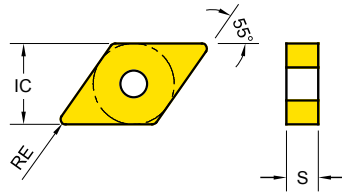






# Turning Inserts - Negative





## DNMG (55° Rhombic)



Series	IC	S
DN** 1104	9.525	4.76
DN** 1504	12.700	4.76
DN** 1506	12.700	6.35

EDP 2200..

● : Stock item ○ : Order made item

DNMG	Designation	RE	Fn (mm/rev.)	Ap (mm)	K10	P05	P10	P15	P10	P20	P30	P20	M25	M15	M30	M40	S10	P15	M15	N20	N20	
					K20	K30	YG3010	YG3015	YG3115	YG3020	YG3030	YG801	YG2025	YG211	YG213	YG214	YG401	YT100	YG100	YG10		
<b>-MF</b>  Stainless steel Finishing	DNMG 150404 - MF	0.4	0.07 ~ 0.30	0.2 ~ 1.5												●	○					
	DNMG 150408 - MF	0.8	0.07 ~ 0.30	0.2 ~ 1.5							○					●	●	●	○			
	DNMG 150604 - MF	0.4	0.07 ~ 0.30	0.2 ~ 1.5												●	●	●	○			
	DNMG 150608 - MF	0.8	0.07 ~ 0.30	0.2 ~ 1.5							○	○				●	●	●	○			
<b>-MM</b>  Stainless steel Medium	DNMG 150404 - MM	0.4	0.20 ~ 0.35	0.5 ~ 3.5								○				●	●	●	○			
	DNMG 150408 - MM	0.8	0.20 ~ 0.35	1.0 ~ 3.5							○					●	●	●	○			
	DNMG 150412 - MM	1.2	0.20 ~ 0.35	1.5 ~ 3.5							○					●	●	●	○			
	DNMG 150604 - MM	0.4	0.20 ~ 0.35	0.5 ~ 3.5							○					●	●	●	○			
	DNMG 150608 - MM	0.8	0.20 ~ 0.35	1.0 ~ 3.5							○					●	●	●	○			
	DNMG 150612 - MM	1.2	0.20 ~ 0.35	1.5 ~ 3.5							○					●	●	●	○			
<b>-MG</b>  Stainless steel General	DNMG 150404 - MG	0.4	0.20 ~ 0.40	0.5 ~ 4.0												●						
	DNMG 150408 - MG	0.8	0.20 ~ 0.40	1.0 ~ 4.0												●	●	●	●			
	DNMG 150412 - MG	1.2	0.20 ~ 0.40	1.5 ~ 4.0												●						
	DNMG 150604 - MG	0.4	0.20 ~ 0.40	0.5 ~ 4.0												●						
	DNMG 150608 - MG	0.8	0.20 ~ 0.40	1.0 ~ 4.0												●	●	●	●			
	DNMG 150612 - MG	1.2	0.20 ~ 0.40	1.5 ~ 4.0												●						
<b>-MR</b>  Stainless steel Roughing	DNMG 150408 - MR	0.8	0.30 ~ 0.55	2.0 ~ 5.5							○					●	●	●				
	DNMG 150412 - MR	1.2	0.30 ~ 0.55	2.0 ~ 5.5												●	●	●				
	DNMG 150608 - MR	0.8	0.30 ~ 0.55	2.0 ~ 5.5							○					●	●	●				
	DNMG 150612 - MR	1.2	0.30 ~ 0.55	2.0 ~ 5.5												●	●	●				

TURNING

PARTING & GROOVING

MILLING

DRILLING

TECHNICAL INFORMATION

## Turning Inserts - Negative

### DNGG / DNMG (55° Rhombic)

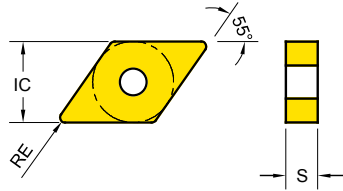
TURNING

PARTING & GROOVING

MILLING

DRILLING





TECHNICAL INFORMATION



Series	IC	S
DN** 1104	9.525	4.76
DN** 1504	12.700	4.76
DN** 1506	12.700	6.35

EDP 2200..

● : Stock item ○ : Order made item

DNGG DNMG	Designation	RE	Fn (mm/rev.)	Ap (mm)	K10	P05	P10	P15	P10	P20	P30	P20	M25	M15	M30	M40	S10	P15	M15	N20	N20
					K20	K30	YG1001	YG3010	YG3015	YG3115	YG3020	YG3030	YG801	YG2025	YG211	YG213	YG214	YG401	YT100	YG100	YG10
-SF  HRSA Finishing	DNGG 150404 - SF	0.4	0.10~0.30	0.2~3.0														●			
	DNGG 150408 - SF	0.8	0.10~0.30	0.5~3.0														●			
	DNGG 150604 - SF	0.4	0.10~0.30	0.2~3.0														●			
	DNGG 150608 - SF	0.8	0.10~0.30	0.5~3.0														●			
-SM  HRSA Medium	DNMG 150408 - SM	0.8	0.10~0.25	0.5~4.0										○	○	○	●				
	DNMG 150412 - SM	1.2	0.10~0.25	0.5~4.0										○	○	○	●				
	DNMG 150608 - SM	0.8	0.10~0.25	0.5~4.0										○	○	○	●				
	DNMG 150612 - SM	1.2	0.10~0.25	0.5~4.0										○	○	○	●				
-SR  HRSA Roughing	DNMG 150408 - SR	0.8	0.10~0.40	0.5~4.0														●			
	DNMG 150412 - SR	1.2	0.10~0.40	0.5~4.0														●			
	DNMG 150608 - SR	0.8	0.10~0.40	0.5~4.0														●			
	DNMG 150612 - SR	1.2	0.10~0.40	0.5~4.0														●			
-PSF  Cermet Finishing	DNMG 150404 - PSF	0.4	0.07~0.30	0.4~3.0														●			
	DNMG 150408 - PSF	0.8	0.10~0.30	0.6~3.0														●			

# Insert ISO Code System

\*Metric : According to ISO 1832

page 14

page 12

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

TURNING

PARTING & GROOVING

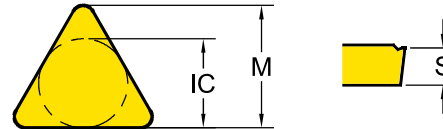
MILLING

DRILLING

TECHNICAL INFORMATION

## 1 - Shape

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



## 3 - Tolerance Class

Symbol	Inner Circle IC (mm)	Nose Height M (mm)	Thickness S (mm)
<b>C</b>	± 0.025	± 0.013	± 0.025
<b>E</b>	± 0.025	± 0.025	± 0.025
<b>G</b>	± 0.025	± 0.025	± 0.13
<b>H</b>	± 0.013	± 0.013	± 0.025
<b>K*</b>	± 0.05~0.15*	± 0.013	± 0.025
<b>M*</b>	± 0.05~0.15*	± 0.08~0.2*	± 0.13
<b>U*</b>	± 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)	
<b>N</b>	No Relief Angle	
<b>B</b>	Relief 5°	
<b>C</b>	Relief 7°	
<b>P</b>	Relief 11°	
<b>D</b>	Relief 15°	
<b>E</b>	Relief 20°	
<b>F</b>	Relief 25°	
<b>O</b>	Special	

## 4 - Clamping & Chipbreaker

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

# Insert ISO Code System

\*Inch

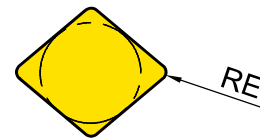
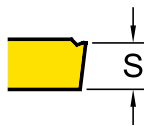
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>
<b>C</b>	<b>N</b>	<b>M</b>	<b>G</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>-UG</b>	<b>YG3115</b>
Shape	Clearance	Tolerance	Clamping & Chipbreaker	Insert Size	Insert Thickness	Corner Radius	Chipbreaker Geometry	Grade

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## 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
<b>T1</b>	1.98	<b>1.2</b>
<b>02</b>	2.38	<b>1.5</b>
<b>03</b>	3.18	<b>2</b>
<b>T3</b>	3.97	<b>2.5</b>
<b>04</b>	4.76	<b>3</b>
<b>05</b>	5.56	<b>3.5</b>
<b>06</b>	6.35	<b>4</b>
<b>07</b>	7.94	<b>5</b>
<b>09</b>	9.525	<b>6</b>

## 7 - Corner Radius (RE)

Metric	Corner Radius - RE (mm)	Inch
<b>01</b>	0.1	<b>03</b>
<b>02</b>	0.2	<b>05</b>
<b>04</b>	0.4	<b>1</b>
<b>08</b>	0.8	<b>2</b>
<b>12</b>	1.2	<b>3</b>
<b>16</b>	1.6	<b>4</b>
<b>20</b>	2.0	<b>5</b>
<b>24</b>	2.4	<b>6</b>

# Grade Naming System

TURNING	1	2	3	4	5	(6)
	<b>YG</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>5</b>	<b>(G)</b>
	YG Brand	Workpiece Material	Grade Version	Application Range (1st Digit)	Application Range (2nd Digit)	Minor Variation
	Carbide CVD (4 Digits)	●	●	●	●	<b>YG3115</b>
PARTING & GROOVING	Carbide PVD (3 Digits)	●	●	●		<b>YG211</b>
	Carbide Uncoated (2 Digits)	●	●			<b>YG10</b>

## 1 - YG Brand

## 2 - Workpiece Material

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

## 3 - Grade Version

## 4 & 5 - Application Range

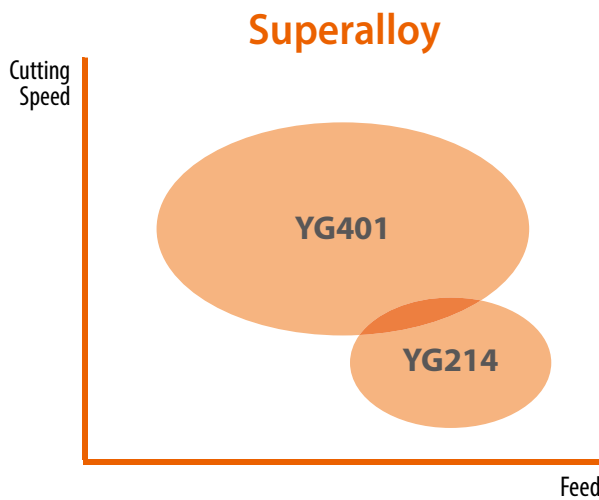
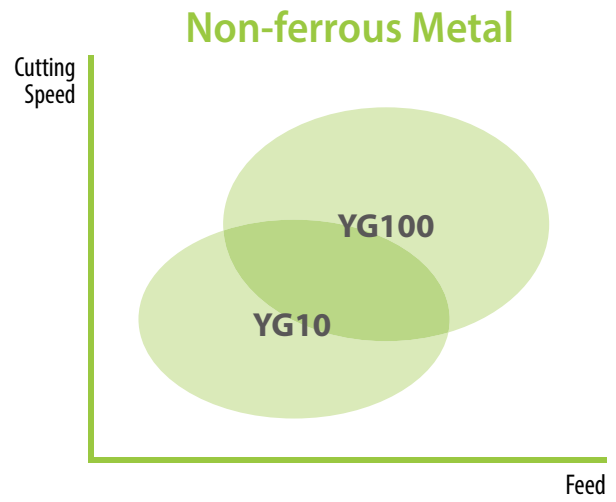
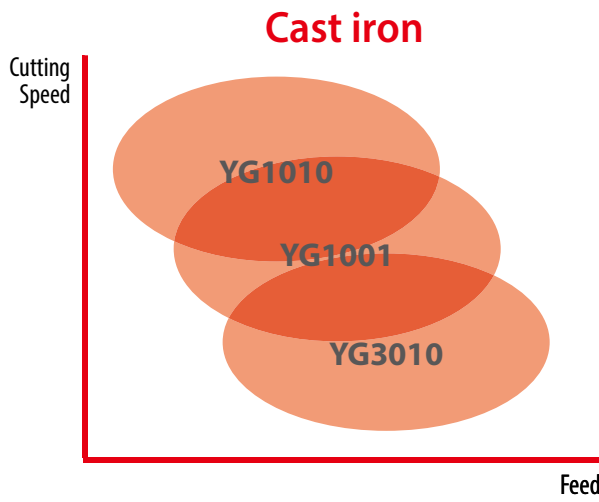
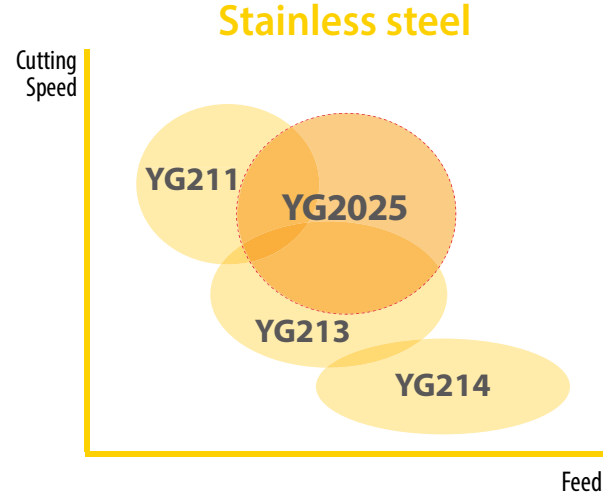
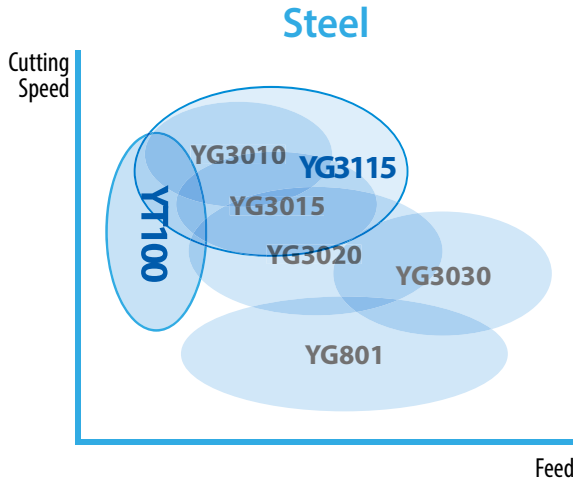
Symbol	Application Range
<b>05</b>	<p>Wear Resistant Grade Stable Application Continuous Cut Finishing</p>
<b>10</b>	
<b>15</b>	
<b>20</b>	<p>Balanced Grade High Versatility General Application</p>
<b>25</b>	
<b>30</b>	
<b>35</b>	<p>Tougher Grade Unstable Application Interrupted Cut Chipping Resistance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

## (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	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
DRILLING	Cermet	YT100	YT100			YT100			YT100						
	DLC	YG100										100			
	-	YG10										10			

TECHNICAL INFORMATION	YG1010	
	<b>K05 - K15</b>	<p>CVD TiCN - Al<sub>2</sub>O<sub>3</sub></p>
		<p><b>First Choice for Cast Iron</b></p> <ul style="list-style-type: none"> <li>Effective coating structure enables high speed machining</li> <li>Special post treatment for improved chipping resistance</li> </ul>
	YG1001	
	<b>P01 - P10</b> <b>K10 - K25</b>	<p>CVD TiCN - Al<sub>2</sub>O<sub>3</sub></p>
		<p><b>Stable Machining of Cast Iron</b></p> <ul style="list-style-type: none"> <li>Substrate especially designed for high wear resistance</li> <li>Thick Al<sub>2</sub>O<sub>3</sub> layer ensures good wear resistance at high cutting speeds including dry machining</li> </ul>
YG3010		
<b>P05 - P20</b> <b>K15 - K35</b>	<p>CVD TiCN - Al<sub>2</sub>O<sub>3</sub></p>	
	<p><b>First choice for Finishing Steels, and Ductile Cast iron</b></p> <ul style="list-style-type: none"> <li>Finishing and light machining of steel under in stable condition</li> <li>New Al<sub>2</sub>O<sub>3</sub> coating technology and excellent surface smoothness increase wear resistance and chipping resistance</li> </ul>	
YG3015		
<b>P10 - P25</b>	<p>CVD TiCN - Al<sub>2</sub>O<sub>3</sub></p>	
	<p><b>Balanced Productivity for Continuous cut</b></p> <ul style="list-style-type: none"> <li>High wear resistance and improved toughness ensures high productivity with less trouble</li> </ul>	
NEW YG3115		
<b>P15 - P25</b>	<p>CVD MT-TiCN - Al<sub>2</sub>O<sub>3</sub></p>	
	<p><b>First choice grade for high cutting speed in Steels</b></p> <ul style="list-style-type: none"> <li>Suitable for mass production due to stable and predictable tool life</li> <li>Minimizing built up edge due to new post surface treatment in mild steels, low carbon steel and low carbon alloy steel.</li> <li>Best choice for both continuous as well as interrupted cuts</li> </ul>	

# Turning Grades

<b>YG3020</b> P15 - P30		<b>First Choice Grade for General Steel Application</b> <ul style="list-style-type: none"> <li>• Substrate especially designed for good toughness</li> <li>• Excellent surface smoothness increases wear resistance and reliability</li> </ul>
<b>YG3030</b> P20 - P35		<b>Interrupted Cutting of Steel and Stainless steel</b> <ul style="list-style-type: none"> <li>• Substrate for heavy roughing in mild steel and low carbon alloy steel</li> <li>• New Al<sub>2</sub>O<sub>3</sub> technology and optimized surface treatment achieves a good balance between wear resistance and chipping resistance</li> </ul>
<b>YG801</b> P10 - P30		<b>for Carbon Steel with Low Cutting Speed</b> <ul style="list-style-type: none"> <li>• Recommended for mild steel and boring application</li> <li>• Substrate and special PVD coating for excellent wear resistance</li> </ul>
<b>NEW</b> <b>YG2025</b> M15 - M35		<b>CVD grade for High Cutting Speed for Stainless steel</b> <ul style="list-style-type: none"> <li>• Utilizing a new carbide substrate and new coating</li> <li>• Excellent combination of wear resistance and chipping resistance</li> <li>• Minimized built up edge due to post surface treatment</li> </ul>
<b>YG211</b> M05 - M25		<b>High wear Resistance Grade for Stainless steel</b> <ul style="list-style-type: none"> <li>• Finishing Stainless steel</li> </ul>
<b>YG213</b> M20 - M35		<b>First Choice Grade on Low Cutting Speed of Stainless steel</b> <ul style="list-style-type: none"> <li>• First choice on Stainless steel for Low cutting speed</li> <li>• For Medium to low cutting speed</li> </ul>
<b>YG214</b> M30 - M40 S25 - S30		<b>Heavy Interrupted cut for Stainless steel</b> <ul style="list-style-type: none"> <li>• For Heavy Interrupted cut on Stainless steel</li> <li>• Minimize risk of Mechanical fracture or Chipping</li> </ul>
<b>YG401</b> S10 - S20		<b>PVD Turning Grade for HRSA</b> <ul style="list-style-type: none"> <li>• Highly heat-resistant TiAlSiN structure for excellent wear resistance</li> <li>• Greatly improved film coating realizes excellent boundary defect resistance</li> <li>• Top coating layer provides a smooth surface and lubricant effect</li> </ul>
<b>NEW</b> <b>YT100</b> P10 - P20 M10 - M20 K10 - K20		<b>New Generation Cermet Grade</b> <ul style="list-style-type: none"> <li>• Enhanced wear resistance &amp; chipping resistance</li> <li>• Excellent fracture resistance</li> <li>• Superior surface finish with special edge preparation</li> </ul>
<b>YG100</b> N05 - N25		<b>First Choice Grade for Aluminum with DLC Coating</b> <ul style="list-style-type: none"> <li>• Submicron carbide for high wear resistance</li> <li>• DLC coating minimizes Built Up Edge tendency.</li> <li>• Improve tool life in sticky non-ferrous alloy</li> </ul>
<b>YG10</b> N05 - N25		<b>Uncoated Grade for General Aluminum</b> <ul style="list-style-type: none"> <li>• Substrate consisted of submicron carbide for high wear resistance</li> <li>• Shining surface to prevent built up edge</li> </ul>

TURNING

PARTING &amp; GROOVING

MILLING

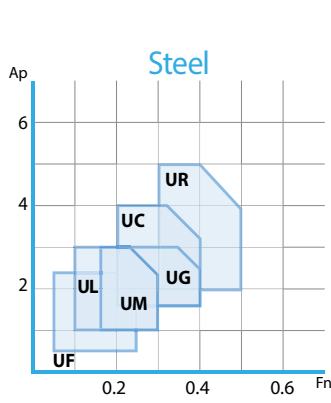
DRILLING

TECHNICAL INFORMATION

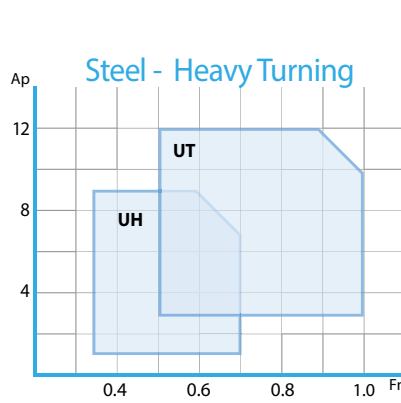
## Turning Chipbreakers - Negative

	Material					Feed	Fn (mm/rev.)								
	P	M	K	N	S		0	0.1	0.2	0.3	0.4	0.5	0.6		
TURNING	P					UF	Finishing			Fn: 0.05~0.25 Ap: 0.5~2.5					
	PARTING & GROOVING	P				UL	Semi Finishing and sticky materials			Fn: 0.1~0.3 Ap: 1.0~3.0					
		P				UM	Medium & Unstable conditions			Fn: 0.15~0.3 Ap: 1.0~3.0					
		P				UG	First Choice for Medium (Stable conditions)			Fn: 0.2~0.4 Ap: 1.5~3.0					
MILLING	P					<b>NEW</b> PWM	Wiper-Medium			Fn: 0.1~0.5 Ap: 0.5~3.5					
	DRILLING	P					<b>NEW</b> UH	Low cutting force			Fn: 0.35~0.7 Ap: 1.0~9.0				
P						<b>NEW</b> UT	Heavy roughing			Fn: 0.5~1.0 Ap: 3.0~12.0					
P			K			UC	Medium Roughing and First choice for Cast iron			Fn: 0.2~0.4 Ap: 1.5~4.0					
P			K			UR	Roughing and Heavy interrupted cut			Fn: 0.3~0.5 Ap: 2.0~5.0					
TECHNICAL INFORMATION			K			..MA	Cast iron Heavy Roughing			Fn: 0.15~0.50 Ap: 1.0~5.0					

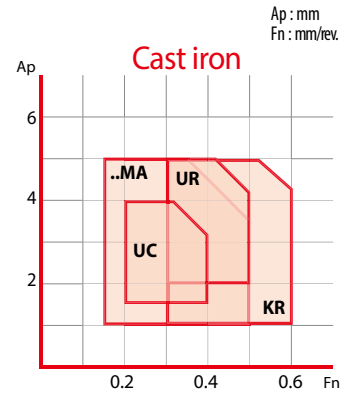
Depth of Cut Ap (mm)



\*Insert : CNMG120408



\*Insert : CNMM190624

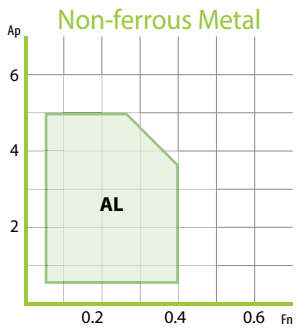
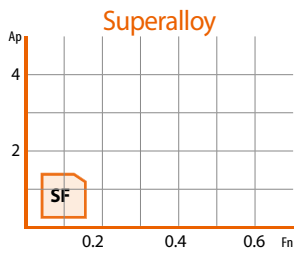
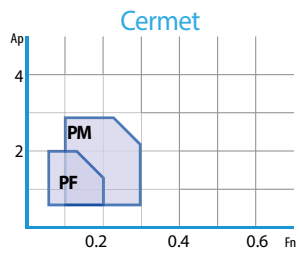
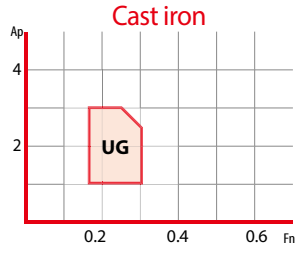
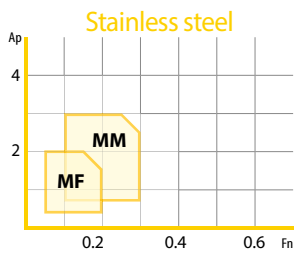
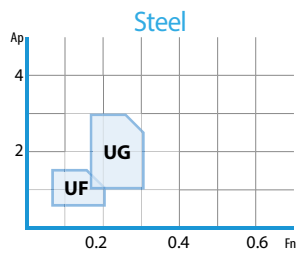


\*Insert : CNMG120408



## Turning Chipbreakers - Positive

	Material					Application	Diagram	Feed						Fn (mm/rev.)
	P	M	K	N	S			0	0.1	0.2	0.3	0.4	0.5	
TURNING				N		AL	Aluminum application		Fn 0.05~0.40		Ap 0.5~5.0			
	P	M				UF	Finishing application		Fn 0.05~0.20		Ap 0.5~1.5			
	P		K			UG	Medium application		Fn 0.15~0.30		Ap 1.0~3.0			
PARTING & GROOVING						<b>NEW</b> MF	Stainless steel Finishing		Fn 0.05~0.20		Ap 0.5~2.0			
						<b>NEW</b> MM	Stainless steel Medium		Fn 0.10~0.30		Ap 0.5~3.0			
						<b>NEW</b> SF	HRSA Finishing		Fn 0.02~0.15		Ap 0.1~1.5			
MILLING	P	M	K			<b>NEW</b> PF	Cermet Finishing		Fn 0.05~0.20		Ap 0.5~2.0			
	P	M	K			<b>NEW</b> PM	Cermet Medium		Fn 0.10~0.30		Ap 0.5~3.0			
DRILLING														
TECHNICAL INFORMATION														



\*Insert : CCMT09T308