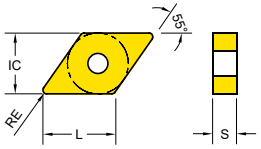
Turning Inserts - Negative

DNMG / DNMA (55° Negative)



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

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

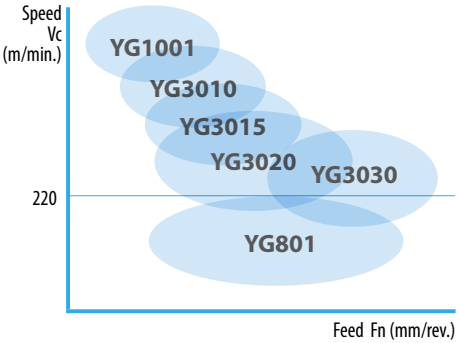
DNMA DNMG		Designation	RE	Fn (mm/rev.)	Ap (mm)	P05 P10 K10 K20 YG1001	P10 K20 YG3010	P15 YG3015	P20 YG3020	P30 M20 YG3030	P20 YG801	M15 S10 YG211	M30 S20 YG213	M40 S30 YG214	N20 YG100	N20 YG10
..MA	Cast iron	DNMA 150408	0.8	0.15 ~ 0.5	1.0 ~ 3.0	● 0573	● 0574									
		DNMA 150412	1.2	0.15 ~ 0.5	1.5 ~ 4.0	● 0575	● 0576									
		DNMA 150608	0.8	0.15 ~ 0.5	1.0 ~ 3.0	● 0091	● 1129									
		DNMA 150612	1.2	0.15 ~ 0.5	1.5 ~ 4.0	● 0092	● 1130									
-UF	Finishing	DNMG 150404 - UF	0.4	0.05 ~ 0.25	0.5 ~ 1.5		● 0363		● 0364	● 0365	● 0016					
		DNMG 150408 -UF	0.8	0.05 ~ 0.25	1.0 ~ 2.5		● 0856	● 1030	● 0774	● 0857						
		DNMG 150604 - UF	0.4	0.05 ~ 0.25	1.0 ~ 2.0		● 0225		● 0226	● 0227	● 0018					
		DNMG 150608 - UF	0.8	0.05 ~ 0.25	1.5 ~ 3.5		● 0231		● 0232	● 0233						
-UL	Light Machining and Sticky Material	DNMG 110404 -UL	0.4	0.1~0.3	0.5 ~ 2.5		● 1239		● 1240	● 1241						
		DNMG 110408 -UL	0.8	0.1~0.3	0.5 ~ 2.5		● 1242		● 1243	● 1244						
		DNMG 150404 - UL	0.4	0.10 ~ 0.3	0.5 ~ 3.0		● 0686		● 0687	● 0708						
		DNMG 150408 - UL	0.8	0.10 ~ 0.3	1.0 ~ 3.0		● 0489	● 1028	● 0504	● 0505						
		DNMG 150412 - UL	1.2	0.10 ~ 0.3	1.5 ~ 3.0		● 0709	● 1029	● 1108	● 1109						
		DNMG 150604 - UL	0.4	0.1 ~ 0.3	0.5 ~ 2.0		● 0369		● 0370	● 1110						
		DNMG 150608 - UL	0.8	0.1 ~ 0.3	1.5 ~ 3.0		● 0237		● 0238	● 0239						
		DNMG 150612 - UL	1.2	0.10 ~ 0.3	1.5 ~ 3.0		● 0246		● 0247	● 0248						

Cutting Speed			Vc (m/min.)																	
ISO	VDI	Sub Group	YG1001 Min	YG1001 Max	YG3010 Min	YG3010 Max	YG3015 Min	YG3015 Max	YG3020 Min	YG3020 Max	YG3030 Min	YG3030 Max	YG801 Min	YG801 Max	YG211 Min	YG211 Max	YG213 Min	YG213 Max	YG214 Min	YG214 Max	YG100 Min	YG100 Max	YG10 Min	YG10 Max
P	1~5	Non-Alloyed Steel	220	480	170	450	170	410	180	380	150	350	120	200	-	-	-	-	-	-	-	-	-	-
	6~9	Low-Alloyed Steel	220	420	180	380	130	360	110	350	90	300	70	200	-	-	-	-	-	-	-	-	-	-
	10~11	High-Alloyed Steel	-	-	100	330	80	310	60	300	70	250	-	-	-	-	-	-	-	-	-	-	-	-
M	12~13	Ferritic & Martensitic	-	-	-	-	-	-	-	-	120	230	-	-	130	230	110	180	80	150	-	-	-	-
	14	Austenitic Stainless Steel	-	-	-	-	-	-	-	-	80	200	-	-	100	200	40	130	30	120	-	-	-	-
K	15~16	Grey Cast Iron	170	420	120	300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	17~18	Nodular Cast Iron	120	410	120	280	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	350	1200	250	800
S	31~37	Superalloys & Titanium	-	-	-	-	-	-	-	-	35	80	-	-	30	90	20	40	20	40	-	-	-	-
H	38~41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

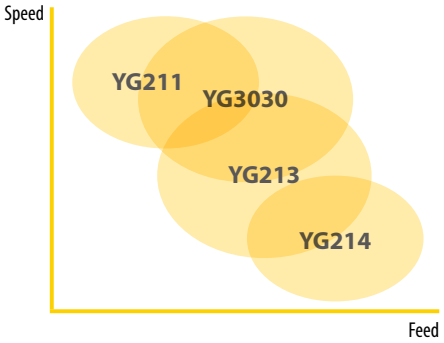
Product Overview

Turning Grades Map

Steels

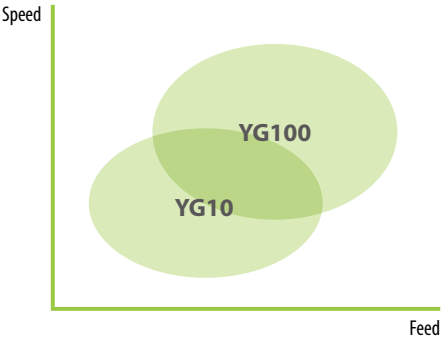


Stainless steels



Cast iron

Non-ferrous Metals

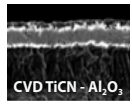


Product Overview

Turning Grades

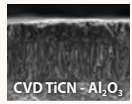
Turning Grades		P Steel				M Stainless steel			K Cast iron			N Non-ferrous		S Superalloys	
		P10	P20	P30	P40	M10	M20	M30	K10	K20	K30	N10	N20	S10	S20
CVD	YG1001	1001							1001						
	YG3010	3010								3010					
	YG3015		3015												
	YG3020		3020				3030								
	YG3030			3030											
PVD	YG801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

YG1001
P01 - P10
K10 - K25



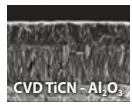
First choice for stable machining of Cast iron
- Substrate especially designed for high wear resistance
- Thick Al_2O_3 layer ensures good wear resistance at high cutting speeds including dry machining

YG3010
P05 - P20
K15 - K35



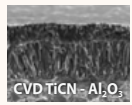
First choice for Finishing Steels, and Ductile Cast iron
- Finishing and light machining of steel under in stable condition
- New Al_2O_3 coating technology and excellent surface smoothness increase wear resistance a nd chipping resistance

NEW
YG3015
P10 - P25



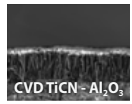
Balanced productivity for Continuous cut
- High wear resistance and improved toughness ensures high productivity with less trouble

YG3020
P15 - P30



First Choice grade for general Steel application
- Substrate especially designed for good toughness
- Excellent surface smoothness increases wear resistance and reliability

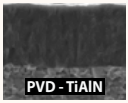
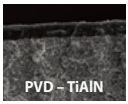
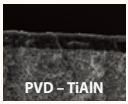
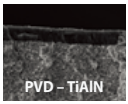
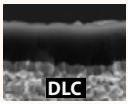
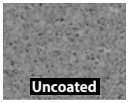
YG3030
P20 - P35
M10 - M30



Interrupted cut of Steel and Stainless steel
- Heavy interrupted cut for Steel
- High cutting speed for Stainless steel

Product Overview

Turning Grades

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

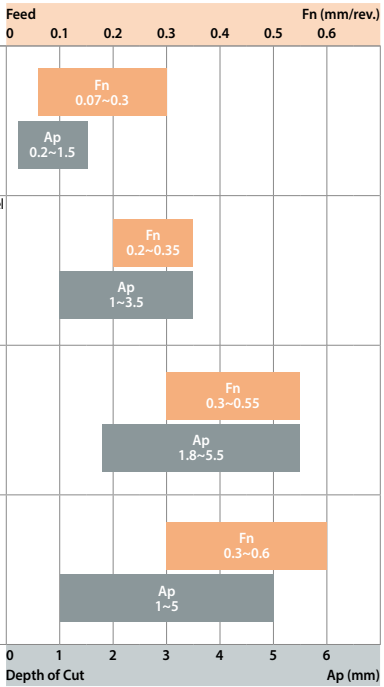
	P	M	K	N	S			Feed 0 0.1 0.2 0.3 0.4 0.5 0.6 Fn (mm/rev.)
P	P					UF	Finishing, 16°	Fn 0.05~0.25, Ap 0.5~2.5
P	P					UL	Semi Finishing and sticky materials, 0.1, 27°, 18°	Fn 0.1~0.3, Ap 1~3
P	P					UM	For Medium & Unstable conditions, 0.13, 16°	Fn 0.15~0.3, Ap 1~3
P	P					UG	First Choice for Medium(Stable application), 0.23, 20°, 6°	Fn 0.2~0.4, Ap 1.5~3
P	P		K			UC	Medium Roughing and First choice for Cast iron, 0.2, 14°	Fn 0.2~0.4, Ap 1.5~4
P	P		K			UR	Roughing and Heavy interrupted cut, 0.35, 17°	Fn 0.3~0.5, Ap 2~5
			K			..MA	Cast iron Heavy Roughing	Fn 0.15~0.5, Ap 1~5

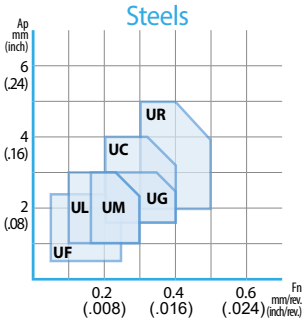
0 1 2 3 4 5 6 Depth of Cut Ap (mm)

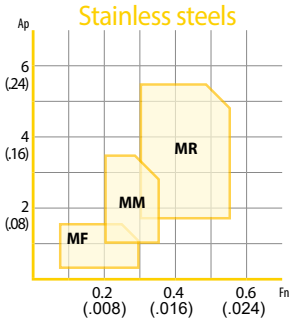
Product Overview

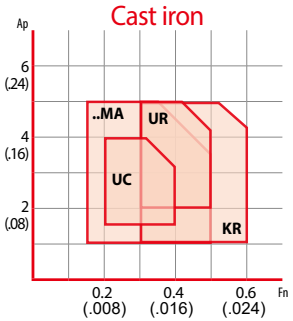
Turning Chipbreakers - Negative

P	M	K	N	S			
	M			S	MF	Stainless steel Finishing	0.14, 18°
P	M			S	MM	Stainless steel Medium and Low Carbon Steel	0.17, 19°, 12°
	M			S	MR	Roughing for Stainless steel	0.40, 8°
		K			KR	Cast Iron Heavy Roughing	0.50, 19°









Insert ISO Code System

*Metric : According to ISO 1832

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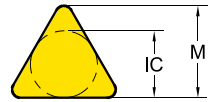
1	2	3	4	5	6	7	8	9
C	N	M	G	12	04	08	-UG	YG3020
Shape	Clearance	Tolerance	Clamping & Chipbreaker	Insert Size	Insert Thickness	Corner Radius	Chipbreaker Geometry	Grade

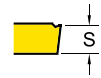
1 - Shape

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	

2 - Relief Angle (AN)

Symbol	Relief Angle (AN)	
N	No Relief Angle	
B	Relief 5°	AN
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

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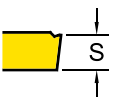
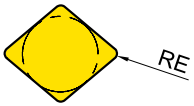
1	2	3	4	5	6	7	8	9
C	**N**	**M**	**G**	**4**	**3**	**2**	**-UG**	**YG3020**
Shape	Clearance	Tolerance	Clamping & Chipbreaker	Insert Size	Insert Thickness	Corner Radius	Chipbreaker Geometry	Grade

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

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

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	
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	

3 — Grade Version

(6) — (Minor Variation)

G — Gold Coated Version