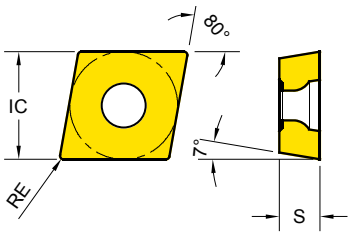
Turning Inserts - Positive

CCGT / CCMT (80° Rhombic)



Series	IC	S
CC** 0602	6.350	2.38
CC** 09T3	9.525	3.97
CC** 1204	12.700	4.76

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

CCGT CCMT		Designation	RE	Fn (mm/rev.)	Ap (mm)	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	CCGT 060202 - AL	0.2	0.01 ~ 0.12	0.05 ~ 3.0																● 1398
		CCGT 060204 - AL	0.4	0.02 ~ 0.15	0.10 ~ 3.0															● 1278	● 1320
		CCGT 09T302 - AL	0.2	0.02 ~ 0.20	0.05 ~ 3.0															● 0340	● 0339
		CCGT 09T304 - AL	0.4	0.02 ~ 0.30	0.10 ~ 5.0															● 0330	● 0081
		CCGT 09T308 - AL	0.8	0.03 ~ 0.50	0.10 ~ 5.0															● 0331	● 0082
		CCGT 120402 - AL	0.2	0.02 ~ 0.30	0.05 ~ 4.0															● 0474	● 0473
		CCGT 120404 - AL	0.4	0.03 ~ 0.50	0.10 ~ 5.0															● 0476	● 0475
		CCGT 120408 - AL	0.8	0.04 ~ 0.80	0.10 ~ 5.5															● 0478	● 0477
-UF	 Finishing	CCMT 060204 - UF	0.4	0.05 ~ 0.20	0.5 ~ 2.0			○ 0163	○ 0866	● 2365	● 0164	● 0165									
		CCMT 09T304 - UF	0.4	0.05 ~ 0.25	0.5 ~ 2.0			○ 0169		● 2371	● 0170	● 0171									
		CCMT 09T308 - UF	0.8	0.05 ~ 0.25	1.0 ~ 2.0			○ 0964		● 2578	● 0951	● 0953									
		CCMT 120404 - UF	0.4	0.10 ~ 0.25	1.0 ~ 5.0					● 2579	● 1347	● 1337									
-UG	 General	CCMT 060204 - UG	0.4	0.10 ~ 0.25	0.5 ~ 2.0	● 1377		○ 0166		● 2357	● 0167	● 0168	○ 0006				○ 1900				
		CCMT 060208 - UG	0.8	0.10 ~ 0.25	0.8 ~ 2.0	● 1825		○ 0479		● 2378	● 0683	● 0684	○ 0009				○ 1901				
		CCMT 09T304 - UG	0.4	0.15 ~ 0.30	0.5 ~ 2.5	● 1844		○ 0172		● 2206	● 0173	● 0174	○ 0007				○ 1586				
		CCMT 09T308 - UG	0.8	0.15 ~ 0.30	0.8 ~ 2.5	● 1553	○ 0445	○ 0150		● 2180	● 0151	● 0152	○ 0008		○ 1908		○ 1902				
		CCMT 120404 - UG	0.4	0.15 ~ 0.35	0.5 ~ 3.0	● 1845		○ 0175		● 2399	● 0176	● 0177									
		CCMT 120408 - UG	0.8	0.15 ~ 0.35	0.8 ~ 3.0	● 1462		○ 0153	○ 0867	● 2183	● 0154	● 0155	○ 0005				○ 1125				
		CCMT 120412 - UG	1.2	0.15 ~ 0.35	1.2 ~ 3.0	● 1846		○ 0483		● 2580	● 0915	● 1135					○ 1126				

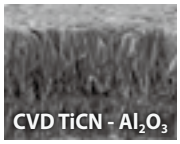
YG TURN

Product Overview

Turning Grades

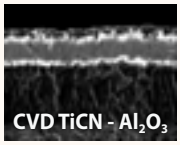
Turning Grades		P Steel				M Stainless steel			K Cast iron			N Non-ferrous		S Superalloys	
		P10	P20	P30	P40	M10	M20	M30	K10	K20	K30	N10	N20	S10	S20
CVD	YG1010								1010						
	YG1001	1001								1001					
	YG3010		3010							3010					
	YG3015		3015												
	YG3115		3115												
	YG3020			3020											
	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



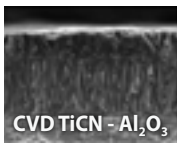
First Choice for Cast Iron
- Effective coating structure enables high speed machining
- Special post treatment for improved chipping resistance

YG1001
P01 - P10
K10 - K25



Stable Machining of Cast Iron
- Substrate especially designed for high wear resistance
- Thick Al_2O_3 layer ensures good wear resistance at high cutting speeds including dry machining

YG3010
P05 - P20
K15 - K35

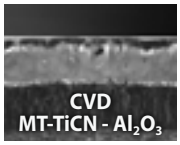


First choice for Finishing Steels, and Ductile Cast iron
- Finishing and light machining of steel under in stable condition
- New Al_2O_3 coating technology and excellent surface smoothness increase wear resistance and chipping resistance

YG3015
P10 - P25

Balanced Productivity for Continuous cut
- High wear resistance and improved toughness ensures high productivity with less trouble

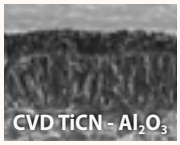
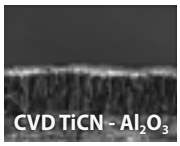
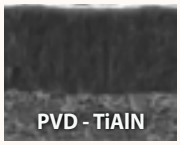
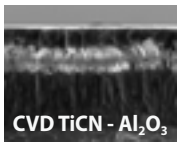
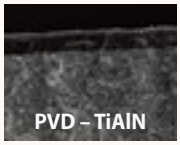
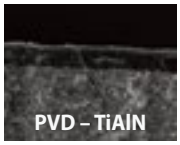
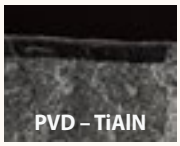
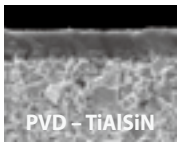
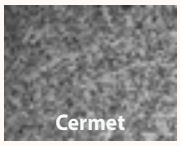
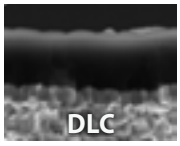
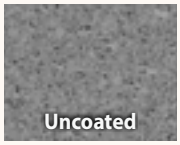
NEW
YG3115
P15 - P25



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

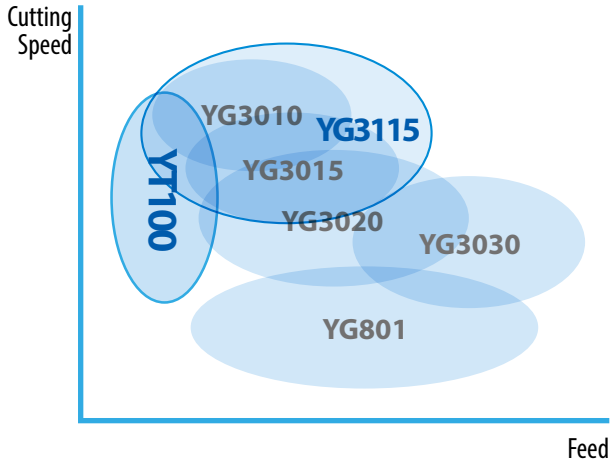
YG3020 P15 - P30		**First Choice Grade for General Steel Application** • Substrate especially designed for good toughness • Excellent surface smoothness increases wear resistance and reliability
YG3030 P20 - P35		**Interrupted Cutting of Steel and Stainless steel** • Substrate for heavy roughing in mild steel and low carbon alloy steel • New Al_2O_3 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

Product Overview

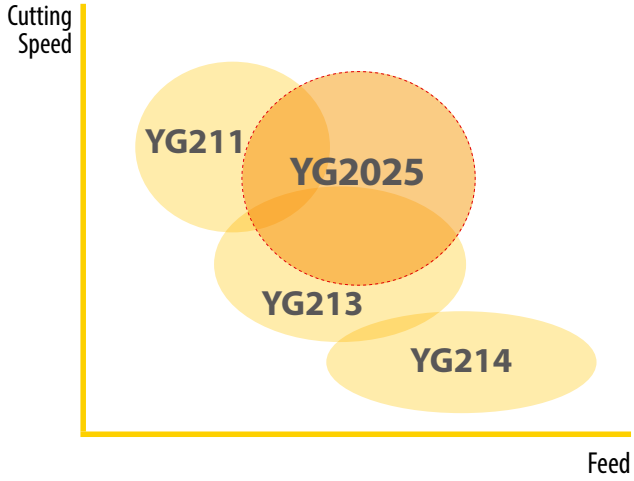
Turning Grades Map

Speed : Vc (m/min.)
Feed : Fn (mm/rev.)

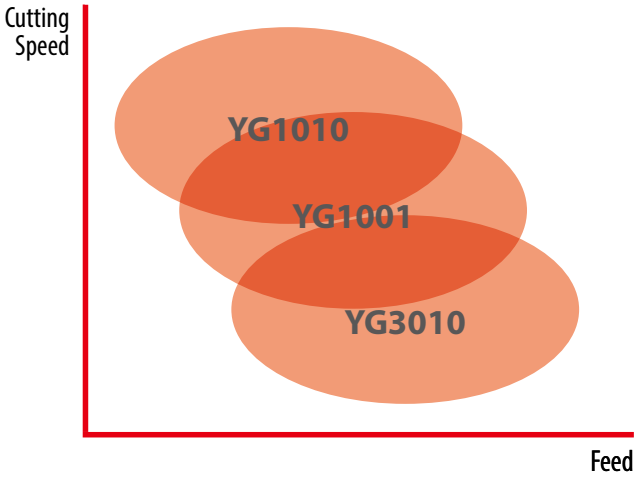
Steel



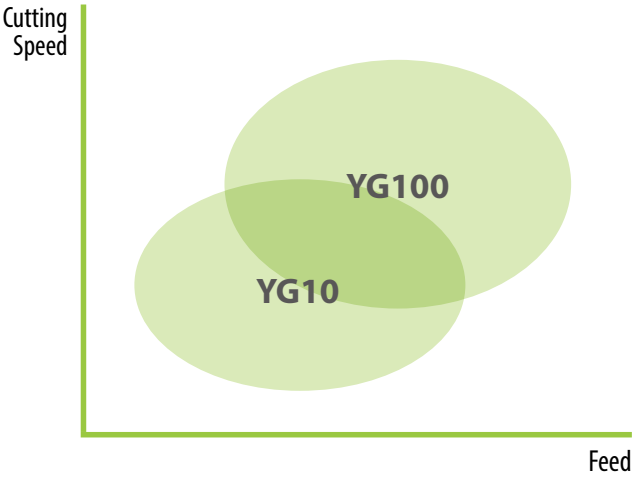
Stainless steel



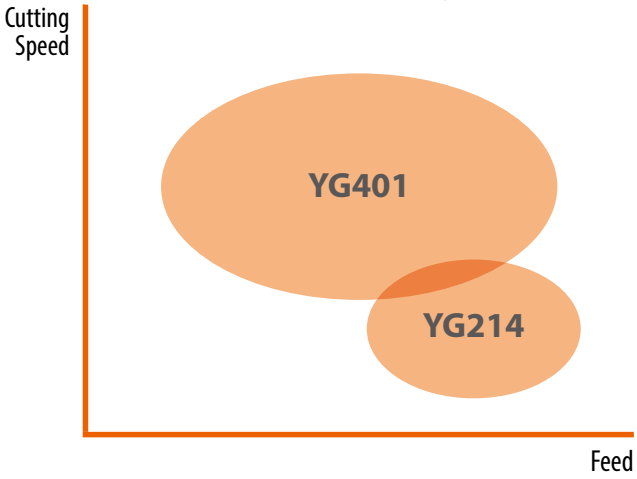
Cast iron



Non-ferrous Metal

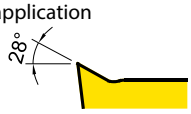
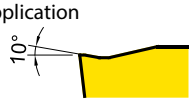
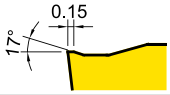
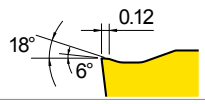
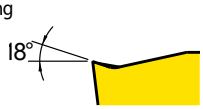
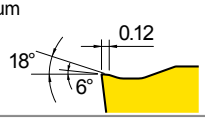


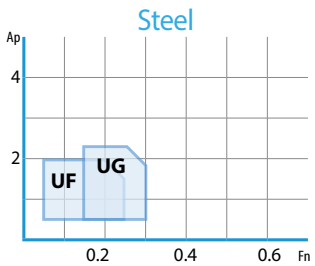
Superalloy

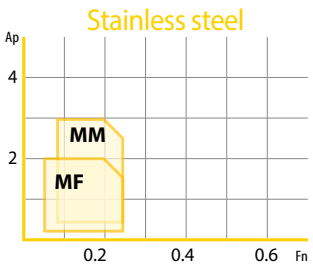


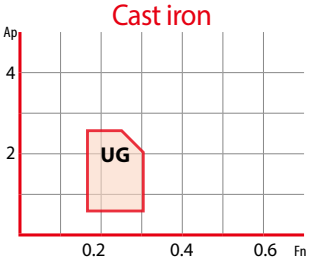
Product Overview

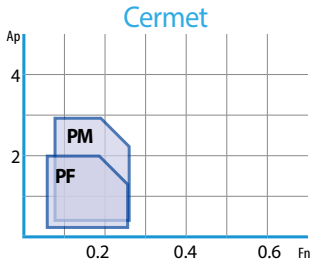
Turning Chipbreakers - Positive

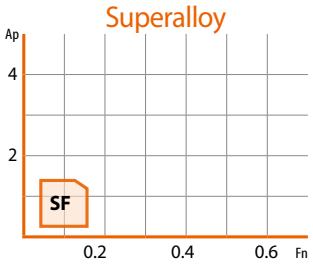
P	M	K	N	S				Feed (Fn mm/rev.) 0 0.1 0.2 0.3 0.4 0.5 0.6	Depth of Cut (Ap mm) 0 1 2 3 4 5 6
			N		AL		Aluminum application 	Fn 0.02~0.30 Ap 0.1~5.0	
P	M				UF		Finishing application 	Fn 0.05~0.25 Ap 0.5~2.0	
P		K			UG		Medium application 	Fn 0.15~0.30 Ap 0.5~2.5	
	M				NEW MF		Stainless steel Finishing 	Fn 0.06~0.25 Ap 0.1~2.0	
	M				NEW MM		Stainless steel Medium 	Fn 0.08~0.25 Ap 0.25~3.0	
	M				NEW SF		HRSA Finishing 	Fn 0.03~0.20 Ap 0.1~2.5	
P	M	K			NEW PF		Cermet Finishing 	Fn 0.06~0.25 Ap 0.1~2.0	
P	M	K			NEW PM		Cermet Medium 	Fn 0.08~0.25 Ap 0.25~3.0	

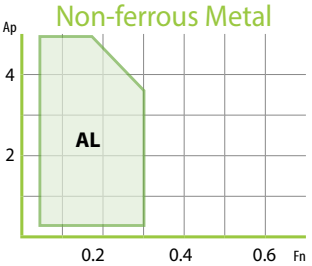












*Insert : CCMT09T304

Technical Information

Recommended cutting conditions

Turning

Cutting Speed			Vc (m/min.)													
ISO	VDI	Sub Group	YG1010		YG1001		YG3010		YG3015		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	-	-	220	480	230	450	200	430	180	500	160	380	130	350	120	200
	6~9	Low-Alloyed Steel	-	-	220	420	180	380	150	350	170	450	140	320	130	280	70	200
	10~11	High-Alloyed Steel	-	-	-	-	60	200	90	180	60	300	60	130	70	110	-	-
M	12~13	Ferritic & Martensitic	-	-	-	-	-	-	-	-			-	-			-	-
	14	Austenitic Stainless Steel	-	-	-	-	-	-	-	-			-	-			-	-
K	15~16	Grey Cast Iron	300	450	250	420	120	300	-	-			-	-	-	-	-	-
	17~18	Nodular Cast Iron	120	350	120	300	120	280	-	-			-	-	-	-	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-			-	-	-	-	-	-
S	31~37	Superalloys & Titanium	-	-	-	-	-	-	-	-			-	-	-	-	-	-
H	38~41	Hard Materials	-	-	-	-	-	-	-	-			-	-	-	-	-	-

Turning

Cutting Speed			Vc (m/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			-	-	-	-	-	-	-	-	150	480	-	-	-	-
	6~9	Low-Alloyed Steel			-	-	-	-	-	-	-	-	160	480	-	-	-	-
	10~11	High-Alloyed Steel			-	-	-	-	-	-	-	-	70	180	-	-	-	-
M	12~13	Ferritic & Martensitic	170	220	170	270	120	180	100	150	-	-	150	280	-	-	-	-
	14	Austenitic Stainless Steel	150	200	150	230	40	160	100	150	-	-	130	260	-	-	-	-
K	15~16	Grey Cast Iron			-	-	-	-	-	-	-	-	130	450	-	-	-	-
	17~18	Nodular Cast Iron			-	-	-	-	-	-	-	-	100	400	-	-	-	-
N	21~30	Non-Ferrous Metals (Al)			-	-	-	-	-	-	-	-	-	-	250	1200	250	800
S	31~37	Superalloys & Titanium			30	100	30	70	30	50	30	90	-	-	-	-	-	-
H	38~41	Hard Materials			-	-	-	-	-	-	-	-	-	-	-	-	-	-

Parting & Grooving

Cutting Speed			Vc (m/min.)			
ISO	VDI	Sub Group	YG602G (YG602)		YG603	
			Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	120	180		
	6~9	Low-Alloyed Steel	100	140		
	10~11	High-Alloyed Steel	80	110		
M	12~13	Ferritic & Martensitic	70	160	50	90
	14	Austenitic Stainless Steel	55	140	40	80
K	15~16	Grey Cast Iron	110	185		
	17~18	Nodular Cast Iron	110	140		
N	21~30	Non-Ferrous Metals (Al)	250	440		
S	31~37	Superalloys & Titanium	25	45		
H	38~41	Hard Materials	25	50		

Insert ISO Code System

*Metric : According to ISO 1832

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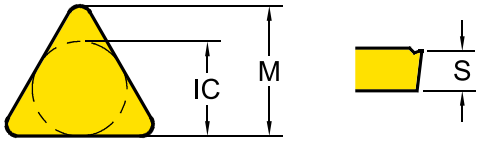
1	2	3	4	5	6	7	8	9
C	N	M	G	12	04	08	-UG	YG3115
Shape	Clearance	Tolerance	Clamping & Chipbreaker	Insert Size	Insert Thickness	Corner Radius	Chipbreaker Geometry	Grade

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

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

4 - Clamping & Chipbreaker

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

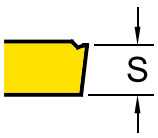
Insert ISO Code System

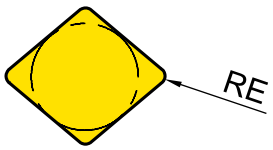
*Inch

							page 14	page 12
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 (mm)	Inch
S	T	C	D	V	W	R		
06	**11**	**06**	**07**	**11**			6.35	**2**
07	**13**	**08**	**09**	**13**	**15**		7.94	**2.5**
09	**16**	**09**	**11**	**16**	**06**	**09** (00)	9.525	**3**
12	**22**	**12**	**15**	**22**	**08**	**12** (00)	12.7	**4**
15	**27**	**16**	**19**	**27**	**10**		15.875	**5**
19	**33**	**19**	**23**	**33**	**13**		19.05	**6**
25		**25**					25.4	**8**
						06 (M0)	6	
						08 (M0)	8	
						10 (M0)	10	
						12 (M0)	12	
						16 (M0)	16	





6 - Insert Thickness (S)

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

7 - Corner Radius (RE)

Metric	Corner Radius - RE (mm)	Inch
01	0.1	**03**
02	0.2	**05**
04	0.4	**1**
08	0.8	**2**
12	1.2	**3**
16	1.6	**4**
20	2.0	**5**
24	2.4	**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	General: Balanced Grade, High Versatility, General Application
25	
30	
35	
40	Unstable: Tougher Grade, Unstable Application, Interrupted Cut, Chipping Resistance, Roughing
45	

(6) - (Minor Variation)

G - Gold Coated Version