

YU-IT24
AMERICA
2024



CUTTING TOOLS

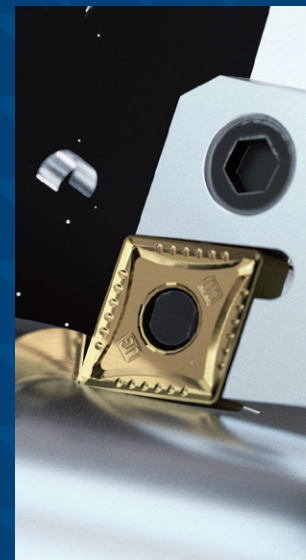


INDEXABLE INSERTS

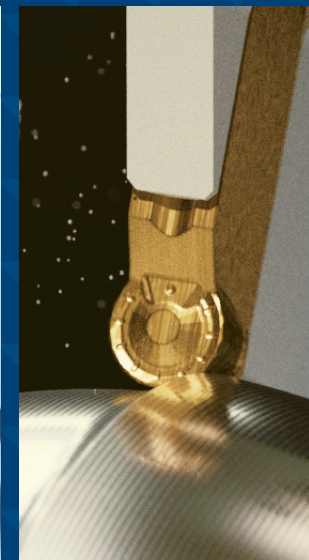
 YG-1 CO., LTD.



INDEXABLE INSERTS



TURNING



PARTING
GROOVING



MILLING



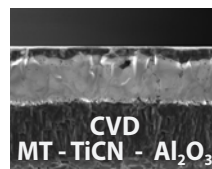
DRILLING

YG TURN YG3115 ^{NEW}

First choice grade for high cutting speed in Steels

YG TURN YG2025 ^{NEW}

High Cutting Speed for Stainless steels

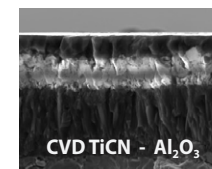
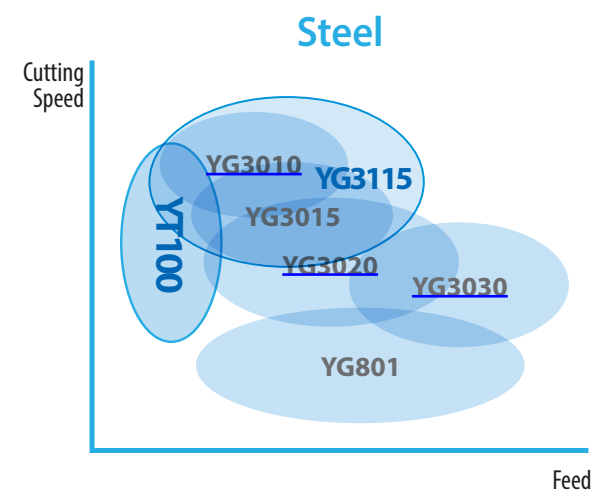


YG3115

P10 - P25

First choice grade for high cutting speed in Steels

- Suitable for mass production due to stable and predictable tool life
- Minimizing built up edge due to new post surface treatment in mild steels, low carbon steel and low carbon alloy steel.
- Best choice for both continuous as well as interrupted cuts

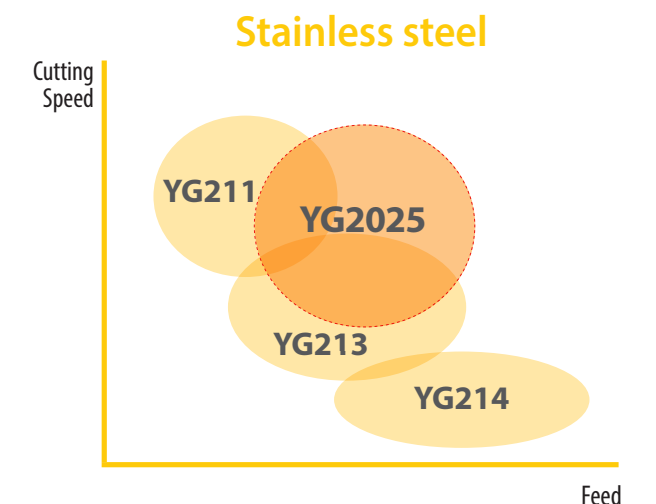


YG2025

M15 - M35

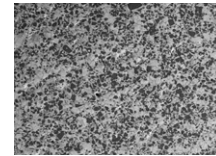
CVD grade for High Cutting Speed for Stainless steels

- Utilizing a new carbide substrate and new coating
- Excellent combination of wear resistance and chipping resistance
- Minimized built up edge due to post surface treatment



YG TURN YT100 NEW Cermet Turning Grade

Grades



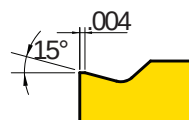
<Micro structure>

YT100 **P10 - P20** **M10 - M20** **K10 - K20**

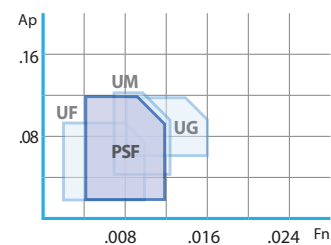
- Enhanced wear resistance & chipping resistance
- Excellent fracture resistance
- Superior surface finish with special edge preparation

Chipbreakers

PSF



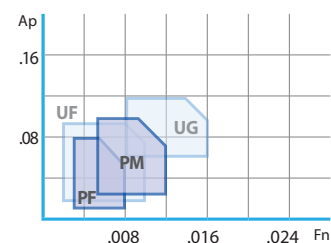
- For negative chip breaker insert
- 3 dimensional chip breakers give low cutting force
- For semi - finishing to semi - medium



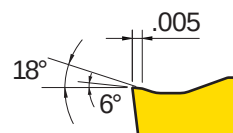
PF



- For positive chip breaker insert
- Excellent chip breaking at small depth of cut and low feed rate
- Good for low carbon contents steel in Finishing



PM



- For positive chip breaker insert
- High positive rake angle
- Good for low carbon contents steel
- For medium

YG TURN UT, UH NEW Single sided inserts for heavy turning

Chipbreakers



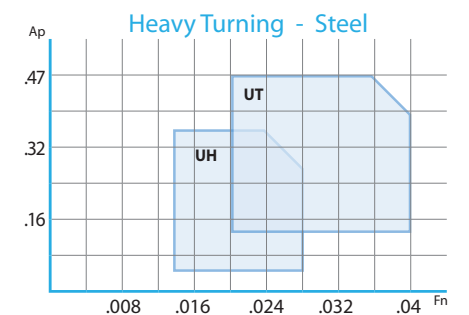
UH

Low cutting force

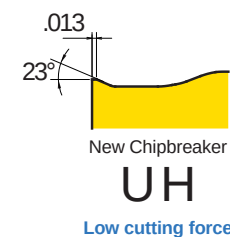


UT

Heavy roughing



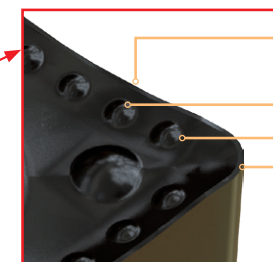
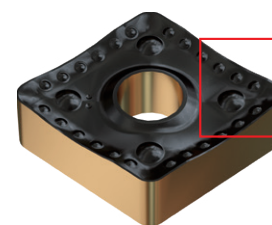
Features



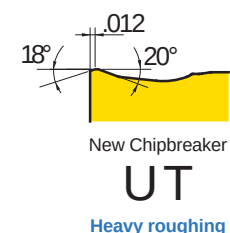
New Chipbreaker

UH

Low cutting force



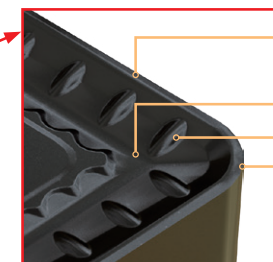
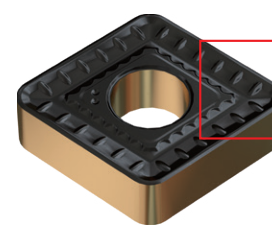
- ① Reduce cutting force due to the helix angle on the cutting edge
- ② The central dot helps chip breaking to be efficient
- ③ Decoration dot reduces friction area and helps heat release
- ④ Insert corner radius range available from 1.2mm to 2.4mm



New Chipbreaker

UT

Heavy roughing



- ① Reinforced edge type with high rigidity and is suitable for irregular surface cutting
- ② Chip breaker is formed widely, suitable for heavy roughing application
- ③ Decoration dot reduces friction area and helps heat release
- ④ Insert corner radius range available from 1.2mm to 2.4mm

YG NanoCut

Solid Miniature Turning
for small bore applications

Overview

At present, as demand for small parts (camera lens, mobile phone parts) and medical instruments (implants) increases, demand for small - diameter products capable of high - precision processing is increasing.

Application

- Turning of Small Bore Components
- Internal Turning(Boring), Grooving and Threading

Features

- Minimum Diameter(Boring & Profiling series) : Ø 1 mm (.039")
- Internal Coolant for Longer Tool life and Enhanced Chip Evacuation
- Secure Connection Design: Pin + Slant Positioning
- 9 Geometries for Various Applications

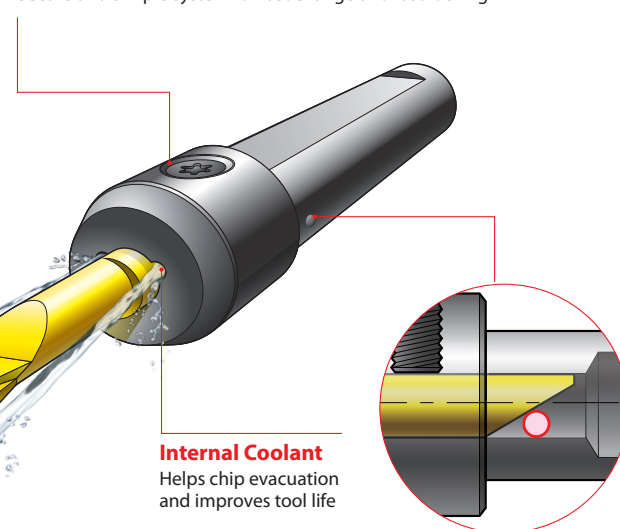
Benefits

- Reduced Machine Down Time
- Lower Machining Cost

Advantages of Nanocut

Easy Clamping

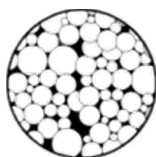
Secure and Simple system for fast change and fast locking



Internal Coolant
Helps chip evacuation
and improves tool life

Secure Slant Connection
Ensures High repeatability for
height and axial position

YG812 - Micro Grain Carbide Grade



P10 - P20 M20 - M30
K20 - K30 S10 - S25

Submicron Grade Carbide Substrate Material for high toughness and wear resistance realizes high precision machining

YG TURN

New TURN - GROOVE
Chip breakers
GL, GM, RG

TURN - GROOVE Chip breakers

Turning & Grooving	GL			• For External, Internal turning and grooving • Face grooving and Face turning • For low feed rate
	GM			• For External, Internal turning and grooving • First choice face grooving and Face turning • For medium feed rate
	RG			• For External, Internal turning and grooving • Full radius Insert for profiling



YG Mill LNKU ^{NEW}

4 cutting edges High Productivity Tangential Insert

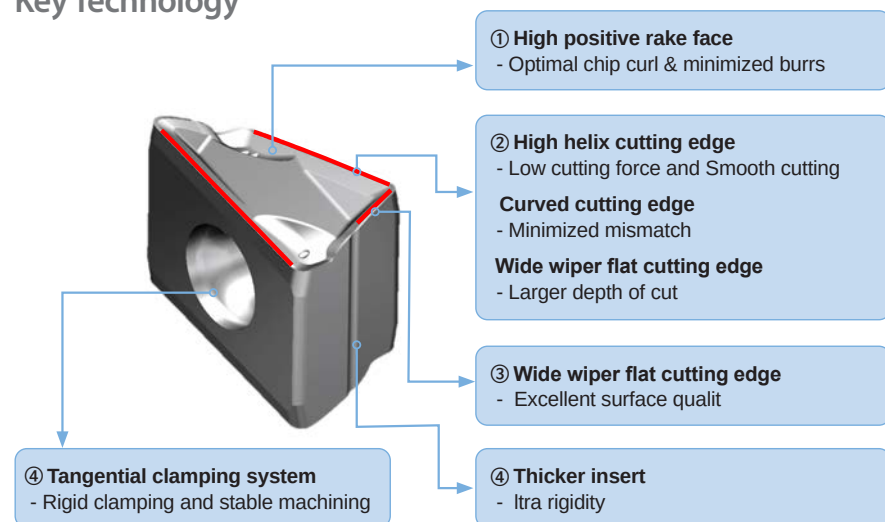


YG Mill TPKT ^{NEW}

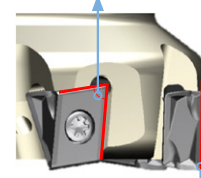
True 90 degree Shoulder Milling

- 3 Cutting Edges for Shoulder Milling
- High Positive Helical Cutting edge
- Higher Cost Efficiency than 2 Cutting edges
- Wide selection and Optimal Machining with Various Cutters and Inserts

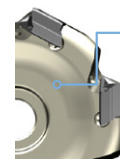
Key Technology



Higher clamping stability
with wedge shaped pocket

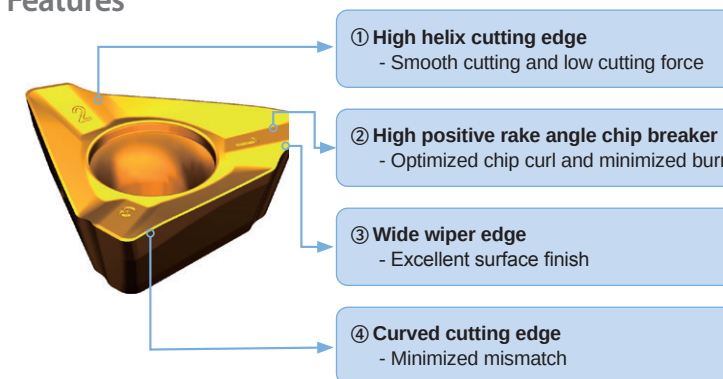


True 90° shoulder milling

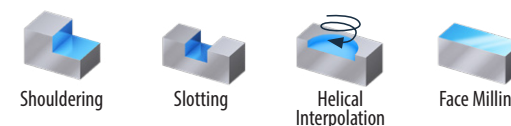


Larger Core Diameter
- Increased rigidity

Features



Applications



Key Technology



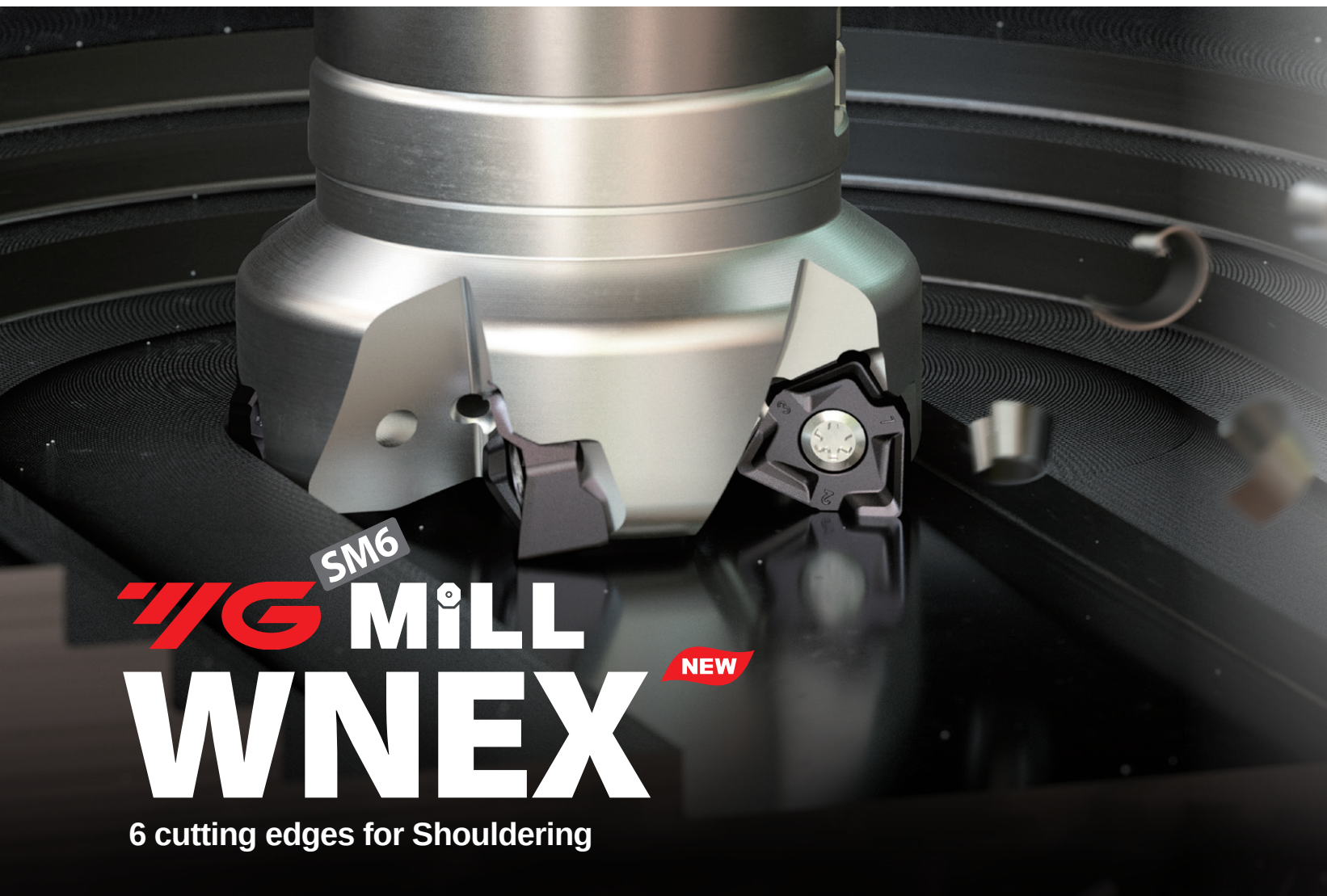
True 90°
shoulder milling



Larger core size
- Higher rigidity



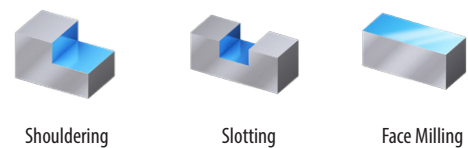
Optimal insert placement
- More inserts for high productivity



YG MILL WNEX NEW

6 cutting edges for Shouldering

Applications

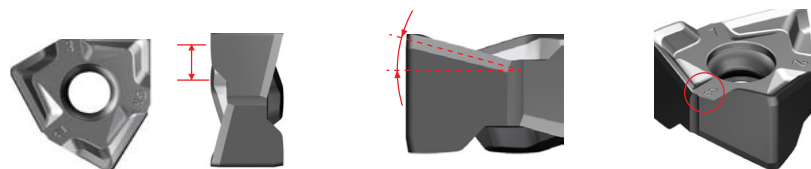


Shouldering Slotting Face Milling

Features

- 6 cutting edges for Shouldering - High Cost - Efficiency
- High Positive Helical Cutting edge
- High Chipping Resistance with Reinforced cutting edge
- Ground Insert - High Precision Tolerance and Excellent Surface finish
- Diameter range : $\varnothing 32 \sim \varnothing 200$ ($\varnothing 1.5'' \sim \varnothing 6''$)
- A_p (max) : 7mm (0.27")

Key Technology



Wider wiper edge length

High Helix cutting edge

Unique Chip groove

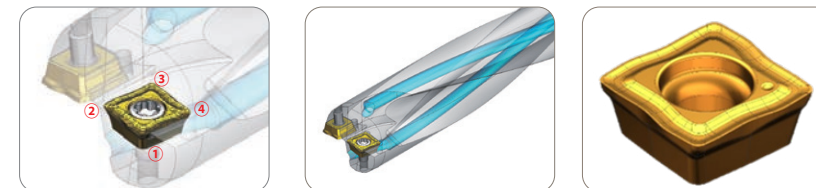


YG X-DRILL SYMX NEW

with highly efficient hole making solution

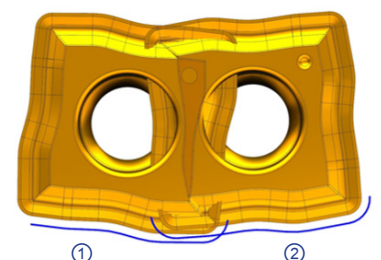
Features

- Economic square type 4 cutting edge insert
- One kind of insert in outer and inner pocket
- Twisted coolant channel and enlarged chip gullet for better chip evacuation
- Highly durable drill body due to high hardness and optimized material
- New post surface Treatment flute enables to improved chip evacuation in deeper machining



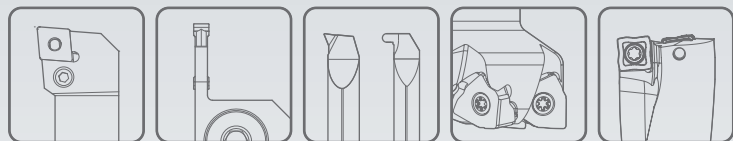
Key Technology

- Unique 1 chip curl per each flute
- True 4 cutting edges are available



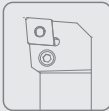
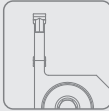


Global Cutting Tool Leader **YG-1**

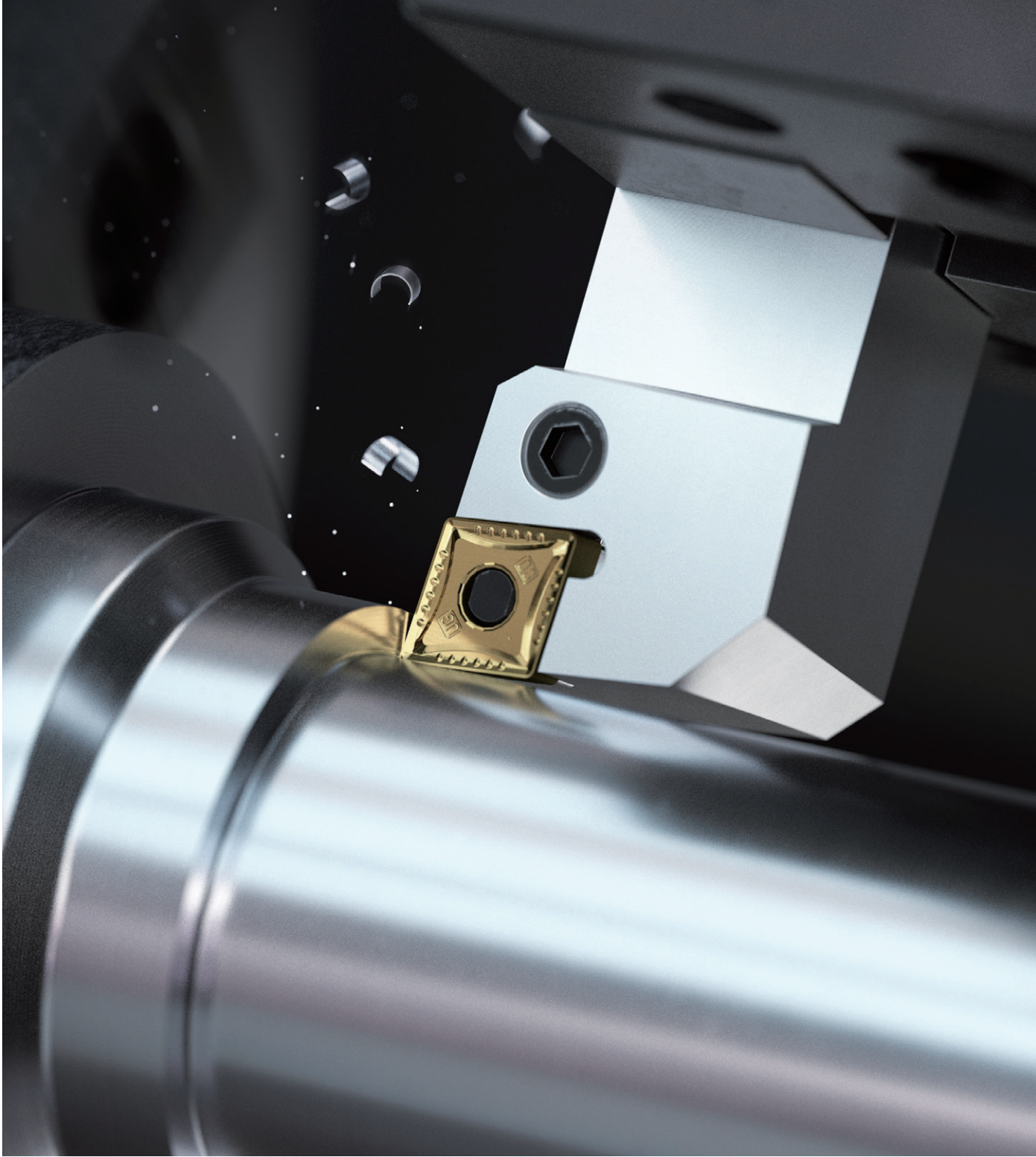


INDEXABLE INSERT

INDEX

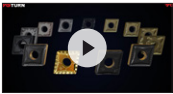
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ISO TURNING

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



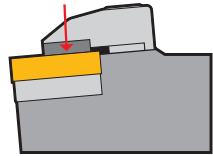
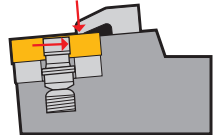
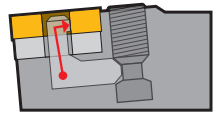
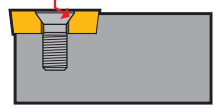
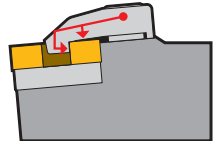
Scan this QR code to see our Turning Grades at work.

External Turning Holder Code (Inch)

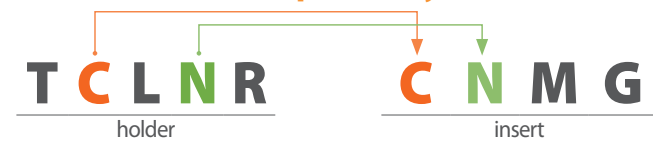
*Inch

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

1 - Clamping System

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

2, 4 — Insert Compatibility *



* Related to Insert Designation to check compatibility

3 - Tool Style

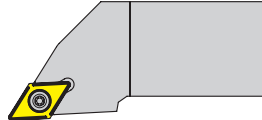
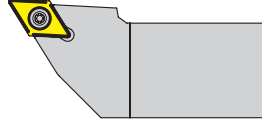
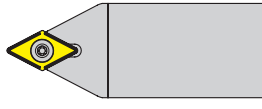
Approach Angle (KAPR)	Side Direction		End Direction
	Straight Shank	Offset Shank	
45°	D 	S 	
60°		T 	
63°	N 		
72.5°	V 		
75°	B 		K 
90°	A 	G 	F 
93°		J 	U
95°		L (Both Directions) 	
107.5°		H 	

External Turning Holder Code (Inch)

*Inch

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

5 - Hand Direction

Symbol	Hand Direction
R	Right Hand 
L	Left Hand 
N	Neutral 

7 - Insert Size *

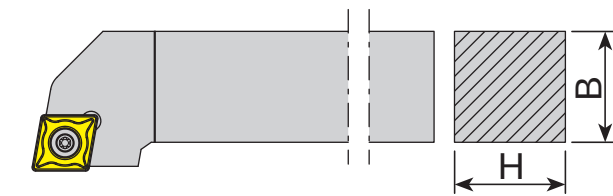
Example	is Compatible with...
MCLNR 12 4B	CNMG432
MTJNR 16 3B	TNMG331

* Related to Insert Designation to check compatibility

8 - Length (LF)

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

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



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

Insert ISO Code System

*Metric : According to ISO 1832

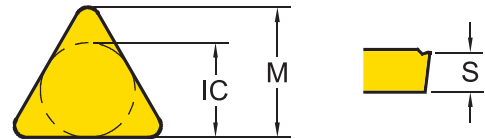
1	2	3	4	5	6	7	8	9
C	N	M	G	12	04	08	-UG	YG3115
Shape	Clearance	Tolerance	Clamping & Chipbreaker	Insert Size	Insert Thickness	Corner Radius	Chipbreaker Geometry	Grade

1 - Shape

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

2 - Relief Angle (AN)

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



3 - Tolerance Class

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

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

4 - Clamping & Chip breaker

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

Insert ISO Code System

*Inch

1	2	3	4	5	6	7	8	9
C	N	M	G	4	3	2	-UG	YG3115
Shape	Clearance	Tolerance	Clamping & Chipbreaker	Insert Size	Insert Thickness	Corner Radius	Chipbreaker Geometry	Grade

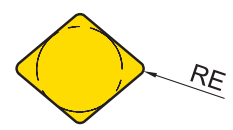
5 - Insert Size

Metric							Inner Circle IC (inch)	Inch
								
06	11	06	07	11			1/4	2
07	13	08	09	13	15		5/16	2.5
09	16	09	11	16	06	09 (00)	3/8	3
12	22	12	15	22	08	12 (00)	1/2	4
15	27	16	19	27	10		5/8	5
19	33	19	23	33	13		3/4	6
25		25					1	8
						06 (M0)	.236	
						08 (M0)	.315	
						10 (M0)	.394	
						12 (M0)	.472	
						16 (M0)	.630	



6 - Insert Thickness (S)

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



7 - Corner Radius (RE)

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

Grade Naming System

1	2	3	4	5	(6)
YG	3	1	1	5	(G)
YG Brand	Workpiece Material	Grade Version	Application Range (1st Digit)	Application Range (2nd Digit)	Minor Variation
Carbide CVD (4 Digits)	●	●	●	●	YG3115
Carbide PVD (3 Digits)	●	●	●		YG211
Carbide Uncoated (2 Digits)	●	●			YG10

1 - YG Brand

2 - Workpiece Material

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

3 — Grade Version

4 & 5 — Application Range

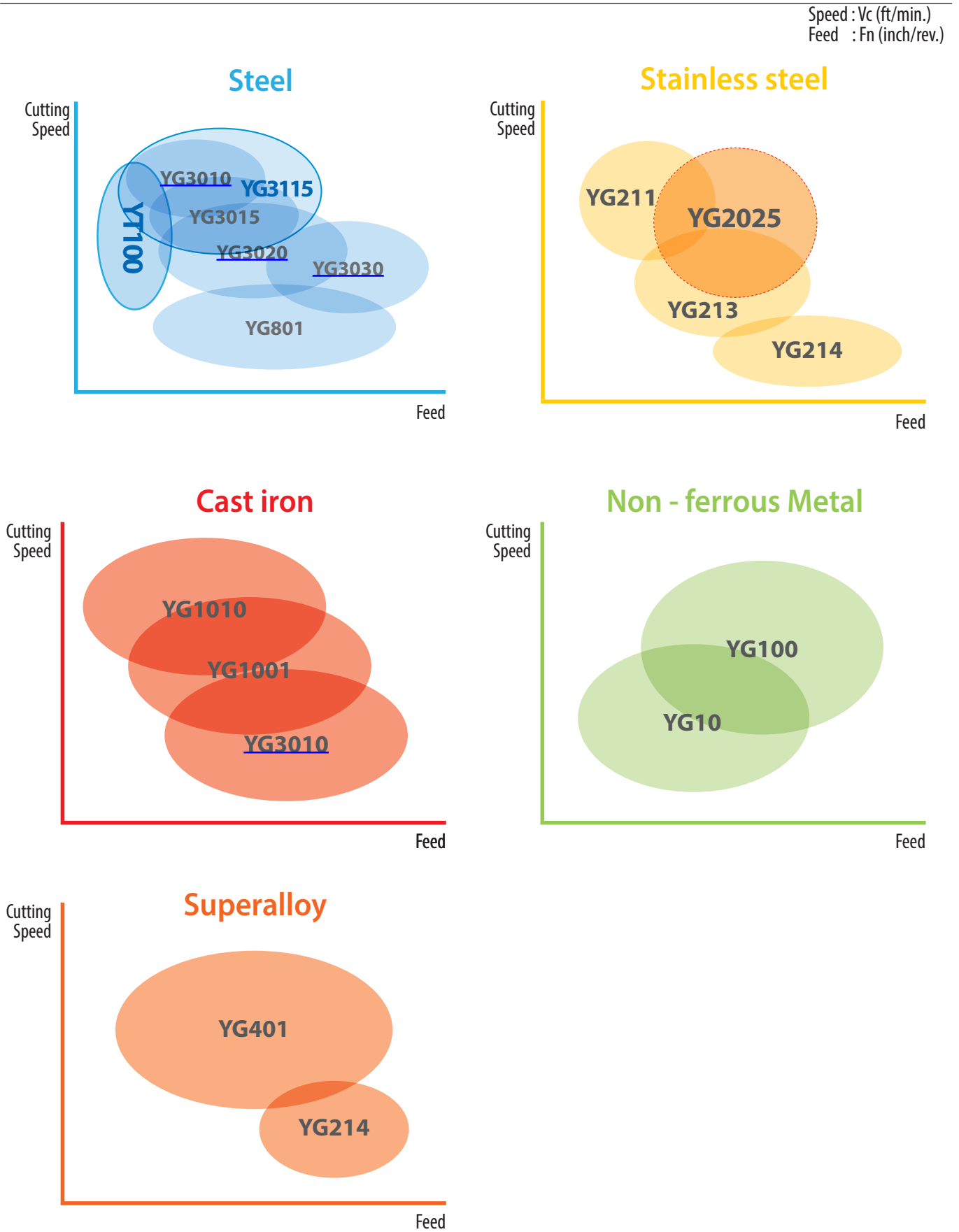
Symbol	
05	Stable Wear Resistant Grade Stable Application Continuous Cut Finishing
10	
15	
20	
25	General Balanced Grade High Versatility General Application
30	
35	
40	
45	Unstable Tougher Grade Unstable Application Interrupted Cut Chipping Resistance Roughing

(6) — (Minor Variation)

G — Gold Coated Version

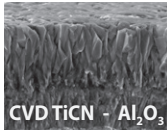
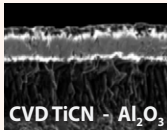
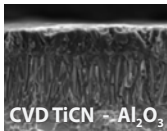
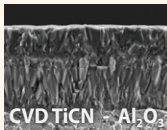
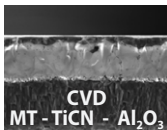
Product Overview

Turning Grades Map

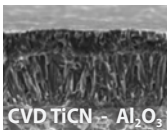
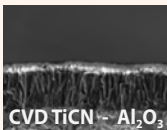
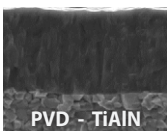
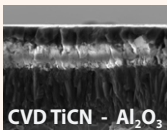
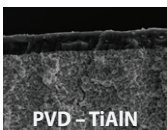
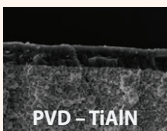
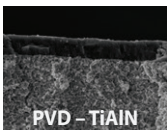
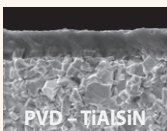
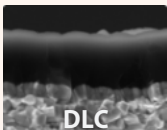
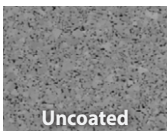


Product Overview
Turning Grades

Turning Grades		P Steel				M Stainless steel			K Cast iron			N Non - ferrous		S Superalloys	
		P10	P20	P30	P40	M10	M20	M30	K10	K20	K30	N10	N20	S10	S20
CVD	YG1010								1010						
	YG1001	1001							1001						
	YG3010	3010							3010						
	YG3015	3015													
	YG3115	3115													
	YG3020	3020													
	YG3030	3030													
	YG2025					2025									
PVD	YG801	801													
	YG211					211									
	YG213						213								
	YG214						214							214	
	YG401													401	
Cermet	YT100	YT100				YT100			YT100						
DLC	YG100											100			
-	YG10											10			

YG1010 K05 - K15		First Choice for Cast Iron - Effective coating structure enables high speed machining - Special post treatment for improved chipping resistance
YG1001 P01 - P10 K10 - K25		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
YG3015 P10 - P25		Balanced Productivity for Continuous cut High wear resistance and improved toughness ensures high productivity with less trouble
NEW YG3115 P15 - P25		First choice grade for high cutting speed in Steels - Suitable for mass production due to stable and predictable tool life - Minimizing built up edge due to new post surface treatment in mild steels, low carbon steel and low carbon alloy steel. - Best choice for both continuous as well as interrupted cuts

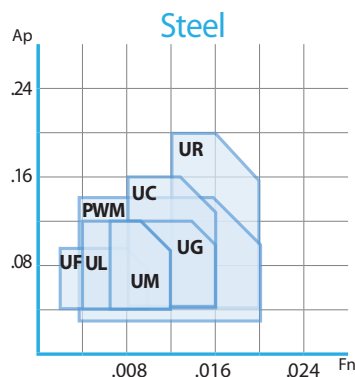
Product Overview
Turning Grades

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		Interrupted Cutting of Steel and Stainless steel - Substrate for heavy roughing in mild steel and low carbon alloy steel - New Al₂O₃ technology and optimized surface treatment achieves a good balance between wear resistance and chipping resistance
YG801 P10 - P30		for Carbon Steel with Low Cutting Speed - Recommended for mild steel and boring application - Substrate and special PVD coating for excellent wear resistance
NEW YG2025 M15 - M35		CVD grade for High Cutting Speed for Stainless steel - Utilizing a new carbide substrate and new coating - Excellent combination of wear resistance and chipping resistance - Minimized built up edge due to post surface treatment
YG211 M05 - M25		High wear Resistance Grade for Stainless steel Finishing Stainless steel
YG213 M20 - M35		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
YG401 S10 - S20		PVD Turning Grade for HRSA - Highly heat - resistant TiAlSiN structure for excellent wear resistance - Greatly improved film coating realizes excellent boundary defect resistance - Top coating layer provides a smooth surface and lubricant effect
NEW YT100 P10 - P20 M10 - M20 K10 - K20		New Generation Cermet Grade - Enhanced wear resistance & chipping resistance - Excellent fracture resistance - Superior surface finish with special edge preparation
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

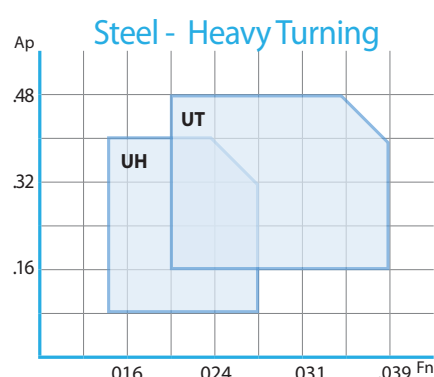
Turning Chip breakers - Negative

P	M	K	N	S			Feed						Fn (inch/rev.)
							0	.004	.008	.012	.016	.020	.024
P					UF	Finishing			Fn .002 ~ .010				
								Ap .039 ~ .098					
P					UL	Semi Finishing and sticky materials			Fn .004 ~ .012				
								Ap .039 ~ .118					
P					UM	Medium & Unstable conditions			Fn .006 ~ .012				
								Ap .039 ~ .118					
P					UG	First Choice for Medium(Stable conditions)			Fn .008 ~ .016				
								Ap .039 ~ .118					
P					PWM	Wiper - Medium			Fn .004 ~ .020				
								Ap .031 ~ .138					
P					NEW UH	Low cutting force			Fn .014 ~ .028				
								Ap .079 ~ .354					
P					NEW UT	Heavy roughing			Fn .020 ~ .039				
								Ap .157 ~ .472					
P		K			UC	Medium Roughing and First choice for Cast iron			Fn .008 ~ .016				
								Ap .039 ~ .157					
P		K			UR	Roughing and Heavy interrupted cut			Fn .012 ~ .020				
								Ap .039 ~ .197					
		K			..MA	Cast iron Heavy Roughing			Fn .006 ~ .020				
								Ap .039 ~ .197					

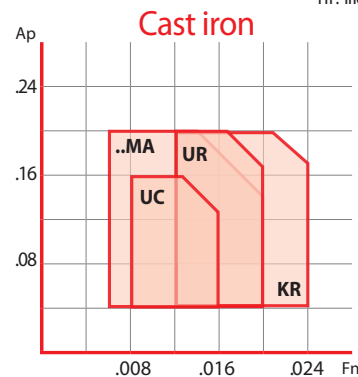
Ap : inch
Fn : inch/rev.



*Insert : CNMG432



*Insert : CNMM646

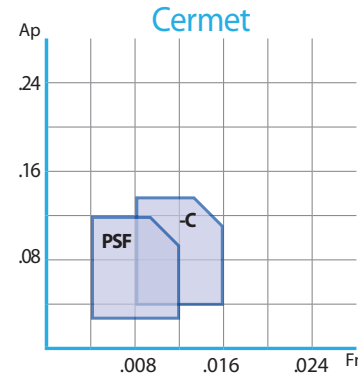


*Insert : CNMM646

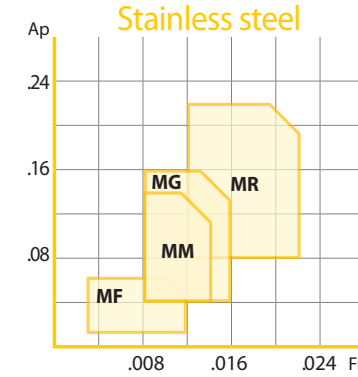
Turning Chip breakers - Negative

P	M	K	N	S			Feed						Fn (inch/rev.)
							0	.004	.008	.012	.016	.020	.024
		K			KR	Cast Iron Heavy Roughing				Fn .012 ~ .024			
								Ap .039 ~ .197					
	M			S	MF	Stainless steel Finishing			Fn .003 ~ .012				
								Ap .008 ~ .059					
P	M			S	MM	Stainless steel Medium and Low Carbon Steel			Fn .008 ~ .014				
								Ap .039 ~ .138					
	M			S	MG	Stainless steel General			Fn .008 ~ .016				
								Ap .039 ~ .157					
	M			S	MR	Stainless steel Roughing			Fn .012 ~ .022				
								Ap .079 ~ .217					
				S	SF	HRSA Finishing			Fn .004 ~ .010				
								Ap .008 ~ .039					
				S	SM	HRSA Medium			Fn .006 ~ .012				
								Ap .020 ~ .118					
				S	SR	Roughing for HRSA			Fn .012 ~ .022				
								Ap .079 ~ .217					
P	M	K			NEW PSF	Cermet Finishing			Fn .004 ~ .012				
								Ap .024 ~ .118					
P	M	K			NEW -C	Cermet Medium			Fn .008 ~ .016				
								Ap .039 ~ .138					

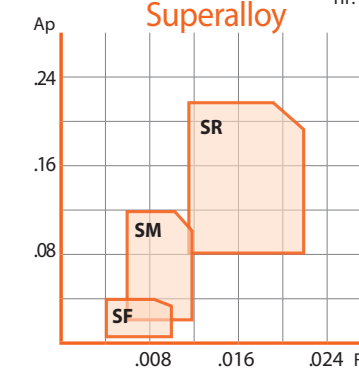
Ap : inch
Fn : inch/rev.



*Insert : CNMG432 / TNGG332



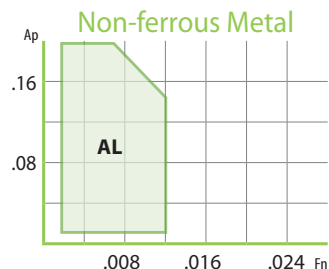
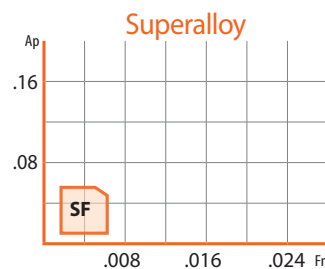
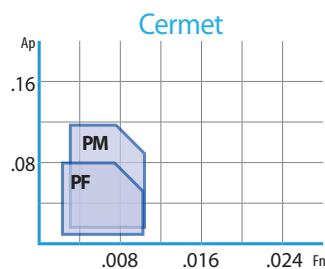
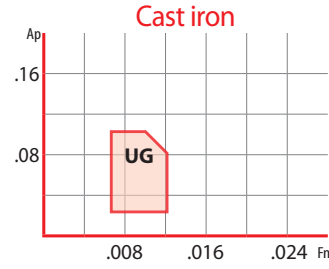
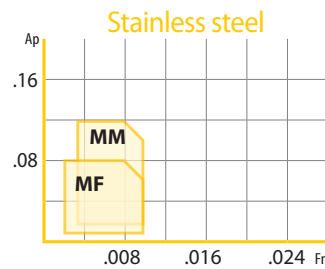
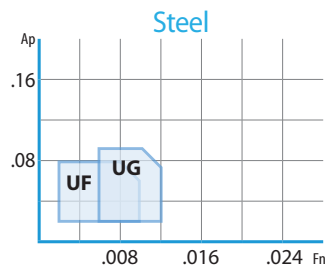
*Insert : CNMG432



*Insert : CNMG432

Turning Chip breakers - Positive

P M K N S					Feed							Fn (inch/rev.)
					0	.004	.008	.012	.016	.020	.024	
			N		AL		Fn .001 ~ .012					Ap .004 ~ .197
P	M				UF		Fn .002 ~ .010					Ap .020 ~ .079
P		K			UG		Fn .006 ~ .012					Ap .020 ~ .098
	M				NEW MF		Fn .002 ~ .010					Ap .004 ~ .079
	M				NEW MM		Fn .003 ~ .010					Ap .010 ~ .118
	M				NEW SF		Fn .001 ~ .008					Ap .004 ~ .098
P	M	K			NEW PF		Fn .002 ~ .010					Ap .004 ~ .079
P	M	K			NEW PM		Fn .003 ~ .010					Ap .010 ~ .118
						Depth of Cut						Ap (inch)
						0	.04	.08	.12	.16	.20	.24
												Ap : inch Fn : inch/rev.



*Insert : CCMT32.52

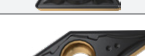
Turning Inserts Overview

Negative Inserts

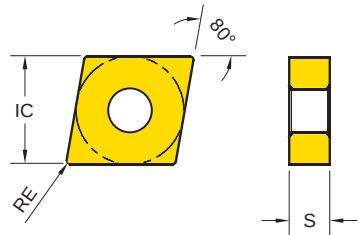
Recommended Cutting Conditions : p.164

Shape		Series	Size & Thickness								Page
C		CNMA			43			54	64		30
		CNMG	32	33	43			54	64	86	
		CNGG			43			54	64	86	
		CNMM			43						
D		DNMA			43	44					35
		DNMG		33	43	44					
		DNGG			43	44					
		DNMM									
		DNUX			43	44					40
K		KNUX					1604 (mm)				41
S		SNMA			43			54	64		42
		SNMG	32		43			54	64		
		SNMM						54	65	85	
T		TNMA		33							47
		TNMG		33			43				
		TNGG		33							49
		TNUX		33							50
V		VNMA		33							51
		VNMG		33							
W		WNMA			43						53
		WNMG		33	43						
		WNGG			43						56

Positive Inserts

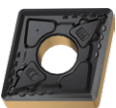
Shape		Series	Size & Thickness						Page
C		CCGT	21.5		32.5			43	57
		CCMT	21.5		32.5			43	
D		DCGT	21.5		32.5				59
		DCMT	21.5		32.5				
R		RCMT	602	803		10T3	1204		61
S		SCGT			32.5				63
		SCMT			32.5			43	
T		TCGT	21.5		32.5				64
		TCMT	21.5		32.5				
V		VBGT / VBMT		22		33			66
		VCGT / VCMT		22		33			

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

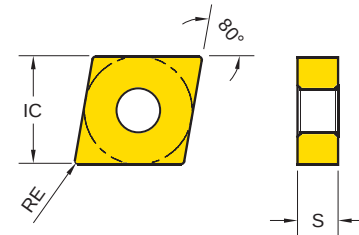


Series	IC	S	Series	IC	S
CN** 32	3/8	1/8	CN** 54	5/8	1/4
CN** 33	3/8	3/16	CN** 64	3/4	1/4
CN** 43	1/2	3/16	CN** 86	1.0	3/8

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

CNMA CNMG	Designation	RE	Fn (In/rev.)	Ap (In)	K10	P05	P10	P15	P10	P20	P30	P20	M25	M15	M30	M40	S10	P15	M15	N20	N20
					K20	K30										S30	K15				
..MA  Cast iron	CNMA431	.016	.006~.020	.020~.197	●	○	○														
	CNMA432	.031	.006~.020	.039~.197	●	○	○														
	CNMA433	.047	.006~.020	.059~.197	●	○	○														
	CNMA434	.063	.006~.020	.079~.197	●	○	○														
	CNMA543	.047	.006~.020	.059~.197	●	○	○														
	CNMA544	.063	.006~.020	.079~.197	●	○	○														
	CNMA643	.047	.006~.020	.059~.354	●	○	○														
	CNMA644	.063	.006~.039	.118~.394	●	○	○														
	CNMG431-UF	.016	.002~.010	.020~.098			○														
- UF  Finishing	CNMG432-UF	.031	.002~.010	.039~.098			○														
	CNMG433-UF	.047	.002~.010	.059~.098			○														
	CNMG322-UL	.031	.004~.012	.039~.098			○														
- UL  Light Machining and Sticky Material	CNMG323-UL	.047	.004~.012	.059~.098			○														
	CNMG332-UL	.031	.004~.012	.039~.098			○														
	CNMG333-UL	.047	.004~.012	.059~.098			○														
	CNMG431-UL	.016	.004~.012	.020~.118			○														
	CNMG432-UL	.031	.004~.012	.039~.118			○														
	CNMG433-UL	.047	.004~.012	.059~.118			○														
	CNMG431-UM	.016	.006~.012	.020~.118			○														
- UM  Medium Machining Unstable condition	CNMG432-UM	.031	.006~.012	.039~.118			○														
	CNMG433-UM	.047	.006~.012	.059~.118			○														

Turning Inserts - Negative CNMG (80° Rhombic)

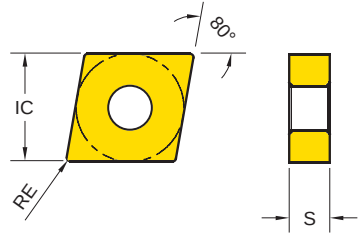


Series	IC	S	Series	IC	S
CN** 32	3/8	1/8	CN** 54	5/8	1/4
CN** 33	3/8	3/16	CN** 64	3/4	1/4
CN** 43	1/2	3/16	CN** 86	1.0	3/8

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

CNMG	Designation	RE	Fn (In/rev.)	Ap (In)	K10	P05	P10	P15	P10	P20	P30	P20	M25	M15	M30	M40	S10	P15	M15	N20	N20
					K20	K30										S30	K15				
- UG  Medium Machining at stable condition	CNMG431-UG	.016	.008~.016	.020~.118	●	○	○														
	CNMG432-UG	.031	.008~.016	.039~.118	●	○	○														
	CNMG433-UG	.047	.008~.016	.059~.118	●	○	○														
	CNMG542-UG	.031	.008~.016	.039~.197	●	○	○														
	CNMG543-UG	.047	.008~.016	.059~.197	●	○	○														
	CNMG544-UG	.063	.012~.020	.079~.197	●	○	○														
	CNMG642-UG	.031	.008~.024	.039~.236	●	○	○														
	CNMG643-UG	.047	.008~.024	.059~.236	●	○	○														
	CNMG431-PWM	.016	.004~.020	.020~.138	●	○	○														
- PWM  Wiper - Medium	CNMG432-PWM	.031	.004~.020	.031~.138	●	○	○														
	CNMG433-PWM	.047	.004~.020	.039~.138	●	○	○														
	CNMG431-UC	.016	.008~.016	.020~.157	●	○	○														
- UC  Cast iron and Medium roughing	CNMG432-UC	.031	.008~.016	.039~.157	●	○	○														
	CNMG433-UC	.047	.008~.016	.059~.157	●	○	○														
	CNMG432-UR	.031	.012~.020	.039~.197	●	○	○														
- UR  Roughing	CNMG433-UR	.047	.012~.020	.059~.197	●	○	○														
	CNMG434-UR	.063	.012~.020	.079~.197	●	○	○														
	CNMG542-UR	.031	.012~.020	.039~.197	●	○	○														
	CNMG543-UR	.047	.012~.020	.059~.197	●	○	○														
	CNMG544-UR	.063	.012~.020	.079~.197	●	○	○														
	CNMG642-UR	.031	.012~.031	.118~.354	●	○	○														
	CNMG643-UR	.047	.012~.031	.118~.354	●	○	○														
- KR  Cast Iron Heavy Roughing	CNMG644-UR	.063	.012~.031	.118~.354	●	○	○														
	CNMG432-KR	.031	.012~.024	.039~.197	●	○	○														
	CNMG433-KR	.047	.012~.024	.059~.197	●	○	○														
	CNMG543-KR	.047	.012~.024	.059~.236	●	○	○														
	CNMG544-KR	.063	.012~.024	.079~.236	●	○	○														
	CNMG643-KR	.047	.012~.039	.118~.354	●	○	○														
	CNMG644-KR	.063	.012~.039	.118~.354	●	○	○														

Turning Inserts - Negative
CNMG (80° Rhombic)

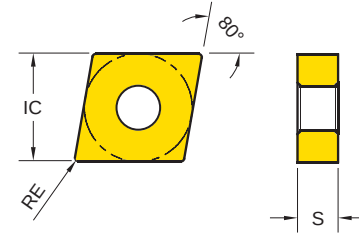


Series	IC	S	Series	IC	S
CN** 32	3/8	1/8	CN** 54	5/8	1/4
CN** 33	3/8	3/16	CN** 64	3/4	1/4
CN** 43	1/2	3/16	CN** 86	1.0	3/8

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

CNMG	Designation	RE	Fn (In/rev.)	Ap (In)	K10	P05 K20	P10 K30	P15	P10	P20	P30	P20	M25	M15	M30	M40 S30	S10 K15	P15 M15	N20	N20
					YG1010	YG1001	YG3010	YG3015	YG3115	YG3020	YG3030	YG801	YG2025	YG211	YG213	YG214	YG401	YT100	YG100	YG10
- MF 	CNMG431-MF	.016	.003~.012	.008~.059								○	○	●	●	●	○			
	CNMG432-MF	.031	.003~.012	.008~.059							○	○	●	●	●	●	○			
	CNMG433-MF	.047	.003~.012	.008~.059							○	○	●	●	●	●	○			
- MM 	CNMG431-MM	.016	.008~.014	.020~.138									●	●	●	○				
	CNMG432-MM	.031	.008~.014	.039~.138						○	○		●	●	●	○				
	CNMG433-MM	.047	.008~.014	.059~.138						○	○		●	●	●	○				
	CNMG642-MM	.031	.008~.020	.079~.217									●	●	●	○				
	CNMG643-MM	.047	.008~.022	.079~.217									●	●	●	○				
- MG 	CNMG431-MG	.016	.008~.016	.020~.157								●	●	●	●	○				
	CNMG432-MG	.031	.008~.016	.039~.157						○	○		●	●	●	○				
	CNMG433-MG	.047	.008~.016	.059~.157						○	○		●	●	●	○				
	CNMG542-MG	.031	.008~.018	.039~.157									●	●	●	○				
	CNMG543-MG	.047	.008~.020	.079~.157									●	●	●	○				
	CNMG544-MG	.063	.008~.020	.079~.157									●	●	●	○				
- MR 	CNMG644-MG	.063	.008~.020	.079~.197									●	●	●	○				
	CNMG432-MR	.031	.012~.022	.079~.217						○	○		●	●	●	○				
	CNMG433-MR	.047	.012~.022	.079~.217						○	○		●	●	●	○				
	CNMG434-MR	.063	.012~.022	.079~.217									●	●	●	○				

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

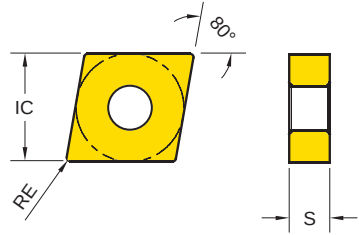


Series	IC	S	Series	IC	S
CN** 32	3/8	1/8	CN** 54	5/8	1/4
CN** 33	3/8	3/16	CN** 64	3/4	1/4
CN** 43	1/2	3/16	CN** 86	1.0	3/8

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

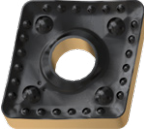
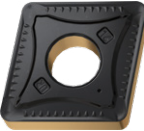
CNGG CNMG	Designation	RE	Fn (In/rev.)	Ap (In)	K10	P05 K20	P10 K30	P15	P10	P20	P30	P20	M25	M15	M30	M40 S30	S10 K15	P15 M15	N20	N20
					YG1010	YG1001	YG3010	YG3015	YG3115	YG3020	YG3030	YG801	YG2025	YG211	YG213	YG214	YG401	YT100	YG100	YG10
- SF 	CNGG430-SF	.004	.004~.010	.004~.039													●			
	CNGG430.5-SF	.008	.004~.010	.004~.039													●			
	CNGG431-SF	.016	.004~.010	.008~.039													●			
	CNGG432-SF	.031	.004~.010	.008~.039													●			
- SM 	CNMG432-SM	.031	.006~.012	.020~.118												○	○	○	●	
	CNMG433-SM	.047	.006~.012	.020~.118												○	○	○	●	
																1373	1394	2305	1292	
- SR 	CNMG432-SR	.031	.012~.022	.079~.217													●			
	CNMG433-SR	.047	.012~.022	.079~.217													●			
	CNMG434-SR	.063	.012~.022	.079~.217													●			
NEW - PSF 	CNMG431-PSF	.016	.003~.012	.016~.118													●			
	CNMG432-PSF	.031	.004~.014	.024~.118													●			

CNMG / CNMM - Heavy Turning (80° Rhombic)

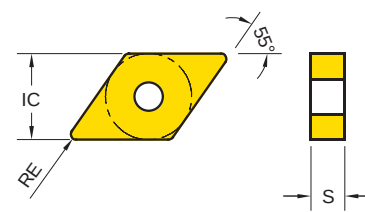


Series	IC	S	Series	IC	S
CN** 32	3/8	1/8	CN** 54	5/8	1/4
CN** 33	3/8	3/16	CN** 64	3/4	1/4
CN** 43	1/2	3/16	CN** 86	1.0	3/8

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

CNMG CNMM	Designation	RE	Fn (In/rev.)	Ap (In)	K10	P05 K20	P10 K30	P15	P10	P20	P30	P20	M25	M15	M30	M40 S30	S10	P15 M15 K15	N20	N20
					YG1010	YG1001	YG3010	YG3015	YG3115	YG3020	YG3030	YG801	YG2025	YG211	YG213	YG214	YG401	YT100	YG100	YG10
NEW - UH  Low cutting force	CNMM432 - UH	.031	.012 ~ .020	.059 ~ .197						●	●									
	CNMM543 - UH	.047	.014 ~ .024	.079 ~ .217						●	●									
	CNMM544 - UH	.063	.014 ~ .024	.098 ~ .217						●	●									
	CNMM643 - UH	.047	.014 ~ .028	.059 ~ .354	●	●				●	●									
	CNMM644 - UH	.063	.014 ~ .028	.079 ~ .354	●	●				●	●									
	CNMM646 - UH	.094	.014 ~ .028	.118 ~ .354	●	●				●	●									
	CNMM866 - UH	.094	.016 ~ .031	.118 ~ .394	●	●				●	●									
- UR  Roughing	CNMM644 - UR	.063	.012 ~ .031	.118 ~ .354						●	●									
	CNMG866 - UR	.094	.016 ~ .039	.197 ~ .472						●	●									
										●	●									
NEW - UT  Heavy Roughing	CNMM432 - UT	.031	.016 ~ .028	.059 ~ .236						●	●									
	CNMM543 - UT	.047	.018 ~ .028	.079 ~ .236						●	●									
	CNMM544 - UT	.063	.018 ~ .028	.098 ~ .236						●	●									
	CNMM643 - UT	.047	.020 ~ .039	.118 ~ .472	●	●				●	●									
	CNMM644 - UT	.063	.020 ~ .039	.157 ~ .472	●	●				●	●									
	CNMM646 - UT	.094	.020 ~ .039	.236 ~ .472	●	●				●	●									
	CNMM866 - UT	.094	.022 ~ .047	.236 ~ .512	●	●				●	●									

DNMA / DNMG (55° Rhombic)

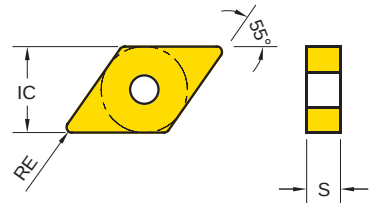


Series	IC	S
DN.. 33	3/8	3/16
DN.. 43	1/2	3/16
DN.. 44	1/2	1/4

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

DNMA DNMG	Designation	RE	Fn (In/rev.)	Ap (In)	K10	P05 K20	P10 K30	P15	P10	P20	P30	P20	M25	M15	M30	M40 S30	S10	P15 M15 K15	N20	N20
					YG1010	YG1001	YG3010	YG3015	YG3115	YG3020	YG3030	YG801	YG2025	YG211	YG213	YG214	YG401	YT100	YG100	YG10
..MA  Cast iron	DNMA431	.016	.004 ~ .020	.020 ~ .197	●	○	○													
	DNMA432	.031	.006 ~ .020	.039 ~ .197	●	○	○													
	DNMA433	.047	.006 ~ .020	.059 ~ .197	●	○	○													
	DNMA441	.016	.004 ~ .020	.020 ~ .197	●	○	○													
	DNMA442	.031	.006 ~ .020	.039 ~ .197	●	○	○													
	DNMA443	.047	.006 ~ .020	.059 ~ .197	●	○	○													
- UF  Finishing	DNMG431 - UF	.016	.002 ~ .010	.020 ~ .098		○	○													
	DNMG432 - UF	.031	.002 ~ .010	.039 ~ .098		○	○													
	DNMG433 - UF	.047	.002 ~ .010	.059 ~ .098		○	○													
	DNMG441 - UF	.016	.002 ~ .010	.020 ~ .098		○	○													
	DNMG442 - UF	.031	.002 ~ .010	.039 ~ .098		○	○													
	DNMG443 - UF	.047	.002 ~ .010	.059 ~ .098		○	○													
- UL  Light Machining and Sticky Material	DNMG331 - UL	.016	.004 ~ .012	.020 ~ .098		○	○													
	DNMG332 - UL	.031	.004 ~ .012	.039 ~ .098		○	○													
	DNMG431 - UL	.016	.004 ~ .012	.020 ~ .118		○	○													
	DNMG432 - UL	.031	.004 ~ .012	.039 ~ .118		○	○													
	DNMG433 - UL	.047	.004 ~ .012	.059 ~ .118		○	○													
	DNMG441 - UL	.016	.004 ~ .012	.020 ~ .118		○	○													
	DNMG442 - UL	.031	.004 ~ .012	.039 ~ .118		○	○													
	DNMG443 - UL	.047	.004 ~ .012	.059 ~ .118		○	○													
						○	○													

Turning Inserts - Negative DNMG (55° Rhombic)

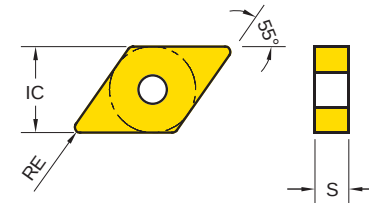


Series	IC	S
DN.. 33	3/8	3/16
DN.. 43	1/2	3/16
DN.. 44	1/2	1/4

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

DNMG	Designation	RE	Fn (In/rev.)	Ap (In)	K10	P05	P10	P15	P10	P20	P30	P20	M25	M15	M30	M40	S10	P15	M15	N20	N20
					K20	K30										S30	K15				
- UM Medium Machining Unstable condition	DNMG431-UM	.016	.006~.012	.020~.118	○	○	○	●	●	●	●	●									
	DNMG432-UM	.031	.006~.012	.039~.118	○	○	○	●	●	●	●	●									
	DNMG433-UM	.047	.006~.012	.059~.118	○	○	○	●	●	●	●	●									
	DNMG441-UM	.016	.006~.012	.020~.118	○	○	○	●	●	●	●	●									
	DNMG442-UM	.031	.006~.012	.039~.118	○	○	○	●	●	●	●	●									
	DNMG443-UM	.047	.006~.012	.059~.118	○	○	○	●	●	●	●	●									
- UG Medium Machining at stable condition	DNMG431-UG	.016	.008~.016	.020~.118	●	○	○	●	●	●	●	●									
	DNMG432-UG	.031	.008~.016	.039~.118	●	○	○	●	●	●	●	●									
	DNMG433-UG	.047	.008~.016	.059~.118	●	○	○	●	●	●	●	●									
	DNMG441-UG	.016	.008~.016	.020~.118	●	○	○	●	●	●	●	●									
	DNMG442-UG	.031	.008~.016	.039~.118	●	○	○	●	●	●	●	●									
	DNMG443-UG	.047	.008~.016	.059~.118	●	○	○	●	●	●	●	●									
- UC Cast iron and Medium roughing	DNMG432-UC	.031	.008~.016	.039~.157	●	○	○	●	●	●	●	●									
	DNMG433-UC	.047	.008~.016	.059~.157	●	○	○	●	●	●	●	●									
	DNMG442-UC	.031	.008~.016	.039~.157	●	○	○	●	●	●	●	●									
	DNMG443-UC	.047	.008~.016	.059~.157	●	○	○	●	●	●	●	●									
	DNMG432-UR	.031	.012~.020	.039~.197	●	○	○	●	●	●	●	●									
	DNMG433-UR	.047	.012~.020	.059~.197	●	○	○	●	●	●	●	●									
- UR Roughing	DNMG442-UR	.031	.012~.020	.039~.197	●	○	○	●	●	●	●	●									
	DNMG443-UR	.047	.012~.020	.059~.197	●	○	○	●	●	●	●	●									
	DNMG443-UR	.047	.012~.020	.059~.197	●	○	○	●	●	●	●	●									

Turning Inserts - Negative DNMG (55° Rhombic)

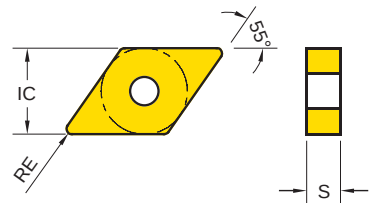


Series	IC	S
DN.. 33	3/8	3/16
DN.. 43	1/2	3/16
DN.. 44	1/2	1/4

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

DNMG	Designation	RE	Fn (In/rev.)	Ap (In)	K10	P05	P10	P15	P10	P20	P30	P20	M25	M15	M30	M40	S10	P15	M15	N20	N20
					K20	K30										S30	K15				
- MF Stainless steel Finishing	DNMG431-MF	.016	.003~.012	.008~.059																	
	DNMG432-MF	.031	.003~.012	.008~.059																	
	DNMG441-MF	.016	.003~.012	.008~.059																	
	DNMG442-MF	.031	.003~.012	.008~.059																	
- MM Stainless steel Medium	DNMG431-MM	.016	.008~.014	.020~.138																	
	DNMG432-MM	.031	.008~.014	.039~.138																	
	DNMG433-MM	.047	.008~.014	.059~.138																	
	DNMG441-MM	.016	.008~.014	.020~.138																	
	DNMG442-MM	.031	.008~.014	.039~.138																	
	DNMG443-MM	.047	.008~.014	.059~.138																	
- MG Stainless steel General	DNMG431-MG	.016	.008~.016	.020~.157																	
	DNMG432-MG	.031	.008~.016	.039~.157																	
	DNMG433-MG	.047	.008~.016	.059~.157																	
	DNMG441-MG	.016	.008~.016	.020~.157																	
	DNMG442-MG	.031	.008~.016	.039~.157																	
	DNMG443-MG	.047	.008~.016	.059~.157																	
- MR Stainless steel Roughing	DNMG432-MR	.031	.012~.022	.079~.217																	
	DNMG433-MR	.047	.012~.022	.079~.217																	
	DNMG442-MR	.031	.012~.022	.079~.217																	
	DNMG443-MR	.047	.012~.022	.079~.217																	
	DNMG443-MR	.047	.012~.022	.079~.217																	

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

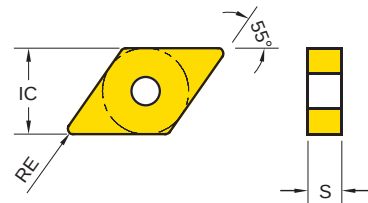


Series	IC	S
DN.. 33	3/8	3/16
DN.. 43	1/2	3/16
DN.. 44	1/2	1/4

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

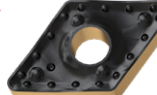
	DNMG	Designation	RE	Fn (In/rev.)	Ap (In)	K10	P05 K20	P10 K30	P15	P10	P20	P30	P20	M25	M15	M30	M40 S30	S10	P15 K15	N20	N20
						YG1010	YG1001	YG3010	YG3015	YG3115	YG3020	YG3030	YG801	YG2025	YG211	YG213	YG214	YG401	YT100	YG100	YG10
- SF	 HRSF Finishing	DNMG431-SF	.016	.004~.010	.008~.039													●			
		DNMG432-SF	.031	.004~.010	.008~.039													●			
		DNMG441-SF	.016	.004~.010	.008~.039													●			
		DNMG442-SF	.031	.004~.010	.008~.039													●			
- SM	 HRSF Medium	DNMG432-SM	.031	.006~.012	.020~.118													○			
		DNMG433-SM	.047	.006~.012	.020~.118													○			
		DNMG442-SM	.031	.006~.012	.020~.118													○			
		DNMG443-SM	.047	.006~.012	.020~.118													○			
- SR	 HRSF Roughing	DNMG432-SR	.031	.012~.022	.079~.217													●			
		DNMG433-SR	.047	.012~.022	.079~.217													●			
		DNMG442-SR	.031	.012~.022	.079~.217													●			
		DNMG443-SR	.047	.012~.022	.079~.217													●			
NEW - PSF	 Cermet Finishing	DNMG431-PSF	.016	.003~.012	.016~.118													●			
		DNMG432-PSF	.031	.004~.012	.024~.118													●			

Turning Inserts - Negative
DNMM - Heavy Turning (55° Rhombic)

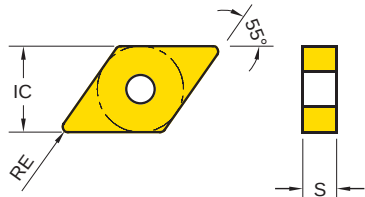


Series	IC	S
DN.. 33	3/8	3/16
DN.. 43	1/2	3/16
DN.. 44	1/2	1/4

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

	DNMM	Designation	RE	Fn (In/rev.)	Ap (In)	K10	P05 K20	P10 K30	P15	P10	P20	P30	P20	M25	M15	M30	M40 S30	S10	P15 K15	N20	N20
						YG1010	YG1001	YG3010	YG3015	YG3115	YG3020	YG3030	YG801	YG2025	YG211	YG213	YG214	YG401	YT100	YG100	YG10
NEW - UH	 Low cutting force	DNMM443-UH	.047	.012~.020	.079~.276													●			
																		●			
NEW - UT	 Heavy Roughing	DNMM443-UT	.047	.016~.028	.079~.315													●			
																		●			

Turning Inserts - Negative
DNUX (4 Corners 55° Rhombic)

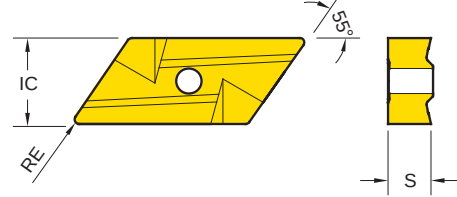


Series	LE	IC	S
DNUX.. 43	.512	1/2	3/16
DNUX.. 44	.512	1/2	1/4

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

DNUX	Designation	RE	Fn (In/rev.)	Ap (In)	K10	P05	P10	P15	P10	P20	P30	P20	M25	M15	M30	M40	S10	P15	M15	N20	N20
					K20	K30										S30	K15				
 Left Hand Shown	DNUX431L	.016	.004~.014	.028~.157			○			●	●	●									
	DNUX432L	.031	.004~.014	.039~.157			○			●	●	●									
	DNUX441L	.016	.004~.014	.028~.157			○			●	●	●									
	DNUX442L	.031	.004~.014	.039~.157			○			●	●	●									
 Right Hand Shown	DNUX431R	.016	.004~.014	.028~.157			○			●	●	●									
	DNUX432R	.031	.004~.014	.039~.157			○			●	●	●									
	DNUX441R	.016	.004~.014	.028~.157			○			●	●	●									
	DNUX442R	.031	.004~.014	.039~.157			○			●	●	●									

Turning Inserts - Negative
KNUX (2 Corners 55° Rhombic)

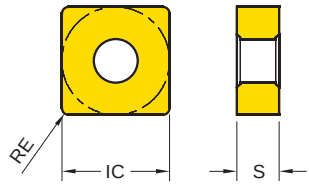


Series	LE	S
KN** 1604	.591	3/16

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

KNUX	Designation	RE	Fn (In/rev.)	Ap (In)	K10	P05	P10	P15	P10	P20	P30	P20	M25	M15	M30	M40	S10	P15	M15	N20	N20
					K20	K30										S30	K15				
 Left Hand Shown	KNUX160405L	.020	.004~.016	.020~.236			○			●	●	●									
	KNUX160410L	.039	.012~.024	.039~.236			○			●	●	●									
 Right Hand Shown	KNUX160405R	.020	.004~.016	.020~.236			○			●	●	●									
	KNUX160410R	.039	.012~.024	.039~.236			○			●	●	●									

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



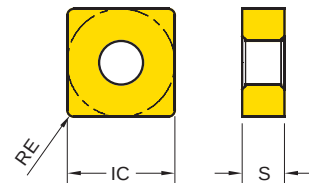
Series	IC	S
SN** 32	3/8	1/8
SN** 43	1/2	3/16
SN** 54	5/8	1/4
SN** 64	3/4	1/4
SN** 85	1	5/16
SN** 86	1	3/8

● : Stock item ○ : Order made item

EDP 2200..

	Designation	RE	Fn (In/rev.)	Ap (In)	K10	P05	P10	P15	P10	P20	P30	P20	M25	M15	M30	M40	S10	P15	M15	N20	N20
					K20	K30										S30	K15				
..MA  Cast iron	SNMA432	.031	.006~.020	.039~.197	●	○	○														
	SNMA433	.047	.006~.020	.059~.197	●	○	○														
	SNMA434	.047	.006~.020	.071~.197	●	○	○														
	SNMA543	.047	.006~.020	.059~.197	●	○	○														
	SNMA644	.063	.006~.020	.079~.354	●	○	○														
- UF  Finishing	SNMG322-UF	.031	.002~.008	.039~.079						●	●										
	SNMG431-UF	.016	.002~.010	.020~.098			○			●	●	●	○								
	SNMG432-UF	.031	.002~.010	.039~.098			○			●	●	●									
- UL  Light Machining and Sticky Material	SNMG431-UL	.016	.004~.012	.020~.118			○			●	●	●									
	SNMG432-UL	.031	.004~.012	.039~.118			○			●	●	●									
- UM  Medium Machining Unstable condition	SNMG432-UM	.031	.006~.012	.039~.118			○	○		●	●	●									

Turning Inserts - Negative
SNMG (90° Square)



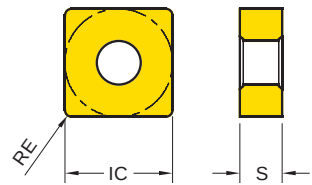
Series	IC	S
SN** 32	3/8	1/8
SN** 43	1/2	3/16
SN** 54	5/8	1/4
SN** 64	3/4	1/4
SN** 85	1	5/16
SN** 86	1	3/8

● : Stock item ○ : Order made item

EDP 2200..

	Designation	RE	Fn (In/rev.)	Ap (In)	K10	P05	P10	P15	P10	P20	P30	P20	M25	M15	M30	M40	S10	P15	M15	N20	N20
					K20	K30										S30	K15				
- UG  Medium Machining at stable condition	SNMG432-UG	.031	.008~.016	.039~.118	●	○	○			●	●	○									
	SNMG433-UG	.047	.008~.016	.059~.118	●	○	○			●	●	○									
	SNMG434-UG	.063	.008~.016	.079~.118	●	○	○	○		●	●	○									
- UC  Cast iron and Medium roughing	SNMG432-UC	.031	.008~.016	.039~.157	●	○	○			●	●	○									
	SNMG433-UC	.047	.008~.016	.059~.157	●	○	○			●	●	○									
- UR  Roughing	SNMG432-UR	.031	.012~.020	.039~.197	●	○	○			●	●	○									
	SNMG433-UR	.047	.012~.020	.059~.197	●	○	○			●	●	○									
	SNMG434-UR	.063	.012~.020	.079~.197	●	○	○	○		●	●	○									
	SNMG643-UR	.047	.012~.031	.118~.354						●	●	○									
	SNMG644-UR	.063	.012~.031	.118~.354	●					●	●	○									
- KR  Cast Iron Heavy Roughing	SNMG433-KR	.047	.012~.024	.059~.197	●	○	○			●	●	○									
	SNMG434-KR	.063	.012~.024	.079~.197	●	○	○	○		●	●	○									

Turning Inserts - Negative
SNMG (90° Square)

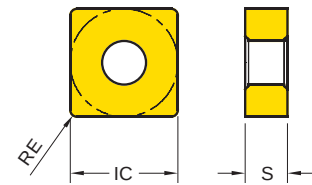


Series	IC	S
SN** 32	3/8	1/8
SN** 43	1/2	3/16
SN** 54	5/8	1/4
SN** 64	3/4	1/4
SN** 85	1	5/16
SN** 86	1	3/8

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

SNMG	Designation	RE	Fn (In/rev.)	Ap (In)	K10	P05 K20	P10 K30	P15	P10	P20	P30	P20	M25	M15	M30	M40 S30	S10	P15 M15 K15	N20	N20
					YG1010	YG1001	YG3010	YG3015	YG3115	YG3020	YG3030	YG801	YG2025	YG211	YG213	YG214	YG401	YT100	YG100	YG10
- MF 	SNMG431-MF	.016	.003 ~ .012	.008 ~ .059										●	●	●	○			
	SNMG432-MF	.031	.003 ~ .012	.008 ~ .059							○		●	●	●	●	○			
	SNMG433-MF	.047	.003 ~ .012	.008 ~ .059							○		●	●	●	●	○			
- MM 	SNMG432-MM	.031	.008 ~ .014	.039 ~ .138										●	●	●	○			
	SNMG433-MM	.047	.008 ~ .014	.059 ~ .138										●	●	●	○			
														●	●	●	○			
- MG 	SNMG431-MG	.016	.008 ~ .016	.020 ~ .157									●							
	SNMG432-MG	.031	.008 ~ .016	.039 ~ .157									●	●	●	●	●			
	SNMG433-MG	.047	.008 ~ .016	.059 ~ .157									●							
- MR 	SNMG432-MR	.031	.012 ~ .022	.079 ~ .217							○		●	●	●	●				
	SNMG433-MR	.047	.012 ~ .022	.079 ~ .217							○		●	●	●	●				
	SNMG434-MR	.063	.012 ~ .022	.079 ~ .217									●							

Turning Inserts - Negative
SNMG (90° Square)

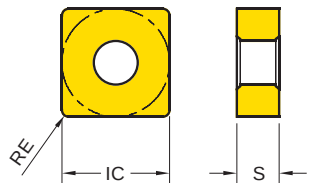


Series	IC	S
SN** 32	3/8	1/8
SN** 43	1/2	3/16
SN** 54	5/8	1/4
SN** 64	3/4	1/4
SN** 85	1	5/16
SN** 86	1	3/8

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

SNMG	Designation	RE	Fn (In/rev.)	Ap (In)	K10	P05 K20	P10 K30	P15	P10	P20	P30	P20	M25	M15	M30	M40 S30	S10	P15 M15 K15	N20	N20
					YG1010	YG1001	YG3010	YG3015	YG3115	YG3020	YG3030	YG801	YG2025	YG211	YG213	YG214	YG401	YT100	YG100	YG10
- SM 	SNMG321-SM	.016	.006 ~ .012	.020 ~ .118										○			●			
	SNMG432-SM	.031	.006 ~ .012	.020 ~ .118										○	○	○	●			
- SR 	SNMG432-SR	.031	.012 ~ .022	.079 ~ .217													●			
	SNMG433-SR	.047	.012 ~ .022	.079 ~ .217													●			

SNMG / SNMM - Heavy Turning (90° Square)



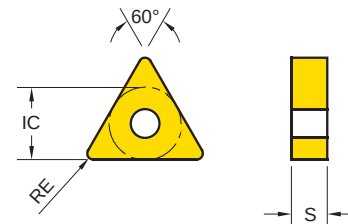
Series	IC	S
SN** 32	3/8	1/8
SN** 43	1/2	3/16
SN** 54	5/8	1/4
SN** 64	3/4	1/4
SN** 85	1	5/16
SN** 86	1	3/8

EDP 2200..

● : Stock item ○ : Order made item

SNMG SNMM	Designation	RE	Fn (In/rev.)	Ap (In)	K10	P05 K20	P10 K30	P15	P10	P20	P30	P20	M25	M15	M30	M40 S30	S10	P15 M15 K15	N20	N20
					YG1010	YG1001	YG3010	YG3015	YG3115	YG3020	YG3030	YG801	YG2025	YG211	YG213	YG214	YG401	YT100	YG100	YG10
NEW - UH  Low cutting force	SNMM543-UH	.047	.014~.024	.079~.217						●	●									
	SNMM643-UH	.047	.014~.028	.059~.354	2123		2124			2125	2126									
	SNMM644-UH	.063	.014~.028	.079~.354	2127		2128			2129	2130									
	SNMM646-UH	.094	.014~.028	.118~.354	2131		2132			2133	2134									
	SNMM866-UH	.094	.016~.031	.118~.394	2135		2136			2137	2138									
- UR  Roughing	SNMG866-UR	.094	.016~.039	.197~.472						●	●									
										1370	1366									
NEW - UT  Heavy Roughing	SNMM543-UT	.047	.018~.028	.079~.236						●	●									
	SNMM643-UT	.047	.020~.039	.118~.472	2153		2154			2155	2156									
	SNMM644-UT	.063	.020~.039	.157~.472	2157		2158			2159	2160									
	SNMM646-UT	.094	.020~.039	.236~.472	2161		2018			2162	2163									
	SNMM856-UT	.094	.022~.047	.236~.512			1255			0841	0842									
	SNMM866-UT	.094	.022~.047	.236~.512	2164		1626			1627	1213									

TNMA / TNMG (60° Triangle)

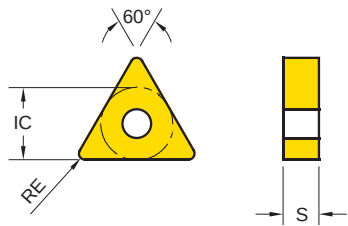


EDP 2200..

● : Stock item ○ : Order made item

TNMA TNMG	Designation	RE	Fn (In/rev.)	Ap (In)	K10	P05 K20	P10 K30	P15	P10	P20	P30	P20	M25	M15	M30	M40 S30	S10	P15 M15 K15	N20	N20
					YG1010	YG1001	YG3010	YG3015	YG3115	YG3020	YG3030	YG801	YG2025	YG211	YG213	YG214	YG401	YT100	YG100	YG10
..MA  Cast iron	TNMA331	.016	.006~.020	.020~.197	●	○	○													
	TNMA332	.031	.006~.020	.039~.197	1582	1446	1448													
	TNMA333	.047	.006~.020	.059~.197	1486	0035	1191													
- UF  Finishing	TNMG331-UF	.016	.002~.010	.020~.098		○	○		●	●	●	○								
	TNMG332-UF	.031	.002~.010	.039~.098		○	○		2363	0271	0272	0039								
	TNMG333-UF	.047	.002~.010	.059~.098		○	○		0276	2217	0277	0278								
	TNMG431-UF	.016	.004~.014	.020~.157		○	○		0721	2645	0588	1197								
- UL  Light Machining and Sticky Material	TNMG331-UL	.016	.004~.012	.020~.118		○	○		0407	2409	1203	1205	0042							
	TNMG332-UL	.031	.004~.012	.039~.118		○	○		1605	2643	1606	1607								
	TNMG333-UL	.047	.004~.012	.059~.118		○	○		0279	0752	2374	0280	0281							
						○	○		0884	0868	2586	0621	1198							
- UM  Medium Machining Unstable condition	TNMG331-UM	.016	.006~.012	.020~.118	○	○	○	○	●	●	●	●								
	TNMG332-UM	.031	.006~.012	.039~.118	1669	0949	0948	0844	2644	0952	0954									
	TNMG333-UM	.047	.006~.012	.059~.118	1141	1053	0282	0758	2195	0283	0284									
					1143	0596	0597	0760	2587	0586	0710									
- UG  Medium Machining at stable condition	TNMG331-UG	.016	.008~.016	.020~.118	●	○	○		1620	0458	0273		2171	0274	0275					
	TNMG332-UG	.031	.008~.016	.039~.118	●	○	○	○	1140	0459	0144	0757	2182	0145	0146	0037				
	TNMG333-UG	.047	.008~.016	.059~.118	●	○	○	○	1142	0605	0606	0759	2200	0587	0939					
	TNMG432-UG	.031	.010~.024	.039~.236	●	○	○	○	1641	1061	0285		2394	0286	0287	0040				
	TNMG433-UG	.047	.010~.024	.059~.236	●	○	○	○	1642	1526	1527		2694	1528	1529					
	TNMG434-UG	.063	.010~.024	.079~.236	●	○	○	○	1647	1209	0851	0863	2695	0852	1263					
- UC  Cast iron and Medium roughing	TNMG331-UC	.016	.008~.016	.020~.157	●	○	○	○	1316	0399	0400		2423	0401	0402					
	TNMG332-UC	.031	.008~.016	.039~.157	●	○	○	○	0901	0075	0129		2382	0108	0130					
	TNMG333-UC	.047	.008~.016	.059~.157	●	○	○	○	0902	0076	0131		2413	0109	0132					
	TNMG434-UC	.063	.008~.016	.079~.157									1507							
- UR  Roughing	TNMG332-UR	.031	.012~.020	.039~.197	●	○	○	○	0880	0680	0669		2395	0670	1054					
	TNMG333-UR	.047	.012~.020	.059~.197	●	○	○	○	1657	0602	0404	0888	2406	0405	0406	0038				
	TNMG433-UR	.047	.012~.026	.059~.276	●	○	○	○	1639	0408	0409		2403	0410	0411	10041				
	TNMG434-UR	.063	.012~.026	.079~.276	●	○	○	○	1658	0460	0461		2696	0696	0711					

Turning Inserts - Negative
TNMG (60° Triangle)

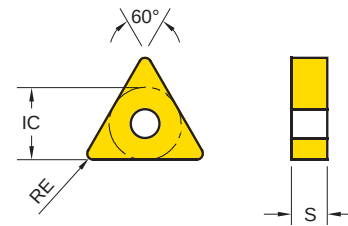


Series	IC	S
TN** 33	3/8	3/16
TN** 43	1/2	3/16

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

	TNMG	Designation	RE	Fn (In/rev.)	Ap (In)	K10	P05 K20	P10 K30	P15	P10	P20	P30	P20	M25	M15	M30	M40 S30	S10	P15 M15 K15	N20	N20
						YG1010	YG1001	YG3010	YG3015	YG3115	YG3020	YG3030	YG801	YG2025	YG211	YG213	YG214	YG401	YT100	YG100	YG10
- MF		TNMG331-MF	.016	.003 ~ .012	.008 ~ .059										●	●	●	○			
		TNMG332-MF	.031	.003 ~ .012	.008 ~ .059						○			●	●	●	●	○			
- MM		TNMG331-MM	.016	.008 ~ .014	.020 ~ .138										●	●	●	○			
		TNMG332-MM	.031	.008 ~ .014	.039 ~ .138										●	●	●	○			
		TNMG333-MM	.047	.008 ~ .014	.059 ~ .138										●	●	●	○			
- MG		TNMG331-MG	.016	.008 ~ .016	.020 ~ .157									●	●	●	●	●			
		TNMG332-MG	.031	.008 ~ .016	.039 ~ .157									●	●	●	●	●			
		TNMG333-MG	.047	.008 ~ .020	.079 ~ .157									●	●	●	●	●			
- MR		TNMG332-MR	.031	.012 ~ .022	.079 ~ .217						○			●	●	●	●				
		TNMG333-MR	.047	.012 ~ .022	.079 ~ .217						○			●	●	●	●				

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

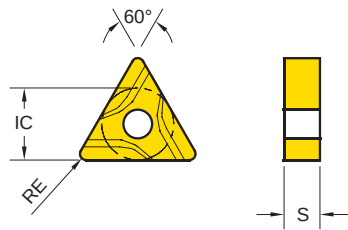


Series	IC	S
TN** 33	3/8	3/16
TN** 43	1/2	3/16

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

	TNGG TNMG	Designation	RE	Fn (In/rev.)	Ap (In)	K10	P05 K20	P10 K30	P15	P10	P20	P30	P20	M25	M15	M30	M40 S30	S10	P15 M15 K15	N20	N20
						YG1010	YG1001	YG3010	YG3015	YG3115	YG3020	YG3030	YG801	YG2025	YG211	YG213	YG214	YG401	YT100	YG100	YG10
- SF		TNMG332-SF	.031	.004 ~ .010	.008 ~ .039													●			
- SM		TNMG332-SM	.031	.006 ~ .012	.020 ~ .118												○	○	●		
		TNMG333-SM	.047	.006 ~ .012	.020 ~ .118												○	○	●		
- SR		TNMG332-SR	.031	.012 ~ .022	.079 ~ .217													●			
		TNMG333-SR	.047	.012 ~ .022	.079 ~ .217													●			
- PSF		TNMG331-PSF	.016	.003 ~ .012	.016 ~ .098														●		
		TNMG332-PSF	.031	.004 ~ .014	.024 ~ .098														●		
- C		TNGG330.5L-C	.008	.008 ~ .016	.012 ~ .138														○		
		TNGG331L-C	.016	.008 ~ .016	.020 ~ .138														○		
		TNGG332L-C	.031	.008 ~ .016	.039 ~ .138														○		
- C		TNGG330.5R-C	.008	.008 ~ .016	.012 ~ .138														○		
		TNGG331R-C	.016	.008 ~ .016	.020 ~ .138														○		
		TNGG332R-C	.031	.008 ~ .016	.039 ~ .138														○		

Turning Inserts - Negative
TNUX (60° Triangle)

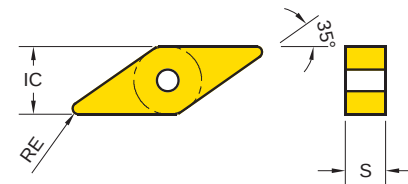


Series	LE	IC	S
TNUX 33	.370	3/8	3/16

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

TNUX	Designation	RE	Fn (In/rev.)	Ap (In)	K10	P05	P10	P15	P10	P20	P30	P20	M25	M15	M30	M40	S10	P15	M15	N20	N20
					K20	K30										S30	K15				
..UX  Left Hand Shown	TNUX331L	.016	.004~.012	.020~.157			○			●	●	○									
	TNUX332L	.031	.004~.016	.039~.197		○				●	●	○		○							
..UX  Right Hand Shown	TNUX331R	.016	.004~.012	.020~.157			○			●	●	○									
	TNUX332R	.031	.004~.016	.039~.197		○				●	●	○									

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

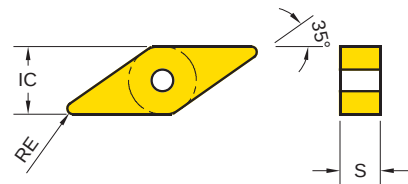


Series	IC	S
VN** 33	3/8	3/16

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

VNMA VNMG	Designation	RE	Fn (In/rev.)	Ap (In)	K10	P05	P10	P15	P10	P20	P30	P20	M25	M15	M30	M40	S10	P15	M15	N20	N20
					K20	K30										S30	K15				
..MA  Cast iron	VNMA332	.031	.006~.016	.039~.197	●	○	○														
					157301621275																
- UF  Finishing	VNMG331-UF	.016	.002~.010	.020~.098			○			●	●	○									
	VNMG332-UF	.031	.002~.010	.039~.098			○			●	●	○									
- UL  Light Machining and Sticky Material	VNMG331-UL	.016	.004~.012	.020~.118			○			●	●	○									
	VNMG332-UL	.031	.004~.012	.039~.118			○			●	●	○									
	VNMG333-UL	.047	.004~.012	.059~.118			○			●	●	○									
- UM  Medium Machining Unstable condition	VNMG332-UM	.031	.006~.012	.039~.118			○			●	●	○									
	VNMG333-UM	.047	.006~.012	.059~.118			○			●	●	○									
							○			●	●	○									
- UG  Medium Machining at stable condition	VNMG331-UG	.016	.008~.016	.020~.118	●	○	○			●	●	○									
	VNMG332-UG	.031	.008~.016	.039~.118	●	○	○			●	●	○									
	VNMG333-UG	.047	.008~.016	.059~.118	●	○	○			●	●	○									
- UC  Cast iron and Medium roughing	VNMG331-UC	.016	.008~.016	.020~.138	●	○	○			●	●	○									
	VNMG332-UC	.031	.008~.016	.039~.138	●	○	○			●	●	○									
	VNMG333-UC	.047	.008~.016	.059~.138	●	○	○			●	●	○									
- UR  Roughing	VNMG333-UR	.047	.012~.018	.059~.157	●	○	○			●	●	○									
					1638123104300871					2380043104320051											

Turning Inserts - Negative
VNMG (35° Rhombic)

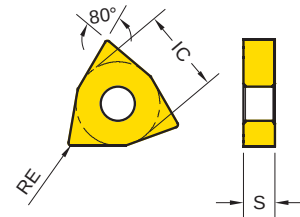


Series	IC	S
VN** 33	3/8	3/16

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

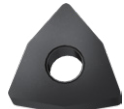
	VNMG	Designation	RE	Fn (In/rev.)	Ap (In)	K10	P05 K20	P10 K30	P15	P10	P20	P30	P20	M25	M15	M30	M40 S30	S10	P15 M15 K15	N20	N20
						YG1010	YG1001	YG3010	YG3015	YG3115	YG3020	YG3030	YG801	YG2025	YG211	YG213	YG214	YG401	YT100	YG100	YG10
- MF	 Stainless steel Finishing	VNMG331-MF	.016	.003 ~ .012	.008 ~ .059										●	●	●	○			
		VNMG332-MF	.031	.003 ~ .012	.008 ~ .059							○		●	●	●	●	○			
- MM	 Stainless steel Medium	VNMG331-MM	.016	.008 ~ .014	.020 ~ .138										●	●	●	○			
		VNMG332-MM	.031	.008 ~ .014	.039 ~ .138										●	●	●	○			
- MG	 Stainless steel Genera	VNMG331-MG	.016	.008 ~ .016	.020 ~ .157									●							
		VNMG332-MG	.031	.008 ~ .016	.039 ~ .157									●							
		VNMG333-MG	.047	.008 ~ .016	.059 ~ .157									●							
- MR	 Stainless steel Roughing	VNMG332-MR	.031	.012 ~ .022	.079 ~ .217							○		●	●	●	●				
														●	●	●	●				
- SR	 HRSA Medium	VNMG332-SR	.031	.012 ~ .022	.079 ~ .217																
NEW - PSF	 Cermet Finishing	VNMG331-PSF	.016	.003 ~ .012	.012 ~ .079														●		
		VNMG332-PSF	.031	.004 ~ .014	.020 ~ .079														●		

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

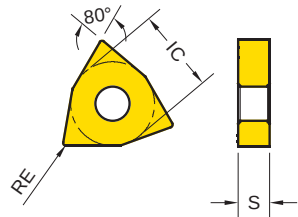


Series	IC	S
WN** 33	3/8	3/16
WN** 43	1/2	3/16

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

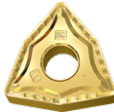
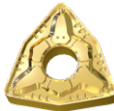
	WNMA WNMG	Designation	RE	Fn (In/rev.)	Ap (In)	K10	P05 K20	P10 K30	P15	P10	P20	P30	P20	M25	M15	M30	M40 S30	S10	P15 M15 K15	N20	N20
						YG1010	YG1001	YG3010	YG3015	YG3115	YG3020	YG3030	YG801	YG2025	YG211	YG213	YG214	YG401	YT100	YG100	YG10
..MA	 Cast iron	WNMA431	.016	.006 ~ .020	.020 ~ .197	●	○	○													
		WNMA432	.031	.006 ~ .020	.039 ~ .197	○	○	○													
		WNMA433	.047	.006 ~ .020	.059 ~ .197	○	○	○													
- UF	 Finishing	WNMG331-UF	.016	.002 ~ .008	.020 ~ .079		○			●	●	●	○								
		WNMG431-UF	.016	.002 ~ .010	.020 ~ .098		○			●	●	●	○								
		WNMG432-UF	.031	.002 ~ .010	.039 ~ .098		○			●	●	●									
		WNMG433-UF	.047	.002 ~ .010	.059 ~ .098		○			●	●	●									
- UL	 Light Machining and Sticky Material	WNMG332-UL	.031	.004 ~ .012	.039 ~ .098		○			●	●	●									
		WNMG431-UL	.016	.004 ~ .012	.020 ~ .118		○			●	●	●									
		WNMG432-UL	.031	.004 ~ .012	.039 ~ .118		○			●	●	●									
		WNMG433-UL	.047	.004 ~ .012	.059 ~ .118		○			●	●	●									
- UM	 Medium Machining Unstable condition	WNMG331-UM	.016	.006 ~ .012	.020 ~ .098	○	○	○		●	●	●									
		WNMG332-UM	.031	.006 ~ .012	.039 ~ .098	○	○	○		●	●	●									
		WNMG431-UM	.016	.006 ~ .012	.020 ~ .118		○	○		●	●	●									
		WNMG432-UM	.031	.006 ~ .012	.039 ~ .118		○	○	○	●	●	●									
		WNMG433-UM	.047	.006 ~ .012	.059 ~ .118		○	○	○	●	●	●									
		WNMG434-UM	.063	.006 ~ .012	.079 ~ .118		○	○	○	●	●	●									

Turning Inserts - Negative WNMG (80° Trigon)

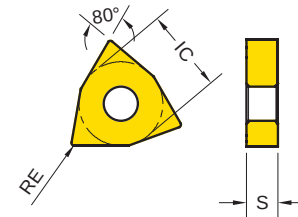


Series	IC	S
WN** 33	3/8	3/16
WN** 43	1/2	3/16

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

					K10	P05	P10	P15	P10	P20	P30	P20	M25	M15	M30	M40	S10	P15	N20	N20
					K20	K30									S30		K15			
WNMG	Designation	RE	Fn (In/rev.)	Ap (In)	YG1010	YG1001	YG3010	YG3015	YG3115	YG3020	YG3030	YG801	YG2025	YG211	YG213	YG214	YG401	YT100	YG100	YG10
 - UG Medium Machining at stable condition	WNMG332 - UG	.031	.008 ~ .016	.039 ~ .098	●	○	○		●	●	●	○								
	WNMG431 - UG	.016	.008 ~ .016	.020 ~ .118	164906971047				2428043808740059											
	WNMG432 - UG	.031	.008 ~ .016	.039 ~ .118	158012320318				239203190320											
	WNMG433 - UG	.047	.008 ~ .016	.059 ~ .118	09080463014705822194014801490056															
	WNMG434 - UG	.063	.008 ~ .016	.079 ~ .118	0910046605030648216704900941															
 - PWM Wiper - Medium	WNMG432 - PWM	.031	.004 ~ .020	.031 ~ .138	1643123310560764257505831238				2706											
 - UC Cast iron and Medium roughing	WNMG332 - UC	.031	.008 ~ .016	.039 ~ .118	144400950875				242108760724											
	WNMG431 - UC	.016	.008 ~ .016	.020 ~ .157	090600970133				236701100134											
	WNMG432 - UC	.031	.008 ~ .016	.039 ~ .157	0907007701350733218601110136															
	WNMG433 - UC	.047	.008 ~ .016	.059 ~ .157	0909007801370630216801120138															
	WNMG434 - UC	.063	.008 ~ .016	.079 ~ .157	118710551235				270912360743											
 - UR Roughing	WNMG333 - UR	.047	.012 ~ .020	.059 ~ .157	131710661057				270210581060											
	WNMG432 - UR	.031	.012 ~ .020	.039 ~ .197	161304640465				235304710472											
	WNMG433 - UR	.047	.012 ~ .020	.059 ~ .197	1614046704420631				2184044304440057											
	WNMG434 - UR	.063	.012 ~ .020	.079 ~ .197	1637046804690889235907250714															
 - KR Cast Iron Heavy Roughing	WNMG432 - KR	.031	.012 ~ .024	.039 ~ .197	093207201038				2705											
	WNMG433 - KR	.047	.012 ~ .024	.059 ~ .197	093305220542				2707											

Turning Inserts - Negative WNMG (80° Trigon)

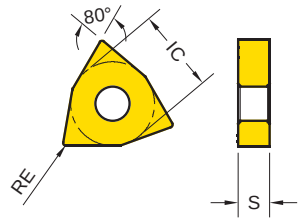


Series	IC	S
WN** 33	3/8	3/16
WN** 43	1/2	3/16

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

					K10	P05 K20	P10 K30	P15	P10	P20	P30	P20	M25	M15	M30	M40 S30	S10	P15 K15	M15	N20	N20
WNMG	Designation	RE	Fn (In/rev.)	Ap (In)	YG1010	YG1001	YG3010	YG3015	YG3115	YG3020	YG3030	YG801	YG2025	YG211	YG213	YG214	YG401	YT100	YG100	YG10	
- MF  Stainless steel Finishing	WNMG331 - MF	.016	.003 ~ .012	.016 ~ .079			○ 0833				○ 0996		● 2461	● 1215	● 1217	● 2284	○ 2279				
	WNMG332 - MF	.031	.003 ~ .012	.031 ~ .079										● 1216	● 1218	● 2285	○ 2280				
	WNMG431 - MF	.016	.003 ~ .012	.016 ~ .098							○ 0834		● 2462	● 0667	● 0668	● 0970	○ 2281				
	WNMG432 - MF	.031	.003 ~ .012	.031 ~ .098							○ 1098		● 2463	● 0617	● 0618	● 2268	○ 2282				
- MM  Stainless steel Medium	WNMG431 - MM	.016	.008 ~ .014	.020 ~ .138									● 0571	● 1057	● 2230	○ 2301					
	WNMG432 - MM	.031	.008 ~ .014	.039 ~ .138						○ 0491				● 0497	● 0498	● 0633	○ 2302				
	WNMG433 - MM	.047	.008 ~ .014	.059 ~ .138										● 0612	● 0615	● 1926	○ 2303				
- MG  Stainless steel General	WNMG331 - MG	.016	.008 ~ .016	.020 ~ .118									● 2487								
	WNMG332 - MG	.031	.008 ~ .016	.039 ~ .118									● 2476								
	WNMG333 - MG	.047	.008 ~ .016	.059 ~ .118									● 2477								
	WNMG431 - MG	.016	.008 ~ .016	.020 ~ .157									● 2488								
	WNMG432 - MG	.031	.008 ~ .016	.039 ~ .157										● 2478	● 1496	● 1497	● 1160	○ 1498			
	WNMG433 - MG	.047	.008 ~ .016	.059 ~ .157										● 2479	● 1499	● 1500	● 1161	○ 1501			
- MR  Stainless steel Roughing	WNMG333 - MR	.047	.012 ~ .022	.047 ~ .157						○ 1154		● 2498	● 0616	● 1787	● 1896						
	WNMG432 - MR	.031	.012 ~ .022	.079 ~ .217						○ 1099		● 2499	● 0619	● 0620	● 0835						
	WNMG433 - MR	.047	.012 ~ .022	.079 ~ .217						○ 0837		● 2482	● 0665	● 0666	● 0836						

Turning Inserts - Negative
WNGG / WNMG (80° Trigon)

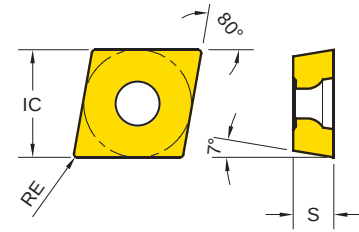


Series	IC	S
WN** 33	3/8	3/16
WN** 43	1/2	3/16

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

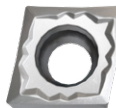
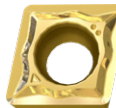
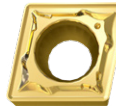
WNGG WNMG	Designation	RE	Fn (In/rev.)	Ap (In)	K10	P05 K20	P10 K30	P15	P10	P20	P30	P20	M25	M15	M30	M40 S30	S10	P15 M15 K15	N20	N20
					YG1010	YG1001	YG3010	YG3015	YG3115	YG3020	YG3030	YG801	YG2025	YG211	YG213	YG214	YG401	YT100	YG100	YG10
- SF  HRSA Finishing	WNGG432-SF	.031	.004~.010	.008~.039													● 1308			
- SM  HRSA Medium	WNMG432-SM	.031	.006~.012	.020~.118										○	○	○	● 1199120618591311			
	WNMG433-SM	.047	.006~.012	.020~.118										○	○	○	● 1374141618601312			
- SR  HRSA Roughing	WNMG333-SR	.047	.012~.022	.079~.157													● 1439			
	WNMG432-SR	.031	.012~.022	.079~.217													● 1310			
	WNMG433-SR	.047	.012~.022	.079~.217													● 1309			
NEW - PSF  Cermet Finishing	WNMG431-PSF	.016	.003~.012	.016~.098													● 2539			
	WNMG432-PSF	.031	.004~.014	.024~.098													● 2540			

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

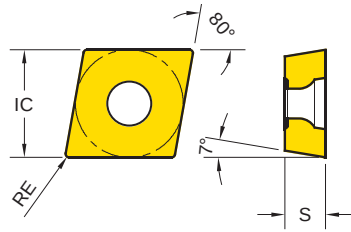


Series	IC	S
CC** 21.5	1/4	3/32
CC** 32.5	3/8	5/32
CC** 43	1/2	3/16

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

CCGT CCMT	Designation	RE	Fn (In/rev.)	Ap (In)	K10	P05 K20	P10 K30	P15	P10	P20	P30	P20	M25	M15	M30	M40 S30	S10	P15 M15 K15	N20	N20
					YG1010	YG1001	YG3010	YG3015	YG3115	YG3020	YG3030	YG801	YG2025	YG211	YG213	YG214	YG401	YT100	YG100	YG10
- AL  Aluminum	CCGT21.50.5-AL	.008	.000~.005	.002~.118																● 1398
	CCGT21.51-AL	.016	.001~.006	.004~.118																● 12781320
	CCGT32.50.5-AL	.008	.001~.008	.002~.118																● 03400339
	CCGT32.51-AL	.016	.001~.012	.004~.197																● 03300081
	CCGT32.52-AL	.031	.001~.020	.004~.197																● 03310082
	CCGT430.5-AL	.008	.001~.012	.002~.157																● 04740473
	CCGT431-AL	.016	.001~.020	.004~.197																● 04760475
- UF  Finishing	CCGT432-AL	.031	.002~.031	.004~.217																● 04780477
	CCMT21.51-UF	.016	.002~.008	.020~.079			○	○	●	●	●									
	CCMT32.51-UF	.016	.002~.010	.020~.079			○		●	●	●									
	CCMT32.52-UF	.031	.002~.010	.039~.079			○		●	●	●									
- UG  General	CCMT431-UF	.016	.004~.010	.039~.197			○		●	●	●									
	CCMT21.51-UG	.016	.004~.010	.020~.079	● 1377	○	○		●	●	●	○					○			
	CCMT21.52-UG	.031	.004~.010	.031~.079	● 1825		○		●	●	●	○					○			
	CCMT32.51-UG	.016	.006~.012	.020~.098	● 1844		○		●	●	●	○					○			
	CCMT32.52-UG	.031	.006~.012	.031~.098	● 1553	○	○		●	●	●	○					○			
	CCMT431-UG	.016	.006~.014	.020~.118	● 1845		○		●	●	●	○					○			
	CCMT432-UG	.031	.006~.014	.031~.118	● 1462		○		●	●	●	○					○			
	CCMT433-UG	.047	.006~.014	.047~.118	● 1846		○		●	●	●	○					○			

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

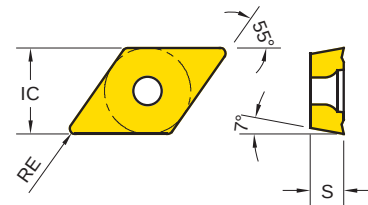


Series	IC	S
CC** 21.5	1/4	3/32
CC** 32.5	3/8	5/32
CC** 43	1/2	3/16

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

	CCGT CCMT	Designation	RE	Fn (In/rev.)	Ap (In)	K10	P05 K20	P10 K30	P15	P10	P20	P30	P20	M25	M15	M30	M40 S30	S10	P15 M15 K15	N20	N20
						YG1010	YG1001	YG3010	YG3015	YG3115	YG3020	YG3030	YG801	YG2025	YG211	YG213	YG214	YG401	YT100	YG100	YG10
NEW - SF HRSa Finishing		CCGT21.50-SF	.004	.001 ~ .006	.004 ~ .059												●	●			
		CCGT21.50.5-SF	.008	.001 ~ .006	.004 ~ .059												●	●			
		CCGT21.51-SF	.016	.001 ~ .008	.004 ~ .094												●	●			
		CCGT32.50-SF	.004	.001 ~ .006	.004 ~ .098												●	●			
		CCGT32.50.5-SF	.008	.001 ~ .006	.004 ~ .098												●	●			
		CCGT32.51-SF	.016	.001 ~ .008	.004 ~ .098												●	●			
		CCGT32.52-SF	.031	.001 ~ .010	.004 ~ .098												●	●			
NEW - MF Stainless steel Finishing		CCMT21.52-ME	.031	.002 ~ .008	.003 ~ .079												●	●			
		CCMT32.50.5-ME	.008	.002 ~ .006	.003 ~ .079												●	●			
		CCMT32.51-ME	.016	.002 ~ .010	.004 ~ .079												●	●			
		CCMT32.52-ME	.031	.003 ~ .012	.006 ~ .079												●	●			
NEW - MM Stainless steel Medium		CCMT32.51-MM	.016	.003 ~ .010	.010 ~ .118												●	●			
		CCMT32.52-MM	.031	.004 ~ .012	.020 ~ .118												●	●			
NEW - PF Cermet Finishing		CCMT32.50.5-PF	.008	.002 ~ .006	.003 ~ .079													●			
		CCMT32.51-PF	.016	.002 ~ .010	.004 ~ .079													●			
		CCMT32.52-PF	.031	.003 ~ .012	.006 ~ .079													●			
NEW - PM Cermet Medium		CCMT32.51-PM	.016	.003 ~ .010	.010 ~ .118													●			
		CCMT32.52-PM	.031	.004 ~ .012	.020 ~ .118													●			

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

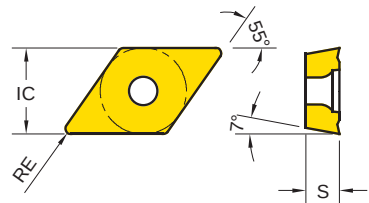


Series	IC	S
DC** 21.5	1/4	3/32
DC** 32.5	3/8	5/32

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

	DCGT DCMT	Designation	RE	Fn (In/rev.)	Ap (In)	K10	P05 K20	P10 K30	P15	P10	P20	P30	P20	M25	M15	M30	M40 S30	S10	P15 M15 K15	N20	N20
						YG1010	YG1001	YG3010	YG3015	YG3115	YG3020	YG3030	YG801	YG2025	YG211	YG213	YG214	YG401	YT100	YG100	YG10
- AL Aluminum		DCGT21.50.5-AL	.008	.000 ~ .008	.002 ~ .118																●
		DCGT21.51-AL	.016	.001 ~ .012	.004 ~ .157																●
		DCGT32.50-AL	.004	.000 ~ .012	.002 ~ .157																●
		DCGT32.50.5-AL	.008	.001 ~ .012	.002 ~ .157																●
		DCGT32.51-AL	.016	.001 ~ .020	.004 ~ .197																●
		DCGT32.52-AL	.031	.001 ~ .020	.004 ~ .197																●
- UF Finishing		DCMT21.51-UE	.016	.002 ~ .008	.020 ~ .079			○	●	●	●						○	○			
		DCMT32.51-UE	.016	.002 ~ .010	.020 ~ .079			○	●	●	●						○	○	○		
		DCMT32.52-UE	.031	.002 ~ .010	.039 ~ .079	●		○	●	●	●										
- UG General		DCMT21.51-UG	.016	.004 ~ .010	.020 ~ .079	●		○	●	●	●	○									
		DCMT21.52-UG	.031	.004 ~ .010	.031 ~ .079	●		○	●	●	●										
		DCMT32.51-UG	.016	.006 ~ .012	.020 ~ .098	●	○	○	●	●	●	○					○	○	○		
		DCMT32.52-UG	.031	.006 ~ .012	.031 ~ .098	●	○	○	●	●	●										
		DCMT32.53-UG	.047	.006 ~ .014	.059 ~ .118																

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

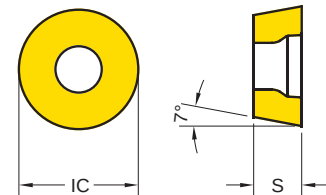


Series	IC	S
DC** 21.5	1/4	3/32
DC** 32.5	3/8	5/32

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

DCGT DCMT	Designation	RE	Fn (In/rev.)	Ap (In)	K10	P05 K20	P10 K30	P15	P10	P20	P30	P20	M25	M15	M30	M40 S30	S10	P15 M15 K15	N20	N20
					YG1010	YG1001	YG3010	YG3015	YG3115	YG3020	YG3030	YG801	YG2025	YG211	YG213	YG214	YG401	YT100	YG100	YG10
NEW - SF  HRSA Finishing	DCGT21.50-SF	.004	.001 ~ .006	.004 ~ .059												●	●			
	DCGT21.50.5-SF	.008	.001 ~ .006	.004 ~ .059												●	●			
	DCGT21.51-SF	.016	.001 ~ .008	.004 ~ .059											○	●	●			
	DCGT32.50-SF	.004	.000 ~ .002	.004 ~ .098												●	●			
	DCGT32.50.5-SF	.008	.001 ~ .006	.004 ~ .098											○	○	●	●		
	DCGT32.51-SF	.016	.001 ~ .008	.004 ~ .098											○	○	●	●		
NEW - MF  Stainless steel Finishing	DCGT32.52-SF	.031	.001 ~ .008	.004 ~ .098												●	●			
	DCMT21.51-ME	.016	.002 ~ .007	.003 ~ .059									●	●	●	●	●			
	DCMT32.50.5-ME	.008	.002 ~ .006	.003 ~ .079									●	●	●	●	●			
	DCMT32.51-ME	.016	.002 ~ .010	.004 ~ .079									●	●	●	●	●			
	DCMT32.52-ME	.031	.003 ~ .008	.006 ~ .079									●	●	●	●	●			
	DCMT21.51-MM	.016	.003 ~ .012	.008 ~ .091									●	●	●	●	●			
NEW - MM  Stainless steel Medium	DCMT21.52-MM	.031	.003 ~ .010	.020 ~ .059						○										
	DCMT32.51-MM	.016	.002 ~ .007	.010 ~ .118									●	●	●	●	●			
	DCMT32.52-MM	.031	.003 ~ .010	.020 ~ .118									●	●	●	●	●			
	DCMT21.51-PE	.016	.002 ~ .007	.003 ~ .059													●			
	DCMT32.50.5-PE	.008	.002 ~ .006	.003 ~ .079													●			
	DCMT32.51-PE	.016	.002 ~ .010	.004 ~ .079													●			
NEW - PF  Cermet Finishing	DCMT32.52-PE	.031	.003 ~ .008	.006 ~ .079													●			
	DCMT21.51-PM	.016	.003 ~ .012	.008 ~ .091													●			
	DCMT32.51-PM	.016	.002 ~ .007	.010 ~ .118													●			
	DCMT32.52-PM	.031	.003 ~ .010	.020 ~ .118													●			
																	●			
																	●			
NEW - PM  Cermet Medium																	●			
																	●			
																	●			
																	●			
																	●			
																	●			

Turning Inserts - Positive
RCMT (Round)

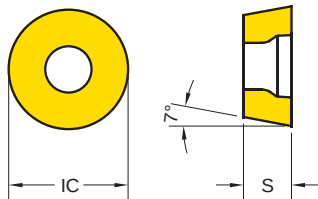


Series	INSD	S
RC** 0602	.236	3/32
RC** 0803	.315	1/8
RC** 10T3	.394	5/32
RC** 1204	.472	3/16
RC** 1606	.630	1/4
RC** 2006	.787	1/4

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

RCMT	Designation	RE	Fn (In/rev.)	Ap (In)	K10	P05 K20	P10 K30	P15	P10	P20	P30	P20	M25	M15	M30	M40 S30	S10	P15 M15 K15	N20	N20
					YG1010	YG1001	YG3010	YG3015	YG3115	YG3020	YG3030	YG801	YG2025	YG211	YG213	YG214	YG401	YT100	YG100	YG10
 General	RCMT0602M0	.118	.002 ~ .010	.008 ~ .047	●	○	○		●	●	●	○								
	RCMT0803M0	.157	.002 ~ .012	.020 ~ .059	●	○	○		●	●	●	○								
	RCMT10T3M0	.197	.004 ~ .014	.020 ~ .098	●	○	○		●	●	●	○								
	RCMT1204M0	.236	.006 ~ .018	.020 ~ .118	●	○	○		●	●	●	○								
					183303830384				2627038511700022											

RCMX - Heavy Turning (Round)



Series	INSD	S
RC** 0602	.236	3/32
RC** 0803	.315	1/8
RC** 10T3	.394	5/32
RC** 1204	.472	3/16
RC** 1606	.630	1/4
RC** 2006	.787	1/4

EDP 2200..

● : Stock item ○ : Order made item

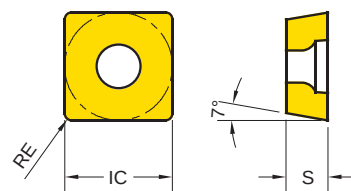
RCMX	Designation	RE	Fn (In/rev.)	Ap (In)	K10	P05	P10	P15	P10	P20	P30	P20	M25	M15	M30	M40	S10	P15	M15	N20	N20
					K20	K30										S30				K15	
					YG1010	YG1001	YG3010	YG3015	YG3115	YG3020	YG3030	YG801	YG2025	YG211	YG213	YG214	YG401	YT100	YG100	YG10	
NEW UT  Heavy Roughing	RCMX1606M0 - UT	.315	.012 ~ .031	.039 ~ .276	● 2441																
	RCMX2006M0 - UT	.394	.020 ~ .051	.059 ~ .354					● 2169												

NEW
- UT



Heavy
Roughing

SCGT / SCMT (Square)



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

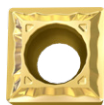
EDP 2200..

● : Stock item ○ : Order made item

					K10	P05	P10	P15	P10	P20	P30	P20	M25	M15	M30	M40	S10	P15	M15	N20	N20
					K20	K30									S30	K15					
SCGT	Designation	RE	Fn (In/rev.)	Ap (In)	YG1010	YG1001	YG3010	YG3015	YG3115	YG3020	YG3030	YG801	YG2025	YG211	YG213	YG214	YG401	YT100	YG100	YG10	
- AL	 Aluminium	SCGT32.51 - AL	.016	.001 ~ .016	.004 ~ .197															●	1516
		SCGT32.52 - AL	.031	.002 ~ .016	.004 ~ .197																●
- UF	 Finishing	SCMT32.51 - UF	.016	.002 ~ .010	.020 ~ .079			○		●	●	●									
		SCMT32.52 - UF	.031	.002 ~ .010	.039 ~ .079	●		○		●	●	●									
- UG	 General	SCMT32.51 - UG	.016	.006 ~ .012	.020 ~ .098	●	○	○		●	●	●	○								
		SCMT32.52 - UG	.031	.006 ~ .012	.031 ~ .098	●	○	○		●	●	●	○					○			
		SCMT432 - UG	.031	.006 ~ .014	.031 ~ .118	●	○	○		●	●	●						○			
		SCMT433 - UG	.047	.006 ~ .014	.059 ~ .118	●				●	●	●						○			
NEW - MF	 Stainless steel Finishing	SCMT32.52 - ME	.031	.004 ~ .014	.012 ~ .079													●			
																		2564			
NEW - MM	 Stainless steel Medium	SCMT432 - MM	.031	.004 ~ .012	.024 ~ .157									●	●	●	●	●			
														2519	1973	1974	1975	1976			
NEW - PM	 Cermet Medium	SCMT432 - PM	.031	.004 ~ .012	.024 ~ .157														●		
																			2530		



Aluminium



Finishing



General



Stainless steel
Finishing

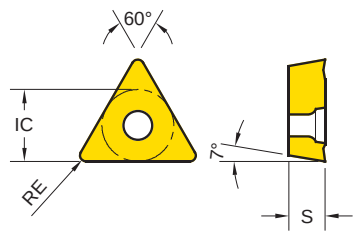


Stainless steel
Medium



Cermet Medium

Turning Inserts - Positive
TCGT / TCMT (Triangle)

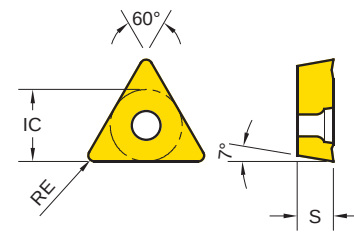


Series	IC	S
TC** 21.5	1/4	3/32
TC** 32.5	3/8	5/32

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

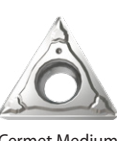
	TCGT TCMT	Designation	RE	Fn (In/rev.)	Ap (In)	K10	P05 K20	P10 K30	P15	P10	P20	P30	P20	M25	M15	M30	M40 S30	S10	P15 M15 K15	N20	N20
						YG1010	YG1001	YG3010	YG3015	YG3115	YG3020	YG3030	YG801	YG2025	YG211	YG213	YG214	YG401	YT100	YG100	YG10
- AL	 Aluminum	TCGT21.51 - AL	.016	.001 ~ .012	.004 ~ .157																● 1333
		TCGT32.50.5 - AL	.008	.001 ~ .012	.002 ~ .197																● 03440343
		TCGT32.51 - AL	.016	.001 ~ .016	.004 ~ .217																● 03340085
		TCGT32.52 - AL	.031	.001 ~ .020	.004 ~ .217																● 03350086
- UF	 Finishing	TCMT21.51 - UF	.016	.002 ~ .008	.020 ~ .079			○ 0395		● 23840396	● 1196				○ 10331034	○ 1645					
		TCMT32.51 - UF	.016	.002 ~ .010	.020 ~ .079			○ 0397		● 23770398	● 1046	○ 0033			○ 1906	○ 1905					
		TCMT32.52 - UF	.031	.002 ~ .010	.031 ~ .079			○ 0624		● 23690625	● 1045										
- UG	 General	TCMT21.51 - UG	.016	.004 ~ .010	.020 ~ .079	● 18390728	○ 0264			● 26420265	● 0266	○ 0032									
		TCMT21.52 - UG	.031	.004 ~ .010	.031 ~ .079	● 1851	○ 0485			● 23620715	● 1204										
		TCMT32.51 - UG	.016	.006 ~ .012	.020 ~ .098	● 18400679	○ 0267			● 23790268	● 0269						○ 1907				
		TCMT32.52 - UG	.031	.006 ~ .012	.031 ~ .098	● 18410457	○ 0156			● 21750157	● 0158	○ 0034									

Turning Inserts - Positive
TCMT (Triangle)

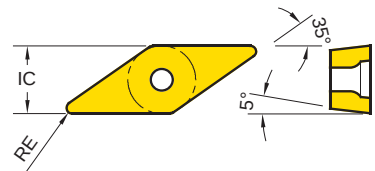


Series	IC	S
TC** 21.5	1/4	3/32
TC** 32.5	3/8	5/32

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

	TCMT	Designation	RE	Fn (In/rev.)	Ap (In)	K10	P05 K20	P10 K30	P15	P10	P20	P30	P20	M25	M15	M30	M40 S30	S10	P15 M15 K15	N20	N20
						YG1010	YG1001	YG3010	YG3015	YG3115	YG3020	YG3030	YG801	YG2025	YG211	YG213	YG214	YG401	YT100	YG100	YG10
NEW - MF	 Stainless steel Finishing	TCMT21.51 - MF	.016	.003 ~ .008	.008 ~ .079																● 2565
		TCMT21.52 - MF	.031	.003 ~ .008	.012 ~ .079																● 2566
		TCMT32.51 - MF	.016	.002 ~ .010	.004 ~ .079									● 25081981	● 1982	● 1983	● 2034				
		TCMT32.52 - MF	.031	.003 ~ .012	.006 ~ .079									● 25091966	● 1967	● 1968	● 2026				
NEW - MM	 Stainless steel Medium	TCMT32.51 - MM	.016	.003 ~ .010	.010 ~ .118									● 25201993	● 1994	● 1995	● 2043				
		TCMT32.52 - MM	.031	.004 ~ .012	.020 ~ .118									● 25211952	● 1953	● 1954	● 1955				
NEW - PF	 Cermet Medium	TCMT32.51 - PF	.016	.002 ~ .010	.004 ~ .079																● 2548
		TCMT32.52 - PF	.031	.003 ~ .012	.006 ~ .079																● 2549
NEW - PM	 Cermet Medium	TCMT32.51 - PM	.016	.003 ~ .010	.010 ~ .118																● 2559
		TCMT32.52 - PM	.031	.004 ~ .012	.020 ~ .118																● 2560

VBGT / VBMT (35° Rhombic)



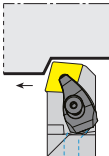
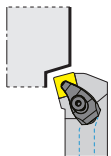
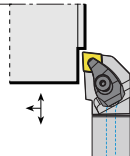
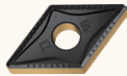
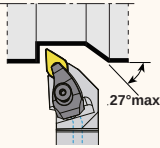
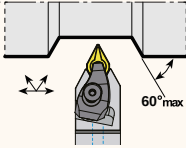
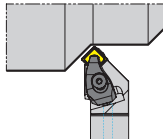
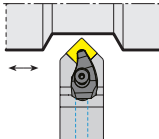
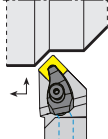
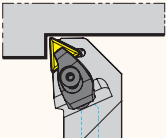
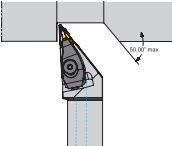
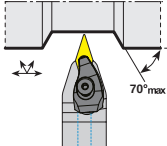
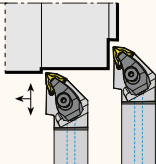
Series	IC	S
VB** 22	1/4	1/8
VB** 33	3/8	3/16

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

						K10	P05	P10	P15	P10	P20	P30	P20	M25	M15	M30	M40	S10	P15	N20	N20		
						K20	K30										S30	K15					
VBGT VBMT						YG1010	YG1001	YG3010	YG3015	YG3115	YG3020	YG3030	YG801	YG2025	YG211	YG213	YG214	YG401	YT100	YG100	YG10		
NEW - SF		HRSA Finishing	VBGT220-SF	.004	.000 ~ .008	.004 ~ .059											●	2432					
			VBGT220.5-SF	.008	.001 ~ .008	.004 ~ .059												●	2433				
			VBGT221-SF	.016	.002 ~ .008	.008 ~ .059													●	2358			
			VBGT331-SF	.016	.002 ~ .008	.008 ~ .079														●	2350		
- UF		Finishing	VBMT221-UF	.016	.002 ~ .006	.004 ~ .031				●	2697												
			VBMT222-UF	.016	.002 ~ .006	.016 ~ .039				●	2698												
			VBMT331-UF	.016	.002 ~ .010	.020 ~ .079			○	0294	●	2364	●	0295	●	0296							
			VBMT332-UF	.031	.002 ~ .010	.031 ~ .079			○	0300	●	2216	●	0301	●	0302							
- UG		General	VBMT331-UG	.016	.006 ~ .012	.020 ~ .098	●	○	○	1842	0682	0297											
			VBMT332-UG	.031	.006 ~ .012	.031 ~ .098	●	○	○	1843	0681	0303	●	2211	0304	0305	0048						
NEW - MF		Stainless steel Finishing	VBMT330.5-ME	.008	.002 ~ .006	.004 ~ .079								●	2510	●	2008	●	2009	●	2010	●	
			VBMT331-MF	.016	.002 ~ .008	.008 ~ .079										●	2511	●	1960	●	1961	●	
			VBMT332-MF	.031	.003 ~ .011	.012 ~ .079										●	2512	●	2011	●	2012	●	
																●	2513	●	2013	●	2038		
NEW - MM		Stainless steel Medium	VBMT331-MM	.016	.003 ~ .008	.010 ~ .106								●	2522	●	1996	●	1997	●	1998	●	
			VBMT332-MM	.031	.003 ~ .011	.020 ~ .106										●	2523	●	1987	●	1988	●	
																●	2524	●	1989	●	2045		
																●	2525	●	1990	●	2046		
NEW - PF		Cermet Medium	VBMT330.5-PF	.008	.002 ~ .006	.004 ~ .079													●	2550			
			VBMT331-PF	.016	.002 ~ .008	.008 ~ .079														●	2551		
			VBMT332-PF	.031	.003 ~ .011	.012 ~ .079														●	2552		
NEW - PM		Cermet Medium	VBMT331-PM	.016	.003 ~ .008	.010 ~ .106													●	2561			
			VBMT332-PM	.031	.003 ~ .011	.020 ~ .106														●	2562		

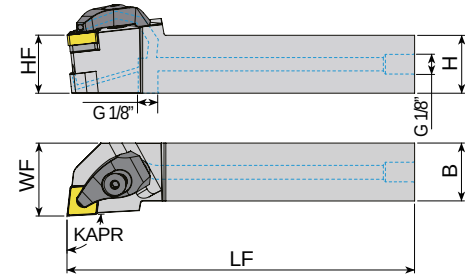
Turning - Holder - External

External Holders Overview

Series		Turning Holder			
	CNMA CNMG				
		DCBNR/L Double Clamp	DCKNR/L Double Clamp	DCLNR/L Double Clamp	
p. 30		p. 69	p. 69	p. 69	
	DNMA DNMG DNGG DNMM DNUX				
		DDJNR/L Double Clamp	DDNNN Double Clamp		
p. 35		p. 70	p. 70		
	SNMA SNMG				
		DSBNR/L Double Clamp	DSDNN Double Clamp	DSSNR/L Double Clamp	
p. 42		p. 71	p. 71	p. 71	
	TNMA TNMG TNGG TNUX				
		DTJNR/L Double Clamp			
p. 47		p. 72			
	VNMA VNMG				
		DVJNR/L Double Clamp	DVVNN Double Clamp		
p. 51		p. 73	p. 73		
	WNMA WNMG WNGG				
		DWLNR/L Double Clamp			
p. 53 / 56		p. 74			

Turning - Holder - External

Double Clamp with Internal coolant type for CN** Insert



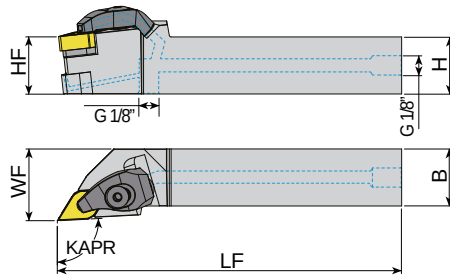
* 'C' Letter at Last : Optional Clamp Included

□ : p. 30

Unit: inch

Series	Designation	EDP 2700.. R L	H (= HF)	B	WF	LF	Insert
	DCBNR/L 124B - C	2337 2336	0.75	0.75	0.79	4.5	CNMG43
	DCBNR/L 164D - C	1520 1521	1	1	0.79	6	
	DCBNR/L 204D - C	1522 1523	1.25	1.25	0.99	6	
	DCKNR/L 124B - C	2339 2338	0.75	0.75	1	4.5	CNMG43
	DCKNR/L 164D - C	1516 1517	1	1	1.25	6	
	DCKNR/L 204D - C	1518 1519	1.25	1.25	1.5	6	
	DCLNR/L 164D - C	1502 1503	1	1	1.25	6	CNMG54
	DCLNR/L 165D - C	1506 1507	1	1	1.25	6	
	DCLNR/L 204D - C	1504 1505	1.25	1.25	1.5	6	CNMG43
	DCLNR/L 205D - C	1508 1509	1.25	1.25	1.5	6	
	DCLNR/L 206D - C	1512 1513	1.25	1.25	1.5	6	CNMG64
	DCLNR/L 245E - C	2342 2340	1.5	1.5	2	7	
	DCLNR/L 246E - C	2343 2341	1.5	1.5	2	7	CNMG64
	DCLNR/L 124B - C	1500 1501	0.75	0.75	1	4.5	

Series	information	Shim	Shim Screw	Clamp	Clamp Screw	Spring	O - RING	Tork Wrench
DC..4	Description	YAACN - 3 - 0001	YAAV - 13 - M5x8	YATKH - 01 - R YATKH - 02 - L	YAKV - 33 - M6x22	YAKY - 01	YAXR - 01	YAAL - 03 - 3
	EDP	18000137	18000163	18000220 18000221	18000222	28000044	18000223	18000061
DC..5	Description	YAACN - 3 - 0002	YAAV - 05 - M6x10	YATKH - 07 - R YATKH - 08 - L	YAKV - 39 - M7x21	YAKY - 02	YAXR - 01	YAAL - 03 - 3
	EDP	18000138	28000046	28000051 28000052	28000056	18000164	18000223	18000061
DC..6	Description	YAACN - 3 - 0003	YAAV - 17 - M6x14	YATKH - 09 - R YATKH - 10 - L	YAKV - 39 - M7x21	YAKY - 02	YAXR - 01	YAAL - 03 - 3
	EDP	18000139	28000057	28000053 28000054	28000056	18000164	18000223	18000061



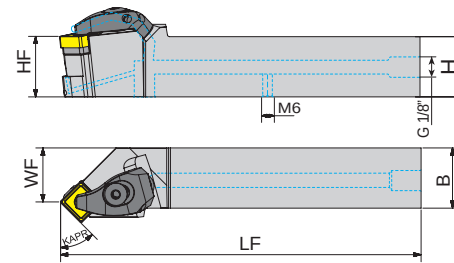
* 'C' Letter at Last : Optional Clamp Included

: p. 35

Unit: inch

Series	Designation	EDP 2700.. R L	H (= HF)	B	WF	LF	Insert
 DDJNR/L Approach angle 93°	DDJNR/L 124B-C	1524 1525	0.75	0.75	1	4.5	DNMG43
	DDJNR/L 164D-C	1526 1527	1	1	1.25	6	
	DDJNR/L 204D-C	1528 1529	1.25	1.25	1.5	6	
 DDNNN Approach angle 62.5°	DDNNN 164D-C	1530	1	1	0.5	6	
	DDNNN 204D-C	1531	1.25	1.25	0.625	6	

Series	information	Shim	Shim Screw	Clamp	Clamp Screw	Spring	O-RING	Tork Wrench
DDJ..4	Description	YAADN - 3 - 0001	YAAV - 13 - M5x8	YATKH - 01 - R YATKH - 02 - L	YAKV - 33 - M6x22	YAKY - 01	YAXR - 01	YAAL - 03 - 3
	EDP	18000142	18000163	18000220 18000221	18000222	28000044	18000223	18000061
DDN..4	Description	YAADN - 3 - 0001	YAAV - 13 - M5x8	YATKH - 01 - R	YAKV - 33 - M6x22	YAKY - 01	YAXR - 01	YAAL - 03 - 3
	EDP	18000142	18000163	18000220	18000222	28000044	18000223	18000061



* 'C' Letter at Last : Optional Clamp Included

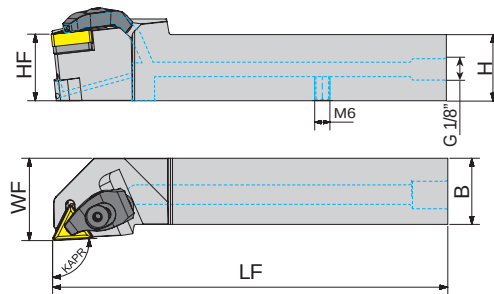
: p. 42

Unit: inch

Series	Designation	EDP 2700.. R L	H (= HF)	B	WF	LF	Insert
 DSBNR/L Approach angle 75°	DSBNR/L 164D-C	1532 1533	1	1	0.79	6	SNMG43
	DSBNR/L 165D-C	1536 1537	1	1	0.79	6	SNMG54
	DSBNR/L 204D-C	1534 1535	1.25	1.25	0.99	6	SNMG43
	DSBNR/L 205D-C	1538 1539	1.25	1.25	0.99	6	SNMG54
 DSDNN Approach angle 45°	DSDNN 164D-C	1550	1	1	0.5	6	SNMG43
	DSDNN 165D-C	1552	1	1	0.5	6	SNMG54
	DSDNN 204D-C	1551	1.25	1.25	0.625	6	SNMG43
	DSDNN 205D-C	1553	1.25	1.25	0.625	6	SNMG54
	DSDNN 245E-C	2344	1.5	1.5	0.75	7	
 DSSNR/L Approach angle 45°	DSSNR/L 164D-C	1540 1541	1	1	1.25	6	SNMG43
	DSSNR/L 165D-C	1544 1545	1	1	1.25	6	SNMG54
	DSSNR/L 204D-C	1542 1543	1.25	1.25	1.5	6	SNMG43
	DSSNR/L 205D-C	1546 1547	1.25	1.25	1.5	6	SNMG54
	DSSNR/L 245E-C	2346 2345	1.5	1.5	2	5	

Series	information	Shim	Shim Screw	Clamp	Clamp Screw	Spring	O-RING	Tork Wrench
DSB..4 DSS..4	Description	YAASN - 3 - 0004	YAAV - 13 - M5x8	YATKH - 01 - R YATKH - 02 - L	YAKV - 33 - M6x22	YAKY - 01	YAXR - 01	YAAL - 03 - 3
	EDP	18000145	18000163	18000220 18000221	18000222	28000044	18000223	18000061
DSB..5 DSS..5	Description	YAASN - 3 - 0023	YAAV - 05 - M6x10	YATKH - 07 - R YATKH - 08 - L	YAKV - 39 - M7x21	YAKY - 02	YAXR - 01	YAAL - 03 - 3
	EDP	18000219	28000046	28000051 28000052	28000056	18000164	18000223	18000061
DSD..4	Description	YAASN - 3 - 0004	YAAV - 13 - M5x8	YATKH - 01 - R	YAKV - 33 - M6x22	YAKY - 01	YAXR - 01	YAAL - 03 - 3
	EDP	18000145	18000163	18000220	18000222	28000044	18000223	18000061
DSD..5	Description	YAASN - 3 - 0023	YAAV - 05 - M6x10	YATKH - 07 - R	YAKV - 39 - M7x21	YAKY - 02	YAXR - 01	YAAL - 03 - 3
	EDP	18000219	28000046	28000051	28000056	18000164	18000223	18000061

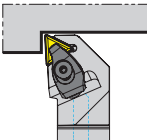
Double Clamp with Internal coolant type for TN** Insert



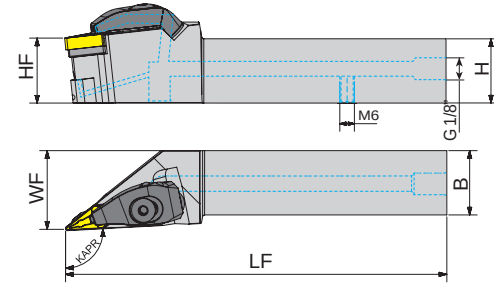
* 'C' Letter at Last : Optional Clamp Included

: p. 47

Unit: inch

Series		Designation	EDP 2700.. R L	H (= HF)	B	WF	LF	Insert
 DTJNR/L Approach angle 93°	●	DTJNR/L 163D-C	1555 2347	1	1	1.25	6	TNMG33
		DTJNR/L 164D-C	1559 2348	1	1	1.25	6	TNMG43
		DTJNR/L 203D-C	1557 2349	1.25	1.25	1.5	6	TNMG33
		DTJNR/L 204D-C	1561 2350	1.25	1.25	1.5	6	TNMG43

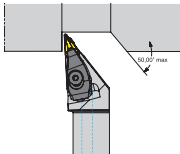
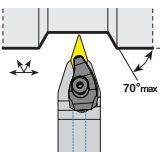
Double Clamp with Internal coolant type for VN** Insert



* 'C' Letter at Last : Optional Clamp Included

: p. 51

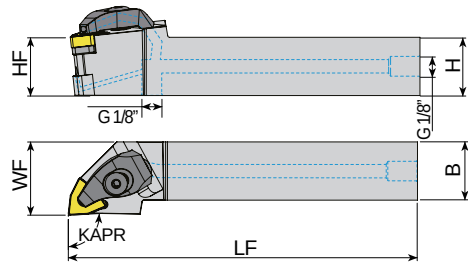
Unit: inch

Series			Designation	EDP 2700.. R L		H (= HF)	B	WF	LF	Insert
 DVJNR/L Approach angle 93°		DVJNR/L 123B-C	1563	1564	0.75	0.75	1	4	VNMG33	
		DVJNR/L 163D-C	1565	1566	1	1	1.25	6		
		DVJNR/L 203D-C	1567	1568	1.25	1.25	1.25	6		
 DVVNN Approach angle 72.5°		DVVNN 123B-C	1569		0.75	0.75	0.375	4		
		DVVNN 163D-C	1570		1	1	0.5	6		

Series	information	Shim	Shim Screw	Clamp	Clamp Screw	Spring	O-RING	Tork Wrench
DT.3	Description	YAATN - 2 - 0002	YAAV - 03 - M5x12	YATKH - 03 - R YATKH - 04 - L	YAKV - 37 - M5x18	YAKY - 03	YAXR - 01	YAAL - 03 - 3
	EDP	18000147	18000157	28000047 28000048	28000055	28000045	18000223	18000061
DT.4	Description	YAATN - 3 - 0015	YAAV - 13 - M5x8	YATKH - 01 - R YATKH - 02 - L	YAKV - 33 - M6x22	YAKY - 01	YAXR - 01	YAAL - 03 - 3
	EDP	18000148	18000163	18000220 18000221	18000222	28000044	18000223	18000061

Series	information	Shim	Shim Screw	Clamp	Clamp Screw	Spring	O-RING	Tork Wrench
DVJ.3	Description	YAAVN - 2 - 0002	YAAV - 04 - M5x12	YATKH - 05 - R YATKH - 06 - L	YAKV - 33 - M6x22	YAKY - 01	YAXR - 01	YAAL - 03 - 3
	EDP	18000150	18000158	28000049 28000050	18000222	28000044	18000223	18000061
DVV.3	Description	YAAVN - 2 - 0002	YAAV - 04 - M5x12	YATKH - 05 - R YATKH - 06 - L	YAKV - 33 - M6x22	YAKY - 01	YAXR - 01	YAAL - 03 - 3
	EDP	18000150	18000158	28000049 28000050	18000222	28000044	18000223	18000061

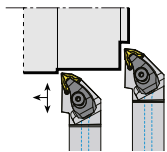
Double Clamp with Internal coolant type for WN** Insert

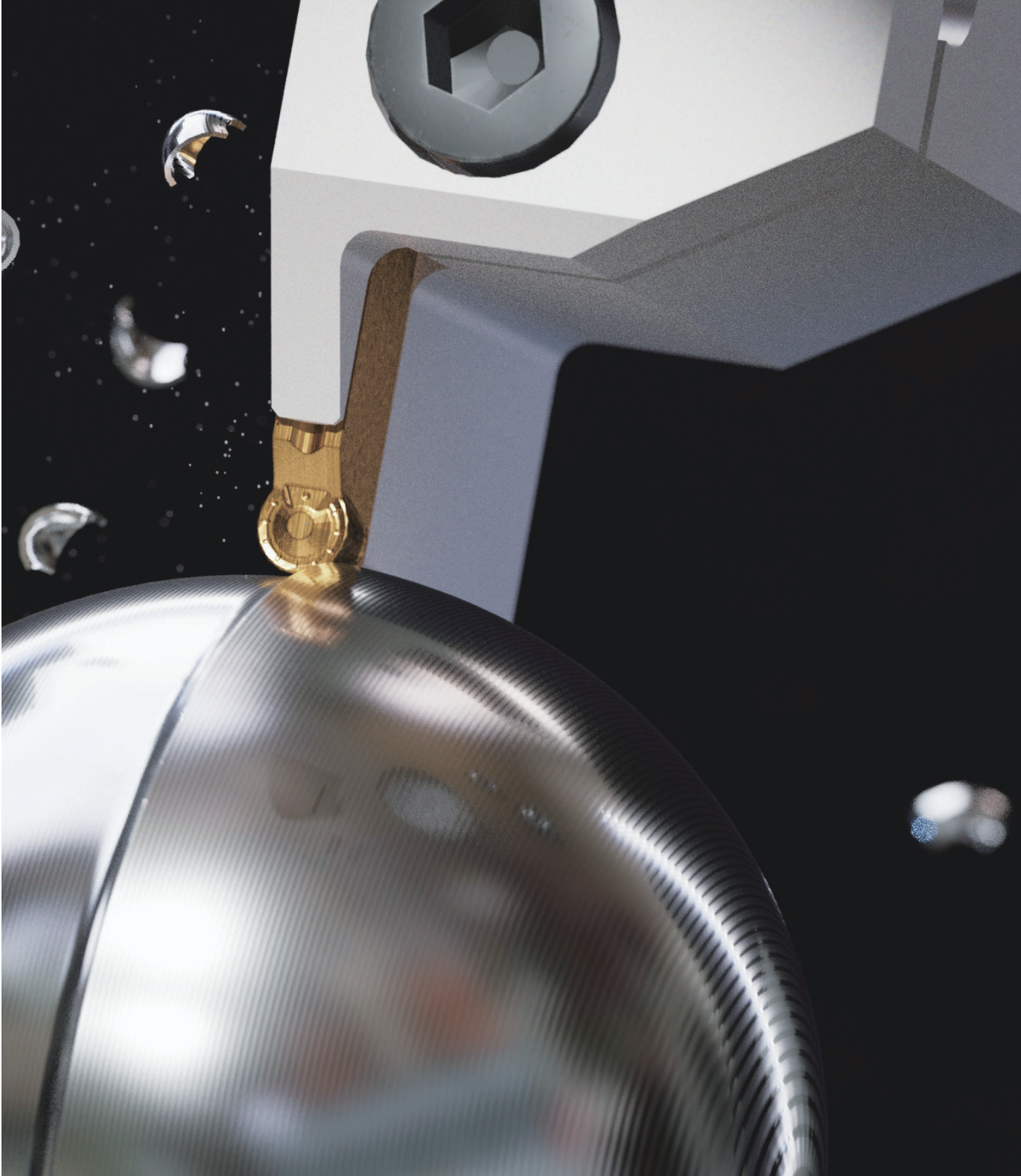


* 'C' Letter at Last : Optional Clamp Included

□ : p. 53 / 56

Unit: inch

Series		Designation	EDP 2700.. R L	H (= HF)	B	WF	LF	Insert
 DWLNR/L Approach angle 95°	●	DWLNR/L 123B-C	1571 1572	0.75	0.75	1	4.5	WNMG33
		DWLNR/L 124B-C	1575 1576	0.75	0.75	1	4.5	WNMG43
		DWLNR/L 163D-C	1573 1574	1	1	1.25	6	WNMG33
		DWLNR/L 164D-C	1577 1578	1	1	1.25	6	WNMG43
		DWLNR/L 204D-C	1579 1580	1.25	1.25	1.5	6	



PARTING & GROOVING

Parting & Grooving Inserts Overview

Parting & Grooving Inserts

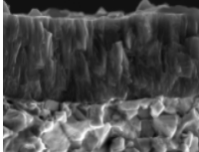
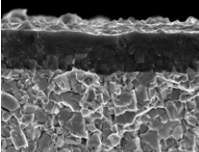
Parting & Grooving Holders

Series	information	Shim	Shim Screw	Clamp	Clamp Screw	Spring	O-RING	Tork Wrench
DW..3	Description	YAAWN - SW317	YAAV - 01 - M3x10	YATKH - 03 - R YATKH - 04 - L	YAKV - 37 - M5x18	YAKY - 03	YAXR - 01	YAAL - 03 - 3
	EDP	18000152	18000155	28000047 28000048	28000055	28000045	18000223	18000061
DW..4	Description	YAAWN - 3 - 0001	YAAV - 13 - M5x8	YATKH - 01 - R YATKH - 02 - L	YAKV - 33 - M6x22	YAKY - 01	YAXR - 01	YAAL - 03 - 3
	EDP	18000151	18000163	18000220 18000221	18000222	28000044	18000223	18000061

Parting & Grooving Overview

Parting & Groove Turn Grades

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

YG602G (YG602) P20 - P35 M20 - M40 K20 - K40 S15 - S25	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 (Gold Color) - YG602 : First Choice for General Application (Violet Color)
	PVD - TiAlN 	PVD Parting & Grooving Grade for Stainless Steel - Ultra high toughness substrate and strong adhesion - Excellent cutting edge strength and chipping resistance - Stable machinability and tool life for stainless steel

Parting & Grooving Inserts

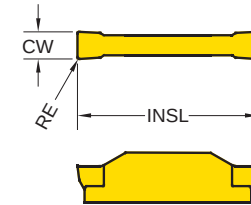
	TD. Series	Inserts	2, 3, 4, 5
		TDN, TDP, TDY	

Parting & Grooving Chipbreakers

Parting & Grooving	- P			- For Parting & Deep Grooving - For Low Feed Rate and Difficult to Cut Materials
	- N			- For External Parting And Grooving - For General Use
Turning & Grooving	- Y			- For External Turning & Grooving - For Medium feed rate
	NEW GL			- For External, Internal turning and Grooving - Face grooving and Face turning - For low feed rate
	NEW GM			- For External, Internal turning and Grooving - First choice Face Grooving and Face turning - For Medium feed rate
	NEW RG			- For External, Internal turning and Grooving - Full radius Insert for Profiling

Parting & Grooving Inserts

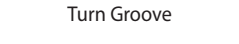
Recommended Cutting Conditions : p.164

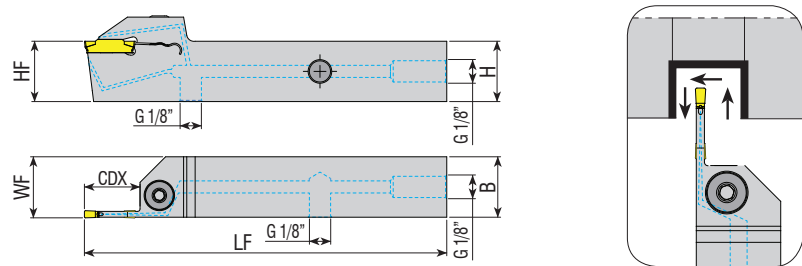


Series	INSL	CW
TD * 2	.787	.079
TD * 3	.787	.118
TD * 4	.787	.157
TD * 5	.787	.197

* CDX : Cutting Depth Maximum

● : Stock item ○ : Order made item

TD.	Designation	RE (In)	Parting & Grooving		Turning		EDP 5200..		
			F _n (In/rev.)	CDX (In)	F _n (In/rev.)	A _p	YG602	YG602G	YG603
- P  *  6° Angled Parting	TDP 2002	.008	.002 ~ .005	.748	-	-	● 0012	○ 0036	● 0078
	TDP 3002	.008	.002 ~ .006	.748	-	-	● 0029	○ 0030	● 0076
	TDP 4003	.012	.002 ~ .007	.748	-	-	● 0023	○ 0038	● 0080
	* TDP R 2002 - 6	.008	.001 ~ .003	.748	-	-	● 0045		● 0085
	* TDP R 3002 - 6	.008	.002 ~ .005	.748	-	-	● 0048		● 0089
	* TDP L 2002 - 6	.008	.001 ~ .003	.748	-	-	● 0046		● 0086
- N  *  6° Angled Parting	* TDP L 3002 - 6	.008	.002 ~ .005	.748	-	-	● 0049		● 0090
	TDN 2002	.008	.002 ~ .007	.748	-	-	● 0010	○ 0035	● 0077
	TDN 3002	.008	.003 ~ .009	.748	-	-	● 0024	○ 0025	● 0075
	TDN 4003	.012	.003 ~ .011	.748	-	-	● 0022	○ 0037	● 0079
	TDN 5003	.012	.004 ~ .014	.945	-	-	● 0042		
	* TDNR 2002 - 6	.008	.002 ~ .006	.748	-	-	● 0043		● 0083
- Y    	* TDNR 3002 - 6	.008	.002 ~ .007	.748	-	-	● 0040		● 0087
	* TDNL 2002 - 6	.008	.002 ~ .006	.748	-	-	● 0044		● 0084
	* TDNL 3002 - 6	.008	.002 ~ .007	.748	-	-	● 0047		● 0088
	* TDNL 4003 - 4	.012	.002 ~ .009	.748	-	-	● 0096		
	TDY3E - 0.4	.016	.002 ~ .009	.394	.005 ~ .009	.020 ~ .094		● 0027	
	TDY4E - 0.4	.016	.003 ~ .011	.394	.006 ~ .012	.020 ~ .110		● 0020	
- Y    	TDY5E - 0.4	.016	.003 ~ .009	.394	.006 ~ .012	.020 ~ .126		● 0082	
	TDY2E - 0.3 - GL	.012	.002 ~ .008	.394	.002 ~ .007	.016 ~ .059		● 0123	● 0124
	TDY3E - 0.3 - GL	.012	.002 ~ .009	.394	.003 ~ .008	.016 ~ .079		● 0125	● 0126
	TDY4E - 0.4 - GL	.016	.002 ~ .010	.394	.004 ~ .010	.020 ~ .091		● 0112	● 0127
	TDY3E - 0.4 - GM	.016	.002 ~ .009	.394	.005 ~ .009	.020 ~ .094		● 0118	● 0119
	TDY4E - 0.4 - GM	.016	.003 ~ .011	.394	.006 ~ .012	.020 ~ .110		● 0113	● 0120
- Y   	TDY4E - 0.8 - GM	.031	.004 ~ .011	.394	.007 ~ .013	.031 ~ .110		● 0114	● 0122
	TDY2E - 1.0 - RG	.039	.002 ~ .006	.394	.004 ~ .012	.004 ~ .031		● 0111	● 0115
	TDY3E - 1.5 - RG	.059	.003 ~ .007	.394	.006 ~ .014	.004 ~ .047		● 0108	● 0116
	TDY4E - 2.0 - RG	.079	.004 ~ .008	.394	.007 ~ .018	.004 ~ .063		● 0109	● 0117

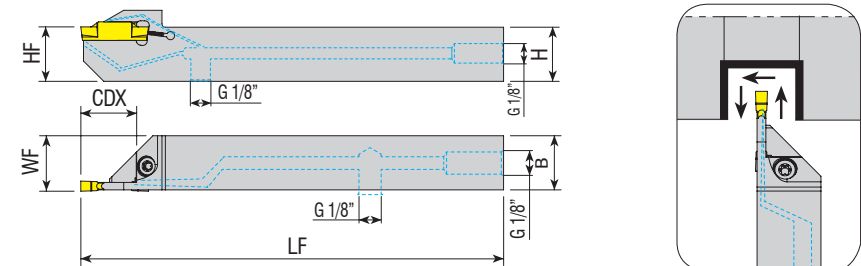


: p. 77

Unit : inch

Designation		EDP 5700..		CW	CDX	H (= HF)	B	LF	Insert
		R	L						
YTER/L 08 - 2T059 - C	●	0261	0238	.079	.591	.500	0.500	3.937	TD.2..
YTER/L 10 - 2T059 - C	●	0264	0241	.079	.591	.625	0.625	4.921	
YTER/L 12 - 2T035 - C	●	0271	0247	.079	.354	.750	0.750	4.921	
YTER/L 12 - 2T059 - C	●	0268	-	.079	.591	.750	0.750	4.921	
YTER/L 12 - 2T066 - C	●	0269	-	.079	.669	.750	0.750	4.921	
YTER/L 12 - 2T078 - C	●	0270	0246	.079	.787	.750	0.750	4.921	
YTER/L 16 - 2T066 - C	●	0275	0251	.079	.669	1.000	1.000	5.906	
YTER/L 08 - 3T059 - C	●	0263	0240	.118	.591	.500	0.500	3.937	TD.3..
YTER/L 10 - 3T059 - C	●	0266	0243	.118	.591	.625	0.625	4.921	
YTER/L 12 - 3T059 - C	●	-	0245	.118	.591	.750	0.750	4.921	
YTER/L 12 - 3T078 - C	●	0272	0248	.118	.787	.750	0.750	4.921	
YTER/L 12 - 3T098 - C	●	0273	0249	.118	.984	.750	0.750	4.921	
YTER/L 12 - 3T118 - C	●	0274	0250	.118	1.181	.750	0.750	4.921	
YTER/L 16 - 3T035 - C	●	0279	0255	.118	.354	1.000	1.000	5.906	
YTER/L 16 - 3T086 - C	●	0276	0252	.118	.866	1.000	1.000	5.906	TD.4..
YTER/L 16 - 3T098 - C	●	0277	0253	.118	.984	1.000	1.000	5.906	
YTER/L 16 - 3T118 - C	●	0278	0254	.118	1.181	1.000	1.000	5.906	
YTER/L 20 - 3T098 - C	●	0284	0259	.118	.984	1.250	1.250	6.693	
YTER/L 16 - 4T086 - C	●	0280	0256	.157	.866	1.000	1.000	5.906	TD.5..
YTER/L 16 - 4T098 - C	●	0281	-	.157	.984	1.000	1.000	5.906	
YTER/L 16 - 4T118 - C	●	0282	0257	.157	1.181	1.000	1.000	5.906	
YTER/L 16 - 5T098 - C	●	0283	0258	.197	.984	1.000	1.000	5.906	

Series	Designation	Infomation	Screw	Ring	Wrench
YTER/L	.. - 2..	Description	Y2505 - M6x30	YABPL - 01	YAAL - 03 - 3
		EDP	180000199	180000058	180000061
	.. - 3..	Description	Y2004 - M8x1x20	-	YAAL - 05 - 4
		EDP	180000196	-	180000062
	.. - 3..	Description	Y2004 - M8x1x20	-	-
		EDP	180000196	-	-
	.. - 3..	Description	Y2004 - M8x1x20	-	-
		EDP	180000196	-	-



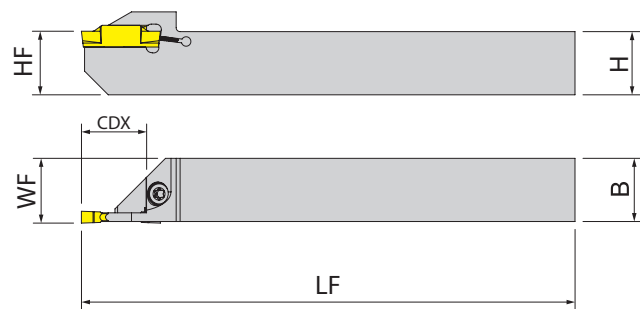
: p. 77

Unit : inch

Designation		EDP 5700..		CW	CDX	H (= HF)	B	LF	Insert
		R	L						
YTER/L 08 - 2T047 - S - C	●	0260	0237	.079	.472	.500	.500	4.921	TD.2..
YTER/L 08 - 3T047 - S - C	●	0265	0239	.118	.472	.500	.500	4.921	TD.3..
YTER/L 10 - 2T063 - S - C	●	0286	0242	.079	.630	.625	.625	4.921	TD.2..
YTER/L 10 - 3T063 - S - C	●	0288	0244	.118	.630	.625	.625	4.921	TD.3..

Series	Designation	Infomation	Screw	Ring	Wrench
YTER/L	.. - S	Description	Y4015 - M4x11	-	Y80 - T15
		EDP	180000119	-	180000167

Parting & Grooving - Holder - External
External holders (Swiss Lathe)



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Unit :inch

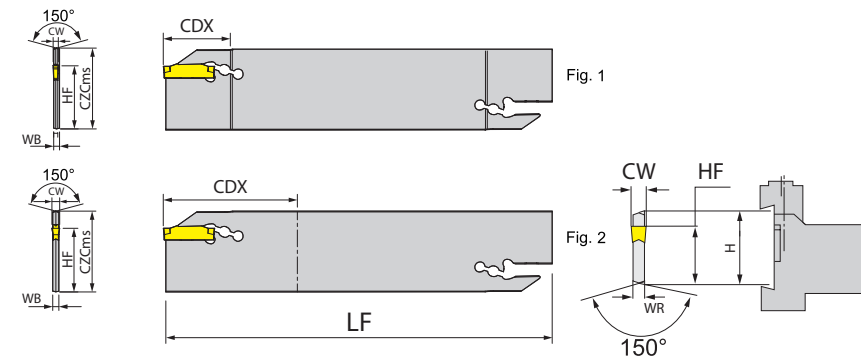
Designation	EDP 5700..		CW	DMIN	CDX	DCON	H	OHN	LF	Insert
	R	L								
YTIR/L 10-2T033-C	0289	0285	.079	.984	.335	.625	.583	1.102	5.906	TD.2..
YTIR/L 12-3T023-C	0290	0286	.118	.984	.236	.750	.720	1.575	6.693	
YTIR/L 16-3T023-C	0291	0287	.118	.984	.236	1.000	.906	1.575	7.874	
YTIR/L 20-3T019-C	0292	0288	.118	1.220	.197	1.250	1.181	2.362	9.843	

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Unit:inch

Designation		EDP 5700..	CZCms	CW	CDX	HF	LF	WB	Insert
YGB 32 - 2 - C	●	0226	1.260	.079	.787	.984	3.937	.063	TD.2..
YGB 32 - 3 - C	●	0227	1.260	.118	.787	.984	4.921	.094	TD.2..

Parting & Grooving - Holder
Blade



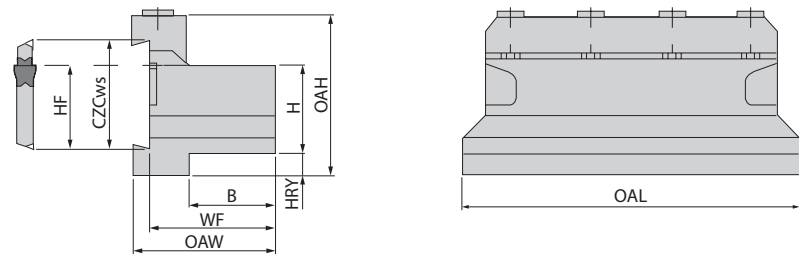
: p. 77

Unit:inch

Series	Designation	Infomation	Screw	Ring	Wrench
YTIR/L	10 - 2T..	Description	2503 - M4x10	-	HL - 05
		EDP	18000197	-	58000041
	12 - 3T.. / 16 - 3T..	Description	Y2504 - M5X12	-	-
		EDP	18000198	-	-
	20 - 3T..	Description	Y2004 - M8x1x20	-	-
		EDP	18000196	-	-

Series	Designation	Infomation	Screw	Ring	Wrench
YGB	32 -..	Description	-	-	YALA - 01
		EDP	-	-	18000202

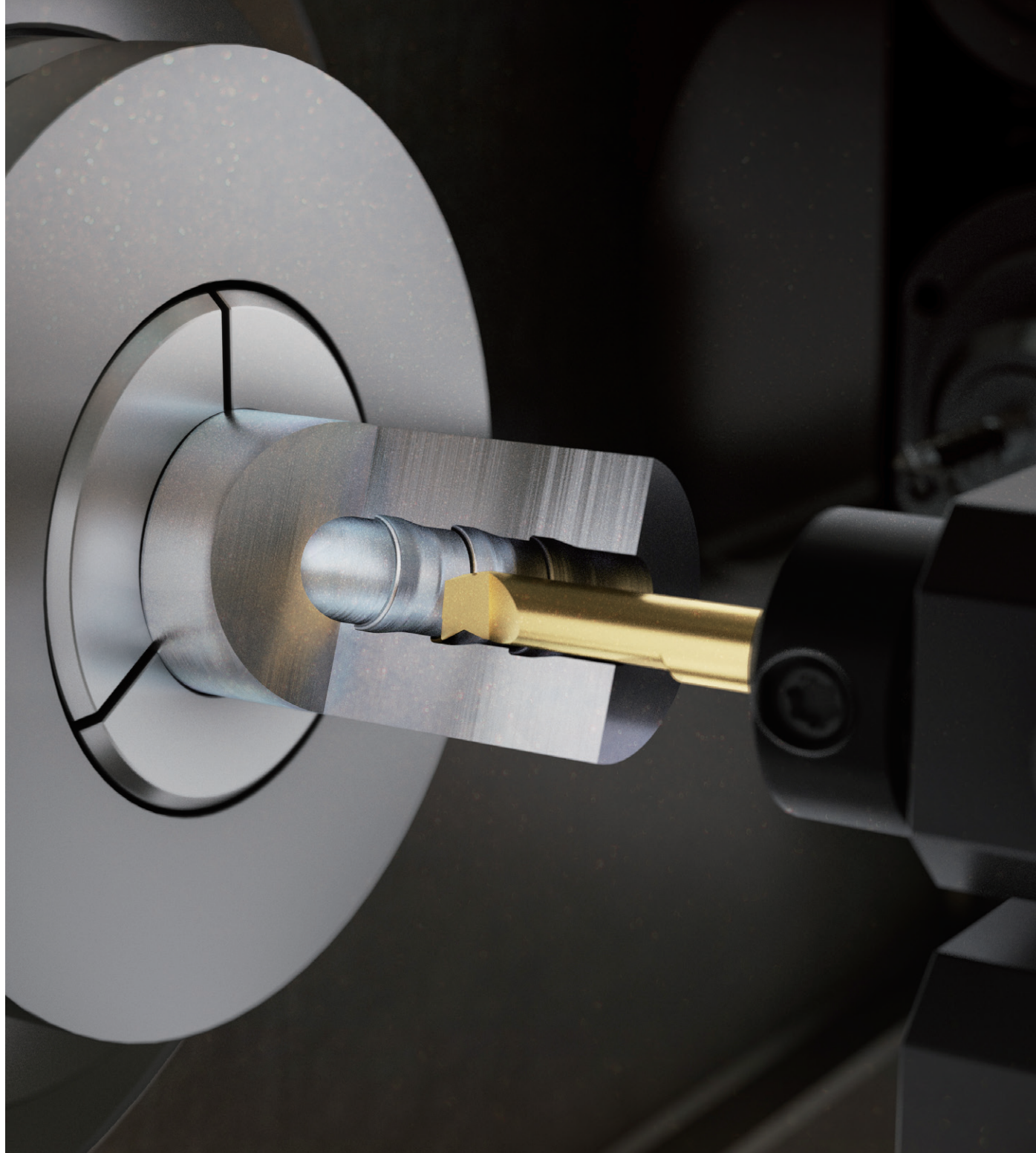
Parting & Grooving - Holder
Blade Block



: p. 77

Unit: inch

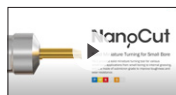
Designation		EDP 5700..	CZCws	H	B	HF	OAL	OAH
YGBU 20 - 32 - C	●	0293	1.260	.750	.750	.984	3.937	1.969
YGBU 25 - 32 - C	●	0294	1.260	1.000	1.000	.984	4.331	1.969
YGBU 32 - 32 - C	●	0295	1.260	1.250	1.250	.984	4.331	2.126



NEW

SOLID MINIATURE TURNING for SMALL BORE

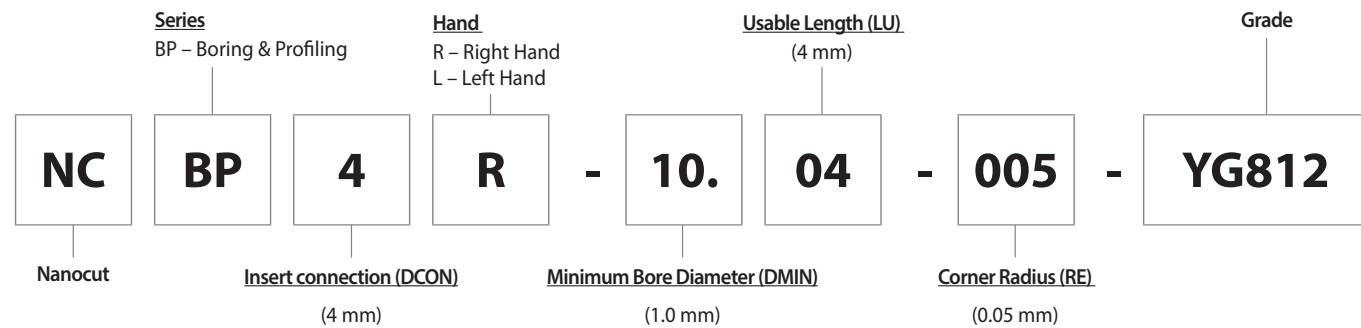
Series	Designation	Information	Clamp	Screw	Wrench
YGBU	20 -.. / 25 -..	Description	YABK - 03	Y2505 - M6X30	YAAL - 07 - 5
		EDP	18000204	18000199	18000203
	32 -..	Description	YABK - 04	-	-
		EDP	18000205	-	-



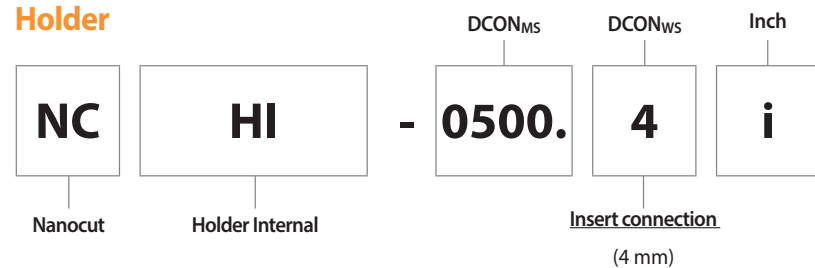
Scan this QR code
to see our
Nanocut
at work.

Code Keys - Boring Tool & Holder

Boring Tool



Holder



Success Story

Cutting Conditions

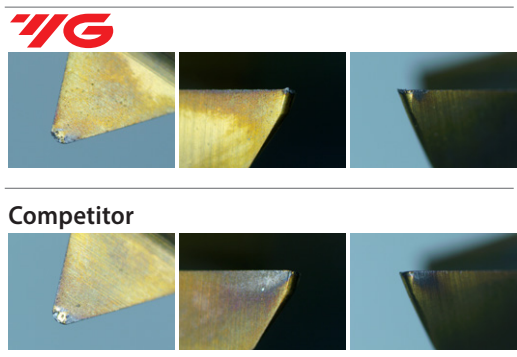
Nanocut Size	Ø.236", R.008"
Work Material	4140 (Alloy Steel) (HRc 20)
Vc	328 ft/min
N (RPM)	637 rev/min
Fn	.004 in/rev
Ap	Axial: .390" Radial: .006"
Coolant	Wet Cut
Operation	Boring
Machine	Turn Mill

Less is better

YG 55µm

YG 43µm

Edge wear (after 30 min.)



Overview

At present, as demand for small parts (camera lens, mobile phone parts) and medical instruments (implants) increases, demand for small - diameter products capable of high - precision processing is increasing.

Application

- Turning of Small Bore Components
- Internal Turning(Boring), Grooving and Threading



Features

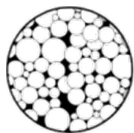
- Minimum Diameter(Boring & Profiling series) : Ø 1 mm (.039")
- Internal Coolant for Longer Tool life and Enhanced Chip Evacuation
- Secure Connection Design: Pin + Slant Positioning
- 10 Geometries for Various Applications

Benefits

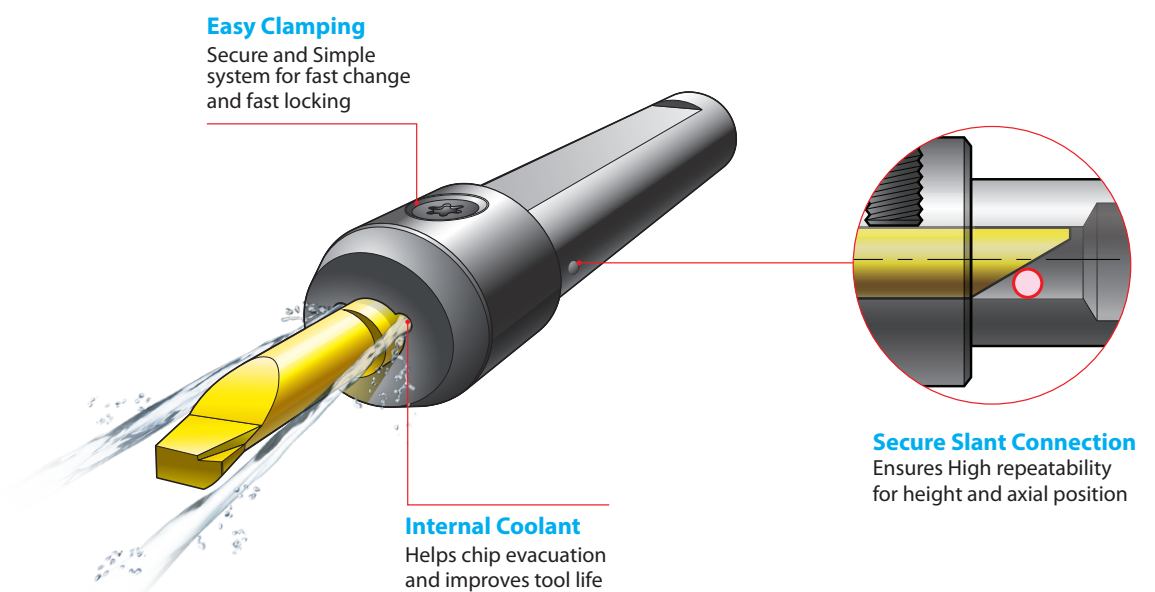
- Reduced Machine Down Time
- Lower Machining Cost

YG812 - Micro Grain Carbide Grade

P10 - P20 M20 - M30 Submicron Grade Carbide Substrate Material for high toughness
K20 - K30 S10 - S25 and wear resistance realizes high precision machining

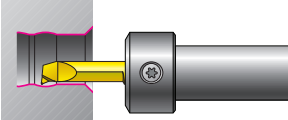
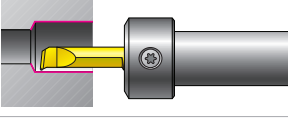
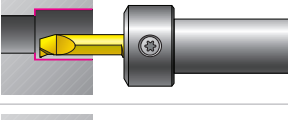
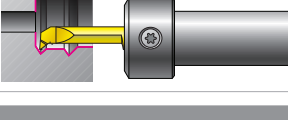
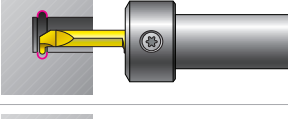
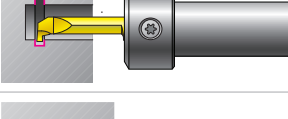
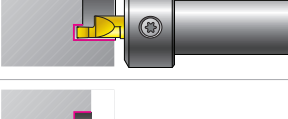
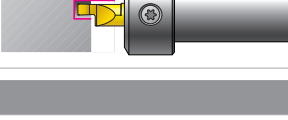
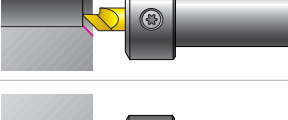


Advantages of Nanocut



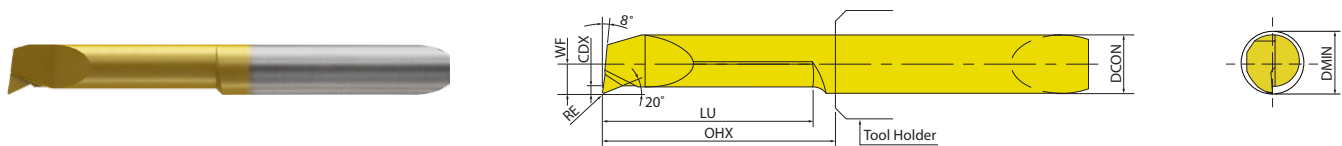
Overview

Recommended Cutting Conditions : p.165

Series		KAPR (°)	DCON mm(inch)	Page
BP Boring & Profiling		98	4 (.157) 6 (.236)	87
		98		88
		90		89
		98		90
Series		CW (inch)	DCON mm(inch)	Page
GR Grooving Round		.039 - 0.79	4 (.157) 6 (.236)	91
		.031 - .079		92
		.039 - .118		93
		.039 - .118		93
Series		WF (inch)	DCON mm(inch)	Page
CH Chamfering		.020 - .043	4 (.157) 6 (.236)	94
		.079 - .116		95
Series		DCON _{MS} (inch)	DCON _{WS} (inch)	Page
Holder		.500 - 1.000	4 (.157) 6 (.236)	96

Boring Tool
BP - Boring & Profiling

NEW

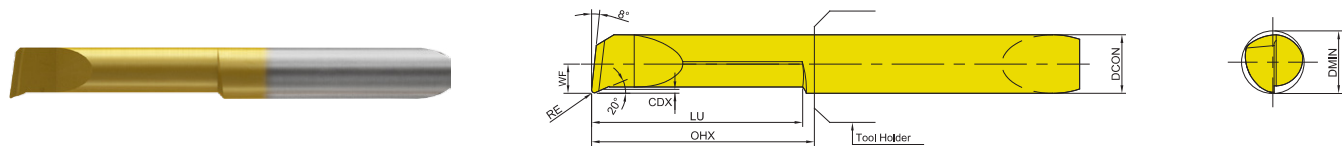


● : Stock item
○ : Order made item

KAPR	DCON mm(inch)	Designation	EDP	Inch (in)							YG812
				DMIN	LU	RE	CDX	WF	OHX	OAL	
98°	4 (.157)	NCBP4R - 10.04 - 005 - YG812	NCBP04R1004005T	.039	.16	.002	.004	.018	.51	1.10	●
		NCBP4R - 10.04 - 010 - YG812	NCBP04R1004010T	.039	.16	.004	.004	.018	.51	1.10	●
		NCBP4R - 10.06 - 005 - YG812	NCBP04R1006005T	.039	.24	.002	.004	.018	.51	1.10	●
		NCBP4R - 10.06 - 010 - YG812	NCBP04R1006010T	.039	.24	.004	.004	.018	.51	1.10	●
		NCBP4R - 17.06 - 005 - YG812	NCBP04R1706005T	.067	.24	.002	.008	.028	.51	1.10	○
		NCBP4R - 17.06 - 010 - YG812	NCBP04R1706010T	.067	.24	.004	.008	.028	.51	1.10	●
		NCBP4R - 17.09 - 005 - YG812	NCBP04R1709005T	.067	.35	.002	.008	.028	.51	1.10	○
		NCBP4R - 17.09 - 010 - YG812	NCBP04R1709010T	.067	.35	.004	.008	.028	.51	1.10	●
		NCBP4R - 22.06 - 005 - YG812	NCBP04R2206005T	.087	.24	.002	.008	.037	.51	1.10	○
		NCBP4R - 22.06 - 010 - YG812	NCBP04R2206010T	.087	.24	.004	.008	.037	.51	1.10	●
		NCBP4R - 22.09 - 005 - YG812	NCBP04R2209005T	.087	.35	.002	.008	.037	.51	1.10	○
		NCBP4R - 22.09 - 010 - YG812	NCBP04R2209010T	.087	.35	.004	.008	.037	.51	1.10	●
		NCBP4R - 22.13 - 010 - YG812	NCBP04R2213010T	.087	.51	.004	.008	.037	.71	1.30	●
		NCBP4R - 27.10 - 005 - YG812	NCBP04R2710005T	.106	.39	.002	.008	.047	.51	1.10	○
		NCBP4R - 27.10 - 015 - YG812	NCBP04R2710015T	.106	.39	.006	.008	.047	.51	1.10	●
		NCBP4R - 27.15 - 005 - YG812	NCBP04R2715005T	.106	.59	.002	.008	.047	.71	1.30	○
		NCBP4R - 27.15 - 015 - YG812	NCBP04R2715015T	.106	.59	.006	.008	.047	.71	1.30	●
		NCBP4R - 32.10 - 015 - YG812	NCBP04R3210015T	.126	.39	.006	.008	.057	.51	1.10	●
		NCBP4R - 32.15 - 015 - YG812	NCBP04R3215015T	.126	.59	.006	.008	.057	.71	1.30	●
		NCBP4R - 32.20 - 005 - YG812	NCBP04R3220005T	.126	.79	.002	.008	.057	.91	1.50	○
		NCBP4R - 32.20 - 015 - YG812	NCBP04R3220015T	.126	.79	.006	.008	.057	.91	1.50	●
		NCBP4R - 42.10 - 015 - YG812	NCBP04R4210015T	.165	.39	.006	.012	.077	.51	1.10	●
		NCBP4R - 42.15 - 005 - YG812	NCBP04R4215005T	.165	.59	.002	.012	.077	.71	1.30	○
		NCBP4R - 42.15 - 015 - YG812	NCBP04R4215015T	.165	.59	.006	.012	.077	.71	1.30	●
		NCBP4R - 42.20 - 005 - YG812	NCBP04R4220005T	.165	.79	.002	.012	.077	.91	1.50	○
		NCBP4R - 42.20 - 015 - YG812	NCBP04R4220015T	.165	.79	.006	.012	.077	.91	1.50	●
		NCBP4R - 42.25 - 005 - YG812	NCBP04R4225005T	.165	.98	.002	.012	.077	1.10	1.69	○
		NCBP4R - 42.25 - 015 - YG812	NCBP04R4225015T	.165	.98	.006	.012	.077	1.10	1.69	●
	6 (.236)	NCBP6R - 62.15 - 020 - YG812	NCBP06R6215020T	.244	.59	.008	.020	.116	.71	1.69	●
		NCBP6R - 62.20 - 020 - YG812	NCBP06R6220020T	.244	.79	.008	.020	.116	.91	1.89	●
		NCBP6R - 62.25 - 020 - YG812	NCBP06R6225020T	.244	.98	.008	.020	.116	1.10	2.09	●
		NCBP6R - 62.30 - 020 - YG812	NCBP06R6230020T	.244	1.18	.008	.020	.116	1.30	2.28	●
		NCBP6R - 62.35 - 020 - YG812	NCBP06R6235020T	.244	1.38	.008	.020	.116	1.50	2.48	●
		NCBP6R - 62.40 - 020 - YG812	NCBP06R6240020T	.244	1.57	.008	.020	.116	1.69	2.68	●

Boring Tool
BO - Boring with Chip Breaker

NEW

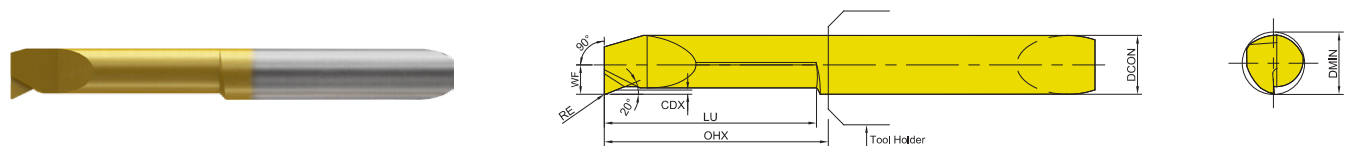


●: Stock item
○: Order made item

KAPR	DCON mm(inch)	Designation	EDP	Inch (in)							YG812
				DMIN	LU	RE	CDX	WF	OHX	OAL	
98°	4 (.157)	NCBO4R - 10.06 - 005 - YG812	NCBO04R1006005T	.039	.24	.002	.004	.018	.51	1.10	○
		NCBO4R - 10.06 - 010 - YG812	NCBO04R1006010T	.039	.24	.004	.004	.018	.51	1.10	●
		NCBO4R - 17.09 - 005 - YG812	NCBO04R1709005T	.067	.35	.002	.008	.028	.51	1.10	○
		NCBO4R - 17.09 - 010 - YG812	NCBO04R1709010T	.067	.35	.004	.008	.028	.51	1.10	○
		NCBO4R - 22.09 - 005 - YG812	NCBO04R2209005T	.087	.35	.002	.008	.037	.51	1.10	○
		NCBO4R - 22.09 - 010 - YG812	NCBO04R2209010T	.087	.35	.004	.008	.037	.51	1.10	●
		NCBO4R - 22.13 - 010 - YG812	NCBO04R2213010T	.087	.51	.004	.008	.037	.71	1.30	○
		NCBO4R - 27.15 - 005 - YG812	NCBO04R2715005T	.106	.59	.002	.008	.047	.71	1.30	○
		NCBO4R - 27.15 - 015 - YG812	NCBO04R2715015T	.106	.59	.006	.008	.047	.71	1.30	○
		NCBO4R - 32.15 - 015 - YG812	NCBO04R3215015T	.126	.59	.006	.008	.057	.71	1.30	●
		NCBO4R - 32.20 - 005 - YG812	NCBO04R3220005T	.126	.79	.002	.008	.057	.91	1.50	○
		NCBO4R - 32.20 - 015 - YG812	NCBO04R3220015T	.126	.79	.006	.008	.057	.91	1.50	●
	6 (.236)	NCBO4R - 42.20 - 005 - YG812	NCBO04R4220005T	.165	.79	.002	.012	.077	.91	1.50	○
		NCBO4R - 42.20 - 015 - YG812	NCBO04R4220015T	.165	.79	.006	.012	.077	.91	1.50	●
		NCBO4R - 42.25 - 005 - YG812	NCBO04R4225005T	.165	.98	.002	.012	.077	1.10	1.69	○
		NCBO4R - 42.25 - 015 - YG812	NCBO04R4225015T	.165	.98	.006	.012	.077	1.10	1.69	●
		NCBO6R - 62.15 - 020 - YG812	NCBO06R6215020T	.244	.59	.008	.020	.116	.81	1.69	●
		NCBO6R - 62.25 - 020 - YG812	NCBO06R6225020T	.244	.98	.008	.020	.116	1.10	2.09	●
98°	NCBO6R - 62.30 - 020 - YG812	NCBO06R6230020T	.244	1.18	.008	.020	.116	1.30	2.28	●	
	NCBO6R - 62.35 - 020 - YG812	NCBO06R6235020T	.244	1.38	.008	.020	.116	1.50	2.48	●	
	NCBO6R - 62.40 - 020 - YG812	NCBO06R6240020T	.244	1.57	.008	.020	.116	1.69	2.68	○	

Boring Tool
BF - 90° Boring

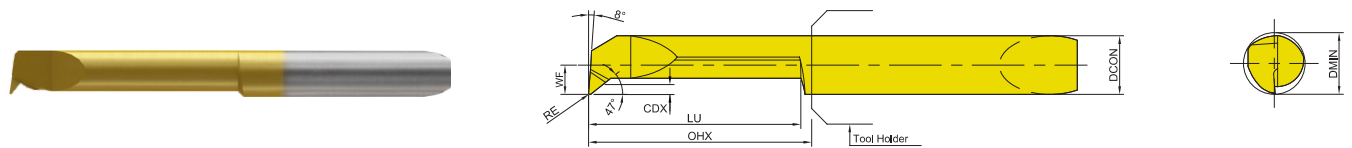
NEW



●: Stock item
○: Order made item

KAPR	DCON mm(inch)	Designation	EDP	Inch (in)							YG812
				DMIN	LU	RE	CDX	WF	OHX	OAL	
90°	4 (.157)	NCBF4R - 10.04 - 010 - YG812	NCBF04R1004010T	.039	.16	.004	.004	.018	.51	1.10	○
		NCBF4R - 10.06 - 010 - YG812	NCBF04R1006010T	.039	.24	.004	.004	.018	.51	1.10	○
		NCBF4R - 17.06 - 010 - YG812	NCBF04R1706010T	.067	.24	.004	.008	.028	.51	1.10	○
		NCBF4R - 17.09 - 010 - YG812	NCBF04R1709010T	.067	.35	.004	.008	.028	.51	1.10	○
		NCBF4R - 22.06 - 010 - YG812	NCBF04R2206010T	.087	.24	.004	.008	.037	.51	1.10	○
		NCBF4R - 22.09 - 010 - YG812	NCBF04R2209010T	.087	.35	.004	.008	.037	.51	1.10	○
		NCBF4R - 22.13 - 010 - YG812	NCBF04R2213010T	.087	.51	.004	.008	.037	.71	1.30	○
		NCBF4R - 27.10 - 015 - YG812	NCBF04R2710015T	.106	.39	.006	.008	.047	.51	1.10	○
		NCBF4R - 27.15 - 015 - YG812	NCBF04R2715015T	.106	.59	.006	.008	.047	.71	1.30	○
		NCBF4R - 32.10 - 015 - YG812	NCBF04R3210015T	.126	.39	.006	.008	.057	.51	1.10	○
		NCBF4R - 32.15 - 015 - YG812	NCBF04R3215015T	.126	.59	.006	.008	.057	.71	1.30	○
		NCBF4R - 32.20 - 015 - YG812	NCBF04R3220015T	.126	.79	.006	.008	.057	.91	1.50	○
		NCBF4R - 42.10 - 015 - YG812	NCBF04R4210015T	.165	.39	.006	.012	.077	.51	1.10	○
		NCBF4R - 42.15 - 015 - YG812	NCBF04R4215015T	.165	.59	.006	.012	.077	.71	1.30	○
		NCBF4R - 42.20 - 015 - YG812	NCBF04R4220015T	.165	.79	.006	.012	.077	.91	1.50	○
		NCBF4R - 42.25 - 015 - YG812	NCBF04R4225015T	.165	.98	.006	.012	.077	1.10	1.69	○
	6 (.236)	NCBF6R - 62.15 - 020 - YG812	NCBF06R6215020T	.244	.59	.008	.020	.116	.71	1.69	○
		NCBF6R - 62.20 - 020 - YG812	NCBF06R6220020T	.244	.79	.008	.020	.116	.91	1.89	○
		NCBF6R - 62.25 - 020 - YG812	NCBF06R6225020T	.244	.98	.008	.020	.116	1.10	2.09	○
		NCBF6R - 62.30 - 020 - YG812	NCBF06R6230020T	.244	1.18	.008	.020	.116	1.30	2.28	○
		NCBF6R - 62.35 - 020 - YG812	NCBF06R6235020T	.244	1.38	.008	.020	.116	1.50	2.48	○
		NCBF6R - 62.40 - 020 - YG812	NCBF06R6240020T	.244	1.57	.008	.020	.116	1.69	2.68	○

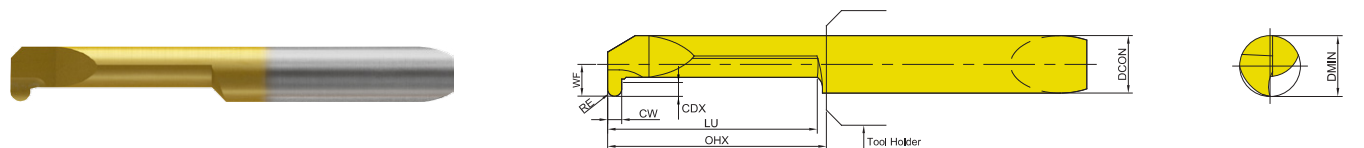
Boring Tool
PR - Profiling NEW



●: Stock item
○: Order made item

KAPR	DCON mm(inch)	Designation	EDP	Inch (in)							YG812
				DMIN	LU	RE	CDX	WF	OHX	OAL	
98°	4 (.157)	NCPR4R - 10.04 - 010 - YG812	NCPR04R1004010T	.039	.16	.004	.004	.018	.51	1.10	○
		NCPR4R - 10.06 - 010 - YG812	NCPR04R1006010T	.039	.24	.004	.004	.018	.51	1.10	○
		NCPR4R - 17.06 - 010 - YG812	NCPR04R1706010T	.067	.24	.004	.008	.028	.51	1.10	○
		NCPR4R - 17.09 - 010 - YG812	NCPR04R1709010T	.067	.35	.004	.008	.028	.51	1.10	○
		NCPR4R - 22.06 - 010 - YG812	NCPR04R2206010T	.087	.24	.004	.008	.037	.51	1.10	○
		NCPR4R - 22.09 - 010 - YG812	NCPR04R2209010T	.087	.35	.004	.008	.037	.51	1.10	○
		NCPR4R - 22.13 - 010 - YG812	NCPR04R2213010T	.087	.51	.004	.008	.037	.71	1.30	○
		NCPR4R - 27.10 - 015 - YG812	NCPR04R2710015T	.106	.39	.006	.008	.047	.51	1.10	○
		NCPR4R - 27.15 - 015 - YG812	NCPR04R2715015T	.106	.59	.006	.008	.047	.71	1.30	○
		NCPR4R - 32.10 - 015 - YG812	NCPR04R3210015T	.126	.39	.006	.008	.057	.51	1.10	○
		NCPR4R - 32.15 - 015 - YG812	NCPR04R3215015T	.126	.59	.006	.008	.057	.71	1.30	○
		NCPR4R - 32.20 - 015 - YG812	NCPR04R3220015T	.126	.79	.006	.008	.057	.91	1.50	○
		NCPR4R - 42.10 - 015 - YG812	NCPR04R4210015T	.165	.39	.006	.012	.077	.51	1.10	●
		NCPR4R - 42.15 - 015 - YG812	NCPR04R4215015T	.165	.59	.006	.012	.077	.71	1.30	●
		NCPR4R - 42.20 - 015 - YG812	NCPR04R4220015T	.165	.79	.006	.012	.077	.91	1.50	●
	NCPR4R - 42.25 - 015 - YG812	NCPR04R4225015T	.165	.98	.006	.012	.077	1.10	1.69	○	
	6 (.236)	NCPR6R - 62.15 - 020 - YG812	NCPR06R6215020T	.244	.59	.008	.020	.116	.71	1.69	●
		NCPR6R - 62.20 - 020 - YG812	NCPR06R6220020T	.244	.79	.008	.020	.116	.91	1.89	●
		NCPR6R - 62.25 - 020 - YG812	NCPR06R6225020T	.244	.98	.008	.020	.116	1.10	2.09	○
		NCPR6R - 62.30 - 015 - YG812	NCPR06R6230015T	.244	1.18	.006	.020	.116	1.30	2.28	●
		NCPR6R - 62.30 - 020 - YG812	NCPR06R6230020T	.244	1.18	.008	.020	.116	1.30	2.28	○
		NCPR6R - 62.35 - 020 - YG812	NCPR06R6235020T	.244	1.38	.008	.020	.116	1.50	2.48	○
		NCPR6R - 62.40 - 020 - YG812	NCPR06R6240020T	.244	1.57	.008	.020	.116	1.69	2.68	○

Boring Tool
GR - Grooving Round NEW

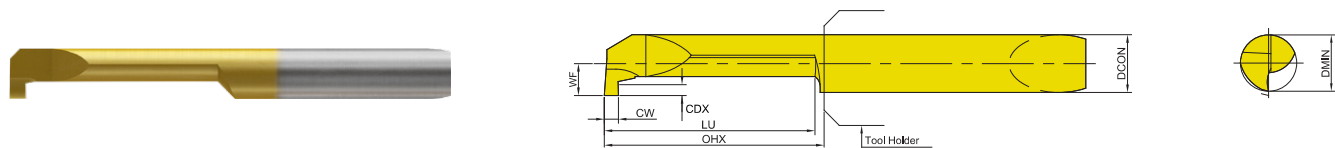


●: Stock item
○: Order made item

DCON mm(inch)	Designation	EDP	Inch (in)								YG812
			DMIN	LU	RE	CW	CDX	WF	OHX	OAL	
4 (.157)	NCGR4R - 42.15 - 10x08 - YG812	NCGR04R4215100T	.165	.59	.020	.039	.031	.077	.71	1.30	○
	NCGR4R - 42.15 - 12x08 - YG812	NCGR04R4215120T	.165	.59	.023	.046	.031	.077	.71	1.30	○
	NCGR4R - 42.15 - 15x08 - YG812	NCGR04R4215150T	.165	.59	.030	.059	.039	.077	.71	1.30	○
	NCGR4R - 42.15 - 16x08 - YG812	NCGR04R4215160T	.165	.59	.032	.064	.039	.077	.71	1.30	○
6 (.236)	NCGR6R - 62.25 - 10x18 - YG812	NCGR06R6225100T	.244	.98	.020	.039	.071	.116	1.10	2.09	○
	NCGR6R - 62.25 - 15x18 - YG812	NCGR06R6225150T	.244	.98	.030	.059	.071	.116	1.10	2.09	○
	NCGR6R - 62.25 - 16x18 - YG812	NCGR06R6225160T	.244	.98	.030	.064	.031	.116	1.10	2.09	○
	NCGR6R - 62.25 - 20x18 - YG812	NCGR06R6225200T	.244	.98	.039	.079	.071	.116	1.10	2.09	○

Boring Tool
GS - Grooving Square

NEW

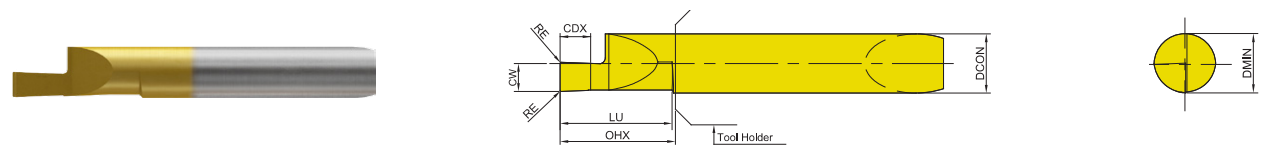


●: Stock item
○: Order made item

DCON mm(inch)	Designation	EDP	Inch (in)								YG812
			DMIN	LU	CW	CDX	WF	OHX	OAL		
4 (.157)	NCGS4R - 42.10 - 079x08 - YG812	NCGS04R4210079T	.165	.39	.031	.031	.077	.51	1.50	○	
	NCGS4R - 42.15 - 079x08 - YG812	NCGS04R4215079T	.165	.59	.031	.031	.077	.71	1.69	○	
	NCGS4R - 42.20 - 079x08 - YG812	NCGS04R4220079T	.165	.79	.031	.031	.077	.91	1.89	○	
	NCGS4R - 42.10 - 100x08 - YG812	NCGS04R4210100T	.165	.39	.039	.031	.077	.51	1.50	●	
	NCGS4R - 42.15 - 100x08 - YG812	NCGS04R4215100T	.165	.59	.039	.031	.077	.71	1.69	●	
	NCGS4R - 42.20 - 100x08 - YG812	NCGS04R4220100T	.165	.79	.039	.031	.077	.91	1.89	○	
6 (.236)	NCGS6R - 62.10 - 079x18 - YG812	NCGS06R6210079T	.244	.39	.031	.071	.116	.51	1.50	○	
	NCGS6R - 62.15 - 079x18 - YG812	NCGS06R6215079T	.244	.59	.031	.071	.116	.71	1.69	○	
	NCGS6R - 62.25 - 079x18 - YG812	NCGS06R6225079T	.244	.98	.031	.071	.116	1.10	2.09	○	
	NCGS6R - 62.35 - 079x18 - YG812	NCGS06R6235079T	.244	1.38	.031	.071	.116	1.50	2.48	○	
	NCGS6R - 62.10 - 100x18 - YG812	NCGS06R6210100T	.244	.39	.039	.071	.116	.51	1.50	○	
	NCGS6R - 62.15 - 100x18 - YG812	NCGS06R6215100T	.244	.59	.039	.071	.116	.71	1.69	●	
	NCGS6R - 62.25 - 100x18 - YG812	NCGS06R6225100T	.244	.98	.039	.071	.116	1.10	2.09	●	
	NCGS6R - 62.35 - 100x18 - YG812	NCGS06R6235100T	.244	1.38	.039	.071	.116	1.50	2.48	○	
	NCGS6R - 62.10 - 117x18 - YG812	NCGS06R6210117T	.244	.39	.046	.071	.116	.51	1.50	○	
	NCGS6R - 62.15 - 117x18 - YG812	NCGS06R6215117T	.244	.59	.046	.071	.116	.71	1.69	○	
	NCGS6R - 62.25 - 117x18 - YG812	NCGS06R6225117T	.244	.98	.046	.071	.116	1.10	2.09	○	
	NCGS6R - 62.35 - 117x18 - YG812	NCGS06R6235117T	.244	1.38	.046	.071	.116	1.50	2.48	○	
	NCGS6R - 62.10 - 150x18 - YG812	NCGS06R6210150T	.244	.39	.059	.071	.116	.51	1.50	●	
	NCGS6R - 62.15 - 150x18 - YG812	NCGS06R6215150T	.244	.59	.059	.071	.116	.71	1.69	●	
	NCGS6R - 62.25 - 150x18 - YG812	NCGS06R6225150T	.244	.98	.059	.071	.116	1.10	2.09	●	
	NCGS6R - 62.35 - 150x18 - YG812	NCGS06R6235150T	.244	1.38	.059	.071	.116	1.50	2.48	○	
	NCGS6R - 62.10 - 157x18 - YG812	NCGS06R6210157T	.244	.39	.062	.071	.116	.51	1.50	○	
	NCGS6R - 62.15 - 157x18 - YG812	NCGS06R6215157T	.244	.59	.062	.071	.116	.71	1.69	○	
	NCGS6R - 62.25 - 157x18 - YG812	NCGS06R6225157T	.244	.98	.062	.071	.116	1.10	2.09	○	
	NCGS6R - 62.35 - 157x18 - YG812	NCGS06R6235157T	.244	1.38	.062	.071	.116	1.50	2.48	○	
	NCGS6R - 62.10 - 198x18 - YG812	NCGS06R6210198T	.244	.39	.078	.071	.116	.51	1.50	○	
	NCGS6R - 62.15 - 198x18 - YG812	NCGS06R6215198T	.244	.59	.078	.071	.116	.71	1.69	○	
	NCGS6R - 62.25 - 198x18 - YG812	NCGS06R6225198T	.244	.98	.078	.071	.116	1.10	2.09	○	
	NCGS6R - 62.30 - 198x18 - YG812	NCGS06R6230198T	.244	1.18	.078	.071	.116	1.30	2.28	○	
	NCGS6R - 62.10 - 200x18 - YG812	NCGS06R6210200T	.244	.39	.079	.071	.116	.51	1.50	●	
	NCGS6R - 62.15 - 200x18 - YG812	NCGS06R6215200T	.244	.59	.079	.071	.116	.71	1.69	●	
	NCGS6R - 62.25 - 200x18 - YG812	NCGS06R6225200T	.244	.98	.079	.071	.116	1.10	2.09	●	

Boring Tool
FI - Face Grooving Internal

NEW

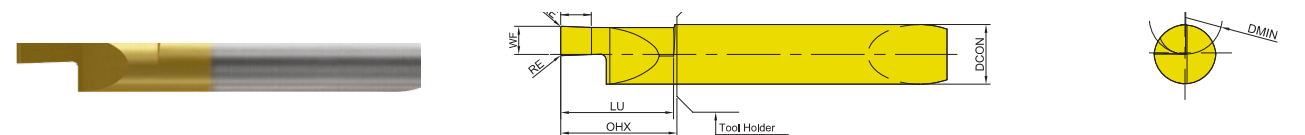


●: Stock item
○: Order made item

DCON mm(inch)	Designation	EDP	Inch (in)								YG812
			DMIN	LU	RE	CW	CDX	WF	OHX	OAL	
6 (.236)	NCFI6R - 62.15 - 10x20 - YG812	NCFI06R6215010T	.244	.59	.004	.039	.08	.116	.71	1.69	●
	NCFI6R - 62.15 - 15x30 - YG812	NCFI06R6215015T	.244	.59	.004	.059	.12	.116	.71	1.69	●
	NCFI6R - 62.15 - 20x40 - YG812	NCFI06R6215020T	.244	.59	.004	.079	.16	.116	.71	1.69	●
	NCFI6R - 62.15 - 25x50 - YG812	NCFI06R6215025T	.244	.59	.004	.098	.20	.116	.71	1.69	●
	NCFI6R - 62.15 - 30x60 - YG812	NCFI06R6215030T	.244	.59	.004	.118	.24	.116	.71	1.69	●

Boring Tool
FE - Face Grooving External

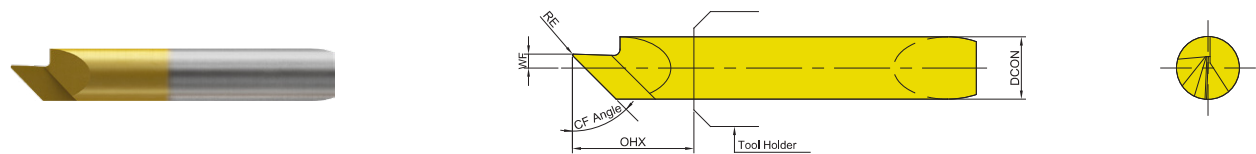
NEW



●: Stock item
○: Order made item

DCON mm(inch)	Designation	EDP	Inch (in)								YG812
			DMIN	LU	RE	CW	CDX	WF	OHX	OAL	
6 (.236)	NCFE6R - 62.15 - 10x20 - YG812	NCFE06R6215010T	.244	.59	.004	.039	.08	.116	.71	1.69	●
	NCFE6R - 62.15 - 15x30 - YG812	NCFE06R6215015T	.244	.59	.004	.059	.12	.116	.71	1.69	●
	NCFE6R - 62.15 - 20x40 - YG812	NCFE06R6215020T	.244	.59	.004	.079	.16	.116	.71	1.69	●
	NCFE6R - 62.15 - 25x50 - YG812	NCFE06R6215025T	.244	.59	.004	.098	.20	.116	.71	1.69	●
	NCFE6R - 62.15 - 30x60 - YG812	NCFE06R6215030T	.244	.59	.004	.118	.24	.116	.71	1.69	●

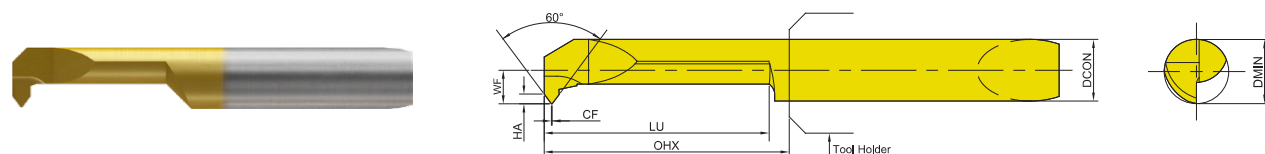
Boring Tool
CH - Chamfering NEW



●: Stock item
○: Order made item

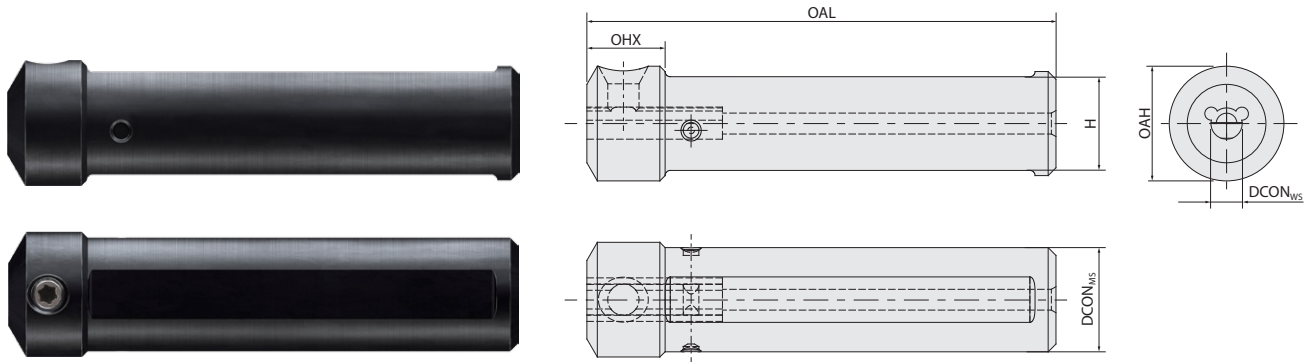
KAPR	DCON mm(inch)	Designation	EDP	Inch (in)						YG812
				DMIN	RE	CDX	WF	OHX	OAL	
45°	6	NCCH6R - 10.03 - 45 - YG812	NCCH06R103045T	.039	.008	.14	.043	.51	1.50	○
60°	(.236)	NCCH6R - 10.04 - 60 - YG812	NCCH06R103060T	.039	.008	.16	.020	.51	1.50	○

Boring Tool
TH - Threading NEW

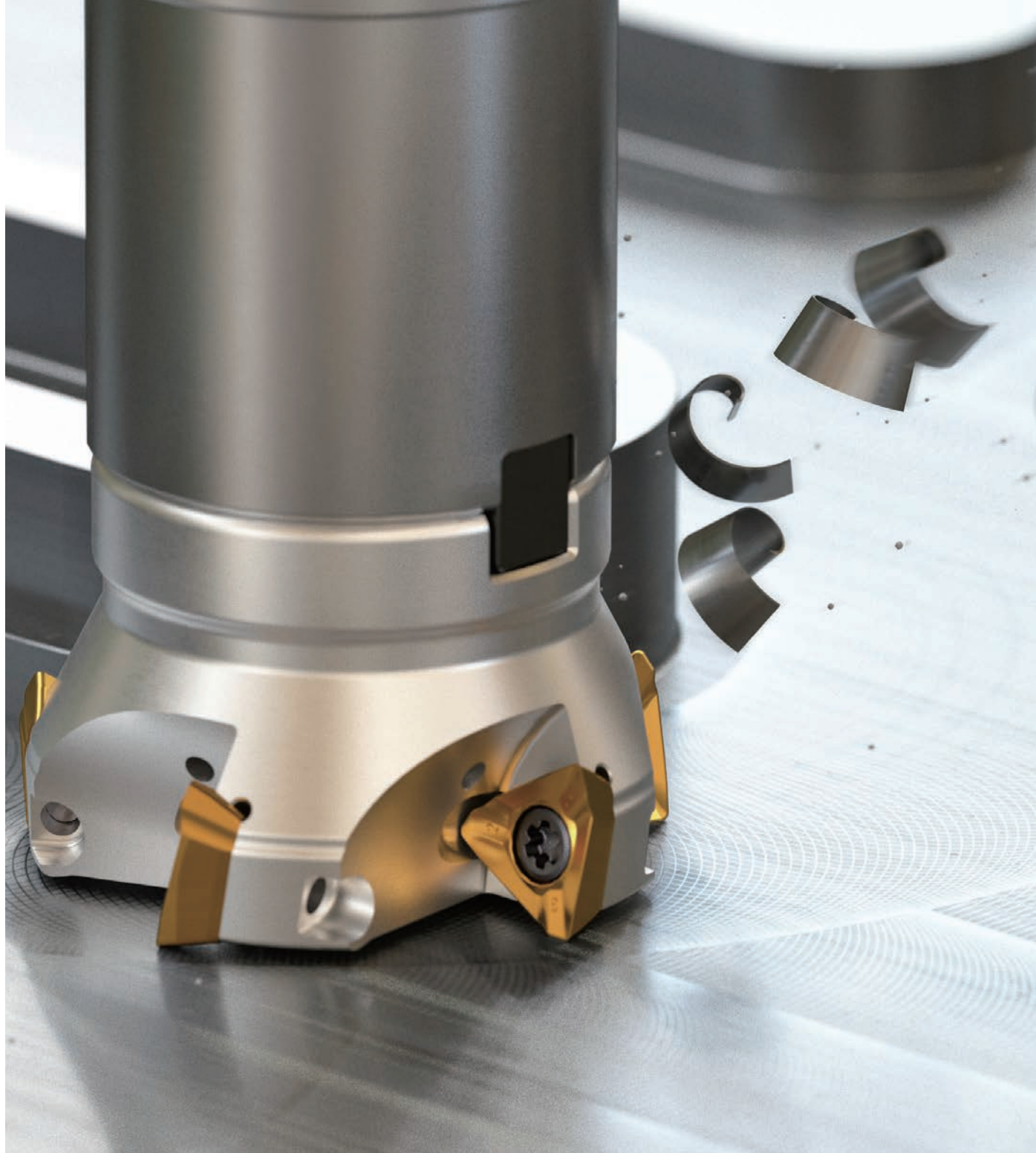


* P - 60 : Partial Profile, 60°
●: Stock item
○: Order made item

DCON mm(inch)	Designation	EDP	Inch ⁽ⁱⁿ⁾										YG812
			DMIN	LU	TPIN	TPIX	WF	HA	CF	OHX	OAL		
4 (.157)	NCTH04R - 42.15 - 050 - P - 60 - YG812	NCTV04R4215050T	.165	.591	36	48	.079	.018	.002	.709	1.299	○	
	NCTH04R - 42.15 - 075 - P - 60 - YG812	NCTV04R4215075T	.165	.591	24	32	.093	.026	.004	.709	1.299	○	
	NCTH04R - 42.15 - 100 - P - 60 - YG812	NCTV04R4215100T	.165	.591	20	24	.089	.031	.005	.709	1.299	○	
6 (.236)	NCTH06R - 62.15 - 100 - P - 60 - YG812	NCTV06R6215100T	.244	.591	20	24	.116	.031	.005	.807	1.693	○	
	NCTH06R - 62.15 - 125 - P - 60 - YG812	NCTV06R6215125T	.244	.591	16	20	.091	.038	.006	.807	1.693	○	
	NCTH06R - 62.15 - 150 - P - 60 - YG812	NCTV06R6215150T	.244	.591	14	16	.116	.045	.007	.807	1.693	○	



Scale	Insert Size (DCON _{MS})	Designation	EDP	DCON _{MS}	OAL	H	OAH	OHX
Metric / Inch	4 (.157)	NCHI-0500.4i	ZBR0400500	.500	2.756	.421	.624	.551
		NCHI-0625.4i	ZBR0400625	.625	2.953	.546	.687	
		NCHI-0750.4i	ZBR0400750	.750	4.331	.671	.750	
		NCHI-1000.4i	ZBR0401000	1.000	4.331	.906	1.000	
	6 (.236)	NCHI-0500.6i	ZBR0600500	.500	2.756	.421	.663	
		NCHI-0625.6i	ZBR0600625	.625	2.953	.546	.726	
		NCHI-0750.6i	ZBR0600750	.750	4.331	.671	.827	
		NCHI-1000.6i	ZBR0601000	1.000	4.331	.906	1.000	



MILLING

Product Overview

Application Guide

Milling Inserts & Cutter Overview

Milling Inserts & Cutter



Scan this QR code
to see our
YG FM10 Mill
at work.



Scan this QR code
to see our
YG HF4 Mill
at work.

Milling - Code System Insert ISO Code System

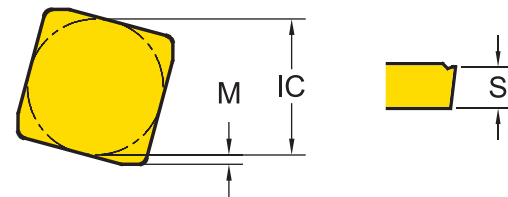
1 A Shape	2 P Relief Angle (AN)	3 K Tolerance	4 T Clamping & Chipbreaker	5 16 Insert Size	6 04 Insert Thickness (S)	7 08 CornerRadius
------------------------	------------------------------------	----------------------------	---	-------------------------------	--	--------------------------------

1 - Shape

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

2 - Relief Angle (AN)

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



3 - Tolerance Class

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

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

4 - Clamping & Chipbreaker

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

5 - Insert Size

* No Standard for milling insert size

6 - Insert Thickness

* No Standard for milling insert thickness

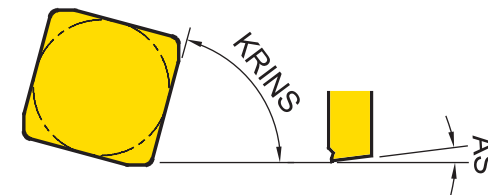
Milling - Code System Insert ISO Code System

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

7 - Corner Radius (RE)

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

8 - Corner Geometry



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

8 - 1 - Cutting Edge Angle (KRINS)

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

8 - 2 - Wiper Edge Clearance (AS)

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

8 - 3 - Edge Condition

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

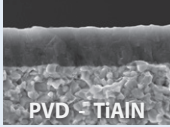
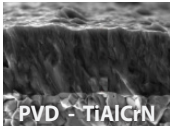
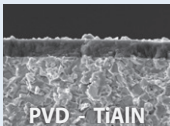
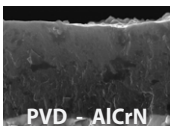
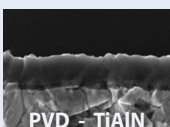
8 - 4 - Feed Direction

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

Milling Grades and Chip breakers

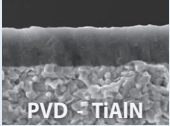
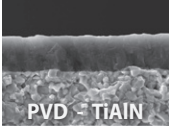
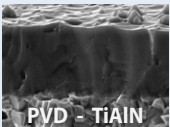
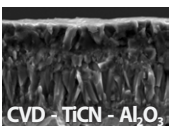
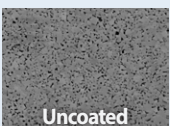
Milling Grades

Milling Grades		P Steel					M Stainless steel				K Cast iron				N Non - ferrous				S Super alloys				H Hardened Steel			
		P05	P15	P25	P35	P45	M05	M15	M25	M35	K05	K15	K25	K35	N05	N15	N25	N35	S05	S15	S25	S35	H05	H15	H25	H35
PVD	YG012		012																					012		
	YG712		712																							
	YG713			713																						
	YG622			622								622														
	YG 612			612				612												612						
	YG602			602				602			602									602						
	YG613			613				613																		
	YG501										501															
CVD	YG5020									5020																
Uncoated	YG50													50												

NEW YG012 H10 - H30 P10 - P30		Optimized Milling Grade for Pre - Hardened & Hardened steel - Applied Extreme Oxidation PVD layer and Crack - free Substrate - Excellent Cutting performance for Die & Mold application
YG712 P10 - P30		Milling Grade for Medium of Steel Application - Superior wear resistance and excellent toughness in high speed machining - Coating layer with high hardness and oxidation resistance
YG713 P15 - P25		Milling Grade for General Steel Application - Multi - layer TiAlN structure realizes stronger crater and flank wear resistance - Fine - grained carbide and balanced substrate
YG622 P20 - P35 K20 - K40		Optimized Grade for High Alloyed or Prehardened Steel Excellent for High Temperature Hardness and Oxidation Resistance at High Speed
NEW YG612 P20 - P40 M20 - M40 S20 - S40		Specialized Multi - Nano Coated Grade with high wear resistance and chipping resistance - Special Multi - Nano coating prevent crack and providing predictable tool life - Special universal Grade can achieve stable tool life in any workpiece

Milling Grades and Chip breakers

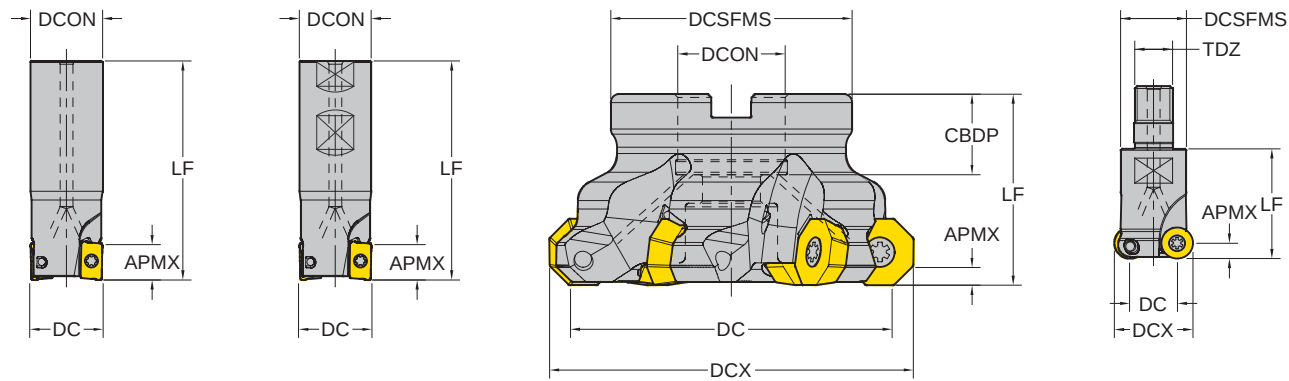
Milling Grades

YG602 P20 - P35 K20 - K40 M20 - M40 S15 - S25		Universal grade for General Milling Application - Ultra Dense PVD Coating with optimal thermal resistance & strength - Sub - Micron substrate designed for demanding application
YG613 P30 - P50 M30 - M40		Milling Grade for Stainless Steel Application - New coating layer with lubrication preventing built - up edge on ultra fine grain substrate with high toughness. - The toughest substrate provides excellent cutting performance in stainless steel
YG501 K05 - K25		Hard Milling grade for Cast Iron - Substrate especially designed for high wear resistance - Excellent wear resistance in cast iron milling application
YG5020 K01 - K30		CVD Milling grade for Cast Iron - CVD coating for Excellent wear resistance - Improved Toughness for chipping resistance
YG50 N05 - N20		Uncoated Milling Grade for Aluminium - Submicron carbide substrate for high wear resistance - Preventing built up edge with shining surface

Milling Chipbreakers

-AL		- For Aluminum - Very Sharp Geometry
-ST		- For Stainless Steel, Super Alloy - Sharp Geometry
-GN (General Type)		First Choice for General Application
-TR		- For Hardened Steels - Reinforced Geometry
...W / ...N		For Hardened Material and Cast Irons

Code Keys - Milling Cutters

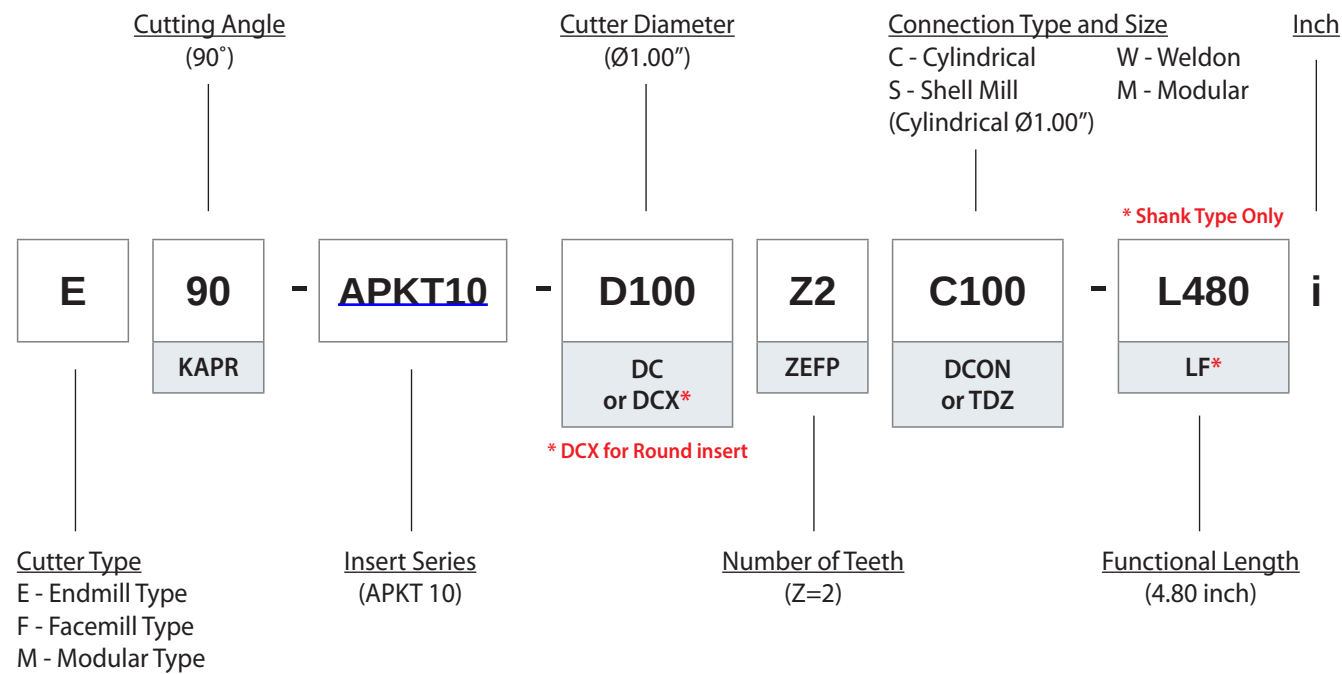


<C> Cylindrical

<W> Weldon

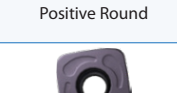
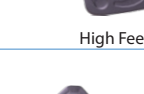
<S> Shell Mill

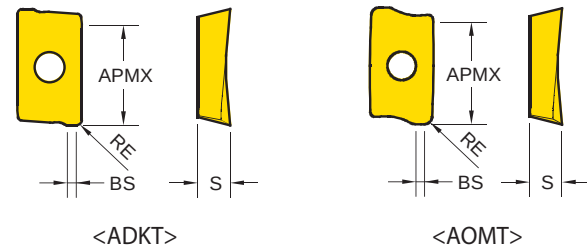
<M> Modular



Milling Inserts Overview

Recommended Cutting Conditions : p.165

A 2 Corner		ADKT	ADKT 1505	p. 104
		AOMT	AOMT 1236	p. 104
		APGT	APGT 1003, 1604	p. 105
		APKT	APKT 1003, 1604	p. 106
		APMT	APMT 1135, 1504, 1604	p. 107
E 4 Corner		ENMX	ENMX 0604 ENMX 0905	p. 108
L 4 Corner		LNHU / LNKU	LNHU / LNKU 1306	p. 110
O Octagon		ODMT / ODMW	ODMT / ODMW 0605	p. 111
		OFER	OFER 0704	p. 112
		OFMT	OFMT 05T3	p. 113
P 10 Corner		ONHU / ONMU	ONHU / ONMU 0806	p. 113
		PNMU	PNMU 1206	p. 114
R Round		RDKT / RDKW	RDKT 0802, 10T3, 1204, 1604 RDKW 0501, 0702, 0802, 10T3, 1204, 1604	p. 115
		RDMT / RDMW	RDMT 0602, 0802, 0803, 10T3, 1204 RDMW 0802, 10T3, 1204	p. 116
		RPMT / RPMW	RPMT 08T2, 10T3, 1204 RPMW 1003, 1204	p. 117
S Square		SDMT / SDMW	SDMT 1204, SDMW 1204	p. 118
		SDCN (45°) / SDKN	SDCN / SDKN 42, 53	p. 119
		SEGT	SEGT 12T3, 1204	p. 120
		SEKR (45°) / SEKN	SEKR, SEKN 42	p. 121
		SEKT	SEKT 12T3, 1204	p. 122
		SEMT	SEMT 1204, 13T3	p. 123
		SPMT	SPMT 1204	p. 124
S Square		SNMX	SNMX 1206	p. 125
		SPCN(75°) / SPKN / SPKR	SPCN 42, 53 SPKN 42, 53 SPKR 42	p. 126
		SPUN	SPUN 423	p. 127
T Triangle		TPKT	TPKT 1104, 1605	p. 128
		TPCN(90°) / TPKN / TPKR	TPCN 43 TPKN 32, 43 TPKR 32, 43	p. 129
		TPUN	TPUN 32	p. 130
W Trigon		WNEX	WNEX 0806	p. 131



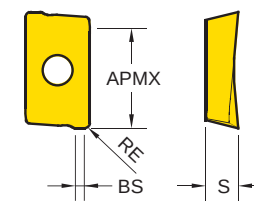
Series	LE	IC	S
<u>ADKT 1505</u>	.539	.382	.228
<u>AOMT 1236</u>	.413	.260	.142

EDP 1200..

●: Stock item ○: Order made item

	H20	P15	P25	P30	P30	P30	P40	K10	K15
	P20			K30	M30 S30	M30	M40 S40		
YG012									
YG712									
YG713									
YG622									
YG612									
YG602									
YG613									
YG5020									
YG501									
					●	0220			
					●	0755			
					●	0756			
					●	0757			

ADKT		Designation	RE (in)	Fz (in/tooth)	BS (in)	YG012	YG712	YG713	YG622	YG612	YG602	YG613	YG5020	YG501
ADKT General 	ADKT 150508 PDTR	.031	.002 ~ .009	.074						● 0220				
	ADKT 150516 PDTR	.063	.002 ~ .009	.068						● 0755				
	ADKT 150524 PDTR	.094	.002 ~ .009	.047						● 0756				
	ADKT 150532 PDTR	.126	.002 ~ .009	.012						● 0757				

[illegible]

Series	LE	IC	S
AP*T 1003	.598	.370	.209
AP*T 1604	.575	.362	.189

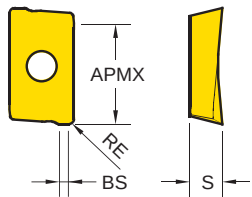
EDP 1200..

●: Stock item ○: Order made item

[illegible]

APGT					YG012	YG712	YG713	YG622	YG612	YG602	YG613	YG5020	YG50
Designation		RE (in)	Fz (in/tooth)	BS (in)									
NEW - AL Aluminium 	APGT 100305 - AL	.02	.002 ~ .010	.055									● 0730
	APGT 160408 - AL	.031	.002 ~ .010	.067									● 0428
	APGT 160430 - AL	.118	.002 ~ .010	.008									● 0798

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



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

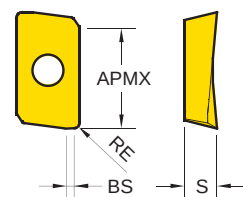
EDP 1200..

●: Stock item ○: Order made item

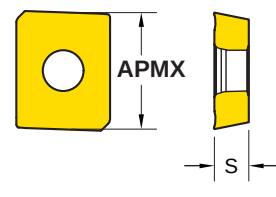
H20	P15	P25	P30	P30	P30	P40	K10	K15
P20			K30	M30 S30	M30	M40 S40		

APKT	Designation	RE (in)	Fz (in/tooth)	BS (in)	YG012	YG712	YG713	YG622	YG612	YG602	YG613	YG5020	YG501
APKT General	APKT 100305 PDTR	.02	.002 ~ .009	.034	● 0749	○	○ 0638	○ 0429	○	● 0005	● 0672		
	APKT 100308 PDTR	.031	.002 ~ .009	.035	● 0750	○	○ 0632	○ 0430	○	● 0004	● 0610		
	APKT 100316 PDTR	.063	.002 ~ .009	.041						● 0713	● 0714		
	APKT 160404 PDTR	.016	.002 ~ .009	.044		○ 0656				● 0003			
	APKT 160408 PDTR	.031	.002 ~ .009	.052	● 0797	○ 0633				● 0001	● 0607	● 0796	
	APKT 160412 PDTR	.047	.002 ~ .009	.044		○ 0649				● 0002			
	APKT 160416 PDTR	.063	.002 ~ .009	.044		○ 0661				● 0006			
	APKT 160424 PDTR	.094	.002 ~ .009	.047		○ 0653				● 0255			
- ST Stainless Steel Super Alloy	APKT 160432 PDTR	.126	.002 ~ .009	.016						● 0738			
	APKT 100305 - ST	.02	.002 ~ .005	.034						● 0278	● 0618		
	APKT 100312 - ST	.047	.002 ~ .005	.052							● 0776		
	APKT 100316 - ST	.063	.002 ~ .005	.041							● 0719		
- TR Hardened Steel	APKT 160408 - ST	.031	.002 ~ .005	.052						● 0270	● 0617		
	APKT 160404 - TR	.016	.002 ~ .016	.083			○ 0505			● 0492			
	APKT 160408 - TR	.031	.002 ~ .016	.052	● 0746	○ 0637	○ 0337			● 0256			
	APKT 160412 - TR	.047	.002 ~ .016	.094			○ 0523			● 0493			
	APKT 160416 - TR	.063	.002 ~ .016	.094	● 0747		○ 0524			● 0472			
	APKT 160424 - TR	.094	.002 ~ .016	.059	● 0748		○ 0520			● 0494			

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



<APMT>



<APMT 1504>

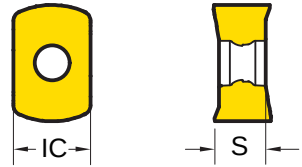
Series	LE	IC	S
APMT 1135	.374	.244	.138
APMT 1604	.575	.362	.187
APMT 1504	.551	.500	.187

EDP 1200..

●: Stock item ○: Order made item

H20	P15	P25	P30	P30	P30	P40	K10	K15
P20			K30	M30 S30	M30	M40 S40		

APMT	Designation	RE (in)	Fz (in/tooth)	BS (in)	YG012	YG712	YG713	YG622	YG612	YG602	YG613	YG5020	YG501
APMT General	APMT 113504 PDTR	.016	.002 ~ .009	.05	● 0752		○ 0655	○ 0400		● 0009			
	APMT 113508 PDTR	.031	.002 ~ .009	.042			○ 0654			● 0010	● 0668		
	APMT 160408 PDTR	.031	.002 ~ .009	.044	● 0751	● 0423	○ 0642	○ 0399		● 0008	● 0663	● 0464	
APMT 1504 General	APMT 1504		.002 ~ .009					○ 0445		● 0276			



Series	IC	S
ENMX 0604	.248	.166
ENMX 0905	.354	.213

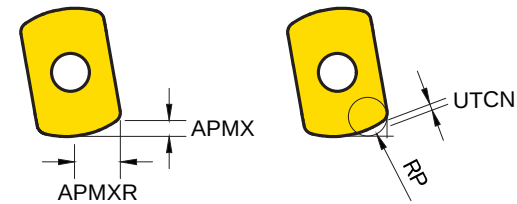
EDP 1200..

●: Stock item ○: Order made item

	H20	P15	P25	P30	P30	P30	P40		
	P20			K30	M30	S30	M30	M40	S40
	YG012	YG712	YG713	YG622	YG612	YG602	YG613	YG5020	YG501
●						●	●		
0734						0474	0606		
●						●	●		
0736						0702	0703		
●						●	●		
0623						0625			
●						●	●		
0705						0706			
●		●	○			●			
0733	0504	0636				0459			
●						●			
0735						0600			

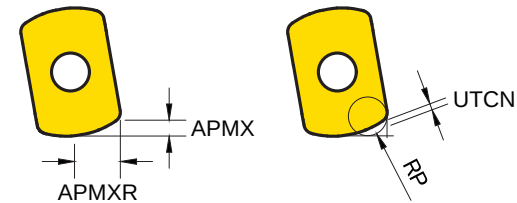
ENMX	Designation	RE (in)	Fz (in/tooth)	BS (in)
ENMX General	ENMX 0604	.012 ~ .079		
	ENMX 0905	.012 ~ .098		
- ST Stainless Steel	ENMX 0604-ST	.004 ~ .031		
	ENMX 0905-ST	.008 ~ .047		
- TR Hardened Steel	ENMX 0604-TR	.012 ~ .098		
	ENMX 0905-TR	.012 ~ .118		

ENMX 0604



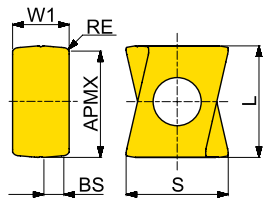
DCX	APMX	APMXR	RMPX	RP	UTCN	Diameter	Diameter	Pitch	Ae
External Cutter Diameter	Maximum Depth of Cut	Maximum Radial Depth of Cut	Maximum Ramping Angle(°)	Programmed Corner Radius	Uncut Thickness	Minimum Cutting Diameter	Maximum Cutting Diameter	Helical Interpolation Pitch	Enlarge Width
.625	.035	.137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

ENMX 0905



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

Milling - Shoulder Milling - Inserts
LNHU, LNKU - Tangential Milling Negative (4 Corners)

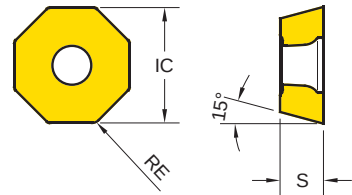


Series	W1	L
LN*U 1306	6.7	13.2

EDP 1200.. ●: Stock item ○: Order made item									
H20	P15	P25	P30	P30	P30	P40			
P20			K30	M30 S30	M30	M40 S40	K10	K15	
YG012	YG712	YG713	YG622	YG612	YG602	YG613	YG5020	YG501	
				● 0723	○ 0640	● 0724	● 0725		
				● 0740	○ 0739	● 0741	● 0742		
				● 0764	○ 0763	● 0765	● 0766		

LNHU LNKU	Designation	RE (in)	Fz (in/tooth)	BS (in)
NEW LNHU General	LNHU130608R	.0315	.002 ~ .012	.823
NEW LNKU General	LNKU130608R	.0315	.002 ~ .012	.823
	LNKU130612R	.0472	.002 ~ .012	.681

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



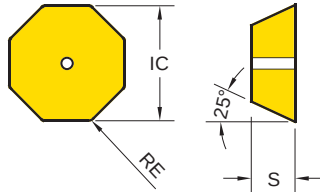
Series	IC	S
ODM* 0605	.626	.220

EDP 1200.. ●: Stock item ○: Order made item									
H20	P15	P25	P30	P30	P30	P40			
P20			K30	M30 S30	M30	M40 S40	K10	K15	
YG012	YG712	YG713	YG622	YG612	YG602	YG613	YG5020	YG501	
		○ 0659			● 0030	● 0675			
					● 0031				

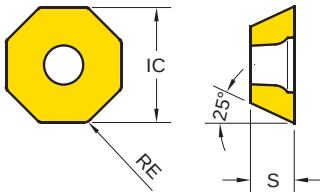
ODMT ODMW	Designation	RE (in)	Fz (in/tooth)	BS (in)
ODMT General	ODMT060508	.031	.002 ~ .012	
ODMW Hard Materials	ODMW060508	.031	.002 ~ .012	

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

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



<OFER>

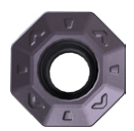


<OFMT>

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

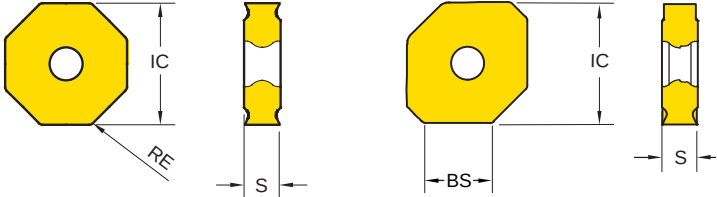
H20	P15	P25	P30	P30	P30	P40		
P20			K30	M30 S30	M30 S30	M40 S40	K10	K15

OFER	Designation	RE (in)	Fz (in/tooth)	BS (in)	YG012	YG712	YG713	YG622	YG612	YG602	YG613	YG5020	YG501
 OFER General	OFER070405	.02	.002~.012							● 0209			

OFMT	Designation	RE (in)	Fz (in/tooth)	BS (in)	YG012	YG712	YG713	YG622	YG612	YG602	YG613	YG5020	YG501
 OFMT General	OFMT05T308	.031	.002~.008							● 0032			

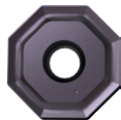
Milling - Face Milling - Inserts
ONHU / ONMU - Face Milling Negative (16 Corners)

					Series		IC	S
					ON*U 0806		.795	.228



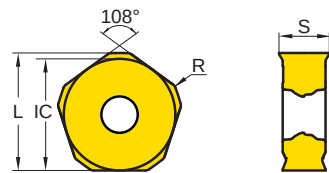
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<ONHU>

ONMU ONHU	Designation	RE (in)	Fz (in/tooth)	BS (in)	EDP 1200.. ●: Stock item ○: Order made item								
					H20	P15	P25	P30	P30	P30	P40	K10	K15
					P20			K30	M30 S30	M30	M40 S40		
 ONHU Wiper Insert	ONHU080612	.047	.003 ~ .010	.417	YG012	YG712	YG713	YG622	YG612	YG602	YG613	YG5020	YG501
												● 0482	● 0496
 ONMU General	ONMU080608	.031	.002 ~ .014			● 0609	○ 0657			● 0233	● 0670	● 0414	
	ONMU080612	.047	.002 ~ .014								● 0615	● 0542	
	ONMU080620	.079	.002 ~ .014									● 0707	

* Wiper Insert can use 4 corners for right handed cutter and 4 corners for left handed cutter

Milling - Face Milling - Inserts
PNMU - Face Milling Negative (10 Corners)

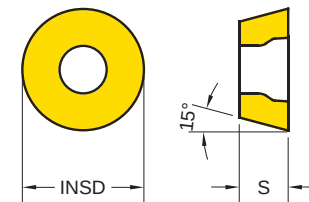


Series	KRINS	IC	S
PNMU 1206	36°	.551	.230

EDP 1200..									
●: Stock item ○: Order made item									
H20	P15	P25	P30	P30	P30	P40			
P20			K30	M30 S30	M30	M40 S40	K10	K15	

PNMU	Designation	RE (in)	Fz (in/tooth)	BS (in)	YG012	YG712	YG713	YG622	YG612	YG602	YG613	YG5020	YG501G
PNMU General	PNMU 1206ZNN	.031	.002 ~ .020	.083	● 0753	● 0596	○ 0645		● 0826	● 0535	● 0671	● 0534	● 0538
- ST Stainless Steel Super Alloy	PNMU 1206 - ST	.031	.002 ~ .020	.083						● 0761	● 0760		

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

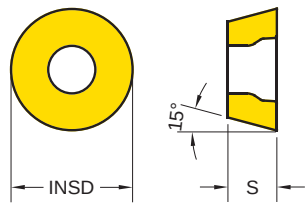


Series	INSD	S	Series	INSD	S
RDK* 0501	.197	.055	RDK* 10T3	.394	.157
RDK* 0702	.276	.094	RDK* 1204	.472	.189
RDK* 0802	.315	.094	RDK* 1604	.630	.187

EDP 1200..									
●: Stock item ○: Order made item									
H20	P15	P25	P30	P30	P30	P40			
P20			K30	M30 S30	M30	M40 S40	K10	K15	

RDKT RDKW	Designation	Fz (in/tooth)	YG012	YG712	YG713	YG622	YG612	YG602	YG613	YG5020	YG501
RDKT General	RDKT 0802M0	.002 ~ .010					● 0035				
	RDKT 10T3M0	.002 ~ .012		○ 0651			● 0041				
	RDKT 1204M0	.002 ~ .020		○ 0635			● 0034	● 0678			
	RDKT 1604M0	.002 ~ .020					● 0539				
- ST Stainless Steel Super Alloy	RDKT 0802M0 - ST	.002 ~ .006					● 0292				
	RDKT 10T3M0 - ST	.002 ~ .008					● 0293	● 0620			
	RDKT 1204M0 - ST	.002 ~ .012					● 0294	● 0621			
- TR Hardened Steel	RDKT 0802M0 - TR	.002 ~ .014	● 0745		○ 0339		● 0284				
	RDKT 10T3M0 - TR	.002 ~ .016	● 0744		○ 0338		● 0285				
	RDKT 1204M0 - TR	.002 ~ .024	● 0743	○ 0650	○ 0340		● 0272				
RDKW Hard Materials	RDKW 0501M0	.002 ~ .008			○ 0412		● 0207				
	RDKW 0702M0	.002 ~ .010		○ 0652	○ 0439		● 0208				
	RDKW 0802M0	.002 ~ .012			○ 0440		● 0043				
	RDKW 10T3M0	.002 ~ .016			○ 0441		● 0040				
	RDKW 1204M0	.002 ~ .024		○ 0647	○ 0442		● 0042				
	RDKW 1604M0	.002 ~ .024	● 0817				● 0720				

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



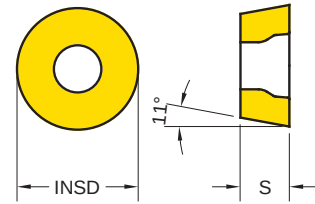
Series	INSD	S	Series	INSD	S
RDM* 0602	.236	.094	RDM* 10T3	.394	.156
RDM* 0802	.315	.094	RD9M* 1204	.472	.187
RDM* 0803	.315	.125			

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

H20	P15	P25	P30	P30	P30	P40	K10	K15
P20			K30	M30 S30	M30	M40 S40		

RDMT RDMW		Designation	Fz (in/tooth)	YG012	YG712	YG713	YG622	YG612	YG602	YG613	YG5020	YG501
RDMT General		RDMT0602M0	.002 ~ .008						● 0693			
		RDMT0802M0	.002 ~ .010						● 0245			
		RDMT0803M0	.002 ~ .010						● 0225			
		RDMT10T3M0	.002 ~ .012						● 0246			
		RDMT1204M0	.002 ~ .020						● 0226			
RDMW Hard Materials		RDMW0802M0	.002 ~ .012						● 0227			
		RDMW10T3M0	.002 ~ .016						● 0228			
		RDMW1204M0	.002 ~ .024						● 0229			

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



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

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

H20	P15	P25	P30	P30	P30	P40	K10	K15
P20			K30	M30 S30	M30	M40 S40		

RPMT RPMW		Designation	Fz (in/tooth)	YG012	YG712	YG713	YG622	YG612	YG602	YG613	YG5020	YG501
RPMT General		RPMT08T2M0	.002 ~ .010			○ 0660			● 0038	● 0676		
		RPMT10T3M0	.002 ~ .012			○ 0644			● 0036	● 0665		
		RPMT1204M0	.002 ~ .020	● 0415	○ 0643	○ 0401			● 0037	● 0664		● 0462
- ST Stainless Steel Super Alloy		RPMT1204M0 - ST	.002 ~ .012						● 0230	● 0667		
RPMW Hard Materials		RPMW1003M0	.002 ~ .016			○ 0646	○ 0402		● 0204			
		RPMW1204M0	.002 ~ .024			○ 0648			● 0039			

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

Series	IC	S
SDM* 1204	.500	.185

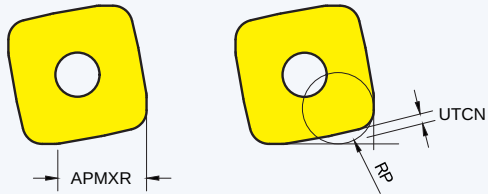
EDP 1200..

●: Stock item ○: Order made item

H20	P15	P25	P30	P30	P30	P40	K10	K15
P20			K30	M30 S30	M30	M40 S40		

YG012	YG712	YG713	YG622	YG612	YG602	YG613	YG5020	YG501
					● 0274	● 0666		

Technical Information

	APMXR Radial AP Max	RP Programmed Corner R	UTCN Uncut Thickness
	.339	.138	.94

Milling - Face Milling - Inserts
SDCN, SDKN - Face Milling Positive (4 Corners ISO)

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

EDP 1200..

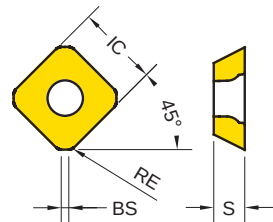
● : Stock item ○ : Order made item

H20	P15	P25	P30	P30	P30	P40	K10	K15
P20			K30	M30 S30	M30	M40 S40		

SDCN SDKN	Designation	RE (in)	Fz (in/tooth)	BS (in)	YG012	YG712	YG713	YG622	YG612	YG602	YG613	YG5020	YG501
SDCN Ground insert	SDCN 42 AESN - M	.039	.002 ~ .008	.08		● 0135							
	SDCN 53 AESN - M	.039	.002 ~ .008	.086		● 0150							
	SDCN 53 AESN - MR	.039	.002 ~ .008	.086		● 0201							
SDKN Hard Materials	SDKN42 AETN	.02	.002 ~ .012	.073						● 0058			
	SDKN42 AETN - PW	.016	.002 ~ .012	.078						● 0253			
	SDKN42 AETN - GW	.051	.002 ~ .012	.073						● 0251			
	SDKN 42 AESN - GW	.051	.002 ~ .012	.073	● 0762								
	SDKN53 AETN	.018	.002 ~ .012	.079						● 0059			
	SDKN53 AETN - PW	.016	.002 ~ .012	.077						● 0288			
	SDKN53 AETN - GW	.051	.002 ~ .012	.081						● 0286			

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

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



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

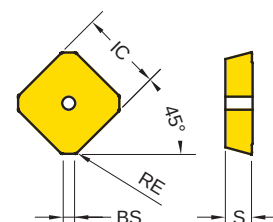
EDP 1200..
●: Stock item ○: Order made item

H20	P15	P25	P30	P30	P30	P40	K10	N15
P20			K30	M30 S30	M30	M40 S40		

SEGT 1204	Designation	RE (in)	Fz (in/tooth)	BS (in)	YG012	YG712	YG713	YG622	YG612	YG602	YG613	YG5020	YG50
- AL Aluminium	SEGT 1204 - AL	.047	.002 ~ .012	.079									● 0467

SEGT 12T3	Designation	RE (in)	Fz (in/tooth)	BS (in)	YG012	YG712	YG713	YG622	YG612	YG602	YG613	YG5020	YG50
- AL Aluminium	SEGT 12T3 - AL	.047	.002 ~ .012	.076									● 0468

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



Series	AS	IC	S
SEK* 42	20°	.500	.126

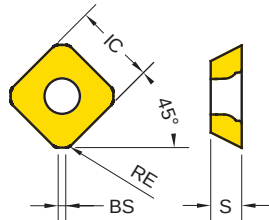
EDP 1200..
●: Stock item ○: Order made item

H20	P15	P25	P30	P30	P30	P40	K10	K15
P20			K30	M30 S30	M30	M40 S40		

SEKR SEKN	Designation	RE (in)	Fz (in/tooth)	BS (in)	YG012	YG712	YG713	YG622	YG612	YG602	YG613	YG5020	YG501
SEKR General	SEKR42 AFTN	.016	.002 ~ .009	.055						● 0051			
	SEKR42 AFTN - PW	.016	.002 ~ .009	.079					● 0296				
SEKN Hard Materials	SEKN42 AFTN	.016	.002 ~ .012	.055						● 0054			
	SEKN42 AFTN - GW	.016	.002 ~ .013	.079	● 0774					● 0304			
	SEKN42 AFTN - PW	.016	.002 ~ .013	.079					● 0297				

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

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



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

EDP 1200..

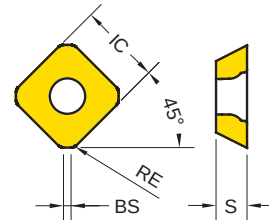
●: Stock item ○: Order made item

H20	P15	P25	P30	P30	P30	P40	K10	K15
P20			K30	M30	M30	M40		
			S30	S30	S30	S40		

SEKT 1204	Designation	RE (in)	Fz (in/tooth)	BS (in)	YG012	YG712	YG713	YG622	YG612	YG602	YG613	YG5020	YG501
SEKT 1204 General	SEKT 1204 AETN	.043	.008 ~ .014	.046				○ 0416		● 0055			
- ST Stainless Steel Super Alloy	SEKT 1204 - ST	.043	.003 ~ .012	.079						● 0257	● 0722		

SEKT 12T3	Designation	RE (in)	Fz (in/tooth)	BS (in)	YG012	YG712	YG713	YG622	YG612	YG602	YG613	YG5020	YG501
SEKT 12T3 General	SEKT 12T3 AGTN	.059	.002 ~ .009	.051						● 0056			
- ST Stainless Steel Super Alloy	SEKT 12T3 - ST	.059	.002 ~ .005	.079						● 0271	● 0689		

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



Series	IC	S
SEMT 1204	.509	.201
SEMT 13T3	.528	.157

EDP 1200..

●: Stock item ○: Order made item

H20	P15	P25	P30	P30	P30	P40	K10	K15
P20			K30	M30	M30	M40		
			S30	S30	S30	S40		

SEMT	Designation	RE (in)	Fz (in/tooth)	BS (in)	YG012	YG712	YG713	YG622	YG612	YG602	YG613	YG5020	YG501
SEMT 1204 General	SEMT 1204 AETN	.047	.002 ~ .009	.049						● 0052			
SEMT 13T3 General	SEMT 13T3 AGSN	.059	.002 ~ .009	.052						● 0203			

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

Series	AS	IC	S
<u>SPMT 1204</u>	11°	.500	.189

Technical drawing of an SPMT insert. The top view shows a square insert with a central circular hole, labeled with 'IC' for insert width. The side view shows the insert's profile, labeled with 'RE' for rake angle and 'S' for insert thickness.

EDP 1200..

●: Stock item ○: Order made item

H20	P15	P25	P30	P30	P30	P40		
P20			K30	M30 S30	M30	M40 S40	K10	K15

YG012	YG712	YG713	YG622	YG612	YG602	YG613	YG5020	YG501
-------	-------	-------	-------	-------	-------	-------	--------	-------

					● 0223			

SPMT
General



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

Series	IC	S
<u>SNMX 1206</u>	.500	.246

EDP 1200..

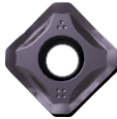
●: Stock item ○: Order made item

H20	P15	P25	P30	P30	P30	P40	K10	K15
P20			K30	M30	M30	M40		
			S30	S30	S30	S40		

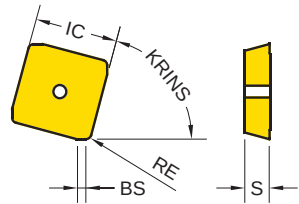
SNMX	Designation	RE (in)	Fz (in/tooth)	BS (in)	YG012	YG712	YG713	YG622	YG612	YG602	YG613	YG5020	YG501
	<u>SNMX 1206 ANN</u>	.031	.002 ~ .009	.067	● 0754		○ 0658			● 0231	● 0674	● 0460	
	SNMX 1206 QNN	.031	.002 ~ .009	.078		● 0732						● 0731	● 0686

SNMX
General

SNMX
General



Milling - Face Milling - nserts
SPCN, SPKN / R - Face Milling Positive (4 Corners ISO)



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

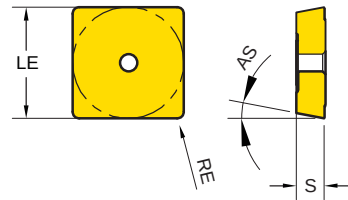
EDP 1200..
●: Stock item ○: Order made item

	H20	P15	P25	P30	P30	P30	P40	K10	K15
	P20			K30	M30 S30	M30	M40 S40		
YG012	●								
YG712	●								
YG713	●								
YG622	●								
YG612	●								
YG602	●								
YG613	●								
YG5020	●								
YG501	●								

SPCN SPKN SPKR	Designation	RE (in)	Fz (in/tooth)	BS (in)	YG012	YG712	YG713	YG622	YG612	YG602	YG613	YG5020	YG501
SPCN Ground Insert	SPCN 42 EDSR - M	.031	.004 ~ .008	.072	●	0081							
	SPCN 42 EDSR - MR	.031	.004 ~ .008	.07	●	0198							
	SPCN 53 EDSR - M	.031	.004 ~ .008	.076	●	0098							
	SPCN 53 EDSR - MR	.031	.004 ~ .008	.073	●	0199							
SPKN Hard Materials	SPKN 42 EDTR	.031	.002 ~ .012	.055					●	0048			
	SPKN 42 EDTR - GW	.024	.002 ~ .015	.059					●	0280			
	SPKN 42 EDTR - PW	.031	.002 ~ .015	.059					●	0279			
	SPKN 53 EDTR	.031	.002 ~ .009	.051					●	0049			
	SPKN 53 EDTR - GW	.031	.002 ~ .015	.087					●	0305			
	SPKN 53 EDTR - PW	.031	.002 ~ .015	.084					●	0299			
SPKR General	SPKR 42 EDTR	.031	.002 ~ .009	.055					●	0050			
	SPKR 42 EDTR - PW	.031	.002 ~ .004	.061					●	0298			

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

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



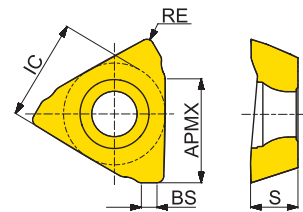
Series	AS	IC	S
SPUN 42	11°	.500	.126

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

	H20	P15	P25	P30	P30	P30	P40	K10	K15
	P20			K30	M30 S30	M30	M40 S40		
YG012									
YG712									
YG713									
YG622									
YG612									
YG602									
YG613									
YG5020									
YG501									

SPUN	Designation	RE (in)	Fz (in/tooth)	BS (in)	YG012	YG712	YG713	YG622	YG612	YG602	YG613	YG5020	YG501
SPUN General	SPUN 422	.031	.002 ~ .011						●	0224			

Milling - Shoulder Milling - Inserts
TPKT - Shoulder Milling Positive (3 Corner ISO)



Series	KRINS	IC	S
TP** 1104	90	.297	.168
TP** 1605	90	.459	.212

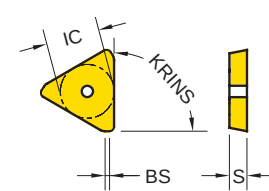
EDP 1200..

●: Stock item ○: Order made item

H20	P15	P25	P30	P30	P40	K10	K15
P20			K30	M30 S30	M30 S40		

TPKT	Designation	RE (in)	Fz (in/tooth)	BS (in)	YG012	YG712	YG713	YG622	YG612	YG602	YG613	YG5020	YG501
NEW TPKT General	TPKT 110404R - GN	.016	.002 ~ .009	.063	● 0802	● 0807			● 0801			● 0808	
	TPKT 110408R - GN	.031	.002 ~ .009	.045	● 0804	● 0811			● 0803			● 0812	
	TPKT 110416R - GN	.063	.002 ~ .009	.024	● 0806	● 0815			● 0805			● 0816	
	TPKT 160508R - GN	.031	.002 ~ .011	.07	● 0781	● 0779			● 0718			● 0780	
	TPKT 160516R - GN	.063	.002 ~ .011	.047	● 0785	● 0786			● 0784			● 0787	
	TPKT 160524R - GN	.094	.002 ~ .011	.028	● 0789	● 0790			● 0788			● 0791	
NEW -ST Stainless Steel Super Alloy	TPKT 110404R - ST	.016	.002 ~ .006	.063					● 0809		● 0810		
	TPKT 110408R - ST	.031	.002 ~ .006	.045					● 0813		● 0814		
	TPKT 160508R - ST	.031	.002 ~ .006	.07					● 0758		● 0759		

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



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

EDP 1200..

●: Stock item ○: Order made item

H20	P15	P25	P30	P30	P40	K10	K15
P20			K30	M30 S30	M30 S40		

TPCN TPKN TPKR	Designation	RE (in)	Fz (in/tooth)	BS (in)	YG012	YG712	YG713	YG622	YG612	YG602	YG613	YG5020	YG501
TPCN Ground insert	TPCN 43 PDSR - M		.002 ~ .008	.069	● 0180								
	TPCN 43 PDSR - MR		.002 ~ .008	.069	● 0202								
TPKN Hard Materials	TPKN 32 PDTR		.002 ~ .008	.047						● 0062			
	TPKN 32 PDTR - GW		.002 ~ .006	.063						● 0306			
	TPKN 32 PDTR - PW		.002 ~ .012	.047						● 0302			
	TPKN 43 PDTR		.002 ~ .009	.067						● 0063			
	TPKN 43 PDTR - GW		.002 ~ .018	.098						● 0307			
	TPKN 43 PDTR - PW		.002 ~ .011	.067						● 0303			
TPKR General	TPKR 32 PDTR		.006 ~ .011	.047						● 0060	● 0690		
	TPKR 32 PDTR - PW		.004 ~ .008	.047						● 0300			
	TPKR 43 PDTR		.007 ~ .014	.067						● 0061	● 0715		
	TPKR 43 PDTR - PW		.007 ~ .014	.067						● 0301			

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

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

Technical drawing of a TPUN insert. The left view shows a triangular insert with a central circular hole. Dimension 'IC' indicates the width of the insert at the top. Dimension 'RE' indicates the radius of the central hole. The right view shows a side profile of the insert with dimension 'S' indicating its thickness.

Series	IC	S
<u>TPUN 32</u>	.375	.125

EDP 1200..

●: Stock item ○: Order made item

H20	P15	P25	P30	P30	P30	P40		
P20			K30	M30 S30	M30	M40 S40	K10	K15
YG012	YG712	YG713	YG622	YG612	YG602	YG613	YG5020	YG501
					● 0064			

TPUN

Designation

RE
(in)

Fz
(in/tooth)

BS
(in)

TPUN 322

.031

.003 ~ .006

A photograph of a dark-colored, triangular TPUN General insert with a central circular hole and a textured surface.

TPUN
General

TPUN
General



Milling - Shoulder Milling - Inserts
WNEX - Shoulder Milling Negative (6 Corners)

Series	IC	S
WNE* 0806	.508	.246

EDP 1200..

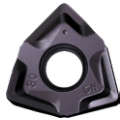
●: Stock item ○: Order made item

H20	P15	P25	P30	P30	P30	P40	K10	K15
P20			K30	M30 S30	M30	M40 S40		

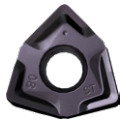
WNEX	Designation	RE (in)	Fz (in/tooth)	BS (in)	YG012	YG712	YG713	YG622	YG612	YG602	YG613	YG5020	YG501
	WNEX 080604R	.016	.002 ~ .010	.126	● 0856	● 0857			● 0855			● 0858	
	WNEX 080608R	.031	.002 ~ .010	.11	● 0859	● 0792			● 0854		● 0793	● 0794	● 0795
	WNEX 080612R	.047	.002 ~ .010	.094	● 0877	● 0878			● 0885			● 0879	
	WNEX 080616R	.063	.002 ~ .010	.079	● 0861	● 0862			● 0860			● 0863	
	WNEX 080620R	.079	.002 ~ .010	.063	● 0882	● 0883			● 0886			● 0884	
NEW WNEX General	WNEX 080604R - ST	.016	.002 ~ .007	.142					● 0864		● 0865		
	WNEX 080608R - ST	.031	.002 ~ .007	.13					● 0866		● 0867		
	WNEX 080612R - ST	.047	.002 ~ .007	.11					● 0875		● 0876		
	WNEX 080616R - ST	.063	.002 ~ .007	.094					● 0868		● 0869		
	WNEX 080620R - ST	.079	.002 ~ .007	.075					● 0880		● 0881		

NEW
- ST
Stainless Steel
Super Alloy

NEW
WNEX
General

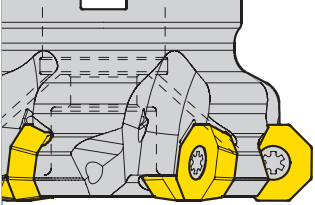
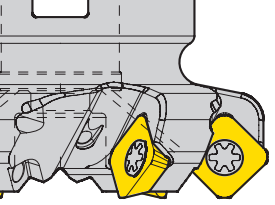


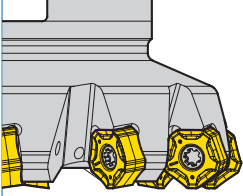
NEW
- ST
Stainless Steel
Super Alloy



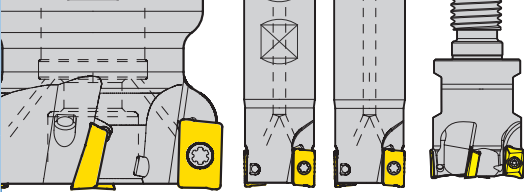
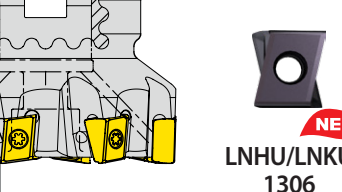
Milling Cutter Overview

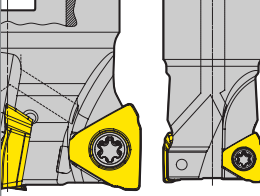
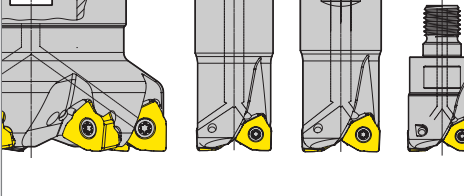
Face Milling

Positive Octagonal			Positive Square		
Cutter					
					
	ODMT/ODMW 0605		SEKT 1204 SEGT 1204		
	APMX .157		.236 .236		
DC	Ø2.5~5.0		Ø1.5~6.0 Ø1.5~6.0		
page	p. 138		p. 142		

Negative 10 Corner		
Cutter		
		
	PNMU 1206	
	APMX .157	
DC	Ø2.0 ~ 6.0	
page	p. 139	

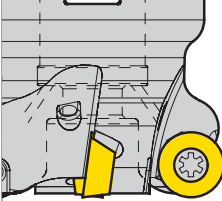
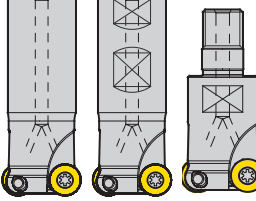
Shoulder Milling

2 Corner Positive			4 Corner Positive		
Cutter					
					
	APKT 1003 APKT 1604		LNHU/LNKH 1306		
	APMX .35 .63		.433		
DC	Ø.625~2.0 Ø1.0~4.0		Ø 2.0~10.0		
page	p. 134		p. 137		

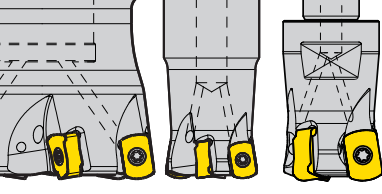
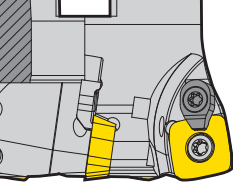
3 Corner Positive			6 Corner Negative		
Cutter					
					
	TPKT 1104 TPKT 1605		WNEX0806		
	APMX .276 .433		.276		
DC	Ø 1.25~5.0 Ø 1.25~6.0		Ø 1.25~5.0		
page	p. 143 p. 144		p. 145		

Milling Overview

Profiling

Round Positive					
Cutter					
	0802		RDKT / RDKW 10T3	1204	
APMX	.157		.196	.236	
DCX	Ø.75~1.0		Ø1.0~2.0	Ø1.0~2.5	
page	p. 140				

High Feed Milling

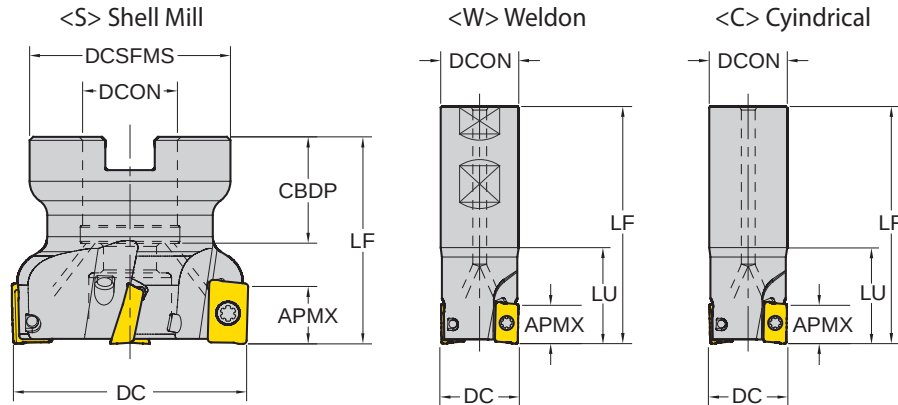
Negative 4 Corner			Positive 4 Corner		
Cutter					
					
	ENMX 0604 ENMX 0905		SDMT/SDMW 1204		
	APMX .035 .04 .059		.059		
DCX	Ø.625 Ø.625~1.5 Ø1.0~6.0		Ø1.25~6.0		
page	p. 135 - 136		p. 141		

Mounting Bolt

DCON	Description	EDP
Ø0.5" (Ø12.7)	YHBU250-L25.4	18000244
Ø0.75" (Ø19.05)	YHBU375-L25.4	18000245
Ø0.75" (Ø19.05) HF	YHBU375-L31.75	18000246
Ø1.0" (Ø25.4)	YHBU500-L38.1	18000247
Ø1.25" (Ø31.75)	YMBU625-L52	18000248
Ø1.5" (Ø38.1)	YMBU750-L60	18000249
Ø2.0" (Ø50.8)	YMBU1000-L70	18000250

Milling - Shoulder Milling - Cutter Cutters for APKT

Entry Angle : 90°
2 Corner Positive



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

□ : p. 106 Unit: inch

Series	APMX	Designation	EDP 1700..	DC	CICT	LU	LF	TYPE	DCON	CDBP	DCSFMS	PCD1	PCD2	
APKT 1003	.35	F90 - APKT10 - D100Z4C075 - L350I	0149	1.000	4	1.250	3.500	Cylindrical	.750	-	-	-	-	●
		E90 - APKT10 - D0625Z2W0625 - L325I	0144	.625	2	1.340	3.250	Weldon	.625	-	-	-	-	●
		F90 - APKT10 - D075Z3W075 - L320I	0146	.750	3	1.170	3.200		.750	-	-	-	-	●
		E90 - APKT10 - D100Z4W100 - L350I	0148	1.000	4	-	3.500		.100	-	-	-	-	●
		F90 - APKT10 - D150Z4S075I	0150	1.500	4	-	1.575	Shellmill	.750	.750	1.340	-	-	●
		F90 - APKT10 - D200Z7S075I	0151	2.000	7	-	1.750		.750	.750	1.750	-	-	●
APKT 1604	.63	F90 - APKT16 - D100Z2C0875 - L378I	0089	1.000	2	1.220	3.780	Cylindrical	.875	-	-	-	-	●
		F90 - APKT16 - D125Z3C100 - L428I	0090	1.250	3	1.500	4.280		.100	-	-	-	-	●
		F90 - APKT16 - D100Z2W100 - L400I	0158	1.000	2	1.720	4.000	Weldon	.100	-	-	-	-	●
		F90 - APKT16 - D100Z2W100 - L1000I	0208	1.000	2	1.500	10.000		.100	-	-	-	-	●
		F90 - APKT16 - D125Z3W100 - L400I	0159	1.250	3	1.720	4.000		.100	-	-	-	-	●
		F90 - APKT16 - D125Z3W125 - L1000I	0205	1.250	3	1.500	10.000		1.250	-	-	-	-	●
		F90 - APKT16 - D125Z4W125 - L1000I	0206	1.250	4	1.500	10.000		1.250	-	-	-	-	●
		F90 - APKT16 - D200Z5S075I	0160	2.000	5	-	1.750	Shellmill	.750	.750	1.750	-	-	●
		F90 - APKT16 - D250Z6S075I	0161	2.500	6	-	1.750		.750	.750	1.750	-	-	●
		F90 - APKT16 - D300Z7S100I	0162	3.000	7	-	2.000		1.000	.945	2.190	-	-	●
		F90 - APKT16 - D400Z8S150I	0207	4.000	8	-	2.500		1.500	1.570	3.500	-	-	●

* Clamping Torque (Nm) 1.2Nm

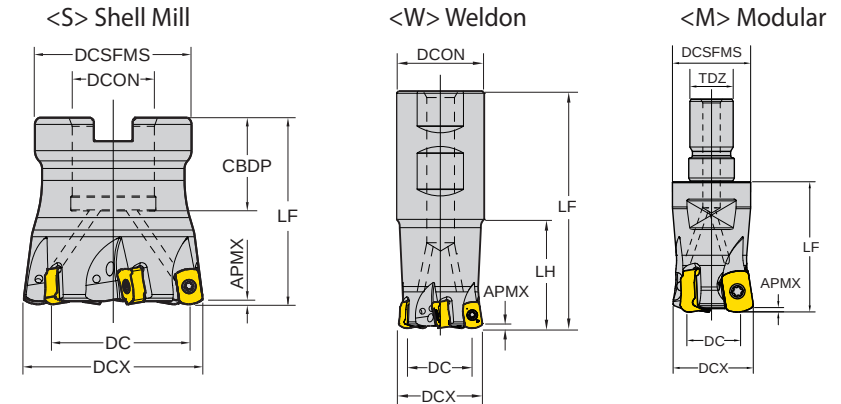
APKT10	Screw (Cutter D16~D20)	Screw (Cutter D20~)	Wrench
Description	TP072505	TP072506	TPWETP07
EDP	18000016	18000013	18000001

* Clamping Torque (Nm) 3.0Nm

APKT16	Screw	Wrench
Description	TP154008	TPWFTP15
EDP	18000006	18000003

Milling - High Feed Milling - Cutter Cutters for ENMX

Entry Angle : 10°
4 Corner Negative



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

□ : p. 108 Unit: inch

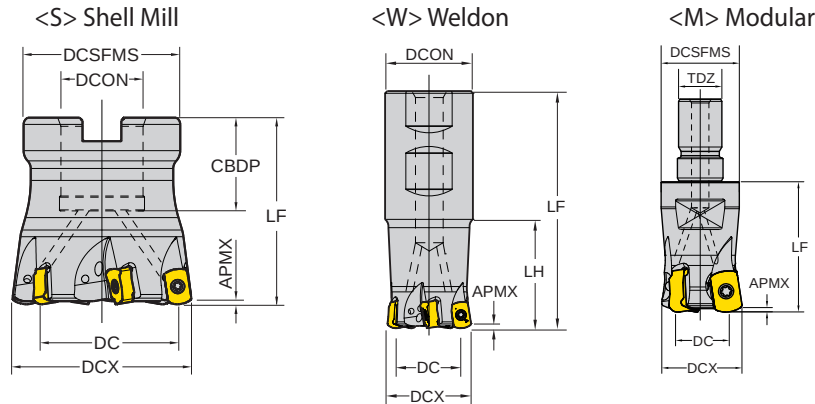
Series	APMX	Designation	EDP 1700..	DC	DCX	CICT	LF	TYPE	DCON	LH	CDBP	DCSFMS	
ENMX 0604	.035	EHF - ENMX06 - D0625Z2W0625 - L500I	0759	.349	.625	2	5.000	Weldon	.625	1.250	-	-	●
		EHF - ENMX06 - D075Z3W075 - L500I	0669	.459	.750	3	5.000		.750	2.000	-	-	●
		EHF - ENMX06 - D100Z4W100 - L550I	0670	.709	1.000	4	5.500		1.000	2.500	-	-	●
		EHF - ENMX06 - D125Z5W125 - L600I	0671	.959	1.250	5	6.000		1.250	3.000	-	-	●
		EHF - ENMX06 - D150Z6S050I	0672	1.209	1.500	6	1.575	Shellmill	.500	-	.750	1.340	●
		EHF - ENMX06 - D200Z6S075I	0673	1.709	2.000	6	1.969		.750	-	.750	1.570	●
	.04	EHF - ENMX06 - D300Z10S100I	0760	2.709	3.000	10	2.480	Modular	1.000	-	1.049	2.835	●
		MHF - ENMX06 - D0625Z2M08I	0761	.349	.625	2	1.000		M08	1.000	-	.512	●
		MHF - ENMX06 - D0705Z2M08I	0762	.429	.705	2	1.000		M08	1.000	-	.512	●
		MHF - ENMX06 - D075Z3M10I	0763	.459	.750	3	1.250		M10	1.250	-	.709	●
		MHF - ENMX06 - D083Z3M10I	0764	.539	.830	3	1.250		M10	1.250	-	.709	●
		MHF - ENMX06 - D100Z4M12I	0765	.709	1.000	4	1.500		M12	1.500	-	.827	●
		MHF - ENMX06 - D1125Z4M12I	0766	.834	1.125	4	1.500		M12	1.500	-	.827	●
		MHF - ENMX06 - D125Z5M16I	0767	.959	1.250	5	1.750		M16	1.750	-	1.142	●
		MHF - ENMX06 - D1375Z5M16I	0768	1.084	1.375	5	1.750		M16	1.750	-	1.142	●
		MHF - ENMX06 - D150Z6M16I	0769	1.209	1.500	6	1.750		M16	1.750	-	1.142	●

* Clamping Torque (Nm) 1.2Nm

ENMX06	Screw	Wrench	Handle	BIT
Description	TP082507 - GS	TPWBTP08	DH - H4	DB - TP08
EDP	18000206	18000218	18000189	18000190

Milling - High Feed Milling - Cutter
Cutters for ENMX

Entry Angle : 10°
4 Corner Negative



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

Unit : inch

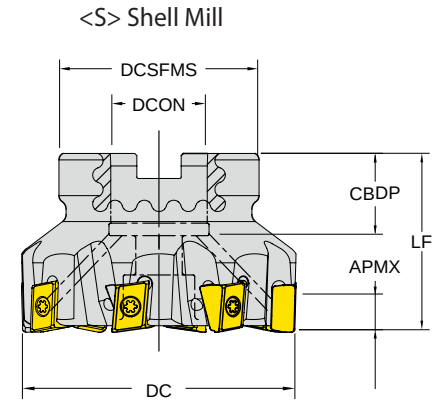
Series	APMX	Designation	EDP 1700..	DC	DCX	CICT	LF	TYPE	DCON	LH	CBDP	DCSFMS	
ENMX 0905	.059	FHF - ENMX09 - D100Z2W100 - L550I	0777	.606	1.000	2	5.500	Weldon	1.000	2.500	-	-	●
		FHF - ENMX09 - D125Z3W125 - L600I	0778	.856	1.250	3	6.000		1.250	3.000	-	-	●
		FHF - ENMX09 - D150Z4W125 - L600I	0779	1.106	1.500	4	6.000		1.250	1.500	-	-	●
		FHF - ENMX09 - D200Z5S075I	0780	1.606	2.000	5	1.969	Shellmill	.750	-	.750	1.750	●
		FHF - ENMX09 - D250Z6S075I	0781	2.106	2.500	6	1.969		.750	-	.750	2.204	●
		FHF - ENMX09 - D300Z8S100I	0782	2.606	3.000	8	2.480		1.000	-	1.049	2.204	●
		FHF - ENMX09 - D400Z10S125I	0783	3.606	4.000	10	2.480		1.250	-	1.260	3.000	●
		FHF - ENMX09 - D500Z12S150I	0882	4.606	5.000	12	2.460		1.500	-	1.381	3.811	●
		FHF - ENMX09 - D600Z14S200I	0784	5.606	6.000	14	2.480		2.000	-	1.496	4.700	●
		MHF - ENMX09 - D100Z2M12I	0852	.606	1.000	2	1.500	Modular	M12	-	-	.827	●
		MHF - ENMX09 - D1125Z2M12I	0853	.731	1.125	2	1.500		M12	-	-	.827	●
		MHF - ENMX09 - D125Z3M16I	0854	.856	1.250	3	1.750		M16	-	-	1.142	●
		MHF - ENMX09 - D1375Z3M16I	0855	.981	1.375	3	1.750		M16	-	-	1.142	●
		MHF - ENMX09 - D150Z4M16I	0856	1.106	1.500	4	1.750		M16	-	-	1.142	●

* Clamping Torque (Nm) 2.0Nm

ENMX09	Screw	Wrench	Handle	BIT
Description	TP093510 - GS	TPWBTP09	DH - H4	DB - TP09
EDP	18000214	18000216	18000189	18000209

Milling - Shoulder Milling - Cutter
Cutters for LNHU, LNKU

Entry Angle : 90°
4 Corner Negative



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

Unit : inch

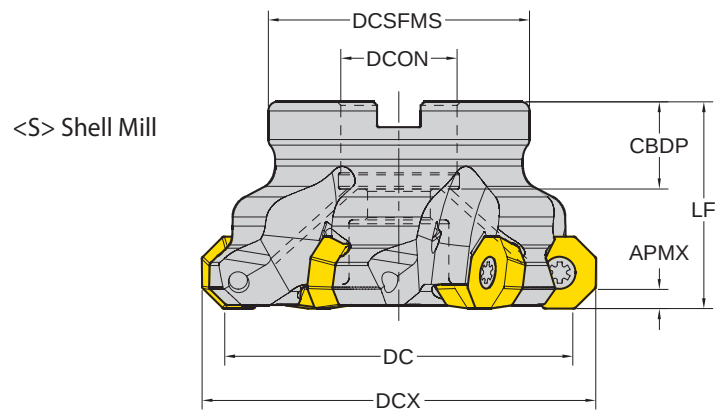
Series	APMX	Designation	EDP 1700..	DC	CICT	LF	TYPE	DCON	LH	CBDP	DCSFMS	
LNHU LNKU 1306	.433	F90 - LNHU13R - D200Z4S075I	0891	2.000	4	1.575	Shellmill	.750	-	.748	1.750	●
		F90 - LNHU13R - D200Z5S075I	0892	2.000	5	1.575		.750	-	.748	1.750	●
		F90 - LNHU13R - D250Z7S075I	0893	2.500	7	1.969		.750	-	.748	1.750	●
		F90 - LNHU13R - D300Z6S100I	0894	3.000	6	1.969		1.000	-	.945	2.190	●
		F90 - LNHU13R - D300Z8S100I	0895	3.000	8	1.969		1.000	-	.945	2.190	●
		F90 - LNHU13R - D400Z8S125I	0896	4.000	8	1.969		1.250	-	1.260	2.880	●
		F90 - LNHU13R - D400Z12S125I	0897	4.000	12	1.969		1.250	-	1.260	2.880	●
		F90 - LNHU13R - D500Z10S150I	0898	5.000	10	2.480		1.500	-	1.417	3.810	●
		F90 - LNHU13R - D600Z12S200I	0899	6.000	12	2.480		2.000	-	1.496	4.882	●
		F90 - LNHU13R - D600Z18S200I	0900	6.000	18	2.480		2.000	-	1.496	4.882	●
		F90 - LNHU13R - D800Z16S250I - WOC	0901	8.000	16	2.480		2.500	-	1.378	6.890	X
		F90 - LNHU13R - D1000Z20S250I - WOC	0902	10.000	20	2.480		2.500	-	1.378	8.660	X

** Clamping Torque (Nm) 3.0Nm

LNKU13	Screw	Wrench	Handle	BIT
Description	TP150412 - GS	TPWBTP15	DH - H6	DB - TP15
EDP	18000225	18000217	18000210	18000208

Cutters for ODMT, ODMW

Entry Angle : 43°
8 Corner Positive



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

Unit: inch

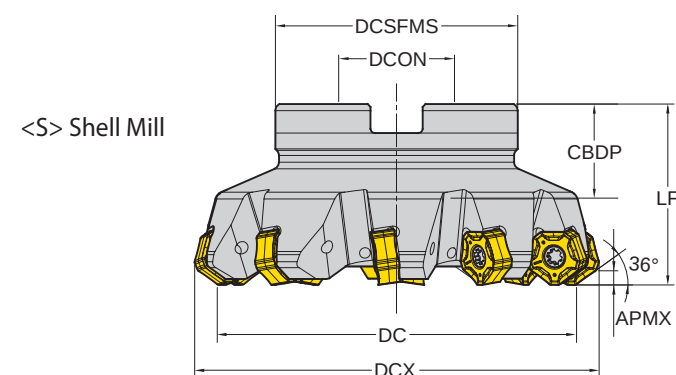
Series	APMX	Designation	EDP 1700..	DC	DCX	CICT	LF	TYPE	DCON	CBDP	DCSFMS	PCD1	PCD2	
ODMT ODMW 0605	.157	F43 - ODMT06 - D250Z5S075I	0040	2.500	2.880	5	1.575	Shellmill	.750	.790	2.000	-	-	●
		F43 - ODMT06 - D300Z6S100I	0041	3.000	3.550	6	1.750		1.000	.944	2.500	-	-	●
		F43 - ODMT06 - D400Z7S125I	0042	4.000	4.340	7	2.000		1.250	.980	3.000	-	-	●
		F43 - ODMT06 - D500Z8S150I	0043	5.000	5.320	8	2.380		1.500	1.378	3.650	-	-	●

* Clamping Torque (Nm) 5.3Nm

ODMT06	Screw	Wrench
Description	TP205013	TPWFTP20
EDP	18000007	18000004

Cutters for PNMU

Entry Angle: 36°
10 Corner Negative



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

Unit: inch

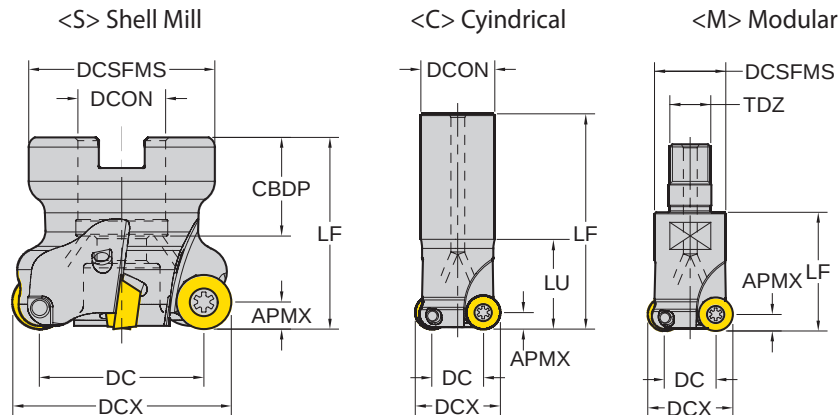
Series	APMX	Designation	EDP 1700..	DC	DCX	CICT	LF	TYPE	DCON	CBDP	DCSFMS	PCD1	PCD2	
PNMU 1206	.157	F36 - PNMU12 - D200Z4S075I	0468	2.000	2.530	4	1.575	Shell Mill	.750	.750	1.750	-	-	●
		F36 - PNMU12 - D250Z5S075I	0788	2.500	3.030	5	1.575		.750	.750	2.000	-	-	●
		F36 - PNMU12 - D300Z8S100I	0469	3.000	3.530	8	2.000		1.000	1.049	2.500	-	-	●
		F36 - PNMU12 - D400Z10S125I	0470	4.000	4.530	10	2.000		1.250	1.269	3.000	-	-	●
		F36 - PNMU12 - D500Z12S150I	0881	5.000	5.530	12	2.250		1.500	1.378	3.540	-	-	●
		F36 - PNMU12 - D600Z14S200I	0863	6.000	6.530	14	2.480		2.000	1.500	4.700	-	-	●

* Clamping Torque (Nm) 3.0Nm

PNMU12	Screw	Wrench	Handle	BIT
Description	TP154008	TPWBTP15	DH - H4	DB - TP15
EDP	18000006	18000217	18000189	18000208

Cutters for RDKT, RDKW

Round Positive



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

Unit : inch

Series	APMX	Designation	EDP 1700..	DC	DCX	CICT	LU	LF	TYPE	DCON	CDBP	DCSFMS	
RDKT, RDKW 0802	.157	E - RDKT08 - D075Z2C075 - L700I	0044	.435	.750	2	1.500	7.000	Cylindrical	.750	-	-	●
		E - RDKT08 - D100Z3C075 - L700I	0045	.685	1.000	3	1.500	7.000		.750	-	-	●
		M - RDKT08 - D075Z2M10I	0046	.435	.750	2	-	1.250	Modular	M10	-	-	●
		M - RDKT08 - D100Z3M12I	0047	.685	1.000	3	-	1.500		M12	-	-	●
RDKT, RDKW 10T3	.197	E - RDKT10 - D100Z2C100 - L700I	0048	.606	1.000	2	1.500	7.000	Cyindrical	1.000	-	-	●
		E - RDKT10 - D150Z5S050I	0050	1.106	1.500	5	-	1.575	Shellmill	.500	.630	1.250	●
		E - RDKT10 - D200Z6S075I	0051	1.606	2.000	6	-	1.750	Modular	.750	.750	1.575	●
		M - RDKT10 - D100Z3M12I	0049	.606	1.000	3	-	1.500		M12	-	.827	●
RDKT, RDKW 1204	.236	E - RDKT12 - D100Z2C100 - L700I	0052	.528	1.000	2	1.500	7.000	Cyindrical	1.000	-	-	●
		E - RDKT12 - D125Z2C125 - L800I	0053	.778	1.250	2	1.500	8.000		1.250	-	-	●
		E - RDKT12 - D125Z3C125 - L600I	0054	.778	1.250	3	1.500	6.000		1.250	-	-	●
		E - RDKT12 - D150Z4S050I	0057	1.027	1.500	4	-	1.575	Shellmill	.500	.630	1.250	X
		E - RDKT12 - D200Z5S075I	0058	1.527	2.000	5	-	1.750		.750	.750	1.575	X
		E - RDKT12 - D250Z6S075I	0059	2.027	2.500	6	-	1.750	Modular	.750	.790	1.750	X
		M - RDKT12 - D100Z2M12I	0055	.527	1.000	2	-	1.500		M12	-	.827	●
		M - RDKT12 - D125Z3M16I	0056	.777	1.250	3	-	1.750		M16	-	1.142	●

* Clamping Torque (Nm) 1.2Nm

RDKT08	Screw	Wrench
Description	TP082505	TPWFTP08
EDP	18000008	18000002

* Clamping Torque (Nm) 3.0Nm

RDKT10	Screw	Wrench
Description	TP154008RD	TPWFTP15
EDP	18000017	18000003

* Clamping Torque (Nm) 3.0Nm

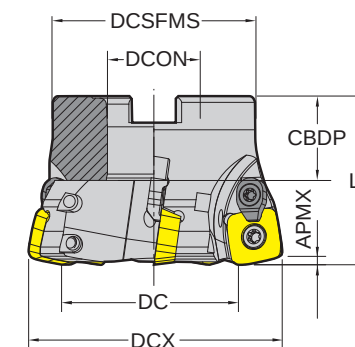
RDKT12	Screw	Wrench	Wedge Clamp
Description	TP154009	TPWFTP15	MTCA - 130813P
EDP	18000010	18000003	18000037

Cutters for SDMT, SDMW

Entry Angle : 10°

4 Corner Positive

<S> Shell Mill



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

Unit : inch

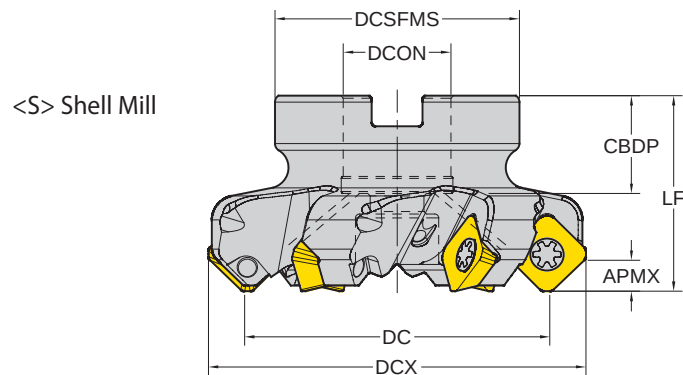
Series	APMX	Designation	EDP 1700..	DC	DCX	CICT	LU	LF	TYPE	DCON	CDBP	DCSFMS	
SDMT SDMW 1204	.059	EHF - SDMW12 - D125Z2C125 - L800I	0386	0.559	1.250	2	3.500	8.000	Cylindrical	1.250	-	-	●
		EHF - SDMW12 - D150Z3C150 - L800I	0387	0.807	1.500	3	3.500	8.000		1.500	-	-	●
		FHF - SDMW12 - D200Z5S075I	0388	1.307	2.000	5	-	2.000	Shellmill	.750	.789	1.750	●
		FHF - SDMW12 - D250Z5S100I	0389	1.807	2.500	5	-	2.000		1.000	.945	2.130	●
		FHF - SDMW12 - D300Z5S100I	0436	2.307	3.000	5	-	2.000		1.000	.945	2.130	●
		FHF - SDMW12 - D300Z6S100I	0390	2.307	3.000	6	-	2.000		1.000	.945	1.750	●
		FHF - SDMW12 - D300Z6S125I	0391	2.307	3.000	6	-	2.000		1.250	.945	2.130	●
		FHF - SDMW12 - D300Z7S100I	0437	2.307	3.000	7	-	2.000		1.000	.945	2.130	●
		FHF - SDMW12 - D400Z7S150I	0438	3.307	4.000	7	-	2.550		1.500	1.181	3.810	●
		FHF - SDMW12 - D400Z8S150I	0392	3.307	4.000	8	-	2.550		1.500	1.181	3.810	●
		FHF - SDMW12 - D400Z9S150I	0439	3.307	4.000	9	-	2.550		1.500	1.181	3.810	●
		FHF - SDMW12 - D500Z9S150I	0880	4.307	5.000	9	-	2.550		1.500	1.181	3.810	●
		FHF - SDMW12 - D600Z12S200I	1025	5.307	6.000	12	-	2.480		2.000	1.023	4.700	●

* Clamping Torque (Nm) 3.0Nm

SDMT12	Screw	Wrench	Handle	Wedge Clamp
Description	Y4015 - M4x11	Y80 - T15	1800016Z	YACK - 15
EDP	18000119	1800016Z	-	18000069

Milling - Face Milling - Cutter
Cutters for SEGT, SEKT

Entry Angle : 45°
4 Corner Positive



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

□: p. 120 Unit: inch

Series	APMX	Designation	EDP 1700..	DC	DCX	CICT	LU	LF	TYPE	DCON	CBDP	DCSFMS	PCD1	PCD2	🔩
SEGT, SEKT 1204	.236	F45-SEKT12-D150Z4S050I	0060	2.060	2.620	4	-	1.575	Shellmill	.500	.642	1.250	-	-	●
		F45-SEKT12-D200Z5S075I	0061	2.560	3.120	5	-	1.575		.750	.742	1.750	-	-	●
		F45-SEKT12-D250Z4S075I	0062	3.060	3.620	4	-	1.575		.750	.750	2.000	-	-	●
		F45-SEKT12-D250Z6S075I	0063	3.060	3.620	6	-	1.575		.750	.750	2.000	-	-	●
		F45-SEKT12-D300Z4S100I	0064	3.560	4.120	4	-	1.750		1.000	.945	2.250	-	-	●
		F45-SEKT12-D300Z7S100I	0065	3.560	4.120	7	-	1.750		1.000	.945	2.250	-	-	●
		F45-SEKT12-D400Z8S125I	0066	4.560	5.120	8	-	2.000		1.250	1.220	3.000	-	-	●
		F45-SEKT12-D500Z10S150I	0067	5.560	6.120	10	-	2.380		1.500	1.378	3.650	-	-	●
		F45-SEKT12-D600Z12S200I	0068	6.560	7.120	12	-	2.380		2.000	1.496	4.700	-	-	●

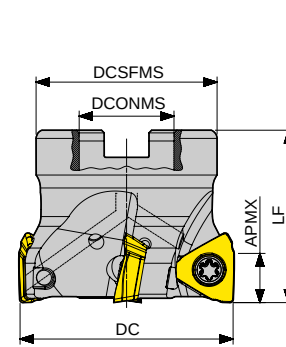
* Clamping Torque (Nm) 2.4Nm

SEKT1204	Screw	Wrench
Description	TP204510	TPWFTP20
EDP	18000011	18000004

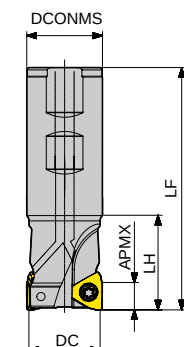
Milling - Shoulder Milling - Cutter
Cutters for TPKT

Entering Angle : 90°
3 Corner Positive

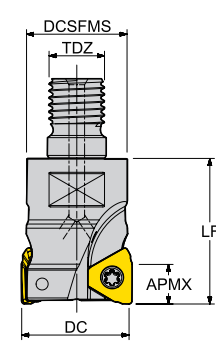
<S> Shellmill



<C> Weldon



<M> Modular



CICT : Number of Inserts
CBDP : Connection Bore Depth

□: p. 128 Unit: inch

Series	APMX	Designation	EDP 1700..	DC	CICT	LF	TYPE	DCON	LH	CBDP	DCSFMS	🔩
NEW TPKT 1104	.276	F90-TP11-D125Z3W125-L450I	1054	1.250	3	4.500	Weldon	1.250	1.500	-	-	●
		F90-TP11-D125Z3W125-L650I	1055	1.250	3	6.500		1.250	2.500	-	-	●
		F90-TP11-D150Z3W125-L450I	1056	1.500	3	4.500		1.250	2.250	-	-	●
		F90-TP11-D150Z4W125-L450I	1057	1.500	4	4.500		1.250	2.250	-	-	●
		F90-TP11-D200Z5W125-L450I	1058	2.000	5	4.500		1.250	2.250	-	-	●
		F90-TP11-D150Z4S050I	1059	1.500	4	1.375	Shellmill	.500	-	.640	1.378	●
		F90-TP11-D200Z5S075I	1060	2.000	5	1.750		.750	-	.750	1.750	●
		F90-TP11-D250Z6S075I	1061	2.500	6	1.750		.750	-	.750	1.750	●
		F90-TP11-D300Z5S100I	1062	3.000	5	1.750		1.000	-	.750	2.189	●
		F90-TP11-D300Z8S100I	1063	3.000	8	1.750		1.000	-	.750	2.189	●
		F90-TP11-D400Z10S150I	1064	4.000	10	2.375		1.500	-	1.060	2.874	●
		F90-TP11-D400Z8S150I	1065	4.000	8	2.375		1.500	-	1.060	2.874	●
		F90-TP11-D500Z11S150I	1066	5.000	11	2.375		1.500	-	1.060	3.807	●
		M90-TP11-D125Z3M16I	1067	1.250	3	2.410	Modular	M16	1.500	-	1.130	●
		M90-TP11-D150Z4M16I	1068	1.750	4	2.410		M16	1.750	-	1.130	●

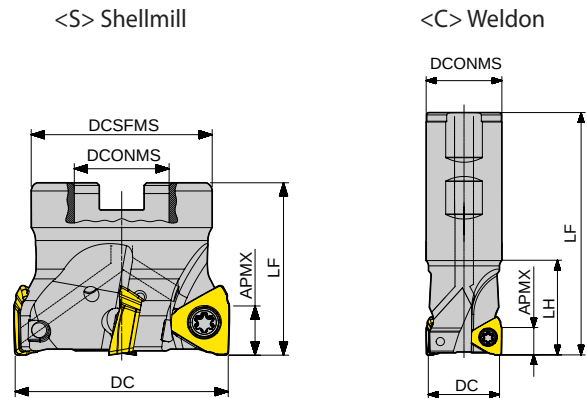
* Clamping Torque (Nm) 1.2Nm

TPKT1104 (D.750")	Screw	Wrench	Handle	BIT
Description	TP082562 - GS	TPWBTP08	DH - H4	DB - TP08
EDP	18000265	18000218	18000189	18000190

TPKT1104 (D1" and larger)	Screw	Wrench	Handle	BIT
Description	TP082506 - GS	TPWBTP08	DH - H4	DB - TP08
EDP	18000259	18000218	18000189	18000190

Milling - Shoulder Milling - Cutter
Cutters for TPKT

Entering Angle : 90°
3 Corner Positive



CICT : Number of Inserts
CBDP : Connection Bore Depth

□ : p. 128 Unit: inch

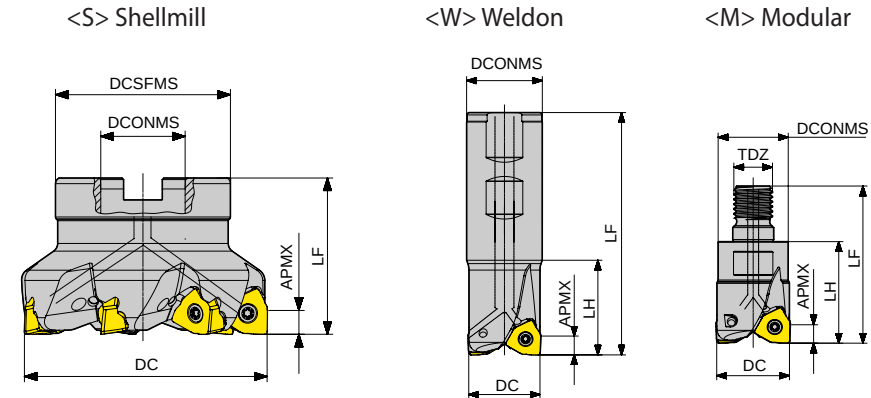
Series	APMX	Designation	EDP 1700..	DC	CICT	LF	TYPE	DCON	LH	CBDP	DCSFMS	
NEW TPKT 1605	.433	E90-TP16-D125Z2W125-L450I	1198	1.250	3	4.500	Weldon	1.250	1.500	-	-	●
		E90-TP16-D150Z3W125-L450I	1199	1.500	4	4.500		1.250	1.500	-	-	●
		E90-TP16-D200Z4W125-L450I	0957	2.000	4	4.500		1.250	1.500	-	-	●
		E90-TP16-D200Z4S075I	0959	2.000	4	1.750	Shellmill	.750	-	.750	1.750	●
		E90-TP16-D200Z5S075I	0960	2.000	5	1.750		.750	-	.750	1.750	●
		E90-TP16-D250Z6S075I	0961	2.500	6	1.750		.750	-	.750	1.750	●
		E90-TP16-D300Z6S100I	0962	3.000	6	1.750		1.000	-	.750	2.189	●
		E90-TP16-D300Z7S100I	0963	3.000	7	1.750		1.000	-	.750	2.189	●
		E90-TP16-D400Z6S150I	0964	4.000	6	2.375		1.500	-	1.417	2.874	●
		E90-TP16-D400Z8S150I	0965	4.000	8	2.375		1.500	-	1.417	2.874	●
		E90-TP16-D500Z9S150I	0966	5.000	9	2.375		1.500	-	1.417	3.807	●
		E90-TP16-D600Z12S150I	0967	6.000	12	2.375		1.500	-	1.417	4.882	●
		E90-TP16-D600Z8S150I	0968	6.000	8	2.375		1.500	-	1.417	4.882	●

* Clamping Torque (Nm) 5.3Nm

TPKT1605	Screw	Wrench	Handle	BIT
Description	TP2045105	TPWBTP20	DH - H6	DB - TP20
EDP	18000264	18000256	18000210	18000257

Milling - Shoulder Milling - Cutter
Cutters for WNEX

Entering Angle : 90°
6 Corner Negative



CICT : Number of Inserts
CBDP : Connection Bore Depth

□ : p. 131 Unit: inch

Series	APMX	Designation	EDP 1700..	DC	CICT	LF	TYPE	DCON	LH	CBDP	DCSFMS	
NEW WNEX 0806	.276	E90 - WN08 - D125Z2W125 - L450I	0913	1.250	2	4.500	Weldon	1.250	2.250	-	-	●
		E90 - WN08 - D125Z2W125 - L750I	1077	1.250	2	7.500		1.250	2.500	-	-	●
		E90 - WN08 - D150Z4W125 - L450I	0914	1.500	4	4.500		1.250	1.500	-	-	●
		E90 - WN08 - D150Z4W125 - L750I	1078	1.500	4	7.500		1.250	2.500	-	-	●
		E90 - WN08 - D200Z4S075I	0915	2.000	4	1.575	Shellmill	.750	-	.750	1.732	●
		E90 - WN08 - D200Z5S075I	1079	2.000	5	1.575		.750	-	.750	1.732	●
		E90 - WN08 - D250Z5S075I	0916	2.500	5	1.575		.750	-	.750	1.732	●
		E90 - WN08 - D300Z7S100I	0917	3.000	7	2.00		1.000	-	.750	2.189	●
		E90 - WN08 - D300Z9S100I	1080	3.000	9	2.00		1.000	-	.750	2.189	●
		E90 - WN08 - D400Z9S150I	0918	4.000	9	2.50		1.500	-	1.060	3.503	●
		E90 - WN08 - D400Z11S150I	1081	4.000	11	2.50		1.500	-	1.060	3.503	●
		E90 - WN08 - D500Z11S150I	1082	5.000	11	2.50		1.500	-	1.060	3.503	●
		E90 - WN08 - D500Z14S150I	1083	5.000	14	2.50		1.500	-	1.060	3.503	●
		M90 - WN08 - D125Z2M16I	1084	1.250	2	2.410	Modular	M16	1.500	-	1.130	●
		M90 - WN08 - D150Z3M16I	1085	1.500	3	2.410		M16	1.750	-	1.130	●

* Clamping Torque (Nm) 3.0Nm

WNEX0806	Screw	Wrench	Handle	BIT
Description	TP154011-GS	TPWBTP15	DH - H4	DB - TP15
EDP	18000251	18000217	18000189	18000208



DRILLING

Drilling Overview

X - Drill Inserts (SYMX)

Square Drill Inserts (SPMX)

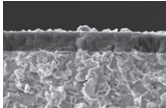
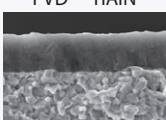
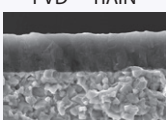
Triagonal Drilling Inserts (WCMX)

Drill Holder

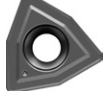
Drilling Overview

Drilling Grades

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

YG713 P15 - P30 M15 - M30 K15 - K30 H20 - H30	PVD - TiAlN 	Drilling Grade for General Steel Application - Multi - layer TiAlN structure realizes stronger crater and flank wear resistance - Fine - grained carbide and balanced substrate
YG602 P20 - P35 M20 - M40 K20 - K40 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
YG613 P30 - P50 M30 - M50	PVD - TiAlN 	Drilling Grade for Stainless Steel Application - New coating layer with lubrication preventing built - up edge on ultra fine grain substrate with high toughness. - The toughest substrate provides excellent cutting performance in stainless steel

Universal Drilling Inserts

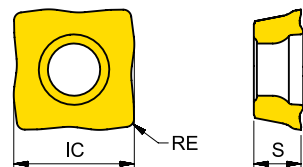
	4 Corner	SYM ^{NEW} X Series	SYM ^{NEW} X	05, 06, 07, 08
	4 Corner	SPMX Series	SPMX	05, 06, 07, 09, 11, 14
	ISO 3 Corner	WCMX Series	WCMX	03, 04, 05, 06, 08

Drilling Chipbreakers

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

X - Drill Inserts (SYMX)

Recommended Cutting Conditions : p.165



Series	IC	S
SYMX 0502	.196	.093
SYMX 0602	.236	.093
SYMX 07T2	.275	.110
SYMX 0803	.326	.126

EDP 3200..

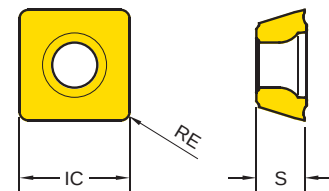
P25	P20	P40
M25	M20	M40
K30	K20	M40
YG602	YG713	YG613

SYMX	Designation	RE (inch)	Fn (inch/rev.)			
	SYMX 050204	.016	.002~.005	●	●	●
	SYMX 060204	.016	.002~.005	●	●	●
	SYMX 07T206	.024	.002~.005	●	●	●
	SYMX 080306	.024	.003~.008	●	●	●

● : Stock item ○ : Order made item

Square Drill Inserts (SPMX)

Recommended Cutting Conditions : p.165



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

EDP 3200..

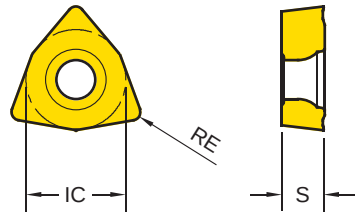
P25	P20	P40
M25	M20	M40
K30	K20	M40
YG602	YG713	YG613

SPMX	Designation	RE (inch)	Fn (inch/rev.)			
	SPMX 050204	.016	.003~.006	●	●	●
	SPMX 060204	.016	.003~.006	●	●	●
	SPMX 07T308	.031	.003~.006	●	●	●
	SPMX 090408	.031	.003~.006	●	●	●
	SPMX 110408	.031	.004~.007	●	●	●
	SPMX 140512	.047	.004~.008	●	●	●
	SPMX 050204 - ST	.016	.001~.004	●	●	●
	SPMX 060204 - ST	.016	.002~.004	●	●	●
	SPMX 07T308 - ST	.031	.002~.004	●	●	●
	SPMX 090408 - ST	.031	.002~.005	●	●	●
- ST Stainless Steel	SPMX 110408 - ST	.031	.002~.005	●	●	●
	SPMX 140512 - ST	.047	.002~.006	●	●	●

● : Stock item ○ : Order made item

Triagonal Drill Inserts (WCMX)

Recommended Cutting Conditions : p.165



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

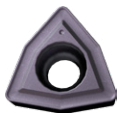
EDP 3200..

P25	P20	P40
M25	M20	M40
K30	K20	M40
YG602	YG713	YG613
●	●	●
0031	0086	
●	●	
0003	0087	
●	●	
0001	0088	
●	●	
0002	0089	
●	●	●
0004	0090	0091

● : Stock item ○ : Order made item

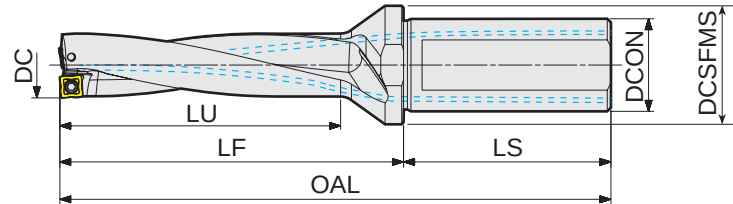
WCMX	Designation	RE (inch)	Fn (inch/rev.)
	WCMX 030208	.031	.002~.005
	WCMX 040208	.031	.002~.005
	WCMX 050308	.031	.002~.006
	WCMX 06T308	.031	.003~.006
	WCMX 080412	.047	.003~.006

WCMX
General



X - Drill Holder (SYM05) (DC .563 ~ .656)

NEW



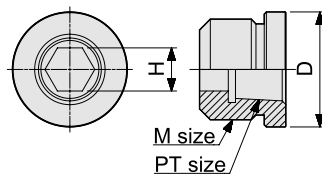
Ⓢ: p. 148

Unit: inch

Series	DC	LU	Designation	EDP 3700..	LF	OAL	DCON	DCSFMS	LS
NEW SYM X 050204	.563	1.126	YGSY2 - 0.563S0.75 - 05I	1067	1.835	3.835	.75	1.125	2.00
		1.689	YGSY3 - 0.563S0.75 - 05I	1083	2.398	4.398			
		2.252	YGSY4 - 0.563S0.75 - 05I	1099	2.961	4.961			
		2.815	YGSY5 - 0.563S0.75 - 05I	1115	3.524	5.524			
	.591	1.182	YGSY2 - 0.591S0.75 - 05I	1068	1.935	3.935			
		1.773	YGSY3 - 0.591S0.75 - 05I	1084	2.529	4.529			
		2.364	YGSY4 - 0.591S0.75 - 05I	1100	3.123	5.123			
		2.955	YGSY5 - 0.591S0.75 - 05I	1116	3.717	5.717			
	.626	1.252	YGSY2 - 0.626S0.75 - 05I	1069	2.037	4.037			
		1.878	YGSY3 - 0.626S0.75 - 05I	1085	2.663	4.663			
		2.504	YGSY4 - 0.626S0.75 - 05I	1101	3.287	5.287			
		3.13	YGSY5 - 0.626S0.75 - 05I	1117	3.913	5.913			
	.656	1.312	YGSY2 - 0.656S0.75 - 05I	1070	2.099	4.099			
		1.968	YGSY3 - 0.656S0.75 - 05I	1086	2.756	4.756			
		2.624	YGSY4 - 0.656S0.75 - 05I	1102	3.411	5.411			
		3.28	YGSY5 - 0.656S0.75 - 05I	1118	4.067	6.067			

NEW
SYM05
050204

PLUG (DCON0.75)



Designation	EDP No.	DCON	ØD	M size	PT size	H
PLUG M12 - 1/8	38000001	0.75	.55	M12x1.0	PT 1/8	.236

* Plug for turning lathe should be ordered separately.

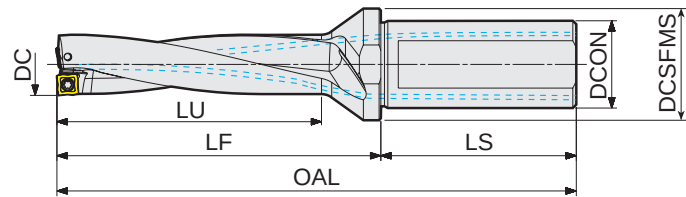
* Clamping Torque (Nm) 0.6Nm

SYM05	Screw	Wrench
Description	TP062004-GS	TPWETP06
EDP	18000252	18000262

Plug	DCON	0.75	1.00	1.25
	Description	PLUG M12 - 1/8	PLUG M14 - 1/8	PLUG M22 - 1/4
	EDP	<u>38000001</u>	<u>38000002</u>	<u>38000003</u>

X - Drill Holder (SYM06) (DC .689 ~ .813)

NEW

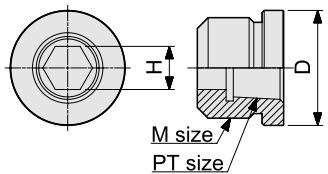


ⓐ: p. 148

Unit: inch

Series	DC	LU	Designation	EDP 3700..	LF	OAL	DCON	DCSFMS	LS
NEW SYMx 060204	.689	1.378	YGSY2 - 0.689S1.00 - 06I	0870	2.165	5.165	1.00	1.375	3.00
		2.067	YGSY3 - 0.689S1.00 - 06I	0875	2.854	5.854			
		2.756	YGSY4 - 0.689S1.00 - 06I	0880	3.543	6.543			
		3.445	YGSY5 - 0.689S1.00 - 06I	0885	4.232	7.232			
	.719	1.438	YGSY2 - 0.719S1.00 - 06I	0871	2.265	5.265			
		2.157	YGSY3 - 0.719S1.00 - 06I	0876	2.984	5.984			
		2.876	YGSY4 - 0.719S1.00 - 06I	0881	3.703	6.703			
		3.595	YGSY5 - 0.719S1.00 - 06I	0886	4.422	7.422			
	.75	1.5	YGSY2 - 0.750S1.00 - 06I	0872	2.327	5.327			
		2.157	YGSY3 - 0.750S1.00 - 06I	0877	3.077	6.077			
		2.876	YGSY4 - 0.750S1.00 - 06I	0882	3.827	6.827			
		3.595	YGSY5 - 0.750S1.00 - 06I	0887	4.577	7.577			
	.781	1.562	YGSY2 - 0.781S1.00 - 06I	0873	2.467	5.467			
		2.343	YGSY3 - 0.781S1.00 - 06I	0878	3.248	6.248			
		3.124	YGSY4 - 0.781S1.00 - 06I	0883	4.030	7.030			
		3.905	YGSY5 - 0.781S1.00 - 06I	0888	4.811	7.811			
.813	1.626	YGSY2 - 0.813S1.00 - 06I	0874	2.531	5.531				
	2.439	YGSY3 - 0.813S1.00 - 06I	0879	3.344	6.344				
	3.252	YGSY4 - 0.813S1.00 - 06I	0884	4.157	7.157				
	4.065	YGSY5 - 0.813S1.00 - 06I	0889	4.970	7.970				

PLUG (DCON1.0)



Designation	EDP No.	DCON	ØD	M size	PT size	H
PLUG M14 - 1/8	38000002	1.0	.630	M14x1.0	PT 1/8	.236

* Plug for turning lathe should be ordered separately.

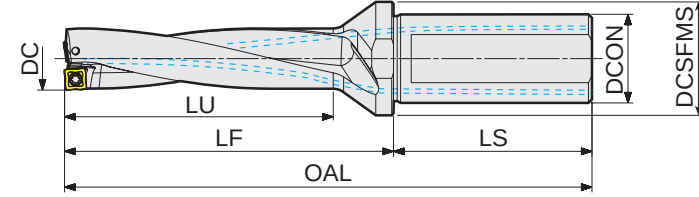
* Clamping Torque (Nm) 0.7Nm

SYM06	Screw	Wrench
Description	TP072205-GS	TPWETP07
EDP	18000253	18000001

Plug	DCON	0.75	1.00	1.25
Description	PLUG M12 - 1/8	PLUG M14 - 1/8	PLUG M22 - 1/4	
EDP	38000001	38000002	38000003	

X - Drill Holder (SYM07) (DC .843 ~ .906)

NEW

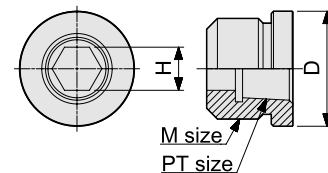


ⓐ: p. 148

Unit: inch

Series	DC	LU	Designation	EDP 3700..	LF	OAL	DCON	DCSFMS	LS
NEW SYMx 07T206	.843	1.686	YGSY2 - 0.843S1.00 - 07I	1071	2.591	5.591	1.00	1.375	3.00
		2.529	YGSY3 - 0.843S1.00 - 07I	1087	3.435	6.435			
		3.372	YGSY4 - 0.843S1.00 - 07I	1103	4.278	7.278			
		4.215	YGSY5 - 0.843S1.00 - 07I	1119	5.120	8.120			
	.875	1.75	YGSY2 - 0.875S1.00 - 07I	1072	2.656	5.656			
		2.625	YGSY3 - 0.875S1.00 - 07I	1088	3.531	6.531			
		3.5	YGSY4 - 0.875S1.00 - 07I	1104	4.406	7.406			
		4.375	YGSY5 - 0.875S1.00 - 07I	1120	5.281	8.281			
	.906	1.812	YGSY2 - 0.906S1.00 - 07I	1073	2.678	5.678			
		2.718	YGSY3 - 0.906S1.00 - 07I	1089	3.584	6.584			
		3.624	YGSY4 - 0.906S1.00 - 07I	1105	4.490	7.490			
		4.53	YGSY5 - 0.906S1.00 - 07I	1121	5.396	8.396			

PLUG (DCON1.0)



Designation	EDP No.	DCON	ØD	M size	PT size	H
PLUG M14 - 1/8	38000002	1.0	.630	M14x1.0	PT 1/8	.236

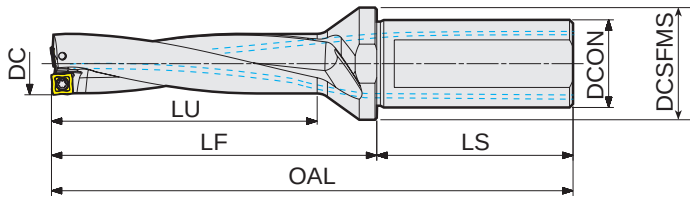
* Plug for turning lathe should be ordered separately.

* Clamping Torque (Nm) 0.7Nm

SYM07	Screw	Wrench
Description	TP072205-GS	TPWETP07
EDP	18000253	18000001

Plug	DCON	0.75	1.00	1.25
Description	PLUG M12 - 1/8	PLUG M14 - 1/8	PLUG M22 - 1/4	
EDP	38000001	38000002	38000003	

X - Drill Holder (SYM^{NEW}X08) (DC .937 ~ 1.063)



Ⓢ: p. 148 Unit: inch

Series	DC	LU	Designation	EDP 3700..	LF	OAL	DCON	DCSFMS	LS
	.937	1.874	YGSY2-0.937S1.25-08I	1074	2.740	5.990	1.25	1.625	3.25
		2.811	YGSY3-0.937S1.25-08I	1090	3.677	6.927			
		3.748	YGSY4-0.937S1.25-08I	1106	4.614	7.864			
		4.685	YGSY5-0.937S1.25-08I	1122	5.551	8.801			
	.969	1.938	YGSY2-0.969S1.25-08I	1075	2.804	6.054			
		2.907	YGSY3-0.969S1.25-08I	1091	3.773	7.023			
		3.876	YGSY4-0.969S1.25-08I	1107	4.742	7.992			
		4.845	YGSY5-0.969S1.25-08I	1123	5.711	8.961			
	.984	1.968	YGSY2-0.984S1.25-08I	1076	2.834	6.084			
		2.952	YGSY3-0.984S1.25-08I	1092	3.818	7.068			
		3.936	YGSY4-0.984S1.25-08I	1108	4.802	8.052			
		4.92	YGSY5-0.984S1.25-08I	1124	5.786	9.036			
	1.000	2.000	YGSY2-1.000S1.25-08I	1077	2.866	6.116			
		3.000	YGSY3-1.000S1.25-08I	1093	3.866	7.116			
		4.000	YGSY4-1.000S1.25-08I	1109	4.866	8.116			
		5.000	YGSY5-1.000S1.25-08I	1125	5.866	9.116			
	1.031	2.062	YGSY2-1.031S1.25-08I	1078	2.928	6.178			
		3.093	YGSY3-1.031S1.25-08I	1094	3.920	7.170			
		4.124	YGSY4-1.031S1.25-08I	1110	4.990	8.240			
		5.155	YGSY5-1.031S1.25-08I	1126	6.021	9.271			
	1.063	2.126	YGSY2-1.063S1.25-08I	1079	2.992	6.242			
		3.189	YGSY3-1.063S1.25-08I	1095	4.094	7.344			
		4.252	YGSY4-1.063S1.25-08I	1111	5.118	8.368			
		5.315	YGSY5-1.063S1.25-08I	1127	6.181	9.431			

PLUG (DCON1.25)

Designation	EDP No.	DCON	ØD	M size	PT size	H
PLUG M22 - 1/4	38000003	1.25	.945	M22x1.25	PT 1/4	.394

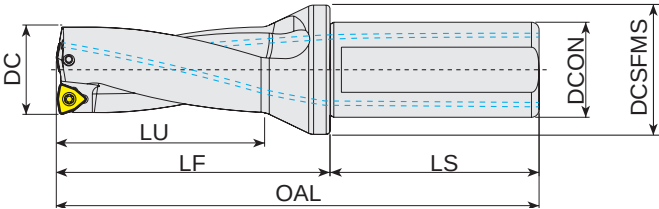
* Plug for turning lathe should be ordered separately.

* Clamping Torque (Nm) 1.2Nm

SYM ^{NEW} X08	Screw	Wrench
Description	TP072506-G5	TPWFTP07
EDP	18000261	18000001

Plug	DCON	0.75	1.00	1.25
Description	PLUG M12 - 1/8	PLUG M14 - 1/8	PLUG M22 - 1/4	
EDP	38000001	38000002	38000003	

Trigonal Drill Holder (WCMX03) (DC .750)



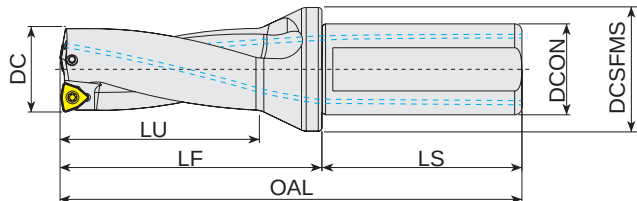
Ⓢ: p. 150 Unit: inch

Series	DC	LU	Designation	EDP 3700..	LF	OAL	DCON	DCSFMS	LS
WCMX 030208	.750	2.250	YGWC3-0750S100F2250-03	0811	3.110	5.315	1.000	1.260	2.205
		3.750	YGWC5-0750S100F3750-03	0823	4.606	6.811			

* Clamping Torque (Nm) 0.6Nm

WCMX03	Screw	Wrench
Description	T0622557	TWFT06
EDP	18000183	18000031

Trigonal Drill Holder (WCMX04) (DC .8125 ~ .875)



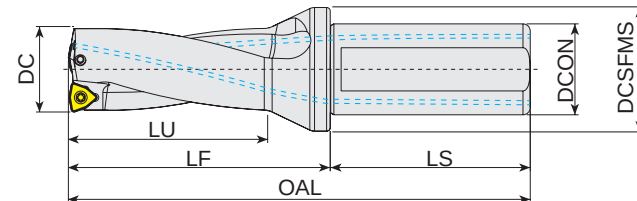
△: p. 150 Unit: inch

Series	DC	LU	Designation	EDP 370..	LF	OAL	DCON	DCSFMS	LS
WCMX 040208	.8125	2.433	YGWC3-0812S100F2433-04	0812	3.228	5.433	1.000	1.260	2.205
		4.055	YGWC5-0812S100F4055-04	0824	5.000	7.205			
	.875	2.624	YGWC3-0875S100F2624-04	0813	3.465	5.669			
		4.374	YGWC5-0875S100F4374-04	0825	5.197	7.402			

* Clamping Torque (Nm) 1.2Nm

WCMX04	Screw	Wrench
Description	T072565D	TWFT07
EDP	18000184	18000032

Trigonal Drill Holder (WCMX05) (DC .937 ~ 1.125)



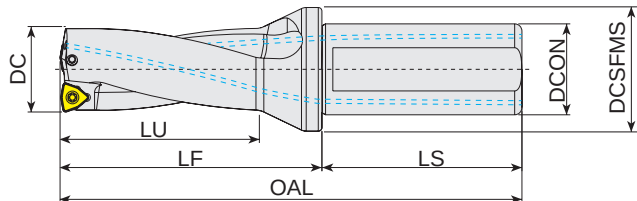
△: p. 150 Unit: inch

Series	DC	LU	Designation	EDP 3700..	LF	OAL	DCON	DCSFMS	LS
WCMX 050308	.937	2.811	YGWC3-0937S100F2811-05	0814	3.701	5.906	1.000	1.260	2.205
		4.685	YGWC5-0937S100F4685-05	0826	5.591	7.795			
	1.000	3.000	YGWC3-1000S100F3000-05	0815	3.819	6.024			
		5.000	YGWC5-1000S100F5000-05	0827	5.787	7.992			
	1.063	3.189	YGWC3-1063S100F3189-05	0816	4.055	6.260			
		5.315	YGWC5-1063S100F5135-05	0828	6.181	8.386			
	1.125	3.366	YGWC3-1125S100F3366-05	0817	4.173	6.378			
		5.610	YGWC5-1125S100F5610-05	0829	6.476	8.681			

* Clamping Torque (Nm) 1.6Nm

WCMX05	Screw	Wrench
Description	T693072D	TWFT08
EDP	18000185	18000033

Trigonal Drill Holder (WCMX06) (DC 1.250 ~ 1.750)



△: p. 150

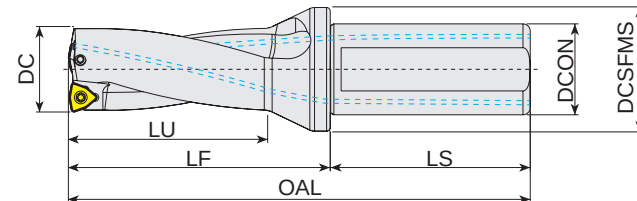
Unit: inch

Series	DC	LU	Designation	EDP 3700..	LF	OAL	DCON	DCSFMS	LS			
WCMX <u>06T308</u>	1.250	3.750	<u>YGWC3 - 1250S125F3750 - 06</u>	0818	4.843	7.205	1.250	1.575	2.362			
		6.250	<u>YGWC5 - 1250S125F6250 - 06</u>	0830	7.313	9.675						
	1.375	4.122	<u>YGWC3 - 1375S125F4122 - 06</u>	0819	5.197	7.559						
		6.870	<u>YGWC5 - 1375S125F6870 - 06</u>	0831	7.953	1.315						
	1.500	4.500	<u>YGWC3 - 1500S125F4500 - 06</u>	0820	5.551	7.913						
		7.500	<u>YGWC5 - 1500S125F7500 - 06</u>	0832	8.543	1.906						
	1.750	5.250	<u>YGWC3 - 1750S125F5250 - 06</u>	0821	6.260	8.622						
		8.750	<u>YGWC5 - 1750S125F8750 - 06</u>	0833	9.969	12.331						

* Clamping Torque (Nm) 2.4Nm

WCMX06	Screw	Wrench
Description	T103588D	TWFT10
EDP	18000180	18000034

Trigonal Drill Holder (WCMX08) (DC 2.000)



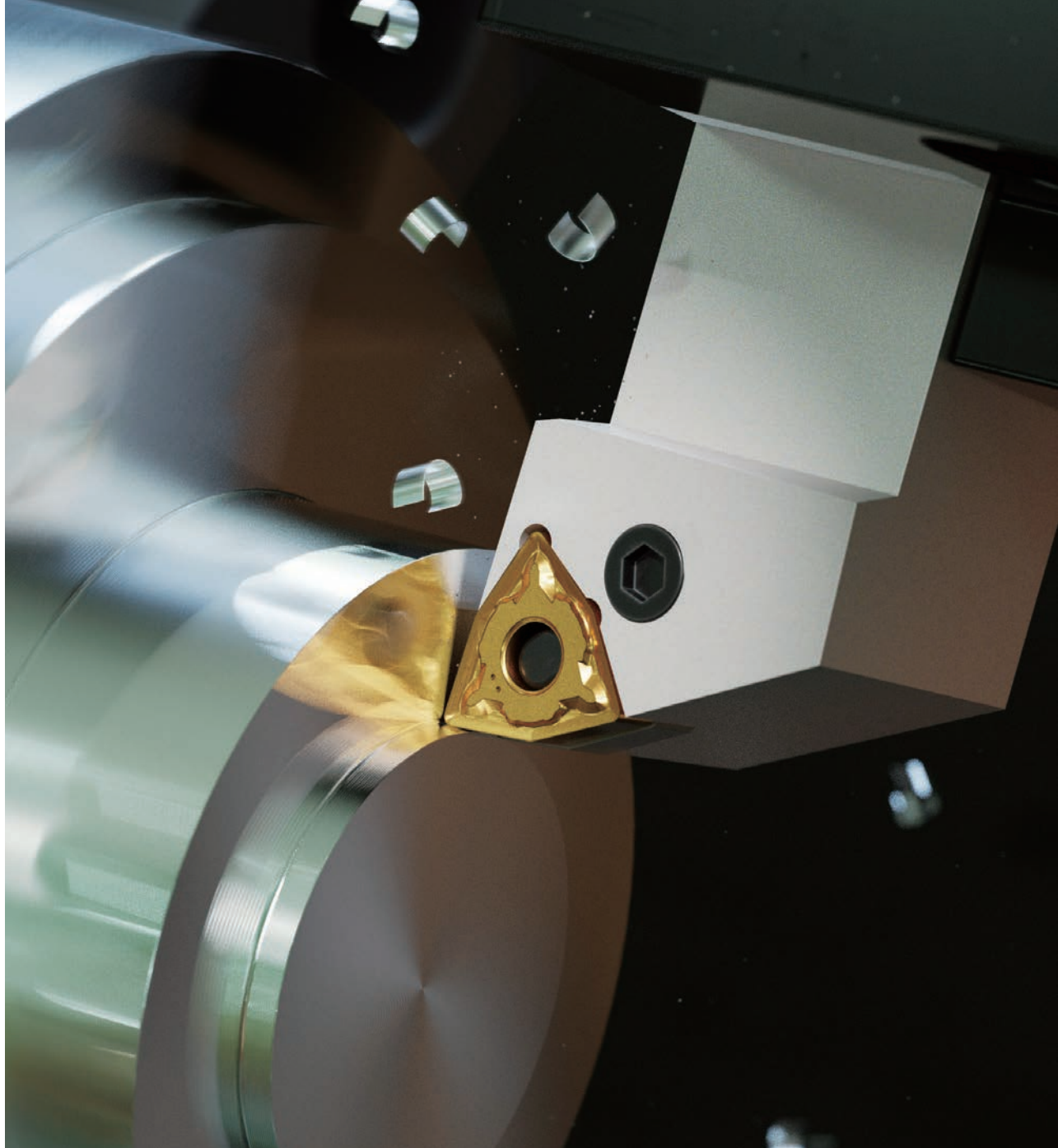
△: p. 150

Unit: inch

Series	DC	LU	Designation	EDP 3700..	LF	OAL	DCON	DCSFMS	LS
WCMX 080412	2.000	6.000	YGWC3-2000S150F6000-08	0822	7.283	1.039	1.500	1.969	2.756
		10.000	YGWC5-2000S150F10000-08	0834	11.299	14.055			

* Clamping Torque (Nm) 3.0Nm

WCMX08	Screw	Wrench
Description	T154011D	TWFT15
EDP	18000186	18000035



TECHNICAL INFORMATION

- ISO 13399 Terms
- Hardness Conversion Table
- Formulas
- Recommended Cutting Conditions
- Material Groups
- Comparison Chart
- ISO ↔ ANSI
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Technical Information

ISO 13399 Terms

AN	Clearance angle major	INSD	Insert diameter
APMX	Maximum depth of cut	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		

Technical Information

Hardness Conversion Table

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

Technical Information

Formulas

Formulas		
	Metric $Vc = D \times RPM \times .0031 \text{ (m/min.)}$	Inch $Vc = D \times RPM \times .262 \text{ (ft/min.)}$
Cutting Speed (Vc)	Metric Vc to Inch Vc $\text{Inch Vc} = \text{Metric Vc} \times 3.28 \text{ (ft/min.)}$	Inch Vc to Metric Vc $\text{Metric Vc} = \text{Inch Vc} \times .305 \text{ (m/min.)}$
Turning Formulas		
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)	$Fn = Vf \div RPM \text{ (mm/rev. or in/rev.)}$	
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	$T = L \div Vf \text{ (min.)}$	
Milling Formulas		
Feed per Revolution (Fn)	$Fn = Vf \div RPM \text{ (mm/rev. or in/rev.)}$ $= Fz \times \text{Number of tooth (mm/rev. or in/rev.)}$	
Feed per Tooth (Fz)	$Fz = Vf \div RPM \div \text{Number of teeth (mm/rev. or in/rev.)}$ $= Fn \div \text{Number of teeth (mm/rev. or in/rev.)}$	
Metal Removal Rate (Q)	Metric $Q = Ap \times Ae \times Vf \div 1000 \text{ (cm}^3\text{/min.)}$	Inch $Q = Ap \times Ae \times Vf \text{ (in}^3\text{/min.)}$
Cutting Time	$T = L \div Vf \text{ (min.)}$	
Power Consumption (Pc)	Metric $Pc = Ap \times Ae \times Vf \times Kc \times .000000017 \text{ (kW)}$	Inch $Pc = Ap \times Ae \times Vf \times Kc \times .00000253 \text{ (Hp)}$
Drilling Formulas		
Power Consumption (Pc)	Metric $Pc = Fn \times Vc \times D \times Kc \times .0000042 \text{ (kW)}$	Inch $Pc = Fn \times Vc \times D \times Kc \times .0000076 \text{ (Hp)}$
Torque (Mc)	Metric $Mc = Pc \times 9554.1 \div RPM \text{ (Nm)}$	Inch $Mc = Pc \times 5255 \div RPM \text{ (lbf ft)}$
Thrust (T)	$T \approx .5 \times Kc \times DC/2 \times Fn \times \sin KAPR \text{ (N)}$	
Terms		
N (RPM)	Spindle Speed (Revolution per minute)	
Vc	Cutting Speed	
D	Work Diameter	
Vf	Feed Rate (Table Feed)	
Fn	Feed per Revolution	
Fz	Feed per Tooth	
Ap	Depth of Cut	
Q	Metal Removal Rate	
L	Length of cut	
T	Cutting Time (min.)	

Technical Information
Recommended cutting conditions

Turning

Cutting Speed			Vc (ft/min)															
ISO	VDI	Sub Group	YG1010		YG1001		YG3010		YG3115		YG3115		YG3020		YG3030		YG801	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non - Alloyed Steel	-	-	-	-	750	1480	660	1410	590	1640	520	1250	430	1150	390	660
	6~9	Low - Alloyed Steel	-	-	-	-	590	1250	490	1150	560	1480	460	1050	430	920	230	660
	10~11	High - Alloyed Steel	-	-	-	-	200	660	300	590	200	980	200	430	230	360	-	-
M	12~13	Ferritic & Martensitic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14	Austenitic Stainless Steel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
K	15~16	Grey Cast Iron	980	1480	820	1380	390	980	-	-	-	-	-	-	-	-	-	-
	17~18	Nodular Cast Iron	390	1150	390	980	390	920	-	-	-	-	-	-	-	-	-	-
N	21~30	Non - Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S	31~37	Superalloys & Titanium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
H	38~41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Turning

Cutting Speed			Vc (ft/min)															
ISO	VDI	Sub Group	YG2025		YG211		YG213		YG214		YG401		YT100		YG100		YG10	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non - Alloyed Steel	-	-	-	-	-	-	-	-	-	-	492	1575	-	-	-	-
	6~9	Low - Alloyed Steel	-	-	-	-	-	-	-	-	-	-	524	1575	-	-	-	-
	10~11	High - Alloyed Steel	-	-	-	-	-	-	-	-	-	-	230	590	-	-	-	-
M	12~13	Ferritic & Martensitic	560	720	560	890	390	590	330	490	-	-	492	919	-	-	-	-
	14	Austenitic Stainless Steel	490	660	490	750	130	520	330	490	-	-	427	853	-	-	-	-
K	15~16	Grey Cast Iron	-	-	-	-	-	-	-	-	-	-	427	1476	-	-	-	-
	17~18	Nodular Cast Iron	-	-	-	-	-	-	-	-	-	-	328	1312	-	-	-	-
N	21~30	Non - Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	820	3940	820	2620
S	31~37	Superalloys & Titanium	-	-	-	-	-	-	-	-	100	300	-	-	-	-	-	-
H	38~41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Parting & Grooving

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

Technical Information
Recommended cutting conditions

Nanocut

YG812 GRADE			Cutting Speed		Feed Rate (Fn)			
ISO	VDI	Sub Group	Vc (ft/min.)		Fn (in/rev.)			
			Min	Max	Min			
P	1~5	Non - Alloyed Steel	560	660	.0006			
	6~9	Low - Alloyed Steel	310	520	.0006			
	10~11	High - Alloyed Steel	280	310	.0006			
M	12~13	Ferritic & Martensitic	340	460	.0006			
	14	Austenitic Stainless Steel	310	430	.0006			
K	15~16	Grey Cast Iron	460	620	.0006			
	17~18	Nodular Cast Iron	460	620	.0006			
N	21~30	Non - Ferrous Metals (Al)	-	-	-			
S	31~37	Superalloys & Titanium	30	250	.0006			
H	38~41	Hard Materials	-	-	-			

Milling

Cutting Speed			Vc (ft/min)																			
ISO	VDI	Sub Group	YG012		YG712		YG713		YG622		YG612		YG602		YG613		YG501(G)		YG5020		YG50	
			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	590	920	560	980	660	980	460	1310	590	920	590	1250	330	690	-	-	-	-	-	-
	6~9	Low - Alloyed Steel	490	820	590	820	560	890	390	1050	490	820	390	980	230	590	-	-	-	-	-	-
	10~11	High - Alloyed Steel	260	490	330	460	280	480	230	560	260	490	230	490	130	290	-	-	-	-	-	-
M	12~13	Ferritic & Martensitic			-	-	-	-	-	-	390	660	390	660	230	590	-	-	-	-	-	-
	14	Austenitic Stainless Steel			-	-	-	-	-	-	430	820	430	820	230	660	-	-	-	-	-	-
K	15~16	Grey Cast Iron			-	-	-	-	390	890			390	820	-	-	520	980	660	1150	-	-
	17~18	Nodular Cast Iron			-	-	-	-	430	790			430	720	-	-	390	690	490	980	-	-
N	21~30	Non - Ferrous Metals (Al)			-	-	-	-	-	-			-	-	-	-	-	-	-	-	980	2620
S	31~37	Superalloys & Titanium			-	-	-	-	-	-	80	450	80	150	-	-	-	-	-	-	-	-
H	38~41	Hard Materials	230	340	-	-	-	-	130	330			130	260	-	-			-	-	-	-

Drilling

Cutting Speed			Vc (ft/min)					
ISO	VDI	Sub Group	YG602		YG713		YG613	
			Min	Max	Min	Max	Min	Max
P	1~5	Non - Alloyed Steel	590	1250	660	980	330	690
	6~9	Low - Alloyed Steel	390	980	560	890	230	590
	10~11	High - Alloyed Steel	230	490	280	480	130	300
M	12~13	Ferritic & Martensitic	390	660	460	720	230	590
	14	Austenitic Stainless Steel	430	820	430	820	230	660
K	15~16	Grey Cast Iron	390	820	390	850	-	-
	17~18	Nodular Cast Iron	430	720	430	750	-	-
H	38~41	Hard Materials	-	-	-	-	-	-

Technical Information
Material Groups

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	Examples
P	1	Non - alloyed steel	~ .15% C	Annealed	125		S15C, C15, 1015
	2		~ .45% C	Annealed	190	13	S45C, C45, 1045
	3		~ .45% C	Quenched & Tempered	250	25	
	4		~ .75% C	Annealed	270	28	SK5, Ck75, 1080
	5		~ .75% C	Quenched & Tempered	300	32	
	6	Low - alloyed Steel		Annealed	180	10	SCM440, 42CrMo4, 410
	7			Quenched & Tempered	275	29	
	8			Quenched & Tempered	300	32	
	9			Quenched & Tempered	350	38	
	10	High - alloyed steel, and tool steel		Annealed	200	15	SKD, D2
	11			Quenched & Tempered	325	35	SKH, SUH, M42
M	12	Stainless Steel	Ferritic / Martensitic	Annealed	200	15	SUS 420, X40Cr13, 420
	13		Martensitic	Quenched & Tempered	240	23	
	14		Austenitic		180	10	SUS 316, 316, X5CrNiMo 17 12 2
K	15	Grey cast iron	Pearlitic / Ferritic		180	10	FC, GG, EN - GJL - 250
	16		Pearlitic (Martensitic)		260	26	
	17	Nodular cast iron	Ferritic		160	3	FCD, GGG, EN - GJS - 500 - 7
	18		Pearlitic		250	25	
	19	Malleable cast iron	Ferritic		130		FCMW, FCMP, GTS, GJMB350 - 10
	20		Pearlitic		230	21	
N	21	Aluminum - wrought alloy	Not Curable		60		SAE 1000, AIMg 1, 3.3315
	22		Curable	Hardened	100		
	23		≤ 12% Si, Not Curable		75		
	24	Aluminum - cast, alloyed	≤ 12% Si, Curable	Hardened	90		C4BS, G - AISi10Mg, 3.2381
	25		> 12% Si, Not Curable		130		
	26		Cutting Alloys, PB>1%		110		
	27	Copper and copper alloys (Bronze / Brass)	CuZn, CuSnZn (Brass)		90		CuZn 15, 2.0240
	28		CuSn, lead - free copper and electrolytic copper		100		
	29	Non - metallic materials	Duroplastic, Fiber Reinforced Plastic				CFRP
	30		Rubber, Wood, etc.				
S	31	Heat resistant super alloys	Fe Based	Annealed	200	15	X12 NiCrSi 36 - 16, 1.4864
	32			Aged	280	30	
	33			Annealed	250	25	Inconel 718, NiCr20TiAl, 2.4631
	34		Ni or Co Based	Aged	350	38	
	35			Cast	320	34	G - X120Mn12, 1.3401
	36	Titanium alloys	Pure Titanium		400 Rm		TiAl6V4, 3.7165
	37		Alpha + Beta Alloys	Hardened	1050Rm		
H	38	Hardened steel		Hardened	550	55	SK3
	39			Hardened	630	60	
	40	Chilled cast iron		Cast	400	42	
	41	Hardened cast iron		Hardened	550	55	

Technical Information
Material Groups

P		VDI 3323 1	Material Description Non - alloyed steel			Composition / Structure / Heat Treatment About .15% C, Annealed					HB 125	HRc
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	A57.36	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	F1511	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 (SW 24)	A622(1008)	H S 3	D D 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	F1110	G10170	15	
1.0402	S20C	C22	1020	050 A 20	1 C 22	C20	1450	C 20	F1120	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		S355JOH		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	CF5Mn28	F2111	G12130		
1.0718	SUM22L	9SMnPb28	12L13			S250Pb	1914	CF95MnPb28	F2112	G12134		
1.0721		10S20	1108	10S20		10S20		CF10S20	F2121	G11080		
1.0722		10SPb20	11L08			10PbF2		CF10SPb20		G11084		
1.0736	SUM25	9SMn36	1215			S300		CF9Mn36	F2113	G12150		
1.0737		9SMnPb36	12L14			S300Pb	1926	CF95MnPb36	F2114	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	F1510	G10100	10	
1.1141	S15	Ck15	1015	040A15	32C	XC15	1370	C15	F1110	G10150	15	
1.1151	S20C	C22E	1020	055M15		2C22	1450	C20	F1120	G10230	20	
1.8900	S25C	StE380	A572 - 60	436055E			2145	FeE390KG				
		St44 - 2	A36	436043A		NFA35 - 501E28	1411					
		StE320 - 3Z		1501160			1421					

Technical Information
Material Groups

P		VDI 3323 2	Material Description Non - alloyed steel			Composition / Structure / Heat Treatment About .45% C, Annealed					HB 190	HRC 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	S652 - 3U	A14880 - 40	4360 - 50C		320 - 560M	1606	Fe510C				
1.0577		S 355 J2 G4	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						T.O.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	C53	1050	070M55		XC48HTS	1674	C53		G10500	50	

P		VDI 3323 3	Material Description Non - alloyed steel			Composition / Structure / Heat Treatment About .45% C, Annealed					HB 250	HRC 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	F8211	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	C53	1050	070M55		XC48HTS	1674	C53		G10500	50	
1.7242	SCM418 H	18CrMo4										
1.7337		16CrMo4 - 4	A387 Gr.12					A18CrMo45KW		K11564	15C.M	
1.7362	SCMV 6	12CrMo195		3606 - 625		Z10CD5 - 05		16CrMo205		K41545		
		17MnV6	A572 - 60	436055E		NFA35 - 501E36	2142					

Technical Information
Material Groups

P		VDI 3323 4	Material Description Non - alloyed steel			Composition / Structure / Heat Treatment About .75% C, Annealed					HB 270	HRC 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	F5103	G10700	65GA	
1.1248	C 75	C75E	1074	060A78		XC75	1774	C75	F5107	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	F5117	G10950		
1.1545	SK 3	C 105 W1	W1	BW 2	C 105U	Y1 105	1880	C 100 KU	F5118		U10A	
1.1663	SK 2	C125W	W112			Y2120					U13	

P		VDI 3323 5	Material Description Non - alloyed steel			Composition / Structure / Heat Treatment About .75% C, Quenched & Tempered					HB 300	HRC 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	F5117	G10950		
1.1545	SK 3	C 105 W1	W1	BW 2	C 105U	Y1 105	1880	C 100 KU	F5118		U10A	
1.1663	SK 2	C125W	W112			Y2120					U13	
1.5120		38MnSi4										
1.5710	SNC236	36NiCr6	3135	640A35	111A	35NC6						
1.7701		51CrMoV4						51CrMoV4				

Technical Information

Material Groups

P		VDI 3323 6	Material Description Low - alloyed Steel			Composition / Structure / Heat Treatment Annealed					HB 180	HRc 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	56S7	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					107CrV3KU	F520L		11KHF	
1.2241		51CrV4										
1.2330	SCM435TK	35CrMo4	4135	708A37		34CD4	2234	35CrMo4			35KHM	
1.2419	SKS31	105WCr6		105WC13		105WC13	2140	10WCr6			CWG	
1.2510	SKS3	100MnCrW4	O1	BO1		90 MWCV 5	2140	95 MnWCr 5 KU	F5220		9KHVG	
1.2542		45WCrV7	S1	BS1			2710	45WCrV8KU			5CW2SF	
1.2550		60WCrV7	S1			55WC20	2710	58WCr9KU			5KHV2SF	
1.2713	SKT4	55NiCrMoV6	L6			55NCDV7			F520S		5C NM	
1.2721		50NiCr13	L6			55NCV6	2550		F528			
1.2842		90MnCrV8	O2	BO2		90MV8			T31502		9G2F	
1.3501		100Cr2	E50100									
1.3505	SUJ2	100Cr6	52100	25135	31	100C6	2258	100Cr6	F.1310		SC C 15	
1.5024		46Si7				45S7		46Si7	F.1451			
1.5025		51Si7	9259H		50Si7	51S7	2090	50Si7	F.1450			
1.5026		55Si7			56Si7	55S7	2085	55Si7	F.1440	G92550	55S2	
1.5027		60Si7	9260	251A60	60Si7	60S7		60Si7	F.1441	G92600	60S2	
1.5028	SUP7	65Si7	9260H									
1.5415	STFA 12	15Mo3	A204GrA	1503 - 243B			15D3	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					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	SCR 415	16MnCr5	5115	527M17		16MC5	2511	16MnCr5		G51150	12KHN2	
1.7139		16MnCr5S					2127				18HG	
1.7176	SUP9(A)	55Cr3	5155	527A60	48	55C3	2253	55Cr3			50C GA	
1.7218	SCM420	25CrMo4	4130	CD5110		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	

Technical Information

Material Groups

P		VDI 3323 6	Material Description Low - alloyed Steel			Composition / Structure / Heat Treatment Annealed					HB 180	HRc 10
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
1.7715		14MoV6 - 3										
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 Low - alloyed Steel			Composition / Structure / Heat Treatment Quenched & Tempered					HB 275	HRc 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										
1.7733		24CrMoV55		1503 - 660 - 440				13MoCrV6			21CrMoV511	
1.7755		GS - 45CrMoV10 - 4										
1.8070		21CrMoV511						35NiCr9				

P		VDI 3323 8	Material Description Low - alloyed Steel			Composition / Structure / Heat Treatment Quenched & tempered					HB 300	HRc 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	CD5110		25CD4	2225	25CrMo4(KB)			20C M	
1.8515		32CrMo12		722M24	40B	30CD12	2240	32CrMo12	F.124A			

Technical Information
Material Groups

P	VDI 3323 9		Material Description Low - alloyed Steel			Composition / Structure / Heat Treatment Quenched & Tempered					HB 350	HRC 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.5205			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)				40CN2MA	
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 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
1.0347	SPCD	RRSt3	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			35CrMn08KU				
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	

Technical Information
Material Groups

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 9S2	
1.5662	SL9N60(S3)	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	F5318	T20813	4C 5MF1S		
1.2363	SKD12	X100CrMoV5 - 1	A2	BA2		Z100CDV5	2260	X100CrMoV51KU	F5227		9KH5VF		
1.2436	SKD 2	X210CrW12	D4(D6)	BD6		Z200CD12	2312	X215CrW121KU	F5213		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			F5205		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	F5604		R6M5		
1.3348	SKH 58	S2 - 9 - 2	M7			Z100DCWV09 - 04 - 02	2782	HS292	F5607				
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 9S2		
1.4935	SUH 616	X20CrMoWV121	422							S42200			
1.5680		12Ni19	2515	12Ni19		Z18N5							

Technical Information

Material Groups

M		VDI 3323 12	Material Description			Composition / Structure / Heat Treatment					HB	HRC
			Stainless steel			Ferritic / Martensitic, Annealed					200	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	F.3110	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	X12CrS13	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		X2CrNiMoS19S	S31500				2376			S39215		
1.4418		X4CrNiMo16S				Z6CND16 - 04 - 01	2387					APX4
1.4510	SUS430LX	X6CrTi17	XM8			Z4CT17		X6CrTi17	F.3115	S43035	08C 17T	430Ti
1.4511	SUS430LK	X6CrNb17				Z4CNb17		X6CrNb17	F.3122			AXCS25
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	Z10CAS18		X8Cr17	F.3113	S43000	15C 13SJU	
1.4747	SUH4	X80CrNiS20	HNv6	443S65	59	Z80CSN20 - 02		X80CrSiNi20	F.320B	S65006		
1.4749		X18CrN28	446								15KH28	
1.4762	SUH446	X10CrA124	446			Z10CAS24	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		X20CrMnV12 - 1					2317	x20CrMnOn11201				
1.4923		X22CrMoV121										Jethete X20

Technical Information

Material Groups

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		F.3551	S30409	08C 18N10	
1.4305	SUS303	X10CrNiS18 - 10	303	303S21	58M	Z8CNF18 - 09	2346	X10CrNiS18.09	F.3508	S30300	30C 18N11	ATI 303
1.4306	SCS19	X2CrNi1911	304L	304C12	X3CrNi1810KD	Z2CN18 - 09	2352	GX2CrNi1910	F.3503	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	F.3517	S30100	07KH16N6	ATI 301
1.4311	SUS304LN	X2CrNiN18 10	304LN	304S62		Z2CN18 - 10	2371	X2CrNiN1810	F.3541	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	F.3551	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	F.3534	S31600	08KH17H13M2T	ATI 316
1.4404	SUS316L	X2CrNiMo17 - 13 - 2	316L	316S11		Z2CND17 - 12	2348	X2CrNiMo1712	F.3533	S31603		ATI 316L
1.4406	SUS316LN	X2CrNiMoN17122	316LN	316S61		Z2CND17 - 12AZ		X2CrNiMoN1712	F.3542	S31653	07C 18N	ATI 316LN
1.4408	SCS14	GX6CrNiMo18 - 10	CF - 8M	316C16			2343	X7CrNiMo2010	F.8414	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	F.3543		03KH16N15M3	
1.4435	SUS316L	X2CrNiMo18143	316L	316S11		Z3CND17 - 12 - 03	2375	X2CrNiMo17 13 2	F.3533	S31603	03C 17N14M3	
1.4436	SUS316	X3CrNiMo17 - 13 - 3	316	316S19		Z6CND18 - 12 - 03	2343	X5CrNiMo17 12 2	F.3543	S31600		
1.4438	SUS317L	X2CrNiMo18164	317L	317S12		Z2CND19 - 15 - 04	2367	X2CrNiMo18 16 4	F.3539	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				Z3NCNDU25 - 20M				J95150		
1.4521	SUS444	X2CrMoTi18 - 2	443444				2326	X2CrMoTiNb18 2	F.3123			
1.4539		X1NiCrMoCuN25205				Z2NCDU25 - 20	2562			N08904		ATI 904L
1.4541	SUS321	X14CrNiTi18 - 10	321	321S31		Z6CNT18 - 10	2337	X6CrNiTi18 11	F.3523	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 B25 6Mo
1.4550	SUS347	X6CrNiNb18 - 10	347	347S17	58F	Z6CNNb18 - 10	2338	X6CrNiNb18 11	F.3552	S34700	08C 18N12B	ATI 347
1.4552	SCS 21	GX7CrNiNb18 - 9				Z4CNNb19 - 10M				J92710		
1.4568	SUS 631	X 7 C r N i A l 1 7 7		316S111		Z 9 C A N 17 - 7	2388	Z8CNA17 - 07		S17700	09C 17NUJ1	17 - 7PH
1.4571	SUS 316Ti	X6CrNiMoTi17 - 12 - 2	316Ti	320S31	58J	Z6NDT17 - 12	2350	X6CrNiMoTi17 12	F.3535		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			F.8414	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	F.331	S31008	20C 23N18	ATI 310S
1.4878	SUS321	X12CrNiTi18 - 9	321	321S20	58B	Z6CNT18 - 12(B)	2337	X6CrNiTi1811	F.3553	S32100		ACX315
1.4891		X5CrNiNb18 - 10	Ss30415				2372					
1.4893		X8CrNiNb11	S30815				2368					
1.4948		X6CrNi1811	304H	304S51		Z5CN18 - 09	2333			S30480		
1.4980		X5NiCrTi2515	660				2570			S66286		Incoloy A 286
		X5NiCrN3525										
		X2CrNiMoN18134	S31753									
		X2CrNiMoN25227										

Technical Information

Material Groups

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	
.6010	FC100	GG10	A48 20 B	Grade 100	GJL - 100	Ft 10 D	0100	G10	FG10		Sc 10		
.6015	FC150	GG15	A48 25 B	Grade 150	GJL - 150	Ft 15 D	0115	G15	FG15		Sc 15		
.6020	FC200	GG20	A48 30 B	Grade 220	GJL - 200	Ft 20 D	0120	G20	FG20	W06020	Sc 20		
.6025	FC250	GG25	A48 40 B	Grade 260	GJL - 250	Ft 25 D	0125	G25	FG25		Sc 25		
.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	
.6025	FC250	GG25	A48 40 B	Grade 260	GJL - 250	Ft 25 D	0125	G25	FG25		Sc 25		
.6030	FC300	GG30	A48 45 B	Grade 300	GJL - 300	Ft 30 D	0130	G30	FG30		Sc 30		
.6035	FC350	GG35	A48 50 B	Grade 350	GJL - 350	Ft 35 D	0135	G35	FG35		Sc 35		
.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	
.7033	FCD350 - 22L	GGG35.3	-	350/22L40	GJS - 350 - 22 - LT	FGS 370 - 17	0717 - 15	-					
.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		
.7043	FCD 370	GGG4.3	60 - 40 - 18	SNG 370 - 17	GJS - 400 - 18 - LT	FGS 370 - 17	0717 - 12	GSO 42 - 17			Vc 42 - 12		
.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	
.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		
.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		
.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		
.7652	FCDA - NiMn 13 7	GGG NiMn 13 - 7	-	Grade S6	GJSA - XNiMn 13 - 7	FGS Ni13 Mn7	0772	-				Nodumag	
.7660		GGG NiCr 20 - 2	A436 D2	Grade S2	GJSA - XNiCr 20 - 2	FGS Ni20 Cr2	0776	-				Ni - Resist D - 2	

Technical Information

Material Groups

K		VDI 3323 19		Material Description			Composition / Structure / Heat Treatment					HB	HRC
				Malleable cast iron			Ferritic					130	
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands	
.8135	FCMW330	GTS - 35	32510	B 340 - 12	GJMB350 - 10	MN 35 - 10	0815	GMN 35	GTS35		Kc 35 - 10		

K		VDI 3323 20		Material Description			Composition / Structure / Heat Treatment					HB	HRC
				Malleable cast iron			Pearlitic					230	21
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands	
.8145	FCMW370	GTS - 45	A220 - 40010	P 440 - 7	GJMB450 - 6	MN 450	0852	GMN 45					
.8155	FCMP490	GTS - 55	50005	P 510 - 4	GJMB - 550 - 4	MP 50 - 5	0854	GMN 55			Kc 60 - 3		
.8165	FCMP590	GTS - 65	70003	P 570 - 3	GJMB - 650 - 2	MN 650 - 3	0856	GMN 65					
.8170	FCMP690	GTS - 70	90001	P 690 - 2	GJMB - 700 - 2	MN 700 - 2	0862	GMN 70			Kc 70 - 2		

Technical Information

Material Groups

N		VDI 3323 21	Material Description			Composition / Structure / Heat Treatment					HB	HRC
			Aluminum - wrought alloy			Not Curable					60	
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
3.0205		Al99	Al99									
3.0255	(A1050)	Al99.5	1000	L31		A59050C					D1	
3.3315		AlMg1										

N		VDI 3323 22	Material Description			Composition / Structure / Heat Treatment					HB	HRC
			Aluminum - wrought alloy			Curable, Hardened					100	
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
3.1325		AlCuMg1									AD35	
3.1655	A2011	AlCuSiPb										
3.2315		AlMgSi1									AK9	
3.4345		AlZnMgCu0,5	7050	L86		AZ4GU/9051		811 - 04				
3.4365	7075	AlZnMgCu1,5	7075	7075		7075		AlZn5.8MgCuCr			B95	

N		VDI 3323 23	Material Description			Composition / Structure / Heat Treatment					HB	HRC
			Aluminum - cast, alloyed			≤ 12% Si, Not Curable					75	
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
3.2163		G - AlSi9Cu3									VAL8	
3.2382		GD - AlSi10Mg										
3.2383		G - AlSi0Mg(Cu)	A36.2	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	A38.1	LM24			4250					

Technical Information

Material Groups

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 - AlSi7Mg	4218B								AK8	
3.2373	C4BS	G - AlSi9MGWA	SC64D			A - S7G	4251				AK9	
3.2381		G - AlSi10Mg									AK12	
3.5106		G - MgAg3SE2Zr1	QE22	mag12								
		G - ALMG5	GD - AlSi12	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									LS60 - 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	cɹ108		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								

Technical Information

Material Groups

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				Z42CNKDOWNb						

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	NiCr29Fe				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		MonelK500
2.4662		NiFe35Cr14MoTi	5660			Z5NCDT42				N09901		Incoloy 901
2.4668		NiCr19Fe19NbMo	5383	HR8		NC19eNB				N07718		Inconel 718
2.4670		S - NiCr13Al6MoNb	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						

Technical Information

Material Groups

S		VDI 3323 35	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			Heat resistant super alloys			Ni or Co Based, Cast					320	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			Composition / Structure / Heat Treatment					HB	HRc
			Titanium alloys			Pure Titanium					400 Rm	
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			Composition / Structure / Heat Treatment					HB	HRc
			Titanium alloys			Alpha + Beta Alloys, Hardened					1050 Rm	
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
		TiAl4Mo4Sn4Si5										
		TiAl5Sn2.5	AMS R54520	TA14/17		T - A5E						
		Ti6Al4VELI	AMS R56401	TA11								

Technical Information

Material Groups

H		VDI 3323 38	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			Hardened steel			Hardened					550	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	F 5103		70	
1.1248	C 75	Ck 75	1078, 1080	060 A 78	C 75S	XC 75	1774	C 75	F 5107		75	
1.1274	SUP 4	Ck 101	1095	060 A 96	C 100S	XC 100	1870	C 100	F 5117			
1.1545	SK 3	C 105 W1	W1	BW 2	C 105U	Y1 105	1880	C 100 KU	F 5118		U10A	
1.2762		75CrMoNiW67	-	-	-	-	-	-	-			
1.3401	SCMnH1	GX120Mn12	A128(A)			Z120M12	2183	GX120Mn12	F8251		110G13L	
1.4021	SUS 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	32n1cRmO145	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	F1252		38HM	

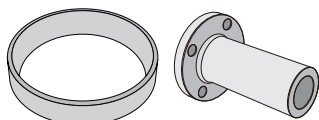
H		VDI 3323 40	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			Chilled cast iron			Cast					400	42
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
.9620		GX260NiCr42	A532 IB	Grade 2 A	GJN - HV520	FB Ni4 Cr2 BC	0512	-		F45001		Ni - Hard2
.9625		GX330NiCr42	A532 IA	Grade 2 B	GJN - HV550	FB Ni4 Cr2 HC	0513	-		F45000		Ni - Hard1
.9630		GX300CrNiSi 9 5 2	A532 ID	Grade 2 C	GJN - HV600	FB Cr9 Ni5	0457	-		F45003		Ni - Hard 4
.9640		GX300CrMoNi1521	-	-	-	-	-	-		F45005		
.9650		GX260Cr27	-	Grade 3 D		-	0466	-				
.9655		GX300CrNiMo271	-	Grade 3 E		-	-	-			20C 25N20S2	
1.4841	SUH 310	X15CrNiSi25 - 20	310	314S31	X 15 CrNiSi 25 20	Z15CNS25 - 20	-	-		S31400		Cronifer 2520

H		VDI 3323 41	Material Description			Composition / Structure / Heat Treatment					HB	HRc
			Hardened cast iron			Hardened					550	55
Mat'l No.	JIS	DIN	AISI/ASTM/SAE	BS	EN	AFNOR	SS	UNI	UNE / IHA	UNS	GOST	Brands
.9635		GX300 CrMo 15 3	-	-	-	-	-	-				
.9645		GX260 CrMoNi 20 21	-	-	-	-	-	-		F45007		

Application Guide

Steel Guide

Grade Recommendation based on Workpiece Material Condition

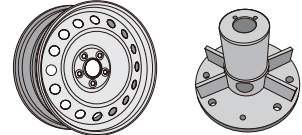


Pre Machined Condition

No Outer Skin / Scale

Uniform hardness on material

Has stable machining condition

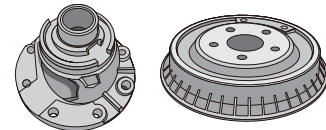


Welded Condition

Soft / No Outer Skin / Scale

Weld Bead Could be of Different Hardness than Actual Part

Stock on Part could even except weld Seam during Machining causing shock loads

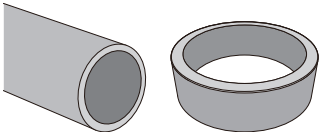


Cast Condition

Hard Outer Skin

Could have Sand Inclusion, - if Green Sand Cast

Component could have uneven Stock during machining

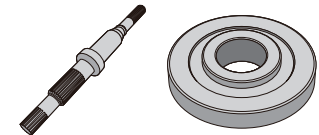


Hot Rolled Condition

Soft / No Outer Skin / Scale

Usually heat treated before machine to reduce Hardness

Component could have uneven Stock During Machining



Forged Condition

Soft Outer Skin

Usually heat treated before machine to reduce Hardness

Component could have uneven Stock during machining

HARD

YG3115

YG3020

YG3030

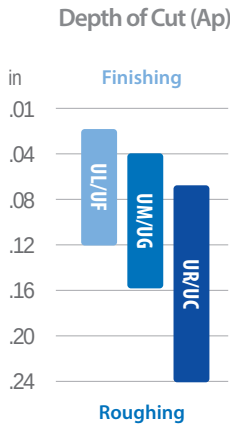
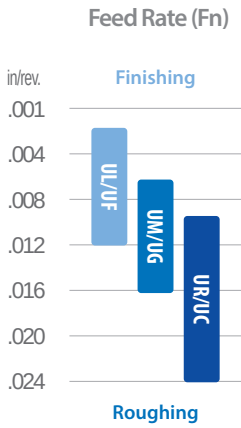
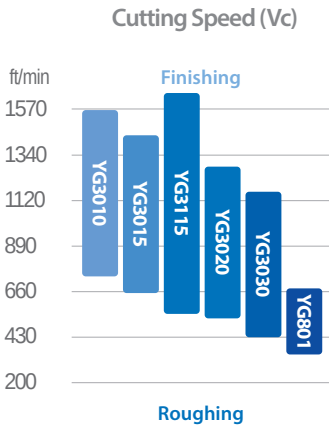
TOUGH

Chipbreaker, Feed Rate and Depth of Cut

		Sharp Edge	General	Strong Edge
	Continuous	 - UF	 - UL	
	General		 - UM	
	Heavy Interrupt		 - UG	 - UC
				 - UR

Application Guide
Steel Guide

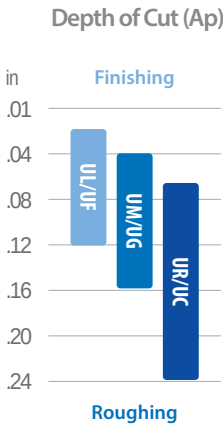
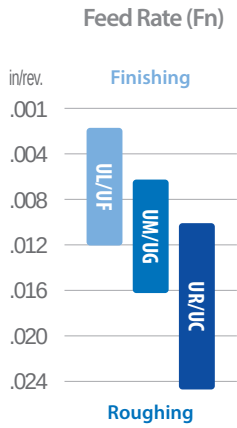
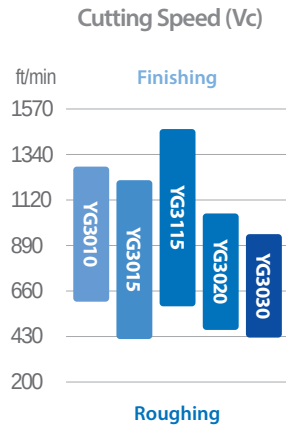
P	Non Alloy Steel, About .15% C (Low Carbon Steel)									
VDI	JIS	DIN	Mat'l No.	AISI/ASTM	SS	AFNOR	UNI	UNE	BS	GOST
1	S15C	CK15	1.0401	1015	1350	XC18	C15	F1110	080M15	15



First Choice Grade and Value
YG3030 - Vc 280m/min (980 ft/min)

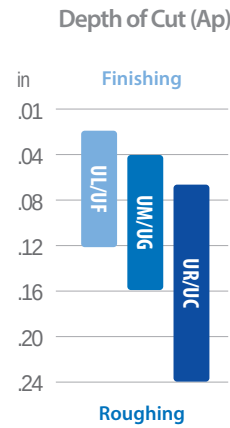
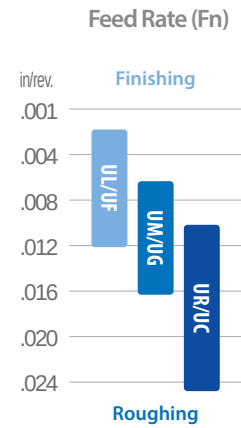
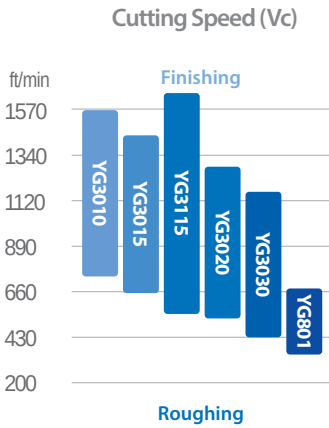
Application Guide
Steel Guide

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	F1252	708M40	38HM



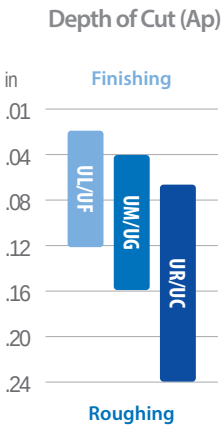
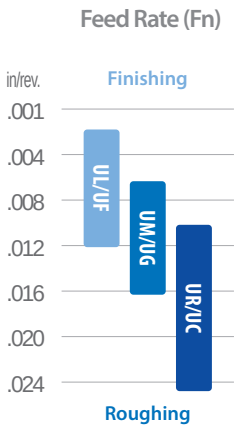
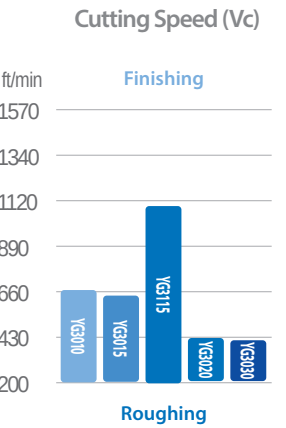
First Choice Grade and Value
YG3020 - Vc 240m/min (790ft/min)

P	Non Alloy Steel, About .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	F1140	060A47	45



First Choice Grade and Value
YG3115 - Vc 330m/min (1,080ft/min)

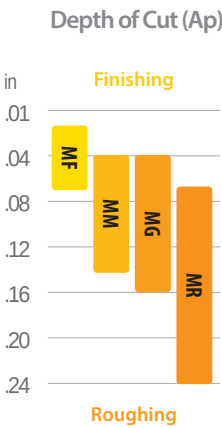
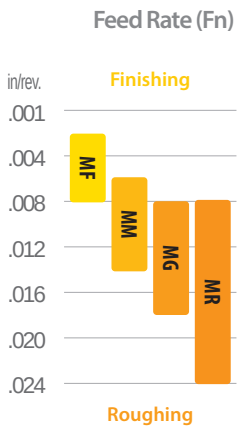
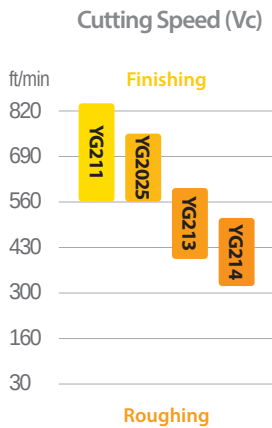
P	High Alloyed Steel, and Tool Steel									
VDI	JIS	DIN	Mat'l No.	AISI/ASTM	SS	AFNOR	UNI	UNE	BS	GOST
10~11	SKD11	X155CrVMo121	1.2379	D2	2310	Z160CDV12	X165CrMoW12KU	F5318	BD2	KH12MF



First Choice Grade and Value
YG3115 - Vc 150m/min (490ft/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

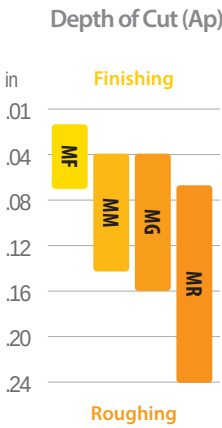
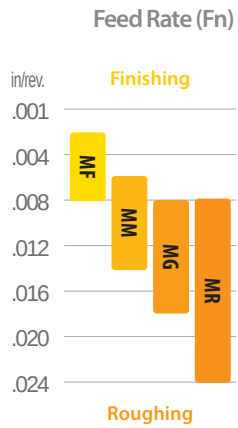
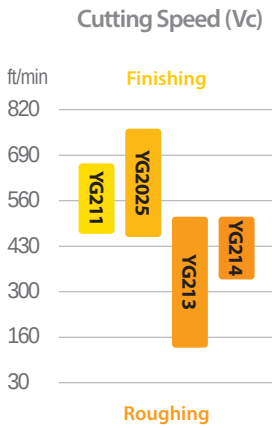
Ferritic Stainless steel

YG213 - Vc 160m/min (520ft/min)
YG2025 - Vc 190m/min (620ft/min)

Martensitic

YG213 - Vc 130m/min (430ft/min)
YG2025 - Vc 160m/min (520ft/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

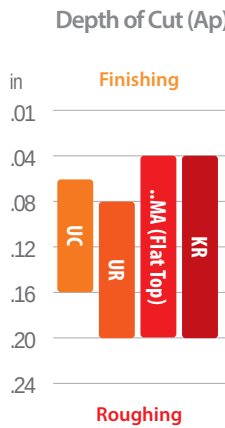
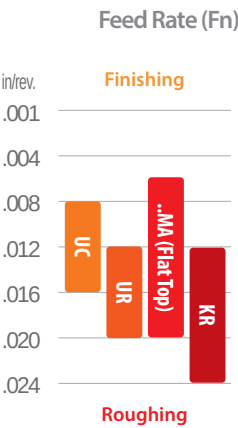
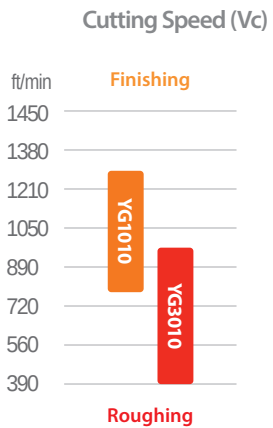


First Choice Grade and Value

YG2025 - Vc 190m/min (620ft/min)

Application Guide
Cast iron Guide

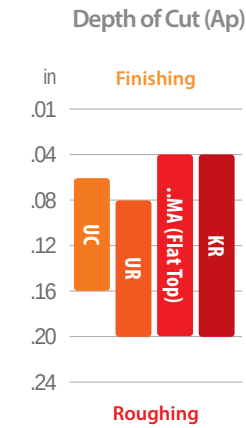
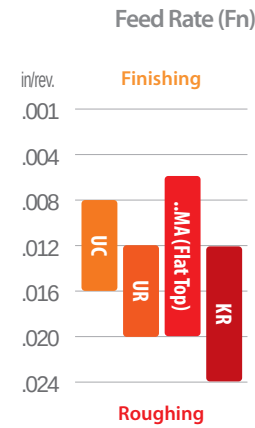
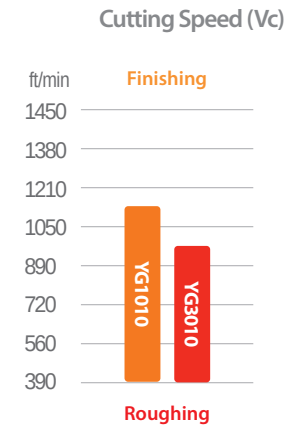
K	Grey cast iron									
VDI	JIS	DIN	Mat'l No.	AISI/ASTM	SS	AFNOR	UNI	UNE	BS	GOST
15~16	FC250	GG25	.6025	A48 40 B	0125	Ft 25 D	G25	FG25	Grade 260	Sc 25



First Choice Grade and Value

YG1010 - Vc 320m/min (1,050ft/min)

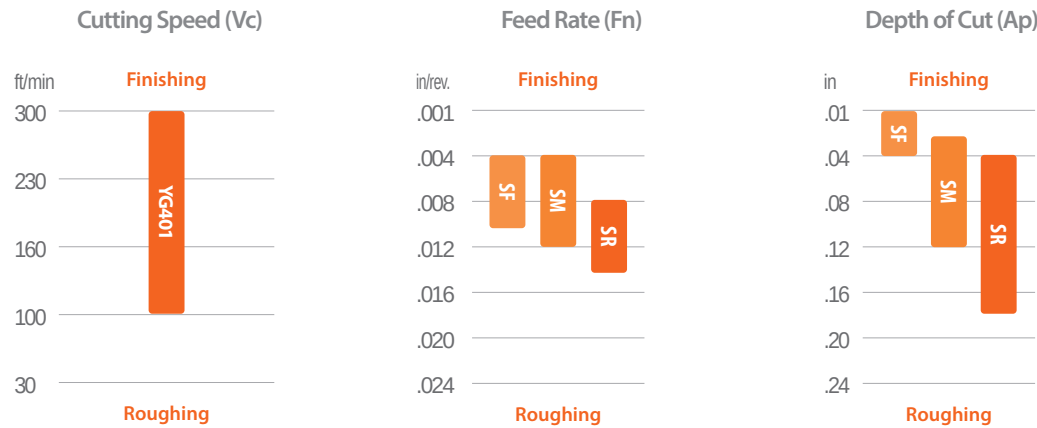
K	Nodular cast iron									
VDI	JIS	DIN	Mat'l No.	AISI/ASTM	SS	AFNOR	UNI	UNE	BS	GOST
17~18	FCD500	GGG50	.7050	80 - 55 - 06	.7050	FGS 500 - 7	GS 500 - 7	FGE50 - 7	SNG 500 - 7	Vc 50 - 2



First Choice Grade and Value

YG1010 - Vc 230m/min (750ft/min)

S	Superalloys & Titanium Alloys									
VDI	DIN	Mat'l No.	AISI/ASTM	AFNOR	BS	UNS	Brands	UNE	BS	GOST
31-37	NiCr19Fe19NbMo	2.4668	5383	NC19eNB	HR8	N07718	Inconel 718	F3113	430S15	12C17



First Choice Grade and Value
YG401 - Vc 50m/min (160ft/min)

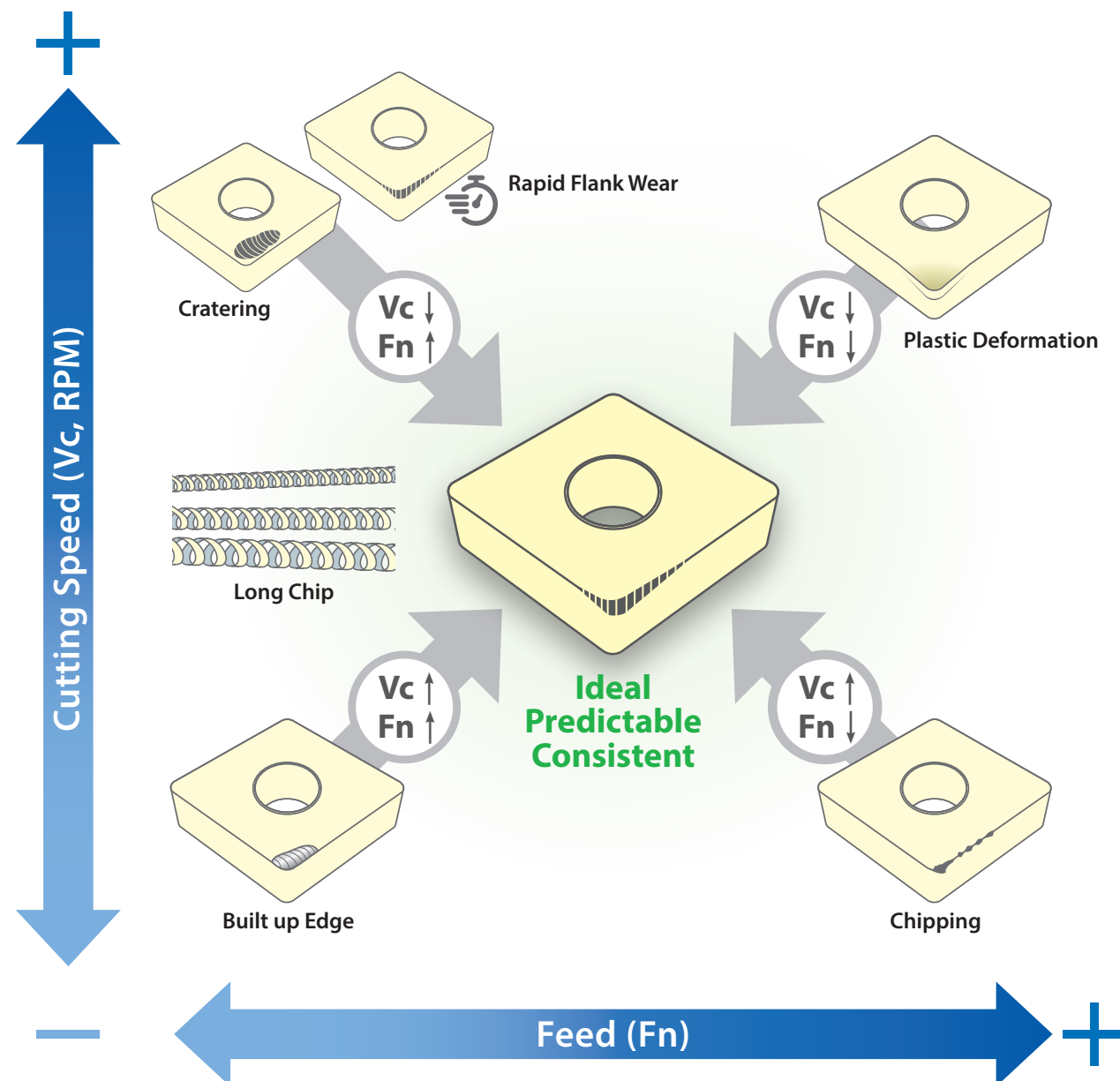
Trouble Shooting

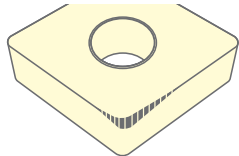
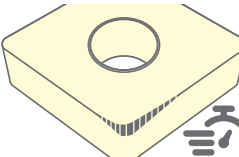
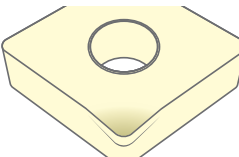
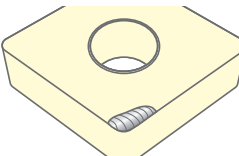
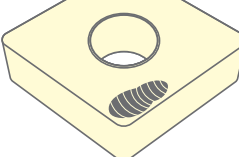
Pattern	Reasons	Solutions
Vibration	- High radial or tangential force - Unstable condition - Feed is too low	- Lower depth of cut (ap) - Use sharper chipbreaker - Lead/entry angle of tool - Reduce the overhang (larger and shorter tool) - Increase feed rate to generate proper axial force
Bad Surface	- Work material is damaged by chips - Feed is too high for corner radius	- Different chipbreaker - Lower depth of cut (ap) - Lower feed - Larger corner radius

Theoretical Surface Roughness

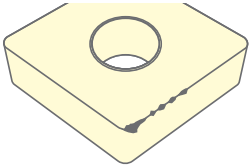
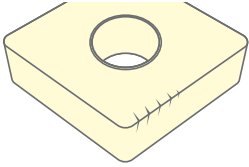
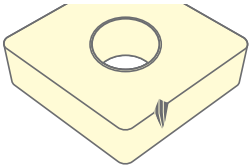
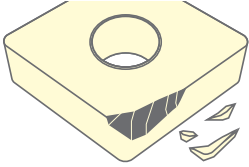
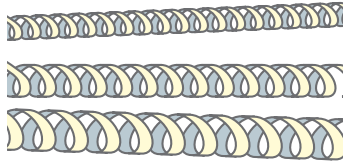
Ra / Rz μ m (μ inch)	Insert Corner Radius Code ISO					
	02 (0)	04 (1)	08 (2)	12 (3)	16 (4)	24 (6)
Feed Rate mm/rev (inch/rev)						
16 / 64	.002	.003	.004	.005	.006	.007
64 / 256	.004	.006	.008	.010	.011	.014
128 / 512	.006	.008	.011	.014	.016	.019
250 / 1000	-	.011	.016	.019	.022	.027
320 / 1280	-	-	.018	.022	.025	.031

Trouble Shooting Guide map



Pattern	Reasons	Solutions
General Flank Wear 	- The most ideal wear - Consistent and predictable - General wear behavior when machining condition is normal	
Rapid Flank Wear 	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 (V_c, SFM, RPM or SFPM) - Optimize coolant - Increase Feed (F_n) if feed is low
Plastic Deformation 	- Excess thermal load - Excess mechanical load	- Reduce cutting temperature - More wear resistant grade - Reduce the cutting speed (V_c, SFM, RPM or SFPM) - Lower feed (F_n) - Lower depth of cut (a_p) - Optimize coolant
Built up 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 (V_c, SFM, RPM or SFPM) - Adjust Feed (F_n) - Harder grade

Application Guide
Trouble Shooting

Pattern	Reasons	Solutions
Chipping 	- Unstable machining condition (Vibration) - Grade is too hard / brittle - Cutting edge 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 chip breaking - 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

Technical Information
Comparison Chart - Turning Chipbreakers

Negative Inserts

ISO	Application	YG - 1	SANDVIK	ISCAR	KENNAMETAL	Seco	Walter	Mitsubishi	Kyocera	Tungaloy	Sumitomo	Taegutec	Korloy
P	Super Finish	SF	-	SF	FF (G - class), WF, UF	FF1, FF2	FP5, FV5	PK (G - class), FY, FH, FS	DP (G - class), GP WQ	01, TF	FA, FL, FB	FA	VL
	Finish	UF	QF	F3P, NF	FN	MF2	NF4, NF3	FP, C	PP, GP DP, XF, XP	TS, TSF, ZF, 11, NS, NM, CB	LU, FE, SU	FLP, FA, FS, GG - FU, FX, FLP, FG, FM	VF, VB
	Semi Finish	PSF	XF	NF, TF	FN	MF2	MP3	FP, FH	HQ	TSF	NSU	FG, FM	VQ
		UL	PF, XF		FN, MN	MF3	NS6	C (Cermet)	CQ, VC, PP	AS	SE	MLP, FC, FT	VQ, VC
		UM			-	MF5	MP3	SH, SA, LP	PQ, CJ, VF, XQ	ZM, AM	SX		LP
	Medium	UG	PM, QM, XM	PP, TF, M3P, M4PW	MN	M3, M5, MR3	NM4, MP5, MU5, NM6	MA, MH, MP MV	GS, PS, PG	TM AM, DM, ZM	GU (≡UG≡), GE, UX	MLP, MC, MGP, PC, MM	VM, MP
	Rough	UC	PR	GN	MR, RP	MR4, M5, M6	MG -	MG - , None C/B	XS	TH, THS	UZ	MT, MGP, MG -	B25
		UR	XMR	R3P, NR	RN	MR3, MR6	NR4, RP5, RP7	RP, GH	PT, GT, PH	TU, TRS, TUS	MU, ME, MX	RGP, RT, RX	HR, GR
Wiper	PWM	WF, WR WMX, WM	WF, WG	FW, MW, RW	W - M3, W - MF2, W - MF5, M6, W - R4	NF, NM	SW, MW	WP, WF, WQ, WE	AFW, FW, ASW, SW	LUW, SEW, GUW	WS, WA, WT	VW, LW	
M	Finish	MF	MF	SF, F3M, NF	FF, FP	MF1	NF4, FM5	SH, LM	MQ, SQ	SF, SA	SU, EF	EA, SF	VP2, MP
	Medium	MM	MM	M3MW, TF, M3M	MP, UP	MF4	MM5(NM4)	MS, GM	TK, MS	SM, SS	GU	EM, ML	HS, MM
		MG		VL, PP	MR		RM5, NR4	MM, ES	SG, SX	S, TA	EX, EG		
	Rough	MR	MR, XMR, MRR	GN, R3M, NR	P, RP	M5, M6 MR7, RR6	NRS	GH, RM	MU	TH, SH, TU	MU, HM, EM	ET	GS, RM
K	Finish	UC	KF,	M3P, GN	T - 20, FN, MT	MF3, MF5, M4	NM, MK5	LK, MA	None C/B, C	CF	UZ	MT	MP
	Medium	UG	KM,	GN, A	UN(RP), T - 20	M5	NM5, RK5	MK, GK	KQ, KG	CM, None C/B	GZ	MG -	B25, MK
	Rough	..MA	KR, KRR	NR, A	MR, S - 20, ... MA, T - 20	MR7	MV7, RK7	RK, - MA	- MA, GC, KH, ZS	CH	(≡UX≡)	KT, RT	- MA, RK
S	Super Finish	SF	SF	SF	FS (G - class) LF (G - class)	MF1	NF4	FJ(G - class)	MQ	-	EF	EA, SF	VP1
	Medium	SM	NGP, SM	PP, TF, VL	MS, GP, P, UN	MF4	NMS, NMT	MJ(G - class), MS	SQ, MS, MU, TK	HRM HMM	EX	EM MGS, MP, MK	VP3
	Rough	SR	SR, SMR	MR	RP	MR3, MR4	NRS, NRT	RS, GJ	SG, SX	SA	MU	ET	VP4

Positive Inserts

ISO	Application	YG - 1	SANDVIK	ISCAR	KENNAMETAL	Seco	Walter	Mitsubishi	Kyocera	Tungaloy	Sumitomo	Taegutec	Korloy
P	Finish	PF	PF	PF, F3P	FP	FF1	FP4	SV, FP	GP	PSF, PF	FB, LU	FA, FG	VL, VF
		UF	PF, UF UM	PF, F3P SM, 14	11, UF	F1	FP4, PS5	SMG(G - class), FV, LP	CF, PF, DP, PP, VF	01, TSF	FP, SU, SC	FX, GT - SL, GT - SA, GT - SM	VL
	Medium	PM	SM, M3P	MF	MF2, F2	MP4	MV	HQ, GK	PSS, PS	SU, SC	FM, PC, MT	MP	
		UG	PM, XM, XF	SM, M3P	LF, FP (Posi)	M5	FP6, PM5, E47	MP	XQ, XP	PM, TM 23, 24	MU, LB, SF	MT, PMR -	HMP
M	Finish	MF	MF, MMC	PF, SM, M3M, 14	11, UF, GT - LF, FP	F1, F2	FM4	FM, LM	MQ	PSF, PSS, PS	FC, SI LU, SU	FG, SA	VP1
	Medium	MM	MM	M3M, SM	MP, MF	M3	MM4, RM4	MM		PM	MU		VL
K	Medium	UG	KM, KR	SM, 14	MT, T - 20, MP, C	M5	F2, FK6, MK4, RK6	MK, None C/B	None C/B	CM, None C/B	MU, None C/B	PC, MT	MP, C25
S	Super Finish	SF	GT - UM		GT - HP, LF	GT - F1	GT - PF2	FS(G - class) LS(G - class)				GT - FGS, SA	VP1
	Finish	SM	MF, UM	SM, PF, F3M, 14	FP, LF	F1, F2	PF4, PS5	FS - P(G - class) LS - P(G - class)	MQ	PSF	SI	FG	VL
	Medium	SR	MM	M3M, SM		MF2	PM5	LS, MS		PSS, PS		PC	MP
N	Finish	AL	AL	AS	HP	AL	MN2	AZ	AP, AH	AL, PP	AG	GT - SA, FL	AK, AR

Technical Information
Comparison Chart - Turning Grades

ISO	YG - 1	ISCAR	SANDVIK	SECO	PRAMET	KENNAMETAL	TUNGALOY	MITSUBISHI	WALTER	TAEGUTEC	KORLOY	SUMITOMO	KYOCERA
P	YG3010	IC8150 IC9150 IC9015	GC4415 GC4305 GC4315	TP0501 TP1500 TP1501	T9310 T9315	KCP05B KCP05 KCPK05 KCP10B KCP10	T9205 T9105 T9215 T9115	UE6105 UE6110 MY5015 MC6015	WPP10G WPP01 WPP05S WPP10S	TT8105B TT8115B TT8105 TT8115	NC3215	AC8015P AC810P AC700G	CA510 CA515 CA5505 CA5515
	YG3115	IC8150 IC9150	GC4315 GC4415	TP1501 TP1500	T9315	KCP10 KCP10B	T9115 T9215	MC9015 MC6115 UE6110	WPP10 WPP10S	TT8115 TT8115B	NC3215	AC8015P AC8020P AC810P	CA515 CA5515
	YG3020	IC8250 IC9250	GC4425 GC4325	TP2500 TP2501	T9325	KCP25 KCP25B	T9225 T9125	MC6025 UE6020	WPP20G WPP20S WMP20S	TT8125B TT8125 LC225P	NC3120 NC3225	AC8025P AC820P	CA025P CA525 CA5525
	YG3030	IC8350 IC9350	GC4235 GC2135 GC4035	TP3500 TP3501	T9335	KCP30B KCP30 KCP40B KCP40	T9235 T9135	MC6035 UE6035 UH6400	WPP30G WPP30S WKP30S		NC3030 NC5330	AC8035P AC830P	CA530 CA5535
M	YG3030	IC6015 IC6025 IC9300 IC520M IC4050 IC635	GC2015 GC2025 GC2035 GC235	TM1501 TM2501 TM3501	T7325 T7330 T7335	KCM15B KCM15 KCM25B KCM25 KCM35B KCM35	T6120 T6020 T6130 T6030	MC7015 MC7025 US7020 US735 UH6400	WMP20S	TT9215 TT9225 TT9235	NC9115 NC9125 NC9135 NC5330	AC6020M AC610M AC6030M AC630M AC6040M AC830P	CA6515 CA6525
	YG2025	IC9025 IC9325	GC2220	TM2501 TM2000		KCM25	T6120 T9125	MC7025 US7020		TT9225 TT5100		AC6020M AC6030M	CA6525
K	YG1010 YG1001	IC5005 IC5010 IC4028 IC8150	GC3205 GC3210 GC3215	TK0501 TK1501	T5305 T5315	KCK05 KCK05B KCK15 KCK15B KCK20 KCK20B KCPK05	T5105 T5115 T1215 T1115 T5125 T5020	MC5005 UC5105 MC5015 UC5115 MY5015	WKK10S WKK20S WAK30 WKP30S WKK10 WKK20	TT3005 TT7005 TT7310 TT7015	NC6310 NC6315 NC5330	AC4010K AC405K AC4015K AC415K AC420K AC8025P	CA310 CA315 CA320 CA4505 CA4515

P	YG801	IC807 IC830 IC507 IC908	GC1025	TP1030 TP1020	T6310 T8430 T8345	KU10T KCU10 KT315 KU25T KC5010	AH330 AH725 AH730 SH725 SH730	VP10RT MS6015 VP15TF VP20MF VP20RT UP20M	WTA43 WTA41	TT4410 TT9020 TT4430 TT9080 TT8080	PC5300 PC5400 PC3035	AC1030U	PR930 PR1225 PR1535 PR1725
M	YG211	IC3028 IC907	GC1105 GC1115 GC2015	TS2000 TS2050	T6310 T8315	KCU10 KCU5010	AH120 AH140 AH630 AH645	VP10RT	WSM21 WSM01 WSM10S	TT5030	PC8105 PC8110	SC520U AC1030U	
	YG401	IC807						MP9005		TT5080	PC8115	AC5005S	
	YG213	IC908	GC2025	CP200 CP500	T8330 M6330	KCU25 KCU5025	SH725 AH7025	VP15TF VP20MF VP20RT UP20M MP7025	WSM20S	TT9080	PC5300 PC8120 PC9030	AC530U	PR930 PR1225 PR1535 PR1725
	YG214	IC330 IC830	GC2035	CP600	T8430		SH730 GH330 GH730 AH4035		WSM30S	TT8080 TT8020	PC5400		
S	YG401	IC804 IC806 IC830 IC807 IC908	GC1025 GC1105 GC1125	TS2000 TS2050 TS2500 TH1000 CP200	M6330 T6310	KCS10 KCU10 KCU25 KCS010 KCS025 KCS10B	AH110 AH120 AH905	MP9005 VP05RT MP9015 VP10RT MP9025 VP20RT MV9005	WSM01 WSM105 WSM205 WSM21 WSM305	TT3010 TT3020 TT5080 TT5030	PC8105 PC8110 PC8115 PC5300 PC5400	AC5015S SC5025S AC510U AC520U AC5005S	PR005S PR015S PR1535 PR1125 PR1305 PR1310

N	YG10	IC20	H13A H10F	KX		K313 K68		HT10	WK1		H01 H05	H1	KW10
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P10	YT100	IC30N	CT5005 CT5015 CT525 GC1525	TP1030 CMP CM	TT010 TT310	KT5020 KT125 KT150	GT730 GT530 NS520 NS720	UP35N	TN60 TN610 TN620 TN90	CT3000	CN1500 CN2500 CC125	T1500A T1000A T2500Z	TN60 TN610 TN620 TC40N
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Technical Information
Comparison Chart - Milling Grades

ISO	YG - 1	SANDVIK	SECO	KENNAMETAL	ISCAR	WALTER	TUNGALOY	MITSUBISHI	TAEGUTEC	KORLOY	SUMITOMO	KYOCERA	HITACHI	DIJET
P	YG712	GC4220 GC1130	T250M MP3000	KC715M KC522M KC635M		WKP25S WKP25 WAM10	T3130 GH330	MP8010 MP6120 MP6130 MP9120	TT7070 TT7080 TT7030	PC3700 PC3600 PC3500	ACP2000 ACZ310	PR730	CY9020 JP4020 TB6045	JC5003
	YG713	GC4230 GC4330	T350M F25M	KC525M	IC950 IC1008	WAM20 WAM30	AH710 AH120 T3225			PC210F	ACP200 ACZ330	PR830 PR630	JP4120 CY250	JC5015
	YG602	GC1030 GC4240	F30M	KC725M KC735M	IC900 IC808 IC908 IC330	WKP35G WKP35S	T3130 AH3035 AH110	VP15TF VP20RT MP9130	TT9030 TT9080	NC5330 PC5300 NCM325 NC5350	ACP3000	PR1025 PR1225	PTH30E JS4060 JP4160	JC5030 JC5040
	YG613	GC4340 GC1040	F40M T60M	KCPM20 KC935M KCPM40	IC830 IC928	WKP45S WKP45X WSP45S	AH725 AH730 GH330 AH130 AH140	FH7020 VP30RT F7030	TT8020 TT8025 TT8080	NC5340 PC5400 NCM335	ACP300 ACZ350	PR1525 PR1230 PR660	JM4160 PTH40H	
M	YG602	GC2030 GC1030	F25M	KC635M KC522M KC725M	IC330	WAM30 WXM35 WSM35	AH725 AH120 GH110 AH730	VP15TF MP7130 MP7030	TT9030 TT9080	PC210F PC5300 NCM325 NC5350	XCU2500 ACM100 ACP200 ACM300	PR1025 PR1225 PR1525 PR630	JX1015 TB6020 CY250 GX2160 JX1045	JC5003 JC5015 JC5030
	YG613	GC2040	F30M F40M	KC722	IC928 IC328	WSP45	AH140 GH340	MP9030 MP7140 VP30RT	TT8080 TT8020	PC9530 NCM335 PC5400	ACP300 ACZ350 ACP400	PR660 PR1535 PR660	TB6045 JX1060 TB6060	JC5040
K	YG5020	GC3220 GC1020	MK1500 MP1500	KC915M	DT7150 IC5100 IC418	WAK15	T1015	VP15TF	TT6290 TT7515 TT6800	NC5330 PC8110	XCK2000	PR1510 PR510		JC5003
	YG501	GC3040	MK2050 MK2000	KCK15 KC520M	IC910 IC810	WKK25S WKP25	T1115 T1215 AH120	MP8010 MC5020	TT6080 TT6030	PC6510 NC5340	ACK200 ACZ310	PR1210 PR905		JC5015
	YG622		MK3000			WKP35	GH110	VP20RT		NC5350 PC5300	ACK300	CA420M		
	YG602	GC1025 GC1040	F40M MM4500	KC510M KCU30M	IC328 IC408	WSM35S		VP15TF VP30RT	TT9030 TT8020 TT9540	PC5300 PC5400 PC9540	AC520U	CA6535 PR620	ACS05E	
S	YG613	S30T S40T	MS2500	KC725M	IC903	WSM45S WSM45X		MP9130	TT8080 TT3540	UPC845		PR660 PR1535		
	YG012	GC1130 GC1030	MP1500 MP3000		IC1008			VP15TF						

ISO ↔ ANSI

ISO	ANSI
CC.. 060201	CC.. 21.50
CC.. 060202	CC.. 21.5.5
CC.. 060204	CC.. 21.51
CC.. 060208	CC.. 21.52
CC.. 09T301	CC.. 32.50
CC.. 09T302	CC.. 32.5.5
CC.. 09T304	CC.. 32.51
CC.. 09T308	CC.. 32.52
CC.. 120402	CC.. 43.5
CC.. 120404	CC.. 431
CC.. 120408	CC.. 432
CC.. 120412	CC.. 433
CN.. 090308	CN.. 322
CN.. 090312	CN.. 323
CN.. 090408	CN.. 332
CN.. 090412	CN.. 333
CN.. 120401	CN.. 430
CN.. 120402	CN.. 43.5
CN.. 120404	CN.. 431
CN.. 120408	CN.. 432
CN.. 120412	CN.. 433
CN.. 120416	CN.. 434
CN.. 160608	CN.. 542
CN.. 160612	CN.. 543
CN.. 160616	CN.. 544
CN.. 190608	CN.. 642
CN.. 190612	CN.. 643
CN.. 190616	CN.. 644
CN.. 190624	CN.. 646
CN.. 250924	CN.. 866
DC.. 070202	DC.. 21.5.5
DC.. 070204	DC.. 21.51
DC.. 070208	DC.. 21.52
DC.. 11T301	DC.. 32.50
DC.. 11T302	DC.. 32.5.5
DC.. 11T304	DC.. 32.51
DC.. 11T308	DC.. 32.52
DC.. 11T312	DC.. 32.53
DN.. 110404	DN.. 331
DN.. 110408	DN.. 332
DN.. 150404	DN.. 431
DN.. 150408	DN.. 432
DN.. 150412	DN.. 433
DN.. 150604	DN.. 441
DN.. 150608	DN.. 442
DN.. 150612	DN.. 443
SC.. 09T304	SC.. 32.51
SC.. 09T308	SC.. 32.52
SC.. 120408	SC.. 432
SD.. 1203	SD.. 42
SC.. 120412	SC.. 433
SD.. 120420	SD.. 435
SD.. 1504	SD.. 53
SE.. 1203	SE.. 42

ISO	ANSI
SN.. 090304	SN.. 321
SN.. 090308	SN.. 322
SN.. 120404	SN.. 431
SN.. 120408	SN.. 432
SN.. 120412	SN.. 433
SN.. 120416	SN.. 434
SN.. 150612	SN.. 543
SN.. 190612	SN.. 643
SN.. 190616	SN.. 644
SN.. 190624	SN.. 646
SN.. 250724	SN.. 856
SN.. 250924	SN.. 866
SP.. 1203	SP.. 42
SP.. 120308	SP.. 422
SP.. 1504	SP.. 53
TC.. 110204	TC.. 21.51
TC.. 110208	TC.. 21.52
TC.. 16T302	TC.. 32.5.5
TC.. 16T304	TC.. 32.51
TC.. 16T308	TC.. 32.52
TN.. 160404	TN.. 331
TN.. 160408	TN.. 332
TN.. 160412	TN.. 333
TN.. 220404	TN.. 431
TN.. 220408	TN.. 432
TN.. 220412	TN.. 433
TN.. 220416	TN.. 434
TP.. 1603	TP.. 32
TP.. 160308	TP.. 322
TP.. 2204	TP.. 43
VB.. 110301	VB.. 220
VB.. 110302	VB.. 22.5
VB.. 110304	VB.. 221
VB.. 110308	VB.. 222
VB.. 160402	VB.. 33.5
VB.. 160404	VB.. 331
VB.. 160408	VB.. 332
VC.. 110301	VC.. 220
VC.. 110302	VC.. 22.5
VC.. 110304	VC.. 221
VC.. 110308	VC.. 222
VC.. 160402	VC.. 33.5
VC.. 160404	VC.. 331
VC.. 160408	VC.. 332
VN.. 160404	VN.. 331
VN.. 160408	VN.. 332
VN.. 160412	VN.. 333
WN.. 060404	WN.. 331
WN.. 060408	WN.. 332
WN.. 060412	WN.. 333
WN.. 080404	WN.. 431
WN.. 080408	WN.. 432
WN.. 080412	WN.. 433
WN.. 080416	WN.. 434

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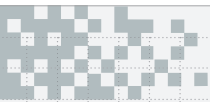
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