

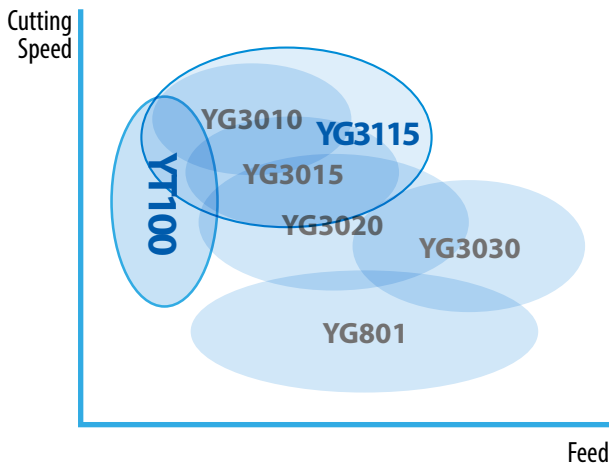
Product Overview

Turning Grades Map

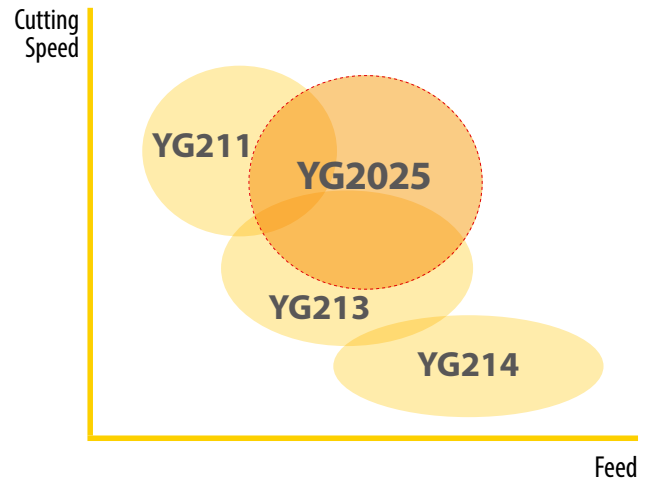
Speed : Vc (m/min.)
Feed : Fn (mm/rev.)

TURNING
PARTING & GROOVING
MILLING
DRILLING
TECHNICAL INFORMATION

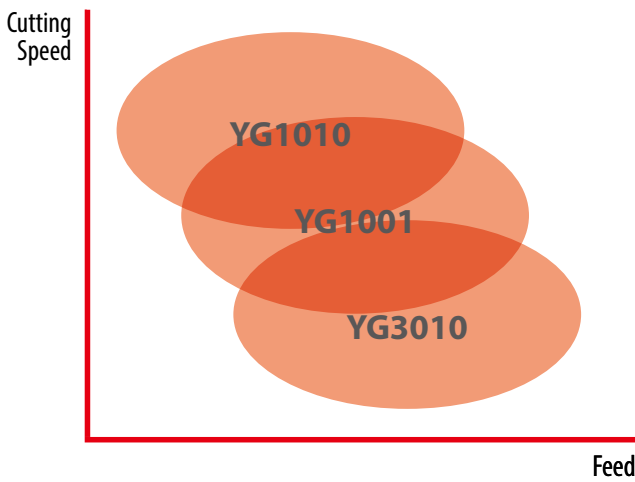
Steel



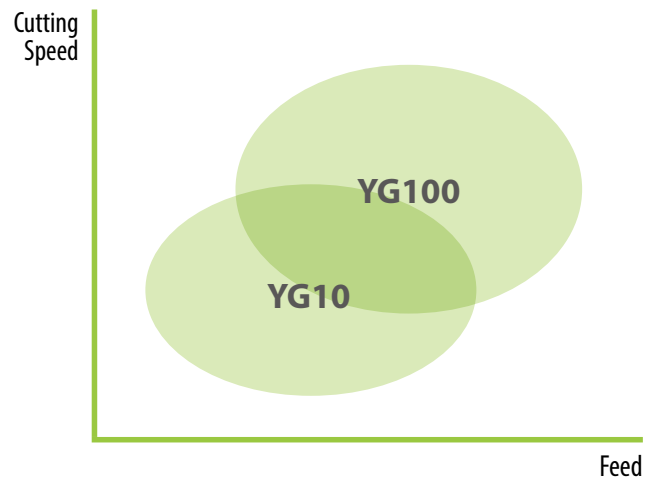
Stainless steel



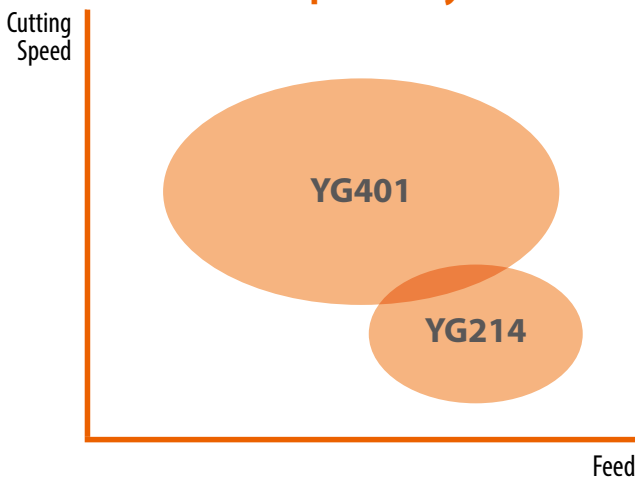
Cast iron



Non-ferrous Metal



Superalloy

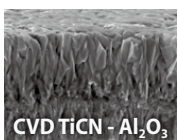
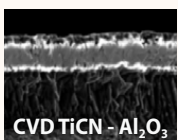
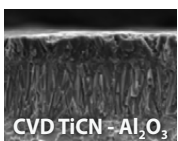
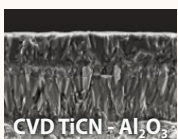
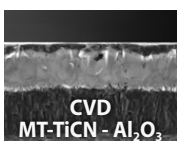


Turning Grades

TURNING
PARTING & GROOVING
MILLING
DRILLING

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				

TECHNICAL INFORMATION

<p>YG1010</p> <p>K05 - K15</p>	 <p>CVD TiCN - Al₂O₃</p>	<p>First Choice for Cast Iron</p> <ul style="list-style-type: none"> • Effective coating structure enables high speed machining • Special post treatment for improved chipping resistance
<p>YG1001</p> <p>P01 - P10</p> <p>K10 - K25</p>	 <p>CVD TiCN - Al₂O₃</p>	<p>Stable Machining of Cast Iron</p> <ul style="list-style-type: none"> • Substrate especially designed for high wear resistance • Thick Al₂O₃ layer ensures good wear resistance at high cutting speeds including dry machining
<p>YG3010</p> <p>P05 - P20</p> <p>K15 - K35</p>	 <p>CVD TiCN - Al₂O₃</p>	<p>First choice for Finishing Steels, and Ductile Cast iron</p> <ul style="list-style-type: none"> • Finishing and light machining of steel under in stable condition • New Al₂O₃ coating technology and excellent surface smoothness increase wear resistance and chipping resistance
<p>YG3015</p> <p>P10 - P25</p>	 <p>CVD TiCN - Al₂O₃</p>	<p>Balanced Productivity for Continuous cut</p> <ul style="list-style-type: none"> • High wear resistance and improved toughness ensures high productivity with less trouble
<p>NEW</p> <p>YG3115</p> <p>P15 - P25</p>	 <p>CVD MT-TiCN - Al₂O₃</p>	<p>First choice grade for high cutting speed in Steels</p> <ul style="list-style-type: none"> • 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

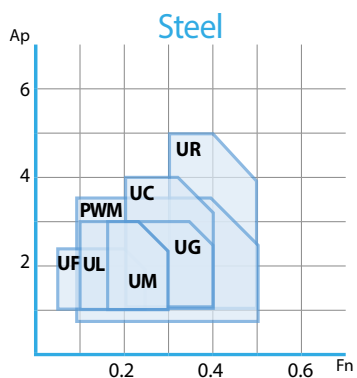
<p>YG3020</p> <p>P15 - P30</p>	 <p>CVD TiCN - Al₂O₃</p>	<p>First Choice Grade for General Steel Application</p> <ul style="list-style-type: none"> • Substrate especially designed for good toughness • Excellent surface smoothness increases wear resistance and reliability
<p>YG3030</p> <p>P20 - P35</p>	 <p>CVD TiCN - Al₂O₃</p>	<p>Interrupted Cutting of Steel and Stainless steel</p> <ul style="list-style-type: none"> • Substrate for heavy roughing in mild steel and low carbon alloy steel • New Al₂O₃ technology and optimized surface treatment achieves a good balance between wear resistance and chipping resistance
<p>YG801</p> <p>P10 - P30</p>	 <p>PVD - TiAlN</p>	<p>for Carbon Steel with Low Cutting Speed</p> <ul style="list-style-type: none"> • Recommended for mild steel and boring application • Substrate and special PVD coating for excellent wear resistance
<p>NEW</p> <p>YG2025</p> <p>M15 - M35</p>	 <p>CVD TiCN - Al₂O₃</p>	<p>CVD grade for High Cutting Speed for Stainless steel</p> <ul style="list-style-type: none"> • 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
<p>YG211</p> <p>M05 - M25</p>	 <p>PVD - TiAlN</p>	<p>High wear Resistance Grade for Stainless steel</p> <ul style="list-style-type: none"> • Finishing Stainless steel
<p>YG213</p> <p>M20 - M35</p>	 <p>PVD - TiAlN</p>	<p>First Choice Grade on Low Cutting Speed of Stainless steel</p> <ul style="list-style-type: none"> • First choice on Stainless steel for Low cutting speed • For Medium to low cutting speed
<p>YG214</p> <p>M30 - M40</p> <p>S25 - S30</p>	 <p>PVD - TiAlN</p>	<p>Heavy Interrupted cut for Stainless steel</p> <ul style="list-style-type: none"> • For Heavy Interrupted cut on Stainless steel • Minimize risk of Mechanical fracture or Chipping
<p>YG401</p> <p>S10 - S20</p>	 <p>PVD - TiAlSiN</p>	<p>PVD Turning Grade for HRSA</p> <ul style="list-style-type: none"> • Highly heat-resistant TiAlSiN structure for excellent wear resistance • Greatly improved film coating realizes excellent boundary defect resistance • Top coating layer provides a smooth surface and lubricant effect
<p>NEW</p> <p>YT100</p> <p>P10 - P20</p> <p>M10 - M20</p> <p>K10 - K20</p>	 <p>Cermet</p>	<p>New Generation Cermet Grade</p> <ul style="list-style-type: none"> • Enhanced wear resistance & chipping resistance • Excellent fracture resistance • Superior surface finish with special edge preparation
<p>YG100</p> <p>N05 - N25</p>	 <p>DLC</p>	<p>First Choice Grade for Aluminum with DLC Coating</p> <ul style="list-style-type: none"> • Submicron carbide for high wear resistance • DLC coating minimizes Built Up Edge tendency. • Improve tool life in sticky non-ferrous alloy
<p>YG10</p> <p>N05 - N25</p>	 <p>Uncoated</p>	<p>Uncoated Grade for General Aluminum</p> <ul style="list-style-type: none"> • Substrate consisted of submicron carbide for high wear resistance • Shining surface to prevent built up edge

Turning Chipbreakers - Negative

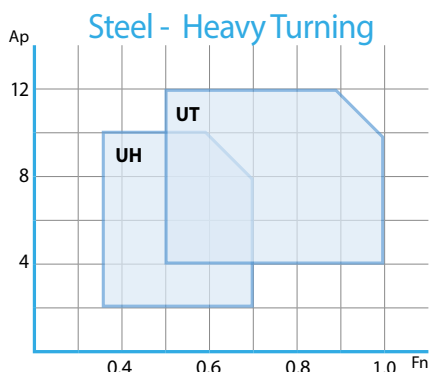
	P	M	K	N	S		Feed	Fn (mm/rev.)						
								0	0.1	0.2	0.3	0.4	0.5	0.6
TURNING	P					UF	Finishing							
	P					UL	Semi Finishing and sticky materials							
	P					UM	Medium & Unstable conditions							
	P					UG	First Choice for Medium (Stable conditions)							
	PARTING & GROOVING	P					NEW PWM	Wiper-Medium						
		P					NEW UH	Low cutting force						
		P					NEW UT	Heavy roughing						
		P		K			UC	Medium Roughing and First choice for Cast iron						
		P		K			UR	Roughing and Heavy interrupted cut						
		P		K			..MA	Cast iron Heavy Roughing						
MILLING	P													
	P													
DRILLING	P													
	P													
TECHNICAL INFORMATION	P													
	P													
	P													
	P		K											
			K											
			K											

0 1 2 3 4 5 6
Depth of Cut Ap (mm)

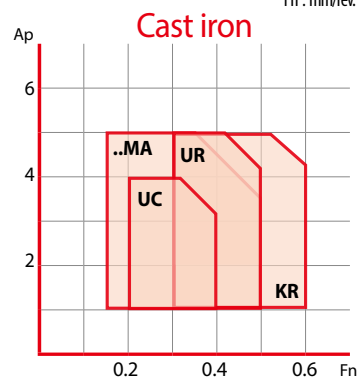
Ap : mm
Fn : mm/rev.



*Insert : CNMG120408



*Insert : CNMM190616



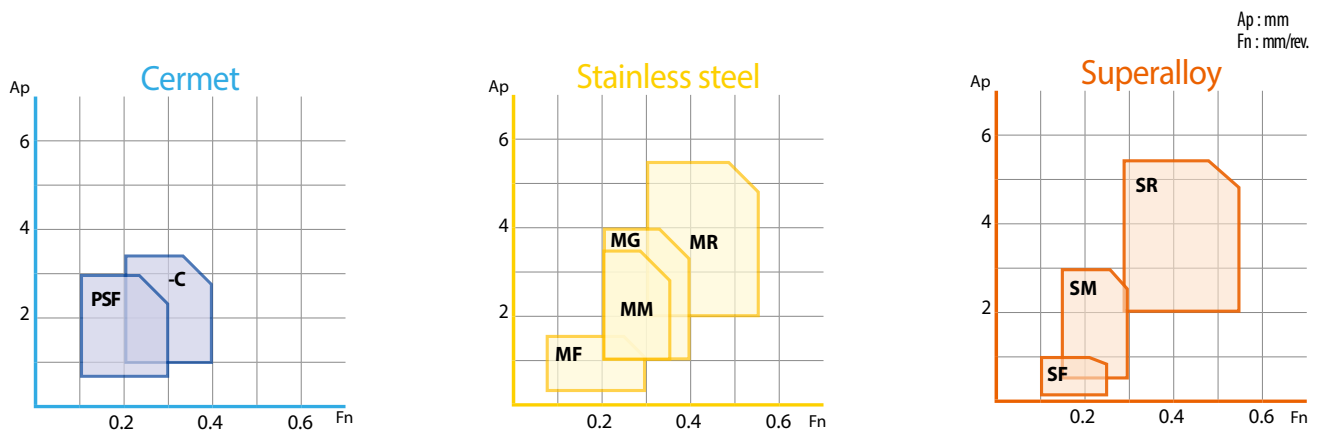
*Insert : CNMG120408

Product Overview

Turning Chipbreakers - Negative

P	M	K	N	S	Chipbreaker	Application	Diagram	Feed										
								0	0.1	0.2	0.3	0.4	0.5	0.6				
		K			KR	Cast Iron Heavy Roughing								Fn 0.3~0.6				
	M			S	MF	Stainless steel Finishing				Fn 0.07~0.30								
P	M			S	MM	Stainless steel Medium and Low Carbon Steel					Fn 0.20~0.35							
	M			S	MG	Stainless steel General					Fn 0.20~0.40							
	M			S	MR	Stainless steel Roughing						Fn 0.30~0.55						
				S	SF	HRSA Finishing					Fn 0.1~0.25							
				S	SM	HRSA Medium					Fn 0.15~0.30							
				S	SR	Roughing for HRSA						Fn 0.30~0.55						
P	M	K			NEW PSF	Cermet Finishing					Fn 0.10~0.30							
P	M	K			NEW -C	Cermet Medium						Fn 0.20~0.40						

TURNING
PARTING & GROOVING
MILLING
DRILLING
TECHNICAL INFORMATION



*Insert : CNMG120408 / TNGG160408

*Insert : CNMG120408

*Insert : CNMG120408

Product Overview

Turning Chipbreakers - Positive

TURNING

PARTING & GROOVING

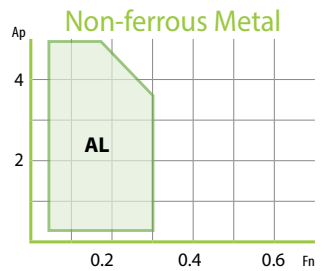
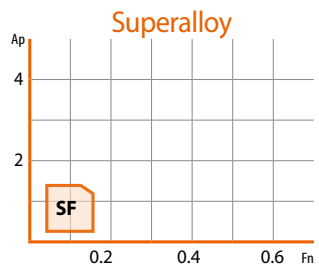
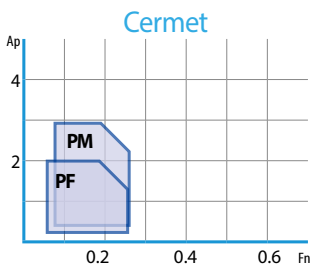
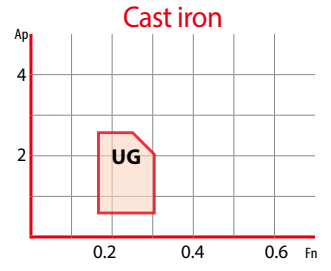
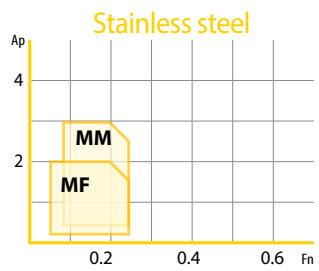
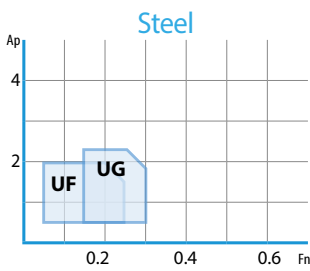
MILLING

DRILLING

TECHNICAL INFORMATION

P	M	K	N	S	Material	Application	Diagram	Feed						
								0	0.1	0.2	0.3	0.4	0.5	0.6
			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					

0 1 2 3 4 5 6
Depth of Cut Ap (mm)



*Insert : CCMT09T304

Insert ISO Code System

*Metric : According to ISO 1832

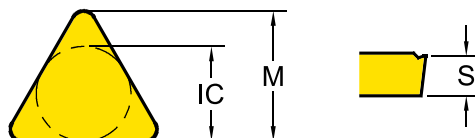
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1	2	3	4	5	6	7	8	9
C	N	M	G	12	04	08	-UG	YG3115
Shape	Clearance	Tolerance	Clamping & Chipbreaker	Insert Size	Insert Thickness	Corner Radius	Chipbreaker Geometry	Grade

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	



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

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	

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

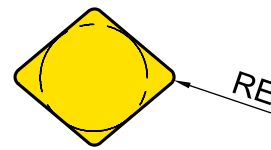
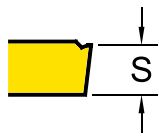
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1	2	3	4	5	6	7	8	9
C	N	M	G	4	3	2	-UG	YG3115
Shape	Clearance	Tolerance	Clamping & Chipbreaker	Insert Size	Insert Thickness	Corner Radius	Chipbreaker Geometry	Grade

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

(6) - (Minor Variation)

G - Gold Coated Version