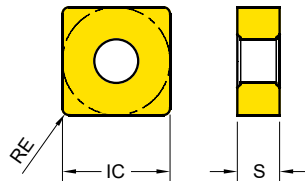


Turning Inserts - Negative

SNMG / SNMA (90° Negative)



Series	IC	S
SN** 1204	12.700	4.76
SN** 1506	15.875	6.35
SN** 1906	19.050	6.35

EDP 2200..

● : Stock item ○ : Order made item

SNMG	Designation	RE	Fn (mm/rev.)	Ap (mm)	K10	P05	P10	P15	P20	P30	P20	M15	M30	M40	S10	N20	N20
					YG1010	K20	K30	YG3010	YG3015	YG3020	YG3030	YG801	YG211	YG213	YG214	YG401	YG100
-MF Stainless steel Finishing	SNMG 120404 - MF	0.4	0.07 ~ 0.30	0.2 ~ 1.5								●	●	●			
	SNMG 120408 - MF	0.8	0.07 ~ 0.30	0.2 ~ 1.5						●		●	●	●			
	SNMG 120412 - MF	1.2	0.07 ~ 0.30	0.2 ~ 1.5						●		●	●	●			
-MM Stainless steel Medium	SNMG 120408 - MM	0.8	0.20 ~ 0.35	1.0 ~ 3.5								●	●	●			
	SNMG 120412 - MM	1.2	0.20 ~ 0.35	1.5 ~ 3.5								●	●	●			
-MG Stainless steel General	SNMG 120408 - MG	0.8	0.20 ~ 0.40	1.0 ~ 4.0								●	●	●	●		
-MR Stainless steel Roughing	SNMG 120408 - MR	0.8	0.30 ~ 0.55	2.0 ~ 5.5						●		●	●	●			
	SNMG 120412 - MR	1.2	0.30 ~ 0.55	2.0 ~ 5.5						●		●	●	●			

Cutting Speed			Vc (m/min.)													
ISO	VDI	Sub Group	YG1010	YG1001	YG3010	YG3015	YG3020	YG3030	YG801	YG211	YG213	YG214	YG401	YG100	YG10	
			Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max
P	1~5	Non-Alloyed Steel	-	220 480	230 450	200 430	160 380	130 350	120 200	-	-	-	-	-	-	
	6~9	Low-Alloyed Steel	-	220 420	180 380	150 350	140 320	130 280	70 200	-	-	-	-	-	-	
	10~11	High-Alloyed Steel	-	-	60 200	90 180	60 130	70 110	-	-	-	-	-	-	-	
M	12~13	Ferritic & Martensitic	-	-	-	-	-	110 220	-	170 270	120 180	100 150	-	-	-	
	14	Austenitic Stainless Steel	-	-	-	-	-	50 150	-	150 230	40 160	100 150	-	-	-	
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)	-	-	-	-	-	-	-	-	-	-	-	250 1200	250 800	
S	31~37	Superalloys & Titanium	-	-	-	-	-	-	-	30 100	30 70	30 50	30 90	-	-	
H	38~41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-	-	

Insert ISO Code System

*Metric : According to ISO 1832

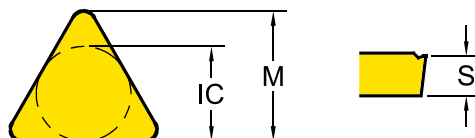
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1	2	3	4	5	6	7	8	9
C	N	M	G	12	04	08	-UG	YG3020
Shape	Clearance	Tolerance	Clamping & Chipbreaker	Insert Size	Insert Thickness	Corner Radius	Chipbreaker Geometry	Grade

1 - Shape

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



3 - Tolerance Class

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

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

4 - Clamping & Chipbreaker

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

2 - Relief Angle (AN)

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

Insert ISO Code System

*Inch

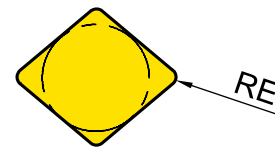
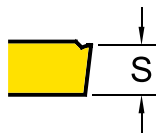
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1	2	3	4	5	6	7	8	9
C	N	M	G	4	3	2	-UG	YG3020
Shape	Clearance	Tolerance	Clamping & Chipbreaker	Insert Size	Insert Thickness	Corner Radius	Chipbreaker Geometry	Grade

5 - Insert Size

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



6 - Insert Thickness (S)

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

7 - Corner Radius (RE)

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

Grade Naming System

TURNING

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

PARTING & GROOVING

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	●			

4 & 5 — Application Range

Symbol	Application Range
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	

MILLING

DRILLING

TECHNICAL INFORMATION

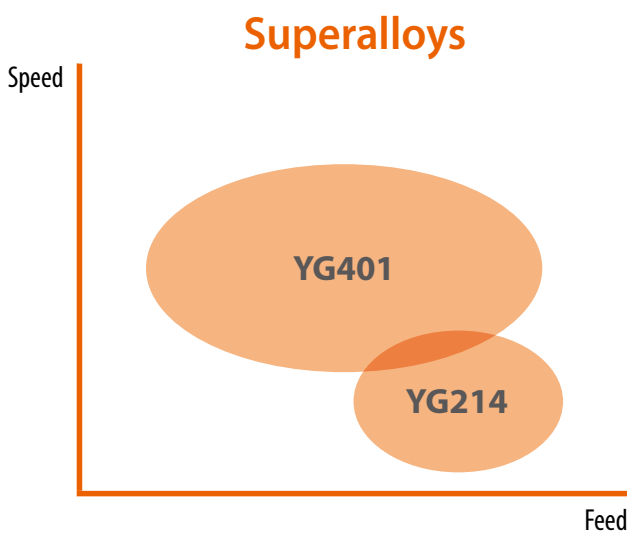
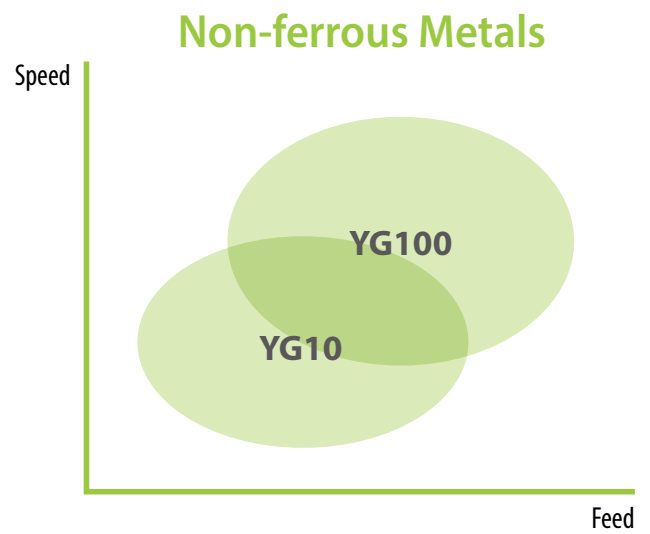
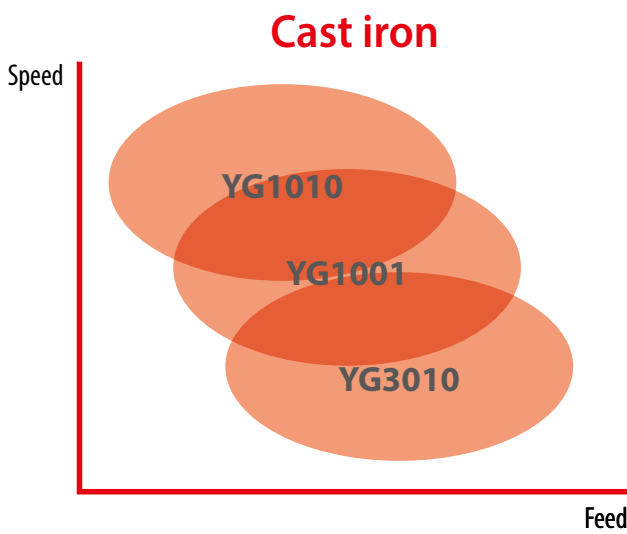
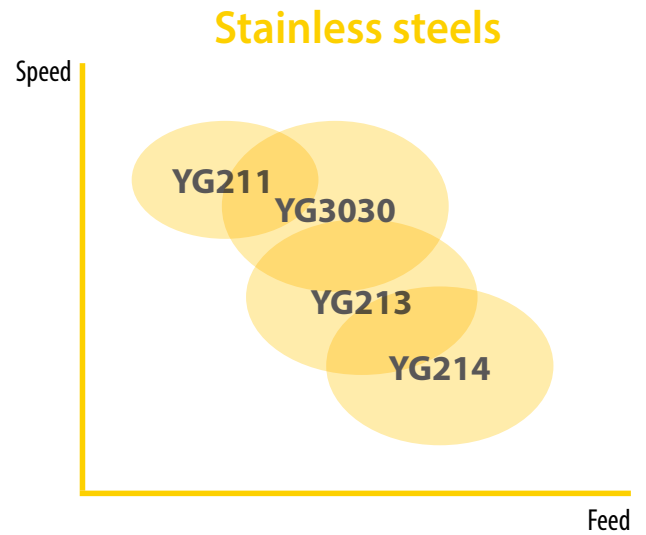
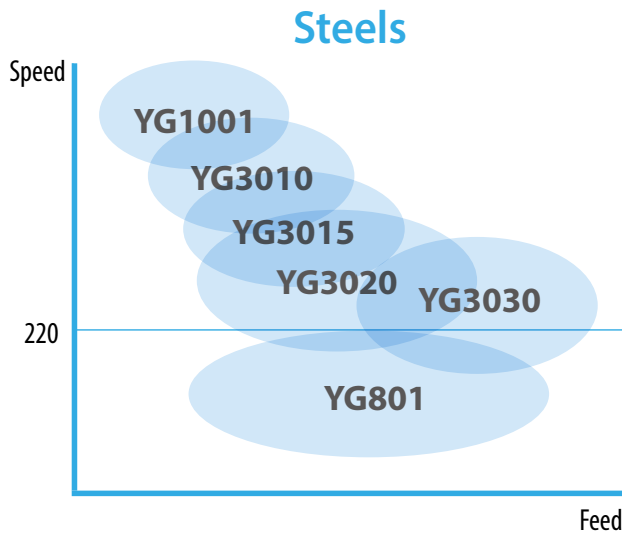
3 — Grade Version

(6) — (Minor Variation)

G — Gold Coated Version

Turning Grades Map

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



- TURNING
- PARTING & GROOVING
- MILLING
- DRILLING
- TECHNICAL INFORMATION

Turning Grades

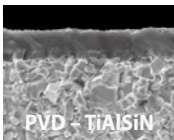
Turning Grades	P Steel				M Stainless steel			K Cast iron			N Non-ferrous		S Superalloys	
	P10	P20	P30	P40	M10	M20	M30	K10	K20	K30	N10	N20	S10	S20
CVD	YG1010							1010						
	YG1001	1001						1001						
	YG3010		3010						3010					
	YG3015		3015											
	YG3020		3020											
	YG3030		3030			3030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

<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>First Choice for 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



Product Overview

Turning Grades

YG3020 P15 - P30	 CVD TiCN - Al ₂ O ₃	First Choice Grade for General Steel Application <ul style="list-style-type: none"> • Substrate especially designed for good toughness • Excellent surface smoothness increases wear resistance and reliability
YG3030 P20 - P35 M10 - M30	 CVD TiCN - Al ₂ O ₃	Interrupted Cutting of Steel and Stainless steel <ul style="list-style-type: none"> • Substrate for heavy roughing in mild steel and low carbon alloy steel • New Al₂O₃ technology and optimized surface treatment achieves a good balance between wear resistance and chipping resistance
YG801 P10 - P30	 PVD - TiAlN	for Carbon Steel with Low Cutting Speed <ul style="list-style-type: none"> • Recommended for mild steel and boring application • Substrate and special PVD coating for excellent wear resistance
YG211 M05 - M25	 PVD - TiAlN	High wear Resistance Grade for Stainless steel <ul style="list-style-type: none"> • Finishing Stainless steel
YG213 M20 - M35	 PVD - TiAlN	First Choice Grade on Low Cutting Speed of Stainless steel <ul style="list-style-type: none"> • First choice on Stainless steel for Low cutting speed • For Medium to low cutting speed
YG214 M30 - M40 S25 - S30	 PVD - TiAlN	Heavy Interrupted cut for Stainless steel <ul style="list-style-type: none"> • For Heavy Interrupted cut on Stainless steel • Minimize risk of Mechanical fracture or Chipping
YG401 S10 - S20	 PVD - TiAlSiN	PVD Turning Grade for HRSA <ul style="list-style-type: none"> • Highly heat-resistant TiAlSiN structure for excellent wear resistance • Greatly improved film coating realizes excellent boundary defect resistance • Top coating layer provides a smooth surface and lubricant effect
YG100 N05 - N25	 DLC	First Choice Grade for Aluminum with DLC Coating <ul style="list-style-type: none"> • Submicron carbide for high wear resistance • DLC coating minimizes Built Up Edge tendency. • Improve tool life in sticky non-ferrous alloy
YG10 N05 - N25	 Uncoated	Uncoated Grade for General Aluminum <ul style="list-style-type: none"> • Substrate consisted of submicron carbide for high wear resistance • Shining surface to prevent built up edge

TURNING

PARTING & GROOVING

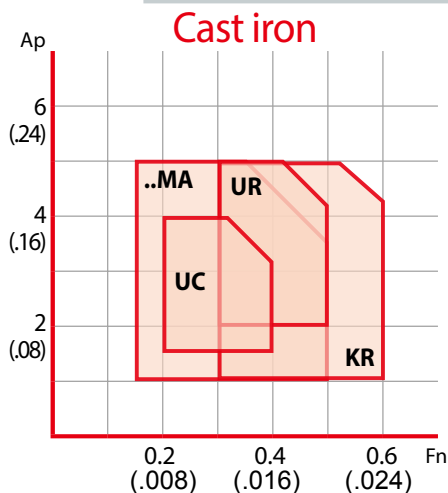
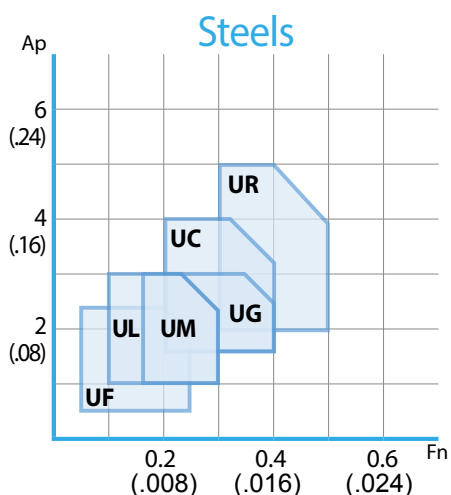
MILLING

DRILLING

TECHNICAL INFORMATION

Turning Chipbreakers - Negative

	P	M	K	N	S		Feed	Fn (mm/rev.)					
								0	0.1	0.2	0.3	0.4	0.5
TURNING	P					UF	Finishing						
	P					UL	Semi Finishing and sticky materials						
	P					UM	For Medium & Unstable conditions						
	P					UG	First Choice for Medium (Stable application)						
	P		K			UC	Medium Roughing and First choice for Cast iron						
	P		K			UR	Roughing and Heavy interrupted cut						
			K			..MA	Cast iron Heavy Roughing						
			K			KR	Cast Iron Heavy Roughing						
								<p>0 1 2 3 4 5 6</p> <p>Depth of Cut Ap (mm)</p>					



Ap: mm Fn: mm/rev.
(inch) (inch/rev.)

Product Overview

Turning Chipbreakers - Negative

P	M	K	N	S	Model	Application	Feed F _n (mm/rev.)						
							0	0.1	0.2	0.3	0.4	0.5	0.6
	M			S	MF	Stainless steel Finishing 18°	Ap 0.2~1.5		Fn 0.07~0.30				
P	M			S	MM	Stainless steel Medium and Low Carbon Steel 19°/12°/0.17	Ap 1.0~3.5		Fn 0.20~0.35				
	M			S	MG	First Choice for Medium for Stainless steel 10°/0.27	Ap 1.0~4.0		Fn 0.20~0.40				
	M			S	MR	Roughing for Stainless steel 8°/0.40	Ap 1.8~5.5		Fn 0.30~0.55				
				S	SF	HRSA Finishing 20°	Ap 0.2~1.0		Fn 0.10~0.25				
				S	SM	HRSA Medium 15°	Ap 0.5~3.0		Fn 0.10~0.25				
				S	SR	Roughing for HRSA 8°/0.40	Ap 1.0~4.5		Fn 0.20~0.35				

Depth of Cut Ap (mm)

TURNING
PARTING & GROOVING
MILLING
DRILLING
TECHNICAL INFORMATION

