E 355		P 355 NH		P 355 NH	2106	Fe E 355 KW		K01600		
1.0566	SLA 37	T St E 355		P 355 NL1		P 355 NL1	2107	Fe E 355 KT				
1.0570	SM 50 YA	St 52-3	1	4360-50 C	S355JR	E36-3	2172	Fe 510 B			17G15	
1.0715	SUM22	9SMn28	1213	230M07		S250	1912	CFSMn28	F.2111	G12130		
1.0718	SUM22L	9SMnPb28	12L13			S250Pb	1914	CF9SMnPb28	F.2112	G12134		
1.0721		10S20	1108	10S20		10S20		CF10S20	F.2121	G11080		
1.0722		10SPb20	11L08			10PbF2		CF10SPb20		G11084		
1.0736	SUM25	9SMn36	1215			S300		CF9Mn36	F.2113	G12150		
1.0737		9SMnPb36	12L14			S300Pb	1926	CF9SMnPb36	F.2114	G12144		
1.0972		S315MC		1501-40F30		E315D						
1.0976		S355MC		1501-43F35		E355D	2642	FeE355TM				
1.0982		S460MC		1501-50F45								
1.0984		S500MC				E490D	2662	FeE490TM				
1.0986		S500MC		1501-60F55		E560D		FeE560TM				
1.1121	S10C	Ck10	1010	040A10		XC10	1265	C10	F.1510	G10100	10	
1.1141	S15	Ck15	1015	040A15	32C	XC15	1370	C15	F.1110	G10150	15	
1.1151	S20C	C22E	1020	055M15		2C22	1450	C20	F.1120	G10230	20	
1.8900	S25C	StE380	A572-60	436055E			2145	FeE390KG				
		St44-2	A36	436043A		NFA35-501E28	1411					
		StE320-3Z		1501160			1421					

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P	VDI 3323 2		Material Description			Composition / Structure / Heat Treatment					HB	HRc
			Non-alloyed steel			About 0.45% C, Annealed					190	13
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.0501	S35C	C35	1035	080A32		1C35	1572	C35	F.113	G10350	35	
1.0503	S45C	C45	1045	060A47		XC42H1TS	1672	C45	F.114	G10450	45	
1.0511	S40C	C40	1040	080M40		1C40		C40	F.114.A	G10400	40	
1.0540	S 50 C	C50					1674	C50		G10500		
1.0551		GS-52	A2770-36	A2		280-480M	1505					
1.0553	SM 520 M	St52-3U	A14880-40	4360-50C		320-560M	1606	Fe510C				
1.0577		S 355 J 2 G 4	A738	Fe 510 D 2 FF		A52FP	2107					
1.0726		35S20	1140	212M36	8M	35MF6	1957			G11400	40	
1.0727		45S20	1146			45MF4	1973			G11460		
1.1157		40Mn4	1039	150M36	15	40M5				G10390	40G	
1.1158	S25C	C25E	1025	070M25		XC25		C25	F.1120	G10250	25	
1.1166	SMn433H	34Mn5	1536						TO.B	G15360		
1.1167	SMn438(H)	36Mn5	1335	150M36		40M5	2120	36Mn6	F.1203	G13350	35G2	
1.1170	SCMn1	28Mn6	1330	150M28	14A	20M5		C28Mn	28Mn6	G13300	30G	
1.1178	S 30 C	C30E		080M30		XC32		C30	2C30	G10300		
1.1180		C35R	1035	080A35		3C35	1572		F.1135	G10350		
1.1181	S35C	C35E	1035	080A35		XC38	1572	C36	F.1130	G10340	35	
1.1191	S45C	Ck45	1045	080A46		XC45	1672	C45	F.1140		45	
1.1206	S 50 C	C50E	1050	080M50		2C50	1674	C50		G10500	50	
1.1213	S50C	Cf53	1050	070M55		XC48HTS	1674	C53		G10500	50	

P	VDI 3323 3		Material Description			Composition / Structure / Heat Treatment					HB	HRc
			Non-alloyed steel			About 0.45% C, Annealed					250	25
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.0481	SG365	17 Mn 4/P 295 GH	A516 Gr. 70	224-460B	P 295 GH	A 48 CP	2102	Fe E 295	A47RCI	K03501	14G2	
1.0501	S35C	C35	1035	080A32		1C35	1572	C35	F.1130	G10350	35	
1.0503	S45C	C45	1045	060A47		XC42H1TS	1672	C45	F.1140	G10450	45	
1.0614		C76D	1074			XC75				G10750		
1.0616		C86D	1086			XC80		C85		G10860		
1.0618		C92D	1095			XC90				G10950		
1.0726		35S20	1140	212M36	8M	35MF6	1957			G11400	40	
1.1157		40Mn4	1039	150M36	15	40M5				G10390	40G	
1.1165	SMn433H	30Mn5	1036	120M36		35M5		30Mn5	F.8211	K13300	30G2	
1.1167	SMn438(H)	36Mn5	1335	150M36		40M5	2120	36Mn6	F.1203	G13350	35G2	
1.1186	S40C	C40E	1040	060A40		2C40		C40		G10400		
1.1191	S45C	Ck45	1045	080M46		2C45	1672	C45	F.1140		45	
1.1201	S50C	C45R	1049	080M46		3C45	1660	C45	F.1145		38HM	
1.1213	S50C	Cf53	1050	070M55		XC48HTS	1674	C53		G10500	50	
1.7242	SCM 418 H	18CrMo4										
1.7337		16CrMo4-4	A387 Gr.12					A18CrMo45KW		K11564	15CM	
1.7362	SCMV 6	12CrMo195		3606-625		Z10CD5-05		16CrMo205		K41545		
		17MnV6	A572-60	436055E		NFA35-501E36	2142					

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P	VDI 3323 4		Material Description			Composition / Structure / Heat Treatment					HB	HRc
			Non-alloyed steel			About 0.75% C, Annealed					270	28
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.0603	S 70 C-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	S 70 C-CSP	C67E	1070	060A67		XC68	1770	C70	F.5103	G10700	65GA	
1.1248	C 75	C75E	1074	060A78		XC75	1774	C75	F.5107	G10800	75(A)	
1.1269	SK 5-CSP	C85E	1086			XC90		C90		G10900	85(A)	
1.1274	SUP4	Ck 101	1095	060 A 96	C 100S	XC100	1870	C100	F.5117	G10950		
1.1545	SK 3	C 105W1	W1	BW 2	C 105U	Y1 105	1880	C 100 KU	F.5118		U10A	
1.1663	SK 2	C125W	W112			Y2120					U13	

P	VDI 3323 5		Material Description			Composition / Structure / Heat Treatment					HB	HRc
			Non-alloyed steel			About 0.75% C, Quenched & Tempered					300	32
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	Ck 101	1095	060 A 96	C 100S	XC100	1870	C100	F.5117	G10950		
1.1545	SK 3	C 105W1	W1	BW 2	C 105U	Y1 105	1880	C 100 KU	F.5118		U10A	
1.1663	SK 2	C125W	W112			Y2120					U13	
1.5120		38MnSi4										
1.5710	SNC236	36NiCr6	3135	640A35	111A	35NC6						
1.7701		51CrMoV4						51CrMoV4				

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P	VDI 3323 6		Material Description			Composition / Structure / Heat Treatment					HB	HRc
			Low-alloyed Steel			Annealed					180	10
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	SUP 7	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	F.520L		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		90 MWCv 5	2140	95 MnWCr 5 KU	F.5220		9KHWG	
1.2542		45WCrV7	S1	BS1			2710	45WCrV8KU			5CW25F	
1.2550		60WCrV7	S1			55WC20	2710	58WCr9KU			5KHV25F	
1.2713	SKT4	55NiCrMoV6	L6			55NCDV7			F.520S		5C NM	
1.2721		50NiCr13	L6			55NCV6	2550		F.528			
1.2842		90MnCrV8	O2	BO2		90MV8				T31502	9G2F	
1.3501		100Cr2	E50100									
1.3505	SUJ2	100Cr6	52100	2S135	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	A204Gr.A	1503-243B		15D3	2912	16Mo3(KG)	F.2601	K11820		
1.5419	SCPH11	20Mo4	4419	1503-243-430			2512	G20Mo5		G44190		
1.5423	SB450M	16Mo5	4520	1503-245-420				16Mo5(KG)	F.2602	K11522		
1.5622		14Ni6	A350-LF5			16N6		14Ni6(KG)	F.2641			
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)			40C N2MA	
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		16MCS	2511	16MnCr5		G51150	12KHN2	
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		20mOcr4					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	

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P	VDI 3323 6		Material Description			Composition / Structure / Heat Treatment					HB	HRc
			Low-alloyed Steel			Annealed					180	10
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.7715		14MoV6-3		1503-660-440				13MoCrV6				
1.8159	SUP 10	50CrV4	6150	735A50	47	50CrV4	2230	50CrV4		G61500	50C GFA	
1.8161		58CrV4										
1.8509	SACM 645	41CrAlMo7	A355A	905M39	41B	40CAD6-12	2940	41CrAlMo7				
1.8523		39CrMoV13-9		897M39	40C			36CrMoV12				

P	VDI 3323 7		Material Description			Composition / Structure / Heat Treatment					HB	HRc
			Low-alloyed Steel			Quenched & Tempered					275	29
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.5415	STFA 12	15Mo3	A204GrA	1503-243B		15D3	2912	16Mo3(KG)	F.2601	K11820		
1.5423	SB450M	16Mo5	4520	1503-245-420				16Mo5(KG)	F.2602	K11522		
1.5622		14Ni6	A350-LF5			16N6		14Ni6(KG)	F.2641			
1.5732	SNC415(H)	14NiCr10	3415			14NC11		16NiCr11				
1.5752	SNC815(H)	14NiCr14	3310	655M13	36A	12NC15					20X2H4A	
1.5755	SNC236	31NiCr14		653M31		18NC13	2534		F.1270			
1.6565	SNCM447	40NiCrMo6	4340	817M40	24	35NCD6	2541	35NiCrMo6(KB)			38C 2N2MA	
1.6587		17CrNiMo6		820A16		18NCD6		14NiCrMo13				
1.6657		10NiCrMo13-4						14NiCrMo131				
1.6957		26NiCrMoV14-5										
1.7015	SCr415(H)	10Cr3	5015	523M15		12C3				G50150	15C	
1.7262	SCM415(H)	15CrMo5				12CD4	2216	12CrMo4				
1.7335	SCM415(H)	13CrMo4-4	A182-F11	1501-620		15CD4-5	2216	14CrMo45			12C M	
1.7380		10CrMo9-10	A182F22	1501-622		12CD9-10	2218	12CrMo9			12KH8	
1.7715		14MoV6-3		1503-660-440				13MoCrV6				
1.7733		24CrMoV55				20CDV6		21CrMoV511				
1.7755		GS-45CrMoV10-4										
1.8070		21CrMoV511						35NiCr9				

P	VDI 3323 8		Material Description			Composition / Structure / Heat Treatment					HB	HRc
			Low-alloyed Steel			Quenched & tempered					300	32
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.1730		C45W3	C45W			XC48						
1.2332	SCM(440)	47CrMo4	4142	708M40	19A	42CD4	2244	42CrMo4				
1.5736	SNC 631 (H)	36NiCr10	3435			30NC11						
1.6523	SNCM220(H)	21NiCrMo2	8620	805M20	362	20NCD2	2506	20NiCrMo2			20C GNM	
1.7033	SCr430(H)	34Cr4	5132	530A32	18B	32C4		34Cr4(KB)		G51300	35C	
1.7218	SCM420	25CrMo4	4130	CDS110		25CD4	2225	25CrMo4(KB)			20C M	
1.8515		32CrMo12		722M24	40B	30CD12	2240	32CrMo12	F.124A			

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P	VDI 3323 9		Material Description			Composition / Structure / Heat Treatment					HB	HRc
			Low-alloyed Steel			Quenched & Tempered					350	38
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.0904	SKH 1, SKT 4	55Si7	9255	250A53	45	55S7	2085	55Si8		G92550	55S2	
1.0961	SUP 7	60SiCr7	9262			60SC6		60SiCr8		G92620		
1.2067		100Cr6	L3	BL3		Y100C6		100Cr6				
1.2419	SKS31	105WCr6		105WC13		105WC13	2140	10WCr6			CWG	
1.2542		45WCrV7	S1	BS1			2710	45WCrV8KU			5CW25F	
1.2713	SKT4	55NiCrMoV6	L6			55NCDV7			F.520S		5C NM	
1.4882		X50CrMnNiNbN219				Z50CMNNb21-09						
1.5120		38MnSi4										
1.5710	SNC236	36NiCr6	3135	640A35	111A	35NC6						
1.5755	SNC236	31NiCr14		830m31		18NC13	2534		F.1270			
1.6511	SUP10	36CrNiMo4	9840	816M40	110	40NCD3		36NiCrMo4(KB)			40C N2MA	
1.6546	SNCM240	40NiCrMo2-2	8740	311-Tyre7				40NiCrMo2(KB)			38C GNM	
1.7035	SCr440(H)	41Cr4	5140	530M40	18	42C4	2245	41Cr4		G51400	40H	
1.7176	SUP9(A)	55Cr3	5155	527A60	48	55C3	2253	55Cr3			50C GA	
1.7220	SCM432	34CrMo4	4135	708Aa37		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	
1.7361		32CrMo12		722M24	40B	30CD12	2240	30CrMo12	F.124A			
1.8159	SUP 10	50CrV4	6150	735A50	47	50CrV4	2230	50CrV4	51CrV4	G61500	50C GFA	
1.8161		58CrV4										
1.8509	SACM 645	41CrAlMo7	A355A	905M39	41B	40CAD6-12	2940	41CrAlMo7				
1.8523		39CrMoV13-9		897M39	40C			36CrMoV12				

P	VDI 3323 10		Material Description			Composition / Structure / Heat Treatment					HB	HRc
			High-alloyed steel, and tool steel			Annealed					200	15
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.0347	SPCD	RR St 3	A619	CR 3	Fe P03	F 13		DC03/FeP03			08JU	
1.0723	SUM32	15S22		210A15			1922		F.210F			
1.2080	SKD1	X210Cr12	D3	BD3	X210Cr12	Z200C12		X205Cr12KU		T30403	KH12	
1.2162	SCR 420 H	21MnCr5				20MC5						
1.2311		40CrMnMo7				40CMD8		35cRm08KU				
1.2312		40CrMnMoS8.6	P20+S			40CMD8S						
1.2316		X36CrMo17			X38CrMo16							
1.2343	SKD 6	X38CrMoV5-1	H11	BH11		Z38CDV5		X37CrMoV51KU		T20811	4C 5MFS	
1.2344	SKD61	X40CrMoV5-1	H13	BH13		Z40CDV5	2242	X40CrMoV511KU	F.5318	T20813	4C 5MF1S	
1.2363	SKD12	X100CrMoV5-1	A2	BA2		Z100CDV5	2260	X100CrMoV51KU	F.5227		9KH5VF	
1.2379	SKD11	X155CrVMo121	D2	BD2		Z160CDV12	2310	X165CrMoW12KU		T30402	KH12MF	KRUPP2379
1.2436	SKD 2	X210CrW12	D4(D6)	BD6		Z200CD12	2312	X215CrW121KU	F.5213		KH12	

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P		VDI 3323 10	Material Description High-alloyed steel, and tool steel			Composition / Structure / Heat Treatment Annealed					HB 200	HRC 15
Mat'l No.	JIS	DIN	AISI/ASTM/ SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.2510	SKS3	100MnCrW4	O1	B01		90 MWCV 5	2140	95 MnWCr 5 KU	F.5220		9KHVG	
1.2581	SKD5	X30WCrV9-3	H21	BH21		Z30WCV9		X30WCrV93KU	F.526	T20821	3C 2W8F	
1.2601		X165CrMoV12					2310	X160CrMoV12			KH12MF	
1.2606	SKD 62	X37CrMoW51	H12	BH12		Z35CWDV5		X35CrMoW05KU	F.537	T20812	5C NM	
1.2764		X19NiCrMo4										
1.2767		X45NiCrMo4				45NCD16		40NiCrMoV8KU				
1.2842		90MnCrV8	O2	B02		90MV8		90MnVCr8KU		T31502	9G2F	
1.3243	SKH55	S6-5-2-5	T15			KCV06-05-05-04-02	2723	HS6-5-2-5			R6M5K5	
1.3249	SKH 3	S18-1-2-5	T4	BT4		Z80WKCV18-05-04					R18K5F2	
1.3343	SKH51, SKH9	S6-5-2	M2	BM2		Z85WDCV	2722	HS652	F.5604		R6M5	
1.3348	SKH 58	S2-9-2	M7			Z100DCWV09-04-02	2782	HS292	F.5607			
1.3355	SKH 2	S18-0-1	T1	BT1		Z80WCV18-4-01					R18	
1.4718	SUH1	X45CrSi9-3	HNV3	401S45	52	Z45CS9		X45CrSi8	F.322		40C 952	
1.5662	SL9N60(53)	X8Ni9	ASMA353	502-650		9Ni		X10Ni9	F.2645			
1.5680		12Ni19	2515	12Ni19		Z18N5						

P		VDI 3323 11	Material Description High-alloyed steel, and tool steel			Composition / Structure / Heat Treatment Quenched & Tempered					HB 325	HRC 35
Mat'l No.	JIS	DIN	AISI/ASTM/ SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.2080	SKD1	X210Cr12	D3	BD3	X210Cr12	Z200C12		X205Cr12KU		T30403	KH12	
1.2344	SKD61	X40CrMoV5-1	H13	BH13		Z40CDV5	2242	X40CrMoV511KU	F.5318	T20813	4C 5MF1S	
1.2363	SKD12	X100CrMoV5-1	A2	BA2		Z100CDV5	2260	X100CrMoV51KU	F.5227		9KH5VF	
1.2436	SKD 2	X210CrW12	D4(D6)	BD6		Z200CD12	2312	X215CrW121KU	F.5213		KH12	
1.2581	SKD5	X30WCrV9-3	H21	BH21		Z30WCV9		X30WCrV93KU	F.526	T20821	3C 2W8F	
1.2601		X165CrMoV12					2310	X160CrMoV12			KH12MF	
1.2714	SKT 4	55NiCrMoV7	6F3/L6			55NiCrMoV7			F.5205		5KHNV	
1.3202		S12-1-4-5		BT15				HS12-1-5-5				
1.3207		S10-4-3-10		BT42		Z130WKCDV						
1.3243	SKH55	S6-5-2-5	T15			KCV06-05-05-04-02	2723	HS6-5-2-5			R6M5K5	
1.3246		S7-4-2-5	M35			Z110WKCDV07-05-04		HS7-4-2-5				
1.3247	SKH 51	S2-10-1-8	M42	BM42		Z110DKCWV09-08-04		HS2-9-1-8			R2AM9K5	
1.3255	SKH 3	S18-1-2-5	T4	BT4		Z80WKCV18-05-04					R18K5F2	
1.3343	SKH51, SKH9	S6-5-2	M2	BM2		Z85WDCV	2722	HS652	F.5604		R6M5	
1.3348	SKH 58	S2-9-2	M7			Z100DCWV09-04-02	2782	HS292	F.5607			
1.3355	SKH 2	S18-0-1	T1	BT1		Z80WCV18-4-01					R18	
1.4718	SUH1	X45CrSi9-3	HNV3	401S45	52	Z45CS9		X45CrSi8	F.322		40C 952	
1.4935	SUH 616	X20CrMoWV121	422							S42200		
1.5680		12Ni19	2515	12Ni19		Z18N5						

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M		VDI 3323 12		Material Description Stainless steel			Composition / Structure / Heat Treatment Ferritic / Martensitic, Annealed					HB 200	HRC 15
Mat'l No.	JIS	DIN	AISI/ASTM/ SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands	
1.4000	SUS403	X6Cr13	403	403S17		Z6C13	2301	X6Cr13	F3110	S40300	08C 13	ATI 410S	
1.4001		X7Cr14	410 S	403S7		Z8C13	2301		F.8401		08C 13		
1.4002	SUS 405	X6CrAl13	405	405S17		Z6CA13	2302	X6CrAl13		S40500			
1.4005	SUS416	X12CrS13	416	416S21		Z11CF13	2380	X12CrSC13	F.3411	S41600		ATI 416	
1.4006	SUS410	X12Cr13	410	410S21	56A	Z10C13	2302	X12Cr13	F.3401	S41000	12C 13	ATI 410	
1.4016	SUS430	X6Cr17	430	430S15	X8Cr17	Z8C17	2320	X8Cr17	F.3113	S43000	12C 17	ATI 430	
1.4027	SCS 2	GX20Cr14		420C29		Z20C13M					20C 13L		
1.4028	SUS420J2	X30Cr13	420	420S45		Z30C13	2304			S42020	20C 13		
1.4034	SUS420J2	X46Cr13		420S45		Z40C14		X40Cr14	F.3405				
1.4057	SUS431	X19CrNi17-2	431	431S29	57	Z15CN16-02	2321	X16CrNi16	F.3427	S43100	20C 17N2	431 (HT)	
1.4086		GX120Cr29		452C11									
1.4104	SUS430F	X12CrMoS17	430F	420S37		Z10CF17	2383	X10CrS17	F.3117	S43020			
1.4112	SUS 440 B	X90CrMoV18	440B							S44003	95KH18		
1.4113	SUS434	X6CrMo17	434	434S17		Z8CD17-01	2325	X8CrMo17		S43400		AL 434	
1.4313	SCS5	X3CrNi13-4	CA6-NM	425C11		Z4CND13-04M	2385	(G)X6CrNi304		J91540			
1.4340		GX40CrNi274								J92615			
1.4417		X2CrNiMoSi195	S31500				2376			S39215			
1.4418		X4CrNiMo165				Z6CND16-04-01	2387					APX4	
1.4510	SUS430LX	X6CrTi17	XM8			Z4CT17		X6CrTi17	F.3115	S43035	08C 17T	430 Ti	
1.4511	SUS430LK	X6CrNb17				Z4CNb17		X6CrNb17	F.3122			AXC525	
1.4512	SUH409	X6CrTi12	409	LW19		Z3CT12		X6CrTi12		S40900			
1.4720		X20CrMo13											
1.4724	SUS 405	X10CrA113	405	403S17		Z10C13		X10CrA112	F.311		10C 13SJU		
1.4742	SUS430	X10CrA118	430	439S15	60	Z10CA518		X8Cr17	F.3113	S43000	15C 13SJU		
1.4747	SUH4	X80CrNiSi20	HNv6	443S65	59	Z80CSN20-02		X80CrSiNi20	F.320B	S65006			
1.4749		X18CrNi28	446								15KH28		
1.4762	SUH446	X10CrA124	446			Z10CA524	2322	X16Cr26		S44600			
1.4871	SUH35,SUH36	X53CrMnNiN21-9	EV8	349S54		Z52CMN21-09		X53CrMnNiN219		S63008	55C 20G9AN4		
		X10CrNi15	429										
		X12CrNi18-9	302	302S31		Z10CN18-09	2330						

M	VDI 3323 13		Material Description			Composition / Structure / Heat Treatment					HB	HRC
			Stainless steel			Martensitic, Quenched & Tempered					240	23
Mat'l No.	JIS	DIN	AISI/ASTM/ SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.4000	SUS403	X6Cr13	403	403S17		Z6C13	2301	X6Cr13	F.3110	S40300	08C 13	ATI 410S
1.4001		X7Cr14	410 S	403S7		Z8C13	2301		F.8401		08C 13	
1.4006	SUS410	X12Cr13	410	410S21	56A	Z10C13	2302	X12Cr13	F.3401	S41000	12C 13	ATI 410
1.4016	SUS430	X6Cr17	430	430S15	X8Cr17	Z8C17	2320	X8Cr17	F.3113	S43000	12C 17	ATI 430
1.4021	SUS 420J1	X20Cr13	420	420S37		Z20C13	2303	14210	F.5261	S42000	20C 13	ATI 420
1.4027	SCS 2	GX20Cr14		420C29		Z20C13M					20C 13L	
1.4031	SUS 420 J2	X40Cr13	420			Z40C14	-2304		F.3404	S42080	40C 13	
1.4034	SUS420J2	X46Cr13		420S45		Z40C14		X40Cr14	F.3405			
1.4057	SUS431	X19CrNi17-2	431	431S29	57	Z15CN16-02	2321	X16CrNi16	F.3427	S43100	20C 17N2	431 (HT)
1.4104	SUS430F	X12CrMoS17	430F	420S37		Z10CF17	2383	X10CrS17	F.3117	S43020		
1.4113	SUS434	X6CrMo17	434	434S17		Z8CD17-01	2325	X8CrMo17		S43400		AL 434
1.4313	SCS5	X3CrNi13-4	CA6-NM	425C11		Z4CND13-04M	2385	(G)X6CrNi304		J91540		
1.4544		A 700	321	S.524		Z 10 CNT 18 11		X6CrNiTi1811		J92630	08C 18N12T	
1.4546		X5CrNiNb18-10	348	347S31				X6CrNiNb1811		J92640		ATI 348
1.4871	SUH35,SUH36	X53CrMnNiN21-9	EV8	349S54		Z52CMN21-09		X53CrMnNiN219		S63008	55C 20G9AN4	
1.4922		X20cRmV12-1					2317	x20cRmOn1201				
1.4923		X22CrMoV121										Jethete X20

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M		VDI 3323 14	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			Stainless steel			Austenitic					180	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		Z5CN18-09	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		X3CrMnNiN18887	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	10G2S2MSL	
1.4410	SCS 14 A	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		10RE51
1.4462	SUS329J3L	X2CrNiMoN2253		318S13		Z3CND22-05Az	2377			S31803		ATI 2205TM
1.4500		X7NiCrMoCuNb2520				Z3NCDU25-20M				J95150		
1.4521	SUS444	X2CrMoTi18-2	443444				2326	X2CrMoTiNb18 2	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	15-5PH							S15500		ATI 15-5
1.4547		X1CrNiMoN20187	S31254				2378			S31254		Uranus B256Mo
1.4550	SUS347	X6CrNiNb18-10	347	347S17	58F	Z6CNNb18-10	2338	X6CrNiNb18 11	F3552	S34700	08C 18N12B	ATI 347
1.4552	SCS 21	GX7CrNiNb18-9				Z4CNNb19-10M				J92710		
1.4568	SUS 631	X 7 CrNiAl 17 7		316S111		Z 9 CAN 17-7	2388	Z8CNA17-07		S17700	09C 17NJU1	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 309 S	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										

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K		VDI 3323 15	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			Grey cast iron			Pearlitic / Ferritic					180	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 220	GJL-200	Ft 20 D	0120	G20	FG20	W06020	Sc 20	
0.6025	FC250	GG25	A48 40 B	Grade 260	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			Composition / Structure / Heat Treatment					HB	HRc
			Grey cast iron			Pearlitic (Martensitic)					260	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			Composition / Structure / Heat Treatment					HB	HRc
			Nodular cast iron			Ferritic					160	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			Composition / Structure / Heat Treatment					HB	HRc
			Nodular cast iron			Pearlitic					250	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 S70-2	F34800	Vc 70-2	
0.7652	FCD A-NiMn 13 7	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

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Mat'l No.	JIS	DIN	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS		
0.8135	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		
0.8145	FCMW370	GTS-45	A220-40010	P 440-7	GJMB450-6	MN 450	0852	GMN 45				
0.8155	FCMP490	GTS-55	50005	P 510-4	GJMB-550-4	MP 50-5	0854	GMN 55			Kc 60-3	
0.8165	FCMP590	GTS-65	70003	P 570-3	GJMB-650-2	MN 650-3	0856	GMN 65				
0.8170	FCMP690	GTS-70	90001	P 690-2	GJMB-700-2	MN 700-2	0862	GMN 70			Kc 70-2	

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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								60	
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									100	
3.1655	A2011	AlCuSiPb										
3.2315		AlMgSi1									AK9	
3.4345		AlZnMgCuO,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									75	
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					

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N		VDI 3323 24	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			Aluminum-cast, alloyed			≤ 12% Si, Curable, Hardened					90	
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
2.1871		G-AlCu4TiMg										
3.1754		G-AlCu5Ni1,5										
3.2371		G-AISI7Mg	42188								AK8	
3.2373	C4BS	G-AISI9MGWA	SC64D			A-S7G	4251				AK9	
3.2381		G-AISI10Mg									AK12	
3.5106		G-MgAg3SE2Zr1	QE22	mag12								
		G-ALMG5	GD-AISI12	LM5		A-SU12	4252					

N		VDI 3323 26	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			Copper and Copper Alloys (Bronze / Brass)			Cutting alloys, PB>1%					110	
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
2.0375		CuZn36Pb3									L560-2	
2.1090		G-CuSn75pb	C93200			U-E7Z5pb4						
2.1096		G-CuSn5ZnPb	c83600	LG2								
2.1098		G-CuSn2Znpb	C83600									
2.1182		G-CuPb15Sn	C23000	LB1		U-pb15E8						

N		VDI 3323 27	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			Copper and copper alloys (Bronze / Brass)			CuZn, CuSnZn (Brass)					90	
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
2.0240	C2300	CuZn15									L90	
2.0321		CuZn37	C27200	cz108		CuZn36,CuZn37	C2700				L63	
2.0590		G-CuZn40Fe										
2.0592		G-CuZn35Al1	C86500	U-Z36N3		HTB1						
2.0596		G-CuZn34Al2	C86200	HTB1		U-Z36N3					LTS23AD	
2.1293		CuCrZr	C18200	CC102		U-Cr0-8Zr						

N		VDI 3323 28	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			Copper and copper alloys (Bronze / Brass)			CuSn, lead-free copper and electrolytic copper					100	
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
2.0060		E-Cu57										
2.0966		CuAl10Ni5Fe4	C63000	Ca104		U-A10N					BrAD	
2.0975		G-CuAl10Ni	B-148-52									
2.1050		G-CuSn10	c90700	CT1								
2.1052		G-CuSn12	C90800	pb2		UE12P						
2.1292		G-CuCrF35	C81500	CC1-FF								

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S		VDI 3323 31	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			Heat resistant super alloys			Fe Based, Annealed					200	15
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.4558	NCF 800TB	X2NiCrAlTi3220	N08800	NA15								
1.4562		X1NiCrMoCu32287	N08031									
1.4563		X1NiCrMoCuN31274	N08028			Z1NCDU31-27-03	2584				EK77	
1.4864	SUH330	X12NiCrSi36-16	330	NA17		Z12NCS37-18				N08330		
1.4865	SCH15	GX40NiCrSi38-18		330C40				XG50NiCr3919		J94605		
1.4958		X5NiCrAlTi3120										

S		VDI 3323 32	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			Heat resistant super alloys			Fe Based, Aged					280	30
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.4977		X40CoCrNi2020				Z42CNKDWNb						

S		VDI 3323 33	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			Heat resistant super alloys			Ni or Co Based, Annealed					250	25
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
2.4360		NiCu30Fe		NA13		NU30				N04400		Monel400
2.4603		NiCr 30 FeMo	5390A			NC22FeD						Hastelloy G-30
2.4610		NiMo16Cr16Ti								N26455		HastelloyC-4
2.4630		NiCr20Ti		HR5,203-4		NC20T				N06075		Nimonic75
2.4631	NCF 80A	NiCr20TiAl		Hr40		NC20TA				N07080	KHN77TYuR	Nimonic 80A
2.4642	NCF 690	NiC29Fe				Nnc30Fe				N06690		Inconel 690
2.4856		NiCr22Mo9Nb		NA21		NC22FeDNb				N06625		Inconel 625
2.4858		NiCr21Mo		NA16		NC21FeDU				N08825	KHN38VT	Incoloy 825

S		VDI 3323 34	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			Heat resistant super alloys			Ni or Co Based, Aged					350	38
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
2.4375		NiCu30Al	4676	NA18		NU30AT				N05500		Monell500
2.4662		NiFe35Cr14MoTi	5660			ZSNCdT42				N09901		Incoloy 901
2.4668		NiCr19Fe19NbMo	5383	HR8		NC19eNB				N07718		Inconel 718
2.4670		S-NiCr13A16MoNb	5391	Mar-46		NC12AD						Nimocast 713
2.4694		NiCr16fE7TiAl								N07751		Inconel 751
2.4955		NiFe25Cr20NbTi										
2.4964		CoCr20W15Ni	5772			KC20WN						Haynes 25
		CoCr22W14Ni	AMS 5772			KC22WN						

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S		VDI 3323 35	Material Description Heat resistant super alloys			Composition / Structure / Heat Treatment Ni or Co Based, Cast					HB 320	HRc 34
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
2.4669		NiCr15Fe7TiAl				NC15TNbA				N07750		Inconel X750
2.4685		G-NiMo28								N10665		Hastelloy B
2.4810		G-NiMo30										Hastelloy C
2.4973		NiCr19Co11MoTi	AMS 5399			NC19KDT					VT5-1	
3.7115		TiAl5Sn2								R54520	VT1-00	ATI Grade 6

S		VDI 3323 36	Material Description Titanium alloys			Composition / Structure / Heat Treatment Pure Titanium					HB 400 Rm	HRc
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
2.4674		NiCo15Cr10MoAlTi	AMS 5397							N13100		IN 100
3.7025		Ti1	R50250	2TA1						R50250		ATI 30 CP Gr. 1
3.7225		Ti1pd	R52250	TP1						R52250		

S		VDI 3323 37	Material Description Titanium alloys			Composition / Structure / Heat Treatment Alpha + Beta Alloys, Hardened					HB 1050 Rm	HRc
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	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								

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H		VDI 3323 38	Material Description Hardened steel			Composition / Structure / Heat Treatment Hardened					HB 550	HRc 55
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.1231	S 70 C-CSP	Ck 67	1070	060 A 67	C 67S	XC 68	1770	C 70	F5103		70	
1.1248	C 75	Ck 75	1078, 1080	060 A 78	C 75S	XC 75	1774	C 75	F5107		75	
1.1274	SUP 4	Ck 101	1095	060 A 96	C 100S	XC100	1870	C100	F5117			
1.1545	SK 3	C 105 W1	W1	BW 2	C 105U	Y1 105	1880	C 100 KU	F5118		U10A	
1.2762		75CrMoNiW67	-	-	-	-	-	-				
1.3401	SCMnH1	GX120Mn12	A128(A)			Z120M12	2183	GX120Mn12	F8251		110G13L	
1.4021	SUS 420 J1	X 20 Cr 13	420	420 S 37	X 20 Cr 13	Z 20 C 13	2303	X 20 Cr 13	F5261		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	

H		VDI 3323 40	Material Description Chilled cast iron			Composition / Structure / Heat Treatment Cast					HB 400	HRc 42
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
0.9620		GX260NiCr42	A532 IB	Grade 2 A	GJN-HV520	FB Ni4 Cr2 BC	0512	-		F45001		Ni-Hard2
0.9625		GX330NiCr42	A532 IA	Grade 2 B	GJN-HV550	FB Ni4 Cr2 HC	0513	-		F45000		Ni-Hard1
0.9630		GX300 CrNiSi 9 5 2	A532 ID	Grade 2 C	GJN-HV600	FB Cr9 Ni5	0457	-		F45003		Ni-Hard 4
0.9640		GX300CrMoNi1521	-	-	-	-	-	-		F45005		
0.9650		GX260Cr27	-	Grade 3 D		-	0466	-				
0.9655		GX300CrNM0271	-	Grade 3 E		-	-	-			20C 25N2052	
1.4841	SUH 310	X15CrNiSi25-20	310	314S31	X 15 CrNiSi 25 20	Z15CNS25-20	-	-		S31400		Cronifer 2520

H		VDI 3323 41	Material Description Hardened cast iron			Composition / Structure / Heat Treatment Hardened					HB 550	HRc 55
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
0.9635		GX300 CrMo 15 3	-	-	-	-	-	-				
0.9645		GX260 CrMoNi 20 21	-	-	-	-	-	-		F45007		

Technical Information
Comparison Chart - Turning Chipbreakers

Negative Inserts

Material	YG	Sandvik	Iscar	Kenna metal	Seco	Walter	Mitsu bishi	Kyocera	Tungaloy	Sumi tomo	Taegutec	Korloy	Duracarb
STEEL	UF	PF	F3P NF	FF FN	F1 MF2	FP5	FH LP	GP PP	TF	FL SP	FG FA	VF HU	41
	UL		PP NF			FP5	FY SY	CQ VF	TSF	LU	FC FT	HC	43
	UM		TF	MN	M3	MP3	MP	HS	TM	GU UX	MC PC	VM GM	46
	UG	PM	GN M3P	MN	M3 MR3	MP5	MP MA	PS	TM	UG	MT PC	GR HR	45
	UC	PR	NR	MP RP	MR4	RP5	Standard	Standard	TH	UZ	MG-	B25	53
	UR	PR	NR R3P	UN RN MG-	MR3 MR6	RP7	RP MH RK	PT PH	THS	ME MU	RT	GR	
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	42
	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	53
	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		53

Positive Inserts

Material	YG	Sandvik	Iscar	Kenna metal	Seco	Walter	Mitsu bishi	Kyocera	Tungaloy	Sumi tomo	Taegutec	Korloy	Duracarb
STEEL	UF	PF	PF	LF UF	MF2	PF2 FP4	FM LM LP	GQ PP	01 PSF	FP	FG	HFP	41
	UG	PM		MF	MF3	MP4 FP6	MP Standard MM MV	HQ	PS PM	MU	MT	C25	51
STAINLESS STEEL	UF	PF	PF	LF	MF2	MM4 PS5	FM LM LP	GQ PP	PM	FP	FG	HFP	41
CAST IRON	UG	PM		UF	MF3	MK4 RK4	MP Standard MM MV	HQ	CM	MU	MT	C25	51
ALUMINUM	AL		AS	MF	AL	PF2 PM2	AZ	CF CK	AL	AG	FL	AK	AU

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Comparison Chart - Turning Grades

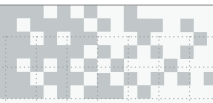
ISO	YG	Sandvik	Iscar	Kenna metal	Seco	Walter	Mitsu bishi	Kyocera	Tungaloy	Sumi tomo	Taegutec	Korloy	Duracarb
P10	YG3010	GC4305 GC4205 GC4315 GC4215	IC8005 IC428 IC8150 IC9015	KCP05 KC9105 KCP10 KC9110	TP0501 TP0500 TP1501 TP1500	WPP01 WPP05S WPP10S	UE6105 MC6015 UE6110	CA5505 CA510 CA515 CA5515	T9105 T9115	AC8015P AC810P	TT8115	NC3010 NC3215	DC9015
P20	YG3020 (YG801)	GC4325 GC4225	IC8250 IC9015	KCP25 KC9125	TP2501 TP2500	WPP20S	MC6025 UE6020	CA525 CA5525	T9125	AC8025P AC820P	TT8125	NC3220 NC3225 NC3120	DC9025
P30	YG3030 (YG801)	GC4335 GC4235	IC8350 IC8025	KCP30 KC9140	TP3501 TP3500	WPP30S	MC6035 UE6035 VP15TF	CA530 CA5535 CR9025	T9135	AC8035P AC830P AC630M	TT5100 TT8135	NC3030 NC5330 PC3545	DC9025 DC8035
M10	YG211	GC2015 GC1115	IC807 IC6015 IC8150	KCS10 KCM15(B) KCS010	CP200 TS2000	WSM10S	MC7015 VP10RT US7020	CA6515 PR930	T6120 AH110 AH8005 AH8015	AC610M	TT9215 TT5080	PC8105 PC8110	
M20	YG3030	GC2025 GC1125	IC3028 IC808 IC8250	KCM25(B) KCU25 KC5025	TM2000 TS2500	WMP20S WSM20S WSM21	MC7025 VP15TF VP20MF VP20RT UP20M	CA6525 PR1025 PR1125 PR1425	T6130 AH120 AH725 SH725 GH330	AC6030M AC610M AC520U	TT9225	PC8115 NC9115 PC5300	
M30	YG213	GC2035	IC6025 IC8350	KCM35(B)	CP500	WSM30S	US735 MP7035	PR1535	AH630 SH730 GH730	AC6030M AC630M AC830P	TT9235 TT9020 TT9080	NC9125 NC5330 PC9030	DC8035
M40	YG214				CP600 TM4000 TP40		US735 MP7035		AH645	AC6040M AC530U	TT9235 TT8020 TT8080	NC9135 PC5400	
K05	YG1001	GC3205	IC5005	KCK05	TK1001 TK1000	WKK10S	MC5005 UC5105	CA4505 CA4010	T5105	AC405K	TT7005	NC6205	DC820 DC610
K10	YG1001	GC3210	IC5010 IC5100	KCK15	TK1001 TK1000	WKK10S	MC5015 UC5115	CA4515 CA4115	T515	AC415K	TT7310 TT7015	NC6210	
K15	YG3010	GC3215	IC8150	KCK20	TK2001 TK2000	WKK20S WKP30S	UE6110 VP15TF	CA4120	T5125	AC420K	TT6300	NC6215	
S10	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	DC820 DC610
S20	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	

Technical Information
Comparison Chart - Milling Grades

ISO	YG-1	Sandvik	Iscar	Kennametal	Seco	Walter	Mitsubishi	Kyocera	Tungaloy	Sumitomo	Taegutec	Korloy
P20	YG712	GC4220 GC4230	IC950	KCPM20 KC522M	MP2500 MP3000 T250M	WKP25 WKP25S	MP6120 VP15TF	PR720 PR1025 PR1225	T3130 AH330 GH330	ACP200	TT7080 TT7030	NC5330 PC3500 PC3600
P30	YG622 YG602	GC1025 GC1030	IC808 IC907 IC908	KC522M KC635M KC927M	F25M F30M	WAM30 WKP35	MP6120 VP15TF MP6130 F7030	PR630 PR830 PR1230	AH725 AH730 AH120 GH130	ACP300 ACZ350	TT9080 TT9030	NC5340 NCM325 PC5300
M20	YG602	GC1125 GC1025 GC1030	IC808 IC907 IC908	KC522M KC635M	MP2500 F25M F30M	WQM35 WSM35S	VP15TF MP7130 VP20RT	PR730 PR1025 PR1225	T3030 AH725 AH120 AH4035	ACP200 ACM100 ACM200	TT9030 TT9080	NC5330 PC5300 PC9530 NC5340 NCM325
K10	YG5020	GC3330	IC5100	KC915M	MK1500 MP1500	WAK15	MP8010 MC5020			ACK100	TT7515	PC8110 PC6510
K20	YG622	GC3040	IC810 IC910	KCK15 KC520M	MK2050	WKK25	VP15TF	PR1210 PR1510	T1115 AH110	ACK200 ACK300	TT6080	NC5330 PC5300 NC5340
S20	YG602	S30T GC1025 S40T	IC328 IC907	KC510M KC635M	MS2050 MS2500	WSM35S WSP45S	MP9120 VP15TF	PR905 PR1025	AH725	AC520U	TT9030 TT8020	PC5300 PC5400

Search

Description	Page	Description	Page	Description	Page
INSERT					
ADKT	121	VCGT	84	PTTNR/L	38
AOMT	121	VCMT	84	PWLNRL/L	43
APKT	122, 136	VNMA	73	SCACR/L	29
APMT	123	VNMG	73	SCLCR/L	29
CCGT	78	WCMX	147	SDJCR/L	31
CCMT	78	WNMA	75	SDNCN	31
CNMA	60	WNMG	75	SRDCN	34
CNMG	60			SRGCR/L	34
DCGT	79	MILLING CUTTER		SSDCN	35
DCMT	79	...-ADKT15-...	113	SSSCR/L	35
DNMA	63	...-AOMT12-...	113	STFCR/L	37
DNMG	63	...-APKT10-...	114	STGCR/L	37
KNUX	66	...-APKT10-... (Helical)	119	STJCR/L	37
ODMT	102	...-APKT16-...	116	STUCR/L	37
ODMW	102	...-APKT16-... (Taper)	135	SVHBR/L	40
OFER	103	...-APMT11-...	118	SVHCR/L	41
OFMT	103	...-APMT16-...	118	SVJBR/L	40
ONHU	104	...-APMT16-...	118	SVJCR/L	41
ONMU	104	...-M08-...	137	SVVBN	40
RBEX	132	...-M10-...	137	SVVCN	41
RCMT	80	...-M12-...	137	TCLNR/L	30
RDKT	129	...-M16-...	137	TDHNR/L	32
RDKW	129	...-ODMT06-...	99	TDJNR/L	32
RDMT	130	...-OFER07-...	98	TDNNN	32
RDMW	130	...-OFMT05-...	99	TSDNN	36
RPMT	131	...-ONMU08-...	96	TSKNR/L	36
RPMW	131	...-RDKT08-...	126	TSSNR/L	36
SCMT	81	...-RDKT10-...	126	TTGNR/L	38
SDCN	105	...-RDKT12-...	127	TTJNR/L	39
SDKN	105	...-RPMT08-...	128	TVJNR/L	42
SDMT	134	...-RPMT10-...	128	TVVNN	42
SDMW	134	...-RPMT12-...	128	TWLNRL/L	43
SEKN	106	...-SDMW12-...	133	...-MTFNR/L	52
SEKR	106	...-SE12T3-...	100	...-MTUNRL/L	52
SEKT	107	...-SEKT12-...	100	...-MWLNRL/L	57
SEMT	108	...-SNMX12-...	97	...-PCLNR/L	46
SNMA	67	...-SPKN12-...	101	...-PDQNR/L	49
SNMG	67	...-TPKN16-...	120	...-PDUNR/L	49
SNMX	109	...-TPKN22-...	120	...-PSKNR/L	50
SPCN	110			...-PTUNR/L	53
SPKN	110	INSERT DRILL		...-PWLNR/L	57
SPKR	110	YGWC	140	...-SCFCR/L	44
SPMT	111			...-SCLCR/L	45
SPMX	146	TURNING HOLDER		...-SDQCR/L	47
SPUN	112	CKJNR/L	33	...-SDUCR/L	48
TCGT	82	MTJNR/L	39	...-STFCR/L	51
TCMT	82	MWLNRL/L	43	...-STUCR/L	51
TDN	87	PCBNR/L	30	...-SVJBR/L	54
TDP	87	PCLNR/L	30	...-SVQBR/L	54
TDY	87	PDJNR/L	32	...-SVQCR/L	55
TNMA	69	PDNNN	32	...-SVUBR/L	54
TNMG	69	PSBNR/L	36	...-SVUCR/L	55
TNUX	72	PSDNN	36	...-TCLNR/L	46
TPCN	124	PSKNR/L	36	...-TDQNR/L	49
TPKN	124	PSSNR/L	36	...-TDUNR/L	49
TPKR	124	PTFNR/L	38	...-TTUNR/L	53
TPUN	125	PTGNR/L	38	...-TVUNR/L	56
VBMT	83	PTJNR/L	39	...-TWLNRL/L	58





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